

# C U T T I N G

- 01** PAGE 001  
**STRAIGHT SHANK  
TWIST DRILLS**
- 02** PAGE 052  
**TAPER SHANK DRILLS AND  
REDUCED SHANK DRILLS**
- 03** PAGE 079  
**STEP DRILLS AND  
CONICAL DRILLS**
- 04** PAGE 087  
**CORE DRILLS**
- 05** PAGE 097  
**ROTARY BURRS**
- 06** PAGE 114  
**COUNTERSINKS**
- 07** PAGE 124  
**THREAD CUTTING  
AND REPAIRING**
- 08** PAGE 196  
**END MILLS**
- 09** PAGE 231  
**MILLING CUTTERS**
- 10** PAGE 249  
**REAMERS**
- 11** PAGE 270  
**TURNING TOOLS**
- 12** PAGE 290  
**BROACHES AND  
GEAR CUTTERS**



## STRAIGHT SHANK TWIST DRILLS

# 01

METAL CUTTING

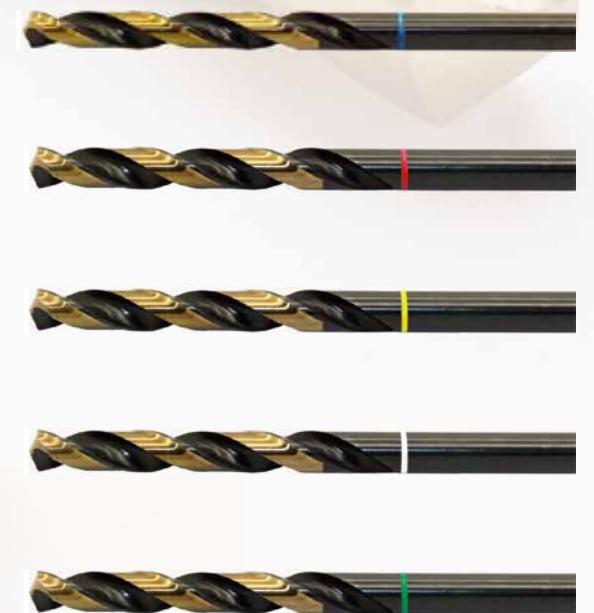
## COLOR CODED HIGH PERFORMANCE DRILLS

Color coded drills is specially designed to optimize your machining performances. The need for greater productivity from expensive high-performance machine tools and the demand for the cutting tools to perform at optimum efficiency to minimize machine down-time, together with the demands for improved quality of machined components can be met with this range of Color ring cutting tools.

It consists of five Color application ranges. Each range has been designed with different cutting geometries and surface treatments to ensure optimum tool performance for each specific material category. Each range of materials group has its own cutting tools.

### APPLICATION:

- Stainless Steel – Blue Coded
- Tough Treatable Steel – Red Coded
- Aluminium – Yellow Coded
- Cast Iron – White Coded
- Carbon Steel – Green Coded



## HSS STRAIGHT SHANK TWIST DRILLS ROLL FORGED



High-performance rolled, steam-treated drill made from heavy-duty HSS. The manufacturing procedure solidifies the material making it more elasticated. This makes it more resistance to fracture and suitable for robust drilling workpiece. General purpose, 118° point for quick penetration

### METRIC SIZES, DIN 338

DIAMETER h8(mm)	FLUTE LENGTH	OVERALL LENGTH	BLACK OXIDE	BRIGHT FINISH	TIN-COATED
			HSS	HSS	HSS
1.00	12	34	11-008-BR025	11-008-WR025	11-008-GR025
1.50	18	40	11-008-BR035	11-008-WR035	11-008-GR035
2.00	24	49	11-008-BR045	11-008-WR045	11-008-GR045
2.50	30	57	11-008-BR055	11-008-WR055	11-008-GR055
3.00	33	61	11-008-BR065	11-008-WR065	11-008-GR065
3.20	36	65	11-008-BR067	11-008-WR067	11-008-GR067
3.30	36	65	11-008-BR068	11-008-WR068	11-008-GR068
3.50	39	70	11-008-BR070	11-008-WR070	11-008-GR070
4.00	43	75	11-008-BR075	11-008-WR075	11-008-GR075
4.20	43	75	11-008-BR077	11-008-WR077	11-008-GR077
4.50	47	80	11-008-BR080	11-008-WR080	11-008-GR080
4.80	52	86	11-008-BR083	11-008-WR083	11-008-GR083
5.00	52	86	11-008-BR085	11-008-WR085	11-008-GR085
5.50	57	93	11-008-BR090	11-008-WR090	11-008-GR090
6.00	57	93	11-008-BR095	11-008-WR095	11-008-GR095
6.50	63	101	11-008-BR100	11-008-WR100	11-008-GR100
6.80	69	109	11-008-BR103	11-008-WR103	11-008-GR103
7.00	69	109	11-008-BR105	11-008-WR105	11-008-GR105
7.50	69	109	11-008-BR110	11-008-WR110	11-008-GR110
8.00	75	117	11-008-BR115	11-008-WR115	11-008-GR115
8.50	75	117	11-008-BR120	11-008-WR120	11-008-GR120
9.00	81	125	11-008-BR125	11-008-WR125	11-008-GR125
9.50	81	125	11-008-BR130	11-008-WR130	11-008-GR130
10.00	87	133	11-008-BR135	11-008-WR135	11-008-GR135
10.20	87	133	11-008-BR137	11-008-WR137	11-008-GR137
10.50	87	133	11-008-BR140	11-008-WR140	11-008-GR140
11.00	94	142	11-008-BR145	11-008-WR145	11-008-GR145
11.50	94	142	11-008-BR150	11-008-WR150	11-008-GR150
12.00	101	151	11-008-BR155	11-008-WR155	11-008-GR155
12.50	101	151	11-008-BR160	11-008-WR160	11-008-GR160
13.00	101	151	11-008-BR165	11-008-WR165	11-008-GR165

## HSS STRAIGHT SHANK TWIST DRILLS FULLY GROUND



Better chip ejection in low carbon, non-ferrous materials . They have good centering properties and requires little pressure. Heavy duty, d ≥ 3mm, 135° split point

### METRIC SIZES, DIN 338

DIAMETER h8	FLUTE LENGTH	OVERALL LENGTH	BLACK OXIDE	BRIGHT FINISH	TIN-COATED	GOLD COATED	
			HSS	HSS	HSS	HSSCO5	HSSCO8
1.00	12	34	11-008-BF025	11-008-WF025	11-008-GF025	11-008-LC025	11-008-HC025
1.50	18	40	11-008-BF035	11-008-WF035	11-008-GF035	11-008-LC035	11-008-HC035
2.00	24	49	11-008-BF045	11-008-WF045	11-008-GF045	11-008-LC045	11-008-HC045
2.50	30	57	11-008-BF055	11-008-WF055	11-008-GF055	11-008-LC055	11-008-HC055
3.00	33	61	11-008-BF065	11-008-WF065	11-008-GF065	11-008-LC065	11-008-HC065
3.20	36	65	11-008-BF067	11-008-WF067	11-008-GF067	11-008-LC067	11-008-HC067
3.30	36	65	11-008-BF068	11-008-WF068	11-008-GF068	11-008-LC068	11-008-HC068
3.50	39	70	11-008-BF070	11-008-WF070	11-008-GF070	11-008-LC070	11-008-HC070
4.00	43	75	11-008-BF075	11-008-WF075	11-008-GF075	11-008-LC075	11-008-HC075
4.20	43	75	11-008-BF077	11-008-WF077	11-008-GF077	11-008-LC077	11-008-HC077
4.50	47	80	11-008-BF080	11-008-WF080	11-008-GF080	11-008-LC080	11-008-HC080
4.80	52	86	11-008-BF083	11-008-WF083	11-008-GF083	11-008-LC083	11-008-HC083
5.00	52	86	11-008-BF085	11-008-WF085	11-008-GF085	11-008-LC085	11-008-HC085
5.50	57	93	11-008-BF090	11-008-WF090	11-008-GF090	11-008-LC090	11-008-HC090
6.00	57	93	11-008-BF095	11-008-WF095	11-008-GF095	11-008-LC095	11-008-HC095
6.50	63	101	11-008-BF100	11-008-WF100	11-008-GF100	11-008-LC100	11-008-HC100
6.80	69	109	11-008-BF103	11-008-WF103	11-008-GF103	11-008-LC103	11-008-HC103
7.00	69	109	11-008-BF105	11-008-WF105	11-008-GF105	11-008-LC105	11-008-HC105
7.50	69	109	11-008-BF110	11-008-WF110	11-008-GF110	11-008-LC110	11-008-HC110
8.00	75	117	11-008-BF115	11-008-WF115	11-008-GF115	11-008-LC115	11-008-HC115
8.50	75	117	11-008-BF120	11-008-WF120	11-008-GF120	11-008-LC120	11-008-HC120
9.00	81	125	11-008-BF125	11-008-WF125	11-008-GF125	11-008-LC125	11-008-HC125
9.50	81	125	11-008-BF130	11-008-WF130	11-008-GF130	11-008-LC130	11-008-HC130
10.00	87	133	11-008-BF135	11-008-WF135	11-008-GF135	11-008-LC135	11-008-HC135
10.20	87	133	11-008-BF137	11-008-WF137	11-008-GF137	11-008-LC137	11-008-HC137
10.50	87	133	11-008-BF140	11-008-WF140	11-008-GF140	11-008-LC140	11-008-HC140
11.00	94	142	11-008-BF145	11-008-WF145	11-008-GF145	11-008-LC145	11-008-HC145
11.50	94	142	11-008-BF150	11-008-WF150	11-008-GF150	11-008-LC150	11-008-HC150
12.00	101	151	11-008-BF155	11-008-WF155	11-008-GF155	11-008-LC155	11-008-HC155
12.50	101	151	11-008-BF160	11-008-WF160	11-008-GF160	11-008-LC160	11-008-HC160
13.00	101	151	11-008-BF165	11-008-WF165	11-008-GF165	11-008-LC165	11-008-HC165

## HSS LEFT HAND TWIST DRILLS



Can be used as screw extractor for drill out broken studs or fasteners

### METRIC SIZES, DIN 338

DIAMETER h8	FLUTE LENGTH	OVERALL LENGTH	BRIGHT FINISH		GOLD COATED		DIAMETER h8	FLUTE LENGTH	OVERALL LENGTH	BRIGHT FINISH		GOLD COATED	
			HSS	HSSCO5	HSS	HSSCO5				HSS	HSSCO5		
1.00	12	34	11-012-WF021	11-012-LC021	6.80	69	109	11-012-WF099	11-012-LC099				
1.50	18	40	11-012-WF031	11-012-LC031	7.00	69	109	11-012-WF101	11-012-LC101				
2.00	24	49	11-012-WF041	11-012-LC041	7.50	69	109	11-012-WF106	11-012-LC106				
2.50	30	57	11-012-WF051	11-012-LC051	8.00	75	117	11-012-WF111	11-012-LC111				
3.00	33	61	11-012-WF061	11-012-LC061	8.50	75	117	11-012-WF116	11-012-LC116				
3.20	36	65	11-012-WF063	11-012-LC063	9.00	81	125	11-012-WF121	11-012-LC121				
3.30	36	65	11-012-WF064	11-012-LC064	9.50	81	125	11-012-WF126	11-012-LC126				
3.50	39	70	11-012-WF066	11-012-LC066	10.00	87	133	11-012-WF131	11-012-LC131				
4.00	43	75	11-012-WF071	11-012-LC071	10.20	87	133	11-012-WF133	11-012-LC133				
4.20	43	75	11-012-WF073	11-012-LC073	10.50	87	133	11-012-WF136	11-012-LC136				
4.50	47	80	11-012-WF076	11-012-LC076	11.00	94	142	11-012-WF141	11-012-LC141				
4.80	52	86	11-012-WF079	11-012-LC079	11.50	94	142	11-012-WF146	11-012-LC146				
5.00	52	86	11-012-WF081	11-012-LC081	12.00	101	151	11-012-WF151	11-012-LC151				
5.50	57	93	11-012-WF086	11-012-LC086	12.50	101	151	11-012-WF156	11-012-LC156				
6.00	57	93	11-012-WF091	11-012-LC091	13.00	101	151	11-012-WF161	11-012-LC161				
6.50	63	101	11-012-WF096	11-012-LC096									

## HSS LEFT HAND DRILLS SET

SIZE	SPECIFICATION	HSS	HSSCO5
19PC/SET	1.0-10x0,5mm	11-012-S01	11-012-S02
25PC/SET	1.0-13x0,5mm	11-012-S03	11-012-S04



## HSS PARABOLIC FLUTE TWIST DRILLS



Stable multirange drill with reinforced drill core and parabolic flute for ideal chip removal. Ideal for drilling medium and long chipping materials.

### METRIC SIZES, DIN 338

DIAMETER h8	FLUTE LENGTH	OVERALL LENGTH	BRIGHT FINISH		GOLD COATED		DIAMETER h8	FLUTE LENGTH	OVERALL LENGTH	BRIGHT FINISH		GOLD COATED	
			HSS	HSSCO5	HSS	HSSCO5				HSS	HSSCO5		
1.00	12	34	11-013-WF001	11-013-LC001	6.80	69	109	11-013-WF079	11-013-LC079				
1.50	18	40	11-013-WF011	11-013-LC011	7.00	69	109	11-013-WF081	11-013-LC081				
2.00	24	49	11-013-WF021	11-013-LC021	7.50	69	109	11-013-WF086	11-013-LC086				
2.50	30	57	11-013-WF031	11-013-LC031	8.00	75	117	11-013-WF091	11-013-LC091				
3.00	33	61	11-013-WF041	11-013-LC041	8.50	75	117	11-013-WF096	11-013-LC096				
3.20	36	65	11-013-WF043	11-013-LC043	9.00	81	125	11-013-WF101	11-013-LC101				
3.30	36	65	11-013-WF044	11-013-LC044	9.50	81	125	11-013-WF106	11-013-LC106				
3.50	39	70	11-013-WF046	11-013-LC046	10.00	87	133	11-013-WF111	11-013-LC111				
4.00	43	75	11-013-WF051	11-013-LC051	10.20	87	133	11-013-WF113	11-013-LC113				
4.20	43	75	11-013-WF053	11-013-LC053	10.50	87	133	11-013-WF116	11-013-LC116				
4.50	47	80	11-013-WF056	11-013-LC056	11.00	94	142	11-013-WF121	11-013-LC121				
4.80	52	86	11-013-WF059	11-013-LC059	11.50	94	142	11-013-WF126	11-013-LC126				
5.00	52	86	11-013-WF061	11-013-LC061	12.00	101	151	11-013-WF131	11-013-LC131				
5.50	57	93	11-013-WF066	11-013-LC066	12.50	101	151	11-013-WF136	11-013-LC136				
6.00	57	93	11-013-WF071	11-013-LC071	13.00	101	151	11-013-WF141	11-013-LC141				
6.50	63	101	11-013-WF076	11-013-LC076									

## HSS PARABOLIC FLUTE TWIST DRILLS SET

SIZE	SPECIFICATION	HSS	HSS-TIN	HSSCO5
19 PCS/SET	1.0-10x0,5mm	11-013-S02	11-013-S01	11-013-S05
25 PCS/SET	1.0-13x0,5mm	11-013-S04	11-013-S03	11-013-S06



## HSS LONG SERIES TWIST DRILLS



The fully ground drill has a precise concentricity.

METRIC SIZES DIN 340

DIAMETER h8	FLUTE LENGTH	OVERALL LENGTH	ROLLED	GROUND	DIAMETER h8	FLUTE LENGTH	OVERALL LENGTH	ROLLED	GROUND
			BLACK OXIDE HSS	BRIGHT FINISH HSS				BLACK OXIDE HSS	BRIGHT FINISH HSS
1.00	33	56	11-14A-BR001	11-14A-WF001	6.80	102	156	11-14A-BR059	11-14A-WF059
1.50	45	70	11-14A-BR006	11-14A-WF006	7.00	102	156	11-14A-BR061	11-14A-WF061
2.00	56	85	11-14A-BR011	11-14A-WF011	7.50	102	156	11-14A-BR066	11-14A-WF066
2.50	62	95	11-14A-BR016	11-14A-WF016	8.00	109	165	11-14A-BR071	11-14A-WF071
3.00	66	100	11-14A-BR021	11-14A-WF021	8.50	109	165	11-14A-BR076	11-14A-WF076
3.20	69	106	11-14A-BR023	11-14A-WF023	9.00	115	175	11-14A-BR081	11-14A-WF081
3.30	69	106	11-14A-BR024	11-14A-WF024	9.50	115	175	11-14A-BR086	11-14A-WF086
3.50	73	112	11-14A-BR026	11-14A-WF026	10.00	121	184	11-14A-BR091	11-14A-WF091
4.00	78	119	11-14A-BR031	11-14A-WF031	10.20	121	184	11-14A-BR093	11-14A-WF093
4.20	78	119	11-14A-BR033	11-14A-WF033	10.50	121	184	11-14A-BR096	11-14A-WF096
4.50	82	126	11-14A-BR036	11-14A-WF036	11.00	128	195	11-14A-BR101	11-14A-WF101
4.80	87	132	11-14A-BR039	11-14A-WF039	11.50	128	195	11-14A-BR106	11-14A-WF106
5.00	87	132	11-14A-BR041	11-14A-WF041	12.00	134	205	11-14A-BR111	11-14A-WF111
5.50	91	139	11-14A-BR046	11-14A-WF046	12.50	134	205	11-14A-BR116	11-14A-WF116
6.00	91	139	11-14A-BR051	11-14A-WF051	13.00	134	205	11-14A-BR121	11-14A-WF121
6.50	97	148	11-14A-BR056	11-14A-WF056					

## HSS STUB SERIES TWIST DRILLS



Ideally suited assembly work in thin-walled materials such as sheet steels, flat steel and profile steel comprising of medium and long chipping materials

METRIC SIZE DIN 1897

DIAMETER h8	FLUTE LENGTH	OVERALL LENGTH	ROLLED	GROUND	DIAMETER h8	FLUTE LENGTH	OVERALL LENGTH	ROLLED	GROUND
			BLACK OXIDE HSS	BRIGHT FINISH HSS				BLACK OXIDE HSS	BRIGHT FINISH HSS
1.00	6	26	11-14B-BR001	11-14B-WF001	6.80	34	74	11-14B-BR059	11-14B-WF059
1.50	9	32	11-14B-BR006	11-14B-WF006	7.00	34	74	11-14B-BR061	11-14B-WF061
2.00	12	38	11-14B-BR011	11-14B-WF011	7.50	34	74	11-14B-BR066	11-14B-WF066
2.50	14	43	11-14B-BR016	11-14B-WF016	8.00	37	79	11-14B-BR071	11-14B-WF071
3.00	16	46	11-14B-BR021	11-14B-WF021	8.50	37	79	11-14B-BR076	11-14B-WF076
3.20	18	49	11-14B-BR023	11-14B-WF023	9.00	40	84	11-14B-BR081	11-14B-WF081
3.30	18	49	11-14B-BR024	11-14B-WF024	9.50	40	84	11-14B-BR086	11-14B-WF086
3.50	20	52	11-14B-BR026	11-14B-WF026	10.00	43	89	11-14B-BR091	11-14B-WF091
4.00	22	55	11-14B-BR031	11-14B-WF031	10.20	43	89	11-14B-BR093	11-14B-WF093
4.20	22	55	11-14B-BR033	11-14B-WF033	10.50	43	89	11-14B-BR096	11-14B-WF096
4.50	24	58	11-14B-BR036	11-14B-WF036	11.00	47	95	11-14B-BR101	11-14B-WF101
4.80	26	62	11-14B-BR039	11-14B-WF039	11.50	47	95	11-14B-BR106	11-14B-WF106
5.00	26	62	11-14B-BR041	11-14B-WF041	12.00	51	102	11-14B-BR111	11-14B-WF111
5.50	28	66	11-14B-BR046	11-14B-WF046	12.50	51	102	11-14B-BR116	11-14B-WF116
6.00	28	66	11-14B-BR051	11-14B-WF051	13.00	51	102	11-14B-BR121	11-14B-WF121
6.50	31	70	11-14B-BR056	11-14B-WF056					

## HSS EXTRA LONG SERIES TWIST DRILLS



Suitable for all usual drilling work in all normal materials. High rotational precision. For drilling deep holes please use small feed and remove chips frequently.

METRIC SIZES DIN 1869/1

DIAMETER h8	FLUTE LENGTH	OVERALL LENGTH	BRIGHT FINISH		DIAMETER h8	FLUTE LENGTH	OVERALL LENGTH	BRIGHT FINISH	
			HSS	HSSCO5				HSS	HSSCO5
2.00	85	125	11-015-WF001	11-015-LC001	7.00	155	225	11-015-WF014	11-015-LC014
2.50	95	140	11-015-WF002	11-015-LC002	7.50	155	225	11-015-WF015	11-015-LC015
3.00	100	150	11-015-WF003	11-015-LC003	8.00	165	240	11-015-WF016	11-015-LC016
3.20	105	155	11-015-WF004	11-015-LC004	8.50	165	240	11-015-WF017	11-015-LC017
3.30	105	155	11-015-WF005	11-015-LC005	9.00	175	250	11-015-WF018	11-015-LC018
3.50	115	165	11-015-WF006	11-015-LC006	9.50	175	250	11-015-WF019	11-015-LC019
4.00	120	175	11-015-WF007	11-015-LC007	10.00	185	265	11-015-WF020	11-015-LC020
4.20	120	175	11-015-WF008	11-015-LC008	10.50	185	265	11-015-WF021	11-015-LC021
4.50	125	185	11-015-WF009	11-015-LC009	11.00	195	280	11-015-WF022	11-015-LC022
5.00	135	195	11-015-WF010	11-015-LC010	11.50	195	280	11-015-WF023	11-015-LC023
5.50	140	205	11-015-WF011	11-015-LC011	12.00	205	295	11-015-WF024	11-015-LC024
6.00	140	205	11-015-WF012	11-015-LC012	12.50	205	295	11-015-WF025	11-015-LC025
6.50	150	215	11-015-WF013	11-015-LC013	13.00	205	295	11-015-WF026	11-015-LC026

METRIC SIZES DIN 1869/2

DIAMETER h8	FLUTE LENGTH	OVERALL LENGTH	BRIGHT FINISH		DIAMETER h8	FLUTE LENGTH	OVERALL LENGTH	BRIGHT FINISH	
			HSS	HSSCO5				HSS	HSSCO5
3.00	130	190	11-015-WF027	11-015-LC027	7.50	200	290	11-015-WF039	11-015-LC039
3.20	135	200	11-015-WF028	11-015-LC028	8.00	210	305	11-015-WF040	11-015-LC040
3.30	135	200	11-015-WF029	11-015-LC029	8.50	210	305	11-015-WF041	11-015-LC041
3.50	145	210	11-015-WF030	11-015-LC030	9.00	220	320	11-015-WF042	11-015-LC042
4.00	150	220	11-015-WF031	11-015-LC031	9.50	220	320	11-015-WF043	11-015-LC043
4.20	150	220	11-015-WF032	11-015-LC032	10.00	235	340	11-015-WF044	11-015-LC044
4.50	160	235	11-015-WF033	11-015-LC033	10.50	235	340	11-015-WF045	11-015-LC045
5.00	170	245	11-015-WF034	11-015-LC034	11.00	250	365	11-015-WF046	11-015-LC046
5.50	180	260	11-015-WF035	11-015-LC035	11.50	250	365	11-015-WF047	11-015-LC047
6.00	180	260	11-015-WF036	11-015-LC036	12.00	260	375	11-015-WF048	11-015-LC048
6.50	190	275	11-015-WF037	11-015-LC037	12.50	260	375	11-015-WF049	11-015-LC049
7.00	200	290	11-015-WF038	11-015-LC038	13.00	260	375	11-015-WF050	11-015-LC050

METRIC SIZES DIN 1869/3

DIAMETER h8	FLUTE LENGTH	OVERALL LENGTH	BRIGHT FINISH		DIAMETER h8	FLUTE LENGTH	OVERALL LENGTH	BRIGHT FINISH	
			HSS	HSSCO5				HSS	HSSCO5
3.50	180	265	11-015-WF051	11-015-LC051	8.50	265	390	11-015-WF062	11-015-LC062
4.00	190	280	11-015-WF052	11-015-LC052	9.00	280	410	11-015-WF063	11-015-LC063
4.20	190	280	11-015-WF053	11-015-LC053	9.50	280	410	11-015-WF064	11-015-LC064
4.50	200	295	11-015-WF054	11-015-LC054	10.00	295	430	11-015-WF065	11-015-LC065
5.00	210	315	11-015-WF055	11-015-LC055	10.50	295	430	11-015-WF066	11-015-LC066
5.50	225	330	11-015-WF056	11-015-LC056	11.00	310	455	11-015-WF067	11-015-LC067
6.00	225	330	11-015-WF057	11-015-LC057	11.50	310	455	11-015-WF068	11-015-LC068
6.50	235	350	11-015-WF058	11-015-LC058	12.00	330	480	11-015-WF069	11-015-LC069
7.00	250	370	11-015-WF059	11-015-LC059	12.50	330	480	11-015-WF070	11-015-LC070
7.50	250	370	11-015-WF060	11-015-LC060	13.00	330	480	11-015-WF071	11-015-LC071
8.00	265	390	11-015-WF061	11-015-LC061					

### HSS METRIC SIZE LONG REACH DRILLS



DIAMETER	SHANK DIA	FLT	OAL:400	OAL:600	DIAMETER	SHANK DIA	FLT	OAL:400	OAL:600
8	6.5	110	11-017-001	11-017-013	20	12.7	90	11-017-007	11-017-019
10	8.0	110	11-017-002	11-017-014	22	12.7	90	11-017-008	11-017-020
12	9.0	105	11-017-003	11-017-015	24	12.7	85	11-017-009	11-017-021
14	11.0	100	11-017-004	11-017-016	26	12.7	85	11-017-010	11-017-022
16	12.7	95	11-017-005	11-017-017	28	12.7	85	11-017-011	11-017-023
18	12.7	90	11-017-006	11-017-018	30	14.0	110	11-017-012	11-017-024

### HSS SPOTTING & CENTERING DRILLS 90° POINT



For clean and burr-free milling of welding spots and thin-walled work pieces without centering.

DIAMETER mm	FLUTE LENGTH	OVERALL LENGTH	90°		120°	
			HSS	HSSCO5	HSS	HSSCO5
3	12	46	11-020-WF001	11-020-LC001	11-020-WF011	11-020-LC011
4	12	55	11-020-WF002	11-020-LC002	11-020-WF012	11-020-LC012
5	14	62	11-020-WF003	11-020-LC003	11-020-WF013	11-020-LC013
6	16	66	11-020-WF004	11-020-LC004	11-020-WF014	11-020-LC014
8	21	79	11-020-WF005	11-020-LC005	11-020-WF015	11-020-LC015
10	25	89	11-020-WF006	11-020-LC006	11-020-WF016	11-020-LC016
12	30	102	11-020-WF007	11-020-LC007	11-020-WF017	11-020-LC017
14	33	107	11-020-WF008	11-020-LC008	11-020-WF018	11-020-LC018
16	37	115	11-020-WF009	11-020-LC009	11-020-WF019	11-020-LC019
20	45	131	11-020-WF010	11-020-LC010	11-020-WF020	11-020-LC020

### HSS DOUBLE END TWIST DRILLS 135° SPLIT POINT



Ideally suitable for assembly work in thin-walled materials such as sheet steels, flat steels and profile steelshigh security against fracture. For use in hand held drilling machines.

DIAMETER h8	FLUTE LENGTH	OVERALL LENGTH	BRIGHT FINISH		DIAMETER h8	FLUTE LENGTH	OVERALL LENGTH	BRIGHT FINISH	
			HSS	HSSCO5				HSS	HSSCO5
2.50	10	43	11-022-WF001	11-022-LC001	4.30	17	58	11-022-WF013	11-022-LC013
2.80	11	46	11-022-WF002	11-022-LC002	4.50	17	58	11-022-WF014	11-022-LC014
3.00	11	46	11-022-WF003	11-022-LC003	4.80	17	62	11-022-WF015	11-022-LC015
3.10	11	46	11-022-WF004	11-022-LC004	4.90	17	62	11-022-WF016	11-022-LC016
3.20	11	49	11-022-WF005	11-022-LC005	5.00	17	62	11-022-WF017	11-022-LC017
3.25	11	49	11-022-WF006	11-022-LC006	5.10	17	62	11-022-WF018	11-022-LC018
3.30	11	49	11-022-WF007	11-022-LC007	5.20	17	62	11-022-WF019	11-022-LC019
3.40	14	52	11-022-WF008	11-022-LC008	5.50	20	66	11-022-WF020	11-022-LC020
3.50	14	52	11-022-WF009	11-022-LC009	6.00	20	66	11-022-WF021	11-022-LC021
4.00	14	55	11-022-WF010	11-022-LC010	6.50	20	70	11-022-WF022	11-022-LC022
4.10	14	55	11-022-WF011	11-022-LC011	7.00	22	74	11-022-WF023	11-022-LC023
4.20	14	55	11-022-WF012	11-022-LC012	8.00	24	79	11-022-WF024	11-022-LC024

### HSS 1/4" HEX SHANK TWIST DRILLS



Great for quick-change and frequent drill change applications.

DIAMETER mm	FLUTE LENGTH	OVERALL LENGTH	BRIGHT FINISH	TIN-FLUTE	BRIGHT FINISH	TIN-FLUTE
			HSS	HSS	HSSCO5	HSSCO5
1.0	7	32	11-23A-001	11-23A-T001	11-23A-C001	11-23A-TC001
1.5	10	32	11-23A-002	11-23A-T002	11-23A-C002	11-23A-TC002
2.0	12	34	11-23A-003	11-23A-T003	11-23A-C003	11-23A-TC003
2.5	14	36	11-23A-004	11-23A-T004	11-23A-C004	11-23A-TC004
3.0	16	38	11-23A-005	11-23A-T005	11-23A-C005	11-23A-TC005
3.3	18	40	11-23A-006	11-23A-T006	11-23A-C006	11-23A-TC006
3.5	18	40	11-23A-007	11-23A-T007	11-23A-C007	11-23A-TC007
4.0	20	44	11-23A-008	11-23A-T008	11-23A-C008	11-23A-TC008
4.2	20	45	11-23A-009	11-23A-T009	11-23A-C009	11-23A-TC009
4.5	24	46	11-23A-010	11-23A-T010	11-23A-C010	11-23A-TC010
5.0	26	50	11-23A-011	11-23A-T011	11-23A-C011	11-23A-TC011
5.5	26	50	11-23A-012	11-23A-T012	11-23A-C012	11-23A-TC012
6.0	26	50	11-23A-013	11-23A-T013	11-23A-C013	11-23A-TC013
6.5	30	50	11-23A-014	11-23A-T014	11-23A-C014	11-23A-TC014
6.8	30	50	11-23A-015	11-23A-T015	11-23A-C015	11-23A-TC015
7.0	30	50	11-23A-016	11-23A-T016	11-23A-C016	11-23A-TC016
7.5	32	51	11-23A-017	11-23A-T017	11-23A-C017	11-23A-TC017
8.0	32	51	11-23A-018	11-23A-T018	11-23A-C018	11-23A-TC018
8.5	33	53	11-23A-019	11-23A-T019	11-23A-C019	11-23A-TC019
9.0	33	53	11-23A-020	11-23A-T020	11-23A-C020	11-23A-TC020
9.5	38	54	11-23A-021	11-23A-T021	11-23A-C021	11-23A-TC021
10.0	38	54	11-23A-022	11-23A-T022	11-23A-C022	11-23A-TC022
10.2	38	54	11-23A-023	11-23A-T023	11-23A-C023	11-23A-TC023

## HSS JOBBER LENGTH DRILLS ROLL FORGED



High-performance rolled, steam-treated drill made from heavy-duty HSS. The manufacturing procedure solidifies the material making it more elasticated. This makes it more resistance to fracture and suitable for robust drilling workpiece. General purpose, 118° point for quick penetration

### FRACTIONAL SIZES, ANSI B94

SIZE In	FLUTE LENGTH	OVERALL LENGTH	BLACK OXIDE	BRIGHT FINISH	TIN-COATED
			HSS	HSS	HSS
1/16	7/8	1-7/8	12-008-BR004	12-008-WR004	12-008-GR004
5/64	1	2	12-008-BR005	12-008-WR005	12-008-GR005
3/32	1-1/4	2-1/4	12-008-BR006	12-008-WR006	12-008-GR006
7/64	1-1/2	2-5/8	12-008-BR007	12-008-WR007	12-008-GR007
1/8	1-5/8	2-3/4	12-008-BR008	12-008-WR008	12-008-GR008
9/64	1-3/4	2-7/8	12-008-BR009	12-008-WR009	12-008-GR009
5/32	2	3-1/8	12-008-BR010	12-008-WR010	12-008-GR010
11/64	2-1/8	3-1/4	12-008-BR011	12-008-WR011	12-008-GR011
3/16	2-5/16	3-1/2	12-008-BR012	12-008-WR012	12-008-GR012
13/64	2-7/16	3-5/8	12-008-BR013	12-008-WR013	12-008-GR013
7/32	2-1/2	3-3/4	12-008-BR014	12-008-WR014	12-008-GR014
15/64	2-5/8	3-7/8	12-008-BR015	12-008-WR015	12-008-GR015
1/4	2-3/4	4	12-008-BR016	12-008-WR016	12-008-GR016
17/64	2-7/8	4-1/8	12-008-BR017	12-008-WR017	12-008-GR017
9/32	2-15/16	4-1/4	12-008-BR018	12-008-WR018	12-008-GR018
19/64	3-1/16	4-3/8	12-008-BR019	12-008-WR019	12-008-GR019
5/16	3-3/16	4-1/2	12-008-BR020	12-008-WR020	12-008-GR020
21/64	3-5/16	4-5/8	12-008-BR021	12-008-WR021	12-008-GR021
11/32	3-7/16	4-3/4	12-008-BR022	12-008-WR022	12-008-GR022
23/64	3-1/2	4-7/8	12-008-BR023	12-008-WR023	12-008-GR023
3/8	3-5/8	5	12-008-BR024	12-008-WR024	12-008-GR024
25/64	3-3/4	5-1/8	12-008-BR025	12-008-WR025	12-008-GR025
13/32	3-7/8	5-1/4	12-008-BR026	12-008-WR026	12-008-GR026
27/64	3-15/16	5-3/8	12-008-BR027	12-008-WR027	12-008-GR027
7/16	4-1/16	5-1/2	12-008-BR028	12-008-WR028	12-008-GR028
29/64	4-3/16	5-5/8	12-008-BR029	12-008-WR029	12-008-GR029
15/32	4-5/16	5-3/4	12-008-BR030	12-008-WR030	12-008-GR030
31/64	4-3/8	5-7/8	12-008-BR031	12-008-WR031	12-008-GR031
1/2	4-1/2	6	12-008-BR032	12-008-WR032	12-008-GR032

## HSS JOBBER LENGTH DRILLS ROLL FORGED

### LETTER SIZES, ANSI B94

SIZE Dec.Equiv.	FLUTE LENGTH	OVERALL LENGTH	BLACK OXIDE	BRIGHT FINISH	TIN-COATED
			HSS	HSS	HSS
A .2340	2-5/8	3-7/8	12-008-BR045	12-008-WR045	12-008-GR045
B .2380	2-3/4	4	12-008-BR046	12-008-WR046	12-008-GR046
C .2420	2-3/4	4	12-008-BR047	12-008-WR047	12-008-GR047
D .2460	2-3/4	4	12-008-BR048	12-008-WR048	12-008-GR048
E .2500	2-3/4	4	12-008-BR049	12-008-WR049	12-008-GR049
F .2570	2-7/8	4-1/8	12-008-BR050	12-008-WR050	12-008-GR050
G .2610	2-7/8	4-1/8	12-008-BR051	12-008-WR051	12-008-GR051
H .2660	2-7/8	4-1/8	12-008-BR052	12-008-WR052	12-008-GR052
I .2720	2-7/8	4-1/8	12-008-BR053	12-008-WR053	12-008-GR053
J .2770	2-7/8	4-1/8	12-008-BR054	12-008-WR054	12-008-GR054
K .2810	2-15/16	4-1/4	12-008-BR055	12-008-WR055	12-008-GR055
L .2900	2-15/16	4-1/4	12-008-BR056	12-008-WR056	12-008-GR056
M .2950	3-1/16	4-3/8	12-008-BR057	12-008-WR057	12-008-GR057
N .3020	3-1/16	4-3/8	12-008-BR058	12-008-WR058	12-008-GR058
O .3160	3-3/16	4-1/2	12-008-BR059	12-008-WR059	12-008-GR059
P .3230	3-5/16	4-5/8	12-008-BR060	12-008-WR060	12-008-GR060
Q .3320	3-7/16	4-3/4	12-008-BR061	12-008-WR061	12-008-GR061
R .3390	3-7/16	4-3/4	12-008-BR062	12-008-WR062	12-008-GR062
S .3480	3-1/2	4-7/8	12-008-BR063	12-008-WR063	12-008-GR063
T .3490	3-1/2	4-7/8	12-008-BR064	12-008-WR064	12-008-GR064
U .3680	3-5/8	5	12-008-BR065	12-008-WR065	12-008-GR065
V .3770	3-5/8	5	12-008-BR066	12-008-WR066	12-008-GR066
W .3860	3-3/4	5-1/8	12-008-BR067	12-008-WR067	12-008-GR067
X .3970	3-3/4	5-1/8	12-008-BR068	12-008-WR068	12-008-GR068
Y .4040	3-7/8	5-1/4	12-008-BR069	12-008-WR069	12-008-GR069
Z .4130	3-7/8	5-1/4	12-008-BR070	12-008-WR070	12-008-GR070

### WIRE GAUGE SIZES, ANSI B94

SIZE Dec.Equiv.	FLUTE LENGTH	OVERALL LENGTH	BLACK OXIDE	BRIGHT FINISH	TIN-COATED
			HSS	HSS	HSS
#1 .2280	2-5/8	3-7/8	12-008-BR071	12-008-WR071	12-008-GR071
#2 .2210	2-5/8	3-7/8	12-008-BR072	12-008-WR072	12-008-GR072
#3 .2130	2-1/2	3-3/4	12-008-BR073	12-008-WR073	12-008-GR073
#4 .2090	2-1/2	3-3/4	12-008-BR074	12-008-WR074	12-008-GR074
#5 .2055	2-1/2	3-3/4	12-008-BR075	12-008-WR075	12-008-GR075
#6 .2040	2-1/2	3-3/4	12-008-BR076	12-008-WR076	12-008-GR076
#7 .2010	2-7/16	3-5/8	12-008-BR077	12-008-WR077	12-008-GR077
#8 .1990	2-7/16	3-5/8	12-008-BR078	12-008-WR078	12-008-GR078
#9 .1960	2-7/16	3-5/8	12-008-BR079	12-008-WR079	12-008-GR079
#10 .1935	2-7/16	3-5/8	12-008-BR080	12-008-WR080	12-008-GR080
#11 .1910	2-5/16	3-1/2	12-008-BR081	12-008-WR081	12-008-GR081
#12 .1890	2-5/16	3-1/2	12-008-BR082	12-008-WR082	12-008-GR082
#13 .1850	2-5/16	3-1/2	12-008-BR083	12-008-WR083	12-008-GR083
#14 .1820	2-3/16	3-3/8	12-008-BR084	12-008-WR084	12-008-GR084
#15 .1800	2-3/16	3-3/8	12-008-BR085	12-008-WR085	12-008-GR085
#16 .1770	2-3/16	3-3/8	12-008-BR086	12-008-WR086	12-008-GR086
#17 .1730	2-3/16	3-3/8	12-008-BR087	12-008-WR087	12-008-GR087
#18 .1695	2-1/8	3-1/4	12-008-BR088	12-008-WR088	12-008-GR088
#19 .1660	2-1/8	3-1/4	12-008-BR089	12-008-WR089	12-008-GR089
#20 .1610	2-1/8	3-1/4	12-008-BR090	12-008-WR090	12-008-GR090
#21 .1590	2-1/8	3-1/4	12-008-BR091	12-008-WR091	12-008-GR091

## HSS JOBBER LENGTH DRILLS ROLL FORGED



WIRE GAUGE SIZES, ANSI B94

SIZE	FLUTE	OVERALL	BLACK OXIDE	BRIGHT FINISH	TIN-COATED
Dec.Equiv.	LENGTH	LENGTH	HSS	HSS	HSS
#22 .1570	2	3-1/8	12-008-BR092	12-008-WR092	12-008-GR092
#23 .1540	2	3-1/8	12-008-BR093	12-008-WR093	12-008-GR093
#24 .1520	2	3-1/8	12-008-BR094	12-008-WR094	12-008-GR094
#25 .1495	1-7/8	3	12-008-BR095	12-008-WR095	12-008-GR095
#26 .1470	1-7/8	3	12-008-BR096	12-008-WR096	12-008-GR096
#27 .1440	1-7/8	3	12-008-BR097	12-008-WR097	12-008-GR097
#28 .1405	1-3/4	2-7/8	12-008-BR098	12-008-WR098	12-008-GR098
#29 .1360	1-3/4	2-7/8	12-008-BR099	12-008-WR099	12-008-GR099
#30 .1285	1-5/8	2-3/4	12-008-BR100	12-008-WR100	12-008-GR100
#31 .1200	1-5/8	2-3/4	12-008-BR101	12-008-WR101	12-008-GR101
#32 .1160	1-5/8	2-3/4	12-008-BR102	12-008-WR102	12-008-GR102
#33 .1130	1-1/2	2-5/8	12-008-BR103	12-008-WR103	12-008-GR103
#34 .1110	1-1/2	2-5/8	12-008-BR104	12-008-WR104	12-008-GR104
#35 .1100	1-1/2	2-5/8	12-008-BR105	12-008-WR105	12-008-GR105
#36 .1065	1-7/16	2-1/2	12-008-BR106	12-008-WR106	12-008-GR106
#37 .1040	1-7/16	2-1/2	12-008-BR107	12-008-WR107	12-008-GR107
#38 .1015	1-7/16	2-1/2	12-008-BR108	12-008-WR108	12-008-GR108
#39 .0995	1-3/8	2-3/8	12-008-BR109	12-008-WR109	12-008-GR109
#40 .0980	1-3/8	2-3/8	12-008-BR110	12-008-WR110	12-008-GR110
#41 .0960	1-3/8	2-3/8	12-008-BR111	12-008-WR111	12-008-GR111
#42 .0935	1-1/4	2-1/4	12-008-BR112	12-008-WR112	12-008-GR112
#43 .0890	1-1/4	2-1/4	12-008-BR113	12-008-WR113	12-008-GR113
#44 .0860	1-1/8	2-1/8	12-008-BR114	12-008-WR114	12-008-GR114
#45 .0820	1-1/8	2-1/8	12-008-BR115	12-008-WR115	12-008-GR115
#46 .0810	1-1/8	2-1/8	12-008-BR116	12-008-WR116	12-008-GR116
#47 .0785	1	2	12-008-BR117	12-008-WR117	12-008-GR117
#48 .0760	1	2	12-008-BR118	12-008-WR118	12-008-GR118
#49 .0730	1	2	12-008-BR119	12-008-WR119	12-008-GR119
#50 .0700	1	2	12-008-BR120	12-008-WR120	12-008-GR120
#51 .0670	1	2	12-008-BR121	12-008-WR121	12-008-GR121
#52 .0635	7/8	1-7/8	12-008-BR122	12-008-WR122	12-008-GR122
#53 .0595	7/8	1-7/8	12-008-BR123	12-008-WR123	12-008-GR123
#54 .0550	7/8	1-7/8	12-008-BR124	12-008-WR124	12-008-GR124
#55 .0520	7/8	1-7/8	12-008-BR125	12-008-WR125	12-008-GR125
#56 .0465	3/4	1-3/4	12-008-BR126	12-008-WR126	12-008-GR126
#57 .0430	3/4	1-3/4	12-008-BR127	12-008-WR127	12-008-GR127
#58 .0420	11/16	1-5/8	12-008-BR128	12-008-WR128	12-008-GR128
#59 .0410	11/16	1-5/8	12-008-BR129	12-008-WR129	12-008-GR129
#60 .0400	11/16	1-5/8	12-008-BR130	12-008-WR130	12-008-GR130

## HSS JOBBER LENGTH DRILLS FULLY GROUND



Better chip ejection in low carbon, non-ferrous materials.  
They have good centering properties and requires little pressure.  
Heavy duty,  $d \geq 3\text{mm}$ ,  $135^\circ$  split point

FRACTIONAL SIZES, ANSI B94

SIZE In	FLUTE LENGTH	OVERALL LENGTH	BLACK OXIDE	BRIGHT FINISH	TIN-COATED	GOLD COATED	
			HSS	HSS	HSS	HSSCO5	HSSCO8
1/16	7/8	1-7/8	12-008-BF004	12-008-WF004	12-008-GF004	12-008-LC004	12-008-HC004
5/64	1	2	12-008-BF005	12-008-WF005	12-008-GF005	12-008-LC005	12-008-HC005
3/32	1-1/4	2-1/4	12-008-BF006	12-008-WF006	12-008-GF006	12-008-LC006	12-008-HC006
7/64	1-1/2	2-5/8	12-008-BF007	12-008-WF007	12-008-GF007	12-008-LC007	12-008-HC007
1/8	1-5/8	2-3/4	12-008-BF008	12-008-WF008	12-008-GF008	12-008-LC008	12-008-HC008
9/64	1-3/4	2-7/8	12-008-BF009	12-008-WF009	12-008-GF009	12-008-LC009	12-008-HC009
5/32	2	3-1/8	12-008-BF010	12-008-WF010	12-008-GF010	12-008-LC010	12-008-HC010
11/64	2-1/8	3-1/4	12-008-BF011	12-008-WF011	12-008-GF011	12-008-LC011	12-008-HC011
3/16	2-5/16	3-1/2	12-008-BF012	12-008-WF012	12-008-GF012	12-008-LC012	12-008-HC012
13/64	2-7/16	3-5/8	12-008-BF013	12-008-WF013	12-008-GF013	12-008-LC013	12-008-HC013
7/32	2-1/2	3-3/4	12-008-BF014	12-008-WF014	12-008-GF014	12-008-LC014	12-008-HC014
15/64	2-5/8	3-7/8	12-008-BF015	12-008-WF015	12-008-GF015	12-008-LC015	12-008-HC015
1/4	2-3/4	4	12-008-BF016	12-008-WF016	12-008-GF016	12-008-LC016	12-008-HC016
17/64	2-7/8	4-1/8	12-008-BF017	12-008-WF017	12-008-GF017	12-008-LC017	12-008-HC017
9/32	2-15/16	4-1/4	12-008-BF018	12-008-WF018	12-008-GF018	12-008-LC018	12-008-HC018
19/64	3-1/16	4-3/8	12-008-BF019	12-008-WF019	12-008-GF019	12-008-LC019	12-008-HC019
5/16	3-3/16	4-1/2	12-008-BF020	12-008-WF020	12-008-GF020	12-008-LC020	12-008-HC020
21/64	3-5/16	4-5/8	12-008-BF021	12-008-WF021	12-008-GF021	12-008-LC021	12-008-HC021
11/32	3-7/16	4-3/4	12-008-BF022	12-008-WF022	12-008-GF022	12-008-LC022	12-008-HC022
23/64	3-1/2	4-7/8	12-008-BF023	12-008-WF023	12-008-GF023	12-008-LC023	12-008-HC023
3/8	3-5/8	5	12-008-BF024	12-008-WF024	12-008-GF024	12-008-LC024	12-008-HC024
25/64	3-3/4	5-1/8	12-008-BF025	12-008-WF025	12-008-GF025	12-008-LC025	12-008-HC025
13/32	3-7/8	5-1/4	12-008-BF026	12-008-WF026	12-008-GF026	12-008-LC026	12-008-HC026
27/64	3-15/16	5-3/8	12-008-BF027	12-008-WF027	12-008-GF027	12-008-LC027	12-008-HC027
7/16	4-1/16	5-1/2	12-008-BF028	12-008-WF028	12-008-GF028	12-008-LC028	12-008-HC028
29/64	4-3/16	5-5/8	12-008-BF029	12-008-WF029	12-008-GF029	12-008-LC029	12-008-HC029
15/32	4-5/16	5-3/4	12-008-BF030	12-008-WF030	12-008-GF030	12-008-LC030	12-008-HC030
31/64	4-3/8	5-7/8	12-008-BF031	12-008-WF031	12-008-GF031	12-008-LC031	12-008-HC031
1/2	4-1/2	6	12-008-BF032	12-008-WF032	12-008-GF032	12-008-LC032	12-008-HC032



## HSS JOBBER LENGTH DRILLS FULLY GROUND



### LETTER SIZES, ANSI B94

SIZE In	FLUTE LENGTH	OVERALL LENGTH	BLACK OXIDE	BRIGHT FINISH	TIN-COATED	GOLD COATED	
			HSS	HSS	HSS	HSSCO5	HSSCO8
A .2340	2-5/8	3-7/8	12-008-BF045	12-008-WF045	12-008-GF045	12-008-LC045	12-008-HC045
B .2380	2-3/4	4	12-008-BF046	12-008-WF046	12-008-GF046	12-008-LC046	12-008-HC046
C .2420	2-3/4	4	12-008-BF047	12-008-WF047	12-008-GF047	12-008-LC047	12-008-HC047
D .2460	2-3/4	4	12-008-BF048	12-008-WF048	12-008-GF048	12-008-LC048	12-008-HC048
E .2500	2-3/4	4	12-008-BF049	12-008-WF049	12-008-GF049	12-008-LC049	12-008-HC049
F .2570	2-7/8	4-1/8	12-008-BF050	12-008-WF050	12-008-GF050	12-008-LC050	12-008-HC050
G .2610	2-7/8	4-1/8	12-008-BF051	12-008-WF051	12-008-GF051	12-008-LC051	12-008-HC051
H .2660	2-7/8	4-1/8	12-008-BF052	12-008-WF052	12-008-GF052	12-008-LC052	12-008-HC052
I .2720	2-7/8	4-1/8	12-008-BF053	12-008-WF053	12-008-GF053	12-008-LC053	12-008-HC053
J .2770	2-7/8	4-1/8	12-008-BF054	12-008-WF054	12-008-GF054	12-008-LC054	12-008-HC054
K .2810	2-15/16	4-1/4	12-008-BF055	12-008-WF055	12-008-GF055	12-008-LC055	12-008-HC055
L .2900	2-15/16	4-1/4	12-008-BF056	12-008-WF056	12-008-GF056	12-008-LC056	12-008-HC056
M .2950	3-1/16	4-3/8	12-008-BF057	12-008-WF057	12-008-GF057	12-008-LC057	12-008-HC057
N .3020	3-1/16	4-3/8	12-008-BF058	12-008-WF058	12-008-GF058	12-008-LC058	12-008-HC058
O .3160	3-3/16	4-1/2	12-008-BF059	12-008-WF059	12-008-GF059	12-008-LC059	12-008-HC059
P .3230	3-5/16	4-5/8	12-008-BF060	12-008-WF060	12-008-GF060	12-008-LC060	12-008-HC060
Q .3320	3-7/16	4-3/4	12-008-BF061	12-008-WF061	12-008-GF061	12-008-LC061	12-008-HC061
R .3390	3-7/16	4-3/4	12-008-BF062	12-008-WF062	12-008-GF062	12-008-LC062	12-008-HC062
S .3480	3-1/2	4-7/8	12-008-BF063	12-008-WF063	12-008-GF063	12-008-LC063	12-008-HC063
T .3490	3-1/2	4-7/8	12-008-BF064	12-008-WF064	12-008-GF064	12-008-LC064	12-008-HC064
U .3680	3-5/8	5	12-008-BF065	12-008-WF065	12-008-GF065	12-008-LC065	12-008-HC065
V .3770	3-5/8	5	12-008-BF066	12-008-WF066	12-008-GF066	12-008-LC066	12-008-HC066
W .3860	3-3/4	5-1/8	12-008-BF067	12-008-WF067	12-008-GF067	12-008-LC067	12-008-HC067
X .3970	3-3/4	5-1/8	12-008-BF068	12-008-WF068	12-008-GF068	12-008-LC068	12-008-HC068
Y .4040	3-7/8	5-1/4	12-008-BF069	12-008-WF069	12-008-GF069	12-008-LC069	12-008-HC069
Z .4130	3-7/8	5-1/4	12-008-BF070	12-008-WF070	12-008-GF070	12-008-LC070	12-008-HC070

### WIRE GAUGE SIZES, ANSI B94

SIZE In	FLUTE LENGTH	OVERALL LENGTH	BLACK OXIDE	BRIGHT FINISH	TIN-COATED	GOLD COATED	
			HSS	HSS	HSS	HSSCO5	HSSCO8
#1 .2280	2-5/8	3-7/8	12-008-BF071	12-008-WF071	12-008-GF071	12-008-LC071	12-008-HC071
#2 .2210	2-5/8	3-7/8	12-008-BF072	12-008-WF072	12-008-GF072	12-008-LC072	12-008-HC072
#3 .2130	2-1/2	3-3/4	12-008-BF073	12-008-WF073	12-008-GF073	12-008-LC073	12-008-HC073
#4 .2090	2-1/2	3-3/4	12-008-BF074	12-008-WF074	12-008-GF074	12-008-LC074	12-008-HC074
#5 .2055	2-1/2	3-3/4	12-008-BF075	12-008-WF075	12-008-GF075	12-008-LC075	12-008-HC075
#6 .2040	2-1/2	3-3/4	12-008-BF076	12-008-WF076	12-008-GF076	12-008-LC076	12-008-HC076
#7 .2010	2-7/16	3-5/8	12-008-BF077	12-008-WF077	12-008-GF077	12-008-LC077	12-008-HC077
#8 .1990	2-7/16	3-5/8	12-008-BF078	12-008-WF078	12-008-GF078	12-008-LC078	12-008-HC078
#9 .1960	2-7/16	3-5/8	12-008-BF079	12-008-WF079	12-008-GF079	12-008-LC079	12-008-HC079
#10 .1935	2-7/16	3-5/8	12-008-BF080	12-008-WF080	12-008-GF080	12-008-LC080	12-008-HC080
#11 .1910	2-5/16	3-1/2	12-008-BF081	12-008-WF081	12-008-GF081	12-008-LC081	12-008-HC081
#12 .1890	2-5/16	3-1/2	12-008-BF082	12-008-WF082	12-008-GF082	12-008-LC082	12-008-HC082
#13 .1850	2-5/16	3-1/2	12-008-BF083	12-008-WF083	12-008-GF083	12-008-LC083	12-008-HC083
#14 .1820	2-3/16	3-3/8	12-008-BF084	12-008-WF084	12-008-GF084	12-008-LC084	12-008-HC084
#15 .1800	2-3/16	3-3/8	12-008-BF085	12-008-WF085	12-008-GF085	12-008-LC085	12-008-HC085
#16 .1770	2-3/16	3-3/8	12-008-BF086	12-008-WF086	12-008-GF086	12-008-LC086	12-008-HC086
#17 .1730	2-3/16	3-3/8	12-008-BF087	12-008-WF087	12-008-GF087	12-008-LC087	12-008-HC087
#18 .1695	2-1/8	3-1/4	12-008-BF088	12-008-WF088	12-008-GF088	12-008-LC088	12-008-HC088

## HSS JOBBER LENGTH DRILLS FULLY GROUND



SIZE In	FLUTE LENGTH	OVERALL LENGTH	BLACK OXIDE	BRIGHT FINISH	TIN-COATED	GOLD COATED	
			HSS	HSS	HSS	HSSCO5	HSSCO8
#19 .1660	2-1/8	3-1/4	12-008-BF089	12-008-WF089	12-008-GF089	12-008-LC089	12-008-HC089
#20 .1610	2-1/8	3-1/4	12-008-BF090	12-008-WF090	12-008-GF090	12-008-LC090	12-008-HC090
#21 .1590	2-1/8	3-1/4	12-008-BF091	12-008-WF091	12-008-GF091	12-008-LC091	12-008-HC091
#22 .1570	2	3-1/8	12-008-BF092	12-008-WF092	12-008-GF092	12-008-LC092	12-008-HC092
#23 .1540	2	3-1/8	12-008-BF093	12-008-WF093	12-008-GF093	12-008-LC093	12-008-HC093
#24 .1520	2	3-1/8	12-008-BF094	12-008-WF094	12-008-GF094	12-008-LC094	12-008-HC094
#25 .1495	1-7/8	3	12-008-BF095	12-008-WF095	12-008-GF095	12-008-LC095	12-008-HC095
#26 .1470	1-7/8	3	12-008-BF096	12-008-WF096	12-008-GF096	12-008-LC096	12-008-HC096
#27 .1440	1-7/8	3	12-008-BF097	12-008-WF097	12-008-GF097	12-008-LC097	12-008-HC097
#28 .1405	1-3/4	2-7/8	12-008-BF098	12-008-WF098	12-008-GF098	12-008-LC098	12-008-HC098
#29 .1360	1-3/4	2-7/8	12-008-BF099	12-008-WF099	12-008-GF099	12-008-LC099	12-008-HC099
#30 .1285	1-5/8	2-3/4	12-008-BF100	12-008-WF100	12-008-GF100	12-008-LC100	12-008-HC100
#31 .1200	1-5/8	2-3/4	12-008-BF101	12-008-WF101	12-008-GF101	12-008-LC101	12-008-HC101
#32 .1160	1-5/8	2-3/4	12-008-BF102	12-008-WF102	12-008-GF102	12-008-LC102	12-008-HC102
#33 .1130	1-1/2	2-5/8	12-008-BF103	12-008-WF103	12-008-GF103	12-008-LC103	12-008-HC103
#34 .1110	1-1/2	2-5/8	12-008-BF104	12-008-WF104	12-008-GF104	12-008-LC104	12-008-HC104
#35 .1100	1-1/2	2-5/8	12-008-BF105	12-008-WF105	12-008-GF105	12-008-LC105	12-008-HC105
#36 .1065	1-7/16	2-1/2	12-008-BF106	12-008-WF106	12-008-GF106	12-008-LC106	12-008-HC106
#37 .1040	1-7/16	2-1/2	12-008-BF107	12-008-WF107	12-008-GF107	12-008-LC107	12-008-HC107
#38 .1015	1-7/16	2-1/2	12-008-BF108	12-008-WF108	12-008-GF108	12-008-LC108	12-008-HC108
#39 .0995	1-3/8	2-3/8	12-008-BF109	12-008-WF109	12-008-GF109	12-008-LC109	12-008-HC109
#40 .0980	1-3/8	2-3/8	12-008-BF110	12-008-WF110	12-008-GF110	12-008-LC110	12-008-HC110
#41 .0960	1-3/8	2-3/8	12-008-BF111	12-008-WF111	12-008-GF111	12-008-LC111	12-008-HC111
#42 .0935	1-1/4	2-1/4	12-008-BF112	12-008-WF112	12-008-GF112	12-008-LC112	12-008-HC112
#43 .0890	1-1/4	2-1/4	12-008-BF113	12-008-WF113	12-008-GF113	12-008-LC113	12-008-HC113
#44 .0860	1-1/8	2-1/8	12-008-BF114	12-008-WF114	12-008-GF114	12-008-LC114	12-008-HC114
#45 .0820	1-1/8	2-1/8	12-008-BF115	12-008-WF115	12-008-GF115	12-008-LC115	12-008-HC115
#46 .0810	1-1/8	2-1/8	12-008-BF116	12-008-WF116	12-008-GF116	12-008-LC116	12-008-HC116
#47 .0785	1	2	12-008-BF117	12-008-WF117	12-008-GF117	12-008-LC117	12-008-HC117
#48 .0760	1	2	12-008-BF118	12-008-WF118	12-008-GF118	12-008-LC118	12-008-HC118
#49 .0730	1	2	12-008-BF119	12-008-WF119	12-008-GF119	12-008-LC119	12-008-HC119
#50 .0700	1	2	12-008-BF120	12-008-WF120	12-008-GF120	12-008-LC120	12-008-HC120
#51 .0670	1	2	12-008-BF121	12-008-WF121	12-008-GF121	12-008-LC121	12-008-HC121
#52 .0635	7/8	1-7/8	12-008-BF122	12-008-WF122	12-008-GF122	12-008-LC122	12-008-HC122
#53 .0595	7/8	1-7/8	12-008-BF123	12-008-WF123	12-008-GF123	12-008-LC123	12-008-HC123
#54 .0550	7/8	1-7/8	12-008-BF124	12-008-WF124	12-008-GF124	12-008-LC124	12-008-HC124
#55 .0520	7/8	1-7/8	12-008-BF125	12-008-WF125	12-008-GF125	12-008-LC125	12-008-HC125
#56 .0465	3/4	1-3/4	12-008-BF126	12-008-WF126	12-008-GF126	12-008-LC126	12-008-HC126
#57 .0430	3/4	1-3/4	12-008-BF127	12-008-WF127	12-008-GF127	12-008-LC127	12-008-HC127
#58 .0420	11/16	1-5/8	12-008-BF128	12-008-WF128	12-008-GF128	12-008-LC128	12-008-HC128
#59 .0410	11/16	1-5/8	12-008-BF129	12-008-WF129	12-008-GF129	12-008-LC129	12-008-HC129
#60 .0400	11/16	1-5/8	12-008-BF130	12-008-WF130	12-008-GF130	12-008-LC130	12-008-HC130

## HSS LEFT HAND JOBBER LENGTH DRILLS



Can be used as screw extractor for drill out broken studs or fasteners.

### FRACTIONAL SIZES, ANSI B94

SIZE IN	FLUTE LENGTH	OVERALL LENGTH	BRIGHT FINISH HSS	GOLD COATED HSSCO5	SIZE IN	FLUTE LENGTH	OVERALL LENGTH	BRIGHT FINISH HSS	GOLD COATED HSSCO5
1/64	3/16	3/4	12-012-WF001	12-012-LC001	17/64	2-7/8	4-1/8	12-012-WF017	12-012-LC017
1/32	1/2	1-3/8	12-012-WF002	12-012-LC002	9/32	2-15/16	4-1/4	12-012-WF018	12-012-LC018
3/64	3/4	1-3/4	12-012-WF003	12-012-LC003	19/64	3-1/16	4-3/8	12-012-WF019	12-012-LC019
1/16	7/8	1-7/8	12-012-WF004	12-012-LC004	5/16	3-3/16	4-1/2	12-012-WF020	12-012-LC020
5/64	1	2	12-012-WF005	12-012-LC005	21/64	3-5/16	4-5/8	12-012-WF021	12-012-LC021
3/32	1-1/4	2-1/4	12-012-WF006	12-012-LC006	11/32	3-7/16	4-3/4	12-012-WF022	12-012-LC022
7/64	1-1/2	2-5/8	12-012-WF007	12-012-LC007	23/64	3-1/2	4-7/8	12-012-WF023	12-012-LC023
1/8	1-5/8	2-3/4	12-012-WF008	12-012-LC008	3/8	3-5/8	5	12-012-WF024	12-012-LC024
9/64	1-3/4	2-7/8	12-012-WF009	12-012-LC009	25/64	3-3/4	5-1/8	12-012-WF025	12-012-LC025
5/32	2	3-1/8	12-012-WF010	12-012-LC010	13/32	3-7/8	5-1/4	12-012-WF026	12-012-LC026
11/64	2-1/8	3-1/4	12-012-WF011	12-012-LC011	27/64	3-15/16	5-3/8	12-012-WF027	12-012-LC027
3/16	2-5/16	3-1/2	12-012-WF012	12-012-LC012	7/16	4-1/16	5-1/2	12-012-WF028	12-012-LC028
13/64	2-7/16	3-5/8	12-012-WF013	12-012-LC013	29/64	4-3/16	5-5/8	12-012-WF029	12-012-LC029
7/32	2-1/2	3-3/4	12-012-WF014	12-012-LC014	15/32	4-5/16	5-3/4	12-012-WF030	12-012-LC030
15/64	2-5/8	3-7/8	12-012-WF015	12-012-LC015	31/64	4-3/8	5-7/8	12-012-WF031	12-012-LC031
1/4	2-3/4	4	12-012-WF016	12-012-LC016	1/2	4-1/2	6	12-012-WF032	12-012-LC032

### LETTER SIZES, ANSI B94

SIZE IN	FLUTE LENGTH	OVERALL LENGTH	BRIGHT FINISH HSS	GOLD COATED HSSCO5	SIZE IN	FLUTE LENGTH	OVERALL LENGTH	BRIGHT FINISH HSS	GOLD COATED HSSCO5
A .2340	2-5/8	3-7/8	12-012-WF033	12-012-LC033	N .3020	3-1/16	4-3/8	12-012-WF046	12-012-LC046
B .2380	2-3/4	4	12-012-WF034	12-012-LC034	O .3160	3-3/16	4-1/2	12-012-WF047	12-012-LC047
C .2420	2-3/4	4	12-012-WF035	12-012-LC035	P .3230	3-5/16	4-5/8	12-012-WF048	12-012-LC048
D .2460	2-3/4	4	12-012-WF036	12-012-LC036	Q .3320	3-7/16	4-3/4	12-012-WF049	12-012-LC049
E .2500	2-3/4	4	12-012-WF037	12-012-LC037	R .3390	3-7/16	4-3/4	12-012-WF050	12-012-LC050
F .2570	2-7/8	4-1/8	12-012-WF038	12-012-LC038	S .3480	3-1/2	4-7/8	12-012-WF051	12-012-LC051
G .2610	2-7/8	4-1/8	12-012-WF039	12-012-LC039	T .3490	3-1/2	4-7/8	12-012-WF052	12-012-LC052
H .2660	2-7/8	4-1/8	12-012-WF040	12-012-LC040	U .3680	3-5/8	5	12-012-WF053	12-012-LC053
I .2720	2-7/8	4-1/8	12-012-WF041	12-012-LC041	V .3770	3-5/8	5	12-012-WF054	12-012-LC054
J .2770	2-7/8	4-1/8	12-012-WF042	12-012-LC042	W .3860	3-3/4	5-1/8	12-012-WF055	12-012-LC055
K .2810	2-15/16	4-1/4	12-012-WF043	12-012-LC043	X .3970	3-3/4	5-1/8	12-012-WF056	12-012-LC056
L .2900	2-15/16	4-1/4	12-012-WF044	12-012-LC044	Y .4040	3-7/8	5-1/4	12-012-WF057	12-012-LC057
M .2950	3-1/16	4-3/8	12-012-WF045	12-012-LC045	Z .4130	3-7/8	5-1/4	12-012-WF058	12-012-LC058

## HSS LEFT HAND JOBBER LENGTH DRILLS



### WIRE GAUGE SIZES, ANSI B94

SIZE IN	FLUTE LENGTH	OVERALL LENGTH	BRIGHT FINISH HSS	GOLD COATED HSSCO5	SIZE IN	FLUTE LENGTH	OVERALL LENGTH	BRIGHT FINISH HSS	GOLD COATED HSSCO5
#1 .2280	2-5/8	3-7/8	12-012-WF059	12-012-LC059	#31 .1200	1-5/8	2-3/4	12-012-WF089	12-012-LC089
#2 .2210	2-5/8	3-7/8	12-012-WF060	12-012-LC060	#32 .1160	1-5/8	2-3/4	12-012-WF090	12-012-LC090
#3 .2130	2-1/2	3-3/4	12-012-WF061	12-012-LC061	#33 .1130	1-1/2	2-5/8	12-012-WF091	12-012-LC091
#4 .2090	2-1/2	3-3/4	12-012-WF062	12-012-LC062	#34 .1110	1-1/2	2-5/8	12-012-WF092	12-012-LC092
#5 .2055	2-1/2	3-3/4	12-012-WF063	12-012-LC063	#35 .1100	1-1/2	2-5/8	12-012-WF093	12-012-LC093
#6 .2040	2-1/2	3-3/4	12-012-WF064	12-012-LC064	#36 .1065	1-7/16	2-1/2	12-012-WF094	12-012-LC094
#7 .2010	2-7/16	3-5/8	12-012-WF065	12-012-LC065	#37 .1040	1-7/16	2-1/2	12-012-WF095	12-012-LC095
#8 .1990	2-7/16	3-5/8	12-012-WF066	12-012-LC066	#38 .1015	1-7/16	2-1/2	12-012-WF096	12-012-LC096
#9 .1960	2-7/16	3-5/8	12-012-WF067	12-012-LC067	#39 .0995	1-3/8	2-3/8	12-012-WF097	12-012-LC097
#10 .1935	2-7/16	3-5/8	12-012-WF068	12-012-LC068	#40 .0980	1-3/8	2-3/8	12-012-WF098	12-012-LC098
#11 .1910	2-5/16	3-1/2	12-012-WF069	12-012-LC069	#41 .0960	1-3/8	2-3/8	12-012-WF099	12-012-LC099
#12 .1890	2-5/16	3-1/2	12-012-WF070	12-012-LC070	#42 .0935	1-1/4	2-1/4	12-012-WF100	12-012-LC100
#13 .1850	2-5/16	3-1/2	12-012-WF071	12-012-LC071	#43 .0890	1-1/4	2-1/4	12-012-WF101	12-012-LC101
#14 .1820	2-3/16	3-3/8	12-012-WF072	12-012-LC072	#44 .0860	1-1/8	2-1/8	12-012-WF102	12-012-LC102
#15 .1800	2-3/16	3-3/8	12-012-WF073	12-012-LC073	#45 .0820	1-1/8	2-1/8	12-012-WF103	12-012-LC103
#16 .1770	2-3/16	3-3/8	12-012-WF074	12-012-LC074	#46 .0810	1-1/8	2-1/8	12-012-WF104	12-012-LC104
#17 .1730	2-3/16	3-3/8	12-012-WF075	12-012-LC075	#47 .0785	1	2	12-012-WF105	12-012-LC105
#18 .1695	2-1/8	3-1/4	12-012-WF076	12-012-LC076	#48 .0760	1	2	12-012-WF106	12-012-LC106
#19 .1660	2-1/8	3-1/4	12-012-WF077	12-012-LC077	#49 .0730	1	2	12-012-WF107	12-012-LC107
#20 .1610	2-1/8	3-1/4	12-012-WF078	12-012-LC078	#50 .0700	1	2	12-012-WF108	12-012-LC108
#21 .1590	2-1/8	3-1/4	12-012-WF079	12-012-LC079	#51 .0670	1	2	12-012-WF109	12-012-LC109
#22 .1570	2	3-1/8	12-012-WF080	12-012-LC080	#52 .0635	7/8	1-7/8	12-012-WF110	12-012-LC110
#23 .1540	2	3-1/8	12-012-WF081	12-012-LC081	#53 .0595	7/8	1-7/8	12-012-WF111	12-012-LC111
#24 .1520	2	3-1/8	12-012-WF082	12-012-LC082	#54 .0550	7/8	1-7/8	12-012-WF112	12-012-LC112
#25 .1495	1-7/8	3	12-012-WF083	12-012-LC083	#55 .0520	7/8	1-7/8	12-012-WF113	12-012-LC113
#26 .1470	1-7/8	3	12-012-WF084	12-012-LC084	#56 .0465	3/4	1-3/4	12-012-WF114	12-012-LC114
#27 .1440	1-7/8	3	12-012-WF085	12-012-LC085	#57 .0430	3/4	1-3/4	12-012-WF115	12-012-LC115
#28 .1405	1-3/4	2-7/8	12-012-WF086	12-012-LC086	#58 .0420	11/16	1-5/8	12-012-WF116	12-012-LC116
#29 .1360	1-3/4	2-7/8	12-012-WF087	12-012-LC087	#59 .0410	11/16	1-5/8	12-012-WF117	12-012-LC117
#30 .1285	1-5/8	2-3/4	12-012-WF088	12-012-LC088	#60 .0400	11/16	1-5/8	12-012-WF118	12-012-LC118

## HSS LEFT HAND DRILLS SET

SIZE	SPECIFICATION	HSS	HSSCO5
15 PCS/SET	1/16-1/2x1/32"	12-012-S01	12-012-S05
29 PCS/SET	1/16-1/2x1/64"	12-012-S02	12-012-S06
5 PCS/SET	1/8,3/16,1/4,5/16,3/8"	12-012-S03	12-012-S07
21 PCS/SET	1/16-3/8x1/64"	12-012-S04	12-012-S08



## HSS PARABOLIC FLUTE JOBBER LENGTH DRILLS



Stable multirange drill with reinforced drill core and parabolic flute for ideal chip removal. Ideal for drilling medium and long chipping materials.

### FRACTIONAL SIZES, ANSI B94

SIZE IN	FLUTE LENGTH	OVERALL LENGTH	BRIGHT FINISH HSS	GOLD COATED HSSCO5	SIZE IN	FLUTE LENGTH	OVERALL LENGTH	BRIGHT FINISH HSS	GOLD COATED HSSCO5
1/64	3/16	3/4	12-013-WF001	12-013-LC001	17/64	2-7/8	4-1/8	12-013-WF017	12-013-LC017
1/32	1/2	1-3/8	12-013-WF002	12-013-LC002	9/32	2-15/16	4-1/4	12-013-WF018	12-013-LC018
3/64	3/4	1-3/4	12-013-WF003	12-013-LC003	19/64	3-1/16	4-3/8	12-013-WF019	12-013-LC019
1/16	7/8	1-7/8	12-013-WF004	12-013-LC004	5/16	3-3/16	4-1/2	12-013-WF020	12-013-LC020
5/64	1	2	12-013-WF005	12-013-LC005	21/64	3-5/16	4-5/8	12-013-WF021	12-013-LC021
3/32	1-1/4	2-1/4	12-013-WF006	12-013-LC006	11/32	3-7/16	4-3/4	12-013-WF022	12-013-LC022
7/64	1-1/2	2-5/8	12-013-WF007	12-013-LC007	23/64	3-1/2	4-7/8	12-013-WF023	12-013-LC023
1/8	1-5/8	2-3/4	12-013-WF008	12-013-LC008	3/8	3-5/8	5	12-013-WF024	12-013-LC024
9/64	1-3/4	2-7/8	12-013-WF009	12-013-LC009	25/64	3-3/4	5-1/8	12-013-WF025	12-013-LC025
5/32	2	3-1/8	12-013-WF010	12-013-LC010	13/32	3-7/8	5-1/4	12-013-WF026	12-013-LC026
11/64	2-1/8	3-1/4	12-013-WF011	12-013-LC011	27/64	3-15/16	5-3/8	12-013-WF027	12-013-LC027
3/16	2-5/16	3-1/2	12-013-WF012	12-013-LC012	7/16	4-1/16	5-1/2	12-013-WF028	12-013-LC028
13/64	2-7/16	3-5/8	12-013-WF013	12-013-LC013	29/64	4-3/16	5-5/8	12-013-WF029	12-013-LC029
7/32	2-1/2	3-3/4	12-013-WF014	12-013-LC014	15/32	4-5/16	5-3/4	12-013-WF030	12-013-LC030
15/64	2-5/8	3-7/8	12-013-WF015	12-013-LC015	31/64	4-3/8	5-7/8	12-013-WF031	12-013-LC031
1/4	2-3/4	4	12-013-WF016	12-013-LC016	1/2	4-1/2	6	12-013-WF032	12-013-LC032

### LETTER SIZES, ANSI B94

SIZE IN	FLUTE LENGTH	OVERALL LENGTH	BRIGHT FINISH HSS	GOLD COATED HSSCO5	SIZE IN	FLUTE LENGTH	OVERALL LENGTH	BRIGHT FINISH HSS	GOLD COATED HSSCO5
A .2340	2-5/8	3-7/8	12-013-WF045	12-013-LC045	N .3020	3-1/16	4-3/8	12-013-WF058	12-013-LC058
B .2380	2-3/4	4	12-013-WF046	12-013-LC046	O .3160	3-3/16	4-1/2	12-013-WF059	12-013-LC059
C .2420	2-3/4	4	12-013-WF047	12-013-LC047	P .3230	3-5/16	4-5/8	12-013-WF060	12-013-LC060
D .2460	2-3/4	4	12-013-WF048	12-013-LC048	Q .3320	3-7/16	4-3/4	12-013-WF061	12-013-LC061
E .2500	2-3/4	4	12-013-WF049	12-013-LC049	R .3390	3-7/16	4-3/4	12-013-WF062	12-013-LC062
F .2570	2-7/8	4-1/8	12-013-WF050	12-013-LC050	S .3480	3-1/2	4-7/8	12-013-WF063	12-013-LC063
G .2610	2-7/8	4-1/8	12-013-WF051	12-013-LC051	T .3490	3-1/2	4-7/8	12-013-WF064	12-013-LC064
H .2660	2-7/8	4-1/8	12-013-WF052	12-013-LC052	U .3680	3-5/8	5	12-013-WF065	12-013-LC065
I .2720	2-7/8	4-1/8	12-013-WF053	12-013-LC053	V .3770	3-5/8	5	12-013-WF066	12-013-LC066
J .2770	2-7/8	4-1/8	12-013-WF054	12-013-LC054	W .3860	3-3/4	5-1/8	12-013-WF067	12-013-LC067
K .2810	2-15/16	4-1/4	12-013-WF055	12-013-LC055	X .3970	3-3/4	5-1/8	12-013-WF068	12-013-LC068
L .2900	2-15/16	4-1/4	12-013-WF056	12-013-LC056	Y .4040	3-7/8	5-1/4	12-013-WF069	12-013-LC069
M .2950	3-1/16	4-3/8	12-013-WF057	12-013-LC057	Z .4130	3-7/8	5-1/4	12-013-WF070	12-013-LC070

## HSS PARABOLIC FLUTE JOBBER LENGTH DRILLS



Stable multirange drill with reinforced drill core and parabolic flute for ideal chip removal. Ideal for drilling medium and long chipping materials.

SIZE IN	FLUTE LENGTH	OVERALL LENGTH	BRIGHT FINISH HSS	GOLD COATED HSSCO5	SIZE IN	FLUTE LENGTH	OVERALL LENGTH	BRIGHT FINISH HSS	GOLD COATED HSSCO5
#1 .2280	2-5/8	3-7/8	12-013-WF071	12-013-LC071	#31 .1200	1-5/8	2-3/4	12-013-WF101	12-013-LC101
#2 .2210	2-5/8	3-7/8	12-013-WF072	12-013-LC072	#32 .1160	1-5/8	2-3/4	12-013-WF102	12-013-LC102
#3 .2130	2-1/2	3-3/4	12-013-WF073	12-013-LC073	#33 .1130	1-1/2	2-5/8	12-013-WF103	12-013-LC103
#4 .2090	2-1/2	3-3/4	12-013-WF074	12-013-LC074	#34 .1110	1-1/2	2-5/8	12-013-WF104	12-013-LC104
#5 .2055	2-1/2	3-3/4	12-013-WF075	12-013-LC075	#35 .1100	1-1/2	2-5/8	12-013-WF105	12-013-LC105
#6 .2040	2-1/2	3-3/4	12-013-WF076	12-013-LC076	#36 .1065	1-7/16	2-1/2	12-013-WF106	12-013-LC106
#7 .2010	2-7/16	3-5/8	12-013-WF077	12-013-LC077	#37 .1040	1-7/16	2-1/2	12-013-WF107	12-013-LC107
#8 .1990	2-7/16	3-5/8	12-013-WF078	12-013-LC078	#38 .1015	1-7/16	2-1/2	12-013-WF108	12-013-LC108
#9 .1960	2-7/16	3-5/8	12-013-WF079	12-013-LC079	#39 .0995	1-3/8	2-3/8	12-013-WF109	12-013-LC109
#10 .1935	2-7/16	3-5/8	12-013-WF080	12-013-LC080	#40 .0980	1-3/8	2-3/8	12-013-WF110	12-013-LC110
#11 .1910	2-5/16	3-1/2	12-013-WF081	12-013-LC081	#41 .0960	1-3/8	2-3/8	12-013-WF111	12-013-LC111
#12 .1890	2-5/16	3-1/2	12-013-WF082	12-013-LC082	#42 .0935	1-1/4	2-1/4	12-013-WF112	12-013-LC112
#13 .1850	2-5/16	3-1/2	12-013-WF083	12-013-LC083	#43 .0890	1-1/4	2-1/4	12-013-WF113	12-013-LC113
#14 .1820	2-3/16	3-3/8	12-013-WF084	12-013-LC084	#44 .0860	1-1/8	2-1/8	12-013-WF114	12-013-LC114
#15 .1800	2-3/16	3-3/8	12-013-WF085	12-013-LC085	#45 .0820	1-1/8	2-1/8	12-013-WF115	12-013-LC115
#16 .1770	2-3/16	3-3/8	12-013-WF086	12-013-LC086	#46 .0810	1-1/8	2-1/8	12-013-WF116	12-013-LC116
#17 .1730	2-3/16	3-3/8	12-013-WF087	12-013-LC087	#47 .0785	1	2	12-013-WF117	12-013-LC117
#18 .1695	2-1/8	3-1/4	12-013-WF088	12-013-LC088	#48 .0760	1	2	12-013-WF118	12-013-LC118
#19 .1660	2-1/8	3-1/4	12-013-WF089	12-013-LC089	#49 .0730	1	2	12-013-WF119	12-013-LC119
#20 .1610	2-1/8	3-1/4	12-013-WF090	12-013-LC090	#50 .0700	1	2	12-013-WF120	12-013-LC120
#21 .1590	2-1/8	3-1/4	12-013-WF091	12-013-LC091	#51 .0670	1	2	12-013-WF121	12-013-LC121
#22 .1570	2	3-1/8	12-013-WF092	12-013-LC092	#52 .0635	7/8	1-7/8	12-013-WF122	12-013-LC122
#23 .1540	2	3-1/8	12-013-WF093	12-013-LC093	#53 .0595	7/8	1-7/8	12-013-WF123	12-013-LC123
#24 .1520	2	3-1/8	12-013-WF094	12-013-LC094	#54 .0550	7/8	1-7/8	12-013-WF124	12-013-LC124
#25 .1495	1-7/8	3	12-013-WF095	12-013-LC095	#55 .0520	7/8	1-7/8	12-013-WF125	12-013-LC125
#26 .1470	1-7/8	3	12-013-WF096	12-013-LC096	#56 .0465	3/4	1-3/4	12-013-WF126	12-013-LC126
#27 .1440	1-7/8	3	12-013-WF097	12-013-LC097	#57 .0430	3/4	1-3/4	12-013-WF127	12-013-LC127
#28 .1405	1-3/4	2-7/8	12-013-WF098	12-013-LC098	#58 .0420	11/16	1-5/8	12-013-WF128	12-013-LC128
#29 .1360	1-3/4	2-7/8	12-013-WF099	12-013-LC099	#59 .0410	11/16	1-5/8	12-013-WF129	12-013-LC129
#30 .1285	1-5/8	2-3/4	12-013-WF100	12-013-LC100	#60 .0400	11/16	1-5/8	12-013-WF130	12-013-LC130

## HSS PARABOLIC FLUTE JOBBER LENGTH DRILLS SET

SIZE	SPECIFICATION	HSS	HSS-TIN	HSSCO5
21 PCS/SET	1/16-3/8x1/64"	12-013-S04	12-013-S03	12-013-S05
29 PCS/SET	1/16-1/2x1/64"	12-013-S02	12-013-S01	12-013-S06



## HSS TAPER LENGTH DRILLS



For general purpose drilling where long length is required, they have same flute length as taper shank drills

### FRACTIONAL SIZES ANSI B94

SIZE IN	FLUTE LENGTH	OVERALL LENGTH	BLACK OXIDE HSS	BRIGHT FINISH HSS	SIZE IN	FLUTE LENGTH	OVERALL LENGTH	BLACK OXIDE HSS	BRIGHT FINISH HSS
1/16	1-3/4	3	12-14A-BR001	12-14A-WF001	19/64	4	6-3/8	12-14A-BR016	12-14A-WF016
5/64	2	3-3/4	12-14A-BR002	12-14A-WF002	5/16	4	6-3/8	12-14A-BR017	12-14A-WF017
3/32	2-1/4	4-1/4	12-14A-BR003	12-14A-WF003	21/64	4-1/8	6-1/2	12-14A-BR018	12-14A-WF018
7/64	2-1/2	4-5/8	12-14A-BR004	12-14A-WF004	11/32	4-1/8	6-1/2	12-14A-BR019	12-14A-WF019
1/8	2-3/4	5-1/8	12-14A-BR005	12-14A-WF005	23/64	4-1/4	6-3/4	12-14A-BR020	12-14A-WF020
9/64	3	5-3/8	12-14A-BR006	12-14A-WF006	3/8	4-1/4	6-3/4	12-14A-BR021	12-14A-WF021
5/32	3	5-3/8	12-14A-BR007	12-14A-WF007	25/64	4-3/8	7	12-14A-BR022	12-14A-WF022
11/64	3-3/8	5-3/4	12-14A-BR008	12-14A-WF008	13/32	4-3/8	7	12-14A-BR023	12-14A-WF023
3/16	3-3/8	5-3/4	12-14A-BR009	12-14A-WF009	27/64	4-5/8	7-1/4	12-14A-BR024	12-14A-WF024
13/64	3-5/8	6	12-14A-BR010	12-14A-WF010	7/16	4-5/8	7-1/4	12-14A-BR025	12-14A-WF025
7/32	3-5/8	6	12-14A-BR011	12-14A-WF011	29/64	4-3/4	7-1/2	12-14A-BR026	12-14A-WF026
15/64	3-3/4	6-1/8	12-14A-BR012	12-14A-WF012	15/32	4-3/4	7-1/2	12-14A-BR027	12-14A-WF027
1/4	3-3/4	6-1/8	12-14A-BR013	12-14A-WF013	31/64	4-3/4	7-3/4	12-14A-BR028	12-14A-WF028
17/64	3-7/8	6-1/4	12-14A-BR014	12-14A-WF014	1/2	4-3/4	7-3/4	12-14A-BR029	12-14A-WF029
9/32	3-7/8	6-1/4	12-14A-BR015	12-14A-WF015					

### LETTER SIZES ANSI B94

SIZE IN	FLUTE LENGTH	OVERALL LENGTH	BLACK OXIDE HSS	BRIGHT FINISH HSS	SIZE IN	FLUTE LENGTH	OVERALL LENGTH	BLACK OXIDE HSS	BRIGHT FINISH HSS
A .2340	3-3/4	6-1/8	12-14A-BR076	12-14A-WF076	N .3020	4	6-3/8	12-14A-BR089	12-14A-WF089
B .2380	3-3/4	6-1/8	12-14A-BR077	12-14A-WF077	O .3160	4-1/8	6-1/2	12-14A-BR090	12-14A-WF090
C .2420	3-3/4	6-1/8	12-14A-BR078	12-14A-WF078	P .3230	4-1/8	6-1/2	12-14A-BR091	12-14A-WF091
D .2460	3-3/4	6-1/8	12-14A-BR079	12-14A-WF079	Q .3320	4-1/8	6-1/2	12-14A-BR092	12-14A-WF092
E .2500	3-3/4	6-1/8	12-14A-BR080	12-14A-WF080	R .3390	4-1/8	6-1/2	12-14A-BR093	12-14A-WF093
F .2570	3-7/8	6-1/4	12-14A-BR081	12-14A-WF081	S .3480	4-1/4	6-3/4	12-14A-BR094	12-14A-WF094
G .2610	3-7/8	6-1/4	12-14A-BR082	12-14A-WF082	T .3490	4-1/4	6-3/4	12-14A-BR095	12-14A-WF095
H .2660	3-7/8	6-1/4	12-14A-BR083	12-14A-WF083	U .3680	4-1/4	6-3/4	12-14A-BR096	12-14A-WF096
I .2720	3-7/8	6-1/4	12-14A-BR084	12-14A-WF084	V .3770	4-3/8	7	12-14A-BR097	12-14A-WF097
J .2770	3-7/8	6-1/4	12-14A-BR085	12-14A-WF085	W .3860	4-3/8	7	12-14A-BR098	12-14A-WF098
K .2810	3-7/8	6-1/4	12-14A-BR086	12-14A-WF086	X .3970	4-3/8	7	12-14A-BR099	12-14A-WF099
L .2900	4	6-3/8	12-14A-BR087	12-14A-WF087	Y .4040	4-3/8	7	12-14A-BR100	12-14A-WF100
M .2950	4	6-3/8	12-14A-BR088	12-14A-WF088	Z .4130	4-5/8	7-1/4	12-14A-BR101	12-14A-WF101

## HSS TAPER LENGTH DRILLS



For general purpose drilling where long length is required, they have same flute length as taper shank drills

### WIRE GAUGE SIZES ANSI B94

SIZE IN	FLUTE LENGTH	OVERALL LENGTH	BLACK OXIDE HSS	BRIGHT FINISH HSS	SIZE IN	FLUTE LENGTH	OVERALL LENGTH	BLACK OXIDE HSS	BRIGHT FINISH HSS
#1 .2280	3-3/4	6-1/8	12-14A-BR102	12-14A-WF102	#31 .1200	2-3/4	5-1/8	12-14A-BR132	12-14A-WF132
#2 .2210	3-3/4	6-1/8	12-14A-BR103	12-14A-WF103	#32 .1160	2-3/4	5-1/8	12-14A-BR133	12-14A-WF133
#3 .2130	3-5/8	6	12-14A-BR104	12-14A-WF104	#33 .1130	2-3/4	5-1/8	12-14A-BR134	12-14A-WF134
#4 .2090	3-5/8	6	12-14A-BR105	12-14A-WF105	#34 .1110	2-3/4	5-1/8	12-14A-BR135	12-14A-WF135
#5 .2055	3-5/8	6	12-14A-BR106	12-14A-WF106	#35 .1100	2-3/4	5-1/8	12-14A-BR136	12-14A-WF136
#6 .2040	3-5/8	6	12-14A-BR107	12-14A-WF107	#36 .1065	2-1/2	4-5/8	12-14A-BR137	12-14A-WF137
#7 .2010	3-5/8	6	12-14A-BR108	12-14A-WF108	#37 .1040	2-1/2	4-5/8	12-14A-BR138	12-14A-WF138
#8 .1990	3-5/8	6	12-14A-BR109	12-14A-WF109	#38 .1015	2-1/2	4-5/8	12-14A-BR139	12-14A-WF139
#9 .1960	3-5/8	6	12-14A-BR110	12-14A-WF110	#39 .0995	2-1/2	4-5/8	12-14A-BR140	12-14A-WF140
#10 .1935	3-5/8	6	12-14A-BR111	12-14A-WF111	#40 .0980	2-1/2	4-5/8	12-14A-BR141	12-14A-WF141
#11 .1910	3-5/8	6	12-14A-BR112	12-14A-WF112	#41 .0960	2-1/2	4-5/8	12-14A-BR142	12-14A-WF142
#12 .1890	3-5/8	6	12-14A-BR113	12-14A-WF113	#42 .0935	2-1/4	4-1/4	12-14A-BR143	12-14A-WF143
#13 .1850	3-3/8	5-3/4	12-14A-BR114	12-14A-WF114	#43 .0890	2-1/4	4-1/4	12-14A-BR144	12-14A-WF144
#14 .1820	3-3/8	5-3/4	12-14A-BR115	12-14A-WF115	#44 .0860	2-1/4	4-1/4	12-14A-BR145	12-14A-WF145
#15 .1800	3-3/8	5-3/4	12-14A-BR116	12-14A-WF116	#45 .0820	2-1/4	4-1/4	12-14A-BR146	12-14A-WF146
#16 .1770	3-3/8	5-3/4	12-14A-BR117	12-14A-WF117	#46 .0810	2-1/4	4-1/4	12-14A-BR147	12-14A-WF147
#17 .1730	3-3/8	5-3/4	12-14A-BR118	12-14A-WF118	#47 .0785	2-1/4	4-1/4	12-14A-BR148	12-14A-WF148
#18 .1695	3-3/8	5-3/4	12-14A-BR119	12-14A-WF119	#48 .0760	2	3-3/4	12-14A-BR149	12-14A-WF149
#19 .1660	3-3/8	5-3/4	12-14A-BR120	12-14A-WF120	#49 .0730	2	3-3/4	12-14A-BR150	12-14A-WF150
#20 .1610	3-3/8	5-3/4	12-14A-BR121	12-14A-WF121	#50 .0700	2	3-3/4	12-14A-BR151	12-14A-WF151
#21 .1590	3-3/8	5-3/4	12-14A-BR122	12-14A-WF122	#51 .0670	2	3-3/4	12-14A-BR152	12-14A-WF152
#22 .1570	3-3/8	5-3/4	12-14A-BR123	12-14A-WF123	#52 .0635	2	3-3/4	12-14A-BR153	12-14A-WF153
#23 .1540	3	5-3/8	12-14A-BR124	12-14A-WF124	#53 .0595	1-3/4	3	12-14A-BR154	12-14A-WF154
#24 .1520	3	5-3/8	12-14A-BR125	12-14A-WF125	#54 .0550	1-3/4	3	12-14A-BR155	12-14A-WF155
#25 .1495	3	5-3/8	12-14A-BR126	12-14A-WF126	#55 .0520	1-3/4	3	12-14A-BR156	12-14A-WF156
#26 .1470	3	5-3/8	12-14A-BR127	12-14A-WF127	#56 .0465	1-1/8	2-1/4	12-14A-BR157	12-14A-WF157
#27 .1440	3	5-3/8	12-14A-BR128	12-14A-WF128	#57 .0430	1-1/8	2-1/4	12-14A-BR158	12-14A-WF158
#28 .1405	3	5-3/8	12-14A-BR129	12-14A-WF129	#58 .0420	1-1/8	2-1/4	12-14A-BR159	12-14A-WF159
#29 .1360	3	5-3/8	12-14A-BR130	12-14A-WF130	#59 .0410	1-1/8	2-1/4	12-14A-BR160	12-14A-WF160
#30 .1285	3	5-3/8	12-14A-BR131	12-14A-WF131	#60 .0400	1-1/8	2-1/4	12-14A-BR161	12-14A-WF161

## HSS SCREW MACHINE LENGTH DRILLS



Screw machine length drills are popular in the automotives and construction industries. Their short flute and overall length provide maximum rigidity. They often used in screw machine set-ups where spindle clearance is limited.

### FRACTIONAL SIZES ANSI B94

SIZE IN	FLUTE LENGTH	OVERALL LENGTH	BLACK OXIDE HSS	BRIGHT FINISH HSS	SIZE IN	FLUTE LENGTH	OVERALL LENGTH	BLACK OXIDE HSS	BRIGHT FINISH HSS
3/64	1/2	1-3/8	12-14B-BR001	12-14B-WF001	9/32	1-1/2	2-11/16	12-14B-BR016	12-14B-WF016
1/16	5/8	1-5/8	12-14B-BR002	12-14B-WF002	19/64	1-9/16	2-3/4	12-14B-BR017	12-14B-WF017
5/64	11/16	1-11/16	12-14B-BR003	12-14B-WF003	5/16	1-5/8	2-13/16	12-14B-BR018	12-14B-WF018
3/32	3/4	1-3/4	12-14B-BR004	12-14B-WF004	21/64	1-11/16	2-15/16	12-14B-BR019	12-14B-WF019
7/64	13/16	1-13/16	12-14B-BR005	12-14B-WF005	11/32	1-11/16	3	12-14B-BR020	12-14B-WF020
1/8	7/8	1-7/8	12-14B-BR006	12-14B-WF006	23/64	1-3/4	3-1/16	12-14B-BR021	12-14B-WF021
9/64	15/16	1-15/16	12-14B-BR007	12-14B-WF007	3/8	1-13/16	3-1/8	12-14B-BR022	12-14B-WF022
5/32	1	2-1/16	12-14B-BR008	12-14B-WF008	25/64	1-7/8	3-1/4	12-14B-BR023	12-14B-WF023
11/64	1-1/16	2-1/8	12-14B-BR009	12-14B-WF009	13/32	1-15/16	3-5/16	12-14B-BR024	12-14B-WF024
3/16	1-1/8	2-3/16	12-14B-BR010	12-14B-WF010	27/64	2	3-3/8	12-14B-BR025	12-14B-WF025
13/64	1-3/16	2-1/4	12-14B-BR011	12-14B-WF011	7/16	2-1/16	3-7/16	12-14B-BR026	12-14B-WF026
7/32	1-1/4	2-3/8	12-14B-BR012	12-14B-WF012	29/64	2-1/8	3-9/16	12-14B-BR027	12-14B-WF027
15/64	1-5/16	2-7/16	12-14B-BR013	12-14B-WF013	15/32	2-1/8	3-5/8	12-14B-BR028	12-14B-WF028
1/4	1-3/8	2-1/2	12-14B-BR014	12-14B-WF014	31/64	2-3/16	3-11/16	12-14B-BR029	12-14B-WF029
17/64	1-7/16	2-5/8	12-14B-BR015	12-14B-WF015	1/2	2-1/4	3-3/4	12-14B-BR030	12-14B-WF030

### LETTER SIZES ANSI B94

SIZE IN	FLUTE LENGTH	OVERALL LENGTH	BLACK OXIDE HSS	BRIGHT FINISH HSS	SIZE IN	FLUTE LENGTH	OVERALL LENGTH	BLACK OXIDE HSS	BRIGHT FINISH HSS
A .2340	1-5/16	2-7/16	12-14B-BR119	12-14B-WF119	N .3020	1-5/8	2-13/16	12-14B-BR132	12-14B-WF132
B .2380	1-3/8	2-1/2	12-14B-BR120	12-14B-WF120	O .3160	1-11/16	2-15/16	12-14B-BR133	12-14B-WF133
C .2420	1-3/8	2-1/2	12-14B-BR121	12-14B-WF121	P .3230	1-11/16	2-15/16	12-14B-BR134	12-14B-WF134
D .2460	1-3/8	2-1/2	12-14B-BR122	12-14B-WF122	Q .3320	1-11/16	3	12-14B-BR135	12-14B-WF135
E .2500	1-3/8	2-1/2	12-14B-BR123	12-14B-WF123	R .3390	1-11/16	3	12-14B-BR136	12-14B-WF136
F .2570	1-7/16	2-5/8	12-14B-BR124	12-14B-WF124	S .3480	1-3/4	3-1/16	12-14B-BR137	12-14B-WF137
G .2610	1-7/16	2-5/8	12-14B-BR125	12-14B-WF125	T .3490	1-3/4	3-1/16	12-14B-BR138	12-14B-WF138
H .2660	1-1/2	2-11/16	12-14B-BR126	12-14B-WF126	U .3680	1-13/16	3-1/8	12-14B-BR139	12-14B-WF139
I .2720	1-1/2	2-11/16	12-14B-BR127	12-14B-WF127	V .3770	1-7/8	3-1/4	12-14B-BR140	12-14B-WF140
J .2770	1-1/2	2-11/16	12-14B-BR128	12-14B-WF128	W .3860	1-7/8	3-1/4	12-14B-BR141	12-14B-WF141
K .2810	1-1/2	2-11/16	12-14B-BR129	12-14B-WF129	X .3970	1-15/16	3-5/16	12-14B-BR142	12-14B-WF142
L .2900	1-9/16	2-3/4	12-14B-BR130	12-14B-WF130	Y .4040	1-15/16	3-5/16	12-14B-BR143	12-14B-WF143
M .2950	1-9/16	2-3/4	12-14B-BR131	12-14B-WF131	Z .4130	2	3-3/8	12-14B-BR144	12-14B-WF144

### REMARK

Drill size	Shank diameter
Up to 1" inclusive	Same as drill diameter
Over 1" to 1-1/4" inclusive	1"
Over 1-1/4" to 1-1/2" inclusive	1-1/4"
Over 1-1/2" to 2-1/2" inclusive	1-1/2"

## HSS SCREW MACHINE LENGTH DRILLS



### WIRE GAUGE SIZES ANSI B94

SIZE IN	FLUTE LENGTH	OVERALL LENGTH	BLACK OXIDE HSS	BRIGHT FINISH HSS	SIZE IN	FLUTE LENGTH	OVERALL LENGTH	BLACK OXIDE HSS	BRIGHT FINISH HSS
#1 .2280	1-5/16	2-7/16	12-14B-BR145	12-14B-WF145	#31 .1200	7/8	1-7/8	12-14B-BR175	12-14B-WF175
#2 .2210	1-5/16	2-7/16	12-14B-BR146	12-14B-WF146	#32 .1160	7/8	1-7/8	12-14B-BR176	12-14B-WF176
#3 .2130	1-1/4	2-3/8	12-14B-BR147	12-14B-WF147	#33 .1130	7/8	1-7/8	12-14B-BR177	12-14B-WF177
#4 .2090	1-1/4	2-3/8	12-14B-BR148	12-14B-WF148	#34 .1110	7/8	1-7/8	12-14B-BR178	12-14B-WF178
#5 .2055	1-1/4	2-3/8	12-14B-BR149	12-14B-WF149	#35 .1100	7/8	1-7/8	12-14B-BR179	12-14B-WF179
#6 .2040	1-1/4	2-3/8	12-14B-BR150	12-14B-WF150	#36 .1065	13/16	1-13/16	12-14B-BR180	12-14B-WF180
#7 .2010	1-3/16	2-1/4	12-14B-BR151	12-14B-WF151	#37 .1040	13/16	1-13/16	12-14B-BR181	12-14B-WF181
#8 .1990	1-3/16	2-1/4	12-14B-BR152	12-14B-WF152	#38 .1015	13/16	1-13/16	12-14B-BR182	12-14B-WF182
#9 .1960	1-3/16	2-1/4	12-14B-BR153	12-14B-WF153	#39 .0995	13/16	1-13/16	12-14B-BR183	12-14B-WF183
#10 .1935	1-3/16	2-1/4	12-14B-BR154	12-14B-WF154	#40 .0980	13/16	1-13/16	12-14B-BR184	12-14B-WF184
#11 .1910	1-3/16	2-1/4	12-14B-BR155	12-14B-WF155	#41 .0960	13/16	1-13/16	12-14B-BR185	12-14B-WF185
#12 .1890	1-3/16	2-1/4	12-14B-BR156	12-14B-WF156	#42 .0935	3/4	1-3/4	12-14B-BR186	12-14B-WF186
#13 .1850	1-1/8	2-3/16	12-14B-BR157	12-14B-WF157	#43 .0890	3/4	1-3/4	12-14B-BR187	12-14B-WF187
#14 .1820	1-1/8	2-3/16	12-14B-BR158	12-14B-WF158	#44 .0860	3/4	1-3/4	12-14B-BR188	12-14B-WF188
#15 .1800	1-1/8	2-3/16	12-14B-BR159	12-14B-WF159	#45 .0820	3/4	1-3/4	12-14B-BR189	12-14B-WF189
#16 .1770	1-1/8	2-3/16	12-14B-BR160	12-14B-WF160	#46 .0810	3/4	1-3/4	12-14B-BR190	12-14B-WF190
#17 .1730	1-1/8	2-3/16	12-14B-BR161	12-14B-WF161	#47 .0785	3/4	1-3/4	12-14B-BR191	12-14B-WF191
#18 .1695	1-1/16	2-1/8	12-14B-BR162	12-14B-WF162	#48 .0760	11/16	1-11/16	12-14B-BR192	12-14B-WF192
#19 .1660	1-1/16	2-1/8	12-14B-BR163	12-14B-WF163	#49 .0730	11/16	1-11/16	12-14B-BR193	12-14B-WF193
#20 .1610	1-1/16	2-1/8	12-14B-BR164	12-14B-WF164	#50 .0700	11/16	1-11/16	12-14B-BR194	12-14B-WF194
#21 .1590	1-1/16	2-1/8	12-14B-BR165	12-14B-WF165	#51 .0670	11/16	1-11/16	12-14B-BR195	12-14B-WF195
#22 .1570	1-1/16	2-1/8	12-14B-BR166	12-14B-WF166	#52 .0635	11/16	1-11/16	12-14B-BR196	12-14B-WF196
#23 .1540	1	2-1/16	12-14B-BR167	12-14B-WF167	#53 .0595	5/8	1-5/8	12-14B-BR197	12-14B-WF197
#24 .1520	1	2-1/16	12-14B-BR168	12-14B-WF168	#54 .0550	5/8	1-5/8	12-14B-BR198	12-14B-WF198
#25 .1495	1	2-1/16	12-14B-BR169	12-14B-WF169	#55 .0520	5/8	1-5/8	12-14B-BR199	12-14B-WF199
#26 .1470	1	2-1/16	12-14B-BR170	12-14B-WF170	#56 .0465	1/2	1-3/8	12-14B-BR200	12-14B-WF200
#27 .1440	1	2-1/16	12-14B-BR171	12-14B-WF171	#57 .0430	1/2	1-3/8	12-14B-BR201	12-14B-WF201
#28 .1405	15/16	1-15/16	12-14B-BR172	12-14B-WF172	#58 .0420	1/2	1-3/8	12-14B-BR202	12-14B-WF202
#29 .1360	15/16	1-15/16	12-14B-BR173	12-14B-WF173	#59 .0410	1/2	1-3/8	12-14B-BR203	12-14B-WF203
#30 .1285	15/16	1-15/16	12-14B-BR174	12-14B-WF174	#60 .0400	1/2	1-3/8	12-14B-BR204	12-14B-WF204

## HSS EXTRA LENGTH DRILLS STRAIGHT SHANK



These drills are utilized in deep hole or long reach drilling applications in many kinds of material for either hand held or fixed spindle use

FRACTIONAL, WIRE, LETTER AND METRIC SIZES, ANSI B94

SIZE DEC.EQUIV.	BRIGHT FINISH HSS	SIZE DEC.EQUIV.	BRIGHT FINISH HSS	SIZE DEC.EQUIV.	BRIGHT FINISH HSS	SIZE DEC.EQUIV.	BRIGHT FINISH HSS
6"OAL-4"FLT		17/32	12-015-WF047	U .3680	12-015-WF094	9.0	12-015-WF142
1/16	12-015-WF001	10"OAL-7.5"FLT		3/8	12-015-WF095	10.0	12-015-WF143
#50 .0700	12-015-WF002	1/8	12-015-WF048	25/64	12-015-WF096	10.5	12-015-WF144
5/64	12-015-WF003	9/64	12-015-WF049	13/32	12-015-WF097	11.0	12-015-WF145
3/32	12-015-WF004	5/32	12-015-WF050	27/64	12-015-WF098	12.0	12-015-WF146
7/64	12-015-WF005	11/64	12-015-WF051	7/16	12-015-WF099	13.0	12-015-WF147
1/8	12-015-WF006	3/16	12-015-WF052	29/64	12-015-WF100	13.8	12-015-WF148
9/64	12-015-WF007	13/64	12-015-WF053	15/32	12-015-WF101	14.0	12-015-WF149
5/32	12-015-WF008	7/32	12-015-WF054	31/64	12-015-WF102	15.0	12-015-WF150
11/64	12-015-WF009	15/64	12-015-WF055	1/2	12-015-WF103	16.0	12-015-WF151
3/16	12-015-WF010	1/4	12-015-WF056	33/64	12-015-WF104	17.0	12-015-WF152
8"OAL-5.5"FLT		17/64	12-015-WF057	17/32	12-015-WF105	17.5	12-015-WF153
3/32	12-015-WF011	9/32	12-015-WF058	35/64	12-015-WF106	20.0	12-015-WF154
7/64	12-015-WF012	19/64	12-015-WF059	9/16	12-015-WF107	15"OAL-11"FLT	
1/8	12-015-WF013	5/16	12-015-WF060	37/64	12-015-WF108	3/16	12-015-WF155
#30 .1285	12-015-WF014	21/64	12-015-WF061	19/32	12-015-WF109	7/32	12-015-WF156
9/64	12-015-WF015	11/32	12-015-WF062	39/64	12-015-WF110	1/4	12-015-WF157
5/32	12-015-WF016	23/64	12-015-WF063	5/8	12-015-WF111	9/32	12-015-WF158
#21 .1590	12-015-WF017	3/8	12-015-WF064	41/64	12-015-WF112	5/16	12-015-WF159
11/64	12-015-WF018	25/64	12-015-WF065	21/32	12-015-WF113	11/32	12-015-WF160
3/16	12-015-WF019	13/32	12-015-WF066	43/64	12-015-WF114	3/8	12-015-WF161
13/64	12-015-WF020	27/64	12-015-WF067	11/16	12-015-WF115	13/32	12-015-WF162
7/32	12-015-WF021	11 mm .4331	12-015-WF068	45/64	12-015-WF116	11 mm .4331	12-015-WF163
15/64	12-015-WF022	7/16	12-015-WF069	23/32	12-015-WF117	7/16	12-015-WF164
1/4	12-015-WF023	29/64	12-015-WF070	47/64	12-015-WF118	29/64	12-015-WF165
F .2570	12-015-WF024	15/32	12-015-WF071	3/4	12-015-WF119	15/32	12-015-WF166
17/64	12-015-WF025	31/64	12-015-WF072	49/64	12-015-WF120	1/2	12-015-WF167
9/32	12-015-WF026	1/2	12-015-WF073	25/32	12-015-WF121	17/32	12-015-WF168
19/64	12-015-WF027	17/32	12-015-WF074	51/64	12-015-WF122	9/16	12-015-WF169
5/16	12-015-WF028	9/16	12-015-WF075	13/16	12-015-WF123	19/32	12-015-WF170
21/64	12-015-WF029	5/8	12-015-WF076	53/64	12-015-WF124	5/8	12-015-WF171
11/32	12-015-WF030	12"OAL-9"FLT		27/32	12-015-WF125	21/32	12-015-WF172
23/64	12-015-WF031	7/64	12-015-WF077	55/64	12-015-WF126	11/16	12-015-WF173
3/8	12-015-WF032	1/8	12-015-WF078	7/8	12-015-WF127	23/32	12-015-WF174
25/64	12-015-WF033	9/64	12-015-WF079	57/64	12-015-WF128	3/4	12-015-WF175
13/32	12-015-WF034	5/32	12-015-WF080	29/32	12-015-WF129	25/32	12-015-WF176
27/64	12-015-WF035	11/64	12-015-WF081	59/64	12-015-WF130	13/16	12-015-WF177
7/16	12-015-WF036	3/16	12-015-WF082	15/16	12-015-WF131	7/8	12-015-WF178
29/64	12-015-WF037	13/64	12-015-WF083	61/64	12-015-WF132	15/16	12-015-WF179
15/32	12-015-WF038	7/32	12-015-WF084	31/32	12-015-WF133	1	12-015-WF180
31/64	12-015-WF039	15/64	12-015-WF085	63/64	12-015-WF134	18"OAL-12"FLT	
1/2	12-015-WF040	1/4	12-015-WF086	1	12-015-WF135	1/8	12-015-WF181
9"OAL-6.5"FLT		17/64	12-015-WF087	12"OAL-9"FLT	mm	5/32	12-015-WF182
27/64	12-015-WF041	9/32	12-015-WF088	3.0	12-015-WF136	3/16	12-015-WF183
7/16	12-015-WF042	19/64	12-015-WF089	4.0	12-015-WF137	13/64	12-015-WF184
29/64	12-015-WF043	5/16	12-015-WF090	5.0	12-015-WF138	7/32	12-015-WF185
15/32	12-015-WF044	21/64	12-015-WF091	6.0	12-015-WF139	15/64	12-015-WF186
31/64	12-015-WF045	11/32	12-015-WF092	7.0	12-015-WF140	1/4	12-015-WF187
1/2	12-015-WF046	23/64	12-015-WF093	8.0	12-015-WF141	17/64	12-015-WF188

## HSS EXTRA LENGTH DRILLS STRAIGHT SHANK



These drills are utilized in deep hole or long reach drilling applications in many kinds of material for either hand held or fixed spindle use

FRACTIONAL, WIRE, LETTER AND METRIC SIZES, ANSI B94

SIZE DEC.EQUIV.	BRIGHT FINISH HSS	SIZE DEC.EQUIV.	BRIGHT FINISH HSS	SIZE DEC.EQUIV.	BRIGHT FINISH HSS	SIZE DEC.EQUIV.	BRIGHT FINISH HSS
9/32	12-015-WF189	63/64	12-015-WF235	33/64	12-015-WF297		
19/64	12-015-WF190	1	12-015-WF236	17/32	12-015-WF298		
5/16	12-015-WF191	1-1/8	12-015-WF237	35/64	12-015-WF299		
21/64	12-015-WF192	1-3/16	12-015-WF238	9/16	12-015-WF300		
11/32	12-015-WF193	1-1/4	12-015-WF239	37/64	12-015-WF301		
23/64	12-015-WF194	48"OAL-5.5"FLT		19/32	12-015-WF302		
3/8	12-015-WF195	1/4	12-015-WF258	39/64	12-015-WF303		
25/64	12-015-WF196	5/16	12-015-WF259	5/8	12-015-WF304		
13/32	12-015-WF197	3/8	12-015-WF260	41/64	12-015-WF305		
27/64	12-015-WF198	7/16	12-015-WF261	21/32	12-015-WF306		
11 mm .4331	12-015-WF199	1/2	12-015-WF262	43/64	12-015-WF307		
7/16	12-015-WF200	5/8	12-015-WF263	11/16	12-015-WF308		
29/64	12-015-WF201	3/4	12-015-WF264	45/64	12-015-WF309		
15/32	12-015-WF202	12"OAL-9"FLT	1/2" SHANK	23/32	12-015-WF310		
31/64	12-015-WF203	33/64	12-015-WF265	47/64	12-015-WF311		
1/2	12-015-WF204	17/32	12-015-WF266	3/4	12-015-WF312		
33/64	12-015-WF205	35/64	12-015-WF267	49/64	12-015-WF313		
17/32	12-015-WF206	9/16	12-015-WF268	25/32	12-015-WF314		
35/64	12-015-WF207	37/64	12-015-WF269	51/64	12-015-WF315		
9/16	12-015-WF208	19/32	12-015-WF270	13/16	12-015-WF316		
37/64	12-015-WF209	39/64	12-015-WF271	53/64	12-015-WF317		
19/32	12-015-WF210	5/8	12-015-WF272	27/32	12-015-WF318		
39/64	12-015-WF211	41/64	12-015-WF273	55/64	12-015-WF319		
5/8	12-015-WF212	21/32	12-015-WF274	7/8	12-015-WF320		
41/64	12-015-WF213	43/64	12-015-WF275	57/64	12-015-WF321		
21/32	12-015-WF214	11/16	12-015-WF276	29/32	12-015-WF322		
43/64	12-015-WF215	45/64	12-015-WF277	59/64	12-015-WF323		
11/16	12-015-WF216	23/32	12-015-WF278	15/16	12-015-WF324		
45/64	12-015-WF217	47/64	12-015-WF279	61/64	12-015-WF325		
23/32	12-015-WF218	3/4	12-015-WF280	31/32	12-015-WF326		
47/64	12-015-WF219	49/64	12-015-WF281	63/64	12-015-WF327		
3/4	12-015-WF220	25/32	12-015-WF282	1	12-015-WF328		
49/64	12-015-WF221	51/64	12-015-WF283				
25/32	12-015-WF222	13/16	12-015-WF284				
51/64	12-015-WF223	53/64	12-015-WF285				
13/16	12-015-WF224	27/32	12-015-WF286				
53/64	12-015-WF225	55/64	12-015-WF287				
27/32	12-015-WF226	7/8	12-015-WF288				
55/64	12-015-WF227	57/64	12-015-WF289				
7/8	12-015-WF228	29/32	12-015-WF290				
57/64	12-015-WF229	59/64	12-015-WF291				
29/32	12-015-WF230	15/16	12-015-WF292				
59/64	12-015-WF231	61/64	12-015-WF293				
15/16	12-015-WF232	31/32	12-015-WF294				
18"OAL-12"FLT		63/64	12-015-WF295				
61/64	12-015-WF233	1	12-015-WF296				
31/32	12-015-WF234	18"OAL-12"FLT	1/2" SHANK				

## HSS AIRCRAFT EXTENSION DRILLS SPLIT POINT



135° self-centering split point prevents "walking". Used to drill normal depth hole in hard to reach place.

### FRACTIONAL SIZES, ANSI B94

SIZE IN	FLUTE LENGTH	HSS 6" OAL	HSS 12" OAL	HSSCO5 6" OAL	HSSCO5 12" OAL
3/64	3/4	12-016-WF001	12-016-WF031	12-016-LC001	12-016-LC031
1/16	7/8	12-016-WF002	12-016-WF032	12-016-LC002	12-016-LC032
5/64	1	12-016-WF003	12-016-WF033	12-016-LC003	12-016-LC033
3/32	1-1/4	12-016-WF004	12-016-WF034	12-016-LC004	12-016-LC034
7/64	1-1/2	12-016-WF005	12-016-WF035	12-016-LC005	12-016-LC035
1/8	1-5/8	12-016-WF006	12-016-WF036	12-016-LC006	12-016-LC036
9/64	1-3/4	12-016-WF007	12-016-WF037	12-016-LC007	12-016-LC037
5/32	2	12-016-WF008	12-016-WF038	12-016-LC008	12-016-LC038
11/64	2-1/8	12-016-WF009	12-016-WF039	12-016-LC009	12-016-LC039
3/16	2-5/16	12-016-WF010	12-016-WF040	12-016-LC010	12-016-LC040
13/64	2-7/16	12-016-WF011	12-016-WF041	12-016-LC011	12-016-LC041
7/32	2-1/2	12-016-WF012	12-016-WF042	12-016-LC012	12-016-LC042
15/64	2-5/8	12-016-WF013	12-016-WF043	12-016-LC013	12-016-LC043
1/4	2-3/4	12-016-WF014	12-016-WF044	12-016-LC014	12-016-LC044
17/64	2-7/8	12-016-WF015	12-016-WF045	12-016-LC015	12-016-LC045
9/32	2-15/16	12-016-WF016	12-016-WF046	12-016-LC016	12-016-LC046
19/64	3-1/16	12-016-WF017	12-016-WF047	12-016-LC017	12-016-LC047
5/16	3-3/16	12-016-WF018	12-016-WF048	12-016-LC018	12-016-LC048
21/64	3-5/16	12-016-WF019	12-016-WF049	12-016-LC019	12-016-LC049
11/32	3-7/16	12-016-WF020	12-016-WF050	12-016-LC020	12-016-LC050
23/64	3-1/2	12-016-WF021	12-016-WF051	12-016-LC021	12-016-LC051
3/8	3-5/8	12-016-WF022	12-016-WF052	12-016-LC022	12-016-LC052
25/64	3-3/4	12-016-WF023	12-016-WF053	12-016-LC023	12-016-LC053
13/32	3-7/8	12-016-WF024	12-016-WF054	12-016-LC024	12-016-LC054
27/64	3-15/16	12-016-WF025	12-016-WF055	12-016-LC025	12-016-LC055
7/16	4-1/16	12-016-WF026	12-016-WF056	12-016-LC026	12-016-LC056
29/64	4-3/16	12-016-WF027	12-016-WF057	12-016-LC027	12-016-LC057
15/62	4-5/16	12-016-WF028	12-016-WF058	12-016-LC028	12-016-LC058
31/64	4-3/8	12-016-WF029	12-016-WF059	12-016-LC029	12-016-LC059
1/2	4-1/2	12-016-WF030	12-016-WF060	12-016-LC030	12-016-LC060

SIZE DEC. EQUIV.	FLUTE LENGTH	HSS 6" OAL	HSS 12" OAL	HSSCO5 6" OAL	HSSCO5 12" OAL
A .2340	2-5/8	12-016-WF061	12-016-WF087	12-016-LC061	12-016-LC087
B .2380	2-3/4	12-016-WF062	12-016-WF088	12-016-LC062	12-016-LC088
C .2420	2-3/4	12-016-WF063	12-016-WF089	12-016-LC063	12-016-LC089
D .2460	2-3/4	12-016-WF064	12-016-WF090	12-016-LC064	12-016-LC090
E .2500	2-3/4	12-016-WF065	12-016-WF091	12-016-LC065	12-016-LC091
F .2570	2-3/4	12-016-WF066	12-016-WF092	12-016-LC066	12-016-LC092
G .2610	2-7/8	12-016-WF067	12-016-WF093	12-016-LC067	12-016-LC093
H .2660	2-7/8	12-016-WF068	12-016-WF094	12-016-LC068	12-016-LC094
I .2720	2-7/8	12-016-WF069	12-016-WF095	12-016-LC069	12-016-LC095
J .2770	2-7/8	12-016-WF070	12-016-WF096	12-016-LC070	12-016-LC096
K .2810	2-15/16	12-016-WF071	12-016-WF097	12-016-LC071	12-016-LC097
L .2900	2-15/16	12-016-WF072	12-016-WF098	12-016-LC072	12-016-LC098
M .2950	3-1/16	12-016-WF073	12-016-WF099	12-016-LC073	12-016-LC099
N .3020	3-1/16	12-016-WF074	12-016-WF100	12-016-LC074	12-016-LC100
O .3160	3-3/16	12-016-WF075	12-016-WF101	12-016-LC075	12-016-LC101
P .3230	3-5/16	12-016-WF076	12-016-WF102	12-016-LC076	12-016-LC102
Q .3320	3-7/16	12-016-WF077	12-016-WF103	12-016-LC077	12-016-LC103
R .3390	3-7/16	12-016-WF078	12-016-WF104	12-016-LC078	12-016-LC104
S .3480	3-1/2	12-016-WF079	12-016-WF105	12-016-LC079	12-016-LC105
T .3490	3-1/2	12-016-WF080	12-016-WF106	12-016-LC080	12-016-LC106
U .3680	3-5/8	12-016-WF081	12-016-WF107	12-016-LC081	12-016-LC107
V .3770	3-5/8	12-016-WF082	12-016-WF108	12-016-LC082	12-016-LC108
W .3860	3-3/4	12-016-WF083	12-016-WF109	12-016-LC083	12-016-LC109
X .3970	3-3/4	12-016-WF084	12-016-WF110	12-016-LC084	12-016-LC110
Y .4040	3-7/8	12-016-WF085	12-016-WF111	12-016-LC085	12-016-LC111
Z .4130	3-7/8	12-016-WF086	12-016-WF112	12-016-LC086	12-016-LC112

## HSS AIRCRAFT EXTENSION DRILLS SPLIT POINT



SIZE DEC. EQUIV.	FLUTE LENGTH	HSS 6" OAL	HSS 12" OAL	HSSCO5 6" OAL	HSSCO5 12" OAL
#1 .2280	2-5/8	12-016-WF113	12-016-WF173	12-016-LC113	12-016-LC173
#2 .2210	2-5/8	12-016-WF114	12-016-WF174	12-016-LC114	12-016-LC174
#3 .2130	2-1/2	12-016-WF115	12-016-WF175	12-016-LC115	12-016-LC175
#4 .2090	2-1/2	12-016-WF116	12-016-WF176	12-016-LC116	12-016-LC176
#5 .2055	2-1/2	12-016-WF117	12-016-WF177	12-016-LC117	12-016-LC177
#6 .2040	2-1/2	12-016-WF118	12-016-WF178	12-016-LC118	12-016-LC178
#7 .2010	2-7/16	12-016-WF119	12-016-WF179	12-016-LC119	12-016-LC179
#8 .1990	2-7/16	12-016-WF120	12-016-WF180	12-016-LC120	12-016-LC180
#9 .1960	2-7/16	12-016-WF121	12-016-WF181	12-016-LC121	12-016-LC181
#10 .1935	2-7/16	12-016-WF122	12-016-WF182	12-016-LC122	12-016-LC182
#11 .1910	2-5/16	12-016-WF123	12-016-WF183	12-016-LC123	12-016-LC183
#12 .1890	2-5/16	12-016-WF124	12-016-WF184	12-016-LC124	12-016-LC184
#13 .1850	2-5/16	12-016-WF125	12-016-WF185	12-016-LC125	12-016-LC185
#14 .1820	2-3/16	12-016-WF126	12-016-WF186	12-016-LC126	12-016-LC186
#15 .1800	2-3/16	12-016-WF127	12-016-WF187	12-016-LC127	12-016-LC187
#16 .1770	2-3/16	12-016-WF128	12-016-WF188	12-016-LC128	12-016-LC188
#17 .1730	2-3/16	12-016-WF129	12-016-WF189	12-016-LC129	12-016-LC189
#18 .1695	2-1/8	12-016-WF130	12-016-WF190	12-016-LC130	12-016-LC190
#19 .1660	2-1/8	12-016-WF131	12-016-WF191	12-016-LC131	12-016-LC191
#20 .1610	2-1/8	12-016-WF132	12-016-WF192	12-016-LC132	12-016-LC192
#21 .1590	2-1/8	12-016-WF133	12-016-WF193	12-016-LC133	12-016-LC193
#22 .1570	2	12-016-WF134	12-016-WF194	12-016-LC134	12-016-LC194
#23 .1540	2	12-016-WF135	12-016-WF195	12-016-LC135	12-016-LC195
#24 .1520	2	12-016-WF136	12-016-WF196	12-016-LC136	12-016-LC196
#25 .1495	1-7/8	12-016-WF137	12-016-WF197	12-016-LC137	12-016-LC197
#26 .1470	1-7/8	12-016-WF138	12-016-WF198	12-016-LC138	12-016-LC198
#27 .1440	1-7/8	12-016-WF139	12-016-WF199	12-016-LC139	12-016-LC199
#28 .1405	1-3/4	12-016-WF140	12-016-WF200	12-016-LC140	12-016-LC200
#29 .1360	1-3/4	12-016-WF141	12-016-WF201	12-016-LC141	12-016-LC201
#30 .1285	1-5/8	12-016-WF142	12-016-WF202	12-016-LC142	12-016-LC202
#31 .1200	1-5/8	12-016-WF143	12-016-WF203	12-016-LC143	12-016-LC203
#32 .1160	1-5/8	12-016-WF144	12-016-WF204	12-016-LC144	12-016-LC204
#33 .1130	1-1/2	12-016-WF145	12-016-WF205	12-016-LC145	12-016-LC205
#34 .1110	1-1/2	12-016-WF146	12-016-WF206	12-016-LC146	12-016-LC206
#35 .1100	1-1/2	12-016-WF147	12-016-WF207	12-016-LC147	12-016-LC207
#36 .1065	1-7/16	12-016-WF148	12-016-WF208	12-016-LC148	12-016-LC208
#37 .1040	1-7/16	12-016-WF149	12-016-WF209	12-016-LC149	12-016-LC209
#38 .1015	1-7/16	12-016-WF150	12-016-WF210	12-016-LC150	12-016-LC210
#39 .0995	1-3/8	12-016-WF151	12-016-WF211	12-016-LC151	12-016-LC211
#40 .0980	1-3/8	12-016-WF152	12-016-WF212	12-016-LC152	12-016-LC212
#41 .0960	1-3/8	12-016-WF153	12-016-WF213	12-016-LC153	12-016-LC213
#42 .0935	1-1/4	12-016-WF154	12-016-WF214	12-016-LC154	12-016-LC214
#43 .0890	1-1/4	12-016-WF155	12-016-WF215	12-016-LC155	12-016-LC215
#44 .0860	1-1/8	12-016-WF156	12-016-WF216	12-016-LC156	12-016-LC216
#45 .0820	1-1/8	12-016-WF157	12-016-WF217	12-016-LC157	12-016-LC217
#46 .0810	1-1/8	12-016-WF158	12-016-WF218	12-016-LC158	12-016-LC218
#47 .0785	1	12-016-WF159	12-016-WF219	12-016-LC159	12-016-LC219
#48 .0760	1	12-016-WF160	12-016-WF220	12-016-LC160	12-016-LC220
#49 .0730	1	12-016-WF161	12-016-WF221	12-016-LC161	12-016-LC221
#50 .0700	1	12-016-WF162	12-016-WF222	12-016-LC162	12-016-LC222
#51 .0670	1	12-016-WF163	12-016-WF223	12-016-LC163	12-016-LC223
#52 .0635	7/8	12-016-WF164	12-016-WF224	12-016-LC164	12-016-LC224
#53 .0595	7/8	12-016-WF165	12-016-WF225	12-016-LC165	12-016-LC225
#54 .0550	7/8	12-016-WF166	12-016-WF226	12-016-LC166	12-016-LC226
#55 .0520	7/8	12-016-WF167	12-016-WF227	12-016-LC167	12-016-LC227
#56 .0465	3/4	12-016-WF168	12-016-WF228	12-016-LC168	12-016-LC228
#57 .0430	3/4	12-016-WF169	12-016-WF229	12-016-LC169	12-016-LC229
#58 .0420	11/16	12-016-WF170	12-016-WF230	12-016-LC170	12-016-LC230
#59 .0410	11/16	12-016-WF171	12-016-WF231	12-016-LC171	12-016-LC231
#60 .0400	11/16	12-016-WF172	12-016-WF232	12-016-LC172	12-016-LC232

## HSS SPOTTING & CENTERING DRILLS 90° POINT



These drills are used for perfect alignment of the follow-on tool.

4 PCS/SET 1/4", 3/8", 1/2", 5/8" ORDER NO. 12-020-S01  
5 PCS/SET 4/5/6/8/10mm ORDER NO. 11-020-S01

SIZE In	FLUTE LENGTH	OVERALL LENGTH	RIGHT HAND HSS	LEFT HAND HSS	RIGHT HAND HSSCO5	LEFT HAND HSSCO5
1/8	3/8	1-1/4	12-020-WF001	12-020-WF016	12-020-LC001	12-020-LC016
3/16	1/2	1-3/8	12-020-WF002	12-020-WF017	12-020-LC002	12-020-LC017
1/4	5/8	1-1/2	12-020-WF003	12-020-WF018	12-020-LC003	12-020-LC018
5/16	5/8	1-1/2	12-020-WF004	12-020-WF019	12-020-LC004	12-020-LC019
3/8	1	2	12-020-WF005	12-020-WF020	12-020-LC005	12-020-LC020
7/16	1	2	12-020-WF006	12-020-WF021	12-020-LC006	12-020-LC021
1/2	1	2	12-020-WF007	12-020-WF022	12-020-LC007	12-020-LC022
9/16	1	2	12-020-WF008	12-020-WF023	12-020-LC008	12-020-LC023
5/8	1-1/8	2-1/4	12-020-WF009	12-020-WF024	12-020-LC009	12-020-LC024
3/4	1-1/8	2-1/4	12-020-WF010	12-020-WF025	12-020-LC010	12-020-LC025
7/8	1-1/4	2-1/2	12-020-WF011	12-020-WF026	12-020-LC011	12-020-LC026
1	1-1/4	2-1/2	12-020-WF012	12-020-WF027	12-020-LC012	12-020-LC027
1-1/4	2	4	12-020-WF013	12-020-WF028	12-020-LC013	12-020-LC028
1-1/2	2-1/2	5	12-020-WF014	12-020-WF029	12-020-LC014	12-020-LC029
1-3/4	2-3/4	5-1/2	12-020-WF015	12-020-WF030	12-020-LC015	12-020-LC030

## HSS THREADED SHANK ADAPTER DRILLS



1/4-28 Threaded shank, 135° split point, oal not including threads

STUB SERIES, FRACTIONAL, WIRE&LETTER SIZES, NAS965

SIZE DEC.EQUIV.	FLUTE LENGTH	OVERALL LENGTH	BLACK OXIDE		SIZE DEC.EQUIV.	FLUTE LENGTH	OVERALL LENGTH	BLACK OXIDE	
			HSS	HSSCO5				HSS	HSSCO5
#60 .0400	5/16	1/2	12-20A-WF001	12-20A-LC001	#13 .1850	5/16	9/16	12-20A-WF014	12-20A-LC014
#54 .0550	5/16	1/2	12-20A-WF002	12-20A-LC002	3/16	5/16	9/16	12-20A-WF015	12-20A-LC015
#53 .5950	5/16	1/2	12-20A-WF003	12-20A-LC003	#12 .1890	5/16	9/16	12-20A-WF016	12-20A-LC016
#40 .0980	5/16	1/2	12-20A-WF004	12-20A-LC004	#11 .1910	5/16	9/16	12-20A-WF017	12-20A-LC017
1/8	5/16	1/2	12-20A-WF005	12-20A-LC005	#10 .1935	5/16	9/16	12-20A-WF018	12-20A-LC018
#30 .1285	5/16	9/16	12-20A-WF006	12-20A-LC006	#6 .2040	5/16	5/8	12-20A-WF019	12-20A-LC019
#29 .1360	5/16	9/16	12-20A-WF007	12-20A-LC007	#5 .2055	5/16	5/8	12-20A-WF020	12-20A-LC020
#27 .1440	5/16	9/16	12-20A-WF008	12-20A-LC008	#3 .2130	5/16	5/8	12-20A-WF021	12-20A-LC021
5/32	5/16	9/16	12-20A-WF009	12-20A-LC009	7/32	5/16	5/8	12-20A-WF022	12-20A-LC022
#21 .1590	5/16	9/16	12-20A-WF010	12-20A-LC010	15/64	5/16	5/8	12-20A-WF023	12-20A-LC023
#20 .1610	5/16	9/16	12-20A-WF011	12-20A-LC011	1/4	5/16	5/8	12-20A-WF024	12-20A-LC024
#19 .1660	5/16	9/16	12-20A-WF012	12-20A-LC012	F .2570	5/16	5/8	12-20A-WF025	12-20A-LC025
#16 .1770	5/16	9/16	12-20A-WF013	12-20A-LC013					

## HSS THREADED SHANK ADAPTER DRILLS



SHORT SERIES, FRACTIONAL, WIRE&LETTER SIZES, NAS965

SIZE DEC.EQUIV.	FLUTE LENGTH	OVERALL LENGTH	BLACK OXIDE		SIZE DEC.EQUIV.	FLUTE LENGTH	OVERALL LENGTH	BLACK OXIDE	
			HSS	HSSCO5				HSS	HSSCO5
5/64	9/16	1	12-20B-WF001	12-20B-LC001	#12 .1890	9/16	1-1/4	12-20B-WF020	12-20B-LC020
3/32	9/16	1	12-20B-WF002	12-20B-LC002	#11 .1910	9/16	1-1/4	12-20B-WF021	12-20B-LC021
#40 .0980	9/16	1	12-20B-WF003	12-20B-LC003	#10 .1935	9/16	1-1/4	12-20B-WF022	12-20B-LC022
#39 .0995	9/16	1	12-20B-WF004	12-20B-LC004	#9 .1960	9/16	1-1/4	12-20B-WF023	12-20B-LC023
#36 .1065	9/16	1	12-20B-WF005	12-20B-LC005	#8 .1990	9/16	1-1/4	12-20B-WF024	12-20B-LC024
#31 .1200	9/16	1	12-20B-WF006	12-20B-LC006	#6 .2040	9/16	1-1/4	12-20B-WF025	12-20B-LC025
1/8	9/16	1	12-20B-WF007	12-20B-LC007	#5 .2055	9/16	1-1/4	12-20B-WF026	12-20B-LC026
#30 .1285	9/16	1-1/4	12-20B-WF008	12-20B-LC008	7/32	9/16	1-1/4	12-20B-WF027	12-20B-LC027
9/64	9/16	1-1/4	12-20B-WF009	12-20B-LC009	#2 .2210	9/16	1-1/4	12-20B-WF028	12-20B-LC028
#27 .1440	9/16	1-1/4	12-20B-WF010	12-20B-LC010	#1 .2280	9/16	1-1/4	12-20B-WF029	12-20B-LC029
5/32	9/16	1-1/4	12-20B-WF011	12-20B-LC011	15/64	9/16	1-1/4	12-20B-WF030	12-20B-LC030
#21 .1590	9/16	1-1/4	12-20B-WF012	12-20B-LC012	D .2460	9/16	1-1/4	12-20B-WF031	12-20B-LC031
#20 .1610	9/16	1-1/4	12-20B-WF013	12-20B-LC013	1/4	9/16	1-1/4	12-20B-WF032	12-20B-LC032
#19 .1660	9/16	1-1/4	12-20B-WF014	12-20B-LC014	F .2570	9/16	1-1/4	12-20B-WF033	12-20B-LC033
11/64	9/16	1-1/4	12-20B-WF015	12-20B-LC015	H .2660	9/16	1-1/4	12-20B-WF034	12-20B-LC034
#17 .1730	9/16	1-1/4	12-20B-WF016	12-20B-LC016	9/32	9/16	1-1/4	12-20B-WF035	12-20B-LC035
#16 .1770	9/16	1-1/4	12-20B-WF017	12-20B-LC017	21/64	9/16	1-1/4	12-20B-WF036	12-20B-LC036
#13 .1850	9/16	1-1/4	12-20B-WF018	12-20B-LC018	11/32	9/16	1-1/4	12-20B-WF037	12-20B-LC037
3/16	9/16	1-1/4	12-20B-WF019	12-20B-LC019	3/8	9/16	1-1/4	12-20B-WF038	12-20B-LC038

LONG SERIES, FRACTIONAL, WIRE&LETTER SIZES, NAS965

SIZE DEC.EQUIV.	FLUTE LENGTH	OVERALL LENGTH	BLACK OXIDE		SIZE DEC.EQUIV.	FLUTE LENGTH	OVERALL LENGTH	BLACK OXIDE	
			HSS	HSSCO5				HSS	HSSCO5
1/16	7/8	2-1/8	12-20C-WF001	12-20C-LC001	#21 .1590	1-1/8	2-1/8	12-20C-WF027	12-20C-LC027
#48 .0760	7/8	2-1/8	12-20C-WF002	12-20C-LC002	#20 .1610	1-1/8	2-1/8	12-20C-WF028	12-20C-LC028
5/64	7/8	2-1/8	12-20C-WF003	12-20C-LC003	#19 .1660	1-1/8	2-1/8	12-20C-WF029	12-20C-LC029
#46 .0810	7/8	2-1/8	12-20C-WF004	12-20C-LC004	#18 .1695	1-1/8	2-1/8	12-20C-WF030	12-20C-LC030
#45 .0820	7/8	2-1/8	12-20C-WF005	12-20C-LC005	11/64	1-1/8	2-1/8	12-20C-WF031	12-20C-LC031
#43 .0890	7/8	2-1/8	12-20C-WF006	12-20C-LC006	#17 .1730	1-1/8	2-1/8	12-20C-WF032	12-20C-LC032
#42 .0935	7/8	2-1/8	12-20C-WF007	12-20C-LC007	#16 .1770	1-1/8	2-1/8	12-20C-WF033	12-20C-LC033
3/32	7/8	2-1/8	12-20C-WF008	12-20C-LC008	#15 .1800	1-1/8	2-1/8	12-20C-WF034	12-20C-LC034
#41 .0960	7/8	2-1/8	12-20C-WF009	12-20C-LC009	#14 .1820	1-1/8	2-1/8	12-20C-WF035	12-20C-LC035
#40 .0980	7/8	2-1/8	12-20C-WF010	12-20C-LC010	#13 .1850	1-1/8	2-1/8	12-20C-WF036	12-20C-LC036
#38 .1015	7/8	2-1/8	12-20C-WF011	12-20C-LC011	3/16	1-1/8	2-1/8	12-20C-WF037	12-20C-LC037
#35 .1100	7/8	2-1/8	12-20C-WF012	12-20C-LC012	#12 .1890	1-1/8	2-1/8	12-20C-WF038	12-20C-LC038
#34 .1110	7/8	2-1/8	12-20C-WF013	12-20C-LC013	#11 .1910	1-1/8	2-1/8	12-20C-WF039	12-20C-LC039
#33 .1130	7/8	2-1/8	12-20C-WF014	12-20C-LC014	#10 .1935	1-1/8	2-1/8	12-20C-WF040	12-20C-LC040
#32 .1160	7/8	2-1/8	12-20C-WF015	12-20C-LC015	#8 .1990	1-1/8	2-1/8	12-20C-WF041	12-20C-LC041
#31 .1200	7/8	2-1/8	12-20C-WF016	12-20C-LC016	#5 .2055	1-1/8	2-1/8	12-20C-WF042	12-20C-LC042
1/8	7/8	2-1/8	12-20C-WF017	12-20C-LC017	#3 .2130	1-1/8	2-1/8	12-20C-WF043	12-20C-LC043
#30 .1285	7/8	2-1/8	12-20C-WF018	12-20C-LC018	7/32	1-1/8	2-1/8	12-20C-WF044	12-20C-LC044
#29 .1360	1-1/8	2-1/8	12-20C-WF019	12-20C-LC019	#2 .2210	1-1/8	2-1/8	12-20C-WF045	12-20C-LC045
#28 .1405	1-1/8	2-1/8	12-20C-WF020	12-20C-LC020	1/4	1-1/8	2-1/8	12-20C-WF046	12-20C-LC046
9/64	1-1/8	2-1/8	12-20C-WF021	12-20C-LC021	F .2570	1-1/8	2-1/8	12-20C-WF047	12-20C-LC047
#27 .1440	1-1/8	2-1/8	12-20C-WF022	12-20C-LC022	5/16	1-1/8	2-1/8	12-20C-WF048	12-20C-LC048
#26 .1470	1-1/8	2-1/8	12-20C-WF023	12-20C-LC023	21/64	1-1/8	2-1/8	12-20C-WF049	12-20C-LC049
#25 .1495	1-1/8	2-1/8	12-20C-WF024	12-20C-LC024	11/32	1-1/8	2-1/8	12-20C-WF050	12-20C-LC050
#23 .1540	1-1/8	2-1/8	12-20C-WF025	12-20C-LC025	3/8	1-1/8	2-1/8	12-20C-WF051	12-20C-LC051
5/32	1-1/8	2-1/8	12-20C-WF026	12-20C-LC026					



## HSS THREADED SHANK 100° STOP COUNTERSINKS



Used in all popular adjustable-stop or micro-stop countersink units using a threaded shank drive 1/4-28 threaded shank, overall length 1-1/4"

PILOT SIZE DEC.EQUIV.	HSS	PILOT SIZE DEC.EQUIV.	HSS	PILOT SIZE DEC.EQUIV.	HSS
3/8" BODY DIAMETER		1/2" BODY DIAMETER		9/16" BODY DIAMETER	
#40 .0980	12-021-001	3/32	12-021-035	1/4	12-021-070
#30 .1285	12-021-002	#40 .0980	12-021-036	.3740	12-021-071
#27 .1440	12-021-003	1/8	12-021-037	.3900	12-021-072
#26 .1470	12-021-004	#30 .1285	12-021-038	.4050	12-021-073
5/32	12-021-005	#27 .1440	12-021-039	5/8" BODY DIAMETER	
#22 .1570	12-021-006	5/32	12-021-040	#40 .0980	12-021-074
#21 .1590	12-021-007	#21 .1590	12-021-041	#30 .1285	12-021-075
#20 .1610	12-021-008	#20 .1610	12-021-042	#21 .1590	12-021-076
#19 .1660	12-021-009	#16 .1770	12-021-043	#13 .1850	12-021-077
#16 .1770	12-021-010	#13 .1850	12-021-044	3/16	12-021-078
#13 .1850	12-021-011	3/16	12-021-045	#10 .1935	12-021-079
3/16	12-021-012	#12 .1890	12-021-046	D .2460	12-021-080
#12 .1890	12-021-013	#11 .1910	12-021-047	1/4	12-021-081
#10 .1935	12-021-014	#10 .1935	12-021-048	G .2610	12-021-082
#8 .1990	12-021-015	#8 .1990	12-021-049	.3090	12-021-083
#7 .2010	12-021-016	#7 .2010	12-021-050	5/16	12-021-084
#6 .2040	12-021-017	13/64	12-021-051	.3250	12-021-085
D .2460	12-021-018	#6 .2040	12-021-052	R .3390	12-021-086
1/4	12-021-019	#5 .2055	12-021-053	.3450	12-021-087
5/16	12-021-020	#4 .2090	12-021-054	.3710	12-021-088
7/16" BODY DIAMETER		#3 .2130	12-021-055	3/8	12-021-089
#40 .0980	12-021-021	7/32	12-021-056	Y .4040	12-021-090
1/8	12-021-022	A .2340	12-021-057	.4880	12-021-091
#30 .1285	12-021-023	15/64	12-021-058	3/4" BODY DIAMETER	
#27 .1440	12-021-024	D .2460	12-021-059	3/16	12-021-092
5/32	12-021-025	1/4	12-021-060	1/4	12-021-093
#21 .1590	12-021-026	G .2610	12-021-061	5/16	12-021-094
#19 .1660	12-021-027	J .2770	12-021-062	3/8	12-021-095
3/16	12-021-028	9/32	12-021-063	7/16	12-021-096
#12 .1890	12-021-029	N .3020	12-021-064		
#11 .1890	12-021-030	O .3090	12-021-065		
#10 .1935	12-021-031	5/16	12-021-066		
1/4	12-021-032	P .3230	12-021-067		
5/16	12-021-033	R .3390	12-021-068		
3/8	12-021-034	3/8	12-021-069		

## HSS DOUBLE END BODY DRILLS 135° SPLIT POINT



This drill is recommended for all sheet metal drilling applications

SIZE DEC. EQUIV.	FLUTE LENGTH	OVERALL LENGTH	BRIGHT FINISH HSS	GOLD FINSH HSSCO5	SIZE DEC. EQUIV.	FLUTE LENGTH	OVERALL LENGTH	BRIGHT FINISH HSS	GOLD FINSH HSSCO5
1/16	3/8	1-1/2	12-022-WF001	12-022-LC001	#25 .1495	5/8	2-1/16	12-022-WF019	12-022-LC019
#50 .0520	3/8	1-1/2	12-022-WF018	12-022-LC018	5/32	5/8	2-3/16	12-022-WF007	12-022-LC007
5/64	3/8	1-1/2	12-022-WF002	12-022-LC002	#21 .1590	5/8	2-3/16	12-022-WF020	12-022-LC020
3/32	1/2	1-11/16	12-022-WF003	12-022-LC003	#20 .1610	5/8	2-3/16	12-022-WF014	12-022-LC014
7/64	1/2	1-13/16	12-022-WF004	12-022-LC004	11/64	5/8	2-5/16	12-022-WF008	12-022-LC008
1/8	1/2	1-13/16	12-022-WF005	12-022-LC005	3/16	5/8	2-5/16	12-022-WF009	12-022-LC009
#30 .1250	1/2	1-13/16	12-022-WF017	12-022-LC017	#11 .1910	5/8	2-5/16	12-022-WF013	12-022-LC013
9/64	5/8	2-1/16	12-022-WF006	12-022-LC006	#7 .2010	5/8	2-5/16	12-022-WF012	12-022-LC012
#27 .1440	5/8	2-1/16	12-022-WF016	12-022-LC016	7/32	3/4	2-5/8	12-022-WF010	12-022-LC010
#26 .1470	5/8	2-1/16	12-022-WF015	12-022-LC015	1/4	3/4	2-7/8	12-022-WF011	12-022-LC011

SIZE	HSS	HSS-TIN	HSSCO5
10 PCS/SET 1/8" TRANSPARENT PLASTIC TUBE	12-022-S01	12-022-S03	12-022-S05
10 PCS/SET #30 TRANSPARENT PLASTIC TUBE	12-022-S02	12-022-S04	12-022-S06

## SOLID HSS 1/4" HEX SHANK TWIST DRILLS



Great for quick-change and frequent drill change applications fractional sizes, ANSI B94

SIZE IN	FLUTE LENGTH	OVERALL LENGTH	BRIGHT FINISH HSS	TIN-FLUTE HSS	SIZE IN	FLUTE LENGTH	OVERALL LENGTH	BRIGHT FINISH HSS	TIN-FLUTE HSS
1/16	7/8	1-7/8	12-023-001	12-023-T001	19/64	3-1/16	4-3/8	12-023-015	12-023-T015
5/64	1	2	12-023-002	12-023-T002	5/16	3-3/16	4-1/2	12-023-016	12-023-T016
3/32	1-1/4	2-1/4	12-023-003	12-023-T003	21/64	3-5/16	4-5/8	12-023-017	12-023-T017
7/64	1-1/2	2-5/8	12-023-004	12-023-T004	11/32	3-7/16	4-3/4	12-023-018	12-023-T018
1/8	1-5/8	2-3/4	12-023-005	12-023-T005	23/64	3-1/2	4-7/8	12-023-019	12-023-T019
9/64	1-3/4	2-7/8	12-023-006	12-023-T006	3/8	3-5/8	5	12-023-020	12-023-T020
5/32	2	3-1/8	12-023-007	12-023-T007	25/64	3-3/4	5-1/8	12-023-021	12-023-T021
11/64	2-1/8	3-1/4	12-023-008	12-023-T008	13/32	3-7/8	5-1/4	12-023-022	12-023-T022
3/16	2-5/16	3-1/2	12-023-009	12-023-T009	27/64	3-15/16	5-3/8	12-023-023	12-023-T023
13/64	2-7/16	3-5/8	12-023-010	12-023-T010	7/16	4-1/16	5-1/2	12-023-024	12-023-T024
7/32	2-1/2	3-3/4	12-023-011	12-023-T011	29/64	4-3/16	5-5/8	12-023-025	12-023-T025
15/64	2-5/8	3-7/8	12-023-012	12-023-T012	15/32	4-5/16	5-3/4	12-023-026	12-023-T026
1/4	2-3/4	4	12-023-013	12-023-T013	31/64	4-3/8	5-7/8	12-023-027	12-023-T027
17/64	2-7/8	4-1/8	12-023-014	12-023-T014	1/2	4-1/2	6	12-023-028	12-023-T028
9/32	2-15/16	4-1/4	12-023-015	12-023-T015					

## HSS BODY DRILLS SINGLE END 135° SPLIT POINT



For use in hand held, air or electric drill motors, in sheet metal, thin wall tubing or any other shallow hole drilling

FRACTIONAL, WIRE, LETTER AND METRIC SIZES, ANSI B94

SIZE DEC.EQUIV.	HSS 2" OAL	HSS 2-1/2" OAL	HSS 3" OAL	SIZE DEC.EQUIV.	HSS 2" OAL	HSS 2-1/2" OAL	HSS 3" OAL
3/64	12-22A-WF001	12-22B-WF001	12-22C-WF001	#21 .1590	12-22A-WF024	12-22B-WF024	12-22C-WF024
1/16	12-22A-WF002	12-22B-WF002	12-22C-WF002	#20 .1610	12-22A-WF025	12-22B-WF025	12-22C-WF025
#47 .0785	12-22A-WF003	12-22B-WF003	12-22C-WF003	#18 .1695	12-22A-WF026	12-22B-WF026	12-22C-WF026
#44 .0860	12-22A-WF004	12-22B-WF004	12-22C-WF004	11/64	12-22A-WF027	12-22B-WF027	12-22C-WF027
#36 .1065	12-22A-WF005	12-22B-WF005	12-22C-WF005	#13 .1850	12-22A-WF028	12-22B-WF028	12-22C-WF028
7/64	12-22A-WF006	12-22B-WF006	12-22C-WF006	3/16	12-22A-WF029	12-22B-WF029	12-22C-WF029
#32 .1160	12-22A-WF007	12-22B-WF007	12-22C-WF007	#8 .1990	12-22A-WF030	12-22B-WF030	12-22C-WF030
#31 .1200	12-22A-WF008	12-22B-WF008	12-22C-WF008	13/64	12-22A-WF031	12-22B-WF031	12-22C-WF031
1/8	12-22A-WF009	12-22B-WF009	12-22C-WF009	7/32	12-22A-WF032	12-22B-WF032	12-22C-WF032
3.25mm	12-22A-WF010	12-22B-WF010	12-22C-WF010	15/64	12-22A-WF033	12-22B-WF033	12-22C-WF033
#30 .1285	12-22A-WF011	12-22B-WF011	12-22C-WF011	6.0mm	12-22A-WF034	12-22B-WF034	12-22C-WF034
3.30mm	12-22A-WF012	12-22B-WF012	12-22C-WF012	1/4	12-22A-WF035	12-22B-WF035	12-22C-WF035
#29 .1360	12-22A-WF013	12-22B-WF013	12-22C-WF013	F .2570	12-22A-WF036	12-22B-WF036	12-22C-WF036
#28 .1405	12-22A-WF014	12-22B-WF014	12-22C-WF014	17/64	12-22A-WF037	12-22B-WF037	12-22C-WF037
9/64	12-22A-WF015	12-22B-WF015	12-22C-WF015	9/32	12-22A-WF038	12-22B-WF038	12-22C-WF038
#27 .1440	12-22A-WF016	12-22B-WF016	12-22C-WF016	5/16	12-22A-WF039	12-22B-WF039	12-22C-WF039
#26 .1470	12-22A-WF017	12-22B-WF017	12-22C-WF017	11/32	12-22A-WF040	12-22B-WF040	12-22C-WF040
#25 .1495	12-22A-WF018	12-22B-WF018	12-22C-WF018	3/8	12-22A-WF041	12-22B-WF041	12-22C-WF041
3.8mm	12-22A-WF019	12-22B-WF019	12-22C-WF019	13/32	12-22A-WF042	12-22B-WF042	12-22C-WF042
#24 .1520	12-22A-WF020	12-22B-WF020	12-22C-WF020	27/64	12-22A-WF043	12-22B-WF043	12-22C-WF043
#23 .1540	12-22A-WF021	12-22B-WF021	12-22C-WF021	7/16	12-22A-WF044	12-22B-WF044	12-22C-WF044
5/32	12-22A-WF022	12-22B-WF022	12-22C-WF022	12.4mm	12-22A-WF045	12-22B-WF045	12-22C-WF045
#22 .1570	12-22A-WF023	12-22B-WF023	12-22C-WF023	1/2	12-22A-WF046	12-22B-WF046	12-22C-WF046



**6 PCS/SET** 2.35mm SHANK: 0.6, 0.8, 1.0, 1.2, 1.5, 2.0mm  
11-009-WF01 FULLY GROUND HSS BRIGHT



**20 PCS/SET** #61-#80  
12-009-WF01 FULLY GROUND HSS BRIGHT

## HSS STRAIGHT SHANK TWIST DRILLS SET



**20 PCS/SET** 0.30-1.00x0.05mm, 1.2-1.6x0.1mm  
11-009-WF02 FULLY GROUND HSS BRIGHT



**13 PCS/SET** 2.0-8.0x0.5mm  
11-009-GR04 ROLL FORGED HSS-TIN  
11-009-GF04 FULLY GROUND HSS-TIN  
11-009-LC04 FULLY GROUND HSSCO5



**24 PCS/SET** 1.0-10.5x0.5mm, +3.3, 4.2, 6.8, 10.2mm  
ADD 4 SIZES FOR TAPPING DRILL HOLES  
11-009-WF24 FULLY GROUND HSS BRIGHT  
11-009-GF24 FULLY GROUND HSS-TIN  
11-009-LC24 FULLY GROUND HSSCO5



**13 PCS/SET** 1.5-6.5x0.5mm, +3.2, 4.8mm  
11-009-GR03 ROLL FORGED HSS-TIN  
11-009-GF03 FULLY GROUND HSS-TIN  
11-009-LC03 FULLY GROUND HSSCO5



**19 PCS/SET** 1.0-10.0x0.5mm  
11-009-WF05 FULLY GROUND HSS BRIGHT  
11-009-GF05 FULLY GROUND HSS-TIN  
11-009-LC05 FULLY GROUND HSSCO5



**25 PCS/SET** 1.0-13.0x0.5mm  
11-009-WF06 FULLY GROUND HSS BRIGHT  
11-009-GF06 FULLY GROUND HSS-TIN  
11-009-LC06 FULLY GROUND HSSCO5



<b>29 PCS/SET</b>	<b>1.0-13.0x0.5mm, +3.3,4.2,6.8,10.2mm</b>
ADD 4 SIZES FOR TAPPING DRILL HOLES	
11-009-WF29	FULLY GROUND HSS BRIGHT
11-009-GF29	FULLY GROUND HSS-TIN
11-009-LC29	FULLY GROUND HSSCO5



<b>51 PCS/SET</b>	<b>1.0-6.0x0.1mm</b>
11-009-WF07	FULLY GROUND HSS BRIGHT
11-009-GF07	FULLY GROUND HSS-TIN
11-009-LC07	FULLY GROUND HSSCO5



<b>170 PCS/SET</b>	<b>10PCS:1.0-8.0x0.5,5PCS:8.5-10.0x0.5mm</b>
11-275-002	ROLL FORGED HSS BRIGHT
11-275-001	ROLL FORGED HSS-TIN
11-275-003	FULLY GROUND HSSCO5



<b>230 PCS/SET</b>	<b>10PCS:1.0-8.0x0.5, +3.2,4.2,5.2mm, 5PCS:8.5-13.0x0.5mm</b>
11-009-GC230	ROLL FORGED HSS BRIGHT
11-009-GR230	ROLL FORGED HSS-TIN
11-009-LC230	FULLY GROUND HSSCO5



<b>41 PCS/SET</b>	<b>6.0-10.0x0.1mm</b>
11-009-WF08	FULLY GROUND HSS BRIGHT
11-009-GF08	FULLY GROUND HSS-TIN
11-009-LC08	FULLY GROUND HSSCO5



<b>99 PCS/SET</b>	<b>16PCS:1.5,2.0,15PCS:2.5,10PCS:3.0,3.2,8PCS:3.5,4.0mm</b>
	<b>3PCS:4.5,5.0,2PCS:5.5,6.0,6.5,2PCS:8.0,10mm</b>
11-009-GC17	ROLL FORGED HSS BRIGHT
11-009-GR17	ROLL FORGED HSS-TIN
11-009-WF17	FULLY GROUND HSS BRIGHT



<b>13 PCS/SET</b>	<b>1/16-1/4x1/64"</b>
12-009-GR02	ROLL FORGED HSS-TIN
12-009-GF02	FULLY GROUND HSS-TIN
12-009-LC02	FULLY GROUND HSSCO5



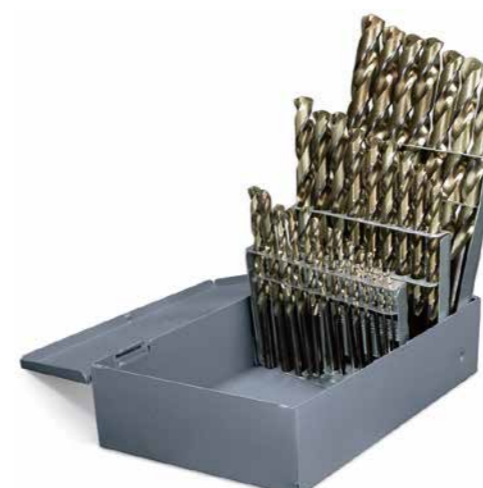
<b>115 PCS/SET</b>	<b>1/16-1/2x1/64", #1-#60, A-Z</b>
12-009-GR07	ROLL FORGED HSS-TIN
12-009-GF07	FULLY GROUND HSS-TIN
12-009-LC07	FULLY GROUND HSSCO5



<b>119 PCS/SET</b>	<b>15PCS:1.0,1.5,10PCS:2.0,2.5,3.5,4.5,12PCS:3.0,4.0,8PCS:5.0,6.0mm</b>
	<b>3PCS:7.0,8.0,2PCS:10.0,2PCS:5.5-6.5x0.5,1PCS:4-25mm STEP DRILL</b>
11-009GC-S05	ROLL FORGED HSS BRIGHT
11-310-S05	ROLL FORGED HSS-TIN
11-009WF-S05	FULLY GROUND HSS BRIGHT



<b>150 PCS/SET</b>	<b>10PCS:0.4-0.9x0.1,5PCS:1.0-1.6x0.1,5PCS:1.8mm</b>
	<b>5PCS:2.0-2.6x0.1mm,5PCS:2.8,3.0,3.2mm</b>
11-009-WF15	FULLY GROUND HSS BRIGHT
11-009-GF15	FULLY GROUND HSS-TIN
11-009-LC15	FULLY GROUND HSSCO5



<b>29 PCS/SET</b>	<b>1/16-1/2x1/64"</b>
12-009-GR05	ROLL FORGED HSS-TIN
12-009-GF05	FULLY GROUND HSS-TIN
12-009-LC05	FULLY GROUND HSSCO5

<b>21 PCS/SET</b>	<b>1/16-3/8x1/64"</b>
12-009-GR04	ROLL FORGED HSS-TIN
12-009-GF04	FULLY GROUND HSS-TIN
12-009-LC04	FULLY GROUND HSSCO5

<b>60 PCS/SET</b>	<b>#1-#60</b>
12-009-GR06	ROLL FORGED HSS-TIN
12-009-GF06	FULLY GROUND HSS-TIN
12-009-LC06	FULLY GROUND HSSCO5

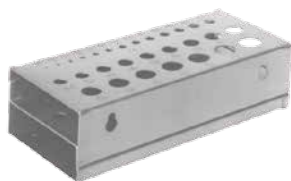
<b>15 PCS/SET</b>	<b>1/16-1/2x1/32"</b>
12-009-GR08	ROLL FORGED HSS-TIN
12-009-GF08	FULLY GROUND HSS-TIN
12-009-LC08	FULLY GROUND HSSCO5

### DRILL GAUGE MADE OF HARDENED STEEL



SIZE	SPECIFICATION	DIMENSIONS	ORDER NO.
29 HOLES	1/16-1/2x1/64"	5x2"	12-011-001
60 HOLES	#1-#60	5x2"	12-011-002
20 HOLES	#61-#80	3x1"	12-011-003
26 HOLES	A-Z	5x2"	12-011-004
25 HOLES	1-13x0.5mm	50x25mm	11-011-001

### DRILL GAUGE AND STAND



SIZE	SPECIFICATION	DIMENSIONS	ORDER NO.
29 HOLES	1/16-1/2x1/64"	6-1/2x2-3/8x2-1/4"	12-011-005
25 HOLES	1-13x0.5mm	160x60x55mm	11-011-002

### DRILL STOP



SIZE	SPECIFICATION	PACKING	ORDER NO.
7 PCS/SET	1/8, 3/16, 1/4, 5/16, 3/8, 7/16, 1/2", WRENCH	SKIN CARD	32-313-001
7 PCS/SET	3, 4, 5, 6, 8, 10, 12mm, WRENCH	SKIN CARD	31-313-001

### ALUMINUM ADJUSTABLE DRILL STOP



FOR DRILL SIZE		ORDER NO.
	1/16-1/4"	ORDER NO. 12-011-006
	1/4-1/2"	ORDER NO. 12-011-007
2 PCS/SET	1/16-1/4", 1/4-1/2"	ORDER NO. 12-011-S01

FOR DRILL SIZE		ORDER NO.
	3-5MM	ORDER NO. 11-011-006
	6-12MM	ORDER NO. 11-011-007
2 PCS/SET	3-5, 6-12MM	ORDER NO. 11-011-S01

### HSS DRILL AND REAMER BLANKS

Made from hardened hrc63-65 hss and ground these drill and reamer blanks can be used as punch, gauges, pins.

DRILL BLANKS TOLERANCES:	UP TO 1/2":	+0/-0.008mm	OVER 1/2":	+0/-0.01mm
REAMER BLANKS TOLERANCES:	UP TO 1/2":	+0.005/-0mm	OVER 1/2":	+0.01/-0mm

SIZE mm	OVERALL LENGTH	DRILL BLANK	REAMER BLANKS	SIZE mm	OVERALL LENGTH	DRILL BLANK	REAMER BLANKS
1.00	34	11-179-041	11-179-042	6.80	109	11-179-197	11-179-198
1.50	40	11-179-061	11-179-062	7.00	109	11-179-201	11-179-202
2.00	49	11-179-081	11-179-082	7.50	109	11-179-211	11-179-212
2.50	57	11-179-101	11-179-102	8.00	117	11-179-221	11-179-222
3.00	61	11-179-121	11-179-122	8.50	117	11-179-231	11-179-232
3.20	65	11-179-125	11-179-126	9.00	125	11-179-241	11-179-242
3.50	70	11-179-131	11-179-132	9.50	125	11-179-251	11-179-252
4.00	75	11-179-141	11-179-142	10.00	133	11-179-261	11-179-262
4.20	75	11-179-145	11-179-146	10.20	133	11-179-265	11-179-266
4.50	80	11-179-151	11-179-152	10.50	133	11-179-271	11-179-272
4.80	86	11-179-157	11-179-158	11.00	142	11-179-281	11-179-282
5.00	86	11-179-161	11-179-162	11.50	142	11-179-291	11-179-292
5.50	93	11-179-171	11-179-172	12.00	151	11-179-301	11-179-302
6.00	93	11-179-181	11-179-182	12.50	151	11-179-311	11-179-312
6.50	101	11-179-191	11-179-192	13.00	151	11-179-321	11-179-322

### HSS DRILL AND REAMER BLANKS



DRILL BLANKS TOLERANCES:	UP TO 1/2":	+0.0000/-0.0003"	OVER 1/2":	+0.0000/-0.0005"
REAMER BLANKS TOLERANCES:	UP TO 1/2":	+0.0002/-0.0000"	OVER 1/2":	+0.0005/-0.0000"



29PCS/SET 1/16-1/2x1/64"  
ORDER NO. 12-179-S01

FRACTIONAL SIZES ANSI B94

SIZE In	OVERALL LENGTH	DRILL BLANK	REAMER BLANKS	SIZE In	OVERALL LENGTH	DRILL BLANK	REAMER BLANKS
1/64	3/4	12-179-001	12-179-002	17/64	4-1/8	12-179-033	12-179-034
1/32	1-3/8	12-179-003	12-179-004	9/32	4-1/4	12-179-035	12-179-036
3/64	1-3/4	12-179-005	12-179-006	19/64	4-3/8	12-179-037	12-179-038
1/16	1-7/8	12-179-007	12-179-008	5/16	4-1/2	12-179-039	12-179-040
5/64	2	12-179-009	12-179-010	21/64	4-5/8	12-179-041	12-179-042
3/32	2-1/4	12-179-011	12-179-012	11/32	4-3/4	12-179-043	12-179-044
7/64	2-5/8	12-179-013	12-179-014	23/64	4-7/8	12-179-045	12-179-046
1/8	2-3/4	12-179-015	12-179-016	3/8	5	12-179-047	12-179-048
9/64	2-7/8	12-179-017	12-179-018	25/64	5-1/8	12-179-049	12-179-050
5/32	3-1/8	12-179-019	12-179-020	13/32	5-1/4	12-179-051	12-179-052
11/64	3-1/4	12-179-021	12-179-022	27/64	5-3/8	12-179-053	12-179-054
3/16	3-1/2	12-179-023	12-179-024	7/16	5-1/2	12-179-055	12-179-056
13/64	3-5/8	12-179-025	12-179-026	29/64	5-5/8	12-179-057	12-179-058
7/32	3-3/4	12-179-027	12-179-028	15/32	5-3/4	12-179-059	12-179-060
15/64	3-7/8	12-179-029	12-179-030	31/64	5-7/8	12-179-061	12-179-062
1/4	4	12-179-031	12-179-032	1/2	6	12-179-063	12-179-064

## HSS DRILL AND REAMER BLANKS SET



LETTER SIZES ANSI B94

SIZE In	OVERALL LENGTH	DRILL BLANK	REAMER BLANKS	SIZE In	OVERALL LENGTH	DRILL BLANK	REAMER BLANKS
A .2340	3-7/8	12-179-289	12-179-290	N .3020	4-3/8	12-179-315	12-179-316
B .2380	4	12-179-291	12-179-292	O .3160	4-1/2	12-179-317	12-179-318
C .2420	4	12-179-293	12-179-294	P .3230	4-5/8	12-179-319	12-179-320
D .2460	4	12-179-295	12-179-296	Q .3320	4-3/4	12-179-321	12-179-322
E .2500	4	12-179-297	12-179-298	R .3390	4-3/4	12-179-323	12-179-324
F .2570	4-1/8	12-179-299	12-179-300	S .3480	4-7/8	12-179-325	12-179-326
G .2610	4-1/8	12-179-301	12-179-302	T .3490	4-7/8	12-179-327	12-179-328
H .2660	4-1/8	12-179-303	12-179-304	U .3680	5	12-179-329	12-179-330
I .2720	4-1/8	12-179-305	12-179-306	V .3770	5	12-179-331	12-179-332
J .2770	4-1/8	12-179-307	12-179-308	W .3860	5-1/8	12-179-333	12-179-334
K .2810	4-1/4	12-179-309	12-179-310	X .3970	5-1/8	12-179-335	12-179-336
L .2900	4-1/4	12-179-311	12-179-312	Y .4040	5-1/4	12-179-337	12-179-338
M .2950	4-3/8	12-179-313	12-179-314	Z .4130	5-1/4	12-179-339	12-179-340

WIRE GAUGE SIZES ANSI B94

SIZE In	OVERALL LENGTH	DRILL BLANK	REAMER BLANKS	SIZE In	OVERALL LENGTH	DRILL BLANK	REAMER BLANKS
#1 .2280	3-7/8	12-179-129	12-179-130	#31 .1200	2-3/4	12-179-189	12-179-190
#2 .2210	3-7/8	12-179-131	12-179-132	#32 .1160	2-3/4	12-179-191	12-179-192
#3 .2130	3-3/4	12-179-133	12-179-134	#33 .1130	2-5/8	12-179-193	12-179-194
#4 .2090	3-3/4	12-179-135	12-179-136	#34 .1110	2-5/8	12-179-195	12-179-196
#5 .2055	3-3/4	12-179-137	12-179-138	#35 .1100	2-5/8	12-179-197	12-179-198
#6 .2040	3-3/4	12-179-139	12-179-140	#36 .1065	2-1/2	12-179-199	12-179-200
#7 .2010	3-5/8	12-179-141	12-179-142	#37 .1040	2-1/2	12-179-201	12-179-202
#8 .1990	3-5/8	12-179-143	12-179-144	#38 .1015	2-1/2	12-179-203	12-179-204
#9 .1960	3-5/8	12-179-145	12-179-146	#39 .0995	2-3/8	12-179-205	12-179-206
#10 .1935	3-5/8	12-179-147	12-179-148	#40 .0980	2-3/8	12-179-207	12-179-208
#11 .1910	3-1/2	12-179-149	12-179-150	#41 .0960	2-3/8	12-179-209	12-179-210
#12 .1890	3-1/2	12-179-151	12-179-152	#42 .0935	2-1/4	12-179-211	12-179-212
#13 .1850	3-1/2	12-179-153	12-179-154	#43 .0890	2-1/4	12-179-213	12-179-214
#14 .1820	3-3/8	12-179-155	12-179-156	#44 .0860	2-1/8	12-179-215	12-179-216
#15 .1800	3-3/8	12-179-157	12-179-158	#45 .0820	2-1/8	12-179-217	12-179-218
#16 .1770	3-3/8	12-179-159	12-179-160	#46 .0810	2-1/8	12-179-219	12-179-220
#17 .1730	3-3/8	12-179-161	12-179-162	#47 .0785	2	12-179-221	12-179-222
#18 .1695	3-1/4	12-179-163	12-179-164	#48 .0760	2	12-179-223	12-179-224
#19 .1660	3-1/4	12-179-165	12-179-166	#49 .0730	2	12-179-225	12-179-226
#20 .1610	3-1/4	12-179-167	12-179-168	#50 .0700	2	12-179-227	12-179-228
#21 .1590	3-1/4	12-179-169	12-179-170	#51 .0670	2	12-179-229	12-179-230
#22 .1570	3-1/8	12-179-171	12-179-172	#52 .0635	1-7/8	12-179-231	12-179-232
#23 .1540	3-1/8	12-179-173	12-179-174	#53 .0595	1-7/8	12-179-233	12-179-234
#24 .1520	3-1/8	12-179-175	12-179-176	#54 .0550	1-7/8	12-179-235	12-179-236
#25 .1495	3	12-179-177	12-179-178	#55 .0520	1-7/8	12-179-237	12-179-238
#26 .1470	3	12-179-179	12-179-180	#56 .0465	1-3/4	12-179-239	12-179-240
#27 .1440	3	12-179-181	12-179-182	#57 .0430	1-3/4	12-179-241	12-179-242
#28 .1405	2-7/8	12-179-183	12-179-184	#58 .0420	1-5/8	12-179-243	12-179-244
#29 .1360	2-7/8	12-179-185	12-179-186	#59 .0410	1-5/8	12-179-245	12-179-246
#30 .1285	2-3/4	12-179-187	12-179-188	#60 .0400	1-5/8	12-179-247	12-179-248

## SOLID CARBIDE TWIST DRILLS



They are designed for drilling abrasive materials. Used for drilling cast iron, aluminum, copper, plastics, bronze, etc.

DIN 338, 118° POINT

DIAMETER H7	FLUTE LENGTH	OVERALL LENGTH	FULLY GROUND		DIAMETER H7	FLUTE LENGTH	OVERALL LENGTH	FULLY GROUND	
			UN-COATED	TIALN				UN-COATED	TIALN
1.00	12	34	11-025-004	11-025-B004	6.80	69	109	11-025-082	11-025-B082
1.50	18	40	11-025-014	11-025-B014	7.00	69	109	11-025-084	11-025-B084
2.00	24	49	11-025-024	11-025-B024	7.50	69	109	11-025-089	11-025-B089
2.50	30	57	11-025-034	11-025-B034	8.00	75	117	11-025-094	11-025-B094
3.00	33	61	11-025-044	11-025-B044	8.50	75	117	11-025-099	11-025-B099
3.20	36	65	11-025-046	11-025-B046	9.00	81	125	11-025-104	11-025-B104
3.50	39	70	11-025-049	11-025-B049	9.50	81	125	11-025-109	11-025-B109
4.00	43	75	11-025-054	11-025-B054	10.00	87	133	11-025-114	11-025-B114
4.20	43	75	11-025-056	11-025-B056	10.20	87	133	11-025-116	11-025-B116
4.50	47	80	11-025-059	11-025-B059	10.50	87	133	11-025-119	11-025-B119
4.80	52	86	11-025-062	11-025-B062	11.00	94	142	11-025-124	11-025-B124
5.00	52	86	11-025-064	11-025-B064	11.50	94	142	11-025-129	11-025-B129
5.50	57	93	11-025-069	11-025-B069	12.00	101	151	11-025-134	11-025-B134
6.00	57	93	11-025-074	11-025-B074	12.50	101	151	11-025-139	11-025-B139
6.50	63	101	11-025-079	11-025-B079	13.00	101	151	11-025-144	11-025-B144



DIN 6539, 118° POINT

DIAMETER H7	FLUTE LENGTH	OVERALL LENGTH	FULLY GROUND		DIAMETER H7	FLUTE LENGTH	OVERALL LENGTH	FULLY GROUND	
			UN-COATED	TIALN				UN-COATED	TIALN
1.00	6	26	11-025S-004	11-025S-B004	6.80	34	74	11-025S-082	11-025S-B082
1.50	9	32	11-025S-014	11-025S-B014	7.00	34	74	11-025S-084	11-025S-B084
2.00	12	38	11-025S-024	11-025S-B024	7.50	34	74	11-025S-089	11-025S-B089
2.50	14	43	11-025S-034	11-025S-B034	8.00	36	79	11-025S-094	11-025S-B094
3.00	16	46	11-025S-044	11-025S-B044	8.50	40	84	11-025S-099	11-025S-B099
3.20	18	49	11-025S-046	11-025S-B046	9.00	40	84	11-025S-104	11-025S-B104
3.50	20	52	11-025S-049	11-025S-B049	9.50	40	84	11-025S-109	11-025S-B109
4.00	22	55	11-025S-054	11-025S-B054	10.00	43	89	11-025S-114	11-025S-B114
4.20	22	55	11-025S-056	11-025S-B056	10.20	43	89	11-025S-116	11-025S-B116
4.50	24	58	11-025S-059	11-025S-B059	10.50	43	89	11-025S-119	11-025S-B119
4.80	26	62	11-025S-062	11-025S-B062	11.00	47	95	11-025S-124	11-025S-B124
5.00	26	62	11-025S-064	11-025S-B064	11.50	47	95	11-025S-129	11-025S-B129
5.50	28	66	11-025S-069	11-025S-B069	12.00	51	102	11-025S-134	11-025S-B134
6.00	28	66	11-025S-074	11-025S-B074	12.50	51	102	11-025S-139	11-025S-B139
6.50	31	71	11-025S-079	11-025S-B079	13.00	51	102	11-025S-144	11-025S-B144

## SOLID CARBIDE DRILLS STANDARD LENGTH



They are designed for drilling abrasive materials. Used for drilling cast iron, aluminum, copper, plastics, bronze, etc.

### FRACTIONAL SIZES 118° POINT ANSI B94

DIAMETER H7	FLUTE LENGTH	OVERALL LENGTH	FULLY GROUND UN-COATED	FULLY GROUND TIALN	DIAMETER H7	FLUTE LENGTH	OVERALL LENGTH	FULLY GROUND UN-COATED	FULLY GROUND TIALN
1/16	3/4	1-1/2	12-025-002	12-025-B002	19/64	2-3/8	3-3/4	12-025-118	12-025-B118
5/64	7/8	1-3/4	12-025-111	12-025-B111	5/16	2-3/8	3-3/4	12-025-010	12-025-B010
3/32	1	2	12-025-003	12-025-B003	21/64	2-1/2	4	12-028-119	12-028-B119
7/64	1-1/4	2-1/4	12-025-112	12-025-B112	11/32	2-1/2	4	12-025-011	12-025-B011
1/8	1-1/4	2-1/4	12-025-004	12-025-B004	23/64	2-3/4	4-1/4	12-028-120	12-028-B120
9/64	1-3/8	2-1/2	12-025-113	12-025-B113	3/8	2-3/4	4-1/4	12-025-012	12-025-B012
5/32	1-3/8	2-1/2	12-025-005	12-025-B005	25/64	2-7/8	4-1/2	12-028-121	12-028-B121
11/64	1-5/8	2-3/4	12-025-114	12-025-B114	13/32	2-7/8	4-1/2	12-025-013	12-025-B013
3/16	1-5/8	2-3/4	12-025-006	12-025-B006	27/64	2-7/8	4-1/2	12-028-122	12-028-B122
13/64	1-3/4	3	12-025-115	12-025-B115	7/16	2-7/8	4-1/2	12-025-014	12-025-B014
7/32	1-3/4	3	12-025-007	12-025-B007	29/64	3	4-3/4	12-028-123	12-028-B123
15/64	2	3-1/4	12-025-116	12-025-B116	15/32	3	4-3/4	12-025-015	12-025-B015
1/4	2	3-1/4	12-025-008	12-025-B008	31/64	3	4-3/4	12-028-124	12-028-B124
17/64	2-1/8	3-1/2	12-025-117	12-025-B117	1/2	3	4-3/4	12-025-016	12-025-B016
9/32	2-1/8	3-1/2	12-025-009	12-025-B009					

### LETTER SIZES 118° POINT ANSI B94

DIAMETER H7	FLUTE LENGTH	OVERALL LENGTH	FULLY GROUND UN-COATED	FULLY GROUND TIALN	DIAMETER H7	FLUTE LENGTH	OVERALL LENGTH	FULLY GROUND UN-COATED	FULLY GROUND TIALN
A .2340	2	3-1/4	12-025-025	12-025-B025	N .3020	2-3/8	3-1/4	12-025-038	12-025-B038
B .2380	2	3-1/4	12-025-026	12-025-B026	O .3160	2-3/8	3-1/4	12-025-039	12-025-B039
C .2420	2	3-1/4	12-025-027	12-025-B027	P .3230	2-3/8	3-1/4	12-025-040	12-025-B040
D .2460	2	3-1/4	12-025-028	12-025-B028	Q .3320	2-1/2	4	12-025-041	12-025-B041
E .2500	2	3-1/4	12-025-029	12-025-B029	R .3390	2-1/2	4	12-025-042	12-025-B042
F .2570	2	3-1/4	12-025-030	12-025-B030	S .3480	2-1/2	4	12-025-043	12-025-B043
G .2610	2-1/8	3-1/2	12-025-031	12-025-B031	T .3490	2-3/4	4-1/4	12-025-044	12-025-B044
H .2660	2-1/8	3-1/2	12-025-032	12-025-B032	U .3680	2-3/4	4-1/4	12-025-045	12-025-B045
I .2720	2-1/8	3-1/2	12-025-033	12-025-B033	V .3770	2-3/4	4-1/4	12-025-046	12-025-B046
J .2770	2-1/8	3-1/2	12-025-034	12-025-B034	W .3860	2-7/8	4-1/2	12-025-047	12-025-B047
K .2810	2-1/8	3-1/2	12-025-035	12-025-B035	X .3970	2-7/8	4-1/2	12-025-048	12-025-B048
L .2900	2-1/8	3-1/2	12-025-036	12-025-B036	Y .4040	2-7/8	4-1/2	12-025-049	12-025-B049
M .2950	2-3/8	3-1/4	12-025-037	12-025-B037	Z .4130	2-7/8	4-1/2	12-025-050	12-025-B050

## SOLID CARBIDE DRILLS STANDARD LENGTH



### WIRE GAUGE SIZES 118° POINT ANSI B94

DIAMETER H7	FLUTE LENGTH	OVERALL LENGTH	FULLY GROUND UN-COATED	FULLY GROUND TIALN	DIAMETER H7	FLUTE LENGTH	OVERALL LENGTH	FULLY GROUND UN-COATED	FULLY GROUND TIALN
#1 .2280	1-3/4	3	12-025-051	12-025-B051	#31 .1200	1-1/4	2-1/4	12-025-081	12-025-B081
#2 .2210	1-3/4	3	12-025-052	12-025-B052	#32 .1160	1-1/4	2-1/4	12-025-082	12-025-B082
#3 .2130	1-3/4	3	12-025-053	12-025-B053	#33 .1130	1-1/4	2-1/4	12-025-083	12-025-B083
#4 .2090	1-3/4	3	12-025-054	12-025-B054	#34 .1110	1-1/4	2-1/4	12-025-084	12-025-B084
#5 .2055	1-3/4	3	12-025-055	12-025-B055	#35 .1100	1-1/4	2-1/4	12-025-085	12-025-B085
#6 .2040	1-3/4	3	12-025-056	12-025-B056	#36 .1065	1-1/4	2-1/4	12-025-086	12-025-B086
#7 .2010	1-3/4	3	12-025-057	12-025-B057	#37 .1040	1-1/4	2-1/4	12-025-087	12-025-B087
#8 .1990	1-3/4	3	12-025-058	12-025-B058	#38 .1015	1-1/4	2-1/4	12-025-088	12-025-B088
#9 .1960	1-3/4	3	12-025-059	12-025-B059	#39 .0995	1-1/4	2-1/4	12-025-089	12-025-B089
#10 .1935	1-5/8	2-3/4	12-025-060	12-025-B060	#40 .0980	1	2	12-025-090	12-025-B090
#11 .1910	1-5/8	2-3/4	12-025-061	12-025-B061	#41 .0960	1	2	12-025-091	12-025-B091
#12 .1890	1-5/8	2-3/4	12-025-062	12-025-B062	#42 .0935	1	2	12-025-092	12-025-B092
#13 .1850	1-5/8	2-3/4	12-025-063	12-025-B063	#43 .0890	1	2	12-025-093	12-025-B093
#14 .1820	1-5/8	2-3/4	12-025-064	12-025-B064	#44 .0860	1	2	12-025-094	12-025-B094
#15 .1800	1-5/8	2-3/4	12-025-065	12-025-B065	#45 .0820	7/8	1-3/4	12-025-095	12-025-B095
#16 .1770	1-5/8	2-3/4	12-025-066	12-025-B066	#46 .0810	7/8	1-3/4	12-025-096	12-025-B096
#17 .1730	1-5/8	2-3/4	12-025-067	12-025-B067	#47 .0785	7/8	1-3/4	12-025-097	12-025-B097
#18 .1695	1-5/8	2-3/4	12-025-068	12-025-B068	#48 .0760	7/8	1-3/4	12-025-098	12-025-B098
#19 .1660	1-5/8	2-3/4	12-025-069	12-025-B069	#49 .0730	7/8	1-3/4	12-025-099	12-025-B099
#20 .1610	1-3/8	2-1/2	12-025-070	12-025-B070	#50 .0700	7/8	1-3/4	12-025-100	12-025-B100
#21 .1590	1-3/8	2-1/2	12-025-071	12-025-B071	#51 .0670	3/4	1-1/2	12-025-101	12-025-B101
#22 .1570	1-3/8	2-1/2	12-025-072	12-025-B072	#52 .0635	3/4	1-1/2	12-025-102	12-025-B102
#23 .1540	1-3/8	2-1/2	12-025-073	12-025-B073	#53 .0595	3/4	1-1/2	12-025-103	12-025-B103
#24 .1520	1-3/8	2-1/2	12-025-074	12-025-B074	#54 .0550	3/4	1-1/2	12-025-104	12-025-B104
#25 .1495	1-3/8	2-1/2	12-025-075	12-025-B075	#55 .0520	3/4	1-1/2	12-025-105	12-025-B105
#26 .1470	1-3/8	2-1/2	12-025-076	12-025-B076	#56 .0465	3/4	1-1/2	12-025-106	12-025-B106
#27 .1440	1-3/8	2-1/2	12-025-077	12-025-B077	#57 .0430	3/4	1-1/2	12-025-107	12-025-B107
#28 .1405	1-3/8	2-1/2	12-025-078	12-025-B078	#58 .0420	3/4	1-1/2	12-025-108	12-025-B108
#29 .1360	1-3/8	2-1/2	12-025-079	12-025-B079	#59 .0410	3/4	1-1/2	12-025-109	12-025-B109
#30 .1285	1-3/8	2-1/2	12-025-080	12-025-B080	#60 .0400	3/4	1-1/2	12-025-110	12-025-B110

## SOLID CARBIDE SPADE DRILLS



For thin sheet metal and shallow hole drilling

### FRACTIONAL SIZES ANSI B94

SIZE IN	FLUTE LENGTH	OVERALL LENGTH	FULLY GROUND UN-COATED	FULLY GROUND TIALN	SIZE IN	FLUTE LENGTH	OVERALL LENGTH	FULLY GROUND UN-COATED	FULLY GROUND TIALN
1/16	5/16	1-1/2	12-181-001	12-181-B001	5/16	7/8	2-1/2	12-181-008	12-181-B008
3/32	3/8	1-1/2	12-181-002	12-181-B002	11/32	15/16	2-1/2	12-181-009	12-181-B009
1/8	7/16	1-1/2	12-181-003	12-181-B003	3/8	1	2-1/2	12-181-010	12-181-B010
5/32	15/32	2	12-181-004	12-181-B004	13/32	1	2-1/2	12-181-011	12-181-B011
3/16	9/16	2	12-181-005	12-181-B005	7/16	1-1/16	2-1/2	12-181-012	12-181-B012
1/4	11/16	2	12-181-006	12-181-B006	15/32	1-3/32	2-1/2	12-181-013	12-181-B013
9/32	3/4	2-1/2	12-181-007	12-181-B007	1/2	1-1/8	3	12-181-014	12-181-B014

## SOLID CARBIDE SCREW MACHINE LENGTH DRILLS



FRACTIONAL SIZES 118° POINT ANSI B94

SIZE IN	FLUTE LENGTH	OVERALL LENGTH	FULLY GROUND		SIZE IN	FLUTE LENGTH	OVERALL LENGTH	FULLY GROUND	
			UN-COATED	TIALN				UN-COATED	TIALN
1/64	3/8	1-1/8	12-25S-001	12-25S-B001	9/32	1-1/2	2-11/16	12-25S-018	12-25S-B018
1/32	3/8	1-1/8	12-25S-002	12-25S-B002	19/64	1-9/16	2-3/4	12-25S-019	12-25S-B019
3/64	1/2	1-1/2	12-25S-003	12-25S-B003	5/16	1-5/8	2-13/16	12-25S-020	12-25S-B020
1/16	5/8	1-5/8	12-25S-004	12-25S-B004	21/64	1-11/16	2-15/16	12-25S-021	12-25S-B021
5/64	11/16	1-11/16	12-25S-005	12-25S-B005	11/32	1-11/16	3	12-25S-022	12-25S-B022
3/32	3/4	1-3/4	12-25S-006	12-25S-B006	23/64	1-3/4	3-1/16	12-25S-023	12-25S-B023
7/64	13/16	1-13/16	12-25S-007	12-25S-B007	3/8	1-13/16	3-1/8	12-25S-024	12-25S-B024
1/8	7/8	1-7/8	12-25S-008	12-25S-B008	25/64	1-7/8	3-1/4	12-25S-025	12-25S-B025
9/64	15/16	1-15/16	12-25S-009	12-25S-B009	13/32	1-15/16	3-5/16	12-25S-026	12-25S-B026
5/32	1	2-1/16	12-25S-010	12-25S-B010	27/64	2	3-3/8	12-25S-027	12-25S-B027
11/64	1-1/16	2-1/8	12-25S-011	12-25S-B011	7/16	2-1/16	3-7/16	12-25S-028	12-25S-B028
3/16	1-1/8	2-3/16	12-25S-012	12-25S-B012	29/64	2-1/8	3-9/16	12-25S-029	12-25S-B029
13/64	1-3/16	2-1/4	12-25S-013	12-25S-B013	15/32	2-1/8	3-5/8	12-25S-030	12-25S-B030
7/32	1-1/4	2-3/8	12-25S-014	12-25S-B014	31/64	2-3/16	3-11/16	12-25S-031	12-25S-B031
15/64	1-5/16	2-7/16	12-25S-015	12-25S-B015	1/2	2-1/4	3-3/4	12-25S-032	12-25S-B032
1/4	1-3/8	2-1/2	12-25S-016	12-25S-B016	9/16	2-1/2	4	12-25S-033	12-25S-B033
17/64	1-7/16	2-5/8	12-25S-017	12-25S-B017	5/8	2-3/4	4-1/4	12-25S-034	12-25S-B034

## SOLID CARBIDE STRAIGHT FLUTE DRILLS



For drilling hardened, treated and abrasive materials

FRACTIONAL SIZES 118° POINT ANSI B94

SIZE IN	FLUTE LENGTH	OVERALL LENGTH	FULLY GROUND		SIZE IN	FLUTE LENGTH	OVERALL LENGTH	FULLY GROUND	
			UN-COATED	TIALN				UN-COATED	TIALN
3/64	1/2	1-1/2	12-180-001	12-180-B001	9/32	1-1/2	2-11/16	12-180-016	12-180-B016
1/16	5/8	1-5/8	12-180-002	12-180-B002	19/64	1-9/16	2-3/4	12-180-017	12-180-B017
5/64	11/16	1-11/16	12-180-003	12-180-B003	5/16	1-5/8	2-13/16	12-180-018	12-180-B018
3/32	3/4	1-3/4	12-180-004	12-180-B004	21/64	1-11/16	2-15/16	12-180-019	12-180-B019
7/64	13/16	1-13/16	12-180-005	12-180-B005	11/32	1-11/16	3	12-180-020	12-180-B020
1/8	7/8	1-7/8	12-180-006	12-180-B006	23/64	1-3/4	3-1/16	12-180-021	12-180-B021
9/64	15/16	1-15/16	12-180-007	12-180-B007	3/8	1-13/16	3-1/8	12-180-022	12-180-B022
5/32	1	2-1/16	12-180-008	12-180-B008	25/64	1-7/8	3-1/4	12-180-023	12-180-B023
11/64	1-1/16	2-1/8	12-180-009	12-180-B009	13/32	1-15/16	3-5/16	12-180-024	12-180-B024
3/16	1-1/8	2-3/16	12-180-010	12-180-B010	27/64	2	3-3/8	12-180-025	12-180-B025
13/64	1-3/16	2-1/4	12-180-011	12-180-B011	7/16	2-1/16	3-7/16	12-180-026	12-180-B026
7/32	1-1/4	2-3/8	12-180-012	12-180-B012	29/64	2-1/8	3-9/16	12-180-027	12-180-B027
15/64	1-5/16	2-7/16	12-180-013	12-180-B013	15/32	2-1/8	3-5/8	12-180-028	12-180-B028
1/4	1-3/8	2-1/2	12-180-014	12-180-B014	31/64	2-3/16	3-11/16	12-180-029	12-180-B029
17/64	1-7/16	2-5/8	12-180-015	12-180-B015	1/2	2-1/4	3-3/4	12-180-030	12-180-B030

## CARBIDE TIPPED JOBBER LENGTH DRILLS



For drilling abrasive and nonferrous materials such as castings, hand rubber and copper alloys.

FRACTIONAL SIZES 118° POINT ANSI B94

SIZE IN	FLUTE LENGTH	OVERALL LENGTH	FULLY GROUND		SIZE IN	FLUTE LENGTH	OVERALL LENGTH	FULLY GROUND	
			UN-COATED	TIALN				UN-COATED	TIALN
1/8	1-5/8	2-3/4	12-026-001	12-026-B001	7/16	4-1/16	5-1/2	12-026-021	12-026-B021
9/64	1-3/4	2-7/8	12-026-002	12-026-B002	29/64	4-3/16	5-5/8	12-026-022	12-026-B022
5/32	2	3-1/8	12-026-003	12-026-B003	15/32	4-5/16	5-3/4	12-026-023	12-026-B023
11/64	2-1/8	3-1/4	12-026-004	12-026-B004	31/64	4-3/8	5-7/8	12-026-024	12-026-B024
3/16	2-5/16	3-1/2	12-026-005	12-026-B005	1/2	4-1/2	6	12-026-025	12-026-B025
13/64	2-7/16	3-5/8	12-026-006	12-026-B006	33/64	4-13/16	6-5/8	12-026-026	12-026-B026
7/32	2-1/2	3-3/4	12-026-007	12-026-B007	17/32	4-13/16	6-5/8	12-026-027	12-026-B027
15/64	2-5/8	3-7/8	12-026-008	12-026-B008	35/64	4-13/16	6-5/8	12-026-028	12-026-B028
1/4	2-3/4	4	12-026-009	12-026-B009	9/16	4-13/16	6-5/8	12-026-029	12-026-B029
17/64	2-7/8	4-1/8	12-026-010	12-026-B010	37/64	4-13/16	6-5/8	12-026-030	12-026-B030
9/32	2-15/16	4-1/4	12-026-011	12-026-B011	19/32	5-3/16	7-1/8	12-026-031	12-026-B031
19/64	3-1/16	4-3/8	12-026-012	12-026-B012	39/64	5-3/16	7-1/8	12-026-032	12-026-B032
5/16	3-3/16	4-1/2	12-026-013	12-026-B013	5/8	5-3/16	7-1/8	12-026-033	12-026-B033
21/64	3-5/16	4-5/8	12-026-014	12-026-B014	41/64	5-3/16	7-1/8	12-026-034	12-026-B034
11/32	3-7/16	4-3/4	12-026-015	12-026-B015	21/32	5-3/16	7-1/8	12-026-035	12-026-B035
23/64	3-1/2	4-7/8	12-026-016	12-026-B016	43/64	5-5/8	7-5/8	12-026-036	12-026-B036
3/8	3-5/8	5	12-026-017	12-026-B017	11/16	5-5/8	7-5/8	12-026-037	12-026-B037
25/64	3-3/4	5-1/8	12-026-018	12-026-B018	23/32	5-5/8	7-7/8	12-026-038	12-026-B038
13/32	3-7/8	5-1/4	12-026-019	12-026-B019	3/4	5-7/8	8-1/4	12-026-039	12-026-B039
27/64	3-15/16	5-3/8	12-026-020	12-026-B020					

LETTER SIZES 118° POINT ANSI B94

SIZE DEC. EQUIV.	FLUTE LENGTH	OVERALL LENGTH	FULLY GROUND		SIZE DEC. EQUIV.	FLUTE LENGTH	OVERALL LENGTH	FULLY GROUND	
			UN-COATED	TIALN				UN-COATED	TIALN
A .2340	2-5/8	3-7/8	12-026-040	12-026-B040	N .3020	3-1/16	4-3/8	12-026-053	12-026-B053
B .2380	2-3/4	4	12-026-041	12-026-B041	O .3160	3-3/16	4-1/2	12-026-054	12-026-B054
C .2420	2-3/4	4	12-026-042	12-026-B042	P .3230	3-5/16	4-5/8	12-026-055	12-026-B055
D .2460	2-3/4	4	12-026-043	12-026-B043	Q .3320	3-7/16	4-3/4	12-026-056	12-026-B056
E .2500	2-3/4	4	12-026-044	12-026-B044	R .3390	3-7/16	4-3/4	12-026-057	12-026-B057
F .2570	2-7/8	4-1/8	12-026-045	12-026-B045	S .3480	3-1/2	4-7/8	12-026-058	12-026-B058
G .2610	2-7/8	4-1/8	12-026-046	12-026-B046	T .3490	3-1/2	4-7/8	12-026-059	12-026-B059
H .2660	2-7/8	4-1/8	12-026-047	12-026-B047	U .3680	3-5/8	5	12-026-060	12-026-B060
I .2720	2-7/8	4-1/8	12-026-048	12-026-B048	V .3770	3-5/8	5	12-026-061	12-026-B061
J .2770	2-7/8	4-1/8	12-026-049	12-026-B049	W .3860	3-3/4	5-1/8	12-026-062	12-026-B062
K .2810	2-15/16	4-1/4	12-026-050	12-026-B050	X .3970	3-3/4	5-1/8	12-026-063	12-026-B063
L .2900	2-15/16	4-1/4	12-026-051	12-026-B051	Y .4040	3-7/8	5-1/4	12-026-064	12-026-B064
M .2950	3-1/16	4-3/8	12-026-052	12-026-B052	Z .4130	3-7/8	5-1/4	12-026-065	12-026-B065

## CARBIDE TIPPED JOBBER LENGTH DRILLS



WIRE GAUGE SIZES 118° POINT ANSI B94

SIZE DEC. EQUIV.	FLUTE LENGTH	OVERALL LENGTH	FULLY GROUND		SIZE DEC. EQUIV.	FLUTE LENGTH	OVERALL LENGTH	FULLY GROUND	
			UN-COATED	TIALN				UN-COATED	TIALN
#1 .2280	2-5/8	3-7/8	12-026-066	12-026-B066	#17 .1730	2-3/16	3-3/8	12-026-082	12-026-B082
#2 .2210	2-5/8	3-7/8	12-026-067	12-026-B067	#18 .1695	2-1/8	3-1/4	12-026-083	12-026-B083
#3 .2130	2-1/2	3-3/4	12-026-068	12-026-B068	#19 .1660	2-1/8	3-1/4	12-026-084	12-026-B084
#4 .2090	2-1/2	3-3/4	12-026-069	12-026-B069	#20 .1610	2-1/8	3-1/4	12-026-085	12-026-B085
#5 .2055	2-1/2	3-3/4	12-026-070	12-026-B070	#21 .1590	2-1/8	3-1/4	12-026-086	12-026-B086
#6 .2040	2-1/2	3-3/4	12-026-071	12-026-B071	#22 .1570	2	3-1/8	12-026-087	12-026-B087
#7 .2010	2-7/16	3-5/8	12-026-072	12-026-B072	#23 .1540	2	3-1/8	12-026-088	12-026-B088
#8 .1990	2-7/16	3-5/8	12-026-073	12-026-B073	#24 .1520	2	3-1/8	12-026-089	12-026-B089
#9 .1960	2-7/16	3-5/8	12-026-074	12-026-B074	#25 .1495	1-7/8	3	12-026-090	12-026-B090
#10 .1935	2-7/16	3-5/8	12-026-075	12-026-B075	#26 .1470	1-7/8	3	12-026-091	12-026-B091
#11 .1910	2-5/16	3-1/2	12-026-076	12-026-B076	#27 .1440	1-7/8	3	12-026-092	12-026-B092
#12 .1890	2-5/16	3-1/2	12-026-077	12-026-B077	#28 .1405	1-3/4	2-7/8	12-026-093	12-026-B093
#13 .1850	2-5/16	3-1/2	12-026-078	12-026-B078	#29 .1360	1-3/4	2-7/8	12-026-094	12-026-B094
#14 .1820	2-3/16	3-3/8	12-026-079	12-026-B079	#30 .1285	1-5/8	2-3/4	12-026-095	12-026-B095
#15 .1800	2-3/16	3-3/8	12-026-080	12-026-B080	#31 .1200	1-5/8	2-3/4	12-026-096	12-026-B096
#16 .1770	2-3/16	3-3/8	12-026-081	12-026-B081	#32 .1160	1-5/8	2-3/4	12-026-097	12-026-B097

## CARBIDE TIPPED DRILLS

For drilling abrasive and nonferrous materials such as castings, Hand rubber and copper alloys.

METRIC SIZES 118° POINT DIN338

DIAMETER H7	FLUTE LENGTH	OVERALL LENGTH	FULLY GROUND		DIAMETER H7	FLUTE LENGTH	OVERALL LENGTH	FULLY GROUND	
			UN-COATED	TIALN				UN-COATED	TIALN
3.00	33	61	11-026-001	11-026-B001	9.50	81	125	11-026-066	11-026-B066
3.20	36	65	11-026-003	11-026-B003	10.00	87	133	11-026-071	11-026-B071
3.30	36	65	11-026-004	11-026-B004	10.20	87	133	11-026-073	11-026-B073
3.50	39	70	11-026-006	11-026-B006	10.50	87	133	11-026-076	11-026-B076
4.00	43	75	11-026-011	11-026-B011	11.00	94	142	11-026-081	11-026-B081
4.20	43	75	11-026-013	11-026-B013	11.50	94	142	11-026-086	11-026-B086
4.50	47	80	11-026-016	11-026-B016	12.00	101	151	11-026-091	11-026-B091
4.80	52	86	11-026-019	11-026-B019	12.50	101	151	11-026-096	11-026-B096
5.00	52	86	11-026-021	11-026-B021	13.00	101	151	11-026-101	11-026-B101
5.50	57	93	11-026-026	11-026-B026	13.50	108	160	11-026-106	11-026-B106
6.00	57	93	11-026-031	11-026-B031	14.00	108	160	11-026-111	11-026-B111
6.50	63	101	11-026-036	11-026-B036	15.00	114	169	11-026-115	11-026-B115
6.80	69	109	11-026-039	11-026-B039	16.00	120	178	11-026-119	11-026-B119
7.00	69	109	11-026-041	11-026-B041	17.00	125	184	11-026-121	11-026-B121
7.50	69	109	11-026-046	11-026-B046	18.00	130	191	11-026-123	11-026-B123
8.00	75	117	11-026-051	11-026-B051	19.00	135	198	11-026-125	11-026-B125
8.50	75	117	11-026-056	11-026-B056	20.00	140	206	11-026-127	11-026-B127
9.00	81	125	11-026-061	11-026-B061					

## SOLID CARBIDE TiAIN COATED TWIST DRILLS WITH COOLANT



For use in most steel,gray cast iron,nodular iron,malleable iron and compacted Graphite iron.

DIN6537K, 3xD, 140° POINT

DIAMETER	SHANK DIA	FLUTE LENGTH	OVERALL LENGTH	FULLY GROUND		DIAMETER	SHANK DIA	FLUTE LENGTH	OVERALL LENGTH	FULLY GROUND	
				NON-COOLANT	COOLANT					NON-COOLANT	COOLANT
3.0	6	20	62	11-25A-001	11-25A-C001	3.0	6	28	66	11-25B-001	11-25B-C001
3.2	6	20	62	11-25A-003	11-25A-C003	3.2	6	28	66	11-25B-003	11-25B-C003
3.5	6	20	62	11-25A-006	11-25A-C006	3.5	6	28	66	11-25B-006	11-25B-C006
4.0	6	24	66	11-25A-011	11-25A-C011	4.0	6	36	74	11-25B-011	11-25B-C011
4.2	6	24	66	11-25A-013	11-25A-C013	4.2	6	36	74	11-25B-013	11-25B-C013
4.5	6	24	66	11-25A-016	11-25A-C016	4.5	6	36	74	11-25B-016	11-25B-C016
4.8	6	28	66	11-25A-019	11-25A-C019	4.8	6	44	82	11-25B-019	11-25B-C019
5.0	6	28	66	11-25A-021	11-25A-C021	5.0	6	44	82	11-25B-021	11-25B-C021
5.5	6	28	66	11-25A-026	11-25A-C026	5.5	6	44	82	11-25B-026	11-25B-C026
6.0	6	28	66	11-25A-031	11-25A-C031	6.0	6	44	82	11-25B-031	11-25B-C031
6.5	8	34	79	11-25A-036	11-25A-C036	6.5	8	53	91	11-25B-036	11-25B-C036
6.8	8	34	79	11-25A-039	11-25A-C039	6.8	8	53	91	11-25B-039	11-25B-C039
7.0	8	34	79	11-25A-041	11-25A-C041	7.0	8	53	91	11-25B-041	11-25B-C041
7.5	8	41	79	11-25A-046	11-25A-C046	7.5	8	53	91	11-25B-046	11-25B-C046
8.0	8	41	79	11-25A-051	11-25A-C051	8.0	8	53	91	11-25B-051	11-25B-C051
8.5	10	47	89	11-25A-056	11-25A-C056	8.5	10	61	103	11-25B-056	11-25B-C056
9.0	10	47	89	11-25A-061	11-25A-C061	9.0	10	61	103	11-25B-061	11-25B-C061
9.5	10	47	89	11-25A-066	11-25A-C066	9.5	10	61	103	11-25B-066	11-25B-C066
10.0	10	47	89	11-25A-071	11-25A-C071	10.0	10	61	103	11-25B-071	11-25B-C071
10.2	12	55	102	11-25A-073	11-25A-C073	10.2	12	71	118	11-25B-073	11-25B-C073
10.5	12	55	102	11-25A-076	11-25A-C076	10.5	12	71	118	11-25B-076	11-25B-C076
11.0	12	55	102	11-25A-081	11-25A-C081	11.0	12	71	118	11-25B-081	11-25B-C081
11.5	12	55	102	11-25A-086	11-25A-C086	11.5	12	71	118	11-25B-086	11-25B-C086
12.0	12	55	102	11-25A-091	11-25A-C091	12.0	12	71	118	11-25B-091	11-25B-C091
12.5	14	60	107	11-25A-096	11-25A-C096	12.5	14	77	124	11-25B-096	11-25B-C096
13.0	14	60	107	11-25A-101	11-25A-C101	13.0	14	77	124	11-25B-101	11-25B-C101
13.5	14	60	107	11-25A-102	11-25A-C102	13.5	14	77	124	11-25B-102	11-25B-C102
14.0	14	60	107	11-25A-103	11-25A-C103	14.0	14	77	124	11-25B-103	11-25B-C103
15.0	16	65	115	11-25A-105	11-25A-C105	15.0	16	83	133	11-25B-105	11-25B-C105
16.0	16	65	115	11-25A-107	11-25A-C107	16.0	16	83	133	11-25B-107	11-25B-C107
17.0	18	73	123	11-25A-109	11-25A-C109	17.0	18	93	143	11-25B-109	11-25B-C109
18.0	18	73	123	11-25A-111	11-25A-C111	18.0	18	93	143	11-25B-111	11-25B-C111
19.0	20	79	131	11-25A-113	11-25A-C113	19.0	20	101	153	11-25B-113	11-25B-C113
20.0	20	79	131	11-25A-115	11-25A-C115	20.0	20	101	153	11-25B-115	11-25B-C115



## SOLID CARBIDE TiAIN COATED DRILLS WITH COOLANT



### LONG LENGTH 140° POINT

SIZE	SHANK DIA	FLT	OVA	FULLY GROUND	
				NON-COOLANT	COOLANT
IN	MM	IN	IN		
5/32	6	1.4173	2.9134	12-25B-001	12-25B-C001
#15 .1800	6	1.4173	2.9134	12-25B-002	12-25B-C002
#14 .1820	6	1.4173	2.9134	12-25B-003	12-25B-C003
3/16	6	1.7323	3.2283	12-25B-004	12-25B-C004
#3 .2130	6	1.7323	3.2283	12-25B-005	12-25B-C005
7/32	6	1.7323	3.2283	12-25B-006	12-25B-C006
1/4	8	2.0866	3.5827	12-25B-007	12-25B-C007
F .2570	8	2.0866	3.5827	12-25B-008	12-25B-C008
I .2570	8	2.0866	3.5827	12-25B-009	12-25B-C009
9/32	8	2.0866	3.5827	12-25B-010	12-25B-C010
19/64	8	2.0866	3.5827	12-25B-011	12-25B-C011
5/16	8	2.0866	3.5827	12-25B-012	12-25B-C012
21/64	10	2.0866	4.0551	12-25B-013	12-25B-C013
Q .3220	10	2.4016	4.0551	12-25B-014	12-25B-C014
11/32	10	2.4016	4.0551	12-25B-015	12-25B-C015
23/64	10	2.4016	4.0551	12-25B-016	12-25B-C016
3/8	10	2.4016	4.0551	12-25B-017	12-25B-C017
U .3680	10	2.4016	4.0551	12-25B-018	12-25B-C018
25/64	10	2.4016	4.0551	12-25B-019	12-25B-C019
13/32	12	2.7953	4.6457	12-25B-020	12-25B-C020
27/64	12	2.7953	4.6457	12-25B-021	12-25B-C021
7/16	12	2.7953	4.6457	12-25B-022	12-25B-C022
29/64	12	2.7953	4.6457	12-25B-023	12-25B-C023
15/32	12	2.7953	4.6457	12-25B-024	12-25B-C024
31/64	14	3.0315	4.8819	12-25B-025	12-25B-C025
1/2	14	3.0315	4.8819	12-25B-026	12-25B-C026
33/64	14	3.0315	4.8819	12-25B-027	12-25B-C027
9/16	16	3.2677	5.2362	12-25B-028	12-25B-C028
5/8	16	3.2677	5.2362	12-25B-029	12-25B-C029
21/32	18	3.6614	5.6299	12-25B-030	12-25B-C030
11/16	18	3.6614	5.6299	12-25B-031	12-25B-C031
3/4	20	3.6614	5.6299	12-25B-032	12-25B-C032

### SHORT LENGTH 140° POINT

SIZE	SHANK DIA	FLT	OVA	FULLY GROUND	
				NON-COOLANT	COOLANT
IN	MM	IN	IN		
5/32	6	0.9449	2.5984	12-25A-001	12-25A-C001
3/16	6	1.1024	2.5984	12-25A-002	12-25A-C002
7/32	6	1.1024	2.5984	12-25A-003	12-25A-C003
1/4	8	1.3386	3.1102	12-25A-004	12-25A-C004
19/64	8	1.6142	3.1102	12-25A-005	12-25A-C005
21/64	10	1.8504	3.5039	12-25A-006	12-25A-C006
3/8	10	1.8504	3.5039	12-25A-007	12-25A-C007
25/64	10	1.8504	3.5039	12-25A-008	12-25A-C008
13/32	12	2.1654	4.0157	12-25A-009	12-25A-C009
27/64	12	2.1654	4.0157	12-25A-010	12-25A-C010
7/16	12	2.1654	4.0157	12-25A-011	12-25A-C011
29/64	12	2.1654	4.0157	12-25A-012	12-25A-C012
15/32	14	2.1654	4.0157	12-25A-013	12-25A-C013
31/64	14	2.3622	4.2126	12-25A-014	12-25A-C014
9/16	16	2.5591	4.5276	12-25A-015	12-25A-C015
5/8	16	2.5591	4.5276	12-25A-016	12-25A-C016
11/16	18	2.8740	4.8425	12-25A-017	12-25A-C017
3/4	20	3.1100	5.1580	12-25A-018	12-25A-C018

## HSS CENTER DRILLS



They are used when locating an accurate center hole is required to assure the precision and quality of subsequent machining operations

### PLAIN - 60° DIN333A

DRILL DIA.	BODY DIA.	OVERALL LENGTH	MILLED STRAIGHT FLUTE			FULLY GROUND SPIRAL FLUTE	
			HSS	HSSCO5	HSS LEFT	HSS	HSSCO5
0.50	3.15	25.00	11-036-001	11-36-C001	11-036-L001	11-036-F001	11-36-LC001
0.80	3.15	25.00	11-036-002	11-36-C002	11-036-L002	11-036-F002	11-36-LC002
1.00	3.15	31.50	11-036-003	11-36-C003	11-036-L003	11-036-F003	11-36-LC003
1.25	3.15	31.50	11-036-004	11-36-C004	11-036-L004	11-036-F004	11-36-LC004
1.60	4.00	35.50	11-036-005	11-36-C005	11-036-L005	11-036-F005	11-36-LC005
2.00	5.00	40.00	11-036-006	11-36-C006	11-036-L006	11-036-F006	11-36-LC006
2.50	6.30	45.00	11-036-007	11-36-C007	11-036-L007	11-036-F007	11-36-LC007
3.15	8.00	50.00	11-036-008	11-36-C008	11-036-L008	11-036-F008	11-36-LC008
4.00	10.00	56.00	11-036-009	11-36-C009	11-036-L009	11-036-F009	11-36-LC009
5.00	12.50	63.00	11-036-010	11-36-C010	11-036-L010	11-036-F010	11-36-LC010
6.30	16.00	71.00	11-036-011	11-36-C011	11-036-L011	11-036-F011	11-36-LC011
8.00	20.00	80.00	11-036-012	11-36-C012	11-036-L012	11-036-F012	11-36-LC012
10.00	25.00	100.00	11-036-013	11-36-C013	11-036-L013	11-036-F013	11-36-LC013

## 12PC HSS CENTER DRILLS SET

Including: 60° plain type, 1pc 1.0, 1.6Mm, 2pc 2.0, 2.5, 4.0Mm, 3pc 3.15Mm

ORDER NO. 11-036-S01



## HSS CENTER DRILLS



### BELL - 60° DIN333B

DRILL DIA.	BODY DIA.	OVERALL LENGTH	MILLED STRAIGHT FLUTE			FULLY GROUND SPIRAL FLUTE	
			HSS	HSSCO5	HSS LEFT	HSS	HSSCO5
1.00	4.00	35.50	11-036-017	11-36-C017	11-036-L017	11-036-F017	11-36-LC017
1.25	5.00	40.00	11-036-018	11-36-C018	11-036-L018	11-036-F018	11-36-LC018
1.60	6.30	45.00	11-036-019	11-36-C019	11-036-L019	11-036-F019	11-36-LC019
2.00	8.00	50.00	11-036-020	11-36-C020	11-036-L020	11-036-F020	11-36-LC020
2.50	10.00	56.00	11-036-021	11-36-C021	11-036-L021	11-036-F021	11-36-LC021
3.15	11.20	60.00	11-036-022	11-36-C022	11-036-L022	11-036-F022	11-36-LC022
4.00	14.00	67.00	11-036-023	11-36-C023	11-036-L023	11-036-F023	11-36-LC023
5.00	18.00	75.00	11-036-024	11-36-C024	11-036-L024	11-036-F024	11-36-LC024
6.30	20.00	80.00	11-036-025	11-36-C025	11-036-L025	11-036-F025	11-36-LC025
8.00	25.00	100.00	11-036-026	11-36-C026	11-036-L026	11-036-F026	11-36-LC026

## HSS CENTER DRILLS LONG SERIES



They are used for producing center holes where the extra length is required to access difficult to reach areas.

PLAIN LONG - 60° DIN333A

DRILL DIA.	BODY DIA.	OVERALL LENGTH	MILLED STRAIGHT FLUTE			FULLY GROUND SPIRAL FLUTE	
			HSS	HSSCO5	HSS LEFT	HSS	HSSCO5
1.00	4.00	120.00	11-037-002	11-37C-002	11-037-L002	11-037-F002	11-37C-F002
1.60	5.00	120.00	11-037-003	11-37C-003	11-037-L003	11-037-F003	11-37C-F003
2.00	6.00	120.00	11-037-004	11-37C-004	11-037-L004	11-037-F004	11-37C-F004
2.50	8.00	120.00	11-037-005	11-37C-005	11-037-L005	11-037-F005	11-37C-F005
3.15	10.00	120.00	11-037-006	11-37C-006	11-037-L006	11-037-F006	11-37C-F006

## SOLID CARBIDE CENTER DRILLS



PLAIN - 60° DIN333A

DRILL DIA.	BODY DIA.	OVERALL LENGTH	FULLY GROUND SPIRAL FLUTE	
			UN-COATED	TiAIN COATED
0.50	3.15	25.00	11-036-T001	11-36A-T001
0.80	3.15	25.00	11-036-T002	11-36A-T002
1.00	3.15	31.50	11-036-T003	11-36A-T003
1.25	3.15	31.50	11-036-T004	11-36A-T004
1.60	4	35.50	11-036-T005	11-36A-T005
2.00	5	40.00	11-036-T006	11-36A-T006
2.50	6.3	45.00	11-036-T007	11-36A-T007
3.15	8	50.00	11-036-T008	11-36A-T008
4.00	10	56.00	11-036-T009	11-36A-T009
5.00	12.5	63.00	11-036-T010	11-36A-T010
6.30	16	71.00	11-036-T011	11-36A-T011
8.00	20	80.00	11-036-T012	11-36A-T012
10.00	25	100.00	11-036-T013	11-36A-T013

## HSS COMBINED DRILLS AND COUNTERSINKS



PLAIN TYPE - 60° COUNTERSINK ANGLE

SIZE #	BODY DIA.(In)	DRILL DIA.(In)	OAL (In)	FULLY GROUND SPIRAL FLUTE		
				HSS	HSSCO5	HSS LEFT
00	1/8	.025	1-1/4	12-036-001	12-36-LC001	12-036-L001
0	1/8	1/32	1-1/4	12-036-002	12-36-LC002	12-036-L002
1	1/8	3/64	1-1/4	12-036-003	12-36-LC003	12-036-L003
2	3/16	5/64	1-7/8	12-036-004	12-36-LC004	12-036-L004
3	1/4	7/64	2	12-036-005	12-36-LC005	12-036-L005
4	5/16	1/8	2-1/8	12-036-006	12-36-LC006	12-036-L006
4-1/2	3/8	9/64	2-1/2	12-036-007	12-36-LC007	12-036-L007
5	7/16	3/16	2-3/4	12-036-008	12-36-LC008	12-036-L008
6	1/2	7/32	3	12-036-009	12-36-LC009	12-036-L009
7	5/8	1/4	3-1/4	12-036-010	12-36-LC010	12-036-L010
8	3/4	5/16	3-1/2	12-036-011	12-36-LC011	12-036-L011
9	7/8	11/32	3-5/8	12-036-012	12-36-LC012	12-036-L012
10	1	3/8	3-3/4	12-036-013	12-36-LC013	12-036-L013

### 5PC HSS CENTER DRILLS SET

INCLUDING: 60° PLAIN TYPE, #1,#2,#3,#4,#5



12-036-S01 HSS  
12-036-S02 HSSCO5

### 5PC HSS LONG SERIES CENTER DRILLS SET

INCLUDING: 60° PLAIN TYPE, #1B,#2B,#3B,#4B,#5A



12-037-S01



BELL TYPE - 60° COUNTERSINK ANGLE

SIZE #	BODY DIA.(In)	DRILL DIA.(In)	OAL (In)	BELL DIA.(In)	FULLY GROUND SPIRAL FLUTE		
					HSS	HSSCO5	HSS LEFT
11	1/8	3/64	1-1/4	0.10	12-036-014	12-36-LC014	12-036-L014
12	3/16	1/16	1-7/8	0.15	12-036-015	12-36-LC015	12-036-L015
13	1/4	3/32	2	0.20	12-036-016	12-36-LC016	12-036-L016
14	5/16	7/64	2-1/8	0.25	12-036-017	12-36-LC017	12-036-L017
15	7/16	5/32	2-3/4	0.35	12-036-018	12-36-LC018	12-036-L018
16	1/2	3/16	3	0.40	12-036-019	12-36-LC019	12-036-L019
17	5/8	7/32	3-1/4	0.50	12-036-020	12-36-LC020	12-036-L020
18	3/4	1/4	3-1/2	0.60	12-036-021	12-36-LC021	12-036-L021
19	7/8	5/16	3-5/8	0.70	12-036-022	12-36-LC022	12-036-L022
20	1	3/8	3-3/4	0.80	12-036-023	12-36-LC023	12-036-L023

## HSS COMBINED DRILLS AND COUNTERSINKS LONG SERIES



PLAIN LONG - 60° COUNTERSINK ANGLE

SIZE #	BODY DIA.(In)	DRILL DIA.(In)	OAL (In)	FULLY GROUND SPIRAL FLUTE		
				HSS	HSSCO5	HSS LEFT
1A	1/8"	3/64"	3"	12-037-001	12-37C-001	12-037-L001
1B	1/8"	3/64"	4"	12-037-002	12-37C-002	12-037-L002
1C	1/8"	3/64"	5"	12-037-003	12-37C-003	12-037-L003
1D	1/8"	3/64"	6"	12-037-004	12-37C-004	12-037-L004
2A	3/16"	5/64"	3"	12-037-005	12-37C-005	12-037-L005
2B	3/16"	5/64"	4"	12-037-006	12-37C-006	12-037-L006
2C	3/16"	5/64"	5"	12-037-007	12-37C-007	12-037-L007
2D	3/16"	5/64"	6"	12-037-008	12-37C-008	12-037-L008
3A	1/4"	7/64"	3"	12-037-009	12-37C-009	12-037-L009
3B	1/4"	7/64"	4"	12-037-010	12-37C-010	12-037-L010
3C	1/4"	7/64"	5"	12-037-011	12-37C-011	12-037-L011
3D	1/4"	7/64"	6"	12-037-012	12-37C-012	12-037-L012
4A	5/16"	1/8"	3"	12-037-013	12-37C-013	12-037-L013
4B	5/16"	1/8"	4"	12-037-014	12-37C-014	12-037-L014
4C	5/16"	1/8"	5"	12-037-015	12-37C-015	12-037-L015
4D	5/16"	1/8"	6"	12-037-016	12-37C-016	12-037-L016
4-1/2A	3/8"	9/64"	4"	12-037-017	12-37C-017	12-037-L017
4-1/2B	3/8"	9/64"	5"	12-037-018	12-37C-018	12-037-L018
4-1/2C	3/8"	9/64"	6"	12-037-019	12-37C-019	12-037-L019
5A	7/16"	3/16"	4"	12-037-020	12-37C-020	12-037-L020
5B	7/16"	3/16"	5"	12-037-021	12-37C-021	12-037-L021
5C	7/16"	3/16"	6"	12-037-022	12-37C-022	12-037-L022
6A	1/2"	7/32"	4"	12-037-023	12-37C-023	12-037-L023
6B	1/2"	7/32"	5"	12-037-024	12-37C-024	12-037-L024
6C	1/2"	7/32"	6"	12-037-025	12-37C-025	12-037-L025
7	5/8"	1/4"	6"	12-037-026	12-37C-026	12-037-L026
8	3/4"	5/16"	6"	12-037-027	12-37C-027	12-037-L027

## SOLIDE CARBIDE COMBINED DRILLS AND COUNTERSINKS



PLAIN TYPE - 60° COUNTERSINK ANGLE

SIZE #	BODY DIA.(In)	DRILL DIA.(In)	OAL (In)	FULLY GROUND SPIRAL FLUTE	
				UN-COATED	TiAIN COATED
00	1/8	.025	1-1/4	12-036-T001	12-36A-T001
0	1/8	1/32	1-1/4	12-036-T002	12-36A-T002
1	1/8	3/64	1-1/4	12-036-T003	12-36A-T003
2	3/16	5/64	1-7/8	12-036-T004	12-36A-T004
3	1/4	7/64	2	12-036-T005	12-36A-T005
4	5/16	1/8	2-1/8	12-036-T006	12-36A-T006
5	7/16	3/16	2-3/4	12-036-T007	12-36A-T007
6	1/2	7/32	3	12-036-T008	12-36A-T008
7	5/8	1/4	3-1/4	12-036-T009	12-36A-T009
8	3/4	5/16	3-1/2	12-036-T010	12-36A-T010

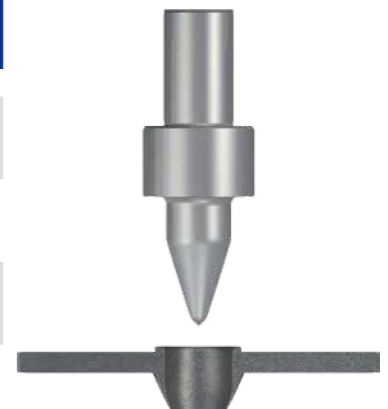
## SOLID CARBIDE HOT MELT DRILL

METRIC THREAD

THREAD SIZE	HOT MELT DRILL DIAMETER	ORDER NO.	THREAD SIZE	HOT MELT DRILL DIAMETER	ORDER NO.
M2x0.4	1.8	11-026A-001	M4x0.5	3.8	11-026A-014
M2.5x0.45	2.3	11-026A-002	M5x0.5	4.3	11-026A-015
M3x0.5	2.7	11-026A-003	M6x0.75	5.6	11-026A-016
M4x0.7	3.7	11-026A-004	M6x0.5	5.8	11-026A-017
M5x0.8	4.5	11-026A-005	M8x1	7.5	11-026A-018
M6x1	5.3	11-026A-006	M8x0.75	7.6	11-026A-019
M8x1.25	7.3	11-026A-007	M10x1.25	9.3	11-026A-020
M10x1.5	9.2	11-026A-008	M10x1	9.5	11-026A-021
M12x1.75	10.9	11-026A-009	M12x1.5	11.2	11-026A-022
M14x2	13.0	11-026A-010	M14x1.5	13.2	11-026A-023
M16x2	14.8	11-026A-011	M16x1.5	15.2	11-026A-024
M18x2.5	16.7	11-026A-012	M18x1.5	17.2	11-026A-025
M20x2.5	18.7	11-026A-013	M20x1.5	19.2	11-026A-026

INCH THREAD

THREAD SIZE	HOT MELT DRILL DIAMETER	ORDER NO.	THREAD SIZE	HOT MELT DRILL DIAMETER	ORDER NO.
NO.4-40	2.5	12-026A-001	NO.4-48	2.6	11-026A-014
NO.5-40	2.9	12-026A-002	NO.5-44	2.9	11-026A-015
NO.6-32	3.1	12-026A-003	NO.6-40	3.2	11-026A-016
NO.8-32	3.8	12-026A-004	NO.8-36	3.9	11-026A-017
NO.10-24	4.3	12-026A-005	NO.10-32	4.4	11-026A-018
NO.12-24	4.9	12-026A-006	NO.12-28	5.0	11-026A-019
1/4-20	5.7	12-026A-007	1/4-28	5.9	11-026A-020
5/16-18	7.2	12-026A-008	5/16-24	7.4	11-026A-021
3/8-16	8.7	12-026A-009	3/8-24	9.0	11-026A-022
7/16-14	10.2	12-026A-010	7/16-20	10.4	11-026A-023
1/2-13	11.7	12-026A-011	1/2-20	12.1	11-026A-024
9/16-12	13.2	12-026A-012	9/16-18	13.6	11-026A-025
5/8-11	14.7	12-026A-013	5/8-18	15.2	11-026A-026
3/4-10	17.8	12-026A-014	3/4-16	18.3	11-026A-027





## HSS TAPER SHANK TWIST DRILLS



General purpose 118° point, heavy duty 135° notched point

### METRIC SIZES DIN345

SIZE H8	MORSE TAPER	FLUTE LENGTH	TOTAL LENGTH	ROLLED HSS	MILLED HSS	HSSCO5	FULLY GROUND HSS	HSSCO5
8.00	1	75	156	11-028-BR001	11-028-BM001	11-028-CM001	11-028-WF001	11-028-LC001
8.50	1	75	156	11-028-BR006	11-028-BM006	11-028-CM006	11-028-WF006	11-028-LC006
9.00	1	81	162	11-028-BR011	11-028-BM011	11-028-CM011	11-028-WF011	11-028-LC011
9.50	1	81	162	11-028-BR016	11-028-BM016	11-028-CM016	11-028-WF016	11-028-LC016
10.00	1	87	168	11-028-BR021	11-028-BM021	11-028-CM021	11-028-WF021	11-028-LC021
10.50	1	87	168	11-028-BR024	11-028-BM024	11-028-CM024	11-028-WF024	11-028-LC024
11.00	1	94	175	11-028-BR027	11-028-BM027	11-028-CM027	11-028-WF027	11-028-LC027
11.50	1	94	175	11-028-BR030	11-028-BM030	11-028-CM030	11-028-WF030	11-028-LC030
12.00	1	101	182	11-028-BR033	11-028-BM033	11-028-CM033	11-028-WF033	11-028-LC033
12.50	1	101	182	11-028-BR036	11-028-BM036	11-028-CM036	11-028-WF036	11-028-LC036
13.00	1	101	182	11-028-BR039	11-028-BM039	11-028-CM039	11-028-WF039	11-028-LC039
13.50	1	108	189	11-028-BR042	11-028-BM042	11-028-CM042	11-028-WF042	11-028-LC042
14.00	1	108	189	11-028-BR045	11-028-BM045	11-028-CM045	11-028-WF045	11-028-LC045
14.50	2	114	212	11-028-BR047	11-028-BM047	11-028-CM047	11-028-WF047	11-028-LC047
15.00	2	114	212	11-028-BR049	11-028-BM049	11-028-CM049	11-028-WF049	11-028-LC049
15.50	2	120	218	11-028-BR051	11-028-BM051	11-028-CM051	11-028-WF051	11-028-LC051
16.00	2	120	218	11-028-BR053	11-028-BM053	11-028-CM053	11-028-WF053	11-028-LC053
16.50	2	125	223	11-028-BR055	11-028-BM055	11-028-CM055	11-028-WF055	11-028-LC055
17.00	2	125	223	11-028-BR057	11-028-BM057	11-028-CM057	11-028-WF057	11-028-LC057
17.50	2	130	228	11-028-BR059	11-028-BM059	11-028-CM059	11-028-WF059	11-028-LC059
18.00	2	130	228	11-028-BR061	11-028-BM061	11-028-CM061	11-028-WF061	11-028-LC061
18.50	2	135	233	11-028-BR063	11-028-BM063	11-028-CM063	11-028-WF063	11-028-LC063
19.00	2	135	233	11-028-BR065	11-028-BM065	11-028-CM065	11-028-WF065	11-028-LC065
19.50	2	140	238	11-028-BR067	11-028-BM067	11-028-CM067	11-028-WF067	11-028-LC067
20.00	2	140	238	11-028-BR069	11-028-BM069	11-028-CM069	11-028-WF069	11-028-LC069
20.50	2	145	243	11-028-BR071	11-028-BM071	11-028-CM071	11-028-WF071	11-028-LC071
21.00	2	145	243	11-028-BR073	11-028-BM073	11-028-CM073	11-028-WF073	11-028-LC073
21.50	2	150	248	11-028-BR075	11-028-BM075	11-028-CM075	11-028-WF075	11-028-LC075
22.00	2	150	248	11-028-BR077	11-028-BM077	11-028-CM077	11-028-WF077	11-028-LC077
22.50	2	155	253	11-028-BR079	11-028-BM079	11-028-CM079	11-028-WF079	11-028-LC079
23.00	2	155	253	11-028-BR081	11-028-BM081	11-028-CM081	11-028-WF081	11-028-LC081
23.50	3	155	276	11-028-BR083	11-028-BM083	11-028-CM083	11-028-WF083	11-028-LC083
24.00	3	160	281	11-028-BR085	11-028-BM085	11-028-CM085	11-028-WF085	11-028-LC085
24.50	3	160	281	11-028-BR087	11-028-BM087	11-028-CM087	11-028-WF087	11-028-LC087
25.00	3	160	281	11-028-BR089	11-028-BM089	11-028-CM089	11-028-WF089	11-028-LC089
25.50	3	165	286	11-028-BR090	11-028-BM090	11-028-CM090	11-028-WF090	11-028-LC090
26.00	3	165	286	11-028-BR091	11-028-BM091	11-028-CM091	11-028-WF091	11-028-LC091
26.50	3	165	286	11-028-BR092	11-028-BM092	11-028-CM092	11-028-WF092	11-028-LC092
27.00	3	170	291	11-028-BR093	11-028-BM093	11-028-CM093	11-028-WF093	11-028-LC093
27.50	3	170	291	11-028-BR094	11-028-BM094	11-028-CM094	11-028-WF094	11-028-LC094
28.00	3	170	291	11-028-BR095	11-028-BM095	11-028-CM095	11-028-WF095	11-028-LC095
28.50	3	175	296	11-028-BR096	11-028-BM096	11-028-CM096	11-028-WF096	11-028-LC096
29.00	3	175	296	11-028-BR097	11-028-BM097	11-028-CM097	11-028-WF097	11-028-LC097
29.50	3	175	296	11-028-BR098	11-028-BM098	11-028-CM098	11-028-WF098	11-028-LC098
30.00	3	175	296	11-028-BR099	11-028-BM099	11-028-CM099	11-028-WF099	11-028-LC099

## TAPER SHANK DRILLS AND REDUCED SHANK DRILLS

# 02

METAL CUTTING

## HSS TAPER SHANK TWIST DRILLS



### METRIC SIZES DIN345

SIZE H8	MORSE TAPER	FLUTE LENGTH	TOTAL LENGTH	ROLLED HSS	MILLED HSS	HSSCO5	FULLY GROUND HSS	HSSCO5
31.00	3	180	301	11-028-BR101	11-028-BM101	11-028-CM101	11-028-WF101	11-028-LC101
32.00	3	185	309	11-028-BR103	11-028-BM103	11-028-CM103	11-028-WF103	11-028-LC103
32.00	4	185	334	11-028-BR104	11-028-BM104	11-028-CM104	11-028-WF104	11-028-LC104
33.00	4	185	334	11-028-BR106	11-028-BM106	11-028-CM106	11-028-WF106	11-028-LC106
34.00	4	190	339	11-028-BR108	11-028-BM108	11-028-CM108	11-028-WF108	11-028-LC108
35.00	4	190	339	11-028-BR110	11-028-BM110	11-028-CM110	11-028-WF110	11-028-LC110
36.00	4	195	344	11-028-BR112	11-028-BM112	11-028-CM112	11-028-WF112	11-028-LC112
37.00	4	195	344	11-028-BR114	11-028-BM114	11-028-CM114	11-028-WF114	11-028-LC114
38.00	4	200	349	11-028-BR116	11-028-BM116	11-028-CM116	11-028-WF116	11-028-LC116
39.00	4	200	349	11-028-BR118	11-028-BM118	11-028-CM118	11-028-WF118	11-028-LC118
40.00	4	200	349	11-028-BR120	11-028-BM120	11-028-CM120	11-028-WF120	11-028-LC120
41.00	4	205	354	11-028-BR122	11-028-BM122	11-028-CM122	11-028-WF122	11-028-LC122
42.00	4	205	354	11-028-BR124	11-028-BM124	11-028-CM124	11-028-WF124	11-028-LC124
43.00	4	210	359	11-028-BR126	11-028-BM126	11-028-CM126	11-028-WF126	11-028-LC126
44.00	4	210	359	11-028-BR128	11-028-BM128	11-028-CM128	11-028-WF128	11-028-LC128
45.00	4	210	359	11-028-BR130	11-028-BM130	11-028-CM130	11-028-WF130	11-028-LC130
46.00	4	215	364	11-028-BR132	11-028-BM132	11-028-CM132	11-028-WF132	11-028-LC132
47.00	4	215	364	11-028-BR134	11-028-BM134	11-028-CM134	11-028-WF134	11-028-LC134
48.00	4	220	369	11-028-BR136	11-028-BM136	11-028-CM136	11-028-WF136	11-028-LC136
49.00	4	220	369	11-028-BR138	11-028-BM138	11-028-CM138	11-028-WF138	11-028-LC138
50.00	4	220	369	11-028-BR140	11-028-BM140	11-028-CM140	11-028-WF140	11-028-LC140
51.00	5	225	412		11-028-BM142	11-028-CM142		
52.00	5	225	412		11-028-BM144	11-028-CM144		
53.00	5	230	412		11-028-BM146	11-028-CM146		
54.00	5	230	417		11-028-BM148	11-028-CM148		
55.00	5	230	417		11-028-BM150	11-028-CM150		
56.00	5	230	417		11-028-BM152	11-028-CM152		
57.00	5	235	422		11-028-BM154	11-028-CM154		
58.00	5	235	422		11-028-BM156	11-028-CM156		
59.00	5	235	422		11-028-BM158	11-028-CM158		
60.00	5	235	422		11-028-BM160	11-028-CM160		
65.00	5	245	432		11-028-BM165	11-028-CM165		
70.00	5	250	437		11-028-BM170	11-028-CM170		
75.00	5	255	442		11-028-BM175	11-028-CM175		
80.00	6	260	514		11-028-BM178	11-028-CM178		
85.00	6	265	519		11-028-BM180	11-028-CM180		
90.00	6	270	524		11-028-BM182	11-028-CM182		
95.00	6	275	529		11-028-BM195	11-028-CM195		
100.00	6	280	534		11-028-BM200	11-028-CM200		

## HSS EXTRA LONG TAPER SHANK TWIST DRILLS



This drills are utilized in deep hole or long reach drilling applications in many kinds of materials

### LONG SERIES DIN341

SIZE h8	MORSE TAPER	FLUTE LENGTH	TOTAL LENGTH	MILLED HSS
8.00	1	100	181	11-28A-BM001
8.50	1	100	181	11-28A-BM002
9.00	1	107	188	11-28A-BM003
9.50	1	107	188	11-28A-BM004
10.00	1	116	197	11-28A-BM005
10.25	1	116	197	11-28A-BM006
10.50	1	116	197	11-28A-BM007
11.00	1	125	206	11-28A-BM008
11.50	1	125	206	11-28A-BM009
12.00	1	134	215	11-28A-BM010
12.25	1	134	215	11-28A-BM011
12.50	1	134	215	11-28A-BM012
13.00	1	134	215	11-28A-BM013
13.25	1	142	223	11-28A-BM014
13.50	1	142	223	11-28A-BM015
14.00	1	142	223	11-28A-BM016
14.50	2	147	245	11-28A-BM017
15.00	2	147	245	11-28A-BM018
15.50	2	153	251	11-28A-BM019
16.00	2	153	251	11-28A-BM020
16.50	2	159	257	11-28A-BM021
17.00	2	159	257	11-28A-BM022
17.50	2	165	263	11-28A-BM023
18.00	2	165	263	11-28A-BM024
18.50	2	171	269	11-28A-BM025
19.00	2	171	269	11-28A-BM026
19.50	2	177	275	11-28A-BM027
20.00	2	177	275	11-28A-BM028
20.50	2	184	282	11-28A-BM029
21.00	2	184	282	11-28A-BM030
21.50	2	191	289	11-28A-BM031
22.00	2	191	289	11-28A-BM032
22.50	2	198	296	11-28A-BM033
23.00	2	198	296	11-28A-BM034

### LONG SERIES DIN341

SIZE h8	MORSE TAPER	FLUTE LENGTH	TOTAL LENGTH	MILLED HSS
23.50	3	198	319	11-28A-BM035
24.00	3	206	327	11-28A-BM036
24.50	3	206	327	11-28A-BM037
25.00	3	206	327	11-28A-BM038
25.50	3	214	335	11-28A-BM039
26.00	3	214	335	11-28A-BM040
26.50	3	214	335	11-28A-BM041
27.00	3	222	343	11-28A-BM042
27.50	3	222	343	11-28A-BM043
28.00	3	222	343	11-28A-BM044
28.50	3	230	351	11-28A-BM045
29.00	3	230	351	11-28A-BM046
29.50	3	230	351	11-28A-BM047
30.00	3	230	351	11-28A-BM048
31.00	3	239	360	11-28A-BM049
32.00	4	248	397	11-28A-BM050
33.00	4	248	397	11-28A-BM051
34.00	4	257	406	11-28A-BM052
35.00	4	257	406	11-28A-BM053
36.00	4	267	416	11-28A-BM054
37.00	4	267	416	11-28A-BM055
38.00	4	277	426	11-28A-BM056
39.00	4	277	426	11-28A-BM057
40.00	4	277	426	11-28A-BM058
41.00	4	287	436	11-28A-BM059
42.00	4	287	436	11-28A-BM060
43.00	4	298	447	11-28A-BM061
44.00	4	298	447	11-28A-BM062
45.00	4	298	447	11-28A-BM063
46.00	4	310	459	11-28A-BM064
47.00	4	310	459	11-28A-BM065
48.00	4	321	470	11-28A-BM066
49.00	4	321	470	11-28A-BM067
50.00	4	321	470	11-28A-BM068

### TAPER SHANK DRILLS SET

<b>10 PCS/SET</b>	<b>2MT:14.5,15,16,17,18,19,20,21,22,23MM</b>
11-029-S01	HSS
11-029T-S01	HSS-TIN
<b>9 PCS/SET</b>	<b>2MT:14.5,16,18,20,22MM,3MT:24,26,28,30MM</b>
11-029-S02	HSS
11-029T-S02	HSS-TIN



## HSS EXTRA LONG TAPER SHANK TWIST DRILLS



### EXTRA LONG SERIES DIN1870/1

SIZE h8	MORSE TAPER	FLUTE LENGTH	TOTAL LENGTH	MILLED HSS
8.00	1	165	265	11-28B-BM001
8.50	1	165	265	11-28B-BM002
9.00	1	175	275	11-28B-BM003
9.50	1	175	275	11-28B-BM004
10.00	1	185	285	11-28B-BM005
10.25	1	185	285	11-28B-BM006
10.50	1	185	285	11-28B-BM007
11.00	1	195	300	11-28B-BM008
11.50	1	195	300	11-28B-BM009
12.00	1	205	310	11-28B-BM010
12.25	1	205	310	11-28B-BM011
12.50	1	205	310	11-28B-BM012
13.00	1	205	310	11-28B-BM013
13.25	1	220	325	11-28B-BM014
13.50	1	220	325	11-28B-BM015
14.00	1	220	325	11-28B-BM016
14.50	2	220	325	11-28B-BM017
15.00	2	220	325	11-28B-BM018
15.50	2	230	355	11-28B-BM019
16.00	2	230	355	11-28B-BM020
16.50	2	230	355	11-28B-BM021
17.00	2	230	355	11-28B-BM022
17.50	2	245	370	11-28B-BM023
18.00	2	245	370	11-28B-BM024
18.50	2	245	370	11-28B-BM025
19.00	2	245	370	11-28B-BM026
19.50	2	260	385	11-28B-BM027
20.00	2	260	385	11-28B-BM028
20.50	2	260	385	11-28B-BM029
21.00	2	260	385	11-28B-BM030
21.50	2	270	405	11-28B-BM031
22.00	2	270	405	11-28B-BM032
22.50	2	270	405	11-28B-BM033
23.00	2	270	405	11-28B-BM034

### EXTRA LONG SERIES DIN1870/1

SIZE h8	MORSE TAPER	FLUTE LENGTH	TOTAL LENGTH	MILLED HSS
23.50	3	270	425	11-28B-BM035
24.00	3	290	440	11-28B-BM036
24.50	3	290	440	11-28B-BM037
25.00	3	290	440	11-28B-BM038
25.50	3	290	440	11-28B-BM039
26.00	3	290	440	11-28B-BM040
26.50	3	290	440	11-28B-BM041
27.00	3	305	460	11-28B-BM042
27.50	3	305	460	11-28B-BM043
28.00	3	305	460	11-28B-BM044
28.50	3	305	460	11-28B-BM045
29.00	3	305	460	11-28B-BM046
29.50	3	305	460	11-28B-BM047
30.00	3	305	460	11-28B-BM048
31.00	3	320	480	11-28B-BM049
32.00	4	320	505	11-28B-BM050
33.00	4	320	505	11-28B-BM051
34.00	4	340	530	11-28B-BM052
35.00	4	340	530	11-28B-BM053
36.00	4	340	530	11-28B-BM054
37.00	4	340	530	11-28B-BM055
38.00	4	360	555	11-28B-BM056
39.00	4	360	555	11-28B-BM057
40.00	4	360	555	11-28B-BM058
41.00	4	360	555	11-28B-BM059
42.00	4	360	555	11-28B-BM060
43.00	4	385	585	11-28B-BM061
44.00	4	385	585	11-28B-BM062
45.00	4	385	585	11-28B-BM063
46.00	4	385	585	11-28B-BM064
47.00	4	385	585	11-28B-BM065
48.00	4	405	605	11-28B-BM066
49.00	4	405	605	11-28B-BM067
50.00	4	405	605	11-28B-BM068

## TAPER SHANK DRILLS SET

<b>9 PCS/SET</b>	<b>2MT:12,14,16,18,20,22,26,28,30MM</b>
11-029-S03	HSS
11-029T-S03	HSS-TIN
<b>9 PCS/SET</b>	<b>3MT:12,14,16,18,20,22,26,28,30MM</b>
11-029-S04	HSS
11-029T-S04	HSS-TIN
<b>17 PCS/SET</b>	<b>2MT:14.5,15,16,17,18,19,20,21,22,23MM</b>
	<b>3MT:24,25,26,27,28,29,30MM</b>
11-029-S07	HSS
11-029T-S07	HSS-TIN



## HSS TAPER SHANK CORE DRILLS



Used to enlarge and straighten cored or drilled holes.

### METRIC SIZES

SIZE h8	MORSE TAPER	FLUTE LENGTH	TOTAL LENGTH	MILLED HSS	SIZE h8	MORSE TAPER	FLUTE LENGTH	TOTAL LENGTH	MILLED HSS
8.00	1	75	156	11-018-001	23.00	2	155	253	11-018-016
9.00	1	81	162	11-018-002	24.00	3	160	281	11-018-017
10.00	1	87	168	11-018-003	25.00	3	160	281	11-018-018
11.00	1	94	175	11-018-004	26.00	3	165	286	11-018-019
12.00	1	101	182	11-018-005	27.00	3	170	291	11-018-020
13.00	1	101	182	11-018-006	28.00	3	170	291	11-018-021
14.00	1	108	189	11-018-007	29.00	3	175	296	11-018-022
15.00	2	114	212	11-018-008	30.00	3	175	296	11-018-023
16.00	2	120	218	11-018-009	31.00	3	180	301	11-018-024
17.00	2	125	223	11-018-010	32.00	4	185	334	11-018-025
18.00	2	130	228	11-018-011	33.00	4	185	334	11-018-026
19.00	2	135	233	11-018-012	34.00	4	190	339	11-018-027
20.00	2	140	238	11-018-013	35.00	4	190	339	11-018-028
21.00	2	145	243	11-018-014	36.00	4	195	344	11-018-029
22.00	2	150	248	11-018-015	39.00	4	200	349	11-018-030

## HSS STRAIGHT SHANK CORE DRILLS



Used to enlarge and straighten cored or drilled holes.

### METRIC SIZES

SIZE h8	FLUTE LENGTH	TOTAL LENGTH	MILLED HSS	SIZE h8	FLUTE LENGTH	TOTAL LENGTH	MILLED HSS
5.00	74	108	11-018-031	13.00	134	184	11-018-039
6.00	80	116	11-018-032	14.00	142	194	11-018-040
7.00	93	133	11-018-033	15.00	147	202	11-018-041
8.00	100	142	11-018-034	16.00	153	211	11-018-042
9.00	107	151	11-018-035	17.00	159	218	11-018-043
10.00	116	162	11-018-036	18.00	165	226	11-018-044
11.00	125	173	11-018-037	19.00	171	234	11-018-045
12.00	134	184	11-018-038	20.00	177	242	11-018-046

## HSS TAPER SHANK TWIST DRILLS



General purpose 118° point, heavy duty 135° notched point

FRACTIONAL SIZES ANSI B94

SIZE IN	MORSE TAPER	FLUTE LENGTH	OVERALL LENGTH	MILLED			FULLY GROUND	
				ROLLED HSS	HSS	HSSCO5	HSS	HSSCO5
5/16	1	3-1/8	6-3/8	12-028-BR167	12-028-BM167	12-028-CM167	12-028-WF167	12-028-LC167
3/8	1	3-1/2	6-3/4	12-028-BR004	12-028-BM004	12-028-CM004	12-028-WF004	12-028-LC004
7/16	1	3-7/8	7-1/4	12-028-BR008	12-028-BM008	12-028-CM008	12-028-WF008	12-028-LC008
1/2	2	4-3/8	8-1/2	12-028-BR012	12-028-BM012	12-028-CM012	12-028-WF012	12-028-LC012
9/16	2	4-7/8	8-3/4	12-028-BR016	12-028-BM016	12-028-CM016	12-028-WF016	12-028-LC016
5/8	2	4-7/8	8-3/4	12-028-BR020	12-028-BM020	12-028-CM020	12-028-WF020	12-028-LC020
11/16	2	5-3/8	9-1/4	12-028-BR024	12-028-BM024	12-028-CM024	12-028-WF024	12-028-LC024
3/4	2	5-7/8	9-3/4	12-028-BR028	12-028-BM028	12-028-CM028	12-028-WF028	12-028-LC028
13/16	3	6-1/8	10-3/4	12-028-BR032	12-028-BM032	12-028-CM032	12-028-WF032	12-028-LC032
7/8	3	6-1/8	10-3/4	12-028-BR036	12-028-BM036	12-028-CM036	12-028-WF036	12-028-LC036
15/16	3	6-1/8	10-3/4	12-028-BR040	12-028-BM040	12-028-CM040	12-028-WF040	12-028-LC040
1	3	6-3/8	11	12-028-BR068	12-028-BM068	12-028-CM068	12-028-WF068	12-028-LC068
1-1/16	3	6-5/8	11-1/4	12-028-BR044	12-028-BM044	12-028-CM044	12-028-WF044	12-028-LC044
1-1/8	4	7-1/8	12-3/4	12-028-BR045	12-028-BM045	12-028-CM045	12-028-WF045	12-028-LC045
1-3/16	4	7-3/8	13	12-028-BR046	12-028-BM046	12-028-CM046	12-028-WF046	12-028-LC046
1-1/4	4	7-7/8	13-1/2	12-028-BR047	12-028-BM047	12-028-CM047	12-028-WF047	12-028-LC047
1-5/16	4	8-5/8	14-1/4	12-028-BR048	12-028-BM048	12-028-CM048	12-028-WF048	12-028-LC048
1-3/8	4	8-7/8	14-1/2	12-028-BR049	12-028-BM049	12-028-CM049	12-028-WF049	12-028-LC049
1-7/16	4	9-1/8	14-3/4	12-028-BR050	12-028-BM050	12-028-CM050	12-028-WF050	12-028-LC050
1-1/2	4	9-3/8	15	12-028-BR051	12-028-BM051	12-028-CM051	12-028-WF051	12-028-LC051
1-9/16	5	9-5/8	16-5/8	12-028-BR052	12-028-BM052	12-028-CM052	12-028-WF052	12-028-LC052
1-5/8	5	10	17	12-028-BR053	12-028-BM053	12-028-CM053	12-028-WF053	12-028-LC053
1-11/16	5	10-1/8	17-1/8	12-028-BR054	12-028-BM054	12-028-CM054	12-028-WF054	12-028-LC054
1-3/4	5	10-1/8	17-1/8	12-028-BR055	12-028-BM055	12-028-CM055	12-028-WF055	12-028-LC055
1-13/16	5	10-1/8	17-3/8	12-028-BR056	12-028-BM056	12-028-CM056	12-028-WF056	12-028-LC056
1-7/8	5	10-3/8	17-3/8	12-028-BR057	12-028-BM057	12-028-CM057	12-028-WF057	12-028-LC057
1-15/16	5	10-3/8	17-3/8	12-028-BR058	12-028-BM058	12-028-CM058	12-028-WF058	12-028-LC058
2	5	10-3/8	17-3/8	12-028-BR059	12-028-BM059	12-028-CM059	12-028-WF059	12-028-LC059
2-1/8	5	10-1/4	17-3/8		12-028-BM060	12-028-CM060		
2-1/4	5	10-1/8	17-3/8		12-028-BM061	12-028-CM061		
2-3/8	5	10-1/8	17-3/8		12-028-BM062	12-028-CM062		
2-1/2	5	11-1/4	18-3/4		12-028-BM063	12-028-CM063		
2-5/8	5	11-7/8	19-1/2		12-028-BM064	12-028-CM064		
2-3/4	5	12-3/4	20-3/8		12-028-BM065	12-028-CM065		
2-7/8	5	13-3/8	21-1/8		12-028-BM066	12-028-CM066		
3	5	14	21-3/4		12-028-BM067	12-028-CM067		
3-1/8	6	14-5/8	24-1/2		12-028-BM144	12-028-CM144		
3-1/4	6	15-1/2	25-1/2		12-028-BM146	12-028-CM146		
3-3/8	6	15-1/2	25-1/2		12-028-BM148	12-028-CM148		
3-1/2	6	16-3/8	26-1/2		12-028-BM150	12-028-CM150		
3-5/8	6	16-3/8	26-1/2		12-028-BM151	12-028-CM151		
3-3/4	6	16-3/8	26-1/2		12-028-BM152	12-028-CM152		
3-7/8	6	16-3/8	26-1/2		12-028-BM153	12-028-CM153		
4	6	17-1/2	27-1/2		12-028-BM154	12-028-CM154		

## HSS EXTRA LONG TAPER SHANK DRILLS



This drills are utilized in deep hole or long reach drilling applications in many kinds of materials

FRACTIONAL SIZES ANSI B94

SIZE IN	MORSE TAPER	FLUTE LENGTH	MILLED HSS	SIZE IN	MORSE TAPER	FLUTE LENGTH	MILLED HSS
1/8	1	5	12-28A-BM001	15/16	3	10	12-28E-BM049
3/16	1	5	12-28A-BM005	1	3	10	12-28E-BM053
1/4	1	5	12-28A-BM009	1-1/16	3	10	12-28E-BM057
5/16	1	5	12-28A-BM013	1-1/8	4	9	12-28E-BM061
3/8	1	5	12-28A-BM017	1-3/16	4	9	12-28E-BM065
10" OAL				1-1/4	4	9	12-28E-BM068
3/16	1	7	12-28B-BM003	18" OAL			
1/4	1	7	12-28B-BM007	3/8	1	15	12-28F-BM009
5/16	1	7	12-28B-BM010	7/16	1	15	12-28F-BM013
3/8	1	7	12-28B-BM014	1/2	2	14	12-28F-BM017
7/16	1	7	12-28B-BM015	9/16	2	14	12-28F-BM021
1/2	2	6	12-28B-BM019	5/8	2	14	12-28F-BM025
9/16	2	6	12-28B-BM022	11/16	2	14	12-28F-BM029
5/8	2	6	12-28B-BM025	3/4	2	14	12-28F-BM032
12" OAL				18" OAL			
3/16	1	9	12-28C-BM001	3/4	2	14	12-28F-BM033
1/4	1	9	12-28C-BM005	13/16	3	13	12-28F-BM037
5/16	1	9	12-28C-BM008	7/8	3	13	12-28F-BM041
3/8	1	9	12-28C-BM012	15/16	3	13	12-28F-BM045
7/16	1	9	12-28C-BM013	1	3	13	12-28F-BM049
1/2	2	8	12-28C-BM017	1-1/16	3	13	12-28F-BM053
9/16	2	8	12-28C-BM021	1-1/8	4	12	12-28F-BM057
5/8	2	8	12-28C-BM025	1-3/16	4	12	12-28F-BM061
11/16	2	8	12-28C-BM029	1-1/4	4	12	12-28F-BM064
3/4	2	8	12-28C-BM033	1-5/16	4	12	12-28F-BM067
13/16	3	7	12-28C-BM037	1-3/8	4	12	12-28F-BM070
7/8	3	7	12-28C-BM041	1-7/16	4	12	12-28F-BM072
1	3	7	12-28C-BM047	1-1/2	4	12	12-28F-BM074
14" OAL				1-9/16	5	10	12-28F-BM075
5/16	1	11	12-28D-BM001	1-5/8	5	10	12-28F-BM076
7/16	1	11	12-28D-BM002	1-11/16	5	10	12-28F-BM077
1/2	2	10	12-28D-BM005	1-3/4	5	10	12-28F-BM078
9/16	2	10	12-28D-BM008	1-13/16	5	10	12-28F-BM079
5/8	2	10	12-28D-BM011	1-7/8	5	10	12-28F-BM080
11/16	2	10	12-28D-BM013	2	5	10	12-28F-BM081
3/4	2	10	12-28D-BM017	20" OAL			
7/8	3	9	12-28D-BM021	9/16	2	16	12-28G-BM002
1	3	9	12-28D-BM023	5/8	2	16	12-28G-BM003
15" OAL				3/4	2	16	12-28G-BM004
5/16	1	12	12-28E-BM009	13/16	3	15	12-28G-BM005
3/8	1	12	12-28E-BM013	7/8	3	15	12-28G-BM007
7/16	1	12	12-28E-BM017	1	3	15	12-28G-BM010
1/2	2	11	12-28E-BM021	1-1/8	4	14	12-28G-BM013
9/16	2	11	12-28E-BM025	1-3/16	4	14	12-28G-BM014
5/8	2	11	12-28E-BM029	1-1/4	4	14	12-28G-BM017
11/16	2	11	12-28E-BM033	1-3/8	4	14	12-28G-BM019
3/4	2	11	12-28E-BM037	1-3/4	5	13	12-28G-BM022
13/16	3	10	12-28E-BM041	2	5	13	12-28G-BM023

## HSS EXTRA LONG TAPER SHANK DRILLS



This drills are utilized in deep hole or long reach drilling applications in many kinds of materials

FRACTIONAL SIZES ANSI B94

SIZE IN	MORSE TAPER	FLUTE LENGTH	MILLED HSS	SIZE IN	MORSE TAPER	FLUTE LENGTH	MILLED HSS
24" OAL				7/8	3	25	12-28I-BM003
3/8	1	21	12-28H-BM001	15/16	3	25	12-28I-BM004
7/16	1	21	12-28H-BM005	1	3	25	12-28I-BM005
1/2	2	20	12-28H-BM009	1-1/16	3	25	12-28I-BM006
9/16	2	20	12-28H-BM013	1-1/8	4	24	12-28I-BM007
5/8	2	20	12-28H-BM017	1-3/16	4	24	12-28I-BM008
11/16	2	20	12-28H-BM021	1-1/4	4	24	12-28I-BM009
3/4	2	20	12-28H-BM025	1-5/16	4	24	12-28I-BM010
13/16	3	19	12-28H-BM029	1-3/8	4	24	12-28I-BM011
7/8	3	19	12-28H-BM033	1-7/16	4	24	12-28I-BM012
15/16	3	19	12-28H-BM037	1-1/2	4	24	12-28I-BM013
1	3	19	12-28H-BM041	1-9/16	5	23	12-28I-BM014
1-1/16	3	19	12-28H-BM045	1-5/8	5	23	12-28I-BM015
1-1/8	4	18	12-28H-BM049	1-11/16	5	23	12-28I-BM016
1-3/16	4	18	12-28H-BM053	1-13/16	5	23	12-28I-BM017
1-1/4	4	18	12-28H-BM056	1-7/8	5	23	12-28I-BM018
1-5/16	4	18	12-28H-BM059	1-15/16	5	23	12-28I-BM019
1-3/8	4	18	12-28H-BM062	2	5	23	12-28I-BM020
1-7/16	4	18	12-28H-BM064	2-1/16	5	23	12-28I-BM021
1-1/2	4	18	12-28H-BM066	2-1/8	5	23	12-28I-BM022
1-9/16	5	17	12-28H-BM067	2-3/16	5	23	12-28I-BM023
1-5/8	5	17	12-28H-BM068	2-1/4	5	23	12-28I-BM024
1-11/16	5	17	12-28H-BM069	2-5/16	5	23	12-28I-BM025
1-3/4	5	17	12-28H-BM070	2-3/8	5	23	12-28I-BM026
1-13/16	5	17	12-28H-BM071	2-7/16	5	23	12-28I-BM027
1-7/8	5	17	12-28H-BM072	2-1/2	5	23	12-28I-BM028
1-15/16	5	17	12-28H-BM073	2-5/8	5	23	12-28I-BM029
2	5	17	12-28H-BM074	2-3/4	5	23	12-28I-BM030
2-1/16	5	17	12-28H-BM075	2-7/8	5	23	12-28I-BM031
2-1/8	5	17	12-28H-BM076	3	5	23	12-28I-BM032
2-3/16	5	17	12-28H-BM077	3-1/8	5	23	12-28I-BM033
2-7/32	5	17	12-28H-BM078	3-1/4	5	23	12-28I-BM034
2-1/4	5	17	12-28H-BM079	3-3/8	5	23	12-28I-BM035
2-5/16	5	17	12-28H-BM080	3-1/2	5	23	12-28I-BM036
2-3/8	5	17	12-28H-BM081	36" OAL			
2-7/16	5	17	12-28H-BM082	1-1/2	4	30	12-28J-BM001
2-1/2	5	17	12-28H-BM083	1-3/4	5	29	12-28J-BM002
2-9/16	5	17	12-28H-BM084	2	5	29	12-28J-BM003
2-5/8	5	17	12-28H-BM085	2-1/8	5	29	12-28J-BM004
2-11/16	5	17	12-28H-BM086	2-1/4	5	29	12-28J-BM005
2-3/4	5	17	12-28H-BM087	2-3/8	5	29	12-28J-BM006
2-13/16	5	17	12-28H-BM088	2-1/2	5	29	12-28J-BM007
2-7/8	5	17	12-28H-BM089	2-5/8	5	29	12-28J-BM008
2-15/16	5	17	12-28H-BM090	2-3/4	5	29	12-28J-BM009
3	5	17	12-28H-BM091	3	5	29	12-28J-BM010
3-1/8	5	17	12-28H-BM092	3-1/8	5	29	12-28J-BM011
30" OAL				3-1/4	5	29	12-28J-BM012
3/4	2	26	12-28I-BM001	3-3/8	5	29	12-28J-BM013
13/16	3	25	12-28I-BM002	3-1/2	5	29	12-28J-BM014

## HSS TAPER SHANK CORE DRILLS



Used to enlarge and straighten cored or drilled holes.

THREE FLUTE

SIZE IN	MORSE TAPER	FLUTE LENGTH	OVERALL LENGTH	MILLED HSS
1/4	1	2-7/8	6-1/8	12-018-109
5/16	1	3-1/8	6-3/8	12-018-110
3/8	1	3-1/2	6-3/4	12-018-111
7/16	1	3-7/8	7-1/4	12-018-112
1/2	2	4-3/8	8-1/4	12-018-001
9/16	2	4-7/8	8-3/4	12-018-003
5/8	2	4-7/8	8-3/4	12-018-005
11/16	2	5-3/8	9-1/4	12-018-007
3/4	2	5-7/8	9-3/4	12-018-009
13/16	3	6-1/8	10-3/4	12-018-011
7/8	3	6-1/8	10-3/4	12-018-013
15/16	3	6-1/8	10-3/4	12-018-015
1	3	6-3/8	11	12-018-017
1-1/16	3	6-5/8	11-1/4	12-018-019
1-1/8	4	7-1/8	12-3/4	12-018-021
1-3/16	4	7-3/8	13	12-018-023

FOUR FLUTE

SIZE IN	MORSE TAPER	FLUTE LENGTH	OVERALL LENGTH	MILLED HSS
1-1/4	4	7-7/8	13-1/2	12-018-025
1-3/8	4	8-7/8	14-1/2	12-018-029
1-1/2	4	9-3/8	15	12-018-033
1-5/8	5	10	17	12-018-037
1-3/4	5	10-1/8	17-1/8	12-018-041
1-7/8	5	10-3/8	17-3/8	12-018-045
2	5	10-3/8	17-3/8	12-018-049
2-1/8	5	10-1/4	17-3/8	12-018-050
2-3/16	5	10-1/4	17-3/8	12-018-113
2-1/4	5	10-1/8	17-3/8	12-018-051
2-3/8	5	10-1/8	17-3/8	12-018-052
2-1/2	5	11-1/4	18-3/4	12-018-053
2-5/8	5	11-7/8	19-1/2	12-018-054
2-3/4	5	12-3/4	20-3/8	12-018-055
2-7/8	5	13-3/8	21-1/8	12-018-056
3	5	14	21-3/4	12-018-057

## STRAIGHT SHANK CORE DRILLS



THREE FLUTE

SIZE IN	FLUTE LENGTH	OVERALL LENGTH	MILLED HSS
1/4	3-3/4	6-1/8	12-018-058
5/16	4	6-3/8	12-018-060
3/8	4-1/4	6-3/4	12-018-062
7/16	4-5/8	7-1/4	12-018-064
1/2	4-3/4	7-3/4	12-018-066
9/16	4-7/8	8-1/4	12-018-068

SIZE IN	FLUTE LENGTH	OVERALL LENGTH	MILLED HSS
5/8	4-7/8	8-3/4	12-018-070
11/16	5-3/8	9-1/4	12-018-072
3/4	5-7/8	9-3/4	12-018-074
13/16	6-1/8	10	12-018-076
7/8	6-1/8	10	12-018-078
1	6-3/8	11	12-018-082

FOUR FLUTE

SIZE IN	FLUTE LENGTH	OVERALL LENGTH	MILLED HSS
1/4	3-3/4	6-1/8	12-018-083
5/16	4	6-3/8	12-018-084
3/8	4-1/4	6-3/4	12-018-085
7/16	4-5/8	7-1/4	12-018-086
1/2	4-3/4	7-3/4	12-018-087
9/16	4-7/8	8-1/4	12-018-088
5/8	4-7/8	8-3/4	12-018-089
11/16	5-3/8	9-1/4	12-018-090
3/4	5-7/8	9-3/4	12-018-091
13/16	6-1/8	10	12-018-092
7/8	6-1/8	10	12-018-093
15/16	6-1/8	10-3/4	12-018-094
1	6-3/8	11	12-018-095

SIZE IN	FLUTE LENGTH	OVERALL LENGTH	MILLED HSS
1-1/8	7-1/8	11-3/4	12-018-096
1-3/16	7-3/8	12	12-018-097
1-1/4	7-7/8	12-1/2	12-018-098
1-5/16	8-5/8	14-1/4	12-018-099
1-3/8	8-7/8	14-1/2	12-018-100
1-7/16	9-1/8	14-3/4	12-018-101
1-1/2	9-3/8	15	12-018-102
1-9/16	9-5/8	15-1/4	12-018-103
1-5/8	9-7/8	15-5/8	12-018-104
1-11/16	10-1/8	16	12-018-105
1-3/4	10-1/2	16-1/4	12-018-106
1-7/8	10-5/8	16-1/4	12-018-107
2	10-3/4	17-1/4	12-018-108



### 13MM REDUCED SHANK DRILLS



**METRIC SIZES ANSI B94**

SIZE MM	FLUTE LENGTH	OVERALL LENGTH	HSS	HSSCO5	SIZE MM	FLUTE LENGTH	OVERALL LENGTH	HSS	HSSCO5
13.5	3"	6"	11-030-BM001	11-030-LC001	26.0	3"	6"	11-030-BM026	11-030-LC026
14.0	3"	6"	11-030-BM002	11-030-LC002	26.5	3"	6"	11-030-BM027	11-030-LC027
14.5	3"	6"	11-030-BM003	11-030-LC003	27.0	3"	6"	11-030-BM028	11-030-LC028
15.0	3"	6"	11-030-BM004	11-030-LC004	27.5	3"	6"	11-030-BM029	11-030-LC029
15.5	3"	6"	11-030-BM005	11-030-LC005	28.0	3"	6"	11-030-BM030	11-030-LC030
16.0	3"	6"	11-030-BM006	11-030-LC006	28.5	3"	6"	11-030-BM031	11-030-LC031
16.5	3"	6"	11-030-BM007	11-030-LC007	29.0	3"	6"	11-030-BM032	11-030-LC032
17.0	3"	6"	11-030-BM008	11-030-LC008	29.5	3"	6"	11-030-BM033	11-030-LC033
17.5	3"	6"	11-030-BM009	11-030-LC009	30.0	3"	6"	11-030-BM034	11-030-LC034
18.0	3"	6"	11-030-BM010	11-030-LC010	30.5	3"	6"	11-030-BM035	11-030-LC035
18.5	3"	6"	11-030-BM011	11-030-LC011	31.0	3"	6"	11-030-BM036	11-030-LC036
19.0	3"	6"	11-030-BM012	11-030-LC012	31.5	3"	6"	11-030-BM037	11-030-LC037
19.5	3"	6"	11-030-BM013	11-030-LC013	32.0	3"	6"	11-030-BM038	11-030-LC038
20.0	3"	6"	11-030-BM014	11-030-LC014	32.5	3"	6"	11-030-BM039	11-030-LC039
20.5	3"	6"	11-030-BM015	11-030-LC015	33.0	3"	6"	11-030-BM040	11-030-LC040
21.0	3"	6"	11-030-BM016	11-030-LC016	33.5	3"	6"	11-030-BM041	11-030-LC041
21.5	3"	6"	11-030-BM017	11-030-LC017	34.0	3"	6"	11-030-BM042	11-030-LC042
22.0	3"	6"	11-030-BM018	11-030-LC018	34.5	3"	6"	11-030-BM043	11-030-LC043
22.5	3"	6"	11-030-BM019	11-030-LC019	35.0	3"	6"	11-030-BM044	11-030-LC044
23.0	3"	6"	11-030-BM020	11-030-LC020	35.5	3"	6"	11-030-BM045	11-030-LC045
23.5	3"	6"	11-030-BM021	11-030-LC021	36.0	3"	6"	11-030-BM046	11-030-LC046
24.0	3"	6"	11-030-BM022	11-030-LC022	36.5	3"	6"	11-030-BM047	11-030-LC047
24.5	3"	6"	11-030-BM023	11-030-LC023	37.0	3"	6"	11-030-BM048	11-030-LC048
25.0	3"	6"	11-030-BM024	11-030-LC024	37.5	3"	6"	11-030-BM049	11-030-LC049
25.5	3"	6"	11-030-BM025	11-030-LC025	38.0	3"	6"	11-030-BM050	11-030-LC050

### HSS 13MM REDUCED SHANK DRILLS SET

8 PCS/SET	13,14,15,16,18,20,22,25MM
11-030-S01	HSS
11-030T-S01	HSS-TIN
11-030BG-S01	HSS BLACK&GOLD
11-030LC-S01	HSSCO5



### 1/2" SHANK SILVER & DEMING DRILLS



General purpose, 118° point , heavy duty 135° notched point  
Flute length 3", overall length 6"

**FRANCTIONAL SIZES ANSI B94**

SIZE In	ROUND SHANK		FLATTED SHANK	
	HSS	HSSCO5	HSS	HSSCO5
33/64	12-030-BM001	12-030-LC001	12-30A-BM001	12-30A-LC001
17/32	12-030-BM002	12-030-LC002	12-30A-BM002	12-30A-LC002
35/64	12-030-BM003	12-030-LC003	12-30A-BM003	12-30A-LC003
9/16	12-030-BM004	12-030-LC004	12-30A-BM004	12-30A-LC004
37/64	12-030-BM005	12-030-LC005	12-30A-BM005	12-30A-LC005
19/32	12-030-BM006	12-030-LC006	12-30A-BM006	12-30A-LC006
39/64	12-030-BM007	12-030-LC007	12-30A-BM007	12-30A-LC007
5/8	12-030-BM008	12-030-LC008	12-30A-BM008	12-30A-LC008
41/64	12-030-BM009	12-030-LC009	12-30A-BM009	12-30A-LC009
21/32	12-030-BM010	12-030-LC010	12-30A-BM010	12-30A-LC010
43/64	12-030-BM011	12-030-LC011	12-30A-BM011	12-30A-LC011
11/16	12-030-BM012	12-030-LC012	12-30A-BM012	12-30A-LC012
45/64	12-030-BM013	12-030-LC013	12-30A-BM013	12-30A-LC013
23/32	12-030-BM014	12-030-LC014	12-30A-BM014	12-30A-LC014
47/64	12-030-BM015	12-030-LC015	12-30A-BM015	12-30A-LC015
3/4	12-030-BM016	12-030-LC016	12-30A-BM016	12-30A-LC016
49/64	12-030-BM017	12-030-LC017	12-30A-BM017	12-30A-LC017
23/32	12-030-BM018	12-030-LC018	12-30A-BM018	12-30A-LC018
31/64	12-030-BM019	12-030-LC019	12-30A-BM019	12-30A-LC019
25/32	12-030-BM020	12-030-LC020	12-30A-BM020	12-30A-LC020
51/64	12-030-BM021	12-030-LC021	12-30A-BM021	12-30A-LC021
13/16	12-030-BM022	12-030-LC022	12-30A-BM022	12-30A-LC022
53/64	12-030-BM023	12-030-LC023	12-30A-BM023	12-30A-LC023
27/32	12-030-BM024	12-030-LC024	12-30A-BM024	12-30A-LC024
55/64	12-030-BM025	12-030-LC025	12-30A-BM025	12-30A-LC025
7/8	12-030-BM026	12-030-LC026	12-30A-BM026	12-30A-LC026
57/64	12-030-BM027	12-030-LC027	12-30A-BM027	12-30A-LC027
29/32	12-030-BM028	12-030-LC028	12-30A-BM028	12-30A-LC028
59/64	12-030-BM029	12-030-LC029	12-30A-BM029	12-30A-LC029
15/16	12-030-BM030	12-030-LC030	12-30A-BM030	12-30A-LC030
61/64	12-030-BM031	12-030-LC031	12-30A-BM031	12-30A-LC031
31/32	12-030-BM032	12-030-LC032	12-30A-BM032	12-30A-LC032
63/64	12-030-BM033	12-030-LC033	12-30A-BM033	12-30A-LC033

### 1/2" SHANK SILVER & DEMING DRILLS SET

8 PCS/SET	9/16-1.0X1/16"
12-030-S04	HSS
12-030-S05	HSS-TIN
12-030BG-S04	HSS BLACK&GOLD
12-030LC-S04	HSSCO5



### 1/2" SHANK SILVER & DEMING DRILLS



FRANCTIONAL SIZES ANSI B94

SIZE In	ROUND SHANK		FLATTED SHANK	
	HSS	HSSCO5	HSS	HSSCO5
1	12-030-BM034	12-030-LC034	12-30A-BM034	12-30A-LC034
1-1/64	12-030-BM035	12-030-LC035	12-30A-BM035	12-30A-LC035
1-1/32	12-030-BM036	12-030-LC036	12-30A-BM036	12-30A-LC036
1-3/64	12-030-BM037	12-030-LC037	12-30A-BM037	12-30A-LC037
1-1/16	12-030-BM038	12-030-LC038	12-30A-BM038	12-30A-LC038
1-5/64	12-030-BM039	12-030-LC039	12-30A-BM039	12-30A-LC039
1-3/32	12-030-BM040	12-030-LC040	12-30A-BM040	12-30A-LC040
1-7/64	12-030-BM041	12-030-LC041	12-30A-BM041	12-30A-LC041
1-1/8	12-030-BM042	12-030-LC042	12-30A-BM042	12-30A-LC042
1-9/64	12-030-BM043	12-030-LC043	12-30A-BM043	12-30A-LC043
1-5/32	12-030-BM044	12-030-LC044	12-30A-BM044	12-30A-LC044
1-11/64	12-030-BM045	12-030-LC045	12-30A-BM045	12-30A-LC045
1-3/16	12-030-BM046	12-030-LC046	12-30A-BM046	12-30A-LC046
1-13/64	12-030-BM047	12-030-LC047	12-30A-BM047	12-30A-LC047
1-7/32	12-030-BM048	12-030-LC048	12-30A-BM048	12-30A-LC048
1-15/64	12-030-BM049	12-030-LC049	12-30A-BM049	12-30A-LC049
1-1/4	12-030-BM050	12-030-LC050	12-30A-BM050	12-30A-LC050
1-17/64	12-030-BM051	12-030-LC051	12-30A-BM051	12-30A-LC051
1-9/32	12-030-BM052	12-030-LC052	12-30A-BM052	12-30A-LC052
1-19/64	12-030-BM053	12-030-LC053	12-30A-BM053	12-30A-LC053
1-5/16	12-030-BM054	12-030-LC054	12-30A-BM054	12-30A-LC054
1-21/64	12-030-BM055	12-030-LC055	12-30A-BM055	12-30A-LC055
1-11/32	12-030-BM056	12-030-LC056	12-30A-BM056	12-30A-LC056
1-23/64	12-030-BM057	12-030-LC057	12-30A-BM057	12-30A-LC057
1-3/8	12-030-BM058	12-030-LC058	12-30A-BM058	12-30A-LC058
1-25/64	12-030-BM059	12-030-LC059	12-30A-BM059	12-30A-LC059
1-13/32	12-030-BM060	12-030-LC060	12-30A-BM060	12-30A-LC060
1-27/64	12-030-BM061	12-030-LC061	12-30A-BM061	12-30A-LC061
1-7/16	12-030-BM062	12-030-LC062	12-30A-BM062	12-30A-LC062
1-29/64	12-030-BM063	12-030-LC063	12-30A-BM063	12-30A-LC063
1-15/32	12-030-BM064	12-030-LC064	12-30A-BM064	12-30A-LC064
1-31/64	12-030-BM065	12-030-LC065	12-30A-BM065	12-30A-LC065
1-1/2	12-030-BM066	12-030-LC066	12-30A-BM066	12-30A-LC066

### 4" OAL SUPPER STUBBY DRILLS SET

5 PCS/SET	9/16,5/8,3/4,7/8,1"
12-030-S02	HSS
12-030T-S02	HSS-TIN
12-030BG-S02	HSS BLACK&GOLD
12-030LC-S02	HSSCO5

5 PCS/SET	14,16,20,22,25MM
12-030-S02	HSS
12-030T-S02	HSS-TIN
12-030BG-S02	HSS BLACK&GOLD
12-030LC-S02	HSSCO5



### 3/4" REDUCED SHANK DRILLS



General purpose, 118° point , heavy duty 135° notched point

FRANCTIONAL SIZES ANSI B94

SIZE In	FLUTE LENGTH	OVERALL LENGTH	HSS	HSSCO5	SIZE In	FLUTE LENGTH	OVERALL LENGTH	HSS	HSSCO5
25/32	3"	6"	12-030-BM067	12-030-LC067	1-13/32	3"	6"	12-030-BM087	12-030-LC087
13/16	3"	6"	12-030-BM068	12-030-LC068	1-7/16	3"	6"	12-030-BM088	12-030-LC088
27/32	3"	6"	12-030-BM069	12-030-LC069	1-15/32	3"	6"	12-030-BM089	12-030-LC089
7/8	3"	6"	12-030-BM070	12-030-LC070	1-1/2	3"	6"	12-030-BM090	12-030-LC090
29/32	3"	6"	12-030-BM071	12-030-LC071	1-17/32	3"	6"	12-030-BM091	12-030-LC091
15/16	3"	6"	12-030-BM072	12-030-LC072	1-9/16	3"	6"	12-030-BM092	12-030-LC092
31/32	3"	6"	12-030-BM073	12-030-LC073	1-19/32	3"	6"	12-030-BM093	12-030-LC093
1	3"	6"	12-030-BM074	12-030-LC074	1-5/8	3"	6"	12-030-BM094	12-030-LC094
1-1/32	3"	6"	12-030-BM075	12-030-LC075	1-21/32	3"	6"	12-030-BM095	12-030-LC095
1-1/16	3"	6"	12-030-BM076	12-030-LC076	1-11/16	3"	6"	12-030-BM096	12-030-LC096
1-3/32	3"	6"	12-030-BM077	12-030-LC077	1-23/32	3"	6"	12-030-BM097	12-030-LC097
1-1/8	3"	6"	12-030-BM078	12-030-LC078	1-3/4	3"	6"	12-030-BM098	12-030-LC098
1-5/32	3"	6"	12-030-BM079	12-030-LC079	1-25/32	3"	6"	12-030-BM099	12-030-LC099
1-3/16	3"	6"	12-030-BM080	12-030-LC080	1-13/16	3"	6"	12-030-BM100	12-030-LC100
1-7/32	3"	6"	12-030-BM081	12-030-LC081	1-27/32	3"	6"	12-030-BM101	12-030-LC101
1-1/4	3"	6"	12-030-BM082	12-030-LC082	1-7/8	3"	6"	12-030-BM102	12-030-LC102
1-9/32	3"	6"	12-030-BM083	12-030-LC083	1-29/32	3"	6"	12-030-BM103	12-030-LC103
1-5/16	3"	6"	12-030-BM084	12-030-LC084	1-15/16	3"	6"	12-030-BM104	12-030-LC104
1-11/32	3"	6"	12-030-BM085	12-030-LC085	1-31/32	3"	6"	12-030-BM105	12-030-LC105
1-3/8	3"	6"	12-030-BM086	12-030-LC086	2	3"	6"	12-030-BM106	12-030-LC106

### 3/4" REDUCED SHANK DRILLS SET

5 PCS/SET	9/16,5/8,3/4,7/8,1"
12-030-S01	HSS
12-030T-S01	HSS-TIN
12-030BG-S01	HSS BLACK&GOLD
12-030LC-S01	HSSCO5



## HSS UNIVERSAL SPADE DRILL BLADES



**FEATURES**  
 Longer tool life  
 Ability to take heavy feeds  
 High torsional & axial strength  
 Blades interchangeable with most leading manufactures  
 130° Point

SERIES #	BLADE SIZE	THICKNESS	ORDER NO. HSS	ORDER NO. HSS-TIN	SERIES #	BLADE SIZE	THICKNESS	ORDER NO. HSS	ORDER NO. HSS-TIN
AA	1"	1/4"	12-032-001	12-032-G001	E	2-5/8"	7/16"	12-032-107	12-032-G107
AA	1-1/16"	1/4"	12-032-003	12-032-G003	E	2-11/16"	7/16"	12-032-109	12-032-G109
AA	1-1/8"	1/4"	12-032-005	12-032-G005	E	2-3/4"	7/16"	12-032-111	12-032-G111
AA	1-3/16"	1/4"	12-032-007	12-032-G007	E	2-13/16"	7/16"	12-032-113	12-032-G113
AA	1-1/4"	1/4"	12-032-009	12-032-G009	E	2-7/8"	7/16"	12-032-115	12-032-G115
AA	1-5/16"	1/4"	12-032-011	12-032-G011	E	2-15/16"	7/16"	12-032-117	12-032-G117
AA	1-3/8"	1/4"	12-032-013	12-032-G013	E	3"	7/16"	12-032-119	12-032-G119
A	1"	3/16"	12-032-015	12-032-G015	E	3-1/16"	7/16"	12-032-121	12-032-G121
A	1-1/16"	3/16"	12-032-017	12-032-G017	E	3-1/8"	7/16"	12-032-123	12-032-G123
A	1-1/8"	3/16"	12-032-019	12-032-G019	E	3-3/16"	7/16"	12-032-125	12-032-G125
A	1-3/16"	3/16"	12-032-021	12-032-G021	E	3-1/4"	7/16"	12-032-127	12-032-G127
A	1-1/4"	3/16"	12-032-023	12-032-G023	E	3-5/16"	7/16"	12-032-129	12-032-G129
A	1-5/16"	3/16"	12-032-025	12-032-G025	E	3-3/8"	7/16"	12-032-131	12-032-G131
A	1-3/8"	3/16"	12-032-027	12-032-G027	F	3"	1/2"	12-032-132	12-032-G132
B	1-1/4"	9/32"	12-032-028	12-032-G028	F	3-1/8"	1/2"	12-032-136	12-032-G136
B	1-5/16"	9/32"	12-032-030	12-032-G030	F	3-1/4"	1/2"	12-032-140	12-032-G140
B	1-3/8"	9/32"	12-032-032	12-032-G032	F	3-3/8"	1/2"	12-032-144	12-032-G144
B	1-7/16"	9/32"	12-032-034	12-032-G034	F	3-1/2"	1/2"	12-032-148	12-032-G148
B	1-1/2"	9/32"	12-032-036	12-032-G036	F	3-5/8"	1/2"	12-032-152	12-032-G152
B	1-9/16"	9/32"	12-032-038	12-032-G038	F	3-3/4"	1/2"	12-032-156	12-032-G156
B	1-5/8"	9/32"	12-032-040	12-032-G040	F	3-7/8"	1/2"	12-032-160	12-032-G160
B	1-11/16"	9/32"	12-032-042	12-032-G042	G	3-1/2"	5/8"	12-032-161	12-032-G161
B	1-3/4"	9/32"	12-032-044	12-032-G044	G	3-5/8"	5/8"	12-032-165	12-032-G165
C	1-1/2"	5/16"	12-032-045	12-032-G045	G	3-3/4"	5/8"	12-032-169	12-032-G169
C	1-9/16"	5/16"	12-032-047	12-032-G047	G	3-7/8"	5/8"	12-032-173	12-032-G173
C	1-5/8"	5/16"	12-032-049	12-032-G049	G	4"	5/8"	12-032-177	12-032-G177
C	1-11/16"	5/16"	12-032-051	12-032-G051	G	4-1/8"	5/8"	12-032-179	12-032-G179
C	1-3/4"	5/16"	12-032-053	12-032-G053	G	4-1/4"	5/8"	12-032-181	12-032-G181
C	1-7/8"	5/16"	12-032-057	12-032-G057	G	4-3/8"	5/8"	12-032-183	12-032-G183
C	2"	5/16"	12-032-061	12-032-G061	G	4-1/2"	5/8"	12-032-185	12-032-G185
C	2-1/16"	5/16"	12-032-063	12-032-G063	H	4"	11/16"	12-032-186	12-032-G186
C	2-1/8"	5/16"	12-032-065	12-032-G065	H	4-1/8"	11/16"	12-032-188	12-032-G188
C	2-3/16"	5/16"	12-032-067	12-032-G067	H	4-1/4"	11/16"	12-032-190	12-032-G190
C	2-1/4"	5/16"	12-032-069	12-032-G069	H	4-3/8"	11/16"	12-032-192	12-032-G192
C	2-5/16"	5/16"	12-032-071	12-032-G071	H	4-1/2"	11/16"	12-032-194	12-032-G194
C	2-3/8"	5/16"	12-032-073	12-032-G073	H	4-5/8"	11/16"	12-032-196	12-032-G196
D	2"	3/8"	12-032-074	12-032-G074	H	4-3/4"	11/16"	12-032-198	12-032-G198
D	2-1/8"	3/8"	12-032-078	12-032-G078	H	4-7/8"	11/16"	12-032-200	12-032-G200
D	2-3/16"	3/8"	12-032-080	12-032-G080	H	5"	11/16"	12-032-202	12-032-G202
D	2-1/4"	3/8"	12-032-082	12-032-G082	H	5-1/8"	11/16"	12-032-203	12-032-G203
D	2-5/16"	3/8"	12-032-084	12-032-G084	H	5-1/4"	11/16"	12-032-204	12-032-G204
D	2-3/8"	3/8"	12-032-086	12-032-G086	H	5-3/8"	11/16"	12-032-205	12-032-G205
D	2-1/2"	3/8"	12-032-090	12-032-G090	H	5-1/2"	11/16"	12-032-206	12-032-G206
D	2-5/8"	3/8"	12-032-094	12-032-G094	H	5-5/8"	11/16"	12-032-207	12-032-G207
D	2-3/4"	3/8"	12-032-098	12-032-G098	H	5-3/4"	11/16"	12-032-208	12-032-G208
D	2-7/8"	3/8"	12-032-102	12-032-G102	H	5-7/8"	11/16"	12-032-209	12-032-G209
E	2-1/2"	7/16"	12-032-103	12-032-G103	H	6"	11/16"	12-032-210	12-032-G210

## HSS UNIVERSAL SPADE DRILL BLADES



**FEATURES**  
 longer tool life  
 ability to take heavy feeds  
 high torsional & axial strength  
 blades interchangeable with most leading manufactures  
 118° Point

BLADE SIZE	THICKNESS	ORDER NO. HSS	ORDER NO. HSS-TIN	BLADE SIZE	THICKNESS	ORDER NO. HSS	ORDER NO. HSS-TIN
25	6	11-032-001	11-032-G001	52	10	11-032-028	11-032-G028
26	6	11-032-002	11-032-G002	53	10	11-032-029	11-032-G029
27	6	11-032-003	11-032-G003	54	10	11-032-030	11-032-G030
28	6	11-032-004	11-032-G004	55	10	11-032-031	11-032-G031
29	6	11-032-005	11-032-G005	56	10	11-032-032	11-032-G032
30	6	11-032-006	11-032-G006	57	10	11-032-033	11-032-G033
31	6	11-032-007	11-032-G007	58	10	11-032-034	11-032-G034
32	7	11-032-008	11-032-G008	59	10	11-032-035	11-032-G035
33	7	11-032-009	11-032-G009	60	10	11-032-036	11-032-G036
34	7	11-032-010	11-032-G010	65	11	11-032-041	11-032-G041
35	7	11-032-011	11-032-G011	70	11	11-032-046	11-032-G046
36	7	11-032-012	11-032-G012	75	11	11-032-051	11-032-G051
37	7	11-032-013	11-032-G013	80	11	11-032-056	11-032-G056
38	7	11-032-014	11-032-G014	85	14	11-032-061	11-032-G061
39	7	11-032-015	11-032-G015	90	14	11-032-066	11-032-G066
40	8	11-032-016	11-032-G016	95	14	11-032-071	11-032-G071
41	8	11-032-017	11-032-G017	100	14	11-032-076	11-032-G076
42	8	11-032-018	11-032-G018	105	18	11-032-081	11-032-G081
43	8	11-032-019	11-032-G019	110	18	11-032-086	11-032-G086
44	8	11-032-020	11-032-G020	115	18	11-032-091	11-032-G091
45	8	11-032-021	11-032-G021	120	18	11-032-096	11-032-G096
46	8	11-032-022	11-032-G022	125	18	11-032-101	11-032-G101
47	8	11-032-023	11-032-G023	130	18	11-032-106	11-032-G106
48	8	11-032-024	11-032-G024	135	18	11-032-111	11-032-G111
49	8	11-032-025	11-032-G025	140	18	11-032-116	11-032-G116
50	8	11-032-026	11-032-G026	145	18	11-032-121	11-032-G121
51	10	11-032-027	11-032-G027	150	18	11-032-126	11-032-G126

## STRAIGHT SHANK UNIVERSAL SPADE DRILL HOLDERS



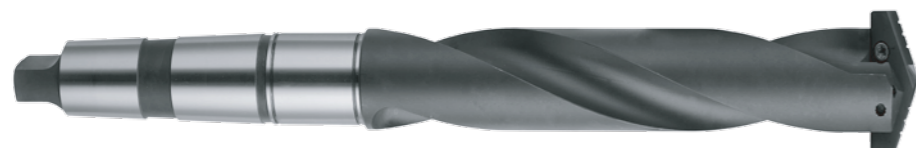
BLADE SERIES	BLADE DIA CUTTING RANGE	NEW TOOL REL LENGTH	FLUTE LENGTH	SHANK M.T./LENGTH	OVERALL LENGTH	PIPE TAP	R.C.A	ORDER NO.
A	31/32"-1-3/8"	3-13/16"	3"	#4/4-7/8"	7-7/8"	--	--	12-035-001
A	31/32"-1-3/8"	5-1/2"	3"	#4/4-7/8"	9-9/16"	1/4"	40-SR	12-035-002
A	31/32"-1-3/8"	10-1/4"	7-3/4"	#4/4-7/8"	14-5/16"	1/4"	40-SR	12-035-003
A	31/32"-1-3/8"	17-1/2"	15"	#4/4-7/8"	21-9/16"	1/4"	40-SR	12-035-004
A	31/32"-1-3/8"	23-1/2"	21"	#4/4-7/8"	27-9/16"	1/4"	40-SR	12-035-005
B	1-1/4"-1-3/4"	4-11/32"	3-1/2"	#4/4-7/8"	8-3/8"	--	--	12-035-006
B	1-1/4"-1-3/4"	6-1/32"	3-1/2"	#4/4-7/8"	10-1/16"	1/4"	40-SR	12-035-007
B	1-1/4"-1-3/4"	10-21/32"	8-1/8"	#4/4-7/8"	14-11/16"	1/4"	40-SR	12-035-008
B	1-1/4"-1-3/4"	17-17/32"	15"	#4/4-7/8"	21-9/16"	1/4"	40-SR	12-035-009
B	1-1/4"-1-3/4"	24-17/32"	22"	#4/4-7/8"	28-9/16"	1/4"	40-SR	12-035-010
C	1-1/2"-2-3/8"	5-1/4"	4"	#4/4-7/8"	8-7/8"	--	--	12-035-011
C	1-1/2"-2-3/8"	6-15/16"	4"	#4/4-7/8"	10-9/16"	1/4"	40-SR	12-035-012
C	1-1/2"-2-3/8"	11-7/16"	8-1/2"	#4/4-7/8"	15-1/16"	1/4"	40-SR	12-035-013
C	1-1/2"-2-3/8"	20-15/16"	18"	#4/4-7/8"	24-9/16"	1/4"	40-SR	12-035-014
C	1-1/2"-2-3/8"	20-15/16"	18"	#5/4-7/8"	25-13/16"	1/4"	40-SR	12-035-015
C	1-1/2"-2-3/8"	28-15/16"	26"	#4/4-7/8"	32-9/16"	1/4"	40-SR	12-035-016
C	1-1/2"-2-3/8"	28-15/16"	26"	#5/4-7/8"	33-13/16"	1/4"	40-SR	12-035-017
D	2-2-7/8"	5-3/4"	4-1/2"	#4/4-7/8"	9-3/8"	--	--	12-035-018
D	2-2-7/8"	7-7/16"	4-1/2"	#4/6-1/8"	11-1/16"	1/4"	40-SR	12-035-019
D	2-2-7/8"	11-15/16"	9"	#4/6-1/8"	15-9/16"	1/4"	40-SR	12-035-020
D	2-2-7/8"	20-15/16"	18"	#4/6-1/8"	24-9/16"	1/4"	40-SR	12-035-021
D	2-2-7/8"	50-15/16"	18"	#5/4-7/8"	25-13/16"	1/4"	40-SR	12-035-022
D	2-2-7/8"	30-15/16"	28"	#4/6-1/8"	34-9/16"	1/4"	40-SR	12-035-023
D	2-2-7/8"	30-15/16"	28"	#5/6-1/8"	35-13/16"	1/4"	40-SR	12-035-024
E	2-1/2"-3-3/8"	6-5/16"	5"	#5/6-1/8"	11-1/8"	--	--	12-035-025
E	2-1/2"-3-3/8"	8-5/8"	5"	#5/6-1/8"	13-7/16"	1/2"	50-SR	12-035-026
E	2-1/2"-3-3/8"	13-5/8"	10"	#5/6-1/8"	18-7/16"	1/2"	50-SR	12-035-027
E	2-1/2"-3-3/8"	23-5/8"	20"	#5/6-1/8"	28-7/16"	1/2"	50-SR	12-035-028
F	3-3-7/8"	7"	5-1/2"	#5/6-1/8"	11-5/8"	--	--	12-035-029
F	3-3-7/8"	9-5/16"	5-1/2"	#5/6-1/8"	13-15/16"	1/2"	50-SR	12-035-030
F	3-3-7/8"	15-5/16"	11-1/2"	#5/6-1/8"	19-15/16"	1/2"	50-SR	12-035-031
F	3-3-7/8"	23-9/16"	20"	#5/6-1/8"	28-7/16"	1/2"	50-SR	12-035-032
G	3-1/2"-4-1/2"	7-11/16"	6"	#5/6-1/8"	12-1/8"	--	--	12-035-033
G	3-1/2"-4-1/2"	10"	6"	#5/6-1/8"	14-7/16"	1/2"	50-SR	12-035-034
G	3-1/2"-4-1/2"	17"	13"	#5/6-1/8"	21-7/16"	1/2"	50-SR	12-035-035
H	4-8-1/2"	8-7/8"	7"	#5/8-9/16"	15-9/16"	--	--	12-035-036
H	4-8-1/2"	19-3/16"	15"	#6/6-1/8"	25-7/8"	1/2"	50-SR	12-035-037

## TAPER SHANK UNIVERSAL SPADE DRILL HOLDERS



BLADE SERIES	BLADE DIA CUTTING RANGE	NEW TOOL REL LENGTH	FLUTE LENGTH	SHANK DIA/LENGTH	OVERALL LENGTH	PIPE TAP	ORDER NO.
A	31/32"-1-3/8"	3-9/16"	3"	1X3-1/2"	6-1/2"	1/8"	12-034-001
A	31/32"-1-3/8"	3-9/16"	3"	1-1/2"X3-1/2"	6-1/2"	1/8"	12-034-002
A	31/32"-1-3/8"	8-5/16"	7-3/4"	1X3-1/2"	11-1/4"	1/8"	12-034-003
A	31/32"-1-3/8"	8-5/16"	7-3/4"	1-1/2"X3-1/2"	11-1/4"	1/8"	12-034-004
A	31/32"-1-3/8"	15-9/16"	15"	1X3-1/2"	18-1/2"	1/8"	12-034-005
B	1-1/4"-1-3/4"	8-23/32"	8-1/8"	1-1/4"X3-1/2"	11-5/8"	1/4"	12-034-006
B	1-1/4"-1-3/4"	8-23/32"	8-1/8"	1-1/2"X3-1/2"	11-5/8"	1/4"	12-034-007
B	1-1/4"-1-3/4"	4-3/32"	3-1/2"	1X3-1/2"	7"	1/4"	12-034-008
B	1-1/4"-1-3/4"	4-3/32"	3-1/2"	1-1/4"X3-1/2"	7"	1/4"	12-034-009
B	1-1/4"-1-3/4"	15-19/32"	15"	1-1/4"X3-1/2"	18-1/2"	1/4"	12-034-010
C	1-1/2"-2-3/8"	5"	4"	1-1/4"X3-1/2"	8"	1/4"	12-034-011
C	1-1/2"-2-3/8"	5"	4"	1-1/2"X4"	8"	1/4"	12-034-012
C	1-1/2"-2-3/8"	9-1/2"	8-1/2"	1-1/4"X4"	12-1/2"	1/4"	12-034-013
C	1-1/2"-2-3/8"	9-1/2"	8-1/2"	1-1/2"X4"	12-1/2"	1/4"	12-034-014
C	1-1/2"-2-3/8"	19"	18"	1-1/2"X4"	22"	1/4"	12-034-015
D	2-2-7/8"	5-1/2"	4-1/2"	1-1/2"X4"	8-1/2"	1/4"	12-034-016
D	2-2-7/8"	5-1/2"	4-1/2"	1-3/4"X4"	8-1/2"	1/4"	12-034-017
D	2-2-7/8"	10"	9"	1-3/4"X4"	13"	1/2"	12-034-018
D	2-2-7/8"	10"	9"	1-1/2"X4"	13"	1/4"	12-034-019
D	2-2-7/8"	19"	18"	1-1/2"X4"	22"	1/2"	12-034-020
E	2-1/2"-3-3/8"	6-1/16"	5"	1-3/4"X4"	9"	1/2"	12-034-021
E	2-1/2"-3-3/8"	6-1/16"	5"	2X4"	9"	1/2"	12-034-022
E	2-1/2"-3-3/8"	11-1/16"	10"	2X4"	14"	1/2"	12-034-023
E	2-1/2"-3-3/8"	21-1/16"	20"	2X4"	24"	1/2"	12-034-024
F	3-3-7/8"	6-3/4"	5-1/2"	2X4"	9-1/2"	1/2"	12-034-025
F	3-3-7/8"	6-3/4"	5-1/2"	2-1/2"X4"	9-1/2"	1/2"	12-034-026
F	3-3-7/8"	12-3/4"	11-1/2"	2-1/2"X4"	15-1/2"	1/2"	12-034-027
F	3-3-7/8"	12-3/4"	11-1/2"	2X4"	15-1/2"	1/2"	12-034-028
F	3-3-7/8"	21-1/4"	20"	2-1/2"X4"	24"	1/2"	12-034-029
G	3-1/2"-4-1/2"	8-7/16"	6"	2-1/2"X5"	11"	1/2"	12-034-030
G	3-1/2"-4-1/2"	8-7/16"	6"	3X5"	11"	1/2"	12-034-031
G	3-1/2"-4-1/2"	14-7/16"	13"	2-1/2"X6"	18"	1/2"	12-034-032
G	3-1/2"-4-1/2"	14-7/16"	13"	3X5"	28"	1/2"	12-034-033
H	4-8-1/2"	8-9/16"	7"	2-1/2"X6"	13"	1/2"	12-034-034
H	4-8-1/2"	8-9/16"	7"	3X6"	13"	1/2"	12-034-035
H	4-8-1/2"	16-9/16"	15"	3X6"	21"	1/2"	12-034-036
H	4-8-1/2"	16-9/16"	15"	2-1/2"X4"	21"	1/2"	12-034-037

## TAPER SHANK HELICAL FLUTE SPADE BLADE HOLDERS (METRIC, BLADE NOT INCLUDED)



Spade drill is one of the main interchangeable insert drill. It is a high efficient drilling tool with superior performance, designing to substitute those traditional hole drilling products with low efficiency and inconvenient usage. For drilling holes from Ø 9.5 to Ø 114 mm. Inner cooling design of holder enable excellent chip removal and good cooling when drilling deep holes. Inserts have the function of chip-breaker, which improves the stability of holes drilling.

### INTERMEDIATE LENGTH

DRILL INSERT RANGE(MM)	MAX.DRILL DEPTH(MM)	BODY LENGTH MM	REF.LENGTH MM	OAL MM	TAPER SIZE	PIPE TAP	ORDER NO
18.0-24.0	120.7	149.2	193.3	283.3	3MT	1/8"	11-035A-001
22.0-24.0	120.7	149.2	193.3	283.3	3MT	1/8"	11-035A-002
25.0-35.0	136.5	165.1	211.2	324.6	4MT	1/8"	11-035A-003
30.0-35.0	136.5	165.1	218.4	331.8	4MT	1/4"	11-035A-004
36.0-47.0	165.1	196.9	250.9	363.6	4MT	1/4"	11-035A-005
42.0-47.0	165.1	196.9	250.9	363.6	4MT	1/4"	11-035A-006

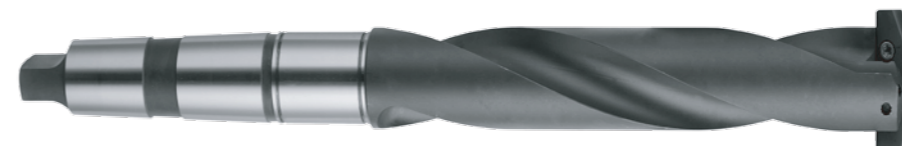
### STANDARD LENGTH

DRILL INSERT RANGE(MM)	MAX.DRILL DEPTH(MM)	BODY LENGTH MM	REF.LENGTH MM	OAL MM	TAPER SIZE	PIPE TAP	ORDER NO
9.5-11.0	60.3	80.2	116.7	188.9	2MT	1/16"	11-035A-007
11.5-12.5	60.3	80.2	116.7	188.9	2MT	1/16"	11-035A-008
13.0-17.5	63.5	84.1	121.0	192.9	2MT	1/16"	11-035A-009
15.5-17.5	63.5	84.1	121.0	192.9	2MT	1/16"	11-035A-010
18.0-24.0	171.5	200.0	244.1	334.2	3MT	1/8"	11-035A-011
22.0-24.0	171.5	200.0	244.1	334.2	3MT	1/8"	11-035A-012
25.0-35.0	187.3	215.9	262.0	375.4	4MT	1/8"	11-035A-013
30.0-35.0	187.3	215.9	269.2	382.6	4MT	1/4"	11-035A-014
36.0-47.0	209.5	241.3	295.3	408.0	4MT	1/4"	11-035A-015
42.0-47.0	209.5	241.3	295.3	408.0	4MT	1/4"	11-035A-016
48.0-65.0	231.8	266.7	320.7	465.1	5MT	1/4"	11-035A-017
56.0-65.0	231.8	266.7	320.7	465.1	5MT	1/4"	11-035A-018
64.0-88.0	273.1	317.5	388.9	531.8	5MT	1/2"	11-035A-019
78.0-88.0	273.1	317.5	388.9	531.8	5MT	1/2"	11-035A-020
90.0-114.0	273.1	327.0	398.5	541.3	5MT	1/2"	11-035A-021
102.0-114.0	273.1	327.0	398.5	541.3	5MT	1/2"	11-035A-022

### EXTENDED LENGTH

DRILL INSERT RANGE(MM)	MAX.DRILL DEPTH(MM)	BODY LENGTH MM	REF.LENGTH MM	OAL MM	TAPER SIZE	PIPE TAP	ORDER NO
9.5-11.0	111.1	130.9	167.4	239.7	2MT	1/16"	11-035A-023
11.5-12.5	111.1	130.9	167.4	239.7	2MT	1/16"	11-035A-024
13.0-17.5	114.3	135.0	171.8	243.7	2MT	1/16"	11-035A-025
15.5-17.5	114.3	135.0	171.8	243.7	2MT	1/16"	11-035A-026
18.0-24.0	273.1	301.6	345.7	435.8	3MT	1/8"	11-035A-027
22.0-24.0	273.1	301.6	345.7	435.8	3MT	1/8"	11-035A-028
25.0-35.0	289.0	317.5	363.6	477.0	4MT	1/8"	11-035A-029
30.0-35.0	289.0	317.5	370.8	484.2	4MT	1/4"	11-035A-030

## TAPER SHANK HELICAL FLUTE SPADE BLADE HOLDERS (IMPERIAL, BLADE NOT INCLUDED)



### INTERMEDIATE LENGTH

DRILL INSERT RANGE(MM)	MAX.DRILL DEPTH(MM)	BODY LENGTH MM	REF.LENGTH MM	OAL MM	TAPER SIZE	PIPE TAP	ORDER NO
45/64-15/16"	4-3/4"	5-7/8"	7-39/64"	11-5/32"	3MT	1/8"	12-035A-001
55/64-15/16"	4-3/4"	5-7/8"	7-39/64"	11-5/32"	3MT	1/8"	12-035A-002
31/32-1-3/8"	5-3/8"	6-1/2"	8-19/64"	12-25/32"	4MT	1/8"	12-035A-003
1-3/16-1-3/8"	5-3/8"	6-1/2"	8-37/64"	13-1/16"	4MT	1/4"	12-035A-004

### STANDARD LENGTH

DRILL INSERT RANGE(MM)	MAX.DRILL DEPTH(MM)	BODY LENGTH MM	REF.LENGTH MM	OAL MM	TAPER SIZE	PIPE TAP	ORDER NO
3/8-27/64"	2-3/8"	3-5/32"	4-19/32"	7-7/16"	2MT	1/16"	12-035A-005
7/16-1/2"	2-3/8"	3-5/32"	4-19/32"	7-7/16"	2MT	1/16"	12-035A-006
33/64-11/16"	2-1/2"	3-5/16"	4-49/64"	7-19/32"	2MT	1/16"	12-035A-007
39/64-11/16"	2-1/2"	3-5/16"	4-49/64"	7-19/32"	2MT	1/16"	12-035A-008
45/64-15/16"	6-3/4"	7-7/8"	9-39/64"	13-5/32"	3MT	1/8"	12-035A-009
45/64-15/16"	6-3/4"	7-7/8"	9-43/64"	14-5/32"	4MT	1/8"	12-035A-010
55/64-15/16"	6-3/4"	7-7/8"	9-39/64"	13-5/32"	3MT	1/8"	12-035A-011
55/64-15/16"	6-3/4"	7-7/8"	9-43/64"	14-5/32"	4MT	1/8"	12-035A-012
31/32-1-3/8"	7-3/8"	8-1/2"	10-15/64"	13-25/32"	3MT	1/8"	12-035A-013
31/32-1-3/8"	7-3/8"	8-1/2"	10-19/64"	14-25/32"	4MT	1/8"	12-035A-014
1-3/16-1-3/8"	7-3/8"	8-1/2"	10-15/64"	13-25/32"	3MT	1/8"	12-035A-015
1-3/16-1-3/8"	7-3/8"	8-1/2"	10-37/64"	15-1/16"	4MT	1/4"	12-035A-016

### EXTENDED LENGTH

DRILL INSERT RANGE(MM)	MAX.DRILL DEPTH(MM)	BODY LENGTH MM	REF.LENGTH MM	OAL MM	TAPER SIZE	PIPE TAP	ORDER NO
3/8-27/64"	4-3/8"	5-5/32"	6-19/32"	9-7/16"	2MT	1/16"	12-035A-017
7/16-1/2"	4-3/8"	5-5/32"	6-19/32"	9-7/16"	2MT	1/16"	12-035A-018
33/64-11/16"	4-1/2"	5-5/16"	6-49/64"	9-19/32"	2MT	1/16"	12-035A-019
39/64-11/16"	4-1/2"	5-5/16"	6-49/64"	9-19/32"	2MT	1/16"	12-035A-020
45/64-15/16"	10-3/4"	11-7/8"	13-39/64"	17-5/32"	3MT	1/8"	12-035A-021
55/64-15/16"	10-3/4"	11-7/8"	13-39/64"	17-5/32"	3MT	1/8"	12-035A-022
31/32-1-3/8"	11-3/8"	12-1/2"	14-15/64"	18-25/32"	4MT	1/8"	12-035A-023
1-3/16-1-3/8"	11-3/8"	12-1/2"	14-15/64"	19-1/16"	4MT	1/4"	12-035A-024

## FLANGED SHANK HELICAL FLUTE SPADE BLADE HOLDERS (METRIC, BLADE NOT INCLUDED)



### INTERMEDIATE LENGTH

DRILL INSERT RANGE(MM)	MAX.DRILL DEPTH(MM)	BODY LENGTH MM	REF.LENGTH MM	OAL MM	SHANK DXL	PIPE TAP	ORDER NO
18.0-24.0	117.5	154.8	158.4	207.9	25x53.1	1/8"	11-034A-001
22.0-24.0	117.5	154.8	158.4	207.9	25x53.1	1/8"	11-034A-002
25.0-35.0	136.5	179.4	183.0	237.3	32x57.9	1/4"	11-034A-003
30.0-35.0	136.5	179.4	183.0	237.3	32x57.9	1/4"	11-034A-004
36.0-47.0	165.1	217.5	222.3	287.6	40x70.1	1/4"	11-034A-005
42.0-47.0	165.1	217.5	222.3	287.6	40x70.1	1/4"	11-034A-006

### STANDARD LENGTH

DRILL INSERT RANGE(MM)	MAX.DRILL DEPTH(MM)	BODY LENGTH MM	REF.LENGTH MM	OAL MM	SHANK DXL	PIPE TAP	ORDER NO
9.5-11.0	60.3	89.7	92.1	131.6	20x41.9	1/8"	11-034A-007
11.5-12.5	60.3	89.7	92.1	131.6	20x41.9	1/8"	11-034A-008
13.0-17.5	63.5	92.1	94.9	134.0	20x41.9	1/8"	11-034A-009
15.5-17.5	63.5	92.1	94.9	134.0	20x41.9	1/8"	11-034A-010
18.0-24.0	168.3	205.6	209.2	258.7	25x53.1	1/8"	11-034A-011
22.0-24.0	168.3	205.6	209.2	258.7	25x53.1	1/8"	11-034A-012
25.0-35.0	187.3	230.2	233.8	288.1	32x57.9	1/4"	11-034A-013
30.0-35.0	187.3	230.2	233.8	288.1	32x57.9	1/4"	11-034A-014
36.0-47.0	209.6	261.9	266.7	322.0	40x70.1	1/4"	11-034A-015
42.0-47.0	209.6	261.9	266.7	322.0	40x70.1	1/4"	11-034A-016
48.0-65.0	231.8	281.0	285.8	351.1	40x70.1	1/4"	11-034A-017
56.0-65.0	231.8	281.0	285.8	351.1	40x70.1	1/4"	11-034A-018

### EXTENDED LENGTH

DRILL INSERT RANGE(MM)	MAX.DRILL DEPTH(MM)	BODY LENGTH MM	REF.LENGTH MM	OAL MM	SHANK DXL	PIPE TAP	ORDER NO
9.5-11.0	111.1	140.5	142.9	182.4	20x41.9	1/8"	11-034A-019
11.5-12.5	111.1	140.5	142.9	182.4	20x41.9	1/8"	11-034A-020
13.0-17.5	114.3	142.9	145.7	184.8	20x41.9	1/8"	11-034A-021
15.5-17.5	114.3	142.9	145.7	184.8	20x41.9	1/8"	11-034A-022
18.0-24.0	269.9	307.2	310.8	360.3	25x53.1	1/8"	11-034A-023
22.0-24.0	269.9	307.2	310.8	360.3	25x53.1	1/8"	11-034A-024
25.0-35.0	288.9	331.8	335.4	389.7	32x57.9	1/4"	11-034A-025
30.0-35.0	288.9	331.8	335.4	389.7	32x57.9	1/4"	11-034A-026

## FLANGED SHANK HELICAL FLUTE SPADE BLADE HOLDERS (INCH, BLADE NOT INCLUDED)



### INTERMEDIATE LENGTH

DRILL INSERT RANGE(IN)	MAX.DRILL DEPTH(IN)	BODY LENGTH IN	REF.LENGTH IN	OAL IN	SHANK DXL	PIPE TAP	ORDER NO
45/64-15/16"	4-5/8"	6-3/32"	6-15/64"	8-3/8"	1"x2-9/32"	1/8"	12-034A-001
55/64-15/16"	4-5/8"	6-3/32"	6-15/64"	8-3/8"	1"x2-9/32"	1/8"	12-034A-002
31/32-1-3/8"	5-3/8"	7-1/16"	7-13/64"	9-11/32"	1-1/4"x2-9/32"	1/4"	12-034A-003
1-3/16-1-3/8"	5-3/8"	7-1/16"	7-13/64"	9-11/32"	1-1/4"x2-9/32"	1/4"	12-034A-004
1-13/32-1-7/8"	6-1/2"	8-9/16"	8-3/4"	11-1/4"	1-1/2"x2-11/16"	1/4"	12-034A-005
1-21/32-1-7/8"	6-1/2"	8-9/16"	8-3/4"	11-1/4"	1-1/2"x2-11/16"	1/4"	12-034A-006

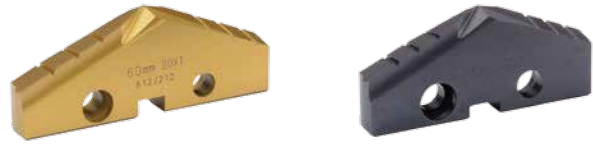
### STANDARD LENGTH

DRILL INSERT RANGE(IN)	MAX.DRILL DEPTH(IN)	BODY LENGTH IN	REF.LENGTH IN	OAL IN	SHANK DXL	PIPE TAP	ORDER NO
3/8-27/64"	2-3/8"	3-17/32"	3-5/8"	5-9/16"	3/4"x2-1/32"	1/8"	12-034A-007
7/16-1/2"	2-3/8"	3-17/32"	3-5/8"	5-9/16"	3/4"x2-1/32"	1/8"	12-034A-008
33/64-11/16"	2-1/2"	3-5/8"	3-47/64"	5-21/32"	3/4"x2-1/32"	1/8"	12-034A-009
39/64-11/16"	2-1/2"	3-5/8"	3-47/64"	5-21/32"	3/4"x2-1/32"	1/8"	12-034A-010
45/64-15/16"	6-5/8"	8-3/32"	8-15/64"	10-3/8"	1"x2-9/32"	1/8"	12-034A-011
55/64-15/16"	6-5/8"	8-3/32"	8-15/64"	10-3/8"	1"x2-9/32"	1/8"	12-034A-012
31/32-1-3/8"	7-3/8"	9-1/16"	9-13/64"	11-11/32"	1-1/4"x2-9/32"	1/4"	12-034A-013
1-3/16-1-3/8"	7-3/8"	9-1/16"	9-13/64"	11-11/32"	1-1/4"x2-9/32"	1/4"	12-034A-014
1-13/32-1-7/8"	8-1/4"	10-5/16"	10-1/2"	13"	1-1/2"x2-11/16"	1/4"	12-034A-015
1-21/32-1-7/8"	8-1/4"	10-5/16"	10-1/2"	13"	1-1/2"x2-11/16"	1/4"	12-034A-016
1-29/32-2-9/16"	9-1/8"	11-1/16"	11-1/4"	13-3/4"	1-1/2"x2-11/16"	1/4"	12-034A-017
2-7/32-2-9/16"	9-1/8"	11-1/16"	11-1/4"	13-3/4"	1-1/2"x2-11/16"	1/4"	12-034A-018

### EXTENDED LENGTH

DRILL INSERT RANGE(IN)	MAX.DRILL DEPTH(IN)	BODY LENGTH IN	REF.LENGTH IN	OAL IN	SHANK DXL	PIPE TAP	ORDER NO
3/8-27/64"	4-3/8"	5-17/32"	5-5/8"	7-9/16"	3/4"x2-1/32"	1/8"	12-034A-019
7/16-1/2"	4-3/4"	5-17/32"	5-5/8"	7-9/16"	3/4"x2-1/32"	1/8"	12-034A-020
33/64-11/16"	4-1/2"	5-5/8"	5-47/64"	7-21/32"	3/4"x2-1/32"	1/8"	12-034A-021
39/64-11/16"	4-1/2"	5-5/8"	5-47/64"	7-21/32"	3/4"x2-1/32"	1/8"	12-034A-022
45/64-15/16"	10-5/8"	12-3/32"	12-15/64"	14-3/8"	1"x2-9/32"	1/8"	12-034A-023
55/64-15/16"	10-5/8"	12-3/32"	12-15/64"	14-3/8"	1"x2-9/32"	1/8"	12-034A-024
31/32-1-3/8"	11-3/8"	13-1/16"	13-13/64"	15-11/32"	1-1/4"x2-9/32"	1/4"	12-034A-025
1-3/16-1-3/8"	11-3/8"	13-1/16"	13-13/64"	15-11/32"	1-1/4"x2-9/32"	1/4"	12-034A-026

### PM HSS COBALT TIN & TIALN COATED SPADE DRILL BLADE INSERTS



DIAMETER	THICKNESS	ORDER NO.	ORDER NO.	DIAMETER	THICKNESS	ORDER NO.	ORDER NO.
MM	MM	TIN	TIALN	MM	MM	TIN	TIALN
10.00	2.38	11-032A-G005	11-032A-B005	3/8"	3/32"	12-032A-G001	12-032A-B001
11.00	2.38	11-032A-G011	11-032A-B011	7/16"	3/32"	12-032A-G005	12-032A-B005
12.00	2.38	11-032A-G016	11-032A-B016	1/2"	3/32"	12-032A-G009	12-032A-B009
13.00	3.18	11-032A-G020	11-032A-B020	9/16"	1/8"	12-032A-G013	12-032A-B013
14.00	3.18	11-032A-G025	11-032A-B025	5/8"	1/8"	12-032A-G017	12-032A-B017
15.00	3.18	11-032A-G029	11-032A-B029	3/4"	5/32"	12-032A-G025	12-032A-B025
16.00	3.18	11-032A-G034	11-032A-B034	7/8"	5/32"	12-032A-G032	12-032A-B032
17.00	3.18	11-032A-G038	11-032A-B038	1"	3/16"	12-032A-G038	12-032A-B038
18.00	3.97	11-032A-G043	11-032A-B043	1-1/8"	3/16"	12-032A-G045	12-032A-B045
19.00	3.97	11-032A-G047	11-032A-B047	1-3/16"	3/16"	12-032A-G048	12-032A-B048
20.00	3.97	11-032A-G052	11-032A-B052	1-1/4"	3/16"	12-032A-G050	12-032A-B050
21.00	3.97	11-032A-G056	11-032A-B056	1-5/16"	3/16"	12-032A-G052	12-032A-B052
22.00	3.97	11-032A-G059	11-032A-B059	1-3/8"	3/16"	12-032A-G054	12-032A-B054
23.00	3.97	11-032A-G062	11-032A-B062	1-1/2"	1/4"	12-032A-G058	12-032A-B058
24.00	3.97	11-032A-G066	11-032A-B066	1-5/8"	1/4"	12-032A-G062	12-032A-B062
25.00	4.76	11-032A-G068	11-032A-B068	1-3/4"	1/4"	12-032A-G066	12-032A-B066
26.00	4.76	11-032A-G071	11-032A-B071	1-7/8"	1/4"	12-032A-G070	12-032A-B070
27.00	4.76	11-032A-G075	11-032A-B075	2"	5/16"	12-032A-G074	12-032A-B074
28.00	4.76	11-032A-G077	11-032A-B077	2-1/8"	5/16"	12-032A-G079	12-032A-B079
29.00	4.76	11-032A-G081	11-032A-B081	2-3/16"	5/16"	12-032A-G081	12-032A-B081
30.00	4.76	11-032A-G083	11-032A-B083	2-1/4"	5/16"	12-032A-G083	12-032A-B083
32.00	4.76	11-032A-G088	11-032A-B088	2-5/16"	5/16"	12-032A-G085	12-032A-B085
35.00	4.76	11-032A-G095	11-032A-B095	2-3/8"	5/16"	12-032A-G087	12-032A-B087
36.00	6.35	11-032A-G097	11-032A-B097	2-1/2"	5/16"	12-032A-G091	12-032A-B091
38.00	6.35	11-032A-G101	11-032A-B101	2-5/8"	7/16"	12-032A-G095	12-032A-B095
40.00	6.35	11-032A-G106	11-032A-B106	2-3/4"	7/16"	12-032A-G099	12-032A-B099
42.00	6.35	11-032A-G110	11-032A-B110	2-7/8"	7/16"	12-032A-G103	12-032A-B103
45.00	6.35	11-032A-G117	11-032A-B117	3"	7/16"	12-032A-G107	12-032A-B107
48.00	7.94	11-032A-G124	11-032A-B124	3-1/8"	7/16"	12-032A-G111	12-032A-B111
50.00	7.94	11-032A-G128	11-032A-B128	3-3/16"	7/16"	12-032A-G113	12-032A-B113
55.00	7.94	11-032A-G140	11-032A-B140	3-1/4"	7/16"	12-032A-G115	12-032A-B115
60.00	7.94	11-032A-G151	11-032A-B151	3-5/16"	7/16"	12-032A-G117	12-032A-B117
65.00	7.94	11-032A-G162	11-032A-B162	3-3/8"	7/16"	12-032A-G119	12-032A-B119
70.00	11.11	11-032A-G172	11-032A-B172	3-1/2"	7/16"	12-032A-G123	12-032A-B123
72.00	11.11	11-032A-G175	11-032A-B175	3-5/8"	7/16"	12-032A-G127	12-032A-B127
74.00	11.11	11-032A-G179	11-032A-B179	3-3/4"	7/16"	12-032A-G131	12-032A-B131
76.00	11.11	11-032A-G182	11-032A-B182	3-7/8"	7/16"	12-032A-G135	12-032A-B135
78.00	11.11	11-032A-G186	11-032A-B186	4"	7/16"	12-032A-G139	12-032A-B139
80.00	11.11	11-032A-G189	11-032A-B189	4-1/8"	7/16"	12-032A-G142	12-032A-B142
90.00	11.11	11-032A-G207	11-032A-B207	4-3/16"	7/16"	12-032A-G143	12-032A-B143
100.00	11.11	11-032A-G224	11-032A-B224	4-1/4"	7/16"	12-032A-G144	12-032A-B144
108.00	11.11	11-032A-G235	11-032A-B235	4-5/16"	7/16"	12-032A-G145	12-032A-B145
110.00	11.11	11-032A-G237	11-032A-B237	4-3/8"	7/16"	12-032A-G146	12-032A-B146
114.00	11.11	11-032A-G241	11-032A-B241	4-1/2"	7/16"	12-032A-G148	12-032A-B148

### HSS STEP DRILLS LONG SERIES



90° FINE GRADE FOR THROUGH HOLE DIN8374

SCREW SIZE	STEP DIAMETER	COUNTERSINK DIAMETER	STEP LENGTH	FLUTE LENGTH	OVERALL LENGTH	HSS
M3	3.2	6.0	9	57	93	11-027-001
M4	4.3	8.0	11	75	117	11-027-002
M5	5.3	10.0	13	87	133	11-027-003
M6	6.4	11.5	15	94	142	11-027-004
M8	8.4	15.0	19	114	169	11-027-005
M10	10.5	19.0	23	135	198	11-027-006



180° MEDIUM GRADE FOR THROUGH HOLE DIN8376

SCREW SIZE	STEP DIAMETER	COUNTERSINK DIAMETER	STEP LENGTH	FLUTE LENGTH	OVERALL LENGTH	HSS
M3	3.4	6.0	9	57	93	11-027-011
M4	4.5	8.0	11	75	117	11-027-012
M5	5.5	10.0	13	87	133	11-027-013
M6	6.6	11.0	15	94	142	11-027-014
M8	9.0	15.0	19	114	169	11-027-015
M10	11.0	18.0	23	130	191	11-027-016



90° FOR THREAD CORE HOLE DIN8378

SCREW SIZE	STEP DIAMETER	COUNTERSINK DIAMETER	STEP LENGTH	FLUTE LENGTH	OVERALL LENGTH	HSS
M3	2.5	3.4	8.8	39	70	11-027-026
M4	3.3	4.5	11.4	47	80	11-027-027
M5	4.2	5.5	13.6	57	93	11-027-028
M6	5.0	6.6	16.5	63	101	11-027-029
M8	6.8	9.0	21.0	81	125	11-027-030
M10	8.5	11.0	25.5	94	142	11-027-031
M12	10.2	13.5	30.0	108	160	11-027-032

## HSS STEP DRILLS SHORT SERIES



90° FINE GRADE FOR THROUGH HOLE DIN8374

SCREW SIZE	STEP DIAMETER	COUNTERSINK DIAMETER	STEP LENGTH	FLUTE LENGTH	OVERALL LENGTH	HSS
M3	3.2	6.0	9	28	66	11-027-033
M4	4.3	8.0	11	37	79	11-027-034
M5	5.3	10.0	13	43	89	11-027-035
M6	6.4	11.5	15	47	95	11-027-036
M8	8.4	15.0	19	56	111	11-027-037
M10	10.5	19.0	23	64	127	11-027-038



180° MEDIUM GRADE FOR THROUGH HOLE DIN8376

SCREW SIZE	STEP DIAMETER	COUNTERSINK DIAMETER	STEP LENGTH	FLUTE LENGTH	OVERALL LENGTH	HSS
M3	3.4	6.0	9	28	66	11-027-039
M4	4.5	8.0	11	37	79	11-027-040
M5	5.5	10.0	13	43	89	11-027-041
M6	6.6	11.0	15	47	95	11-027-042
M8	9.0	15.0	19	56	111	11-027-043
M10	11.0	18.0	23	62	123	11-027-044



90° FOR THREAD CORE HOLE DIN8378

SCREW SIZE	STEP DIAMETER	COUNTERSINK DIAMETER	STEP LENGTH	FLUTE LENGTH	OVERALL LENGTH	HSS
M3	2.5	3.4	8.8	20	52	11-027-045
M4	3.3	4.5	11.4	24	58	11-027-046
M5	4.2	5.5	13.6	28	66	11-027-047
M6	5.0	6.6	16.5	31	70	11-027-048
M8	6.8	9.0	21.0	40	84	11-027-049
M10	8.5	11.0	25.5	47	95	11-027-050
M12	10.2	13.5	30.0	54	107	11-027-051

## HSS TAPER SHANK STEP DRILLS



90° FOR THROUGH HOLE DIN8375

SCREW SIZE	STEP DIAMETER	COUNTERSINK DIAMETER	STEP LENGTH	FLUTE LENGTH	OVERALL LENGTH	MORSE TAPER	HSS
M5	5.5	11.0	13	94	175	1	11-027-007
M6	6.6	13.0	15	101	182	1	11-027-008
M8	9.0	17.2	19	130	228	2	11-027-009
M10	11.0	21.5	23	150	248	2	11-027-010



180° FOR THROUGH HOLE DIN8377

SCREW SIZE	STEP DIAMETER	COUNTERSINK DIAMETER	STEP LENGTH	FLUTE LENGTH	OVERALL LENGTH	MORSE TAPER	HSS
M5	5.5	10.0	13	87	168	1	11-027-017
M6	6.6	11.0	15	94	175	1	11-027-018
M8	9.0	15.0	19	114	212	2	11-027-019
M10	11.0	18.0	23	130	228	2	11-027-020
M12	13.5	20.0	27	140	238	2	11-027-021
M14	15.5	24.0	31	160	281	3	11-027-022
M16	17.5	26.0	35	165	286	3	11-027-023
M18	20.0	30.0	39	175	296	3	11-027-024
M20	22.0	33.0	43	185	334	4	11-027-025



## HSS STEP DRILLS



FOR DRILLING AND COUNTERBORING 180° CAP SCREW CLEARANCE HOLES

SCREW SIZE	MINOR DIAMETER	MAJOR DIAMETER	STEP LENGTH	FLUTE LENGTH	OVERALL LENGTH	HSS GROUND	HSSCO5 GROUND
No.4	.1360	7/32	3/8	2-1/2	3-3/4	12-027-001	12-27B-001
No.5	.1410	.2280	3/8	2-5/8	3-7/8	12-027-002	12-27B-002
No.6	.1500	1/4	1/2	2-3/4	4	12-027-003	12-27B-003
No.8	.1780	L	1/2	2-15/16	4-1/4	12-027-004	12-27B-004
No.10	.2040	Q	5/8	3-7/16	4-3/4	12-027-005	12-27B-005
1/4	9/32	13/32	11/16	3-7/8	5-1/4	12-027-006	12-27B-006
5/16	11/32	1/2	3/4	4-1/2	6	12-027-007	12-27B-007
3/8	13/32	19/32	7/8	5-3/16	7-1/8	12-027-008	12-27B-008
7/16	15/32	11/16	1	5-5/8	7-5/8	12-027-009	12-27B-009
1/2	17/32	25/32	1	3-1/4	5-1/8	12-027-010	12-27B-010
5/8	21/32	31/32	1	3-7/8	5-7/8	12-027-011	12-27B-011



FOR DRILLING AND COUNTERSINKING 82° FLAT HEAD MACHINE SCREW CLEARANCE HOLES

SCREW SIZE	MINOR DIAMETER	MAJOR DIAMETER	STEP LENGTH	FLUTE LENGTH	OVERALL LENGTH	HSS GROUND	HSSCO5 GROUND
No.4	.116	15/64	3/8	2-5/8	3-7/8	12-027-012	12-27B-012
No.5	.128	F	3/8	2-7/8	4-1/8	12-027-013	12-27B-013
No.6	.142	9/32	1/2	2-15/16	4-1/4	12-027-014	12-27B-014
No.8	.169	Q	1/2	3-7/16	4-3/4	12-027-015	12-27B-015
No.10	.196	W	5/8	3-3/4	5-1/8	12-027-016	12-27B-016
1/4	.257	1/2	11/16	4-1/2	6	12-027-017	12-27B-017
5/16	.320	5/8	3/4	5-3/16	7-1/8	12-027-018	12-27B-018
3/8	.383	3/4	7/8	3-1/8	5	12-027-019	12-27B-019
7/16	.446	13/16	1	3-3/8	5-1/4	12-027-020	12-27B-020
1/2	.510	7/8	1	3-1/2	5-1/2	12-027-021	12-27B-021



FOR DRILLING 45° CHAMFERED HOLES TO-BE-TAPPED

SCREW SIZE	MINOR DIAMETER	MAJOR DIAMETER	STEP LENGTH	FLUTE LENGTH	OVERALL LENGTH	HSS GROUND	HSSCO5 GROUND
4-40	.089	.1285	3/8	1-5/8	2-3/4	12-027-022	12-27B-022
5-40	.101	9/64	1/2	1-3/4	2-7/8	12-027-023	12-27B-023
6-32	.109	5/32	1/2	2	3-1/8	12-027-024	12-27B-024
8-32	.136	3/16	1/2	2-5/16	3-1/2	12-027-025	12-27B-025
8-36	.136	3/16	1/2	2-5/16	3-1/2	12-027-026	12-27B-026
10-24	.152	1/4	5/8	2-3/4	4	12-027-027	12-27B-027
10-32	.161	1/4	5/8	2-3/4	4	12-027-028	12-27B-028
12-24	.179	9/32	11/16	2-15/16	4-1/4	12-027-029	12-27B-029
1/4-20	.204	21/64	13/16	3-5/16	4-5/8	12-027-030	12-27B-030
1/4-28	.218	21/64	13/16	3-5/16	4-5/8	12-027-031	12-27B-031
5/16-18	.261	13/32	15/16	3-7/8	5-1/4	12-027-032	12-27B-032
5/16-24	.272	13/32	15/16	3-7/8	5-1/4	12-027-033	12-27B-033
3/8-16	.316	31/64	1	4-3/8	5-7/8	12-027-034	12-27B-034
3/8-24	.339	31/64	1	4-3/8	5-7/8	12-027-035	12-27B-035
7/16-14	.375	17/32	1-1/16	4-13/16	6-5/8	12-027-036	12-27B-036
7/16-20	.390	17/32	1-1/16	4-13/16	6-5/8	12-027-037	12-27B-037
1/2-13	.437	5/8	1-1/16	5-3/16	7-1/8	12-027-038	12-27B-038
1/2-20	.452	5/8	1-1/16	5-3/16	7-1/8	12-027-039	12-27B-039
5/8-11	.531	3/4	1-1/16	5-5/8	7-5/8	12-027-040	12-27B-040



## STEP DRILLS AND CONICAL DRILLS



# 03

METAL CUTTING

### HSS CONICAL DRILL



SIZE MM	OVERALL LENGTH	SHANK LENGTH	SHANK DIA	ORDER NO HSS	ORDER NO HSS-TIN	ORDER NO HSSCO5	ORDER NO HSSCO5-TIN
3-14	58	21	6	11-002-005	11-002-T05	11-002-C05	11-002-G05
6-20	70	21	8	11-002-010	11-002-T10	11-002-C10	11-002-G10
16-30.5	79	25	10	11-002-015	11-002-T15	11-002-C15	11-002-G15
26-40	86	25	10	11-002-020	11-002-T20	11-002-C20	11-002-G20
36-50	90	25	13	11-002-025	11-002-T25	11-002-C25	11-002-G25
40-61	97	25	13	11-002-030	11-002-T30	11-002-C30	11-002-G30
4-30.5	109	21	10	11-002-035	11-002-T35	11-002-C35	11-002-G35
5-25.4	87	21	10	11-002-040	11-002-T40	11-002-C40	11-002-G40

### HSS CONICAL DRILL SET

SIZE	SPECIFICATION
3 PCS/SET	3-14,5-20,16-30mm
11-002-S02	HSS
11-002-S01	HSS-TIN
11-002-S04	HSSCO5
11-002-S03	HSSCO5-TIN



### HSS CONICAL DRILL WITH SPIRAL FLUTE



SIZE MM	OVERALL LENGTH	SHANK LENGTH	SHANK DIA.	ORDER NO HSS	ORDER NO HSS-TIN	ORDER NO HSSCO5	ORDER NO HSSCO5-TIN
3-14	60	25	6	11-002-001	11-002-T01	11-002-C01	11-002-G01
6-20	70	25	8	11-002-002	11-002-T02	11-002-C02	11-002-G02
5-31	105	25	10	11-002-003	11-002-T03	11-002-C03	11-002-G03

### HSS CONICAL DRILL WITH 1/4" POWER GROOVE HEX SHANK



SIZE MM	SHANK SIZE	ORDER NO HSS	ORDER NO HSS-TIN	ORDER NO HSSCO5	ORDER NO HSSCO5-TIN
3-14	1/4"	11-002-004	11-002-T04	11-002-C04	11-002-G04
8-20	1/4"	11-002-006	11-002-T06	11-002-C06	11-002-G06
16-30.5	1/4"	11-002-007	11-002-T07	11-002-C07	11-002-G07

### HSS CONICAL DRILL WITH 1/4" HEX SHANK



SIZE MM	SHANK SIZE	ORDER NO HSS	ORDER NO HSS-TIN	ORDER NO HSSCO5	ORDER NO HSSCO5-TIN
3-14	1/4"	11-002-008	11-002-T08	11-002-C08	11-002-G08
8-20	1/4"	11-002-009	11-002-T09	11-002-C09	11-002-G09
16-30.5	1/4"	11-002-011	11-002-T11	11-002-C11	11-002-G11

### METRIC HSS STEP DRILLS SPIRAL FLUTE



NO.OF HOLES	HOLE SIZES & INCREMENTS	SHANK DIA.	SHANK LENGTH	OVERALL LENGTH	ORDER NO HSS	ORDER NO HSS-TIN	ORDER NO HSSCO5	ORDER NO HSSCO5-TIN
9	4-12x1mm	6	21	70	11-001B-001	11-001B-T01	11-001B-C01	11-001B-G01
9	4-20x2mm	10	25	82	11-001B-002	11-001B-T02	11-001B-C02	11-001B-G02
13	4-30x2mm	10	25	100	11-001B-003	11-001B-T03	11-001B-C03	11-001B-G03
10	6-36x3mm	10	25	80	11-001B-004	11-001B-T04	11-001B-C04	11-001B-G04
13	4-39x3mm	10	25	107	11-001B-005	11-001B-T05	11-001B-C05	11-001B-G05

### METRIC HSS STEP DRILLS SPIRAL FLUTE SET

SIZE	SPECIFICATION
3 PCS/SET	4-12x2,4-20x2,4-30x2mm
11-001B-S02	HSS
11-001B-S01	HSS-TIN
11-001B-S04	HSSCO5
11-001B-S03	HSSCO5-TIN



### METRIC HSS STEP DRILLS SPIRAL FLUTE 1/4" HEX Q.C. SHANK



NO.OF HOLES	HOLE SIZES & INCREMENTS	SHANK LENGTH	OVERALL LENGTH	ORDER NO HSS	ORDER NO HSS TIN	ORDER NO HSSCO5	ORDER NO HSSCO5 TIN
9	4-20x2mm	25	76	11-001B-006	11-001B-T06	11-001B-C06	11-001B-G06
13	4-30x2mm	25	100	11-001B-007	11-001B-T07	11-001B-C07	11-001B-G07

### METRIC HSS STEP DRILLS SPIRAL FLUTE 1/4" HEX Q.C. SHANK SET

SIZE	SPECIFICATION
3 PCS/SET	4-12x2,4-20x2,4-30x2mm
11-001B-S06	HSS
11-001B-S05	HSS-TIN
11-001B-S08	HSSCO5
11-001B-S07	HSSCO5-TIN



### METRIC HSS STEP DRILLS STRAIGHT FLUTE



NO.OF HOLES	HOLE SIZES & INCREMENTS	SHANK DIA.	SHANK LENGTH	OVERALL LENGTH	ORDER NO HSS	ORDER NO HSS TIN	ORDER NO HSSCO5	ORDER NO HSSCO5 TIN
9	4-12x1mm	6	21	70	11-001A-001	11-001A-T01	11-001A-C01	11-001A-G01
5	4-12x2mm	6	21	56	11-001A-002	11-001A-T02	11-001A-C02	11-001A-G02
9	4-20x2mm	10	25	85	11-001A-003	11-001A-T03	11-001A-C03	11-001A-G03
13	4-30x2mm	10	25	97	11-001A-004	11-001A-T04	11-001A-C04	11-001A-G04
10	6-36x3mm	10	25	80	11-001A-005	11-001A-T05	11-001A-C05	11-001A-G05
13	4-39x3mm	10	25	107	11-001A-006	11-001A-T06	11-001A-C06	11-001A-G06

### METRIC HSS STEP DRILLS STRAIGHT FLUTE 1/4" HEX Q.C. SHANK SET



NO.OF HOLES	HOLE SIZES & INCREMENTS	SHANK DIA.	SHANK LENGTH	OVERALL LENGTH	ORDER NO HSS	ORDER NO HSS TIN	ORDER NO HSSCO5	ORDER NO HSSCO5 TIN
9	4-12x1mm	1/4" HEX Q.C.	25	68	11-001A-007	11-001A-T07	11-001A-C07	11-001A-G07
9	4-20x2mm	1/4" HEX Q.C.	25	78	11-001A-008	11-001A-T08	11-001A-C08	11-001A-G08
13	4-30x2mm	1/4" HEX Q.C.	25	101	11-001A-009	11-001A-T09	11-001A-C09	11-001A-G09

### HSS STEP DRILLS SET

SIZE	SPECIFICATION
3 PCS/SET	4-12x2,4-20x2,4-30x2mm
11-277-S02	HSS
11-277-S01	HSS-TIN
11-277-S04	HSSCO5
11-277-S03	HSSCO5-TIN



SIZE	SPECIFICATION
3 PCS/SET	4-12,6-20,6-30mm
11-001-S02	HSS
11-001-S01	HSS-TIN
11-001-S04	HSSCO5
11-001-S03	HSSCO5-TIN



### HSS STEP DRILL WITH INTERCHANGEABLE CENTER BITS



SIZE	SPECIFICATION	SHANK DIA.	ORDER NO HSS	ORDER NO HSS TIN	ORDER NO HSSCO5	ORDER NO HSSCO5 TIN
2.5-32mm	2.5,6.3,11.2,14.5,18.2,22.3,27.9,32	10	11-001-060	11-001-T60	11-001-C60	11-001-G60
2.5-38mm	2.5,6.3,13,16,19,21,23,26,29,32,35,38	10	11-001-065	11-001-T65	11-001-C65	11-001-G65
	interchangeable center bits 2.5mm		11-001-070	11-001-T70	11-001-C70	11-001-G70

### INCH SIZE HSS STEP DRILLS

Specialty step drill designed to machine a large number of different hole diameter with a single tool. Single cutting edge creates perfectly round holes in metal, plastic, wood and other thin materials without center punching. 20 models available providing a range of holes from 1/8 to 1-3/8"

### HSS STEP DRILLS SPIRAL FLUTE



NO.OF HOLES	HOLE SIZES & INCREMENTS	SHANK DIA.	ORDER NO HSS	ORDER NO HSS TIN	ORDER NO HSSCO5	ORDER NO HSSCO5 TIN
13	1/8-1/2 x1/32"	1/4"	12-001A-005	12-001A-T05	12-001A-C05	12-001A-G05
6	3/16-1/2x1/16"	1/4"	12-001A-010	12-001A-T10	12-001A-C10	12-001A-G10
9	1/4-3/4x1/16"	3/8"	12-001A-015	12-001A-T15	12-001A-C15	12-001A-G15
12	3/16-7/8x1/16"	3/8"	12-001A-020	12-001A-T20	12-001A-C20	12-001A-G20
10	1/4-1-3/8x1/8"	1/2"	12-001A-025	12-001A-T25	12-001A-C25	12-001A-G25

### HSS SELF-STARTING MULTIPLE HOLE SIZES



INCH

NO.OF HOLES	HOLE SIZES & INCREMENTS	SHANK DIA.	STEP THICKNESS	ORDER NO HSS	ORDER NO HSS TIN	ORDER NO HSSCO5	ORDER NO HSSCO5 TIN
13	1/8-1/2 x1/32"	1/4"	1/8"	12-001-005	12-001-T05	12-001-C05	12-001-G05
6	3/16-1/2x1/16"	1/4"	3/8"	12-001-010	12-001-T10	12-001-C10	12-001-G10
9	1/4-3/4x1/16"	3/8"	1/8"	12-001-015	12-001-T15	12-001-C15	12-001-G15
12	3/16-7/8x1/16"	3/8"	1/8"	12-001-020	12-001-T20	12-001-C20	12-001-G20
10	1/4-1-3/8x1/8"	1/2"	1/8"	12-001-025	12-001-T25	12-001-C25	12-001-G25

METRIC

NO.OF HOLES	HOLE SIZES & INCREMENTS	SHANK DIA.	STEP THICKNESS	ORDER NO HSS	ORDER NO HSS TIN	ORDER NO HSSCO5	ORDER NO HSSCO5 TIN
9	4-12x1mm	1/4"	5mm	11-001-005	11-001-T05	11-001-C05	11-001-G05
5	4-12x2mm	1/4"	11mm	11-001-010	11-001-T10	11-001-C10	11-001-G10
7	6-18x2mm	3/8"	5mm	11-001-015	11-001-T15	11-001-C15	11-001-G15
10	4-22x2mm	3/8"	5mm	11-001-035	11-001-T35	11-001-C35	11-001-G35
13	5-35x2-3mm	1/2"	3,5mm	11-001-040	11-001-T40	11-001-C40	11-001-G40

## SELF-STARTING SINGLE HOLE SIZES



NO.OF HOLES	HOLE SIZES	SHANK DIA.	ORDER NO HSS	ORDER NO HSS TIN	ORDER NO HSSCO5	ORDER NO HSSCO5 TIN
1	1/2"	1/4"	12-001-030	12-001-T30	12-001-C30	12-001-G30
1	7/8"	3/8"	12-001-035	12-001-T35	12-001-C35	12-001-G35
1	3/8"	1/4"	12-001-040	12-001-T40	12-001-C40	12-001-G40
1	1-1/8"	1/2"	12-001-045	12-001-T45	12-001-C45	12-001-G45
1	1-7/32"	1/2"	12-001-050	12-001-T50	12-001-C50	12-001-G50

## HOLE ENLARGING BITS



INCH

NO.OF HOLES	HOLE SIZES & INCREMENTS	SHANK DIA.	STEP THICKNESS	ORDER NO HSS	ORDER NO HSS TIN	ORDER NO HSSCO5	ORDER NO HSSCO5 TIN
8	9/16 -1"	1/2"	1/8"	12-001-055	12-001-T55	12-001-C55	12-001-G55
10	13/16-1-3/8"	1/2"	1/8"	12-001-060	12-001-T60	12-001-C60	12-001-G60

METRIC

NO.OF HOLES	HOLE SIZES & INCREMENTS	SHANK DIA.	STEP THICKNESS	ORDER NO HSS	ORDER NO HSS TIN	ORDER NO HSSCO5	ORDER NO HSSCO5 TIN
6	14-24x2mm	13mm	5mm	11-001-050	11-001-T50	11-001-C50	11-001-G50
8	20-34x2mm	13mm	5mm	11-001-055	11-001-T55	11-001-C55	11-001-G55

## 1/4" HEX SHANK STEP DRILLS



NO.OF HOLES	HOLE SIZES & INCREMENTS	SHANK DIA.	STEP THICKNESS	ORDER NO HSS	ORDER NO HSS TIN	ORDER NO HSSCO5	ORDER NO HSSCO5 TIN
13	1/8-1/2x1/32"	1/4" Q.C.	1/8"	12-001-065	12-001-T65	12-001-C65	12-001-G65
6	3/16-1/2x1/16"	1/4" Q.C.	3/8"	12-001-070	12-001-T70	12-001-C70	12-001-G70
9	1/4-3/4x1/16"	1/4" Q.C.	1/8"	12-001-075	12-001-T75	12-001-C75	12-001-G75
12	3/16-7/8x1/16"	1/4" Q.C.	1/8"	12-001-080	12-001-T80	12-001-C80	12-001-G80
10	1/4-1-3/8x1/8"	1/4" Q.C.	1/8"	12-001-085	12-001-T85	12-001-C85	12-001-G85

## 10PC HSS STEP & DRILL BIT SETS

Ideal for drilling large and small-diameter holes in steel and plastic. Cutting round holes in pipes and other difficult surfaces, and enlarging existing holes. Pilot drill starts on contact for clean, accurate holes and reduces lock-up on breakthrough, tapered web provides greater durability to reduce breaking.

SIZE	SPECIFICATION	ORDER NO HSS
10 PCS/SET	1pcs step drills:4-12x1mm,4-20x2mm 2pcs drills:2.0,3.0,4.0,5.0mm	11-310-S10A
10 PCS/SET	1pcs step drills:1/8-1/2x1/32",3/16-7/8x1/16" 2pcs drills:1/16,3/32,1/8,3/16"	12-310-S10A



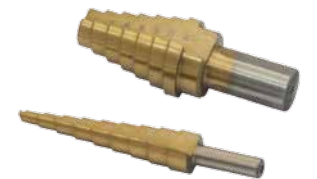
## HSS STEP DRILLS SET

SIZE	SPECIFICATION	ORDER NO HSS	ORDER NO HSS TIN
3 PCS/SET	1/8-1/2",3/16-1/2",1/4-3/4"	12-001-S02	12-001-S01



## 2PC HSS STEP DRILL AND ENLARGING BITS SET

SIZE	SPECIFICATION	ORDER NO HSS	ORDER NO HSS TIN
2 PCS/SET	1/8-1/2" step drill,9/16-1" enlarge bits	12-292-S02	12-292-S01
2 PCS/SET	4-12mm step drill,14-24mm enlarge bits	11-292-S02	11-292-S01



## ROUND SCREW-HOLE PUNCH /GAP SHEET METAL PUNCH

- Including matrix,punch and great power draw bolt
- with three-point cutting tip and The cut pieces easily fall out of the matrix.
- Material:Special tool steel, burnished.
- Ball thrust bearing optional for easier operation using a wrench. Friction between punch and screw is reduced, so less force is required.

Suitable for sheet steel, sheet stainless steel, sheet aluminium, sheet copper etc. Particularly useful where access is difficult (e.g. large sheet metal plates, control cabinets, fuse boxes, junction boxes, dashboards, sink basins, bodywork etc.).  
Idea for switchgear manufacturers,electricians,plumbers,industry or handicraft.



standard      with bearing

### METRIC SIZE:

SIZE(DIA.MM)	STANDARD W/O BEARING	ORDER NO. WITH BEARING	SIZE(DIA.MM)	STANDARD W/O BEARING	ORDER NO. WITH BEARING
12.7	21-033-005	21-033-B005	32	21-033-029	21-033-B029
15.2	21-033-007	21-033-B007	32.5	21-033-071	21-033-B071
16	21-033-009	21-033-B009	33	21-033-073	21-033-B073
16.5	21-033-047	21-033-B047	34	21-033-075	21-033-B075
18.6	21-033-011	21-033-B011	35	21-033-031	21-033-B031
19	21-033-049	21-033-B049	36	21-033-077	21-033-B077
20	21-033-013	21-033-B013	37	21-033-033	21-033-B033
20.4	21-033-015	21-033-B015	38	21-033-035	21-033-B035
21	21-033-051	21-033-B051	40	21-033-037	21-033-B037
22	21-033-017	21-033-B017	40.5	21-033-079	21-033-B079
22.5	21-033-019	21-033-B019	42	21-033-081	21-033-B081
23	21-033-053	21-033-B053	43	21-033-083	21-033-B083
24	21-033-055	21-033-B055	45	21-033-085	21-033-B085
25	21-033-021	21-033-B021	47	21-033-039	21-033-B039
25.4	21-033-057	21-033-B057	50	21-033-087	21-033-B087
26	21-033-059	21-033-B059	50.5	21-033-089	21-033-B089
27	21-033-061	21-033-B061	51	21-033-041	21-033-B041
28	21-033-023	21-033-B023	53	21-033-091	21-033-B091
28.3	21-033-025	21-033-B025	54	21-033-043	21-033-B043
29	21-033-063	21-033-B063	55	21-033-093	21-033-B093
30	21-033-027	21-033-B027	60	21-033-045	21-033-B045
30.5	21-033-065	21-033-B065	61.5	21-033-095	21-033-B095
31	21-033-067	21-033-B067	63.5	21-033-097	21-033-B097
31.7	21-033-069	21-033-B069			

### INCH SIZE

DIAMETRE	STANDARD W/O BEARING	ORDER NO. WITH BEARING	DIAMETRE	STANDARD W/O BEARING	ORDER NO. WITH BEARING
1/2"	22-033-005	22-033-B005	2"	22-033-015	22-033-B015
3/4"	22-033-007	22-033-B007	2-1/8"	22-033-031	22-033-B031
7/8"	22-033-025	22-033-B025	2-3/8"	22-033-033	22-033-B033
1"	22-033-009	22-033-B009	2-1/2"	22-033-017	22-033-B017
1-7/32"	22-033-027	22-033-B027	3"	22-033-019	22-033-B019
1-1/4"	22-033-011	22-033-B011	3-1/2"	22-033-021	22-033-B021
1-3/8"	22-033-029	22-033-B029	4"	22-033-023	22-033-B023
1-1/2"	22-033-013	22-033-B013			



## CORE DRILLS



# 04

METAL CUTTING

## HSS CORE CUTTERS



### WELDON SHANK

CUTTER DIA.MM	CUTTING DEPTH 30MM		CUTTING DEPTH 50MM		CUTTING DEPTH 30MM		CUTTING DEPTH 50MM	
	HSS	HSSCO5	HSS	HSSCO5	HSS-TIN	HSSCO5-TIALN	HSS-TIN	HSSCO5-TIALN
12	11-269-001	11-269-LC001	11-269-090	11-269-LC090	11-269-T001	11-269-N001	11-269-T090	11-269-N090
13	11-269-002	11-269-LC002	11-269-091	11-269-LC091	11-269-T002	11-269-N002	11-269-T091	11-269-N091
14	11-269-003	11-269-LC003	11-269-092	11-269-LC092	11-269-T003	11-269-N003	11-269-T092	11-269-N092
15	11-269-004	11-269-LC004	11-269-093	11-269-LC093	11-269-T004	11-269-N004	11-269-T093	11-269-N093
16	11-269-005	11-269-LC005	11-269-094	11-269-LC094	11-269-T005	11-269-N005	11-269-T094	11-269-N094
17	11-269-006	11-269-LC006	11-269-095	11-269-LC095	11-269-T006	11-269-N006	11-269-T095	11-269-N095
18	11-269-007	11-269-LC007	11-269-096	11-269-LC096	11-269-T007	11-269-N007	11-269-T096	11-269-N096
19	11-269-008	11-269-LC008	11-269-097	11-269-LC097	11-269-T008	11-269-N008	11-269-T097	11-269-N097
20	11-269-009	11-269-LC009	11-269-098	11-269-LC098	11-269-T009	11-269-N009	11-269-T098	11-269-N098
21	11-269-010	11-269-LC010	11-269-099	11-269-LC099	11-269-T010	11-269-N010	11-269-T099	11-269-N099
22	11-269-011	11-269-LC011	11-269-100	11-269-LC100	11-269-T011	11-269-N011	11-269-T100	11-269-N100
23	11-269-012	11-269-LC012	11-269-101	11-269-LC101	11-269-T012	11-269-N012	11-269-T101	11-269-N101
24	11-269-013	11-269-LC013	11-269-102	11-269-LC102	11-269-T013	11-269-N013	11-269-T102	11-269-N102
25	11-269-014	11-269-LC014	11-269-103	11-269-LC103	11-269-T014	11-269-N014	11-269-T103	11-269-N103
26	11-269-015	11-269-LC015	11-269-104	11-269-LC104	11-269-T015	11-269-N015	11-269-T104	11-269-N104
27	11-269-016	11-269-LC016	11-269-105	11-269-LC105	11-269-T016	11-269-N016	11-269-T105	11-269-N105
28	11-269-017	11-269-LC017	11-269-106	11-269-LC106	11-269-T017	11-269-N017	11-269-T106	11-269-N106
29	11-269-018	11-269-LC018	11-269-107	11-269-LC107	11-269-T018	11-269-N018	11-269-T107	11-269-N107
30	11-269-019	11-269-LC019	11-269-108	11-269-LC108	11-269-T019	11-269-N019	11-269-T108	11-269-N108
31	11-269-020	11-269-LC020	11-269-109	11-269-LC109	11-269-T020	11-269-N020	11-269-T109	11-269-N109
32	11-269-021	11-269-LC021	11-269-110	11-269-LC110	11-269-T021	11-269-N021	11-269-T110	11-269-N110
33	11-269-022	11-269-LC022	11-269-111	11-269-LC111	11-269-T022	11-269-N022	11-269-T111	11-269-N111
34	11-269-023	11-269-LC023	11-269-112	11-269-LC112	11-269-T023	11-269-N023	11-269-T112	11-269-N112
35	11-269-024	11-269-LC024	11-269-113	11-269-LC113	11-269-T024	11-269-N024	11-269-T113	11-269-N113
36	11-269-025	11-269-LC025	11-269-114	11-269-LC114	11-269-T025	11-269-N025	11-269-T114	11-269-N114
37	11-269-026	11-269-LC026	11-269-115	11-269-LC115	11-269-T026	11-269-N026	11-269-T115	11-269-N115
38	11-269-027	11-269-LC027	11-269-116	11-269-LC116	11-269-T027	11-269-N027	11-269-T116	11-269-N116
39	11-269-028	11-269-LC028	11-269-117	11-269-LC117	11-269-T028	11-269-N028	11-269-T117	11-269-N117
40	11-269-029	11-269-LC029	11-269-118	11-269-LC118	11-269-T029	11-269-N029	11-269-T118	11-269-N118
42	11-269-031	11-269-LC031	11-269-120	11-269-LC120	11-269-T031	11-269-N031	11-269-T120	11-269-N120
44	11-269-033	11-269-LC033	11-269-122	11-269-LC122	11-269-T033	11-269-N033	11-269-T122	11-269-N122
45	11-269-034	11-269-LC034	11-269-123	11-269-LC123	11-269-T034	11-269-N034	11-269-T123	11-269-N123
46	11-269-035	11-269-LC035	11-269-124	11-269-LC124	11-269-T035	11-269-N035	11-269-T124	11-269-N124
48	11-269-037	11-269-LC037	11-269-126	11-269-LC126	11-269-T037	11-269-N037	11-269-T126	11-269-N126
50	11-269-039	11-269-LC039	11-269-128	11-269-LC128	11-269-T039	11-269-N039	11-269-T128	11-269-N128
55	11-269-044	11-269-LC044	11-269-133	11-269-LC133	11-269-T044	11-269-N044	11-269-T133	11-269-N133
60	11-269-049	11-269-LC049	11-269-138	11-269-LC138	11-269-T049	11-269-N049	11-269-T138	11-269-N138
65	11-269-054	11-269-LC054	11-269-143	11-269-LC143	11-269-T054	11-269-N054	11-269-T143	11-269-N143
70	11-269-059	11-269-LC059	11-269-148	11-269-LC148	11-269-T059	11-269-N059	11-269-T148	11-269-N148
75	11-269-064	11-269-LC064	11-269-153	11-269-LC153	11-269-T064	11-269-N064	11-269-T153	11-269-N153
80	11-269-069	11-269-LC069	11-269-158	11-269-LC158	11-269-T069	11-269-N069	11-269-T158	11-269-N158
85	11-269-074	11-269-LC074	11-269-163	11-269-LC163	11-269-T074	11-269-N074	11-269-T163	11-269-N163
90	11-269-079	11-269-LC079	11-269-168	11-269-LC168	11-269-T079	11-269-N079	11-269-T168	11-269-N168
95	11-269-084	11-269-LC084	11-269-173	11-269-LC173	11-269-T084	11-269-N084	11-269-T173	11-269-N173
100	11-269-089	11-269-LC089	11-269-178	11-269-LC178	11-269-T089	11-269-N089	11-269-T178	11-269-N178

## HSS CORE CUTTERS



### QUICK-IN 18mm SHANK

CUTTER DIA.MM	CUTTING DEPTH 30MM		CUTTING DEPTH 50MM		CUTTING DEPTH 30MM		CUTTING DEPTH 50MM	
	HSS	HSSCO5	HSS	HSSCO5	HSS-TIN	HSSCO5-TIALN	HSS-TIN	HSSCO5-TIALN
12	11-269-Q001	11-269-QL001	11-269-Q090	11-269-QL090	11-269-QT001	11-269-QN001	11-269-QT090	11-269-QN090
13	11-269-Q002	11-269-QL002	11-269-Q091	11-269-QL091	11-269-QT002	11-269-QN002	11-269-QT091	11-269-QN091
14	11-269-Q003	11-269-QL003	11-269-Q092	11-269-QL092	11-269-QT003	11-269-QN003	11-269-QT092	11-269-QN092
15	11-269-Q004	11-269-QL004	11-269-Q093	11-269-QL093	11-269-QT004	11-269-QN004	11-269-QT093	11-269-QN093
16	11-269-Q005	11-269-QL005	11-269-Q094	11-269-QL094	11-269-QT005	11-269-QN005	11-269-QT094	11-269-QN094
17	11-269-Q006	11-269-QL006	11-269-Q095	11-269-QL095	11-269-QT006	11-269-QN006	11-269-QT095	11-269-QN095
18	11-269-Q007	11-269-QL007	11-269-Q096	11-269-QL096	11-269-QT007	11-269-QN007	11-269-QT096	11-269-QN096
19	11-269-Q008	11-269-QL008	11-269-Q097	11-269-QL097	11-269-QT008	11-269-QN008	11-269-QT097	11-269-QN097
20	11-269-Q009	11-269-QL009	11-269-Q098	11-269-QL098	11-269-QT009	11-269-QN009	11-269-QT098	11-269-QN098
21	11-269-Q010	11-269-QL010	11-269-Q099	11-269-QL099	11-269-QT010	11-269-QN010	11-269-QT099	11-269-QN099
22	11-269-Q011	11-269-QL011	11-269-Q100	11-269-QL100	11-269-QT011	11-269-QN011	11-269-QT100	11-269-QN100
23	11-269-Q012	11-269-QL012	11-269-Q101	11-269-QL101	11-269-QT012	11-269-QN012	11-269-QT101	11-269-QN101
24	11-269-Q013	11-269-QL013	11-269-Q102	11-269-QL102	11-269-QT013	11-269-QN013	11-269-QT102	11-269-QN102
25	11-269-Q014	11-269-QL014	11-269-Q103	11-269-QL103	11-269-QT014	11-269-QN014	11-269-QT103	11-269-QN103
26	11-269-Q015	11-269-QL015	11-269-Q104	11-269-QL104	11-269-QT015	11-269-QN015	11-269-QT104	11-269-QN104
27	11-269-Q016	11-269-QL016	11-269-Q105	11-269-QL105	11-269-QT016	11-269-QN016	11-269-QT105	11-269-QN105
28	11-269-Q017	11-269-QL017	11-269-Q106	11-269-QL106	11-269-QT017	11-269-QN017	11-269-QT106	11-269-QN106
29	11-269-Q018	11-269-QL018	11-269-Q107	11-269-QL107	11-269-QT018	11-269-QN018	11-269-QT107	11-269-QN107
30	11-269-Q019	11-269-QL019	11-269-Q108	11-269-QL108	11-269-QT019	11-269-QN019	11-269-QT108	11-269-QN108
31	11-269-Q020	11-269-QL020	11-269-Q109	11-269-QL109	11-269-QT020	11-269-QN020	11-269-QT109	11-269-QN109
32	11-269-Q021	11-269-QL021	11-269-Q110	11-269-QL110	11-269-QT021	11-269-QN021	11-269-QT110	11-269-QN110
33	11-269-Q022	11-269-QL022	11-269-Q111	11-269-QL111	11-269-QT022	11-269-QN022	11-269-QT111	11-269-QN111
34	11-269-Q023	11-269-QL023	11-269-Q112	11-269-QL112	11-269-QT023	11-269-QN023	11-269-QT112	11-269-QN112
35	11-269-Q024	11-269-QL024	11-269-Q113	11-269-QL113	11-269-QT024	11-269-QN024	11-269-QT113	11-269-QN113
36	11-269-Q025	11-269-QL025	11-269-Q114	11-269-QL114	11-269-QT025	11-269-QN025	11-269-QT114	11-269-QN114
37	11-269-Q026	11-269-QL026	11-269-Q115	11-269-QL115	11-269-QT026	11-269-QN026	11-269-QT115	11-269-QN115
38	11-269-Q027	11-269-QL027	11-269-Q116	11-269-QL116	11-269-QT027	11-269-QN027	11-269-QT116	11-269-QN116
39	11-269-Q028	11-269-QL028	11-269-Q117	11-269-QL117	11-269-QT028	11-269-QN028	11-269-QT117	11-269-QN117
40	11-269-Q029	11-269-QL029	11-269-Q118	11-269-QL118	11-269-QT029	11-269-QN029	11-269-QT118	11-269-QN118
42	11-269-Q031	11-269-QL031	11-269-Q120	11-269-QL120	11-269-QT031	11-269-QN031	11-269-QT120	11-269-QN120
44	11-269-Q033	11-269-QL033	11-269-Q122	11-269-QL122	11-269-QT033	11-269-QN033	11-269-QT122	11-269-QN122
45	11-269-Q034	11-269-QL034	11-269-Q123	11-269-QL123	11-269-QT034	11-269-QN034	11-269-QT123	11-269-QN123
46	11-269-Q035	11-269-QL035	11-269-Q124	11-269-QL124	11-269-QT035	11-269-QN035	11-269-QT124	11-269-QN124
48	11-269-Q037	11-269-QL037	11-269-Q126	11-269-QL126	11-269-QT037	11-269-QN037	11-269-QT126	11-269-QN126
50	11-269-Q039	11-269-QL039	11-269-Q128	11-269-QL128	11-269-QT039	11-269-QN039	11-269-QT128	11-269-QN128
55	11-269-Q044	11-269-QL044	11-269-Q133	11-269-QL133	11-269-QT044	11-269-QN044	11-269-QT133	11-269-QN133
60	11-269-Q049	11-269-QL049	11-269-Q138	11-269-QL138	11-269-QT049	11-269-QN049	11-269-QT138	11-269-QN138
65	11-269-Q054	11-269-QL054	11-269-Q143	11-269-QL143	11-269-QT054	11-269-QN054	11-269-QT143	11-269-QN143
70	11-269-Q059	11-269-QL059	11-269-Q148	11-269-QL148	11-269-QT059	11-269-QN059	11-269-QT148	11-269-QN148
75	11-269-Q064	11-269-QL064	11-269-Q153	11-269-QL153	11-269-QT064	11-269-QN064	11-269-QT153	11-269-QN153
80	11-269-Q069</							

**HOLDER WITHOUT LUBRICATION    HOLDER WITH LUBRICATION**



TAPER	OAL	WELDON	ORDER NO.
SIZE	MM	19.05MM	
2MT	160	12-60	11-269-P08
3MT	175	12-60	11-269-P09



TAPER	OAL	WELDON	ORDER NO.
SIZE	MM	19.05MM	
2MT	160	12-60	11-269-P12
3MT	160	12-60	11-269-P13

**EJECTOR PIN**



DIA.	OAL	ORDER NO.
6.34	77	11-269-P01
6.34	103	11-269-P02
7.98	167	11-269-P03
7.98	86	11-269-P04
7.98	100	11-269-P05
7.98	124	11-269-P06
7.98	105	11-269-P07

**ADAPTORS**

FOR WELDON - 18 QUICK IN ORDER NO.11-269-P14    FOR 18 QUICK IN - WELDON ORDER NO.11-269-P15



**7PC HSS ANNULAR CUTTERS SET**

**METRIC** Include 1 pcs of 14,16,18,20,22,24mm hole cutter With 25mm cutting depth and 1 pcs of pilot pin Packed in metal case

ORDER NO.11-291-001

**INCH** Include 1 pcs of 9/16,11/16,13/16,15/16,1,1-1/16" hole cutter with 1" cutting depth and 1 pcs of pilot pin packed in metal case

ORDER NO.12-291-001



**METRIC** Include 1 pcs of 14,16,18,20,22,24mm hole cutter With 50mm cutting depth and 1 pcs of pilot pin Packed in plastic case

ORDER NO.11-291-002



**CARBIDE TIPPED CORE CUTTERS**



WELDON SHANK



QUICK-IN 18MM SHANK

CUTTER DIA.MM	CUTTING DEPTH				CUTTING DEPTH			
	35MM	50MM	75MM	100MM	35MM	50MM	75MM	100MM
12	11-269-H001	11-269-H090	11-269-H179	11-269-H268	11-269-QH001	11-269-QH090	11-269-QH179	11-269-QH268
13	11-269-H002	11-269-H091	11-269-H180	11-269-H269	11-269-QH002	11-269-QH091	11-269-QH180	11-269-QH269
14	11-269-H003	11-269-H092	11-269-H181	11-269-H270	11-269-QH003	11-269-QH092	11-269-QH181	11-269-QH270
15	11-269-H004	11-269-H093	11-269-H182	11-269-H271	11-269-QH004	11-269-QH093	11-269-QH182	11-269-QH271
16	11-269-H005	11-269-H094	11-269-H183	11-269-H272	11-269-QH005	11-269-QH094	11-269-QH183	11-269-QH272
17	11-269-H006	11-269-H095	11-269-H184	11-269-H273	11-269-QH006	11-269-QH095	11-269-QH184	11-269-QH273
18	11-269-H007	11-269-H096	11-269-H185	11-269-H274	11-269-QH007	11-269-QH096	11-269-QH185	11-269-QH274
19	11-269-H008	11-269-H097	11-269-H186	11-269-H275	11-269-QH008	11-269-QH097	11-269-QH186	11-269-QH275
20	11-269-H009	11-269-H098	11-269-H187	11-269-H276	11-269-QH009	11-269-QH098	11-269-QH187	11-269-QH276
21	11-269-H010	11-269-H099	11-269-H188	11-269-H277	11-269-QH010	11-269-QH099	11-269-QH188	11-269-QH277
22	11-269-H011	11-269-H100	11-269-H189	11-269-H278	11-269-QH011	11-269-QH100	11-269-QH189	11-269-QH278
23	11-269-H012	11-269-H101	11-269-H190	11-269-H279	11-269-QH012	11-269-QH101	11-269-QH190	11-269-QH279
24	11-269-H013	11-269-H102	11-269-H191	11-269-H280	11-269-QH013	11-269-QH102	11-269-QH191	11-269-QH280
25	11-269-H014	11-269-H103	11-269-H192	11-269-H281	11-269-QH014	11-269-QH103	11-269-QH192	11-269-QH281
26	11-269-H015	11-269-H104	11-269-H193	11-269-H282	11-269-QH015	11-269-QH104	11-269-QH193	11-269-QH282
27	11-269-H016	11-269-H105	11-269-H194	11-269-H283	11-269-QH016	11-269-QH105	11-269-QH194	11-269-QH283
28	11-269-H017	11-269-H106	11-269-H195	11-269-H284	11-269-QH017	11-269-QH106	11-269-QH195	11-269-QH284
29	11-269-H018	11-269-H107	11-269-H196	11-269-H285	11-269-QH018	11-269-QH107	11-269-QH196	11-269-QH285
30	11-269-H019	11-269-H108	11-269-H197	11-269-H286	11-269-QH019	11-269-QH108	11-269-QH197	11-269-QH286
31	11-269-H020	11-269-H109	11-269-H198	11-269-H287	11-269-QH020	11-269-QH109	11-269-QH198	11-269-QH287
32	11-269-H021	11-269-H110	11-269-H199	11-269-H288	11-269-QH021	11-269-QH110	11-269-QH199	11-269-QH288
33	11-269-H022	11-269-H111	11-269-H200	11-269-H289	11-269-QH022	11-269-QH111	11-269-QH200	11-269-QH289
34	11-269-H023	11-269-H112	11-269-H201	11-269-H290	11-269-QH023	11-269-QH112	11-269-QH201	11-269-QH290
35	11-269-H024	11-269-H113	11-269-H202	11-269-H291	11-269-QH024	11-269-QH113	11-269-QH202	11-269-QH291
36	11-269-H025	11-269-H114	11-269-H203	11-269-H292	11-269-QH025	11-269-QH114	11-269-QH203	11-269-QH292
37	11-269-H026	11-269-H115	11-269-H204	11-269-H293	11-269-QH026	11-269-QH115	11-269-QH204	11-269-QH293
38	11-269-H027	11-269-H116	11-269-H205	11-269-H294	11-269-QH027	11-269-QH116	11-269-QH205	11-269-QH294
39	11-269-H028	11-269-H117	11-269-H206	11-269-H295	11-269-QH028	11-269-QH117	11-269-QH206	11-269-QH295
40	11-269-H029	11-269-H118	11-269-H207	11-269-H296	11-269-QH029	11-269-QH118	11-269-QH207	11-269-QH296
42	11-269-H031	11-269-H120	11-269-H209	11-269-H298	11-269-QH031	11-269-QH120	11-269-QH209	11-269-QH298
44	11-269-H033	11-269-H122	11-269-H211	11-269-H300	11-269-QH033	11-269-QH122	11-269-QH211	11-269-QH300
45	11-269-H034	11-269-H123	11-269-H212	11-269-H301	11-269-QH034	11-269-QH123	11-269-QH212	11-269-QH301
46	11-269-H035	11-269-H124	11-269-H213	11-269-H302	11-269-QH035	11-269-QH124	11-269-QH213	11-269-QH302
48	11-269-H037	11-269-H126	11-269-H215	11-269-H304	11-269-QH037	11-269-QH126	11-269-QH215	11-269-QH304
50	11-269-H039	11-269-H128	11-269-H217	11-269-H306	11-269-QH039	11-269-QH128	11-269-QH217	11-269-QH306
55	11-269-H044	11-269-H133	11-269-H222	11-269-H311	11-269-QH044	11-269-QH133	11-269-QH222	11-269-QH311
60	11-269-H049	11-269-H138	11-269-H227	11-269-H316	11-269-QH049	11-269-QH138	11-269-QH227	11-269-QH316
65	11-269-H054	11-269-H143	11-269-H232	11-269-H321	11-269-QH054	11-269-QH143	11-269-QH232	11-269-QH321
70	11-269-H059	11-269-H148	11-269-H237	11-269-H326	11-269-QH059	11-269-QH148	11-269-QH237	11-269-QH326
75	11-269-H064	11-269-H153	11-269-H242	11-269-H331	11-269-QH064	11-269-QH153	11-269-QH242	11-269-QH331
80	11-269-H069	11-269-H158	11-269-H247	11-269-H336	11-269-QH069	11-269-QH158	11-269-QH247	11-269-QH336
85	11-269-H074	11-269-H163	11-269-H252	11-269-H341	11-269-QH074	11-269-QH163	11-269-QH252	11-269-QH341
90	11-269-H079	11-269-H168	11-269-H257	11-269-H346	11-269-QH079	11-269-QH168	11-269-QH257	11-269-QH346
95	11-269-H084	11-269-H173	11-269-H262	11-269-H351	11-269-QH084	11-269-QH173	11-269-QH262	11-269-QH351
100	11-269-H089	11-269-H178	11-269-H267	11-269-H356	11-269-QH089	11-269-QH178	11-269-QH267	11-269-QH356

## ANNULAR CUTTERS



WELDON SHANK

CUTTER DIA. IN	CUTTING DEPTH 1"		CUTTING DEPTH 2"		CUTTING DEPTH 3"		CUTTING DEPTH 4"	
	HSS	TCT	HSS	TCT	HSS	TCT	HSS	TCT
1/2	12-269-001	12-269-H001	12-269-043	12-269-H043	12-269-085	12-269-H085	12-269-127	12-269-H127
9/16	12-269-002	12-269-H002	12-269-044	12-269-H044	12-269-086	12-269-H086	12-269-128	12-269-H128
5/8	12-269-003	12-269-H003	12-269-045	12-269-H045	12-269-087	12-269-H087	12-269-129	12-269-H129
11/16	12-269-004	12-269-H004	12-269-046	12-269-H046	12-269-088	12-269-H088	12-269-130	12-269-H130
3/4	12-269-005	12-269-H005	12-269-047	12-269-H047	12-269-089	12-269-H089	12-269-131	12-269-H131
13/16	12-269-006	12-269-H006	12-269-048	12-269-H048	12-269-090	12-269-H090	12-269-132	12-269-H132
7/8	12-269-007	12-269-H007	12-269-049	12-269-H049	12-269-091	12-269-H091	12-269-133	12-269-H133
15/16	12-269-008	12-269-H008	12-269-050	12-269-H050	12-269-092	12-269-H092	12-269-134	12-269-H134
1	12-269-009	12-269-H009	12-269-051	12-269-H051	12-269-093	12-269-H093	12-269-135	12-269-H135
1-1/16	12-269-010	12-269-H010	12-269-052	12-269-H052	12-269-094	12-269-H094	12-269-136	12-269-H136
1-1/8	12-269-011	12-269-H011	12-269-053	12-269-H053	12-269-095	12-269-H095	12-269-137	12-269-H137
1-3/16	12-269-012	12-269-H012	12-269-054	12-269-H054	12-269-096	12-269-H096	12-269-138	12-269-H138
1-1/4	12-269-013	12-269-H013	12-269-055	12-269-H055	12-269-097	12-269-H097	12-269-139	12-269-H139
1-5/16	12-269-014	12-269-H014	12-269-056	12-269-H056	12-269-098	12-269-H098	12-269-140	12-269-H140
1-3/8	12-269-015	12-269-H015	12-269-057	12-269-H057	12-269-099	12-269-H099	12-269-141	12-269-H141
1-7/16	12-269-016	12-269-H016	12-269-058	12-269-H058	12-269-100	12-269-H100	12-269-142	12-269-H142
1-1/2	12-269-017	12-269-H017	12-269-059	12-269-H059	12-269-101	12-269-H101	12-269-143	12-269-H143
1-9/16	12-269-018	12-269-H018	12-269-060	12-269-H060	12-269-102	12-269-H102	12-269-144	12-269-H144
1-5/8	12-269-019	12-269-H019	12-269-061	12-269-H061	12-269-103	12-269-H103	12-269-145	12-269-H145
1-11/16	12-269-020	12-269-H020	12-269-062	12-269-H062	12-269-104	12-269-H104	12-269-146	12-269-H146
1-3/4	12-269-021	12-269-H021	12-269-063	12-269-H063	12-269-105	12-269-H105	12-269-147	12-269-H147
1-13/16	12-269-022	12-269-H022	12-269-064	12-269-H064	12-269-106	12-269-H106	12-269-148	12-269-H148
1-7/8	12-269-023	12-269-H023	12-269-065	12-269-H065	12-269-107	12-269-H107	12-269-149	12-269-H149
1-15/16	12-269-024	12-269-H024	12-269-066	12-269-H066	12-269-108	12-269-H108	12-269-150	12-269-H150
2	12-269-025	12-269-H025	12-269-067	12-269-H067	12-269-109	12-269-H109	12-269-151	12-269-H151
2-1/16	12-269-026	12-269-H026	12-269-068	12-269-H068	12-269-110	12-269-H110	12-269-152	12-269-H152
2-1/8	12-269-027	12-269-H027	12-269-069	12-269-H069	12-269-111	12-269-H111	12-269-153	12-269-H153
2-3/16	12-269-028	12-269-H028	12-269-070	12-269-H070	12-269-112	12-269-H112	12-269-154	12-269-H154
2-1/4	12-269-029	12-269-H029	12-269-071	12-269-H071	12-269-113	12-269-H113	12-269-155	12-269-H155
2-5/16	12-269-030	12-269-H030	12-269-072	12-269-H072	12-269-114	12-269-H114	12-269-156	12-269-H156
2-3/8	12-269-031	12-269-H031	12-269-073	12-269-H073	12-269-115	12-269-H115	12-269-157	12-269-H157
2-7/16	12-269-032	12-269-H032	12-269-074	12-269-H074	12-269-116	12-269-H116	12-269-158	12-269-H158
2-1/2	12-269-033	12-269-H033	12-269-075	12-269-H075	12-269-117	12-269-H117	12-269-159	12-269-H159
2-9/16	12-269-034	12-269-H034	12-269-076	12-269-H076	12-269-118	12-269-H118	12-269-160	12-269-H160
2-5/8	12-269-035	12-269-H035	12-269-077	12-269-H077	12-269-119	12-269-H119	12-269-161	12-269-H161
2-11/16	12-269-036	12-269-H036	12-269-078	12-269-H078	12-269-120	12-269-H120	12-269-162	12-269-H162
2-3/4	12-269-037	12-269-H037	12-269-079	12-269-H079	12-269-121	12-269-H121	12-269-163	12-269-H163
2-13/16	12-269-038	12-269-H038	12-269-080	12-269-H080	12-269-122	12-269-H122	12-269-164	12-269-H164
2-7/8	12-269-039	12-269-H039	12-269-081	12-269-H081	12-269-123	12-269-H123	12-269-165	12-269-H165
2-15/16	12-269-040	12-269-H040	12-269-082	12-269-H082	12-269-124	12-269-H124	12-269-166	12-269-H166
3	12-269-041	12-269-H041	12-269-083	12-269-H083	12-269-125	12-269-H125	12-269-167	12-269-H167
3-1/16	12-269-042	12-269-H042	12-269-084	12-269-H084	12-269-126	12-269-H126	12-269-168	12-269-H168

## CARBIDE TIPPED CORE CUTTERS SET

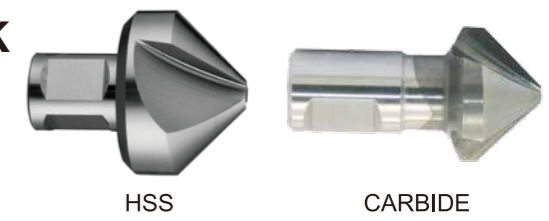
7 PCS/SET Include 1 pcs of 14,16,18,20,22,24mm hole cutter with 35mm cutting depth and 2 pcs of pilot pin pilot pin: 6.34X90mm, 7.98X90mm packed in plastic case



ORDER NO. 11-291-003

## 90° COUNTERSINKS WELDON SHANK

Suitable for all types of magnetic drills with 3/4" shank  
3 cutting edges, smooth chamfering & high surface finish



SIZE MM	WELDON SHANK	HSS		CARBIDE			
		SIZE IN	WELDON SHANK	SIZE IN	WELDON SHANK		
25	19.05	11-269A-001	11-269A-H001	1-1/4", 90°	3/4"	12-269A-001	12-269A-H001
30	19.05	11-269A-002	11-269A-H002	1-1/2", 90°	3/4"	12-269A-002	12-269A-H002
40	19.05	11-269A-003	11-269A-H003	2", 90°	3/4"	12-269A-003	12-269A-H003
50	19.05	11-269A-004	11-269A-H004	1-1/2", 82°	3/4"	12-269A-004	12-269A-H004
55	19.05	11-269A-005	11-269A-H005	2", 82°	3/4"	12-269A-005	12-269A-H005

## T.C.T 90° COUNTERSINK WITH PILOT HOLE/WELDON SHANK



ORDER NO. 11-269B-001

## INTERCHANGEABLE PILOT FOR T.C.T 90° COUNTERSINK



SIZE (DIA.)	ORDER NO.	SIZE (DIA.)	ORDER NO.	SIZE (DIA.)	ORDER NO.	SIZE (DIA.)	ORDER NO.
14MM	11-269C-005	17MM	11-269C-020	20MM	11-269C-035	23MM	11-269C-050
15mm	11-269C-010	18mm	11-269C-025	21mm	11-269C-040	24mm	11-269C-055
16mm	11-269C-015	19mm	11-269C-030	22mm	11-269C-045	25mm	11-269C-060

## INCH SIZE HSS HOLE SAW



INCH SIZES				INCH SIZES			
SIZE MM	HSS	HSS-TIN	HSSCO5	SIZE MM	HSS	HSS-TIN	HSSCO5
1/2"	12-268-001	12-268-T001	12-268-C001	1-7/8"	12-268-012	12-268-T012	12-268-C012
5/8"	12-268-002	12-268-T002	12-268-C002	2"	12-268-013	12-268-T013	12-268-C013
3/4"	12-268-003	12-268-T003	12-268-C003	2-1/8"	12-268-014	12-268-T014	12-268-C014
7/8"	12-268-004	12-268-T004	12-268-C004	2-1/4"	12-268-015	12-268-T015	12-268-C015
1"	12-268-005	12-268-T005	12-268-C005	2-1/2"	12-268-016	12-268-T016	12-268-C016
1-1/8"	12-268-006	12-268-T006	12-268-C006	2-3/4"	12-268-017	12-268-T017	12-268-C017
1-1/4"	12-268-007	12-268-T007	12-268-C007	3"	12-268-018	12-268-T018	12-268-C018
1-3/8"	12-268-008	12-268-T008	12-268-C008	3-1/4"	12-268-019	12-268-T019	12-268-C019
1-1/2"	12-268-009	12-268-T009	12-268-C009	3-1/2"	12-268-020	12-268-T020	12-268-C020
1-5/8"	12-268-010	12-268-T010	12-268-C010	3-3/4"	12-268-021	12-268-T021	12-268-C021
1-3/4"	12-268-011	12-268-T011	12-268-C011	4"	12-268-022	12-268-T022	12-268-C022



### HSS FULLY GROUND HOLE SAW



SIZE MM	HSS	HSS-TIN	HSSCO5	SIZE MM	HSS	HSS-TIN	HSSCO5
12	11-268A-001	11-268A-T001	11-268A-C001	41	11-268A-A030	11-268A-T030	11-268A-C030
13	11-268A-002	11-268A-T002	11-268A-C002	42	11-268A-A031	11-268A-T031	11-268A-C031
14	11-268A-003	11-268A-T003	11-268A-C003	43	11-268A-A032	11-268A-T032	11-268A-C032
15	11-268A-004	11-268A-T004	11-268A-C004	44	11-268A-A033	11-268A-T033	11-268A-C033
16	11-268A-005	11-268A-T005	11-268A-C005	45	11-268A-A034	11-268A-T034	11-268A-C034
17	11-268A-006	11-268A-T006	11-268A-C006	46	11-268A-A035	11-268A-T035	11-268A-C035
18	11-268A-007	11-268A-T007	11-268A-C007	47	11-268A-A036	11-268A-T036	11-268A-C036
19	11-268A-008	11-268A-T008	11-268A-C008	48	11-268A-A037	11-268A-T037	11-268A-C037
20	11-268A-009	11-268A-T009	11-268A-C009	49	11-268A-A038	11-268A-T038	11-268A-C038
21	11-268A-010	11-268A-T010	11-268A-C010	50	11-268A-A039	11-268A-T039	11-268A-C039
22	11-268A-011	11-268A-T011	11-268A-C011	51	11-268A-A040	11-268A-T040	11-268A-C040
23	11-268A-012	11-268A-T012	11-268A-C012	52	11-268A-A041	11-268A-T041	11-268A-C041
24	11-268A-013	11-268A-T013	11-268A-C013	53	11-268A-A042	11-268A-T042	11-268A-C042
25	11-268A-014	11-268A-T014	11-268A-C014	54	11-268A-A043	11-268A-T043	11-268A-C043
26	11-268A-015	11-268A-T015	11-268A-C015	55	11-268A-A044	11-268A-T044	11-268A-C044
27	11-268A-016	11-268A-T016	11-268A-C016	56	11-268A-A045	11-268A-T045	11-268A-C045
28	11-268A-017	11-268A-T017	11-268A-C017	57	11-268A-A046	11-268A-T046	11-268A-C046
29	11-268A-018	11-268A-T018	11-268A-C018	58	11-268A-A047	11-268A-T047	11-268A-C047
30	11-268A-019	11-268A-T019	11-268A-C019	59	11-268A-A048	11-268A-T048	11-268A-C048
31	11-268A-020	11-268A-T020	11-268A-C020	60	11-268A-A049	11-268A-T049	11-268A-C049
32	11-268A-021	11-268A-T021	11-268A-C021	65	11-268A-A050	11-268A-T050	11-268A-C050
33	11-268A-022	11-268A-T022	11-268A-C022	70	11-268A-A051	11-268A-T051	11-268A-C051
34	11-268A-023	11-268A-T023	11-268A-C023	75	11-268A-A052	11-268A-T052	11-268A-C052
35	11-268A-024	11-268A-T024	11-268A-C024	80	11-268A-A053	11-268A-T053	11-268A-C053
36	11-268A-025	11-268A-T025	11-268A-C025	85	11-268A-A054	11-268A-T054	11-268A-C054
37	11-268A-026	11-268A-T026	11-268A-C026	90	11-268A-A055	11-268A-T055	11-268A-C055
38	11-268A-027	11-268A-T027	11-268A-C027	95	11-268A-A056	11-268A-T056	11-268A-C056
39	11-268A-028	11-268A-T028	11-268A-C028	100	11-268A-A057	11-268A-T057	11-268A-C057
40	11-268A-029	11-268A-T029	11-268A-C029				

### TUNGSTEN CARBIDE TIPPED HOLE SAW



SHANK DIA:10mm FOR  $\phi$  14-69mm, SHANK DIA:13mm FOR  $\phi$  69-100mm

SIZE MM	CUTTING DEPTH			SIZE MM	CUTTING DEPTH		
	5MM	25MM	50MM		5MM	25MM	50MM
15	21-060-001	21-060A-001	21-060B-001	46	21-060-032	21-060A-032	21-060B-032
16	21-060-002	21-060A-002	21-060B-002	47	21-060-033	21-060A-033	21-060B-033
17	21-060-003	21-060A-003	21-060B-003	48	21-060-034	21-060A-034	21-060B-034
18	21-060-004	21-060A-004	21-060B-004	49	21-060-035	21-060A-035	21-060B-035
19	21-060-005	21-060A-005	21-060B-005	50	21-060-036	21-060A-036	21-060B-036
20	21-060-006	21-060A-006	21-060B-006	51	21-060-037	21-060A-037	21-060B-037
21	21-060-007	21-060A-007	21-060B-007	52	21-060-038	21-060A-038	21-060B-038
22	21-060-008	21-060A-008	21-060B-008	53	21-060-039	21-060A-039	21-060B-039
23	21-060-009	21-060A-009	21-060B-009	54	21-060-040	21-060A-040	21-060B-040
24	21-060-010	21-060A-010	21-060B-010	55	21-060-041	21-060A-041	21-060B-041
25	21-060-011	21-060A-011	21-060B-011	56	21-060-042	21-060A-042	21-060B-042
26	21-060-012	21-060A-012	21-060B-012	57	21-060-043	21-060A-043	21-060B-043
27	21-060-013	21-060A-013	21-060B-013	58	21-060-044	21-060A-044	21-060B-044
28	21-060-014	21-060A-014	21-060B-014	59	21-060-045	21-060A-045	21-060B-045
29	21-060-015	21-060A-015	21-060B-015	60	21-060-046	21-060A-046	21-060B-046
30	21-060-016	21-060A-016	21-060B-016	61	21-060-047	21-060A-047	21-060B-047
31	21-060-017	21-060A-017	21-060B-017	62	21-060-048	21-060A-048	21-060B-048
32	21-060-018	21-060A-018	21-060B-018	63	21-060-049	21-060A-049	21-060B-049
33	21-060-019	21-060A-019	21-060B-019	64	21-060-050	21-060A-050	21-060B-050
34	21-060-020	21-060A-020	21-060B-020	65	21-060-051	21-060A-051	21-060B-051
35	21-060-021	21-060A-021	21-060B-021	66	21-060-052	21-060A-052	21-060B-052
36	21-060-022	21-060A-022	21-060B-022	67	21-060-053	21-060A-053	21-060B-053
37	21-060-023	21-060A-023	21-060B-023	68	21-060-054	21-060A-054	21-060B-054
38	21-060-024	21-060A-024	21-060B-024	69	21-060-055	21-060A-055	21-060B-055
39	21-060-025	21-060A-025	21-060B-025	70	21-060-056	21-060A-056	21-060B-056
40	21-060-026	21-060A-026	21-060B-026	75	21-060-057	21-060A-057	21-060B-057
41	21-060-027	21-060A-027	21-060B-027	80	21-060-058	21-060A-058	21-060B-058
42	21-060-028	21-060A-028	21-060B-028	85	21-060-059	21-060A-059	21-060B-059
43	21-060-029	21-060A-029	21-060B-029	90	21-060-060	21-060A-060	21-060B-060
44	21-060-030	21-060A-030	21-060B-030	95	21-060-061	21-060A-061	21-060B-061
45	21-060-031	21-060A-031	21-060B-031	100	21-060-062	21-060A-062	21-060B-062



ARBOR					EXTENSION					HSS PILOT DRILL			
FIT HOLE CUTTERS	OAL	SHANK DIA.	SCREW SIZE	ORDER NO.	FIT HOLE CUTTERS	OAL	SHANK DIA.	SCREW SIZE	ORDER NO.	FIT HOLE CUTTERS	DIAMETER	OAL	ORDER NO.
12-14mm	56	8	M10x1.25	11-268A-A01	15-34mm	400	13	M12x1.25	11-268A-A06	12-100mm	6	50	11-268A-A05
15-34mm	56	10	M12x1.25	11-268A-A02	35-50mm	400	13	M14x1.5	11-268A-A07				
35-50mm	56	10	M14x1.5	11-268A-A03	51-100mm	400	13	M16x1.5	11-268A-A08				
51-100mm	60	12	M16x1.5	11-268A-A04									

### HSS HOLE SAW SET

SIZE	SPECIFICATION	HSS
8 PCS/SET	16,20,22,25,28,30,32,35mm	11-268-S01
8 PCS/SET	18,20,22,25,30,32,35,40mm	11-268-S02
5 PCS/SET	18,20,22,25,30mm	11-268-S03
8 PCS/SET	5/8,3/4,7/8,1,1-1/8,1-1/4,1-3/8,1-1/2"	12-268-S01
4 PCS/SET	1/2,5/8,3/4,1" WITH 1/2" SHANK AND 1/4" PILOT DRILL	12-268-S02



## TUNGSTEN CARBIDE TIPPED HOLE SAW



SHANK DIA:10mm FOR  $\phi$  14-69mm, SHANK DIA:13mm FOR  $\phi$  69-100mm

SIZE IN	CUTTING DEPTH			SIZE MM	CUTTING DEPTH		
	3/16"	1"	2"		3/16"	1"	2"
5/8"	21A-060-001	21A-060A-001	21A-060B-001	2-1/16"	21A-060-024	21A-060A-024	21A-060B-024
11/16"	21A-060-002	21A-060A-002	21A-060B-002	2-1/8"	21A-060-025	21A-060A-025	21A-060B-025
3/4"	21A-060-003	21A-060A-003	21A-060B-003	2-3/16"	21A-060-026	21A-060A-026	21A-060B-026
13/16"	21A-060-004	21A-060A-004	21A-060B-004	2-1/4"	21A-060-027	21A-060A-027	21A-060B-027
7/8"	21A-060-005	21A-060A-005	21A-060B-005	2-5/16"	21A-060-028	21A-060A-028	21A-060B-028
15/16"	21A-060-006	21A-060A-006	21A-060B-006	2-3/8"	21A-060-029	21A-060A-029	21A-060B-029
1"	21A-060-007	21A-060A-007	21A-060B-007	2-7/16"	21A-060-030	21A-060A-030	21A-060B-030
1-1/16"	21A-060-008	21A-060A-008	21A-060B-008	2-1/2"	21A-060-031	21A-060A-031	21A-060B-031
1-1/8"	21A-060-009	21A-060A-009	21A-060B-009	2-9/16"	21A-060-032	21A-060A-032	21A-060B-032
1-3/16"	21A-060-010	21A-060A-010	21A-060B-010	2-5/8"	21A-060-033	21A-060A-033	21A-060B-033
1-1/4"	21A-060-011	21A-060A-011	21A-060B-011	2-3/4"	21A-060-034	21A-060A-034	21A-060B-034
1-5/16"	21A-060-012	21A-060A-012	21A-060B-012	2-7/8"	21A-060-035	21A-060A-035	21A-060B-035
1-3/8"	21A-060-013	21A-060A-013	21A-060B-013	3"	21A-060-036	21A-060A-036	21A-060B-036
1-7/16"	21A-060-014	21A-060A-014	21A-060B-014	3-1/8"	21A-060-037	21A-060A-037	21A-060B-037
1-1/2"	21A-060-015	21A-060A-015	21A-060B-015	3-1/4"	21A-060-038	21A-060A-038	21A-060B-038
1-9/16"	21A-060-016	21A-060A-016	21A-060B-016	3-1/2"	21A-060-039	21A-060A-039	21A-060B-039
1-5/8"	21A-060-017	21A-060A-017	21A-060B-017	3-3/4"	21A-060-040	21A-060A-040	21A-060B-040
1-11/16"	21A-060-018	21A-060A-018	21A-060B-018	3-7/8"	21A-060-041	21A-060A-041	21A-060B-041
1-3/4"	21A-060-019	21A-060A-019	21A-060B-019	4"	21A-060-042	21A-060A-042	21A-060B-042
1-13/16"	21A-060-020	21A-060A-020	21A-060B-020	4-1/8"	21A-060-043	21A-060A-043	21A-060B-043
1-7/8"	21A-060-021	21A-060A-021	21A-060B-021	4-1/4"	21A-060-044	21A-060A-044	21A-060B-044
1-15/16"	21A-060-022	21A-060A-022	21A-060B-022	4-1/2"	21A-060-045	21A-060A-045	21A-060B-045
2"	21A-060-023	21A-060A-023	21A-060B-023				



## ROTARY BURRS

## INDUSTRIAL CARBIDE TIPPED HOLE SAW KIT



Applicable to hole cutting on stainless steel, carbon steel, iron, copper, brass, aluminum, fiberglass and plastic sheet.  
 Extends tool life with reduced friction, torque and heat.  
 Split pilot drill penetrates quickly.  
 Precision carbide teeth for fast cutting of round burr-free holes.  
 Optimized carbide tip reduces friction and torque & generates less heat while cutting.  
 Flange stop prevents over-drilling.

### INCH SIZE SET:

**ORDER NO.22-060-S07**  
 3PCS HOLE SIZE:7/8",1-1/8",1-3/8"  
 2PCS PILOT DRILL SIZE:1/4"  
 1PCS HEX KEY:3mm

**ORDER NO.22-060-S08**  
 6PCS HOLE SIZE:7/8",1-1/8",1-3/8",1-3/4",2",2-1/2"  
 2PCS PILOT DRILL SIZE:1/4" & 5/16"  
 2PCS HEX KEY:3mm & 4mm

### METRIC SIZE SET:

**ORDER NO.21-060-S07**  
 3PCS HOLE SIZE:22mm,29mm,35mm  
 2PCS PILOT DRILL SIZE:6mm  
 1PCS HEX KEY:3mm



# 05

METAL CUTTING

## METRIC SIZE CARBIDE ROTARY BURR

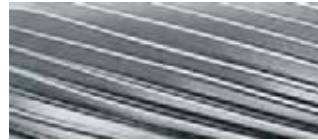
Shape according to DIN8033.

Made of quality carbide K20 with high wear resistance.

Precision and strong edge manufactured by latest CNC machine.

Suitable for deburring, edge breaking, cleaning, surface preparation while welding.

Cut Style :



### Standard Cut type HT5 - fine teeth

General purpose use for cast iron, steel, some copper, brass and some other ferrous material.

Gives good material removal and good workpiece finishes.  
High efficiency cutting.



### Double Cut type HT7- diamond medium teeth

Allows for rapid stock removal in harden materials.

The addition of the left hand flutes reduces the pulling action, improves control and reduces the size of chips.

Can be used at lower speed and get extra fine finishing.  
Used for alloy steel, stainless steel, metals.



### Fast Cut type HT9 - very coarse teeth

For deburring softer stringy material non-ferrous metals & non-metal materials.

The wide clearance and end mill type geometry of the flutes promotes fast stock removal with minimum loading.



### CYLINDRICAL SHAPE WITHOUT TOP TEETH A

MODEL	HEAD DIA.	HEAD LENGTH	TOTAL LENGTH	SHANK DIA.	DOUBLE CUT HT7	HT7 WITH TIALN COATING	STANDARD CUT T5	FAST CUT HT9
A0210	2	10	40	3	21-067-D005	21-067-B005	21-067-E005	/
A0313	3	13	40	3	21-067-D010	21-067-B010	21-067-E010	/
A0613	6	13	43	3	21-067-D015	21-067-B015	21-067-E015	/
A0616	6	16	50	6	21-067-D020	21-067-B020	21-067-E020	21-067-F020
A0820	8	20	60	6	21-067-D025	21-067-B025	21-067-E025	21-067-F025
A1020	10	20	60	6	21-067-D030	21-067-B030	21-067-E030	21-067-F030
A1225	12	25	65	6	21-067-D035	21-067-B035	21-067-E035	21-067-F035
A1625	16	25	65	6	21-067-D040	21-067-B040	21-067-E040	21-067-F040



### CYLINDRICAL SHAPE WITH TOP TEETH AS

MODEL	HEAD DIA.	HEAD LENGTH	TOTAL LENGTH	SHANK DIA.	DOUBLE CUT HT7	HT7 WITH TIALN COATING	STANDARD CUT T5	FAST CUT HT9
AS0210	2	10	40	3	21-067-D030	21-067-B030	21-067-E030	/
AS0313	3	13	43	3	21-067-D035	21-067-B035	21-067-E035	/
AS0613	6	13	43	3	21-067-D040	21-067-B040	21-067-E040	/
AS0616	6	16	50	6	21-067-D045	21-067-B045	21-067-E045	21-067-F045
AS0820	8	20	60	6	21-067-D050	21-067-B050	21-067-E050	21-067-F050
AS1020	10	20	60	6	21-067-D055	21-067-B055	21-067-E055	21-067-F055
AS1225	12	25	60	6	21-067-D060	21-067-B060	21-067-E060	21-067-F060
AS1625	16	25	65	6	21-067-D065	21-067-B065	21-067-E065	21-067-F065



### CYLINDRICAL BALL NOSE C

MODEL	HEAD DIA.	HEAD LENGTH	TOTAL LENGTH	SHANK DIA.	DOUBLE CUT HT7	HT7 WITH TIALN COATING	STANDARD CUT T5	FAST CUT HT9
C0210	2	10	40	3	21-067-D070	21-067-B070	21-067-E070	/
C0313	3	13	40	3	21-067-D075	21-067-B075	21-067-E075	/
C0613	6	13	43	3	21-067-D080	21-067-B080	21-067-E080	/
C0616	6	16	50	6	21-067-D085	21-067-B085	21-067-E085	21-067-F085
C0820	8	20	60	6	21-067-D090	21-067-B090	21-067-E090	21-067-F090
C1020	10	20	60	6	21-067-D095	21-067-B095	21-067-E095	21-067-F095
C1225	12	25	65	6	21-067-D100	21-067-B100	21-067-E100	21-067-F100
C1625	16	25	65	6	21-067-D105	21-067-B105	21-067-E105	21-067-F105



### BALL SHAPE D

MODEL	HEAD DIA.	HEAD LENGTH	TOTAL LENGTH	SHANK DIA.	DOUBLE CUT HT7	HT7 WITH TIALN COATING	STANDARD CUT T5	FAST CUT HT9
D0302	3	2	40	3	21-067-D110	21-067-B110	21-067-E110	/
D0403	4	3	34	3	21-067-D115	21-067-B115	21-067-E115	/
D0605	6	5	35	3	21-067-D120	21-067-B120	21-067-E120	/
D0605	6	5	50	6	21-067-D125	21-067-B125	21-067-E125	21-067-F125
D0807	8	7	47	6	21-067-D130	21-067-B130	21-067-E130	21-067-F130
D1009	10	9	49	6	21-067-D135	21-067-B135	21-067-E135	21-067-F135
D1210	12	10	51	6	21-067-D140	21-067-B140	21-067-E140	21-067-F140
D1614	16	14	54	6	21-067-D145	21-067-B145	21-067-E145	21-067-F145



### OVAL SHAPE E

MODEL	HEAD DIA.	HEAD LENGTH	TOTAL LENGTH	SHANK DIA.	DOUBLE CUT HT7	HT7 WITH TIALN COATING	STANDARD CUT T5	FAST CUT HT9
E0307	3	7	40	3	21-067-D150	21-067-B150	21-067-E150	/
E0610	6	10	40	3	21-067-D155	21-067-B155	21-067-E155	/
E0610	6	10	50	6	21-067-D160	21-067-B160	21-067-E160	21-067-F160
E0813	8	13	53	6	21-067-D165	21-067-B165	21-067-E165	21-067-F165
E1016	10	16	60	6	21-067-D170	21-067-B170	21-067-E170	21-067-F170
E1220	12	20	60	6	21-067-D175	21-067-B175	21-067-E175	21-067-F175
E1625	16	25	65	6	21-067-D180	21-067-B180	21-067-E180	21-067-F180



**TREE SHAPE BALL NOSE F**

MODEL	HEAD DIA.	HEAD LENGTH	TOTAL LENGTH	SHANK DIA.	DOUBLE CUT HT7	HT7 WITH TIALN COATING	STANDARD CUT T5	FAST CUT HT9
F0307	3	7	40	3	21-067-D180	21-067-B180	21-067-E180	/
F0313	3	13	40	3	21-067-D185	21-067-B185	21-067-E185	/
F0613	6	13	43	3	21-067-D190	21-067-B190	21-067-E190	/
F0618	6	18	50	6	21-067-D195	21-067-B195	21-067-E195	21-067-F195
F0820	8	20	60	6	21-067-D200	21-067-B200	21-067-E200	21-067-F200
F1020	10	20	60	6	21-067-D205	21-067-B205	21-067-E205	21-067-F205
F1225	12	25	65	6	21-067-D210	21-067-B210	21-067-E210	21-067-F210
F1630	16	30	70	6	21-067-D215	21-067-B215	21-067-E215	21-067-F215



**TREE SHAPE POINT END G**

MODEL	HEAD DIA.	HEAD LENGTH	TOTAL LENGTH	SHANK DIA.	DOUBLE CUT HT7	HT7 WITH TIALN COATING	STANDARD CUT T5	FAST CUT HT9
G0307	3	7	40	3	21-067-D220	21-067-B220	21-067-E220	/
G0313	3	13	40	3	21-067-D225	21-067-B225	21-067-E225	/
G0613	6	13	43	3	21-067-D230	21-067-B230	21-067-E230	/
G0618	6	18	50	6	21-067-D235	21-067-B235	21-067-E235	21-067-F235
G1020	10	20	60	6	21-067-D240	21-067-B240	21-067-E240	21-067-F240
G1225	12	25	65	6	21-067-D245	21-067-B245	21-067-E245	21-067-F245
G1630	16	30	70	6	21-067-D250	21-067-B250	21-067-E250	21-067-F250



**POINT CONE SHAPE M**

MODEL	HEAD DIA.	HEAD LENGTH	TOTAL LENGTH	SHANK DIA.	DOUBLE CUT HT7	HT7 WITH TIALN COATING	STANDARD CUT T5	FAST CUT HT9
M0307	3	7	40	3	21-067-D255	21-067-B255	21-067-E255	/
M0311	3	11	40	3	21-067-D260	21-067-B260	21-067-E260	/
M0613	6	13	43	3	21-067-D265	21-067-B265	21-067-E265	/
M0618	6	18	50	6	21-067-D270	21-067-B270	21-067-E270	21-067-F270
M1020	10	20	60	6	21-067-D275	21-067-B275	21-067-E275	21-067-F275
M1225	12	25	65	6	21-067-D280	21-067-B280	21-067-E280	21-067-F280



**INVERTED CONE SHAPE N**

MODEL	HEAD DIA.	HEAD LENGTH	TOTAL LENGTH	SHANK DIA.	DOUBLE CUT HT7	HT7 WITH TIALN COATING	STANDARD CUT T5
N0307	3	7	40	3	21-067-D285	21-067-B285	21-067-E285
N0607	6	7	37	3	21-067-D290	21-067-B290	21-067-E290



**FLAME TAPER SHAPE H**

MODEL	HEAD DIA.	HEAD LENGTH	TOTAL LENGTH	SHANK DIA.	DOUBLE CUT HT7	HT7 WITH TIALN COATING	STANDARD CUT T5	FAST CUT HT9
H0307	3	7	40	3	21-067-D295	21-067-B295	21-067-E295	/
H0613	6	13	43	3	21-067-D300	21-067-B300	21-067-E300	/
H0820	8	20	60	6	21-067-D305	21-067-B305	21-067-E305	21-067-F305
H1230	12	30	70	6	21-067-D310	21-067-B310	21-067-E310	21-067-F310



**60° TAPER SHAPE J**

MODEL	HEAD DIA.	HEAD LENGTH	TOTAL LENGTH	SHANK DIA.	DOUBLE CUT HT7	HT7 WITH TIALN COATING	STANDARD CUT T5
J1010	10	10	50	6	21-067-D315	21-067-B315	21-067-E315
J1013	10	13	53	6	21-067-D320	21-067-B320	21-067-E320
J1613	16	13	53	6	21-067-D325	21-067-B325	21-067-E325



**14° BALL NOSE TAPER SHAPE L**

MODEL	HEAD DIA.	HEAD LENGTH	TOTAL LENGTH	SHANK DIA.	DOUBLE CUT HT7	HT7 WITH TIALN COATING	STANDARD CUT T5	FAST CUT HT9
L1020	10	20	70	6	21-067-D330	21-067-B330	21-067-E330	21-067-F330
L1230	12	30	70	6	21-067-D335	21-067-B335	21-067-E335	21-067-F335
L1630	16	30	70	6	21-067-D340	21-067-B340	21-067-E340	21-067-F340

**3PC METRIC SIZE CARBIDE ROTARY BURR SET**



**ORDER NO. 21-067-S15**

including:  
1pc each of HT7 medium diamond cut carbide burr with TiN coated A1020,D1009,G1020.  
all burrs with 6mm diameter shank.  
packed in plastic box.

### 5PC METRIC SIZE CARBIDE ROTARY BURR SET



ORDER NO. 21-067-S10

including:  
1pc each of HT7 medium diamond cut carbide burr A0616,C0616,D0807,G0618,M1020,  
all burrs with 6mm diameter shank.  
packed in plastic box.

### 5PC METRIC SIZE CARBIDE ROTARY BURR SET



ORDER NO. 21-067-S14

including:  
1pc each of HT7 medium diamond cut carbide burr A1225,C1225,D1210,G1225,F1225.  
General used for steel and cast iron,all burrs with 6mm diameter shank.  
packed in plastic box.

### 8PC METRIC SIZE CARBIDE ROTARY BURR SET



ORDER NO. 21-067-S11

including:  
1pc each of HT7 medium diamond cut carbide burr A0616  
A1020,C0616,C1020,D0605,D1009 , G0618,M1020  
all burrs with 6mm diameter shank.  
packed in plastic box.

### 8PC METRIC SIZE COMBINATION CARBIDE ROTARY BURR SET



ORDER NO. 21-067-S02

including:  
5pcs coarse cutting for Aluminium material and 3pc general purpose use burr.  
1pc each of carbide burr A1225,C1220,D1210,C1020,L1228,A1020,A1220, C0616  
all burrs with 6mm diameter shank.

### 10PC METRIC SIZE CARBIDE ROTARY BURR SET



ORDER NO. 21-067-S12

including:  
1pc each of HT7 medium diamond cut carbide burr A0616,A1020,A1225  
,C0616,C1225,D1009,G0618,G1630,F1225,M1020  
all burrs with 6mm diameter shank.  
packed in plastic box.

### 10PC METRIC SIZE CARBIDE ROTARY BURR SET



ORDER NO. 21-067-S13

including:  
1pc each of HT7 medium diamond cut carbide burr A0313,A0613,C0313,C0613,  
D0302,D0605,F0313,G0313,G0613,M0613.  
all burrs with 3mm diameter shank.  
packed in plastic box.

### 10PC METRIC SIZE CARBIDE ROTARY BURR SET



ORDER NO. 21-067-S03

including:  
1pc each of HT7 medium diamond cut carbide burr A0613,AS0613,C0613,L0613,  
D0605,E0610,F0613,G0613,M0613,N0607  
all burrs with 3mm diameter shank.  
packed in plastic box.

### 10PC METRIC SIZE CARBIDE ROTARY BURR SET

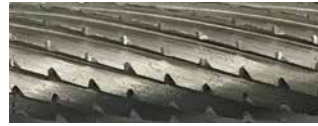


ORDER NO. 21-067-S04

including:  
1pc each of HT7 medium diamond cut carbide burr A0313,AS0313,C0313,D0302  
,E0307,G0307,H0307,L0307,M0307,N0307  
all burrs with 3mm diameter shank.  
packed in plastic box.

## METRIC SIZE H.S.S. ROTARY BURR

Made of quality high speed steel.  
Precision fully ground by latest CNC machine.  
Suitable for finishing molds, smoothing welds, cleaning castings and smoothing plastic edge.



**Coarse teeth with chip brake T2**  
Ideal for rapid cutting light alloys, copper, brass, bronze, mild steel and hard wood, plastic non-metal material.  
Max. cutting speed 250m/min.



**Fine teeth with chip brake T3**  
Ideal for cutting steel and cast iron.  
Max. cutting speed 220m/min.



### BALL SHAPE D

MODEL	HEAD DIA.	HEAD LENGTH	TOTAL LENGTH	SHANK DIA.	COARSE TEETH T2	T2 WITH TIALN COATING	FINE TEETH T3	T3 WITH TIALN COATING
D0605	6	5	50	6	11-399-A105	11-399-B105	11-399-C105	11-399-D105
D0807	8	7	52	6	11-399-A110	11-399-B110	11-399-C110	11-399-D110
D1009	10	9	54	6	11-399-A115	11-399-B115	11-399-C115	11-399-D115
D1210	12	10	55	6	11-399-A120	11-399-B120	11-399-C120	11-399-D120
D1514	15	14	59	6	11-399-A125	11-399-B125	11-399-C125	11-399-D125

### CYLINDRICAL SHAPE WITH TOP TEETH AS

MODEL	HEAD DIA.	HEAD LENGTH	TOTAL LENGTH	SHANK DIA.	COARSE TEETH T2	T2 WITH TIALN COATING	FINE TEETH T3	T3 WITH TIALN COATING
AS0620	6	20	60	6	11-399-A005	11-399-B005	11-399-C005	11-399-D005
AS0830	8	30	70	6	11-399-A010	11-399-B010	11-399-C010	11-399-D010
AS1030	10	30	70	6	11-399-A015	11-399-B015	11-399-C015	11-399-D015
AS1230	12	30	70	6	11-399-A020	11-399-B020	11-399-C020	11-399-D020
AS1530	15	30	70	6	11-399-A025	11-399-B025	11-399-C025	11-399-D025

### CYLINDRICAL BALL NOSE C

MODEL	HEAD DIA.	HEAD LENGTH	TOTAL LENGTH	SHANK DIA.	COARSE TEETH T2	T2 WITH TIALN COATING	FINE TEETH T3	T3 WITH TIALN COATING
C0620	6	20	60	6	11-399-A030	11-399-B030	11-399-C030	11-399-D030
C0830	8	30	70	6	11-399-A035	11-399-B035	11-399-C035	11-399-D035
C1030	10	30	70	6	11-399-A040	11-399-B040	11-399-C040	11-399-D040
C1230	12	30	70	6	11-399-A045	11-399-B045	11-399-C045	11-399-D045
C1530	15	30	70	6	11-399-A050	11-399-B050	11-399-C050	11-399-D050

### POINT CONE SHAPE M

MODEL	HEAD DIA.	HEAD LENGTH	TOTAL LENGTH	SHANK DIA.	COARSE TEETH T2	T2 WITH TIALN COATING	FINE TEETH T3	T3 WITH TIALN COATING
M0620	6	20	60	6	11-399-A055	11-399-B055	11-399-C055	11-399-D055
M0830	8	30	70	6	11-399-A060	11-399-B060	11-399-C060	11-399-D060
M1030	10	30	70	6	11-399-A065	11-399-B065	11-399-C065	11-399-D065
M1230	12	30	70	6	11-399-A070	11-399-B070	11-399-C070	11-399-D070
M1530	15	30	70	6	11-399-A075	11-399-B075	11-399-C075	11-399-D075

### TREE SHAPE POINT END G

MODEL	HEAD DIA.	HEAD LENGTH	TOTAL LENGTH	SHANK DIA.	COARSE TEETH T2	T2 WITH TIALN COATING	FINE TEETH T3	T3 WITH TIALN COATING
G0620	6	20	60	6	11-399-A080	11-399-B080	11-399-C080	11-399-D080
G0830	8	30	70	6	11-399-A085	11-399-B085	11-399-C085	11-399-D085
G1030	10	30	70	6	11-399-A090	11-399-B090	11-399-C090	11-399-D090
G1230	12	30	70	6	11-399-A095	11-399-B095	11-399-C095	11-399-D095
G1530	15	30	70	6	11-399-A100	11-399-B100	11-399-C100	11-399-D100

## 5PC METRIC SIZE H.S.S. ROTARY BURR SET



DESCRIPTION			ORDER NO.
1pc each of	AS1030, C1030, D1009, G1030, M1030	T2 coarse teeth without coating	21-399-S05
1pc each of	AS1030, C1030, D1009, G1030, M1030	T2 coarse teeth with TiAlN coating.	21-399-S10
1pc each of	AS1030, C1030, D1009, G1030, M1030	T3 fine teeth without coating	21-399-S15
1pc each of	AS1030, C1030, D1009, G1030, M1030	T3 fine teeth with TiAlN coating.	21-399-S20
1pc each of	AS1230, C1230, D1209, G1230, M1230	T2 coarse teeth without coating	21-399-S25
1pc each of	AS1230, C1230, D1209, G1230, M1230	T2 coarse teeth with TiAlN coating.	21-399-S30
1pc each of	AS1230, C1230, D1209, G1230, M1230	T3 fine teeth without coating	21-399-S35
1pc each of	AS1230, C1230, D1209, G1230, M1230	T3 fine teeth with TiAlN coating.	21-399-S40

## 10PC METRIC SIZE H.S.S. COARSE/FINE COMBINATION ROTARY BURR SET.



DESCRIPTION			ORDER NO.
2pc each of	AS1030, C1030, D1009, G1030, M1030	T2 coarse teeth and T3 fine teeth without coating	21-399-S45
2pc each of	AS1030, C1030, D1009, G1030, M1030	T2 coarse teeth and T3 fine teeth with TiAlN coating.	21-399-S50
2pc each of	AS1230, C1230, D1209, G1230, M1230	T2 coarse teeth and T3 fine teeth without coating	21-399-S55
2pc each of	AS1230, C1230, D1209, G1230, M1230	T2 coarse teeth and T3 fine teeth with TiAlN coating.	21-399-S60

## INCH SIZE CARBIDE ROTARY BURR

Made of quality carbide K20 with high wear resistance.  
Precision and strong edge manufactured by latest CNC machine.  
Suitable for deburring, edge breaking, cleaning, surface preparation while welding.

### Cut Style :



**Standard Cut type HT5 - fine teeth**  
General purpose use for cast iron, steel, some copper, brass and some other ferrous material.  
Gives good material removal and good workpiece finishes.  
High efficiency cutting.



**Double Cut type HT7- diamond medium teeth**  
Allows for rapid stock removal in harden materials.  
The addition of the left hand flutes reduces the pulling action, improves control and reduces the size of chips.  
Can be used at lower speed and get extra fine finishing.  
Used for alloy steel, stainless steel, metals.



**Fast Cut type HT9 - very coarse teeth**  
For deburring softer stringy material non-ferrous metals & non-metal materials.  
The wide clearance and end mill type geometry of the flutes promotes fast stock removal with minimum loading.



### CYLINDRICAL SHAPE WITH TOP TEETH B

MODEL	HEAD DIA.	HEAD LENGTH	SHANK DIA.	DOUBLE CUT HT7	STANDARD CUT T5	FAST CUT HT9
SB-11	1/8"	1/2"	1/4"	22-067-082	22-067-E082	/
SB-43	1/8"	9/16"	1/8"	22-067-083	22-067-E083	/
SB-42	3/32"	7/16"	1/8"	22-067-084	22-067-E084	/
SB-41	1/16"	1/4"	1/8"	22-067-085	22-067-E085	/
SB-13	5/32"	5/8"	1/8"	22-067-086	22-067-E086	/
SB-14	3/16"	5/8"	1/4"	22-067-087	22-067-E087	/
SB-1	1/4"	5/8"	1/4"	22-067-088	22-067-E088	22-067-F088
SB-2	5/16"	3/4"	1/4"	22-067-120	22-067-E120	22-067-F120
SB-3	3/8"	3/4"	1/4"	22-067-121	22-067-E121	22-067-F121
SB-4	7/16"	1"	1/4"	22-067-122	22-067-E122	22-067-F122
SB-5	1/2"	1"	1/4"	22-067-123	22-067-E123	22-067-F123
SB-6	5/8"	1"	1/4"	22-067-124	22-067-E124	22-067-F124
SB-15	3/4"	1/2"	1/4"	22-067-125	22-067-E125	22-067-F125
SB-16	3/4"	3/4"	1/4"	22-067-126	22-067-E126	22-067-F126
SB-7	3/4"	1"	1/4"	22-067-127	22-067-E127	22-067-F127
SB-9	1"	1"	1/4"	22-067-128	22-067-E128	22-067-F128

### CYLINDRICAL RADIUS END C

MODEL	HEAD DIA.	HEAD LENGTH	SHANK DIA.	DOUBLE CUT HT7	STANDARD CUT T5	FAST CUT HT9
SC-11	1/8"	1/2"	1/4"	22-067-089	22-067-E089	/
SC-42	1/8"	9/16"	1/8"	22-067-090	22-067-E090	/
SC-41	3/32"	7/16"	1/8"	22-067-091	22-067-E091	/
SC-13	5/32"	5/8"	1/4"	22-067-092	22-067-E092	/
SC-14	3/16"	5/8"	1/4"	22-067-010	22-067-E010	/
SC-1	1/4"	5/8"	1/4"	22-067-011	22-067-E011	22-067-F011
SC-2	5/16"	3/4"	1/4"	22-067-012	22-067-E012	22-067-F012
SC-3	3/8"	3/4"	1/4"	22-067-013	22-067-E013	22-067-F013
SC-4	7/16"	1"	1/4"	22-067-014	22-067-E014	22-067-F014
SC-5	1/2"	1"	1/4"	22-067-015	22-067-E015	22-067-F015
SC-6	5/8"	1"	1/4"	22-067-016	22-067-E016	22-067-F016
SC-7	3/4"	1"	1/4"	22-067-017	22-067-E017	22-067-F017
SC-9	1"	1"	1/4"	22-067-093	22-067-E093	22-067-F093



### CYLINDRICAL SHAPE A

MODEL	HEAD DIA.	HEAD LENGTH	SHANK DIA.	DOUBLE CUT HT7	STANDARD CUT T5	FAST CUT HT9
SA-11	1/8"	1/2"	1/4"	22-067-075	22-067-E075	/
SA-43	1/8"	9/16"	1/8"	22-067-076	22-067-E076	/
SA-42	3/32"	7/16"	1/8"	22-067-077	22-067-E077	/
SA-41	1/16"	1/4"	1/8"	22-067-078	22-067-E078	/
SA-13	5/32"	5/8"	1/8"	22-067-079	22-067-E079	/
SA-14	3/16"	5/8"	1/4"	22-067-001	22-067-E001	/
SA-1	1/4"	5/8"	1/4"	22-067-002	22-067-E002	22-067-F002
SA-2	5/16"	3/4"	1/4"	22-067-003	22-067-E003	22-067-F003
SA-3	3/8"	3/4"	1/4"	22-067-004	22-067-E004	22-067-F004
SA-4	7/16"	1"	1/4"	22-067-005	22-067-E005	22-067-F005
SA-5	1/2"	1"	1/4"	22-067-006	22-067-E006	22-067-F006
SA-6	5/8"	1"	1/4"	22-067-007	22-067-E007	22-067-F007
SA-15	3/4"	1/2"	1/4"	22-067-080	22-067-E080	22-067-F080
SA-16	3/4"	3/4"	1/4"	22-067-081	22-067-E081	22-067-F081
SA-7	3/4"	1"	1/4"	22-067-008	22-067-E008	22-067-F008
SA-9	1"	1"	1/4"	22-067-009	22-067-E009	22-067-F009



### BALL SHAPE D

MODEL	HEAD DIA.	HEAD LENGTH	SHANK DIA.	DOUBLE CUT HT7	STANDARD CUT T5	FAST CUT HT9
SD-42	1/8"	1/8"	1/8"	22-067-094	22-067-E094	/
SD-41	3/32"	3/32"	1/8"	22-067-095	22-067-E095	/
SD-11	1/8"	3/32"	1/4"	22-067-018	22-067-E018	/
SD-14	3/16"	1/8"	1/4"	22-067-019	22-067-E019	/
SD-1	1/4"	7/32"	1/4"	22-067-020	22-067-E020	22-067-F020
SD-2	5/16"	1/4"	1/4"	22-067-021	22-067-E021	22-067-F021
SD-3	3/8"	5/16"	1/4"	22-067-022	22-067-E022	22-067-F022
SD-4	7/16"	3/8"	1/4"	22-067-096	22-067-E096	22-067-F096
SD-5	1/2"	7/16"	1/4"	22-067-023	22-067-E023	22-067-F023
SD-6	5/8"	9/16"	1/4"	22-067-024	22-067-E024	22-067-F024
SD-7	3/4"	11/16"	1/4"	22-067-025	22-067-E025	22-067-F025
SD-9	1"	15/16"	1/4"	22-067-026	22-067-E026	22-067-F026



### TREE SHAPE RADIUS END F

MODEL	HEAD DIA.	HEAD LENGTH	SHANK DIA.	DOUBLE CUT HT7	STANDARD CUT T5	FAST CUT HT9
SF-41	1/8"	1/4"	1/8"	22-067-099	22-067-E099	/
SF-42	1/8"	1/2"	1/8"	22-067-100	22-067-E100	/
SF-11	1/8"	1/2"	1/4"	22-067-101	22-067-E101	/
SF-1	1/4"	5/8"	1/4"	22-067-032	22-067-E032	22-067-F032
SF-3	3/8"	3/4"	1/4"	22-067-033	22-067-E033	22-067-F033
SF-4	7/16"	1"	1/4"	22-067-034	22-067-E034	22-067-F034
SF-13	1/2"	3/4"	1/4"	22-067-035	22-067-E035	22-067-F035
SF-5	1/2"	1"	1/4"	22-067-036	22-067-E036	22-067-F036
SF-6	5/8"	1"	1/4"	22-067-037	22-067-E037	22-067-F037
SF-7	3/4"	1"	1/4"	22-067-038	22-067-E038	22-067-F038
SF-14	3/4"	1-1/4"	1/4"	22-067-102	22-067-E102	22-067-F102
SF-15	3/4"	1-1/2"	1/4"	22-067-103	22-067-E103	22-067-F103



**OVAL SHAPE E**



MODEL	HEAD DIA.	HEAD LENGTH	SHANK DIA.	DOUBLE CUT HT7	STANDARD CUT T5	FAST CUT HT9
SE-41	1/8"	7/32"	1/8"	22-067-097	22-067-E097	/
SE-1	1/4"	3/8"	1/4"	22-067-027	22-067-E027	22-067-F027
SE-2	5/16"	5/8"	1/4"	22-067-098	22-067-E098	22-067-F098
SE-3	3/8"	5/8"	1/4"	22-067-028	22-067-E028	22-067-F028
SE-5	1/2"	7/8"	1/4"	22-067-029	22-067-E029	22-067-F029
SE-6	5/8"	1"	1/4"	22-067-030	22-067-E030	22-067-F030
SE-7	3/4"	1"	1/4"	22-067-031	22-067-E031	22-067-F031

**TREE SHAPE RADIUS G**



MODEL	HEAD DIA.	HEAD LENGTH	SHANK DIA.	DOUBLE CUT HT7	STANDARD CUT T5	FAST CUT HT9
SG-41	1/8"	1/4"	1/8"	22-067-104	22-067-E104	/
SG-42	1/8"	5/16"	1/8"	22-067-105	22-067-E105	/
SG-43	1/8"	3/8"	1/8"	22-067-106	22-067-E106	/
SG-1	1/4"	5/8"	1/4"	22-067-039	22-067-E039	22-067-F039
SG-2	5/16"	3/4"	1/4"	22-067-040	22-067-E040	22-067-F040
SG-3	3/8"	3/4"	1/4"	22-067-107	22-067-E107	22-067-F107
SG-13	1/2"	3/4"	1/4"	22-067-041	22-067-E041	22-067-F041
SG-5	1/2"	1"	1/4"	22-067-042	22-067-E042	22-067-F042
SG-6	5/8"	1"	1/4"	22-067-043	22-067-E043	22-067-F043
SG-7	3/4"	1"	1/4"	22-067-044	22-067-E044	22-067-F044
SG-15	3/4"	1-1/2"	1/4"	22-067-108	22-067-E108	22-067-F108

**CONE SHAPE M**



MODEL	HEAD DIA.	HEAD LENGTH	SHANK DIA.	DOUBLE CUT HT7	STANDARD CUT T5	FAST CUT HT9	FAST CUT HT9
SM-1	1/4"	1/2"	22°	1/4"	22-067-045	22-067-E045	22-067-F045
SM-2	1/4"	3/4"	14°	1/4"	22-067-046	22-067-E046	22-067-F046
SM-3	1/4"	1"	10°	1/4"	22-067-047	22-067-E047	22-067-F047
SM-4	3/8"	5/8"	28°	1/4"	22-067-048	22-067-E048	22-067-F048
SM-5	1/2"	7/8"	28°	1/4"	22-067-049	22-067-E049	22-067-F049
SM-6	5/8"	1"	31°	1/4"	22-067-050	22-067-E050	22-067-F050

**INVERTED CONE SHAPE N**



MODEL	HEAD DIA.	HEAD LENGTH	SHANK DIA.	DOUBLE CUT HT7	STANDARD CUT T5	FAST CUT HT9
SN-1	1/4"	5/16"	10°	1/4"	22-067-051	22-067-E051
SN-2	3/8"	3/8"	13°	1/4"	22-067-109	22-067-E109
SN-4	1/2"	1/2"	28°	1/4"	22-067-052	22-067-E052
SN-6	5/8"	3/4"	18°	1/4"	22-067-053	22-067-E053
SN-7	3/4"	5/8"	30°	1/4"	22-067-110	22-067-E110

**TAPER SHAPE H**



MODEL	HEAD DIA.	HEAD LENGTH	SHANK DIA.	DOUBLE CUT HT7	STANDARD CUT T5	FAST CUT HT9
SH-41	1/8"	1/4"	1/8"	22-067-111	22-067-E111	/
SH-53	3/16"	3/8"	1/4"	22-067-112	22-067-E112	/
SH-1	1/4"	5/8"	1/4"	22-067-054	22-067-E054	22-067-F054
SH-2	5/16"	3/4"	1/4"	22-067-055	22-067-E055	22-067-F055
SH-3	3/8"	1"	1/4"	22-067-113	22-067-E113	22-067-F113
SH-5	1/2"	1-1/4"	1/4"	22-067-056	22-067-E056	22-067-F056
SH-6	5/8"	1-7/16"	1/4"	22-067-057	22-067-E057	22-067-F057
SH-7	3/4"	1-5/8"	1/4"	22-067-058	22-067-E058	22-067-F058

**90° TAPER SHAPE K**



MODEL	HEAD DIA.	HEAD LENGTH	SHANK DIA.	DOUBLE CUT HT7	STANDARD CUT T5
SK-1	1/4"	1/8"	1/4"	22-067-059	22-067-E059
SK-3	3/8"	3/16"	1/4"	22-067-060	22-067-E060
SK-5	1/2"	1/4"	1/4"	22-067-061	22-067-E061
SK-6	5/8"	5/16"	1/4"	22-067-062	22-067-E062
SK-7	3/4"	3/8"	1/4"	22-067-063	22-067-E063
SK-9	1"	1/2"	1/4"	22-067-114	22-067-E114

**60° TAPER SHAPE J**



MODEL	HEAD DIA.	HEAD LENGTH	SHANK DIA.	DOUBLE CUT HT7	STANDARD CUT T5
SJ-1	1/4"	3/16"	1/4"	22-067-064	22-067-E064
SJ-3	3/8"	5/16"	1/4"	22-067-065	22-067-E065
SJ-5	1/2"	7/16"	1/4"	22-067-066	22-067-E066
SJ-6	5/8"	1/2"	1/4"	22-067-067	22-067-E067
SJ-7	3/4"	9/16"	1/4"	22-067-068	22-067-E068
SJ-9	1"	13/16"	1/4"	22-067-115	22-067-E115

**14° TAPER SHAPE L**



MODEL	HEAD DIA.	HEAD LENGTH	SHANK DIA.	DOUBLE CUT HT7	STANDARD CUT T5	FAST CUT HT9
SL-41	1/8"	3/8"	1/8"	22-067-116	22-067-E116	/
SL-42	1/8"	1/2"	1/8"	22-067-117	22-067-E117	/
SL-1	1/4"	5/8"	1/4"	22-067-069	22-067-E069	22-067-F069
SL-2	5/16"	15/16"	1/4"	22-067-070	22-067-E070	22-067-F070
SL-3	3/8"	1-1/16"	1/4"	22-067-071	22-067-E071	22-067-F071
SL-4	1/2"	1-3/16"	1/4"	22-067-072	22-067-E072	22-067-F072
SL-5	5/8"	1-3/16"	1/4"	22-067-118	22-067-E118	22-067-F118
SL-6	5/8"	1-5/16"	1/4"	22-067-073	22-067-E073	22-067-F073
SL-7	3/4"	1-3/8"	1/4"	22-067-119	22-067-E119	22-067-F119
SL-7	3/4"	1-1/2"	1/4"	22-067-074	22-067-E074	22-067-F074



### 5PC INCH SIZE CARBIDE ROTARY BURR SET



including:  
1pc each of HT7 medium diamond cut carbide burr SA-1,SC-1,SD-2,SG-1,SM-4.  
all burrs with 1/4" diameter shank.  
packed in plastic box.

Order No. 22-067-S15

### 8PC INCH SIZE CARBIDE ROTARY BURR SET



including:  
1pc each of HT7 medium diamond cut carbide burr SA-5,SA-3,SC-3,SC-1,SD-1,SD-3,SF-3,SF-5.  
all burrs with 1/4" diameter shank.  
packed in plastic box.

Order No. 22-228-001

### 8PC INCH SIZE CARBIDE ROTARY BURR SET



including:  
1pc each of HT7 medium diamond cut carbide burr SA-51,SA-53,SC-51,SC-53,SD-51,SD-53,SF-51,SF-53.  
all burrs with 1/8" diameter shank.  
packed in plastic box.

Order No. 22-227-001

### 10PC INCH SIZE CARBIDE ROTARY BURR SET



including:  
1pc each of HT7 medium diamond cut carbide burr SA51,SB51,SC51,SL51,SD51,SE51,SF51,SG51,SM51,SN51,all burrs with 1/8" diameter shank.  
packed in plastic box.

Order No. 22-067-S03

### 10PC INCH SIZE CARBIDE ROTARY BURR SET



including:  
1pc each of HT7 medium diamond cut carbide burr SA43,SB43,SC42,SD42,SE41,SG41,SH41,SL41,SM41,SN41,all burrs with 1/8" diameter shank.  
packed in plastic box.

Order No. 22-067-S04

### 5PC CARBIDE ROTARY BURR SET FOR ALU.

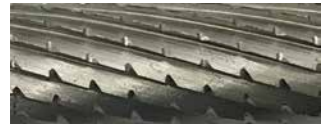


including:  
1pc each of HT9 Fast Cut carbide burr SA-5,SC-3,SC-5,SD-5,SF-5  
all burrs with 1/4" diameter shank.  
packed in plastic box."

Order No. 21-067-S20

## INCH SIZE H.S.S. ROTARY BURR

Made of quality high speed steel.  
Precision fully ground by latest CNC machine.  
Suitable for finishing molds,smoothing welds,cleaning castings and smoothing plastic edge.



**Coarse teeth with chip brake T2**  
Ideal for rapid cutting light alloys,copper,brasse,bronze,mild steel and hard wood,plastic non-metal material.  
Max. cutting speed 250m/min.



**Fine teeth with chip brake T3**  
Ideal for cutting steel and cast iron.  
Max. cutting speed 220m/min.

### CYLINDRICAL SHAPE WITH TOP TEETH AE

MODEL	HEAD DIA.	HEAD LENGTH	SHANK DIA.	COARSE TEETH T2	FINE TEETH T3
AE-100	1/8"	1/2"	1/4"	22-399-A005	22-399-C005
AE-106	1/4"	1"	1/4"	22-399-A010	22-399-C010
AE-107	1/4"	1-1/2"	1/4"	22-399-A015	22-399-C015
AE-109	3/8"	1"	1/4"	22-399-A020	22-399-C020
AE-110	3/8"	1-1/2"	1/4"	22-399-A025	22-399-C025
AE-111	1/2"	1"	1/4"	22-399-A030	22-399-C030
AE-112	1/2"	1-1/2"	1/4"	22-399-A035	22-399-C035
AE-114	5/8"	1"	1/4"	22-399-A040	22-399-C040
AE-116	3/4"	3/4"	1/4"	22-399-A045	22-399-C045
AE-118	1"	1"	1/4"	22-399-A050	22-399-C050

### CYLINDRICAL ROUND TOP C

MODEL	HEAD DIA.	HEAD LENGTH	SHANK DIA.	COARSE TEETH T2	FINE TEETH T3
C-700	1/8"	1/2"	1/4"	22-399-A055	22-399-C055
C-710	1/4"	1"	1/4"	22-399-A060	22-399-C060
C-713	5/16"	1-1/2"	1/4"	22-399-A065	22-399-C065
C-714	3/8"	1"	1/4"	22-399-A070	22-399-C070
C-716	3/8"	1-1/2"	1/4"	22-399-A075	22-399-C075
C-718	1/2"	1"	1/4"	22-399-A080	22-399-C080
C-722	5/8"	1"	1/4"	22-399-A085	22-399-C085

### CONE SHAPE H

MODEL	HEAD DIA.	HEAD LENGTH	SHANK DIA.	COARSE TEETH T2	FINE TEETH T3
H-223	1/4"	1/2"	1/4"	22-399-A090	22-399-C090
H-226	1/4"	3/4"	1/4"	22-399-A095	22-399-C095
H-229	1/4"	1"	1/4"	22-399-A100	22-399-C100
H-232	1/4"	1-1/4"	1/4"	22-399-A105	22-399-C105
H-235	5/16"	1"	1/4"	22-399-A110	22-399-C110
H-238	3/8"	5/8"	1/4"	22-399-A115	22-399-C115
H-241	1/2"	7/8"	1/4"	22-399-A120	22-399-C120
H-244	5/8"	1"	1/4"	22-399-A125	22-399-C125
H-245	1"	1-3/8"	1/4"	22-399-A130	22-399-C130

### BALL SHAPE B

MODEL	HEAD DIA.	HEAD LENGTH	SHANK DIA.	COARSE TEETH T2	FINE TEETH T3
B-600	1/8"	1/8"	1/4"	22-399-A135	22-399-C135
B-602	1/4"	1/4"	1/4"	22-399-A140	22-399-C140
B-603	5/16"	5/16"	1/4"	22-399-A145	22-399-C145
B-604	3/8"	3/8"	1/4"	22-399-A150	22-399-C150
B-606	1/2"	1/2"	1/4"	22-399-A155	22-399-C155
B-609	3/4"	3/4"	1/4"	22-399-A160	22-399-C160

### TREE POINT SHAPE T

MODEL	HEAD DIA.	HEAD LENGTH	SHANK DIA.	COARSE TEETH T2	FINE TEETH T3
T-521	1/4"	3/4"	1/4"	22-399-A165	22-399-C165
T-523	3/8"	3/4"	1/4"	22-399-A170	22-399-C170
T-525	1/2"	3/4"	1/4"	22-399-A175	22-399-C175
T-527	1/2"	1-1/8"	1/4"	22-399-A180	22-399-C180
T-529	5/8"	1"	1/4"	22-399-A185	22-399-C185
T-531	1-1/8"	2"	1/4"	22-399-A190	22-399-C190

## 5PC INCH SIZE H.S.S. ROTARY BURR SET



DESCRIPTION	ORDER NO.
1pc each of AE-109,C-714,H-238,B-604,T-523 H.S.S rotary burr. T2 coarse teeth	22-399-S05
1pc each of AE-109,C-714,H-238,B-604,T-523 H.S.S rotary burr. T3 fine teeth	22-399-S10
1pc each of AE-111,C-718,H-241,B-606,T-527 H.S.S rotary burr. T2 coarse teeth	22-399-S15
1pc each of AE-111,C-718,H-241,B-606,T-527 H.S.S rotary burr. T3 fine teeth	22-399-S20

## 10PC INCH SIZE H.S.S. COARSE/FINE COMBINATION ROTARY BURR SET



DESCRIPTION	ORDER NO.
2pc each of AE-109,C-714,H-238,B-604,T-523 H.S.S rotary burr. T2 coarse teeth and T3 fine teeth	22-399-S25
2pc each of AE-111,C-718,H-241,B-606,T-527 rotary burr T2 coarse teeth and T3 fine teeth	22-399-S30



## COUNTERSINKS



# 06

METAL CUTTING

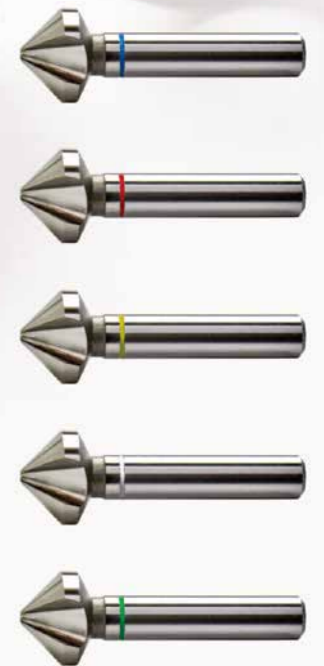
## COLOR CODED HIGH PERFORMANCE COUNTERSINKS

Color coded Countersinks is specially designed to optimize your machining performances. The need for greater productivity from expensive high-performance machine tools and the demand for the cutting tools to perform at optimum efficiency to minimize machine down-time, together with the demands for improved quality of machined components can be met with this range of Color ring cutting tools.

It consists of five Color application ranges. Each range has been designed with different cutting geometries and surface treatments to ensure optimum tool performance for each specific material category. Each range of materials group has its own cutting tools.

### APPLICATION:

- Stainless Steel – Blue Coded
- Tough Treatable Steel – Red Coded
- Aluminium – Yellow Coded
- Cast Iron – White Coded
- Carbon Steel – Green Coded



SICHUAN WEST MANUFACTURING CORP., LTD.  
SICHUAN MACHINERY IMP.&EXP. CORP., LTD.

### 90° COUNTERSINKS CBN GROUND



H.S.S/H.S.S-E



CARBIDE

METRIC SIZES, DIN 335C, THREE FLUTE, 90°

MAX.CUTTING DIA.MM	SHANK DIA.MM	OAL MM	HSS	HSS-TIN	HSSCO5	CARBIDE
4.3	4	40	11-039-001	11-039-G001	11-039-LC001	11-039-H001
5.0	4	40	11-039-002	11-039-G002	11-039-LC002	11-039-H002
5.3	4	40	11-039-003	11-039-G003	11-039-LC003	11-039-H003
6.0	5	45	11-039-004	11-039-G004	11-039-LC004	11-039-H004
6.3	5	45	11-039-005	11-039-G005	11-039-LC005	11-039-H005
7.0	6	50	11-039-006	11-039-G006	11-039-LC006	11-039-H006
7.3	6	50	11-039-007	11-039-G007	11-039-LC007	11-039-H007
8.0	6	50	11-039-008	11-039-G008	11-039-LC008	11-039-H008
8.3	6	50	11-039-009	11-039-G009	11-039-LC009	11-039-H009
9.4	6	42	11-039-010	11-039-G010	11-039-LC010	11-039-H010
10.0	6	50	11-039-011	11-039-G011	11-039-LC011	11-039-H011
10.4	6	50	11-039-012	11-039-G012	11-039-LC012	11-039-H012
11.5	8	56	11-039-013	11-039-G013	11-039-LC013	11-039-H013
12.4	8	56	11-039-014	11-039-G014	11-039-LC014	11-039-H014
14.4	8	60	11-039-015	11-039-G015	11-039-LC015	11-039-H015
15.0	10	69	11-039-016	11-039-G016	11-039-LC016	11-039-H016
16.5	10	60	11-039-017	11-039-G017	11-039-LC017	11-039-H017
19.0	10	63	11-039-018	11-039-G018	11-039-LC018	11-039-H018
20.5	10	63	11-039-019	11-039-G019	11-039-LC019	11-039-H019
23.0	10	67	11-039-020	11-039-G020	11-039-LC020	11-039-H020
25.0	10	67	11-039-021	11-039-G021	11-039-LC021	11-039-H021
31.0	12	71	11-039-022	11-039-G022	11-039-LC022	11-039-H022

### HSS 90° COUNTERSINKS SET

SIZE	SPECIFICATION
6 PCS/SET	6.3,8.3,10.4,12.4,16.5,20.5mm
11-040-S01	HSS
11-040-S02	HSSCO5

SIZE	SPECIFICATION
12 PCS/SET	5.3,5.8,6.3,7.3,8.3,9.4,10.4,12.4,13.4,16.5,20.5,25mm
11-040-S03	HSS-TIN



### HSS 90° COUNTSINKS WITH LONG SHANK



METRIC SIZES, LONG SERIES, DIN 335C, THREE FLUTE, 90°

MAX.CUTTING DIA.MM	SHANK DIA.MM	OAL MM	HSS	HSS-TIN	HSSCO5
6.3	5	104	11-039-023	11-039-G023	11-039-LC023
8.3	6	105	11-039-024	11-039-G024	11-039-LC024
10.4	6	107	11-039-025	11-039-G025	11-039-LC025
12.4	8	108	11-039-026	11-039-G026	11-039-LC026
16.5	10	111	11-039-027	11-039-G027	11-039-LC027
20.5	10	114	11-039-028	11-039-G028	11-039-LC028
25.0	10	118	11-039-029	11-039-G029	11-039-LC029

### HSS 90° COUNTSINKS WITH LONG SHANK SET

SIZE	SPECIFICATION
6 PCS/SET	6.3,8.3,10.4,12.4,16.5,20.5mm



11-040-S05

### HSS 90° COUNTERSINKS WITH 1/4" POWER GROOVE HEX SHANK



METRIC SIZES, DIN 335C, THREE FLUTE, 90°

MAX.CUTTING DIA.MM	SHANK DIA.MM	OAL MM	HSS	HSS-TIN	HSSCO5
6.3	1/4"	40	11-039-030	11-039-G030	11-039-LC030
8.3	1/4"	45	11-039-031	11-039-G031	11-039-LC031
10.4	1/4"	47	11-039-032	11-039-G032	11-039-LC032
12.4	1/4"	49	11-039-033	11-039-G033	11-039-LC033
16.5	1/4"	52	11-039-034	11-039-G034	11-039-LC034
20.5	1/4"	55	11-039-035	11-039-G035	11-039-LC035

### HSS 90° COUNTERSINKS WITH 1/4" HEX SHANK



METRIC SIZES, DIN 335C, THREE FLUTE, 90°

MAX.CUTTING DIA.MM	SHANK DIA.MM	OAL MM	HSS	HSS-TIN	HSSCO5
6.3	1/4"	31	11-039-036	11-039-G036	11-039-LC036
8.3	1/4"	31	11-039-037	11-039-G037	11-039-LC037
10.4	1/4"	34	11-039-038	11-039-G038	11-039-LC038
12.4	1/4"	35	11-039-039	11-039-G039	11-039-LC039
16.5	1/4"	40	11-039-040	11-039-G040	11-039-LC040
20.5	1/4"	41	11-039-041	11-039-G041	11-039-LC041

SIZE	SPECIFICATION
6 PCS/SET	6,3,8,3,10,4,12,4,16,5,20,5mm
11-040-S04	HSS



### HSS 60° COUNTERSINKS



METRIC SIZES, DIN 334C, THREE FLUTE, 60°

MAX.CUTTING DIA.MM	SHANK DIA.MM	OAL MM	HSS	HSS-TIN	HSSCO5
6.3	5	45	11-039-042	11-039-G042	11-039-LC042
8.0	6	50	11-039-043	11-039-G043	11-039-LC043
10.0	6	53	11-039-044	11-039-G044	11-039-LC044
12.5	8	56	11-039-045	11-039-G045	11-039-LC045
16.0	10	63	11-039-046	11-039-G046	11-039-LC046
20.0	10	67	11-039-047	11-039-G047	11-039-LC047
25.0	10	71	11-039-048	11-039-G048	11-039-LC048

### HSS MINI STEP COUNTERSINKS

Especially for metal screws.  
For stainless steel, metals, non-ferrous metals, sheet steel, plastic material.  
1/4" hexagonal shank for quick tool changes in bit holders.  
3 cutting edges.

DIAMETER	WORKING LENGTH	FOR COUNTERSINK SCREW	ORDER NO.
6-8-10mm	21mm	6,8,10mm	11-001-065M



### HSS MORSE TAPER SHANK 90° COUNTERSINKS



METRIC SIZES, DIN 335D, THREE FLUTE, 90°

MAX. CUTTING DIA.MM	TAPER SHANK	OAL MM	HSS
15.0	1	85	11-041-001
16.5	1	85	11-041-002
19.0	2	100	11-041-003
20.5	2	100	11-041-004
23.0	2	106	11-041-005
25.0	2	106	11-041-006
26.0	2	106	11-041-007
28.0	2	112	11-041-008
30.0	2	112	11-041-009

MAX. CUTTING DIA.MM	TAPER SHANK	OAL MM	HSS
31.0	2	112	11-041-010
34.0	2	117	11-041-011
37.0	2	118	11-041-012
40.0	3	140	11-041-013
50.0	3	150	11-041-014
63.0	4	180	11-041-015
80.0	4	190	11-041-016
100.0	4	200	11-041-017

### INCH SIZE HSS SINGLE FLUTE 82° COUNTSINKS



SIZE IN	SHANK DIA.(IN)	OAL IN	HSS 82°
3/16"	3/16"	1-1/2"	12-042-001
1/4"	1/4"	2"	12-042-002
5/16"	1/4"	2"	12-042-003
3/8"	1/4"	2"	12-042-004
1/2"	1/4"	2"	12-042-005
5/8"	1/2"	2-1/4"	12-042-006
3/4"	1/2"	2-3/4"	12-042-007
7/8"	1/2"	2-3/4"	12-042-008
1"	1/2"	2-3/4"	12-042-009
1-1/4"	3/4"	3"	12-042-010
1-1/2"	3/4"	3-1/2"	12-042-011
2"	3/4"	3-3/4"	12-042-012



SIZE	SPECIFICATION
7 PCS/SET	1/4,5/16,3/8,1/2,5/8,3/4,1"
12-042-S01	HSS

SIZE	SPECIFICATION
10 PCS/SET	1/4,5/16,3/8,1/2,5/8,3/4,1,1-1/4,1-1/2,2"
12-042-S02	HSS

### INCH SIZE SOLID CARBIDE SINGLE FLUTE 82° COUNTSINKS



SIZE IN	SHANK DIA.(IN)	OAL IN	CARBIDE C2 82°
1/4"	1/4"	2"	12-183-001
3/8"	1/4"	2-1/2"	12-183-002
1/2"	1/4"	2-1/2"	12-183-003
5/8"	3/8"	2-3/4"	12-183-004
3/4"	3/8"	2-3/4"	12-183-005
1"	1/2"	3"	12-183-006

## INCH SIZE HSS SIX FLUTE CHATTERLESS 82° COUNTERSINKS



SIZE IN	SHANK DIA.(IN)	OAL IN	HSS 82°
3/16"	3/16"	1-1/2"	12-044-001
1/4"	1/4"	1-1/2"	12-044-002
5/16"	1/4"	1-3/4"	12-044-003
3/8"	1/4"	1-3/4"	12-044-004
1/2"	1/4"	2-1/8"	12-044-005
5/8"	1/2"	2-3/8"	12-044-006
3/4"	1/2"	2-11/16"	12-044-007
7/8"	1/2"	2-13/16"	12-044-008
1"	1/2"	2-13/16"	12-044-009
1-1/4"	3/4"	3-3/8"	12-044-010
1-1/2"	3/4"	3-1/2"	12-044-011
1-3/4"	1"	4-1/4"	12-044-012
2"	1"	4-3/8"	12-044-013



SIZE	SPECIFICATION
8 PCS/SET	1/4,5/16,3/8,1/2,5/8,3/4,7/8,1"
12-044-S01	HSS
12-044-S02	HSSCO5

## INCH SIZE HSS THREE FLUTE COUNTERSINKS



SIZE IN	SHANK DIA.(IN)	HSS 82°	HSS 90°
1/4"	1/4"	12-043-001	12-043-006
3/8"	1/4"	12-043-002	12-043-007
1/2"	3/8"	12-043-003	12-043-008
3/4"	1/2"	12-043-004	12-043-009
1"	1/2"	12-043-005	12-043-010

SIZE	SPECIFICATION
5 PCS/SET	1/4,3/8,1/2,3/4,1"
12-043-S01	HSS

## HSS MICRO STOP COUNTERSINKS WITH THREAD SHANK



THREE FLUTE

SIZE IN	SHANK DIA.(IN)	HSS 82°	HSS 90°	HSS 100°	HSS 120°
3/8"	1/4"-28	12-182-001	12-182-011	12-182-021	12-182-031
7/16"	1/4"-28	12-182-002	12-182-012	12-182-022	12-182-032
1/2"	1/4"-28	12-182-003	12-182-013	12-182-023	12-182-033
5/8"	1/4"-28	12-182-004	12-182-014	12-182-024	12-182-034
3/4"	3/8"-24	12-182-005	12-182-015	12-182-025	12-182-035
3/4"	7/16"-20	12-182-006	12-182-016	12-182-026	12-182-036
1"	3/8"-24	12-182-007	12-182-017	12-182-027	12-182-037
1"	7/16"-20	12-182-008	12-182-018	12-182-028	12-182-038
1-1/8"	3/8"-24	12-182-009	12-182-019	12-182-029	12-182-039
1-1/8"	7/16"-20	12-182-010	12-182-020	12-182-030	12-182-040

## HSS COUNTERSINKS & DEBURRING TOOLS



CUTTING DIA.MM	SHANK DIA.MM	OAL MM	HSS 90°	HSSCO5 90°
2-5	6	45	11-045-001	11-045-C01
5-10	8	48	11-045-002	11-045-C02
10-15	10	65	11-045-003	11-045-C03
15-20	12	85	11-045-004	11-045-C04
20-25	15	102	11-045-005	11-045-C05
25-30	15	115	11-045-006	11-045-C06
30-35	15	127	11-045-007	11-045-C07
35-40	15	136	11-045-008	11-045-C08
40-45	18	155	11-045-009	11-045-C09
45-50	18	166	11-045-010	11-045-C10

## 4 PCS COUNTERSINK & DEBURRING TOOL SET

Large collection of sets is introduced to meet the requirements of different sectors in the industry. For fast and easy removal of burrs from Straight edge, Curved edge, Holes, Cross holes and Deep holes. A comprehensive program to cover all your countersink & deburring needs.



SIZE	SPECIFICATION	ORDER NO
4 PCS/SET	1pcs countersink & duburing: 2-8, 5-13, 7-20mm	11-045-S05
	1pcs 3.0mm swivel blades and quick change adaptor	



LONG SERIES

CUTTING DIA.MM	SHANK DIA.MM	OAL MM	HSS 90°	HSSCO5 90°
2-5	6	76	11-045-021	11-045-C21
5-10	8	86	11-045-022	11-045-C22
10-15	10	96	11-045-023	11-045-C23

EXTRA LONG SERIES

CUTTING DIA.MM	SHANK DIA.MM	OAL MM	HSS 90°	HSSCO5 90°
2-5	6	136	11-045-021	11-045-C21
5-10	8	146	11-045-022	11-045-C22
10-15	10	156	11-045-023	11-045-C23

SIZE	SPECIFICATION
5 PCS/SET	1-4,2-5,5-10,10-15,15-20mm,90°
11-045-S01	HSS

SIZE	SPECIFICATION
5 PCS/SET	0#,1#,2#,3#,4#,5#, 82°
12-045-S01	HSS

SIZE	SPECIFICATION
4 PCS/SET	2-5,5-10,10-15,15-20mm, 90°
12-045-S02	HSS-TIN
12-045-S03	HSS



### HSS TAPER SHANK COUNTERSINKS & DEBURRING TOOLS



SIZE	MORSE	OAL	HSS	HSSCO5
MM	TAPER	MM	90°	90°
2-5	1	90	11-045-011	11-045-C11
5-10	1	95	11-045-012	11-045-C12
10-15	2	120	11-045-013	11-045-C13
15-20	2	130	11-045-014	11-045-C14
20-25	2	135	11-045-015	11-045-C15
25-30	3	165	11-045-016	11-045-C16
30-35	3	170	11-045-017	11-045-C17
35-40	3	170	11-045-018	11-045-C18
40-45	3	180	11-045-019	11-045-C19
45-50	3	190	11-045-020	11-045-C20

### HSS COUNTERSINKS & DEBURRING TOOLS WITH 1/4" Q.C. HEX SHANK



SIZE	SPECIFICATION
3 PCS/SET 11-289-001	2-5,5-10,10-15mm, 90° HSS

SIZE	SPECIFICATION
3 PCS/SET 12-289-001	5/64-15/64", 1/8-11/32", 3/16-17/32", 90° HSS

### HSS SOLID CAP SCREW COUNTERBORES DIN373



#### FINE GRADE FOR THROUGH HOLES

SCREW SIZE	CUTTING DIA.	PILOT DIA.	SHANK DIA.	OAL	HSS	HSSCO5
MM	MM	MM	MM	MM		
M3	6.0	3.20	5	71	11-046A-008	11-046A-C08
M4	8.0	4.30	5	71	11-046A-010	11-046A-C10
M5	10.0	5.30	8	80	11-046A-012	11-046A-C12
M6	11.0	6.40	8	80	11-046A-013	11-046A-C13
M8	15.0	8.40	12.5	100	11-046A-015	11-046A-C15
M10	18.0	10.50	12.5	100	11-046A-017	11-046A-C17
M12	20.0	13.00	12.5	100	11-046A-018	11-046A-C18

#### MEDIUM GRADE FOR THROUGH HOLES

SCREW SIZE	CUTTING DIA.	PILOT DIA.	SHANK DIA.	OAL	HSS	HSSCO5
MM	MM	MM	MM	MM		
M3	6.0	3.40	5	71	11-046B-008	11-046B-C08
M4	8.0	4.50	5	71	11-046B-010	11-046B-C10
M5	10.0	5.50	8	80	11-046B-012	11-046B-C12
M6	11.0	6.60	8	80	11-046B-013	11-046B-C13
M8	15.0	9.00	12.5	100	11-046B-015	11-046B-C15
M10	18.0	11.00	12.5	100	11-046B-017	11-046B-C17
M12	20.0	13.50	12.5	100	11-046B-018	11-046B-C18

#### FOR CORE HOLES

SCREW SIZE	CUTTING DIA.	PILOT DIA.	SHANK DIA.	OAL	HSS	HSSCO5
MM	MM	MM	MM	MM		
M3	6.0	2.50	5	71	11-046-008	11-046-C08
M4	8.0	3.30	5	71	11-046-010	11-046-C10
M5	10.0	4.20	8	80	11-046-012	11-046-C12
M6	11.0	5.00	8	80	11-046-013	11-046-C13
M8	15.0	6.80	12.5	100	11-046-015	11-046-C15
M10	18.0	8.50	12.5	100	11-046-017	11-046-C17
M12	20.0	10.20	12.5	100	11-046-018	11-046-C18

### HSS SOLID CAP SCREW COUNTERBORES SET



SIZE	SPECIFICATION
7 PCS/SET 11-046-S01	M3,M4,M5,M6,M8,M10,M12 HSS
11-046-S02	HSSCO5

SIZE	SPECIFICATION
7 PCS/SET 12-046-S02	#6,#8,#10,1/4,5/16,3/8,1/2" HSS
12-046-S03	HSSCO5

SIZE	SPECIFICATION
4 PCS/SET 12-046-S01	#10,1/4,5/16,3/8" HSS

### HSS COUNTERBORES (DIN373) & COUNTERSINKS(DIN1866) SET



SIZE	SPECIFICATION
18 PCS/SET 11-046-S03	M1.0,M1.4,M1.6,M2.0,M2.5,M3.0,M4.0,M5.0 HSS

### HSS INTERCHANGEABLE PILOT COUNTERBORES SET

- all counterbores and pilot are exchangeable in any one size
- Fixing one shank(holder) while changing different counterbores and pilots
- Always use coolant fluid in operation



SIZE	SPECIFICATION
21 PCS/SET 11-184-S01	pilot:4-10.5, counterbores:8.5-16.5 HSS

SIZE	SPECIFICATION
22 PCS/SET 11-184-S02	pilot:12-25, counterbores:26-36 HSS

Pilots:4.0,4.5,5.0,5.5,6.0,6.5,7.0,7.5,8.0,8.5,9.0,9.5,10.0,10.5mm counterbores:8.5,9.5,10.5,11.5,13.5,16.5mm 1 Pcs of straight shank

Pilots:12,13,14,15,16,17,18,19,20,21,22,23,24,25mm counterbores:26,28,30,32,33,34,36mm 1 pcs of MT2 taper shank

### HSS THREE FLUTE SOLID CAP SCREW COUNTERBORES



SCREW SIZE	PILOT DIA.	CUTTINT DIA.	SHANK DIA.	OAL	HSS
IN	IN	IN	IN	IN	
#6	0.150"	0.242"	7/32"	3"	12-046-001
#8	11/64"	19/64"	1/4"	3"	12-046-002
#10	13/64"	21/64"	5/16"	3-1/12"	12-046-003
1/4"	9/32"	13/32"	3/8"	5	12-046-004
5/16"	11/32"	1/2"	7/16"	5	12-046-005
3/8"	13/32"	19/32"	1/2"	6	12-046-006
7/16"	15/32"	11/16"	1/2"	7	12-046-007
1/2"	17/32"	25/32"	1/2"	7-1/2"	12-046-008
5/8"	21/32"	31/32"	3/4"	7-1/2"	12-046-009
3/4"	25/32"	1-5/32"	1"	8	12-046-010
1"	1-1/16"	1-9/16"	1"	10	12-046-011



## THREAD CUTTING AND REPAIRING

# 07

METAL CUTTING

## COLOR CODED HIGH PERFORMANCE MACHINE TAPS

Color coded taps is specially designed to optimize your machining performances. The need for greater productivity from expensive high-performance machine tools and the demand for the cutting tools to perform at optimum efficiency to minimize machine down-time, together with the demands for improved quality of machined components can be met with this range of Color ring cutting tools.

It consists of five Color application ranges. Each range has been designed with different cutting geometries and surface treatments to ensure optimum tool performance for each specific material category. Each range of materials group has its own cutting tools.

### APPLICATION:

- Stainless Steel – Blue Coded
- Tough Treatable Steel – Red Coded
- Aluminium – Yellow Coded
- Cast Iron – White Coded
- Carbon Steel – Green Coded



SICHUAN WEST MANUFACTURING CORP., LTD.  
SICHUAN MACHINERY IMP.&EXP. CORP., LTD.



### DIN352 METRIC H.S.S. COARSE THREAD HAND TAP



- Straight Flute.
- Right hand cutting.
- Chamfer length: taper 5-6 threads, plug 3-4 threads, bottoming 2-3 threads.
- General use with steel, stainless steel, cast iron, nonferrous material.
- Hole of application: Blind or through hole and thread depth < 1.5d1
- size same or under M6 with reinforce shank, size over M6 with reforced shank.

SIZE (D1)	THREAD LENGTH (L2)	TOTAL LENGTH (L1)	SHANK DIA. (D2)	SQUARE (A)	TAPER	H.S.S. (BRIGHT FINISH)		
						PLUG	BOTTOMING	3PC/SET
M2x0.4	8	36	2.8	2.1	11-084-T008	11-084-P008	11-084-B008	11-084-S008
M3x0.5	10	40	3.5	2.7	11-084-T013	11-084-P013	11-084-B013	11-084-S013
M4x0.7	12	45	4.5	3.4	11-084-T015	11-084-P015	11-084-B015	11-084-S015
M5x0.8	14	50	6	4.9	11-084-T017	11-084-P017	11-084-B017	11-084-S017
M6x1	16	56	6	4.9	11-084-T019	11-084-P019	11-084-B019	11-084-S019
M8x1.25	20	63	6	4.9	11-084-T021	11-084-P021	11-084-B021	11-084-S021
M10x1.5	22	70	7	5.5	11-084-T023	11-084-P023	11-084-B023	11-084-S023
M12x1.75	24	75	9	7	11-084-T025	11-084-P025	11-084-B025	11-084-S025
M14x2	26	80	11	9	11-084-T026	11-084-P026	11-084-B026	11-084-S026
M16x2	27	80	12	9	11-084-T027	11-084-P027	11-084-B027	11-084-S027
M18x2.5	30	95	14	11	11-084-T028	11-084-P028	11-084-B028	11-084-S028
M20x2.5	32	95	16	12	11-084-T029	11-084-P029	11-084-B029	11-084-S029
M22x2.5	32	100	18	14.5	11-084-T030	11-084-P030	11-084-B030	11-084-S030
M24x3	34	110	18	14.5	11-084-T031	11-084-P031	11-084-B031	11-084-S031
M27x3	36	110	20	16	11-084-T032	11-084-P032	11-084-B032	11-084-S032
M30x3.5	40	125	22	18	11-084-T033	11-084-P033	11-084-B033	11-084-S033

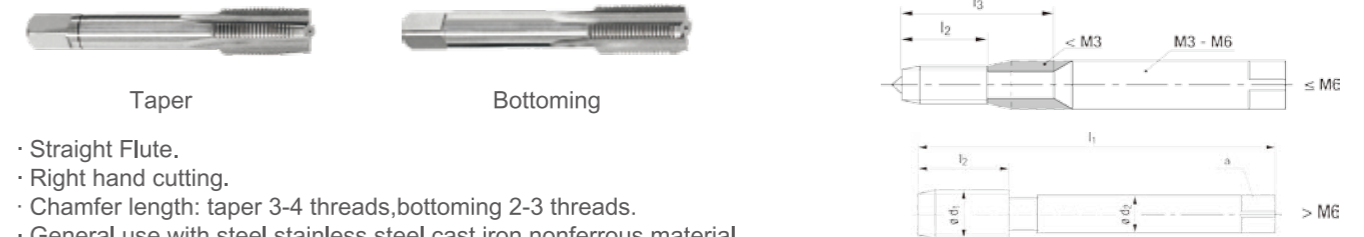
### H.S.S. 21PC ISO METRIC COARSE THREAD HAND TAP SET

All taps are made according to DIN352.  
3pcs each of M3/M4/M5/M6/M8/M10/M12.



ORDER NO. 11-109-001

### DIN2181 METRIC H.S.S. FINE THREAD HAND TAP



- Straight Flute.
- Right hand cutting.
- Chamfer length: taper 3-4 threads, bottoming 2-3 threads.
- General use with steel, stainless steel, cast iron, nonferrous material.
- Hole of application: Blind or through hole and thread depth < 1.5d1
- size same or under M6 with reinforce shank, size over M6 with reforced shank.

SIZE (D1)	THREAD LENGTH (L2)	TOTAL LENGTH (L1)	SHANK DIA. (D2)	SQUARE (A)	TAPER	H.S.S. (BRIGHT FINISH)	
						BOTTOMING	2PCS/SET
M2.5x0.35	9	40	2.8	2.1	11-230-T004	11-230-B004	11-230-S004
M3x0.35	8	40	3.5	2.7	11-230-T006	11-230-B006	11-230-S006
M4x0.35	9	45	4.5	3.4	11-230-T008	11-230-B008	11-230-S008
M4x0.5	9	45	4.5	3.4	11-230-T009	11-230-B009	11-230-S009
M5x0.5	11	50	6	4.9	11-230-T010	11-230-B010	11-230-S010
M6x0.5	12	56	6	4.9	11-230-T011	11-230-B011	11-230-S011
M6x0.75	12	56	6	4.9	11-230-T012	11-230-B012	11-230-S012
M8x0.5	14	56	6	4.9	11-230-T014	11-230-B014	11-230-S014
M8x0.75	14	56	6	4.9	11-230-T015	11-230-B015	11-230-S015
M8x1	17	63	6	4.9	11-230-T016	11-230-B016	11-230-S016
M10x0.75	18	63	7	5.5	11-230-T018	11-230-B018	11-230-S018
M10x1	18	63	7	5.5	11-230-T019	11-230-B019	11-230-S019
M10x1.25	22	70	7	5.5	11-230-T020	11-230-B020	11-230-S020
M12x1	18	70	9	7	11-230-T022	11-230-B022	11-230-S022
M12x1.25	20	70	9	7	11-230-T023	11-230-B023	11-230-S023
M12x1.5	20	70	9	7	11-230-T024	11-230-B024	11-230-S024
M14x1	18	70	11	9	11-230-T025	11-230-B025	11-230-S025
M14x1.25	20	70	11	9	11-230-T026	11-230-B026	11-230-S026
M14x1.5	20	70	11	9	11-230-T027	11-230-B027	11-230-S027
M16x1	18	70	12	9	11-230-T030	11-230-B030	11-230-S030
M16x1.5	20	70	12	9	11-230-T031	11-230-B031	11-230-S031
M18x1	18	80	14	11	11-230-T032	11-230-B032	11-230-S032
M18x1.5	22	80	14	11	11-230-T033	11-230-B033	11-230-S033
M18x2	22	80	14	11	11-230-T034	11-230-B034	11-230-S034
M20x1	18	80	16	12	11-230-T035	11-230-B035	11-230-S035
M20x1.5	22	80	16	12	11-230-T036	11-230-B036	11-230-S036
M20x2	22	80	16	12	11-230-T037	11-230-B037	11-230-S037
M22x1	18	80	18	14.5	11-230-T038	11-230-B038	11-230-S038
M22x1.5	22	80	18	14.5	11-230-T039	11-230-B039	11-230-S039
M22x2	22	80	18	14.5	11-230-T040	11-230-B040	11-230-S040
M24x1.5	22	90	18	14.5	11-230-T042	11-230-B042	11-230-S042
M24x2	22	90	18	14.5	11-230-T043	11-230-B043	11-230-S043
M27x1.5	22	90	20	16	11-230-T045	11-230-B045	11-230-S045
M27x2	22	90	20	16	11-230-T046	11-230-B046	11-230-S046
M28x1.5	22	90	20	16	11-230-T047	11-230-B047	11-230-S047

### DIN371 METRIC SIZE H.S.S STRAIGHT FLUTE MACHINE TAP

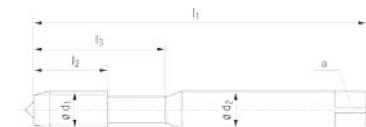


- Straight flute and with reinforced shank .
- Ground teeth and chamfer :2-3 threads
- Right hand cutting.
- General use with steel, stainless steel, cast iron, nonferrous material.
- Hole of application: blind or through hole and thread depth <2d1



SIZE (D1)	THREAD LENGTH (L2)	TOTAL LENGTH (L1)	SHANK DIA. (D2)	SQUARE (A)	H.S.S.			HSS.COBLT 5%		
					BRIGHT	OXIDE	TIN COATED	BRIGHT	TIN COATED	TICN COATED
M2x0.4	7	45	2.8	2.1	11-085-069	11-085-B069	11-085-G069	11-085-C069	11-085-A069	11-085-D069
M2.3x0.4	7	45	2.8	2.1	11-085-073	11-085-B073	11-085-G073	11-085-C073	11-085-A073	11-085-D073
M2.5x0.45	9	50	2.8	2.1	11-085-077	11-085-B077	11-085-G077	11-085-C077	11-085-A077	11-085-D077
M2.6x0.45	9	50	2.8	2.1	11-085-081	11-085-B081	11-085-G081	11-085-C081	11-085-A081	11-085-D081
M3x0.5	11	56	3.5	2.7	11-085-001	11-085-B001	11-085-G001	11-085-C001	11-085-A001	11-085-D001
M3.5x0.6	12	56	4	3	11-085-085	11-085-B085	11-085-G085	11-085-C085	11-085-A085	11-085-D085
M4x0.7	13	63	4.5	3.4	11-085-005	11-085-B005	11-085-G005	11-085-C005	11-085-A005	11-085-D005
M5x0.8	15	70	6	4.9	11-085-009	11-085-B009	11-085-G009	11-085-C009	11-085-A009	11-085-D009
M6x1	17	80	6	4.9	11-085-013	11-085-B013	11-085-G013	11-085-C013	11-085-A013	11-085-D013
M7x1	17	80	7	5.5	11-085-017	11-085-B017	11-085-G017	11-085-C017	11-085-A017	11-085-D017
M8x1.25	20	90	8	6.2	11-085-021	11-085-B021	11-085-G021	11-085-C021	11-085-A021	11-085-D021
M10x1.5	22	100	10	8	11-085-029	11-085-B029	11-085-G029	11-085-C029	11-085-A029	11-085-D029
M12X1.75	24	110	12	9	11-085-033	11-085-B033	11-085-G033	11-085-C033	11-085-A033	11-085-D033

### DIN371 METRIC SIZE H.S.S 15° SPIRAL FLUTE MACHINE TAP



- Slow spiral Flute 15° and with reinforced shank .
- Ground teeth and Chamfer :2-3 threads
- Right hand cutting.
- General use with steel, stainless steel, cast iron, nonferrous material.
- Hole of application: Blind hole and thread depth <2d1.

SIZE (D1)	THREAD LENGTH (L2)	TOTAL LENGTH (L1)	SHANK DIA. (D2)	SQUARE (A)	H.S.S.			HSS.COBLT 5%		
					BRIGHT	OXIDE	TIN COATED	BRIGHT	TIN COATED	TICN COATED
M3x0.5	11	56	3.5	2.7	11-085-004	11-085-B004	11-085-G004	11-085-C004	11-085-A004	11-085-D004
M4x0.7	13	63	4.5	3.4	11-085-008	11-085-B008	11-085-G008	11-085-C008	11-085-A008	11-085-D008
M5x0.8	15	70	6	4.9	11-085-012	11-085-B012	11-085-G012	11-085-C012	11-085-A012	11-085-D012
M6x1	17	80	6	4.9	11-085-016	11-085-B016	11-085-G016	11-085-C016	11-085-A016	11-085-D016
M8x1.25	20	90	8	6.2	11-085-024	11-085-B024	11-085-G024	11-085-C024	11-085-A024	11-085-D024
M10x1.5	22	100	10	8	11-085-032	11-085-B032	11-085-G032	11-085-C032	11-085-A032	11-085-D032
M12X1.75	24	110	12	9	11-085-036	11-085-B036	11-085-G036	11-085-C036	11-085-A036	11-085-D036

### DIN371 METRIC SIZE H.S.S SPIRAL POINT MACHINE TAP



- Spiral point and with reinforced shank .
- Ground teeth and chamfer :4-5 threads
- Right hand cutting.
- General use with steel, stainless steel, cast iron, nonferrous material.
- Hole of application: through hole and thread depth <3d1.



SIZE (D1)	THREAD LENGTH (L2)	TOTAL LENGTH (L1)	SHANK DIA. (D2)	SQUARE (A)	H.S.S.			HSS.COBLT 5%		
					BRIGHT	OXIDE	TIN COATED	BRIGHT	TIN COATED	TICN COATED
M2x0.4	7	45	2.8	2.1	11-085-070	11-085-B070	11-085-G070	11-085-C070	11-085-A070	11-085-D070
M2.3x0.4	7	45	2.8	2.1	11-085-074	11-085-B074	11-085-G074	11-085-C074	11-085-A074	11-085-D074
M2.5x0.45	9	50	2.8	2.1	11-085-078	11-085-B078	11-085-G078	11-085-C078	11-085-A078	11-085-D078
M2.6x0.45	9	50	2.8	2.1	11-085-082	11-085-B082	11-085-G082	11-085-C082	11-085-A082	11-085-D082
M3x0.5	11	56	3.5	2.7	11-085-002	11-085-B002	11-085-G002	11-085-C002	11-085-A002	11-085-D002
M3.5x0.6	12	56	4	3	11-085-086	11-085-B086	11-085-G086	11-085-C086	11-085-A086	11-085-D086
M4x0.7	13	63	4.5	3.4	11-085-006	11-085-B006	11-085-G006	11-085-C006	11-085-A006	11-085-D006
M5x0.8	15	70	6	4.9	11-085-010	11-085-B010	11-085-G010	11-085-C010	11-085-A010	11-085-D010
M6x1	17	80	6	4.9	11-085-014	11-085-B014	11-085-G014	11-085-C014	11-085-A014	11-085-D014
M7x1	17	80	7	5.5	11-085-018	11-085-B018	11-085-G018	11-085-C018	11-085-A018	11-085-D018
M8x1.25	20	90	8	6.2	11-085-022	11-085-B022	11-085-G022	11-085-C022	11-085-A022	11-085-D022
M10x1.5	22	100	10	8	11-085-030	11-085-B030	11-085-G030	11-085-C030	11-085-A030	11-085-D030
M12X1.75	24	110	12	9	11-085-034	11-085-B034	11-085-G034	11-085-C034	11-085-A034	11-085-D034

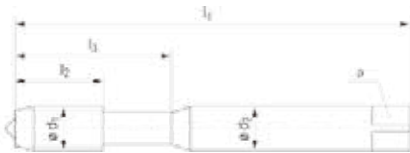
### 7PC/SET ISO METRIC COARSE THREAD MACHINE TAP WITH SPIRAL POINT

Including 1pcs each of spiral point machine tap M3/M4/M5/M6/M8/M10(as per DIN371). & M12(as perDIN376) in metal case



HSS.: ORDER NO.11-109-002  
HSS.with TiN coated: ORDER NO.11-109-003  
HSS.-Cobalt : ORDER NO. 11-287-001

### DIN371 METRIC SIZE H.S.S 35° SPIRAL FLUTE MACHINE TAP



- Fast spiral Flute 35° and with reinforced shank .
- Ground teeth and Chamfer :2-3 threads
- Right hand cutting.
- General use with steel, stainless steel, cast iron, nonferrous material.
- Hole of application: Blind hole and thread depth <math>< 2.5d\_1</math>.

Generally with shorter length teeth

SIZE (D1)	THREAD LENGTH (L2)	TOTAL LENGTH (L1)	SHANK DIA. (D2)	SQUARE (A)	H.S.S.			HSS.COBALT 5%		
					BRIGHT	OXIDE	TIN COATED	BRIGHT	TIN COATED	TICN COATED
M3x0.5	5	56	3.5	2.7	11-085-003	11-085-B003	11-085-G003	11-085-C003	11-085-A003	11-085-D003
M4x0.7	7	63	4.5	3.4	11-085-007	11-085-B007	11-085-G007	11-085-C007	11-085-A007	11-085-D007
M5x0.8	8	70	6	4.9	11-085-011	11-085-B011	11-085-G011	11-085-C011	11-085-A011	11-085-D011
M6x1	10	80	6	4.9	11-085-015	11-085-B015	11-085-G015	11-085-C015	11-085-A015	11-085-D015
M8x1.25	13	90	8	6.2	11-085-023	11-085-B023	11-085-G023	11-085-C023	11-085-A023	11-085-D023
M10x1.5	15	100	10	8	11-085-031	11-085-B031	11-085-G031	11-085-C031	11-085-A031	11-085-D031
M12x1.75	18	110	12	9	11-085-035	11-085-B035	11-085-G035	11-085-C035	11-085-A035	11-085-D035

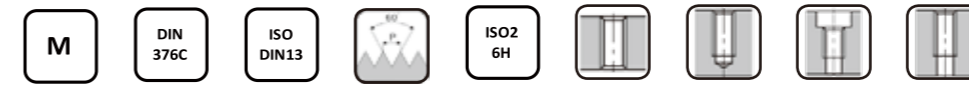
### 7PC/SET ISO METRIC COARSE THREAD MACHINE TAP WITH 35° SPIRAL FLUTE

Including 1pcs each of spiral flute 35° machine tap M3/M4/M5/M6/M8/M10(as per DIN371). & M12(as per DIN376), packed in metal case



HSS.: Order No.11-085-S05  
 HSS.with TiN coated: Order No.11-085-S10  
 HSS.-Cobalt : Order No.11-085-S15

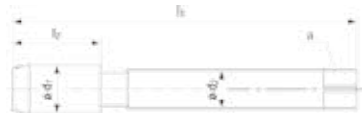
### DIN376 METRIC SIZE H.S.S STRAIGHT FLUTE MACHINE TAP



- Straight Flute and with reduced shank .
- Ground teeth and Chamfer :2-3 threads
- Right hand cutting.
- General use with steel, stainless steel, cast iron, nonferrous material.
- Hole of application: Blind or through hole and thread depth <math>< 2d\_1</math>

SIZE (D1)	THREAD LENGTH (L2)	TOTAL LENGTH (L1)	SHANK DIA. (D2)	SQUARE (A)	H.S.S.			HSS.COBALT 5%		
					BRIGHT	OXIDE	TIN COATED	BRIGHT	TIN COATED	TICN COATED
M3x0.5	11	56	2.2	/	11-086-001	11-086-B001	11-086-G001	11-086-C001	11-086-A001	11-086-D001
M4x0.7	13	63	2.8	2.1	11-086-005	11-086-B005	11-086-G005	11-086-C005	11-086-A005	11-086-D005
M5x0.8	16	70	3.5	2.7	11-086-009	11-086-B009	11-086-G009	11-086-C009	11-086-A009	11-086-D009
M6x1.0	19	80	4.5	3.4	11-086-013	11-086-B013	11-086-G013	11-086-C013	11-086-A013	11-086-D013
M8x1.25	22	90	6	4.9	11-086-021	11-086-B021	11-086-G021	11-086-C021	11-086-A021	11-086-D021
M10x1.5	24	100	7	5.5	11-086-029	11-086-B029	11-086-G029	11-086-C029	11-086-A029	11-086-D029
M12x1.75	29	110	9	7	11-086-033	11-086-B033	11-086-G033	11-086-C033	11-086-A033	11-086-D033
M14x2.0	30	110	11	9	11-086-037	11-086-B037	11-086-G037	11-086-C037	11-086-A037	11-086-D037
M16x2.0	32	110	12	9	11-086-041	11-086-B041	11-086-G041	11-086-C041	11-086-A041	11-086-D041
M18x2.5	34	125	14	11	11-086-045	11-086-B045	11-086-G045	11-086-C045	11-086-A045	11-086-D045
M20x2.5	34	140	16	12	11-086-049	11-086-B049	11-086-G049	11-086-C049	11-086-A049	11-086-D049
M22x2.5	34	140	18	14.5	11-086-053	11-086-B053	11-086-G053	11-086-C053	11-086-A053	11-086-D053
M24x3.0	38	160	18	14.5	11-086-057	11-086-B057	11-086-G057	11-086-C057	11-086-A057	11-086-D057
M27x3.0	38	160	20	16	11-086-061	11-086-B061	11-086-G061	11-086-C061	11-086-A061	11-086-D061
M30x3.5	45	180	22	18	11-086-065	11-086-B065	11-086-G065	11-086-C065	11-086-A065	11-086-D065
M33x3.5	50	180	25	20	11-086-069	11-086-B069	11-086-G069	11-086-C069	11-086-A069	11-086-D069
M36x4.0	56	200	28	22	11-086-073	11-086-B073	11-086-G073	11-086-C073	11-086-A073	11-086-D073
M39x4.0	60	200	32	24	11-086-077	11-086-B077	11-086-G077	11-086-C077	11-086-A077	11-086-D077
M42x4.5	60	200	32	24	11-086-081	11-086-B081	11-086-G081	11-086-C081	11-086-A081	11-086-D081
M45x4.5	65	220	36	29	11-086-085	11-086-B085	11-086-G085	11-086-C085	11-086-A085	11-086-D085
M48x5.0	70	250	36	29	11-086-089	11-086-B089	11-086-G089	11-086-C089	11-086-A089	11-086-D089
M52x5.0	70	250	40	32	11-086-093	11-086-B093	11-086-G093	11-086-C093	11-086-A093	11-086-D093

### DIN376 METRIC SIZE H.S.S SPIRAL POINT MACHINE TAP



- Spiral point and with reduced shank .
- Ground teeth and Chamfer :4-5 threads
- Right hand cutting.
- General use with steel, stainless steel, cast iron, nonferrous material.
- Hole of application: through hole and thread depth < 3d1.

### DIN376 METRIC SIZE H.S.S 15° SPIRAL FLUTE MACHINE TAP

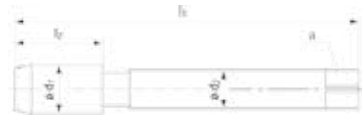


- Slow spiral Flute 15° and with reduced shank .
- Ground teeth and Chamfer :2-3 threads
- Right hand cutting.
- General use with steel, stainless steel, cast iron, nonferrous material.
- Hole of application: Blind hole and thread depth < 2d1

SIZE (D1)	THREAD LENGTH (L2)	TOTAL LENGTH (L1)	SHANK DIA. (D2)	SQUARE (A)	H.S.S.			HSS.COBALT 5%		
					BRIGHT	OXIDE	TIN COATED	BRIGHT	TIN COATED	TICN COATED
M3x0.5	11	56	2.2	/	11-086-002	11-086-B002	11-086-G002	11-086-C002	11-086-A002	11-086-D002
M4x0.7	13	63	2.8	2.1	11-086-006	11-086-B006	11-086-G006	11-086-C006	11-086-A006	11-086-D006
M5x0.8	16	70	3.5	2.7	11-086-010	11-086-B010	11-086-G010	11-086-C010	11-086-A010	11-086-D010
M6x1	19	80	4.5	3.4	11-086-014	11-086-B014	11-086-G014	11-086-C014	11-086-A014	11-086-D014
M8x1.25	22	90	6	4.9	11-086-022	11-086-B022	11-086-G022	11-086-C022	11-086-A022	11-086-D022
M10x1.5	24	100	7	5.5	11-086-030	11-086-B030	11-086-G030	11-086-C030	11-086-A030	11-086-D030
M12x1.75	29	110	9	7	11-086-034	11-086-B034	11-086-G034	11-086-C034	11-086-A034	11-086-D034
M14x2	30	110	11	9	11-086-038	11-086-B038	11-086-G038	11-086-C038	11-086-A038	11-086-D038
M16x2	32	110	12	9	11-086-042	11-086-B042	11-086-G042	11-086-C042	11-086-A042	11-086-D042
M18x2.5	34	125	14	11	11-086-046	11-086-B046	11-086-G046	11-086-C046	11-086-A046	11-086-D046
M20x2.5	34	140	16	12	11-086-050	11-086-B050	11-086-G050	11-086-C050	11-086-A050	11-086-D050
M22x2.5	34	140	18	14.5	11-086-054	11-086-B054	11-086-G054	11-086-C054	11-086-A054	11-086-D054
M24x3	38	160	18	14.5	11-086-058	11-086-B058	11-086-G058	11-086-C058	11-086-A058	11-086-D058
M27x3.0	38	160	20	16	11-086-062	11-086-B062	11-086-G062	11-086-C062	11-086-A062	11-086-D062
M30x3.5	45	180	22	18	11-086-066	11-086-B066	11-086-G066	11-086-C066	11-086-A066	11-086-D066
M33x3.5	50	180	25	20	11-086-070	11-086-B070	11-086-G070	11-086-C070	11-086-A070	11-086-D070
M36x4.0	56	200	28	22	11-086-074	11-086-B074	11-086-G074	11-086-C074	11-086-A074	11-086-D074
M39x4.0	60	200	32	24	11-086-078	11-086-B078	11-086-G078	11-086-C078	11-086-A078	11-086-D078
M42x4.5	60	200	32	24	11-086-082	11-086-B082	11-086-G082	11-086-C082	11-086-A082	11-086-D082
M45x4.5	65	220	36	29	11-086-086	11-086-B086	11-086-G086	11-086-C086	11-086-A086	11-086-D086
M48x5.0	70	250	36	29	11-086-090	11-086-B090	11-086-G090	11-086-C090	11-086-A090	11-086-D090
M52x5.0	70	250	40	32	11-086-094	11-086-B094	11-086-G094	11-086-C094	11-086-A094	11-086-D094

SIZE (D1)	THREAD LENGTH (L2)	TOTAL LENGTH (L1)	SHANK DIA. (D2)	SQUARE (A)	H.S.S.			HSS.COBALT 5%		
					BRIGHT	OXIDE	TIN COATED	BRIGHT	TIN COATED	TICN COATED
M3x0.5	11	56	2.2	/	11-086-004	11-086-B004	11-086-G004	11-086-C004	11-086-A004	11-086-D004
M4x0.7	13	63	2.8	2.1	11-086-008	11-086-B008	11-086-G008	11-086-C008	11-086-A008	11-086-D008
M5x0.8	16	70	3.5	2.7	11-086-012	11-086-B012	11-086-G012	11-086-C012	11-086-A012	11-086-D012
M6x1	19	80	4.5	3.4	11-086-016	11-086-B016	11-086-G016	11-086-C016	11-086-A016	11-086-D016
M8x1.25	22	90	6	4.9	11-086-024	11-086-B024	11-086-G024	11-086-C024	11-086-A024	11-086-D024
M10x1.5	24	100	7	5.5	11-086-032	11-086-B032	11-086-G032	11-086-C032	11-086-A032	11-086-D032
M12x1.75	29	110	9	7	11-086-036	11-086-B036	11-086-G036	11-086-C036	11-086-A036	11-086-D036
M14x2	30	110	11	9	11-086-040	11-086-B040	11-086-G040	11-086-C040	11-086-A040	11-086-D040
M16x2	32	110	12	9	11-086-044	11-086-B044	11-086-G044	11-086-C044	11-086-A044	11-086-D044
M18x2.5	34	125	14	11	11-086-048	11-086-B048	11-086-G048	11-086-C048	11-086-A048	11-086-D048
M20x2.5	34	140	16	12	11-086-052	11-086-B052	11-086-G052	11-086-C052	11-086-A052	11-086-D052
M22x2.5	34	140	18	14.5	11-086-056	11-086-B056	11-086-G056	11-086-C056	11-086-A056	11-086-D056
M24x3	38	160	18	14.5	11-086-060	11-086-B060	11-086-G060	11-086-C060	11-086-A060	11-086-D060
M27x3.0	38	160	20	16	11-086-064	11-086-B064	11-086-G064	11-086-C064	11-086-A064	11-086-D064
M30x3.5	45	180	22	18	11-086-068	11-086-B068	11-086-G068	11-086-C068	11-086-A068	11-086-D068
M33x3.5	50	180	25	20	11-086-072	11-086-B072	11-086-G072	11-086-C072	11-086-A072	11-086-D072
M36x4.0	56	200	28	22	11-086-076	11-086-B076	11-086-G076	11-086-C076	11-086-A076	11-086-D076
M39x4.0	60	200	32	24	11-086-080	11-086-B080	11-086-G080	11-086-C080	11-086-A080	11-086-D080
M42x4.5	60	200	32	24	11-086-084	11-086-B084	11-086-G084	11-086-C084	11-086-A084	11-086-D084
M45x4.5	65	220	36	29	11-086-088	11-086-B088	11-086-G088	11-086-C088	11-086-A088	11-086-D088
M48x5.0	70	250	36	29	11-086-092	11-086-B092	11-086-G092	11-086-C092	11-086-A092	11-086-D092
M52x5.0	70	250	40	32	11-086-096	11-086-B096	11-086-G096	11-086-C096	11-086-A096	11-086-D096

### DIN376 METRIC SIZE H.S.S 35° SPIRAL FLUTE MACHINE TAP

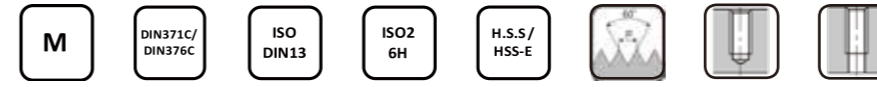


- Fast spiral Flute 35° and with reduced shank .
- Ground teeth and Chamfer :2-3 threads
- Right hand cutting.
- General use with steel, stainless steel, cast iron, nonferrous material.
- Hole of application: Blind hole and thread depth < 2.5d1.

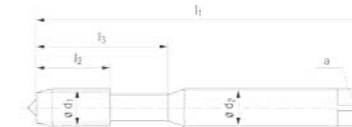
Generally with shorter length teeth

SIZE (D1)	THREAD LENGTH (L2)	TOTAL LENGTH (L1)	SHANK DIA. (D2)	SQUARE (A)	H.S.S.			HSS.COBALT 5%		
					BRIGHT	OXIDE	TIN COATED	BRIGHT	TIN COATED	TICN COATED
M3x0.5	6	56	2.2	/	11-086-003	11-086-B003	11-086-G003	11-086-C003	11-086-A003	11-086-D003
M4x0.7	7	63	2.8	2.1	11-086-007	11-086-B007	11-086-G007	11-086-C007	11-086-A007	11-086-D007
M5x0.8	8	70	3.5	2.7	11-086-011	11-086-B011	11-086-G011	11-086-C011	11-086-A011	11-086-D011
M6x1	10	80	4.5	3.4	11-086-015	11-086-B015	11-086-G015	11-086-C015	11-086-A015	11-086-D015
M8x1.25	13	90	6	4.9	11-086-023	11-086-B023	11-086-G023	11-086-C023	11-086-A023	11-086-D023
M10x1.5	15	100	7	5.5	11-086-031	11-086-B031	11-086-G031	11-086-C031	11-086-A031	11-086-D031
M12x1.75	18	110	9	7	11-086-035	11-086-B035	11-086-G035	11-086-C035	11-086-A035	11-086-D035
M14x2	20	110	11	9	11-086-039	11-086-B039	11-086-G039	11-086-C039	11-086-A039	11-086-D039
M16x2	20	110	12	9	11-086-043	11-086-B043	11-086-G043	11-086-C043	11-086-A043	11-086-D043
M18x2.5	25	125	14	11	11-086-047	11-086-B047	11-086-G047	11-086-C047	11-086-A047	11-086-D047
M20x2.5	25	140	16	12	11-086-051	11-086-B051	11-086-G051	11-086-C051	11-086-A051	11-086-D051
M22x2.5	27	140	18	14.5	11-086-055	11-086-B055	11-086-G055	11-086-C055	11-086-A055	11-086-D055
M24x3	30	160	18	14.5	11-086-059	11-086-B059	11-086-G059	11-086-C059	11-086-A059	11-086-D059
M27x3.0	30	160	20	16	11-086-063	11-086-B063	11-086-G063	11-086-C063	11-086-A063	11-086-D063
M30x3.5	35	180	22	18	11-086-067	11-086-B067	11-086-G067	11-086-C067	11-086-A067	11-086-D067
M33x3.5	35	180	25	20	11-086-071	11-086-B071	11-086-G071	11-086-C071	11-086-A071	11-086-D071
M36x4.0	40	200	28	22	11-086-075	11-086-B075	11-086-G075	11-086-C075	11-086-A075	11-086-D075
M39x4.0	40	200	32	24	11-086-079	11-086-B079	11-086-G079	11-086-C079	11-086-A079	11-086-D079
M42x4.5	45	200	32	24	11-086-083	11-086-B083	11-086-G083	11-086-C083	11-086-A083	11-086-D083
M45x4.5	45	220	36	29	11-086-087	11-086-B087	11-086-G087	11-086-C087	11-086-A087	11-086-D087
M48x5.0	50	250	36	29	11-086-091	11-086-B091	11-086-G091	11-086-C091	11-086-A091	11-086-D091
M52x5.0	50	250	40	32	11-086-095	11-086-B095	11-086-G095	11-086-C095	11-086-A095	11-086-D095

### ISO METRIC INTERRUPTED THREAD MACHINE TAP



DIN371C



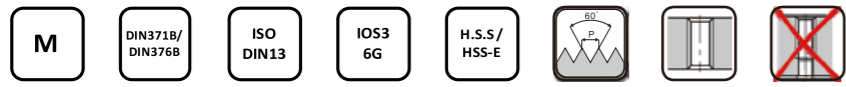
DIN376C



- Straight Flute.
- Ground teeth and Chamfer :2-3 threads
- Right hand cutting.
- General use with steel, stainless steel, cast iron, nonferrous material.
- Hole of application: Blind or through hole and thread depth < 2d1
- Reduce friction and permit better lubrication.

SIZE (D1)	THREAD LENGTH (L2)	TOTAL LENGTH (L1)	SHANK DIA. (D2)	SQUARE (A)	H.S.S.			HSS.COBALT 5%		
					BRIGHT	OXIDE	TIN COATED	BRIGHT	TIN COATED	TICN COATED
DIN371C										
M3x0.5	11	56	3.5	2.7	11-085-E001	11-085-F001	11-085-H001	11-085-K001	11-085-M001	11-085-N001
M4x0.7	13	63	4.5	3.4	11-085-E005	11-085-F005	11-085-H005	11-085-K005	11-085-M005	11-085-N005
M5x0.8	16	70	6	4.9	11-085-E009	11-085-F009	11-085-H009	11-085-K009	11-085-M009	11-085-N009
M6x1	19	80	6	4.9	11-085-E013	11-085-F013	11-085-H013	11-085-K013	11-085-M013	11-085-N013
M8x1.25	22	90	8	6.2	11-085-E021	11-085-F021	11-085-H021	11-085-K021	11-085-M021	11-085-N021
M10x1.5	24	100	10	8	11-085-E029	11-085-F029	11-085-H029	11-085-K029	11-085-M029	11-085-N029
DIN376C										
M3x0.5	11	56	2.2	/	11-086-E001	11-086-F001	11-086-H001	11-086-K001	11-086-M001	11-086-N001
M4x0.7	13	63	2.8	2.1	11-086-E005	11-086-F005	11-086-H005	11-086-K005	11-086-M005	11-086-N005
M5x0.8	16	70	3.5	2.7	11-086-E009	11-086-F009	11-086-H009	11-086-K009	11-086-M009	11-086-N009
M6x1	19	80	4.5	3.4	11-086-E013	11-086-F013	11-086-H013	11-086-K013	11-086-M013	11-086-N013
M8x1.25	22	90	6	4.9	11-086-E021	11-086-F021	11-086-H021	11-086-K021	11-086-M021	11-086-N021
M10x1.5	24	100	7	5.5	11-086-E029	11-086-F029	11-086-H029	11-086-K029	11-086-M029	11-086-N029
M12x1.75	29	110	9	7	11-086-E033	11-086-F033	11-086-H033	11-086-K033	11-086-M033	11-086-N033
M14x2	30	110	11	9	11-086-E037	11-086-F037	11-086-H037	11-086-K037	11-086-M037	11-086-N037
M16x2	32	110	12	9	11-086-E041	11-086-F041	11-086-H041	11-086-K041	11-086-M041	11-086-N041
M18x2.5	34	125	14	11	11-086-E045	11-086-F045	11-086-H045	11-086-K045	11-086-M045	11-086-N045
M20x2.5	34	140	16	12	11-086-E049	11-086-F049	11-086-H049	11-086-K049	11-086-M049	11-086-N049
M22x2.5	34	140	18	14.5	11-086-E053	11-086-F053	11-086-H053	11-086-K053	11-086-M053	11-086-N053
M24x3	38	160	18	14.5	11-086-E057	11-086-F057	11-086-H057	11-086-K057	11-086-M057	11-086-N057

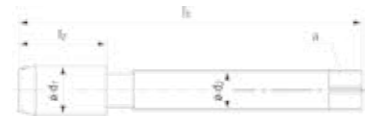
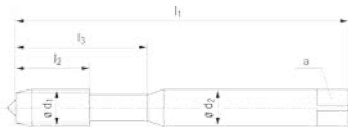
### ISO METRIC COARSE THREAD OVERSIZE MACHINE TAP



DIN371B



DIN376B



- Spiral point.
- Ground teeth and Chamfer :4-5 threads
- Right hand cutting.
- Universal use with steel, stainless steel, cast iron, nonferrous material.
- Hole of application: through hole and thread depth <math>< 3d\_1</math>

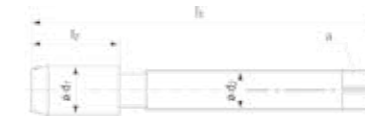
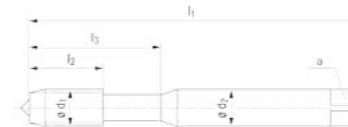
### ISO METRIC COARSE THREAD OVERSIZE MACHINE TAP



DIN371C



DIN376C



- Fast spiral Flute 35° .
- Ground teeth and Chamfer :2-3 threads.
- Right hand cutting.
- General use with steel, stainless steel, cast iron, nonferrous material.
- Hole of application: blind hole and thread depth <math>< 2.5d\_1</math>

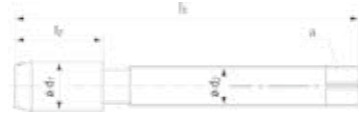
SIZE (D1)	THREAD LENGTH (L2)	TOTAL LENGTH (L1)	SHANK DIA. (D2)	SQUARE (A)	H.S.S.			HSS.COBALT 5%		
					BRIGHT	OXIDE	TIN COATED	BRIGHT	TIN COATED	TICN COATED
DIN371B										
M3x0.5	11	56	3.5	2.7	11-085-P002	11-085-R002	11-085-S002	11-085-T002	11-085-W002	11-085-X002
M4x0.7	13	63	4.5	3.4	11-085-P006	11-085-R006	11-085-S006	11-085-T006	11-085-W006	11-085-X006
M5x0.8	16	70	6	4.9	11-085-P010	11-085-R010	11-085-S010	11-085-T010	11-085-W010	11-085-X010
M6x1	19	80	6	4.9	11-085-P014	11-085-R014	11-085-S014	11-085-T014	11-085-W014	11-085-X014
M8x1.25	22	90	8	6.2	11-085-P022	11-085-R022	11-085-S022	11-085-T022	11-085-W022	11-085-X022
M10x1.5	24	100	10	8	11-085-P030	11-085-R030	11-085-S030	11-085-T030	11-085-W030	11-085-X030
DIN376B										
M12x1.75	29	110	9	7	11-086-P034	11-086-R034	11-086-S034	11-086-T034	11-086-W034	11-086-X034
M14x2	30	110	11	9	11-086-P038	11-086-R038	11-086-S038	11-086-T038	11-086-W038	11-086-X038
M16x2	32	110	12	9	11-086-P042	11-086-R042	11-086-S042	11-086-T042	11-086-W042	11-086-X042
M18x2.5	34	125	14	11	11-086-P046	11-086-R046	11-086-S046	11-086-T046	11-086-W046	11-086-X046
M20x2.5	34	140	16	12	11-086-P050	11-086-R050	11-086-S050	11-086-T050	11-086-W050	11-086-X050

SIZE (D1)	THREAD LENGTH (L2)	TOTAL LENGTH (L1)	SHANK DIA. (D2)	SQUARE (A)	H.S.S.			HSS.COBALT 5%		
					BRIGHT	OXIDE	TIN COATED	BRIGHT	TIN COATED	TICN COATED
DIN371C										
M3x0.5	6	56	3.5	2.7	11-085-P003	11-085-R003	11-085-S003	11-085-T003	11-085-W003	11-085-X003
M4x0.7	7	63	4.5	3.4	11-085-P007	11-085-R007	11-085-S007	11-085-T007	11-085-W007	11-085-X007
M5x0.8	8	70	6	4.9	11-085-P011	11-085-R011	11-085-S011	11-085-T011	11-085-W011	11-085-X011
M6x1	10	80	6	4.9	11-085-P015	11-085-R015	11-085-S015	11-085-T015	11-085-W015	11-085-X015
M8x1.25	13	90	8	6.2	11-085-P023	11-085-R023	11-085-S023	11-085-T023	11-085-W023	11-085-X023
M10x1.5	15	100	10	8	11-085-P031	11-085-R031	11-085-S031	11-085-T031	11-085-W031	11-085-X031
DIN376C										
M12x1.75	18	110	9	7	11-086-P035	11-086-R035	11-086-S035	11-086-T035	11-086-W035	11-086-X035
M14x2	20	110	11	9	11-086-P039	11-086-R039	11-086-S039	11-086-T039	11-086-W039	11-086-X039
M16x2	20	110	12	9	11-086-P043	11-086-R043	11-086-S043	11-086-T043	11-086-W043	11-086-X043
M18x2.5	25	125	14	11	11-086-P047	11-086-R047	11-086-S047	11-086-T047	11-086-W047	11-086-X047
M20x2.5	25	140	16	12	11-086-P051	11-086-R051	11-086-S051	11-086-T051	11-086-W051	11-086-X051

### DIN374 METRIC SIZE H.S.S. STRAIGHT FLUTE MACHINE TAP



- Straight Flute and with reduced shank .
- Ground teeth and Chamfer :2-3 threads
- Right hand cutting.
- General use with steel, stainless steel, cast iron, nonferrous material.
- Hole of application: Blind or through hole and thread depth < 2d1



### DIN374 METRIC SIZE H.S.S SPIRAL POINT MACHINE TAP



- Spiral point and with reduced shank .
- Ground teeth and Chamfer :4-5 threads
- Right hand cutting.
- General use with steel, stainless steel, cast iron, nonferrous material.
- Hole of application: through hole and thread depth < 3d1.



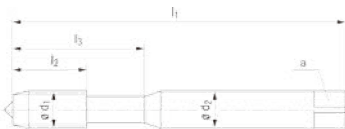
SIZE (D1)	THREAD LENGTH (L2)	TOTAL LENGTH (L1)	SHANK DIA. (D2)	SQUARE (A)	H.S.S.			HSS.COBALT 5%		
					BRIGHT	OXIDE	TIN COATED	BRIGHT	TIN COATED	TICN COATED
M4x0.35	10	63	2.8	2.1	11-386-0005	11-386-B0005	11-386-G0005	11-386-C0005	11-386-A0005	11-386-D0005
M5x0.5	12	70	3.5	2.7	11-386-0010	11-386-B0010	11-386-G0010	11-386-C0010	11-386-A0010	11-386-D0010
M6x0.75	14	80	4.5	3.4	11-386-0015	11-386-B0015	11-386-G0015	11-386-C0015	11-386-A0015	11-386-D0015
M8x0.75	19	80	6	4.9	11-386-0020	11-386-B0020	11-386-G0020	11-386-C0020	11-386-A0020	11-386-D0020
M8x1.0	22	90	6	4.9	11-386-0025	11-386-B0025	11-386-G0025	11-386-C0025	11-386-A0025	11-386-D0025
M10x1.0	20	90	7	5.5	11-386-0030	11-386-B0030	11-386-G0030	11-386-C0030	11-386-A0030	11-386-D0030
M10x1.25	24	100	7	5.5	11-386-0035	11-386-B0035	11-386-G0035	11-386-C0035	11-386-A0035	11-386-D0035
M12x1.0	22	100	9	7	11-386-0040	11-386-B0040	11-386-G0040	11-386-C0040	11-386-A0040	11-386-D0040
M12x1.25	22	100	9	7	11-386-0045	11-386-B0045	11-386-G0045	11-386-C0045	11-386-A0045	11-386-D0045
M12x1.5	22	100	9	7	11-386-0050	11-386-B0050	11-386-G0050	11-386-C0050	11-386-A0050	11-386-D0050
M14x1.0	22	100	11	9	11-386-0055	11-386-B0055	11-386-G0055	11-386-C0055	11-386-A0055	11-386-D0055
M14x1.25	22	100	11	9	11-386-0060	11-386-B0060	11-386-G0060	11-386-C0060	11-386-A0060	11-386-D0060
M14x1.5	22	100	11	9	11-386-0065	11-386-B0065	11-386-G0065	11-386-C0065	11-386-A0065	11-386-D0065
M16x1.0	22	100	12	9	11-386-0070	11-386-B0070	11-386-G0070	11-386-C0070	11-386-A0070	11-386-D0070
M16x1.5	22	100	12	9	11-386-0075	11-386-B0075	11-386-G0075	11-386-C0075	11-386-A0075	11-386-D0075
M18x1.0	25	110	14	11	11-386-0080	11-386-B0080	11-386-G0080	11-386-C0080	11-386-A0080	11-386-D0080
M18x1.5	25	110	14	11	11-386-0085	11-386-B0085	11-386-G0085	11-386-C0085	11-386-A0085	11-386-D0085
M18x2.0	34	125	14	11	11-386-0090	11-386-B0090	11-386-G0090	11-386-C0090	11-386-A0090	11-386-D0090
M20x1.0	25	125	16	12	11-386-0095	11-386-B0095	11-386-G0095	11-386-C0095	11-386-A0095	11-386-D0095
M20x1.5	25	125	16	12	11-386-0105	11-386-B0105	11-386-G0105	11-386-C0105	11-386-A0105	11-386-D0105
M20x2.0	34	140	16	12	11-386-0110	11-386-B0110	11-386-G0110	11-386-C0110	11-386-A0110	11-386-D0110
M22x1.0	25	125	18	14.5	11-386-0115	11-386-B0115	11-386-G0115	11-386-C0115	11-386-A0115	11-386-D0115
M22x1.5	25	125	18	14.5	11-386-0120	11-386-B0120	11-386-G0120	11-386-C0120	11-386-A0120	11-386-D0120
M22x2.0	34	140	18	14.5	11-386-0125	11-386-B0125	11-386-G0125	11-386-C0125	11-386-A0125	11-386-D0125
M24x1.0	28	140	18	14.5	11-386-0130	11-386-B0130	11-386-G0130	11-386-C0130	11-386-A0130	11-386-D0130
M24x1.5	28	140	18	14.5	11-386-0135	11-386-B0135	11-386-G0135	11-386-C0135	11-386-A0135	11-386-D0135
M24x2.0	28	140	18	14.5	11-386-0140	11-386-B0140	11-386-G0140	11-386-C0140	11-386-A0140	11-386-D0140
M27x1.5	28	140	20	16	11-386-0155	11-386-B0155	11-386-G0155	11-386-C0155	11-386-A0155	11-386-D0155
M27x2.0	28	140	20	16	11-386-0160	11-386-B0160	11-386-G0160	11-386-C0160	11-386-A0160	11-386-D0160
M30x1.5	28	150	22	18	11-386-0170	11-386-B0170	11-386-G0170	11-386-C0170	11-386-A0170	11-386-D0170
M30x2.0	28	150	22	18	11-386-0175	11-386-B0175	11-386-G0175	11-386-C0175	11-386-A0175	11-386-D0175

SIZE (D1)	THREAD LENGTH (L2)	TOTAL LENGTH (L1)	SHANK DIA. (D2)	SQUARE (A)	H.S.S.			HSS.COBALT 5%		
					BRIGHT	OXIDE	TIN COATED	BRIGHT	TIN COATED	TICN COATED
M4x0.35	10	63	2.8	2.1	11-386-0250	11-386-B0250	11-386-G0250	11-386-C0250	11-386-A0250	11-386-D0250
M5x0.5	12	70	3.5	2.7	11-386-0260	11-386-B0260	11-386-G0260	11-386-C0260	11-386-A0260	11-386-D0260
M6x0.75	14	80	4.5	3.4	11-386-0275	11-386-B0275	11-386-G0275	11-386-C0275	11-386-A0275	11-386-D0275
M8x0.75	19	80	6	4.9	11-386-0290	11-386-B0290	11-386-G0290	11-386-C0290	11-386-A0290	11-386-D0290
M8x1.0	22	90	6	4.9	11-386-0295	11-386-B0295	11-386-G0295	11-386-C0295	11-386-A0295	11-386-D0295
M10x1.0	20	90	7	5.5	11-386-0315	11-386-B0315	11-386-G0315	11-386-C0315	11-386-A0315	11-386-D0315
M10x1.25	24	100	7	5.5	11-386-0320	11-386-B0320	11-386-G0320	11-386-C0320	11-386-A0320	11-386-D0320
M12x1.0	22	100	9	7	11-386-0340	11-386-B0340	11-386-G0340	11-386-C0340	11-386-A0340	11-386-D0340
M12x1.25	22	100	9	7	11-386-0345	11-386-B0345	11-386-G0345	11-386-C0345	11-386-A0345	11-386-D0345
M12x1.5	22	100	9	7	11-386-0350	11-386-B0350	11-386-G0350	11-386-C0350	11-386-A0350	11-386-D0350
M14x1.0	22	100	11	9	11-386-0370	11-386-B0370	11-386-G0370	11-386-C0370	11-386-A0370	11-386-D0370
M14x1.25	22	100	11	9	11-386-0375	11-386-B0375	11-386-G0375	11-386-C0375	11-386-A0375	11-386-D0375
M14x1.5	22	100	11	9	11-386-0380	11-386-B0380	11-386-G0380	11-386-C0380	11-386-A0380	11-386-D0380
M16x1.0	22	100	12	9	11-386-0395	11-386-B0395	11-386-G0395	11-386-C0395	11-386-A0395	11-386-D0395
M16x1.5	22	100	12	9	11-386-0405	11-386-B0405	11-386-G0405	11-386-C0405	11-386-A0405	11-386-D0405
M18x1.0	25	110	14	11	11-386-0410	11-386-B0410	11-386-G0410	11-386-C0410	11-386-A0410	11-386-D0410
M18x1.5	25	110	14	11	11-386-0420	11-386-B0420	11-386-G0420	11-386-C0420	11-386-A0420	11-386-D0420
M18x2.0	34	125	14	11	11-386-0425	11-386-B0425	11-386-G0425	11-386-C0425	11-386-A0425	11-386-D0425
M20x1.0	25	125	16	12	11-386-0430	11-386-B0430	11-386-G0430	11-386-C0430	11-386-A0430	11-386-D0430
M20x1.5	25	125	16	12	11-386-0440	11-386-B0440	11-386-G0440	11-386-C0440	11-386-A0440	11-386-D0440
M20x2.0	34	140	16	12	11-386-0445	11-386-B0445	11-386-G0445	11-386-C0445	11-386-A0445	11-386-D0445
M22x1.0	25	125	18	14.5	11-386-0455	11-386-B0455	11-386-G0455	11-386-C0455	11-386-A0455	11-386-D0455
M22x1.5	25	125	18	14.5	11-386-0465	11-386-B0465	11-386-G0465	11-386-C0465	11-386-A0465	11-386-D0465
M22x2.0	34	140	18	14.5	11-386-0470	11-386-B0470	11-386-G0470	11-386-C0470	11-386-A0470	11-386-D0470
M24x1.0	28	140	18	14.5	11-386-0480	11-386-B0480	11-386-G0480	11-386-C0480	11-386-A0480	11-386-D0480
M24x1.5	28	140	18	14.5	11-386-0490	11-386-B0490	11-386-G0490	11-386-C0490	11-386-A0490	11-386-D0490
M24x2.0	28	140	18	14.5	11-386-0495	11-386-B0495	11-386-G0495	11-386-C0495	11-386-A0495	11-386-D0495
M27x1.5	28	140	20	16	11-386-0535	11-386-B0535	11-386-G0535	11-386-C0535	11-386-A0535	11-386-D0535
M27x2.0	28	140	20	16	11-386-0540	11-386-B0540	11-386-G0540	11-386-C0540	11-386-A0540	11-386-D0540
M30x1.5	28	150	22	18	11-386-0570	11-386-B0570	11-386-G0570	11-386-C0570	11-386-A0570	11-386-D0570
M30x2.0	28	150	22	18	11-386-0575	11-386-B0575	11-386-G0575	11-386-C0575	11-386-A0575	11-386-D0575





## ISO529 METRIC SIZE H.S.S. SPIRAL FLUTE SHORT LENGTH MACHINE TAP



size<=M10

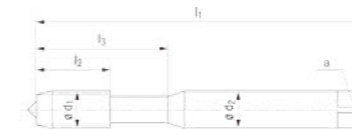


size>M10

- Fast spiral Flute 35° and size over M10 with reduced shank .
- Ground teeth and Chamfer :2-3 threads
- Right hand cutting.
- General use with steel, stainless steel, cast iron, nonferrous material.
- Hole of application: Blind hole and thread depth < 2.5d1.
- Size same and under M10 with reinforced shank, size over M10 with reduced shank.

SIZE (D1)	THREAD LENGTH (L2)	TOTAL LENGTH (L1)	SHANK DIA. (D2)	SQUARE (A)	H.S.S.			HSS.COBALT 5%		
					BRIGHT	OXIDE	TIN COATED	BRIGHT	TIN COATED	TICN COATED
M2x0.4	8	41	2.5	2.1	11-387-165	11-387-B165	11-387-G165	11-387-C165	11-387-A165	11-387-D165
M2.5x0.45	9.5	44.5	2.8	2.1	11-387-170	11-387-B170	11-387-G170	11-387-C170	11-387-A170	11-387-D170
M3x0.5	11	48	3.15	2.5	11-387-175	11-387-B175	11-387-G175	11-387-C175	11-387-A175	11-387-D175
M3.5x0.6	13	50	3.55	2.8	11-387-180	11-387-B180	11-387-G180	11-387-C180	11-387-A180	11-387-D180
M4x0.7	13	53	4	3.15	11-387-185	11-387-B185	11-387-G185	11-387-C185	11-387-A185	11-387-D185
M5x0.8	16	58	5	4	11-387-190	11-387-B190	11-387-G190	11-387-C190	11-387-A190	11-387-D190
M6x1	19	66	6.3	5	11-387-195	11-387-B195	11-387-G195	11-387-C195	11-387-A195	11-387-D195
M8x1.25	22	72	8	6.3	11-387-200	11-387-B200	11-387-G200	11-387-C200	11-387-A200	11-387-D200
M10x1.5	24	80	10	8	11-387-205	11-387-B205	11-387-G205	11-387-C205	11-387-A205	11-387-D205
M12x1.75	29	89	9	7.1	11-387-210	11-387-B210	11-387-G210	11-387-C210	11-387-A210	11-387-D210
M14x2.0	30	95	11.2	9	11-387-215	11-387-B215	11-387-G215	11-387-C215	11-387-A215	11-387-D215
M16x2.0	32	102	12.5	10	11-387-220	11-387-B220	11-387-G220	11-387-C220	11-387-A220	11-387-D220
M18x2.5	37	112	14	11.2	11-387-225	11-387-B225	11-387-G225	11-387-C225	11-387-A225	11-387-D225
M20x2.5	37	112	14	11.2	11-387-230	11-387-B230	11-387-G230	11-387-C230	11-387-A230	11-387-D230
M22x2.5	38	118	16	12.5	11-387-235	11-387-B235	11-387-G235	11-387-C235	11-387-A235	11-387-D235
M24x3.0	45	130	18	14	11-387-240	11-387-B240	11-387-G240	11-387-C240	11-387-A240	11-387-D240

## ISO METRIC COARSE THREAD LONG LENGTH SHANK MACHINE TAP



- Spiral point with reinforced shank.
- Ground teeth and Chamfer :4-5 threads
- Right hand cutting.
- General use with steel, stainless steel, cast iron, nonferrous material.
- Hole of application: through hole and thread depth < 3d1.

SIZE (D1)	TOTAL LENGTH (L1)	THREAD LENGTH (L2)	SHANK DIA. (D2)	SQUARE (A)	H.S.S.			HSS.COBALT 5%		
					BRIGHT	OXIDE	TIN COATED	BRIGHT	TIN COATED	TICN COATED
M3x0.5	100	11	3.5	2.7	11-388-085	11-388-B085	11-388-G085	11-388-C085	11-388-A085	11-388-D085
M4x0.7	100	13	4.5	3.4	11-388-090	11-388-B090	11-388-G090	11-388-C090	11-388-A090	11-388-D090
M4x0.7	120	13	4.5	3.4	11-388-095	11-388-B095	11-388-G095	11-388-C095	11-388-A095	11-388-D095
M5x0.8	100	16	6	4.9	11-388-100	11-388-B100	11-388-G100	11-388-C100	11-388-A100	11-388-D100
M5x0.8	120	16	6	4.9	11-388-105	11-388-B105	11-388-G105	11-388-C105	11-388-A105	11-388-D105
M5x0.8	150	16	6	4.9	11-388-110	11-388-B110	11-388-G110	11-388-C110	11-388-A110	11-388-D110
M6x1	100	19	6	4.9	11-388-115	11-388-B115	11-388-G115	11-388-C115	11-388-A115	11-388-D115
M6x1	120	19	6	4.9	11-388-120	11-388-B120	11-388-G120	11-388-C120	11-388-A120	11-388-D120
M6x1	150	19	6	4.9	11-388-125	11-388-B125	11-388-G125	11-388-C125	11-388-A125	11-388-D125
M8x1.25	100	22	8	6.2	11-388-130	11-388-B130	11-388-G130	11-388-C130	11-388-A130	11-388-D130
M8x1.25	120	22	8	6.2	11-388-135	11-388-B135	11-388-G135	11-388-C135	11-388-A135	11-388-D135
M8x1.25	150	22	8	6.2	11-388-140	11-388-B140	11-388-G140	11-388-C140	11-388-A140	11-388-D140
M10x1.5	120	24	10	8	11-388-145	11-388-B145	11-388-G145	11-388-C145	11-388-A145	11-388-D145
M10x1.5	150	24	10	8	11-388-150	11-388-B150	11-388-G150	11-388-C150	11-388-A150	11-388-D150
M12x1.75	120	29	12	9	11-388-155	11-388-B155	11-388-G155	11-388-C155	11-388-A155	11-388-D155
M12x1.75	150	29	12	9	11-388-160	11-388-B160	11-388-G160	11-388-C160	11-388-A160	11-388-D160

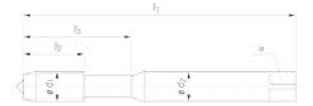
## ISO METRIC COARSE THREAD LONG LENGTH SHANK MACHINE TAP



- Fast spiral Flute 35° and with reinforced shank .
- Ground teeth and Chamfer :2-3 threads
- Right hand cutting.
- General use with steel, stainless steel, cast iron, nonferrous material.
- Hole of application: Blind hole and thread depth < 2.5d1.

SIZE (D1)	TOTAL LENGTH (L1)	THREAD LENGTH (L2)	SHANK DIA. (D2)	SQUARE (A)	H.S.S.			HSS.COBALT 5%		
					BRIGHT	OXIDE	TIN COATED	BRIGHT	TIN COATED	TICN COATED
M3x0.5	100	11	3.5	2.7	11-388-165	11-388-B165	11-388-G165	11-388-C165	11-388-A165	11-388-D165
M4x0.7	100	13	4.5	3.4	11-388-170	11-388-B170	11-388-G170	11-388-C170	11-388-A170	11-388-D170
M4x0.7	120	13	4.5	3.4	11-388-175	11-388-B175	11-388-G175	11-388-C175	11-388-A175	11-388-D175
M5x0.8	100	16	6	4.9	11-388-180	11-388-B180	11-388-G180	11-388-C180	11-388-A180	11-388-D180
M5x0.8	120	16	6	4.9	11-388-185	11-388-B185	11-388-G185	11-388-C185	11-388-A185	11-388-D185
M5x0.8	150	16	6	4.9	11-388-190	11-388-B190	11-388-G190	11-388-C190	11-388-A190	11-388-D190
M6x1	100	19	6	4.9	11-388-195	11-388-B195	11-388-G195	11-388-C195	11-388-A195	11-388-D195
M6x1	120	19	6	4.9	11-388-200	11-388-B200	11-388-G200	11-388-C200	11-388-A200	11-388-D200
M6x1	150	19	6	4.9	11-388-205	11-388-B205	11-388-G205	11-388-C205	11-388-A205	11-388-D205
M8x1.25	100	22	8	6.2	11-388-210	11-388-B210	11-388-G210	11-388-C210	11-388-A210	11-388-D210
M8x1.25	120	22	8	6.2	11-388-215	11-388-B215	11-388-G215	11-388-C215	11-388-A215	11-388-D215
M8x1.25	150	22	8	6.2	11-388-220	11-388-B220	11-388-G220	11-388-C220	11-388-A220	11-388-D220
M10x1.5	120	24	10	8	11-388-225	11-388-B225	11-388-G225	11-388-C225	11-388-A225	11-388-D225
M10x1.5	150	24	10	8	11-388-230	11-388-B230	11-388-G230	11-388-C230	11-388-A230	11-388-D230
M12x1.75	120	29	12	9	11-388-235	11-388-B235	11-388-G235	11-388-C235	11-388-A235	11-388-D235
M12x1.75	150	29	12	9	11-388-240	11-388-B240	11-388-G240	11-388-C240	11-388-A240	11-388-D240

## H.S.S. ISO METRIC COLD FORMING TAP



size <= M10

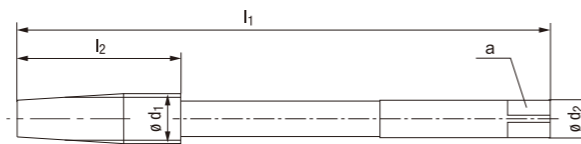
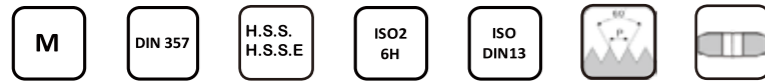


size > M10

- Fluteless (true form).
- Ground teeth and lead taper length: 2-3 threads
- Right hand cutting.
- General use with steel, stainless steel, Alu., copper, die casting, nonferrous material.
- Hole of application: Blind or through hole and thread depth < 3d1
- size same or under M10 with reinforced shank, size over M10 with reduced shank.

SIZE (D1)	THREAD LENGTH (L2)	TOTAL LENGTH (L1)	SHANK DIA. (D2)	SQUARE (A)	BRIGHT FINISH	TIN COATED
COARSE THREAD (M)						
M3x0.5	11	56	3.5	2.7	11-094-030	11-094-G030
M4x0.7	13	63	4.5	3.4	11-094-040	11-094-G040
M5x0.8	15	70	6	4.9	11-094-045	11-094-G045
M6x1	17	80	6	4.9	11-094-050	11-094-G050
M8x1.25	20	90	8	6.2	11-094-060	11-094-G060
M10x1.5	22	100	10	8	11-094-065	11-094-G065
M12x1.75	24	110	9	7	11-094-070	11-094-G070
M14x2	26	110	11	9	11-094-075	11-094-G075
M16x2	27	110	12	9	11-094-080	11-094-G080
M18x2.5	30	125	14	11	11-094-085	11-094-G085
M20x2.5	32	140	16	12	11-094-090	11-094-G090
FINE THREAD (MF)						
M3x0.35	8	56	3.5	2.7	11-094-515	11-094-G515
M4x0.5	10	63	4.5	3.4	11-094-525	11-094-G525
M5x0.5	11	70	6	4.9	11-094-530	11-094-G530
M6x0.5	13	80	6	4.9	11-094-535	11-094-G535
M6x0.75	13	80	6	4.9	11-094-540	11-094-G540
M8x0.75	14	80	8	6.2	11-094-550	11-094-G550
M8x1.0	17	90	8	6.2	11-094-555	11-094-G555
M10x1	18	90	10	8	11-094-575	11-094-G575
M10x1.25	18	100	10	8	11-094-580	11-094-G580
M12x1	18	100	9	7	11-094-590	11-094-G590
M12x1.25	22	100	9	7	11-094-595	11-094-G595
M12x1.5	22	100	9	7	11-094-600	11-094-G600
M14x1.0	18	100	11	9	11-094-605	11-094-G605
M14x1.25	22	100	11	9	11-094-610	11-094-G610
M14x1.5	22	100	11	9	11-094-615	11-094-G615
M16x1	18	100	12	9	11-094-630	11-094-G630
M16x1.5	22	100	12	9	11-094-635	11-094-G635
M18x1.0	20	110	14	11	11-094-640	11-094-G640
M18x1.5	25	110	14	11	11-094-645	11-094-G645
M18x2.0	26	125	14	11	11-094-650	11-094-G650
M20x1	20	125	16	12	11-094-655	11-094-G655
M20x1.5	25	125	16	12	11-094-660	11-094-G660
M20x2	27	140	16	12	11-094-665	11-094-G665

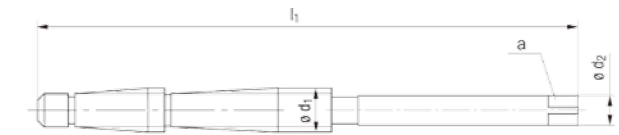
### ISO METRIC COARSE THREAD MACHINE NUT TAP



- Straight Flute and Ground teeth.
- Right hand cutting and long reach.
- General use with steel, stainless steel, cast iron, nonferrous material.
- Hole of application: through hole and thread depth < 1.5d1

SIZE (D1)	THREAD LENGTH (L2)	TOTAL LENGTH (L1)	SHANK DIA. (D2)	SQUARE (A)	BRIGHT FINISH	TIN COATED
M3x0.5	16	70	2.2	/	11-095-005	11-095G005
M4x0.7	22	90	2.8	2.1	11-095-010	11-095G010
M5x0.8	24	100	3.5	2.7	11-095-015	11-095G015
M6x1.0	30	110	4.5	3.4	11-095-020	11-095G020
M7x1.0	30	110	5.5	4.3	11-095-025	11-095G025
M8x1.25	38	125	6	4.9	11-095-030	11-095G030
M10x1.5	45	140	7	5.5	11-095-035	11-095G035
M12x1.75	50	180	9	7	11-095-040	11-095G040
M14x2.0	56	200	11	9	11-095-045	11-095G045
M16x2.0	63	200	12	9	11-095-050	11-095G050
M18x2.5	63	220	14	11	11-095-055	11-095G055
M20x2.5	70	250	16	12	11-095-060	11-095G060
M22x2.5	80	280	18	14.5	11-095-065	11-095G065
M24x3.0	80	280	18	14.5	11-095-070	11-095G070
M27x3.0	90	315	20	16	11-095-075	11-095G075
M30x3.5	100	315	22	18	11-095-080	11-095G080

### ISO METRIC TRAPEZOIDAL COARSE THREAD MACHINE TAP



- straight flute.
- Two-steps design.
- Right hand cutting.
- Ground teeth.
- Hole of application: through hole and thread depth < 2d1.
- General use with steel, stainless steel, cast iron, nonferrous material.

SIZE (D1)	PITCH	TOTAL LENGTH (L1)	SHANK DIA. (D2)	SQUARE (A)	ORDER NO.
Tr 8	1.5	105	6	4.9	11-233-005
Tr 9	2	130	7	5.5	11-233-010
Tr 10	2	130	7	5.5	11-233-015
Tr 10	3	155	7	5.5	11-233-020
Tr 11	3	155	8	6.2	11-233-025
Tr 12	3	160	9	7	11-233-030
Tr 14	3	170	10	8	11-233-035
Tr 14	4	195	10	8	11-233-040
Tr 16	4	225	12	9	11-233-045
Tr 18	4	225	14	11	11-233-050
Tr 20	4	225	16	12	11-233-055
Tr 22	5	260	16	12	11-233-060
Tr 24	5	285	18	14.5	11-233-065
Tr 26	5	285	20	16	11-233-070
Tr 28	5	300	22	18	11-233-075
Tr 30	6	335	22	18	11-233-080
Tr 32	6	335	25	20	11-233-085
Tr 34	6	350	28	22	11-233-090
Tr 36	6	350	28	22	11-233-233-
Tr 38	7	385	28	22	11-233-100
Tr 40	7	400	32	24	11-233-105
Tr 42	7	400	32	24	11-233-110
Tr 44	7	410	36	29	11-233-115
Tr 46	8	440	36	29	11-233-120
Tr 48	8	455	40	32	11-233-125
Tr 50	8	470	40	32	11-233-130
Tr 52	8	470	40	32	11-233-135

## ISO METRIC COMBINED DRILL TAP



- Designed to drill and tap through hole in a single pass.
- Two flute, Right hand cutting.
- Universal use with steel, stainless steel, cast iron, nonferrous material.
- Hole of application: through hole and thread depth < 2d1

SIZE (D1)	DRILL SIZE (D3)	DRILL LENGTH (L3)	TOTAL LENGTH (L1)	SHANK DIA. (D2)	SQUARE (A)	HSS.	
						BRIGHT FINISH	TIN COATED
M (standard length)							
M3X0.5	2.55	9	62	3.5	2.7	11-003-A005	11-003-T005
M4X0.7	3.36	10	66	4.5	3.4	11-003-A015	11-003-T015
M5X0.8	4.26	12	75	6	4.9	11-003-A020	11-003-T020
M6X1	5.05	14	81	6	4.9	11-003-A025	11-003-T025
M8X1.25	6.80	20	93	6	4.9	11-003-A030	11-003-T030
M10X1.5	8.55	22	99	7	5.5	11-003-A035	11-003-T035
M12X1.75	10.30	25	106	9	7	11-003-A040	11-003-T040
M14x2	12.1	28	114	11	9	11-003-A045	11-003-T045
M16x2	14.1	32	123	12	9	11-003-A050	11-003-T050
M18x2.5	15.6	36	132	14	11	11-003-A055	11-003-T055
M20x2.5	17.6	36	132	16	12	11-003-A060	11-003-T060
M (long length)							
M3X0.5	2.55	18	71	3.5	2.7	11-003-A065	11-003-T065
M4X0.7	3.36	21	77	4.5	3.4	11-003-A070	11-003-T070
M5X0.8	4.26	24	87	6	4.9	11-003-A075	11-003-T075
M6X1	5.05	27	94	6	4.9	11-003-A080	11-003-T080
M8X1.25	6.80	36	109	6	4.9	11-003-A085	11-003-T085
M10X1.5	8.55	41	118	7	5.5	11-003-A090	11-003-T090
M12X1.75	10.30	46	127	9	7	11-003-A095	11-003-T095
MF							
M4X0.5	3.55	10	66	4.5	3.4	11-003-A100	11-003-T100
M5X0.5	4.55	12	75	6	4.9	11-003-A105	11-003-T105
M6X0.75	5.31	14	81	6	4.9	11-003-A110	11-003-T110
M8X0.75	7.31	20	93	6	4.9	11-003-A115	11-003-T115
M8X1	7.05	20	93	6	4.9	11-003-A120	11-003-T120
M10X1	9.05	22	99	7	5.5	11-003-A125	11-003-T125
M10x1.25	8.80	22	99	7	5.5	11-003-A130	11-003-T130
M12X1	11.05	25	106	9	7	11-003-A135	11-003-T135
M12x1.5	10.55	25	106	9	7	11-003-A140	11-003-T140

## H.S.S. METRIC 3 IN 1 COMBINED TAP/DRILL AND COUNTERSINK BIT



- Made of High speed steel for long life
- All with 1/4" hex quick change shank.
- Right hand cutting.
- Used for mild sheet metal, copper, Alu. plastic plate.
- Save Time! drill, Tap and deburr in one operation

### METRIC SIZE

SIZE	OVERALL LENGTH	THREAD LENGTH	DRILL LENGTH	DRILL DIA.	BRIGHT FINISH	TIN COATED
M3X0.5	36	6	5	2.5	11-005-001	11-005-T001
M4X0.7	39	8	6	3.3	11-005-002	11-005-T002
M5X0.8	41	9	7	4.2	11-005-003	11-005-T003
M6X1.0	44	11	8	5.0	11-005-004	11-005-T004
M8X1.25	49	14	10	6.8	11-005-005	11-005-T005
M10X1.5	52	17	10	8.5	11-005-006	11-005-T006



Bit with power groove also available on request.

## 14PC H.S.S. METRIC 3 IN 1 COMBINED TAP/DRILL AND COUNTERSINK KIT SET

- includes:
- 6pc of combination drill & tap countersink: M3 X 0.5, M4 X 0.7, M5 X 0.8, M6 X 1, M8 X 1.25, M10 X 1.5,
  - 1pc of high torque tested quick change adapter
  - 6pcs of quick change CRV bit : SLOT4, SLOT5, PH1, PH2, PZ1, PZ2
  - 1pc carry case included .



ORDER NO. 11-290-001

## H.S.S. METRIC THREADING BIT



- All with 1/4" hex quick change shank.
- Straight flute and right hand cutting.
- Made of solid high speed steel and bright finished.
- Bit with power groove also available on requested.

SIZE	OVERALL LENGTH	THREAD LENGTH	ORDER NO.
M			
M3X0.5	33	11	11-311-005
M4X0.7	35	12	11-311-010
M5X0.8	36	15	11-311-015
M6X1.0	39	18	11-311-020
M8X1.25	40	19	11-311-025
M10X1.5	41	21	11-311-030
MF			
M3X0.35	33	11	11-311-035
M4X0.35	35	12	11-311-040
M4X0.5	35	12	11-311-045
M5X0.5	36	15	11-311-050
M5X0.75	36	15	11-311-055
M6X0.5	39	18	11-311-060
M6X0.75	39	18	11-311-065
M8X0.5	40	19	11-311-070
M8X0.75	40	19	11-311-075
M8X1.0	40	19	11-311-080
M10X0.5	41	21	11-311-085
M10X0.75	41	21	11-311-090
M10X1.0	41	21	11-311-095
M10X1.25	41	21	11-311-100

### 6PCS H.S.S. METRIC THREADING BIT KIT SET

Each set include: Tap M3,M4,M5,M6,M8 and M10, in fitted case packing



Order No. 11-311-S01

## H.S.S METRIC SIZE DOUBLE ENDED TAP

### Application:

For general use with non abrasive material up to 900 N / mm<sup>2</sup> tensile strength unalloyed, low alloyed steel, Structural steels and cutting steels  
 For both through hole and blind holes  
 For threads making by hand  
 This double sided hex tap with one end taper tap, the other finish tap.  
 Pilot for exact alignment. Just use one tool can complete your tap work with rougher and finisher.  
 It's ideal tap for making new threads, also for cleaning and repairing damaged threads.

### Specification:

Taps Material: HSS  
 Chamfer length: 2-3 transition  
 Double Ended Tap, Multi-Drive  
 Metric ISO-thread DIN 13  
 Tolerance ISO2/6H



SIZE	OVERALL LENGTH	THREAD LENGTH	HEX SHANK	HEX SOCKET	ORDER NO.
M (coarse teeth)					
M12 x 1.75	70	22	8	4	60-098-S11
M14 x 2.0	70	22	10	4	60-098-S20
M16 x 2.0	70	22	10	4	60-098-S28
M18 x 2.5	80	24	13	5	60-098-S36
M20 x 2.5	80	24	13	6	60-098-S44
M22 x 2.5	80	24	15	6	60-098-S52
MF (fine teeth)					
M12 x 1.0	70	22	8	4	60-098-S09
M12 x 1.25	70	22	8	4	60-098-S10
M12 x 1.5	70	22	8	4	60-098-S01
M14 x 1.0	70	22	10	4	60-098-S18
M14 x 1.25	70	22	10	4	60-098-S19
M14 x 1.5	70	22	10	4	60-098-S02
M16 x 1.0	70	22	12	4	60-098-S26
M16 x 1.5	70	22	12	4	60-098-S03
M18 x 1.0	80	24	13	5	60-098-S33
M18 x 1.5	80	24	13	5	60-098-S04
M18 x 2.0	80	24	13	5	60-098-S35
M20 x 1.0	80	24	15	6	60-098-S41
M20 x 1.5	80	24	15	6	60-098-S05
M20 x 2.0	80	24	15	6	60-098-S43
M22 x 1.0	80	24	17	6	60-098-S49
M22 x 1.5	80	24	17	6	60-098-S06
M22 x 2.0	80	24	17	6	60-098-S51

### H.S.S. INCH SIZE STANDARD THREAD HAND TAP



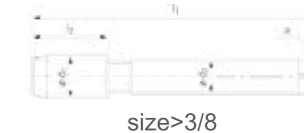
- Straight Flute.
- Right hand cutting.
- Chamfer length: taper 5-6 threads, plug 3-4 threads, bottoming 2-3 threads.
- General I use with steel, stainless steel, cast iron, nonferrous material.
- Hole of application: Blind or through hole and thread depth < 1.5d1

SIZE (D1)	PITCH (TPI)	THREAD LIMITED	H.S.S. (BRIGHT FINISH)			
			TAPER	PLUG	BOTTOMING	3PC/SET
0	80	2	12-091-T001	12-091-P001	12-091-B001	12-091-S001
1	64	2	12-091-T002	12-091-P002	12-091-B002	12-091-S002
1	72	2	12-091-T003	12-091-P003	12-091-B003	12-091-S003
2	56	2	12-091-T004	12-091-P004	12-091-B004	12-091-S004
2	64	2	12-091-T005	12-091-P005	12-091-B005	12-091-S005
3	48	2	12-091-T006	12-091-P006	12-091-B006	12-091-S006
3	56	2	12-091-T007	12-091-P007	12-091-B007	12-091-S007
4	36	2	12-091-T008	12-091-P008	12-091-B008	12-091-S008
4	40	2	12-091-T009	12-091-P009	12-091-B009	12-091-S009
4	48	2	12-091-T010	12-091-P010	12-091-B010	12-091-S010
5	40	2	12-091-T011	12-091-P011	12-091-B011	12-091-S011
5	44	2	12-091-T012	12-091-P012	12-091-B012	12-091-S012
6	32	3	12-091-T013	12-091-P013	12-091-B013	12-091-S013
6	40	3	12-091-T014	12-091-P014	12-091-B014	12-091-S014
8	32	3	12-091-T015	12-091-P015	12-091-B015	12-091-S015
8	36	3	12-091-T016	12-091-P016	12-091-B016	12-091-S016
10	24	3	12-091-T017	12-091-P017	12-091-B017	12-091-S017
10	32	3	12-091-T018	12-091-P018	12-091-B018	12-091-S018
12	24	3	12-091-T019	12-091-P019	12-091-B019	12-091-S019
12	28	3	12-091-T020	12-091-P020	12-091-B020	12-091-S020
1/4"	20	3	12-091-T021	12-091-P021	12-091-B021	12-091-S021
1/4"	28	3	12-091-T022	12-091-P022	12-091-B022	12-091-S022
5/16"	18	3	12-091-T023	12-091-P023	12-091-B023	12-091-S023
5/16"	24	3	12-091-T024	12-091-P024	12-091-B024	12-091-S024
3/8"	16	3	12-091-T025	12-091-P025	12-091-B025	12-091-S025
3/8"	24	3	12-091-T026	12-091-P026	12-091-B026	12-091-S026
7/16"	14	3	12-091-T027	12-091-P027	12-091-B027	12-091-S027
7/16"	20	3	12-091-T028	12-091-P028	12-091-B028	12-091-S028
1/2"	13	3	12-091-T029	12-091-P029	12-091-B029	12-091-S029
1/2"	20	3	12-091-T030	12-091-P030	12-091-B030	12-091-S030
9/16"	12	3	12-091-T031	12-091-P031	12-091-B031	12-091-S031
9/16"	18	3	12-091-T032	12-091-P032	12-091-B032	12-091-S032
5/8"	11	3	12-091-T033	12-091-P033	12-091-B033	12-091-S033
5/8"	18	3	12-091-T034	12-091-P034	12-091-B034	12-091-S034
3/4"	10	3	12-091-T035	12-091-P035	12-091-B035	12-091-S035
3/4"	16	3	12-091-T036	12-091-P036	12-091-B036	12-091-S036
7/8"	9	3	12-091-T037	12-091-P037	12-091-B037	12-091-S037
7/8"	14	3	12-091-T038	12-091-P038	12-091-B038	12-091-S038
1"	8	3	12-091-T039	12-091-P039	12-091-B039	12-091-S039
1"	12	3	12-091-T040	12-091-P040	12-091-B040	12-091-S040
1"	14	3	12-091-T041	12-091-P041	12-091-B041	12-091-S041
1-1/8"	7	3	12-091-T042	12-091-P042	12-091-B042	12-091-S042
1-1/8"	12	3	12-091-T043	12-091-P043	12-091-B043	12-091-S043
1-1/4"	7	3	12-091-T044	12-091-P044	12-091-B044	12-091-S044
1-1/4"	12	3	12-091-T045	12-091-P045	12-091-B045	12-091-S045
1-3/8"	6	3	12-091-T046	12-091-P046	12-091-B046	12-091-S046
1-3/8"	12	3	12-091-T047	12-091-P047	12-091-B047	12-091-S047
1-1/2"	6	4	12-091-T048	12-091-P048	12-091-B048	12-091-S048
1-1/2"	12	4	12-091-T049	12-091-P049	12-091-B049	12-091-S049

### H.S.S. INCH SIZE SPIRAL POINTED PLUG TAP

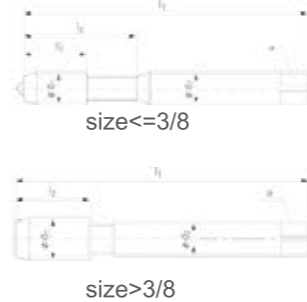


- Spiral point and plug style.
- Ground teeth and Chamfer :3~5 threads
- Hole of application: through hole.
- Right hand cutting.
- General use with steel, stainless steel, cast iron, nonferrous material.
- Size same or under 3/8" with reinforced shank, size over 3/8" with reduced shank.



SIZE (D1)	THREAD LIMITED	OAL	THREAD LENGTH	H.S.S.			H.S.S. COBALT 5%		
				BRIGHT	OXIDE	TIN COATED	BRIGHT	TIN COATED	TICN COATED
UNC									
5-40 UNC	H2	1-15/16"	5/8"	12-092-032	12-092-B032	12-092-G032	12-092-C032	12-092-A032	12-092-D032
6-32 UNC	H2	2"	11/16"	12-092-034	12-092-B034	12-092-G034	12-092-C034	12-092-A034	12-092-D034
8-32 UNC	H3	2-1/8"	3/4"	12-092-036	12-092-B036	12-092-G036	12-092-C036	12-092-A036	12-092-D036
10-24 UNC	H3	2-3/8"	7/8"	12-092-038	12-092-B038	12-092-G038	12-092-C038	12-092-A038	12-092-D038
12-24 UNC	H3	2-3/8"	15/16"	12-092-040	12-092-B040	12-092-G040	12-092-C040	12-092-A040	12-092-D040
1/4-20 UNC	H3	2-1/2"	1"	12-092-001	12-092-B001	12-092-G001	12-092-C001	12-092-A001	12-092-D001
5/16-18 UNC	H3	2-23/32"	1-1/8"	12-092-003	12-092-B003	12-092-G003	12-092-C003	12-092-A003	12-092-D003
3/8-16 UNC	H3	2-15/16"	1-1/4"	12-092-005	12-092-B005	12-092-G005	12-092-C005	12-092-A005	12-092-D005
7/16-14 UNC	H3	3-5/32"	1-7/16"	12-092-007	12-092-B007	12-092-G007	12-092-C007	12-092-A007	12-092-D007
1/2-13 UNC	H3	3-3/8"	1-21/32"	12-092-009	12-092-B009	12-092-G009	12-092-C009	12-092-A009	12-092-D009
9/16-12 UNC	H3	3-19/32"	1-21/32"	12-092-011	12-092-B011	12-092-G011	12-092-C011	12-092-A011	12-092-D011
5/8-11 UNC	H3	3-13/16"	1-13/16"	12-092-013	12-092-B013	12-092-G013	12-092-C013	12-092-A013	12-092-D013
3/4-10 UNC	H3	4-1/4"	2"	12-092-015	12-092-B015	12-092-G015	12-092-C015	12-092-A015	12-092-D015
7/8-9 UNC	H4	4-11/16"	2-7/32"	12-092-017	12-092-B017	12-092-G017	12-092-C017	12-092-A017	12-092-D017
1-8 UNC	H4	5-1/8"	2-1/2"	12-092-019	12-092-B019	12-092-G019	12-092-C019	12-092-A019	12-092-D019
1-1/8-7 UNC	H4	5-7/16"	2-9/16"	12-092-045	12-092-B045	12-092-G045	12-092-C045	12-092-A045	12-092-D045
1-1/4-7 UNC	H4	5-3/4"	2-9/16"	12-092-050	12-092-B050	12-092-G050	12-092-C050	12-092-A050	12-092-D050
1-3/8-6 UNC	H4	6-1/16"	3"	12-092-055	12-092-B055	12-092-G055	12-092-C055	12-092-A055	12-092-D055
1-1/2-6 UNC	H4	6-3/8"	3"	12-092-060	12-092-B060	12-092-G060	12-092-C060	12-092-A060	12-092-D060
UNF									
5-44 UNF	H2	1-15/16"	5/8"	12-092-033	12-B092-B033	12-G092-G033	12-C092-C033	12-A092-A033	12-D092-D033
6-40 UNF	H2	2"	11/16"	12-092-035	12-B092-B035	12-G092-G035	12-C092-C035	12-A092-A035	12-D092-D035
8-36 UNF	H2	2-1/8"	3/4"	12-092-037	12-B092-B037	12-G092-G037	12-C092-C037	12-A092-A037	12-D092-D037
10-32 UNF	H3	2-3/8"	7/8"	12-092-039	12-B092-B039	12-G092-G039	12-C092-C039	12-A092-A039	12-D092-D039
12-28 UNF	H3	2-3/8"	15/16"	12-092-041	12-B092-B041	12-G092-G041	12-C092-C041	12-A092-A041	12-D092-D041
1/4-28 UNF	H3	2-1/2"	1"	12-092-002	12-B092-B002	12-G092-G002	12-C092-C002	12-A092-A002	12-D092-D002
5/16-24 UNF	H3	2-23/32"	1-1/8"	12-092-004	12-B092-B004	12-G092-G004	12-C092-C004	12-A092-A004	12-D092-D004
3/8-24 UNF	H3	2-15/16"	1-1/4"	12-092-006	12-B092-B006	12-G092-G006	12-C092-C006	12-A092-A006	12-D092-D006
7/16-20 UNF	H3	3-5/32"	1-7/16"	12-092-008	12-B092-B008	12-G092-G008	12-C092-C008	12-A092-A008	12-D092-D008
1/2-20 UNF	H3	3-3/8"	1-21/32"	12-092-010	12-B092-B010	12-G092-G010	12-C092-C010	12-A092-A010	12-D092-D010
9/16-18 UNF	H3	3-19/32"	1-21/32"	12-092-012	12-B092-B012	12-G092-G012	12-C092-C012	12-A092-A012	12-D092-D012
5/8-18 UNF	H3	3-13/16"	1-13/16"	12-092-014	12-B092-B014	12-G092-G014	12-C092-C014	12-A092-A014	12-D092-D014
3/4-16 UNF	H3	4-1/4"	2"	12-092-016	12-B092-B016	12-G092-G016	12-C092-C016	12-A092-A016	12-D092-D016
7/8-14 UNF	H4	4-11/16"	2-7/32"	12-092-018	12-B092-B018	12-G092-G018	12-C092-C018	12-A092-A018	12-D092-D018
1-12 UNF	H4	5-1/8"	2-1/2"	12-092-021	12-B092-B021	12-G092-G021	12-C092-C021	12-A092-A021	12-D092-D021
1-1/8-12 UNF	H4	5-7/16"	2-9/16"	12-092-046	12-B092-B046	12-G092-G046	12-C092-C046	12-A092-A046	12-D092-D046
1-1/4-12 UNF	H4	5-3/4"	2-9/16"	12-092-051	12-B092-B051	12-G092-G051	12-C092-C051	12-A092-A051	12-D092-D051
1-3/8-12 UNF	H4	6-1/16"	3"	12-092-056	12-B092-B056	12-G092-G056	12-C092-C056	12-A092-A056	12-D092-D056
1-1/2-12 UNF	H4	6-3/8"	3"	12-092-061	12-B092-B061	12-G092-G061	12-C092-C061	12-A092-A061	12-D092-D061

### H.S.S. INCH SIZE SPIRAL FLUTE BOTTOMING TAP



- Spiral flute and modified bottoming style.
- Ground teeth and Chamfer :2~2-1/2 threads
- Hole of application: blind hole.
- Right hand cutting.
- General use with steel, stainless steel, cast iron, nonferrous material.
- Size same and under 3/8" with reinforced shank, size over 3/8" with reduced shank.

SIZE (D1)	THREAD LIMITED	OAL	THREAD LENGTH	BRIGHT	H.S.S. OXIDE	TIN COATED	BRIGHT	H.S.S. COBALT 5% TIN COATED	TICN COATED
UNC									
5-40 UNC	H2	1-15/16"	5/8"	12-389-005	12-389-B005	12-389-G005	12-389-C005	12-389-A005	12-389-D005
6-32 UNC	H3	2"	11/16"	12-389-010	12-389-B010	12-389-G010	12-389-C010	12-389-A010	12-389-D010
8-32 UNC	H3	2-1/8"	3/4"	12-389-015	12-389-B015	12-389-G015	12-389-C015	12-389-A015	12-389-D015
10-24 UNC	H3	2-3/8"	7/8"	12-389-020	12-389-B020	12-389-G020	12-389-C020	12-389-A020	12-389-D020
12-24 UNC	H3	2-3/8"	15/16"	12-389-025	12-389-B025	12-389-G025	12-389-C025	12-389-A025	12-389-D025
1/4-20 UNC	H3	2-1/2"	1"	12-389-030	12-389-B030	12-389-G030	12-389-C030	12-389-A030	12-389-D030
5/16-18 UNC	H3	2-23/32"	1-1/8"	12-389-035	12-389-B035	12-389-G035	12-389-C035	12-389-A035	12-389-D035
3/8-16 UNC	H3	2-15/16"	1-1/4"	12-389-040	12-389-B040	12-389-G040	12-389-C040	12-389-A040	12-389-D040
7/16-14 UNC	H3	3-5/32"	1-7/16"	12-389-045	12-389-B045	12-389-G045	12-389-C045	12-389-A045	12-389-D045
1/2-13 UNC	H3	3-3/8"	1-21/32"	12-389-050	12-389-B050	12-389-G050	12-389-C050	12-389-A050	12-389-D050
9/16-12 UNC	H3	3-19/32"	1-21/32"	12-389-055	12-389-B055	12-389-G055	12-389-C055	12-389-A055	12-389-D055
5/8-11 UNC	H3	3-13/16"	1-13/16"	12-389-060	12-389-B060	12-389-G060	12-389-C060	12-389-A060	12-389-D060
3/4-10 UNC	H3	4-1/4"	2"	12-389-065	12-389-B065	12-389-G065	12-389-C065	12-389-A065	12-389-D065
7/8-9 UNC	H4	4-11/16"	2-7/32"	12-389-070	12-389-B070	12-389-G070	12-389-C070	12-389-A070	12-389-D070
1-8 UNC	H4	5-1/8"	2-1/2"	12-389-075	12-389-B075	12-389-G075	12-389-C075	12-389-A075	12-389-D075
1-1/8-7 UNC	H4	5-7/16"	2-9/16"	12-389-080	12-389-B080	12-389-G080	12-389-C080	12-389-A080	12-389-D080
1-1/4-7 UNC	H4	5-3/4"	2-9/16"	12-389-085	12-389-B085	12-389-G085	12-389-C085	12-389-A085	12-389-D085
1-3/8-6 UNC	H4	6-1/16"	3"	12-389-090	12-389-B090	12-389-G090	12-389-C090	12-389-A090	12-389-D090
1-1/2-6 UNC	H4	6-3/8"	3"	12-389-095	12-389-B095	12-389-G095	12-389-C095	12-389-A095	12-389-D095
UNF									
5-44 UNF	H2	1-15/16"	5/8"	12-389-505	12-389-B505	12-389-G505	12-389-C505	12-389-A505	12-389-D505
6-40 UNF	H2	2"	11/16"	12-389-510	12-389-B510	12-389-G510	12-389-C510	12-389-A510	12-389-D510
8-36 UNF	H3	2-1/8"	3/4"	12-389-515	12-389-B515	12-389-G515	12-389-C515	12-389-A515	12-389-D515
10-32 UNF	H3	2-3/8"	7/8"	12-389-520	12-389-B520	12-389-G520	12-389-C520	12-389-A520	12-389-D520
12-28 UNF	H3	2-3/8"	15/16"	12-389-525	12-389-B525	12-389-G525	12-389-C525	12-389-A525	12-389-D525
1/4-28 UNF	H3	2-1/2"	1"	12-389-530	12-389-B530	12-389-G530	12-389-C530	12-389-A530	12-389-D530
5/16-24 UNF	H3	2-23/32"	1-1/8"	12-389-535	12-389-B535	12-389-G535	12-389-C535	12-389-A535	12-389-D535
3/8-24 UNF	H3	2-15/16"	1-1/4"	12-389-540	12-389-B540	12-389-G540	12-389-C540	12-389-A540	12-389-D540
7/16-20 UNF	H3	3-5/32"	1-7/16"	12-389-545	12-389-B545	12-389-G545	12-389-C545	12-389-A545	12-389-D545
1/2-20 UNF	H3	3-3/8"	1-21/32"	12-389-550	12-389-B550	12-389-G550	12-389-C550	12-389-A550	12-389-D550
9/16-18 UNF	H3	3-19/32"	1-21/32"	12-389-555	12-389-B555	12-389-G555	12-389-C555	12-389-A555	12-389-D555
5/8-18 UNF	H3	3-13/16"	1-13/16"	12-389-560	12-389-B560	12-389-G560	12-389-C560	12-389-A560	12-389-D560
3/4-16 UNF	H3	4-1/4"	2"	12-389-565	12-389-B565	12-389-G565	12-389-C565	12-389-A565	12-389-D565
7/8-14 UNF	H4	4-11/16"	2-7/32"	12-389-570	12-389-B570	12-389-G570	12-389-C570	12-389-A570	12-389-D570
1-12 UNF	H4	5-1/8"	2-1/2"	12-389-575	12-389-B575	12-389-G575	12-389-C575	12-389-A575	12-389-D575
1-1/8-12 UNF	H4	5-7/16"	2-9/16"	12-389-580	12-389-B580	12-389-G580	12-389-C580	12-389-A580	12-389-D580
1-1/4-12 UNF	H4	5-3/4"	2-9/16"	12-389-585	12-389-B585	12-389-G585	12-389-C585	12-389-A585	12-389-D585
1-3/8-12 UNF	H4	6-1/16"	3"	12-389-590	12-389-B590	12-389-G590	12-389-C590	12-389-A590	12-389-D590
1-1/2-12 UNF	H4	6-3/8"	3"	12-389-595	12-389-B595	12-389-G595	12-389-C595	12-389-A595	12-389-D595

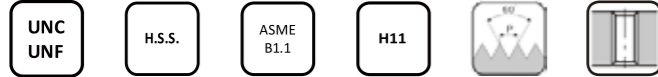
### H.S.S. INCH THREAD COLD FORMING TAP



- Fluteless (true form)
- Ground teeth and lead taper length: modified bottoming 2~2-1/2 threads
- Right hand cutting.
- Universal use with steel, stainless steel, Alu., copper, die casting, nonferrous material.
- Hole of application: Blind or through hole and thread depth<3d1

SIZE	THREAD LIMITED	TOTAL LENGTH	SHANK DIA	BRIGHT	TIN COATED
UNC					
5-40 UNC	H2	1-15/16"	5/8"	12-094-007	12-094-B007
6-32 UNC	H2	2"	11/16"	12-094-009	12-094-B009
8-32 UNC	H3	2-1/8"	3/4"	12-094-011	12-094-B011
10-24 UNC	H3	2-3/8"	7/8"	12-094-013	12-094-B013
12-24 UNC	H3	2-3/8"	15/16"	12-094-015	12-094-B015
1/4-20 UNC	H3	2-1/2"	1"	12-094-017	12-094-B017
5/16-18 UNC	H3	2-23/32"	1-1/8"	12-094-019	12-094-B019
3/8-16 UNC	H3	2-15/16"	1-1/4"	12-094-021	12-094-B021
7/16-14 UNC	H3	3-5/32"	1-7/16"	12-094-023	12-094-B023
1/2-13 UNC	H3	3-3/8"	1-21/32"	12-094-025	12-094-B025
UNF					
5-44 UNF	H2	1-15/16"	5/8"	12-094-008	12-094-B008
6-40 UNF	H2	2"	11/16"	12-094-010	12-094-B010
8-36 UNF	H2	2-1/8"	3/4"	12-094-012	12-094-B012
10-32 UNF	H3	2-3/8"	7/8"	12-094-014	12-094-B014
12-28 UNF	H3	2-3/8"	15/16"	12-094-016	12-094-B016
1/4-28 UNF	H3	2-1/2"	1"	12-094-018	12-094-B018
5/16-24 UNF	H3	2-23/32"	1-1/8"	12-094-020	12-094-B020
3/8-24 UNF	H3	2-15/16"	1-1/4"	12-094-022	12-094-B022
7/16-20 UNF	H3	3-5/32"	1-7/16"	12-094-024	12-094-B024
1/2-20 UNF	H3	3-3/8"	1-21/32"	12-094-026	12-094-B026

## H.S.S INCH SIZE +.005" OVERSIZE SPIRAL POINT PLUG TAP



- Spiral point and plug style.
- Ground teeth and Chamfer :3~5 threads
- Hole of application: through hole.
- Right hand cutting.
- General use with steel, stainless steel, nickel/copper/and aluminium alloys.
- For use when a part will be plated or treated after tapping.

SIZE	THREAD LIMITED	TOTAL LENGTH	BRIGHT	TIN COATED
6-32 UNC	H11	2"	12-231-002	12-231-G002
8-32 UNC	H11	2-1/8"	12-231-004	12-231-G004
10-24 UNC	H11	2-3/8"	12-231-006	12-231-G006
10-32 UNF	H11	2-3/8"	12-231-008	12-231-G008
1/4-20 UNC	H11	2-1/2"	12-231-010	12-231-G010
1/4-28 UNF	H11	2-1/2"	12-231-012	12-231-G012
5/16-18 UNC	H11	2-23/32"	12-231-014	12-231-G014
5/16-24 UNF	H11	2-23/32"	12-231-016	12-231-G016
3/8-16 UNC	H11	2-15/16"	12-231-018	12-231-G018
3/8-24 UNF	H11	2-15/16"	12-231-020	12-231-G020
1/2-13 UNC	H11	3-3/8"	12-231-022	12-231-G022
1/2-20 UNF	H11	3-3/8"	12-231-024	12-231-G024
5/8-11 UNC	H11	3-13/16"	12-231-026	12-231-G026
5/8-18 UNF	H11	3-13/16"	12-231-030	12-231-G030
3/4-10 UNC	H11	4-1/4"	12-231-028	12-231-G028
3/4-16 UNF	H11	4-1/4"	12-231-032	12-231-G032

## H.S.S. INCH SIZE STAIGHT FLUTE PLUG NUT TAP



- Straight flute and plug style.
- Right hand cutting.
- Ground teeth and Chamfer :3~5 threads
- Hole of application: through hole.
- General use with steel, stainless steel, cast iron, nonferrous material.
- Extra reach used for tapping deep holes.

SIZE	THREAD LIMITED	THREAD LENGTH	TOTAL LENGTH	BRIGHT	TIN COATED
1/4"-20	H3	1-5/8"	5"	12-095-B001	12-095-G001
1/4"-28	H3	1-1/4"	5"	12-095-B002	12-095-G002
5/16"-18	H3	1-13/16"	5-1/2"	12-095-B003	12-095-G003
5/16"-24	H3	1-3/8"	5-1/2"	12-095-B004	12-095-G004
3/8"-16	H3	2"	6"	12-095-B005	12-095-G005
3/8"-24	H3	1-1/2"	6"	12-095-B006	12-095-G006
7/16"-14	H3	2-3/8"	6-1/2"	12-095-B007	12-095-G007
7/16"-20	H3	1-3/4"	6-1/2"	12-095-B008	12-095-G008
1/2"-13	H3	2-1/2"	7"	12-095-B009	12-095-G009
1/2"-20	H3	1-7/8"	7"	12-095-B010	12-095-G010
5/8"-11	H3	3"	8"	12-095-B011	12-095-G011
5/8"-18	H3	2-1/4"	8"	12-095-B012	12-095-G012

## H.S.S. INCH SIZE LONG REACH SPIRAL POINT PLUG TAP



- Spiral point and plug style.
- Right hand cutting.
- Ground teeth and Chamfer :3~5 threads
- Hole of application: through hole.
- General use with steel, stainless steel, cast iron, nonferrous material.
- Used to reach holes that are difficult to tap or for tapping very deep holes.

SIZE	THREAD LIMITED	TOTAL LENGTH	BRIGHT	TIN COATED
6-32 UNC	H3	5"	12-232-026	12-232-G026
8-32 UNC	H3	5"	12-232-028	12-232-G028
10-24 UNC	H3	5"	12-232-030	12-232-G030
10-32 UNF	H3	5"	12-232-032	12-232-G032
1/4-20 UNC	H3	6"	12-232-002	12-232-G002
1/4-28 UNF	H3	6"	12-232-004	12-232-G004
5/16-18 UNC	H3	6"	12-232-006	12-232-G006
5/16-24 UNF	H3	6"	12-232-008	12-232-G008
3/8-16 UNC	H3	6"	12-232-010	12-232-G010
3/8-24 UNF	H3	6"	12-232-012	12-232-G012
1/2-13 UNC	H3	6"	12-232-014	12-232-G014
1/2-20 UNF	H3	6"	12-232-016	12-232-G016
5/8-11 UNC	H3	6"	12-232-018	12-232-G018
5/8-18 UNF	H3	6"	12-232-020	12-232-G020
3/4-10 UNC	H3	6"	12-232-022	12-232-G022
3/4-16 UNF	H3	6"	12-232-024	12-232-G024

## H.S.S. AMERICAN STANDARD ACME SINGLE PASS TAP



- Single-pass and no reversal!
- Tandem style tap having roughing and finishing cutting areas on tap body.
- Ground teeth and for hand threading applicatons.
- For cutting standard acme screw threads of through hole.
- Universal use with steel, stainless steel, cast iron, nonferrous material.

SIZE	THREAD LENGTH	TOTAL LENGTH	BRIGHT	TIN COATED
1/2"-10	2-9/16"	5"	12-233-001	12-233-G001
5/8"-8	3-3/16"	6-1/4"	12-233-002	12-233-G002
3/4"-6	4-5/16"	7-15/16"	12-233-003	12-233-G003
3/4"-8	4-5/16"	7-15/16"	12-233-004	12-233-G004
7/8"-6	4-3/8"	8-5/8"	12-233-005	12-233-G005
1"-5	5-1/4"	10-1/8"	12-233-006	12-233-G006
1-1/8"-5	5-1/4"	10-3/4"	12-233-007	12-233-G007
1-1/4"-5	5-1/4"	11-1/8"	12-233-008	12-233-G008
1-3/8"-4	5-7/8"	12-1/4"	12-233-009	12-233-G009
1-1/2"-4	5-7/8"	12-5/8"	12-233-010	12-233-G010



## H.S.S INCH SIZE SPECIAL THREAD PLUG TAP



- Right hand cutting.
- Straight Flute and Plug Style.
- Bright finish and Chamfer :3-5 threads
- General use with steel, stainless steel, cast iron, nonferrous material.
- Hole of application: Blind or through hole and thread depth < 1.5d1

SIZE	ORDER NO.	SIZE	ORDER NO.	SIZE	ORDER NO.	SIZE	ORDER NO.
1/4"-24	12-096-001	3/4"-12	12-096-036	1-3/16"-8	12-096-073	1-5/8"-5-1/2	12-096-110
1/4"-32	12-096-002	3/4"-18	12-096-037	1-3/16"-10	12-096-074	1-5/8"-8	12-096-111
1/4"-40	12-096-003	3/4"-20	12-096-038	1-3/16"-12	12-096-075	1-5/8"-10	12-096-112
5/16"-20	12-096-004	3/4"-24	12-096-039	1-3/16"-14	12-096-076	1-5/8"-12	12-096-113
5/16"-32	12-096-005	3/4"-27	12-096-040	1-3/16"-16	12-096-077	1-5/8"-14	12-096-114
5/16"-40	12-096-006	3/4"-32	12-096-041	1-3/16"-18	12-096-078	1-5/8"-16	12-096-115
3/8"-14	12-096-007	13/16"-16	12-096-042	1-3/16"-20	12-096-079	1-5/8"-18	12-096-116
3/8"-18	12-096-008	13/16"-20	12-096-043	1-3/16"-24	12-096-080	1-5/8"-20	12-096-117
3/8"-20	12-096-009	13/16"-32	12-096-044	1-3/16"-32	12-096-081	1-5/8"-32	12-096-118
3/8"-32	12-096-010	7/8"-12	12-096-045	1-1/4"-8	12-096-082	1-11/16"-12	12-096-119
7/16"-24	12-096-011	7/8"-16	12-096-046	1-1/4"-10	12-096-083	1-11/16"-16	12-096-120
7/16"-27	12-096-012	7/8"-18	12-096-047	1-1/4"-14	12-096-084	1-3/4"-5	12-096-121
15/32"-32	12-096-013	7/8"-20	12-096-048	1-1/4"-16	12-096-085	1-3/4"-6	12-096-122
1/2"-12	12-096-014	15/16"-12	12-096-049	1-1/4"-18	12-096-086	1-3/4"-8	12-096-123
1/2"-14	12-096-015	15/16"-16	12-096-050	1-1/4"-20	12-096-087	1-3/4"-10	12-096-124
1/2"-16	12-096-016	15/16"-20	12-096-051	1-1/4"-24	12-096-088	1-3/4"-12	12-096-125
1/2"-18	12-096-017	15/16"-27	12-096-052	1-5/16"-8	12-096-089	1-3/4"-16	12-096-126
1/2"-24	12-096-018	15/16"-32	12-096-053	1-5/16"-12	12-096-090	1-3/4"-18	12-096-127
1/2"-32	12-096-019	1"-10	12-096-054	1-5/16"-16	12-096-091	1-3/4"-20	12-096-128
9/16"-10	12-096-020	1"-16	12-096-055	1-5/16"-18	12-096-092	1-3/4"-24	12-096-129
9/16"-16	12-096-021	1"-18	12-096-056	1-3/8"-8	12-096-093	1-13/16"-8	12-096-130
9/16"-20	12-096-022	1"-20	12-096-057	1-3/8"-10	12-096-094	1-13/16"-16	12-096-131
9/16"-24	12-096-023	1"-32	12-096-058	1-3/8"-14	12-096-095	1-13/16"-18	12-096-132
5/8"-12	12-096-024	1-1/16"-8	12-096-059	1-3/8"-16	12-096-096	1-7/8"-5	12-096-133
5/8"-16	12-096-025	1-1/16"-10	12-096-060	1-3/8"-18	12-096-097	1-7/8"-7	12-096-134
5/8"-20	12-096-026	1-1/16"-12	12-096-061	1-3/8"-20	12-096-098	1-7/8"-8	12-096-135
5/8"-24	12-096-027	1-1/16"-14	12-096-062	1-7/16"-12	12-096-099	1-7/8"-10	12-096-136
5/8"-32	12-096-028	1-1/16"-16	12-096-063	1-7/16"-16	12-096-100	1-7/8"-12	12-096-137
5/8"-36	12-096-029	1-1/16"-18	12-096-064	1-7/16"-18	12-096-101	1-7/8"-16	12-096-138
11/16"-11	12-096-030	1-1/16"-20	12-096-065	1-1/2"-8	12-096-102	1-7/8"-18	12-096-139
11/16"-16	12-096-031	1-1/16"-24	12-096-066	1-1/2"-10	12-096-103	1-7/8"-20	12-096-140
11/16"-18	12-096-032	1-1/16"-32	12-096-067	1-1/2"-16	12-096-104	1-15/16"-12	12-096-141
11/16"-20	12-096-033	1-1/8"-8	12-096-068	1-1/2"-18	12-096-105	1-15/16"-16	12-096-142
11/16"-24	12-096-034	1-1/8"-10	12-096-069	1-1/2"-20	12-096-106	2"-4-1/2	12-096-143
11/16"-32	12-096-035	1-1/8"-16	12-096-070	1-9/16"-12	12-096-107	2"-6	12-096-144
		1-1/8"-18	12-096-071	1-9/16"-18	12-096-108	2"-8	12-096-145
		1-1/8"-32	12-096-072	1-9/16"-20	12-096-109	2"-10	12-096-146

## H.S.S. AMERICAN STANDARD COMBINED DRILL TAP



- Ground thread and two flute.
- Designed to act as both a tool for creating holes and tapping holes in a single operation.
- The helical flute design of drill & tap permits the holes to be drilled and threads at high speeds.
- Right hand cutting and through hole depth up to two times the tap diameter.
- General use with steel, stainless steel, cast iron, nonferrous material.

SIZE	DRILL DIA.	THREAD LENGTH	TOTAL LENGTH	BRIGHT	TIN COATED
4-40	0.0910"	3/8"	1-7/8"	12-003-001	12-003-101
4-48	0.0945"	11/32"	1-7/8"	12-003-002	12-003-102
5-40	0.1040"	13/32"	1-15/16"	12-003-003	12-003-103
6-32	0.1115"	15/32"	2"	12-003-004	12-003-104
6-40	0.1170"	7/16"	2"	12-003-005	12-003-105
8-32	0.1375"	33/64"	2-1/8"	12-003-006	12-003-106
10-24	0.1545"	5/8"	2-3/8"	12-003-007	12-003-107
10-32	0.1635"	9/16"	2-3/8"	12-003-008	12-003-108
12-24	0.1805"	11/16"	2-3/8"	12-003-009	12-003-109
12-28	0.1860"	21/32"	2-3/8"	12-003-010	12-003-110
1/4"-20	0.2080"	13/16"	2-1/2"	12-003-011	12-003-111
1/4"-28	0.2200"	23/32"	2-1/2"	12-003-012	12-003-112
5/16"-18	0.2660"	31/32"	2-27/32"	12-003-013	12-003-113
5/16"-24	0.2770"	7/8"	2-27/32"	12-003-014	12-003-114
3/8"-16	0.3225"	1-1/8"	3-3/8"	12-003-015	12-003-115
3/8"-24	0.3395"	1"	3-3/8"	12-003-016	12-003-116
7/16"-14	0.3770"	1-5/16"	3-3/4"	12-003-017	12-003-117
7/16"-20	0.3955"	1-3/16"	3-3/4"	12-003-018	12-003-118
1/2"-13	0.4350"	1-15/32"	4-1/16"	12-003-019	12-003-119
1/2"-20	0.4580"	1-15/16"	4-1/16"	12-003-020	12-003-120

### H.S.S. INCH SIZE 3 IN 1 COMBINED TAP/DRILL AND COUNTERSINK BIT



- Made of High speed steel for long life
- All with 1/4" hex quick change shank.
- Straight flute and right hand cutting.
- Used for mild sheet metal, copper, Alu. plastic plate.
- Save Time! drill, Tap and deburr in one operation

SIZE	TOTAL LENGTH	THREAD LENGTH	DRILL LENGTH	DRILL DIA.	BRIGHT	TIN COATED
6-32UNC	2.06"	0.354"	0.317"	0.109"	12-005-001	12-005-T001
8-32UNC	2.06	0.354	0.340	0.136	12-005-002	12-005-T002
10-24UNC	2.23	0.472	0.340	0.152	12-005-003	12-005-T003
10-32UNF	2.23	0.472	0.350	0.161	12-005-004	12-005-T004
12-24UNC	2.23	0.472	0.350	0.177	12-005-005	12-005-T005
1/4-20UNC	2.28	0.551	0.381	0.201	12-005-006	12-005-T006
5/16-18UNC	3.12	0.472	0.825	0.257	12-005-007	12-005-T007
3/8-16UNC	3.12	0.472	0.825	0.313	12-005-008	12-005-T008

### 14PC H.S.S. INCH SIZE 3 IN 1 COMBINED TAP/DRILL AND COUNTERSINK KIT SET

- includes:
- 6pc of combination drill & tap countersink: 6-32NC, 8-32NC, 10-24NC, 10-32NF, 12-24NC, 1/4"-20NC
  - 1pc of high torque tested quick change adapter
  - 6pcs of quick change CRV bit :SLO3, SLOT4, PH1, PH2, PZ1, PZ2
  - 1pc carry case included



Order No. 12-290-001

### WHITWORTH INCH THREAD HAND TAP



Taper



Plug



Bottoming



- Straight Flute.
- Right hand cutting.
- Chamfer length: taper 5-6 threads, plug 3-4 threads, bottoming 2-3 threads.
- General use with steel, cast iron, nonferrous material.
- Hole of application: Blind or through hole and thread depth <math>< 1.5d\_1</math>
- size same or under 1/4 with reinforced shank, size over 1/4 with reduced shank.

SIZE (D1)	THREAD LENGTH(L2)	TOTAL LENGTH(L1)	SHANK DIA. (D2)	SQUARE (A)	H.S.S (BRIGHT FINISH)			
					TAPER	PLUG	BOTTOMING	3PC/SET
BSW								
1/16"-60BSW	10	32	2.5	2.1	12-088-T001	12-088-P001	12-088-B001	12-088-S001
3/32"-48BSW	11	36	2.8	2.1	12-088-T002	12-088-P002	12-088-B002	12-088-S002
1/8"-40 BSW	12	40	3.5	2.7	12-088-T003	12-088-P003	12-088-B003	12-088-S003
5/32"-32 BSW	14	45	4.5	3.4	12-088-T004	12-088-P004	12-088-B004	12-088-S004
3/16"-24 BSW	18	50	6	4.9	12-088-T005	12-088-P005	12-088-B005	12-088-S005
7/32"-24 BSW	18	50	6	4.9	12-088-T006	12-088-P006	12-088-B006	12-088-S006
1/4"-20 BSW	22	56	6	4.9	12-088-T007	12-088-P007	12-088-B007	12-088-S007
5/16"-18 BSW	25	63	6	4.9	12-088-T008	12-088-P008	12-088-B008	12-088-S008
3/8"-16 BSW	28	70	7	5.5	12-088-T009	12-088-P009	12-088-B009	12-088-S009
7/16"-14 BSW	30	75	8	6.2	12-088-T010	12-088-P010	12-088-B010	12-088-S010
1/2"-12 BSW	32	80	9	7	12-088-T011	12-088-P011	12-088-B011	12-088-S011
9/16"-12 BSW	32	80	11	9	12-088-T012	12-088-P012	12-088-B012	12-088-S012
5/8"-11 BSW	36	90	12	9	12-088-T013	12-088-P013	12-088-B013	12-088-S013
3/4"-10 BSW	40	105	14	11	12-088-T014	12-088-P014	12-088-B014	12-088-S014
7/8"-9 BSW	45	110	18	14.5	12-088-T015	12-088-P015	12-088-B015	12-088-S015
1"-8 BSW	50	110	18	14.5	12-088-T016	12-088-P016	12-088-B016	12-088-S016
BSF								
3/16"-32 BSF	18	50	6	4.9	12-088-T030	12-088-P030	12-088-B030	12-088-S030
1/4"-26 BSF	22	56	6	4.9	12-088-T035	12-088-P035	12-088-B035	12-088-S035
5/16"-22 BSF	25	63	6	4.9	12-088-T040	12-088-P040	12-088-B040	12-088-S040
3/8"-20 BSF	28	70	7	5.5	12-088-T045	12-088-P045	12-088-B045	12-088-S045
7/16"-18 BSF	30	75	8	6.2	12-088-T050	12-088-P050	12-088-B050	12-088-S050
1/2"-16 BSF	32	80	9	7	12-088-T055	12-088-P055	12-088-B055	12-088-S055
5/8"-14 BSF	36	90	12	9	12-088-T060	12-088-P060	12-088-B060	12-088-S060
3/4"-12 BSF	40	105	14	11	12-088-T065	12-088-P065	12-088-B065	12-088-S065
7/8"-11 BSF	45	110	18	14.5	12-088-T070	12-088-P070	12-088-B070	12-088-S070
1"-10 BSF	50	110	18	14.5	12-088-T075	12-088-P075	12-088-B075	12-088-S075

## WHITWORTH INCH THREAD MACHINE TAP



- Spiral point and Chamfer :3~5 threads.
- Ground teeth and Right hand cutting.
- Hole of application: through hole and thread depth <math>< 3d1</math>.
- General I use with steel, stainless steel, cast iron, nonferrous material.
- Size same or under 3/8" with reinforced shank, size over 3/8" with reduced shank.

SIZE (D1)	THREAD LENGTH(L2)	TOTAL LENGTH(L1)	SHANK DIA.(D2)	SQUARE (A)	H.S.S.			H.S.S.COBBALT 5%		
					BRIGHT	OXIDE	TIN COATED	BRIGHT	TIN COATED	TICN COATED
BSW										
1/8"-40 BSW	11	56	3.5	2.7	12-390-005	12-390-B005	12-390-G005	12-390-C005	12-390-A005	12-390-D005
5/32"-32 BSW	13	63	4.5	3.4	12-390-010	12-390-B010	12-390-G010	12-390-C010	12-390-A010	12-390-D010
3/16"-24 BSW	15	70	6	4.9	12-390-015	12-390-B015	12-390-G015	12-390-C015	12-390-A015	12-390-D015
7/32"-24 BSW	16	80	6	4.9	12-390-020	12-390-B020	12-390-G020	12-390-C020	12-390-A020	12-390-D020
1/4"-20 BSW	17	80	7	5.5	12-390-025	12-390-B025	12-390-G025	12-390-C025	12-390-A025	12-390-D025
5/16"-18 BSW	20	90	8	6.2	12-390-030	12-390-B030	12-390-G030	12-390-C030	12-390-A030	12-390-D030
3/8"-16 BSW	22	100	10	8	12-390-035	12-390-B035	12-390-G035	12-390-C035	12-390-A035	12-390-D035
7/16"-14 BSW	22	100	8	6.2	12-390-040	12-390-B040	12-390-G040	12-390-C040	12-390-A040	12-390-D040
1/2"-12 BSW	25	110	9	7	12-390-045	12-390-B045	12-390-G045	12-390-C045	12-390-A045	12-390-D045
9/16"-12 BSW	26	110	11	9	12-390-050	12-390-B050	12-390-G050	12-390-C050	12-390-A050	12-390-D050
5/8"-11 BSW	27	110	12	9	12-390-055	12-390-B055	12-390-G055	12-390-C055	12-390-A055	12-390-D055
3/4"-10 BSW	30	125	14	11	12-390-060	12-390-B060	12-390-G060	12-390-C060	12-390-A060	12-390-D060
7/8"-9 BSW	32	140	18	14.5	12-390-065	12-390-B065	12-390-G065	12-390-C065	12-390-A065	12-390-D065
1"-8 BSW	36	160	18	14.5	12-390-070	12-390-B070	12-390-G070	12-390-C070	12-390-A070	12-390-D070
BSF										
3/16"-32 BSF	15	70	6	4.9	12-390-515	12-390-B515	12-390-G515	12-390-C515	12-390-A515	12-390-D515
1/4"-26 BSF	17	80	7	5.5	12-390-520	12-390-B520	12-390-G520	12-390-C520	12-390-A520	12-390-D520
5/16"-22 BSF	17	90	8	6.2	12-390-525	12-390-B525	12-390-G525	12-390-C525	12-390-A525	12-390-D525
3/8"-20 BSF	18	100	10	8	12-390-530	12-390-B530	12-390-G530	12-390-C530	12-390-A530	12-390-D530
7/16"-18 BSF	22	100	8	6.2	12-390-535	12-390-B535	12-390-G535	12-390-C535	12-390-A535	12-390-D535
1/2"-16 BSF	22	100	9	7	12-390-540	12-390-B540	12-390-G540	12-390-C540	12-390-A540	12-390-D540
5/8"-14 BSF	27	110	12	9	12-390-545	12-390-B545	12-390-G545	12-390-C545	12-390-A545	12-390-D545
3/4"-12 BSF	27	125	14	11	12-390-550	12-390-B550	12-390-G550	12-390-C550	12-390-A550	12-390-D550
7/8"-11 BSF	32	140	18	14.5	12-390-555	12-390-B555	12-390-G555	12-390-C555	12-390-A555	12-390-D555
1"-10 BSF	36	160	18	14.5	12-390-560	12-390-B560	12-390-G560	12-390-C560	12-390-A560	12-390-D560

## WHITWORTH INCH THREAD MACHINE TAP



- Spiral flute 35° and Chamfer :2~3 threads.
- Ground teeth and Right hand cutting.
- Hole of application: blind hole and thread depth <math>< 2.5d1</math>.
- General I use with steel, stainless steel, cast iron, nonferrous material.
- Size same or under 3/8" with reinforced shank, size over 3/8" with reduced shank.

SIZE (D1)	THREAD LENGTH(L2)	TOTAL LENGTH(L1)	SHANK DIA.(D2)	SQUARE (A)	H.S.S.			H.S.S.COBBALT 5%		
					BRIGHT	OXIDE	TIN COATED	BRIGHT	TIN COATED	TICN COATED
BSW										
1/8-40 BSW	11	56	3.5	2.7	12-391-005	12-391-B005	12-391-G005	12-391-C005	12-391-A005	12-391-D005
5/32-32 BSW	13	63	4.5	3.4	12-391-010	12-391-B010	12-391-G010	12-391-C010	12-391-A010	12-391-D010
3/16-24 BSW	15	70	6	4.9	12-391-015	12-391-B015	12-391-G015	12-391-C015	12-391-A015	12-391-D015
7/32-24 BSW	16	80	6	4.9	12-391-020	12-391-B020	12-391-G020	12-391-C020	12-391-A020	12-391-D020
1/4-20 BSW	17	80	7	5.5	12-391-025	12-391-B025	12-391-G025	12-391-C025	12-391-A025	12-391-D025
5/16-18 BSW	20	90	8	6.2	12-391-030	12-391-B030	12-391-G030	12-391-C030	12-391-A030	12-391-D030
3/8-16 BSW	22	100	10	8	12-391-035	12-391-B035	12-391-G035	12-391-C035	12-391-A035	12-391-D035
7/16-14 BSW	22	100	8	6.2	12-391-040	12-391-B040	12-391-G040	12-391-C040	12-391-A040	12-391-D040
1/2-12 BSW	25	110	9	7	12-391-045	12-391-B045	12-391-G045	12-391-C045	12-391-A045	12-391-D045
9/16-12 BSW	26	110	11	9	12-391-050	12-391-B050	12-391-G050	12-391-C050	12-391-A050	12-391-D050
5/8-11 BSW	27	110	12	9	12-391-055	12-391-B055	12-391-G055	12-391-C055	12-391-A055	12-391-D055
3/4-10 BSW	30	125	14	11	12-391-060	12-391-B060	12-391-G060	12-391-C060	12-391-A060	12-391-D060
7/8-9 BSW	32	140	18	14.5	12-391-065	12-391-B065	12-391-G065	12-391-C065	12-391-A065	12-391-D065
1-8 BSW	36	160	18	14.5	12-391-070	12-391-B070	12-391-G070	12-391-C070	12-391-A070	12-391-D070
BSF										
3/16-32 BSF	15	70	6	4.9	12-391-515	12-391-B515	12-391-G515	12-391-C515	12-391-A515	12-391-D515
1/4-26 BSF	17	80	7	5.5	12-391-520	12-391-B520	12-391-G520	12-391-C520	12-391-A520	12-391-D520
5/16-22 BSF	17	90	8	6.2	12-391-525	12-391-B525	12-391-G525	12-391-C525	12-391-A525	12-391-D525
3/8-20 BSF	18	100	10	8	12-391-530	12-391-B530	12-391-G530	12-391-C530	12-391-A530	12-391-D530
7/16-18 BSF	22	100	8	6.2	12-391-535	12-391-B535	12-391-G535	12-391-C535	12-391-A535	12-391-D535
1/2-16 BSF	22	100	9	7	12-391-540	12-391-B540	12-391-G540	12-391-C540	12-391-A540	12-391-D540
5/8-14 BSF	27	110	12	9	12-391-545	12-391-B545	12-391-G545	12-391-C545	12-391-A545	12-391-D545
3/4-12 BSF	27	125	14	11	12-391-550	12-391-B550	12-391-G550	12-391-C550	12-391-A550	12-391-D550
7/8-11 BSF	32	140	18	14.5	12-391-555	12-391-B555	12-391-G555	12-391-C555	12-391-A555	12-391-D555
1-10 BSF	36	160	18	14.5	12-391-560	12-391-B560	12-391-G560	12-391-C560	12-391-A560	12-391-D560

## WHITWORTH PIPE THREAD HAND TAP



Taper



Bottoming



- Straight Flute.
- Right hand cutting.
- Chamfer length: taper 3-4 threads, bottoming 2-3 threads.
- Universal use with steel, cast iron, nonferrous material.
- Hole of application: Blind or through hole and thread depth < 1.5d1

SIZE (D1)	THREAD LENGTH(L2)	TOTAL LENGTH(L1)	SHANK DIA.(D2)	SQUARE (A)	CARBON STEEL			H.S.S (BRIGHT FINISH)		
					TAPER	BOTTOMING	2PC/SET	TAPER	BOTTOMING	2PC/SET
G1/16-28	17	63	6	4.9	12-089-E001	12-089-D001	12-089-A001	12-089-T001	12-089-B001	12-089-S001
G1/8-28	18	63	7	5.5	12-089-E002	12-089-D002	12-089-A002	12-089-T002	12-089-B002	12-089-S002
G1/4-19	20	70	11	9	12-089-E003	12-089-D003	12-089-A003	12-089-T003	12-089-B003	12-089-S003
G3/8-19	20	70	12	9	12-089-E004	12-089-D004	12-089-A004	12-089-T004	12-089-B004	12-089-S004
G1/2-14	22	80	16	9	12-089-E005	12-089-D005	12-089-A005	12-089-T005	12-089-B005	12-089-S005
G5/8-14	22	80	18	14.5	12-089-E006	12-089-D006	12-089-A006	12-089-T006	12-089-B006	12-089-S006
G3/4-14	22	90	20	16	12-089-E007	12-089-D007	12-089-A007	12-089-T007	12-089-B007	12-089-S007
G7/8-14	22	90	22	18	12-089-E008	12-089-D008	12-089-A008	12-089-T008	12-089-B008	12-089-S008
G1"-11	25	100	25	20	12-089-E009	12-089-D009	12-089-A009	12-089-T009	12-089-B009	12-089-S009
G1-1/8"-11	30	125	28	22	12-089-E010	12-089-D010	12-089-A010	12-089-T010	12-089-B010	12-089-S010
G1-1/4"-11	30	125	32	24	12-089-E011	12-089-D011	12-089-A011	12-089-T011	12-089-B011	12-089-S011
G1-3/8"-11	30	125	36	29	12-089-E025	12-089-D025	12-089-A025	12-089-T025	12-089-B025	12-089-S025
G1-1/2"-11	30	140	36	29	12-089-E012	12-089-D012	12-089-A012	12-089-T012	12-089-B012	12-089-S012
G1-3/4"-11	32	140	40	32	12-089-E013	12-089-D013	12-089-A013	12-089-T013	12-089-B013	12-089-S013
G2"-11	36	160	45	35	12-089-E014	12-089-D014	12-089-A014	12-089-T014	12-089-B014	12-089-S014

## WHITWORTH PIPE THREAD STRAIGHT FLUTE MACHINE TAP



- Straight Flute and with reduced shank .
- Ground teeth and Chamfer :2-3 threads
- Right hand cutting.
- General use with steel, stainless steel, cast iron, nonferrous material.
- Hole of application: Blind or through hole and thread depth < 2d1

SIZE (D1)	THREAD LENGTH(L2)	TOTAL LENGTH(L1)	SHANK DIA. (D2)	SQUARE (A)	H.S.S.		H.S.S. COBALT 5%	
					BRIGHT	TIN COATED	BRIGHT	TICN COATED
G1/16-28	17	90	6	4.9	12-392-005	12-392-G005	12-392-C005	12-392-D005
G1/8-28	18	90	7	5.5	12-392-010	12-392-G010	12-392-C010	12-392-D010
G1/4-19	22	100	11	9	12-392-015	12-392-G015	12-392-C015	12-392-D015
G3/8-19	22	100	12	9	12-392-020	12-392-G020	12-392-C020	12-392-D020
G1/2-14	25	125	16	12	12-392-025	12-392-G025	12-392-C025	12-392-D025
G5/8-14	25	125	18	14.5	12-392-030	12-392-G030	12-392-C030	12-392-D030
G3/4-14	28	140	20	16	12-392-035	12-392-G035	12-392-C035	12-392-D035
G7/8-14	28	150	22	18	12-392-040	12-392-G040	12-392-C040	12-392-D040
G1"-11	30	160	25	20	12-392-045	12-392-G045	12-392-C045	12-392-D045
G1-1/8"-11	30	170	28	22	12-392-050	12-392-G050	12-392-C050	12-392-D050
G1-1/4"-11	30	170	32	24	12-392-055	12-392-G055	12-392-C055	12-392-D055
G1-3/8"-11	32	180	36	29	12-392-060	12-392-G060	12-392-C060	12-392-D060
G1-1/2"-11	32	190	36	29	12-392-065	12-392-G065	12-392-C065	12-392-D065
G1-5/8"-11	32	190	40	32	12-392-070	12-392-G070	12-392-C070	12-392-D070
G1-3/4"-11	32	190	40	32	12-392-075	12-392-G075	12-392-C075	12-392-D075
G2"-11	40	220	45	35	12-392-080	12-392-G080	12-392-C080	12-392-D080

### WHITWORTH PIPE THREAD SPIRAL POINTED MACHINE TAP



- Spiral pointed and with reduced shank .
- Ground teeth and Chamfer :4-5 threads
- Right hand cutting.
- General use with steel, stainless steel, cast iron, nonferrous material.
- Hole of application: through hole and thread depth < 3d1.

SIZE (D1)	THREAD LENGTH(L2)	TOTAL LENGTH(L1)	SHANK DIA. (D2)	SQUARE (A)	H.S.S.		H.S.S.COBALT 5%	
					BRIGHT	TIN COATED	BRIGHT	TICN COATED
G1/16-28	17	90	6	4.9	12-393-005	12-393-G005	12-393-C005	12-393-D005
G1/8-28	18	90	7	5.5	12-393-010	12-393-G010	12-393-C010	12-393-D010
G1/4-19	22	100	11	9	12-393-015	12-393-G015	12-393-C015	12-393-D015
G3/8-19	22	100	12	9	12-393-020	12-393-G020	12-393-C020	12-393-D020
G1/2-14	25	125	16	12	12-393-025	12-393-G025	12-393-C025	12-393-D025
G5/8-14	25	125	18	14.5	12-393-030	12-393-G030	12-393-C030	12-393-D030
G3/4-14	28	140	20	16	12-393-035	12-393-G035	12-393-C035	12-393-D035
G7/8-14	28	150	22	18	12-393-040	12-393-G040	12-393-C040	12-393-D040
G1"-11	30	160	25	20	12-393-045	12-393-G045	12-393-C045	12-393-D045
G1-1/8"-11	30	170	28	22	12-393-050	12-393-G050	12-393-C050	12-393-D050
G1-1/4"-11	30	170	32	24	12-393-055	12-393-G055	12-393-C055	12-393-D055
G1-3/8"-11	32	180	36	29	12-393-060	12-393-G060	12-393-C060	12-393-D060
G1-1/2"-11	32	190	36	29	12-393-065	12-393-G065	12-393-C065	12-393-D065
G1-5/8"-11	32	190	40	32	12-393-070	12-393-G070	12-393-C070	12-393-D070
G1-3/4"-11	32	190	40	32	12-393-075	12-393-G075	12-393-C075	12-393-D075
G2"-11	40	220	45	35	12-393-080	12-393-G080	12-393-C080	12-393-D080

### WHITWORTH CYLINDRICAL PIPE THREAD MACHINE TAP



- Straight Flute and with reduced shank .
- Ground teeth and Chamfer :2-3 threads
- Right hand cutting.
- General use with steel, nonferrous material.
- Hole of application: Blind or through hole and thread depth < 2d1
- for pressure-tight dry seal joints.

SIZE (D1)	THREAD LENGTH(L2)	TOTAL LENGTH(L1)	SHANK DIA. (D2)	SQUARE (A)	H.S.S.		H.S.S.COBALT 5%	
					BRIGHT	TIN COATED	BRIGHT	TICN COATED
Rp1/16-28	17	90	6	4.9	12-395-005	12-395-G-005	12-395-C-005	12-395-D-005
Rp1/8-28	18	90	7	5.5	12-395-010	12-395-G-010	12-395-C-010	12-395-D-010
Rp1/4-19	22	100	11	9	12-395-015	12-395-G-015	12-395-C-015	12-395-D-015
Rp3/8-19	22	100	12	9	12-395-020	12-395-G-020	12-395-C-020	12-395-D-020
Rp1/2-14	25	125	16	12	12-395-025	12-395-G-025	12-395-C-025	12-395-D-025
Rp3/4-14	28	140	20	16	12-395-030	12-395-G-030	12-395-C-030	12-395-D-030
Rp1"-11	30	160	25	20	12-395-035	12-395-G-035	12-395-C-035	12-395-D-035

### WHITWORTH PIPE THREAD SPIRAL FLUTE MACHINE TAP



- Spiral flute 35° and with reduced shank .
- Ground teeth and Chamfer :2-3 threads
- Right hand cutting.
- General use with steel, stainless steel, cast iron, nonferrous material.
- Hole of application: Blind hole and thread depth < 2.5d1

SIZE (D1)	THREAD LENGTH(L2)	TOTAL LENGTH(L1)	SHANK DIA. (D2)	SQUARE (A)	H.S.S.		H.S.S.COBALT 5%	
					BRIGHT	TIN COATED	BRIGHT	TICN COATED
G1/16-28	17	90	6	4.9	12-394-005	12-394-G005	12-394-C005	12-394-D005
G1/8-28	18	90	7	5.5	12-394-010	12-394-G010	12-394-C010	12-394-D010
G1/4-19	22	100	11	9	12-394-015	12-394-G015	12-394-C015	12-394-D015
G3/8-19	22	100	12	9	12-394-020	12-394-G020	12-394-C020	12-394-D020
G1/2-14	25	125	16	12	12-394-025	12-394-G025	12-394-C025	12-394-D025
G5/8-14	25	125	18	14.5	12-394-030	12-394-G030	12-394-C030	12-394-D030
G3/4-14	28	140	20	16	12-394-035	12-394-G035	12-394-C035	12-394-D035
G7/8-14	28	150	22	18	12-394-040	12-394-G040	12-394-C040	12-394-D040
G1"-11	30	160	25	20	12-394-045	12-394-G045	12-394-C045	12-394-D045
G1-1/8"-11	30	170	28	22	12-394-050	12-394-G050	12-394-C050	12-394-D050
G1-1/4"-11	30	170	32	24	12-394-055	12-394-G055	12-394-C055	12-394-D055
G1-3/8"-11	32	180	36	29	12-394-060	12-394-G060	12-394-C060	12-394-D060
G1-1/2"-11	32	190	36	29	12-394-065	12-394-G065	12-394-C065	12-394-D065
G1-5/8"-11	32	190	40	32	12-394-070	12-394-G070	12-394-C070	12-394-D070
G1-3/4"-11	32	190	40	32	12-394-075	12-394-G075	12-394-C075	12-394-D075
G2"-11	40	220	45	35	12-394-080	12-394-G080	12-394-C080	12-394-D080

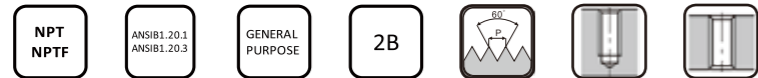
### WHITWORTH CYLINDRICAL PIPE THREAD MACHINE TAP



- Spiral Flute and with reduced shank .
- Ground teeth and Chamfer :1.5-2 threads
- Right hand cutting.
- General use with steel, stainless steel, nonferrous material.
- Hole of application: Blind hole and thread depth < 3d1
- for pressure-tight dry seal joints.

SIZE (D1)	THREAD LENGTH(L2)	TOTAL LENGTH(L1)	SHANK DIA. (D2)	SQUARE (A)	H.S.S.		H.S.S.COBALT 5%	
					BRIGHT	TIN COATED	BRIGHT	TICN COATED
Rp1/16-28	10	90	6	4.9	12-396-005	12-396-G-005	12-396-C-005	12-396-D-005
Rp1/8-28	10	90	7	5.5	12-396-010	12-396-G-010	12-396-C-010	12-396-D-010
Rp1/4-19	15	100	11	9	12-396-015	12-396-G-015	12-396-C-015	12-396-D-015
Rp3/8-19	15	100	12	9	12-396-020	12-396-G-020	12-396-C-020	12-396-D-020
Rp1/2-14	17	125	16	12	12-396-025	12-396-G-025	12-396-C-025	12-396-D-025
Rp3/4-14	20	140	20	16	12-396-030	12-396-G-030	12-396-C-030	12-396-D-030
Rp1"-11	24	160	25	20	12-396-035	12-396-G-035	12-396-C-035	12-396-D-035

### AMERICAN STANDARD TAPER PIPE TAP



- Straight Flute and taper 1:16
- Bright finish and Chamfer :2-3 threads
- Right hand cutting.
- General use with steel, cast iron, nonferrous material.
- for pressure-tight dryseal joints.
- For machine tapping operations, but may also be employed for hand tapping.

SIZE	THREAD LENGTH	TOTAL LENGTH	CARBON STEEL		H.S.S.	
			NPT	NPTF	NPT	NPTF
1/16"-27	11/16"	2-1/8"	12-097-A001	12-097-A002	12-097-B001	12-097-B002
1/8"-27	3/4"	2-1/8"	12-097-A003	12-097-A004	12-097-B003	12-097-B004
1/4"-18	1-1/16"	2-7/16"	12-097-A005	12-097-A006	12-097-B005	12-097-B006
3/8"-18	1-1/16"	2-9/16"	12-097-A007	12-097-A008	12-097-B007	12-097-B008
1/2"-14	1-3/8"	3-1/8"	12-097-A009	12-097-A010	12-097-B009	12-097-B010
3/4"-14	1-3/8"	3-1/4"	12-097-A011	12-097-A012	12-097-B011	12-097-B012
1"-11-1/2	1-3/4"	3-3/4"	12-097-A013	12-097-A014	12-097-B013	12-097-B014
1-1/4"-11-1/2	1-3/4"	4"	12-097-A015	12-097-A016	12-097-B015	12-097-B016
1-1/2"-11-1/2	1-3/4"	4-1/4"	12-097-A017	12-097-A018	12-097-B017	12-097-B018
2"-11-1/2	1-3/4"	4-1/2"	12-097-A019	12-097-A020	12-097-B019	12-097-B020
2-1/2"-8	2-9/16"	5-1/2"	12-097-A021	12-097-A022	12-097-B021	12-097-B022
3"-8	2-5/8"	6"	12-097-A023	12-097-A024	12-097-B023	12-097-B024
3-1/2"-8	2-11/16"	6-1/2"	12-097-A025	12-097-A026	12-097-B025	12-097-B026
4"-8	2-3/4"	6-3/4"	12-097-A027	12-097-A028	12-097-B027	12-097-B028

### H.S.S. AMERICAN STANDARD INTERRUPTED TAPER PIPE TAP



- Straight Flute and taper 1:16
- Bright finish and Chamfer :2-3 threads
- Right hand cutting.
- General use with steel, cast iron, nonferrous material.
- Reduce friction and permit better lubrication.
- For machine tapping operations.

SIZE	THREAD LENGTH	TOTAL LENGTH	ORDER NO.
1/16"-27	11/16"	2-1/8"	12-097-C001
1/8"-27	3/4"	2-1/8"	12-097-C002
1/4"-18	1-1/16"	2-7/16"	12-097-C003
3/8"-18	1-1/16"	2-9/16"	12-097-C004
1/2"-14	1-3/8"	3-1/8"	12-097-C005
3/4"-14	1-3/8"	3-1/4"	12-097-C006
1"-11-1/2	1-3/4"	3-3/4"	12-097-C007
1-1/4"-11-1/2	1-3/4"	4"	12-097-C008
1-1/2"-11-1/2	1-3/4"	4-1/4"	12-097-C009
2"-11-1/2	1-3/4"	4-1/2"	12-097-C010

### AMERICAN STANDARD STRAIGHT PIPE TAP



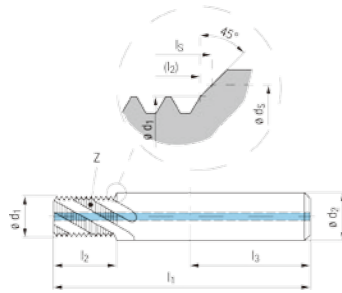
- Straight Flute.
- Bright finish and Chamfer :2-3 threads
- Right hand cutting.
- General use with steel, cast iron, nonferrous material.
- for mechanical joints.
- For machine tapping operations, but may also be employed for hand tapping.

SIZE	THREAD LENGTH	TOTAL LENGTH	CARBON STEEL	H.S.S.
1/16"-27	11/16"	2-1/8"	12-097-001	12-097-D001
1/8"-27	3/4"	2-1/8"	12-097-002	12-097-D002
1/4"-18	1-1/16"	2-7/16"	12-097-003	12-097-D003
3/8"-18	1-1/16"	2-9/16"	12-097-004	12-097-D004
1/2"-14	1-3/8"	3-1/8"	12-097-005	12-097-D005
3/4"-14	1-3/8"	3-1/4"	12-097-006	12-097-D006
1"-11-1/2	1-3/4"	3-3/4"	12-097-007	12-097-D007
1-1/4"-11-1/2	1-3/4"	4"	12-097-008	12-097-D008
1-1/2"-11-1/2	1-3/4"	4-1/4"	12-097-009	12-097-D009
2"-11-1/2	1-3/4"	4-1/2"	12-097-010	12-097-D010
2-1/2"-8	2-9/16"	5-1/2"	12-097-011	12-097-D011
3"-8	2-5/8"	6"	12-097-012	12-097-D012
3-1/2"-8	2-11/16"	6-1/2"	12-097-013	12-097-D013
4"-8	2-3/4"	6-3/4"	12-097-014	12-097-D014

## SOLID CARBIDE THREAD MILLS.

Made of sub-micrograin carbide for superior strength and toughness.  
All tools are CNC precision ground for perfect finish and consistency.  
One cutter can cut both right and left hand threads.  
For machining steel, stainless steel, cast iron, high temperature alloys, great for threading soft, non-ferrous alloys of big size threading hole.  
Lower machine horsepower required than for tapping.

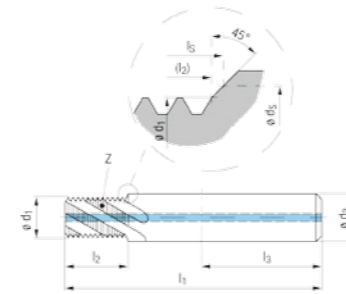
## ISO METRIC SIZE SOLID CARBIDE THREAD MILL WITH COUNTERSINK STEP



- Spiral flute and with inner cooling hole
- Full form design for internal thread.
- Full profile thread single cutter just for one thread size.
- Countersinking and threading can be finished in one operation.
- A ready prepared hole is necessary.
- Hole of application: Blind or through hole and thread depth  $\leq 2D$

SIZE	SHANK DIA. (D2)	TOTAL LENGTH(L1)	TEETH LENGTH(L2)	SHANK LENGTH (L3)	CUTTER DIA.(D1)	DS	LS	FLUTE NO.	NONE-COATED	TICN COATED	TIALN COATED
M											
M5x0.8	6	55	10.8	36	4	5.3	11.4	3	11-401-005	11-401-C005	11-401-A005
M6x1	8	62	12.5	36	4.8	6.3	13.2	3	11-401-010	11-401-C010	11-401-A010
M8x1.25	10	74	16.9	40	6.5	8.3	17.7	3	11-401-015	11-401-C015	11-401-A015
M10x1.5	12	80	20.3	45	8.2	10.3	21.2	3	11-401-020	11-401-C020	11-401-A020
M12x1.75	14	90	25.4	45	9.9	12.3	26.5	4	11-401-025	11-401-C025	11-401-A025
M14x2	16	100	29	48	11.6	14.3	30.2	4	11-401-030	11-401-C030	11-401-A030
M16x2	18	102	33	48	13.6	16.3	34.2	4	11-401-035	11-401-C035	11-401-A035
MF											
M5x0.8	6	55	9.4	36	4	5.3	10	3			
M6x0.75	8	62	12.4	36	5	6.3	13	3	11-401-510	11-401-C510	11-401-A510
M8x1.0	10	74	16.5	40	6.7	8.3	17.2	3	11-401-515	11-401-C515	11-401-A515
M10x1.0	12	80	20.5	45	8.7	10.3	21.2	3	11-401-520	11-401-C520	11-401-A520
M10x1.25	12	80	20.7	45	8.4	10.3	21.5	3	11-401-525	11-401-C525	11-401-A525
M12x1.0	14	90	24.5	45	10.6	12.3	25.3	4	11-401-530	11-401-C530	11-401-A530
M12x1.25	14	90	24.4	45	10.4	12.3	25.2	4	11-401-535	11-401-C535	11-401-A535
M12x1.5	14	90	24.8	45	10.1	12.3	25.7	4	11-401-545	11-401-C545	11-401-A545
M14x1.5	16	100	29.3	48	12.1	14.3	30.2	4	11-401-550	11-401-C550	11-401-A550
M16x1.5	18	102	32.3	48	14	16.3	33.3	4	11-401-555	11-401-C555	11-401-A555

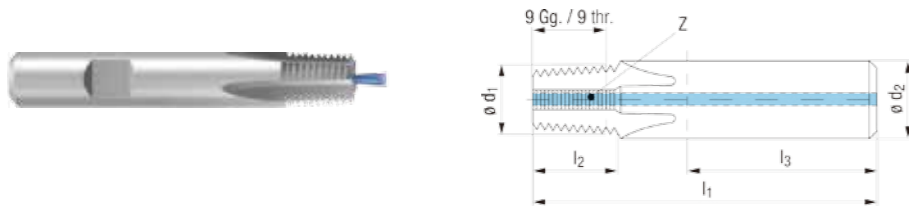
## UNIFIED THREAD SOLID CARBIDE THREAD MILL WITH COUNTERSINK STEP



- Spiral flute and with inner cooling hole
- Full form design for internal thread.
- Full profile thread single cutter just for one thread size.
- Countersinking and threading can be finished in one operation.
- A ready prepared hole is necessary.
- Hole of application: Blind or through hole and thread depth  $\leq 2D$

SIZE	SHANK DIA. (D2)	CUTTER DIA.(D1)	TOTAL LENGTH(L1)	TEETH LENGTH(L2)	FLUTE NO.	SHANK LENGTH (L3)	DS	LS	NONE-COATED	TICN COATED	TIALN COATED
UNC											
#10-24	1/4"	0.136"	2-1/2"	0.395"	3	36mm	5.79mm	11.9mm	12-401-005	12-401-C005	12-401-A005
1/4"-20	1/4"	0.185"	2-1/2"	0.524"	3	36	6.65	14.2	12-401-010	12-401-C010	12-401-A010
5/16"-18	1/4"	0.242"	2-1/2"	0.637"	3	40	8.25	17.2	12-401-015	12-401-C015	12-401-A015
3/8"-16	5/16"	0.354"	2-1/2"	0.780"	3	45	9.83	20.8	12-401-020	12-401-C020	12-401-A020
7/16"-14	3/8"	0.354"	3"	0.891"	3	45	11.43	23.8	12-401-025	12-401-C025	12-401-A025
1/2"-13	3/8"	0.371"	3"	1.036"	4	45	13	27.6	12-401-030	12-401-C030	12-401-A030
9/16"-12	1/2"	0.496"	3-3/4"	1.138"	4	48	14.61	32	12-401-035	12-401-C035	12-401-A035
5/8"-11	1/2"	0.496"	3-3/4"	1.316"	4	48	16.18	34.9	12-401-040	12-401-C040	12-401-A040
3/4"-10	5/8"	0.621"	4-1/4"	1.548"	5	50	19.35	40.9	12-401-045	12-401-C045	12-401-A045
UNF											
10-32	1/4"	0.150"	2-1/2"	0.390"	3	36mm	5.13mm	10.5mm	12-401-505	12-401-C505	12-401-A505
1/4"-28	1/4"	0.203"	2-1/2"	0.517"	3	36	6.65	13.8	12-401-510	12-401-C510	12-401-A510
5/16"-24	1/4"	0.246"	2-1/2"	0.644"	3	40	8.25	17.1	12-401-515	12-401-C515	12-401-A515
3/8"-24	5/16"	0.309"	2-1/2"	0.738"	3	45	9.83	20.3	12-401-520	12-401-C520	12-401-A520
7/16"-20	3/8"	0.371"	3"	0.874"	3	45	11.43	23.1	12-401-525	12-401-C525	12-401-A525
1/2"-20	1/2"	0.371"	3"	1.023"	4	45	13	26.9	12-401-530	12-401-C530	12-401-A530
9/16"-18	1/2"	0.496"	3-3/4"	1.138"	4	48	14.61	29.9	12-401-535	12-401-C535	12-401-A535
5/8"-18	1/2"	0.496"	3-3/4"	1.138"	4	48	16.18	34.1	12-401-540	12-401-C540	12-401-A540
3/4"-16	5/8"	0.621"	4-1/4"	1.530"	5	50	19.35	40	12-401-545	12-401-C545	12-401-A545

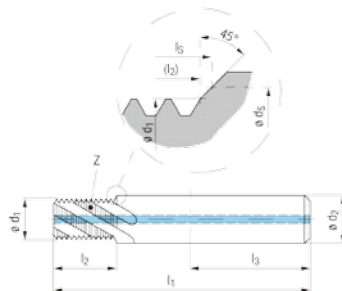
## AMERICAN STANDARD TAPER PIPE SOLID CARBIDE THREAD MILL



- For internal taper thread.
- Straight flute and with inner cooling hole
- A ready prepared hole is necessary.

SIZE	CUTER DIA. (D1)	SHANK DIA. (D2)	TOTAL LENGTH(L1)	TEETH LENGTH(L2)	FLUTE NO.	NONE-COATED	TICN COATED	TIALN COATED
1/16"(1/8")-27	0.218"	1/4"	2-1/2"	1/2"	4	12-403-005	12-403-C005	12-403-A005
1/8"-27	0.280"	3/8"	3-1/2"	3/4"	4	12-403-010	12-403-C010	12-403-A010
1/4"(3/8")-18	0.330"	3/8"	3-1/2"	5/8"	4	12-403-015	12-403-C015	12-403-A015
1/4"(3/8")-18	0.382"	7/16"	3-1/2"	3/4"	4	12-403-020	12-403-C020	12-403-A020
1/2"(3/4")-14	0.430"	1/2"	3-1/2"	1"	4	12-403-025	12-403-C025	12-403-A025
1"(2")-11-1/2	0.650"	3/4"	4"	1-1/2"	5	12-403-030	12-403-C030	12-403-A030

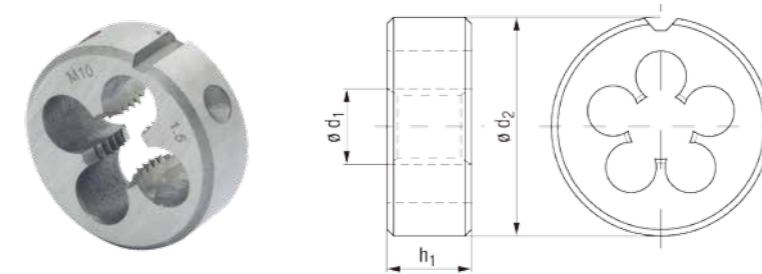
## WHITWORTH PIPE THREAD SOLID CARBIDE THREAD MILL WITH COUNTERSINK STEP



- Spiral flute and with inner cooling hole
- Full form design for internal thread.
- Full profile thread single cutter just for one thread size.
- Countersinking and threading can be finished in one operation.
- A ready prepared hole is necessary.
- Hole of application: Blind or through hole and thread depth<=2D

SIZE	SHANK DIA. (D2)	TOTAL LENGTH(L1)	TEETH LENGTH(L2)	SHANK LENGTH (L3)	CUTER DIA. (D1)	DS	LS	FLUTE NO.	NONE-COATED	TICN COATED	TIALN COATED
G1/8"-28	12mm	80mm	20.4mm	45mm	8.2mm	10mm	21.2mm	3	11-402-005	11-402-C005	11-402-A005
G1/4"-19	16	100	27.4	48	11	13.5	28.5	4	11-402-010	11-402-C010	11-402-A010
G3/8"-19	18	102	34.1	48	14.5	17	35.2	4	11-402-015	11-402-C015	11-402-A015

## ISO METRIC ROUND DIE

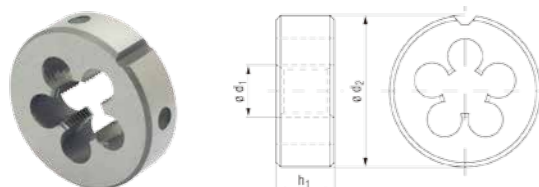
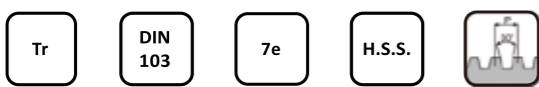


- Chamfer :1.5 threads
- Right hand cutting.
- Universal use with steel, stainless steel, cast iron, nonferrous material.
- For machine threading or for use in die stock for hand threading.

SIZE (D1)	DIA. (D2)	THICKNESS (H1)	H.S.S			SIZE (D1)	DIA. (D2)	THICKNESS (H1)	H.S.S		
			BRIGHT	TIN COATED	COBALT 5% BRIGHT				BRIGHT	TIN COATED	COBALT 5% BRIGHT
M						MF					
M2x0.4	16mm	5mm	11-098-A002	11-098-T002	11-098-E002	M3x0.35	20mm	5mm	11-098-A066	11-098-T066	11-098-E066
M2.2x0.45	16	5	11-098-A004	11-098-T004	11-098-E004	M4x0.5	20	5	11-098-A070	11-098-T070	11-098-E070
M2.3x0.4	16	5	11-098-A006	11-098-T006	11-098-E006	M5x0.5	20	5	11-098-A072	11-098-T072	11-098-E072
M2.5x0.45	16	5	11-098-A008	11-098-T008	11-098-E008	M6x0.5	20	5	11-098-A074	11-098-T074	11-098-E074
M2.6x0.45	16	5	11-098-A010	11-098-T010	11-098-E010	M6x0.75	25	7	11-098-A076	11-098-T076	11-098-E076
M3x0.5	20	5	11-098-A012	11-098-T012	11-098-E012	M8x0.5	25	9	11-098-A078	11-098-T078	11-098-E078
M3.5x0.6	20	5	11-098-A014	11-098-T014	11-098-E014	M8x0.75	25	9	11-098-A080	11-098-T080	11-098-E080
M4x0.7	20	5	11-098-A016	11-098-T016	11-098-E016	M8x1	25	9	11-098-A082	11-098-T082	11-098-E082
M4.5x0.75	20	7	11-098-A018	11-098-T018	11-098-E018	M10x1	30	11	11-098-A084	11-098-T084	11-098-E084
M5x0.8	20	7	11-098-A020	11-098-T020	11-098-E020	M10x0.75	30	11	11-098-A086	11-098-T086	11-098-E086
M6x1	20	7	11-098-A022	11-098-T022	11-098-E022	M10x1.25	30	11	11-098-A088	11-098-T088	11-098-E088
M7x1	25	9	11-098-A024	11-098-T024	11-098-E024	M12x1	30	11	11-098-A090	11-098-T090	11-098-E090
M8x1.25	25	9	11-098-A026	11-098-T026	11-098-E026	M12x1.25	38	11	11-098-A092	11-098-T092	11-098-E092
M9x1.25	25	9	11-098-A028	11-098-T028	11-098-E028	M12x1.5	38	10	11-098-A094	11-098-T094	11-098-E094
M10x1.5	30	11	11-098-A030	11-098-T030	11-098-E030	M14x1	38	10	11-098-A096	11-098-T096	11-098-E096
M11x1.5	30	11	11-098-A032	11-098-T032	11-098-E032	M14x1.25	38	10	11-098-A098	11-098-T098	11-098-E098
M12x1.75	38	14	11-098-A034	11-098-T034	11-098-E034	M14x1.5	38	10	11-098-A100	11-098-T100	11-098-E100
M14x2	38	14	11-098-A036	11-098-T036	11-098-E036	M16x1	45	14	11-098-A102	11-098-T102	11-098-E102
M16x2	45	18	11-098-A038	11-098-T038	11-098-E038	M16x1.5	45	14	11-098-A104	11-098-T104	11-098-E104
M18x2.5	45	18	11-098-A040	11-098-T040	11-098-E040	M18x1	45	14	11-098-A106	11-098-T106	11-098-E106
M20x2.5	45	18	11-098-A042	11-098-T042	11-098-E042	M18x1.5	45	14	11-098-A108	11-098-T108	11-098-E108
M22x2.5	55	22	11-098-A044	11-098-T044	11-098-E044	M20x1	45	14	11-098-A110	11-098-T110	11-098-E110
M24x3	55	22	11-098-A046	11-098-T046	11-098-E046	M20x1.5	45	14	11-098-A112	11-098-T112	11-098-E112
M27x3	65	25	11-098-A048	11-098-T048	11-098-E048	M22x1	55	16	11-098-A114	11-098-T114	11-098-E114
M30x3.5	65	25	11-098-A050	11-098-T050	11-098-E050	M22x1.5	55	16	11-098-A116	11-098-T116	11-098-E116
M33x3.5	65	25	11-098-A052	11-098-T052	11-098-E052	M22x2	55	16	11-098-A118	11-098-T118	11-098-E118
M36x4	65	25	11-098-A054	11-098-T054	11-098-E054	M24x1.5	55	16	11-098-A120	11-098-T120	11-098-E120
M39x4	75	30	11-098-A056	11-098-T056	11-098-E056	M24x2	55	16	11-098-A122	11-098-T122	11-098-E122
M42x4.5	75	30	11-098-A058	11-098-T058	11-098-E058	M27x1.5	65	18	11-098-A124	11-098-T124	11-098-E124
M45x4.5	90	36	11-098-A060	11-098-T060	11-098-E060	M27x2	65	18	11-098-A126	11-098-T126	11-098-E126
M48x5	90	36	11-098-A062	11-098-T062	11-098-E062	M30x1.5	65	18	11-098-A128	11-098-T128	11-098-E128
M52x5	90	36	11-098-A064	11-098-T064	11-098-E064	M30x2	65	18	11-098-A130	11-098-T130	11-098-E130



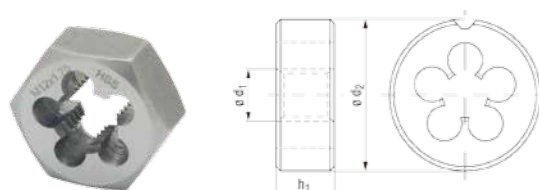
### ISO METRIC TRAPEZOIDAL COARSE THREAD ROUND DIE



- Right hand cutting.
- Chamfer :1.5-2 threads
- Universal use with steel, stainless steel, cast iron, nonferrous material.

SIZE (D1)	PITCH	DIA.(D2)	THICKNESS (H1)	ORDER NO.
Tr 8	1.5	25mm	9mm	12-397-005
Tr 10	2	38	14	12-397-010
Tr 10	3	38	14	12-397-015
Tr 11	3	38	14	12-397-020
Tr 12	3	38	14	12-397-025
Tr 14	3	45	18	12-397-030
Tr 14	4	45	18	12-397-035
Tr 16	4	45	18	12-397-040
Tr 18	4	45	18	12-397-045
Tr 20	4	55	22	12-397-050
Tr 22	5	55	22	12-397-055
Tr 24	5	65	25	12-397-060
Tr 26	5	65	25	12-397-065
Tr 28	5	65	25	12-397-070
Tr 30	6	65	25	12-397-075
Tr 32	6	65	25	12-397-080

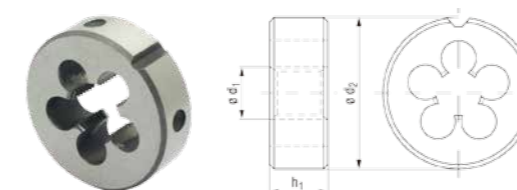
### ISO METRIC COARSE THREAD HEXAGON DIE



- Right hand cutting.
- Chamfer :1.5 threads
- Universal use with steel, cast iron, nonferrous material.

SIZE (D1)	SW	THICKNESS (H1)	CARBON STEEL	H.S.S.
M3x0.5	18mm	5mm	11-100-C001	11-100-C002
M3.5X0.6	18	5	11-100-C003	11-100-C004
M4x0.7	18	5	11-100-C005	11-100-C006
M5x0.8	18	7	11-100-C009	11-100-C010
M6x1.0	18	7	11-100-C011	11-100-C012
M7x1.0	21	9	11-100-C013	11-100-C014
M8x1.25	21	9	11-100-C015	11-100-C016
M10x1.5	27	11	11-100-C019	11-100-C020
M12x1.75	36	14	11-100-C023	11-100-C024
M14x2.0	36	14	11-100-C025	11-100-C026
M16x2.0	41	18	11-100-C027	11-100-C028
M18x2.5	41	18	11-100-C029	11-100-C030
M20x2.5	41	18	11-100-C031	11-100-C032
M22x2.5	50	22	11-100-C033	11-100-C034
M24x3.0	50	22	11-100-C035	11-100-C036
M27x3.0	60	25	11-100-C055	11-100-C056
M30x3.5	60	25	11-100-C037	11-100-C038
M33x3.5	60	25	11-100-C039	11-100-C040
M36x4.0	60	25	11-100-C041	11-100-C042

### WHITWORTH THREAD ROUND DIE



- Right hand cutting.
- For use in hand die stocks or die holder.
- Hss-used for cutting new thread in mild steel and nonferrous material.

SIZE (D1)	DIA. (D2)	THICKNESS (H1)	H.S.S		SIZE (D1)	DIA. (D2)	THICKNESS (H1)	H.S.S	
			BRIGHT	TIN COATED				BRIGHT	TIN COATED
BSW									
1/16"-60	16 mm	5 mm	12-098-C002	12-098-T002	1-1/4"-7	65	25	12-098-C036	12-098-T036
3/32"-48	16	5	12-098-C004	12-098-T004	1-3/8"-6	65	25	12-098-C038	12-098-T038
1/8"-40	20	5	12-098-C006	12-098-T006	1-1/2"-6	75	30	12-098-C040	12-098-T040
5/32"-32	20	7	12-098-C008	12-098-T008	1-5/8"-5	75	30	12-098-C042	12-098-T042
3/16"-24	20	7	12-098-C010	12-098-T010	1-3/4"-5	90	36	12-098-C044	12-098-T044
7/32"-24	20	7	12-098-C012	12-098-T012	2"-4-1/2"	90	36	12-098-C048	12-098-T048
1/4"-20	20	7	12-098-C014	12-098-T014	BSF				
5/16"-18	25	9	12-098-C016	12-098-T016	3/16"-24 BSF	20 mm	7 mm	12-098-505	12-098-T505
3/8"-16	30	11	12-098-C018	12-098-T018	1/4"-20 BSF	20	7	12-098-510	12-098-T510
7/16"-14	30	11	12-098-C020	12-098-T020	5/16"-18 BSF	25	9	12-098-515	12-098-T515
1/2"-12	38	14	12-098-C022	12-098-T022	3/8"-16 BSF	30	11	12-098-520	12-098-T520
9/16"-12	38	14	12-098-C024	12-098-T024	7/16"-14 BSF	30	11	12-098-525	12-098-T525
5/8"-11	45	18	12-098-C026	12-098-T026	1/2"-12 BSF	38	14	12-098-530	12-098-T530
3/4"-10	45	18	12-098-C028	12-098-T028	5/8"-11 BSF	45	18	12-098-535	12-098-T535
7/8"-9	55	22	12-098-C030	12-098-T030	3/4"-10 BSF	45	18	12-098-540	12-098-T540
1"-8	55	22	12-098-C032	12-098-T032	7/8"-9 BSF	55	22	12-098-545	12-098-T545
1-1/8"-7	65	25	12-098-C034	12-098-T034	1"-8 BSF	55	22	12-098-550	12-098-T550

Split adjustable style als available on requested

### WHITWORTH PIPE THREAD ROUND DIE

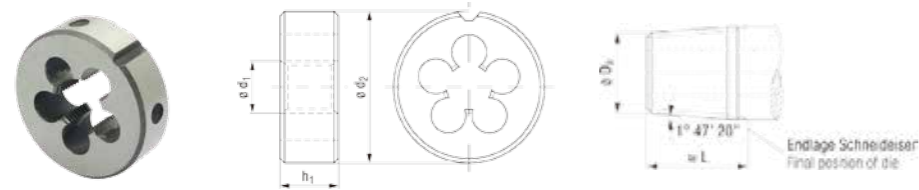


- Right hand cutting.
- Chamfer :1.5 threads
- For use in hand die stocks or die holder.
- Universal use with steel, stainless steel, cast iron, nonferrous material.
- Carbon steel -used for rethreading and cleaning of thread.

SIZE (D1)	PITCH	DIA. (D2)	THICKNESS (H1)	CARBON STEEL	H.S.S	SIZE (D1)	PITCH	DIA. (D2)	THICKNESS (H1)	CARBON STEEL	H.S.S
G1/16"	28mm	25mm	9mm	12-098-B001	12-098-B002	G1"	11	65	18	12-098-B017	12-098-B018
G1/8"	28	30	11	12-098-B003	12-098-B004	G1-1/8"	11	75	20	12-098-B019	12-098-B020
G1/4"	19	38	14	12-098-B005	12-098-B006	G1-1/4"	11	75	20	12-098-B021	12-098-B022
G3/8"	19	45	14	12-098-B007	12-098-B008	G1-3/8"	11	90	22	12-098-B025	12-098-B026
G1/2"	14	45	14	12-098-B009	12-098-B010	G1-1/2"	11	90	22	12-098-B023	12-098-B024
G5/8"	14	55	16	12-098-B011	12-098-B012	G1-3/4"	11	90	22	12-098-B027	12-098-B028
G3/4"	14	55	16	12-098-B013	12-098-B014	G2"	11	105	22	12-098-B029	12-098-B030
G7/8"	14	65	18	12-098-B015	12-098-B016						

Split adjustable style als available on requested

## BSPT WHITWORTH TAPER PIPE THREAD ROUND DIE



- Right hand cutting.
- Chamfer :1.5 threads
- For taper 1:16
- Universal use with steel, stainless steel, cast iron, nonferrous material.

SIZE (D1)	PITCH	DIA.(D2)	THICKNESS (H1)	CARBON STEEL	H.S.S
R 1/8"	28mm	30mm	11mm	12-098-D001	12-098-D002
R 1/4"	19	38	14	12-098-D003	12-098-D004
R 3/8"	19	45	14	12-098-D005	12-098-D006
R 1/2"	14	45	18	12-098-D007	12-098-D008
R 3/4"	14	55	22	12-098-D009	12-098-D010
R 1"	11	65	25	12-098-D011	12-098-D012

Split adjustable style als available on requested

## NPT/NPS PIPE THREAD ADJUSTABLE ROUND SPLIT DIE



- Right hand cutting.
- For use in hand die stocks or die holder.
- Adjustment is made by means of a screw in the die or in the die stock.
- Carbon steel -used for rethreading and cleaning of thread.
- Hss-used for cutting new thread in mild steel and nonferrous material.

SIZE	PITCH	O.D.	NPT		NPS	
			CARBON STEEL	H.S.S	CARBON STEEL	H.S.S
1/16"	27	1"	12-100-A003	12-100-A004	12-100-A001	12-100-A002
1/8"	27	1"	12-100-A007	12-100-A008	12-100-A005	12-100-A006
1/8"	27	1-1/2"	12-100-A011	12-100-A012	12-100-A009	12-100-A010
1/4"	18	1-1/2"	12-100-A015	12-100-A016	12-100-A013	12-100-A014
3/8"	18	1-1/2"	12-100-A019	12-100-A020	12-100-A017	12-100-A018
1/2"	14	2"	12-100-A023	12-100-A024	12-100-A021	12-100-A022
3/4"	14	2"	12-100-A027	12-100-A028	12-100-A025	12-100-A026
1"	11-1/2	2-1/2"	12-100-A031	12-100-A032	12-100-A029	12-100-A030
1-1/4"	11-1/2	3"	12-100-A035	12-100-A036	12-100-A033	12-100-A034
1-1/2"	11-1/2	3-1/2"	12-100-A039	12-100-A040	12-100-A037	12-100-A038
2"	11-1/2	4"	12-100-A043	12-100-A044	12-100-A041	12-100-A042
2-1/2"	8	5"	12-100-A047	12-100-A048	12-100-A045	12-100-A046
3"	8	5"	12-100-A051	12-100-A052	12-100-A049	12-100-A050
3-1/2"	8	6"	12-100-A055	12-100-A056	12-100-A053	12-100-A054

## INCH SIZE RIGHT HAND ADJUSTABLE ROUND SPLIT DIE



- Right hand cutting.
- For use in hand die stocks or die holder.
- Adjustment is made by means of a screw in the die or in the die stock.
- Hss-used for cutting new thread in mild steel and nonferrous material.

SIZE	PITCH	O.D.	H.S.S		SIZE	PITCH	O.D.	H.S.S	
			BRIGHT	TIN COATED				BRIGHT	TIN COATED
0	80		12-099-002	12-099-T002	1/4"	20		12-099-088	12-099-T088
1	64		12-099-004	12-099-T004	1/4"	28		12-099-090	12-099-T090
1	72		12-099-006	12-099-T006	5/16"	18		12-099-092	12-099-T092
2	56		12-099-008	12-099-T008	5/16"	24		12-099-094	12-099-T094
2	64		12-099-010	12-099-T010	3/8"	16		12-099-096	12-099-T096
3	48		12-099-012	12-099-T012	3/8"	24		12-099-098	12-099-T098
3	56		12-099-014	12-099-T014	7/16"	14		12-099-100	12-099-T100
4	32		12-099-016	12-099-T016	7/16"	20	1-1/2"	12-099-102	12-099-T102
4	36		12-099-018	12-099-T018	1/2"	13		12-099-104	12-099-T104
4	40		12-099-020	12-099-T020	1/2"	20		12-099-106	12-099-T106
4	48		12-099-022	12-099-T022	9/16"	12		12-099-108	12-099-T108
5	40		12-099-024	12-099-T024	9/16"	18		12-099-110	12-099-T110
5	44	13/16"	12-099-026	12-099-T026	5/8"	11		12-099-112	12-099-T112
6	32		12-099-028	12-099-T028	5/8"	18		12-099-114	12-099-T114
6	40		12-099-030	12-099-T030	3/4"	10		12-099-116	12-099-T116
8	32		12-099-032	12-099-T032	3/4"	16		12-099-118	12-099-T118
8	36		12-099-034	12-099-T034	1/4"	20		12-099-120	12-099-T120
10	24		12-099-036	12-099-T036	1/4"	28		12-099-122	12-099-T122
10	32		12-099-038	12-099-T038	5/16"	18		12-099-124	12-099-T124
12	24		12-099-040	12-099-T040	5/16"	24		12-099-126	12-099-T126
12	28		12-099-042	12-099-T042	3/8"	16		12-099-128	12-099-T128
1/4"	20		12-099-044	12-099-T044	3/8"	24		12-099-130	12-099-T130
1/4"	28		12-099-046	12-099-T046	1/2"	13		12-099-132	12-099-T132
5/16"	18		12-099-048	12-099-T048	1/2"	20		12-099-134	12-099-T134
5/16"	24		12-099-050	12-099-T050	9/16"	12	2"	12-099-136	12-099-T136
6	32		12-099-052	12-099-T052	9/16"	18		12-099-138	12-099-T138
6	40		12-099-054	12-099-T054	5/8"	11		12-099-140	12-099-T140
8	32		12-099-056	12-099-T056	5/8"	18		12-099-142	12-099-T142
8	36		12-099-058	12-099-T058	3/4"	10		12-099-144	12-099-T144
10	24		12-099-060	12-099-T060	3/4"	16		12-099-146	12-099-T146
10	32		12-099-062	12-099-T062	7/8"	9		12-099-148	12-099-T148
12	24		12-099-064	12-099-T064	7/8"	14		12-099-150	12-099-T150
12	28		12-099-066	12-099-T066	1"	8		12-099-152	12-099-T152
1/4"	20	1"	12-099-068	12-099-T068	1"	12		12-099-154	12-099-T154
1/4"	28		12-099-070	12-099-T070	1"	14		12-099-156	12-099-T156
5/16"	18		12-099-072	12-099-T072	1-1/8"	7		12-099-158	12-099-T158
5/16"	24		12-099-074	12-099-T074	1-1/8"	12		12-099-160	12-099-T160
3/8"	16		12-099-076	12-099-T076	1-1/4"	7		12-099-162	12-099-T162
3/8"	24		12-099-078	12-099-T078	1-1/4"	12	2-1/2"	12-099-164	12-099-T164
7/16"	14		12-099-080	12-099-T080	1-3/8"	6		12-099-166	12-099-T166
7/16"	20		12-099-082	12-099-T082	1-3/8"	12		12-099-168	12-099-T168
1/2"	13		12-099-084	12-099-T084	1-1/2"	6		12-099-170	12-099-T170
1/2"	20		12-099-086	12-099-T086	1-1/2"	12		12-099-172	12-099-T172

### H.S.S. INCH SIZE SPECIAL THREAD ADJUSTABLE ROUND SPLIT DIE



- Right hand cutting.
- For use in hand die stocks or die holder.
- Adjustment is made by means of a screw in the die or in the die stock.
- Carbon steel -used for rethreading and cleaning of thread.
- Hss-used for cutting new thread in mild steel and nonferrous material.

O.D. : 1"			O.D. : 1-1/2"			O.D. : 2"			O.D. : 2-1/2"		
SIZE	PITCH(TPI)	ORDER NO.	SIZE	PITCH(TPI)	ORDER NO.	SIZE	PITCH(TPI)	ORDER NO.	SIZE	PITCH(TPI)	ORDER NO.
6	36	12-100-B002	9/16"	14	12-100-B096	13/16"	10	12-100-B176	1-1/16"	8	12-100-B248
	45	12-100-B004		16	12-100-B098		12	12-100-B178		10	12-100-B250
	56	12-100-B006		20	12-100-B100		14	12-100-B180		12	12-100-B252
8	24	12-100-B008	5/8"	24	12-100-B102	7/8"	16	12-100-B182	1-1/8"	14	12-100-B254
	40	12-100-B010		27	12-100-B104		18	12-100-B184		16	12-100-B256
	48	12-100-B012		28	12-100-B106		20	12-100-B186		18	12-100-B258
1/4"	56	12-100-B014	11/16"	32	12-100-B108	1"	24	12-100-B188	1-3/16"	20	12-100-B260
	24	12-100-B016		36	12-100-B110		32	12-100-B190		24	12-100-B262
	26	12-100-B018		40	12-100-B112		12	12-100-B192		28	12-100-B264
5/16"	27	12-100-B020	3/4"	12	12-100-B114	15/16"	16	12-100-B194	1-1/4"	8	12-100-B266
	30	12-100-B022		14	12-100-B116		18	12-100-B196		10	12-100-B268
	32	12-100-B024		16	12-100-B118		20	12-100-B198		14	12-100-B270
3/8"	36	12-100-B026	1"	20	12-100-B120	1 1/8"	24	12-100-B200	1-1/2"	16	12-100-B272
	40	12-100-B028		24	12-100-B122		27	12-100-B202		18	12-100-B274
	48	12-100-B030		26	12-100-B124		28	12-100-B204		20	12-100-B276
7/16"	56	12-100-B032	1 1/8"	27	12-100-B126	1 3/8"	32	12-100-B206	1-5/8"	24	12-100-B278
	20	12-100-B034		28	12-100-B128		40	12-100-B208		27	12-100-B280
	22	12-100-B036		32	12-100-B130		12	12-100-B210		32	12-100-B282
1/2"	27	12-100-B038	1 1/4"	36	12-100-B132	1 1/2"	16	12-100-B212	1 3/4"	8	12-100-B284
	32	12-100-B040		40	12-100-B134		18	12-100-B214		12	12-100-B286
	40	12-100-B042		48	12-100-B136		20	12-100-B216		14	12-100-B288
3/4"	48	12-100-B044	1 3/8"	12	12-100-B138	1 5/8"	24	12-100-B218	1 7/8"	16	12-100-B290
	14	12-100-B046		18	12-100-B140		27	12-100-B220		18	12-100-B292
	18	12-100-B048		20	12-100-B142		32	12-100-B222		20	12-100-B294
1 1/8"	20	12-100-B050	1 1/2"	24	12-100-B144	1 3/4"	10	12-100-B224	1 7/8"	24	12-100-B296
	26	12-100-B052		32	12-100-B146		16	12-100-B226		32	12-100-B298
	27	12-100-B054		36	12-100-B148		18	12-100-B228		8	12-100-B300
1 1/4"	28	12-100-B056	1 3/4"	40	12-100-B150	1 7/8"	20	12-100-B230	1 7/8"	10	12-100-B302
	32	12-100-B058		12	12-100-B152		24	12-100-B232		14	12-100-B304
	36	12-100-B060		14	12-100-B154		26	12-100-B234		16	12-100-B306
1 1/2"	40	12-100-B062	1 7/8"	18	12-100-B156	1 7/8"	27	12-100-B236	1 7/8"	18	12-100-B308
	48	12-100-B064		20	12-100-B158		28	12-100-B238		20	12-100-B310
	18	12-100-B066		24	12-100-B160		32	12-100-B240		24	12-100-B312
1 3/8"	24	12-100-B068	1 7/8"	26	12-100-B162	1 7/8"	36	12-100-B242	1 7/8"	27	12-100-B314
	27	12-100-B070		27	12-100-B164		40	12-100-B244		32	12-100-B316
	28	12-100-B072		28	12-100-B166		48	12-100-B246		36	12-100-B318
1 3/4"	32	12-100-B074	1 7/8"	32	12-100-B168	1 7/8"			1 7/8"	40	12-100-B320
	40	12-100-B076		36	12-100-B170					8	12-100-B322
	12	12-100-B078		40	12-100-B172					12	12-100-B324
1 7/8"	14	12-100-B080	1 7/8"	48	12-100-B174	1 7/8"			1 7/8"	14	12-100-B326
	16	12-100-B082								16	12-100-B328
	18	12-100-B084								18	12-100-B330
1 7/8"	24	12-100-B086	1 7/8"			1 7/8"			1 7/8"	20	12-100-B332
	28	12-100-B088								24	12-100-B334
	32	12-100-B090								27	12-100-B336
1 7/8"	40	12-100-B092	1 7/8"			1 7/8"			1 7/8"	32	12-100-B338

### INCH SIZE RIGHT HAND HEXAGON RETHREADING DIE.



- Right hand cutting.
- Chamfer :1.5 threads
- Universal use with steel,cast iron,nonferrous material.

SIZE	PITCH (TPI)	CARBON STEEL	H.S.S.	SIZE	PITCH (TPI)	CARBON STEEL	H.S.S.
UNC/UNF				NPT			
1/4"	20	12-100-C001	12-100-C002	1/8"	27	12-100-C139	12-100-C140
1/4"	28	12-100-C003	12-100-C004	1/4"	18	12-100-C141	12-100-C142
5/16"	18	12-100-C005	12-100-C006	3/8"	18	12-100-C143	12-100-C144
5/16"	24	12-100-C007	12-100-C008	1/2"	14	12-100-C145	12-100-C146
3/8"	16	12-100-C009	12-100-C010	5/8"	14	12-100-C147	12-100-C148
3/8"	24	12-100-C011	12-100-C012	3/4"	14	12-100-C149	12-100-C150
7/16"	14	12-100-C013	12-100-C014	7/8"	14	12-100-C151	12-100-C152
7/16"	20	12-100-C015	12-100-C016	1"	11-1/2	12-100-C153	12-100-C154
1/2"	13	12-100-C017	12-100-C018	1-1/8"	11-1/2	12-100-C155	12-100-C156
1/2"	20	12-100-C019	12-100-C020	1-1/4"	11-1/2	12-100-C157	12-100-C158
9/16"	12	12-100-C021	12-100-C022	1-3/8"	11-1/2	12-100-C159	12-100-C160
9/16"	18	12-100-C023	12-100-C024	1-1/2"	11-1/2	12-100-C161	12-100-C162
5/8"	11	12-100-C025	12-100-C026	1-3/4"	11-1/2	12-100-C163	12-100-C164
5/8"	18	12-100-C027	12-100-C028	2"	11-1/2	12-100-C165	12-100-C166
3/4"	10	12-100-C029	12-100-C030	UNS			
3/4"	16	12-100-C031	12-100-C032	1-1/8"	8	12-100-C059	12-100-C060
7/8"	9	12-100-C033	12-100-C034	1-1/4"	8	12-100-C061	12-100-C062
7/8"	14	12-100-C035	12-100-C036	1-3/8"	8	12-100-C063	12-100-C064
1"	8	12-100-C037	12-100-C038	1-1/2"	8	12-100-C065	12-100-C066
1"	12	12-100-C039	12-100-C040	1-5/8"	5-1/2	12-100-C067	12-100-C068
1"	14	12-100-C041	12-100-C042	1-5/8"	8	12-100-C069	12-100-C070
1-1/8"	7	12-100-C043	12-100-C044	1-5/8"	12	12-100-C071	12-100-C072
1-1/8"	12	12-100-C045	12-100-C046	1-3/4"	5	12-100-C073	12-100-C074
1-1/4"	7	12-100-C047	12-100-C048	1-3/4"	8	12-100-C075	12-100-C076
1-1/4"	12	12-100-C049	12-100-C050	1-3/4"	12	12-100-C077	12-100-C078
1-3/8"	6	12-100-C051	12-100-C052	1-7/8"	5	12-100-C079	12-100-C080
1-3/8"	12	12-100-C053	12-100-C054	1-7/8"	8	12-100-C081	12-100-C082
1-1/2"	6	12-100-C055	12-100-C056	1-7/8"	12	12-100-C083	12-100-C084
1-1/2"	12	12-100-C057	12-100-C058				

## ADJUSTABLE TAP & REAMER WRENCH



Metric size according to DIN1814

SIZE	A(MIN.)-A(MAX)	FOR TAPS	TOTAL LENGTH (L)	ORDER NO.
# 0	2-5mm	M1-8	125mm	11-102-001
# 1	2-6mm	M1-10	180mm	11-102-002
# 1-1/2	2.5-8mm	M1-M12	200mm	11-102-003
# 2	4-9mm	M3.5-M12	280mm	11-102-004
# 3	4.9-12mm	M5-M20	375mm	11-102-005
# 4	5.5-16mm	M11-M27	500mm	11-102-006
# 5	7-20mm	M13-M32	750mm	11-102-007

Inch size

SIZE	HAND TAP CAPACITY	MACH/SCREW CAPACITY	PIPE CAPACITY	HAND REAMER CAPACITY	OVERALL LENGTH	ORDER NO.
#0	1/16"-1/4"	0-14	--	1/8"-21/64"	7"	12-102-001
#5	5/32"-1/2"	7-14	1/8"	11/64"-7/16"	11"	12-102-002
#6	5/32"-3/4"	7-14	1/8"-1/4"	11/64"-41/64"	15"	12-102-003
#7	1/4"-1-1/8"	--	1/8"-3/4"	9/32"-29/32"	19"	12-102-004
#8	3/4"-1-5/8"	--	3/8"-1-1/4"	37/64"-1-11/32"	40"	12-102-005

## METRIC ROUND DIE STOCK

According to DIN EN 22568



SIZE	FOR ROUND DIE	ORDER NO.
#1	dia.16x5mm	11-103-001
#2	dia.20x5mm	11-103-002
#3	dia.20x7mm	11-103-003
#4	dia.25x9mm	11-103-004
#5	dia.30x11mm	11-103-005
#7	dia.38x14mm	11-103-006
#9	dia.45x18mm	11-103-007
#11	dia.55x22mm	11-103-008
#13	dia.65x25mm	11-103-009
#6	dia.38x10mm	11-103-010
#8	dia.45x14mm	11-103-011
#10	dia.55x16mm	11-103-012
#12	dia.65x18mm	11-103-013
#14	dia.75x20mm	11-103-014
#15	dia.75x30mm	11-103-015
#16	dia.90x22mm	11-103-016
#17	dia.90x36mm	11-103-017
#18	dia.105x22mm	11-103-018
#19	dia.105x36mm	11-103-019

## INCH SIZE DIE STOCK

For ajustable round split die.



TAKES DIES O.D.	OVERALLLENGTH	ORDER NO.
5/8"	6"	12-103-001
13/16"	6-1/4"	12-103-002
1"	9"	12-103-003
1-1/2"	12"	12-103-004
2"	15"	12-103-005
2-1/2"	19"	12-103-006
3"	22"	12-103-007
3-1/2"	24"	12-103-008
4"	29"	12-103-009

## TAP LENGTHENERS



Made of carbon steel for tapping deep and narrow location. with internal square drive hole

SIZE (SQUARE MM)	LENGTH	ORDER NO.	SIZE (SQUARE MM)	LENGTH	ORDER NO.
2.1	60mm	10-295-001	10	140mm	10-295-014
2.4	70mm	10-295-002	11	150mm	10-295-015
2.7	80mm	10-295-003	12	155mm	10-295-016
3	90mm	10-295-004	13	165mm	10-295-017
3.4	95mm	10-295-005	14.5	175mm	10-295-018
3.8	100mm	10-295-006	16	185mm	10-295-019
4.3	105mm	10-295-007	18	195mm	10-295-020
4.9	110mm	10-295-008	20	210mm	10-295-021
5.5	115mm	10-295-009	22	220mm	10-295-022
6.2	120mm	10-295-010	24	235mm	10-295-023
7	125mm	10-295-011	26	250mm	10-295-024
8	130mm	10-295-012	29	265mm	10-295-025
9	135mm	10-295-013	32	285mm	10-295-026

## "T" HANDLE PLAIN TYPE TAP WRENCH



METRIC SIZE:	ORDER NO.
for taps M3-M8	11-104-001
for taps M6-M13	11-104-002

INCH SIZE:	ORDER NO.
For taps 1/16-1/4"	12-104-001
For taps 5/16-1/2"	12-104-002

## "T" HANDLE RATCHET TYPE TAP WRENCH



METRIC SIZE (STANDARD LENGTH):	ORDER NO.
for taps M3-M10/85mm	11-104-003
for taps M5-M13/110mm	11-104-004

METRIC SIZE (LANG REACH LENGTH) :	ORDER NO.
for taps M3-M10/250mm	11-104-005
for taps M5-M13/300mm	11-104-006

INCH SIZE:	ORDER NO.
For taps 5/32-1/4"	12-104-003
For taps 1/4-1/2"	12-104-004

## RATCHETING TAP AND DIE WRENCH SET

A perfect replacement to the traditional style with quicker and easier operation; Can be also used in narrow areas with the sliding "T" Handle tap wrench. The patented design is to be used with both taps and dies and eliminates hand over hand turning; Quite cost-effective for this high-quality tools.



ORDER NO. 10-108-105

Including 1pc each of Ratcheting Wrench, Round Die Adapter (25mm Dia), Locking Tap Adapter and "T" Handle Tap Wrench. Packed in metal case.



## METRIC 20PC TAP AND DIE WITH RATCHET WRENCH SET



ORDER NO. 10-108-110

Including:  
1pc Ratcheting Wrench.  
1pc Round Die Adapter (25mm/1" Dia).  
1pc Locking Tap Adapter.  
1pc "T" Handle Tap Wrench.  
7pcs 25mm Tungsten Steel Round Die DIN223B(M3,M4,M5,M6,M8,M10,M12).  
7pcs Hand Tungsten Steel Tap DIN352(M3,M4,M5,M6,M8,M10,M12).  
1pc Screw Driver.  
Packed in metal case.

## METRIC 38PC TAP AND DIE WITH RATCHET WRENCH SET



ORDER NO. 10-108-120

Including:  
1pc Ratcheting Wrench  
1pc Round Die Adapter (25mm/1" Dia)  
1pc Locking Tap Adapter  
1pc "T" Handle Tap Wrench  
7pcs 25mm Tungsten Steel Round Die DIN223B(M3,M4,M5,M6,M8,M10,M12)  
9pcs 1" UNC Tungsten Steel Round Die (6-32,8-32,10-24,12-24,1/4"-20,5/16"-18,3/8"-16,7/16"-14,1/2"-13)  
7pcs Hand Tungsten Steel Tap DIN352(M3,M4,M5,M6,M8,M10,M12)  
9pcs Hand UNC Tungsten Steel Tap (6-32,8-32,10-24,12-24,1/4"-20,5/16"-18,3/8"-16,7/16"-14,1/2"-13)  
1pc Screw Driver  
Packed in metal case.

## INCH SIZE 24PC TAP AND DIE WITH RATCHET WRENCH SET



ORDER NO. 10-108-115

Including:  
1pc Ratcheting Wrench  
1pc Round Die Adapter (25mm/1" Dia)  
1pc Locking Tap Adapter  
1pc "T" Handle Tap Wrench  
9pcs 1" UNC Tungsten Steel Round Die (6-32,8-32,10-24,12-24,1/4"-20,5/16"-18,3/8"-16,7/16"-14,1/2"-13)  
9pcs Hand UNC Tungsten Steel Tap (6-32,8-32,10-24,12-24,1/4"-20,5/16"-18,3/8"-16,7/16"-14,1/2"-13)  
1pc Screw Driver  
Packed in metal case.

## 18PC INCH SIZE HSS TAP & DRILL SET



ORDER NO. 12-110-001

Including:  
9pcs HSS UNC taps:6-32,8-32,10-24,12-24,1/4"-20,5/16"-18,3/8"-16,7/16"-14,1/2"-13.  
9pcs Hss drills:7/64",9/64",5/32",11/64",13/64",17/64",5/16",3/8",27/64"  
packed in fitted metal case

## 21PC METRIC HSS HAND TAP SET



ORDER NO. 11-109-001

All taps are made according to DIN352.  
3pcs each of M3/M4/M5/M6/M8/M10/M12.  
In metal case packing

### 29PC METRIC HSS TAP & DRILL SET



Including:  
HSS. tap:3pc each of M3/M4/M5/M6/M8/M10/M12,  
HSS. drill:2.5/3.3/4.2/5.0/6.8/8.5/10.2mm  
Tap wrench:1pcs.  
Packed in fitted metal case

ORDER NO. 11-110-001

### 32PC METRIC HSS TAP & DIE SET



Including:  
TAP : M3 M4 M5 M6 M8 M10 M12 Each 3PC According To DIN352  
DIES:M3 M4 M5 M6 M8 M10 M12 Each 1PC According To DIN223  
Tap: Wrench,Die Stock,Screw Driver,Screw Gauge One Piece Each  
Metal Case Packing

ORDER NO. 11-111-001

### METRIC 30PC HSS MINI TAP & DIE SET



All mini tap & die for precision job.including size as:  
Taps: 2pc each size of M1.0,M1.1,M1.2,M1.4,M1.6,M1.8,M2.0,  
M2.2,M2.5.  
Dies:1pc each size same as taps.  
Holder for taps and dies.

ORDER NO. 11-237-001

### 44PC METRIC HSS TAP & DIE SET



Including:  
·TAPS:M3,M4,M5,M8,M10,M12,3pc each according to DIN352  
·DIES:M3,M4,M5,M8,M10,M12,1pc each according to DIN1814  
·DRILLS:φ2.5,φ3.3,φ4.2,φ5,φ6.8,φ8.5,φ10.2, 1pc each  
·TAP WRENCH:NO.1,NO.2,1pc each according to DIN1814  
·DIE STOCK:20×5,20×7,25×9,30×11,38×14 1pc each  
according to DIN225  
·SCREW DRIVER,SCREW GAUGE 1pc each.

ORDER NO. 11-238-001

### INCH SIZE 30PC HSS MINI TAP & DIE SET



Including:  
2pcs each of hss tap as:#0-90unc,  
#0-80unf,#1-64unc,#1-72unf,#2-56unc,#2-64unf,#3-48unc,  
#3-56unf,#4-40unc;  
1pcs each of die size as tap size;  
2pcs of tap wrench;  
1pcs each of die stock and holder

ORDER NO. 12-237-001

### 28PC METRIC TAP AND DIE SET

Including:  
8 Metric round dies size: M3×0.5, M3.5×0.6,M4×0.7, M5×0.8,M6×1.0,M8×1.25,M10×1.5, M12×1.75mm·  
16 pc s metric taps : 2pcs each of M3×0.5, M3.5×0.6,M4×0.7, M5×0.8,M6×1.0,M8×1.25,M10×1.5,  
M12×1.75mm.  
1 pcs tap wrench,1 pcs T type tap wrench.  
1 pcs die stock.



Tunsten steel ORDER NO. 11-120-001  
High speed steel ORDER NO. 11-120-002

### 34PC METRIC TAP/DIE/DRILL SET



ORDER NO.11-361-001

- Including:
- 1pc each of 25mm diameter tungsten steel die M3-M4-M5-M6-M7-M8-M10-M12-G1/8"-G1/4".
  - 1pc each of tungsten steel tap M3-M4-M5-M6-M7-M8-M10-M12-G1/8"-G1/4".
  - 1pc each of HSS, twist drill 2.5-3-3-4-2-5-0-6-0-6-8-8-5-10-3mm.
  - 1pc die holder
  - 1pc tap wrench
  - 1pc screw driver
  - 1pc screw gauge
  - 1pc adaptor

### 45PC METRIC SIZE TUNGSTEN STEEL TAP & DIE SET



ORDER NO.11-115-001

- Including:
- 20 metric dies sizes: 6×1.0,6×0.75, 8×1.25,8×1.0,10×1.5,10×1.25, 12×1.75,12×1.5, 14×2.0,14×1.5, 16×2.0,16×1.5,18×2.5,18×1.5, 20×2.5,20×1.5,22×2.5,22×1.5, 24×3.0,24×1.5
  - 20 metric taps:sizes as dies
  - tap wrench
  - T type tap wrench
  - Die handle 2"O/D with adapter
  - Screwdriver

### 40PC METRIC TUNGSTEN STEEL TAP & DIE SET



ORDER NO.11-114-001

- Including:
- 16pc metric dies sizes: M3×0.5,M3×0.6,M4×0.7,M4×0.75,M5×0.8,M5×0.9,M6×1.0,M6×0.75,M7×1.0,M7×0.75, M8×1.25,M8×1.0,M10×1.25,M10×1.5,M12×1.5,M12×1.75,
  - NPT die size:1/8"-27
  - 16pc metric taps: M3×0.5,M3×0.6,M4×0.7,M4×0.75,M5×0.8,M5×0.9,M6×1.0,M6×0.75,M7×1.0, M7×0.75, M8×1.25,M8×1.0,M10×1.25,M10×1.5,M12×1.5,M12×1.75,
  - NPT tap 1/8"-27
  - Tap wrench M12 capacity
  - T type tap wrench M6 capacity
  - Die handle
  - Screwdriver
  - Screwpitch gauge

### 45PC INCH SIZE TUNGSTEN STEEL TAP & DIE SET



ORDER NO.12-115-001

- Including:
- 10UNF dies sizes:1/ 4,5/16,3/8,7/16, 1/ 2,9/16,5/8,3/4,7/8,1
  - 10UNC dies sizes:1/4,5/16,3/8,7/16, 1/2,9/16,5/8,3/4,7/8,1
  - 10UNF taps: sizes as dies
  - 10UNC taps: sizes as dies
  - Tap wrench-American patten1" capacity
  - T type tap wrench 1/ 4" capacity
  - Die handle 2" O/D with adapter
  - Screwdriver

### 40PC INCH TUNGSTEN STEEL TAP & DIE SET



ORDER NO.12-114-001

- Including:
- 10UNC dies sizes:4-40,6-32,8-32,10-24,12-24,1/4-20,5/16"-18,3/8"-16,7/16"-14,1/2"-13
  - 6UNF dies sizes:10-32,1/4"-28,5/16"-24,3/8"-24,7/16"-20,1/2"-20
  - NPT die size 1/8"-27
  - 10UNC taps sizes :4-40,6-32,8-32,10-24,12-24,1/4-20,5/16"-18,3/8"-16,7/16"-14,1/2"-13
  - 6UNF taps sizes:10-32,1/4"-28,5/16"-24,3/8"-24,7/16"-20,1/2"-20
  - NPT tap size 1/8"-27
  - Tap wrench-American patten 1/ 2" capacity
  - T type tap wrench 1/ 4"capacity
  - Die handle 1"O/D
  - Screwdriver
  - Screwpitch gauge

### 52PC METRIC/INCH COMBINATION OF TAP/DIE/DRILL SET



ORDER NO. 10-240-001

- Material:tungsten steel,packed in metal case then colour sleevele.
- including:
- Dies:1pcs each of 3×0.5,4×0.7, 5×0.8,6×1.0,8×1.25,10×1.5, 12×1.75,1/ 4"-20,5/16"-18, 3/8"-16,7/16"-14,1/ 2"-13
  - Taps:2pc/each size as above
  - Drills:1pcs each of:2.5,3,3.4,2, 5,6,8,8.6,10.3,13/64",17/64", 5/16",3/8",27/64"
  - 1pcs die handle,
  - 1pc tap wrench,
  - 1pc"T"handle tap wrench,
  - 1pc screwdriver

### 60PC TUNGSTEN STEEL TAP & ROUND DIE SET



ORDER NO.11-116-001

- Including:
- 10 metric dies size:3×0.5,4×0.7,5×0.8,6×1.0,7×1.0,8×1.25,9×1.25,10×1.5,10×1.0,12×1.75
  - 10 UNC dies sizes:4-40,6-32,8-32,10-24,12-24,1/4,5/16,3/8,7/16,1/2
  - 6 UNF dies size:10-32 1/4 5/16 3/8 7/16 1/2
  - 10 metric taps:sizes as dies,10 UNC taps:sizes as dies
  - 6 UNF taps:size as die
  - NPT tap size as die
  - Tap wrench-American patten1/2" capacity
  - T type tap wrench 1/4"capacity
  - Die handle 1"O/D
  - Screwdriver
  - 2 screwpitch gauge

### 60PC INCH/METRIC COMBINATION TIN COATED TAP & HEX DIE SET



ORDER NO.11-116-002

- With TiN-coating Hex dies,made of tungsten steel.
- Including:
- 10 metric dies size:3×0.5,4×0.7,5×0.8,6×1.0,7×1.0,8×1.25,9×1.25,10×1.5,10×1.0,12×1.75
  - 10 UNC dies sizes:4-40,6-32,8-32,10-24,12-24,1/4,5/16,3/8,7/16,1/2
  - 6 UNF dies size:10-32 1/4 5/16 3/8 7/16 1/2
  - 10 metric taps:sizes as dies,10 UNC taps:sizes as dies
  - 6 UNF taps:size as die
  - NPT tap size as die
  - Tap wrench-American patten1/2" capacity
  - T type tap wrench 1/4"capacity
  - Die handle 1"O/D
  - Screwdriver
  - 2 screwpitch gauge

### 110PC METRIC SIZE TAP & DIE SET(M2-M18).



TUNSTEN STEEL : ORDER NO. 11-117-001  
HIGH SPEED STEEL : ORDER NO.11-117-002

- Including:
- DIN2181 Tap:2pc each of 2×0.4,3×0.5,4×0.7,5×0.8,6×0.75,6×1.7,7×0.75,7×1.8,8×0.75,8×1.8,8×1.25,9×0.75,9×1.9,9×1.25,10×0.75,10×1.0,10×1.25,10×1.5,11×0.75,11×1.1,11×1.25,11×1.5,12×0.75,12×1.1,12×1.25,12×1.56,12×1.75,14×1.1,14×1.25,14×1.5,14×2,16×1.1,16×1.5,16×2,18×1.5,
  - "T"handle tap wrench:M2-M5×80mm
  - DIN223 Die:25.4 DIA./2×0.4,3×0.5,4×0.7,5×0.8,6×1.7,7×1.8,8×1.25,9×1.25,38.1 DIA./10×1.5,11×1.5,12×1.75,14×2,16×2
  - 25.4 DIA./6×0.75,7×0.75,8×0.75,8×1.9,9×0.75,9×1
  - 38.1 DIA./10×0.75,10×1.0,10×1.25,11×0.75,11×1.1,11×1.25,12×0.75,12×1.1,12×1.25,12×1.5,14×1.1,14×1.25,14×1.5,16×1.1,16×1.5,18×1.5
  - 2PC Tap wrench:190mm,380mm
  - 2PC Die stock:for25.4 & 38.1mm

### 110PC/SET INCH/METRIC COMBINATION TAP & DIE SET(SAE/MM).



TUNSTEN STEEL : ORDER NO.10-117-001  
HIGH SPEED STEEL : ORDER NO.10-117-002

- Including:
- Dies,1PC each of following.
  - 1"OD: 4NC40;6NC32;8NC32;10NC24;10NF32;12NF24;1/4NC20;1/4NF28;1/4NS24;1/4NS32;5/16NC18;5/16NF24;3/8NC16;3/8NF24;7/16NC14;7/16NF20;M6×1.0;M8×1.25;M10×1.0;M10×1.5;M11×1.5;1/8NPT27
  - 1-1/2"OD:1/2NC13;1/2NF20;9/16NC12;9/16NF18;5/8NC11;5/8NF18;3/4NC10;3/4NF16;1/4NPT18;M12×1.25;M12×1.75;M14×1.25;M18×1.5
  - Taps,2pc each of above sizes
  - 1 Die stock(1"OD)
  - 1 Die stock(1-1/2"OD)
  - 1 Tap wrench:1/8"-1/2"(M3-M12)
  - 1 Tap Wrench:3/16"-3/4"(M5-M20)
  - 1 "T"-Handle tap wrench

### 75PC/SET INCH/METRIC COMBINATION TAP & DIE SET



ORDER NO.10-405-001

- Made of tungsten steel.
- Including 1PC each of following:
- Taps: M3x0.5,M3x0.6,M4x0.7,M4x0.75,M5x0.8,M5x0.9,M6x1.0,M7x1.0,M8x1.25,M9x1.25,M9x1.0,M10x1.5,M10x1.25,M11x1.5,M12x1.75,M12x1.5,4-40,6-32,8-32,10-24,10-32,12-24,1/4-20,1/4-28,5/16-18,5/16-24,3/8-16,3/8-24,7/16-14,7/16-20,1/2-13,1/2-20,1/8-27NPT,1/8-28BSP
  - Hex Dies: M3x0.5,M3x0.6,M4x0.7,M4x0.75,M5x0.8,M5x0.9,M6x1.0,M7x1.0,M8x1.25,M9x1.25,M9x1.0,M10x1.5,M10x1.25,M11x1.5,M12x1.75,M12x1.5,4-40,6-32,8-32,10-24,10-32,12-24,1/4-20,1/4-28,5/16-18,5/16-24,3/8-16,3/8-24,7/16-14,7/16-20,1/2-13,1/2-20,1/8-27NPT,1/8-28BSP
  - 1 Tap wrench:1/8"-1/2"(M3-M12)
  - 1 adjustable Die stock
  - 2pc T type tap handle:M3-M8,M6-M12
  - 2pc pitch gage.
  - 1pc screw driver.

### 117 PC METRIC/INCH COMBINATION OF TAP/DIE/DRILL/EXTRACTOR SET



ORDER NO.10-404-001

- including:
- 1pc each of round die M3x0.5,M4x0.7,M4x0.75,M5x0.8,M5x0.9,M6x1.0,M7x1.0,M8x1.0,M8x1.25,M9x1.0,M9x1.25,M10x1.25,M10x1.5,M11x1.5,M12x1.5,M12x1.75,#4-40,#6-30,#8-32,#10-25,#10-32,#12-24,1/4-20,1/4-28,5/16-18,5/16-24,3/8-16,3/8-24,7/16-14,7/16-20,1/2-13,1/2-20,1/8-27NPT,1/8-28BSP.
  - 1pc each of tap M3x0.5,M4x0.7,M4x0.75,M5x0.8,M5x0.9,M6x1.0,M7x1.0,M8x1.0,M8x1.25,M9x1.0,M9x1.25,M10x1.25,M10x1.5,M11x1.5,M12x1.5,M12x1.75,#4-40,#6-30,#8-32,#10-25,#10-32,#12-24,1/4-20,1/4-28,5/16-18,5/16-24,3/8-16,3/8-24,7/16-14,7/16-20,1/2-13,1/2-20,1/8-27NPT,1/8-28BSP.
  - 1pc each of screw extractor #1,#2,#3,#4,#5.
  - 1pc each size of twist drill 5/64,#43,#39,#36,7/64,#30,#29,#25,5/32,#21,#20,#19,#16,#9,#7,#3,LTRB,1/4,F,H,I,J,19/64,5/16,O,,21/64,Q,R,S,U,3/8,25/64,13/32,Z,27/64,29/64
  - 2pc of die holder.
  - 1pc of tap wrench.
  - 2pc of T type tap wrench.
  - 2pc of screw pitch gage.
  - 1pc of screw driver.
  - packed in Blow mold case.



## TAP EXTRACTOR

made of alloy steel for extract broken taps with straight flute.



Metric set:  
including 1pc each of  
extractor #2-#10 for three  
flute and four flute ,packed  
in blow mold case.



ORDER NO. 11-398-S005

Metric Size for taps with three straight flute

SIZE	FOR TAP SIZE	ORDER NO.
#1	M3	11-398-005
#2	M4,M5	11-398-010
#3	M6	11-398-015
#4	M8	11-398-020
#5	M10	11-398-025

Metric Size for taps with four straight flute

SIZE	FOR TAP SIZE	ORDER NO.
#4	M8	11-398-F025
#5	M10	11-398-F030
#6	M12	11-398-F035
#7	M14	11-398-F040
#8	M16	11-398-F045
#9	M20	11-398-F050
#10	M22,M24	11-398-F055

Inch Size for taps with three straight flute

SIZE	FOR TAP SIZE	ORDER NO.
#1	1/8"	12-398-010
#2	3/16"	12-398-015
#3	1/4"	12-398-020
#4	5/16"	12-398-025
#5	3/8"	12-398-030
#6	7/16"	12-398-035
#7	1/2"	12-398-040

Inch Size for taps with four straight flute

SIZE	FOR TAP SIZE	ORDER NO.
#4	5/16"	12-398-F020
#5	3/8"	12-398-F025
#6	7/16"	12-398-F030
#7	1/2"	12-398-F035
#8	5/8"	12-398-F040
#9	3/4"	12-398-F045
#10	7/8"	12-398-F050

## SCREW EXTRACTOR

Each extractor removes a specific range of screw sizes.  
Made of alloy steel and heat treated provideingextra gripping power.



SIZE	FOR METRIC SCREWS	FOR INCH SCREWS	ORDER NO.	
			SPIRAL FLUTE	STRAIGHT FLUTE
# 1	M3-M6	1/8"-1/4"	10-106-001	10-106-A001
# 2	M6-M8	1/4"-5/16"	10-106-002	10-106-A002
# 3	M8-M11	5/16"-7/16"	10-106-003	10-106-A003
# 4	M11-M14	7/16"-9/16"	10-106-004	10-106-A004
# 5	M14-M18	9/16"-3/4"	10-106-005	10-106-A005
# 6	M18-M24	3/4"-1"	10-106-006	10-106-A006
# 7	M24-M30	1"-1-13/16"	10-106-007	10-106-A007
# 8	M30-M40	1-3/16"-1-37/64"	10-106-008	10-106-A008

### SCREW EXTRACTOR SET WITH SPIRAL FLUTE



5pcs/set #1-#5 ORDER NO. 10-106-S01  
6pcs/set #1-#6 ORDER NO. 10-106-S02  
8pcs/set #1-#8 ORDER NO. 10-106-S03

### SCREW EXTRACTOR SET WITH STRAIGHT FLUTE



5pcs/set #1-#5 ORDER NO. 10-106-AS01  
6pcs/set #1-#6 ORDER NO. 10-106-AS02  
8pcs/set #1-#8 ORDER NO. 10-106-AS03

## 12 PC DRILL AND SCREW EXTRACTOR SET



ORDER NO.11-107-S01

including:  
1pc each of HSS. twist drill 2mm,3mm,4mm,5mm,7mm,10mm.  
1pcs each of spiral flute screw extractor #1-#6  
packed in plastic box

## HSS-COBALT DRILL & PROFESSIONAL USE EXTRACTOR SET



ORDER NO.11-107-S03

Professional use damaged screw removing tool set,excellent for use on stainless steel screws as well as harder material.  
Covering most popular used screw size: M3-M4(3/32-5/32"),M4-M5(5/32-7/32"),M5-M7(7/32-9/32"),M7-M9(3/32-3/8"),M9-M15(3/8-5/8"),related Cobalt drill included ,so you may also use on stainless steel screws or even harder material.

## HSS SCREW REMOVER & SET

Removes broken bolts and studs.all  
removers are fully ground ,  
left hand cutting,self centering.



SIZE	FOR TAP SIZE	ORDER NO.
# 0	1/4" (6mm)	10-107-001
# 1	5/16" (8mm)	10-107-002
# 2	3/8" (10mm)	10-107-003
# 3	1/2" (12mm)	10-107-004
# 4	5/8" (15mm)	10-107-005

## 5PC HSS SCREW REMOVER SET



ORDER NO.10-107-S02

Size including #0-#4

## MASTER THREAD REPAIR KITS SET



The most effective tool for thread repair, use instead of solid wall and bush type inserts to save weight /space and provide high strength. Quickly and permanently restore stripped, worn or damaged threads to their original size and condition, especially form strong thread holes in soft material. Restore your parts that otherwise would have to be scrapped. Each set contains the necessary tap, drills, installation tools and inserts. size below:

### METRIC COARSE THREAD SET A1

ORDER NO.	H.S.S. STI TAP	H.S.S. DRILL	INSTALLATION TOOL	STAINLESS STEEL WIRE INSERTS
11-303-A01	M 5 x 0.8	5.2 mm	1 set	25pcs of 1.5D length wire insert M 5 x 0.8
	M 6 x 1.0	6.3 mm	1 set	25pcs of 1.5D length wire insert M 6 x 1.0
	M 8 x 1.25	8.3 mm	1 set	25pcs of 1.5D length wire insert M 8 x 1.25
	M 10 x 1.5	10.4 mm	1 set	25pcs of 1.5D length wire insert M 10 x 1.5
	M 12 x 1.75	12.4 mm	1 set	10pcs of 1.5D length wire insert M 12 x 1.75

### METRIC COARSE THREAD SET AA1

ORDER NO.	H.S.S. STI TAP	H.S.S. DRILL	INSTALLATION TOOL	STAINLESS STEEL WIRE INSERTS
11-303-AA01	M 5 x 0.8	5.2 mm	1 set	25pcs of 1.5D length wire insert M 5 x 0.8, additional insert 2pc each of 1D,2D,2.5D and 3D length insert.
	M 6 x 1.0	6.3 mm	1 set	25pcs of 1.5D length wire insert M 6 x 1.0, additional insert 2pc each of 1D,2D,2.5D and 3D length insert.
	M 8 x 1.25	8.3 mm	1 set	25pcs of 1.5D length wire insert M 8 x 1.25, additional insert 2pc each of 1D,2D,2.5D and 3D length insert.
	M 10 x 1.5	10.4 mm	1 set	25pcs of 1.5D length wire insert M 10 x 1.5, additional insert 1pc each of 1D,2D,2.5D and 3D length insert.
	M 12 x 1.75	12.4 mm	1 set	10pcs of 1.5D length wire insert M 12 x 1.75, additional insert 1pc each of 1D,2D,2.5D and 3D length insert.

### INCH SIZE COARSE THREAD SET A1 (UNC)

ORDER NO.	H.S.S. STI TAP	H.S.S. DRILL	INSTALLATION TOOL	STAINLESS STEEL WIRE INSERTS
12-303-A01	1/4"-20	17/64"	1 set	25pcs of 1.5D length wire insert 1/4"-20
	5/16"-18	21/64"	1 set	25pcs of 1.5D length wire insert 5/16"-18
	3/8"-16	25/64"	1 set	25pcs of 1.5D length wire insert 3/8"-16
	7/16"-14	29/64"	1 set	25pcs of 1.5D length wire insert 7/16"-14
	1/2"-13	17/32"	1 set	10pcs of 1.5D length wire insert 1/2"-13

### INCH SIZE COARSE THREAD SET AA1 (UNC)

ORDER NO.	H.S.S. STI TAP	H.S.S. DRILL	INSTALLATION TOOL	STAINLESS STEEL WIRE INSERTS
12-303-AA01	1/4"-20	17/64"	1 set	25pcs of 1.5D length wire insert 1/4"-20, additional insert 2pc each of 1D,2D,2.5D and 3D length insert.
	5/16"-18	21/64"	1 set	25pcs of 1.5D length wire insert 5/16"-18, additional insert 2pc each of 1D,2D,2.5D and 3D length insert.
	3/8"-16	25/64"	1 set	25pcs of 1.5D length wire insert 3/8"-16, additional insert 2pc each of 1D,2D,2.5D and 3D length insert.
	7/16"-14	29/64"	1 set	25pcs of 1.5D length wire insert 7/16"-14, additional insert 1pc each of 1D,2D,2.5D and 3D length insert.
	1/2"-13	17/32"	1 set	10pcs of 1.5D length wire insert 1/2"-13, additional insert 1pc each of 1D,2D,2.5D and 3D length insert.

## MASTER THREAD REPAIR KITS SET

### INCH SIZE FINE THREAD SET A2(UNF)

ORDER NO.	H.S.S. STI TAP	H.S.S. DRILL	INSTALLATION TOOL	STAINLESS STEEL WIRE INSERTS
12-303-A02	1/4" - 28	17/64"	1 set	25pcs of 1.5D length wire insert 1/4"-28
	5/16" - 24	21/64"	1 set	25pcs of 1.5D length wire insert 5/16"-24
	3/8" - 24	25/64"	1 set	25pcs of 1.5D length wire insert 3/8"-24
	7/16" - 20	29/64"	1 set	25pcs of 1.5D length wire insert 7/16"-20
	1/2" - 20	33/64"	1 set	10pcs of 1.5D length wire insert 1/2"-20

### INCH SIZE FINE THREAD SET AA2(UNF)

ORDER NO.	H.S.S. STI TAP	H.S.S. DRILL	INSTALLATION TOOL	STAINLESS STEEL WIRE INSERTS
12-303-AA02	1/4" - 28	17/64"	1 set	25pcs of 1.5D length wire insert 1/4"-28, additional insert 2pc each of 1D,2D,2.5D and 3D length insert.
	5/16" - 24	21/64"	1 set	25pcs of 1.5D length wire insert 5/16"-24, additional insert 2pc each of 1D,2D,2.5D and 3D length insert.
	3/8" - 24	25/64"	1 set	25pcs of 1.5D length wire insert 3/8"-24, additional insert 2pc each of 1D,2D,2.5D and 3D length insert.
	7/16" - 20	29/64"	1 set	25pcs of 1.5D length wire insert 7/16"-20, additional insert 1pc each of 1D,2D,2.5D and 3D length insert.
	1/2" - 20	33/64"	1 set	10pcs of 1.5D length wire insert 1/2"-20, additional insert 1pc each of 1D,2D,2.5D and 3D length insert.

## INDIVIDUAL SIZE THREAD REPAIR SET.



Repair kits include everything you need to repair female threads in steel, cast iron and aluminum. Stainless steel prung insert coils create a stronger thread than the original metal. All kits include HSS tap, HSS twist drill, coil driver, tang remover and inserts.

### METRIC COARSE THREAD SET A1

ORDER NO.	H.S.S. STI TAP	H.S.S. DRILL	INSTALLATION TOOL	STAINLESS STEEL WIRE INSERTS
11-303-S05	M 5 x 0.8	5.2 mm	1 set	25pcs of 1.5D length wire insert M 5 x 0.8
11-303-S10	M 6 x 1.0	6.3 mm	1 set	25pcs of 1.5D length wire insert M 6 x 1.0
11-303-S15	M 8 x 1.25	8.3 mm	1 set	25pcs of 1.5D length wire insert M 8 x 1.25
11-303-S20	M 10 x 1.5	10.4 mm	1 set	25pcs of 1.5D length wire insert M 10 x 1.5
11-303-S25	M 12 x 1.75	12.4 mm	1 set	10pcs of 1.5D length wire insert M 12 x 1.75

### METRIC COARSE THREAD SET AA1

ORDER NO.	H.S.S. STI TAP	H.S.S. DRILL	INSTALLATION TOOL	STAINLESS STEEL WIRE INSERTS
11-303-AA01	M 5 x 0.8	5.2 mm	1 set	25pcs of 1.5D length wire insert M 5 x 0.8, additional insert 2pc each of 1D,2D,2.5D and 3D length insert.
11-303-AA02	M 6 x 1.0	6.3 mm	1 set	25pcs of 1.5D length wire insert M 6 x 1.0, additional insert 2pc each of 1D,2D,2.5D and 3D length insert.
11-303-AA03	M 8 x 1.25	8.3 mm	1 set	25pcs of 1.5D length wire insert M 8 x 1.25, additional insert 2pc each of 1D,2D,2.5D and 3D length insert.
11-303-AA04	M 10 x 1.5	10.4 mm	1 set	25pcs of 1.5D length wire insert M 10 x 1.5, additional insert 1pc each of 1D,2D,2.5D and 3D length insert.
11-303-AA05	M 12 x 1.75	12.4 mm	1 set	10pcs of 1.5D length wire insert M 12 x 1.75, additional insert 1pc each of 1D,2D,2.5D and 3D length insert.

## INDIVIDUAL SIZE THREAD REPAIR SET.



### INCH SIZE COARSE THREAD SET A1 (UNC)

ORDER NO.	H.S.S. STI TAP	H.S.S. DRILL	INSTALLATION TOOL	STAINLESS STEEL WIRE INSERTS
12-303-S05	1/4"-20	17/64"	1 set	25pcs of 1.5D length wire insert 1/4"-20
12-303-S10	5/16"-18	21/64"	1 set	25pcs of 1.5D length wire insert 5/16"-18
12-303-S15	3/8"-16	25/64"	1 set	25pcs of 1.5D length wire insert 3/8"-16
12-303-S20	7/16"-14	29/64"	1 set	25pcs of 1.5D length wire insert 7/16"-14
12-303-S25	1/2"-13	17/32"	1 set	10pcs of 1.5D length wire insert 1/2"-13

### INCH SIZE COARSE THREAD SET AA1 (UNC)

ORDER NO.	H.S.S. STI TAP	H.S.S. DRILL	INSTALLATION TOOL	STAINLESS STEEL WIRE INSERTS
12-303-AA01	1/4"-20	17/64"	1 set	25pcs of 1.5D length wire insert 1/4"-20, additional insert 2pc each of 1D,2D,2.5D and 3D length insert.
	5/16"-18	21/64"	1 set	25pcs of 1.5D length wire insert 5/16"-18, additional insert 2pc each of 1D,2D,2.5D and 3D length insert.
	3/8"-16	25/64"	1 set	25pcs of 1.5D length wire insert 3/8"-16, additional insert 2pc each of 1D,2D,2.5D and 3D length insert.
	7/16"-14	29/64"	1 set	25pcs of 1.5D length wire insert 7/16"-14, additional insert 1pc each of 1D,2D,2.5D and 3D length insert.
	1/2"-13	17/32"	1 set	10pcs of 1.5D length wire insert 1/2"-13, additional insert 1pc each of 1D,2D,2.5D and 3D length insert.

### INCH SIZE FINE THREAD SET A2(UNF)

ORDER NO.	H.S.S. STI TAP	H.S.S. DRILL	INSTALLATION TOOL	STAINLESS STEEL WIRE INSERTS
12-303-A02	1/4" - 28	17/64"	1 set	25pcs of 1.5D length wire insert 1/4"-28
	5/16" - 24	21/64"	1 set	25pcs of 1.5D length wire insert 5/16"-24
	3/8" - 24	25/64"	1 set	25pcs of 1.5D length wire insert 3/8"-24
	7/16" - 20	29/64"	1 set	25pcs of 1.5D length wire insert 7/16"-20
	1/2" - 20	33/64"	1 set	10pcs of 1.5D length wire insert 1/2"-20

### INCH SIZE FINE THREAD SET AA2(UNF)

ORDER NO.	H.S.S. STI TAP	H.S.S. DRILL	INSTALLATION TOOL	STAINLESS STEEL WIRE INSERTS
12-303-S50	1/4" - 28	17/64"	1 set	25pcs of 1.5D length wire insert 1/4"-28, additional insert 2pc each of 1D,2D,2.5D and 3D length insert.
12-303-S55	5/16" - 24	21/64"	1 set	25pcs of 1.5D length wire insert 5/16"-24, additional insert 2pc each of 1D,2D,2.5D and 3D length insert.
12-303-S60	3/8" - 24	25/64"	1 set	25pcs of 1.5D length wire insert 3/8"-24, additional insert 2pc each of 1D,2D,2.5D and 3D length insert.
12-303-S65	7/16" - 20	29/64"	1 set	25pcs of 1.5D length wire insert 7/16"-20, additional insert 1pc each of 1D,2D,2.5D and 3D length insert.
12-303-S70	1/2" - 20	33/64"	1 set	10pcs of 1.5D length wire insert 1/2"-20, additional insert 1pc each of 1D,2D,2.5D and 3D length insert.

## WIRE THREAD REPAIR INSERTS PACKAGE



Made of Stainless Steel, Inch Or Metric Sizes

Applications:

Renews worn threads.

Forms strong threaded holes in soft materials for example:aluminium alloy,copper alloy,cast iron etc.

Insert length=1.5D

### MM

NORMAL THREAD SIZE	Q'TY EACH UNIT PACKAGE	ORDER NO.
M 5 x 0.8	25	11-303-310
M 6 x 1.0	25	11-303-315
M 8 x 1.25	25	11-303-320
M 10 x 1.5	25	11-303-325
M 12 x 1.75	10	11-303-330

### UNC

NORMAL THREAD SIZE	Q'TY EACH UNIT PACKAGE	ORDER NO.
1/4"-20	25	12-303-310
5/16 - 18	25	12-303-315
3/8"-16	25	12-303-320
7/16 - 14	25	12-303-325
½ -13	10	12-303-330

### UNF

NORMAL THREAD SIZE	Q'TY EACH UNIT PACKAGE	ORDER NO.
1/4"-28	25	12-303-350
5/16 - 24	25	12-303-355
3/8"-24	25	12-303-360
7/16 - 20	25	12-303-365
½ -20	10	12-303-370

## HSS. EG TAP FOR WIRE SCREW THREAD INSERT(STI)



- Straight Flute.
  - Right hand cutting.
  - General use with stainless steel,cast iron,aluminium alloy,nonferrous material.
  - Hole of application: Blind or through hole.
- for wire screw thread inserts.

### MM (DIN40435)

NORMAL THREAD SIZE	ORDER NO.
M 5 x 0.8	11-400-M05
M 6 x 1.0	11-400-M10
M 8 x 1.25	11-400-M15
M 10 x 1.5	11-400-M20
M 12 x 1.75	11-400-M25

### UNC ( ASME B18.29.1)

NORMAL THREAD SIZE	ORDER NO.
1/4"-20	12-400-C05
5/16 - 18	12-400-C10
3/8"-16	12-400-C15
7/16 - 14	12-400-C20
½ -13	12-400-C25

### UNF ( ASME B18.29.1)

NORMAL THREAD SIZE	ORDER NO.
1/4"-28	12-400-F05
5/16 - 24	12-400-F10
3/8"-24	12-400-F15
7/16 - 20	12-400-F20
½ -20	12-400-F25



## COLOR CODED HIGH PERFORMANCE END MILLS

Color coded end mills is specially designed to optimize your machining performances. The need for greater productivity from expensive high-performance machine tools and the demand for the cutting tools to perform at optimum efficiency to minimize machine down-time, together with the demands for improved quality of machined components can be met with this range of Color ring cutting tools.

It consists of five Color application ranges. Each range has been designed with different cutting geometries and surface treatments to ensure optimum tool performance for each specific material category. Each range of materials group has its own cutting tools.

### APPLICATION:

- Stainless Steel – Blue Coded
- Tough Treatable Steel – Red Coded
- Aluminium – Yellow Coded
- Cast Iron – White Coded
- Carbon Steel – Green Coded



## END MILLS



# 08

METAL CUTTING

### HSS FOUR FLUTE SINGLE END MILLS



REGULAR LENGTH, CENTER CUTTING, WELDON SHANK, DIN844

SIZE H10	SHANK DIA.H6	FLUTE LENGTH	OVERALL LENGTH	FLUTE NO.	HSS	HSS TIN	HSSCO5	HSSCO8 TIALN
3	6	8	52	4	11-047-001	11-047-T001	11-047-C001	11-047-G001
4	6	11	55	4	11-047-002	11-047-T002	11-047-C002	11-047-G002
5	6	13	57	4	11-047-003	11-047-T003	11-047-C003	11-047-G003
6	6	13	57	4	11-047-004	11-047-T004	11-047-C004	11-047-G004
7	10	16	66	4	11-047-005	11-047-T005	11-047-C005	11-047-G005
8	10	19	69	4	11-047-006	11-047-T006	11-047-C006	11-047-G006
9	10	19	69	4	11-047-007	11-047-T007	11-047-C007	11-047-G007
10	10	22	72	4	11-047-008	11-047-T008	11-047-C008	11-047-G008
11	12	22	79	4	11-047-009	11-047-T009	11-047-C009	11-047-G009
12	12	26	83	4	11-047-010	11-047-T010	11-047-C010	11-047-G010
14	12	26	83	4	11-047-011	11-047-T011	11-047-C011	11-047-G011
16	16	32	92	4	11-047-012	11-047-T012	11-047-C012	11-047-G012
18	16	32	92	4	11-047-013	11-047-T013	11-047-C013	11-047-G013
20	20	38	104	4	11-047-014	11-047-T014	11-047-C014	11-047-G014
22	20	38	104	4	11-047-015	11-047-T015	11-047-C015	11-047-G015
25	25	45	121	4	11-047-016	11-047-T016	11-047-C016	11-047-G016
28	25	45	121	4	11-047-017	11-047-T017	11-047-C017	11-047-G017
30	25	45	121	4	11-047-018	11-047-T018	11-047-C018	11-047-G018
32	32	53	133	4	11-047-019	11-047-T019	11-047-C019	11-047-G019
36	32	53	133	4	11-047-020	11-047-T020	11-047-C020	11-047-G020
40	40	63	155	4	11-047-021	11-047-T021	11-047-C021	11-047-G021
45	40	63	155	4	11-047-022	11-047-T022	11-047-C022	11-047-G022
50	50	75	177	4	11-047-023	11-047-T023	11-047-C023	11-047-G023



LONG LENGTH, CENTER CUTTING WELDON SHANK, DIN844

SIZE H10	SHANK DIA.H6	FLUTE LENGTH	OVERALL LENGTH	FLUTE NO.	HSS	HSS TIN	HSSCO5	HSSCO8 TIALN
3	6	12	56	4	11-047-026	11-047-T026	11-047-C026	11-047-G026
4	6	19	63	4	11-047-027	11-047-T027	11-047-C027	11-047-G027
5	6	24	68	4	11-047-028	11-047-T028	11-047-C028	11-047-G028
6	6	24	68	4	11-047-029	11-047-T029	11-047-C029	11-047-G029
7	10	30	80	4	11-047-030	11-047-T030	11-047-C030	11-047-G030
8	10	38	88	4	11-047-031	11-047-T031	11-047-C031	11-047-G031
9	10	38	88	4	11-047-032	11-047-T032	11-047-C032	11-047-G032
10	10	45	95	4	11-047-033	11-047-T033	11-047-C033	11-047-G033
11	12	45	102	4	11-047-034	11-047-T034	11-047-C034	11-047-G034
12	12	53	110	4	11-047-035	11-047-T035	11-047-C035	11-047-G035
14	12	53	110	4	11-047-036	11-047-T036	11-047-C036	11-047-G036
16	16	63	123	4	11-047-037	11-047-T037	11-047-C037	11-047-G037
18	16	63	123	4	11-047-038	11-047-T038	11-047-C038	11-047-G038
20	20	75	141	4	11-047-039	11-047-T039	11-047-C039	11-047-G039
22	20	75	141	4	11-047-040	11-047-T040	11-047-C040	11-047-G040
25	25	90	166	4	11-047-041	11-047-T041	11-047-C041	11-047-G041
28	25	90	166	4	11-047-042	11-047-T042	11-047-C042	11-047-G042
30	25	90	166	4	11-047-043	11-047-T043	11-047-C043	11-047-G043
32	32	106	186	4	11-047-044	11-047-T044	11-047-C044	11-047-G044
36	32	106	186	4	11-047-045	11-047-T045	11-047-C045	11-047-G045
40	40	125	217	4	11-047-046	11-047-T046	11-047-C046	11-047-G046
45	40	125	217	4	11-047-047	11-047-T047	11-047-C047	11-047-G047
50	50	150	252	4	11-047-048	11-047-T048	11-047-C048	11-047-G048

### HSS TWO FLUTE SINGLE END MILLS



REGULAR LENGTH, WELDON SHANK, DIN327

SIZE E8	SHANK DIA.H6	FLUTE LENGTH	OVERALL LENGTH	FLUTE NO.	HSS	HSS TIN	HSSCO5	HSSCO8 TIALN
3	6	5	49	2	11-048-001	11-048-T001	11-048-C001	11-048-G001
4	6	7	51	2	11-048-002	11-048-T002	11-048-C002	11-048-G002
5	6	8	52	2	11-048-003	11-048-T003	11-048-C003	11-048-G003
6	6	8	52	2	11-048-004	11-048-T004	11-048-C004	11-048-G004
7	10	10	60	2	11-048-005	11-048-T005	11-048-C005	11-048-G005
8	10	11	61	2	11-048-006	11-048-T006	11-048-C006	11-048-G006
9	10	11	61	2	11-048-007	11-048-T007	11-048-C007	11-048-G007
10	10	13	63	2	11-048-008	11-048-T008	11-048-C008	11-048-G008
11	12	13	73	2	11-048-009	11-048-T009	11-048-C009	11-048-G009
12	12	16	73	2	11-048-010	11-048-T010	11-048-C010	11-048-G010
14	12	16	73	2	11-048-011	11-048-T011	11-048-C011	11-048-G011
16	16	19	79	2	11-048-012	11-048-T012	11-048-C012	11-048-G012
18	16	19	79	2	11-048-013	11-048-T013	11-048-C013	11-048-G013
20	20	22	88	2	11-048-014	11-048-T014	11-048-C014	11-048-G014
22	20	22	88	2	11-048-015	11-048-T015	11-048-C015	11-048-G015
25	25	26	102	2	11-048-016	11-048-T016	11-048-C016	11-048-G016
26	25	26	102	2	11-048-017	11-048-T017	11-048-C017	11-048-G017
28	25	26	102	2	11-048-018	11-048-T018	11-048-C018	11-048-G018
30	25	26	102	2	11-048-019	11-048-T019	11-048-C019	11-048-G019
32	32	32	112	2	11-048-020	11-048-T020	11-048-C020	11-048-G020
36	32	32	112	2	11-048-021	11-048-T021	11-048-C021	11-048-G021
40	40	38	130	2	11-048-022	11-048-T022	11-048-C022	11-048-G022



LONG LENGTH, WELDON SHANK, DIN327

SIZE E8	SHANK DIA.H6	FLUTE LENGTH	OVERALL LENGTH	FLUTE NO.	HSS	HSS TIN	HSSCO5	HSSCO8 TIALN
3	6	8	56	2	11-048-023	11-048-T023	11-048-C023	11-048-G023
4	6	11	63	2	11-048-024	11-048-T024	11-048-C024	11-048-G024
5	6	13	68	2	11-048-025	11-048-T025	11-048-C025	11-048-G025
6	6	13	68	2	11-048-026	11-048-T026	11-048-C026	11-048-G026
7	10	16	80	2	11-048-027	11-048-T027	11-048-C027	11-048-G027
8	10	19	88	2	11-048-028	11-048-T028	11-048-C028	11-048-G028
9	10	19	88	2	11-048-029	11-048-T029	11-048-C029	11-048-G029
10	10	22	95	2	11-048-030	11-048-T030	11-048-C030	11-048-G030
11	12	22	102	2	11-048-031	11-048-T031	11-048-C031	11-048-G031
12	12	26	110	2	11-048-032	11-048-T032	11-048-C032	11-048-G032
14	12	26	110	2	11-048-033	11-048-T033	11-048-C033	11-048-G033
16	16	32	123	2	11-048-034	11-048-T034	11-048-C034	11-048-G034
18	16	32	123	2	11-048-035	11-048-T035	11-048-C035	11-048-G035
20	20	38	141	2	11-048-036	11-048-T036	11-048-C036	11-048-G036
22	20	38	141	2	11-048-037	11-048-T037	11-048-C037	11-048-G037
25	25	45	166	2	11-048-038	11-048-T038	11-048-C038	11-048-G038
26	25	45	166	2	11-048-039	11-048-T039	11-048-C039	11-048-G039
28	25	45	166	2	11-048-040	11-048-T040	11-048-C040	11-048-G040
30	25	45	166	2	11-048-041	11-048-T041	11-048-C041	11-048-G041
32	32	53	186	2	11-048-042	11-048-T042	11-048-C042	11-048-G042
36	32	53	186	2	11-048-043	11-048-T043	11-048-C043	11-048-G043
40	40	63	217	2	11-048-044	11-048-T044	11-048-C044	11-048-G044

## HSS THREE FLUTE SINGLE END MILLS



REGULAR LENGTH, WELDON SHANK, DIN844

SIZE H10	SHANK DIA.H6	FLUTE LENGTH	OVERALL LENGTH	FLUTE NO.	HSS	HSS TIN	HSSCO5	HSSCO8 TIALN
3	6	8	52	3	11-188-001	11-188-T001	11-118-C001	11-118-G001
4	6	11	55	3	11-188-002	11-188-T002	11-118-C002	11-118-G002
5	6	13	57	3	11-188-003	11-188-T003	11-118-C003	11-118-G003
6	6	13	57	3	11-188-004	11-188-T004	11-118-C004	11-118-G004
8	10	19	69	3	11-188-005	11-188-T005	11-118-C005	11-118-G005
10	10	22	72	3	11-188-006	11-188-T006	11-118-C006	11-118-G006
12	12	26	83	3	11-188-007	11-188-T007	11-118-C007	11-118-G007
14	12	26	83	3	11-188-008	11-188-T008	11-118-C008	11-118-G008
16	16	32	92	3	11-188-009	11-188-T009	11-118-C009	11-118-G009
18	16	32	92	3	11-188-010	11-188-T010	11-118-C010	11-118-G010
20	20	38	104	3	11-188-011	11-188-T011	11-118-C011	11-118-G011
22	20	38	104	3	11-188-012	11-188-T012	11-118-C012	11-118-G012
25	25	45	121	3	11-188-013	11-188-T013	11-118-C013	11-118-G013
28	25	45	121	3	11-188-014	11-188-T014	11-118-C014	11-118-G014
30	25	45	121	3	11-188-015	11-188-T015	11-118-C015	11-118-G015
32	32	53	133	3	11-188-016	11-188-T016	11-118-C016	11-118-G016
36	32	53	133	3	11-188-017	11-188-T017	11-118-C017	11-118-G017
40	40	63	155	3	11-188-018	11-188-T018	11-118-C018	11-118-G018



LONG LENGTH, WELDON SHANK, DIN844

SIZE H10	SHANK DIA.H6	FLUTE LENGTH	OVERALL LENGTH	FLUTE NO.	HSS	HSS TIN	HSSCO5	HSSCO8 TIALN
3	6	12	56	3	11-188-019	11-188-T019	11-188-C019	11-188-G019
4	6	19	63	3	11-188-020	11-188-T020	11-188-C020	11-188-G020
5	6	24	68	3	11-188-021	11-188-T021	11-188-C021	11-188-G021
6	6	24	68	3	11-188-022	11-188-T022	11-188-C022	11-188-G022
8	10	38	88	3	11-188-023	11-188-T023	11-188-C023	11-188-G023
10	10	45	95	3	11-188-024	11-188-T024	11-188-C024	11-188-G024
12	12	53	110	3	11-188-025	11-188-T025	11-188-C025	11-188-G025
14	12	53	110	3	11-188-026	11-188-T026	11-188-C026	11-188-G026
16	16	63	123	3	11-188-027	11-188-T027	11-188-C027	11-188-G027
18	16	63	123	3	11-188-028	11-188-T028	11-188-C028	11-188-G028
20	20	75	141	3	11-188-029	11-188-T029	11-188-C029	11-188-G029
22	20	75	141	3	11-188-030	11-188-T030	11-188-C030	11-188-G030
25	25	90	166	3	11-188-031	11-188-T031	11-188-C031	11-188-G031
28	25	90	166	3	11-188-032	11-188-T032	11-188-C032	11-188-G032
30	25	90	166	3	11-188-033	11-188-T033	11-188-C033	11-188-G033
32	32	106	186	3	11-188-034	11-188-T034	11-188-C034	11-188-G034
36	32	106	186	3	11-188-035	11-188-T035	11-188-C035	11-188-G035
40	40	125	217	3	11-188-036	11-188-T036	11-188-C036	11-188-G036

## HSS SINGLE FLUTE END MILLS



SIZE H10	SHANK DIA.H6	FLUTE LENGTH	OVERALL LENGTH	FLUTE NO.	HSS	HSS TIN
3	8	12	60	1	11-187-001	11-187-T001
4	8	12	60	1	11-187-002	11-187-T002
5	8	14	60	1	11-187-003	11-187-T003
6	8	14	60	1	11-187-004	11-187-T004
8	8	14	80	1	11-187-005	11-187-T005
10	8	14	80	1	11-187-006	11-187-T006

### 10 PCS HSS-COBALT END MILLS SET

10 PCS/SET	2F:3/4/5/6/7/8/9/10/11/12mm
11-190-S01	HSSCO5-TIN
11-190-S02	HSSCO5



### 4 PCS HSS SINGLE FLUTE END MILLS SET

4 PCS/SET	3,4,6,8mm
11-187-S01	HSS



### 20 PCS HSS END MILLS SET

20 PCS/SET	2F:3/4/5/6/8/10/12/14/16/20mm
	4F:3/4/5/6/8/10/12/14/16/20mm
11-190-S03	HSS-TIN
11-190-S04	HSS



### 12 PCS HSS COMBINED END MILLS & BALL END MILLS SET

12 PCS/SET	4F:3/4/6/8/10/12mm
	4F BALL END:3/4/6/8/10/12mm
11-190-S05	HSS-TIN
11-190-S06	HSS



### 20 PCS HSS THREAD SHANK END MILLS SET

20 PCS/SET	2F:3/4/5/6/8/10/12/14/16/20mm
	4F:3/4/5/6/8/10/12/14/16/20mm
11-189-S01	HSS-TIN
11-189-S02	HSS



## HSS MULTIPLE FLUTE SINGLE END MILLS



REGULAR LENGTH, CENTERCUTTING, WELDON SHANK, ANSI B94

SIZE IN	SHANK DIA.	FLUTE LENGTH	OVERALL LENGTH	FLUTE NO.	HSS	HSS TIN	HSSCO5	HSSCO8 TIALN
1/8	3/8	3/8	2-5/16	4	12-049-001	12-049-T001	12-049-C001	12-049-G001
3/16	3/8	1/2	2-3/8	4	12-049-002	12-049-T002	12-049-C002	12-049-G002
1/4	3/8	5/8	2-7/16	4	12-049-003	12-049-T003	12-049-C003	12-049-G003
5/16	3/8	3/4	2-1/2	4	12-049-004	12-049-T004	12-049-C004	12-049-G004
3/8	3/8	3/4	2-1/2	4	12-049-005	12-049-T005	12-049-C005	12-049-G005
7/16	3/8	1	2-11/16	4	12-049-051	12-049-T051	12-049-C051	12-049-G051
1/2	3/8	1	2-11/16	4	12-049-052	12-049-T052	12-049-C052	12-049-G052
1/2	1/2	1-1/4	3-1/4	4	12-049-006	12-049-T006	12-049-C006	12-049-G006
5/8	1/2	1-3/8	3-3/8	4	12-049-054	12-049-T054	12-049-C054	12-049-G054
5/8	5/8	1-5/8	3-3/4	4	12-049-007	12-049-T007	12-049-C007	12-049-G007
11/16	1/2	1-3/8	3-3/8	4	12-049-055	12-049-T055	12-049-C055	12-049-G055
11/16	5/8	1-5/8	3-3/4	4	12-049-056	12-049-T056	12-049-C056	12-049-G056
3/4	5/8	1-5/8	3-3/4	4	12-049-058	12-049-T058	12-049-C058	12-049-G058
3/4	3/4	1-5/8	3-7/8	4	12-049-008	12-049-T008	12-049-C008	12-049-G008
13/16	5/8	1-5/8	3-3/4	4	12-049-059	12-049-T059	12-049-C059	12-049-G059
13/16	3/4	1-7/8	4-1/8	4	12-049-060	12-049-T060	12-049-C060	12-049-G060
7/8	3/4	1-7/8	4-1/8	4	12-049-063	12-049-T063	12-049-C063	12-049-G063
7/8	7/8	1-7/8	4-1/8	4	12-049-009	12-049-T009	12-049-C009	12-049-G009
15/16	5/8	1-7/8	4-1/8	4	12-049-064	12-049-T064	12-049-C064	12-049-G064
15/16	3/4	1-7/8	4-1/8	4	12-049-065	12-049-T065	12-049-C065	12-049-G065
1	3/4	1-7/8	4-1/8	4	12-049-068	12-049-T068	12-049-C068	12-049-G068
1	7/8	1-7/8	4-1/8	4	12-049-069	12-049-T069	12-049-C069	12-049-G069
1	1	2	4-1/2	4	12-049-010	12-049-T010	12-049-C010	12-049-G010
1-1/8	1	2	4-1/2	4	12-049-011	12-049-T011	12-049-C011	12-049-G011
1-1/4	3/4	2	4-1/2	4	12-049-070	12-049-T070	12-049-C070	12-049-G070
1-1/4	1-1/4	2	4-1/2	4	12-049-012	12-049-T012	12-049-C012	12-049-G012
1-3/8	1	2	4-1/2	4	12-049-071	12-049-T071	12-049-C071	12-049-G071
1-1/2	3/4	2	4-1/2	4	12-049-072	12-049-T072	12-049-C072	12-049-G072
1-1/2	1-1/4	2	4-1/2	4	12-049-013	12-049-T013	12-049-C013	12-049-G013
1-5/8	1-1/4	2	4-1/2	4	12-049-073	12-049-T073	12-049-C073	12-049-G073
1-3/4	1-1/4	2	4-1/2	4	12-049-074	12-049-T074	12-049-C074	12-049-G074
2	1-1/4	2	4-1/2	4	12-049-075	12-049-T075	12-049-C075	12-049-G075

## HSS MULTIPLE FLUTE SINGLE END MILLS



LONG LENGTH, CENTERCUTTING, WELDON SHANK, ANSI B94

SIZE IN	SHANK DIA.	FLUTE LENGTH	OVERALL LENGTH	FLUTE NO.	HSS	HSS TIN	HSSCO5	HSSCO8 TIALN
1/4	1/4	1-1/4	3-1/16	4	12-049-076	12-049-T076	12-049-C076	12-049-G076
1/4	3/8	1-1/4	3-1/16	4	12-049-014	12-049-T014	12-049-C014	12-049-G014
5/16	5/16	1-5/8	3-1/16	4	12-049-077	12-049-T077	12-049-C077	12-049-G077
5/16	3/8	1-3/8	3-1/8	4	12-049-015	12-049-T015	12-049-C015	12-049-G015
3/8	3/8	1-1/2	3-1/4	4	12-049-016	12-049-T016	12-049-C016	12-049-G016
3/8	3/8	1-3/4	3-3/8	4	12-049-078	12-049-T078	12-049-C078	12-049-G078
7/16	1/2	1-3/4	3-3/4	4	12-049-079	12-049-T079	12-049-C079	12-049-G079
1/2	1/2	2	4	4	12-049-017	12-049-T017	12-049-C017	12-049-G017
5/8	1/2	2-1/2	4-5/8	4	12-049-080	12-049-T080	12-049-C080	12-049-G080
5/8	5/8	2-1/2	4-5/8	4	12-049-018	12-049-T018	12-049-C018	12-049-G018
3/4	1/2	3	5-1/4	4	12-049-081	12-049-T081	12-049-C081	12-049-G081
3/4	5/8	3	5-1/4	4	12-049-082	12-049-T082	12-049-C082	12-049-G082
3/4	3/4	3	5-1/4	4	12-049-019	12-049-T019	12-049-C019	12-049-G019
7/8	3/4	3-1/2	5-3/4	4	12-049-020	12-049-T020	12-049-C020	12-049-G020
7/8	7/8	3-1/2	5-3/4	4	12-049-083	12-049-T083	12-049-C083	12-049-G083
7/8	7/8	4	6-1/2	4	12-049-084	12-049-T084	12-049-C084	12-049-G084
1	1	3	6-1/2	4	12-049-021	12-049-T021	12-049-C021	12-049-G021
1	1	4	5-1/2	4	12-049-022	12-049-T022	12-049-C022	12-049-G022
1-1/8	1	4	6-1/2	4	12-049-085	12-049-T085	12-049-C085	12-049-G085
1-3/8	1	4	6-1/2	4	12-049-086	12-049-T086	12-049-C086	12-049-G086
1-1/4	1-1/4	4	5-1/2	4	12-049-023	12-049-T023	12-049-C023	12-049-G023
1-1/4	1-1/4	4	6-1/2	6	12-049-024	12-049-T024	12-049-C024	12-049-G024
1-1/2	1-1/4	3	5-1/2	4	12-049-025	12-049-T102	12-049-C102	12-049-G102
1-1/2	1-1/4	4	6-1/2	6	12-049-087	12-049-T087	12-049-C087	12-049-G087
1-5/8	1-1/4	4	6-1/2	6	12-049-088	12-049-T088	12-049-C088	12-049-G088
1-3/4	1-1/4	3	5-1/2	6	12-049-026	12-049-T026	12-049-C026	12-049-G026
2	1-1/4	4	6-1/2	6	12-049-089	12-049-T089	12-049-C089	12-049-G089
2	2	3	6-3/4	6	12-049-090	12-049-T090	12-049-C090	12-049-G090
2	2	4	7-3/4	6	12-049-091	12-049-T091	12-049-C091	12-049-G091
2	2	5	8-3/4	6	12-049-092	12-049-T092	12-049-C092	12-049-G092



EXTRA LONG LENGTH, CENTERCUTTING, WELDON SHANK, ANSI B94

SIZE IN	SHANK DIA.	FLUTE LENGTH	OVERALL LENGTH	FLUTE NO.	HSS	HSS TIN	HSSCO5	HSSCO8 TIALN
1/4	3/8	1-3/4	3-9/16	4	12-049-027	12-049-T027	12-049-C027	12-049-G027
5/16	3/8	2	3-3/4	4	12-049-028	12-049-T028	12-049-C028	12-049-G028
3/8	3/8	2-1/2	4-1/4	4	12-049-029	12-049-T029	12-049-C029	12-049-G029
1/2	1/2	3	5	4	12-049-030	12-049-T030	12-049-C030	12-049-G030
5/8	5/8	4	6-1/8	4	12-049-031	12-049-T031	12-049-C031	12-049-G031
3/4	3/4	4	6-1/4	4	12-049-032	12-049-T032	12-049-C032	12-049-G032
7/8	7/8	5	7-1/4	4	12-049-033	12-049-T033	12-049-C033	12-049-G033
1	1	6	8-1/2	4	12-049-034	12-049-T034	12-049-C034	12-049-G034
1-1/4	1-1/4	6	8-1/2	4	12-049-035	12-049-T035	12-049-C035	12-049-G035
1-1/2	1-1/4	6	8-1/2	4	12-049-036	12-049-T036	12-049-C036	12-049-G036
1-1/2	1-1/4	8	10-1/2	4	12-049-037	12-049-T037	12-049-C037	12-049-G037
1-1/4	1-1/4	6	8-1/2	6	12-049-038	12-049-T038	12-049-C038	12-049-G038
1-1/2	1-1/4	6	8-1/2	6	12-049-039	12-049-T039	12-049-C039	12-049-G039
1-1/2	1-1/4	8	10-1/2	6	12-049-040	12-049-T040	12-049-C040	12-049-G040
2	2	6	9-3/4	6	12-049-041	12-049-T041	12-049-C041	12-049-G041
2	2	8	11-3/4	6	12-049-042	12-049-T042	12-049-C042	12-049-G042
2	2	10	13-3/4	6	12-049-043	12-049-T043	12-049-C043	12-049-G043
2	2	12	15-3/4	6	12-049-044	12-049-T044	12-049-C044	12-049-G044

### HSS TWO FLUTE SINGLE END MILLS



REGULAR LENGTH, WELDON SHANK, ANSI B94

SIZE IN	SHANK DIA.	FLUTE LENGTH	OVERALL LENGTH	FLUTE NO.	HSS	HSS TIN	HSS-CO5	HSS-CO8 TIALN
1/8	3/8	3/8	2-5/16	2	12-050-001	12-050-T001	12-050-C001	12-050-G001
3/16	3/8	7/16	2-5/16	2	12-050-002	12-050-T002	12-050-C002	12-050-G002
7/32	3/8	1/2	2-5/16	2	12-050-003	12-050-T003	12-050-C003	12-050-G003
1/4	3/8	1/2	2-5/16	2	12-050-004	12-050-T004	12-050-C004	12-050-G004
9/32	3/8	9/16	2-5/16	2	12-050-005	12-050-T005	12-050-C005	12-050-G005
5/16	3/8	9/16	2-5/16	2	12-050-006	12-050-T006	12-050-C006	12-050-G006
11/32	3/8	9/16	2-5/16	2	12-050-007	12-050-T007	12-050-C007	12-050-G007
3/8	3/8	9/16	2-5/16	2	12-050-008	12-050-T008	12-050-C008	12-050-G008
13/32	3/8	13/16	2-1/2	2	12-050-009	12-050-T009	12-050-C009	12-050-G009
7/16	3/8	13/16	2-1/2	2	12-050-010	12-050-T010	12-050-C010	12-050-G010
15/32	3/8	13/16	2-1/2	2	12-050-011	12-050-T011	12-050-C011	12-050-G011
1/2	3/8	13/16	2-1/2	2	12-050-012	12-050-T012	12-050-C012	12-050-G012
1/2	1/2	1	3	2	12-050-013	12-050-T013	12-050-C013	12-050-G013
17/32	1/2	1-1/8	3-1/8	2	12-050-014	12-050-T014	12-050-C014	12-050-G014
9/16	1/2	1-1/8	3-1/8	2	12-050-015	12-050-T015	12-050-C015	12-050-G015
19/32	1/2	1-1/8	3-1/8	2	12-050-016	12-050-T016	12-050-C016	12-050-G016
5/8	1/2	1-1/8	3-1/8	2	12-050-017	12-050-T017	12-050-C017	12-050-G017
5/8	5/8	1-5/16	3-5/16	2	12-050-018	12-050-T018	12-050-C018	12-050-G018
21/32	5/8	1-5/16	3-7/16	2	12-050-019	12-050-T019	12-050-C019	12-050-G019
11/16	1/2	1-5/16	3-5/16	2	12-050-020	12-050-T020	12-050-C020	12-050-G020
11/16	5/8	1-5/16	3-7/16	2	12-050-021	12-050-T021	12-050-C021	12-050-G021
23/32	3/4	1-5/16	3-9/16	2	12-050-022	12-050-T022	12-050-C022	12-050-G022
3/4	1/2	1-5/16	3-5/16	2	12-050-023	12-050-T023	12-050-C023	12-050-G023
3/4	5/8	1-5/16	3-7/16	2	12-050-024	12-050-T024	12-050-C024	12-050-G024
3/4	3/4	1-5/16	3-9/16	2	12-050-025	12-050-T025	12-050-C025	12-050-G025
25/32	3/4	1-1/2	3-3/4	2	12-050-026	12-050-T026	12-050-C026	12-050-G026
13/16	3/4	1-1/2	3-3/4	2	12-050-027	12-050-T027	12-050-C027	12-050-G027
27/32	7/8	1-1/2	3-3/4	2	12-050-028	12-050-T028	12-050-C028	12-050-G028
7/8	3/4	1-1/2	3-3/4	2	12-050-029	12-050-T029	12-050-C029	12-050-G029
7/8	7/8	1-1/2	3-3/4	2	12-050-030	12-050-T030	12-050-C030	12-050-G030
29/32	7/8	1-5/8	3-7/8	2	12-050-031	12-050-T031	12-050-C031	12-050-G031
15/16	7/8	1-5/8	3-7/8	2	12-050-032	12-050-T032	12-050-C032	12-050-G032
31/32	1	1-5/8	4-1/8	2	12-050-033	12-050-T033	12-050-C033	12-050-G033
1	3/4	1-1/2	3-3/4	2	12-050-034	12-050-T034	12-050-C034	12-050-G034
1	1	1-5/8	4-1/8	2	12-050-035	12-050-T035	12-050-C035	12-050-G035
1-1/16	3/4	1-1/2	3-3/4	2	12-050-036	12-050-T036	12-050-C036	12-050-G036
1-1/8	3/4	1-5/8	3-7/8	2	12-050-037	12-050-T037	12-050-C037	12-050-G037
1-1/8	1	1-5/8	4-1/8	2	12-050-038	12-050-T038	12-050-C038	12-050-G038
1-3/16	3/4	1-5/8	3-7/8	2	12-050-039	12-050-T039	12-050-C039	12-050-G039
1-1/4	3/4	1-5/8	3-7/8	2	12-050-040	12-050-T040	12-050-C040	12-050-G040
1-1/4	1	1-5/8	4-1/8	2	12-050-041	12-050-T041	12-050-C041	12-050-G041
1-1/4	1-1/4	1-5/8	4-1/8	2	12-050-042	12-050-T042	12-050-C042	12-050-G042
1-5/16	1	1-5/8	4-1/8	2	12-050-043	12-050-T043	12-050-C043	12-050-G043
1-3/8	3/4	1-5/8	3-7/8	2	12-050-044	12-050-T044	12-050-C044	12-050-G044
1-3/8	1	1-5/8	4-1/8	2	12-050-045	12-050-T045	12-050-C045	12-050-G045
1-7/16	1	1-5/8	4-1/8	2	12-050-046	12-050-T046	12-050-C046	12-050-G046
1-1/2	3/4	1-5/8	4-1/8	2	12-050-047	12-050-T047	12-050-C047	12-050-G047
1-1/2	1-1/4	1-5/8	4-1/8	2	12-050-048	12-050-T048	12-050-C048	12-050-G048
1-9/16	1-1/4	1-5/8	4-1/8	2	12-050-049	12-050-T049	12-050-C049	12-050-G049
1-5/8	1-1/4	1-5/8	4-1/8	2	12-050-050	12-050-T050	12-050-C050	12-050-G050
1-11/16	1-1/4	1-5/8	4-1/8	2	12-050-051	12-050-T051	12-050-C051	12-050-G051
1-3/4	1-1/4	1-5/8	4-1/8	2	12-050-052	12-050-T052	12-050-C052	12-050-G052
1-13/16	1-1/4	1-5/8	4-1/8	2	12-050-053	12-050-T053	12-050-C053	12-050-G053
1-7/8	1-1/4	1-5/8	4-1/8	2	12-050-054	12-050-T054	12-050-C054	12-050-G054
1-15/16	1-1/4	1-5/8	4-1/8	2	12-050-055	12-050-T055	12-050-C055	12-050-G055
2	1-1/4	1-5/8	4-1/8	2	12-050-056	12-050-T056	12-050-C056	12-050-G056

### HSS TWO FLUTE SINGLE END MILLS



LONG LENGTH, WELDON SHANK, ANSI B94

SIZE IN	SHANK DIA.	FLUTE LENGTH	OVERALL LENGTH	FLUTE NO.	HSS	HSS TIN	HSS-CO5	HSS-CO8 TIALN
1/4	3/8	1-1/2	3-1/4	2	12-050-066	12-050-T066	12-050-C066	12-050-G066
5/16	3/8	1-1/2	3-1/4	2	12-050-067	12-050-T067	12-050-C067	12-050-G067
3/8	3/8	1-1/2	3-1/4	2	12-050-068	12-050-T068	12-050-C068	12-050-G068
1/2	1/2	2	4	2	12-050-069	12-050-T069	12-050-C069	12-050-G069
5/8	5/8	2	4-1/8	2	12-050-070	12-050-T070	12-050-C070	12-050-G070
3/4	3/4	2-1/4	4-1/2	2	12-050-071	12-050-T071	12-050-C071	12-050-G071
7/8	7/8	2-1/4	4-3/4	2	12-050-072	12-050-T072	12-050-C072	12-050-G072
1	1	3	5-1/2	2	12-050-073	12-050-T073	12-050-C073	12-050-G073
1-1/8	1	3	5-1/2	2	12-050-074	12-050-T074	12-050-C074	12-050-G074
1-1/4	1-1/4	3	5-1/2	2	12-050-075	12-050-T075	12-050-C075	12-050-G075
1-3/8	1	3	5-1/2	2	12-050-076	12-050-T076	12-050-C076	12-050-G076
1-3/8	1-1/4	3	5-1/2	2	12-050-077	12-050-T077	12-050-C077	12-050-G077
1-5/8	1-1/4	3	5-1/2	2	12-050-078	12-050-T078	12-050-C078	12-050-G078
1-3/4	1-1/4	3	5-1/2	2	12-050-079	12-050-T079	12-050-C079	12-050-G079
1-7/8	1-1/4	3	5-1/2	2	12-050-080	12-050-T080	12-050-C080	12-050-G080
2	1-1/4	3	5-1/2	2	12-050-081	12-050-T081	12-050-C081	12-050-G081



EXTENDED REACH, WELDON SHANK, ANSI B94

SIZE IN	SHANK DIA.	FLUTE LENGTH	OVERALL LENGTH	FLUTE NO.	HSS	HSS TIN	HSS-CO5	HSS-CO8 TIALN
1/4	3/8	5/8	3-1/16	2	12-050-057	12-050-T057	12-050-C057	12-050-G057
5/16	3/8	3/4	3-5/16	2	12-050-058	12-050-T058	12-050-C058	12-050-G058
3/8	3/8	3/4	3-5/16	2	12-050-059	12-050-T059	12-050-C059	12-050-G059
1/2	1/2	1	4	2	12-050-060	12-050-T060	12-050-C060	12-050-G060
5/8	5/8	1-3/8	4-5/8	2	12-050-061	12-050-T061	12-050-C061	12-050-G061
3/4	3/4	1-5/8	5-3/8	2	12-050-062	12-050-T062	12-050-C062	12-050-G062
7/8	7/8	2	6	2	12-050-063	12-050-T063	12-050-C063	12-050-G063
1	1	2-1/2	7-1/4	2	12-050-064	12-050-T064	12-050-C064	12-050-G064
1-1/4	1-1/4	3	7-1/4	2	12-050-065	12-050-T065	12-050-C065	12-050-G065

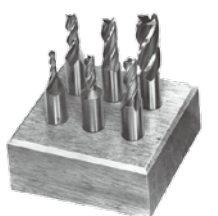
#### 10 PCS HSS END MILLS SET

10 PCS/SET | 2F: 1/4, 3/8, 1/2, 5/8, 3/4"  
4F: 1/4, 3/8, 1/2, 5/8, 3/4"  
12-051-S01 HSS-TIN  
12-051-S02 HSS



#### 6 PCS HSSCO8 FOUR FLUTE END MILLS SET

6 PCS/SET | 4F: 3/16, 1/4, 5/16, 3/8, 1/2, 5/8"  
12-051-S05 HSS-CO8



5 PCS/SET | 4F: 1/8, 3/16, 1/4, 5/16, 3/8"  
12-051-S06 HSS-CO8

#### 20 PCS HSS END MILLS SET

20 PCS/SET | 2F: 3/16, 1/4, 5/16, 3/8, 7/16, 1/2, 9/16, 5/8, 11/16, 3/4"  
4F: 3/16, 1/4, 5/16, 3/8, 7/16, 1/2, 9/16, 5/8, 11/16, 3/4"  
12-051-S03 HSS-TIN  
12-051-S04 HSS





### HSS MULTIPLE FLUTE HEAVY DUTY END MILLS WITH TWIN DRIVE SHANK



TWIN DRIVE SHANK ALLOW FOR EXTRA HOLDING POWER FOR HEAVY DUTY OPERATION

SIZE IN	SHANK DIA.	FLUTE LENGTH	OVERALL LENGTH	FLUTE NO.	HSS
2	2	4	7-3/4	4	12-196-001
2	2	4	7-3/4	6	12-196-002
2	2	6	9-3/4	4	12-196-003
2	2	6	9-3/4	6	12-196-004
2	2	8	11-3/4	6	12-196-005
2	2	10	13-3/4	6	12-196-006
2	2	12	15-3/4	6	12-196-007
2-1/2	2-1/2	6	9-3/4	4	12-196-008
2-1/2	2-1/2	8	11-3/4	4	12-196-009
2-1/2	2-1/2	10	13-3/4	4	12-196-010
2-1/2	2-1/2	4	7-3/4	6	12-196-011
2-1/2	2-1/2	6	9-3/4	6	12-196-012
2-1/2	2-1/2	8	11-3/4	6	12-196-013
3	2-1/2	4	8	4	12-196-014
3	2-1/2	6	10	4	12-196-015
3	2-1/2	8	12	4	12-196-016
3	2-1/2	10	14	4	12-196-017
3	2-1/2	4	8	6	12-196-018

### CARBIDE TIPPED MULTIPLE FLUTE HEAVY DUTY END MILLS



STRAIGHT SHANK, STRAIGHT FLUTE

SIZE IN	SHANK DIA.	FLUTE LENGTH	OVERALL LENGTH	FLUTE NO.	HSS
8	8	12	63	3	11-199-001
10	10	12	63	3	11-199-002
12	12	16	75	3	11-199-003
14	12	16	75	3	11-199-004
16	16	16	80	4	11-199-005
18	16	19	80	4	11-199-006
20	20	19	90	4	11-199-007
22	20	22	100	4	11-199-008
25	20	22	100	4	11-199-009
30	25	22	100	6	11-199-010

### CARBIDE TIPPED TAPER SHANK MULTIPLE FLUTE END MILLS



SIZE MM	SHANK DIA.	OVERALL LENGTH	FLUTE NO.	CARBIDE TIPPED
16	16	100	3	11-200-001
20	MT2	130	3	11-200-002
25	MT3	160	4	11-200-003
32	MT4	185	4	11-200-004
40	MT4	195	4	11-200-005

### CARBIDE TIPPED MULTIPLE FLUTE HEAVY DUTY END MILLS



CENTER CUTTING

SIZE IN	SHANK DIA.	FLUTE LENGTH	OVERALL LENGTH	FLUTE NO.	HSS
5/8	5/8	1-3/16	3-1/2	2	12-152-001
3/4	3/4	1-27/64	3-3/4	2	12-152-002
7/8	3/4	1-27/64	3-3/4	2	12-152-003
1	1	1-29/64	4-1/8	2	12-152-004
1-1/8	1	1-9/16	4-1/2	2	12-152-005
1-1/4	1-1/4	1-27/32	5-1/8	2	12-152-006
1-1/2	1-1/4	2-1/4	5-1/2	2	12-152-007
1-3/4	1-1/4	2-5/8	6-1/8	2	12-152-008
2	1-1/4	2-5/8	6-1/8	2	12-152-009
5/8	5/8	1-3/16	3-1/2	2	12-152-010
3/4	3/4	1-27/64	3-3/4	2	12-152-011
7/8	3/4	1-27/64	3-3/4	2	12-152-012
1	1	1-29/64	4-1/8	2	12-152-013
1-1/8	1	1-9/16	4-1/2	2	12-152-014
1-1/4	1-1/4	1-27/32	5-1/8	2	12-152-015
1-1/2	1-1/4	2-1/4	5-1/2	2	12-152-016
1-3/4	1-1/4	2-5/8	6-1/8	2	12-152-017

NON-CENTER CUTTING

SIZE IN	SHANK DIA.	FLUTE LENGTH	OVERALL LENGTH	FLUTE NO.	HSS
3/4	3/4	1-27/64	3-3/4	4	12-152-019
7/8	3/4	1-27/64	3-3/4	4	12-152-020
1	1	1-29/64	4-1/8	4	12-152-021
1-1/4	1-1/4	2-27/32	5-1/8	4	12-152-022
1-1/2	1-1/4	2-1/4	5-1/2	4	12-152-023
1-3/4	1-1/4	2-5/8	6-1/8	4	12-152-024
2	1-1/4	2-5/8	6-1/8	4	12-152-025

## HSS FOUR FLUTE DOUBLE END MILLS



REGULAR LENGTH, CENTERCUTTING, WELDON SHANK, ANSI B94

SIZE IN	SHANK DIA.	FLUTE LENGTH	OVERALL LENGTH	FLUTE NO.	HSS	HSS TIN	HSSCO5	HSSCO8 TIALN
1/8	3/8	3/8	3-1/16	4	12-052-001	12-052-T001	12-052-C001	12-052-G001
5/32	3/8	7/16	3-1/8	4	12-052-002	12-052-T002	12-052-C002	12-052-G002
3/16	3/8	1/2	3-1/4	4	12-052-003	12-052-T003	12-052-C003	12-052-G003
7/32	3/8	9/16	3-1/4	4	12-052-004	12-052-T004	12-052-C004	12-052-G004
1/4	3/8	5/8	3-3/8	4	12-052-005	12-052-T005	12-052-C005	12-052-G005
9/32	3/8	11/16	3-3/8	4	12-052-006	12-052-T006	12-052-C006	12-052-G006
5/16	3/8	3/4	3-1/2	4	12-052-007	12-052-T007	12-052-C007	12-052-G007
11/32	3/8	3/4	3-1/2	4	12-052-008	12-052-T008	12-052-C008	12-052-G008
3/8	3/8	3/4	3-1/2	4	12-052-009	12-052-T009	12-052-C009	12-052-G009
13/32	1/2	1	4-1/8	4	12-052-010	12-052-T010	12-052-C010	12-052-G010
7/16	1/2	1	4-1/8	4	12-052-011	12-052-T011	12-052-C011	12-052-G011
15/32	1/2	1	4-1/8	4	12-052-012	12-052-T012	12-052-C012	12-052-G012
1/2	1/2	1	4-1/8	4	12-052-013	12-052-T013	12-052-C013	12-052-G013
9/16	5/8	1-3/8	5	4	12-052-014	12-052-T014	12-052-C014	12-052-G014
5/8	5/8	1-3/8	5	4	12-052-015	12-052-T015	12-052-C015	12-052-G015
11/16	3/4	1-5/8	5-5/8	4	12-052-016	12-052-T016	12-052-C016	12-052-G016
3/4	3/4	1-5/8	5-5/8	4	12-052-017	12-052-T017	12-052-C017	12-052-G017
13/16	7/8	1-7/8	6-1/8	4	12-052-018	12-052-T018	12-052-C018	12-052-G018
7/8	7/8	1-7/8	6-1/8	4	12-052-019	12-052-T019	12-052-C019	12-052-G019
15/16	1	1-7/8	6-3/8	4	12-052-020	12-052-T020	12-052-C020	12-052-G020
1	1	1-7/8	6-3/8	4	12-052-021	12-052-T021	12-052-C021	12-052-G021

## HSS TWO FLUTE DOUBLE END MILLS



REGULAR LENGTH, WELDON SHANK, ANSI B94

SIZE IN	SHANK DIA.	FLUTE LENGTH	OVERALL LENGTH	FLUTE NO.	HSS	HSS TIN	HSSCO5	HSSCO8 TIALN
1/8	3/8	3/8	3-1/16	2	12-052-022	12-052-T022	12-052-C022	12-052-G022
5/32	3/8	7/16	3-1/8	2	12-052-023	12-052-T023	12-052-C023	12-052-G023
3/16	3/8	7/16	3-1/8	2	12-052-024	12-052-T024	12-052-C024	12-052-G024
7/32	3/8	1/2	3-1/8	2	12-052-025	12-052-T025	12-052-C025	12-052-G025
1/4	3/8	1/2	3-1/8	2	12-052-026	12-052-T026	12-052-C026	12-052-G026
9/32	3/8	9/16	3-1/8	2	12-052-027	12-052-T027	12-052-C027	12-052-G027
5/16	3/8	9/16	3-1/8	2	12-052-028	12-052-T028	12-052-C028	12-052-G028
11/32	3/8	9/16	3-1/8	2	12-052-029	12-052-T029	12-052-C029	12-052-G029
3/8	3/8	9/16	3-1/8	2	12-052-030	12-052-T030	12-052-C030	12-052-G030
13/32	1/2	13/16	3-3/4	2	12-052-031	12-052-T031	12-052-C031	12-052-G031
7/16	1/2	13/16	3-3/4	2	12-052-032	12-052-T032	12-052-C032	12-052-G032
15/32	1/2	13/16	3-3/4	2	12-052-033	12-052-T033	12-052-C033	12-052-G033
1/2	1/2	13/16	3-3/4	2	12-052-034	12-052-T034	12-052-C034	12-052-G034
9/16	5/8	1-1/8	4-1/2	2	12-052-035	12-052-T035	12-052-C035	12-052-G035
5/8	5/8	1-1/8	4-1/2	2	12-052-036	12-052-T036	12-052-C036	12-052-G036
11/16	3/4	1-5/16	5	2	12-052-037	12-052-T037	12-052-C037	12-052-G037
3/4	3/4	1-5/16	5	2	12-052-038	12-052-T038	12-052-C038	12-052-G038
13/16	7/8	1-9/16	5-1/2	2	12-052-039	12-052-T039	12-052-C039	12-052-G039
7/8	7/8	1-9/16	5-1/2	2	12-052-040	12-052-T040	12-052-C040	12-052-G040
15/16	1	1-5/8	5-7/8	2	12-052-041	12-052-T041	12-052-C041	12-052-G041
1	1	1-5/8	5-7/8	2	12-052-042	12-052-T042	12-052-C042	12-052-G042

## HSS 3/8" SHANK DOUBLE END MILLS SET



6 PCS/SET | 2F: 1/8, 5/32, 3/16, 1/4, 5/16, 3/8"  
12-053-S01 | HSS

### HSS 3/16 SHANK TWO FLUTE DOUBLE END MILLS



REGULAR LENGTH, ANSI B94

SIZE IN	SHANK DIA.	FLUTE LENGTH	OVERALL LENGTH	FLUTE NO.	HSS	HSS TIN	HSSCO5	HSSCO8 TIALN
1/32	3/16	3/32	2-1/4	2	12-054-001	12-054-T001	12-054-C001	12-054-G001
3/64	3/16	9/64	2-1/4	2	12-054-002	12-054-T002	12-054-C002	12-054-G002
1/16	3/16	3/16	2-1/4	2	12-054-003	12-054-T003	12-054-C003	12-054-G003
5/64	3/16	15/64	2-1/4	2	12-054-004	12-054-T004	12-054-C004	12-054-G004
3/32	3/16	9/32	2-1/4	2	12-054-005	12-054-T005	12-054-C005	12-054-G005
7/64	3/16	21/64	2-1/4	2	12-054-006	12-054-T006	12-054-C006	12-054-G006
1/8	3/16	3/8	2-1/4	2	12-054-007	12-054-T007	12-054-C007	12-054-G007
9/64	3/16	13/32	2-1/4	2	12-054-008	12-054-T008	12-054-C008	12-054-G008
5/32	3/16	7/16	2-1/4	2	12-054-009	12-054-T009	12-054-C009	12-054-G009
11/64	3/16	1/2	2-1/4	2	12-054-010	12-054-T010	12-054-C010	12-054-G010
3/16	3/16	1/2	2-1/4	2	12-054-011	12-054-T011	12-054-C011	12-054-G011

### HSS 3/16 SHANK FOUR FLUTE DOUBLE END MILLS

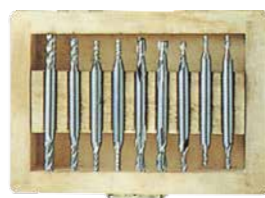


REGULAR LENGTH, ANSI B94

SIZE IN	SHANK DIA.	FLUTE LENGTH	OVERALL LENGTH	FLUTE NO.	HSS	HSS TIN	HSSCO5	HSSCO8 TIALN
1/32	3/16	3/32	2-1/4	4	12-054-012	12-054-T012	12-054-C012	12-054-G012
3/64	3/16	3/32	2-1/4	4	12-054-013	12-054-T013	12-054-C013	12-054-G013
1/16	3/16	3/16	2-1/4	4	12-054-014	12-054-T014	12-054-C014	12-054-G014
5/64	3/16	15/64	2-1/4	4	12-054-015	12-054-T015	12-054-C015	12-054-G015
3/32	3/16	9/32	2-1/4	4	12-054-016	12-054-T016	12-054-C016	12-054-G016
7/64	3/16	21/64	2-1/4	4	12-054-017	12-054-T017	12-054-C017	12-054-G017
1/8	3/16	3/8	2-1/4	4	12-054-018	12-054-T018	12-054-C018	12-054-G018
9/64	3/16	13/32	2-1/4	4	12-054-019	12-054-T019	12-054-C019	12-054-G019
5/32	3/16	7/16	2-1/4	4	12-054-020	12-054-T020	12-054-C020	12-054-G020
11/64	3/16	1/2	2-1/4	4	12-054-021	12-054-T021	12-054-C021	12-054-G021
3/16	3/16	1/2	2-1/4	4	12-054-022	12-054-T022	12-054-C022	12-054-G022

### HSS 3/16 SHANK FOUR FLUTE DOUBLE END MILLS

SIZE	SPECIFICATION
9 PCS/SET	4F:1/16,5/64,3/32,7/64,1/8,9/64,5/32,11/64,3/16"
12-054-S01	HSS



### HSS TWO FLUTE BALL END MILLS



REGULAR LENGTH, WELDON SHANK, DIN327

SIZE E8	SHANK DIA.H6	FLUTE LENGTH	OVERALL LENGTH	FLUTE NO.	HSS	HSS TIN	HSSCO5	HSSCO8 TIALN
3	6	5	49	2	11-055-001	11-055-T001	11-055-C001	11-055-G001
4	6	7	51	2	11-055-002	11-055-T002	11-055-C002	11-055-G002
5	6	8	52	2	11-055-003	11-055-T003	11-055-C003	11-055-G003
6	6	8	52	2	11-055-004	11-055-T004	11-055-C004	11-055-G004
7	10	10	60	2	11-055-005	11-055-T005	11-055-C005	11-055-G005
8	10	11	61	2	11-055-006	11-055-T006	11-055-C006	11-055-G006
9	10	13	63	2	11-055-007	11-055-T007	11-055-C007	11-055-G007
10	10	13	63	2	11-055-008	11-055-T008	11-055-C008	11-055-G008
11	12	16	73	2	11-055-009	11-055-T009	11-055-C009	11-055-G009
12	12	16	73	2	11-055-010	11-055-T010	11-055-C010	11-055-G010
14	12	16	73	2	11-055-011	11-055-T011	11-055-C011	11-055-G011
15	12	16	73	2	11-055-012	11-055-T012	11-055-C012	11-055-G012
16	16	19	79	2	11-055-013	11-055-T013	11-055-C013	11-055-G013
18	16	19	79	2	11-055-014	11-055-T014	11-055-C014	11-055-G014
20	20	22	88	2	11-055-015	11-055-T015	11-055-C015	11-055-G015
22	20	22	88	2	11-055-016	11-055-T016	11-055-C016	11-055-G016
24	25	26	102	2	11-055-017	11-055-T017	11-055-C017	11-055-G017
25	25	26	102	2	11-055-018	11-055-T018	11-055-C018	11-055-G018
30	25	26	102	2	11-055-019	11-055-T019	11-055-C019	11-055-G019



LONG LENGTH, WELDON SHANK, DIN327

SIZE E8	SHANK DIA.H6	FLUTE LENGTH	OVERALL LENGTH	FLUTE NO.	HSS	HSS TIN	HSSCO5	HSSCO8 TIALN
3	6	8	56	2	11-055-020	11-055-T020	11-055-C020	11-055-G020
4	6	11	63	2	11-055-021	11-055-T021	11-055-C021	11-055-G021
5	6	13	68	2	11-055-022	11-055-T022	11-055-C022	11-055-G022
6	6	13	68	2	11-055-023	11-055-T023	11-055-C023	11-055-G023
7	10	16	80	2	11-055-024	11-055-T024	11-055-C024	11-055-G024
8	10	19	88	2	11-055-025	11-055-T025	11-055-C025	11-055-G025
9	10	19	88	2	11-055-026	11-055-T026	11-055-C026	11-055-G026
10	10	22	95	2	11-055-027	11-055-T027	11-055-C027	11-055-G027
11	12	22	95	2	11-055-028	11-055-T028	11-055-C028	11-055-G028
12	12	26	110	2	11-055-029	11-055-T029	11-055-C029	11-055-G029
14	12	26	110	2	11-055-030	11-055-T030	11-055-C030	11-055-G030
16	16	32	123	2	11-055-031	11-055-T031	11-055-C031	11-055-G031
18	16	32	123	2	11-055-032	11-055-T032	11-055-C032	11-055-G032
20	20	38	141	2	11-055-033	11-055-T033	11-055-C033	11-055-G033
22	20	38	141	2	11-055-034	11-055-T034	11-055-C034	11-055-G034
25	25	45	166	2	11-055-035	11-055-T035	11-055-C035	11-055-G035
30	25	45	166	2	11-055-036	11-055-T036	11-055-C036	11-055-G036

## HSS TWO FLUTE BALL END MILLS



REGULAR LENGTH, WELDON SHANK, ANSI B94

SIZE IN	SHANK DIA.	FLUTE LENGTH	OVERALL LENGTH	FLUTE NO.	HSS	HSS TIN	HSSCO5	HSSCO8 TIALN
1/8	3/8	3/8	2-5/16	2	12-056-001	12-056-T001	12-056-C001	12-056-G001
3/16	3/8	1/2	2-3/8	2	12-056-002	12-056-T002	12-056-C002	12-056-G002
1/4	3/8	5/8	2-7/16	2	12-056-003	12-056-T003	12-056-C003	12-056-G003
5/16	3/8	3/4	2-1/2	2	12-056-004	12-056-T004	12-056-C004	12-056-G004
3/8	3/8	3/4	2-1/2	2	12-056-005	12-056-T005	12-056-C005	12-056-G005
7/16	1/2	1	3	2	12-056-006	12-056-T006	12-056-C006	12-056-G006
1/2	1/2	1	3	2	12-056-007	12-056-T007	12-056-C007	12-056-G007
9/16	1/2	1-1/8	3-1/8	2	12-056-008	12-056-T008	12-056-C008	12-056-G008
5/8	1/2	1-1/8	3-1/8	2	12-056-009	12-056-T009	12-056-C009	12-056-G009
5/8	5/8	1-3/8	3-1/2	2	12-056-010	12-056-T010	12-056-C010	12-056-G010
3/4	1/2	1-5/16	3-5/16	2	12-056-011	12-056-T011	12-056-C011	12-056-G011
3/4	3/4	1-5/8	3-7/8	2	12-056-012	12-056-T012	12-056-C012	12-056-G012
7/8	3/4	2	4-1/4	2	12-056-013	12-056-T013	12-056-C013	12-056-G013
1	3/4	2-1/4	4-3/4	2	12-056-014	12-056-T014	12-056-C014	12-056-G014
1-1/8	1	2-1/4	4-3/4	2	12-056-015	12-056-T015	12-056-C015	12-056-G015
1-1/4	1-1/4	2-1/2	5	2	12-056-016	12-056-T016	12-056-C016	12-056-G016
1-1/2	1-1/4	2-1/2	5	2	12-056-017	12-056-T017	12-056-C017	12-056-G017
2	1-1/4	2-1/2	5	2	12-056-018	12-056-T018	12-056-C018	12-056-G018

## HSS TWO FLUTE BALL END MILLS SET



SIZE	SPECIFICATION
9 PCS/SET	2F BALL END: 1/8, 3/16, 1/4, 5/16, 3/8, 7/16, 1/2, 5/8, 3/4"
12-059-S01	HSS

## HSS FOUR FLUTE BALL END MILLS



REGULAR LENGTH, CENTER CUTTING, WELDON SHANK, ANSI B94

SIZE IN	SHANK DIA.	FLUTE LENGTH	OVERALL LENGTH	FLUTE NO.	HSS	HSS TIN	HSSCO5	HSSCO8 TIALN
1/4	3/8	3/4	2-9/16	4	12-058-001	12-058-T001	12-058-C001	12-058-G001
5/16	3/8	1	2-3/4	4	12-058-002	12-058-T002	12-058-C002	12-058-G002
3/8	3/8	1	2-3/4	4	12-058-003	12-058-T003	12-058-C003	12-058-G003
1/2	1/2	1-1/4	3-1/4	4	12-058-004	12-058-T004	12-058-C004	12-058-G004
5/8	5/8	1-5/8	3-3/4	4	12-058-005	12-058-T005	12-058-C005	12-058-G005
3/4	3/4	1-5/8	3-7/8	4	12-058-006	12-058-T006	12-058-C006	12-058-G006
7/8	7/8	1-7/8	4-1/8	4	12-058-007	12-058-T007	12-058-C007	12-058-G007
1	1	2	4-1/2	4	12-058-008	12-058-T008	12-058-C008	12-058-G008
1-1/4	1-1/4	2	4-1/2	4	12-058-009	12-058-T009	12-058-C009	12-058-G009
1-1/2	1-1/4	2	4-1/2	4	12-058-010	12-058-T010	12-058-C010	12-058-G010



LONG LENGTH, CENTER CUTTING, WELDON SHANK, ANSI B94

SIZE IN	SHANK DIA.	FLUTE LENGTH	OVERALL LENGTH	FLUTE NO.	HSS	HSS TIN	HSSCO5	HSSCO8 TIALN
1/4	3/8"	1-1/4	3-1/16	4	12-058-011	12-058-T011	12-058-C011	12-058-G011
5/16	3/8"	1-1/2	3-1/4	4	12-058-012	12-058-T012	12-058-C012	12-058-G012
3/8	3/8"	1-1/2	3-1/4	4	12-058-013	12-058-T013	12-058-C013	12-058-G013
1/2	1/2"	2	4	4	12-058-014	12-058-T014	12-058-C014	12-058-G014
5/8	5/8"	2-1/2	4-5/8	4	12-058-015	12-058-T015	12-058-C015	12-058-G015
3/4	3/4"	3	5-1/4	4	12-058-016	12-058-T016	12-058-C016	12-058-G016
1	1"	4	6-1/2	4	12-058-017	12-058-T017	12-058-C017	12-058-G017
1-1/4	1-1/4	4	6-1/2	4	12-058-018	12-058-T018	12-058-C018	12-058-G018
1-1/2	1-1/4	4	6-1/2	4	12-058-019	12-058-T019	12-058-C019	12-058-G019

## HSS FOUR FLUTE BALL END MILLS



REGULAR LENGTH, CENTER CUTTING, WELDON SHANK, DIN844

SIZE H10	SHANK DIA.H6	FLUTE LENGTH	OVERALL LENGTH	FLUTE NO.	HSS	HSS TIN	HSSCO5	HSSCO8 TIALN
3	6	8	52	4	11-058-011	11-058-T011	11-058-C011	11-058-G011
4	6	11	55	4	11-058-012	11-058-T012	11-058-C012	11-058-G012
5	6	13	57	4	11-058-013	11-058-T013	11-058-C013	11-058-G013
6	6	13	57	4	11-058-001	11-058-T001	11-058-C001	11-058-G001
8	10	19	69	4	11-058-002	11-058-T002	11-058-C002	11-058-G002
10	10	22	72	4	11-058-003	11-058-T003	11-058-C003	11-058-G003
12	12	26	83	4	11-058-004	11-058-T004	11-058-C004	11-058-G004
14	12	26	83	4	11-058-014	11-058-T014	11-058-C014	11-058-G014
15	12	26	83	4	11-058-015	11-058-T015	11-058-C015	11-058-G015
16	16	32	92	4	11-058-005	11-058-T005	11-058-C005	11-058-G005
18	16	32	92	4	11-058-016	11-058-T016	11-058-C016	11-058-G016
20	20	38	104	4	11-058-006	11-058-T006	11-058-C006	11-058-G006
22	20	38	104	4	11-058-017	11-058-T017	11-058-C017	11-058-G017
24	25	45	121	4	11-058-018	11-058-T018	11-058-C018	11-058-G018
25	25	45	121	4	11-058-019	11-058-T019	11-058-C019	11-058-G019



LONG LENGTH, CENTER CUTTING, WELDON SHANK, DIN844

SIZE H10	SHANK DIA.H6	FLUTE LENGTH	OVERALL LENGTH	FLUTE NO.	HSS	HSS TIN	HSSCO5	HSSCO8 TIALN
3	6	12	56	4	11-058-020	11-058-T020	11-058-C20	11-058-G020
4	6	19	63	4	11-058-021	11-058-T021	11-058-C21	11-058-G021
5	6	24	68	4	11-058-022	11-058-T022	11-058-C22	11-058-G022
6	6	24	68	4	11-058-023	11-058-T023	11-058-C23	11-058-G023
8	10	38	88	4	11-058-024	11-058-T024	11-058-C24	11-058-G024
10	10	45	95	4	11-058-007	11-058-T007	11-058-C007	11-058-G007
12	12	53	110	4	11-058-008	11-058-T008	11-058-C008	11-058-G008
14	12	53	110	4	11-058-025	11-058-T025	11-058-C025	11-058-G025
16	16	63	123	4	11-058-009	11-058-T009	11-058-C009	11-058-G009
18	16	63	123	4	11-058-026	11-058-T026	11-058-C026	11-058-G026
20	20	75	141	4	11-058-010	11-058-T010	11-058-C010	11-058-G010
22	20	75	141	4	11-028-027	11-058-T027	11-058-C027	11-058-G027
24	25	90	166	4	11-028-028	11-058-T028	11-058-C028	11-058-G028
25	25	90	166	4	11-028-029	11-058-T029	11-058-C029	11-058-G029

## HSS TAPERED END MILLS WITH STRAIGHT SHANK



ANGLE a	MIN DIA	FLUTE LENGTH	OAL	SHANK DIA H6	HSS	HSS TIN	HSSCO5	HSSCO8 TIALN
1°	8	50	95	10	11-060-001	11-060-T001	11-060-C001	11-060-G001
2°	8	50	95	10	11-060-002	11-060-T002	11-060-C002	11-060-G002
3°	8	50	95	12	11-060-003	11-060-T003	11-060-C003	11-060-G003
4°	8	50	95	16	11-060-004	11-060-T004	11-060-C004	11-060-G004
5°	8	50	95	16	11-060-005	11-060-T005	11-060-C005	11-060-G005
6°	8	50	95	16	11-060-006	11-060-T006	11-060-C006	11-060-G006
1°	10	60	105	12	11-060-007	11-060-T007	11-060-C007	11-060-G007
2°	10	60	105	12	11-060-008	11-060-T008	11-060-C008	11-060-G008
3°	10	60	105	16	11-060-009	11-060-T009	11-060-C009	11-060-G009
4°	10	60	105	16	11-060-010	11-060-T010	11-060-C010	11-060-G010
5°	10	60	120	20	11-060-011	11-060-T011	11-060-C011	11-060-G011
6°	10	60	120	20	11-060-012	11-060-T012	11-060-C012	11-060-G012
1°	12	60	105	12	11-060-013	11-060-T013	11-060-C013	11-060-G013
2°	12	60	105	16	11-060-014	11-060-T014	11-060-C014	11-060-G014
3°	12	60	105	16	11-060-015	11-060-T015	11-060-C015	11-060-G015
4°	12	60	105	20	11-060-016	11-060-T016	11-060-C016	11-060-G016
5°	12	60	120	20	11-060-017	11-060-T017	11-060-C017	11-060-G017
6°	12	60	125	25	11-060-018	11-060-T018	11-060-C018	11-060-G018
2°	16	60	120	20	11-060-019	11-060-T019	11-060-C019	11-060-G019
3°	16	60	120	20	11-060-020	11-060-T020	11-060-C020	11-060-G020
4°	16	60	125	25	11-060-021	11-060-T021	11-060-C021	11-060-G021
5°	16	60	125	25	11-060-022	11-060-T022	11-060-C022	11-060-G022

## HSS TAPERED BALL NOSE END MILLS



ANGLE a/2	RADIUS	FLUTE LENGTH	OAL	MIN DIA	HSS	HSS TIN	HSSCO5	HSSCO8 TIALN
4°	1.5	60	200	10	11-203-001	11-203-T001	11-203-C001	11-203-G001
4°	2	50	200	10	11-203-002	11-203-T002	11-203-C002	11-203-G002
4°	2.5	38	200	10	11-203-003	11-203-T003	11-203-C003	11-203-G003
4°	3	46	200	12	11-203-004	11-203-T004	11-203-C004	11-203-G004
4°	4	47	200	14	11-203-005	11-203-T005	11-203-C005	11-203-G005
4°	6	63	200	20	11-203-006	11-203-T006	11-203-C006	11-203-G006

## HSS TAPER SHANK END MILLS



DIN 845

SIZE H10	MORSE TAPER	FLUTE LENGTH	OVERALL LENGTH	FLUTE NO.	HSS	HSS TIN	HSS-CO5	HSS-CO8 TIALN
10	1	22	92	4	11-061-001	11-061-T001	11-060-C001	11-061-G001
12	1	26	96	4	11-061-002	11-061-T002	11-060-C002	11-061-G002
14	2	26	111	4	11-061-003	11-061-T003	11-060-C003	11-061-G003
16	2	32	117	4	11-061-004	11-061-T004	11-060-C004	11-061-G004
18	2	32	117	4	11-061-005	11-061-T005	11-060-C005	11-061-G005
20	2	38	123	4	11-061-006	11-061-T006	11-060-C006	11-061-G006
22	2	38	140	6	11-061-007	11-061-T007	11-060-C007	11-061-G007
24	3	45	147	6	11-061-008	11-061-T008	11-060-C008	11-061-G008
25	3	45	147	6	11-061-009	11-061-T009	11-060-C009	11-061-G009
26	3	45	147	6	11-061-010	11-061-T010	11-060-C010	11-061-G010
28	3	45	147	6	11-061-011	11-061-T011	11-060-C011	11-061-G011
30	3	45	147	6	11-061-012	11-061-T012	11-060-C012	11-061-G012
32	4	53	178	6	11-061-013	11-061-T013	11-060-C013	11-061-G013
36	4	53	178	6	11-061-014	11-061-T014	11-060-C014	11-061-G014
40	4	63	188	6	11-061-015	11-061-T015	11-060-C015	11-061-G015
50	5	75	233	6	11-061-016	11-061-T016	11-060-C016	11-061-G016

## HSS ROUGHING END MILLS



REGULAR LENGTH, WELDON SHANK, DIN844

SIZE JS14	SHANK DIA.H6	FLUTE LENGTH	OVERALL LENGTH	FLUTE NO.	HSS	HSS TIN	HSS-CO5	HSS-CO8 TIN	HSS-CO8 TIALN
6	6	13	57	4	11-062-001	11-062-T001	11-062-C001	11-062-G001	11-062-N001
7	10	16	66	4	11-062-002	11-062-T002	11-062-C002	11-062-G002	11-062-N002
8	10	19	69	4	11-062-003	11-062-T003	11-062-C003	11-062-G003	11-062-N003
9	10	19	69	4	11-062-004	11-062-T004	11-062-C004	11-062-G004	11-062-N004
10	10	22	72	4	11-062-005	11-062-T005	11-062-C005	11-062-G005	11-062-N005
11	12	22	79	4	11-062-006	11-062-T006	11-062-C006	11-062-G006	11-062-N006
12	12	26	83	4	11-062-007	11-062-T007	11-062-C007	11-062-G007	11-062-N007
14	12	26	83	4	11-062-008	11-062-T008	11-062-C008	11-062-G008	11-062-N008
16	16	32	92	4	11-062-009	11-062-T009	11-062-C009	11-062-G009	11-062-N009
18	16	32	92	4	11-062-010	11-062-T010	11-062-C010	11-062-G010	11-062-N010
20	20	38	104	4	11-062-011	11-062-T011	11-062-C011	11-062-G011	11-062-N011
22	20	38	104	4	11-062-012	11-062-T012	11-062-C012	11-062-G012	11-062-N012
25	25	45	121	4	11-062-013	11-062-T013	11-062-C013	11-062-G013	11-062-N013
28	25	45	121	6	11-062-014	11-062-T014	11-062-C014	11-062-G014	11-062-N014
30	25	45	121	6	11-062-015	11-062-T015	11-062-C015	11-062-G015	11-062-N015
32	32	53	133	6	11-062-016	11-062-T016	11-062-C016	11-062-G016	11-062-N016
36	32	53	133	6	11-062-017	11-062-T017	11-062-C017	11-062-G017	11-062-N017
40	40	63	155	6	11-062-018	11-062-T018	11-062-C018	11-062-G018	11-062-N018
45	40	63	155	6	11-062-019	11-062-T019	11-062-C019	11-062-G019	11-062-N019
50	50	75	177	6	11-062-020	11-062-T020	11-062-C020	11-062-G020	11-062-N020



LONG LENGTH, WELDON SHANK, DIN844

SIZE JS14	SHANK DIA.H6	FLUTE LENGTH	OVERALL LENGTH	FLUTE NO.	HSS	HSS TIN	HSS-CO5	HSS-CO8 TIN	HSS-CO8 TIALN
6	6	24	68	4	11-062-023	11-062-T023	11-062-C023	11-062-G023	11-062-N023
7	10	30	80	4	11-062-024	11-062-T024	11-062-C024	11-062-G024	11-062-N024
8	10	38	88	4	11-062-025	11-062-T025	11-062-C025	11-062-G025	11-062-N025
9	10	38	88	4	11-062-026	11-062-T026	11-062-C026	11-062-G026	11-062-N026
10	10	45	95	4	11-062-027	11-062-T027	11-062-C027	11-062-G027	11-062-N027
11	12	45	102	4	11-062-028	11-062-T028	11-062-C028	11-062-G028	11-062-N028
12	12	53	110	4	11-062-029	11-062-T029	11-062-C029	11-062-G029	11-062-N029
14	12	53	110	4	11-062-030	11-062-T030	11-062-C030	11-062-G030	11-062-N030
16	16	63	123	4	11-062-031	11-062-T031	11-062-C031	11-062-G031	11-062-N031
18	16	63	123	4	11-062-032	11-062-T032	11-062-C032	11-062-G032	11-062-N032
20	20	75	141	4	11-062-033	11-062-T033	11-062-C033	11-062-G033	11-062-N033
22	20	75	141	4	11-062-034	11-062-T034	11-062-C034	11-062-G034	11-062-N034
25	25	90	166	4	11-062-035	11-062-T035	11-062-C035	11-062-G035	11-062-N035
28	25	90	166	6	11-062-036	11-062-T036	11-062-C036	11-062-G036	11-062-N036
30	25	90	166	6	11-062-037	11-062-T037	11-062-C037	11-062-G037	11-062-N037
32	32	106	186	6	11-062-038	11-062-T038	11-062-C038	11-062-G038	11-062-N038
36	32	106	186	6	11-062-039	11-062-T039	11-062-C039	11-062-G039	11-062-N039
40	40	125	217	6	11-062-040	11-062-T040	11-062-C040	11-062-G040	11-062-N040
45	40	125	217	6	11-062-041	11-062-T041	11-062-C041	11-062-G041	11-062-N041
50	50	150	252	6	11-062-042	11-062-T042	11-062-C042	11-062-G042	11-062-N042

## HSS ROUGHING END MILLS SET

SIZE	SPECIFICATION
7 PCS/SET	4F:6/8/10/12/14/16/20mm
11-062-S01	HSS-TIN
11-062-S02	HSS



## HSS-CO8 ROUGHING END MILLS SET

SIZE	SPECIFICATION
10 PCS/SET	4F:6/8/10/12/14/16/18/20/22/25 mm
11-062-S03	HSS-CO8 TIN
11-062-S04	HSS-CO8



### HSS ROUGHING END MILLS



REGULAR LENGTH, CENTER CUTTING, WELDON SHANK, ANSI B94

SIZE IN	SHANK DIA.	FLUTE LENGTH	OVERALL LENGTH	FLUTE NO.	HSS	HSS TIN	HSS-CO5	HSS-CO8 TIALN
1/4	3/8	5/8	2-7/16	4	12-062-001	12-062-T001	12-062-C001	12-062-G001
5/16	3/8	3/4	2-1/2	4	12-062-002	12-062-T002	12-062-C002	12-062-G002
3/8	3/8	3/4	2-1/2	4	12-062-003	12-062-T003	12-062-C003	12-062-G003
1/2	1/2	1-1/4	3-1/4	4	12-062-004	12-062-T004	12-062-C004	12-062-G004
5/8	5/8	1-5/8	3-3/4	4	12-062-005	12-062-T005	12-062-C005	12-062-G005
3/4	5/8	1-5/8	3-3/4	4	12-062-006	12-062-T006	12-062-C006	12-062-G006
3/4	3/4	1-5/8	3-7/8	4	12-062-007	12-062-T007	12-062-C007	12-062-G007
7/8	3/4	1-7/8	4-1/8	4	12-062-008	12-062-T008	12-062-C008	12-062-G008
7/8	7/8	1-7/8	4-1/8	4	12-062-009	12-062-T009	12-062-C009	12-062-G009
1	3/4	2	4-1/4	4	12-062-010	12-062-T010	12-062-C010	12-062-G010
1	1	2	4-1/2	4	12-062-011	12-062-T011	12-062-C011	12-062-G011
1-1/8	1	2	4-1/2	5	12-062-012	12-062-T012	12-062-C012	12-062-G012
1-1/4	1	2	4-1/2	5	12-062-013	12-062-T013	12-062-C013	12-062-G013
1-1/4	1-1/4	2	4-1/2	5	12-062-014	12-062-T014	12-062-C014	12-062-G014
1-1/2	1-1/4	2	4-1/2	6	12-062-015	12-062-T015	12-062-C015	12-062-G015
1-3/4	1-1/4	2	4-1/2	6	12-062-016	12-062-T016	12-062-C016	12-062-G016
2	1-1/4	2	4-1/2	6	12-062-017	12-062-T017	12-062-C017	12-062-G017
2	2	2	5-3/4	6	12-062-018	12-062-T018	12-062-C018	12-062-G018



LONG LENGTH, CENTER CUTTING, WELDON SHANK, ANSI B94

SIZE IN	SHANK DIA.	FLUTE LENGTH	OVERALL LENGTH	FLUTE NO.	HSS	HSS TIN	HSS-CO5	HSS-CO8 TIALN
1/4	3/8	1-1/4	3-1/16	4	12-062-020	12-062-T020	12-062-C020	12-062-G020
5/16	3/8	1-3/8	3-1/8	4	12-062-021	12-062-T021	12-062-C021	12-062-G021
3/8	3/8	1-1/2	3-1/4	4	12-062-022	12-062-T022	12-062-C022	12-062-G022
1/2	1/2	2	4	4	12-062-023	12-062-T023	12-062-C023	12-062-G023
5/8	5/8	2-1/2	4-5/8	4	12-062-024	12-062-T024	12-062-C024	12-062-G024
3/4	5/8	3	5-1/8	4	12-062-025	12-062-T025	12-062-C025	12-062-G025
3/4	3/4	3	5-1/4	4	12-062-026	12-062-T026	12-062-C026	12-062-G026
7/8	3/4	3-1/2	5-3/4	4	12-062-027	12-062-T027	12-062-C027	12-062-G027
7/8	7/8	3-1/2	5-3/4	4	12-062-028	12-062-T028	12-062-C028	12-062-G028
1	1	4	6-1/2	4	12-062-029	12-062-T029	12-062-C029	12-062-G029
1-1/4	3/4	4	6-1/4	5	12-062-030	12-062-T030	12-062-C030	12-062-G030
1-1/4	1-1/4	3	5-1/2	5	12-062-031	12-062-T031	12-062-C031	12-062-G031
1-1/4	1-1/4	4	6-1/2	5	12-062-032	12-062-T032	12-062-C032	12-062-G032
1-1/2	3/4	4	6-1/4	6	12-062-033	12-062-T033	12-062-C033	12-062-G033
1-1/2	1-1/4	3	5-1/2	6	12-062-034	12-062-T034	12-062-C034	12-062-G034
1-1/2	1-1/4	4	6-1/2	6	12-062-035	12-062-T035	12-062-C035	12-062-G035
1-1/2	1-1/4	5	7-1/2	6	12-062-036	12-062-T036	12-062-C036	12-062-G036
1-3/4	1-1/4	4	6-1/2	6	12-062-037	12-062-T037	12-062-C037	12-062-G037
2	1-1/4	4	6-1/2	6	12-062-038	12-062-T038	12-062-C038	12-062-G038
2	2	4	7-3/4	6	12-062-039	12-062-T039	12-062-C039	12-062-G039
2	1-1/4	4	6-1/2	8	12-062-040	12-062-T040	12-062-C040	12-062-G040

### HSSCO8 ROUGHING END MILLS SET

SIZE	SPECIFICATION
4 PCS/SET	4F:1/2x1/2", 5/8x5/8", 3/4x3/4", 1x3/4"
12-062-S01	HSS-CO8-TIN
12-062-S02	HSS-CO8



### HSS TAPER SHANK ROUGHING END MILLS



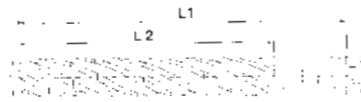
REGULAR LENGTH, DIN 845

SIZE H10	MORSE TAPER	FLUTE LENGTH	OVERALL LENGTH	FLUTE NO.	HSS	HSS TIN	HSS-CO5	HSS-CO8 TIALN
10	1	22	92	4	11-063-001	11-063-T001	11-063-C001	11-063-G001
11	1	22	92	4	11-063-002	11-063-T002	11-063-C002	11-063-G002
12	1	26	96	4	11-063-003	11-063-T003	11-063-C003	11-063-G003
14	2	26	111	4	11-063-004	11-063-T004	11-063-C004	11-063-G004
16	2	32	117	4	11-063-005	11-063-T005	11-063-C005	11-063-G005
18	2	32	117	4	11-063-006	11-063-T006	11-063-C006	11-063-G006
20	2	38	123	4	11-063-007	11-063-T007	11-063-C007	11-063-G007
22	3	38	140	4	11-063-008	11-063-T008	11-063-C008	11-063-G008
25	3	45	147	4	11-063-009	11-063-T009	11-063-C009	11-063-G009
28	3	45	147	6	11-063-010	11-063-T010	11-063-C010	11-063-G010
32	3	53	155	6	11-063-011	11-063-T011	11-063-C011	11-063-G011
32	4	53	178	6	11-063-012	11-063-T012	11-063-C012	11-063-G012
36	3	53	155	6	11-063-013	11-063-T013	11-063-C013	11-063-G013
36	4	53	178	6	11-063-014	11-063-T014	11-063-C014	11-063-G014
40	4	63	188	6	11-063-015	11-063-T015	11-063-C015	11-063-G015
40	5	63	221	6	11-063-016	11-063-T016	11-063-C016	11-063-G016
45	4	63	188	6	11-063-017	11-063-T017	11-063-C017	11-063-G017
45	5	63	221	6	11-063-018	11-063-T018	11-063-C018	11-063-G018
50	4	75	200	6	11-063-019	11-063-T019	11-063-C019	11-063-G019
50	5	75	233	6	11-063-020	11-063-T020	11-063-C020	11-063-G020
56	4	75	200	8	11-063-021	11-063-T021	11-063-C021	11-063-G021
56	5	75	233	8	11-063-022	11-063-T022	11-063-C022	11-063-G022
63	5	90	248	8	11-063-023	11-063-T023	11-063-C023	11-063-G023

LONG LENGTH, DIN 845

SIZE H10	MORSE TAPER	FLUTE LENGTH	OVERALL LENGTH	FLUTE NO.	HSS	HSS TIN	HSS-CO5	HSS-CO8 TIALN
10	1	45	115	4	11-063-024	11-063-T024	11-063-C024	11-063-G024
11	1	45	115	4	11-063-025	11-063-T025	11-063-C025	11-063-G025
12	1	53	123	4	11-063-026	11-063-T026	11-063-C026	11-063-G026
14	2	53	138	4	11-063-027	11-063-T027	11-063-C027	11-063-G027
16	2	63	148	4	11-063-028	11-063-T028	11-063-C028	11-063-G028
18	2	63	148	4	11-063-029	11-063-T029	11-063-C029	11-063-G029
20	2	75	160	4	11-063-030	11-063-T030	11-063-C030	11-063-G030
22	3	75	177	4	11-063-031	11-063-T031	11-063-C031	11-063-G031
25	3	90	192	4	11-063-032	11-063-T032	11-063-C032	11-063-G032
28	3	90	192	6	11-063-033	11-063-T033	11-063-C033	11-063-G033
32	3	106	208	6	11-063-034	11-063-T034	11-063-C034	11-063-G034
32	4	106	231	6	11-063-035	11-063-T035	11-063-C035	11-063-G035
36	3	106	208	6	11-063-036	11-063-T036	11-063-C036	11-063-G036
36	4	106	231	6	11-063-037	11-063-T037	11-063-C037	11-063-G037
40	4	125	250	6	11-063-038	11-063-T038	11-063-C038	11-063-G038
40	5	125	283	6	11-063-039	11-063-T039	11-063-C039	11-063-G039
45	4	125	250	6	11-063-040	11-063-T040	11-063-C040	11-063-G040
45	5	125	283	6	11-063-041	11-063-T041	11-063-C041	11-063-G041
50	4	150	275	6	11-063-042	11-063-T042	11-063-C042	11-063-G042
50	5	150	308	6	11-063-043	11-063-T043	11-063-C043	11-063-G043
56	4	150	275	8	11-063-044	11-063-T044	11-063-C044	11-063-G044
56	5	150	308	8	11-063-045	11-063-T045	11-063-C045	11-063-G045
63	5	180	338	8	11-063-046	11-063-T046	11-063-C046	11-063-G046

## HEAVY DUTY HSS-CO8 COARSE PITCH ROUGHING END MILLS



### REGULAR LENGTH

SIZE IN	SHANK DIA.(D1)	FLUTE LENGTH(L2)	OVERALL LENGTH(L1)	FLUTE NO.	HSS-CO8
2	2	2	5-3/4	6	12-204-001
2	2	2	5-3/4	8	12-204-002
2-1/2	2-1/2	2	5-3/4	6	12-204-003
2-1/2	2-1/2	2	5-3/4	8	12-204-004

### LONG LENGTH

SIZE IN	SHANK DIA.(D1)	FLUTE LENGTH(L2)	OVERALL LENGTH(L1)	FLUTE NO.	HSS-CO8
2	2	3	6-3/4	6	12-204-005
2	2	4	7-3/4	6	12-204-006
2	2	5	8-3/4	6	12-204-007
2	2	6	9-3/4	6	12-204-008
2	2	3	6-3/4	8	12-204-009
2	2	4	7-3/4	8	12-204-010
2	2	5	8-3/4	8	12-204-011
2	2	6	9-3/4	8	12-204-012
2-1/2	2-1/2	3	6-3/4	6	12-204-013
2-1/2	2-1/2	4	7-3/4	6	12-204-014
2-1/2	2-1/2	5	8-3/4	6	12-204-015
2-1/2	2-1/2	6	9-3/4	6	12-204-016
2-1/2	2-1/2	3	6-3/4	8	12-204-017
2-1/2	2-1/2	4	7-3/4	8	12-204-018
2-1/2	2-1/2	5	8-3/4	8	12-204-019
2-1/2	2-1/2	6	9-3/4	8	12-204-020

### EXTRA LONG LENGTH

SIZE IN	SHANK DIA.(D1)	FLUTE LENGTH(L2)	OVERALL LENGTH(L1)	FLUTE NO.	HSS-CO8
2	2	7	10-3/4	6	12-204-021
2	2	8	11-3/4	6	12-204-022
2	2	10	13-3/4	6	12-204-023
2	2	12	15-3/4	6	12-204-024
2	2	7	10-3/4	8	12-204-025
2	2	8	11-3/4	8	12-204-026
2	2	10	13-3/4	8	12-204-027
2	2	12	15-3/4	8	12-204-028
2-1/2	2-1/2	7	10-3/4	6	12-204-029
2-1/2	2-1/2	8	11-3/4	6	12-204-030
2-1/2	2-1/2	10	13-3/4	6	12-204-031
2-1/2	2-1/2	12	15-3/4	6	12-204-032
2-1/2	2-1/2	7	10-3/4	8	12-204-033
2-1/2	2-1/2	8	11-3/4	8	12-204-034
2-1/2	2-1/2	10	13-3/4	8	12-204-035
2-1/2	2-1/2	12	15-3/4	8	12-204-036

## HSS 3/4" SHANK STUB LENGTH ROUGHING END MILLS



SIZE IN	FLUTE LENGTH	OVERALL LENGTH	FLUTE NO.	HSS	HSS-CO8
1	1-1/8	3-3/8	6	12-205-001	12-205-C001
1-1/8	1-1/8	3-3/8	6	12-205-002	12-205-C002
1-1/4	1-1/8	3-3/8	6	12-205-003	12-205-C003
1-5/16	1-1/8	3-3/8	6	12-205-004	12-205-C004
1-3/8	1-1/8	3-3/8	6	12-205-005	12-205-C005
1-1/2	1-1/8	3-3/8	6	12-205-006	12-205-C006
1-5/8	1-1/8	3-3/8	6	12-205-007	12-205-C007
1-3/4	1-1/8	3-3/8	6	12-205-008	12-205-C008
2	1-1/8	3-3/8	6	12-205-009	12-205-C009

## HSS T TYPE ROUGHING END MILLS



DIN851B

SIZE MM	SHANK DIA.	THICKNESS	OVERALL LENGTH	FLUTE NO.	HSS	HSS-CO5
18	12	8	70	4	11-206-001	11-206-C001
19	12	9	70	4	11-206-002	11-206-C002
21	12	9	74	5	11-206-003	11-206-C003
22	12	10	74	5	11-206-004	11-206-C004
25	16	11	82	5	11-206-005	11-206-C005

## HSS BALL ROUGHING END MILLS



REGULAR LENGTH, CENTERCUTTING, WELDON SHANK, DIN844

SIZE MM	SHANK DIA.	FLUTE LENGTH	OVERALL LENGTH	FLUTE NO.	HSS	HSS TIN	HSS-CO5	HSS-CO8 TIALN
6	6	13	57	4	11-065-001	11-065-T001	11-065-C001	11-065-G001
7	10	16	66	4	11-065-002	11-065-T002	11-065-C002	11-065-G002
8	10	19	69	4	11-065-003	11-065-T003	11-065-C003	11-065-G003
9	10	19	69	4	11-065-004	11-065-T004	11-065-C004	11-065-G004
10	10	22	72	4	11-065-005	11-065-T005	11-065-C005	11-065-G005
11	12	22	79	4	11-065-006	11-065-T006	11-065-C006	11-065-G006
12	12	26	83	4	11-065-007	11-065-T007	11-065-C007	11-065-G007
14	12	26	83	4	11-065-008	11-065-T008	11-065-C008	11-065-G008
16	16	32	92	4	11-065-009	11-065-T009	11-065-C009	11-065-G009
18	16	32	92	4	11-065-010	11-065-T010	11-065-C010	11-065-G010
20	20	38	104	4	11-065-011	11-065-T011	11-065-C011	11-065-G011
22	20	38	104	4	11-065-012	11-065-T012	11-065-C012	11-065-G012
25	25	45	121	4	11-065-013	11-065-T013	11-065-C013	11-065-G013
30	25	45	121	4	11-065-014	11-065-T014	11-065-C014	11-065-G014



## HSS BALL ROUGHING END MILLS



LONG LENGTH, CENTER CUTTING, WELDON SHANK, DIN844

SIZE MM	SHANK DIA.	FLUTE LENGTH	OVERALL LENGTH	FLUTE NO.	HSS	HSS TIN	HSS-CO5	HSS-CO8 TIALN
6	6	24	68	4	11-065-015	11-065-T015	11-065-C015	11-065-G015
7	10	30	80	4	11-065-016	11-065-T016	11-065-C016	11-065-G016
8	10	38	88	4	11-065-017	11-065-T017	11-065-C017	11-065-G017
9	10	38	88	4	11-065-018	11-065-T018	11-065-C018	11-065-G018
10	10	45	95	4	11-065-019	11-065-T019	11-065-C019	11-065-G019
11	12	45	102	4	11-065-020	11-065-T020	11-065-C020	11-065-G020
12	12	53	110	4	11-065-021	11-065-T021	11-065-C021	11-065-G021
14	12	53	110	4	11-065-022	11-065-T022	11-065-C022	11-065-G022
16	16	63	123	4	11-065-023	11-065-T023	11-065-C023	11-065-G023
18	16	63	123	4	11-065-024	11-065-T024	11-065-C024	11-065-G024
20	20	75	141	4	11-065-025	11-065-T025	11-065-C025	11-065-G025
22	20	75	141	4	11-065-026	11-065-T026	11-065-C026	11-065-G026
25	25	90	166	4	11-065-027	11-065-T027	11-065-C027	11-065-G027
30	25	90	166	4	11-065-028	11-065-T028	11-065-C028	11-065-G028



REGULAR LENGTH, CENTER CUTTING, WELDON SHANK, ANSI B94

SIZE IN	SHANK DIA.	FLUTE LENGTH	OVERALL LENGTH	FLUTE NO.	HSS	HSS TIN	HSS-CO5	HSSCO8 TIN	HSS-CO8 TIALN
1/4	3/8	5/8	2-7/16	4	12-065-001	12-065-T001	12-065-C001	12-065-G001	12-207-001
5/16	3/8	3/4	2-1/2	4	12-065-002	12-065-T002	12-065-C002	12-065-G002	12-207-002
3/8	3/8	3/4	2-1/2	4	12-065-003	12-065-T003	12-065-C003	12-065-G003	12-207-003
1/2	1/2	1-1/4	3-1/4	4	12-065-004	12-065-T004	12-065-C004	12-065-G004	12-207-004
1/2	1/2	2-1/2	4-1/2	4	12-065-005	12-065-T005	12-065-C005	12-065-G005	12-207-005
5/8	5/8	1-5/8	3-3/4	4	12-065-006	12-065-T006	12-065-C006	12-065-G006	12-207-006
5/8	5/8	2-1/2	4-5/8	4	12-065-007	12-065-T007	12-065-C007	12-065-G007	12-207-007
3/4	3/4	1-3/4	4	4	12-065-008	12-065-T008	12-065-C008	12-065-G008	12-207-008
3/4	3/4	3	5-1/4	4	12-065-009	12-065-T009	12-065-C009	12-065-G009	12-207-009
1	3/4	2	4-1/2	4	12-065-010	12-065-T010	12-065-C010	12-065-G010	12-207-010
1	1	2	4-1/2	4	12-065-011	12-065-T011	12-065-C011	12-065-G011	12-207-011
1	1	4	6-1/2	6	12-065-012	12-065-T012	12-065-C012	12-065-G012	12-207-012
1-1/4	3/4	2	4-1/2	6	12-065-013	12-065-T013	12-065-C013	12-065-G013	12-207-013
1-1/4	1-1/4	2	4-1/2	6	12-065-014	12-065-T014	12-065-C014	12-065-G014	12-207-014
1-1/4	1-1/4	4	6-1/2	6	12-065-015	12-065-T015	12-065-C015	12-065-G015	12-207-015
1-1/2	3/4	2	4-1/2	6	12-065-016	12-065-T016	12-065-C016	12-065-G016	12-207-016
1-1/2	1-1/4	2	4-1/2	6	12-065-017	12-065-T017	12-065-C017	12-065-G017	12-207-017
1-1/2	1-1/4	4	6-1/2	6	12-065-018	12-065-T018	12-065-C018	12-065-G018	12-207-018
2	2	4	7-3/4	8	12-065-019	12-065-T019	12-065-C019	12-065-G019	12-207-019
2	2	6	9-3/4	8	12-065-020	12-065-T020	12-065-C020	12-065-G020	12-207-020

## SOLID CARBIDE END MILLS



FOUR FLUTE, SHORT SERIES, DIN6527K

SIZE H10	SHANK DIA.H6	FLUTE LENGTH	OVERALL LENGTH	FLUTE NO.	CARBIDE	CARBIDE TIALN
2	6	4	50	4	11-186-001	11-186-B001
3	6	5	50	4	11-186-002	11-186-B002
4	6	8	54	4	11-186-003	11-186-B003
5	6	9	54	4	11-186-004	11-186-B004
6	6	10	54	4	11-186-005	11-186-B005
8	8	12	58	4	11-186-006	11-186-B006
10	10	14	66	4	11-186-007	11-186-B007
12	12	16	73	4	11-186-008	11-186-B008
14	14	18	75	4	11-186-009	11-186-B009
16	16	22	82	4	11-186-010	11-186-B010
18	18	24	84	4	11-186-011	11-186-B011
20	20	26	92	4	11-186-012	11-186-B012



FOUR FLUTE, LONG SERIES, DIN6527L

SIZE H10	SHANK DIA.H6	FLUTE LENGTH	OVERALL LENGTH	FLUTE NO.	CARBIDE	CARBIDE TIALN
2	6	7	57	4	11-186-013	11-186-B013
3	6	8	57	4	11-186-014	11-186-B014
4	6	11	57	4	11-186-015	11-186-B015
5	6	13	57	4	11-186-016	11-186-B016
6	6	13	57	4	11-186-017	11-186-B017
8	8	19	63	4	11-186-018	11-186-B018
10	10	22	72	4	11-186-019	11-186-B019
12	12	26	83	4	11-186-020	11-186-B020
14	14	26	83	4	11-186-021	11-186-B021
16	16	32	92	4	11-186-022	11-186-B022
18	18	32	92	4	11-186-023	11-186-B023
20	20	38	104	4	11-186-024	11-186-B024



FOUR FLUTE, EXTRA LONG SERIES, NORMA

SIZE H10	SHANK DIA.H6	FLUTE LENGTH	OVERALL LENGTH	FLUTE NO.	CARBIDE	CARBIDE TIALN
10	10	40	100	4	11-186-025	11-186-B025
12	12	45	150	4	11-186-026	11-186-B026
14	14	45	150	4	11-186-027	11-186-B027
16	16	65	150	4	11-186-028	11-186-B028
18	18	65	150	4	11-186-029	11-186-B029
20	20	65	150	4	11-186-030	11-186-B030

### SOLID CARBIDE END MILLS



FOUR FLUTE, DIN6528

SIZE H10	SHANK DIA.H6	FLUTE LENGTH	OVERALL LENGTH	FLUTE NO.	CARBIDE	CARBIDE TIALN
2	2	5	32	4	11-186-031	11-186-B031
3	3	7	38	4	11-186-032	11-186-B032
4	4	11	50	4	11-186-033	11-186-B033
5	5	13	50	4	11-186-034	11-186-B034
6	6	13	57	4	11-186-035	11-186-B035
8	8	19	63	4	11-186-036	11-186-B036
10	10	22	72	4	11-186-037	11-186-B037
12	12	26	83	4	11-186-038	11-186-B038
14	14	26	83	4	11-186-039	11-186-B039
16	16	32	92	4	11-186-040	11-186-B040
18	18	32	92	4	11-186-041	11-186-B041
20	20	38	104	4	11-186-042	11-186-B042



TWO FLUTE, SHORT SERIES, DIN6527K

SIZE H10	SHANK DIA.H6	FLUTE LENGTH	OVERALL LENGTH	FLUTE NO.	CARBIDE	CARBIDE TIALN
2	6	3	50	2	11-198-001	11-198-B001
3	6	4	50	2	11-198-002	11-198-B002
4	6	5	54	2	11-198-003	11-198-B003
5	6	6	54	2	11-198-004	11-198-B004
6	6	7	54	2	11-198-005	11-198-B005
8	8	9	58	2	11-198-006	11-198-B006
10	10	11	66	2	11-198-007	11-198-B007
12	12	12	73	2	11-198-008	11-198-B008
14	14	14	75	2	11-198-009	11-198-B009
16	16	16	82	2	11-198-010	11-198-B010
18	18	18	84	2	11-198-011	11-198-B011
20	20	20	92	2	11-198-012	11-198-B012



TWO FLUTE, LONG SERIES, DIN6527L

SIZE H10	SHANK DIA.H6	FLUTE LENGTH	OVERALL LENGTH	FLUTE NO.	CARBIDE	CARBIDE TIALN
2	6	6	57	2	11-198-013	11-198-B013
3	6	7	57	2	11-198-014	11-198-B014
4	6	8	57	2	11-198-015	11-198-B015
5	6	10	57	2	11-198-016	11-198-B016
6	6	10	57	2	11-198-017	11-198-B017
8	8	16	63	2	11-198-018	11-198-B018
10	10	19	72	2	11-198-019	11-198-B019
12	12	22	83	2	11-198-020	11-198-B020
14	14	22	83	2	11-198-021	11-198-B021
16	16	26	92	2	11-198-022	11-198-B022
18	18	26	92	2	11-198-023	11-198-B023
20	20	32	104	2	11-198-024	11-198-B024



TWO FLUTE, LONG SERIES, DIN6527L

SIZE H10	SHANK DIA.H6	FLUTE LENGTH	OVERALL LENGTH	FLUTE NO.	CARBIDE	CARBIDE TIALN
3	3	20	75	2	11-198-025	11-198-B025
4	4	25	75	2	11-198-026	11-198-B026
5	5	30	75	2	11-198-027	11-198-B027
6	6	30	75	2	11-198-028	11-198-B028
8	8	40	100	2	11-198-029	11-198-B029
10	10	40	100	2	11-198-030	11-198-B030
12	12	45	150	2	11-198-031	11-198-B031
14	14	45	150	2	11-198-032	11-198-B032
16	16	65	150	2	11-198-033	11-198-B033
18	18	65	150	2	11-198-034	11-198-B034
20	20	65	150	2	11-198-035	11-198-B035

TWO FLUTE, DIN6528

SIZE H10	SHANK DIA.H6	FLUTE LENGTH	OVERALL LENGTH	FLUTE NO.	CARBIDE	CARBIDE TIALN
2	2	5	32	2	11-198-036	11-198-B036
3	3	7	38	2	11-198-037	11-198-B037
4	4	8	50	2	11-198-038	11-198-B038
5	5	10	50	2	11-198-039	11-198-B039
6	6	10	57	2	11-198-040	11-198-B040
8	8	16	63	2	11-198-041	11-198-B041
10	10	19	72	2	11-198-042	11-198-B042
12	12	22	83	2	11-198-043	11-198-B043
14	14	22	83	2	11-198-044	11-198-B044
16	16	26	92	2	11-198-045	11-198-B045
18	18	26	92	2	11-198-046	11-198-B046
20	20	32	104	2	11-198-047	11-198-B047

### SOLID CARBIDE BALL NOSE END MILLS



TWO FLUTE, LONG SERIES, DIN6527L

SIZE H10	SHANK DIA.H6	FLUTE LENGTH	OVERALL LENGTH	FLUTE NO.	CARBIDE	CARBIDE TIALN
2	6	6	57	2	11-201-001	11-201-B001
3	6	7	57	2	11-201-002	11-201-B002
4	6	8	57	2	11-201-003	11-201-B003
5	6	10	57	2	11-201-004	11-201-B004
6	6	10	57	2	11-201-005	11-201-B005
8	8	16	63	2	11-201-006	11-201-B006
10	10	19	72	2	11-201-007	11-201-B007
12	12	22	83	2	11-201-008	11-201-B008
14	14	22	83	2	11-201-009	11-201-B009
16	16	26	92	2	11-201-010	11-201-B010
18	18	26	92	2	11-201-011	11-201-B011
20	20	32	104	2	11-201-012	11-201-B012

TWO FLUTE, EXTRA LONG SERIES, NORMA

SIZE H10	SHANK DIA.H6	FLUTE LENGTH	OVERALL LENGTH	FLUTE NO.	CARBIDE	CARBIDE TIALN
3	3	20	75	2	11-201-013	11-201-B013
4	4	25	75	2	11-201-014	11-201-B014
5	5	30	75	2	11-201-015	11-201-B015
6	6	30	75	2	11-201-016	11-201-B016
8	8	40	100	2	11-201-017	11-201-B017
10	10	40	100	2	11-201-018	11-201-B018
12	12	45	150	2	11-201-019	11-201-B019

### SOLID CARBIDE TAPERED BALL NOSE END MILLS



ANGLE A/2	RADIUS ±0.01MM	FLUTE LENGTH	OAL	SHANK DIA.MM	CARBIDE	CARBIDE TIALN
3°	1.5	20	62	6	11-203-H001	11-203-B001
3°	2	31	80	8	11-203-H002	11-203-B002
4°	0.5	20	62	6	11-203-H003	11-203-B003
4°	1	20	62	6	11-203-H004	11-203-B004
4°	1.5	20	63	8	11-203-H005	11-203-B005
4°	2	30	72	8	11-203-H006	11-203-B006
6°	0.5	20	62	6	11-203-H007	11-203-B007
6°	1	19	62	6	11-203-H008	11-203-B008
6°	1.5	15	62	6	11-203-H009	11-203-B009
6°	1.5	25	68	8	11-203-H010	11-203-B010
6°	2	20	68	8	11-203-H011	11-203-B011
6°	2	30	80	10	11-203-H012	11-203-B012
8°	0.5	18	62	6	11-203-H013	11-203-B013
8°	1	15	62	6	11-203-H014	11-203-B014
8°	1.5	19	63	8	11-203-H015	11-203-B015
8°	2	23	72	10	11-203-H016	11-203-B016

### SOLID CARBIDE FOUR FLUTE ROUGHING END MILLS



FOUR FLUTE, LONG SERIES, DIN6527L

SIZE H10	SHANK DIA.H6	FLUTE LENGTH	OVERALL LENGTH	FLUTE NO.	CARBIDE	CARBIDE TIALN
6	6	13	57	4	11-062-H001	11-062-B001
8	8	19	63	4	11-062-H002	11-062-B002
10	10	22	72	4	11-062-H003	11-062-B003
12	12	26	83	4	11-062-H004	11-062-B004
14	14	26	83	4	11-062-H005	11-062-B005
16	16	32	92	4	11-062-H006	11-062-B006
18	18	32	92	4	11-062-H007	11-062-B007
20	20	38	104	4	11-062-H008	11-062-B008
25	25	45	121	4	11-062-H009	11-062-B009



FOUR FLUTE, EXTRA LONG SERIES, NORMA

SIZE H10	SHANK DIA.H6	FLUTE LENGTH	OVERALL LENGTH	FLUTE NO.	CARBIDE	CARBIDE TIALN
6	6	18	65	4	11-062-H010	11-062-B010
8	8	24	75	4	11-062-H011	11-062-B011
10	10	30	80	4	11-062-H012	11-062-B012
12	12	36	93	4	11-062-H013	11-062-B013
14	14	36	93	4	11-062-H014	11-062-B014
16	16	48	108	4	11-062-H015	11-062-B015
18	18	48	108	4	11-062-H016	11-062-B016
20	20	60	126	4	11-062-H017	11-062-B017

### SOLID CARBIDE BALL NOSE END MILLS



FOUR FLUTE, LONG SERIES, DIN6527L

SIZE H10	SHANK DIA.H6	FLUTE LENGTH	OVERALL LENGTH	FLUTE NO.	CARBIDE	CARBIDE TIALN
3	6	8	57	4	11-058-H001	11-058-B001
4	6	11	57	4	11-058-H002	11-058-B002
5	6	13	57	4	11-058-H003	11-058-B003
6	6	13	57	4	11-058-H004	11-058-B004
8	8	19	63	4	11-058-H005	11-058-B005
10	10	22	72	4	11-058-H006	11-058-B006
12	12	26	83	4	11-058-H007	11-058-B007
14	14	26	83	4	11-058-H008	11-058-B008
16	16	32	92	4	11-058-H009	11-058-B009
18	18	32	92	4	11-058-H010	11-058-B010
20	20	38	104	4	11-058-H011	11-058-B011



FOUR FLUTE, EXTRA LONG SERIES, NORMA

SIZE H10	SHANK DIA.H6	FLUTE LENGTH	OVERALL LENGTH	FLUTE NO.	CARBIDE	CARBIDE TIALN
3	3	20	75	4	11-058-H012	11-058-B012
4	4	25	75	4	11-058-H013	11-058-B013
5	5	30	75	4	11-058-H014	11-058-B014
6	6	30	75	4	11-058-H015	11-058-B015
8	8	40	100	4	11-058-H016	11-058-B016
10	10	40	100	4	11-058-H017	11-058-B017
12	12	45	150	4	11-058-H018	11-058-B018

FOUR FLUTE, DIN6528

SIZE H10	SHANK DIA.H6	FLUTE LENGTH	OVERALL LENGTH	FLUTE NO.	CARBIDE	CARBIDE TIALN
4	4	11	50	4	11-058-H019	11-058-B019
5	5	13	57	4	11-058-H020	11-058-B020
6	6	13	57	4	11-058-H021	11-058-B021
8	8	19	63	4	11-058-H022	11-058-B022
10	10	22	72	4	11-058-H023	11-058-B023
12	12	26	83	4	11-058-H024	11-058-B024
14	14	26	83	4	11-058-H025	11-058-B025
16	16	32	92	4	11-058-H026	11-058-B026
18	18	32	92	4	11-058-H027	11-058-B027
20	20	38	104	4	11-058-H028	11-058-B028

## SOLID CARBIDE END MILLS



FOUR FLUTE, LONG SERIES, DIN6527L

SIZE IN	SHANK DIA.	FLUTE LENGTH	OVERALL LENGTH	TWO FLUTE TIALN	FOUR FLUTE TIALN		
1/16	1/8	3/16	1-1/2	12-195-001	12-195-B001	12-192-001	12-192-B001
5/64	1/8	3/16	1-1/2	12-195-002	12-195-B002	12-192-002	12-192-B002
3/32	1/8	9/32	1-1/2	12-195-003	12-195-B003	12-192-003	12-192-B003
7/64	1/8	3/8	1-1/2	12-195-004	12-195-B004	12-192-004	12-192-B004
1/8	1/8	1/2	1-1/2	12-195-005	12-195-B005	12-192-005	12-192-B005
9/64	3/16	1/2	2	12-195-006	12-195-B006	12-192-006	12-192-B006
5/32	3/16	1/2	2	12-195-007	12-195-B007	12-192-007	12-192-B007
11/64	3/16	5/8	2	12-195-008	12-195-B008	12-192-008	12-192-B008
3/16	3/16	5/8	2	12-195-009	12-195-B009	12-192-009	12-192-B009
13/64	1/4	5/8	2-1/2	12-195-010	12-195-B010	12-192-010	12-192-B010
7/32	1/4	5/8	2-1/2	12-195-011	12-195-B011	12-192-011	12-192-B011
15/64	1/4	3/4	2-1/2	12-195-012	12-195-B012	12-192-012	12-192-B012
1/4	1/4	3/4	2-1/2	12-195-013	12-195-B013	12-192-013	12-192-B013
17/64	5/16	3/4	2-1/2	12-195-014	12-195-B014	12-192-014	12-192-B014
9/32	5/16	3/4	2-1/2	12-195-015	12-195-B015	12-192-015	12-192-B015
19/64	5/16	13/16	2-1/2	12-195-016	12-195-B016	12-192-016	12-192-B016
5/16	5/16	13/16	2-1/2	12-195-017	12-195-B017	12-192-017	12-192-B017
21/64	3/8	7/8	2-1/2	12-195-018	12-195-B018	12-192-018	12-192-B018
11/32	3/8	7/8	2-1/2	12-195-019	12-195-B019	12-192-019	12-192-B019
23/64	3/8	7/8	2-1/2	12-195-020	12-195-B020	12-192-020	12-192-B020
3/8	3/8	7/8	2-1/2	12-195-021	12-195-B021	12-192-021	12-192-B021
13/32	7/16	1	2-3/4	12-195-022	12-195-B022	12-192-022	12-192-B022
7/16	7/16	1	2-3/4	12-195-023	12-195-B023	12-192-023	12-192-B023
15/32	1/2	1	3	12-195-024	12-195-B024	12-192-024	12-192-B024
1/2	1/2	1	3	12-195-025	12-195-B025	12-192-025	12-192-B025
9/16	9/16	1-1/8	3-1/2	12-195-026	12-195-B026	12-192-026	12-192-B026
5/8	5/8	1-1/4	3-1/2	12-195-027	12-195-B027	12-192-027	12-192-B027
11/16	3/4	1-1/2	4	12-195-028	12-195-B028	12-192-028	12-192-B028
3/4	3/4	1-1/2	4	12-195-029	12-195-B029	12-192-029	12-192-B029
7/8	7/8	1-1/2	4	12-195-030	12-195-B030	12-192-030	12-192-B030
1	1	1-1/2	4	12-195-031	12-195-B031	12-192-031	12-192-B031

## SOLID CARBIDE END MILLS



LONG LENGTH, ANSI B94

SIZE IN	SHANK DIA.	FLUTE LENGTH	OVERALL LENGTH	TWO FLUTE TIALN	FOUR FLUTE TIALN		
1/8	1/8	3/4	2-1/4	12-195-032	12-195-B033	12-192-032	12-192-B032
3/16	3/16	3/4	2-1/4	12-195-033	12-195-B034	12-192-033	12-192-B033
1/4	1/4	1-1/8	3	12-195-034	12-195-B035	12-192-034	12-192-B034
5/16	5/16	1-1/8	3	12-195-035	12-195-B036	12-192-035	12-192-B035
3/8	3/8	1-1/8	3	12-195-036	12-195-B037	12-192-036	12-192-B036
7/16	7/16	2	4	12-195-037	12-195-B038	12-192-037	12-192-B037
1/2	1/2	2	4	12-195-038	12-195-B039	12-192-038	12-192-B038
5/8	5/8	2-1/4	5	12-195-039	12-195-B040	12-192-039	12-192-B039
3/4	3/4	2-1/4	5	12-195-040	12-195-B041	12-192-040	12-192-B040
1	1	2-1/4	5	12-195-041	12-195-B042	12-192-041	12-192-B041



EXTAR LONG LENGTH, ANSI B94

SIZE IN	SHANK DIA.	FLUTE LENGTH	OVERALL LENGTH	TWO FLUTE TIALN	FOUR FLUTE TIALN		
1/8	1/8	1	3	12-195-042	12-195-B042	12-192-042	12-192-B042
3/16	3/16	1-1/8	3	12-195-043	12-195-B043	12-192-043	12-192-B043
1/4	1/4	1-1/2	4	12-195-044	12-195-B044	12-192-044	12-192-B044
5/16	5/16	1-5/8	4	12-195-045	12-195-B045	12-192-045	12-192-B045
3/8	3/8	1-3/4	4	12-195-046	12-195-B046	12-192-046	12-192-B046
7/16	7/16	3	6	12-195-047	12-195-B047	12-192-047	12-192-B047
1/2	1/2	3	6	12-195-048	12-195-B048	12-192-048	12-192-B048
5/8	5/8	3	6	12-195-049	12-195-B049	12-192-049	12-192-B049
3/4	3/4	3	6	12-195-050	12-195-B050	12-192-050	12-192-B050
1	1	3	6	12-195-051	12-195-B051	12-192-051	12-192-B051

## SOLID CARBIDE BALL NOSE END MILLS



REGULAR LENGTH, ANSI B94

SIZE IN	SHANK DIA.	FLUTE LENGTH	OVERALL LENGTH	TWO FLUTE TIALN	FOUR FLUTE TIALN
1/16	1/8	3/16	1-1/2	12-056-H001	12-058-B001
5/64	1/8	3/16	1-1/2	12-056-H002	12-058-B002
3/32	1/8	9/32	1-1/2	12-056-H003	12-058-B003
7/64	1/8	3/8	1-1/2	12-056-H004	12-058-B004
1/8	1/8	1/2	1-1/2	12-056-H005	12-058-B005
9/64	3/16	1/2	2	12-056-H006	12-058-B006
5/32	3/16	1/2	2	12-056-H007	12-058-B007
11/64	3/16	5/8	2	12-056-H008	12-058-B008
3/16	3/16	5/8	2	12-056-H009	12-058-B009
13/64	1/4	5/8	2-1/2	12-056-H010	12-058-H010
7/32	1/4	5/8	2-1/2	12-056-H011	12-058-H011
15/64	1/4	3/4	2-1/2	12-056-H012	12-058-H012
1/4	1/4	3/4	2-1/2	12-056-H013	12-058-H013
9/32	5/16	3/4	2-1/2	12-056-H014	12-058-H014
5/16	5/16	13/16	2-1/2	12-056-H015	12-058-H015
11/32	3/8	7/8	2-1/2	12-056-H016	12-058-H016
3/8	3/8	7/8	2-1/2	12-056-H017	12-058-H017
7/16	7/16	1	2-3/4	12-056-H018	12-058-H018
1/2	1/2	1	3	12-056-H019	12-058-H019
9/16	9/16	1-1/8	3-1/2	12-056-H020	12-058-H020
5/8	5/8	1-1/4	3-1/2	12-056-H021	12-058-H021
11/16	3/4	1-1/2	4	12-056-H022	12-058-H022
3/4	3/4	1-1/2	4	12-056-H023	12-058-H023
7/8	7/8	1-1/2	4	12-056-H024	12-058-H024
1	1	1-1/2	4	12-056-H025	12-058-H025

## SOLID CARBIDE ROUGHING END MILLS



REGULAR LENGTH, ANSI B94

SIZE IN	SHANK DIA.	FLUTE LENGTH	OVERALL LENGTH	FLUTE NO.	CARBIDE	CARBIDE TIALN
1/4	1/4	3/4	2-1/2	4	12-062-H001	12-062-B001
5/16	5/16	7/8	2-1/2	4	12-062-H002	12-062-B002
3/8	3/8	1	2-1/2	4	12-062-H003	12-062-B003
7/16	7/16	1	2-3/4	4	12-062-H004	12-062-B004
1/2	1/2	1-1/4	3	4	12-062-H005	12-062-B005
5/8	5/8	1-1/2	3-1/2	4	12-062-H006	12-062-B006
3/4	3/4	1-5/8	4	4	12-062-H007	12-062-B007
1	1	2	4	4	12-062-H008	12-062-B008



## MILLING CUTTERS



# 09

METAL CUTTING

### HSS SHELL ROUGHING END MILLS



SIZE MM	HOLE DIA.	LENGTH OF CUT	FLUTE NO.	HSS	HSS TIN	HSSCO5	HSSCO8 TIALN
40	16	32	6	11-066-001	11-066-T001	11-208-001	11-208-T001
50	22	36	8	11-066-002	11-066-T002	11-208-002	11-208-T002
63	27	40	8	11-066-003	11-066-T003	11-208-003	11-208-T003
80	27	45	10	11-066-004	11-066-T004	11-208-004	11-208-T004
100	32	50	10	11-066-005	11-066-T005	11-208-005	11-208-T005
125	40	56	12	11-066-006	11-066-T006	11-208-006	11-208-T006
160	50	63	16	11-066-007	11-066-T007	11-208-007	11-208-T007

### HSS SHELL ROUGHING END MILLS



SIZE MM	HOLE DIA.	LENGTH OF CUT	FLUTE NO.	HSS	HSS TIN	HSSCO5	HSSCO8 TIALN
1-1/4	1/2	1	6	12-066-001	12-066-T001	12-208-001	12-208-T001
1-1/2	1/2	1-1/8	6	12-066-002	12-066-T002	12-208-002	12-208-T002
1-3/4	3/4	1-1/4	6	12-066-003	12-066-T003	12-208-003	12-208-T003
2	3/4	1-3/8	8	12-066-004	12-066-T004	12-208-004	12-208-T004
2	3/4	2	8	12-066-005	12-066-T005	12-208-005	12-208-T005
2-1/4	1	1-1/2	8	12-066-006	12-066-T006	12-208-006	12-208-T006
2-1/4	1	2	8	12-066-007	12-066-T007	12-208-007	12-208-T007
2-1/2	1	1-5/8	8	12-066-008	12-066-T008	12-208-008	12-208-T008
2-1/2	1	2	8	12-066-009	12-066-T009	12-208-009	12-208-T009
2-3/4	1	1-5/8	8	12-066-010	12-066-T010	12-208-010	12-208-T010
2-3/4	1	2	8	12-066-011	12-066-T011	12-208-011	12-208-T011
3	1-1/4	1-3/4	10	12-066-012	12-066-T012	12-208-012	12-208-T012
3	1-1/4	2	10	12-066-013	12-066-T013	12-208-013	12-208-T013
3-1/2	1-1/4	1-7/8	10	12-066-014	12-066-T014	12-208-014	12-208-T014
3-1/2	1-1/4	2	10	12-066-015	12-066-T015	12-208-015	12-208-T015
4	1-1/2	2-1/4	10	12-066-016	12-066-T016	12-208-016	12-208-T016
4	1-1/2	2-1/4	12	12-066-017	12-066-T017	12-208-017	12-208-T017
4-1/2	1-1/2	2-1/4	12	12-066-018	12-066-T018	12-208-018	12-208-T018
4-1/2	1-1/2	2-1/4	14	12-066-019	12-066-T019	12-208-019	12-208-T019
5	1-1/2	2-1/4	12	12-066-020	12-066-T020	12-208-020	12-208-T020
5	1-1/2	2-1/4	14	12-066-021	12-066-T021	12-208-021	12-208-T021
5-1/2	1-1/2	2-1/4	16	12-066-022	12-066-T022	12-208-022	12-208-T022
6	1-1/2	2-1/4	14	12-066-023	12-066-T023	12-208-023	12-208-T023
6	1-1/2	2-1/4	16	12-066-024	12-066-T024	12-208-024	12-208-T024

### HSS SHELL END MILLS



SIZE MM	HOLE DIA.	LENGTH OF CUT	FLUTE NO.	HSS	HSS TIN	HSSCO5	HSSCO8 TIALN
40	16	32	6	11-067-001	11-067-T001	11-067-C001	11-067-G001
50	22	36	8	11-067-002	11-067-T002	11-067-C002	11-067-G002
63	27	40	8	11-067-003	11-067-T003	11-067-C003	11-067-G003
80	27	45	10	11-067-004	11-067-T004	11-067-C004	11-067-G004
100	32	50	10	11-067-005	11-067-T005	11-067-C005	11-067-G005
125	40	56	12	11-067-006	11-067-T006	11-067-C006	11-067-G006
160	50	63	16	11-067-007	11-067-T007	11-067-C007	11-067-G007

### HSS SHELL END MILLS



SIZE IN	HOLE DIA.	LENGTH OF CUT	FLUTE NO.	HSS	HSS TIN	HSSCO5	HSSCO8 TIALN
1-1/4	1	1/2	8	12-067-001	12-067-T001	12-067-C001	12-067-G001
1-1/2	1-1/8	1/2	8	12-067-002	12-067-T002	12-067-C002	12-067-G002
1-3/4	1-1/4	3/4	8	12-067-003	12-067-T003	12-067-C003	12-067-G003
2	1-3/8	3/4	10	12-067-004	12-067-T004	12-067-C004	12-067-G004
2-1/4	1-1/2	1	10	12-067-005	12-067-T005	12-067-C005	12-067-G005
2-1/2	1-5/8	1	10	12-067-006	12-067-T006	12-067-C006	12-067-G006
2-3/4	1-5/8	1	10	12-067-007	12-067-T007	12-067-C007	12-067-G007
3	1-3/4	1-1/4	12	12-067-008	12-067-T008	12-067-C008	12-067-G008
3-1/2	1-7/8	1-1/4	12	12-067-009	12-067-T009	12-067-C009	12-067-G009
4	2-1/4	1-1/2	14	12-067-010	12-067-T010	12-067-C010	12-067-G010
4-1/2	2-1/4	1-1/2	14	12-067-011	12-067-T011	12-067-C011	12-067-G011
5	2-1/4	1-1/2	16	12-067-012	12-067-T012	12-067-C012	12-067-G012
6	2-1/4	2	16	12-067-013	12-067-T013	12-067-C013	12-067-G013
6	2-1/4	2	18	12-067-014	12-067-T014	12-067-C014	12-067-G014

### HSS SIDE MILLING CUTTERS STRAIGHT TEETH

SIZE IN	FACE WIDTH	HOLE DIA.	HSS	HSS TIN	CARBIDE TIPPED
2	3/16	5/8	12-069-001	12-069-T001	12-069-H001
2	3/8	5/8	12-069-003	12-069-T003	12-069-H003
2-1/2	1/4	7/8	12-069-005	12-069-T005	12-069-H005
2-1/2	5/16	7/8	12-069-007	12-069-T007	12-069-H007
2-1/2	3/8	7/8	12-069-009	12-069-T009	12-069-H009
2-1/2	1/2	7/8	12-069-011	12-069-T011	12-069-H011
3	1/4	1	12-069-013	12-069-T013	12-069-H013
3	5/16	1	12-069-015	12-069-T015	12-069-H015
3	3/8	1	12-069-017	12-069-T017	12-069-H017
3	7/16	1	12-069-019	12-069-T019	12-069-H019
3	1/2	1	12-069-021	12-069-T021	12-069-H021
4	1/4	1	12-069-023	12-069-T023	12-069-H023
4	9/32	1	12-069-025	12-069-T025	12-069-H025
4	5/16	1	12-069-027	12-069-T027	12-069-H027
4	3/8	1	12-069-029	12-069-T029	12-069-H029
4	1/2	1	12-069-031	12-069-T031	12-069-H031
4	1/2	1-1/4	12-069-033	12-069-T033	12-069-H033
4	5/8	1	12-069-035	12-069-T035	12-069-H035
4	5/8	1-1/4	12-069-037	12-069-T037	12-069-H037
4	3/4	1	12-069-039	12-069-T039	12-069-H039
4	3/4	1-1/4	12-069-041	12-069-T041	12-069-H041
4	7/8	1	12-069-043	12-069-T043	12-069-H043
4	7/8	1-1/4	12-069-045	12-069-T045	12-069-H045
5	7/16	1	12-069-047	12-069-T047	12-069-H047
5	1/2	1	12-069-049	12-069-T049	12-069-H049
5	5/8	1	12-069-051	12-069-T051	12-069-H051
5	5/8	1-1/4	12-069-053	12-069-T053	12-069-H053
5	3/4	1	12-069-055	12-069-T055	12-069-H055
5	3/4	1-1/4	12-069-057	12-069-T057	12-069-H057
5	7/8	1-1/4	12-069-059	12-069-T059	12-069-H059
5	1	1-1/4	12-069-061	12-069-T061	12-069-H061
6	5/16	1	12-069-063	12-069-T063	12-069-H063
6	1/2	1	12-069-065	12-069-T065	12-069-H065
6	1/2	1-1/4	12-069-067	12-069-T067	12-069-H067
6	9/16	1-1/4	12-069-069	12-069-T069	12-069-H069
6	5/8	1-1/4	12-069-071	12-069-T071	12-069-H071
6	3/4	1	12-069-073	12-069-T073	12-069-H073
6	3/4	1-1/4	12-069-075	12-069-T075	12-069-H075
6	7/8	1-1/4	12-069-077	12-069-T077	12-069-H077
6	1	1-1/4	12-069-079	12-069-T079	12-069-H079
7	3/4	1-1/4	12-069-081	12-069-T081	12-069-H081
7	1	1-1/4	12-069-083	12-069-T083	12-069-H083
8	7/8	1-1/4	12-069-085	12-069-T085	12-069-H085
8	1	1-1/4	12-069-087	12-069-T087	12-069-H087



### HSS SIDE MILLING CUTTERS STAGGERED TEETH

SIZE IN	FACE WIDTH	HOLE DIA.	HSS	HSS TIN	CARBIDE TIPPED
2-1/2	1/4	7/8	12-069-002	12-069-T002	12-069-H002
2-1/2	5/16	7/8	12-069-004	12-069-T004	12-069-H004
2-1/2	3/8	7/8	12-069-006	12-069-T006	12-069-H006
2-1/2	1/2	7/8	12-069-008	12-069-T008	12-069-H008
3	3/16	1	12-069-010	12-069-T010	12-069-H010
3	7/32	1	12-069-012	12-069-T012	12-069-H012
3	1/4	1	12-069-014	12-069-T014	12-069-H014
3	9/32	1	12-069-016	12-069-T016	12-069-H016
3	5/16	1	12-069-018	12-069-T018	12-069-H018
3	11/32	1	12-069-020	12-069-T020	12-069-H020
3	3/8	1	12-069-022	12-069-T022	12-069-H022
3	13/32	1	12-069-024	12-069-T024	12-069-H024
3	7/16	1	12-069-026	12-069-T026	12-069-H026
3	1/2	1	12-069-028	12-069-T028	12-069-H028
3	1/2	1-1/4	12-069-030	12-069-T030	12-069-H030
3	9/16	1	12-069-032	12-069-T032	12-069-H032
3	9/16	1-1/4	12-069-034	12-069-T034	12-069-H034
3	5/8	1	12-069-036	12-069-T036	12-069-H036
3	5/8	1-1/4	12-069-038	12-069-T038	12-069-H038
3	3/4	1	12-069-040	12-069-T040	12-069-H040
3	3/4	1-1/4	12-069-042	12-069-T042	12-069-H042
4	7/32	1-1/4	12-069-044	12-069-T044	12-069-H044
4	1/4	1	12-069-046	12-069-T046	12-069-H046
4	1/4	1-1/4	12-069-048	12-069-T048	12-069-H048
4	9/32	1-1/4	12-069-050	12-069-T050	12-069-H050
4	5/16	1	12-069-052	12-069-T052	12-069-H052
4	5/16	1-1/4	12-069-054	12-069-T054	12-069-H054
4	11/32	1-1/4	12-069-056	12-069-T056	12-069-H056
4	3/8	1	12-069-058	12-069-T058	12-069-H058
4	3/8	1-1/4	12-069-060	12-069-T060	12-069-H060
4	13/32	1-1/4	12-069-062	12-069-T062	12-069-H062
4	7/16	1	12-069-064	12-069-T064	12-069-H064
4	7/16	1-1/4	12-069-066	12-069-T066	12-069-H066
4	1/2	1	12-069-068	12-069-T068	12-069-H068
4	1/2	1-1/4	12-069-070	12-069-T070	12-069-H070
4	9/16	1-1/4	12-069-072	12-069-T072	12-069-H072
4	5/8	1	12-069-074	12-069-T074	12-069-H074
4	5/8	1-1/4	12-069-076	12-069-T076	12-069-H076
4	11/16	1-1/4	12-069-078	12-069-T078	12-069-H078
4	3/4	1	12-069-080	12-069-T080	12-069-H080
4	3/4	1-1/4	12-069-082	12-069-T082	12-069-H082
4	7/8	1-1/4	12-069-084	12-069-T084	12-069-H084
5	1/4	1	12-069-086	12-069-T086	12-069-H086
5	1/4	1-1/4	12-069-088	12-069-T088	12-069-H088
5	5/16	1-1/4	12-069-090	12-069-T090	12-069-H090



### HSS SIDE MILLING CUTTERS

SIZE MM	FACE WIDTH	HOLE DIA.	STRAIGHT TEETH			STRAIGHT TEETH		
			HSS	HSS TIN	CARBIDE TIPPED	HSS	HSS TIN	CARBIDE TIPPED
50	3	16	11-209-001	11-209-T001	11-209-H001	11-209-002	11-209-T002	11-209-H002
50	4	16	11-209-003	11-209-T003	11-209-H003	11-209-004	11-209-T004	11-209-H004
50	5	16	11-209-005	11-209-T005	11-209-H005	11-209-006	11-209-T006	11-209-H006
50	6	16	11-209-007	11-209-T007	11-209-H007	11-209-008	11-209-T008	11-209-H008
50	8	16	11-209-009	11-209-T009	11-209-H009	11-209-010	11-209-T010	11-209-H010
50	10	16	11-209-011	11-209-T011	11-209-H011	11-209-012	11-209-T012	11-209-H012
63	4	22	11-209-013	11-209-T013	11-209-H013	11-209-014	11-209-T014	11-209-H014
63	5	22	11-209-015	11-209-T015	11-209-H015	11-209-016	11-209-T016	11-209-H016
63	6	22	11-209-017	11-209-T017	11-209-H017	11-209-018	11-209-T018	11-209-H018
63	8	22	11-209-019	11-209-T019	11-209-H019	11-209-020	11-209-T020	11-209-H020
63	10	22	11-209-021	11-209-T021	11-209-H021	11-209-022	11-209-T022	11-209-H022
63	12	22	11-209-023	11-209-T023	11-209-H023	11-209-024	11-209-T024	11-209-H024
63	14	22	11-209-025	11-209-T025	11-209-H025	11-209-026	11-209-T026	11-209-H026
63	16	22	11-209-027	11-209-T027	11-209-H027	11-209-028	11-209-T028	11-209-H028
80	4	27	11-209-029	11-209-T029	11-209-H029	11-209-030	11-209-T030	11-209-H030
80	5	27	11-209-031	11-209-T031	11-209-H031	11-209-032	11-209-T032	11-209-H032
80	6	27	11-209-033	11-209-T033	11-209-H033	11-209-034	11-209-T034	11-209-H034
80	8	27	11-209-035	11-209-T035	11-209-H035	11-209-036	11-209-T036	11-209-H036
80	10	27	11-209-037	11-209-T037	11-209-H037	11-209-038	11-209-T038	11-209-H038
80	12	27	11-209-039	11-209-T039	11-209-H039	11-209-040	11-209-T040	11-209-H040
80	14	27	11-209-041	11-209-T041	11-209-H041	11-209-042	11-209-T042	11-209-H042
80	16	27	11-209-043	11-209-T043	11-209-H043	11-209-044	11-209-T044	11-209-H044
80	18	27	11-209-045	11-209-T045	11-209-H045	11-209-046	11-209-T046	11-209-H046
80	20	27	11-209-047	11-209-T047	11-209-H047	11-209-048	11-209-T048	11-209-H048
100	4	32	11-209-049	11-209-T049	11-209-H049	11-209-050	11-209-T050	11-209-H050
100	5	32	11-209-051	11-209-T051	11-209-H051	11-209-052	11-209-T052	11-209-H052
100	6	32	11-209-053	11-209-T053	11-209-H053	11-209-054	11-209-T054	11-209-H054
100	8	32	11-209-055	11-209-T055	11-209-H055	11-209-056	11-209-T056	11-209-H056
100	10	32	11-209-057	11-209-T057	11-209-H057	11-209-058	11-209-T058	11-209-H058
100	12	32	11-209-059	11-209-T059	11-209-H059	11-209-060	11-209-T060	11-209-H060
100	14	32	11-209-061	11-209-T061	11-209-H061	11-209-062	11-209-T062	11-209-H062
100	16	32	11-209-063	11-209-T063	11-209-H063	11-209-064	11-209-T064	11-209-H064
100	18	32	11-209-065	11-209-T065	11-209-H065	11-209-066	11-209-T066	11-209-H066
100	20	32	11-209-067	11-209-T067	11-209-H067	11-209-068	11-209-T068	11-209-H068
100	22	32	11-209-069	11-209-T069	11-209-H069	11-209-070	11-209-T070	11-209-H070
100	25	32	11-209-071	11-209-T071	11-209-H071	11-209-072	11-209-T072	11-209-H072
125	4	32	11-209-073	11-209-T073	11-209-H073	11-209-074	11-209-T074	11-209-H074
125	5	32	11-209-075	11-209-T075	11-209-H075	11-209-076	11-209-T076	11-209-H076
125	6	32	11-209-077	11-209-T077	11-209-H077	11-209-078	11-209-T078	11-209-H078
125	8	32	11-209-079	11-209-T079	11-209-H079	11-209-080	11-209-T080	11-209-H080
125	10	32	11-209-081	11-209-T081	11-209-H081	11-209-082	11-209-T082	11-209-H082
125	12	32	11-209-083	11-209-T083	11-209-H083	11-209-084	11-209-T084	11-209-H084
125	14	32	11-209-085	11-209-T085	11-209-H085	11-209-086	11-209-T086	11-209-H086
125	16	32	11-209-087	11-209-T087	11-209-H087	11-209-088	11-209-T088	11-209-H088
125	18	32	11-209-089	11-209-T089	11-209-H089	11-209-090	11-209-T090	11-209-H090
125	20	32	11-209-091	11-209-T091	11-209-H091	11-209-092	11-209-T092	11-209-H092
125	22	32	11-209-093	11-209-T093	11-209-H093	11-209-094	11-209-T094	11-209-H094
125	25	32	11-209-095	11-209-T095	11-209-H095	11-209-096	11-209-T096	11-209-H096
125	28	32	11-209-097	11-209-T097	11-209-H097	11-209-098	11-209-T098	11-209-H098
160	6	40	11-209-099	11-209-T099	11-209-H099	11-209-100	11-209-T100	11-209-H100
160	8	40	11-209-101	11-209-T101	11-209-H101	11-209-102	11-209-T102	11-209-H102
160	10	40	11-209-103	11-209-T103	11-209-H103	11-209-104	11-209-T104	11-209-H104
160	12	40	11-209-105	11-209-T105	11-209-H105	11-209-106	11-209-T106	11-209-H106



### HSS DOUBLE ANGLE MILLING CUTTERS



SIZE IN	FACE WIDTH	HOLE DIA.	45°		60°		90°	
			HSS	HSS TIN	HSS	HSS TIN	HSS	HSS TIN
2-3/4	1/2	1	12-302-002	12-302-T002	12-302-028	12-302-T028	12-302-054	12-302-T054
3	5/8	1	12-302-004	12-302-T004	12-302-030	12-302-T030	12-302-056	12-302-T056
3	3/4	1	12-302-006	12-302-T006	12-302-032	12-302-T032	12-302-058	12-302-T058
4	1/2	1-1/4	12-302-008	12-302-T008	12-302-034	12-302-T034	12-302-060	12-302-T060
4	3/4	1	12-302-010	12-302-T010	12-302-036	12-302-T036	12-302-062	12-302-T062
4	3/4	1-1/4	12-302-012	12-302-T012	12-302-038	12-302-T038	12-302-064	12-302-T064
4	1	1-1/4	12-302-014	12-302-T014	12-302-040	12-302-T040	12-302-066	12-302-T066
5	3/4	1-1/4	12-302-016	12-302-T016	12-302-042	12-302-T042	12-302-068	12-302-T068
5	1	1-1/4	12-302-018	12-302-T018	12-302-044	12-302-T044	12-302-070	12-302-T070
6	3/4	1-1/4	12-302-020	12-302-T020	12-302-046	12-302-T046	12-302-072	12-302-T072
6	1	1-1/4	12-302-022	12-302-T022	12-302-048	12-302-T048	12-302-074	12-302-T074
6	1-1/4	1-1/4	12-302-024	12-302-T024	12-302-050	12-302-T050	12-302-076	12-302-T076
6	1-1/2	1-1/4	12-302-026	12-302-T026	12-302-052	12-302-T052	12-302-078	12-302-T078

### HSS DOUBLE ANGLE MILLING CUTTERS

SIZE IN	45°/60°/90° FACE WIDTH	HOLE DIA.	45°		60°		90°	
			HSS	HSS TIN	HSS	HSS TIN	HSS	HSS TIN
50	8/10/14	16	11-302-002	11-302-T002	11-302-010	11-302-T010	11-302-018	11-302-T018
63	10/14/20	22	11-302-004	11-302-T004	11-302-012	11-302-T012	11-302-020	11-302-T020
80	12/18/22	27	11-302-006	11-302-T006	11-302-014	11-302-T014	11-302-022	11-302-T022
100	18/25/32	32	11-302-008	11-302-T008	11-302-016	11-302-T016	11-302-024	11-302-T024



### HSS SINGLE ANGLE MILLING CUTTERS



SIZE IN	FACE WIDTH	HOLE DIA.	45°		60°	
			HSS	HSS TIN	HSS	HSS TIN
2-1/2	1/2	7/8	12-302-001	12-302-T001	12-302-025	12-302-T025
2-3/4	1/2	1	12-302-003	12-302-T003	12-302-027	12-302-T027
3	1/2	1-1/4	12-302-005	12-302-T005	12-302-029	12-302-T029
3	5/8	1	12-302-007	12-302-T007	12-302-031	12-302-T031
3	3/4	1	12-302-009	12-302-T009	12-302-033	12-302-T033
4	1/2	1	12-302-011	12-302-T011	12-302-035	12-302-T035
4	3/4	1	12-302-013	12-302-T013	12-302-037	12-302-T037
4	1	1-1/4	12-302-015	12-302-T015	12-302-039	12-302-T039
5	3/4	1-1/4	12-302-017	12-302-T017	12-302-041	12-302-T041
5	1	1-1/4	12-302-019	12-302-T019	12-302-043	12-302-T043
6	3/4	1-1/4	12-302-021	12-302-T021	12-302-045	12-302-T045
6	1	1-1/4	12-302-023	12-302-T023	12-302-047	12-302-T047

### HSS SINGLE ANGLE MILLING CUTTERS



SIZE IN	FACE WIDTH	HOLE DIA.	45°		60°	
			HSS	HSS TIN	HSS	HSS TIN
32	8/10	10	11-302-001	11-302-T001	11-302-017	11-302-T017
40	10/13	10	11-302-003	11-302-T003	11-302-019	11-302-T019
50	13/18	13	11-302-005	11-302-T005	11-302-021	11-302-T021
63	18/20	16	11-302-007	11-302-T007	11-302-023	11-302-T023
80	22/25	22	11-302-009	11-302-T009	11-302-025	11-302-T025
100	28/32	27	11-302-011	11-302-T011	11-302-027	11-302-T027
125	36/40	32	11-302-013	11-302-T013	11-302-029	11-302-T029
160	45/50	40	11-302-015	11-302-T015	11-302-031	11-302-T031

### HSS PLAIN METAL SLITTING SAWS



DIN1837 FOR FINE TEETH ( DIN1838 FOR COARSE TEETH )

DIAMETER THICKNESS	BORE MM	NO. OF TEETH	HSS		CARBIDE	
			HSS	CARBIDE	HSS	CARBIDE
25x0.3	8	80	11-070-001	11-070-H001	40x3.0	10 48 11-070-039 11-070-H039
25x0.4	8	64	11-070-002	11-070-H002	40x4.0	10 40 11-070-040 11-070-H040
25x0.5	8	64	11-070-003	11-070-H003	40x5.0	10 40 11-070-041 11-070-H041
25x0.6	8	64	11-070-004	11-070-H004	40x6.0	10 40 11-070-042 11-070-H042
25x0.8	8	48	11-070-005	11-070-H005	50x0.3	13 128 11-070-043 11-070-H043
25x1.0	8	48	11-070-006	11-070-H006	50x0.4	13 100 11-070-044 11-070-H044
25x1.2	8	48	11-070-007	11-070-H007	50x0.5	13 100 11-070-045 11-070-H045
25x1.6	8	40	11-070-008	11-070-H008	50x0.6	13 100 11-070-046 11-070-H046
25x2.0	8	40	11-070-009	11-070-H009	50x0.8	13 80 11-070-047 11-070-H047
25x2.5	8	40	11-070-010	11-070-H010	50x1.0	13 80 11-070-048 11-070-H048
25x3.0	8	32	11-070-011	11-070-H011	50x1.2	13 80 11-070-049 11-070-H049
25x4.0	8	32	11-070-012	11-070-H012	50x1.6	13 64 11-070-050 11-070-H050
25x5.0	8	32	11-070-013	11-070-H013	50x2.0	13 64 11-070-051 11-070-H051
25x6.0	8	24	11-070-014	11-070-H014	50x2.5	13 64 11-070-052 11-070-H052
32x0.3	8	80	11-070-015	11-070-H015	50x3.0	13 48 11-070-053 11-070-H053
32x0.4	8	80	11-070-016	11-070-H016	50x4.0	13 48 11-070-054 11-070-H054
32x0.5	8	80	11-070-017	11-070-H017	50x5.0	13 48 11-070-055 11-070-H055
32x0.6	8	64	11-070-018	11-070-H018	50x6.0	13 40 11-070-056 11-070-H056
32x0.8	8	64	11-070-019	11-070-H019	63x0.3	16 128 11-070-057 11-070-H057
32x1.0	8	64	11-070-020	11-070-H020	63x0.4	16 128 11-070-058 11-070-H058
32x1.2	8	48	11-070-021	11-070-H021	63x0.5	16 128 11-070-059 11-070-H059
32x1.6	8	48	11-070-022	11-070-H022	63x0.6	16 100 11-070-060 11-070-H060
32x2.0	8	48	11-070-023	11-070-H023	63x0.8	16 100 11-070-061 11-070-H061
32x2.5	8	40	11-070-024	11-070-H024	63x1.0	16 100 11-070-062 11-070-H062
32x3.0	8	40	11-070-025	11-070-H025	63x1.2	16 80 11-070-063 11-070-H063
32x4.0	8	40	11-070-026	11-070-H026	63x1.5	16 80 11-070-064 11-070-H064
32x5.0	8	32	11-070-027	11-070-H027	63x1.6	16 80 11-070-065 11-070-H065
32x6.0	8	32	11-070-028	11-070-H028	63x2.0	16 80 11-070-066 11-070-H066
40x0.3	10	100	11-070-029	11-070-H029	63x2.5	16 64 11-070-067 11-070-H067
40x0.4	10	100	11-070-030	11-070-H030	63x3.0	16 64 11-070-068 11-070-H068
40x0.5	10	80	11-070-031	11-070-H031	63x4.0	16 64 11-070-069 11-070-H069
40x0.6	10	80	11-070-032	11-070-H032	63x5.0	16 48 11-070-070 11-070-H070
40x0.8	10	80	11-070-033	11-070-H033	63x6.0	16 48 11-070-071 11-070-H071
40x1.0	10	64	11-070-034	11-070-H034	80x0.3	22 160 11-070-072 11-070-H072
40x1.2	10	64	11-070-035	11-070-H035	80x0.4	22 160 11-070-073 11-070-H073
40x1.6	10	64	11-070-036	11-070-H036	80x0.5	22 128 11-070-074 11-070-H074
40x2.0	10	48	11-070-037	11-070-H037	80x0.6	22 128 11-070-075 11-070-H075
40x2.5	10	48	11-070-038	11-070-H038	80x0.8	22 128 11-070-076 11-070-H076

### HSS PLAIN METAL SLITTING SAWS



DIAMETER THICKNESS	BORE MM	NO. OF TEETH	HSS	CARBIDE	DIAMETER THICKNESS	BORE MM	NO. OF TEETH	HSS	CARBIDE
80x1.0	22	100	11-070-077	11-070-H077	160x1.6	32	160	11-070-115	11-070-H115
80x1.2	22	100	11-070-078	11-070-H078	160x2.0	32	128	11-070-116	11-070-H116
80x1.5	22	100	11-070-079	11-070-H079	160x2.5	32	128	11-070-117	11-070-H117
80x1.6	22	100	11-070-080	11-070-H080	160x3.0	32	128	11-070-118	11-070-H118
80x2.0	22	80	11-070-081	11-070-H081	160x4.0	32	100	11-070-119	
80x2.5	22	80	11-070-082	11-070-H082	160x5.0	32	100	11-070-120	
80x3.0	22	80	11-070-083	11-070-H083	160x6.0	32	100	11-070-121	
80x4.0	22	64	11-070-084	11-070-H084	200x1.0	32	200	11-070-122	
80x5.0	22	64	11-070-085	11-070-H085	200x1.2	32	200	11-070-123	
80x6.0	22	64	11-070-086	11-070-H086	200x1.6	32	160	11-070-124	
100x0.5	22	160	11-070-087	11-070-H087	200x2.0	32	160	11-070-125	
100x0.6	22	160	11-070-088	11-070-H088	200x2.5	32	160	11-070-126	
100x0.8	22	128	11-070-089	11-070-H089	200x3.0	32	128	11-070-127	
100x1.0	22	128	11-070-090	11-070-H090	200x4.0	32	128	11-070-128	
100x1.2	22	128	11-070-091	11-070-H091	200x5.0	32	128	11-070-129	
100x1.5	22	100	11-070-092	11-070-H092	200x6.0	32	100	11-070-130	
100x1.6	22	100	11-070-093	11-070-H093	250x1.5	32	200	11-070-131	
100x2.0	22	100	11-070-094	11-070-H094	250x2.0	32	200	11-070-132	
100x2.5	22	100	11-070-095	11-070-H095	250x2.5	32	160	11-070-133	
100x3.0	22	80	11-070-096	11-070-H096	250x3.0	32	160	11-070-134	
100x4.0	22	80	11-070-097	11-070-H097	250x4.0	32	160	11-070-135	
100x5.0	22	80	11-070-098	11-070-H098	250x5.0	32	128	11-070-136	
100x6.0	22	64	11-070-099	11-070-H099	250x6.0	32	128	11-070-137	
125x0.6	22	160	11-070-100	11-070-H100	275x2.5	40	200	11-070-138	
125x0.8	22	160	11-070-101	11-070-H101	275x3.0	40	200	11-070-139	
125x1.0	22	160	11-070-102	11-070-H102	275x4.0	40	160	11-070-140	
125x1.2	22	128	11-070-103	11-070-H103	275x5.0	40	160	11-070-141	
125x1.5	22	128	11-070-104	11-070-H104	275x6.0	40	160	11-070-142	
125x1.6	22	128	11-070-105	11-070-H105	300x2.5	40	200	11-070-143	
125x2.0	22	128	11-070-106	11-070-H106	300x3.0	40	200	11-070-144	
125x2.5	22	100	11-070-107	11-070-H107	300x4.0	40	160	11-070-145	
125x3.0	22	100	11-070-108	11-070-H108	300x5.0	40	160	11-070-146	
125x4.0	22	100	11-070-109	11-070-H109	300x6.0	40	160	11-070-147	
125x5.0	22	80	11-070-110	11-070-H110	350x1.0	40	200	11-070-148	
125x6.0	22	80	11-070-111	11-070-H111	350x1.5	40	200	11-070-149	
160x1.0	32	160	11-070-112	11-070-H112	350x2.0	40	160	11-070-150	
160x1.2	32	160	11-070-113	11-070-H113	350x2.5	40	160	11-070-151	
160x1.5	32	160	11-070-114	11-070-H114	350x3.0	40	160	11-070-152	

### HSS PLAIN METAL SLITTING SAWS



FOR GENERAL PURPOSE SLITTING OR CUTTING-OFF OPERATIONS

DIAM. IN	FACE WIDTH	HOLE DIA.	NO. OF TEETH	HSS	HSS TIN	DIAM. IN	FACE WIDTH	HOLE DIA.	NO. OF TEETH	HSS	HSS TIN
1-3/4	1/32	1/2	34	12-210-001	12-210-T001	4-1/2	1/32	1	36	12-210-034	12-210-T034
1-3/4	1/16	1/2	30	12-210-002	12-210-T002	4-1/2	3/64	1	36	12-210-035	12-210-T035
1-3/4	3/32	1/2	30	12-210-003	12-210-T003	4-1/2	1/16	1	36	12-210-036	12-210-T036
1-3/4	1/8	1/2	30	12-210-004	12-210-T004	4-1/2	3/32	1	36	12-210-037	12-210-T037
2	1/32	1/2	38	12-210-079	12-210-T079	4-1/2	1/8	1	36	12-210-038	12-210-T038
2	1/16	1/2	34	12-210-080	12-210-T080	5	3/64	1	40	12-210-039	12-210-T039
2	3/32	1/2	34	12-210-081	12-210-T081	5	1/16	1	40	12-210-040	12-210-T040
2	1/8	1/2	34	12-210-082	12-210-T082	5	5/64	1	40	12-210-041	12-210-T041
2-1/2	1/32	3/8	28	12-210-005	12-210-T005	5	3/32	1	40	12-210-042	12-210-T042
2-1/2	3/64	3/8	28	12-210-006	12-210-T006	5	7/64	1	40	12-210-043	12-210-T043
2-1/2	1/32	7/8	28	12-210-007	12-210-T007	5	1/8	1	40	12-210-044	12-210-T044
2-1/2	3/64	7/8	28	12-210-008	12-210-T008	5	9/64	1	40	12-210-045	12-210-T045
2-1/2	1/16	7/8	28	12-210-009	12-210-T009	5	5/32	1	40	12-210-046	12-210-T046
2-1/2	3/32	7/8	28	12-210-010	12-210-T010	5	3/16	1	40	12-210-047	12-210-T047
2-1/2	1/8	7/8	28	12-210-011	12-210-T011	5	1/16	1-1/4	40	12-210-048	12-210-T048
2-1/2	1/16	1	28	12-210-012	12-210-T012	5	3/32	1-1/4	40	12-210-049	12-210-T049
3	1/32	1	34	12-210-083	12-210-T083	5	1/8	1-1/4	40	12-210-050	12-210-T050
3	3/64	1	30	12-210-084	12-210-T084	5	5/32	1-1/4	40	12-210-051	12-210-T051
3	1/16	1	30	12-210-085	12-210-T085	5	3/16	1-1/4	40	12-210-052	12-210-T052
3	5/64	1	30	12-210-086	12-210-T086	6	3/64	1	42	12-210-053	12-210-T053
3	3/32	1	30	12-210-087	12-210-T087	6	1/16	1	42	12-210-054	12-210-T054
3	7/64	1	30	12-210-088	12-210-T088	6	5/64	1	42	12-210-055	12-210-T055
3	1/8	1	30	12-210-089	12-210-T089	6	3/32	1	42	12-210-056	12-210-T056
3	9/64	1	30	12-210-090	12-210-T090	6	7/64	1	42	12-210-057	12-210-T057
3	5/32	1	30	12-210-091	12-210-T091	6	1/8	1	42	12-210-058	12-210-T058
3	3/16	1	30	12-210-092	12-210-T092	6	9/64	1	42	12-210-059	12-210-T059
3-1/2	1/32	1	30	12-210-013	12-210-T013	6	5/32	1	42	12-210-060	12-210-T060
3-1/2	3/64	1	30	12-210-014	12-210-T014	6	3/16	1	42	12-210-061	12-210-T061
3-1/2	1/16	1	30	12-210-015	12-210-T015	6	1/16	1-1/4	42	12-210-062	12-210-T062
3-1/2	3/32	1	30	12-210-016	12-210-T016	6	3/32	1-1/4	42	12-210-063	12-210-T063
3-1/2	1/8	1	30	12-210-017	12-210-T017	6	1/8	1-1/4	42	12-210-064	12-210-T064
3-1/2	9/64	1	30	12-210-019	12-210-T019	6	5/32	1-1/4	42	12-210-065	12-210-T065
3-1/2	5/32	1	30	12-210-020	12-210-T020	6	3/16	1-1/4	42	12-210-066	12-210-T066
3-1/2	3/16	1	30	12-210-021	12-210-T021	8	3/32	1	48	12-210-067	12-210-T067
4	1/32	1	36	12-210-024	12-210-T024	8	1/8	1	48	12-210-068	12-210-T068
4	3/64	1	36	12-210-025	12-210-T025	8	3/16	1	48	12-210-069	12-210-T069
4	1/16	1	36	12-210-026	12-210-T026	8	3/32	1-1/4	48	12-210-071	12-210-T071
4	5/64	1	36	12-210-027	12-210-T027	8	1/8	1-1/4	48	12-210-072	12-210-T072
4	3/32	1	36	12-210-028	12-210-T028	8	3/16	1-1/4	48	12-210-073	12-210-T073
4	7/64	1	36	12-210-029	12-210-T029	8	1/4	1-1/4	48	12-210-074	12-210-T074
4	1/8	1	36	12-210-030	12-210-T030	10	3/32	1-1/4	56	12-210-075	12-210-T075
4	9/64	1	36	12-210-031	12-210-T031	10	1/8	1-1/4	56	12-210-076	12-210-T076
4	5/32	1	36	12-210-032	12-210-T032	10	3/16	1-1/4	56	12-210-077	12-210-T077
4	3/16	1	36	12-210-033	12-210-T033	10	1/4	1-1/4	56	12-210-078	12-210-T078

## HSS SCREW SLOTTING SAWS



FOR SLOTTING SCREW, BOLT HEADS AND CUT-OFF APPLICATIONS

THICK IN	HOLE DIA.	NO. OF TEETH	HSS	HSS TIN	THICK IN	HOLE DIA.	NO. OF TEETH	HSS	HSS TIN
1-3/4" Dia.					2-1/4" Dia.				
.008	5/8	90	12-211-017	12-211-T017	.010	5/8	60	12-211-001	12-211-T001
.010	5/8	90	12-211-018	12-211-T018	.012	5/8	60	12-211-002	12-211-T002
.012	5/8	90	12-211-019	12-211-T019	.014	5/8	60	12-211-003	12-211-T003
.014	5/8	90	12-211-020	12-211-T020	.016	5/8	60	12-211-004	12-211-T004
.016	5/8	90	12-211-021	12-211-T021	.018	5/8	60	12-211-005	12-211-T005
.018	5/8	90	12-211-022	12-211-T022	.020	5/8	60	12-211-006	12-211-T006
.020	5/8	90	12-211-023	12-211-T023	.023	5/8	60	12-211-007	12-211-T007
.023	5/8	90	12-211-024	12-211-T024	.025	5/8	60	12-211-008	12-211-T008
.025	5/8	90	12-211-025	12-211-T025	.028	5/8	60	12-211-009	12-211-T009
.028	5/8	90	12-211-026	12-211-T026	.032	5/8	60	12-211-010	12-211-T010
.032	5/8	90	12-211-027	12-211-T027	.036	5/8	60	12-211-011	12-211-T011
.036	5/8	90	12-211-028	12-211-T028	.040	5/8	60	12-211-012	12-211-T012
.040	5/8	90	12-211-029	12-211-T029	.045	5/8	60	12-211-013	12-211-T013
.045	5/8	90	12-211-030	12-211-T030	.051	5/8	60	12-211-014	12-211-T014
.051	5/8	90	12-211-031	12-211-T031	.057	5/8	60	12-211-015	12-211-T015
.057	5/8	90	12-211-032	12-211-T032	.064	5/8	60	12-211-016	12-211-T016
.064	5/8	90	12-211-033	12-211-T033					

THICK IN	HOLE DIA.	NO. OF TEETH	HSS	HSS TIN	THICK IN	HOLE DIA.	NO. OF TEETH	HSS	HSS TIN
2-3/4" Dia.					2-3/4" Dia.				
.010	1	72	12-211-034	12-211-T034	.051	12	72	12-211-047	12-211-T047
.012	1	72	12-211-035	12-211-T035	.057	13	72	12-211-048	12-211-T048
.014	1	72	12-211-036	12-211-T036	.064	14	72	12-211-049	12-211-T049
.016	2	72	12-211-037	12-211-T037	.072	15	72	12-211-050	12-211-T050
.018	3	72	12-211-038	12-211-T038	.081	16	72	12-211-051	12-211-T051
.020	4	72	12-211-039	12-211-T039	.091	17	72	12-211-052	12-211-T052
.023	5	72	12-211-040	12-211-T040	.102	18	72	12-211-053	12-211-T053
.025	6	72	12-211-041	12-211-T041	.114	19	72	12-211-054	12-211-T054
.028	7	72	12-211-042	12-211-T042	.128	20	72	12-211-055	12-211-T055
.032	8	72	12-211-043	12-211-T043	.144	21	72	12-211-056	12-211-T056
.036	9	72	12-211-044	12-211-T044	.162	22	72	12-211-057	12-211-T057
.040	10	72	12-211-045	12-211-T045	.182	23	72	12-211-058	12-211-T058
.045	11	72	12-211-046	12-211-T046					

### HSS SCREW SLOTTING SAWS ARBOR

STRAIGHT SHANK SAW ARBOR



ORDER NO. 12-213-001

Diameter of arbor: 1/2", Length: 3-3/4"  
Fit hole size: 3/8"

WELDON SHANK SAW ARBOR



ORDER NO. 12-213-002

Diameter of arbor: 1/2", Length: 2-9/16"  
Fit hole size: 1/2, 5/8, 3/4, 7/8, 1"  
Arbor screw: 5/16-24  
Hex: 3/16"

STRAIGHT SHANK SAW ARBOR



ORDER NO. 12-213-003

Length of arbor: 5-3/32"  
Fit hole size: 1/2, 5/8, 3/4, 7/8, 1"  
Draw bar thread: 7/16-20  
Arbor screw: 5/16-24  
Hex: 3/16"

## HSS STRAIGHT SHANK T-SLOT END MILLS



BOLT SIZE.	CUTTING DIA.	CUTTER THICKNESS	NECK DIA.	SHANK DIA.	OVERALL LENGTH	HSS	HSS TIN
5	11	3.5	4	10	53	11-071-001	11-071-T001
6	12.5	6	5	10	57	11-071-002	11-071-T002
8	16	8	7	10	61	11-071-003	11-071-T003
10	18	8	8	12	65	11-071-004	11-071-T004
12	21	9	10	12	69	11-071-005	11-071-T005
14	25	11	12	16	79	11-071-006	11-071-T006
16	28	12	13	16	86	11-071-007	11-071-T007
18	32	14	15	25	98	11-071-008	11-071-T008
20	36	16	17	25	100	11-071-009	11-071-T009
22	40	18	19	25	108	11-071-010	11-071-T010
24	45	20	21	25	122	11-071-011	11-071-T011
28	50	22	25	32	124	11-071-012	11-071-T012
36	60	28	30	32	138	11-071-013	11-071-T013

## HSS TAPER SHANK T-SLOT END MILLS



BOLT SIZE.	CUTTING DIA.	CUTTER THICKNESS	NECK DIA.	SHANK DIA.	OVERALL LENGTH	HSS	HSS TIN
10	18	8	8	MT1	82	11-071-014	11-071-T014
12	21	9	10	MT2	98	11-071-015	11-071-T015
14	25	11	12	MT2	103	11-071-016	11-071-T016
18	32	14	15	MT2	111	11-071-017	11-071-T017
22	40	18	19	MT3	138	11-071-018	11-071-T018
28	50	22	25	MT4	173	11-071-019	11-071-T019
36	60	28	30	MT4	188	11-071-020	11-071-T020
42	72	35	36	MT5	229	11-071-021	11-071-T021
48	85	40	42	MT5	240	11-071-022	11-071-T022
54	95	44	44	MT5	251	11-071-023	11-071-T023

## HSS STRAIGHT SHANK T-SLOT END MILLS



BOLT SIZE.	CUTTING DIA.	CUTTER THICKNESS	NECK DIA.	TAPER SHANK	OVERALL LENGTH	HSS	HSS TIN
1/4"	9/16"	15/64"	17/64"	1/2"	2-19/32"	12-071-001	12-071-T001
5/16"	21/32"	17/64"	21/64"	1/2"	2-11/16"	12-071-002	12-071-T002
3/8"	25/32"	21/64"	13/32"	3/4"	3-1/4"	12-071-003	12-071-T003
1/2"	31/32"	25/64"	17/32"	3/4"	3-7/16"	12-071-004	12-071-T004
5/8"	1-1/4"	31/64"	21/32"	1"	3-15/16"	12-071-005	12-071-T005
3/4"	1-15/32"	5/8"	25/32"	1"	4-7/16"	12-071-006	12-071-T006
1"	1-27/32"	53/64"	1-1/32"	1-1/4"	4-13/16"	12-071-007	12-071-T007
1-1/4"	2-7/32"	1-3/32"	1-9/32"	1-1/4"	5-3/8"	12-071-008	12-071-T008
1-1/2"	2-21/32"	1-11/32"	1-17/32"	1-1/4"	5-29/32"	12-071-009	12-071-T009

### HSS STRAIGHT SHANK T-SLOT END MILLS SET

SIZE	SPECIFICATION	ORDER NO.	MATERIAL
6 PCS/SET	1/4, 5/16, 3/8, 1/2, 5/8, 3/4"	12-071-S01	HSS
		12-071-S02	HSS-TIN
SIZE	SPECIFICATION	ORDER NO.	MATERIAL
7 PCS/SET	1/4, 5/16, 3/8, 1/2, 5/8, 3/4, 1"	12-071-S03	HSS
		12-071-S04	HSS-TIN



### HSS 45° DOVETAIL END MILLS



FOR CUTTING STANDARD AND WOODRUFF KEYWAYS IN STEEL

CUTTER DIA. IN	SHANK DIA.	CUTTER WIDTH	OVERALL LENGTH	HSS	HSS TIN
3/8	3/8	3/16	2-1/8	12-073-007	12-073-T007
1/2	3/8	1/4	2-1/8	12-073-008	12-073-T008
3/4	3/8	5/16	2-1/8	12-073-009	12-073-T009
1-3/8	5/8	9/16	2-7/8	12-073-010	12-073-T010
1-7/8	7/8	13/16	3-1/4	12-073-011	12-073-T011
2-1/4	1	1-1/16	3-3/4	12-073-012	12-073-T012

### HSS DOVETAIL END MILLS



TYPE A



TYPE B

FOR CUTTING STANDARD AND WOODRUFF KEYWAYS IN STEEL

CUTTER DIA. MM	SHANK DIA.	HSS TYPE A		HSS TYPE B	
		45°	60°	45°	60°
16	12	11-214-001	11-214-005	11-214-009	11-214-012
20	12	11-214-002	11-214-006	11-214-010	11-214-013
25	12	11-214-003	11-214-007	11-214-011	11-214-014
32	16	11-214-004	11-214-008		

### HSS 1/2" SHANK WOODRUFF KEYSEAT END MILLS



FOR CUTTING STANDARD AND WOODRUFF KEYWAYS IN STEEL

NOMINAL DIAMETER IN	FACE WIDTH IN	OVERALL LENGTH IN	AMERICAN STANDARD #	STRAIGHT TEETH		STRAIGHT TEETH	
				HSS	HSS TIN	HSS	HSS TIN
1/4"	1/16"	2-1/16"	202	12-072-001	12-072-T001	12-072-002	12-072-T002
5/16"	1/16"	2-1/16"	202-1/2	12-072-003	12-072-T003	12-072-004	12-072-T004
5/16"	3/32"	2-3/32"	302-1/2	12-072-005	12-072-T005	12-072-006	12-072-T006
3/8"	1/16"	2-1/16"	203	12-072-007	12-072-T007	12-072-008	12-072-T008
3/8"	3/32"	2-3/32"	303	12-072-009	12-072-T009	12-072-010	12-072-T010
3/8"	1/8"	2-1/8"	403	12-072-011	12-072-T011	12-072-012	12-072-T012
1/2"	1/16"	2-1/16"	204	12-072-013	12-072-T013	12-072-014	12-072-T014
1/2"	3/32"	2-3/32"	304	12-072-015	12-072-T015	12-072-016	12-072-T016
5/8"	3/32"	2-3/32"	305	12-072-017	12-072-T017	12-072-018	12-072-T018
1/2"	1/8"	2-1/8"	404	12-072-019	12-072-T019	12-072-020	12-072-T020
5/8"	1/8"	2-1/8"	405	12-072-021	12-072-T021	12-072-022	12-072-T022
3/4"	1/8"	2-1/8"	406	12-072-023	12-072-T023	12-072-024	12-072-T024
5/8"	5/32"	2-5/32"	505	12-072-025	12-072-T025	12-072-026	12-072-T026
5/8"	3/16"	2-3/16"	604	12-072-027	12-072-T027	12-072-028	12-072-T028
3/4"	5/32"	2-5/32"	506	12-072-029	12-072-T029	12-072-030	12-072-T030
3/4"	1/4"	2-1/4"	806	12-072-031	12-072-T031	12-072-032	12-072-T032
7/8"	5/32"	2-5/32"	507	12-072-033	12-072-T033	12-072-034	12-072-T034
3/4"	3/16"	2-3/16"	606	12-072-035	12-072-T035	12-072-036	12-072-T036
7/8"	3/16"	2-3/16"	607	12-072-037	12-072-T037	12-072-038	12-072-T038
7/8"	7/32"	2-7/32"	707	12-072-039	12-072-T039	12-072-040	12-072-T040
1"	3/16"	2-3/16"	608	12-072-041	12-072-T041	12-072-042	12-072-T042
1"	7/32"	2-7/32"	708	12-072-043	12-072-T043	12-072-044	12-072-T044
1"	3/8"	2-3/8"	1208	12-072-045	12-072-T045	12-072-046	12-072-T046
1-1/8"	3/16"	2-3/16"	609	12-072-047	12-072-T047	12-072-048	12-072-T048
7/8"	1/4"	2-1/4"	807	12-072-049	12-072-T049	12-072-050	12-072-T050
1"	1/4"	2-1/4"	808	12-072-051	12-072-T051	12-072-052	12-072-T052
1-1/8"	7/32"	2-7/32"	709	12-072-053	12-072-T053	12-072-054	12-072-T054
1-1/8"	1/4"	2-1/4"	809	12-072-055	12-072-T055	12-072-056	12-072-T056
1-1/4"	3/16"	2-3/16"	610	12-072-057	12-072-T057	12-072-058	12-072-T058
1-1/4"	7/32"	2-7/32"	710	12-072-059	12-072-T059	12-072-060	12-072-T060
1-1/4"	1/4"	2-1/4"	810	12-072-061	12-072-T061	12-072-062	12-072-T062
1-3/8"	1/4"	2-1/4"	811	12-072-063	12-072-T063	12-072-064	12-072-T064
1-1/2"	1/4"	2-1/4"	812	12-072-065	12-072-T065	12-072-066	12-072-T066
1"	5/16"	2-5/16"	1008	12-072-067	12-072-T067	12-072-068	12-072-T068
1-1/8"	5/16"	2-5/16"	1009	12-072-069	12-072-T069	12-072-070	12-072-T070
1-1/4"	5/16"	2-5/16"	1010	12-072-071	12-072-T071	12-072-072	12-072-T072
1-3/8"	5/16"	2-5/16"	1011	12-072-073	12-072-T073	12-072-074	12-072-T074
1-1/2"	5/16"	2-5/16"	1012	12-072-075	12-072-T075	12-072-076	12-072-T076
1-1/4"	3/8"	2-3/8"	1210	12-072-077	12-072-T077	12-072-078	12-072-T078
1-3/8"	3/8"	2-3/8"	1211	12-072-079	12-072-T079	12-072-080	12-072-T080
1-1/2"	3/8"	2-3/8"	1212	12-072-081	12-072-T081	12-072-082	12-072-T082

### HSS 1/2" SHANK WOODRUFF KEYSEAT END MILLS SET

PCS/SET	SIZE	STRAIGHT TEETH		STAGGERED TEETH	
		HSS	HSS-TIN	HSS	HSS-TIN
8 PCS/SET	#204, 304, 305, 406, #605, 606, 608, 806	12-072-S01	12-072-S07	12-072-S02	12-072-S08
9 PCS/SET	#204, 404, 406, 806, 606 #608, 808, 610, 1210	12-072-S03	12-072-S09	12-072-S04	12-072-S10
41 PCS/SET	#202-1212	12-072-S05	12-072-S11	12-072-S06	12-072-S12



### HSS 12MM SHANK WOODRUFF KEYSEAT END MILLS



FOR CUTTING STANDARD AND WOODRUFF KEYWAYS IN STEEL

NOMINAL DIAMETER MM	FACE WIDTH MM	OVERALL LENGTH MM	STRAIGHT TEETH		STAGGERED TEETH	
			HSS	HSS TIN	HSS	HSS TIN
10.5	2.0	50	11-072-001	11-072-T001	11-072-002	11-072-T002
10.5	2.5	50	11-072-003	11-072-T003	11-072-004	11-072-T004
10.5	3.0	50	11-072-005	11-072-T005	11-072-006	11-072-T006
13.5	2.0	56	11-072-007	11-072-T007	11-072-008	11-072-T008
13.5	2.5	56	11-072-009	11-072-T009	11-072-010	11-072-T010
13.5	3.0	56	11-072-011	11-072-T011	11-072-012	11-072-T012
13.5	4.0	56	11-072-013	11-072-T013	11-072-014	11-072-T014
16.5	2.5	56	11-072-015	11-072-T015	11-072-016	11-072-T016
16.5	3.0	56	11-072-017	11-072-T017	11-072-018	11-072-T018
16.5	4.0	56	11-072-019	11-072-T019	11-072-020	11-072-T020
16.5	5.0	56	11-072-021	11-072-T021	11-072-022	11-072-T022
19.5	3.0	56	11-072-023	11-072-T023	11-072-024	11-072-T024
19.5	4.0	56	11-072-025	11-072-T025	11-072-026	11-072-T026
19.5	5.0	63	11-072-027	11-072-T027	11-072-028	11-072-T028
22.5	4.0	63	11-072-029	11-072-T029	11-072-030	11-072-T030
22.5	5.0	63	11-072-031	11-072-T031	11-072-032	11-072-T032
22.5	6.0	63	11-072-033	11-072-T033	11-072-034	11-072-T034
25.5	5.0	63	11-072-035	11-072-T035	11-072-036	11-072-T036
25.5	6.0	63	11-072-037	11-072-T037	11-072-038	11-072-T038
25.5	7.0	63	11-072-039	11-072-T039	11-072-040	11-072-T040
25.5	8.0	63	11-072-041	11-072-T041	11-072-042	11-072-T042
28.5	5.0	63	11-072-043	11-072-T043	11-072-044	11-072-T044
28.5	6.0	63	11-072-045	11-072-T045	11-072-046	11-072-T046
28.5	7.0	63	11-072-047	11-072-T047	11-072-048	11-072-T048
28.5	8.0	63	11-072-049	11-072-T049	11-072-050	11-072-T050
32.5	5.0	71	11-072-051	11-072-T051	11-072-052	11-072-T052
32.5	6.0	71	11-072-053	11-072-T053	11-072-054	11-072-T054
32.5	8.0	71	11-072-055	11-072-T055	11-072-056	11-072-T056
38.5	7.0	71	11-072-057	11-072-T057	11-072-058	11-072-T058
38.5	8.0	71	11-072-059	11-072-T059	11-072-060	11-072-T060
38.5	9.0	71	11-072-061	11-072-T061	11-072-062	11-072-T062
38.5	10.0	71	11-072-063	11-072-T063	11-072-064	11-072-T064
45.5	10.0	71	11-072-065	11-072-T065	11-072-066	11-072-T066

### HSS 60° DOVETAIL END MILLS



CUTTER DIA. IN	SHANK DIA.	CUTTER WIDTH	OVERALL LENGTH	HSS	HSS TIN
3/8	3/8	3/16	2-1/8	12-073-001	12-073-T001
1/2	3/8	1/4	2-1/8	12-073-002	12-073-T002
3/4	3/8	5/16	2-1/8	12-073-003	12-073-T003
1-3/8	5/8	9/16	2-7/8	12-073-004	12-073-T004
1-7/8	7/8	13/16	3-1/4	12-073-005	12-073-T005
2-1/4	1	1-1/16	3-3/4	12-073-006	12-073-T006

### HSS 60° DOVETAIL END MILLS SET



SIZE	SPECIFICATION
5 PCS/SET	3/8, 1/2, 3/4, 1-3/8, 1-7/8"
12-071-S03	HSS
12-071-S04	HSS-TIN

### HSS CONVEX END MILLS, WELDON SHANK



FOR CUTTING STANDARD AND WOODRUFF KEYWAYS IN STEEL

RADIUS IN	CUTTER DIA.	OVERALL LENGTH	SHANK DIA.	FLUTE NO.	HSS
1/32	3/4	3	1/2	6	12-215-002
1/16	3/4	3	1/2	6	12-215-004
3/32	7/8	3	1/2	6	12-215-006
1/8	1-1/4	3-1/2	3/4	6	12-215-008
5/32	1-5/16	3-1/2	3/4	6	12-215-010
3/16	1-3/8	3-1/2	3/4	6	12-215-012
1/4	1-1/2	4	3/4	6	12-215-014
5/16	1-5/8	4	3/4	6	12-215-016
3/8	1-3/4	4-3/16	3/4	6	12-215-018

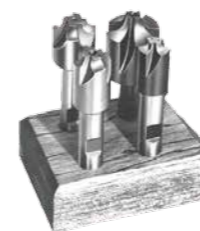
### HSS CONCAVE END MILLS, WELDON SHANK



FOR CUTTING STANDARD AND WOODRUFF KEYWAYS IN STEEL

RADIUS IN	CUTTER DIA.	OVERALL LENGTH	SHANK DIA.	FLUTE NO.	HSS
1/32	3/4	3	1/2	6	12-215-001
1/16	3/4	3	1/2	6	12-215-003
3/32	3/4	3	1/2	6	12-215-005
1/8	1	3-1/2	3/4	6	12-215-007
5/32	1	3-1/2	3/4	6	12-215-009
3/16	1	3-1/2	3/4	6	12-215-011
1/4	1-1/4	4	3/4	4	12-215-013
5/16	1-1/4	4	3/4	4	12-215-015
3/8	1-1/2	4-3/16	3/4	4	12-215-017

### HSS CORNER ROUNDING END MILLS SET WELDON SHANK



SIZE	SPECIFICATION
4 PCS/SET	1/2, 9/16, 5/8, 3/4" (x3/4 SHK)
12-074-S01	HSSCO5



SIZE	SPECIFICATION
8 PCS/SET	1/16, 3/32" (x3/8" SHK)
	1/8, 5/32, 3/16, 1/4, 5/16, 3/8" (x1/2" SHK)

SIZE	SPECIFICATION
8 PCS/SET	3/16, 1/4, 5/16, 3/8" (x3/4" SHK)
	7/16, 1/2, 5/8, 3/4" (x3/4" SHK)
12-074-S02	HSS
12-074-S03	HSS

### HSS CORNER ROUNDING END MILLS



RADIUS MM	SHANK DIA.	CUTTER DIA.	OVERALL LENGTH	HSS	HSS TIN	HSSCO5	HSSCO5 TIN
1/32	3/8	3/8	2-1/2	12-074-001	12-074-T001	12-074-C001	12-074-G001
1/16	3/8	7/16	2-1/2	12-074-002	12-074-T002	12-074-C002	12-074-G002
3/32	3/8	1/2	2-1/2	12-074-003	12-074-T003	12-074-C003	12-074-G003
1/8	1/2	5/8	3	12-074-004	12-074-T004	12-074-C004	12-074-G004
5/32	1/2	3/4	3	12-074-005	12-074-T005	12-074-C005	12-074-G005
3/16	3/4	7/8	3-1/8	12-074-006	12-074-T006	12-074-C006	12-074-G006
1/4	1/2	1	3	12-074-007	12-074-T007	12-074-C007	12-074-G007
1/4	3/4	1	3-1/4	12-074-008	12-074-T008	12-074-C008	12-074-G008
5/16	7/8	1-1/8	3-1/2	12-074-009	12-074-T009	12-074-C009	12-074-G009
3/8	7/8	1-1/4	3-3/4	12-074-010	12-074-T010	12-074-C010	12-074-G010
7/16	1	1-3/8	4	12-074-011	12-074-T011	12-074-C011	12-074-G011
1/2	3/4	1-1/2	3-7/8	12-074-012	12-074-T012	12-074-C012	12-074-G012
5/8	3/4	1-15/16	4	12-074-013	12-074-T013	12-074-C013	12-074-G013
3/4	3/4	2-1/4	4-1/8	12-074-014	12-074-T014	12-074-C014	12-074-G014
1	3/4	2-5/8	4-1/2	12-074-015	12-074-T015	12-074-C015	12-074-G015

### HSS CORNER ROUNDING END MILLS



RADIUS MM	SHANK DIA.	OVERALL LENGTH	HSS	HSS TIN	HSSCO5	HSSCO5 TIN
1.0	10	60	11-074-001	11-074-T001	11-074-C001	11-074-G001
1.5	10	60	11-074-002	11-074-T002	11-074-C002	11-074-G002
2.0	10	60	11-074-003	11-074-T003	11-074-C003	11-074-G003
2.5	10	60	11-074-004	11-074-T004	11-074-C004	11-074-G004
3.0	12	60	11-074-005	11-074-T005	11-074-C005	11-074-G005
3.5	12	65	11-074-006	11-074-T006	11-074-C006	11-074-G006
4.0	12	65	11-074-007	11-074-T007	11-074-C007	11-074-G007
4.5	12	65	11-074-008	11-074-T008	11-074-C008	11-074-G008
5.0	16	65	11-074-009	11-074-T009	11-074-C009	11-074-G009
6.0	16	67	11-074-010	11-074-T010	11-074-C010	11-074-G010

### HSS CORNER ROUNDING END MILLS SET WELDON SHANK

SIZE	SPECIFICATION
8 PCS/SET	2,3,4,5,6,8,10,12mm
11-074-S01	HSS

SIZE	SPECIFICATION
8 PCS/SET	6,8,10,12,14,16,18,20mm
11-074-S02	HSS



### REAMERS



# 10

METAL CUTTING

## HSS HAND REAMERS



Used for the final sizing of holes, the starting taper provides easy entry of the reamer into the holes.

### DIN206, RIGHT HAND CUT

SIZE H7	FLUTE LENGTH	OVERALL LENGTH	STRAIGHT FLUTE		SPIRAL FLUTE	
			HSS	HSS-TIN	HSS	HSS-TIN
1.5	25	50	11-075-001	11-075-T001	11-075-002	11-075-T002
2.0	25	50	11-075-003	11-075-T003	11-075-004	11-075-T004
2.5	29	58	11-075-005	11-075-T005	11-075-006	11-075-T006
3.0	31	62	11-075-007	11-075-T007	11-075-008	11-075-T008
4.0	38	76	11-075-011	11-075-T011	11-075-012	11-075-T012
5.0	44	87	11-075-015	11-075-T015	11-075-016	11-075-T016
6.0	47	93	11-075-019	11-075-T019	11-075-020	11-075-T020
7.0	54	107	11-075-023	11-075-T023	11-075-024	11-075-T024
8.0	58	115	11-075-027	11-075-T027	11-075-028	11-075-T028
9.0	62	124	11-075-031	11-075-T031	11-075-032	11-075-T032
10.0	66	133	11-075-035	11-075-T035	11-075-036	11-075-T036
11.0	71	142	11-075-039	11-075-T039	11-075-040	11-075-T040
12.0	76	152	11-075-043	11-075-T043	11-075-044	11-075-T044
13.0	76	152	11-075-047	11-075-T047	11-075-048	11-075-T048
14.0	81	163	11-075-049	11-075-T049	11-075-050	11-075-T050
15.0	81	163	11-075-051	11-075-T051	11-075-052	11-075-T052
16.0	87	175	11-075-053	11-075-T053	11-075-054	11-075-T054
17.0	87	175	11-075-055	11-075-T055	11-075-056	11-075-T056
18.0	93	188	11-075-057	11-075-T057	11-075-058	11-075-T058
19.0	93	188	11-075-059	11-075-T059	11-075-060	11-075-T060
20.0	100	201	11-075-061	11-075-T061	11-075-062	11-075-T062
22.0	107	215	11-075-063	11-075-T063	11-075-064	11-075-T064
25.0	115	231	11-075-065	11-075-T065	11-075-066	11-075-T066
28.0	124	247	11-075-067	11-075-T067	11-075-068	11-075-T068
30.0	124	247	11-075-069	11-075-T069	11-075-070	11-075-T070
32.0	133	265	11-075-071	11-075-T071	11-075-072	11-075-T072
34.0	142	284	11-075-073	11-075-T073	11-075-074	11-075-T074
35.0	142	184	11-075-075	11-075-T075	11-075-076	11-075-T076
36.0	142	284	11-075-077	11-075-T077	11-075-078	11-075-T078
38.0	152	305	11-075-079	11-075-T079	11-075-080	11-075-T080
40.0	152	305	11-075-081	11-075-T081	11-075-082	11-075-T082

## HSS HAND REAMERS



SIZE	SPECIFICATION
7 PCS/SET	3,4,5,6,8,10,12mm
11-075-S01	HSS
10 PCS/SET	9-9.9x0.1mm HSS 11-075-S02
10 PCS/SET	1-1.9x0.1mm HSS 11-075-S03
10 PCS/SET	2-2.9x0.1mm HSS 11-075-S04
10 PCS/SET	3-3.9x0.1mm HSS 11-075-S05
10 PCS/SET	4-4.9x0.1mm HSS 11-075-S06
10 PCS/SET	6-6.9x0.1mm HSS 11-075-S07
10 PCS/SET	7-7.9x0.1mm HSS 11-075-S08
10 PCS/SET	8-8.9x0.1mm HSS 11-075-S09
10 PCS/SET	5-5.9x0.1mm HSS 11-075-S10

## HSS STRAIGHT SHANK MACHINE REAMERS



These reamers are designed for most standard reaming needs.

### DIN212, RIGHT HAND CUT

SIZE H7	FLUTE LENGTH	OVERALL LENGTH	STRAIGHT FLUTE			SPIRAL FLUTE		
			HSS	HSS-TIN	HSSCO5	HSS	HSS-TIN	HSSCO5
1.50	8	40	11-076-003	11-076-T003	11-076-C003	11-076-004	11-076-T004	11-076-C004
2.00	11	49	11-076-013	11-076-T013	11-076-C013	11-076-014	11-076-T014	11-076-C014
3.00	15	61	11-076-033	11-076-T033	11-076-C033	11-076-034	11-076-T034	11-076-C034
4.00	19	75	11-076-053	11-076-T053	11-076-C053	11-076-054	11-076-T054	11-076-C054
5.00	23	86	11-076-073	11-076-T073	11-076-C073	11-076-074	11-076-T074	11-076-C074
6.00	26	93	11-076-093	11-076-T093	11-076-C093	11-076-094	11-076-T094	11-076-C094
7.00	31	109	11-076-113	11-076-T113	11-076-C113	11-076-114	11-076-T114	11-076-C114
8.00	33	117	11-076-133	11-076-T133	11-076-C133	11-076-134	11-076-T134	11-076-C134
9.00	36	125	11-076-153	11-076-T153	11-076-C153	11-076-154	11-076-T154	11-076-C154
10.00	38	133	11-076-173	11-076-T173	11-076-C173	11-076-174	11-076-T174	11-076-C174
11.00	41	142	11-076-193	11-076-T193	11-076-C193	11-076-194	11-076-T194	11-076-C194
12.00	44	151	11-076-213	11-076-T213	11-076-C213	11-076-214	11-076-T214	11-076-C214
13.00	44	151	11-076-215	11-076-T215	11-076-C215	11-076-216	11-076-T216	11-076-C216
14.00	47	160	11-076-217	11-076-T217	11-076-C217	11-076-218	11-076-T218	11-076-C218
15.00	50	162	11-076-219	11-076-T219	11-076-C219	11-076-220	11-076-T220	11-076-C220
16.00	52	170	11-076-221	11-076-T221	11-076-C221	11-076-222	11-076-T222	11-076-C222
17.00	54	175	11-076-223	11-076-T223	11-076-C223	11-076-224	11-076-T224	11-076-C224
18.00	56	182	11-076-225	11-076-T225	11-076-C225	11-076-226	11-076-T226	11-076-C226
19.00	58	189	11-076-227	11-076-T227	11-076-C227	11-076-228	11-076-T228	11-076-C228
20.00	60	195	11-076-229	11-076-T229	11-076-C229	11-076-230	11-076-T230	11-076-C230

## HSS SPIRAL FLUTE HAND REAMERS SET



SIZE	SPECIFICATION
41 PCS/SET	6-10x0.1mm
11-075-S11	HSS



SIZE	SPECIFICATION
50 PCS/SET	1-5.9x0.1mm
11-075-S12	HSS

## HSS TAPER SHANK MACHINE REAMERS



These reamers are designed and applied similarly to straight shank reamers except they are manufactured with morse taper shanks.

### DIN208, RIGHT HAND CUT

SIZE H7	FLUTE LENGTH	OVERALL LENGTH	MORSE TAPER	STRAIGHT FLUTE			SPIRAL FLUTE		
				HSS	HSS-TIN	HSSCO5	HSS	HSS-TIN	HSSCO5
5	23	133	1	11-220-001	11-220-T001	11-220-C001	11-220-002	11-220-T002	11-220-C002
6	26	138	1	11-220-003	11-220-T003	11-220-C003	11-220-004	11-220-T004	11-220-C004
7	31	150	1	11-220-005	11-220-T005	11-220-C005	11-220-006	11-220-T006	11-220-C006
8	33	156	1	11-220-007	11-220-T007	11-220-C007	11-220-008	11-220-T008	11-220-C008
9	36	162	1	11-220-009	11-220-T009	11-220-C009	11-220-010	11-220-T010	11-220-C010
10	38	168	1	11-220-011	11-220-T011	11-220-C011	11-220-012	11-220-T012	11-220-C012
11	41	175	1	11-220-013	11-220-T013	11-220-C013	11-220-014	11-220-T014	11-220-C014
12	44	182	1	11-220-015	11-220-T015	11-220-C015	11-220-016	11-220-T016	11-220-C016
13	44	182	1	11-220-017	11-220-T017	11-220-C017	11-220-018	11-220-T018	11-220-C018
14	47	189	1	11-220-019	11-220-T019	11-220-C019	11-220-020	11-220-T020	11-220-C020
15	50	204	2	11-220-021	11-220-T021	11-220-C021	11-220-022	11-220-T022	11-220-C022
16	52	210	2	11-220-023	11-220-T023	11-220-C023	11-220-024	11-220-T024	11-220-C024
18	56	219	2	11-220-027	11-220-T027	11-220-C027	11-220-028	11-220-T028	11-220-C028
20	60	228	2	11-220-031	11-220-T031	11-220-C031	11-220-032	11-220-T032	11-220-C032
22	64	237	2	11-220-035	11-220-T035	11-220-C035	11-220-036	11-220-T036	11-220-C036
24	68	268	3	11-220-039	11-220-T039	11-220-C039	11-220-040	11-220-T040	11-220-C040
25	68	268	3	11-220-041	11-220-T041	11-220-C041	11-220-042	11-220-T042	11-220-C042
26	70	273	3	11-220-043	11-220-T043	11-220-C043	11-220-044	11-220-T044	11-220-C044
28	71	277	3	11-220-047	11-220-T047	11-220-C047	11-220-048	11-220-T048	11-220-C048
30	73	281	3	11-220-051	11-220-T051	11-220-C051	11-220-052	11-220-T052	11-220-C052
32	77	317	4	11-220-055	11-220-T055	11-220-C055	11-220-056	11-220-T056	11-220-C056
34	78	321	4	11-220-059	11-220-T059	11-220-C059	11-220-060	11-220-T060	11-220-C060
35	78	321	4	11-220-061	11-220-T061	11-220-C061	11-220-062	11-220-T062	11-220-C062
36	79	325	4	11-220-063	11-220-T063	11-220-C063	11-220-064	11-220-T064	11-220-C064
38	81	329	4	11-220-067	11-220-T067	11-220-C067	11-220-068	11-220-T068	11-220-C068
40	81	329	4	11-220-071	11-220-T071	11-220-C071	11-220-072	11-220-T072	11-220-C072
45	83	336	4	11-220-073	11-220-T073	11-220-C073	11-220-074	11-220-T074	11-220-C074
50	86	344	4	11-220-075	11-220-T075	11-220-C075	11-220-076	11-220-T076	11-220-C076

## HSS STRAIGHT SHANK CHUCKING REAMERS



These reamers are designed for most standard reaming needs

### FRACTIONAL SIZES, RIGHT HAND CUT, ANSI B94

SIZE IN	DEC. EQUIV.	FLUTE LENGTH	OVERALL LENGTH	STRAIGHT FLUTE			SPIRAL FLUTE		
				HSS	HSS-TIN	HSSCO5	HSS	HSS-TIN	HSSCO5
1/16	.0625	1/2	2-1/2	12-076-007	12-076-T007	12-076-C007	12-076-008	12-076-T008	12-076-C008
3/32	.0938	3/4	3	12-076-011	12-076-T011	12-076-C011	12-076-012	12-076-T012	12-076-C012
1/8	.1250	7/8	3-1/2	12-076-015	12-076-T015	12-076-C015	12-076-016	12-076-T016	12-076-C016
5/32	.1562	1	4	12-076-019	12-076-T019	12-076-C019	12-076-020	12-076-T020	12-076-C020
3/16	.1875	1-1/8	4-1/2	12-076-023	12-076-T023	12-076-C023	12-076-024	12-076-T024	12-076-C024
7/32	.2188	1-1/4	5	12-076-027	12-076-T027	12-076-C027	12-076-028	12-076-T028	12-076-C028
1/4	.2500	1-1/2	6	12-076-031	12-076-T031	12-076-C031	12-076-032	12-076-T032	12-076-C032
9/32	.2812	1-1/2	6	12-076-035	12-076-T035	12-076-C035	12-076-036	12-076-T036	12-076-C036
5/16	.3125	1-1/2	6	12-076-039	12-076-T039	12-076-C039	12-076-040	12-076-T040	12-076-C040
11/32	.3438	1-1/2	6	12-076-043	12-076-T043	12-076-C043	12-076-044	12-076-T044	12-076-C044
3/8	.3750	1-3/4	7	12-076-047	12-076-T047	12-076-C047	12-076-048	12-076-T048	12-076-C048
13/32	.4062	1-3/4	7	12-076-051	12-076-T051	12-076-C051	12-076-052	12-076-T052	12-076-C052
7/16	.4375	1-3/4	7	12-076-055	12-076-T055	12-076-C055	12-076-056	12-076-T056	12-076-C056
15/32	.4688	1-3/4	7	12-076-059	12-076-T059	12-076-C059	12-076-060	12-076-T060	12-076-C060
1/2	.5000	2	8	12-076-063	12-076-T063	12-076-C063	12-076-064	12-076-T064	12-076-C064
9/16	.5625	2	8	12-076-071	12-076-T071	12-076-C071	12-076-072	12-076-T072	12-076-C072
5/8	.6250	2-1/4	9	12-076-079	12-076-T079	12-076-C079	12-076-080	12-076-T080	12-076-C080
11/16	.6785	2-1/4	9	12-076-087	12-076-T087	12-076-C087	12-076-088	12-076-T088	12-076-C088
3/4	.7500	2-1/2	9-1/2	12-076-095	12-076-T095	12-076-C095	12-076-096	12-076-T096	12-076-C096
13/16	.8125	2-1/2	9-1/2	12-076-103	12-076-T103	12-076-C103	12-076-104	12-076-T104	12-076-C104
7/8	.8750	2-5/8	10	12-076-111	12-076-T111	12-076-C111	12-076-112	12-076-T112	12-076-C112
15/16	.9375	2-5/8	10	12-076-119	12-076-T119	12-076-C119	12-076-120	12-076-T120	12-076-C120
1	1.0000	2-3/4	10-1/2	12-076-127	12-076-T127	12-076-C127	12-076-128	12-076-T128	12-076-C128
1-1/16	1.0625	2-3/4	10-1/2	12-076-131	12-076-T131	12-076-C131	12-076-132	12-076-T132	12-076-C132
1-3/32	1.0938	2-7/8	11	12-076-133	12-076-T133	12-076-C133	12-076-134	12-076-T134	12-076-C134
1-1/8	1.1250	2-7/8	11	12-076-135	12-076-T135	12-076-C135	12-076-136	12-076-T136	12-076-C136
1-5/32	1.1562	2-7/8	11	12-076-137	12-076-T137	12-076-C137	12-076-138	12-076-T138	12-076-C138
1-3/16	1.1875	2-7/8	11	12-076-139	12-076-T139	12-076-C139	12-076-140	12-076-T140	12-076-C140
1-7/32	1.2188	2-7/8	11	12-076-141	12-076-T141	12-076-C141	12-076-142	12-076-T142	12-076-C142
1-1/4	1.2500	3	11-1/2	12-076-143	12-076-T143	12-076-C143	12-076-144	12-076-T144	12-076-C144
1-5/16	1.3125	3	11-1/2	12-076-145	12-076-T145	12-076-C145	12-076-146	12-076-T146	12-076-C146
1-3/8	1.3750	3-1/4	12	12-076-147	12-076-T147	12-076-C147	12-076-148	12-076-T148	12-076-C148
1-7/16	1.4375	3-1/4	12	12-076-149	12-076-T149	12-076-C149	12-076-150	12-076-T150	12-076-C150
1-1/2	1.5000	3-1/2	12-1/2	12-076-151	12-076-T151	12-076-C151	12-076-152	12-076-T152	12-076-C152
1-9/16	1.5625	3-1/2	12-1/2	12-076-365	12-076-T365	12-076-C365	12-076-366	12-076-T366	12-076-C366
1-5/8	1.6250	3-5/8	13	12-076-367	12-076-T367	12-076-C367	12-076-368	12-076-T368	12-076-C368
1-11/16	1.6875	3-5/8	13	12-076-369	12-076-T369	12-076-C369	12-076-370	12-076-T370	12-076-C370
1-3/4	1.7500	4	13-1/2	12-076-371	12-076-T371	12-076-C371	12-076-372	12-076-T372	12-076-C372
1-7/8	1.8750	4	14	12-076-373	12-076-T373	12-076-C373	12-076-374	12-076-T374	12-076-C374
2	2.0000	4	14	12-076-375	12-076-T375	12-076-C375	12-076-376	12-076-T376	12-076-C376



WIRE GAUGE SIZES, RIGHT HAND CUT, ANSI B94

SIZE IN	DEC. EQUIV.	FLUTE LENGTH	OVERALL LENGTH	STRAIGHT FLUTE			SPIRAL FLUTE		
				HSS	HSS-TIN	HSSCO5	HSS	HSS-TIN	HSSCO5
#1	.2280	1-1/2	6	12-076-153	12-076-T153	12-076-C153	12-076-154	12-076-T154	12-076-C154
#2	.2210	1-1/2	6	12-076-155	12-076-T155	12-076-C155	12-076-156	12-076-T156	12-076-C156
#3	.2130	1-1/4	5	12-076-157	12-076-T157	12-076-C157	12-076-158	12-076-T158	12-076-C158
#4	.2090	1-1/4	5	12-076-159	12-076-T159	12-076-C159	12-076-160	12-076-T160	12-076-C160
#5	.2055	1-1/4	5	12-076-161	12-076-T161	12-076-C161	12-076-162	12-076-T162	12-076-C162
#6	.2040	1-1/4	5	12-076-163	12-076-T163	12-076-C163	12-076-164	12-076-T164	12-076-C164
#7	.2010	1-1/4	5	12-076-165	12-076-T165	12-076-C165	12-076-166	12-076-T166	12-076-C166
#8	.1990	1-1/4	5	12-076-167	12-076-T167	12-076-C167	12-076-168	12-076-T168	12-076-C168
#9	.1960	1-1/4	5	12-076-169	12-076-T169	12-076-C169	12-076-170	12-076-T170	12-076-C170
#10	.1935	1-1/4	5	12-076-171	12-076-T171	12-076-C171	12-076-172	12-076-T172	12-076-C172
#11	.1910	1-1/4	5	12-076-173	12-076-T173	12-076-C173	12-076-174	12-076-T174	12-076-C174
#12	.1890	1-1/8	4-1/2	12-076-175	12-076-T175	12-076-C175	12-076-176	12-076-T176	12-076-C176
#13	.1850	1-1/8	4-1/2	12-076-177	12-076-T177	12-076-C177	12-076-178	12-076-T178	12-076-C178
#14	.1820	1-1/8	4-1/2	12-076-179	12-076-T179	12-076-C179	12-076-180	12-076-T180	12-076-C180
#15	.1800	1-1/8	4-1/2	12-076-181	12-076-T181	12-076-C181	12-076-182	12-076-T182	12-076-C182
#16	.1770	1-1/8	4-1/2	12-076-183	12-076-T183	12-076-C183	12-076-184	12-076-T184	12-076-C184
#17	.1730	1-1/8	4-1/2	12-076-185	12-076-T185	12-076-C185	12-076-186	12-076-T186	12-076-C186
#18	.1695	1-1/8	4-1/2	12-076-187	12-076-T187	12-076-C187	12-076-188	12-076-T188	12-076-C188
#19	.1600	1-1/8	4-1/2	12-076-189	12-076-T189	12-076-C189	12-076-190	12-076-T190	12-076-C190
#20	.1610	1-1/8	4-1/2	12-076-191	12-076-T191	12-076-C191	12-076-192	12-076-T192	12-076-C192
#21	.1590	1-1/8	4-1/2	12-076-193	12-076-T193	12-076-C193	12-076-194	12-076-T194	12-076-C194
#22	.1570	1	4	12-076-195	12-076-T195	12-076-C195	12-076-196	12-076-T196	12-076-C196
#23	.1540	1	4	12-076-197	12-076-T197	12-076-C197	12-076-198	12-076-T198	12-076-C198
#24	.1520	1	4	12-076-199	12-076-T199	12-076-C199	12-076-200	12-076-T200	12-076-C200
#25	.1495	1	4	12-076-201	12-076-T201	12-076-C201	12-076-202	12-076-T202	12-076-C202
#26	.1470	1	4	12-076-203	12-076-T203	12-076-C203	12-076-204	12-076-T204	12-076-C204
#27	.1440	1	4	12-076-205	12-076-T205	12-076-C205	12-076-206	12-076-T206	12-076-C206
#28	.1405	1	4	12-076-207	12-076-T207	12-076-C207	12-076-208	12-076-T208	12-076-C208
#29	.1360	1	4	12-076-209	12-076-T209	12-076-C209	12-076-210	12-076-T210	12-076-C210
#30	.1285	7/8	3-1/2	12-076-211	12-076-T211	12-076-C211	12-076-212	12-076-T212	12-076-C212
#31	.1200	7/8	3-1/2	12-076-213	12-076-T213	12-076-C213	12-076-214	12-076-T214	12-076-C214
#32	.1160	7/8	3-1/2	12-076-215	12-076-T215	12-076-C215	12-076-216	12-076-T216	12-076-C216
#33	.1130	7/8	3-1/2	12-076-217	12-076-T217	12-076-C217	12-076-218	12-076-T218	12-076-C218
#34	.1110	7/8	3-1/2	12-076-219	12-076-T219	12-076-C219	12-076-220	12-076-T220	12-076-C220
#35	.1100	7/8	3-1/2	12-076-221	12-076-T221	12-076-C221	12-076-222	12-076-T222	12-076-C222
#36	.1065	7/8	3-1/2	12-076-223	12-076-T223	12-076-C223	12-076-224	12-076-T224	12-076-C224
#37	.1040	7/8	3-1/2	12-076-225	12-076-T225	12-076-C225	12-076-226	12-076-T226	12-076-C226
#38	.1015	7/8	3-1/2	12-076-227	12-076-T227	12-076-C227	12-076-228	12-076-T228	12-076-C228
#39	.0995	7/8	3-1/2	12-076-229	12-076-T229	12-076-C229	12-076-230	12-076-T230	12-076-C230
#40	.0980	7/8	3-1/2	12-076-231	12-076-T231	12-076-C231	12-076-232	12-076-T232	12-076-C232
#41	.0960	7/8	3-1/2	12-076-233	12-076-T233	12-076-C233	12-076-234	12-076-T234	12-076-C234
#42	.0935	3/4	3	12-076-235	12-076-T235	12-076-C235	12-076-236	12-076-T236	12-076-C236
#43	.0890	3/4	3	12-076-237	12-076-T237	12-076-C237	12-076-238	12-076-T238	12-076-C238
#44	.0860	3/4	3	12-076-239	12-076-T239	12-076-C239	12-076-240	12-076-T240	12-076-C240
#45	.0820	3/4	3	12-076-241	12-076-T241	12-076-C241	12-076-242	12-076-T242	12-076-C242
#46	.0810	3/4	3	12-076-243	12-076-T243	12-076-C243	12-076-244	12-076-T244	12-076-C244
#47	.0785	3/4	3	12-076-245	12-076-T245	12-076-C245	12-076-246	12-076-T246	12-076-C246
#48	.0760	3/4	3	12-076-247	12-076-T247	12-076-C247	12-076-248	12-076-T248	12-076-C248
#49	.0730	3/4	3	12-076-249	12-076-T249	12-076-C249	12-076-250	12-076-T250	12-076-C250
#50	.0700	3/4	3	12-076-251	12-076-T251	12-076-C251	12-076-252	12-076-T252	12-076-C252
#51	.0670	3/4	3	12-076-253	12-076-T253	12-076-C253	12-076-254	12-076-T254	12-076-C254
#52	.0635	1/2	2-1/2	12-076-255	12-076-T255	12-076-C255	12-076-256	12-076-T256	12-076-C256
#53	.0595	1/2	2-1/2	12-076-257	12-076-T257	12-076-C257	12-076-258	12-076-T258	12-076-C258
#54	.0550	1/2	2-1/2	12-076-259	12-076-T259	12-076-C259	12-076-260	12-076-T260	12-076-C260
#55	.0520	1/2	2-1/2	12-076-261	12-076-T261	12-076-C261	12-076-262	12-076-T262	12-076-C262
#56	.0465	1/2	2-1/2	12-076-263	12-076-T263	12-076-C263	12-076-264	12-076-T264	12-076-C264
#57	.0430	1/2	2-1/2	12-076-265	12-076-T265	12-076-C265	12-076-266	12-076-T266	12-076-C266
#58	.0420	1/2	2-1/2	12-076-267	12-076-T267	12-076-C267	12-076-268	12-076-T268	12-076-C268
#59	.0410	1/2	2-1/2	12-076-269	12-076-T269	12-076-C269	12-076-270	12-076-T270	12-076-C270
#60	.0400	1/2	2-1/2	12-076-271	12-076-T271	12-076-C271	12-076-272	12-076-T272	12-076-C272

LETTER SIZES, RIGHT HAND CUT, ANSI B94

SIZE IN	DEC. EQUIV.	FLUTE LENGTH	OVERALL LENGTH	STRAIGHT FLUTE			SPIRAL FLUTE		
				HSS	HSS-TIN	HSSCO5	HSS	HSS-TIN	HSSCO5
A	.2340	1-1/2	6	12-076-313	12-076-T313	12-076-C313	12-076-314	12-076-T314	12-076-C314
B	.2380	1-1/2	6	12-076-315	12-076-T315	12-076-C315	12-076-316	12-076-T316	12-076-C316
C	.2420	1-1/2	6	12-076-317	12-076-T317	12-076-C317	12-076-318	12-076-T318	12-076-C318
D	.2460	1-1/2	6	12-076-319	12-076-T319	12-076-C319	12-076-320	12-076-T320	12-076-C320
E	.2500	1-1/2	6	12-076-321	12-076-T321	12-076-C321	12-076-322	12-076-T322	12-076-C322
F	.2570	1-1/2	6	12-076-323	12-076-T323	12-076-C323	12-076-324	12-076-T324	12-076-C324
G	.2610	1-1/2	6	12-076-325	12-076-T325	12-076-C325	12-076-326	12-076-T326	12-076-C326
H	.2660	1-1/2	6	12-076-327	12-076-T327	12-076-C327	12-076-328	12-076-T328	12-076-C328
I	.2720	1-1/2	6	12-076-329	12-076-T329	12-076-C329	12-076-330	12-076-T330	12-076-C330
J	.2770	1-1/2	6	12-076-331	12-076-T331	12-076-C331	12-076-332	12-076-T332	12-076-C332
K	.2810	1-1/2	6	12-076-333	12-076-T333	12-076-C333	12-076-334	12-076-T334	12-076-C334
L	.2900	1-1/2	6	12-076-335	12-076-T335	12-076-C335	12-076-336	12-076-T336	12-076-C336
M	.2950	1-1/2	6	12-076-337	12-076-T337	12-076-C337	12-076-338	12-076-T338	12-076-C338
N	.3020	1-1/2	6	12-076-339	12-076-T339	12-076-C339	12-076-340	12-076-T340	12-076-C340
O	.3160	1-1/2	6	12-076-341	12-076-T341	12-076-C341	12-076-342	12-076-T342	12-076-C342
P	.3230	1-1/2	6	12-076-343	12-076-T343	12-076-C343	12-076-344	12-076-T344	12-076-C344
Q	.3320	1-1/2	6	12-076-345	12-076-T345	12-076-C345	12-076-346	12-076-T346	12-076-C346
R	.3390	1-1/2	6	12-076-347	12-076-T347	12-076-C347	12-076-348	12-076-T348	12-076-C348
S	.3480	1-3/4	7	12-076-349	12-076-T349	12-076-C349	12-076-350	12-076-T350	12-076-C350
T	.3580	1-3/4	7	12-076-351	12-076-T351	12-076-C351	12-076-352	12-076-T352	12-076-C352
U	.3680	1-3/4	7	12-076-353	12-076-T353	12-076-C353	12-076-354	12-076-T354	12-076-C354
V	.3770	1-3/4	7	12-076-355	12-076-T355	12-076-C355	12-076-356	12-076-T356	12-076-C356
W	.3860	1-3/4	7	12-076-357	12-076-T357	12-076-C357	12-076-358	12-076-T358	12-076-C358
X	.3970	1-3/4	7	12-076-359	12-076-T359	12-076-C359	12-076-360	12-076-T360	12-076-C360
Y	.4040	1-3/4	7	12-076-361	12-076-T361	12-076-C361	12-076-362	12-076-T362	12-076-C362
Z	.4130	1-3/4	7	12-076-363	12-076-T363	12-076-C363	12-076-364	12-076-T364	12-076-C364

HSS STRAIGHT SHANK CHUCKING REAMERS SET



SIZE	SPECIFICATION
7 PCS/SET	1/8,3/16,1/4,5/16,3/8,7/16,1/2
12-222-S01	HSS

SIZE	SPECIFICATION
29 PCS/SET	1/16-1/2x1/64"
12-222-S01	HSS

SIZE	SPECIFICATION
60 PCS/SET	#1-#60
12-222-S03	HSS

SIZE	SPECIFICATION
14 PCS/SET	OVER/UNDER SIZES-.124-.501"
12-222-S04	HSS

SIZE	SPECIFICATION
26 PCS/SET	A-Z
12-222-S05	HSS

## HSS STRAIGHT SHANK HAND REAMERS



Used for the final sizing of holes, the starting taper provides easy entry of the reamer into the holes.

FRACTIONAL SIZES, RIGHT HAND CUT, ANSI B94

SIZE IN	FLUTE LENGTH	OVERALL LENGTH	STRAIGHT FLUTE		LH SPIRAL FLUTE/RH CUT	
			HSS	HSS-TIN	HSS	HSS-TIN
1/8	1-1/2	3	12-223-001	12-223-T001	12-223-002	12-223-T002
5/32	1-5/8	3-1/4	12-223-005	12-223-T005	12-223-006	12-223-T006
3/16	1-3/4	3-1/2	12-223-009	12-223-T009	12-223-010	12-223-T010
7/32	1-7/8	3-3/4	12-223-013	12-223-T013	12-223-014	12-223-T014
1/4	2	4	12-223-017	12-223-T017	12-223-018	12-223-T018
9/32	2-1/8	4-1/4	12-223-021	12-223-T021	12-223-022	12-223-T022
5/16	2-1/4	4-1/2	12-223-025	12-223-T025	12-223-026	12-223-T026
11/32	2-3/8	4-3/4	12-223-027	12-223-T027	12-223-028	12-223-T028
3/8	2-1/2	5	12-223-029	12-223-T029	12-223-030	12-223-T030
13/32	2-5/8	5-1/4	12-223-031	12-223-T031	12-223-032	12-223-T032
7/16	2-3/4	5-1/2	12-223-033	12-223-T033	12-223-034	12-223-T034
15/32	2-7/8	5-3/4	12-223-035	12-223-T035	12-223-036	12-223-T036
1/2	3	6	12-223-037	12-223-T037	12-223-038	12-223-T038
9/16	3-1/4	6-1/2	12-223-041	12-223-T041	12-223-042	12-223-T042
5/8	3-1/2	7	12-223-045	12-223-T045	12-223-046	12-223-T046
11/16	3-7/8	7-3/4	12-223-049	12-223-T049	12-223-050	12-223-T050
3/4	4-3/16	8-3/8	12-223-053	12-223-T053	12-223-054	12-223-T054
13/16	4-9/16	9-1/8	12-223-057	12-223-T057	12-223-058	12-223-T058
7/8	4-7/8	9-3/4	12-223-061	12-223-T061	12-223-062	12-223-T062
15/16	5-1/8	10-1/4	12-223-065	12-223-T065	12-223-066	12-223-T066
1	5-7/16	10-7/8	12-223-069	12-223-T069	12-223-070	12-223-T070
1-1/16	5-5/8	11-1/4	12-223-071	12-223-T071	12-223-072	12-223-T072
1-1/8	5-13/16	11-5/8	12-223-073	12-223-T073	12-223-074	12-223-T074
1-3/16	6	12	12-223-075	12-223-T075	12-223-076	12-223-T076
1-1/4	6-1/8	12-1/4	12-223-077	12-223-T077	12-223-078	12-223-T078
1-5/16	6-1/4	12-1/2	12-223-079	12-223-T079	12-223-080	12-223-T080
1-3/8	6-5/16	12-5/8	12-223-081	12-223-T081	12-223-082	12-223-T082
1-7/16	6-7/16	12-7/8	12-223-083	12-223-T083	12-223-084	12-223-T084
1-1/2	6-1/2	13	12-223-085	12-223-T085	12-223-086	12-223-T086

## CARBIDE TIPPED STRAIGHT SHANK MACHINE REAMER



For hole reaming in cast iron, heat-treated steel and other hard metals

SIZE MM	FLUTE LENGTH	OVERALL LENGTH	STRAIGHT FL K10	SIZE MM	FLUTE LENGTH	OVERALL LENGTH	STRAIGHT FL K10
6	30	93	11-229-001	14	45	160	11-229-017
7	30	109	11-229-003	15	45	162	11-229-019
8	30	117	11-229-005	16	45	170	11-229-021
9	30	125	11-229-007	17	56	175	11-229-023
10	45	133	11-229-009	18	56	182	11-229-025
11	45	142	11-229-011	19	56	189	11-229-027
12	45	151	11-229-013	20	56	195	11-229-029
13	45	151	11-229-015				

## HSS TAPER SHANK CHUCKING REAMERS



These reamers are designed and applied similarly to straight shank reamers except they are manufactured with morse taper shanks.

FRACTIONAL SIZES, RIGHT HAND CUT, ANSI B94

SIZE IN	MORSE TAPER	FLUTE LENGTH	OVERALL LENGTH	STRAIGHT FLUTE			SPIRAL FLUTE		
				HSS	HSS-TIN	HSSCO5	HSS	HSS-TIN	HSSCO5
5/16	1	1-1/2	6	12-220-001	12-220-T001	12-220-C001	12-220-002	12-220-T002	12-220-C002
11/32	1	1-1/2	6	12-220-003	12-220-T003	12-220-C003	12-220-004	12-220-T004	12-220-C004
3/8	1	1-3/4	7	12-220-005	12-220-T005	12-220-C005	12-220-006	12-220-T006	12-220-C006
13/32	1	1-3/4	7	12-220-007	12-220-T007	12-220-C007	12-220-008	12-220-T008	12-220-C008
7/16	1	1-3/4	7	12-220-009	12-220-T009	12-220-C009	12-220-010	12-220-T010	12-220-C010
15/32	1	1-3/4	7	12-220-011	12-220-T011	12-220-C011	12-220-012	12-220-T012	12-220-C012
1/2	1	2	8	12-220-013	12-220-T013	12-220-C013	12-220-014	12-220-T014	12-220-C014
9/16	1	2	8	12-220-017	12-220-T017	12-220-C017	12-220-018	12-220-T018	12-220-C018
5/8	2	2-1/4	9	12-220-021	12-220-T021	12-220-C021	12-220-022	12-220-T022	12-220-C022
11/16	2	2-1/4	9	12-220-025	12-220-T025	12-220-C025	12-220-026	12-220-T026	12-220-C026
3/4	2	2-1/2	9-1/2	12-220-029	12-220-T029	12-220-C029	12-220-030	12-220-T030	12-220-C030
13/16	2	2-1/2	9-1/2	12-220-033	12-220-T033	12-220-C033	12-220-034	12-220-T034	12-220-C034
7/8	2	2-5/8	10	12-220-037	12-220-T037	12-220-C037	12-220-038	12-220-T038	12-220-C038
15/16	3	2-5/8	10	12-220-041	12-220-T041	12-220-C041	12-220-042	12-220-T042	12-220-C042
1	3	2-3/4	10-1/2	12-220-045	12-220-T045	12-220-C045	12-220-046	12-220-T046	12-220-C046
1-1/16	3	2-3/4	10-1/2	12-220-047	12-220-T047	12-220-C047	12-220-048	12-220-T048	12-220-C048
1-1/8	3	2-7/8	11	12-220-049	12-220-T049	12-220-C049	12-220-050	12-220-T050	12-220-C050
1-3/16	3	2-7/8	11	12-220-051	12-220-T051	12-220-C051	12-220-052	12-220-T052	12-220-C052
1-1/4	4	3	11-1/2	12-220-053	12-220-T053	12-220-C053	12-220-054	12-220-T054	12-220-C054
1-5/16	4	3	11-1/2	12-220-055	12-220-T055	12-220-C055	12-220-056	12-220-T056	12-220-C056
1-3/8	4	3-1/4	12	12-220-057	12-220-T057	12-220-C057	12-220-058	12-220-T058	12-220-C058
1-7/16	4	3-1/4	12	12-220-059	12-220-T059	12-220-C059	12-220-060	12-220-T060	12-220-C060
1-1/2	4	3-1/2	12-1/2	12-220-061	12-220-T061	12-220-C061	12-220-062	12-220-T062	12-220-C062

## HSS TAPER PIPE REAMERS



Taper pipe reamers are reaming holes to be tapped with taper pipe taps, they are tapered 3/4" to the foot.

THESE REAMERS ARE TAPERED 3/4" PER FOOT

NPT SIZE IN	DIAMETER		FLUTE LENGTH	OVERALL LENGTH	STRAIGHT FL HSS	SPIRAL FL HSS
	SMALL END	LARGE END				
1/8	0.316	0.362	3/4	2-1/8	12-080-001	12-080-002
1/4	0.406	0.472	1-1/16	2-7/16	12-080-003	12-080-004
3/8	0.540	0.606	1-1/16	2-9/16	12-080-005	12-080-006
1/2	0.665	0.751	1-3/8	3-1/8	12-080-007	12-080-008
3/4	0.876	0.962	1-3/8	3-1/4	12-080-009	12-080-010
1	1.103	1.212	1-3/4	3-3/4	12-080-011	12-080-012
1-1/4	1.444	1.553	1-3/4	4	12-080-013	12-080-014
1-1/2	1.684	1.793	1-3/4	4-1/4	12-080-015	12-080-016
2	2.159	2.268	1-3/4	4-1/2	12-080-017	12-080-018
2-1/2	2.561	2.722	2-9/16	5-1/2	12-080-019	12-080-020

## CARBIDE TIPPED STRAIGHT SHANK CHUCKING REAMER



For hole reaming in cast iron, heat-treated steel and other hard metals

SIZE IN	FLUTE LENGTH	OVERALL LENGTH	STRAIGHT FL C2	SIZE IN	FLUTE LENGTH	OVERALL LENGTH	STRAIGHT FL C2
3/16"	1-1/8"	4-1/2"	12-229-001	3/4"	2-1/2"	9-1/2"	12-229-037
7/32"	1-1/4"	5"	12-229-003	25/32"	2-1/2"	9-1/2"	12-229-039
1/4"	1-1/2"	6"	12-229-005	13/16"	2-1/2"	9-1/2"	12-229-041
9/32"	1-1/2"	6"	12-229-007	27/32"	2-1/2"	9-1/2"	12-229-043
5/16"	1-1/2"	6"	12-229-009	7/8"	2-5/8"	10"	12-229-045
11/32"	1-1/2"	6"	12-229-011	29/32"	2-5/8"	10"	12-229-047
3/8"	1-3/4"	7"	12-229-013	15/16"	2-5/8"	10"	12-229-049
13/32"	1-3/4"	7"	12-229-015	31/32"	2-5/8"	10"	12-229-051
7/16"	1-3/4"	7"	12-229-017	1"	2-3/4"	10-1/2"	12-229-053
15/32"	1-3/4"	7"	12-229-019	1-1/16"	2-3/4"	10-1/2"	12-229-055
1/2"	2"	8"	12-229-021	1-1/8"	2-7/8"	11"	12-229-057
17/32"	2"	8"	12-229-023	1-3/16"	2-7/8"	11"	12-229-059
9/16"	2"	8"	12-229-025	1-1/4"	3"	11-1/2"	12-229-061
19/32"	2"	8"	12-229-027	1-5/16"	3"	11-1/2"	12-229-063
5/8"	2-1/4"	9"	12-229-029	1-3/8"	3-1/4"	12"	12-229-065
21/32"	2-1/4"	9"	12-229-031	1-7/16"	3-1/4"	12"	12-229-067
11/16"	2-1/4"	9"	12-229-033	1-1/2"	3-1/2"	12-1/2"	12-229-069

## HSS HAND EXPANSION REAMERS



These reamers are used to enlarge holes by a few thousandths. The pilots and guides of these reamers are ground under size to allow smooth entrance.

Recommended expansion limits	
Sizes: 1/4-21/32"	.010"
Sizes: 11/16-1"	.013"
Sizes: 1-1/8-1-1/2"	.015"

SIZE IN	FLUTE LENGTH	OVERALL LENGTH	STRAIGHT FL HSS	SPIRAL FL HSS	SIZE IN	FLUTE LENGTH	OVERALL LENGTH	STRAIGHT FL HSS	SPIRAL FL HSS
1/4	1-7/16	3-7/8	12-077-001	12-077-002	3/4	2-11/16	6-9/16	12-077-033	12-077-034
9/32	1-3/4	4	12-077-003	12-077-004	13/16	3-1/16	7-1/16	12-077-037	12-077-038
5/16	1-3/4	4	12-077-005	12-077-006	7/8	3-5/16	7-1/2	12-077-041	12-077-042
11/32	1-3/4	4-1/4	12-077-007	12-077-008	1	3-3/4	8-3/8	12-077-049	12-077-050
3/8	1-3/4	4-1/4	12-077-009	12-077-010	1-1/16	4	8-11/16	12-077-051	12-077-052
13/32	1-3/4	4-1/2	12-077-011	12-077-012	1-1/8	4-1/8	9	12-077-053	12-077-054
7/16	1-3/4	4-1/2	12-077-013	12-077-014	1-3/16	4-1/4	9-3/8	12-077-055	12-077-056
15/32	1-13/16	5	12-077-015	12-077-016	1-1/4	4-3/8	9-3/4	12-077-057	12-077-058
1/2	1-13/16	5	12-077-017	12-077-018	1-5/16	4-1/2	10-1/8	12-077-059	12-077-060
9/16	2-1/8	5-1/2	12-077-021	12-077-022	1-3/8	4-9/16	10-1/2	12-077-061	12-077-062
5/8	2-1/2	6	12-077-025	12-077-026	1-7/16	4-3/4	11-3/8	12-077-063	12-077-064
11/16	2-1/2	6-1/4	12-077-029	12-077-030	1-1/2	4-13/16	11-5/8	12-077-065	12-077-066

## HSS HAND EXPANSION REAMERS



These reamers are used to enlarge holes by a few thousandths. The pilots and guides of these reamers are ground under size to allow smooth entrance.

SIZE MM	FLUTE LENGTH	OVERALL LENGTH	NO. OF FLUTE	SQUARE SIZE	STRAIGHT FL HSS	SPIRAL FL HSS
6	33	93	6	4.5	11-077-001	11-077-002
7	38	107	6	5.6	11-077-003	11-077-004
8	42	115	6	6.3	11-077-005	11-077-006
9	46	124	6	7.1	11-077-007	11-077-008
10	50	133	6	8.0	11-077-009	11-077-010
11	51	142	6	9.0	11-077-011	11-077-012
12	56	152	6	10.0	11-077-013	11-077-014
13	56	152	6	10.0	11-077-015	11-077-016
14	61	163	6	11.2	11-077-017	11-077-018
15	61	163	6	11.2	11-077-019	11-077-020
16	67	175	6	12.5	11-077-021	11-077-022
17	67	175	6	12.5	11-077-023	11-077-024
18	68	188	6	14.0	11-077-025	11-077-026
19	68	188	6	14.0	11-077-027	11-077-028
20	75	201	6	16.0	11-077-029	11-077-030
21	75	201	6	16.0	11-077-031	11-077-032
22	82	215	12	18.0	11-077-033	11-077-034
23	82	215	12	18.0	11-077-035	11-077-036
24	85	231	12	20.0	11-077-037	11-077-038
25	85	231	12	20.0	11-077-039	11-077-040
30	94	247	12	22.4	11-077-041	11-077-042
33	99	265	12	26.0	11-077-043	11-077-044
38	111	305	12	29.0	11-077-045	11-077-046

## HSS SPIRAL FLUTE HAND EXPANSION REAMERS



SIZE	SPECIFICATION
13 PCS/SET	1/4-1x16ths
12-077-S01	HSS SPIRAL FLUTE
SIZE	SPECIFICATION
13 PCS/SET	1/4-1x16ths
12-077-S02	HSS STRAIGHT FLUTE
SIZE	SPECIFICATION
10 PCS/SET	6,8,10,12,14,16,18,20,22,25mm
11-077-S02	HSS STRAIGHT FLUTE
SIZE	SPECIFICATION
10 PCS/SET	6,8,10,12,14,16,18,20,22,25mm
11-077-S01	HSS SPIRAL FLUTE

## HSS TAPER SHANK BRIDGE REAMERS



Structural reamers are used extensively in ship and bridge building and boiler manufacturing where steel plates and shapes have punched or drilled holes that are undersize and rough and where it is necessary to ream holes in assemblies to obtain proper alignment and size for accepting rivets, bolts, etc.

DIN311, LEFT HAND SPIRAL FLUTE, RIGHT HAND CUT

SIZE MM	MORSE TAPER	FLUTE LENGTH	OVERALL LENGTH	SPIRAL FL HSS	SIZE MM	MORSE TAPER	FLUTE LENGTH	OVERALL LENGTH	SPIRAL FL HSS
6.4	1	75	151	11-221-001	23	3	165	281	11-221-020
7.4	1	80	156	11-221-002	24	3	180	296	11-221-021
8.0	1	85	161	11-221-003	25	3	180	296	11-221-022
8.4	1	85	161	11-221-004	26	3	180	296	11-221-023
9.0	1	90	166	11-221-005	27	3	195	311	11-221-024
9.5	1	90	166	11-221-006	28	3	195	311	11-221-025
10	1	95	171	11-221-007	29	3	195	311	11-221-026
11	1	100	176	11-221-008	30	3	195	311	11-221-027
12	2	105	199	11-221-009	31	3	210	326	11-221-028
13	2	105	199	11-221-010	32	4	210	354	11-221-029
14	2	115	209	11-221-011	33	4	210	354	11-221-030
15	2	125	219	11-221-012	34	4	220	364	11-221-031
16	2	135	229	11-221-013	35	4	220	364	11-221-032
17	3	135	251	11-221-014	36	4	220	364	11-221-033
18	3	145	261	11-221-015	37	4	220	364	11-221-034
19	3	145	261	11-221-016	38	4	230	374	11-221-035
20	3	155	271	11-221-017	39	4	230	374	11-221-036
21	3	155	271	11-221-018	40	4	230	374	11-221-037
22	3	165	281	11-221-019					

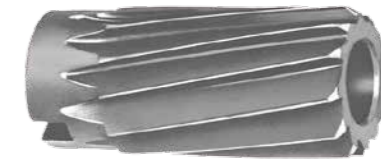
## HSS TAPER SHANK BRIDGE REAMERS



Structural reamers are used extensively in ship and bridge building and boiler manufacturing where steel plates and shapes have punched or drilled holes that are undersize and rough and where it is necessary to ream holes in assemblies to obtain proper alignment and size for accepting rivets, bolts, etc.

SIZE MM	MORSE TAPER	FLUTE LENGTH	OVERALL LENGTH	SPIRAL FL HSS	SIZE MM	MORSE TAPER	FLUTE LENGTH	OVERALL LENGTH	SPIRAL FL HSS
3/8	2	4-3/8	8-1/4	12-221-001	7/8	3	7-3/8	12	12-221-012
13/32	2	4-3/8	8-1/4	12-221-002	15/16	3	7-3/8	12	12-221-013
7/16	2	4-3/8	8-1/4	12-221-003	1	3	7-3/8	12	12-221-014
15/32	2	5-1/8	9	12-221-004	1-1/16	3	7-3/8	12	12-221-015
1/2	2	5-1/8	9	12-221-005	1-1/8	3	7-3/8	12	12-221-016
17/32	2	5-1/8	9	12-221-006	1-3/16	3	7-3/8	12	12-221-017
9/16	2	5-1/8	9	12-221-007	1-1/4	4	7-3/8	13	12-221-018
5/8	2	6-1/8	10	12-221-008	1-5/16	4	7-3/8	13	12-221-019
11/16	3	7-1/8	11-3/4	12-221-009	1-3/8	4	7-3/8	13	12-221-020
3/4	3	7-3/8	12	12-221-010	1-7/16	4	7-3/8	13	12-221-021
13/16	3	7-3/8	12	12-221-011	1-1/2	4	7-3/8	13	12-221-022

## HSS SHELL REAMERS



To be used with shell reamer arbors, one size fits a range of sizes

USED WITH SHELL REAMER ARBOR

SIZE IN	HOLE DIA. LARGE END	FITTING ARBOR NO.	OVERALL LENGTH	STRAIGHT FLUTE		SPIRAL FLUTE	
				HSS	HSSCO5	HSS	HSSCO5
3/4	3/8	4	2-1/4	12-078-001	12-078-C001	12-078-002	12-078-C002
13/16	1/2	5	2-1/2	12-078-003	12-078-C003	12-078-004	12-078-C004
7/8	1/2	5	2-1/2	12-078-005	12-078-C005	12-078-006	12-078-C006
15/16	1/2	5	2-1/2	12-078-007	12-078-C007	12-078-008	12-078-C008
1	1/2	5	2-1/2	12-078-009	12-078-C009	12-078-010	12-078-C010
1-1/16	5/8	6	2-3/4	12-078-011	12-078-C011	12-078-012	12-078-C012
1-1/8	5/8	6	2-3/4	12-078-013	12-078-C013	12-078-014	12-078-C014
1-3/16	5/8	6	2-3/4	12-078-015	12-078-C015	12-078-016	12-078-C016
1-1/4	5/8	6	2-3/4	12-078-017	12-078-C017	12-078-018	12-078-C018
1-5/16	3/4	7	3	12-078-019	12-078-C019	12-078-020	12-078-C020
1-3/8	3/4	7	3	12-078-021	12-078-C021	12-078-022	12-078-C022
1-7/16	3/4	7	3	12-078-023	12-078-C023	12-078-024	12-078-C024
1-1/2	3/4	7	3	12-078-025	12-078-C025	12-078-026	12-078-C026
1-9/16	3/4	7	3	12-078-027	12-078-C027	12-078-028	12-078-C028
1-5/8	3/4	7	3	12-078-029	12-078-C029	12-078-030	12-078-C030
1-11/16	1	8	3-1/2	12-078-031	12-078-C031	12-078-032	12-078-C032
1-3/4	1	8	3-1/2	12-078-033	12-078-C033	12-078-034	12-078-C034
1-13/16	1	8	3-1/2	12-078-035	12-078-C035	12-078-036	12-078-C036
1-7/8	1	8	3-1/2	12-078-037	12-078-C037	12-078-038	12-078-C038
1-15/16	1	8	3-1/2	12-078-039	12-078-C039	12-078-040	12-078-C040
2	1	8	3-1/2	12-078-041	12-078-C041	12-078-042	12-078-C042
2-1/16	1-1/4	9	3-3/4	12-078-043	12-078-C043	12-078-044	12-078-C044
2-1/8	1-1/4	9	3-3/4	12-078-045	12-078-C045	12-078-046	12-078-C046
2-3/16	1-1/4	9	3-3/4	12-078-047	12-078-C047	12-078-048	12-078-C048
2-1/4	1-1/4	9	3-3/4	12-078-049	12-078-C049	12-078-050	12-078-C050
2-5/16	1-1/4	9	3-3/4	12-078-051	12-078-C051	12-078-052	12-078-C052
2-3/8	1-1/4	9	3-3/4	12-078-053	12-078-C053	12-078-054	12-078-C054
2-7/16	1-1/4	9	3-3/4	12-078-055	12-078-C055	12-078-056	12-078-C056
2-1/2	1-1/4	9	3-3/4	12-078-057	12-078-C057	12-078-058	12-078-C058
2-9/16	1-1/2	10	4	12-078-059	12-078-C059	12-078-060	12-078-C060
2-5/8	1-1/2	10	4	12-078-061	12-078-C061	12-078-062	12-078-C062
2-11/16	1-1/2	10	4	12-078-063	12-078-C063	12-078-064	12-078-C064
2-3/4	1-1/2	10	4	12-078-065	12-078-C065	12-078-066	12-078-C066
2-13/16	1-1/2	10	4	12-078-067	12-078-C067	12-078-068	12-078-C068
2-7/8	1-1/2	10	4	12-078-069	12-078-C069	12-078-070	12-078-C070
2-15/16	1-1/2	10	4	12-078-071	12-078-C071	12-078-072	12-078-C072
3	1-1/2	10	4	12-078-073	12-078-C073	12-078-074	12-078-C074

### E-Z EJECT STRAIGHT SHANK REAMER ARBORS



SIZE IN	SHANK DIA.	ARBOR DIA.	APPROX. L TAPER	FITS SHELL REAMER	OVERALL LENGTH	WRENCH SIZE	ORDER NO.
4	1/2	3/8	2-1/4	21/32-25/32	9	19/32	12-079-001
5	5/8	1/2	2-1/2	13/16-1-1/32	9-1/2	25/32	12-079-003
6	3/4	5/8	2-3/4	1-1/16-1-9/32	10	7/8	12-079-005
7	7/8	3/4	3	1-5/16-1-5/8	11	1-1/16	12-079-007
8	1-1/8	1	3-1/2	1-11/16-2	12	1-7/16	12-079-009
9	1-3/8	1-1/4	3-3/4	2-1/16-2-1/2	13	1-13/16	12-079-011
10	1-5/8	1-1/2	4	2-9/16-3	14	2-3/16	12-079-013

### E-Z EJECT TAPER SHANK REAMER ARBORS



SIZE IN	MORSE TAPER NO.	ARBOR DIA.	APPROX. L TAPER	FITS SHELL REAMER	OVERALL LENGTH	WRENCH SIZE	ORDER NO.
4	2MT	3/8	2-1/4	21/32-25/32	9	19/32	12-079-002
5	2MT	1/2	2-1/2	13/16-1-1/32	9-1/2	25/32	12-079-004
6	3MT	5/8	2-3/4	1-1/16-1-9/32	10	7/8	12-079-006
7	3MT	3/4	3	1-5/16-1-5/8	11	1-1/16	12-079-008
8	4MT	1	3-1/2	1-11/16-2	12	1-7/16	12-079-010
9	4MT	1-1/4	3-3/4	2-1/16-2-1/2	13	1-13/16	12-079-012
10	5MT	1-1/2	4	2-9/16-3	14	2-3/16	12-079-014

### TAPER SHANK REAMER ARBORS



DIN217

SIZE MM	MORSE TAPER NO.	ARBOR DIA.	FITS SHELL REAMER	OVERALL LENGTH	ORDER NO.
A	2MT	10	20-23	250	12-226-002
B	2MT	13	24-30	250	12-226-004
C	3MT	10	20-23	250	12-226-006
D	3MT	13	24-30	250	12-226-008
E	3MT	16	32-35	261	12-226-010
F	3MT	19	36-42	273	12-226-012
G	4MT	19	36-42	298	12-226-014
H	4MT	22	45-50	312	12-226-016
I	4MT	27	52-60	327	12-226-018

### HSS SHELL REAMERS



To be used with shell reamer arbors, one size fits a range of sizes

DIN219

SIZE MM	HOLE DIA.	OVERALL LENGTH	STRAIGHT FLUTE		SPIRAL FLUTE	
			HSS	HSSCO5	HSS	HSSCO5
20	10	40	11-225-001	11-225-C001	11-225-002	11-225-C002
21	10	40	11-225-003	11-225-C003	11-225-004	11-225-C004
22	10	40	11-225-005	11-225-C005	11-225-006	11-225-C006
23	10	40	11-225-007	11-225-C007	11-225-008	11-225-C008
24	13	45	11-225-009	11-225-C009	11-225-010	11-225-C010
25	13	45	11-225-011	11-225-C011	11-225-012	11-225-C012
26	13	45	11-225-013	11-225-C013	11-225-014	11-225-C014
27	13	45	11-225-015	11-225-C015	11-225-016	11-225-C016
28	13	45	11-225-017	11-225-C017	11-225-018	11-225-C018
29	13	45	11-225-019	11-225-C019	11-225-020	11-225-C020
30	13	45	11-225-021	11-225-C021	11-225-022	11-225-C022
32	16	50	11-225-023	11-225-C023	11-225-024	11-225-C024
35	16	50	11-225-025	11-225-C025	11-225-026	11-225-C026
36	19	56	11-225-027	11-225-C027	11-225-028	11-225-C028
38	19	56	11-225-029	11-225-C029	11-225-030	11-225-C030
40	19	56	11-225-031	11-225-C031	11-225-032	11-225-C032
42	19	56	11-225-033	11-225-C033	11-225-034	11-225-C034
45	22	63	11-225-035	11-225-C035	11-225-036	11-225-C036
48	22	63	11-225-037	11-225-C037	11-225-038	11-225-C038
50	22	63	11-225-039	11-225-C039	11-225-040	11-225-C040
52	27	71	11-225-041	11-225-C041	11-225-042	11-225-C042
55	27	71	11-225-043	11-225-C043	11-225-044	11-225-C044
60	27	71	11-225-045	11-225-C045	11-225-046	11-225-C046

### HSS MORSE TAPER STRAIGHT FLUTE HAND REAMERS



These reamer is used for accurate reaming of morse taper holes in sockets, sleeves and spindles.

DIN204

NO. OF TAPER	SHANK DIA.	DIAMETER		FLUTE LENGTH	OVERALL LENGTH	FINISHING HSS	ROUGHING HSS
		SAMALL END	LARGE END				
0	5/16	0.2503	0.3674	2-1/4	3-3/4	12-224-007	12-224-008
1	7/16	0.3674	0.5170	3	5	12-224-001	12-224-009
2	5/8	0.5696	0.7444	3-1/2	6	12-224-002	12-224-010
3	7/8	0.7748	0.9881	4-1/4	7-1/4	12-224-003	12-224-011
4	1-1/4	1.0167	1.2893	5-1/4	8-1/2	12-224-004	12-224-012
5	1-1/2	1.4717	1.8005	6-1/4	9-3/4	12-224-005	12-224-013
6	2	2.1120	2.5550	8-1/2	12-1/4	12-224-006	12-224-014

## HSS TAPER PIN REAMERS



These are for machine reaming of holes for taper pins.

THESE REAMERS ARE TAPERED 1/4" PER FOOT

SIZE IN	DIAMETER		FLUTE LENGTH	OVERALL LENGTH	SHANK DIA.	STRAIGHT FL HSS	SPIRAL FL HSS
	SMALL END	LARGE END					
7/0	0.0497	0.0666	13/16	1-13/16	5/64	12-227-001	12-227-002
6/0	0.0611	0.0806	15/16	1-15/16	3/32	12-227-003	12-227-004
5/0	0.0719	0.0966	1-3/16	2-3/16	7/64	12-227-005	12-227-006
4/0	0.0869	0.1142	1-5/16	2-5/16	1/8	12-227-007	12-227-008
3/0	0.1029	0.1302	1-5/16	2-5/16	9/64	12-227-009	12-227-010
2/0	0.1137	0.1462	1-9/16	2-9/16	5/32	12-227-011	12-227-012
0	0.1287	0.1638	1-11/16	2-15/16	11/64	12-227-013	12-227-014
1	0.1447	0.1798	1-11/16	2-15/16	3/16	12-227-015	12-227-016
2	0.1605	0.2008	1-15/16	3-3/16	13/64	12-227-017	12-227-018
3	0.1813	0.2294	2-5/16	3-11/16	15/64	12-227-019	12-227-020
4	0.2071	0.2604	2-9/16	4-1/16	17/64	12-227-021	12-227-022
5	0.2409	0.2994	2-13/16	4-5/16	5/16	12-227-023	12-227-024
6	0.2773	0.3540	3-11/16	5-7/16	23/64	12-227-025	12-227-026
7	0.3297	0.4220	4-7/16	6-5/16	13/32	12-227-027	12-227-028
8	0.3971	0.5050	5-3/16	7-3/16	7/16	12-227-029	12-227-030
9	0.4805	0.6066	6-1/16	8-5/16	9/16	12-227-031	12-227-032
10	0.5799	0.7216	6-13/16	9-5/16	5/8	12-227-033	12-227-034
11	0.7060	0.8780	8-1/4	11-1/4	11/16	12-227-035	12-227-036
12	0.8420	1.0500	10	13-5/8	3/4	12-227-037	12-227-038
13	1.0090	1.2590	12	16	1-1/16	12-227-039	12-227-040
14	1.2500	1.5420	14	18-1/4	1-3/8	12-227-041	12-227-042

### HSS TAPER PIN REAMERS SET



TAPER: 1/4" PER FOOT, STRAIGHT FLUTE & STRAIGHT SHANK

SIZE	SPECIFICATION
6 PCS/SET	#0-#5
12-227-S01	HSS

### HSS SPIRAL FLUTE TAPER REAMERS 1:20



SIZE MM	DIAMETER		FLUTE LENGTH	OVERALL LENGTH	SPIRAL FL HSS
	SMALL END	LARGE END			
6	3	6	60	110	11-228-001
8	4	8	80	130	11-228-002
10	5	10	100	155	11-228-003
12	6	12	120	180	11-228-004
14	7	14	140	200	11-228-005

## HSS TAPER PIN HAND REAMERS TAPER 1:50



These are for machine reaming of holes for taper pins.

SIZE MM	DIAMETER		FLUTE LENGTH	OVERALL LENGTH	STRAIGHT FL HSS	SPIRAL FL HSS
	SMALL END	LARGE END				
1.5	1.40	2.14	37	57	11-082-001	11-082-002
2.0	1.90	2.86	48	68	11-082-003	11-082-004
2.5	2.40	3.36	48	68	11-082-005	11-082-006
3.0	2.90	4.06	58	80	11-082-007	11-082-008
4.0	3.90	5.26	68	93	11-082-009	11-082-010
5.0	4.90	6.36	73	100	11-082-011	11-082-012
6.0	5.90	8.00	105	135	11-082-013	11-082-014
6.5	6.40	8.60	110	140	11-082-015	11-082-016
7.0	6.90	9.40	125	160	11-082-017	11-082-018
8.0	7.90	10.80	145	180	11-082-019	11-082-020
9.0	8.90	12.10	160	195	11-082-021	11-082-022
10.0	9.90	13.40	175	215	11-082-023	11-082-024
12.0	11.80	16.00	210	255	11-082-025	11-082-026
13.0	12.80	17.00	210	255	11-082-027	11-082-028
16.0	15.80	20.40	230	280	11-082-029	11-082-030
20.0	19.80	24.80	250	310	11-082-031	11-082-032

### REPAIRMAN'S TAPERED REAMERS SET

Removes burrs from small holes, enlarges and countersinks holes in soft metals handy tool for mechanics, electricians, plumbers, machinists and carpenters.



SIZE	ORDER NO.
1/8-1/2"	12-081-T01
1/8-5/8"	12-081-T02
3.2-12.7mm	11-081-T01

## HSS ADJUSTABLE HAND REAMERS



Blade is adjusted by loosening one nut and tightening the other. Each reamer expands to the next size.

SIZE IN	RANGE OF ADJUSTABLE	BLADE LENGTH	OVERALL LENGTH	ORDER NO. HSS
8A	1/4-9/32	1-11/32	3-1/4	12-083-001
7A	9/32-5/16	1-11/32	3-1/2	12-083-003
6A	5/16-11/32	1-1/2	4-1/8	12-083-005
5A	11/32-3/8	1-1/2	4-3/8	12-083-007
4A	3/8-13/32	1-1/2	4-3/4	12-083-009
3A	13/32-7/16	1-1/2	5	12-083-011
2A	7/16-15/32	1-5/8	5-1/4	12-083-013
A	15/32-17/32	1-5/8	5-1/2	12-083-015
B	17/32-19/32	1-13/16	5-3/4	12-083-017
C	19/32-21/32	2-1/16	6-1/2	12-083-019
D	21/32-23/32	2-3/16	6-3/4	12-083-021
E	23/32-25/32	2-1/2	7	12-083-023
F	25/32-27/32	2-5/8	7-3/8	12-083-025
G	27/32-15/16	3	8	12-083-027
H	15/16-1-1/16	3-1/4	9	12-083-029
I	1-1/16-1-3/16	3-3/8	10	12-083-031
J	1-3/16-1-11/32	3-7/8	11	12-083-033
K	1-11/32-1-1/2	4-1/4	12	12-083-035
L	1-1/2-1-13/16	4-7/16	25	12-083-037
M	1-13/16-2-7/32	5	16	12-083-039
N	2-7/32-2-3/4	4-13/16	18	12-083-041
O	2-3/4-3-11/32	5-3/16	19	12-083-043

## HSS ADJUSTABLE HAND REAMERS SET

SIZE	SPECIFICATION
8 PCS/SET	12-27mm
11-083-S01	HSS
SIZE	SPECIFICATION
8 PCS/SET	15/32-1-1/16"
12-083-S01	HSS
SIZE	SPECIFICATION
11 PCS/SET	12-38.75mm
11-081-S01	HSS



## HSS ADJUSTABLE HAND REAMERS



Blade is adjusted by loosening one nut and tightening the other. Each reamer expands to the next size.

SIZE MM	RANGE OF ADJUSTABLE	NO. OF BLADES	WITHOUT GUIDE	WITH GUIDE
001	7,00-8,00	4	11-081-001	11-081-002
002	8,00-8,70	4	11-081-003	11-081-004
003	8,70-9,50	4	11-081-005	11-081-006
004	9,50-10,25	4	11-081-007	11-081-008
005	10,25-11,00	6	11-081-009	11-081-010
006	11,00-12,00	6	11-081-011	11-081-012
007	12,00-13,50	6	11-081-013	11-081-014
008	13,50-15,00	6	11-081-015	11-081-016
009	15,00-16,50	6	11-081-017	11-081-018
010	16,50-18,25	6	11-081-019	11-081-020
011	18,25-19,75	6	11-081-021	11-081-022
012	19,75-21,50	6	11-081-023	11-081-024
013	21,50-23,75	6	11-081-025	11-081-026
014	23,75-27,00	6	11-081-027	11-081-028
015	27,00-30,00	6	11-081-029	11-081-030
016	30,00-34,00	6	11-081-031	11-081-032
017	34,00-38,75	6	11-081-033	11-081-034
018	38,75-46,00	6	11-081-035	11-081-036
019	46,00-56,00	6	11-081-037	11-081-038

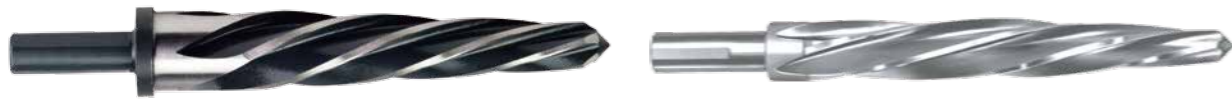
## HSS HEX SHANK CAR REAMERS



Blade are adjusted by loosening one nut and tightening the other. Each reamer expands to the next size.

SIZE IN	HEX SHANK SIZE	FLUTE LENGTH	OVERALL LENGTH	SPIRAL FL HSS
1/2	1-1/16	4	5-1/2	12-230C-001
9/16	1-1/16	4	5-1/2	12-230C-002
5/8	1-1/16	4-1/2	6	12-230C-003
11/16	1-1/16	4-1/2	6-3/8	12-230C-004
3/4	1-1/4	5	7	12-230C-005
13/16	1-1/4	5	7	12-230C-006
7/8	1-7/16	5	7	12-230C-007
15/16	1-7/16	5	7	12-230C-008
1	1-7/16	5	7	12-230C-009
1-1/16	1-5/8	5	7	12-230C-010
1-1/8	1-5/8	5	7	12-230C-011
1-3/16	1-13/16	5	7	12-230C-012
1-1/4	1-13/16	5	7	12-230C-013
1-5/16	2	5	7-7/8	12-230C-014
1-3/8	2	5	7-7/8	12-230C-015
1-7/16	2	5	7-7/8	12-230C-016
1-1/2	2	5	7-7/8	12-230C-017
1-9/16	2	5	7-7/8	12-230C-018

## HSS CAR REAMERS



Used to align existing holes prior to rivet or bolt installation, the point is tapered to allow entry into overlapping holes. These reamers are also useful in portable reaming.

### 1/2" STRAIGHT SHANK WITH 3 FLATS, LIMIT STEP

SIZE IN	SHANK DIA.	FLUTE LENGTH	OVERALL LENGTH	SPIRAL FL HSS
5/16	1/2	2-3/4	4-5/8	12-230A-001
3/8	1/2	2-3/4	4-5/8	12-230A-002
7/16	1/2	3-1/2	5-3/8	12-230A-003
1/2	1/2	4	5-7/8	12-230A-004
9/16	1/2	4	5-7/8	12-230A-005
5/8	1/2	4-1/2	6-3/8	12-230A-006
11/16	1/2	4-1/2	6-3/8	12-230A-007
3/4	1/2	5	6-7/8	12-230A-008
13/16	1/2	5	6-7/8	12-230A-009
7/8	1/2	5	6-7/8	12-230A-010
15/16	1/2	5	6-7/8	12-230A-011
1	1/2	5	6-7/8	12-230A-012
1-1/16	1/2	5	6-7/8	12-230A-013
1-1/8	1/2	5	6-7/8	12-230A-014
1-3/16	1/2	5	6-7/8	12-230A-015
1-1/4	1/2	5	6-7/8	12-230A-016
1-5/16	1/2	5	6-7/8	12-230A-017
1-3/8	1/2	5	6-7/8	12-230A-018
1-7/16	1/2	5	6-7/8	12-230A-019
1-1/2	1/2	5	6-7/8	12-230A-020

### 1/2" STRAIGHT SHANK WITH 3 FLATS

SIZE IN	SHANK DIA.	FLUTE LENGTH	OVERALL LENGTH	SPIRAL FL HSS
5/16	1/2	2-3/4	4-5/8	12-230B-001
3/8	1/2	2-3/4	4-5/8	12-230B-002
7/16	1/2	3-1/2	5-3/8	12-230B-003
1/2	1/2	4	5-7/8	12-230B-004
9/16	1/2	4	5-7/8	12-230B-005
5/8	1/2	4-1/2	6-3/8	12-230B-006
11/16	1/2	4-1/2	6-3/8	12-230B-007
3/4	1/2	5	6-7/8	12-230B-008
13/16	1/2	5	6-7/8	12-230B-009
7/8	1/2	5	6-7/8	12-230B-010
15/16	1/2	5	6-7/8	12-230B-011
1	1/2	5	6-7/8	12-230B-012
1-1/16	1/2	5	6-7/8	12-230B-013
1-1/8	1/2	5	6-7/8	12-230B-014
1-3/16	1/2	5	6-7/8	12-230B-015
1-1/4	1/2	5	6-7/8	12-230B-016
1-5/16	1/2	5	6-7/8	12-230B-017
1-3/8	1/2	5	6-7/8	12-230B-018
1-7/16	1/2	5	6-7/8	12-230B-019
1-1/2	1/2	5	6-7/8	12-230B-020

## HIGH CARBON STEEL VALVE SEAT CUTTER SET

This Item Is Manufactured From High Grade Carbon Steel, Each Cutter In Accurately Grade For Best Results, Ideal For Vintage Car Or Old Engine Restorer.

### 3 PC VALVE SEAT & FACE CUTTER SET



SET A  
45° FACE CUTTER: 23x12, 25x13  
20° BORE CUTTER: 25x16  
HAND REAMER: 5.5  
PILOT  
HANDLE  
RODS

ORDER NO. 11-294A-S01



SET B  
45° FACE CUTTER: 22x12, 24x13  
20° BORE CUTTER: 25x16  
HAND REAMER: 5.5  
PILOT  
HANDLE  
RODS

ORDER NO. 11-294A-S02

SET C  
45° FACE CUTTER: 18x12, 22x13  
20° BORE CUTTER: 25x16  
HAND REAMER: 5.5  
PILOT  
HANDLE  
RODS

ORDER NO. 11-294A-S03

### 9 PC VALVE SEAT & FACE CUTTER SET



45° FACE CUTTER: 22x12, 23x12, 24x12, 25x12, 26x12, 27x12  
PILOT: 5.0, 5.5  
HANDLE,  
RODS

ORDER NO. 12-294A-S04

### 20 PC VALVE SEAT & FACE CUTTER SET



45° FACE CUTTER: 1"x11.5, 1-1/16"x11.5, 1-1/8"x11.5, 1-3/16"x12, 1-1/4"x12, 1-5/16"x12, 1-3/8"x12.5, 1-7/16"x12.5, 1-1/2"x12.5, 1-9/16"x13, 1-5/8"x13, 1-3/4"x13, 1-7/8"x13.5, 2"x14, 2-3/16"x14  
30° FACE CUTTER: 1-11/16"x12  
20° BORE CUTTER: 1-3/8"x20.5, 1-1/4"x20.5, 1-1/2"x20.5, 1-3/4"x20.5  
PILOT: 11/32", 5/16", 3/8", 7/16", 8.0mm, 8.5mm, 9.0mm, 10.0mm  
HANDLE: 16mm,  
RODS

ORDER NO. 12-294A-S03

## HSS VALVE SEAT CUTTER SET

All cutters are made from high speed steel, They will cut Hardened Seats & Soft Seats. Ideal For Modern & Vintage Car Or Old Engine Restorer.



#### 5 PCS/SET

FACE CUTTER 45°x5° 1-1/4, 1-3/8", 1-7/16", 1-1/2"  
BORE CUTTER 20°: 1-1/2"  
PILOT: 312, 432  
1 PC OF HANDLE  
1 PC OF RODS

ORDER NO. 12-294-S01

#### 3 PCS/SET

FACE CUTTER 45°x5° 1-1/4, 1-3/8"  
BORE CUTTER 20° : 1-1/2"  
PILOT: 312  
1 PC OF HANDLE  
1 PC OF RODS

ORDER NO. 12-294-S02



#### 13 PCS/SET

45° FACE CUTTER: 30, 32.5, 35, 37.5, 40, 42.5, 45, 47.5, 50  
45° FACE CUTTER: 52.5, 55, 58, 60  
PILOT: 6, 6.5, 7.0, 7.5, 8.0, 8.5, 9.0, 9.5, 10, 10.5, 11, 11.5, 12  
1 PC OF HANDLE  
1 PC OF RODS

ORDER NO. 11-294-S03

#### 5 PCS/SET

45° FACE CUTTER: 32.5, 35, 37.5, 40, 42.5  
PILOT  
1 PC OF HANDLE  
1 PC OF RODS

ORDER NO. 11-294-S04





## HSS SQUARE TOOL BITS



DIN4964/B

SIZE MM, H13	OAL ±2MM	HSS	HSSCO5	HSSCO8	HSSCO10
3	100	11-121-001	11-121-LC001	11-121-HC001	11-121-C001
3	150	11-121-003	11-121-LC003	11-121-HC003	11-121-C003
3	200	11-121-005	11-121-LC005	11-121-HC005	11-121-C005
4	63	11-121-065	11-121-LC065	11-121-HC065	11-121-C065
4	100	11-121-002	11-121-LC002	11-121-HC002	11-121-C002
4	150	11-121-066	11-121-LC066	11-121-HC066	11-121-C066
4	200	11-121-067	11-121-LC067	11-121-HC067	11-121-C067
5	63	11-121-068	11-121-LC068	11-121-HC068	11-121-C068
5	100	11-121-069	11-121-LC069	11-121-HC069	11-121-C069
5	150	11-121-004	11-121-LC004	11-121-HC004	11-121-C004
5	160	11-121-070	11-121-LC070	11-121-HC070	11-121-C070
5	200	11-121-006	11-121-LC006	11-121-HC006	11-121-C006
6	63	11-121-071	11-121-LC071	11-121-HC071	11-121-C071
6	80	11-121-072	11-121-LC072	11-121-HC072	11-121-C072
6	100	11-121-007	11-121-LC007	11-121-HC007	11-121-C007
6	150	11-121-008	11-121-LC008	11-121-HC008	11-121-C008
6	160	11-121-073	11-121-LC073	11-121-HC073	11-121-C073
6	200	11-121-009	11-121-LC009	11-121-HC009	11-121-C009
7	100	11-121-074	11-121-LC074	11-121-HC074	11-121-C074
7	150	11-121-010	11-121-LC010	11-121-HC010	11-121-C010
7	200	11-121-011	11-121-LC011	11-121-HC011	11-121-C011
8	63	11-121-075	11-121-LC075	11-121-HC075	11-121-C075
8	80	11-121-076	11-121-LC076	11-121-HC076	11-121-C076
8	100	11-121-012	11-121-LC012	11-121-HC012	11-121-C012
8	150	11-121-013	11-121-LC013	11-121-HC013	11-121-C013
8	160	11-121-077	11-121-LC077	11-121-HC077	11-121-C077
8	200	11-121-014	11-121-LC014	11-121-HC014	11-121-C014
9	200	11-121-078	11-121-LC078	11-121-HC078	11-121-C078
10	63	11-121-079	11-121-LC079	11-121-HC079	11-121-C079
10	80	11-121-080	11-121-LC080	11-121-HC080	11-121-C080
10	100	11-121-015	11-121-LC015	11-121-HC015	11-121-C015
10	150	11-121-016	11-121-LC016	11-121-HC016	11-121-C016
10	160	11-121-081	11-121-LC081	11-121-HC081	11-121-C081
10	200	11-121-017	11-121-LC017	11-121-HC017	11-121-C017
12	63	11-121-082	11-121-LC082	11-121-HC082	11-121-C082
12	80	11-121-083	11-121-LC083	11-121-HC083	11-121-C083
12	100	11-121-020	11-121-LC020	11-121-HC020	11-121-C020
12	150	11-121-021	11-121-LC021	11-121-HC021	11-121-C021

## TURNING TOOLS



# 11

METAL CUTTING

## HSS SQUARE TOOL BITS



DIN4964/B					
SIZE MM,H13	OAL ±2MM	HSS	HSSCO5	HSSCO8	HSSCO10
12	160	11-121-084	11-121-LC084	11-121-HC084	11-121-C084
12	200	11-121-022	11-121-LC022	11-121-HC022	11-121-C022
14	100	11-121-025	11-121-LC025	11-121-HC025	11-121-C025
14	150	11-121-026	11-121-LC026	11-121-HC026	11-121-C026
14	200	11-121-027	11-121-LC027	11-121-HC027	11-121-C027
15	150	11-121-028	11-121-LC028	11-121-HC028	11-121-C028
15	160	11-121-029	11-121-LC029	11-121-HC029	11-121-C029
16	100	11-121-030	11-121-LC030	11-121-HC030	11-121-C030
16	150	11-121-031	11-121-LC031	11-121-HC031	11-121-C031
16	160	11-121-085	11-121-LC085	11-121-HC085	11-121-C085
16	200	11-121-032	11-121-LC032	11-121-HC032	11-121-C032
18	100	11-121-034	11-121-LC034	11-121-HC034	11-121-C034
18	150	11-121-035	11-121-LC035	11-121-HC035	11-121-C035
18	200	11-121-036	11-121-LC036	11-121-HC036	11-121-C036
20	100	11-121-037	11-121-LC037	11-121-HC037	11-121-C037
20	150	11-121-038	11-121-LC038	11-121-HC038	11-121-C038
20	160	11-121-086	11-121-LC086	11-121-HC086	11-121-C086
20	200	11-121-039	11-121-LC039	11-121-HC039	11-121-C039
22	100	11-121-041	11-121-LC041	11-121-HC041	11-121-C041
22	150	11-121-042	11-121-LC042	11-121-HC042	11-121-C042
22	200	11-121-043	11-121-LC043	11-121-HC043	11-121-C043
24	200	11-121-045	11-121-LC045	11-121-HC045	11-121-C045
25	100	11-121-046	11-121-LC046	11-121-HC046	11-121-C046
25	150	11-121-047	11-121-LC047	11-121-HC047	11-121-C047
25	200	11-121-048	11-121-LC048	11-121-HC048	11-121-C048
26	100	11-121-049	11-121-LC049	11-121-HC049	11-121-C049
26	150	11-121-050	11-121-LC050	11-121-HC050	11-121-C050
26	200	11-121-051	11-121-LC051	11-121-HC051	11-121-C051
28	100	11-121-055	11-121-LC055	11-121-HC055	11-121-C055
28	150	11-121-056	11-121-LC056	11-121-HC056	11-121-C056
28	200	11-121-057	11-121-LC057	11-121-HC057	11-121-C057
30	150	11-121-058	11-121-LC058	11-121-HC058	11-121-C058
30	200	11-121-059	11-121-LC059	11-121-HC059	11-121-C059
32	200	11-121-061	11-121-LC061	11-121-HC061	11-121-C061
34	200	11-121-087	11-121-LC087	11-121-HC087	11-121-C087
38	200	11-121-062	11-121-LC062	11-121-HC062	11-121-C062
40	200	11-121-064	11-121-LC064	11-121-HC064	11-121-C064
50	200	11-121-063	11-121-LC063	11-121-HC063	11-121-C063

## HSS RECTANGULAR TOOL BITS



DIN4964/B						
WIDTH MM,H13	HEIGHT MM,H13	OAL ±2MM	HSS	HSSCO5	HSSCO8	HSSCO10
2	4	200	11-123-183	11-123-LC183	11-123-HC183	11-123-C183
2	5	200	11-123-184	11-123-LC184	11-123-HC184	11-123-C184
2	6	200	11-123-185	11-123-LC185	11-123-HC185	11-123-C185
2	8	200	11-123-186	11-123-LC186	11-123-HC186	11-123-C186
2	10	200	11-123-187	11-123-LC187	11-123-HC187	11-123-C187
2	12	200	11-123-188	11-123-LC188	11-123-HC188	11-123-C188
2	14	200	11-123-189	11-123-LC189	11-123-HC189	11-123-C189
2	16	200	11-123-190	11-123-LC190	11-123-HC190	11-123-C190
2	18	200	11-123-191	11-123-LC191	11-123-HC191	11-123-C191
2	20	200	11-123-192	11-123-LC192	11-123-HC192	11-123-C192
2	25	200	11-123-193	11-123-LC193	11-123-HC193	11-123-C193
3	5	200	11-123-194	11-123-LC194	11-123-HC194	11-123-C194
3	6	200	11-123-006	11-123-LC006	11-123-HC006	11-123-C006
3	8	200	11-123-010	11-123-LC010	11-123-HC010	11-123-C010
3	10	200	11-123-013	11-123-LC013	11-123-HC013	11-123-C013
3	12	200	11-123-017	11-123-LC017	11-123-HC017	11-123-C017
3	14	200	11-123-020	11-123-LC020	11-123-HC020	11-123-C020
3	16	200	11-123-024	11-123-LC024	11-123-HC024	11-123-C024
3	18	200	11-123-195	11-123-LC195	11-123-HC195	11-123-C195
3	20	200	11-123-029	11-123-LC029	11-123-HC029	11-123-C029
3	25	200	11-123-032	11-123-LC032	11-123-HC032	11-123-C032
3	30	200	11-123-196	11-123-LC196	11-123-HC196	11-123-C196
3	40	200	11-123-197	11-123-LC197	11-123-HC197	11-123-C197
3	50	200	11-123-198	11-123-LC198	11-123-HC198	11-123-C198
3	60	200	11-123-199	11-123-LC199	11-123-HC199	11-123-C199
4	6	200	11-123-045	11-123-LC045	11-123-HC045	11-123-C045
4	8	200	11-123-048	11-123-LC048	11-123-HC048	11-123-C048
4	10	200	11-123-051	11-123-LC051	11-123-HC051	11-123-C051
4	12	200	11-123-054	11-123-LC054	11-123-HC054	11-123-C054
4	14	200	11-123-057	11-123-LC057	11-123-HC057	11-123-C057
4	16	200	11-123-062	11-123-LC062	11-123-HC062	11-123-C062
4	18	200	11-123-068	11-123-LC068	11-123-HC068	11-123-C068
4	20	200	11-123-074	11-123-LC074	11-123-HC074	11-123-C074
4	25	200	11-123-078	11-123-LC078	11-123-HC078	11-123-C078
4	30	200	11-123-200	11-123-LC200	11-123-HC200	11-123-C200
4	40	200	11-123-201	11-123-LC201	11-123-HC201	11-123-C201
4	50	200	11-123-202	11-123-LC202	11-123-HC202	11-123-C202
4	60	200	11-123-203	11-123-LC203	11-123-HC203	11-123-C203
5	8	200	11-123-085	11-123-LC085	11-123-HC085	11-123-C085
5	10	200	11-123-204	11-123-LC204	11-123-HC204	11-123-C204
5	12	200	11-123-092	11-123-LC092	11-123-HC092	11-123-C092
5	14	200	11-123-095	11-123-LC095	11-123-HC095	11-123-C095
5	16	200	11-123-100	11-123-LC100	11-123-HC100	11-123-C100
5	18	200	11-123-103	11-123-LC103	11-123-HC103	11-123-C103
5	20	200	11-123-108	11-123-LC108	11-123-HC108	11-123-C108
5	25	200	11-123-113	11-123-LC113	11-123-HC113	11-123-C113
5	30	200	11-123-205	11-123-LC205	11-123-HC205	11-123-C205
5	40	200	11-123-206	11-123-LC206	11-123-HC206	11-123-C206
5	50	200	11-123-207	11-123-LC207	11-123-HC207	11-123-C207
5	60	200	11-123-208	11-123-LC208	11-123-HC208	11-123-C208
6	8	200	11-123-209	11-123-LC209	11-123-HC209	11-123-C209
6	10	200	11-123-117	11-123-LC117	11-123-HC117	11-123-C117

## HSS RECTANGULAR TOOL BITS



DIN4964/B

WIDTH MM,H13	HEIGHT MM,H13	OAL ±2MM	HSS	HSSCO5	HSSCO8	HSSCO10
6	12	200	11-123-122	11-123-LC122	11-123-HC122	11-123-C122
6	14	200	11-123-125	11-123-LC125	11-123-HC125	11-123-C125
6	16	200	11-123-128	11-123-LC128	11-123-HC128	11-123-C128
6	18	200	11-123-132	11-123-LC132	11-123-HC132	11-123-C132
6	20	200	11-123-137	11-123-LC137	11-123-HC137	11-123-C137
6	25	200	11-123-142	11-123-LC142	11-123-HC142	11-123-C142
6	30	200	11-123-210	11-123-LC210	11-123-HC210	11-123-C210
6	40	200	11-123-211	11-123-LC211	11-123-HC211	11-123-C211
6	50	200	11-123-212	11-123-LC212	11-123-HC212	11-123-C212
6	60	200	11-123-213	11-123-LC213	11-123-HC213	11-123-C213
8	10	200	11-123-214	11-123-LC214	11-123-HC214	11-123-C214
8	12	200	11-123-155	11-123-LC155	11-123-HC155	11-123-C155
8	14	200	11-123-215	11-123-LC215	11-123-HC215	11-123-C215
8	16	200	11-123-158	11-123-LC158	11-123-HC158	11-123-C158
8	18	200	11-123-159	11-123-LC159	11-123-HC159	11-123-C159
8	20	200	11-123-161	11-123-LC161	11-123-HC161	11-123-C161
8	25	200	11-123-163	11-123-LC163	11-123-HC163	11-123-C163
8	30	200	11-123-216	11-123-LC216	11-123-HC216	11-123-C216
8	40	200	11-123-217	11-123-LC217	11-123-HC217	11-123-C217
8	50	200	11-123-218	11-123-LC218	11-123-HC218	11-123-C218
8	60	200	11-123-219	11-123-LC219	11-123-HC219	11-123-C219
10	12	200	11-123-166	11-123-LC166	11-123-HC166	11-123-C166
10	14	200	11-123-220	11-123-LC220	11-123-HC220	11-123-C220
10	16	200	11-123-221	11-123-LC221	11-123-HC221	11-123-C221
10	18	200	11-123-222	11-123-LC222	11-123-HC222	11-123-C222
10	20	200	11-123-171	11-123-LC171	11-123-HC171	11-123-C171
10	25	200	11-123-172	11-123-LC172	11-123-HC172	11-123-C172
10	30	200	11-123-223	11-123-LC223	11-123-HC223	11-123-C223
10	40	200	11-123-224	11-123-LC224	11-123-HC224	11-123-C224
10	50	200	11-123-225	11-123-LC225	11-123-HC225	11-123-C225
10	60	200	11-123-226	11-123-LC226	11-123-HC226	11-123-C226
12	14	200	11-123-227	11-123-LC227	11-123-HC227	11-123-C227
12	16	200	11-123-228	11-123-LC228	11-123-HC228	11-123-C228
12	18	200	11-123-229	11-123-LC229	11-123-HC229	11-123-C229
12	20	200	11-123-177	11-123-LC177	11-123-HC177	11-123-C177
12	25	200	11-123-179	11-123-LC179	11-123-HC179	11-123-C179
12	30	200	11-123-230	11-123-LC230	11-123-HC230	11-123-C230
12	40	200	11-123-231	11-123-LC231	11-123-HC231	11-123-C231
12	50	200	11-123-232	11-123-LC232	11-123-HC232	11-123-C232
12	60	200	11-123-233	11-123-LC233	11-123-HC233	11-123-C233
15	20	200	11-123-234	11-123-LC234	11-123-HC234	11-123-C234
15	25	200	11-123-235	11-123-LC235	11-123-HC235	11-123-C235
15	30	200	11-123-236	11-123-LC236	11-123-HC236	11-123-C236
15	40	200	11-123-237	11-123-LC237	11-123-HC237	11-123-C237
15	50	200	11-123-238	11-123-LC238	11-123-HC238	11-123-C238
15	60	200	11-123-239	11-123-LC239	11-123-HC239	11-123-C239
16	25	200	11-123-240	11-123-LC240	11-123-HC240	11-123-C240
16	30	200	11-123-241	11-123-LC241	11-123-HC241	11-123-C241
16	40	200	11-123-242	11-123-LC242	11-123-HC242	11-123-C242
16	50	200	11-123-243	11-123-LC243	11-123-HC243	11-123-C243
16	60	200	11-123-244	11-123-LC244	11-123-HC244	11-123-C244
20	25	200	11-123-182	11-123-LC182	11-123-HC182	11-123-C182

## HSS ROUND TOOL BITS



DIN4964/A

DIA. MM,H9	OAL ±2MM	HSS	HSSCO5	HSSCO8	HSSCO10
3	100	11-122-021	11-122-LC021	11-122-HC021	11-122-C021
3	150	11-122-115	11-122-LC115	11-122-HC115	11-122-C115
3	200	11-122-116	11-122-LC116	11-122-HC116	11-122-C116
4	63	11-122-117	11-122-LC117	11-122-HC117	11-122-C117
4	80	11-122-118	11-122-LC118	11-122-HC118	11-122-C118
4	100	11-122-031	11-122-LC031	11-122-HC031	11-122-C031
4	150	11-122-119	11-122-LC119	11-122-HC119	11-122-C119
4	200	11-122-120	11-122-LC120	11-122-HC120	11-122-C120
5	80	11-122-121	11-122-LC121	11-122-HC121	11-122-C121
5	100	11-122-041	11-122-LC041	11-122-HC041	11-122-C041
5	150	11-122-122	11-122-LC122	11-122-HC122	11-122-C122
5	200	11-122-123	11-122-LC123	11-122-HC123	11-122-C123
6	63	11-122-124	11-122-LC124	11-122-HC124	11-122-C124
6	80	11-122-125	11-122-LC125	11-122-HC125	11-122-C125
6	100	11-122-051	11-122-LC051	11-122-HC051	11-122-C051
6	150	11-122-126	11-122-LC126	11-122-HC126	11-122-C126
6	160	11-122-127	11-122-LC127	11-122-HC127	11-122-C127
6	200	11-122-128	11-122-LC128	11-122-HC128	11-122-C128
7	100	11-122-061	11-122-LC061	11-122-HC061	11-122-C061
7	150	11-122-129	11-122-LC129	11-122-HC129	11-122-C129
7	200	11-122-130	11-122-LC130	11-122-HC130	11-122-C130
8	80	11-122-131	11-122-LC131	11-122-HC131	11-122-C131
8	100	11-122-071	11-122-LC071	11-122-HC071	11-122-C071
8	150	11-122-132	11-122-LC132	11-122-HC132	11-122-C132
8	200	11-122-133	11-122-LC133	11-122-HC133	11-122-C133
9	100	11-122-081	11-122-LC081	11-122-HC081	11-122-C081
9	150	11-122-134	11-122-LC134	11-122-HC134	11-122-C134
9	200	11-122-135	11-122-LC135	11-122-HC135	11-122-C135
10	80	11-122-136	11-122-LC136	11-122-HC136	11-122-C136
10	100	11-122-091	11-122-LC091	11-122-HC091	11-122-C091

## HSS ROUND TOOL BITS



DIN4964/A

DIA. MM,H9	OAL ±2MM	HSS	HSSCO5	HSSCO8	HSSCO10
10	150	11-122-137	11-122-LC137	11-122-HC137	11-122-C137
10	160	11-122-138	11-122-LC138	11-122-HC138	11-122-C138
10	200	11-122-139	11-122-LC139	11-122-HC139	11-122-C139
12	100	11-122-111	11-122-LC111	11-122-HC111	11-122-C111
12	150	11-122-140	11-122-LC140	11-122-HC140	11-122-C140
12	160	11-122-141	11-122-LC141	11-122-HC141	11-122-C141
12	200	11-122-142	11-122-LC142	11-122-HC142	11-122-C142
14	100	11-122-143	11-122-LC143	11-122-HC143	11-122-C143
14	150	11-122-144	11-122-LC144	11-122-HC144	11-122-C144
14	200	11-122-145	11-122-LC145	11-122-HC145	11-122-C145
15	200	11-122-146	11-122-LC146	11-122-HC146	11-122-C146
16	100	11-122-112	11-122-LC112	11-122-HC112	11-122-C112
16	150	11-122-147	11-122-LC147	11-122-HC147	11-122-C147
16	160	11-122-148	11-122-LC148	11-122-HC148	11-122-C148
16	200	11-122-149	11-122-LC149	11-122-HC149	11-122-C149
17	200	11-122-150	11-122-LC150	11-122-HC150	11-122-C150
18	150	11-122-151	11-122-LC151	11-122-HC151	11-122-C151
18	200	11-122-152	11-122-LC152	11-122-HC152	11-122-C152
20	100	11-122-113	11-122-LC113	11-122-HC113	11-122-C113
20	150	11-122-153	11-122-LC153	11-122-HC153	11-122-C153
20	200	11-122-154	11-122-LC154	11-122-HC154	11-122-C154
22	200	11-122-155	11-122-LC155	11-122-HC155	11-122-C155
24	200	11-122-156	11-122-LC156	11-122-HC156	11-122-C156
25	150	11-122-157	11-122-LC157	11-122-HC157	11-122-C157
25	200	11-122-158	11-122-LC158	11-122-HC158	11-122-C158
26	200	11-122-159	11-122-LC159	11-122-HC159	11-122-C159
28	200	11-122-160	11-122-LC160	11-122-HC160	11-122-C160
30	200	11-122-161	11-122-LC161	11-122-HC161	11-122-C161
32	200	11-122-162	11-122-LC162	11-122-HC162	11-122-C162

## HSS SQUARE TOOL BITS



SIZE IN	OAL IN	HSS	HSSCO5	HSSCO8	HSSCO10	SIZE IN	OAL IN	HSS	HSSCO5	HSSCO8	HSSCO10
1/8	2-1/2	12-121-034	12-121-LC034	12-121-HC034	12-121-C034	7/16	6	12-121-045	12-121-LC045	12-121-HC045	12-121-C045
1/8	3	12-121-035	12-121-LC035	12-121-HC035	12-121-C035	7/16	8	12-121-046	12-121-LC046	12-121-HC046	12-121-C046
1/8	4	12-121-001	12-121-LC001	12-121-HC001	12-121-C001	1/2	4	12-121-019	12-121-LC019	12-121-HC019	12-121-C019
1/8	6	12-121-036	12-121-LC036	12-121-HC036	12-121-C036	1/2	6	12-121-020	12-121-LC020	12-121-HC020	12-121-C020
3/16	2	12-121-037	12-121-LC037	12-121-HC037	12-121-C037	1/2	8	12-121-021	12-121-LC021	12-121-HC021	12-121-C021
3/16	2-1/2	12-121-038	12-121-LC038	12-121-HC038	12-121-C038	5/8	4	12-121-022	12-121-LC022	12-121-HC022	12-121-C022
3/16	3	12-121-039	12-121-LC039	12-121-HC039	12-121-C039	5/8	4-1/2	12-121-047	12-121-LC047	12-121-HC047	12-121-C047
3/16	4	12-121-002	12-121-LC002	12-121-HC002	12-121-C002	5/8	6	12-121-023	12-121-LC023	12-121-HC023	12-121-C023
3/16	6	12-121-040	12-121-LC040	12-121-HC040	12-121-C040	5/8	8	12-121-024	12-121-LC024	12-121-HC024	12-121-C024
3/16	8	12-121-041	12-121-LC041	12-121-HC041	12-121-C041	3/4	4	12-121-025	12-121-LC025	12-121-HC025	12-121-C025
1/4	2-1/2	12-121-003	12-121-LC003	12-121-HC003	12-121-C003	3/4	5	12-121-048	12-121-LC048	12-121-HC048	12-121-C048
1/4	3	12-121-004	12-121-LC004	12-121-HC004	12-121-C004	3/4	6	12-121-026	12-121-LC026	12-121-HC026	12-121-C026
1/4	4	12-121-005	12-121-LC005	12-121-HC005	12-121-C005	3/4	8	12-121-027	12-121-LC027	12-121-HC027	12-121-C027
1/4	6	12-121-006	12-121-LC006	12-121-HC006	12-121-C006	7/8	6	12-121-049	12-121-LC049	12-121-HC049	12-121-C049
1/4	8	12-121-007	12-121-LC007	12-121-HC007	12-121-C007	7/8	8	12-121-050	12-121-LC050	12-121-HC050	12-121-C050
5/16	2-1/2	12-121-008	12-121-LC008	12-121-HC008	12-121-C008	1	4	12-121-028	12-121-LC028	12-121-HC028	12-121-C028
5/16	3	12-121-009	12-121-LC009	12-121-HC009	12-121-C009	1	6	12-121-029	12-121-LC029	12-121-HC029	12-121-C029
5/16	3-1/2	12-121-042	12-121-LC042	12-121-HC042	12-121-C042	1	7	12-121-051	12-121-LC051	12-121-HC051	12-121-C051
5/16	4	12-121-010	12-121-LC010	12-121-HC010	12-121-C010	1	8	12-121-030	12-121-LC030	12-121-HC030	12-121-C030
5/16	6	12-121-011	12-121-LC011	12-121-HC011	12-121-C011	1-1/8	6	12-121-052	12-121-LC052	12-121-HC052	12-121-C052
5/16	8	12-121-012	12-121-LC012	12-121-HC012	12-121-C012	1-1/8	8	12-121-053	12-121-LC053	12-121-HC053	12-121-C053
3/8	3	12-121-014	12-121-LC014	12-121-HC013	12-121-C013	1-1/4	6	12-121-054	12-121-LC054	12-121-HC054	12-121-C054
3/8	4	12-121-015	12-121-LC015	12-121-HC014	12-121-C014	1-1/4	8	12-121-031	12-121-LC031	12-121-HC031	12-121-C031
3/8	6	12-121-016	12-121-LC016	12-121-HC015	12-121-C015	1-1/2	7	12-121-055	12-121-LC055	12-121-HC055	12-121-C055
3/8	8	12-121-017	12-121-LC017	12-121-HC016	12-121-C016	1-1/2	8	12-121-032	12-121-LC032	12-121-HC032	12-121-C032
7/16	3-1/2	12-121-043	12-121-LC043	12-121-HC043	12-121-C043	1-1/2	10	12-121-056	12-121-LC056	12-121-HC056	12-121-C056
7/16	4	12-121-044	12-121-LC044	12-121-HC044	12-121-C044						

## HSS RECTANGULAR TOOL BITS



WIDTH IN	HEIGHT IN	OAL IN	HSS	HSSCO5	HSSCO8	HSSCO10
3/32	1/4	3	12-123-069	12-123-LC069	12-123-HC069	12-123-C069
3/32	1/4	4	12-123-070	12-123-LC070	12-123-HC070	12-123-C070
3/32	3/8	3	12-123-071	12-123-LC071	12-123-HC071	12-123-C071
3/32	3/8	4	12-123-072	12-123-LC072	12-123-HC072	12-123-C072
1/8	1/4	3	12-123-073	12-123-LC073	12-123-HC073	12-123-C073
1/8	1/4	4	12-123-074	12-123-LC074	12-123-HC074	12-123-C074
1/8	1/4	5	12-123-075	12-123-LC075	12-123-HC075	12-123-C075
1/8	1/2	4	12-123-013	12-123-LC013	12-123-HC013	12-123-C013
1/8	1/2	6	12-123-076	12-123-LC076	12-123-HC076	12-123-C076
5/32	1/4	4	12-123-077	12-123-LC077	12-123-HC077	12-123-C077
5/32	1/4	5	12-123-078	12-123-LC078	12-123-HC078	12-123-C078
5/32	1/2	4	12-123-079	12-123-LC079	12-123-HC079	12-123-C079
5/32	1/2	6	12-123-080	12-123-LC080	12-123-HC080	12-123-C080
3/16	1/2	4	12-123-081	12-123-LC081	12-123-HC081	12-123-C081
3/16	1/2	6	12-123-082	12-123-LC082	12-123-HC082	12-123-C082
1/4	3/8	3	12-123-083	12-123-LC083	12-123-HC083	12-123-C083
1/4	3/8	4	12-123-084	12-123-LC084	12-123-HC084	12-123-C084
1/4	1/2	3	12-123-085	12-123-LC085	12-123-HC085	12-123-C085
1/4	1/2	4	12-123-086	12-123-LC086	12-123-HC086	12-123-C086
1/4	1/2	6	12-123-033	12-123-LC033	12-123-HC033	12-123-C033
1/4	1/2	8	12-123-034	12-123-LC034	12-123-HC034	12-123-C034
1/4	5/8	4	12-123-087	12-123-LC087	12-123-HC087	12-123-C087
1/4	5/8	6	12-123-088	12-123-LC088	12-123-HC088	12-123-C088
1/4	3/4	4	12-123-089	12-123-LC089	12-123-HC089	12-123-C089
1/4	3/4	6	12-123-090	12-123-LC090	12-123-HC090	12-123-C090
5/16	1/2	4	12-123-091	12-123-LC091	12-123-HC091	12-123-C091
5/16	1/2	6	12-123-092	12-123-LC092	12-123-HC092	12-123-C092
5/16	3/4	4	12-123-093	12-123-LC093	12-123-HC093	12-123-C093
5/16	3/4	6	12-123-094	12-123-LC094	12-123-HC094	12-123-C094
5/16	1	6	12-123-095	12-123-LC095	12-123-HC095	12-123-C095

## HSS RECTANGULAR TOOL BITS



WIDTH IN	HEIGHT IN	OAL IN	HSS	HSSCO5	HSSCO8	HSSCO10
3/8	1/2	3	12-123-096	12-123-LC096	12-123-HC096	12-123-C096
3/8	1/2	4	12-123-097	12-123-LC097	12-123-HC097	12-123-C097
3/8	5/8	4	12-123-098	12-123-LC098	12-123-HC098	12-123-C098
3/8	5/8	5	12-123-099	12-123-LC099	12-123-HC099	12-123-C099
3/8	5/8	6	12-123-100	12-123-LC100	12-123-HC100	12-123-C100
3/8	3/4	4	12-123-101	12-123-LC101	12-123-HC101	12-123-C101
3/8	3/4	5	12-123-102	12-123-LC102	12-123-HC102	12-123-C102
3/8	3/4	6	12-123-103	12-123-LC103	12-123-HC103	12-123-C103
3/8	1	6	12-123-104	12-123-LC104	12-123-HC104	12-123-C104
3/8	1	8	12-123-105	12-123-LC105	12-123-HC105	12-123-C105
1/2	3/4	6	12-123-106	12-123-LC106	12-123-HC106	12-123-C106
1/2	3/4	8	12-123-107	12-123-LC107	12-123-HC107	12-123-C107
1/2	1	6	12-123-108	12-123-LC108	12-123-HC108	12-123-C108
1/2	1	8	12-123-109	12-123-LC109	12-123-HC109	12-123-C109
1/2	1-1/4	8	12-123-110	12-123-LC110	12-123-HC110	12-123-C110
1/2	1-1/2	8	12-123-111	12-123-LC111	12-123-HC111	12-123-C111
5/8	1	6	12-123-112	12-123-LC112	12-123-HC112	12-123-C112
5/8	1	8	12-123-113	12-123-LC113	12-123-HC113	12-123-C113
5/8	1-1/4	6	12-123-114	12-123-LC114	12-123-HC114	12-123-C114
5/8	1-1/4	8	12-123-115	12-123-LC115	12-123-HC115	12-123-C115
5/8	1-1/2	8	12-123-116	12-123-LC116	12-123-HC116	12-123-C116
3/4	1	6	12-123-117	12-123-LC117	12-123-HC117	12-123-C117
3/4	1	8	12-123-118	12-123-LC118	12-123-HC118	12-123-C118
3/4	1-1/4	6	12-123-119	12-123-LC119	12-123-HC119	12-123-C119
3/4	1-1/4	8	12-123-120	12-123-LC120	12-123-HC120	12-123-C120
3/4	1-1/2	8	12-123-121	12-123-LC121	12-123-HC121	12-123-C121
1	1-1/4	6	12-123-122	12-123-LC122	12-123-HC122	12-123-C122
1	1-1/4	8	12-123-123	12-123-LC123	12-123-HC123	12-123-C123
1	1-1/2	8	12-123-124	12-123-LC124	12-123-HC124	12-123-C124

## HSS B TYPE CUT-OFF BLADES



### B2B TYPE

THICK IN	WIDTH IN	OAL IN	HSS	HSSCO5	HSSCO8
1/16	1/2	4-1/2	12-241-009	12-241-C009	12-241-H009
1/16	11/16	5	12-241-010	12-241-C010	12-241-H010
3/32	1/2	4-1/2	12-241-001	12-241-C001	12-241-H001
3/32	5/8	5	12-241-002	12-241-C002	12-241-H002
1/8	3/4	6	12-241-003	12-241-C003	12-241-H003
1/8	7/8	6	12-241-004	12-241-C004	12-241-H004
3/16	1	6-1/2	12-241-005	12-241-C005	12-241-H005
3/16	1-1/8	7	12-241-006	12-241-C006	12-241-H006
1/4	1-1/4	7	12-241-007	12-241-C007	12-241-H007
1/4	1-3/8	7	12-241-008	12-241-C008	12-241-H008

## HSS T TYPE CUT-OFF BLADES



### PARALLEL TYPE

THICK IN	WIDTH IN	OAL IN	HSS	HSSCO5	HSSCO8
1/16	1/2	4-1/2	12-242-001	12-242-C001	12-242-H001
3/32	1/2	4-1/2	12-242-002	12-242-C002	12-242-H002
3/32	11/16	5	12-242-003	12-242-C003	12-242-H003
1/8	11/16	5	12-242-004	12-242-C004	12-242-H004
1/8	3/4	5	12-242-005	12-242-C005	12-242-H005
5/32	11/16	5	12-242-006	12-242-C006	12-242-H006
1/8	7/8	6	12-242-007	12-242-C007	12-242-H007
5/32	7/8	6	12-242-008	12-242-C008	12-242-H008
3/16	7/8	6	12-242-009	12-242-C009	12-242-H009
1/4	7/8	6	12-242-010	12-242-C010	12-242-H010

## HSS ROUND TOOL BITS



DIA. IN	OAL IN	HSS	HSSCO5	HSSCO8	HSSCO10	DIA. IN	OAL IN	HSS	HSSCO5	HSSCO8	HSSCO10
1/8	2-1/2	12-122-036	12-122-LC036	12-122-HC036	12-122-C036	3/8	4	12-122-019	12-122-LC019	12-122-HC019	12-122-C019
1/8	4	12-122-003	12-122-LC003	12-122-HC003	12-122-C003	3/8	6	12-122-020	12-122-LC020	12-122-HC020	12-122-C020
1/8	6	12-122-004	12-122-LC004	12-122-HC004	12-122-C004	3/8	8	12-122-021	12-122-LC021	12-122-HC021	12-122-C021
5/32	2-1/2	12-122-037	12-122-LC037	12-122-HC037	12-122-C037	7/16	4	12-122-022	12-122-LC022	12-122-HC022	12-122-C022
5/32	4	12-122-006	12-122-LC006	12-122-HC006	12-122-C006	7/16	6	12-122-023	12-122-LC023	12-122-HC023	12-122-C023
3/16	2-1/2	12-122-038	12-122-LC038	12-122-HC038	12-122-C038	1/2	4	12-122-024	12-122-LC024	12-122-HC024	12-122-C024
3/16	3	12-122-039	12-122-LC039	12-122-HC039	12-122-C039	1/2	6	12-122-025	12-122-LC025	12-122-HC025	12-122-C025
3/16	4	12-122-008	12-122-LC008	12-122-HC008	12-122-C008	1/2	8	12-122-026	12-122-LC026	12-122-HC026	12-122-C026
3/16	6	12-122-009	12-122-LC009	12-122-HC009	12-122-C009	9/16	6	12-122-045	12-122-LC045	12-122-HC045	12-122-C045
3/16	8	12-122-010	12-122-LC010	12-122-HC010	12-122-C010	9/16	8	12-122-046	12-122-LC046	12-122-HC046	12-122-C046
1/4	2-1/2	12-122-040	12-122-LC040	12-122-HC040	12-122-C040	5/8	4	12-122-027	12-122-LC027	12-122-HC027	12-122-C027
1/4	3	12-122-041	12-122-LC041	12-122-HC041	12-122-C041	5/8	6	12-122-028	12-122-LC028	12-122-HC028	12-122-C028
1/4	4	12-122-013	12-122-LC013	12-122-HC013	12-122-C013	5/8	8	12-122-029	12-122-LC029	12-122-HC029	12-122-C029
1/4	6	12-122-014	12-122-LC014	12-122-HC014	12-122-C014	3/4	4	12-122-030	12-122-LC030	12-122-HC030	12-122-C030
1/4	8	12-122-015	12-122-LC015	12-122-HC015	12-122-C015	3/4	6	12-122-031	12-122-LC031	12-122-HC031	12-122-C031
5/16	2-1/2	12-122-042	12-122-LC042	12-122-HC042	12-122-C042	3/4	8	12-122-032	12-122-LC032	12-122-HC032	12-122-C032
5/16	3	12-122-043	12-122-LC043	12-122-HC043	12-122-C043	7/8	6	12-122-047	12-122-LC047	12-122-HC047	12-122-C047
5/16	4	12-122-016	12-122-LC016	12-122-HC016	12-122-C016	7/8	8	12-122-048	12-122-LC048	12-122-HC048	12-122-C048
5/16	6	12-122-017	12-122-LC017	12-122-HC017	12-122-C017	1	6	12-122-034	12-122-LC034	12-122-HC034	12-122-C034
5/16	8	12-122-018	12-122-LC018	12-122-HC018	12-122-C018	1	8	12-122-035	12-122-LC035	12-122-HC035	12-122-C035
3/8	3	12-122-044	12-122-LC044	12-122-HC044	12-122-C044						

## HSS B TYPE CUT-OFF BLADES



**B2B TYPE**

THICK MM	WIDTH MM	OAL MM	HSS	HSSCO5	HSSCO8
2	10	100	11-241A-001	11-241A-C001	11-241A-H001
2	10	200	11-241A-002	11-241A-C002	11-241A-H002
3	12	100	11-241A-003	11-241A-C003	11-241A-H003
3	12	200	11-241A-004	11-241A-C004	11-241A-H004
3	16	100	11-241A-005	11-241A-C005	11-241A-H005
3	16	200	11-241A-006	11-241A-C006	11-241A-H006
3	20	100	11-241A-007	11-241A-C007	11-241A-H007
3	20	200	11-241A-008	11-241A-C008	11-241A-H008
4	16	200	11-241A-009	11-241A-C009	11-241A-H009
4	18	200	11-241A-010	11-241A-C010	11-241A-H010
4	20	150	11-241A-011	11-241A-C011	11-241A-H011
4	20	200	11-241A-012	11-241A-C012	11-241A-H012
4	25	150	11-241A-013	11-241A-C013	11-241A-H013
4	25	200	11-241A-014	11-241A-C014	11-241A-H014
5	20	150	11-241A-015	11-241A-C015	11-241A-H015
5	20	200	11-241A-016	11-241A-C016	11-241A-H016
6	25	150	11-241A-017	11-241A-C017	11-241A-H017
6	25	200	11-241A-018	11-241A-C018	11-241A-H018

## HSS B TYPE CUT-OFF BLADES



**B2 TYPE**

THICK MM	WIDTH MM	OAL MM	HSS	HSSCO5	HSSCO8
2	10	100	11-242A-001	11-242A-C001	11-242A-H001
2	10	200	11-242A-002	11-242A-C002	11-242A-H002
3	12	100	11-242A-003	11-242A-C003	11-242A-H003
3	12	200	11-242A-004	11-242A-C004	11-242A-H004
3	16	100	11-242A-005	11-242A-C005	11-242A-H005
3	16	200	11-242A-006	11-242A-C006	11-242A-H006
3	20	100	11-242A-007	11-242A-C007	11-242A-H007
3	20	200	11-242A-008	11-242A-C008	11-242A-H008
4	16	200	11-242A-009	11-242A-C009	11-242A-H009
4	18	200	11-242A-010	11-242A-C010	11-242A-H010
4	20	150	11-242A-011	11-242A-C011	11-242A-H011
4	20	200	11-242A-012	11-242A-C012	11-242A-H012
4	25	150	11-242A-013	11-242A-C013	11-242A-H013
4	25	200	11-242A-014	11-242A-C014	11-242A-H014
5	20	150	11-242A-015	11-242A-C015	11-242A-H015
5	20	200	11-242A-016	11-242A-C016	11-242A-H016
6	25	150	11-242A-017	11-242A-C017	11-242A-H017
6	25	200	11-242A-018	11-242A-C018	11-242A-H018

## SOLID CARBIDE ROUND BLANKS



Used for producing carbide end mills, twist drills, reamers and pin gauge etc.

DIA. MM	OAL MM	GRADE K10			GRADE K20		
		H7	H7	UNGROUND	H7	H7	UNGROUND
6.0	100	11-243-A046	11-243-B046	11-243-C046	11-243-D046	11-243-E046	11-243-F046
7.0	100	11-243-A056	11-243-B056	11-243-C056	11-243-D056	11-243-E056	11-243-F056
8.0	100	11-243-A066	11-243-B066	11-243-C066	11-243-D066	11-243-E066	11-243-F066
9.0	100	11-243-A076	11-243-B076	11-243-C076	11-243-D076	11-243-E076	11-243-F076
10.0	100	11-243-A086	11-243-B086	11-243-C086	11-243-D086	11-243-E086	11-243-F086
11.0	100	11-243-A096	11-243-B096	11-243-C096	11-243-D096	11-243-E096	11-243-F096
12.0	100	11-243-A106	11-243-B106	11-243-C106	11-243-D106	11-243-E106	11-243-F106
14.0	100	11-243-A108	11-243-B108	11-243-C108	11-243-D108	11-243-E108	11-243-F108
16.0	100	11-243-A110	11-243-B110	11-243-C110	11-243-D110	11-243-E110	11-243-F110
18.0	100	11-243-A112	11-243-B112	11-243-C112	11-243-D112	11-243-E112	11-243-F112
20.0	100	11-243-A114	11-243-B114	11-243-C114	11-243-D114	11-243-E114	11-243-F114
6.0	150	11-243-A115	11-243-B115	11-243-C115	11-243-D115	11-243-E115	11-243-F115
7.0	150	11-243-A125	11-243-B125	11-243-C125	11-243-D125	11-243-E125	11-243-F125
8.0	150	11-243-A135	11-243-B135	11-243-C135	11-243-D135	11-243-E135	11-243-F135
9.0	150	11-243-A145	11-243-B145	11-243-C145	11-243-D145	11-243-E145	11-243-F145
10.0	150	11-243-A155	11-243-B155	11-243-C155	11-243-D155	11-243-E155	11-243-F155
11.0	150	11-243-A165	11-243-B165	11-243-C165	11-243-D165	11-243-E165	11-243-F165
12.0	150	11-243-A175	11-243-B175	11-243-C175	11-243-D175	11-243-E175	11-243-F175
14.0	150	11-243-A177	11-243-B177	11-243-C177	11-243-D177	11-243-E177	11-243-F177
16.0	150	11-243-A179	11-243-B179	11-243-C179	11-243-D179	11-243-E179	11-243-F179
18.0	150	11-243-A181	11-243-B181	11-243-C181	11-243-D181	11-243-E181	11-243-F181
20.0	150	11-243-A183	11-243-B183	11-243-C183	11-243-D183	11-243-E183	11-243-F183
6.0	200	11-243-A184	11-243-B184	11-243-C184	11-243-D184	11-243-E184	11-243-F184
7.0	200	11-243-A194	11-243-B194	11-243-C194	11-243-D194	11-243-E194	11-243-F194
8.0	200	11-243-A204	11-243-B204	11-243-C204	11-243-D204	11-243-E204	11-243-F204
9.0	200	11-243-A214	11-243-B214	11-243-C214	11-243-D214	11-243-E214	11-243-F214
10.0	200	11-243-A224	11-243-B224	11-243-C224	11-243-D224	11-243-E224	11-243-F224
11.0	200	11-243-A234	11-243-B234	11-243-C234	11-243-D234	11-243-E234	11-243-F234
12.0	200	11-243-A244	11-243-B244	11-243-C244	11-243-D244	11-243-E244	11-243-F244
14.0	200	11-243-A246	11-243-B246	11-243-C246	11-243-D246	11-243-E246	11-243-F246
16.0	200	11-243-A248	11-243-B248	11-243-C248	11-243-D248	11-243-E248	11-243-F248
18.0	200	11-243-A250	11-243-B250	11-243-C250	11-243-D250	11-243-E250	11-243-F250
20.0	200	11-243-A252	11-243-B252	11-243-C252	11-243-D252	11-243-E252	11-243-F252
6.0	310	11-243-A253	11-243-B253	11-243-C253	11-243-D253	11-243-E253	11-243-F253
7.0	310	11-243-A263	11-243-B263	11-243-C263	11-243-D263	11-243-E263	11-243-F263
8.0	310	11-243-A273	11-243-B273	11-243-C273	11-243-D273	11-243-E273	11-243-F273
9.0	310	11-243-A283	11-243-B283	11-243-C283	11-243-D283	11-243-E283	11-243-F283
10.0	310	11-243-A293	11-243-B293	11-243-C293	11-243-D293	11-243-E293	11-243-F293
11.0	310	11-243-A303	11-243-B303	11-243-C303	11-243-D303	11-243-E303	11-243-F303
12.0	310	11-243-A313	11-243-B313	11-243-C313	11-243-D313	11-243-E313	11-243-F313
14.0	310	11-243-A315	11-243-B315	11-243-C315	11-243-D315	11-243-E315	11-243-F315
16.0	310	11-243-A317	11-243-B317	11-243-C317	11-243-D317	11-243-E317	11-243-F317
18.0	310	11-243-A319	11-243-B319	11-243-C319	11-243-D319	11-243-E319	11-243-F319
20.0	310	11-243-A321	11-243-B321	11-243-C321	11-243-D321	11-243-E321	11-243-F321

## SOLID CARBIDE ROUND BLANKS



Used for producing carbide end mills, twist drills, reamers and pin gauge etc.

DIA. IN	OAL IN	GRADE C2			GRADE C6		
		H7	H7	UNGROUND	H7	H7	UNGROUND
1/16"	4"	12-243-A001	12-243-B001	12-243-C001	12-243-D001	12-243-E001	12-243-F001
1/8"	4"	12-243-A005	12-243-B005	12-243-C005	12-243-D005	12-243-E005	12-243-F005
5/32"	4"	12-243-A007	12-243-B007	12-243-C007	12-243-D007	12-243-E007	12-243-F007
3/16"	4"	12-243-A009	12-243-B009	12-243-C009	12-243-D009	12-243-E009	12-243-F009
7/32"	4"	12-243-A011	12-243-B011	12-243-C011	12-243-D011	12-243-E011	12-243-F011
1/4"	4"	12-243-A013	12-243-B013	12-243-C013	12-243-D013	12-243-E013	12-243-F013
9/32"	4"	12-243-A015	12-243-B015	12-243-C015	12-243-D015	12-243-E015	12-243-F015
5/16"	4"	12-243-A017	12-243-B017	12-243-C017	12-243-D017	12-243-E017	12-243-F017
3/8"	4"	12-243-A021	12-243-B021	12-243-C021	12-243-D021	12-243-E021	12-243-F021
7/16"	4"	12-243-A025	12-243-B025	12-243-C025	12-243-D025	12-243-E025	12-243-F025
1/2"	4"	12-243-A029	12-243-B029	12-243-C029	12-243-D029	12-243-E029	12-243-F029
9/16"	4"	12-243-A033	12-243-B033	12-243-C033	12-243-D033	12-243-E033	12-243-F033
5/8"	4"	12-243-A037	12-243-B037	12-243-C037	12-243-D037	12-243-E037	12-243-F037
11/16"	4"	12-243-A041	12-243-B041	12-243-C041	12-243-D041	12-243-E041	12-243-F041
3/4"	4"	12-243-A045	12-243-B045	12-243-C045	12-243-D045	12-243-E045	12-243-F045
1/4"	6"	12-243-A046	12-243-B046	12-243-C046	12-243-D046	12-243-E046	12-243-F046
9/32"	6"	12-243-A048	12-243-B048	12-243-C048	12-243-D048	12-243-E048	12-243-F048
5/16"	6"	12-243-A050	12-243-B050	12-243-C050	12-243-D050	12-243-E050	12-243-F050
3/8"	6"	12-243-A054	12-243-B054	12-243-C054	12-243-D054	12-243-E054	12-243-F054
7/16"	6"	12-243-A058	12-243-B058	12-243-C058	12-243-D058	12-243-E058	12-243-F058
1/2"	6"	12-243-A062	12-243-B062	12-243-C062	12-243-D062	12-243-E062	12-243-F062
9/16"	6"	12-243-A066	12-243-B066	12-243-C066	12-243-D066	12-243-E066	12-243-F066
5/8"	6"	12-243-A070	12-243-B070	12-243-C070	12-243-D070	12-243-E070	12-243-F070
11/16"	6"	12-243-A074	12-243-B074	12-243-C074	12-243-D074	12-243-E074	12-243-F074
3/4"	6"	12-243-A078	12-243-B078	12-243-C078	12-243-D078	12-243-E078	12-243-F078
1/4"	8"	12-243-A079	12-243-B079	12-243-C079	12-243-D079	12-243-E079	12-243-F079
9/32"	8"	12-243-A081	12-243-B081	12-243-C081	12-243-D081	12-243-E081	12-243-F081
5/16"	8"	12-243-A083	12-243-B083	12-243-C083	12-243-D083	12-243-E083	12-243-F083
3/8"	8"	12-243-A087	12-243-B087	12-243-C087	12-243-D087	12-243-E087	12-243-F087
7/16"	8"	12-243-A091	12-243-B091	12-243-C091	12-243-D091	12-243-E091	12-243-F091
1/2"	8"	12-243-A095	12-243-B095	12-243-C095	12-243-D095	12-243-E095	12-243-F095
9/16"	8"	12-243-A099	12-243-B099	12-243-C099	12-243-D099	12-243-E099	12-243-F099
5/8"	8"	12-243-A103	12-243-B103	12-243-C103	12-243-D103	12-243-E103	12-243-F103
11/16"	8"	12-243-A107	12-243-B107	12-243-C107	12-243-D107	12-243-E107	12-243-F107
3/4"	8"	12-243-A111	12-243-B111	12-243-C111	12-243-D111	12-243-E111	12-243-F111
1/4"	12"	12-243-A112	12-243-B112	12-243-C112	12-243-D112	12-243-E112	12-243-F112
9/32"	12"	12-243-A114	12-243-B114	12-243-C114	12-243-D114	12-243-E114	12-243-F114
5/16"	12"	12-243-A116	12-243-B116	12-243-C116	12-243-D116	12-243-E116	12-243-F116
3/8"	12"	12-243-A120	12-243-B120	12-243-C120	12-243-D120	12-243-E120	12-243-F120
7/16"	12"	12-243-A124	12-243-B124	12-243-C124	12-243-D124	12-243-E124	12-243-F124
1/2"	12"	12-243-A128	12-243-B128	12-243-C128	12-243-D128	12-243-E128	12-243-F128
9/16"	12"	12-243-A132	12-243-B132	12-243-C132	12-243-D132	12-243-E132	12-243-F132
5/8"	12"	12-243-A136	12-243-B136	12-243-C136	12-243-D136	12-243-E136	12-243-F136
11/16"	12"	12-243-A140	12-243-B140	12-243-C140	12-243-D140	12-243-E140	12-243-F140
3/4"	12"	12-243-A144	12-243-B144	12-243-C144	12-243-D144	12-243-E144	12-243-F144

## UNGROUND CARBIDE TIP BLANKS



STANDARD TYPE

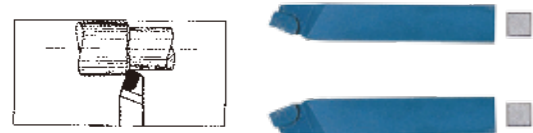


RADIUS TYPE

For radius type: 1/8-1/4" is with 1/8" radius, over 1/4-3/8" is with 3/16" radius, over 3/8" is with 1/4" radius.

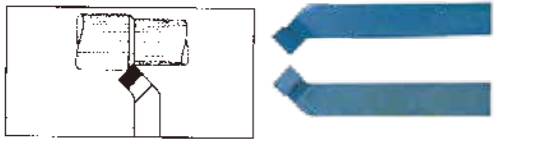
GRADE	THICK IN	WIDTH IN	LENGTH IN	STANDARD		RADIUS		GRADE	THICK IN	WIDTH IN	LENGTH IN	STANDARD		RADIUS	
				TYPE	TYPE	TYPE	TYPE								
C2	1/16"	1/8"	5/8"	11-244-001	11-244-002	C2	1/8"	5/16"	1/2"	11-244-047	11-244-048				
C2	1/16"	3/16"	1/4"	11-244-003	11-244-004	C2	1/8"	5/16"	5/8"	11-244-049	11-244-050				
C2	1/16"	1/4"	1/4"	11-244-005	11-244-006	C5	1/8"	5/16"	5/8"	11-244-051	11-244-052				
C2	1/16"	1/4"	5/16"	11-244-007	11-244-008	C2	1/8"	3/8"	1/2"	11-244-053	11-244-054				
C5	1/16"	1/4"	5/16"	11-244-009	11-244-010	C2	1/8"	3/8"	3/4"	11-244-055	11-244-056				
C2	3/32"	3/16"	5/16"	11-244-011	11-244-012	C2	1/8"	1/2"	1/2"	11-244-057	11-244-058				
C5	3/32"	3/16"	5/16"	11-244-013	11-244-014	C5	1/8"	1/2"	1/2"	11-244-059	11-244-060				
C2	3/32"	3/16"	1/2"	11-244-015	11-244-016	C2	1/8"	1/2"	3/4"	11-244-061	11-244-062				
C2	3/32"	1/4"	3/8"	11-244-017	11-244-018	C2	1/8"	3/4"	3/4"	11-244-063	11-244-064				
C2	3/32"	1/4"	1/2"	11-244-019	11-244-020	C2	5/32"	3/8"	9/16"	11-244-065	11-244-066				
C5	3/32"	1/4"	1/2"	11-244-021	11-244-022	C2	5/32"	3/8"	3/4"	11-244-067	11-244-068				
C2	3/32"	5/16"	3/8"	11-244-023	11-244-024	C5	5/32"	3/8"	3/4"	11-244-069	11-244-070				
C5	3/32"	5/16"	3/8"	11-244-025	11-244-026	C2	5/32"	5/8"	5/8"	11-244-071	11-244-072				
C2	3/32"	3/8"	3/8"	11-244-027	11-244-028	C5	5/32"	5/8"	5/8"	11-244-073	11-244-074				
C5	3/32"	3/8"	3/8"	11-244-029	11-244-030	C2	3/16"	5/16"	7/16"	11-244-075	11-244-076				
C2	3/32"	3/8"	1/2"	11-244-031	11-244-032	C2	3/16"	5/16"	5/8"	11-244-077	11-244-078				
C2	3/32"	7/16"	1/2"	11-244-033	11-244-034	C2	3/16"	3/8"	1/2"	11-244-079	11-244-080				
C5	3/32"	7/16"	1/2"	11-244-035	11-244-036	C2	3/16"	3/8"	5/8"	11-244-081	11-244-082				
C2	1/8"	3/16"	3/4"	11-244-037	11-244-038	C2	3/16"	3/8"	3/4"	11-244-083	11-244-084				
C2	1/8"	1/4"	1/2"	11-244-039	11-244-040	C2	3/16"	7/16"	5/8"	11-244-085	11-244-086				
C2	1/8"	1/4"	5/8"	11-244-041	11-244-042	C2	3/16"	7/16"	13/16"	11-244-087	11-244-088				
C2	1/8"	1/4"	3/4"	11-244-043	11-244-044	C2	3/16"	1/2"	1/2"	11-244-089	11-244-090				
C2	1/8"	5/16"	7/16"	11-244-045	11-244-046	C2	3/16"	1/2"	3/4"	11-244-091	11-244-092				
						C2	3/16"	3/4"	3/4"	11-244-093	11-244-094				

# METRIC CARBIDE TIPPED TOOL BITS



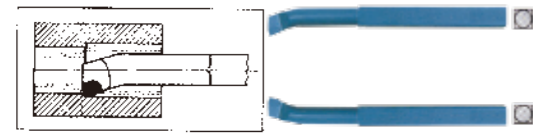
DIN4971-ISO1

SIZE MM	GRADE K10		GRADE P25	
	LEFT HAND	RIGHT HAND	LEFT HAND	RIGH HAND
10x10x90	11-245-A001	11-245-C002	11-245-B001	11-245-D002
12x12x100	11-245-A003	11-245-C004	11-245-B003	11-245-D004
16x16x110	11-245-A005	11-245-C006	11-245-B005	11-245-D006
20x20x125	11-245-A007	11-245-C008	11-245-B007	11-245-D008
25x25x140	11-245-A009	11-245-C010	11-245-B009	11-245-D010
32x32x170	11-245-A011	11-245-C012	11-245-B011	11-245-D012



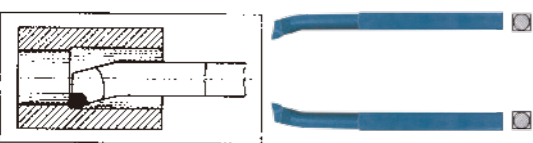
DIN4972-ISO2

SIZE MM	GRADE K10		GRADE P25	
	LEFT HAND	RIGHT HAND	LEFT HAND	RIGH HAND
10x10x90	11-245-A013	11-245-C014	11-245-B013	11-245-D014
12x12x100	11-245-A015	11-245-C016	11-245-B015	11-245-D016
16x16x110	11-245-A017	11-245-C018	11-245-B017	11-245-D018
20x20x125	11-245-A019	11-245-C020	11-245-B019	11-245-D020
25x25x140	11-245-A021	11-245-C022	11-245-B021	11-245-D022
32x32x170	11-245-A023	11-245-C024	11-245-B023	11-245-D024



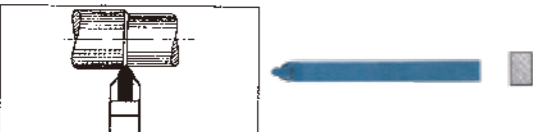
DIN4973-ISO8

SIZE MM	GRADE K10		GRADE P25	
	LEFT HAND	RIGHT HAND	LEFT HAND	RIGH HAND
8x8x125	11-245-A025	11-245-C026	11-245-B025	11-245-D026
10x10x150	11-245-A027	11-245-C028	11-245-B027	11-245-D028
12x12x180	11-245-A029	11-245-C030	11-245-B029	11-245-D030
16x16x210	11-245-A031	11-245-C032	11-245-B031	11-245-D032
20x20x250	11-245-A033	11-245-C034	11-245-B033	11-245-D034
25x25x300	11-245-A035	11-245-C036	11-245-B035	11-245-D036
32x32x355	11-245-A037	11-245-C038	11-245-B037	11-245-D038



DIN4974-ISO9

SIZE MM	GRADE K10		GRADE P25	
	LEFT HAND	RIGHT HAND	LEFT HAND	RIGH HAND
8x8x125	11-245-A039	11-245-C040	11-245-B039	11-245-D040
10x10x150	11-245-A041	11-245-C042	11-245-B041	11-245-D042
12x12x180	11-245-A043	11-245-C044	11-245-B043	11-245-D044
16x16x210	11-245-A045	11-245-C046	11-245-B045	11-245-D046
20x20x250	11-245-A047	11-245-C048	11-245-B047	11-245-D048
25x25x300	11-245-A049	11-245-C050	11-245-B049	11-245-D050
32x32x355	11-245-A051	11-245-C052	11-245-B051	11-245-D052



DIN4975-ISO10

SIZE MM	GRADE K10	GRADE P25
12x8x100	11-245-C127	11-245-D127
16x10x110	11-245-C054	11-245-D054
20x12x125	11-245-C056	11-245-D056
25x16x140	11-245-C058	11-245-D058
32x20x170	11-245-C060	11-245-D060



DIN4976-ISO4

SIZE MM	GRADE K10	GRADE P25
10x10x90	11-245-C062	11-245-D062
12x12x100	11-245-C064	11-245-D064
16x16x110	11-245-C066	11-245-D066
20x20x125	11-245-C068	11-245-D068
25x25x140	11-245-C070	11-245-D070
32x32x170	11-245-C072	11-245-D072



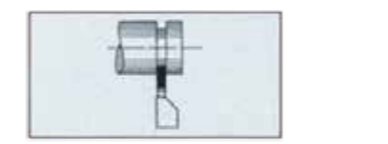
DIN4978-ISO3

SIZE MM	GRADE K10		GRADE P25	
	LEFT HAND	RIGHT HAND	LEFT HAND	RIGH HAND
16x10x110	11-245-A053	11-245-C074	11-245-B053	11-245-D074
20x12x125	11-245-A055	11-245-C076	11-245-B055	11-245-D076
25x16x140	11-245-A057	11-245-C078	11-245-B057	11-245-D078
32x20x170	11-245-A059	11-245-C080	11-245-B059	11-245-D080



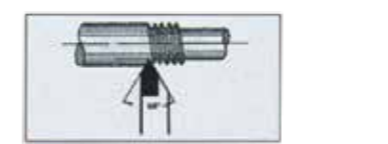
DIN4980-ISO6

SIZE MM	GRADE K10		GRADE P25	
	LEFT HAND	RIGHT HAND	LEFT HAND	RIGH HAND
10x10x90	11-245-A061	11-245-C082	11-245-B061	11-245-D082
12x12x100	11-245-A063	11-245-C084	11-245-B063	11-245-D084
16x16x110	11-245-A065	11-245-C086	11-245-B065	11-245-D086
20x20x125	11-245-A067	11-245-C088	11-245-B067	11-245-D088
25x25x140	11-245-A069	11-245-C090	11-245-B069	11-245-D090
32x32x170	11-245-A071	11-245-C092	11-245-B071	11-245-D092



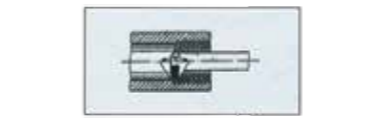
DIN4981-ISO7

SIZE MM	GRADE K10		GRADE P25	
	LEFT HAND	RIGHT HAND	LEFT HAND	RIGH HAND
12x8x100x3	11-245-A073	11-245-C094	11-245-B073	11-245-D094
16x10x110x4	11-245-A075	11-245-C096	11-245-B075	11-245-D096
20x12x125x5	11-245-A077	11-245-C098	11-245-B077	11-245-D098
25x16x140x6	11-245-A079	11-245-C100	11-245-B079	11-245-D100
32x20x170x8	11-245-A081	11-245-C102	11-245-B081	11-245-D102



DIN282-60° -ISO12

SIZE MM	GRADE K10		GRADE P25	
	LEFT HAND	RIGHT HAND	LEFT HAND	RIGH HAND
10x10x100	11-245-A083	11-245-C104	11-245-B083	11-245-D104
12x12x110	11-245-A085	11-245-C106	11-245-B085	11-245-D106
16x16x125	11-245-A087	11-245-C108	11-245-B087	11-245-D108
20x20x140	11-245-A089	11-245-C110	11-245-B089	11-245-D110
25x25x160	11-245-A091	11-245-C112	11-245-B091	11-245-D112
32x32x180	11-245-A093	11-245-C114	11-245-B093	11-245-D114



DIN283-60° -ISO13

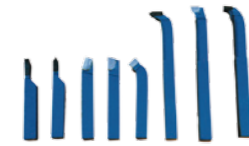
SIZE MM	GRADE K10		GRADE P25	
	LEFT HAND	RIGHT HAND	LEFT HAND	RIGH HAND
10x10x140	11-245-A095	11-245-C116	11-245-B095	11-245-D116
12x12x160	11-245-A097	11-245-C118	11-245-B097	11-245-D118
16x16x180	11-245-A099	11-245-C120	11-245-B099	11-245-D120
20x20x210	11-245-A101	11-245-C122	11-245-B101	11-245-D122
25x25x250	11-245-A103	11-245-C124	11-245-B103	11-245-D124
32x32x300	11-245-A105	11-245-C126	11-245-B105	11-245-D126



## METRIC CARBIDE TIPPED TOOL BITS SET



**5 PC CARBIDE TIPPED LATHE TOOLS SET**  
INCLUDING: 1 PCS EACH OF  
ISO9 8x8x125  
ISO9 10x10x150  
ISO2 12x12x100  
ISO6 12x12x100  
ISO7 12x12x100  
GRADE P25  
RIGHT HAND  
**ORDER NO.11-246-001**



**8 PC CARBIDE TIPPED LATHE TOOLS SET**  
INCLUDING: 1 PCS EACH OF  
DIN4974R  
DIN263R  
DIN283-60° R  
DIN4972R  
DIN4978R  
DIN4971R  
DIN4981R  
DIN282-60°  
GRADE P25  
SHANK : 12x12mm  
**ORDER NO.11-246-002**



**6 PC CARBIDE TIPPED LATHE TOOLS SET**  
INCLUDING: 1 PCS EACH OF  
DIN4972R  
DIN4973R  
DIN4974R  
DIN4976R  
DIN4977R  
DIN4978R  
GRADE K30  
SHANK : 8x8mm **ORDER NO.11-279-001**  
SHANK : 10x10mm **ORDER NO.11-279-002**



**NEW 5 PC CARBIDE TIPPED LATHE TOOLS SET**  
INCLUDING: 1 PCS EACH OF  
DIN4971R  
DIN4975  
DIN4980R  
DIN4980L  
DIN4981R  
GRADE K30  
SHANK : 8x8mm **ORDER NO.11-280-001**  
SHANK : 10x10mm **ORDER NO.11-280-002**

**11 PC CARBIDE TIPPED LATHE TOOLS SET**  
INCLUDING: 1 PCS EACH OF  
DIN4971R  
DIN4975  
DIN4980L  
DIN4972R  
DIN4976  
DIN4980R  
DIN4973R  
DIN4977R  
DIN4981R  
DIN4974R  
DIN4978R  
GRADE P25  
SHANK:8x8mm **ORDER NO.11-246-003**



## HSS CO8 TIPPED LATHE TOOL BITS



**DIN4951 HSS-E TIPPED TOOLS**

SIZE MM	LEFT HAND CUTTING	RIGHT HAND CUTTING
8x8x100	11-281-L001	11-281-R001
10x10x100	11-281-L002	11-281-R002
12x12x110	11-281-L003	11-281-R003
16x16x140	11-281-L004	11-281-R004
20x20x160	11-281-L005	11-281-R005
25x25x200	11-281-L006	11-281-R006



**DIN4952 HSS-E TIPPED TOOLS**

SIZE MM	LEFT HAND CUTTING	RIGHT HAND CUTTING
8x8x100	11-281-L007	11-281-R007
10x10x100	11-281-L008	11-281-R008
12x12x110	11-281-L009	11-281-R009
16x16x140	11-281-L010	11-281-R010
20x20x160	11-281-L011	11-281-R011
25x25x200	11-281-L012	11-281-R012



**DIN4956 HSS-E TIPPED TOOLS**

SIZE MM	LEFT HAND CUTTING
10x10x100	11-281-013
12x12x110	11-281-014
16x16x140	11-281-015
20x20x160	11-281-016
25x25x200	11-281-017



**DIN4960 HSS-E TIPPED TOOLS**

SIZE MM	GRADE K10	GRADE P25
10x10x100	11-281-L018	11-281-R018
12x12x110	11-281-L019	11-281-R019
16x16x140	11-281-L020	11-281-R020
20x20x160	11-281-L021	11-281-R021
25x25x200	11-281-L022	11-281-R022



**DIN4961 HSS-E TIPPED TOOLS**

SIZE MM	LEFT HAND CUTTING	RIGHT HAND CUTTING
12x8x110	11-281-L028	11-281-R028
16x10x125	11-281-L029	11-281-R029
20x12x140	11-281-L030	11-281-R030
25x16x180	11-281-L031	11-281-R031
32x20x220	11-281-L032	11-281-R032



**DIN4955 HSS-E TIPPED TOOLS**

SIZE MM	LEFT HAND CUTTING
10x10x100	11-281-023
12x12x110	11-281-024
16x16x140	11-281-025
20x20x160	11-281-026
25x25x200	11-281-027

## INCH CARBIDE TIPPED TOOL BITS

C2 SUIT FOR CUTTING CAST IRON & NONFERROUS, C6 SUIT FOR CUTTING STEEL AND FERROUS



SQUARE SHANK(IN)	OAL IN	MODEL		GRADE C2		GRADE C6	
		LEFT HAND	RIGHT HAND	LEFT HAND	RIGHT HAND	LEFT HAND	RIGHT HAND
1/4	2	AL4	AR4	12-124-A001	12-124-C002	12-124-B001	12-124-D002
5/16	2-1/4	AL5	AR5	12-124-A003	12-124-C004	12-124-B003	12-124-D004
3/8	2-1/2	AL6	AR6	12-124-A005	12-124-C006	12-124-B005	12-124-D006
7/16	3	AL7	AR7	12-124-A007	12-124-C008	12-124-B007	12-124-D008
1/2	3-1/2	AL8	AR8	12-124-A009	12-124-C010	12-124-B009	12-124-D010
5/8	4	AL10	AR10	12-124-A011	12-124-C012	12-124-B011	12-124-D012
3/4	4-1/2	AL12	AR12	12-124-A013	12-124-C014	12-124-B013	12-124-D014
1	7	AL16	AR16	12-124-A015	12-124-C016	12-124-B015	12-124-D016



SQUARE SHANK(IN)	OAL IN	MODEL		GRADE C2		GRADE C6	
		LEFT HAND	RIGHT HAND	LEFT HAND	RIGHT HAND	LEFT HAND	RIGHT HAND
1/4	2	BL4	BR4	12-124-A017	12-124-C018	12-124-B017	12-124-D018
5/16	2-1/4	BL5	BR5	12-124-A019	12-124-C020	12-124-B019	12-124-D020
3/8	2-1/2	BL6	BR6	12-124-A021	12-124-C022	12-124-B021	12-124-D022
7/16	3	BL7	BR7	12-124-A023	12-124-C024	12-124-B023	12-124-D024
1/2	3-1/2	BL8	BR8	12-124-A025	12-124-C026	12-124-B025	12-124-D026
5/8	4	BL10	BR10	12-124-A027	12-124-C028	12-124-B027	12-124-D028
3/4	4-1/2	BL12	BR12	12-124-A029	12-124-C030	12-124-B029	12-124-D030
1	7	BL16	BR16	12-124-A031	12-124-C032	12-124-B031	12-124-D032

### INCH CARBIDE TIPPED TOOL BITS



SQUARE SHANK(IN)	OAL IN	MODEL	GRADE C2	GRADE C6
1/4	2	C4	12-124-C034	12-124-D034
5/16	2-1/4	C5	12-124-C036	12-124-D036
3/8	2-1/2	C6	12-124-C038	12-124-D038
7/16	3	C7	12-124-C040	12-124-D040
1/2	3-1/2	C8	12-124-C042	12-124-D042
5/8	4	C10	12-124-C044	12-124-D044
3/4	4-1/2	C12	12-124-C046	12-124-D046
1	7	C16	12-124-C048	12-124-D048

SQUARE SHANK(IN)	OAL IN	MODEL	GRADE C2	GRADE C6
1/4	2	D4	12-124-C050	12-124-D050
5/16	2-1/4	D5	12-124-C052	12-124-D052
3/8	2-1/2	D6	12-124-C054	12-124-D054
7/16	3	D7	12-124-C056	12-124-D056
1/2	3-1/2	D8	12-124-C058	12-124-D058
5/8	4	D10	12-124-C060	12-124-D060
3/4	4-1/2	D12	12-124-C062	12-124-D062
1	7	D16	12-124-C064	12-124-D064



SQUARE SHANK(IN)	OAL IN	MODEL	GRADE C2	GRADE C6
1/4	2	E4	12-124-C066	12-124-D066
5/16	2-1/4	E5	12-124-C068	12-124-D068
3/8	2-1/2	E6	12-124-C070	12-124-D070
7/16	3	E7	12-124-C072	12-124-D072

SQUARE SHANK(IN)	OAL IN	MODEL	GRADE C2	GRADE C6
1/2	3-1/2	E8	12-124-C074	12-124-D074
5/8	4	E10	12-124-C076	12-124-D076
3/4	4-1/2	E12	12-124-C078	12-124-D078
1	7	E16	12-124-C080	12-124-D080



SQUARE SHANK(IN)	OAL IN	MODEL		GRADE C2		GRADE C6	
		LEFT HAND	RIGHT HAND	LEFT HAND	RIGHT HAND	LEFT HAND	RIGHT HAND
1/2	3-1/2	FL8	FR8	12-124-A033	12-124-C082	12-124-B033	12-124-D082
5/8	4	FL10	FR10	12-124-A035	12-124-C084	12-124-B035	12-124-D084
3/4	4-1/2	FL12	FR12	12-124-A037	12-124-C086	12-124-B037	12-124-D086
1	7	FL16	FR16	12-124-A039	12-124-C088	12-124-B039	12-124-D088



SQUARE SHANK(IN)	OAL IN	MODEL		GRADE C2		GRADE C6	
		LEFT HAND	RIGHT HAND	LEFT HAND	RIGHT HAND	LEFT HAND	RIGHT HAND
1/2	3-1/2	FL8	FR8	12-124-A033	12-124-C082	12-124-B033	12-124-D082
5/8	4	FL10	FR10	12-124-A035	12-124-C084	12-124-B035	12-124-D084
3/4	4-1/2	FL12	FR12	12-124-A037	12-124-C086	12-124-B037	12-124-D086
1	7	FL16	FR16	12-124-A039	12-124-C088	12-124-B039	12-124-D088



SHANK WXH(IN)	TIP WIDTH IN	MODEL		GRADE C2		GRADE C6	
		LEFT HAND	RIGHT HAND	LEFT HAND	RIGHT HAND	LEFT HAND	RIGHT HAND
1/2	1	CTL11	CTR11	12-124-A041	12-124-C090	12-124-B041	12-124-D090
1/2	1	CTL22	CTR22	12-124-A043	12-124-C092	12-124-B043	12-124-D092
1/2	1	CTL33	CTR33	12-124-A045	12-124-C094	12-124-B045	12-124-D094
1/2	1	CT44	CT44	12-124-A047	12-124-C096	12-124-B047	12-124-D096
5/8	1-1/4	CTL55	CTR55	12-124-A049	12-124-C098	12-124-B049	12-124-D098

### INCH CARBIDE TIPPED TOOL BITS



SIZE IN	RADIUS IN	MODEL R.H	GRADE C2 RIGHT HAND	GRADE C6 RIGHT HAND
5/16	1/64	TSA5	12-124-C108	12-124-D108
3/8	1/64	TSA6	12-124-C110	12-124-D110
1/2	1/32	TSA8	12-124-C112	12-124-D112
5/8	1/32	TSA10	12-124-C114	12-124-D114
3/4	1/32	TSA12	12-124-C116	12-124-D116

SIZE IN	RADIUS IN	MODEL R.H	GRADE C2 RIGHT HAND	GRADE C6 RIGHT HAND
5/16	1/64	TSE5	12-124-C118	12-124-D118
3/8	1/64	TSE6	12-124-C120	12-124-D120
1/2	1/32	TSE8	12-124-C122	12-124-D122
5/8	1/32	TSE10	12-124-C124	12-124-D124
3/4	1/32	TSE12	12-124-C126	12-124-D126

### 38PCS INCH SIZE BRAZED CARBIDE TIPPED TOOL SET



EACH SET INCLUDING:  
 8 PCS STYLE "AR", 8 PCS STYLE "AL"  
 4 PCS STYLE "BR", 4 PCS STYLE "BL"  
 4 PCS STYLE "C", 4 PCS STYLE "D", 6 PCS STYLE "E"  
 ALL CARBIDE TIPS ARE C6 FOR STEEL ALLOYS  
 PACKED IN A STRONG MAIL BOX

INCH SET:  
 1/4" SHANK  
 5/16" SHANK  
 3/8" SHANK  
 1/2" SHANK

ORDER NO.12-248-001  
 ORDER NO.12-248-002  
 ORDER NO.12-248-003  
 ORDER NO.12-248-004

METRIC SET:  
 6mm SHANK  
 8mm SHANK  
 10mm SHANK  
 12mm SHANK

ORDER NO.11-248-001  
 ORDER NO.11-248-002  
 ORDER NO.11-248-003  
 ORDER NO.11-248-004

### CARBIDE TIPPED RADIUS TOOL BITS



RADIUS IN	SQUARE SHANK(IN)	OVA IN	GRADE C2 CONVEX	GRADE C2 CONCAVE
1/32	1/4	2	12-124-001	12-124-002
1/16	1/4	2	12-124-003	12-124-004
3/32	1/4	2	12-124-005	12-124-006
1/8	1/4	2	12-124-007	12-124-008
5/32	3/8	2-1/2	12-124-009	12-124-010
3/16	3/8	2-1/2	12-124-011	12-124-012
7/32	3/8	2-1/2	12-124-013	12-124-014
1/4	3/8	2-1/2	12-124-015	12-124-016
9/32	1/2	3-1/2	12-124-017	12-124-018
5/16	1/2	3-1/2	12-124-019	12-124-020
11/32	1/2	3-1/2	12-124-021	12-124-022
3/8	1/2	3-1/2	12-124-023	12-124-024
13/32	3/4	4-1/2	12-124-025	12-124-026
7/16	3/4	4-1/2	12-124-027	12-124-028
15/32	3/4	4-1/2	12-124-029	12-124-030
1/2	3/4	4-1/2	12-124-031	12-124-032



**HSS KEYWAY BROACHES**



**INCH SIZES**

BROACHE SIZE(IN)	TYPE	APPROX DIMENSIONS	SHIMS REQ'D	TOLANRANCE NO.2	ORDER NO. HSS
1/16"	A(I)	1/8"x5"	0	.0625"-.6350"	12-157-001
3/32"	A(I)	1/8"x5"	0	.0938"-.0948"	12-157-002
1/8"	A(I)	1/8"x5"	1	.1252"-.1262"	12-157-003
3/32"	B(II)	3/16"x6-3/4"	0	.0937"-.0947"	12-157-004
1/8"	B(II)	3/16"x6-3/4"	1	.1252"-.1262"	12-157-005
5/32"	B(II)	3/16"x6-3/4"	1	.1564"-.1574"	12-157-006
3/16"	B(II)	3/16"x6-3/4"	1	.1877"-.1887"	12-157-007
3/16"	C(III)	3/8"x11-3/4"	1	.1877"-.1887"	12-157-008
1/4"	C(III)	3/8"x11-3/4"	1	.2502"-.2512"	12-157-009
5/16"	C(III)	3/8"x11-3/4"	1	.3127"-.3137"	12-157-010
3/8"	C(III)	3/8"x11-3/4"	2	.3755"-.3765"	12-157-011
5/16"	D(IV)	9/16"x13-7/8"	1	.3127"-.3137"	12-157-012
3/8"	D(IV)	9/16"x13-7/8"	2	.3755"-.3765"	12-157-013
7/16"	D(IV)	9/16"x13-7/8"	2	.4380"-.4390"	12-157-014
1/2"	D(IV)	9/16"x13-7/8"	3	.5006"-.5016"	12-157-015
5/8"	E(V)	3/4"x15-1/2"	4	.6260"-.6270"	12-157-016
3/4"	E(V)	3/4"x15-1/2"	5	.7515"-.7525"	12-157-017
7/8"	F(VI)	1x20-1/4"	6	.8765"-.8775"	12-157-018
1"	F(VI)	1x20-1/4"	7	1.0015"-.1.0025"	12-157-019

**METRIC SIZES**

BROACHE SIZE(MM)	TYPE	APPROX DIMENSIONS	SHIMS REQ'D	TOLANRANCE NO.2	ORDER NO. HSS
2MM	A(I)	1/8"x5"	0	.0782"-.0792"	11-157-001
3MM	A(I)	1/8"x5"	1	.1176"-.1186"	11-157-002
4MM	B-1(II)	1/4"x6-3/4"	1	.1568"-.1581"	11-157-003
5MM	B-1(II)	1/4"x6-3/4"	1	.1963"-.1974"	11-157-004
5MM	C(III)	3/8"x11-3/4"	1	.1963"-.1974"	11-157-005
6MM	C-1(III)	3/8"x11-3/4"	1	.2356"-.2368"	11-157-006
8MM	C-1(III)	3/8"x11-3/4"	2	.3143"-.3157"	11-157-007
10MM	D-1(IV)	9/16"x13-7/8"	2	.3930"-.3944"	11-157-008
12MM	D-1(IV)	9/16"x13-7/8"	2	.4716"-.4733"	11-157-009
14MM	D-1(IV)	9/16"x13-7/8"	2	.5503"-.5520"	11-157-010
16MM	E-1(V)	3/4"x15-1/2"	3	.6290"-.6307"	11-157-011
18MM	E-1(V)	3/4"x15-1/2"	3	.7078"-.7095"	11-157-012
20MM	F-1(VI)	1x20-1/4"	3	.7864"-.7884"	11-157-013
22MM	F-1(VI)	1x20-1/4"	4	.8651"-.8671"	11-157-014
24MM	F(VI)	1x20-1/4"	4	.9439"-.9459"	11-157-015
25MM	F-1(VI)	1x20-1/4"	4	.9832"-.9852"	11-157-016

**BROACHES AND GEAR CUTTERS**



**12**

**METAL CUTTING**

## INCH SIZE HSS KEYWAY BROACHES SET



The most common keyway combinations for small keyways and bores. 3 broaches and 5 bushings=15 keyway combinations.

KEYWAY SIZES	BROACHE STYLE	BUSHING DIAMETER(BORE SIZES)
1/16"	A	1/4, 5/16, 3/8, 7/16, 1/2"
3/32"	A	COLLARED BUSHINGS
1/8"	A	

NO.00 KEYWAY BROACHES SET  
ORDER NO. 12-264-S01

The most common keyway combinations for small keyways and bores. 4 broaches and 9 bushings=18 keyway combinations.

KEYWAY SIZES	BROACHE STYLE	BUSHING DIAMETER(BORE SIZES)
1/8"	B	1/2, 5/8"
3/16"	B	3/4, 7/8"
1/4"	C	1, 1-1/8"
3/8"	C	1-1/4, 1-3/8, 1-1/2"

NO.10 KEYWAY BROACHES SET  
ORDER NO. 12-264-S02

The most common keyway combinations for small keyways and bores. 4 broaches and 9 bushings=18 keyway combinations.

KEYWAY SIZES	BROACHE STYLE	BUSHING DIAMETER(BORE SIZES)
1/8"	B	9/16"
3/16"	B	11/16, 13/16"
1/4"	C	15/16, 1-1/16, 1-3/16"
3/8"	C	1-5/16, 1-7/16, 1-9/16"

NO.10A KEYWAY BROACHES SET  
ORDER NO. 12-264-S03

Combines 10 and 10A sets.but adds a 5/16 inch keyway for 11 extra combinations. 5 broaches and 18 bushings=47 keyway combinations.

KEYWAY SIZES	BROACHE STYLE	BUSHING DIAMETER(BORE SIZES)
1/8"	B	1/2, 9/16, 5/8, 11/16"
3/16"	B	3/4, 13/16, 7/8"
1/4"	C	15/16, 1, 1-1/16, 1-1/8, 1-3/16"
5/16"	C	1-1/4, 1-5/16, 1-3/8"
3/8"	C	1-7/16, 1-1/2, 1-9/16"

NO.20 KEYWAY BROACHES SET  
ORDER NO. 12-264-S04

## METRIC SIZE HSS KEYWAY BROACHES SET



The most common metric keyway combination for small keyways and bores.2 broaches and 3 bushings=6 keyway combinations.

KEYWAY SIZES	BROACHE STYLE	BUSHING DIAMETER(BORE SIZES)
2mm	A	6, 8, 10
3mm	A	

NO.60 KEYWAY BROACHES SET  
ORDER NO. 11-264-S01

4 broaches and 13 bushings=26 keyway combinations.

KEYWAY SIZES	BROACHE STYLE	BUSHING DIAMETER(BORE SIZES)
4mm	B-1	12, 14
5mm	B-1	15, 16
6mm	C-1	18, 19, 20, 22
8mm	C-1	24, 25, 26, 28, 30

NO.70 KEYWAY BROACHES SET  
ORDER NO. 11-264-S02

The most common metric keyway combination for medium-sized keyways and bores 3 broaches and 12 bushing=36 keyway combinations

KEYWAY SIZES	BROACHE STYLE	BUSHING DIAMETER(BORE SIZES)
10mm	D-1	32, 34, 35, 36
12mm	D-1	38, 40, 42, 44
14mm	D-1	45, 46, 48, 50

NO.80 KEYWAY BROACHES SET  
ORDER NO. 11-264-S03

The most common metric keyway combination for large keyways and bores 2 broaches and 8 bushing=16 keyway combinations

KEYWAY SIZES	BROACHE STYLE	BUSHING DIAMETER(BORE SIZES)
16mm	E-1	52, 54, 55, 56
18mm	E-1	58, 60, 62, 65

NO.90 KEYWAY BROACHES SET  
ORDER NO. 11-264-S04

## HSS HEXAGON PUSH BROACHES



### INCH SIZE

HEX SIZE	TOLANRANCE .0005-.0010"	BROACH LENGTH	PILOT DIA.	DRILL SIZE	LENGTH OF CUT		ORDER NO.
					MIN	MAX	
1/8"	.1255"-.1260"	4-1/8"	1/8"	1/8"	3/16"	3/8"	12-265-001
5/32"	.1565"-.1570"	4-15/16"	5/32"	5/32"	1/4"	1/2"	12-265-002
3/16"	.1880"-.1890"	5-1/16"	3/16"	3/16"	1/4"	5/8"	12-265-003
7/32"	.2190"-.2200"	5-3/8"	7/32"	7/32"	1/4"	3/4"	12-265-004
1/4"	.2505"-.2515"	6"	1/4"	1/4"	1/4"	3/4"	12-265-005
9/32"	.2815"-.2825"	7-1/4"	9/32"	9/32"	5/16"	1"	12-265-006
5/16"	.3130"-.3140"	7-3/4"	5/16"	5/16"	3/8"	1"	12-265-007
11/32"	.3440"-.3450"	7-3/4"	11/32"	11/32"	3/8"	1-1/4"	12-265-008
3/8"	.3755"-.3765"	8-1/2"	3/8"	3/8"	3/8"	1-1/4"	12-265-009
13/32"	.4065"-.4075"	9-5/8"	13/32"	13/32"	1/2"	1-3/8"	12-265-010
7/16"	.4385"-.4395"	10-5/8"	7/16"	7/16"	1/2"	1-3/8"	12-265-011
15/32"	.4690"-.4700"	11-7/8"	15/32"	15/32"	1/2"	1-3/8"	12-265-012
1/2"	.5005"-.0515"	11-7/8"	1/2"	1/2"	1/2"	1-3/8"	12-265-013
9/16"	.5630"-.5640"	13-3/4"	9/16"	9/16"	1/2"	1-3/8"	12-265-014
5/8"	.6260"-.6270"	16-1/4"	5/8"	5/8"	5/8"	2"	12-265-015
11/16"	.6880"-.6890"	16-3/4"	11/16"	11/16"	5/8"	2"	12-265-016
3/4"	.7510"-.7520"	17-1/4"	3/4"	3/4"	5/8"	2"	12-265-017
7/8"	.8755"-.8765"	18-1/2"	7/8"	7/8"	5/8"	2"	12-265-018
1"	1.002"-.1.003"	19-3/4"	1"	1"	5/8"	2"	12-265-019

### METRIC SIZE, ANSI B4.2-1978

HEX SIZE	TOLANRANCE .0005-.0010"	DIAGONAL DIMENSIONS	BROACH LENGTH	PILOT DIA.	DRILL SIZE	LENGTH OF CUT		ORDER NO.
					SIZE	MIN	MAX	
4mm	.1580"-.1585"	.1820"-.1830"	5-1/2"	.1575"	4mm	1/4"	1/2"	11-265-001
5mm	.1973"-.1983"	.2270"-.2280"	6"	.1968"	5mm	1/4"	3/4"	11-265-002
6mm	.2367"-.2377"	.2730"-.2740"	6-1/2"	.2362"	6mm	1/4"	3/4"	11-265-003
7mm	.2760"-.2770"	.3180"-.3190"	7-3/4"	.2756"	7mm	3/8"	1"	11-265-004
8mm	.3155"-.3165"	.3634"-.3644"	8-1/4"	.3150"	8mm	3/8"	1"	11-265-005
10mm	.3942"-.3952"	.4543"-.4553"	10"	.3937"	10mm	1/2"	1-3/8"	11-265-006
12mm	.4729"-.4739"	.5452"-.5462"	12-3/8"	.4724"	12mm	1/2"	1-3/8"	11-265-007
14mm	.5517"-.5527"	.6332"-.6342"	14-1/4"	.5512"	14mm	1/2"	1-1/2"	11-265-008
16mm	.6310"-.6320"	.7248"-.7258"	16-7/8"	.6230"	16mm	5/8"	1-5/8"	11-265-009
18mm	.7092"-.7102"	.8150"-.8160"	17"	.7087"	18mm	5/8"	1-5/8"	11-265-010
20mm	.7879"-.7889"	.9049"-.9059"	17-7/8"	.7874"	20mm	5/8"	1-5/8"	11-265-011
22mm	.8666"-.8676"	.9958"-.9968"	18-7/8"	.8661"	22mm	5/8"	1-5/8"	11-265-012
24mm	.9454"-.9464"	1.0868"-.1.0878"	19-7/8"	.9449"	24mm	5/8"	1-5/8"	11-265-013
25mm	.9848"-.9858"	1.1323"-.1.1333"	19-7/8"	.9842"	25mm	5/8"	1-5/8"	11-265-014

### HSS SQUARE PUSH BROACHES



INCH SIZE							
HEX SIZE	TOLANRANCE .0005-.0010"	BROACH LENGTH	PILOT DIA.	DRILL SIZE	LENGTH OF CUT		ORDER NO.
					MIN	MAX	
1/8"	.1250"-.1260"	4-1/8"	.1285"	NO.30	3/16"	1/2"	12-266-001
5/32"	.1565"-.1575"	5-1/8"	.1590"	NO.21	1/4"	1/2"	12-266-002
3/16"	.1880"-.1890"	5-9/16"	.1935"	NO.10	1/4"	5/8"	12-266-003
7/32"	.2190"-.2200"	6-3/8"	.2280"	NO.1	1/4"	3/4"	12-266-004
1/4"	.2505"-.2515"	6-1/2"	.2656"	17/64"	1/4"	3/4"	12-266-005
9/32"	.2815"-.2825"	7-3/4"	.2969"	19/64"	5/16"	1"	12-266-006
5/16"	.3130"-.3140"	7-7/8"	.3281"	21/64"	3/8"	1"	12-266-007
11/32"	.3440"-.3450"	9-3/8"	.3594"	23/64"	3/8"	1-1/4"	12-266-008
3/8"	.3755"-.3765"	9-3/8"	.3906"	25/64"	3/8"	1-1/4"	12-266-009
13/32"	.4065"-.4075"	10-5/8"	.4219"	27/64"	1/2"	1-3/8"	12-266-010
7/16"	.4385"-.4395"	10-7/8"	.4531"	29/64"	1/2"	1-3/8"	12-266-011
15/32"	.4690"-.4700"	12"	.5000"	1/2"	1/2"	1-3/8"	12-266-012
1/2"	.5005"-.0515"	12"	.5312"	17/32"	1/2"	1-3/8"	12-266-013
9/16"	.5630"-.5640"	14-3/4"	.5938"	19/32"	1/2"	1-1/2"	12-266-014
5/8"	.6260"-.6270"	16-5/16"	.6562"	21/32"	5/8"	1-5/8"	12-266-015
11/16"	.6885"-.6895"	17-3/4"	.7500"	3/4"	5/8"	1-5/8"	12-266-016
3/4"	.7510"-.7520"	17-3/4"	.8125"	13/16"	5/8"	1-5/8"	12-266-017
7/8"	.8765"-.8775"	22-3/4"	.9395"	15/16"	1/2"	2"	12-266-018
1"	1.002"-.1.003"	24-1/8"	1.0938"	1-3/32"	1/2"	2"	12-266-019

INCH SIZE							
HEX SIZE	TOLANRANCE .0005-.0010"	BROACH LENGTH	PILOT DIA. -.005"	DRILL SIZE	LENGTH OF CUT		ORDER NO.
					MIN	MAX	
4mm	.1580"-.1585"	5-9/16"	.1655"	4.2mm	5/16"	5/8"	11-266-001
5mm	.1973"-.1983"	6-7/8"	.2074"	5.2mm	3/8"	3/4"	11-266-002
6mm	.2367"-.2377"	7"	.2500"	6.35mm	3/8"	3/4"	11-266-003
8mm	.3155"-.3165"	8-3/16"	.3267"	8.3mm	7/16"	7/8"	11-266-004
10mm	.3942"-.3952"	10-7/8"	.4057"	10.3mm	1/2"	1"	11-266-005
12mm	.4729"-.4739"	12-1/2"	.4921"	12.5mm	5/8"	1-1/4"	11-266-006
14mm	.5517"-.5527"	14-7/8"	.5905"	15.0mm	3/4"	1-1/2"	11-266-007
16mm	.6310"-.6320"	16-13/16"	.6693"	17.0mm	7/8"	1-3/4"	11-266-008
18mm	.7092"-.7102"	18-1/2"	.7874"	20.0mm	7/8"	1-3/4"	11-266-009
20mm	.7879"-.7889"	18-7/8"	.8661"	22.0mm	7/8"	1-3/4"	11-266-010
22mm	.8666"-.8676"	23-1/4"	.9448"	24.0mm	7/8"	1-3/4"	11-266-011
24mm	.9454"-.9464"	24-9/16"	1.0236"	26.0mm	7/8"	1-3/4"	11-266-012
25mm	.9848"-.9858"	24-9/16"	1.0630"	27.0mm	7/8"	1-3/4"	11-266-013

### METRIC SIZE HSS INVOLUTE AND MODULE INVOLUTE GEAR CUTTER



All cutter are with 20° pressure angle  
 For modules 0.7-7, Each set including 8pc cutter(#1-#8)  
 For modules 8-20, each set including 15pc cutter(#1-#15)

MODULE 1-7		MODULE 8-20	
CUTTER NO.	CUTS GEARS FROM	CUTTER NO.	CUTS GEARS FROM
1	12&13	1	12
2	14-16	2	13
3	17-20	3	14
4	21-25	4	15&16
5	26-34	5	17&18
6	35-54	6	19&20
7	55-134	7	21&22
8	135 to RACK	8	23-25
		9	26-29
		10	30-34
		11	35-41
		12	42-54
		13	55-80
		14	81-135
		15	135 to RACK

MODULE	CUTTER	HOLE DIA.	CUTTER DIA.	CUTTER NO.1	CUTTER NO.2	CUTTER NO.3	CUTTER NO.4	CUTTER NO.5	CUTTER NO.6	CUTTER NO.7	CUTTER NO.8	CUTTER 8PC/SET
0.50	40	16	11-267-1001	11-267-2001	11-267-3001	11-267-4001	11-267-5001	11-267-6001	11-267-7001	11-267-8001	11-267-S001	
0.70	40	16	11-267-1002	11-267-2002	11-267-3002	11-267-4002	11-267-5002	11-267-6002	11-267-7002	11-267-8002	11-267-S002	
0.80	40	16	11-267-1003	11-267-2003	11-267-3003	11-267-4003	11-267-5003	11-267-6003	11-267-7003	11-267-8003	11-267-S003	
1.00	50	16	11-267-1004	11-267-2004	11-267-3004	11-267-4004	11-267-5004	11-267-6004	11-267-7004	11-267-8004	11-267-S004	
1.25	50	16	11-267-1005	11-267-2005	11-267-3005	11-267-4005	11-267-5005	11-267-6005	11-267-7005	11-267-8005	11-267-S005	
1.50	56	22	11-267-1006	11-267-2006	11-267-3006	11-267-4006	11-267-5006	11-267-6006	11-267-7006	11-267-8006	11-267-S006	
1.75	56	22	11-267-1007	11-267-2007	11-267-3007	11-267-4007	11-267-5007	11-267-6007	11-267-7007	11-267-8007	11-267-S007	
2.00	63	22	11-267-1008	11-267-2008	11-267-3008	11-267-4008	11-267-5008	11-267-6008	11-267-7008	11-267-8008	11-267-S008	
2.25	63	22	11-267-1009	11-267-2009	11-267-3009	11-267-4009	11-267-5009	11-267-6009	11-267-7009	11-267-8009	11-267-S009	
2.50	63	22	11-267-1010	11-267-2010	11-267-3010	11-267-4010	11-267-5010	11-267-6010	11-267-7010	11-267-8010	11-267-S010	
2.75	71	27	11-267-1011	11-267-2011	11-267-3011	11-267-4011	11-267-5011	11-267-6011	11-267-7011	11-267-8011	11-267-S011	
3.00	71	27	11-267-1012	11-267-2012	11-267-3012	11-267-4012	11-267-5012	11-267-6012	11-267-7012	11-267-8012	11-267-S012	
3.25	71	27	11-267-1013	11-267-2013	11-267-3013	11-267-4013	11-267-5013	11-267-6013	11-267-7013	11-267-8013	11-267-S013	
3.50	80	27	11-267-1014	11-267-2014	11-267-3014	11-267-4014	11-267-5014	11-267-6014	11-267-7014	11-267-8014	11-267-S014	
3.75	80	27	11-267-1015	11-267-2015	11-267-3015	11-267-4015	11-267-5015	11-267-6015	11-267-7015	11-267-8015	11-267-S015	
4.00	80	27	11-267-1016	11-267-2016	11-267-3016	11-267-4016	11-267-5016	11-267-6016	11-267-7016	11-267-8016	11-267-S016	
4.50	90	32	11-267-1017	11-267-2017	11-267-3017	11-267-4017	11-267-5017	11-267-6017	11-267-7017	11-267-8017	11-267-S017	
5.00	90	32	11-267-1018	11-267-2018	11-267-3018	11-267-4018	11-267-5018	11-267-6018	11-267-7018	11-267-8018	11-267-S018	
5.50	90	32	11-267-1019	11-267-2019	11-267-3019	11-267-4019	11-267-5019	11-267-6019	11-267-7019	11-267-8019	11-267-S019	
6.00	100	32	11-267-1020	11-267-2020	11-267-3020	11-267-4020	11-267-5020	11-267-6020	11-267-7020	11-267-8020	11-267-S020	
6.50	100	32	11-267-1021	11-267-2021	11-267-3021	11-267-4021	11-267-5021	11-267-6021	11-267-7021	11-267-8021	11-267-S021	
7.00	100	32	11-267-1022	11-267-2022	11-267-3022	11-267-4022	11-267-5022	11-267-6022	11-267-7022	11-267-8022	11-267-S022	

## METRIC SIZE HSS INVOLUTE AND MODULE INVOLUTE GEAR CUTTER



### MODULE 1-7

CUTTER NO.	CUTS GEARS FROM
1	12&13
2	14-16
3	17-20
4	21-25
5	26-34
6	35-54
7	55-134
8	135 to RACK

### MODULE 8-20

CUTTER NO.	CUTS GEARS FROM
1	12
2	13
3	14
4	15&16
5	17&18
6	19&20
7	21&22
8	23-25
9	26-29
10	30-34
11	35-41
12	42-54
13	55-80
14	81-135
15	135 to RACK

All cutter are with 20° pressure angle  
For modules 0.7-7, Each set including 8pc cutter(#1-#8)  
For modules 8-20, each set including 15pc cutter(#1-#15)

MODULE	CUTTER DIA.	HOLE DIA.	CUTTER NO.1	CUTTER NO.2	CUTTER NO.3	CUTTER NO.4	CUTTER NO.5	CUTTER NO.6	CUTTER NO.7	CUTTER NO.8
8	112	32	11-267-1023	11-267-2023	11-267-3023	11-267-4023	11-267-5023	11-267-6023	11-267-7023	11-267-8023
9	125	32	11-267-1024	11-267-2024	11-267-3024	11-267-4024	11-267-5024	11-267-6024	11-267-7024	11-267-8024
10	125	40	11-267-1025	11-267-2025	11-267-3025	11-267-4025	11-267-5025	11-267-6025	11-267-7025	11-267-8025
11	140	40	11-267-1026	11-267-2026	11-267-3026	11-267-4026	11-267-5026	11-267-6026	11-267-7026	11-267-8026
12	140	40	11-267-1027	11-267-2027	11-267-3027	11-267-4027	11-267-5027	11-267-6027	11-267-7027	11-267-8027
14	160	40	11-267-1028	11-267-2028	11-267-3028	11-267-4028	11-267-5028	11-267-6028	11-267-7028	11-267-8028
16	180	50	11-267-1029	11-267-2029	11-267-3029	11-267-4029	11-267-5029	11-267-6029	11-267-7029	11-267-8029
18	200	50	11-267-1030	11-267-2030	11-267-3030	11-267-4030	11-267-5030	11-267-6030	11-267-7030	11-267-8030
20	200	50	11-267-1031	11-267-2031	11-267-3031	11-267-4031	11-267-5031	11-267-6031	11-267-7031	11-267-8031

MODULE	CUTTER DIA.	HOLE DIA.	CUTTER NO.9	CUTTER NO.10	CUTTER NO.11	CUTTER NO.12	CUTTER NO.13	CUTTER NO.14	CUTTER NO.15	15PC/SET
8	112	32	11-267-A001	11-267-B001	11-267-C001	11-267-D001	11-267-E001	11-267-F001	11-267-G001	11-267-S023
9	125	32	11-267-A002	11-267-B002	11-267-C002	11-267-D002	11-267-E002	11-267-F002	11-267-G002	11-267-S024
10	125	40	11-267-A003	11-267-B003	11-267-C003	11-267-D003	11-267-E003	11-267-F003	11-267-G003	11-267-S025
11	140	40	11-267-A004	11-267-B004	11-267-C004	11-267-D004	11-267-E004	11-267-F004	11-267-G004	11-267-S026
12	140	40	11-267-A005	11-267-B005	11-267-C005	11-267-D005	11-267-E005	11-267-F005	11-267-G005	11-267-S027
14	160	40	11-267-A006	11-267-B006	11-267-C006	11-267-D006	11-267-E006	11-267-F006	11-267-G006	11-267-S028
16	180	50	11-267-A007	11-267-B007	11-267-C007	11-267-D007	11-267-E007	11-267-F007	11-267-G007	11-267-S029
18	200	50	11-267-A008	11-267-B008	11-267-C008	11-267-D008	11-267-E008	11-267-F008	11-267-G008	11-267-S030
20	200	50	11-267-A009	11-267-B009	11-267-C009	11-267-D009	11-267-E009	11-267-F009	11-267-G009	11-267-S031

## INCH SIZE HSS INVOLUTE AND MODULE INVOLUTE GEAR CUTTER



CUTTER NO.	CUTS GEARS FROM
1	135 teeth to rack
2	55 to 134
3	35 to 54
4	26 to 34
5	21 to 25
6	17 to 20
7	14 to 16
8	12 to 13

### 14-1/2° PRESSURE ANGLE INVOLUE GEAR CUTTER

DIA. PITCH	CUTTER DIA.	HOLE DIA.	CUTTER NO.1	CUTTER NO.2	CUTTER NO.3	CUTTER NO.4	CUTTER NO.5	CUTTER NO.6	CUTTER NO.7	CUTTER NO.8	CUTTER NO.8	CUTTER 8PC/SET
2	5-3/4"	1-1/2"	12-159-1001	12-159-2001	12-159-3001	12-159-4001	12-159-5001	12-159-6001	12-159-7001	12-159-8001	12-159-S001	12-159-S001
2-1/2	5-3/4"	1-1/2"	12-159-1002	12-159-2002	12-159-3002	12-159-4002	12-159-5002	12-159-6002	12-159-7002	12-159-8002	12-159-S002	12-159-S002
3	5-1/4"	1-1/4"	12-159-1003	12-159-2003	12-159-3003	12-159-4003	12-159-5003	12-159-6003	12-159-7003	12-159-8003	12-159-S003	12-159-S003
4	4-1/4"	1-1/4"	12-159-1004	12-159-2004	12-159-3004	12-159-4004	12-159-5004	12-159-6004	12-159-7004	12-159-8004	12-159-S004	12-159-S004
5	3-5/8"	1-1/4"	12-159-1005	12-159-2005	12-159-3005	12-159-4005	12-159-5005	12-159-6005	12-159-7005	12-159-8005	12-159-S005	12-159-S005
6	3-1/8"	1-1/4"	12-159-1006	12-159-2006	12-159-3006	12-159-4006	12-159-5006	12-159-6006	12-159-7006	12-159-8006	12-159-S006	12-159-S006
7	2-7/8"	1"	12-159-1007	12-159-2007	12-159-3007	12-159-4007	12-159-5007	12-159-6007	12-159-7007	12-159-8007	12-159-S007	12-159-S007
8	2-7/8"	1"	12-159-1008	12-159-2008	12-159-3008	12-159-4008	12-159-5008	12-159-6008	12-159-7008	12-159-8008	12-159-S008	12-159-S008
9	2-3/4"	1"	12-159-1009	12-159-2009	12-159-3009	12-159-4009	12-159-5009	12-159-6009	12-159-7009	12-159-8009	12-159-S009	12-159-S009
10	2-3/4"	1"	12-159-1010	12-159-2010	12-159-3010	12-159-4010	12-159-5010	12-159-6010	12-159-7010	12-159-8010	12-159-S010	12-159-S010
11	2-3/8"	1"	12-159-1011	12-159-2011	12-159-3011	12-159-4011	12-159-5011	12-159-6011	12-159-7011	12-159-8011	12-159-S011	12-159-S011
12	2-5/8"	1"	12-159-1012	12-159-2012	12-159-3012	12-159-4012	12-159-5012	12-159-6012	12-159-7012	12-159-8012	12-159-S012	12-159-S012
14	2-1/2"	1"	12-159-1013	12-159-2013	12-159-3013	12-159-4013	12-159-5013	12-159-6013	12-159-7013	12-159-8013	12-159-S013	12-159-S013
16	2-1/2"	1"	12-159-1014	12-159-2014	12-159-3014	12-159-4014	12-159-5014	12-159-6014	12-159-7014	12-159-8014	12-159-S014	12-159-S014
18	2-3/8"	1"	12-159-1015	12-159-2015	12-159-3015	12-159-4015	12-159-5015	12-159-6015	12-159-7015	12-159-8015	12-159-S015	12-159-S015
20	2-3/8"	1"	12-159-1016	12-159-2016	12-159-3016	12-159-4016	12-159-5016	12-159-6016	12-159-7016	12-159-8016	12-159-S016	12-159-S016
22	2"	7/8"	12-159-1017	12-159-2017	12-159-3017	12-159-4017	12-159-5017	12-159-6017	12-159-7017	12-159-8017	12-159-S017	12-159-S017
24	1-3/4"	7/8"	12-159-1018	12-159-2018	12-159-3018	12-159-4018	12-159-5018	12-159-6018	12-159-7018	12-159-8018	12-159-S018	12-159-S018
26	1-3/4"	7/8"	12-159-1019	12-159-2019	12-159-3019	12-159-4019	12-159-5019	12-159-6019	12-159-7019	12-159-8019	12-159-S019	12-159-S019
28	1-3/4"	7/8"	12-159-1020	12-159-2020	12-159-3020	12-159-4020	12-159-5020	12-159-6020	12-159-7020	12-159-8020	12-159-S020	12-159-S020
30	1-3/4"	7/8"	12-159-1021	12-159-2021	12-159-3021	12-159-4021	12-159-5021	12-159-6021	12-159-7021	12-159-8021	12-159-S021	12-159-S021
32	2-1/4"	1"	12-159-1022	12-159-2022	12-159-3022	12-159-4022	12-159-5022	12-159-6022	12-159-7022	12-159-8022	12-159-S022	12-159-S022
48	1-3/4"	7/8"	12-159-1023	12-159-2023	12-159-3023	12-159-4023	12-159-5023	12-159-6023	12-159-7023	12-159-8023	12-159-S023	12-159-S023

### 20° PRESSURE ANGLE INVOLUE GEAR CUTTER

DIA. PITCH	CUTTER DIA.	HOLE DIA.	CUTTER NO.1	CUTTER NO.2	CUTTER NO.3	CUTTER NO.4	CUTTER NO.5	CUTTER NO.6	CUTTER NO.7	CUTTER NO.8	CUTTER NO.8	CUTTER 8PC/SET
4	3-5/8"	1-1/4"	12-159-1024	12-159-2024	12-159-3024	12-159-4024	12-159-5024	12-159-6024	12-159-7024	12-159-8024	12-159-S024	12-159-S024
5	2-5/8"	1-1/4"	12-159-1025	12-159-2025	12-159-3025	12-159-4025	12-159-5025	12-159-6025	12-159-7025	12-159-8025	12-159-S025	12-159-S025
6	3-1/8"	1-1/4"	12-159-1026	12-159-2026	12-159-3026	12-159-4026	12-159-5026	12-159-6026	12-159-7026	12-159-8026	12-159-S026	12-159-S026
7	2-7/8"	1"	12-159-1027	12-159-2027	12-159-3027	12-159-4027	12-159-5027	12-159-6027	12-159-7027	12-159-8027	12-159-S027	12-159-S027
8	2-7/8"	1"	12-159-1028	12-159-2028	12-159-3028	12-159-4028	12-159-5028	12-159-6028	12-159-7028	12-159-8028	12-159-S028	12-159-S028
9	2-3/4"	1"	12-159-1029	12-159-2029	12-159-3029	12-159-4029	12-159-5029	12-159-6029	12-159-7029	12-159-8029	12-159-S029	12-159-S029
10	2-3/4"	1"	12-159-1030	12-159-2030	12-159-3030	12-159-4030	12-159-5030	12-159-6030	12-159-7030	12-159-8030	12-159-S030	12-159-S030
12	2-5/8"	1"	12-159-1031	12-159-2031	12-159-3031	12-159-4031	12-159-5031	12-159-6031	12-159-7031	12-159-8031	12-159-S031	12-159-S031
14	2-1/2"	1"	12-159-1032	12-159-2032	12-159-3032	12-159-4032	12-159-5032	12-159-6032	12-159-7032	12-159-8032	12-159-S032	12-159-S032
16	2-1/2"	1"	12-159-1033	12-159-2033	12-159-3033	12-159-4033	12-159-5033	12-159-6033	12-159-7033	12-159-8033	12-159-S033	12-159-S033
18	2-3/8"	1"	12-159-1034	12-159-2034	12-159-3034	12-159-4034	12-159-5034	12-159-6034	12-159-7034	12-159-8034	12-159-S034	12-159-S034
20	2-3/8"	1"	12-159-1035	12-159-2035	12-159-3035	12-159-4035	12-159-5035	12-159-6035	12-159-7035	12-159-8035	12-159-S035	12-159-S035
24	2-1/4"	1"	12-159-1036	12-159-2036	12-159-3036	12-159-4036	12-159-5036	12-159-6036	12-159-7036	12-159-8036	12-159-S036	12-159-S036
32	2-1/4"	1"	12-159-1037	12-159-2037	12-159-3037	12-159-4037	12-159-5037	12-159-6037	12-159-7037	12-159-8037	12-159-S037	12-159-S037
40	1-3/4"	7/8"	12-159-1038	12-159-2038	12-159-3038	12-159-4038	12-159-5038	12-159-6038	12-159-7038	12-159-8038	12-159-S038	12-159-S038
48	1-3/4"	7/8"	12-159-1039	12-159-2039	12-159-3039	12-159-4039	12-159-5039	12-159-6039	12-159-7039	12-159-8039	12-159-S039	12-159-S039

## INCH SIZE HSS INVOLUTE AND MODULE INVOLUTE GEAR CUTTER



CUTTER NO.	CUTS GEARS FROM
1	135 teeth to rack
2	55 to 134
3	35 to 54
4	26 to 34
5	21 to 25
6	17 to 20
7	14 to 16
8	12 to 13

### 14-1/2° PRESSURE ANGLE INVOLUTE GEAR CUTTER

MODULE	CUTTER DIA.	HOLE DIA.	CUTTER NO.1	CUTTER NO.2	CUTTER NO.3	CUTTER NO.4	CUTTER NO.5	CUTTER NO.6	CUTTER NO.7	CUTTER NO.8	CUTTER 8PC/SET
1	2"	1"	12-159-1040	12-159-2040	12-159-3040	12-159-4040	12-159-5040	12-159-6040	12-159-7040	12-159-8040	12-159-S040
1-1/4	2"	1"	12-159-1041	12-159-2041	12-159-3041	12-159-4041	12-159-5041	12-159-6041	12-159-7041	12-159-8041	12-159-S041
1-1/2	2"	1"	12-159-1042	12-159-2042	12-159-3042	12-159-4042	12-159-5042	12-159-6042	12-159-7042	12-159-8042	12-159-S042
1-3/4	2-1/4"	1"	12-159-1043	12-159-2043	12-159-3043	12-159-4043	12-159-5043	12-159-6043	12-159-7043	12-159-8043	12-159-S043
2	2-1/2"	1"	12-159-1044	12-159-2044	12-159-3044	12-159-4044	12-159-5044	12-159-6044	12-159-7044	12-159-8044	12-159-S044
2-1/4	2-1/2"	1"	12-159-1045	12-159-2045	12-159-3045	12-159-4045	12-159-5045	12-159-6045	12-159-7045	12-159-8045	12-159-S045
2-1/2	2-1/2"	1"	12-159-1046	12-159-2046	12-159-3046	12-159-4046	12-159-5046	12-159-6046	12-159-7046	12-159-8046	12-159-S046
2-1/4	2-1/2"	1"	12-159-1047	12-159-2047	12-159-3047	12-159-4047	12-159-5047	12-159-6047	12-159-7047	12-159-8047	12-159-S047
3	2-1/2"	1"	12-159-1048	12-159-2048	12-159-3048	12-159-4048	12-159-5048	12-159-6048	12-159-7048	12-159-8048	12-159-S048
3-1/4	2-1/2"	1-1/4"	12-159-1049	12-159-2049	12-159-3049	12-159-4049	12-159-5049	12-159-6049	12-159-7049	12-159-8049	12-159-S049
3-1/2	2-1/2"	1-1/4"	12-159-1050	12-159-2050	12-159-3050	12-159-4050	12-159-5050	12-159-6050	12-159-7050	12-159-8050	12-159-S050
4	3"	1"	12-159-1051	12-159-2051	12-159-3051	12-159-4051	12-159-5051	12-159-6051	12-159-7051	12-159-8051	12-159-S051

### 20° PRESSURE ANGLE INVOLUTE GEAR CUTTER

MODULE	CUTTER DIA.	HOLE DIA.	CUTTER NO.1	CUTTER NO.2	CUTTER NO.3	CUTTER NO.4	CUTTER NO.5	CUTTER NO.6	CUTTER NO.7	CUTTER NO.8	CUTTER 8PC/SET
1	2"	1"	12-159-1052	12-159-2052	12-159-3052	12-159-4052	12-159-5052	12-159-6052	12-159-7052	12-159-8052	12-159-S052
1-1/4	2"	1"	12-159-1053	12-159-2053	12-159-3053	12-159-4053	12-159-5053	12-159-6053	12-159-7053	12-159-8053	12-159-S053
1-1/2	2-1/4"	1"	12-159-1054	12-159-2054	12-159-3054	12-159-4054	12-159-5054	12-159-6054	12-159-7054	12-159-8054	12-159-S054
1-3/4	2-1/4"	1"	12-159-1055	12-159-2055	12-159-3055	12-159-4055	12-159-5055	12-159-6055	12-159-7055	12-159-8055	12-159-S055
2	2-1/2"	1"	12-159-1056	12-159-2056	12-159-3056	12-159-4056	12-159-5056	12-159-6056	12-159-7056	12-159-8056	12-159-S056
2-1/4	2-5/8"	1"	12-159-1057	12-159-2057	12-159-3057	12-159-4057	12-159-5057	12-159-6057	12-159-7057	12-159-8057	12-159-S057
2-1/2	2-3/4"	1"	12-159-1058	12-159-2058	12-159-3058	12-159-4058	12-159-5058	12-159-6058	12-159-7058	12-159-8058	12-159-S058
2-3/4	2-7/8"	1"	12-159-1059	12-159-2059	12-159-3059	12-159-4059	12-159-5059	12-159-6059	12-159-7059	12-159-8059	12-159-S059
3	2-7/8"	1"	12-159-1060	12-159-2060	12-159-3060	12-159-4060	12-159-5060	12-159-6060	12-159-7060	12-159-8060	12-159-S060
3-1/4	3"	1"	12-159-1061	12-159-2061	12-159-3061	12-159-4061	12-159-5061	12-159-6061	12-159-7061	12-159-8061	12-159-S061
3-1/2	3"	1"	12-159-1062	12-159-2062	12-159-3062	12-159-4062	12-159-5062	12-159-6062	12-159-7062	12-159-8062	12-159-S062
3-3/4	3-1/4"	1"	12-159-1063	12-159-2063	12-159-3063	12-159-4063	12-159-5063	12-159-6063	12-159-7063	12-159-8063	12-159-S063
4	3-1/4"	1"	12-159-1064	12-159-2064	12-159-3064	12-159-4064	12-159-5064	12-159-6064	12-159-7064	12-159-8064	12-159-S064
4-1/4	4"	1"	12-159-1065	12-159-2065	12-159-3065	12-159-4065	12-159-5065	12-159-6065	12-159-7065	12-159-8065	12-159-S065
4-1/2	4"	1"	12-159-1066	12-159-2066	12-159-3066	12-159-4066	12-159-5066	12-159-6066	12-159-7066	12-159-8066	12-159-S066
5	4"	1"	12-159-1067	12-159-2067	12-159-3067	12-159-4067	12-159-5067	12-159-6067	12-159-7067	12-159-8067	12-159-S067
5-1/2	4"	1"	12-159-1068	12-159-2068	12-159-3068	12-159-4068	12-159-5068	12-159-6068	12-159-7068	12-159-8068	12-159-S068
6	4"	1"	12-159-1069	12-159-2069	12-159-3069	12-159-4069	12-159-5069	12-159-6069	12-159-7069	12-159-8069	12-159-S069
7	4-3/4"	1-1/4"	12-159-1070	12-159-2070	12-159-3070	12-159-4070	12-159-5070	12-159-6070	12-159-7070	12-159-8070	12-159-S070
8	4-3/4"	1-1/4"	12-159-1071	12-159-2071	12-159-3071	12-159-4071	12-159-5071	12-159-6071	12-159-7071	12-159-8071	12-159-S071
8-1/2	5-1/4"	1-1/2"	12-159-1072	12-159-2072	12-159-3072	12-159-4072	12-159-5072	12-159-6072	12-159-7072	12-159-8072	12-159-S072
9	5-1/4"	1-1/2"	12-159-1073	12-159-2073	12-159-3073	12-159-4073	12-159-5073	12-159-6073	12-159-7073	12-159-8073	12-159-S073
9-1/2	5-1/2"	1-1/2"	12-159-1074	12-159-2074	12-159-3074	12-159-4074	12-159-5074	12-159-6074	12-159-7074	12-159-8074	12-159-S074
10	5-1/2"	1-1/2"	12-159-1075	12-159-2075	12-159-3075	12-159-4075	12-159-5075	12-159-6075	12-159-7075	12-159-8075	12-159-S075

## METRIC SIZES HSS INVOLUTE GEAR HOB

20° PRESSURE ANGLE, DIN8002

MODULE	OUTSIDE DIA.	OVERALL LENGTH	HOLE DIA.	WHOLE DEPTH	HSS	HSSCO8 TIALN
1.00	50	31	22	11-162-001	11-162-T001	11-162-HC001
1.25	50	31	22	11-162-002	11-162-T002	11-162-HC002
1.50	56	38	22	11-162-003	11-162-T003	11-162-HC003
1.75	56	38	22	11-162-004	11-162-T004	11-162-HC004
2.00	63	46	27	11-162-005	11-162-T005	11-162-HC005
2.25	70	56	27	11-162-006	11-162-T006	11-162-HC006
2.50	70	56	27	11-162-007	11-162-T007	11-162-HC007
2.75	70	56	27	11-162-008	11-162-T008	11-162-HC008
3.00	80	69	32	11-162-009	11-162-T009	11-162-HC009
3.25	80	69	32	11-162-010	11-162-T010	11-162-HC010
3.50	80	69	32	11-162-011	11-162-T011	11-162-HC011
3.75	90	78	32	11-162-012	11-162-T012	11-162-HC012
4.00	90	78	32	11-162-013	11-162-T013	11-162-HC013
4.25	90	78	32	11-162-014	11-162-T014	11-162-HC014
4.50	90	78	32	11-162-015	11-162-T015	11-162-HC015
5.00	100	88	32	11-162-016	11-162-T016	11-162-HC016
5.50	100	88	32	11-162-017	11-162-T017	11-162-HC017
6.00	110	108	40	11-162-018	11-162-T018	11-162-HC018
8.00	130	125	40	11-162-019	11-162-T019	11-162-HC019
10.00	160	140	40	11-162-020	11-162-T020	11-162-HC020



## INCH SIZES HSS INVOLUTE GEAR HOB

14-1/2° PRESSURE ANGLE, ANSI B94.7-80 CLASS B

DIA. PITCH	OUTSIDE DIA.	OVERALL LENGTH	HOLE DIA.	WHOLE DEPTH	HSS	HSSCO8 TIALN
3	4-1/2"	5"	1-1/4"	0.7190	12-162-001	12-162-HC001
3-1/2	4-1/2"	4-3/4"	1-1/4	0.6163	12-162-002	12-162-HC002
4	4"	4"	1-1/4	0.5393	12-162-003	12-162-HC003
4-1/2	3-1/2"	3-1/2"	1-1/4	0.4793	12-162-004	12-162-HC004
5	3-1/2"	3-1/2"	1-1/4	0.4314	12-162-005	12-162-HC005
5-1/2	3-1/2"	3-1/2"	1-1/4	0.3922	12-162-006	12-162-HC006
6	3-1/2"	3-1/2"	1-1/4	0.3595	12-162-007	12-162-HC007
6-1/2	3-1/4"	3-1/4"	1-1/4	0.3318	12-162-008	12-162-HC008
7	3-1/4"	3-1/4"	1-1/4	0.3082	12-162-009	12-162-HC009
8	3"	3"	1-1/4	0.2696	12-162-010	12-162-HC010
8-1/2	3"	3"	1-1/4	0.2538	12-162-011	12-162-HC011
9	3"	3"	1-1/4	0.2397	12-162-012	12-162-HC012
10	3"	3"	1-1/4	0.2157	12-162-013	12-162-HC013
12	2-3/4"	2-3/4"	1-1/4	0.1796	12-162-014	12-162-HC014
14	2-1/2"	2-1/2"	1-1/4	0.1541	12-162-015	12-162-HC015
16	2-1/2"	2-1/2"	1-1/4	0.1348	12-162-016	12-162-HC016
18	2-1/2"	2-1/2"	1-1/4	0.1198	12-162-017	12-162-HC017
20	2-1/2"	2"	1-1/4	0.1120	12-162-018	12-162-HC018
22	2-1/2"	2"	1-1/4	0.1020	12-162-019	12-162-HC019
24	2-1/2"	2"	1-1/4	0.0937	12-162-020	12-162-HC020



## METRIC SIZES HSS INVOLUTE GEAR SHAPER CUTTER

20° PRESSURE ANGLE, NOMINAL DIAMETER 100MM, DIN1852 CLASS A

MODULE	DIAMETER	ALTEZZA	HOLE DIA.	TEETH	HSS	HSSCO8
					TIN-COATED	TIALN
1.00	102.00	20	44.45	—	11-163-T001	11-163-HC001
1.25	105.00	20	44.45	80	11-163-T002	11-163-HC002
1.50	106.00	20	44.45	—	11-163-T003	11-163-HC003
1.75	107.40	20	44.45	58	11-163-T004	11-163-HC004
2.00	107.31	20	44.45	50	11-163-T005	11-163-HC005
2.25	109.29	20	44.45	45	11-163-T006	11-163-HC006
2.50	108.46	20	44.45	40	11-163-T007	11-163-HC007
2.75	108.36	24	44.45	36	11-163-T008	11-163-HC008
3.00	111.82	24	44.45	34	11-163-T009	11-163-HC009
3.25	110.99	24	44.45	31	11-163-T010	11-163-HC010
3.50	108.72	24	44.45	28	11-163-T011	11-163-HC011
3.75	112.35	24	44.45	27	11-163-T012	11-163-HC012
4.00	111.75	24	44.45	25	11-163-T013	11-163-HC013
4.25	114.12	24	44.45	24	11-163-T014	11-163-HC014
4.50	111.65	24	44.45	22	11-163-T015	11-163-HC015
5.00	114.05	24	44.45	20	11-163-T016	11-163-HC016
5.50	119.96	24	44.45	18	11-163-T017	11-163-HC017
6.00	118.86	24	44.45	17	11-163-T018	11-163-HC018
6.50	122.50	24	44.45	16	11-163-T019	11-163-HC019
7.00	127.00	24	44.45	15	11-163-T020	11-163-HC020
8.00	135.00	24	44.45	14	11-163-T021	11-163-HC021



## FINE PITCH GEAR HOBS

Compared with high-speed steel tools, carbide precision hob life can be increased by 8-40 times, usually mostly about 10-15 times.  
The corresponding hob price is about 5 times higher than that of high speed steel tools.

20° PRESSURE ANGLE

MODULE	OUTSIDE DIA.	OVERALL LENGTH	HOLE DIA.	HSS	HSS	CARBIDE
				TIN	TIALN	
0.10	25	10	8	11-162A-001	11-162A-T001	11-162A-H001
0.12	25	10	8	11-162A-002	11-162A-T002	11-162A-H002
0.15	25	10	8	11-162A-003	11-162A-T003	11-162A-H003
0.20	25	10	8	11-162A-004	11-162A-T004	11-162A-H004
0.25	25	10	8	11-162A-005	11-162A-T005	11-162A-H005
0.30	25	15	8	11-162A-006	11-162A-T006	11-162A-H006
0.35	25	15	8	11-162A-007	11-162A-T007	11-162A-H007
0.40	25	15	8	11-162A-008	11-162A-T008	11-162A-H008
0.50	25	15	8	11-162A-009	11-162A-T009	11-162A-H009
0.60	25	15	8	11-162A-010	11-162A-T010	11-162A-H010
0.70	25	20	8	11-162A-011	11-162A-T011	11-162A-H011
0.80	25	20	8	11-162A-012	11-162A-T012	11-162A-H012
0.30	32	15	13	11-162A-013	11-162A-T013	11-162A-H013
0.35	32	15	13	11-162A-014	11-162A-T014	11-162A-H014
0.40	32	15	13	11-162A-015	11-162A-T015	11-162A-H015
0.50	32	15	13	11-162A-016	11-162A-T016	11-162A-H016
0.60	32	20	13	11-162A-017	11-162A-T017	11-162A-H017
0.70	32	20	13	11-162A-018	11-162A-T018	11-162A-H018
0.80	32	20	13	11-162A-019	11-162A-T019	11-162A-H019
0.90	32	20	13	11-162A-020	11-162A-T020	11-162A-H020
1.00	32	20	13	11-162A-021	11-162A-T021	11-162A-H021



## INCH SIZES HSS INVOLUTE GEAR SHAPER CUTTER

14-1/2° PRESSURE ANGLE, ANSI B94.7-80 CLASS A

DIA. PITCH	OUTSIDE DIA.	OVERALL LENGTH	HOLE DIA.	WHOLE DEPTH	HSS	HSSCO8
					TIN-COATED	TIALN
3	4	12	1-1/4	0.7500	12-163-T001	12-163-HC001
3-1/2	4	14	1-1/4	0.6429	12-163-T002	12-163-HC002
4	4	16	1-1/4	0.5625	12-163-T003	12-163-HC003
4-1/2	4	18	1-1/4	0.5000	12-163-T004	12-163-HC004
5	4	20	1-1/4	0.4500	12-163-T005	12-163-HC005
6	4	24	1-1/4	0.3750	12-163-T006	12-163-HC006
7	4	28	1-1/4	0.3214	12-163-T007	12-163-HC007
8	4	32	1-1/4	0.2813	12-163-T008	12-163-HC008
9	4	36	1-1/4	0.2500	12-163-T009	12-163-HC009
10	4	40	1-1/4	0.2250	12-163-T010	12-163-HC010
11	4	44	1-1/4	0.2045	12-163-T011	12-163-HC011
12	4	48	1-1/4	0.1875	12-163-T012	12-163-HC012
14	4	56	1-1/4	0.1607	12-163-T013	12-163-HC013
16	4	64	1-1/4	0.1406	12-163-T014	12-163-HC014
17	4	68	1-1/4	0.1324	12-163-T015	12-163-HC015
18	4	72	1-1/4	0.1250	12-163-T016	12-163-HC016
20	4	80	1-1/4	0.1120	12-163-T017	12-163-HC017
24	4	96	1-1/4	0.0937	12-163-T018	12-163-HC018





### SINGLE WHEEL KNURLING TOOL



MAKE STRAIGHT PATTERN, PITCH 1mm  
 METRIC SIZE: 20x20x140mm 11-161-001  
 INCH SIZE: 3/4x3/4x5-1/4" 12-161-001

### PIVOT HEAD DOUBLE WHEEL KNURLING TOOL



MAKE DIAMOND PATTERN, SWIVEL HEAD, PITCH 1mm  
 METRIC SIZE: 20x20x140mm 11-161-003  
 INCH SIZE: 3/4x3/4x5-1/4" 12-161-003

### DOUBLE WHEEL KNURLING TOOL



MAKE DIAMOND PATTERN, PITCH 1mm  
 METRIC SIZE: 20x20x140mm 11-161-002  
 INCH SIZE: 3/4x3/4x5-1/4" 12-161-002

### 6 WHEEL REVOLVING HEAD KNURLING TOOL



WITH 3 PAIRS OF KNURLING WHEELS OF ALLOY STEEL, MAKING DIAMOND PATTERN.  
 PITCH OF KNURLING WHEELS: COARSE 1.8mm, MEDIUM 1.2mm, FINE 0.8mm  
 SHANK SIZE: 20x12.7x101.6mm 11-285-001  
 SHANK SIZE: 13/16x1/2x4" 12-285-001

### STEEL STAMPING LETTER & NUMBER SET



METRIC SIZE

SHANK SIZE	0-9 PC ORDER NO.	A-Z 27 PC ORDER NO.	A-Z,0-9, 36 PC ORDER NO.
1.0mm	11-166-001	11-166-007	11-166-013
1.5mm	11-166-002	11-166-008	11-166-014
2.0mm	11-166-003	11-166-009	11-166-015
3.0mm	11-166-004	11-166-010	11-166-016
4.0mm	11-166-005	11-166-011	11-166-017
5.0mm	11-166-006	11-166-012	11-166-018
6.0mm	11-166-019	11-166-022	11-166-025
8.0mm	11-166-020	11-166-023	11-166-026
10mm	11-166-021	11-166-024	11-166-027

INCH SIZE

SHANK SIZE	0-9 PC ORDER NO.	A-Z 27 PC ORDER NO.	A-Z,0-9, 36 PC ORDER NO.
1/16"	12-166-001	12-166-005	12-166-009
1/8"	12-166-002	12-166-006	12-166-010
5/32"	12-166-013	12-166-016	12-166-019
3/16"	12-166-003	12-166-007	12-166-011
1/4"	12-166-004	12-166-008	12-166-012
5/16"	12-166-014	12-166-017	12-166-020
3/8"	12-166-015	12-166-018	12-166-021

### DEBURRING TOOL & BLADE SET (STYLE "B")



ORDER NO.10-174-S01  
 · Including on plastic handle  
 · Blade holder B  
 · 1 each B10(for inner & outer deburring)& B20(hss blade for brass & cast iron)

SPARE BLADE  
 MODEL:B10 ORDER NO.10-174-001  
 MODEL:B20 ORDER NO.10-174-002

### THROW AWAY DEBURRING TOOL



ORDER NO.10-175-001  
 With E100 blade  
 Blade not replaceable

### HEAVY DUTY DEBURRING TOOL SET (STYLE "E")



ORDER NO.10-174-S02  
 · Universal plastic handle  
 · Blade holder E  
 · 1 each E100,E200,E300 blades.  
 E100 for steel & aluminium  
 E200 for brass & cast iron  
 E300 for deburring from two sides

SPARE BLADE  
 MODEL:E100 ORDER NO.10-174-003  
 MODEL:E200 ORDER NO.10-174-005  
 MODEL:E300 ORDER NO.10-174-006

### 4 PC DEBURRING TOOL SET



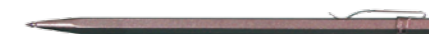
ORDER NO.10-175-001  
 Note: covering all general purpose usage

### DOUBLE DEBURRING WITH HSS DISK BLADES



ORDER NO.10-273-001  
 · Plastic handle with hand protector and 2 HSS blades.  
 · Interchangeable HSS disk Blades.  
 · The disk blades can be turned when the cutting surfaces become Worn,enabling the whole blade circumference to be utilized  
 · The distance between the disk blades can be adjusted  
 · Suitable for double-side deburring of steel,aluminium, brass,Copper and plastic sheets up to 10mm thick

### POCKET TYPE CARBIDE TIPPED SCRIBER



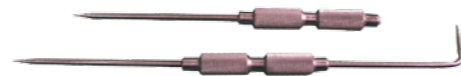
ORDER NO.10-177-001  
 Metal-body nickel plate, with carbide point. Oal:145mm

### REPLACEABLE CARBIDE TIPPED SCRIVER



ORDER NO.10-177-003  
Pocket style, with interchangeable carbide tip. Oal:150mm

### CARBIDE TIPPED SCRIBER SET



ORDER NO.10-175-001  
COVERING ALL GENERAL PURPOSE USEAGE  
The set include 2pcs most popular used scribers A & B  
· Scriber A: with knurled handle and one short straight/ one short bent point. Replaceable point,OAL:250mm.  
· Scriber B: one end scribers straight, with knurled handle.OAL:175mm

### MULTI PURPOSE DEBURRING TOOL SET

#### DEBURRING TOOLS SET



ORDER NO.10-286-002  
Designed for heavy-duty welding industry

- 1pc double-burr
- 2pc handles
- 4pc holder
- 2pc scapers
- 1pc countersink
- blades:ES100 ES200 each 5pc
- blades:V13 A13
- 1pc wrench
- 1pc hex wrench

#### DEBURRING TOOLS SET



ORDER NO.10-286-003  
Designed for professional machinists

- 1pc handle
- 1pc holder
- 4pc adapter
- 6pc blades:V3 V8 A3 I3 C12 C20
- 2pc countersink
- 1pc scraper
- 1pc hex wrench
- 1pc wrench

### HSS POWER HACKSAW BLADE (MACHINE SAW BLADE)



#### METRIC SIZES

LENGTH	WIDTH	THICKNESS	T.P.I	HSS	LENGTH	WIDTH	THICKNESS	T.P.I	HSS
MM	MM	MM			MM	MM	MM		
300	25	1.60	6T	11-271-001	450	32	2.00	6T	11-271-020
300	25	1.60	8T	11-271-002	450	32	2.00	8T	11-271-021
300	25	1.60	10T	11-271-003	450	32	2.00	10T	11-271-022
300	25	1.60	14T	11-271-004	500	38	2.00	4T	11-271-023
300	25	1.60	24T	11-271-005	500	38	2.00	6T	11-271-024
350	32	1.60	6T	11-271-006	500	38	2.00	8T	11-271-025
350	32	1.60	8T	11-271-007	500	38	2.00	10T	11-271-026
350	32	1.60	10T	11-271-008	525	38	2.00	6T	11-271-027
350	32	1.60	14T	11-271-009	550	45	2.25	4T	11-271-028
400	35	2.00	3T	11-271-010	550	45	2.25	6T	11-271-029
400	32	2.00	4T	11-271-011	550	45	2.25	8T	11-271-030
400	32	2.00	6T	11-271-012	575	45	2.25	4T	11-271-031
400	32	1.60	8T	11-271-013	600	50	2.50	4T	11-271-032
400	32	1.60	10T	11-271-014	600	50	2.50	6T	11-271-033
400	32	1.60	14T	11-271-015	600	50	2.50	8T	11-271-034
400	32	1.60	24T	11-271-016	650	60	3.00	4T	11-271-035
425	32	2.00	6T	11-271-017	700	60	3.00	4T	11-271-036
450	40	2.00	3T	11-271-018	700	60	3.00	6T	11-271-037
450	32	2.00	4T	11-271-019					

### HSS POWER HACKSAW BLADE (MACHINE SAW BLADE)

#### METRIC SIZES

LENGTH	WIDTH	THICKNESS	T.P.I	HSS	LENGTH	WIDTH	THICKNESS	T.P.I	HSS
IN	IN	IN			IN	IN	IN		
12"	5/8"	.032"	14T	12-271-001	18"	1-1/4"	.062"	6T	12-271-023
12"	5/8"	.032"	18T	12-271-002	18"	1-1/4"	.062"	10T	12-271-024
12"	1"	.050"	10T	12-271-003	18"	1-3/8"	.062"	6T	12-271-025
12"	1"	.050"	14T	12-271-004	18"	1-3/8"	.062"	10T	12-271-026
12"	1-1/8"	.050"	10T	12-271-005	18"	1-1/2"	.075"	4T	12-271-027
12"	1-1/8"	.050"	14T	12-271-006	18"	1-1/2"	.075"	6T	12-271-028
14"	1"	.050"	10T	12-271-007	18"	1-5/8"	.075"	4T	12-271-029
14"	1"	.050"	14T	12-271-008	18"	1-5/8"	.075"	6T	12-271-030
14"	1-1/8"	.050"	10T	12-271-009	18"	1-3/4"	.088"	4T	12-271-031
14"	1-1/8"	.050"	14T	12-271-010	18"	1-3/4"	.088"	6T	12-271-032
14"	1-1/4"	.062"	6T	12-271-011	18"	1-7/8"	.088"	4T	12-271-033
14"	1-1/4"	.062"	10T	12-271-012	18"	1-7/8"	.088"	6T	12-271-034
14"	1-3/8"	.062"	6T	12-271-013	21"	1-3/4"	.088"	4T	12-271-035
14"	1-3/8"	.062"	10T	12-271-014	21"	1-3/4"	.088"	6T	12-271-036
14"	1-1/2"	.075"	6T	12-271-015	21"	1-7/8"	.088"	4T	12-271-037
14"	1-5/8"	.075"	6T	12-271-016	21"	1-7/8"	.088"	6T	12-271-038
17"	1"	.050"	10T	12-271-017	24"	2"	.100"	3T	12-271-039
17"	1"	.050"	14T	12-271-018	24"	2"	.100"	4T	12-271-040
17"	1-1/4"	.062"	4T	12-271-019	24"	2-1/8"	.100"	3T	12-271-041
17"	1-1/4"	.062"	6T	12-271-020	24"	2-1/8"	.100"	4T	12-271-042
17"	1-1/4"	.062"	10T	12-271-021	30"	2"	.100"	4T	12-271-043
17"	1-3/8"	.062"	10T	12-271-022	30"	2-5/8"	.100"	4T	12-271-044

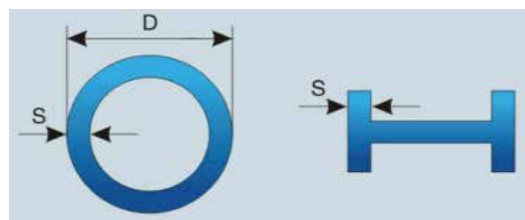
## BI-METAL BAND SAW BLADES

### SOLID MATERIALS

DIA. OF WORKPIECE(MM)	T.P.I
≤30	5/8T,6T,8/12T
30-50	6T,4/6T,4T
50-100	4T,3/4T,4/6T
100-150	3/4T,2/3T
150-200	3/4T,2/3T
200-300	2/3T,2T,1.25T,1.4/2.0T
300-500	1.25T,1/1.25T,1.4/2.0T
>500	1/1.25T,0.75/1.25T



### TUBING AND PROFILES MATERIAL



D(MM)	20	40	60	80	100	150	200	300	500
S(MM)	T.P.I								
2	14	14	14	14	10/14	10/14	10/14	10/14	8/12
3	14	10/14	10/14	8/12	8/12	8/12	6/10	6/10	6/10
4	14	10/14	10/14	8/12	8/12	6/10	6/10	5/8	4/6
5	14	10/14	10/14	8/12	6/10	6/10	5/8	4/6	4/6
6	14	10/14	8/12	8/12	6/10	5/8	5/8	4/6	4/6
8	14	8/12	6/10	6/10	6/10	5/8	5/8	4/6	4/6
10		6/10	6/10	5/8	5/8	4/6	4/6	4/6	3/4
12		6/10	5/8	4/6	4/6	4/6	4/6	3/4	3/4
15				4/6	4/6	3/4	3/4	3/4	2/3
20				4/6	4/6	3/4	3/4	3/4	2/3
30				3/4	3/4	3/4	2/3	2/3	2/3
50						2/3	2/3	2/3	1.4/2.0
75							2/3	1.4/2.0	1.4/2.0
100								1.4/2.0	0.75/1.25
150									0.75/1.25

- NT/T Normal tooth (constant or variable pitch)
- BT Back angle tooth
- TT Turtle back tooth
- PT Protective tooth
- FT Flat gullet tooth
- CT combine tooth

- N Null raker
- NR Normal raker
- BR Bigger raker

## BI-METAL BAND SAW BLADE

For stainless steels, alloy tool steels, die steels, spring steels, bearing steels, copper, structural steels, graphite, aluminum.



T.P.I	TOOTH FORM	M42							
		13X0.6MM 1/2X0.025"	19X0.9MM 3/4X0.035"	27X0.9MM 1X0.035"	34X1.1MM 1-1/4X0.042"	41X1.3MM 1-1/2X0.050"	54X1.6MM 2X0.063"	67X1.6MM 2-5/8X0.063"	80X1.6MM 3-5/8X0.063"
12/16T	N	12-272-001		12-272-013					
14NT	N	12-272-002	12-272-006	12-272-014					
10/14T	N	12-272-003	12-272-007	12-272-015					
8/12T	N	12-272-004	12-272-008	12-272-016					
6/10T	N		12-272-009	12-272-017					
6NT	N	12-272-005		12-272-018					
5/8T	N		12-272-010	12-272-019	12-272-033				
5/8TT	NR			12-272-020	12-272-034				
4/6T	N			12-272-021					
4/6T	NR		12-272-011	12-272-022	12-272-035	12-272-047			
4/6PT	NR			12-272-023	12-272-036	12-272-048			
4/6TT	NR			12-272-024	12-272-037				
4NT	N			12-272-025	12-272-038				
3/4T	N			12-272-026	12-272-039				
3/4T	NR		12-272-012	12-272-027	12-272-040	12-272-049			
3/4PT	NR			12-272-028	12-272-041	12-272-050	12-272-057		
3/4T	BR				12-272-042				
3/4TT	NR			12-272-029	12-272-043				
3/4CT	NR				12-272-044				
3/4FT	BR			12-272-030	12-272-045				
3/4T	BR								
2/3T	NR			12-272-031			12-272-058		
2/3BT	BR					12-272-051			
2/3TT	NR				12-272-046				
2T	NR			12-272-032			12-272-059		
1.4/2.0BT	BR					12-272-052	12-272-060	12-272-065	
1.4/2.0FT	BR					12-272-053			
1/1.5BT	BR							12-272-066	
1.25BT	BR						12-272-054	12-272-061	12-272-067
1/1.25BT	BR						12-272-055	12-272-062	12-272-068
1/1.25FT	BR						12-272-056	12-272-063	12-272-069
0.75/1.25BT	BR						12-272-064	12-272-070	12-272-071

For titanium/titanium alloys, stainless steels, alloy tool steels, high speed steels

T.P.I	TOOTH FORM	M51				
		27X0.9MM 1X0.035"	34X1.1MM 1-1/4X0.042"	41X1.3MM 1-1/2X0.050"	54X1.6MM 2X0.063"	67X1.6MM 2-5/8X0.063"
4/6PT	NR	12-272-072				
3/4T	N	12-272-073				
3/4T	NR	12-272-074	12-272-076	12-272-079		
3/4TT	NR	12-272-075	12-272-077	12-272-080		
3/4CT	NR		12-272-078			
2/3T	NR				12-272-084	
2NT	NR				12-272-085	
1.4/2.0BT	BR			12-272-081	12-272-086	
1.4/2.0FT	BR					12-272-091
1/1.5BT	BR					12-272-092
1.25BT	BR				12-272-087	12-272-093
1/1.25BT	BR			12-272-082	12-272-088	12-272-094
1/1.25FT	BR			12-272-083	12-272-089	12-272-095
0.75/1.25BT	BR				12-272-090	12-272-096





