

HSS End Mills
Solid Carbide End Mills
Solid Carbide Drills





HANITA a brand of Kennametal Inc., is pleased to present its new Full Line Catalogue. HANITA manufactures cutting tools made from Premium High Speed Steels, Powder Metal Steels and Solid Carbide materials. In addition to a full range of conventional tool styles, HANITA also provides a broad variety of application specific and high performance tools, utilizing highly advanced tool geometries and manufacturing processes. With proven experience and worldwide acceptance in the most demanding metalworking industries, like Aerospace, Automotive, Die & Mold and Electronic, HANITA is known as a top level, solid round tooling solution supplier, who provides its customers with increased productivity and cost savings.

Technical Support – our engineers are available to provide full support to our customers, including application engineering, recommending machining parameters, problem solving, training and customizing tools to satisfying our customer's needs



Internal R&D and Product Development – Part of Kennametal Inc., our in-house, focused R&D department develops new and unique products and innovative, patented solutions that dramatically improve our customer's machining productivity and reducing their manufacturing costs. Its dedicated test laboratory, equipped with Ultra High Speed CNC machines, benchmarks HANITA cutting tools with other high quality products.



HANITA ADVANTAGES

Our tools are made on ultramodern and high precision CNC machines, to assure superb quality, consistency, tight tolerances and optimum tool performance.

ISO 9002 certified since 1995, HANITA has a World Class Quality Assurance Department that utilizes Control based CNC equipment, skilled and qualified operators and inspectors, in process control and final inspection... all leading to high quality and tool consistency.

Lean Manufacturing Systems – to reduce lead times and provide our customers the tools they want.... when they need them.



In-house PVD coating systems, with TiN, Z-Coat, TiCN and TiAlN capabilities that utilize a controlled edge preparation technology before coating, providing improved tool performance and consistency.

HANITA customers, around the globe, receive premium-quality cutting tools, the finest technical support and the very best in customer service from us. We invite you to try our products and use our services.

Order Guide

To order follow these 3 easy steps

1 Identify the relevant **TYPE**

EXAMPLE **1600**

2 Choose the **ITEM No.** in the category

3 And finally add the suffix code from one of the suffix categories: **Uncoated, TiN, Z-Coat, TiCN, TiAIN.**




































EXAMPLE **HANITA Ordering No.**
(11 digits)

Type	160003002WW	
Item No.	Suffix	

The suffix categories

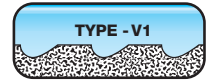
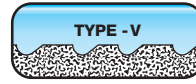
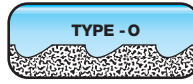
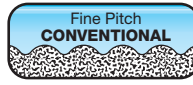
Uncoated	<ul style="list-style-type: none"> ••.....Plain Shank Uncoated AA.....Weldon Shank Type A Uncoated BBWeldon Shank Type B Uncoated FFScrewed Shank Uncoated JJ.....Japanese Standard, Plain Shank Uncoated WW....Weldon Shank Uncoated
TiN	<ul style="list-style-type: none"> TATiN Coated Weldon Shank Type A TB.....TiN Coated Weldon Shank Type B TFTiN Coated Screwed Shank TJTiN Coated Japanese Standard Plain Shank TN.....TiN Coated Whistle Notch Shank TTTiN Coated Plain Shank TWTiN Coated Weldon Shank
Z-Coat	<ul style="list-style-type: none"> ZFZ-Coat Coated Screwed Shank ZJZ-Coat Coated Japanese Standard Plain Shank ZTZ-Coat Coated Plain Shank ZW.....Z-Coat Coated Weldon Shank
TiCN	<ul style="list-style-type: none"> CATiCN Coated Weldon Shank Type A CBTiCN Coated Weldon Shank Type B CF.....TiCN Coated Screwed Shank CJ.....TiCN Coated Japanese Standard Plain Shank CNTiCN Coated Whistle Notch Shank CT.....TiCN Coated Plain Shank CWTiCN Coated Weldon Shank
TiAIN	<ul style="list-style-type: none"> LFFTR TiAIN Coated Screwed Shank LJFTR TiAIN Coated Japanese Standard Plain Shank LT.....FTR TiAIN Coated Plain Shank LWFTR TiAIN Coated Weldon Shank RJXTR TiAIN Coated Japanese Standard Plain Shank RNXTR TiAIN Coated Whistle Notch Shank RT.....XTR TiAIN Coated Plain Shank RW.....XTR TiAIN Coated Weldon Shank

Guide To Tool Specification Icons

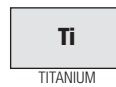
Standards	<table border="1"> <tr> <td>HANITA Standard Long HANITA</td> <td>DIN Standard DIN</td> <td>JIS Standard JAPANESE</td> </tr> </table>	HANITA Standard Long HANITA	DIN Standard DIN	JIS Standard JAPANESE				
HANITA Standard Long HANITA	DIN Standard DIN	JIS Standard JAPANESE						
Materials	<table border="1"> <tr> <td>PREMIUM CARBIDE</td> <td>CARBIDE</td> <td>HSS-M42</td> <td>HSS-PM</td> </tr> </table>	PREMIUM CARBIDE	CARBIDE	HSS-M42	HSS-PM			
PREMIUM CARBIDE	CARBIDE	HSS-M42	HSS-PM					
Shank	<table border="1"> <tr> <td> PLAIN</td> <td> WELDON</td> <td> SCREWED</td> <td> WHISTLE NOTCH</td> </tr> </table>	 PLAIN	 WELDON	 SCREWED	 WHISTLE NOTCH			
 PLAIN	 WELDON	 SCREWED	 WHISTLE NOTCH					
Length	<table border="1"> <tr> <td> SHORT</td> <td> STANDARD</td> <td> LONG</td> <td> EXTRA LONG</td> <td> SHORT (JIS)</td> <td> STANDARD (JIS)</td> <td> LONG (JIS)</td> </tr> </table>	 SHORT	 STANDARD	 LONG	 EXTRA LONG	 SHORT (JIS)	 STANDARD (JIS)	 LONG (JIS)
 SHORT	 STANDARD	 LONG	 EXTRA LONG	 SHORT (JIS)	 STANDARD (JIS)	 LONG (JIS)		
Helix angle	 30°							
Corner radius	 Corner Radius							

Pitch

**New
Generation**



Machined Material



Guide To Tool Application Icons

Slotting Square End	Slotting Ball Nose	Side Milling Square End	Side Milling Ball Nose	Profiling Ball Nose	Drilling

HSS-Finisher

Page	Type	Description
10	1600	Multi-Flute Ball Nose For 3 D Milling
10	1601	2 Flute Ball Nose For 3 D Milling
11	1602	2 Flute Square End For Deep Slotting
12	1603	3 Flute Square End For Slotting and Side Milling
12	1605	4 Flute Square End For Peripheral Finishing Operation
13	1606/1608	Multi-Flute Square End For Peripheral Finishing Operation
13	1612	2 Flute Square End Long Type For Deep Slotting
14	1615	4 Flute Square End Long Type For Deep Peripheral Finishing Operation
14	1616	6 Flute Square End Long Type For Deep Peripheral Finishing Operation
15	1625	4 Flute Square End Extra Long Type For Deep Peripheral Finishing Operation
15	1N02	2 Flute Square End HSS - P.M. For Deep Slotting
16	1N05/1N07	Multi-Flute Square End HSS - P.M. For Peripheral Finishing Operation
16	1NL5/1NL7	Multi-Flute Square End Neck Tool HSS - P.M. For Deep Peripheral Finishing Operation
16	3603 BB	3 Flute Square End Throw-Away Short Type For Slotting and Side Milling General Purpose
17	3502	2 Flute Square End High Helix For Roughing and Finishing Aluminium
17	3603 AA	3 Flute Square End Throw-Away Short Type For Slotting and Side Milling General Purpose
18	3605	Multi-Flute Square End High Helix For Slotting and Peripheral Finishing Operation
18	3613 AA	3 Flute Square End Throw-Away Long Type For Slotting and Side Milling General Purpose
19	3613 BB	3 Flute Square End Throw-Away Long Type For Slotting and Side Milling General Purpose
19	3615	Multi-Flute Square End High Helix - Long Type For Deep Slotting and Peripheral Finishing Operation
20	3N05	Multi-Flute Square End High Helix HSS - P.M. For Slotting and Peripheral Finishing Operation
20	5870	Corner Rounding Cutter - Plain Shank For Corner Radius Milling

HSS-Finisher JJ (Japanese Norm)

Page	Type	Description
22	1601 JJ	2 Flute Ball Nose - Long Shank For Deep 3 D Milling
22	1634 JJ	4 Flute Square End Long Type For Deep Peripheral Finishing Operation
23	1652 JJ	2 Flute Square End Long Type For Deep Slotting
23	1662 JJ/1672 JJ	2 Flute Square End - Extra Long Type For Deep Slotting
24	1N34 JJ	4 Flute HSS-PM Square End Long Type For Deep Peripheral Finishing Operation
24	1N52 JJ	2 Flute HSS-PM Square End Long Type For Deep Slotting

HSS-Rougher

Page	Type	Description
26	6604	Multi-Flute Square End Extra Fine Pitch For General Purpose Roughing Operation
26	6605/6606	Multi-Flute Square End Fine Pitch For General Purpose Roughing Operation
27	6607/6608	Multi-Flute Square End Coarse Pitch For General Purpose Roughing Operation
27	6609	3 Flute Square End Coarse Pitch For Roughing Operation on Aluminium
28	6615/6616	Multi-Flute Square End Fine Pitch - Long Type For General Purpose Deep Roughing Operation
28	6617/6618	Multi Flute Square End Coarse Pitch For General Purpose Deep Roughing Operation
29	6619	3 Flute Square End Coarse Pitch - Long Type For Deep Roughing Operation on Aluminium
29	6637 JJ/6638 JJ	Multi-Flute Square End Coarse Pitch - Extra Long Type For General Purpose Roughing Operation
30	6645	Multi-Flute Square End Stub Length Fine Pitch For General Purpose Pocketing and Roughing Operation
30	6667 JJ	Multi-Flute Ball Nose Coarse Pitch For General Purpose 3 D Roughing Operation
31	6673	Multi-Flute Square End Semi-Finisher Flat Profile - Type V1 For Milling Titanium Alloys
31	6674	Multi-Flute Square End Semi-Finisher Flat Profile - Type O For Milling Medium Tensile Strength Steels
32	6675	Multi-Flute Square End Semi-Finisher Flat Profile - Type V For Milling Medium Stainless Steels, Nickel and Cobalt Base Alloys
32	6676	Multi-Flute Square End Semi-Finisher Flat Profile - Type D For Milling Aluminium Alloys
33	6N04	Multi-Flute Square End Extra Fine Pitch For General Purpose Roughing Operation

HSS-Rougher

Page	Type	Description
33	6N06	Multi-Flute Square End Fine Pitch - HSS-PM For General Purpose Roughing Operation
34	6N08	Multi-Flute Square End Coarse Pitch - HSS-PM For General Purpose Roughing Operation
34	6N70	Multi-Flute Square End Semi-Finishing High Performance with Combi-Cut For General Purpose Semi Roughing Operation
34	6NL6	Multi-Flute Square End Fine Pitch with Neck For General Purpose Roughing Operation Long Reach

S.C. Finisher

Page	Type	Description
36	4000	4 Flute Ball Nose For 3 D Milling
36	4001	2 Flute Ball Nose For 3 D Milling
36	4001 JJ	2 Flute Ball Nose - Long Shank For Deep 3 D Milling
37	4002	2 Flute Square End For Deep Slotting
37	4003	3 Flute Square End For Slotting and Side Milling
38	4004	4 Flute Square End For Peripheral Finishing Operation
38	4010	4 Flute Ball Nose - Long Type For Deep 3 D Milling
39	4011	2 Flute Ball Nose - Long Type For Deep Slotting
39	4012	2 Flute Square End - Long Type For Deep Slotting
40	4013	3 Flute Square End - Long Type For Deep Slotting and Side Milling
40	4014	4 Flute Square End - Long Type For Deep Peripheral Finishing Operation
41	4021	2 Flute Ball Nose - Extra Long Type For Very Deep Application
41	4022	2 Flute Square End - Extra Long Type For Very Deep Slotting
42	4024	4 Flute Square End - Extra Long Type For Very Deep Peripheral Finishing Operation
42	4102	2 Flute Square End - High Helix For Slotting Aluminium
43	4103	3 Flute Square End - High Helix For Slotting Aluminium
43	4503 JJ	3 Flute Square End - High Helix - Long Shank For Deep Slotting and Peripheral Finishing Operation
44	4603	3 Flute Square End - High Helix For Peripheral Finishing Operation
44	4632	2 Flute Square End - Mini-micro For Slotting and Side Milling
44	4633	3 Flute Square End - Mini-micro For Slotting and Side Milling
45	4651	2 Flute Ball Nose - Mini-micro For 3 D Milling
45	4777	4 Flute Square End High Helix VariMill with Unequal Flute Spacing
45	D000	4 Flute Ball Nose For 3 D Milling
46	D001	2 Flute Ball Nose For 3 D Milling
46	D002	2 Flute Square End For Deep Slotting
47	D003	3 Flute Square End For Slotting and Side Milling
47	D004	4 Flute Square End For Peripheral finishing Operation
48	D009	3 Flute Ball Nose - Long Type For Deep 3 D Milling
48	D010	4 Flute Ball Nose - Long Type For Deep 3 D Milling
49	D011	2 Flute Ball Nose - Long Type For Deep 3 D Milling
49	D012	2 Flute Square End - Long Type Intermediate Size For Deep Slotting
50	D013	3 Flute Square End - Long Type For Deep Slotting and Side Milling
50	D014	4 Flute Square End - Long Type For Deep Peripheral Finishing Operation
51	D501	2 Flute Ball Nose For 3-D Milling in High Speed Machining
51	D502	2 Flute Square End For Slotting and Side Milling in High Speed Machining
51	D503	3 Flute Square End - High Helix For Slotting and Peripheral Finishing Operation
52	D507	6 Flute Square End - High Helix For Peripheral Finishing Operation
52	D513	3 Flute Square End High Helix - Long Type For Slotting and Peripheral Finishing Operation
53	D517	6 Flute Square End High Helix - Long Type For Peripheral Finishing Operation
53	D518	Multi- Flute Square End High Helix For Peripheral High Accuracy Finishing Operation
54	DC03	3 Flute Square End with Small Corner Radii - Premium Cut For Slotting and Finishing Stainless Steel and Aluminium
54	DC19	3 Flute Ball Nose - Long Type For 3 D Milling Stainless Steel, Aluminium and Soft Steels

S.C. Vision

Page	Type	Description
56	7050	4 Flute Ball Nose - Long Type For Finishing in 3 D Milling of Hard Die & Mold - Long Reach
56	7150	4 Flute Ball Nose - Regular Length For Finishing in 3 D Milling of Hard Die & Mold
56	7151	2 Flute Ball Nose - Regular Length For Finishing in 3 D Milling of Hard Die & Mold
57	7505	Multi-Flute Square End Double Core Regular Length - Vision 21 For Deep Slotting and Peripheral Milling of Hard Steels
57	7515	Multi-Flute Square End Double Core Long - Vision 21 For Shallow Slotting and Peripheral Long Milling of Hard Steels
58	7525	Multi-Flute Square End Double Core Extra Long - Vision 21 For Shallow Slotting and Peripheral Extra Long Milling of Hard Steels
58	7545	Multi-Flute Square End Double Core - Short Type For Peripheral Milling of Hard Steels
59	7585	Multi-Flute Square End Double Core - Corner Radii - Regular Length For Deep Slotting and Peripheral Milling of Hard Steels
59	7595	Multi-Flute Square End Double Core - Corner Radii - Short Type For Peripheral Milling of Hard Steels
60	75N5	Multi-Flute Square End Double Core With Neck Geometry 3 D Reach For Deep Slotting and Peripheral Milling of Hard Steels - Long Reach
60	7670	Multi-Flute Square End Flat Shallow Profile with Corner Radii For Roughing in 3 D Milling of Hard Die & Mold

S.C. Roughers

Page	Type	Description
62	4906	Multi-Flute Fine Pitch - Square End For General Purpose Roughing Operation
62	4909	3 Flute Coarse Pitch For Roughing Operation on Aluminium
63	4940	Multi-Flute Square End Semi-Finisher-Flat Shallow Profile with Corner Radii For High Tensile Strength Steels
63	4966	Multi-Flute Square End Ball Nose For 3 D Roughing Operation
64	4970	Multi-Flute Square End Semi-Finisher Flat Profile Shallow For High Tensile Strength Steels
64	4979	3 Flute Square End Corner Radii - New Generation - Chamfered Pitch For Roughing and Semi-Finishing Aluminium Alloys
65	49G9	3 Flute Flat Square End Chamfered Pitch -with Internal Coolant For Roughing and Finishing Aluminium Alloys Improving Chip Evacuation
65	49H6	Multi-Flute Square End Fine Pitch with Internal Coolant For General Purpose Deep Roughing Operation
66	49H9	3 Flute Square End Coarse Pitch with Internal Coolant For Deep Roughing Operation on Aluminium
66	DQ13	3 Flute Square End Flat Profile Chip-Breaker with Corner Radii For Roughing and Semi-Finishing Stainless Steel

S.C. Drills

Page	Type	Description
68	M112	Jobber Drill Point 118° For General Purpose Drilling
69	M132	Stub Length Drill Point 135° For Shallow Depth Holes
71	M133	3 Flute Stub Length Drill Point 135° For Shallow Depth Holes with Self-Centering
72	M150	Drill and 2 Flute Ball Nose End Mill For Drilling and Milling
72	M152	High Performance Short Drill Point 140° For Drilling Depth of 3xD - with Self Centering
74	M162	High Performance Long Drill Point 140° For Drilling Depth of 5xD - with Self Centering
75	M252	High Performance Short Drill with Internal Coolant Point 140° For Drilling Depth of 3xD - with Self Centering
76	M262	High Performance Long Drill with Internal Coolant Point 140° For Drilling Depth of 5xD - with Self Centering

Technical Informations

Page	Description
79	Specials
83	Recommended Working Details
90	Index By Application Material
94	Index By No. Of Flutes



1600

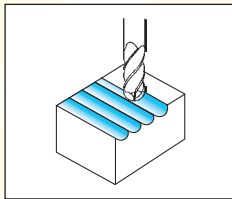
HSS Co Multi-Flute Ball Nose


HSS-M42
DIN 844
Standard

30°


Multi-Flute Ball Nose for 3D Milling

Suffix Category		
Uncoated	WW	FF
TiN	TW	TF
Z-Coat	ZW	ZF
TiCN	CW	CF
TiAlN	LW	LF


30>ST HRc

Size				Flutes	Radius	Item No.
d ₁ x	d ₂ x	l ₂ x	l ₁			
3 x 6 x 8 x 52	4	-	160003002			
4 x 6 x 11 x 55	4	-	160004002			
5 x 6 x 13 x 57	4	-	160005002			
6 x 6 x 13 x 57	4	-	160006002			
8 x 10 x 19 x 69	4	-	160008004			
10 x 10 x 22 x 72	4	-	160010004			
12 x 12 x 26 x 83	4	-	160012005			
14 x 12 x 26 x 83	4	-	160014005			
15 x 12 x 26 x 83	4	-	160015005			
16 x 16 x 32 x 92	4	-	160016006			
18 x 16 x 32 x 92	4	-	160018006			
20 x 16 x 38 x 98	4	-	160020006			
22 x 25 x 40 x 106	6	-	160022008			
24 x 25 x 45 x 121	6	-	160024008			
25 x 25 x 45 x 121	6	-	160025008			

1601

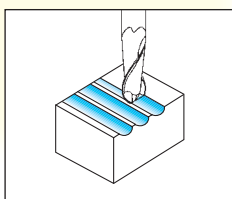
HSS Co 2 Flute Ball Nose


HSS-M42
DIN 327
Standard

30°


2 Flute Ball Nose for 3D

Suffix Category		
Uncoated	WW	FF
TiN	TW	TF
Z-Coat	ZW	ZF
TiCN	CW	CF
TiAlN	LW	LF


30>ST HRc

Size				Flutes	Radius	Item No.
d ₁ x	d ₂ x	l ₂ x	l ₁			
2 x 6 x 4 x 48	2	-	160102002	NEW!		
3 x 6 x 5 x 49	2	-	160103002			
4 x 6 x 7 x 51	2	-	160104002			
5 x 6 x 8 x 52	2	-	160105002			
6 x 6 x 8 x 52	2	-	160106002			
7 x 10 x 10 x 60	2	-	160107004			
8 x 10 x 11 x 61	2	-	160108004			
9 x 10 x 11 x 61	2	-	160109004			
10 x 10 x 13 x 63	2	-	160110004			
11 x 12 x 13 x 70	2	-	160111005			
12 x 12 x 16 x 73	2	-	160112005			
13 x 12 x 16 x 73	2	-	160113005			
14 x 12 x 16 x 73	2	-	160114005			
15 x 12 x 16 x 73	2	-	160115005			
16 x 16 x 19 x 79	2	-	160116006			
17 x 16 x 19 x 79	2	-	160117006	NEW!		
18 x 16 x 19 x 79	2	-	160118006			
20 x 16 x 19 x 79	2	-	160120006			
22 x 25 x 26 x 102	2	-	160122008			
24 x 25 x 26 x 102	2	-	160124008			
25 x 25 x 26 x 102	2	-	160125008			



30°

DIN 327
Standard

HSS-M42



Co 2 Flute Square End

1602

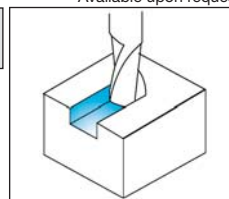
Size				Flutes	Radius	Item No.
d ₁ x	d ₂ x	l ₂ x	l ₁			
2 x 6 x 4 x 48	2	-	160202002			
2.5 x 6 x 5 x 49	2	-	160202502			
3 x 6 x 5 x 49	2	-	160203002			
3.5 x 6 x 6 x 50	2	-	160203502			
4 x 6 x 7 x 51	2	-	160204002			
4.5 x 6 x 7 x 51	2	-	160204502			
5 x 6 x 8 x 52	2	-	160205002			
5.5 x 6 x 8 x 52	2	-	160205502			
6 x 6 x 8 x 52	2	-	160206002			
6.5 x 10 x 10 x 60	2	-	160206504			
7 x 10 x 10 x 60	2	-	160207004			
7.5 x 10 x 10 x 60	2	-	160207504			
8 x 10 x 11 x 61	2	-	160208004			
8.5 x 10 x 11 x 61	2	-	160208504			
9 x 10 x 11 x 61	2	-	160209004			
9.5 x 10 x 11 x 61	2	-	160209504			
10 x 10 x 13 x 63	2	-	160210004			
10.5 x 12 x 13 x 70	2	-	160210505			
11 x 12 x 13 x 70	2	-	160211005			
11.5 x 12 x 13 x 70	2	-	160211505			
12 x 12 x 16 x 73	2	-	160212005			
12.5 x 12 x 16 x 73	2	-	160212505			
13 x 12 x 16 x 73	2	-	160213005			
13.5 x 12 x 16 x 73	2	-	160213505			
14 x 12 x 16 x 73	2	-	160214005			
14.5 x 12 x 16 x 73	2	-	160214505			
15 x 12 x 16 x 73	2	-	160215005			
15.5 x 16 x 19 x 79	2	-	160215506			
16 x 16 x 19 x 79	2	-	160216006			
16.5 x 16 x 19 x 79	2	-	160216506			
17 x 16 x 19 x 79	2	-	160217006			
17.5 x 16 x 19 x 79	2	-	160217506			
18 x 16 x 19 x 79	2	-	160218006			
18.5 x 16 x 19 x 79	2	-	160218506			
19 x 16 x 19 x 79	2	-	160219006			

2 Flute Square End for Deep Slotting

Suffix Category		
Uncoated	WW	FF
TiN	TW	TF
Z-Coat	ZW	ZF
TiCN	CW	CF
TiAlN	LW*	LF*

*Available upon request

GENERAL
PURPOSE



Size				Flutes	Radius	Item No.
d ₁ x	d ₂ x	l ₂ x	l ₁			
19.5 x 20 x 22 x 88	2	-	160219507			
20 x 16 x 19 x 79	2	-	160220006	NEW!		
20 x 20 x 22 x 88	2	-	160220007			
21 x 20 x 22 x 88	2	-	160221007			
21 x 25 x 22 x 88	2	-	160221008	NEW!		
22 x 20 x 22 x 88	2	-	160222007			
22 x 25 x 26 x 102	2	-	160222008	NEW!		
23 x 20 x 22 x 88	2	-	160223007			
23 x 25 x 26 x 102	2	-	160223008	NEW!		
24 x 25 x 26 x 102	2	-	160224008			
25 x 25 x 26 x 102	2	-	160225008			
26 x 25 x 26 x 102	2	-	160226008			
28 x 25 x 26 x 102	2	-	160228008			
30 x 25 x 26 x 102	2	-	160230008			
32 x 32 x 32 x 112	2	-	160232009			

1603

HSS Co 3 Flute Square End





HSS-M42

DIN 844
Standard

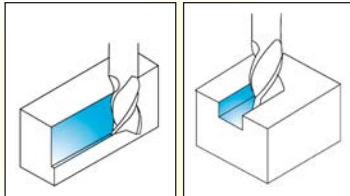
30°



3 Flute Square End for Slotting and Side Milling.

Suffix Category		
Uncoated	WW	FF
TiN	TW	TF
Z-Coat	ZW	ZF
TiCN	CW	CF
TiAlN	LW*	LF*

*Available upon request



GENERAL
PURPOSE

Size				Flutes	Radius	Item No.
d ₁	d ₂	l ₂	l ₁			
3	6	8	52	3	-	160303002
3.5	6	10	54	3	-	160303502
4	6	11	55	3	-	160304002
4.5	6	11	55	3	-	160304502
5	6	13	57	3	-	160305002

Size				Flutes	Radius	Item No.
d ₁	d ₂	l ₂	l ₁			
5.5	6	13	57	3	-	160305502
6	6	13	57	3	-	160306002
6.5	10	16	66	3	-	160306504
7	10	16	66	3	-	160307004
8	10	19	69	3	-	160308004
9	10	19	69	3	-	160309004
10	10	22	72	3	-	160310004
11	12	22	79	3	-	160311005
12	12	26	83	3	-	160312005
13	12	26	83	3	-	160313005
14	12	26	83	3	-	160314005
15	12	26	83	3	-	160315005
16	16	32	92	3	-	160316006
17	16	32	92	3	-	160317006
18	16	32	92	3	-	160318006
19	16	32	92	3	-	160319006
20	16	38	98	3	-	160320006
22	25	40	106	3	-	160322008
24	25	45	121	3	-	160324008
25	25	45	121	3	-	160325008

1605

HSS Co 4 Flute Square End





HSS-M42

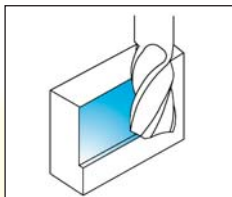
DIN 844
Standard

30°



4 Flute Square End for Peripheral Finishing Operation. 2 Flutes to centre.

Suffix Category		
Uncoated	WW	FF
TiN	TW	TF
Z-Coat	ZW	ZF
TiCN	CW	CF
TiAlN	LW	LF



GENERAL
PURPOSE

Size				Flutes	Radius	Item No.
d ₁	d ₂	l ₂	l ₁			
2	6	7	51	4	-	160502002
2.5	6	8	52	4	-	160502502
3	6	8	52	4	-	160503002
3.5	6	10	54	4	-	160503502
4	6	11	55	4	-	160504002
4.5	6	11	55	4	-	160504502
5	6	13	57	4	-	160505002
5.5	6	13	57	4	-	160505502
6	6	13	57	4	-	160506002
6.5	10	16	66	4	-	160506504

Size				Flutes	Radius	Item No.
d ₁	d ₂	l ₂	l ₁			
7	10	16	66	4	-	160507004
7.5	10	16	66	4	-	160507504
8	10	19	69	4	-	160508004
8.5	10	19	69	4	-	160508504
9	10	19	69	4	-	160509004
9.5	10	19	69	4	-	160509504
10	10	22	72	4	-	160510004
10.5	12	22	79	4	-	160510505
11	12	22	79	4	-	160511005
11.5	12	22	79	4	-	160511505
12	12	26	83	4	-	160512005
12.5	12	26	83	4	-	160512505
13	12	26	83	4	-	160513005
13.5	12	26	83	4	-	160513505
14	12	26	83	4	-	160514005
14.5	12	26	83	4	-	160514505
15	12	26	83	4	-	160515005
16	16	32	92	4	-	160516006
17	16	32	92	4	-	160517006
18	16	32	92	4	-	160518006
18.5	16	32	92	4	-	160518506
19	16	32	92	4	-	160519006
20	16	38	98	4	-	160520006
20	20	38	104	4	-	160520007



NEW!

30° **DIN 844** Standard **HSS-M42** **HSS Co Multi-Flute Square End** **1606/1608**

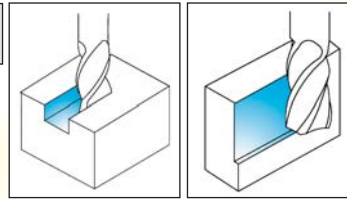
Size				Flutes	Radius	Item No.
d ₁	x	d ₂	x l ₂ x l ₁			
21	x	20	x 38 x 104	6	-	160621007
22	x	20	x 38 x 104	6	-	160622007
23	x	20	x 38 x 104	6	-	160623007
24	x	25	x 45 x 121	6	-	160624008
25	x	25	x 45 x 121	6	-	160625008
26	x	25	x 45 x 121	6	-	160626008*
28	x	25	x 45 x 121	6	-	160628008*
30	x	25	x 45 x 121	6	-	160630008*
32	x	32	x 53 x 133	6	-	160632009*
34	x	32	x 53 x 133	6	-	160634009* NEW!
35	x	32	x 53 x 133	6	-	160635009*
36	x	32	x 53 x 133	6	-	160636009*
38	x	40	x 63 x 155	6	-	160638001*
40	x	40	x 63 x 155	6	-	160640001*
42	x	40	x 63 x 155	8	-	160842001*
45	x	40	x 63 x 155	8	-	160845001*

*Centre Hole

Multi-Flute Square End for Peripheral Finishing Operation

Suffix Category		
Uncoated	WW	FF
TiN	TW	TF
Z-Coat	ZW	ZF
TiCN	CW	CF
TiAlN	LW	LF



GENERAL PURPOSE



30° **DIN 327** Standard **HSS-M42** **HSS Co Flute Square End Long Type** **1612**

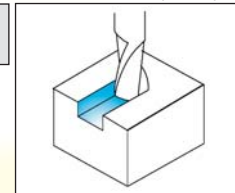
Size				Flutes	Radius	Item No.
d ₁	x	d ₂	x l ₂ x l ₁			
3	x	6	x 9 x 60	2	-	161203002
3.5	x	6	x 11 x 67	2	-	161203502 NEW!
4	x	6	x 13 x 67	2	-	161204002
5	x	6	x 13 x 71	2	-	161205002
6	x	6	x 16 x 75	2	-	161206002
7	x	10	x 16 x 75	2	-	161207004
8	x	10	x 20 x 80	2	-	161208004
9	x	10	x 22 x 80	2	-	161209004
10	x	10	x 22 x 80	2	-	161210004
11	x	12	x 22 x 90	2	-	161211005
12	x	12	x 25 x 100	2	-	161212005
13	x	12	x 25 x 100	2	-	161213005
14	x	12	x 28 x 100	2	-	161214005
15	x	12	x 28 x 100	2	-	161215005
16	x	16	x 32 x 116	2	-	161216006
18	x	16	x 35 x 118	2	-	161218006
20	x	16	x 38 x 125	2	-	161220006
22	x	25	x 40 x 140	2	-	161222008
24	x	25	x 45 x 150	2	-	161224008
25	x	25	x 45 x 160	2	-	161225008

2 Flute Square End Long Type for Deep Slotting

Suffix Category		
Uncoated	WW	FF
TiN	TW	TF
Z-Coat	ZW	ZF
TiCN	CW	CF
TiAlN	LW*	LF*

*Available upon request

GENERAL PURPOSE



1615

HSS Co 4 Flute Square End Long Type



HSS-M42

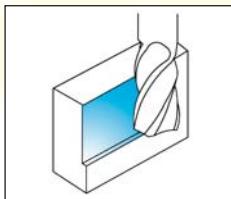
DIN 844
Standard

30°

4 Flute Square End Long Type for Deep Peripheral Finishing Operation



Suffix Category		
Uncoated	WW	FF
TiN	TW	TF
Z-Coat	ZW	ZF
TiCN	CW	CF
TiAlN	LW	LF

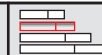


GENERAL PURPOSE

Size				Flutes	Radius	Item No.
d ₁ x d ₂	x l ₂	x l ₁				
3 x 6	x 12	x 56		4	-	161503002
4 x 6	x 19	x 63		4	-	161504002
5 x 6	x 24	x 68		4	-	161505002
6 x 6	x 24	x 68		4	-	161506002
7 x 10	x 30	x 80		4	-	161507004
8 x 10	x 38	x 88		4	-	161508004
9 x 10	x 38	x 88		4	-	161509004
10 x 10	x 45	x 95		4	-	161510004
11 x 12	x 45	x 102		4	-	161511005
12 x 12	x 53	x 110		4	-	161512005
13 x 12	x 53	x 110		4	-	161513005
14 x 12	x 53	x 110		4	-	161514005
15 x 12	x 53	x 110		4	-	161515005
16 x 16	x 63	x 123		4	-	161516006
17 x 16	x 63	x 123		4	-	161517006
18 x 16	x 63	x 123		4	-	161518006
19 x 16	x 63	x 123		4	-	161519006
20 x 20	x 75	x 141		4	-	161520007

1616

HSS Co 6 Flute Square End Long Type



HSS-M42

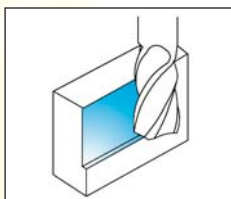
DIN 844
Standard

30°

6 Flute Square End Long type for Deep Peripheral Finishing Operation



Suffix Category		
Uncoated	WW	FF
TiN	TW	TF
Z-Coat	ZW	ZF
TiCN	CW	CF
TiAlN	LW	LF



GENERAL PURPOSE


Size				Flutes	Radius	Item No.
d ₁ x d ₂	x l ₂	x l ₁				
22 x 25	x 85	x 150		6	-	161622008
24 x 25	x 90	x 166		6	-	161624008
25 x 25	x 90	x 166		6	-	161625008
26 x 25	x 90	x 166		6	-	161626008*
28 x 25	x 90	x 166		6	-	161628008*
30 x 25	x 90	x 166		6	-	161630008*
32 x 32	x 100	x 170		6	-	161632009*
34 x 32	x 100	x 170		6	-	161634009*
35 x 32	x 100	x 170		6	-	161635009*
36 x 32	x 100	x 170		6	-	161636009*
38 x 32	x 100	x 170		6	-	161638009*
40 x 32	x 100	x 170		6	-	161640009*

* Centre Hole


30° | **DIN 844** Standard | **HSS-M42** |  | **HSS Co 4 Flute Square End Extra Long Type** | **1625**

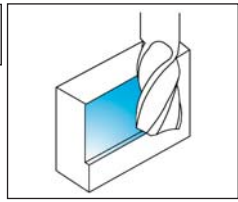
Size				Flutes	Radius	Item No.
d ₁ x	d ₂ x	l ₂ x	l ₁			
6 x	6 x	56 x	100	4	-	162506002
7 x	10 x	63 x	113	4	-	162507004
8 x	10 x	63 x	113	4	-	162508004
10 x	10 x	70 x	120	4	-	162510004
12 x	12 x	80 x	137	4	-	162512005
14 x	12 x	80 x	137	4	-	162514005
15 x	16 x	90 x	150	4	-	162515006
16 x	16 x	90 x	150	4	-	162516006
18 x	16 x	100 x	160	4	-	162518006
19 x	20 x	110 x	176	4	-	162519007
20 x	20 x	110 x	176	4	-	162520007
22 x	20 x	110 x	176	4	-	162522007
24 x	20 x	110 x	176	4	-	162524007
25 x	25 x	110 x	186	4	-	162525008

4 Flute Square End Extra Long Type for Deep Peripheral Finishing Operation

Suffix Category	
Uncoated	WW
TiN	TW*
Z-Coat	ZW*
TiCN	CW
TiAlN	LW

* Available upon request


GENERAL PURPOSE




30° | **DIN 327** Standard | **HSS-PM** |  | **HSS-PM 2 Flute Square End** | **1N02**

Size				Flutes	Radius	Item No.
d ₁ x	d ₂ x	l ₂ x	l ₁			
3 x	6 x	5 x	49	2	-	1N0203002
4 x	6 x	7 x	51	2	-	1N0204002
5 x	6 x	8 x	52	2	-	1N0205002
6 x	6 x	8 x	52	2	-	1N0206002
8 x	10 x	11 x	61	2	-	1N0208004
10 x	10 x	13 x	63	2	-	1N0210004
12 x	12 x	16 x	73	2	-	1N0212005
14 x	12 x	16 x	73	2	-	1N0214005
16 x	16 x	19 x	79	2	-	1N0216006
18 x	16 x	19 x	79	2	-	1N0218006
20 x	20 x	22 x	88	2	-	1N0220007

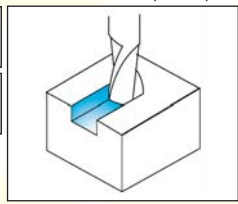
2 Flute Square End HSS-PM for Deep Slotting

Suffix Category	
Uncoated	WW
TiN	TW*
Z-Coat	ZW*
TiCN	CW
TiAlN	LW

* Available upon request

GENERAL PURPOSE

30>ST HRc



1N05/1N07

HSS-PM Multi-Flute Square End Extra Long Type



HSS-PM

DIN 844
Standard

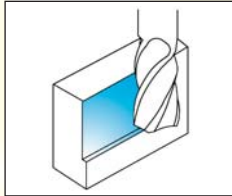
30°

Multi-Flute Square End HSS-PM for Peripheral Finishing Operation



Suffix Category	
Uncoated	WW
TiN	TW*
Z-Coat	ZW*
TiCN	CW
TiAlN	LW

* Available upon request



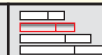
GENERAL
PURPOSE

30>ST HRC

Size				Flutes	Radius	Item No.
d ₁ x d ₂ x l ₂ x l ₁						
6 x 6 x 13 x 57				4	-	1N0506002
8 x 10 x 19 x 69				4	-	1N0508004
10 x 10 x 22 x 72				4	-	1N0510004
12 x 12 x 26 x 83				4	-	1N0512005
14 x 12 x 26 x 83				4	-	1N0514005
16 x 16 x 32 x 92				4	-	1N0516006
18 x 16 x 32 x 92				4	-	1N0518006
20 x 20 x 38 x 104				4	-	1N0520007
25 x 25 x 45 x 121				6	-	1N0725008 NEW!

1NL5/1NL7

HSS-PM Multi-Flute Square End Neck Tool



HSS-PM

HANITA
Standard

30°

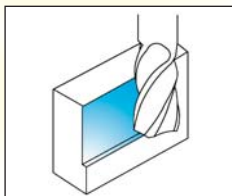
NEW!

Multi-Flute Square End Neck Tool HSS-PM for Deep Peripheral Finishing Operation



Suffix Category	
Uncoated	WW*
TiN	TW*
Z-Coat	ZW*
TiCN	CW
TiAlN	LW

* Available upon request



GENERAL
PURPOSE

30>ST HRC

Size				Flutes	Radius	Item No.
d ₁ x d ₂ x l ₂ x l ₁						
8 x 8 x 14 x 100				4	-	1NL508003
10 x 10 x 22 x 110				4	-	1NL510004
12 x 12 x 26 x 125				4	-	1NL512005
16 x 16 x 32 x 138				4	-	1NL516006
20 x 20 x 38 x 160				4	-	1NL520007
25 x 25 x 45 x 216				6	-	1NL725008

3603-BB

HSS Co 3 Flute Square End Throw-Away Short Type



HSS-M42

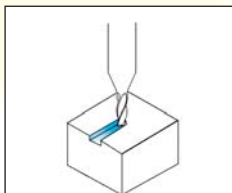
DIN 327
Standard

30°

3 Flute Square End Throw-Away Short Type for Slotting and Side Milling – General Purpose



Suffix Category	
Uncoated	BB
TiN	TB
TiCN	CB





GENERAL
PURPOSE

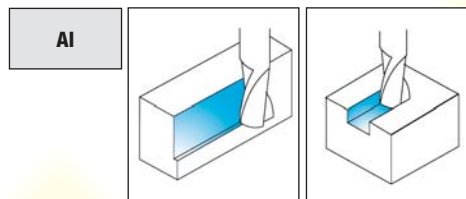
Size				Flutes	Radius	Item No.
d ₁ x d ₂ x l ₂ x l ₁						
1.5 x 6 x 2 x 24				3	-	360301502
2 x 6 x 3 x 25				3	-	360302002
2.5 x 6 x 4 x 26				3	-	360302502
3 x 6 x 4.5 x 28				3	-	360303002
3.5 x 6 x 5.5 x 30				3	-	360303502
4 x 6 x 6.5 x 32				3	-	360304002
4.5 x 6 x 7 x 34				3	-	360304502
5 x 6 x 7.5 x 36				3	-	360305002
5.5 x 6 x 8.5 x 36				3	-	360305502
6 x 6 x 9.5 x 36				3	-	360306002

42° **DIN 844** Standard **HSS-M42** **HSS Co 2 Flute Square End High Helix** **3502**

Size				Flutes	Radius	Item No.
d ₁ x d ₂ x l ₂ x l ₁						
2 x 6 x 7 x 51	2	-	350202002			
2.5 x 6 x 8 x 52	2	-	350202502			
3 x 6 x 8 x 52	2	-	350203002			
3.5 x 6 x 10 x 54	2	-	350203502			
4 x 6 x 11 x 55	2	-	350204002			
4.5 x 6 x 11 x 55	2	-	350204502			
5 x 6 x 13 x 57	2	-	350205002			
5.5 x 6 x 13 x 57	2	-	350205502			
6 x 6 x 13 x 57	2	-	350206002			
6.5 x 10 x 16 x 66	2	-	350206504			
7 x 10 x 16 x 66	2	-	350207004			
8 x 10 x 19 x 69	2	-	350208004			
8.5 x 10 x 19 x 69	2	-	350208504			
9 x 10 x 19 x 69	2	-	350209004			
10 x 10 x 22 x 72	2	-	350210004			
11 x 12 x 22 x 79	2	-	350211005			
12 x 12 x 26 x 83	2	-	350212005			
13 x 12 x 26 x 83	2	-	350213005			
14 x 12 x 26 x 83	2	-	350214005			
15 x 12 x 26 x 83	2	-	350215005			
16 x 16 x 32 x 92	2	-	350216006			
17 x 16 x 32 x 92	2	-	350217006			

2 Flute Square End High Helix for Roughing and Finishing Aluminium

Suffix Category		
Uncoated	WW	FF
TiN	TW*	
Z-Coat	ZW*	
TiCN	CW	CF
TiAlN	LW	LF




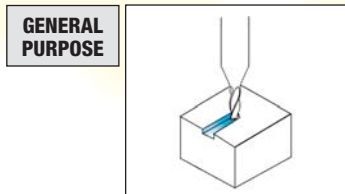
Size				Flutes	Radius	Item No.
d ₁ x d ₂ x l ₂ x l ₁						
18 x 16 x 32 x 92	2	-	350218006			
19 x 16 x 32 x 92	2	-	350219006			
20 x 16 x 38 x 98	2	-	350220006			
22 x 25 x 40 x 106	2	-	350222008			
24 x 25 x 45 x 121	2	-	350224008			
25 x 25 x 45 x 121	2	-	350225008			

30° **DIN 327** Standard **HSS-M42** **HSS Co 3 Flute Square End Throw-Away Short Type** **3603-AA**

Size				Flutes	Radius	Item No.
d ₁ x d ₂ x l ₂ x l ₁						
1.5 x 6 x 3 x 34	3	-	360301502			
2 x 6 x 4 x 35	3	-	360302002			
2.5 x 6 x 5 x 36	3	-	360302502			
3 x 6 x 5 x 36	3	-	360303002			
3.5 x 6 x 6 x 37	3	-	360303502			
3.8 x 6 x 7 x 38	3	-	360303802 NEW!			
4 x 6 x 7 x 38	3	-	360304002			
4.5 x 6 x 7 x 38	3	-	360304502			
5 x 6 x 8 x 39	3	-	360305002			
5.5 x 6 x 8 x 39	3	-	360305502			
6 x 6 x 8 x 39	3	-	360306002			
7 x 8 x 10 x 42	3	-	360307003			
8 x 8 x 11 x 43	3	-	360308003			
9 x 10 x 11 x 48	3	-	360309004			
10 x 10 x 13 x 50	3	-	360310004			

3 Flute Square End Throw-Away Short Type for Slotting and Side Milling – General Purpose

Suffix Category	
Uncoated	AA
TiN	TA
TiCN	CA



3605

HSS Co Multi-Flute Square End High Helix



HSS-M42

DIN 844
Standard

45°

Multi-Flute Square End High Helix for Slotting and Peripheral Finishing Operation



Suffix Category	
Uncoated	WW
TiN	TW*
Z-Coat	ZW*
TiCN	CW
TiAlN	LW

* Available upon request

Al	AlSi	St S	Ti
30<ST HRC			
INCONEL			

Size				Flutes	Radius	Item No.	
d ₁ x	d ₂ x	l ₂ x	l ₁				
3 x 6 x 8 x 52	3	-	360503002				
4 x 6 x 11 x 55	3	-	360504002				
5 x 6 x 13 x 57	3	-	360505002				
6 x 6 x 13 x 57	3	-	360506002				
7 x 10 x 16 x 66	3	-	360507004				
8 x 10 x 19 x 69	3	-	360508004				
9 x 10 x 19 x 69	3	-	360509004				
10 x 10 x 22 x 72	3	-	360510004				
11 x 12 x 22 x 79	3	-	360511005				
12 x 12 x 26 x 83	3	-	360512005				
13 x 12 x 26 x 83	3	-	360513005				
14 x 12 x 26 x 83	3	-	360514005				
15 x 12 x 26 x 83	3	-	360515005				
16 x 16 x 32 x 92	3	-	360516006				
17 x 16 x 32 x 92	3	-	360517006				
18 x 16 x 32 x 92	3	-	360518006				
19 x 16 x 32 x 92	3	-	360519006				
20 x 20 x 38 x 104	3	-	360520007				
22 x 20 x 38 x 104	4	-	360522007			NEW!	
24 x 25 x 45 x 121	4	-	360524008			NEW!	
25 x 25 x 45 x 121	4	-	360525008				
28 x 25 x 45 x 121	4	-	360528008			NEW!	
30 x 25 x 45 x 121	4	-	360530008*				

* Centre Coolant

3613-AA

HSS Co 3 Flute Square End Throw-Away Long Type



HSS-M42

DIN 327
Standard

30°

3 Flute Square End Throw-Away Long Type for Slotting and Side Milling – General Purpose



Suffix Category	
Uncoated	AA
TiN	TA
TiCN	CA


	GENERAL PURPOSE
--	------------------------

Size				Flutes	Radius	Item No.	
d ₁ x	d ₂ x	l ₂ x	l ₁				
1.5 x 6 x 4 x 38	3	-	361301502				
2 x 6 x 7 x 38	3	-	361302002				
2.5 x 6 x 8 x 39	3	-	361302502				
3 x 6 x 8 x 39	3	-	361303002				
3.5 x 6 x 10 x 41	3	-	361303502				
4 x 6 x 11 x 42	3	-	361304002				
4.5 x 6 x 11 x 42	3	-	361304502				
5 x 6 x 13 x 44	3	-	361305002				
5.5 x 6 x 13 x 44	3	-	361305502				
6 x 6 x 13 x 44	3	-	361306002				
7 x 8 x 16 x 48	3	-	361307003				
8 x 8 x 19 x 51	3	-	361308003				
9 x 10 x 19 x 56	3	-	361309004				
10 x 10 x 22 x 59	3	-	361310004				

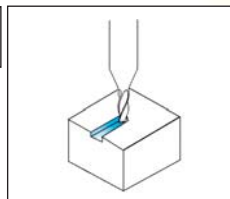
30° **DIN 327** **HSS-M42** **HSS Co 3 Flute Square End Throw-Away Long Type** **3613-BB**

Size				Flutes	Radius	Item No.
d ₁ x	d ₂ x	l ₂ x	l ₁			
1.5 x	6 x	4 x	28	3	-	361301502
2 x	6 x	4.5 x	29	3	-	361302002
2.5 x	6 x	6.5 x	32	3	-	361302502
3 x	6 x	7.5 x	34	3	-	361303002
3.5 x	6 x	8.5 x	36	3	-	361303502
4 x	6 x	9.5 x	39	3	-	361304002
4.5 x	6 x	11 x	42	3	-	361304502
5 x	6 x	12.5 x	44	3	-	361305002
5.5 x	6 x	14.5 x	46	3	-	361305502
6 x	6 x	16 x	44	3	-	361306002

3 Flute Square End Throw-Away Long Type for Slotting and Side Milling – All Purpose

Suffix Category	
Uncoated	BB
TiN	TB
TiCN	CB

GENERAL PURPOSE




45° **DIN 844** **HSS-M42** **HSS Co Multi-Flute Square End High Helix Long Type** **3615**

Size				Flutes	Radius	Item No.
d ₁ x	d ₂ x	l ₂ x	l ₁			
10 x	10 x	45 x	95	3	-	361510004
12 x	12 x	53 x	110	3	-	361512005
16 x	16 x	63 x	123	3	-	361516006
20 x	20 x	75 x	141	3	-	361520007
25 x	25 x	90 x	166	4	-	361525008
30 x	25 x	90 x	166	4	-	361530008*

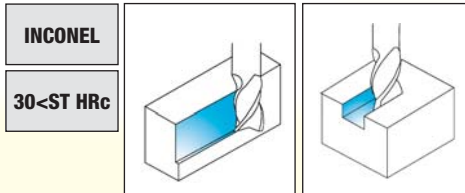
*Centre Coolant

Multi-Flute Square End High Helix Long Type for Deep Slotting and Peripheral Finishing Operation

Suffix Category	
Uncoated	WW
TiN	TW*
Z-Coat	ZW*
TiCN	CW
TiAlN	LW

*Available upon request

AI	AISI	St S	Ti
----	------	------	----



3N05

HSS-PM Multi-Flute Square End High Helix



HSS-PM

DIN 844
Standard

45°

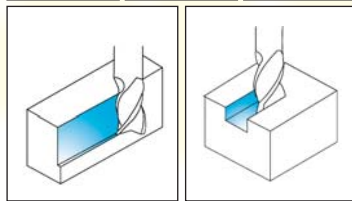


Multi-Flute Square End High Helix HSS - PM for Slotting and Peripheral Finishing Operation

Suffix Category	
Uncoated	WW
TiN	TW*
Z-Coat	ZW*
TiCN	CW
TiAlN	LW

* Available upon request

Al	AlSi	St S	Ti



INCONEL

30<ST HRc

Size				Flutes	Radius	Item No.
d ₁ x	d ₂ x	l ₂ x	l ₁			
6 x	6 x	13 x	57	3	-	3N0506002
8 x	10 x	19 x	69	3	-	3N0508004
10 x	10 x	22 x	72	3	-	3N0510004
12 x	12 x	26 x	83	3	-	3N0512005
16 x	16 x	32 x	92	3	-	3N0516006
20 x	20 x	38 x	104	3	-	3N0520007
25 x	25 x	45 x	121	4	-	3N0525008

5870

HSS Co Corner Rounding Cutter Plain Shank

HSS-M42

DIN 6518
Standard

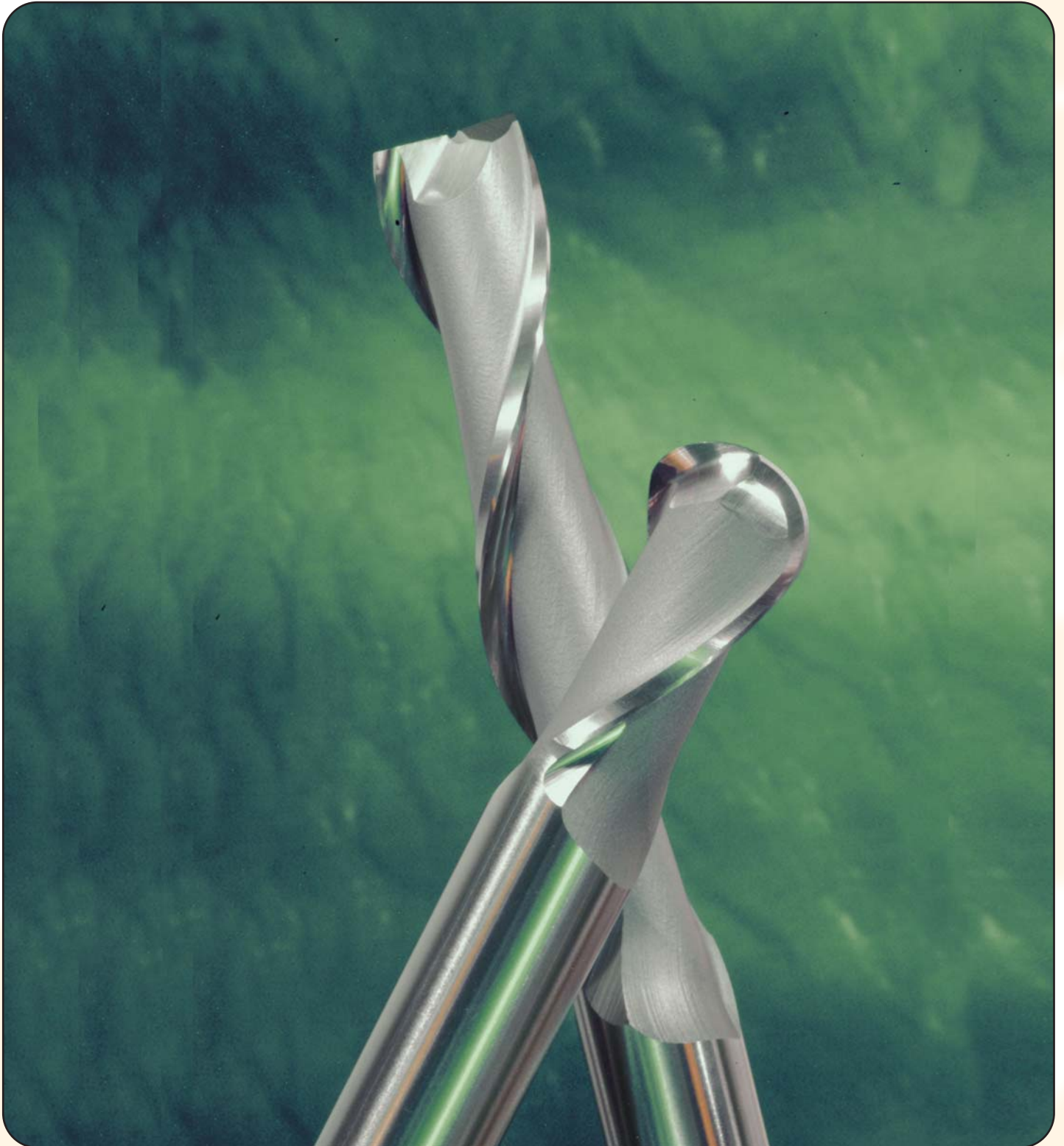


Corner Rounding Cutter - Plain Shank for Corner Radius Milling

Suffix Category	
Uncoated	••

GENERAL PURPOSE

Size		Flutes	Radius	Item No.
d ₂ x	l ₁			
8 x	60	-	1	587000010
10 x	60	-	2	587000020
12 x	60	-	3	587000030
14 x	60	-	4	587000040
16 x	60	-	5	587000050
20 x	64	-	6	587000060
24 x	64	-	7	587000070
24 x	73	-	8	587000080
28 x	79	-	10	587000100
35 x	83	-	12	587000120
42 x	90	-	14	587000140
48 x	90	-	16	587000160



1601 JJ

HSS Co 2 Flute Ball Nose Long Shank



HSS-M42

JIS Standard

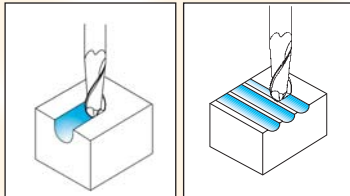
30°



2 Flute Ball Nose Long Shank for Deep 3-D Milling

Suffix Category	
Uncoated	JJ
TiN	TJ
Z-Coat	ZJ*
TiCN	CJ
TiAlN	LJ

*Available upon request



30>ST HRc

Size				Flutes	Radius	Item No.	
d ₁ x	d ₂ x	l ₂ x	l ₁				
1 x	6 x	2 x	49	2	-	160101002	NEW!
2 x	6 x	4 x	52	2	-	160102002	NEW!
2.5 x	6 x	5 x	55	2	-	160102502	NEW!
3 x	6 x	8 x	60	2	-	160103002	
4 x	6 x	8 x	70	2	-	160104002	
5 x	6 x	10 x	80	2	-	160105002	
6 x	6 x	12 x	90	2	-	160106002	
8 x	6 x	14 x	100	2	-	160108003	
10 x	10 x	18 x	100	2	-	160110004	
12 x	12 x	22 x	110	2	-	160112005	
14 x	14 x	26 x	110	2	-	160114005	
16 x	16 x	30 x	140	2	-	160116006	
18 x	18 x	30 x	140	2	-	160118006	
20 x	20 x	38 x	160	2	-	160120007	
25 x	25 x	50 x	180	2	-	160125008	

1634 JJ

HSS JJ Co 4 Flute Square End Long Type



HSS-M42

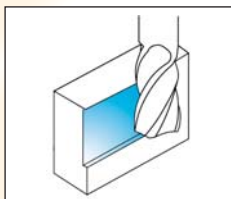
JIS Standard

30°



4 Flute Square End Long Type for Deep Peripheral Finishing Operation

Suffix Category	
Uncoated	JJ
TiN	TJ
TiAlN	LJ




GENERAL PURPOSE

30>ST HRc

Size				Flutes	Radius	Item No.	
d ₁ x	d ₂ x	l ₂ x	l ₁				
5 x	8 x	15 x	60	4	-	163405003	
6 x	8 x	15 x	60	4	-	163406003	
7 x	10 x	20 x	60	4	-	163407004	
8 x	10 x	20 x	60	4	-	163408004	
9 x	10 x	25 x	70	4	-	163409004	
10 x	10 x	25 x	70	4	-	163410004	
11 x	12 x	30 x	80	4	-	163411005*	
12 x	12 x	30 x	80	4	-	163412005*	
13 x	12 x	35 x	85	4	-	163413005*	
14 x	16 x	35 x	90	4	-	163414006*	
15 x	16 x	40 x	95	4	-	163415006*	
16 x	16 x	40 x	95	4	-	163416006*	
17 x	16 x	40 x	95	4	-	163417006*	
18 x	16 x	40 x	95	4	-	163418006*	
19 x	20 x	45 x	110	4	-	163419007*	
20 x	20 x	45 x	110	4	-	163420007*	
22 x	20 x	45 x	110	4	-	163422007*	
24 x	25 x	50 x	120	4	-	163424008*	
25 x	25 x	50 x	120	4	-	163425008*	
28 x	25 x	55 x	125	4	-	163428008*	
30 x	25 x	55 x	125	4	-	163430008*	
32 x	32 x	60 x	145	4	-	163432009*	

Size				Flutes	Radius	Item No.	
d ₁ x	d ₂ x	l ₂ x	l ₁				
3 x	6 x	10 x	50	4	-	163403002	
4 x	8 x	12 x	60	4	-	163404003	

* Centre Coolant


30°
 
JIS Standard
 
HSS-M42
 

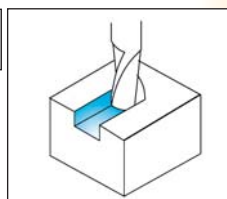
 HSS Co 2 Flute Square End Long Type
 1652 JJ

Size				Flutes	Radius	Item No.
d ₁ x	d ₂ x	l ₂ x	l ₁			
2 x 6 x 4 x 50	2	-	165202002			
3 x 6 x 6 x 50	2	-	165203002			
4 x 8 x 8 x 60	2	-	165204003			
5 x 8 x 10 x 60	2	-	165205003			
6 x 8 x 12 x 60	2	-	165206003			
7 x 10 x 14 x 60	2	-	165207004			
8 x 10 x 14 x 60	2	-	165208004			
9 x 10 x 18 x 70	2	-	165209004			
10 x 10 x 18 x 70	2	-	165210004			
11 x 12 x 22 x 80	2	-	165211005			
12 x 12 x 22 x 80	2	-	165212005			
13 x 12 x 26 x 85	2	-	165213005			
14 x 16 x 26 x 90	2	-	165214006			
15 x 16 x 30 x 95	2	-	165215006			
16 x 16 x 30 x 95	2	-	165216006			
17 x 16 x 34 x 95	2	-	165217006			
18 x 16 x 34 x 95	2	-	165218006			
19 x 20 x 38 x 110	2	-	165219007			
20 x 20 x 38 x 110	2	-	165220007			
22 x 20 x 45 x 110	2	-	165222007			
24 x 25 x 50 x 120	2	-	165224008			
25 x 25 x 50 x 120	2	-	165225008			
26 x 25 x 50 x 120	2	-	165226008*			
28 x 25 x 55 x 125	2	-	165228008*			

2 Flute Square End Long Type for Deep Slotting



Suffix Category	
Uncoated	JJ
TiN	TJ
TiAlN	LJ

GENERAL PURPOSE



Size				Flutes	Radius	Item No.
d ₁ x	d ₂ x	l ₂ x	l ₁			
30 x 25 x 55 x 125	2	-	165230008*			
32 x 32 x 60 x 145	2	-	165232009*			
35 x 32 x 60 x 145	2	-	165235009*			
40 x 32 x 65 x 150	2	-	165240009*			
45 x 42 x 70 x 160	2	-	165245001*			
50 x 42 x 75 x 165	2	-	165250001*			

* Centre Hole


30°
 
JIS Standard
 
HSS-M42
 

 HSS Co 2 Flute Square End Extra Long Type
 1662/72 JJ

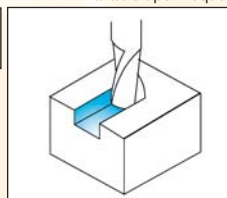
Size				Flutes	Radius	Item No.
d ₁ x	d ₂ x	l ₂ x	l ₁			
3 x 6 x 15 x 50	2	-	166203002			
4 x 6 x 20 x 55	2	-	166204002			
5 x 6 x 25 x 60	2	-	166205002			
6 x 6 x 25 x 60	2	-	166206002			
7 x 10 x 35 x 80	2	-	166207004			
8 x 10 x 35 x 80	2	-	166208004			
9 x 10 x 45 x 90	2	-	166209004			
10 x 10 x 45 x 90	2	-	166210004			
11 x 12 x 55 x 105	2	-	166211005			
12 x 12 x 55 x 105	2	-	166212005			
14 x 12 x 55 x 105	2	-	166214005			
16 x 16 x 65 x 120	2	-	166216006			
18 x 16 x 65 x 120	2	-	166218006			
20 x 20 x 75 x 140	2	-	166220007			
22 x 25 x 75 x 140	2	-	166222008			
24 x 25 x 90 x 160	2	-	166224008			
25 x 25 x 90 x 160	2	-	166225008			
35 x 32 x 120 x 220	2	-	167235009*			
40 x 32 x 120 x 220	2	-	167240009*			

2 Flute Square End Long Type for Deep Slotting

Suffix Category	
Uncoated	JJ
TiN	TJ
TiCN	CJ*
TiAlN	LJ

* Available upon request

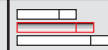
GENERAL PURPOSE



* Centre Hole

1N34 JJ

HSS-PM 4 Flute Square End



HSS-PM

JIS Standard

30°



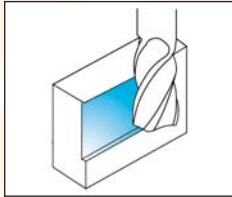
NEW!

4 Flute HSS PM Square End for Deep Peripheral Finishing Operation



Suffix Category	
Uncoated	JJ
TiCN	CJ*
TiAlN	LJ

*Available upon request



GENERAL PURPOSE

30>ST HRC

Size				Flutes	Radius	Item No.
d ₁ x d ₂	x l ₂	x l ₁				
4 x 8	x 12	x 60		4	-	1N3404003
5 x 8	x 15	x 60		4	-	1N3405003
6 x 8	x 15	x 60		4	-	1N3406003
8 x 10	x 20	x 60		4	-	1N3408004
10 x 10	x 25	x 70		4	-	1N3410004
12 x 12	x 30	x 80		4	-	1N3412005
14 x 16	x 35	x 90		4	-	1N3414006
16 x 16	x 40	x 95		4	-	1N3416006
18 x 16	x 40	x 95		4	-	1N3418006
20 x 20	x 45	x 110		4	-	1N3420007
22 x 20	x 45	x 110		4	-	1N3422007
24 x 25	x 50	x 120		4	-	1N3424008
25 x 25	x 50	x 120		4	-	1N3425008
30 x 25	x 55	x 125		4	-	1N3430008
32 x 32	x 60	x 145		4	-	1N3432009

1N52 JJ

HSS-PM 2 Flute Square End Long Type



HSS-PM

JIS Standard

30°



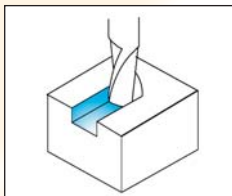
NEW!

2 Flute HSS PM Square End Long Type for Deep Slotting



Suffix Category	
Uncoated	JJ
TiCN	CJ*
TiAlN	LJ

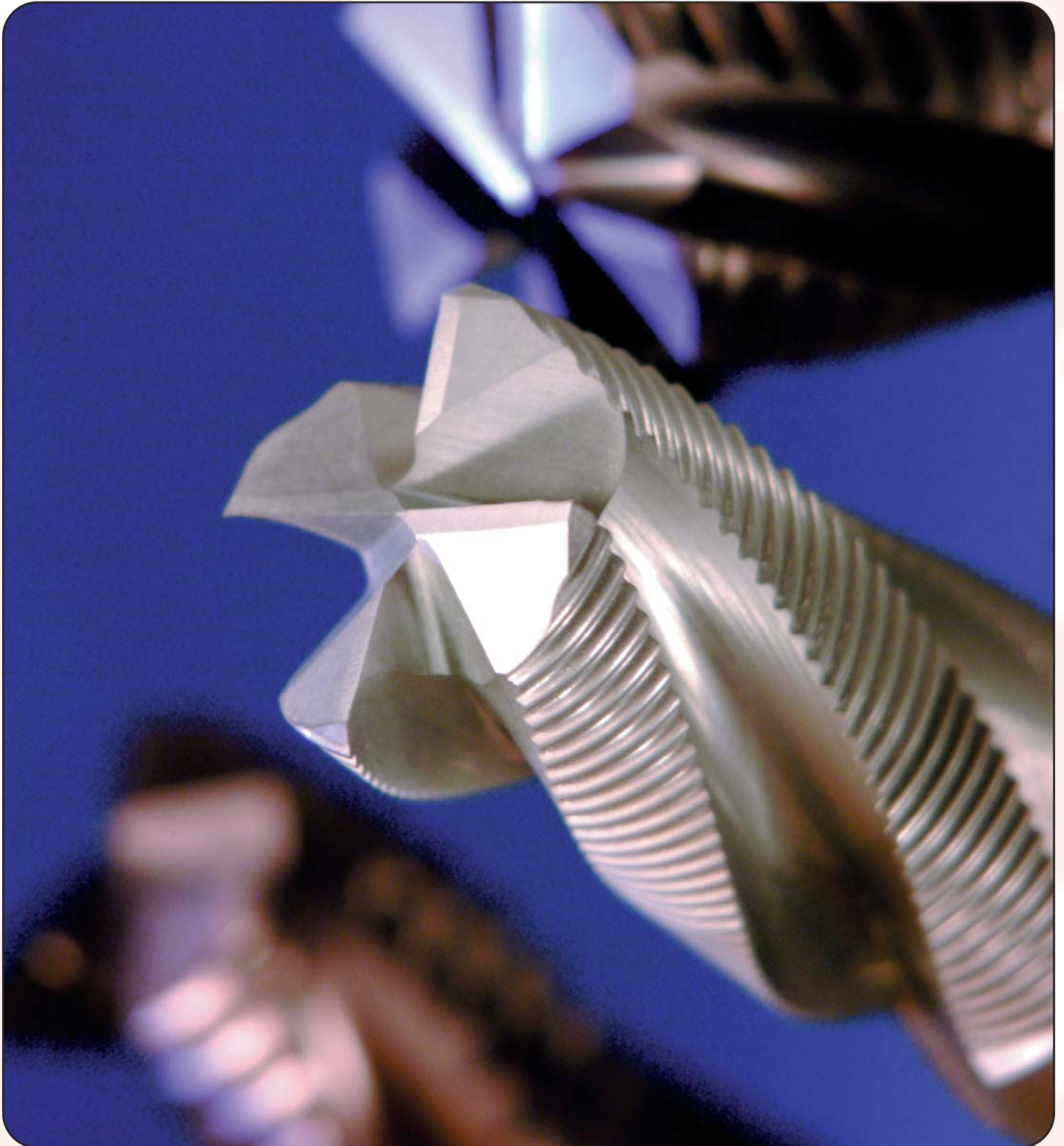
*Available upon request



GENERAL PURPOSE

30>ST HRC

Size				Flutes	Radius	Item No.
d ₁ x d ₂	x l ₂	x l ₁				
6 x 8	x 12	x 60		2	-	1N5206003
8 x 10	x 14	x 60		2	-	1N5208004
10 x 10	x 18	x 70		2	-	1N5210004
12 x 12	x 22	x 80		2	-	1N5212005
14 x 16	x 26	x 90		2	-	1N5214006
16 x 16	x 30	x 95		2	-	1N5216006
18 x 16	x 34	x 95		2	-	1N5218006
20 x 20	x 38	x 110		2	-	1N5220007
22 x 20	x 45	x 110		2	-	1N5222007
24 x 25	x 50	x 120		2	-	1N5224008
25 x 25	x 50	x 120		2	-	1N5225008
26 x 25	x 50	x 120		2	-	1N5226008
28 x 25	x 55	x 125		2	-	1N5228008
30 x 25	x 55	x 125		2	-	1N5230008



6604

HSS Co Multi-Flute Square End Extra Fine Pitch


HSS-M42
DIN 844
Standard

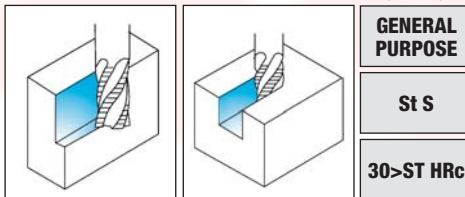
30°

Multi-Flute Square End Extra Fine Pitch for General Purpose Roughing Operation



Suffix Category	
Uncoated	WW
TiN	TW*
Z-Coat	ZW
TiCN	CW
TiAlN	LW

*Available upon request


GENERAL PURPOSE
St S
30>ST HRC

Size				Flutes	Radius	Item No.
d ₁ x d ₂ x l ₂ x l ₁						
6 x 6 x 13 x 57				3	-	660406002
8 x 10 x 19 x 69				3	-	660408004
10 x 10 x 22 x 72				4	-	660410004
12 x 12 x 26 x 83				4	-	660412005
14 x 12 x 26 x 83				4	-	660414005
16 x 16 x 32 x 92				4	-	660416006
18 x 16 x 32 x 92				4	-	660418006
20 x 20 x 38 x 104				4	-	660420007
22 x 20 x 38 x 104				5	-	660422007
25 x 25 x 45 x 121				5	-	660425008
30 x 25 x 45 x 121				6	-	660430008* NEW!
32 x 32 x 53 x 133				6	-	660432009* NEW!

*Centre Coolant

6605/6606

HSS Co Multi-Flute Square End Fine Pitch

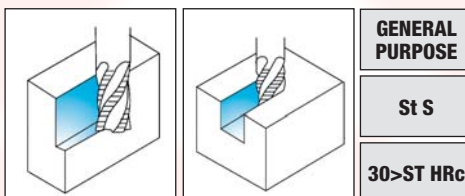

HSS-M42
DIN 844
Standard

30°

Multi-Flute Square End Fine Pitch for General Purpose Roughing Operation



Suffix Category		
Uncoated	WW	FF
TiN	TW	TF
Z-Coat	ZW	ZF
TiCN	CW	CF
TiAlN	LW	LF


GENERAL PURPOSE
St S
30>ST HRC

Size				Flutes	Radius	Item No.
d ₁ x d ₂ x l ₂ x l ₁						
8 x 10 x 19 x 69				3	-	660608004
9 x 10 x 19 x 69				3	-	660609004
10 x 10 x 22 x 72				4	-	660610004
11 x 12 x 22 x 79				4	-	660611005
12 x 12 x 26 x 83				4	-	660612005
13 x 12 x 26 x 83				4	-	660613005
14 x 12 x 26 x 83				4	-	660614005
15 x 12 x 26 x 83				4	-	660615005
16 x 16 x 32 x 92				4	-	660616006 NEW!
17 x 16 x 32 x 92				4	-	660617006
18 x 16 x 32 x 92				4	-	660618006
19 x 16 x 32 x 92				4	-	660619006 NEW!
20 x 16 x 38 x 98				4	-	660620006 NEW!
20 x 20 x 38 x 104				4	-	660620007
22 x 20 x 38 x 104				5	-	660622007
24 x 25 x 45 x 121				5	-	660624008
25 x 25 x 45 x 121				5	-	660625008*
28 x 25 x 45 x 121				6	-	660528008*
30 x 25 x 45 x 121				6	-	660530008*
32 x 32 x 53 x 133				6	-	660532009*
35 x 32 x 53 x 133				6	-	660535009* NEW!
36 x 32 x 53 x 133				6	-	660536009*
40 x 40 x 63 x 155				6	-	660540001*
40 x 32 x 63 x 143				6	-	660540009* NEW!
50 x 50 x 75 x 177				6	-	660550000* NEW!

*Centre Hole

Size				Flutes	Radius	Item No.
d ₁ x d ₂ x l ₂ x l ₁						
4 x 6 x 11 x 55				3	-	660604002
5 x 6 x 13 x 57				3	-	660605002
6 x 6 x 13 x 57				3	-	660606002
7 x 10 x 16 x 66				3	-	660607004

30° **DIN 844** **HSS-M42** **HSS Co Multi-Flute Square End Coarse Pitch** **6607/6608**

Size				Flutes	Radius	Item No.
d ₁ x d ₂ x l ₂ x l ₁						
5 x 6 x 13 x 57	3	-	660805002			
6 x 6 x 13 x 57	3	-	660806002			
7 x 10 x 16 x 66	3	-	660807004			
8 x 10 x 19 x 69	3	-	660808004			
9 x 10 x 19 x 69	3	-	660809004			
10 x 10 x 22 x 72	4	-	660810004			
11 x 12 x 22 x 79	4	-	660811005			
12 x 12 x 26 x 83	4	-	660812005			
13 x 12 x 26 x 83	4	-	660813005			
14 x 12 x 26 x 83	4	-	660814005			
15 x 12 x 26 x 83	4	-	660815005			
16 x 16 x 32 x 92	4	-	660816006			
17 x 16 x 32 x 92	4	-	660817006			
18 x 16 x 32 x 92	4	-	660818006			
19 x 16 x 32 x 92	4	-	660819006 NEW!			
20 x 16 x 38 x 98	4	-	660820006 NEW!			
20 x 20 x 38 x 104	4	-	660820007			
22 x 20 x 38 x 104	5	-	660822007			
24 x 25 x 45 x 121	5	-	660824008 NEW!			
25 x 25 x 45 x 121	5	-	660825008			
28 x 25 x 45 x 121	6	-	660728008*			
30 x 25 x 45 x 121	6	-	660730008*			
32 x 32 x 53 x 133	6	-	660732009*			

Multi-Flute Square End Coarse Pitch for General Purpose Roughing Operation

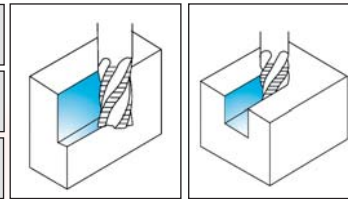


Suffix Category		
Uncoated	WW	FF
TiN	TW	TF
Z-Coat	ZW	ZF
TiCN	CW	CF
TiAlN	LW	LF

GENERAL PURPOSE

St S

30>ST Hrc



Size				Flutes	Radius	Item No.
d ₁ x d ₂ x l ₂ x l ₁						
35 x 32 x 53 x 133	6	-	660735009* NEW!			
36 x 32 x 53 x 133	6	-	660736009*			
40 x 40 x 63 x 155	6	-	660740001*			
40 x 32 x 63 x 143	6	-	660740009* NEW!			

* Centre Hole

35° **DIN 844** **HSS-M42** **HSS Co 3 Flute Square End Coarse Pitch** **6609**

Size				Flutes	Radius	Item No.
d ₁ x d ₂ x l ₂ x l ₁						
6 x 6 x 13 x 57	3	-	660906002			
8 x 10 x 19 x 69	3	-	660908004			
10 x 10 x 22 x 72	3	-	660910004			
12 x 12 x 26 x 83	3	-	660912005			
16 x 16 x 32 x 92	3	-	660916006			
20 x 20 x 38 x 104	3	-	660920007			
25 x 25 x 45 x 121	3	-	660925008			
30 x 25 x 45 x 125	3	-	660930008			
32 x 32 x 53 x 133	3	-	660932009			

3 Flute Square End Coarse Pitch for Roughing Operation on Aluminium

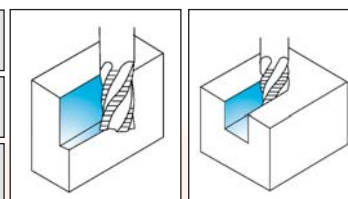


Suffix Category	
Uncoated	WW

NF

Al

AlSi



6615/6616 HSS Co Multi-Flute Square End Fine Pitch – Long Type

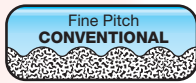


HSS-M42

DIN 844
Standard

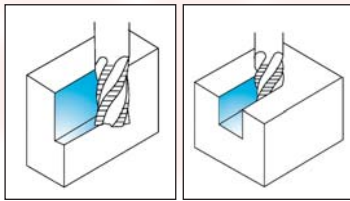
30°

Multi-Flute Square End Fine Pitch Long Type for General Purpose Deep Roughing Operation



Suffix Category		
Uncoated	WW	FF
TiN	TW	TF
Z-Coat	ZW	ZF
TiCN	CW	CF
TiAlN	LW*	LF*

* Available upon request



GENERAL PURPOSE

Size				Flutes	Radius	Item No.	
d ₁ x d ₂	x l ₂	x l ₁					
6 x 6	x 24	x 68		4	–	661606002	
8 x 10	x 38	x 88		4	–	661608004	
10 x 10	x 45	x 95		4	–	661610004	
12 x 12	x 53	x 110		4	–	661612005	
14 x 12	x 53	x 110		4	–	661614005	
16 x 16	x 63	x 123		4	–	661616006	
18 x 16	x 63	x 123		4	–	661618006	
20 x 16	x 75	x 135		4	–	661620006	NEW!
20 x 20	x 75	x 141		4	–	661620007	
22 x 20	x 75	x 141		5	–	661622007	
25 x 25	x 90	x 166		5	–	661625008	
28 x 25	x 90	x 166		6	–	661528008*	
30 x 25	x 90	x 166		6	–	661530008*	
32 x 32	x 100	x 170		6	–	661532009*	
36 x 32	x 100	x 170		6	–	661536009*	
40 x 40	x 125	x 217		6	–	661540001*	
40 x 32	x 100	x 170		6	–	661540009*	

* Centre Hole

6617/6618 HSS Co Multi-Flute Square End Coarse Pitch



HSS-M42

DIN 844
Standard

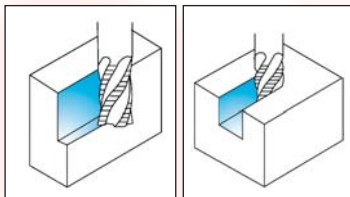
30°

Multi-Flute Square End Coarse Pitch for General Purpose Deep Roughing Operation



Suffix Category		
Uncoated	WW	FF
TiN	TW	TF
Z-Coat	ZW	ZF
TiCN	CW	CF
TiAlN	LW*	LF*



* Available upon request



GENERAL PURPOSE

Size				Flutes	Radius	Item No.	
d ₁ x d ₂	x l ₂	x l ₁					
6 x 6	x 24	x 68		4	–	661806002	
8 x 10	x 38	x 88		4	–	661808004	
10 x 10	x 45	x 95		4	–	661810004	
12 x 12	x 53	x 110		4	–	661812005	
14 x 12	x 53	x 110		4	–	661814005	
15 x 12	x 53	x 110		4	–	661815005	NEW!
16 x 16	x 63	x 123		4	–	661816006	
18 x 16	x 63	x 123		4	–	661818006	
20 x 16	x 75	x 135		4	–	661820006	NEW!
20 x 20	x 75	x 141		4	–	661820007	
22 x 20	x 75	x 141		5	–	661822007	NEW!
22 x 25	x 85	x 150		5	–	661822008	
24 x 25	x 90	x 166		5	–	661824008	
25 x 25	x 90	x 66		5	–	661825008	
28 x 25	x 90	x 166		6	–	661728008*	
30 x 25	x 90	x 166		6	–	661730008*	
32 x 32	x 100	x 170		6	–	661732009*	
36 x 32	x 100	x 170		6	–	661736009*	
40 x 40	x 125	x 217		6	–	661740001*	


* Centre Hole


 35°	DIN 844 Standard	HSS-M42		HSS Co 3 Flute Square End Coarse Pitch – Long Type	6619
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Size				Flutes	Radius	Item No.	
d ₁	x d ₂	x l ₂	x l ₁				
12	x 12	x 53	x 110	3	–	661912005	
16	x 16	x 63	x 123	3	–	661916006	
20	x 20	x 75	x 141	3	–	661920007	
25	x 25	x 90	x 166	3	–	661925008	
32	x 32	x 106	x 186	3	–	661932009*	

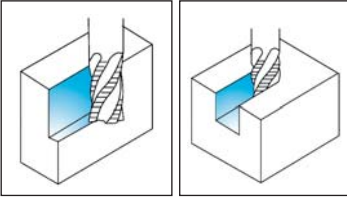
* Centre Hole


3 Flute Square End Coarse Pitch Long Type
for Deep Roughing Operation on Aluminum





Suffix Category	
Uncoated	WW

NF
AI
AISI







 30°	JIS Standard	HSS-M42		HSS Co Multi-Flute Square End Coarse Pitch – Extra Long Type	6637/38 JJ
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Size				Flutes	Radius	Item No.	
d ₁	x d ₂	x l ₂	x l ₁				
20	x 20	x 100	x 200	4	–	663820007	
25	x 25	x 100	x 200	5	–	663825008	
25	x 25	x 120	x 220	5	–	663825018	
30	x 25	x 120	x 220	6	–	663730008*	
30	x 25	x 150	x 250	6	–	663730018*	
35	x 32	x 120	x 220	6	–	663735009*	
35	x 32	x 150	x 250	6	–	663735019*	
40	x 32	x 120	x 220	6	–	663740009*	
40	x 32	x 150	x 250	6	–	663740019*	
45	x 42	x 120	x 220	6	–	663745001*	
45	x 42	x 150	x 250	6	–	663745011*	
50	x 42	x 120	x 220	6	–	663750001*	
50	x 42	x 150	x 250	6	–	663750011*	
50	x 42	x 200	x 300	6	–	663750021*	

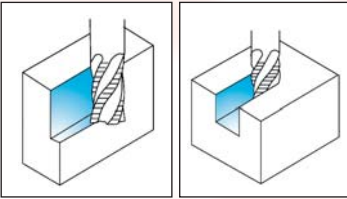
* Centre Hole


Multi-Flute Square End Coarse Pitch Extra Long Type
for General Purpose Roughing Operation



Suffix Category	
Uncoated	JJ

GENERAL PURPOSE





6645

HSS Co Multi-Flute Square End Stub Length Fine Pitch


HSS-M42
DIN 327
Standard

30°

Multi-Flute Square End Stub Length Fine Pitch for General Purpose Pocketing and Roughing Operation



Suffix Category	
Uncoated	WW
TiN	TW
Z-Coat	ZW
TiCN	CW
TiAlN	LW



GENERAL PURPOSE

St S

30>ST HRc

Size				Flutes	Radius	Item No.
d ₁ x d ₂	x l ₂	x l ₁				
4 x 6	x 7	x 51		3	-	664504002
5 x 6	x 8	x 52		3	-	664505002
6 x 6	x 8	x 52		3	-	664506002
8 x 10	x 11	x 61		3	-	664508004
10 x 10	x 13	x 63		3	-	664510004
12 x 12	x 16	x 73		3	-	664512005
14 x 12	x 16	x 73		3	-	664514005
16 x 16	x 19	x 79		3	-	664516006
18 x 16	x 19	x 79		3	-	664518006
20 x 16	x 23	x 89		3	-	664520006
22 x 25	x 25	x 100		3	-	664522008
25 x 25	x 26	x 102		3	-	664525008
30 x 25	x 26	x 102		4	-	664530008*
32 x 32	x 32	x 112		4	-	664532009*

* Centre Coolant

6667 JJ

HSS Co Multi-Flute Ball Nose Coarse Pitch


HSS-M42
JIS
Standard

30°

Multi-Flute Ball Nose Coarse Pitch for General Purpose 3 D Roughing Operation



Suffix Category	
Uncoated	JJ
TiN	TJ*
Z-Coat	ZJ*
TiCN	CJ
TiAlN	LJ

* Available upon request



GENERAL PURPOSE

30>ST HRc

Size				Flutes	Radius	Item No.
d ₁ x d ₂	x l ₂	x l ₁				
8 x 8	x 20	x 90		4	4	666708003
10 x 10	x 25	x 100		4	5	666710004
12 x 12	x 32	x 115		4	6	666712005
14 x 12	x 32	x 115		4	7	666714005
16 x 16	x 36	x 130		4	8	666716006
18 x 16	x 40	x 130		4	9	666718006
20 x 20	x 45	x 145		4	10	666720007
25 x 25	x 50	x 165		6	12.5	666725008
30 x 25	x 63	x 180		6	15	666730008
32 x 25	x 63	x 180		6	16	666732008
40 x 32	x 70	x 190		6	20	666740009

37°	DIN 844 Standard	HSS-M42		Multi-Flute Square End Semi-Finisher Flat Profile Type V1	6673
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Size				Flutes	Radius	Item No.
d ₁ x	d ₂ x	l ₂ x	l ₁			
10 x	10 x	22 x	72	4	-	667310004
12 x	12 x	26 x	83	4	-	667312005
14 x	12 x	26 x	83	4	-	667314005
16 x	16 x	32 x	92	4	-	667316006
18 x	16 x	32 x	92	5	-	667318006
20 x	20 x	38 x	104	5	-	667320007
22 x	20 x	38 x	104	5	-	667322007
25 x	25 x	45 x	121	6	-	667325008
32 x	32 x	53 x	133	6	-	667332009

Achievable R_a = 0.8 – 1.6 μm

Multi-Flute Square End Semi-Finisher Flat Profile, Type V1 for Milling Titanium Alloys

TYPE - V1

Suffix Category	<input type="checkbox"/>	<input type="checkbox"/>
Uncoated		WW
TiAlN		LW

Ti

30°	DIN 844 Standard	HSS-M42		HSS Co Multi-Flute Square End Semi-Finisher Flat Profile Type O	6674
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Size				Flutes	Radius	Item No.
d ₁ x	d ₂ x	l ₂ x	l ₁			
10 x	10 x	22 x	72	4	-	667410004
12 x	12 x	26 x	83	4	-	667412005
14 x	12 x	26 x	83	4	-	667414005
16 x	16 x	32 x	92	4	-	667416006
18 x	16 x	32 x	92	4	-	667418006
20 x	20 x	38 x	104	4	-	667420007
22 x	20 x	38 x	104	4	-	667422007
25 x	25 x	45 x	121	5	-	667425008
32 x	32 x	53 x	133	5	-	667432009

Multi-flute Square End Semi-Finisher Flat Profile, Type O for Milling Medium Tensile Strength Steels

TYPE - O

Suffix Category	<input type="checkbox"/>	<input type="checkbox"/>
TiN		TW*
Z-Coat		ZW*
TiCN		CW
TiAlN		LW

30>ST HRc

* Available upon request

6675

HSS Co Multi-Flute Square End Semi-Finisher Flat Profile Type V

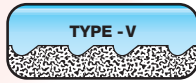


HSS-M42

DIN 844
Standard

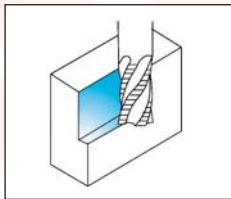
45°

Multi-Flute Square End Semi-Finisher Flat Profile, Type V for Milling Medium Stainless Steel, Nickel and Cobalt Base Alloys



Suffix Category	
TiN	TW
Z-Coat	ZW*
TiCN	CW
TiAlN	LW

* Available upon request



INCONEL
Ti
St S

Size				Flutes	Radius	Item No.
d ₁ x d ₂	x l ₂	x l ₁				
10 x 10	x 22	x 72		4	-	667510004
12 x 12	x 26	x 83		4	-	667512005
14 x 12	x 26	x 83		4	-	667514005
16 x 16	x 32	x 92		4	-	667516006
18 x 16	x 32	x 92		5	-	667518006
20 x 20	x 38	x 104		5	-	667520007
22 x 20	x 38	x 104		5	-	667522007
25 x 25	x 45	x 121		6	-	667525008
32 x 32	x 53	x 133		6	-	667532009

Achievable R_a = 3.2 µm

6676

HSS Co Multi-Square End Semi-Finisher Flat Profile Type D

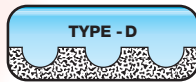


HSS-M42

DIN 844
Standard

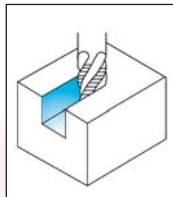
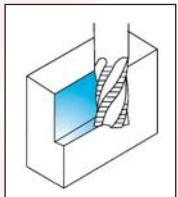
45°

Multi-Flute Square End Semi-Finisher Flat Profile, Type D for Milling Aluminium Alloys



Suffix Category	
Uncoated	WW
TiN	TW*
Z-Coat	ZW*
TiCN	CW
TiAlN	LW

* Available upon request



Al

Size				Flutes	Radius	Item No.
d ₁ x d ₂	x l ₂	x l ₁				
8 x 8	x 20	x 70		3	-	667608003 NEW!
10 x 10	x 22	x 72		3	-	667610004
12 x 12	x 26	x 83		3	-	667612005
14 x 12	x 26	x 83		3	-	667614005
16 x 16	x 32	x 92		3	-	667616006
18 x 16	x 32	x 92		3	-	667618006
20 x 20	x 38	x 104		3	-	667620007
22 x 20	x 38	x 104		3	-	667622007
25 x 25	x 45	x 121		3	-	667625008
32 x 32	x 53	x 133		3	-	667632009

30°	DIN 844 Standard	HSS-PM		HSS-PM Multi-Flute Square End Extra Fine Pitch	6N04
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Size				Flutes	Radius	Item No.	
d ₁ x	d ₂ x	l ₂ x	l ₁				
6 x	6 x	13 x	57	3	-	6N0406002	
8 x	10 x	19 x	69	3	-	6N0408004	
10 x	10 x	22 x	72	4	-	6N0410004	
12 x	12 x	26 x	83	4	-	6N0412005	
16 x	16 x	32 x	92	4	-	6N0416006	
18 x	16 x	32 x	92	4	-	6N0418006	NEW!
20 x	20 x	38 x	104	4	-	6N0420007	
25 x	25 x	45 x	121	5	-	6N0425008	

Multi-Flute Square End Extra Fine Pitch for General Purpose Roughing Operation

Extra Fine Pitch
CONVENTIONAL

Suffix Category	
Uncoated	WW
TiN	TW*
Z-Coat	ZW*
TiCN	CW
TiAlN	LW

* Available upon request

GENERAL PURPOSE

30<ST<45 HRC

30>ST HRC

30°	DIN 844 Standard	HSS-PM		HSS-PM Multi-Flute Square End Fine Pitch	6N06
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Size				Flutes	Radius	Item No.	
d ₁ x	d ₂ x	l ₂ x	l ₁				
6 x	6 x	13 x	57	4	-	6N0606002	
7 x	10 x	16 x	66	4	-	6N0607004	
8 x	10 x	19 x	69	4	-	6N0608004	
9 x	10 x	19 x	69	4	-	6N0609004	
10 x	10 x	22 x	72	4	-	6N0610004	
11 x	12 x	22 x	79	4	-	6N0611005	
12 x	12 x	26 x	83	4	-	6N0612005	
13 x	12 x	26 x	83	4	-	6N0613005	
14 x	12 x	26 x	83	4	-	6N0614005	
15 x	12 x	26 x	83	4	-	6N0615005	
16 x	16 x	32 x	92	4	-	6N0616006	
18 x	16 x	32 x	92	4	-	6N0618006	
20 x	20 x	38 x	104	4	-	6N0620007	
22 x	20 x	38 x	104	5	-	6N0622007	
25 x	25 x	45 x	121	5	-	6N0625008	
30 x	25 x	45 x	121	6	-	6N0630008*	

Multi-Flute Square End Fine Pitch for General Purpose Roughing Operation

Fine Pitch
CONVENTIONAL

Suffix Category	
Uncoated	WW
TiN	TW*
Z-Coat	ZW*
TiCN	CW
TiAlN	LW

* Available upon request

GENERAL PURPOSE

30>ST HRC

* Centre Coolant

6N08

HSS-PM Multi-Flute Square End Coarse Pitch



HSS-PM

DIN 844
Standard

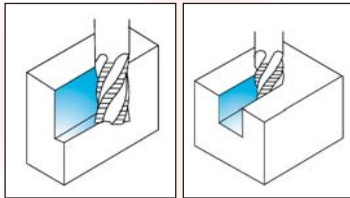
30°



Multi-Flute Square End Coarse Pitch for General Purpose Roughing Operation

Suffix Category	
Uncoated	WW
TiN	TW*
Z-Coat	ZW*
TiCN	CW
TiAlN	LW

* Available upon request



GENERAL
PURPOSE

30>ST HRC

Size				Flutes	Radius	Item No.
d ₁ x d ₂	x l ₂	x l ₁				
6 x 6	x 13	x 57		3	-	6N0806002
8 x 10	x 19	x 69		3	-	6N0808004
10 x 10	x 22	x 72		4	-	6N0810004
12 x 12	x 26	x 83		4	-	6N0812005
16 x 16	x 32	x 92		4	-	6N0816006
20 x 20	x 38	x 104		4	-	6N0820007
25 x 25	x 45	x 121		4	-	6N0825008



6N70

HSS-PM Multi-Flute Square End Semi-Finishing High Performance with Combi-Cut



HSS-PM

HANITA
Standard

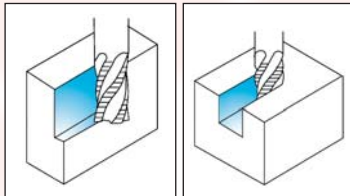
30°



Multi-Flute Square End Semi-Finishing High Performance with Combi-Cut for General Purpose Semi-Roughing Operation

Suffix Category	
Uncoated	WW
TiAlN	LW

INCONEL	St S	Ti	30<ST<45 HRC
			30>ST HRC

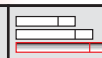


30>ST HRC

Size				Flutes	Radius	Item No.
d ₁ x d ₂	x l ₂	x l ₁				
6 x 6	x 13	x 57		4	-	6N7006002
8 x 10	x 19	x 69		4	-	6N7008004
10 x 10	x 22	x 72		4	-	6N7010004
12 x 12	x 26	x 83		4	-	6N7012005
14 x 12	x 26	x 83		4	-	6N7014005
16 x 16	x 32	x 92		4	-	6N7016006
18 x 16	x 32	x 92		4	-	6N7018006
20 x 20	x 38	x 104		4	-	6N7020007
25 x 25	x 45	x 121		4	-	6N7025008
32 x 32	x 53	x 133		6	-	6N7032009

6NL6

HSS-PM Multi-Flute Square End Fine Pitch with Neck



HSS-PM

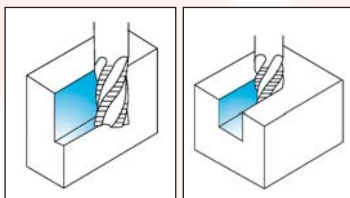
HANITA
Standard

30°



Multi-Flute Square End Fine Pitch with Neck for General Purpose Roughing Operation, Long Reach

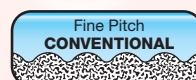
Suffix Category	
Uncoated	WW
TiAlN	LW

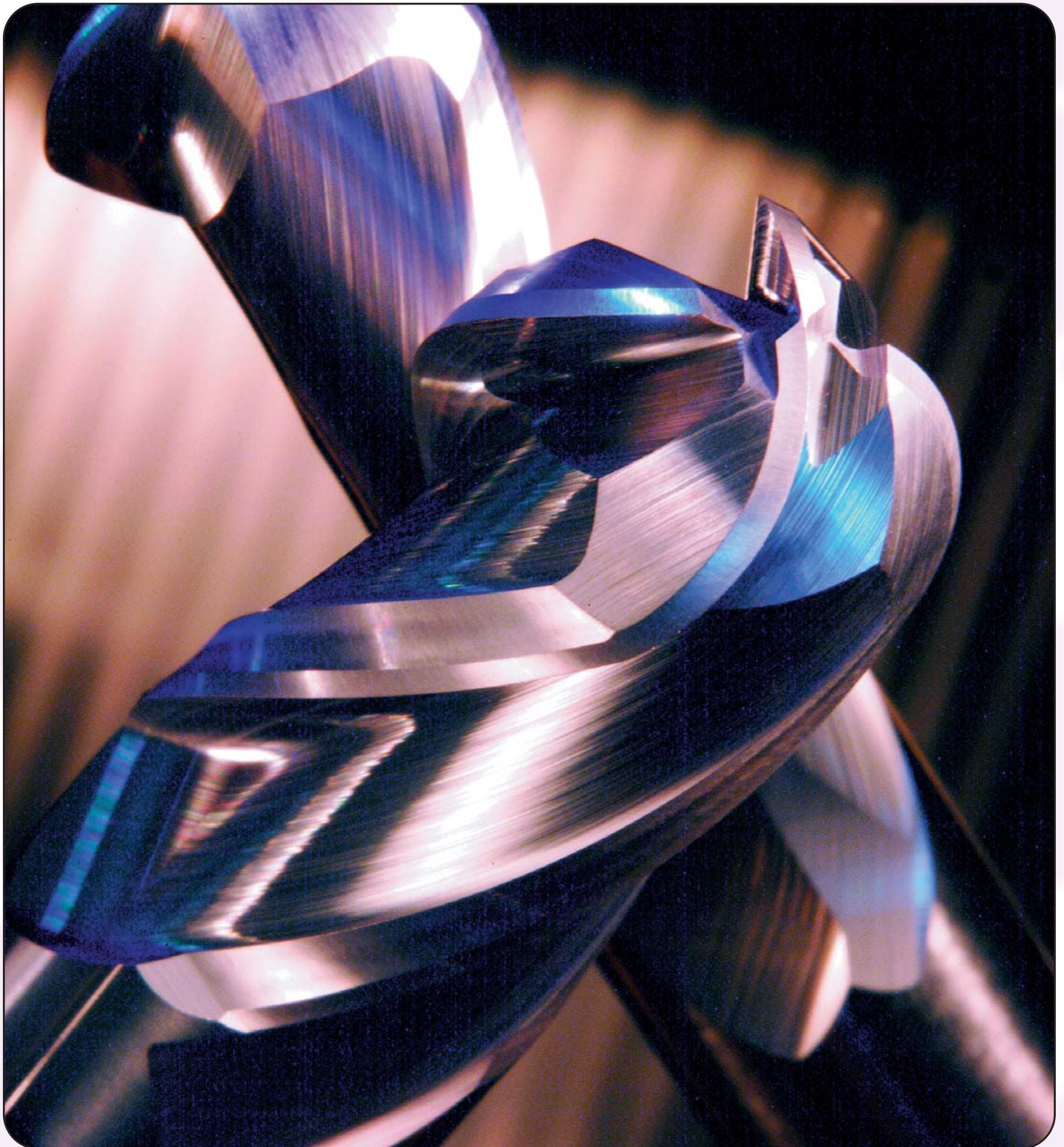


GENERAL
PURPOSE

30>ST HRC

Size				Flutes	Radius	Item No.
d ₁ x d ₂	x l ₂	x l ₁				
10 x 10	x 22	x 110		4	-	6NL610004
12 x 12	x 26	x 125		4	-	6NL612005
16 x 16	x 32	x 138		4	-	6NL616006
20 x 20	x 38	x 160		4	-	6NL620007
25 x 25	x 45	x 216		5	-	6NL625008





4000

S.C. 4 Flute Ball Nose


CARBIDE
HANITA
Standard

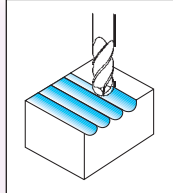
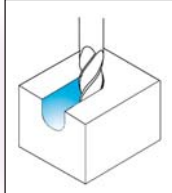
30°

4 Flute Ball Nose for 3 D Milling



Suffix Category	
Uncoated	••
TiN	TT*
Z-Coat	ZT*
TiCN	CT
TiAlN	RT

*Available upon request


ST>45 HRc
30<ST<45 HRc
30>ST HRc

Size				Flutes	Radius	Item No.
d ₁ x d ₂ x l ₂ x l ₁						
3 x 3 x 9.5 x 38				4	-	400003002
4 x 4 x 12 x 50				4	-	400004002
5 x 6 x 14 x 50				4	-	400005002
6 x 6 x 16 x 50				4	-	400006002
8 x 8 x 20 x 63				4	-	400008003
10 x 10 x 22 x 76				4	-	400010004
12 x 12 x 25 x 76				4	-	400012005
14 x 14 x 32 x 89				4	-	400014014
16 x 16 x 32 x 89				4	-	400016006
18 x 18 x 38 x 100				4	-	400018007
20 x 20 x 38 x 100				4	-	400020007

4001

S.C. 2 Flute Ball Nose

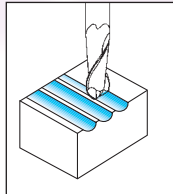
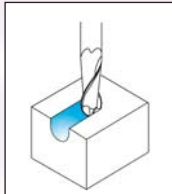

CARBIDE
HANITA
Standard

30°

2 Flute Ball Nose for 3 D Milling



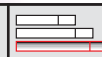
Suffix Category	
Uncoated	••
TiN	TT
Z-Coat	ZT
TiCN	CT
TiAlN	RT


GENERAL PURPOSE

Size				Flutes	Radius	Item No.
d ₁ x d ₂ x l ₂ x l ₁						
1 x 3 x 4 x 38				2	-	400101000 NEW!
1.5 x 3 x 5 x 38				2	-	400101500 NEW!
2 x 3 x 6.5 x 38				2	-	400102000 NEW!
3 x 3 x 9.5 x 38				2	-	400103002
4 x 4 x 12 x 50				2	-	400104002
5 x 6 x 14 x 50				2	-	400105002
6 x 6 x 16 x 50				2	-	400106002
8 x 8 x 20 x 63				2	-	400108003
10 x 10 x 22 x 76				2	-	400110004
12 x 12 x 25 x 76				2	-	400112005
14 x 14 x 32 x 89				2	-	400114014
16 x 16 x 32 x 89				2	-	400116006
18 x 18 x 38 x 100				2	-	400118007
20 x 20 x 38 x 104				2	-	400120007

4001 JJ

S.C. 2 Flute Ball Nose Long Shank


CARBIDE
JIS
Standard

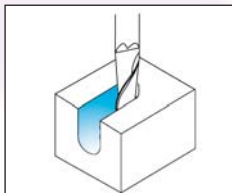
30°

2 Flute Ball Nose Long Shank for Deep 3 D Milling



Suffix Category	
Uncoated	JJ
TiAlN	RJ

*Available upon request


GENERAL PURPOSE

Size				Flutes	Radius	Item No.
d ₁ x d ₂ x l ₂ x l ₁						
3 x 6 x 9.5 x 58				2	-	400103002
4 x 6 x 12 x 76				2	-	400104002
5 x 6 x 14 x 76				2	-	400105002
6 x 6 x 16 x 100				2	-	400106002
8 x 8 x 20 x 100				2	-	400108003
10 x 10 x 22 x 100				2	-	400110004
12 x 12 x 25 x 125				2	-	400112005
14 x 14 x 32 x 125				2	-	400114005
16 x 16 x 32 x 150				2	-	400116006
18 x 16 x 38 x 150				2	-	400118006
20 x 20 x 38 x 150				2	-	400120007

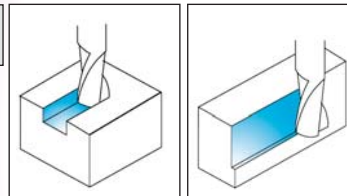
30° HANITA Standard CARBIDE **S.C. 2 Flute Square End** **4002**

Size				Flutes	Radius	Item No.	
d ₁ x	d ₂ x	l ₂ x	l ₁				
1 x 3 x 4 x 38	2	-	400201000	NEW!			
1.5 x 3 x 4 x 38	2	-	400201500	NEW!			
2 x 3 x 6.5 x 38	2	-	400202000				
2.5 x 3 x 6.5 x 38	2	-	400202500				
3 x 3 x 9.5 x 38	2	-	400203000				
3.5 x 4 x 12 x 50	2	-	400203501				
4 x 4 x 12 x 50	2	-	400204001				
4.5 x 6 x 14 x 50	2	-	400204502				
5 x 6 x 14 x 50	2	-	400205002				
5.5 x 6 x 14 x 50	2	-	400205502				
6 x 6 x 16 x 50	2	-	400206002				
7 x 7 x 20 x 63	2	-	400207003				
8 x 8 x 20 x 63	2	-	400208003				
9 x 9 x 20 x 63	2	-	400209004				
10 x 10 x 22 x 76	2	-	400210004				
11 x 11 x 25 x 76	2	-	400211005				
12 x 12 x 25 x 76	2	-	400212005				
14 x 14 x 32 x 89	2	-	400214014				
16 x 16 x 32 x 89	2	-	400216006				
18 x 18 x 38 x 100	2	-	400218007				
20 x 20 x 38 x 104	2	-	400220007				

2 Flute Square End for Deep Slotting

Suffix Category	
Uncoated	••
TiN	TT
Z-Coat	ZT
TiCN	CT
TiAlN	RT

GENERAL PURPOSE



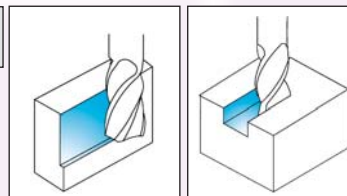
37° HANITA Standard CARBIDE **S.C. 3 Flute Square End** **4003**

Size				Flutes	Radius	Item No.	
d ₁ x	d ₂ x	l ₂ x	l ₁				
1 x 3 x 4 x 38	3	-	400301000	NEW!			
1.5 x 3 x 4 x 38	3	-	400301500	NEW!			
2 x 3 x 6.5 x 38	3	-	400302000				
2.5 x 3 x 6.5 x 38	3	-	400302500				
3 x 3 x 9.5 x 38	3	-	400303000				
3.5 x 4 x 12 x 50	3	-	400303501				
4 x 4 x 12 x 50	3	-	400304001				
4.5 x 6 x 14 x 50	3	-	400304502				
5 x 6 x 14 x 50	3	-	400305002				
5.5 x 6 x 14 x 50	3	-	400305502				
6 x 6 x 16 x 50	3	-	400306002				
7 x 7 x 20 x 63	3	-	400307003				
8 x 8 x 20 x 63	3	-	400308003				
9 x 9 x 20 x 63	3	-	400309004				
10 x 10 x 22 x 76	3	-	400310004				
11 x 11 x 25 x 76	3	-	400311005				
12 x 12 x 25 x 76	3	-	400312005				
14 x 14 x 32 x 89	3	-	400314014				
16 x 16 x 32 x 89	3	-	400316006				
18 x 18 x 38 x 100	3	-	400318007				
20 x 20 x 38 x 104	3	-	400320007				

3 Flute Square End for Slotting Side Milling

Suffix Category	
Uncoated	••
TiN	TT
Z-Coat	ZT
TiCN	CT
TiAlN	RT

GENERAL PURPOSE



4004

S.C. 4 Flute Square End



CARBIDE

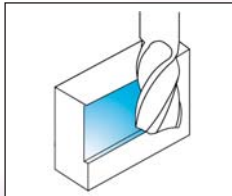
HANITA
Standard

30°

4 Flute Square End for Peripheral Finishing Operation



Suffix Category	<input type="checkbox"/>
Uncoated	••
TiN	TT
Z-Coat	ZT
TiCN	CT
TiAlN	RT



GENERAL PURPOSE

Size				Flutes	Radius	Item No.	
d ₁ x	d ₂ x	l ₂ x	l ₁				
1 x	3 x	4 x	38	4	-	400401000	NEW!
1.5 x	3 x	4 x	38	4	-	400401500	NEW!
2 x	3 x	6.5 x	38	4	-	400402000	
2.5 x	3 x	6.5 x	38	4	-	400402500	
3 x	3 x	9.5 x	38	4	-	400403000	
3.5 x	4 x	12 x	50	4	-	400403501	
4 x	4 x	12 x	50	4	-	400404001	
4.5 x	6 x	14 x	50	4	-	400404502	
5 x	5 x	14 x	50	4	-	400405001	NEW!
5 x	6 x	14 x	50	4	-	400405002	
5.5 x	6 x	14 x	50	4	-	400405502	
6 x	6 x	16 x	50	4	-	400406002	
7 x	7 x	20 x	63	4	-	400407003	
8 x	8 x	20 x	63	4	-	400408003	
9 x	9 x	20 x	63	4	-	400409004	
10 x	10 x	22 x	76	4	-	400410004	
11 x	11 x	25 x	76	4	-	400411005	
12 x	12 x	25 x	76	4	-	400412005	
14 x	14 x	32 x	89	4	-	400414014	
16 x	16 x	32 x	89	4	-	400416006	
18 x	18 x	38 x	100	4	-	400418007	
20 x	20 x	38 x	104	4	-	400420007	

4010

S.C. 4 Flute Ball Nose Long Type



CARBIDE

HANITA
Standard

30°

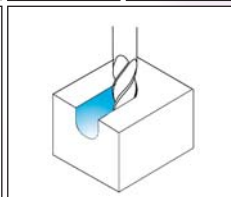
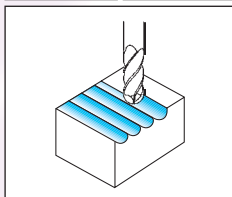
4 Flute Square End for Peripheral Finishing Operation



Suffix Category	<input type="checkbox"/>
Uncoated	••
TiN	TT*
Z-Coat	ZT*
TiCN	CT
TiAlN	RT

*Available upon request

GENERAL PURPOSE	GRAPHITE	ST>45 HRc	30<ST<45 HRc
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Size				Flutes	Radius	Item No.	
d ₁ x	d ₂ x	l ₂ x	l ₁				
4 x	4 x	19 x	63	4	-	401004001	
5 x	5 x	20 x	63	4	-	401005001	
6 x	6 x	28 x	76	4	-	401006002	
8 x	8 x	28 x	76	4	-	401008003	
10 x	10 x	32 x	89	4	-	401010004	
12 x	12 x	45 x	100	4	-	401012005	
14 x	14 x	50 x	100	4	-	401014014	
16 x	16 x	56 x	110	4	-	401016006	
20 x	20 x	56 x	125	4	-	401020007	

30° HANITA Standard CARBIDE S.C. 4 Flute Ball Nose long Type 4011

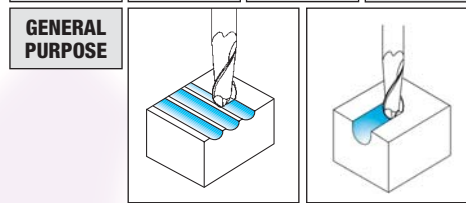
Size				Flutes	Radius	Item No.
d ₁ x	d ₂ x	l ₂ x	l ₁			
4 x	4 x	19 x	63	2	-	401104001
5 x	5 x	20 x	63	2	-	401105001
6 x	6 x	28 x	76	2	-	401106002
8 x	8 x	28 x	76	2	-	401108003
10 x	10 x	32 x	89	2	-	401110004
12 x	12 x	45 x	100	2	-	401112005
14 x	14 x	50 x	100	2	-	401114014
16 x	16 x	56 x	110	2	-	401116006
20 x	20 x	56 x	125	2	-	401120007

2 Flute Ball Nose Long Type for Deep Slotting

Suffix Category	
Uncoated	••
TiN	TT*
Z-Coat	ZT*
TiCN	CT
TiAlN	RT

* Available upon request

GRAPHITE	ST<45 HRc	30<ST<45 HRc	30<ST HRc
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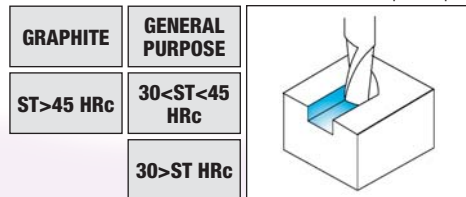
30° HANITA Standard CARBIDE S.C. 2 Flute Square End Long Type 4012

Size				Flutes	Radius	Item No.
d ₁ x	d ₂ x	l ₂ x	l ₁			
3 x	3 x	19 x	63	2	-	401203000
4 x	4 x	19 x	63	2	-	401204001
5 x	5 x	20 x	63	2	-	401205001
6 x	6 x	28 x	76	2	-	401206002
8 x	8 x	28 x	76	2	-	401208003
10 x	10 x	32 x	89	2	-	401210004
12 x	12 x	45 x	100	2	-	401212005
14 x	14 x	50 x	100	2	-	401214014 NEW!
16 x	16 x	56 x	110	2	-	401216006
18 x	18 x	60 x	125	2	-	401218018
20 x	20 x	56 x	125	2	-	401220007
25 x	25 x	62 x	140	2	-	401225008 NEW!

2 Flute Square End Long Type for Deep Slotting

Suffix Category	
Uncoated	••
TiN	TT*
Z-Coat	ZT*
TiCN	CT
TiAlN	RT

* Available upon request



4013

S.C. 3 Flute Square End Long Type



CARBIDE

HANITA
Standard

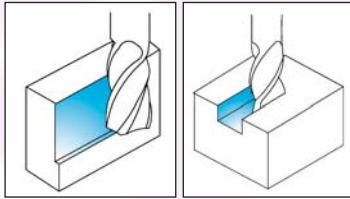
37°

3 Flute Square End Long Type for Deep Slotting and Side Milling



Suffix Category	
Uncoated	••
TiN	TT*
Z-Coat	ZT*
TiCN	CT
TiAlN	RT

* Available upon request



GENERAL PURPOSE

Size				Flutes	Radius	Item No.	
d ₁ x d ₂	x l ₂	x l ₁					
3 x 3	x 19	x 63		3	-	401303000	
4 x 4	x 19	x 63		3	-	401304001	
5 x 5	x 20	x 63		3	-	401305001	
6 x 6	x 28	x 76		3	-	401306002	
8 x 8	x 28	x 76		3	-	401308003	
10 x 10	x 32	x 89		3	-	401310004	
12 x 12	x 45	x 100		3	-	401312005	
16 x 16	x 56	x 110		3	-	401316006	
20 x 20	x 56	x 125		3	-	401320007	
25 x 25	x 62	x 140		3	-	401325008	NEW!

4014

S.C. 4 Flute Square End Long Type



CARBIDE

HANITA
Standard

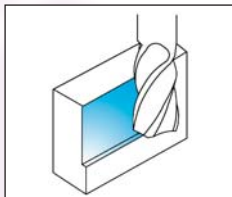
30°

4 Flute Square End Long Type for Deep Peripheral Finishing Operation



Suffix Category	
Uncoated	••
TiN	TT*
Z-Coat	ZT*
TiCN	CT
TiAlN	RT

* Available upon request



GENERAL PURPOSE

Size				Flutes	Radius	Item No.	
d ₁ x d ₂	x l ₂	x l ₁					
3 x 3	x 19	x 63		4	-	401403000	
4 x 4	x 19	x 63		4	-	401404001	
5 x 5	x 20	x 63		4	-	401405001	
6 x 6	x 28	x 76		4	-	401406002	
8 x 8	x 28	x 76		4	-	401408003	
10 x 10	x 32	x 89		4	-	401410004	
12 x 12	x 45	x 100		4	-	401412005	
14 x 14	x 50	x 100		4	-	401414014	NEW!
16 x 16	x 56	x 110		4	-	401416006	
18 x 18	x 60	x 125		4	-	401418018	NEW!
20 x 20	x 56	x 125		4	-	401420007	
25 x 25	x 62	x 140		4	-	401425008	NEW!

30° HANITA Standard CARBIDE **S.C. 4 Flute Square End Long Type** **4021**

Size				Flutes	Radius	Item No.
d ₁ x	d ₂ x	l ₂ x	l ₁			
3 x	3 x	25 x	75	2	-	402103000
4 x	4 x	31 x	75	2	-	402104001
5 x	5 x	31 x	100	2	-	402105001
6 x	6 x	38 x	100	2	-	402106002
8 x	8 x	41 x	100	2	-	402108003
10 x	10 x	45 x	100	2	-	402110004
12 x	12 x	75 x	150	2	-	402112005
14 x	14 x	75 x	150	2	-	402114014
16 x	16 x	75 x	150	2	-	402116006
18 x	18 x	75 x	150	2	-	402118018
20 x	20 x	75 x	150	2	-	402120007

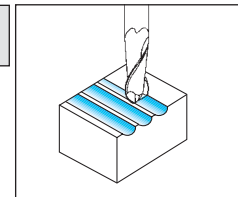
2 Flute Ball Nose Extra Long Type for Very Deep Applications

NEW!

Suffix Category	up to 5mm Ø	over to 5mm Ø
	Uncoated	••
TiN	TT*	TW*
Z-Coat	ZT*	ZW*
TiCN	CT	CW
TiAlN	RT	RW

*Available upon request

GENERAL PURPOSE



30° HANITA Standard CARBIDE **S.C. Flute Square End Extra Long Type** **4022**

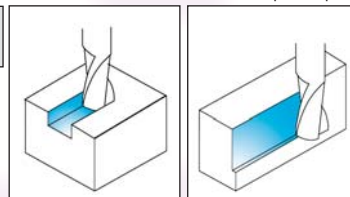
Size				Flutes	Radius	Item No.
d ₁ x	d ₂ x	l ₂ x	l ₁			
3 x	3 x	25 x	75	2	-	402203000
4 x	4 x	31 x	75	2	-	402204001
5 x	5 x	31 x	100	2	-	402205001
6 x	6 x	38 x	100	2	-	402206002
8 x	8 x	41 x	100	2	-	402208003
10 x	10 x	45 x	100	2	-	402210004
12 x	12 x	75 x	150	2	-	402212005
14 x	14 x	75 x	150	2	-	402214014
16 x	16 x	75 x	150	2	-	402216006
18 x	18 x	75 x	150	2	-	402218018
20 x	20 x	75 x	150	2	-	402220007

2 Flute Square End Extra Long Type for Very Deep Slotting

Suffix Category	up to 5mm Ø	over to 5mm Ø
	Uncoated	••
TiN	TT*	TW*
Z-Coat	ZT*	ZW*
TiCN	CT	CW
TiAlN	RT	RW

*Available upon request

GENERAL PURPOSE



4024

S.C. 4 Flute Square End Extra Long Type



CARBIDE

HANITA
Standard

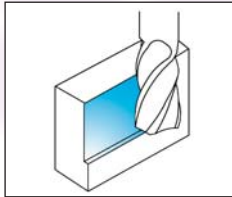
30°

4 Flute Square End Extra Long Type for Very Deep Peripheral Finishing Operation



Suffix Category		
	up to 5 mm Ø	over to 5 mm Ø
Uncoated	••	WW
TiN	TT*	TW*
Z-Coat	ZT*	ZW*
TiCN	CT	CW
TiAlN	RT	RW

*Available upon request



GENERAL PURPOSE

Size				Flutes	Radius	Item No.
d ₁ x d ₂	x l ₂	x l ₁				
3 x 3	x 25	x 75		4	-	402403000
4 x 4	x 31	x 75		4	-	402404001
5 x 5	x 31	x 100		4	-	402405001
6 x 6	x 38	x 100		4	-	402406002
8 x 8	x 41	x 100		4	-	402408003
10 x 10	x 45	x 100		4	-	402410004
12 x 12	x 75	x 150		4	-	402412005
14 x 14	x 75	x 150		4	-	402414014
16 x 16	x 75	x 150		4	-	402416006
18 x 18	x 75	x 150		4	-	402418018
20 x 20	x 75	x 150		4	-	402420007

4102

S.C 2 Flute Square End High Helix



CARBIDE

HANITA
Standard

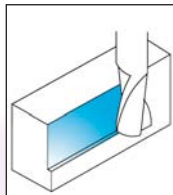
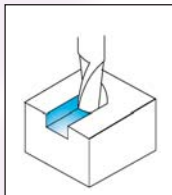
45°

2 Flute Square End High Helix for Slotting Aluminium



Suffix Category	
Uncoated	••
TiCN	CT
TiAlN	RT*

*Available upon request



NF

AI

AlSi

Size				Flutes	Radius	Item No.
d ₁ x d ₂	x l ₂	x l ₁				
1 x 3	x 4	x 38		2	-	410201000
1.5 x 3	x 6	x 38		2	-	410201500
2 x 3	x 8	x 38		2	-	410202000
2.5 x 3	x 9	x 38		2	-	410202500
3 x 3	x 12	x 38		2	-	410203000
4 x 4	x 12	x 50		2	-	410204001
5 x 5	x 14	x 50		2	-	410205001
5 x 6	x 14	x 50		2	-	410205002
6 x 6	x 16	x 50		2	-	410206002
8 x 8	x 20	x 63		2	-	410208003
10 x 10	x 22	x 76		2	-	410210004
12 x 12	x 25	x 76		2	-	410212005
14 x 14	x 32	x 89		2	-	410214014
16 x 16	x 32	x 89		2	-	410216006
18 x 18	x 38	x 100		2	-	410218018
20 x 20	x 38	x 100		2	-	410220007

45°	HANITA Standard	CARBIDE		S.C. 2 Flute Square End High Helix	4103
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Size				Flutes	Radius	Item No.
d ₁ x	d ₂ x	l ₂ x	l ₁			
3 x	3 x	12 x	38	3	-	410303000
4 x	4 x	12 x	50	3	-	410304001
5 x	6 x	14 x	50	3	-	410305002
6 x	6 x	16 x	50	3	-	410306002
8 x	8 x	20 x	63	3	-	410308003
10 x	10 x	22 x	76	3	-	410310004
12 x	12 x	25 x	76	3	-	410312005
14 x	14 x	32 x	89	3	-	410314014
16 x	16 x	32 x	89	3	-	410316006
18 x	18 x	38 x	100	3	-	410318018
20 x	20 x	38 x	100	3	-	410320007

3 Flute Square End High Helix for Slotting Aluminium

Suffix Category		
Uncoated	••	
TiCN	CT	
TiAlN	RT*	

*Available upon request

NF		
AI		
AlSi		

45°	HANITA Standard	CARBIDE		S.C. 3 Flute Square End High Helix	4503 JJ
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Size				Flutes	Radius	Item No.
d ₁ x	d ₂ x	l ₂ x	l ₁			
1 x	4 x	3 x	50	3	-	450301001
1.5 x	4 x	3 x	50	3	-	450301501
2 x	4 x	3 x	50	3	-	450302001
2.5 x	4 x	4 x	50	3	-	450302501
2.5 x	4 x	5 x	50	3	-	450302511
3 x	6 x	8 x	50	3	-	450303002
3.5 x	6 x	12 x	50	3	-	450303502
4 x	6 x	12 x	50	3	-	450304002
4.5 x	6 x	14 x	50	3	-	450304502
5 x	6 x	14 x	50	3	-	450305002
6 x	6 x	16 x	50	3	-	450306002
8 x	8 x	20 x	63	3	-	450308003
10 x	10 x	22 x	76	3	-	450310004
12 x	12 x	25 x	76	3	-	450312005
16 x	16 x	32 x	89	3	-	450316006
20 x	20 x	38 x	104	3	-	450320007

3 Flute Square End High Helix Long Shank for Deep Slotting and Peripheral Finishing Operation

Suffix Category		
Uncoated	JJ	
TiCN	CJ	
TiAlN	RJ	

St S	Ti	INCONEL	ST>45 HRc

NEW!

4603

S.C. 3 Flute Square End High Helix


CARBIDE
HANITA
Standard

60°

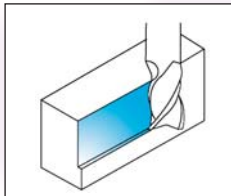
NEW!

3 Flute Square End High Helix for Peripheral Finishing Operation



Suffix Category	
Uncoated	••
TiN	TT*
Z-Coat	ZT*
TiCN	CT
TiAlN	RT

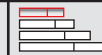
* Available upon request


St S
Ti
INCONEL

Size				Flutes	Radius	Item No.
d ₁ x	d ₂ x	l ₂ x	l ₁			
3 x	6 x	8 x	57	3	-	460303002
4 x	6 x	11 x	57	3	-	460304002
5 x	6 x	13 x	57	3	-	460305002
6 x	6 x	13 x	57	3	-	460306002
8 x	8 x	19 x	63	3	-	460308003
10 x	10 x	22 x	72	3	-	460310004
12 x	12 x	26 x	83	3	-	460312005
16 x	16 x	32 x	92	3	-	460316006
20 x	20 x	38 x	104	3	-	460320007

4632

S.C. 2 Flute Square End Mini-Micro

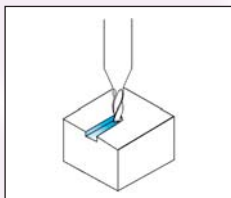

CARBIDE
HANITA
Standard

30°


2 Flute Square End Mini-Micro for Slotting and Side Milling

Suffix Category	
Uncoated	••
TiN	TT*
Z-Coat	ZT*
TiCN	CT
TiAlN	RT*

* Available upon request


GENERAL PURPOSE

Size				Flutes	Radius	Item No.
d ₁ x	d ₂ x	l ₂ x	l ₁			
0.4 x	3 x	1.5 x	38	2	-	463200400
0.5 x	3 x	1.5 x	38	2	-	463200500
0.6 x	3 x	1.5 x	38	2	-	463200600
0.8 x	3 x	1.5 x	38	2	-	463200800
1 x	3 x	2 x	38	2	-	463201000
1.5 x	3 x	2 x	38	2	-	463201500

4633

S.C. 3 Flute Square End Mini-Micro

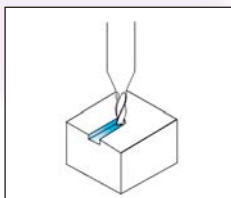

CARBIDE
HANITA
Standard

30°


3 Flute Square End Mini-Micro for Slotting and Side Milling

Suffix Category	
Uncoated	••
TiN	TT*
Z-Coat	ZT*
TiCN	CT
TiAlN	RT

* Available upon request


GENERAL PURPOSE

Size				Flutes	Radius	Item No.
d ₁ x	d ₂ x	l ₂ x	l ₁			
0.4 x	3 x	1.5 x	38	3	-	463300400
0.5 x	3 x	1.5 x	38	3	-	463300500
0.6 x	3 x	1.5 x	38	3	-	463300600
0.8 x	3 x	1.5 x	38	3	-	463300800
1 x	3 x	2 x	38	3	-	463301000
1.2 x	3 x	2 x	38	3	-	463301200
1.5 x	3 x	2 x	38	3	-	463301500
1.8 x	3 x	2 x	38	3	-	463301800

30°	HANITA Standard	CARBIDE		S.C. 2 Flute Ball Nose Mini-Micro	4651
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Size				Flutes	Radius	Item No.
d ₁ x	d ₂ x	l ₂ x	l ₁			
1 x	3 x	2 x	38	2	-	465101000
1.2 x	3 x	2 x	38	2	-	465101200
1.5 x	3 x	2 x	38	2	-	465101500
1.8 x	3 x	2 x	38	2	-	465101800
2 x	3 x	2 x	38	2	-	465102000

2 Flute Ball Nose Mini-Micro for 3 D Milling

Suffix Category	
Uncoated	••
TiN	TT*
Z-Coat	ZT*
TiCN	CT
TiAlN	RT

* Available upon request

GENERAL PURPOSE

38°	HANITA Standard	PREMIUM CARBIDE		VariMill	4777
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Size				Flutes	Radius	Item No.
d ₁ x	d ₂ x	l ₂ x	l ₁			
4 x	6 x	12 x	55	4	-	477704002
5 x	6 x	13 x	57	4	-	477705002
6 x	6 x	13 x	57	4	-	477706002
7 x	8 x	16 x	63	4	-	477707003
8 x	8 x	16 x	63	4	-	477708003
9 x	10 x	19 x	72	4	-	477709004
10 x	10 x	22 x	72	4	-	477710004
12 x	12 x	26 x	83	4	-	477712005
14 x	14 x	26 x	83	4	-	477714014
16 x	16 x	32 x	92	4	-	477716006
18 x	18 x	32 x	92	4	-	477718018
20 x	20 x	38 x	104	4	-	477720007
25 x	25 x	45 x	121	4	-	477725008

4 Flute Endmill for Roughing and Finishing

Suffix Category	
TiAlN	LT

GENERAL PURPOSE

NEW!

30°	DIN 6527	CARBIDE		S.C. 4 Flute Ball Nose	D000
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Size				Flutes	Radius	Item No.
d ₁ x	d ₂ x	l ₂ x	l ₁			
3 x	6 x	5 x	50	4	-	D00003002
4 x	6 x	8 x	54	4	-	D00004002
5 x	6 x	9 x	54	4	-	D00005002
6 x	6 x	10 x	54	4	-	D00006002
8 x	8 x	12 x	58	4	-	D00008003
10 x	10 x	14 x	66	4	-	D00010004
12 x	12 x	16 x	73	4	-	D00012005
14 x	14 x	18 x	75	4	-	D00014014
16 x	16 x	22 x	82	4	-	D00016006
18 x	18 x	24 x	84	4	-	D00018018
20 x	20 x	26 x	92	4	-	D00020007

4 Flute Ball Nose for 3 D Milling

Suffix Category	
Uncoated	WW
TiN	TW*
Z-Coat	ZW*
TiCN	CW
TiAlN	LW

* Available upon request

GENERAL PURPOSE	ST>45 Hrc	30<ST<45 Hrc	30>ST Hrc
GRAPHITE			

D001

S.C. 4 Flute Ball Nose



CARBIDE

DIN 6527

30°



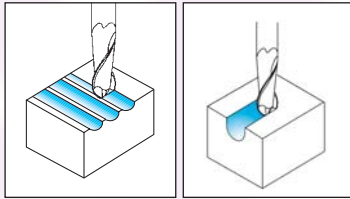
2 Flute Ball Nose for 3 D Milling



Suffix Category	<input type="checkbox"/>
Uncoated	WW
TiN	TW*
Z-Coat	ZW*
TiCN	CW
TiAlN	LW

* Available upon request

GRAPHITE	ST>45 HRC	30<ST<45 HRC	30>ST HRC
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GENERAL PURPOSE

Size				Flutes	Radius	Item No.
d ₁ x	d ₂ x	l ₂ x	l ₁			
3 x	6 x	4 x	50	2	-	D00103002
4 x	6 x	5 x	54	2	-	D00104002
5 x	6 x	6 x	54	2	-	D00105002
6 x	6 x	7 x	54	2	-	D00106002
8 x	8 x	9 x	58	2	-	D00108003
10 x	10 x	11 x	66	2	-	D00110004
12 x	12 x	12 x	73	2	-	D00112005
14 x	14 x	14 x	75	2	-	D00114014
16 x	16 x	16 x	82	2	-	D00116006
18 x	18 x	18 x	84	2	-	D00118018
20 x	20 x	20 x	92	2	-	D00120007

D002

S.C. 2 Flute Square End



CARBIDE

DIN 6527

30°

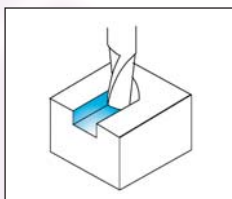


2 Flute Square End for Deep Slotting



Suffix Category	<input type="checkbox"/>
Uncoated	WW
TiN	TW*
Z-Coat	ZW*
TiCN	CW
TiAlN	LW

* Available upon request




GENERAL PURPOSE

Size				Flutes	Radius	Item No.
d ₁ x	d ₂ x	l ₂ x	l ₁			
2 x	6 x	3 x	50	2	-	D00202002
2.5 x	6 x	3 x	50	2	-	D00202502
3 x	6 x	4 x	50	2	-	D00203002
3.5 x	6 x	4 x	50	2	-	D00203502
4 x	6 x	5 x	54	2	-	D00204002
4.5 x	6 x	5 x	54	2	-	D00204502
5 x	6 x	6 x	54	2	-	D00205002
5.5 x	6 x	6 x	54	2	-	D00205502
6 x	6 x	7 x	54	2	-	D00206002
7 x	8 x	8 x	58	2	-	D00207003
8 x	8 x	9 x	58	2	-	D00208003
9 x	10 x	10 x	66	2	-	D00209004
10 x	10 x	11 x	66	2	-	D00210004
12 x	12 x	12 x	73	2	-	D00212005
14 x	14 x	14 x	75	2	-	D00214014
16 x	16 x	16 x	82	2	-	D00216006
18 x	18 x	18 x	84	2	-	D00218018
20 x	20 x	20 x	92	2	-	D00220007

30° DIN 6527 CARBIDE **S.C. 3 Flute Square End** **D003**

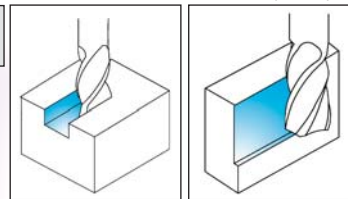
Size				Flutes	Radius	Item No.
d ₁ x	d ₂ x	l ₂ x	l ₁			
2 x	6 x	3 x	50	3	-	D00302002
2.5 x	6 x	3 x	50	3	-	D00302502
3 x	6 x	4 x	50	3	-	D00303002
3.5 x	6 x	4 x	50	3	-	D00303502
4 x	6 x	5 x	54	3	-	D00304002
4.5 x	6 x	5 x	54	3	-	D00304502
5 x	6 x	6 x	54	3	-	D00305002
5.5 x	6 x	7 x	54	3	-	D00305502
6 x	6 x	7 x	54	3	-	D00306002
7 x	8 x	8 x	58	3	-	D00307003
8 x	8 x	9 x	58	3	-	D00308003
9 x	10 x	10 x	66	3	-	D00309004
10 x	10 x	11 x	66	3	-	D00310004
12 x	12 x	12 x	73	3	-	D00312005
14 x	14 x	14 x	75	3	-	D00314014
16 x	16 x	16 x	82	3	-	D00316006
18 x	18 x	18 x	84	3	-	D00318018
20 x	20 x	20 x	92	3	-	D00320007

3 Flute Square End for Slotting and Side Milling

Suffix Category		
Uncoated	WW	
TiN	TW*	
Z-Coat	ZW*	
TiCN	CW	
TiAlN	LW	

*Available upon request


GENERAL PURPOSE



30° DIN 6527 CARBIDE **S.C. 4 Flute Square End** **D004**

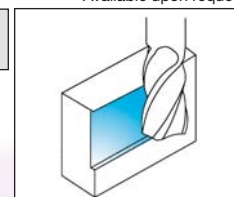
Size				Flutes	Radius	Item No.
d ₁ x	d ₂ x	l ₂ x	l ₁			
2 x	6 x	4 x	50	4	-	D00402002
2.5 x	6 x	4 x	50	4	-	D00402502
3 x	6 x	5 x	50	4	-	D00403002
3.5 x	6 x	6 x	50	4	-	D00403502
4 x	6 x	8 x	54	4	-	D00404002
4.5 x	6 x	8 x	54	4	-	D00404502
5 x	6 x	9 x	54	4	-	D00405002
5.5 x	6 x	9 x	54	4	-	D00405502
6 x	6 x	10 x	54	4	-	D00406002
7 x	8 x	11 x	58	4	-	D00407003
8 x	8 x	12 x	58	4	-	D00408003
9 x	10 x	13 x	66	4	-	D00409004
10 x	10 x	14 x	66	4	-	D00410004
12 x	12 x	16 x	73	4	-	D00412005
14 x	14 x	18 x	75	4	-	D00414014
16 x	16 x	22 x	82	4	-	D00416006
18 x	18 x	24 x	84	4	-	D00418018
20 x	20 x	26 x	92	4	-	D00420007

4 Flute Square End for Peripheral Finishing Operation

Suffix Category		
Uncoated	WW	
TiN	TW*	
Z-Coat	ZW*	
TiCN	CW	
TiAlN	LW	

*Available upon request

GENERAL PURPOSE



D009

S.C. 3 Flute Ball Nose Long Type



CARBIDE

DIN6527

30°

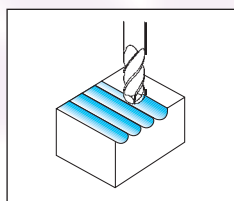


3 Flute Ball Nose Long Type for Deep 3 D Milling



Suffix Category	
Uncoated	WW
TiN	TW*
Z-Coat	ZW*
TiCN	CW
TiAlN	LW

*Available upon request



GENERAL PURPOSE

Size				Flutes	Radius	Item No.
d ₁ x	d ₂ x	l ₂ x	l ₁			
3 x	6 x	7 x	57	3	-	D00903002
4 x	6 x	8 x	57	3	-	D00904002
5 x	6 x	10 x	57	3	-	D00905002
6 x	6 x	10 x	57	3	-	D00906002
8 x	8 x	16 x	63	3	-	D00908003
10 x	10 x	19 x	72	3	-	D00910004
12 x	12 x	22 x	83	3	-	D00912005
14 x	14 x	22 x	83	3	-	D00914014
16 x	16 x	26 x	92	3	-	D00916006
18 x	18 x	26 x	92	3	-	D00918018
20 x	20 x	32 x	104	3	-	D00920007

D010

S.C. 4 Flute Ball Nose Long Type



CARBIDE

DIN 6527

30°

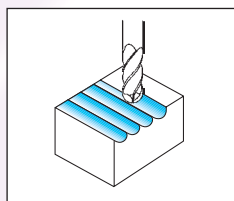


4 Flute Ball Nose Long Type for Deep 3 D Milling



Suffix Category	
Uncoated	WW
TiN	TW*
Z-Coat	ZW*
TiCN	CW
TiAlN	LW

*Available upon request



GENERAL PURPOSE

30<ST<45 HRC

GRAPHITE

30>ST HRC

ST>45 HRC

Size				Flutes	Radius	Item No.
d ₁ x	d ₂ x	l ₂ x	l ₁			
3 x	6 x	8 x	57	4	-	D01003002
4 x	6 x	11 x	57	4	-	D01004002
5 x	6 x	13 x	57	4	-	D01005002
6 x	6 x	13 x	57	4	-	D01006002
8 x	8 x	19 x	63	4	-	D01008003
10 x	10 x	22 x	72	4	-	D01010004
12 x	12 x	26 x	83	4	-	D01012005
14 x	14 x	26 x	83	4	-	D01014014
16 x	16 x	32 x	92	4	-	D01016006
18 x	18 x	32 x	92	4	-	D01018018
20 x	20 x	38 x	104	4	-	D01020007

30° DIN 6527 CARBIDE **S.C. 2 Flute Ball Nose Long Type** **D011**

Size				Flutes	Radius	Item No.
d ₁ x	d ₂ x	l ₂ x	l ₁			
3 x 6 x 7 x 57	2	-	D01103002			
4 x 6 x 8 x 57	2	-	D01104002			
5 x 6 x 10 x 57	2	-	D01105002			
6 x 6 x 10 x 57	2	-	D01106002			
8 x 8 x 16 x 63	2	-	D01108003			
10 x 10 x 19 x 72	2	-	D01110004			
12 x 12 x 22 x 83	2	-	D01112005			
14 x 14 x 22 x 83	2	-	D01114014			
16 x 16 x 26 x 92	2	-	D01116006			
18 x 18 x 26 x 92	2	-	D01118018			
20 x 20 x 32 x 104	2	-	D01120007			

2 Flute Ball Nose Long Type for Deep 3 D Milling

Suffix Category	
Uncoated	WW
TiN	TW*
Z-Coat	ZW*
TiCN	CW
TiAlN	LW

*Available upon request

GENERAL PURPOSE	GRAPHITE	
ST>45 HRc	30<ST<45 HRc	
	30>ST HRc	



30° DIN 6527 CARBIDE **S.C. 2 Flute Square End Long Type – Intermediate Size** **D012**

Size				Flutes	Radius	Item No.
d ₁ x	d ₂ x	l ₂ x	l ₁			
2 x 6 x 6 x 53	2	-	D01202002			
2.5 x 6 x 6 x 53	2	-	D01202502			
2.8 x 6 x 7 x 57	2	-	D01202802			
3 x 6 x 7 x 57	2	-	D01203002			
3.5 x 6 x 7 x 57	2	-	D01203502			
3.8 x 6 x 8 x 57	2	-	D01203802			
4 x 6 x 8 x 57	2	-	D01204002			
4.5 x 6 x 8 x 57	2	-	D01204502			
4.8 x 6 x 10 x 57	2	-	D01204802			
5 x 6 x 10 x 57	2	-	D01205002			
5.5 x 6 x 10 x 57	2	-	D01205502			
5.75 x 6 x 10 x 57	2	-	D01205752			
6 x 6 x 10 x 57	2	-	D01206002			
6.5 x 8 x 13 x 63	2	-	D01206503			
6.75 x 8 x 13 x 63	2	-	D01206753			
7 x 8 x 13 x 63	2	-	D01207003			
7.75 x 8 x 16 x 63	2	-	D01207753			
8 x 8 x 16 x 63	2	-	D01208003			
8.7 x 10 x 16 x 72	2	-	D01208704			
9 x 10 x 16 x 72	2	-	D01209004			
9.7 x 10 x 19 x 72	2	-	D01209704			
10 x 10 x 19 x 72	2	-	D01210004			
11.7 x 12 x 22 x 83	2	-	D01211705			

2 Flute Square End Long Type Intermediate Size for Deep Slotting (centre cut)

Suffix Category	
Uncoated	WW
TiN	TW*
Z-Coat	ZW*
TiCN	CW
TiAlN	LW

*Available upon request

GENERAL PURPOSE	
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Size				Flutes	Radius	Item No.
d ₁ x	d ₂ x	l ₂ x	l ₁			
12 x 12 x 22 x 83	2	-	D01212005			
14 x 14 x 22 x 83	2	-	D01214014			
16 x 16 x 26 x 92	2	-	D01216006			
18 x 18 x 26 x 92	2	-	D01218018			
20 x 20 x 32 x 104	2	-	D01220007			

D013

S.C. 3 Flute Square End Long Type



CARBIDE

DIN 6527

30°

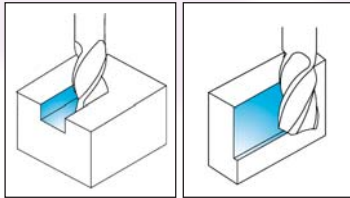


3 Flute Square End Long Type for Deep Slotting and Side Milling



Suffix Category	
Uncoated	WW
TiN	TW*
Z-Coat	ZW*
TiCN	CW
TiAlN	LW

*Available upon request



GENERAL PURPOSE

Size				Flutes	Radius	Item No.
d ₁ x d ₂ x l ₂ x l ₁						
2 x 6 x 6 x 53	3	-	D01302002			
2.5 x 6 x 6 x 53	3	-	D01302502			
3 x 6 x 7 x 57	3	-	D01303002			
3.5 x 6 x 7 x 57	3	-	D01303502			
4 x 6 x 8 x 57	3	-	D01304002			
4.5 x 6 x 8 x 57	3	-	D01304502			
5 x 6 x 10 x 57	3	-	D01305002			
5.5 x 6 x 10 x 57	3	-	D01305502			
6 x 6 x 10 x 57	3	-	D01306002			
6.5 x 8 x 13 x 63	3	-	D01306503			
7 x 8 x 13 x 63	3	-	D01307003			
8 x 8 x 16 x 63	3	-	D01308003			
9 x 10 x 16 x 72	3	-	D01309004			
10 x 10 x 19 x 72	3	-	D01310004			
12 x 12 x 22 x 83	3	-	D01312005			
14 x 14 x 22 x 83	3	-	D01314014			
16 x 16 x 26 x 92	3	-	D01316006			
18 x 18 x 26 x 92	3	-	D01318018			
20 x 20 x 32 x 104	3	-	D01320007			

D014

S.C. 4 Flute Square End Long Type



CARBIDE

DIN 6527

30°

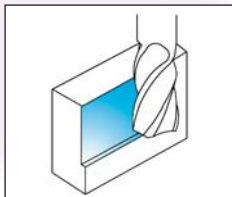


4 Flute Square End Long Type for Deep Peripheral Finishing Operation



Suffix Category	
Uncoated	WW
TiN	TW*
Z-Coat	ZW*
TiCN	CW
TiAlN	LW

*Available upon request



GENERAL PURPOSE

Size				Flutes	Radius	Item No.
d ₁ x d ₂ x l ₂ x l ₁						
2 x 6 x 7 x 53	4	-	D01402002			
2.5 x 6 x 7 x 53	4	-	D01402502			
3 x 6 x 8 x 57	4	-	D01403002			
3.5 x 6 x 10 x 57	4	-	D01403502			
4 x 6 x 11 x 57	4	-	D01404002			
4.5 x 6 x 11 x 57	4	-	D01404502			
5 x 6 x 13 x 57	4	-	D01405002			
5.5 x 6 x 13 x 57	4	-	D01405502			
6 x 6 x 13 x 57	4	-	D01406002			
6.5 x 8 x 16 x 63	4	-	D01406503			
7 x 8 x 16 x 63	4	-	D01407003			
8 x 8 x 19 x 63	4	-	D01408003			
9 x 10 x 19 x 72	4	-	D01409004			
10 x 10 x 22 x 72	4	-	D01410004			
12 x 12 x 26 x 83	4	-	D01412005			
14 x 14 x 26 x 83	4	-	D01414014			
16 x 16 x 32 x 92	4	-	D01416006			
18 x 18 x 32 x 92	4	-	D01418018			
20 x 20 x 38 x 104	4	-	D01420007			
25 x 25 x 45 x 121	4	-	D01425008			

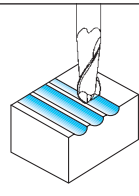
30° DIN 6527 CARBIDE **S.C. 2 Flute Ball Nose** **D501**

Size				Flutes	Radius	Item No.
d ₁ x	d ₂ x	l ₂ x	l ₁			
2 x	6 x	4 x	50	2	-	D50102002 NEW!
3 x	6 x	4 x	50	2	-	D50103002
4 x	6 x	5 x	54	2	-	D50104002
5 x	6 x	6 x	54	2	-	D50105002
6 x	6 x	7 x	54	2	-	D50106002
8 x	8 x	9 x	58	2	-	D50108003
10 x	10 x	11 x	66	2	-	D50110004
12 x	12 x	12 x	73	2	-	D50112005
14 x	14 x	14 x	75	2	-	D50114014
16 x	16 x	16 x	82	2	-	D50116006
18 x	18 x	18 x	84	2	-	D50118018
20 x	20 x	20 x	92	2	-	D50120007

2 Flute Ball Nose for 3 D Milling in **High Speed Machining**

Suffix Category	
Uncoated	••
TiN	TT*
Z-Coat	ZT*
TiCN	CT
TiAlN	RT

*Available upon request

AI	
ST>45 HRc	
30<ST<45 HRc	



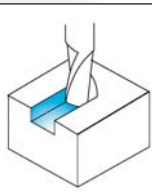
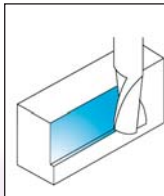
30° DIN 6527 CARBIDE **S.C. 2 Flute Square End** **D502**

Size				Flutes	Radius	Item No.
d ₁ x	d ₂ x	l ₂ x	l ₁			
3 x	6 x	4 x	50	2	-	D50203002
4 x	6 x	5 x	54	2	-	D50204002
5 x	6 x	6 x	54	2	-	D50205002
6 x	6 x	7 x	54	2	-	D50206002
8 x	8 x	9 x	58	2	-	D50208003
10 x	10 x	11 x	66	2	-	D50210004
12 x	12 x	12 x	73	2	-	D50212005
14 x	14 x	14 x	75	2	-	D50214014
16 x	16 x	16 x	82	2	-	D50216006
18 x	18 x	18 x	84	2	-	D50218018
20 x	20 x	20 x	92	2	-	D50220007

2 Flute Square End for Slotting and Side Milling in **High Speed Machining**

Suffix Category	
Uncoated	••
TiN	TT*
Z-Coat	ZT*
TiCN	CT
TiAlN	RT

*Available upon request

NF		
AI		
AlSi		



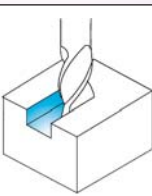
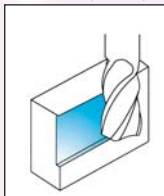
45° DIN 6527 CARBIDE **S.C. 3 Flute Square End High Helix** **D503**

Size				Flutes	Radius	Item No.
d ₁ x	d ₂ x	l ₂ x	l ₁			
2 x	6 x	3 x	50	3	-	D50302002
3 x	6 x	4 x	50	3	-	D50303002
4 x	6 x	5 x	54	3	-	D50304002
5 x	6 x	6 x	54	3	-	D50305002
6 x	6 x	7 x	54	3	-	D50306002
8 x	8 x	9 x	58	3	-	D50308003
10 x	10 x	11 x	66	3	-	D50310004
12 x	12 x	12 x	73	3	-	D50312005
14 x	14 x	14 x	75	3	-	D50314014
16 x	16 x	16 x	82	3	-	D50316006
18 x	18 x	18 x	84	3	-	D50318018
20 x	20 x	20 x	92	3	-	D50320007

3 Flute Square End High Helix for Slotting and Peripheral Finishing Operation

Suffix Category	
Uncoated	WW
TiN	TW*
Z-Coat	ZW*
TiCN	CW
TiAlN	LW

*Available upon request

St S		
ST<45 HRc		
GENERAL PURPOSE		



D507

S.C. 6 Flute Square End High Helix



CARBIDE

DIN 6527

45°

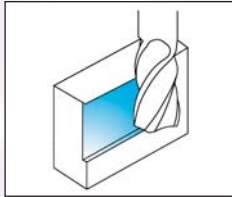


6 Flute Square End High Helix for Peripheral Finishing Operation



Suffix Category	
Uncoated	WW
TiN	TW*
Z-Coat	ZW*
TiCN	CW
TiAlN	LW

*Available upon request



St S	Ti
INCONEL	ST>45 HRC
30<ST<45 HRC	

Size				Flutes	Radius	Item No.
d ₁ x d ₂	x l ₂	x l ₁				
6 x 6	x 10	x 54		6	-	D50706002
8 x 8	x 12	x 58		6	-	D50708003
10 x 10	x 14	x 66		6	-	D50710004
12 x 12	x 16	x 73		6	-	D50712005
14 x 14	x 18	x 75		6	-	D50714014
16 x 16	x 22	x 82		6	-	D50716006
18 x 18	x 24	x 84		6	-	D50718018
20 x 20	x 26	x 92		6	-	D50720007

D513

S.C. 3 Flute Square End High Helix Long Type



CARBIDE

DIN 6527

45°

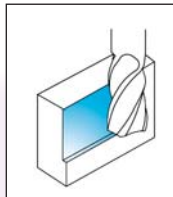
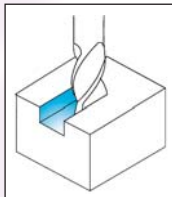


3 Flute Square End High Helix Long Type for Slotting and Peripheral Finishing Operation



Suffix Category		
Uncoated		WW
TiN		TW*
Z-Coat		ZW*
TiCN		CW
TiAlN		LW

*Available upon request



GENERAL PURPOSE
ST>45 HRC
St S

Size				Flutes	Radius	Item No.
d ₁ x d ₂	x l ₂	x l ₁				
3 x 6	x 7	x 57		3	-	D51303002
4 x 6	x 8	x 57		3	-	D51304002
5 x 6	x 10	x 57		3	-	D51305002
6 x 6	x 10	x 57		3	-	D51306002
8 x 8	x 16	x 63		3	-	D51308003
10 x 10	x 19	x 72		3	-	D51310004
12 x 12	x 22	x 83		3	-	D51312005
14 x 14	x 22	x 83		3	-	D51314014
16 x 16	x 26	x 92		3	-	D51316006
18 x 18	x 26	x 92		3	-	D51318018
20 x 20	x 32	x 104		3	-	D51320007

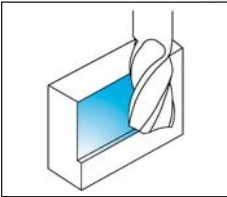
30° **DIN 6527** **CARBIDE** **S.C. 6 Flute Square End High Helix Long Type** **D517**

Size				Flutes	Radius	Item No.
d ₁ x	d ₂ x	l ₂ x	l ₁			
6 x	6 x	13 x	57	6	-	D51706002
8 x	8 x	19 x	63	6	-	D51708003
10 x	10 x	22 x	72	6	-	D51710004
12 x	12 x	26 x	83	6	-	D51712005
14 x	14 x	26 x	83	6	-	D51714014
16 x	16 x	32 x	92	6	-	D51716006
18 x	18 x	32 x	92	6	-	D51718018
20 x	20 x	38 x	104	6	-	D51720007

6 Flute Square End High Helix Long Type for Peripheral Finishing Operation

Suffix Category	
Uncoated	WW
TiN	TW*
Z-Coat	ZW*
TiCN	CW
TiAlN	LW

* Available upon request

St S	Ti	
INCONEL	ST>45 HRc	
	30<ST<45 HRc	



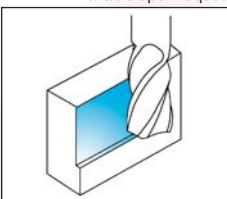
50° **DIN 6527** **PREMIUM CARBIDE** **S.C. Multi-Flute High Helix** **D518**

Size				Flutes	Radius	Item No.
d ₁ x	d ₂ x	l ₂ x	l ₁			
4 x	6 x	11 x	57	4	-	D51804002
5 x	6 x	13 x	57	4	-	D51805002
6 x	6 x	13 x	57	6	-	D51806002
7 x	8 x	16 x	63	6	-	D51807003
8 x	8 x	19 x	63	6	-	D51808003
9 x	10 x	19 x	72	6	-	D51809004
10 x	10 x	22 x	72	6	-	D51810004
12 x	12 x	26 x	83	6	-	D51812005
14 x	14 x	26 x	83	6	-	D51814014
16 x	16 x	32 x	92	8	-	D51816006
18 x	18 x	32 x	92	8	-	D51818018
20 x	20 x	38 x	104	8	-	D51820007
25 x	25 x	45 x	121	8	-	D51825008

Multi Flute Square End High Helix for Peripheral High Accuracy Finishing Operations

Suffix Category	
TiN	TW*
Z-Coat	ZW*
TiCN	CW
TiAlN	LW

* Available upon request

St S	Ti	
INCONEL	ST>45 HRc	
	30<ST<45 HRc	



DC03

S.C. 3 Flute Square End with Small Corner Radii Premium Cut

Corner Radius



CARBIDE

DIN 6527

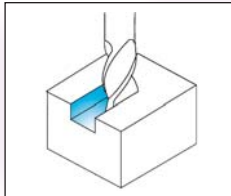
35°



3 Flute Square End with Small Corner Radii Premium Cut for Slotting and Finishing Stainless Steel and Aluminium



Suffix Category	<input type="checkbox"/>
Uncoated	WW
TiAIN	LW



NF	AI
AISI	St S
Ti	INCONEL

Size				Flutes	Radius	Item No.
d ₁ x d ₂	x l ₂	x l ₁				
3 x 6	x 4	x 50		3	0.25	DC0303002
4 x 6	x 5	x 54		3	0.25	DC0304002
5 x 6	x 6	x 54		3	0.25	DC0305002
6 x 6	x 7	x 54		3	0.45	DC0306002
7 x 8	x 8	x 58		3	0.45	DC0307003
8 x 8	x 9	x 58		3	0.45	DC0308003
10 x 10	x 11	x 66		3	0.45	DC0310004
12 x 12	x 12	x 73		3	0.45	DC0312005
14 x 14	x 14	x 75		3	0.45	DC0314014
16 x 16	x 16	x 82		3	0.45	DC0316006
18 x 18	x 18	x 84		3	0.45	DC0318018
20 x 20	x 20	x 92		3	0.45	DC0320007

DC19

S.C. 3 Flute Ball Nose Long Type



CARBIDE

DIN 6527

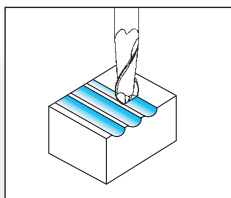
35°



3 Flute Ball Nose Long Type for 3 D Milling Stainless Steel, Aluminium and Soft Steels



Suffix Category	<input type="checkbox"/>
TiAIN	LW
TiCN	CW



NF	AI
AISI	St S
30>ST HRc	

Size				Flutes	Radius	Item No.
d ₁ x d ₂	x l ₂	x l ₁				
3 x 6	x 7	x 57		3	-	DC1903002
4 x 6	x 8	x 57		3	-	DC1904002
5 x 6	x 10	x 57		3	-	DC1905002
6 x 6	x 10	x 57		3	-	DC1906002
8 x 8	x 16	x 63		3	-	DC1908003
10 x 10	x 19	x 72		3	-	DC1910004
12 x 12	x 22	x 83		3	-	DC1912005
14 x 14	x 22	x 83		3	-	DC1914014
16 x 16	x 26	x 92		3	-	DC1916006
18 x 18	x 26	x 92		3	-	DC1918018
20 x 20	x 32	x 104		3	-	DC1920007



7050

S.C. Vision 4 Flute Ball Nose Long Shank



PREMIUM CARBIDE

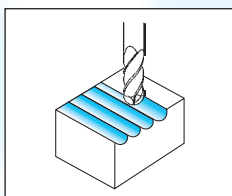
HANITA Standard

15°

4 Flute Ball Nose Long Shank for Finishing in 3 D Milling of Hard Die & Mold - Long Reach



Suffix Category	
TiAlN	RT



GRAPHITE

ST>45 HRc

20<ST<45 HRc

Size				Flutes	Radius	Item No.
d ₁ x	d ₂ x	l ₂ x	l ₁			
2 x	4 x	2 x	63	4	-	705002001
2.5 x	4 x	2.5 x	63	4	-	705002501
3 x	6 x	3 x	75	4	-	705003002
4 x	6 x	4 x	75	4	-	705004002
5 x	6 x	5 x	75	4	-	705005002
6 x	10 x	6 x	100	4	-	705006004
8 x	10 x	8 x	100	4	-	705008004
10 x	12 x	10 x	125	4	-	705010005
12 x	16 x	12 x	125	4	-	705012006
16 x	16 x	16 x	125	4	-	705016006
20 x	20 x	20 x	150	4	-	705020007

7150

S.C. Vision 4 Flute Ball Nose Regular Length



PREMIUM CARBIDE

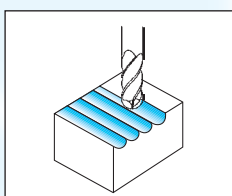
HANITA Standard

15°

4 Flute Ball Nose Regular Length for Finishing in 3 D Milling of Hard Die & Mold



Suffix Category	
TiAlN	RT



GRAPHITE

ST>45 HRc

30<ST<45 HRc

Size				Flutes	Radius	Item No.
d ₁ x	d ₂ x	l ₂ x	l ₁			
2 x	3 x	2 x	38	4	-	715002000
2.5 x	3 x	3 x	38	4	-	715002500
3 x	3 x	3 x	38	4	-	715003000
4 x	4 x	4 x	50	4	-	715004001
5 x	5 x	5 x	50	4	-	715005001
6 x	6 x	6 x	50	4	-	715006002
8 x	8 x	8 x	63	4	-	715008003
10 x	10 x	10 x	76	4	-	715010004
12 x	12 x	12 x	76	4	-	715012005
16 x	16 x	16 x	89	4	-	715016006
20 x	20 x	20 x	104	4	-	715020007

7151

S.C. Vision 2 Flute Ball Nose Regular Length



PREMIUM CARBIDE

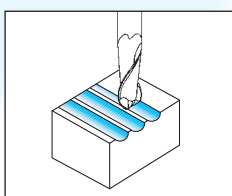
HANITA Standard

15°

2 Flute Ball Nose Regular Length for Finishing in 3 D Milling of Hard Die & Mold



Suffix Category	
TiAlN	RT



GRAPHITE

ST>45 HRc

30<ST<45 HRc

Size				Flutes	Radius	Item No.
d ₁ x	d ₂ x	l ₂ x	l ₁			
1 x	3 x	3 x	38	2	-	715101000
2 x	3 x	3 x	38	2	-	715102000
2.5 x	3 x	3 x	38	2	-	715102500
3 x	3 x	3 x	38	2	-	715103000
4 x	4 x	4 x	50	2	-	715104001
5 x	5 x	5 x	50	2	-	715105001
6 x	6 x	6 x	50	2	-	715106002
8 x	8 x	8 x	63	2	-	715108003
10 x	10 x	10 x	76	2	-	715110004
12 x	12 x	12 x	76	2	-	715112005
16 x	16 x	16 x	89	2	-	715116006
20 x	20 x	20 x	104	2	-	715120007

50° HANITA Standard PREMIUM CARBIDE S.C. Vision 2 Flute Ball Nose Regular Length 7505

Size				Flutes	Radius	Item No.
d ₁ x	d ₂ x	l ₂ x	l ₁			
6 x	6 x	9 x	76	4		750506002
8 x	8 x	12 x	100	4		750508003
10 x	10 x	15 x	100	4		750510004
16 x	16 x	24 x	125	4		750516006
20 x	20 x	30 x	150	4		750520007
25 x	25 x	38 x	150	5		750525008

Multi-Flute Square End Double Core Regular Length VISION 21 for Deep Slotting and Peripheral Milling of Hard Steels



Suffix Category	
TiAlN	LT

ST>45 HRc		
30<ST<45 HRc		
30>ST HRc		

50° HANITA Standard PREMIUM CARBIDE S.C. Vision 21 Multi-Flute Square End Double Core Long Length 7515

Size				Flutes	Radius	Item No.
d ₁ x	d ₂ x	l ₂ x	l ₁			
6 x	6 x	15 x	76	4		751506002
8 x	8 x	20 x	100	4		751508003
10 x	10 x	25 x	100	5		751510004
12 x	12 x	30 x	125	6		751512005
16 x	16 x	40 x	125	6		751516006
20 x	20 x	50 x	150	6		751520007
25 x	25 x	63 x	150	6		751525008

Multi Flute Square End Double Core Long VISION 21 for Shallow Slotting and Peripheral Long Milling of Hard Steels

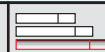


Suffix Category	
TiAlN	LT

ST>45 HRc		
30<ST<45 HRc		
30>ST HRc		

7525

S.C. Vision 21 Multi-Flute Square End Double Core Extra Long Length



PREMIUM CARBIDE

HANITA Standard

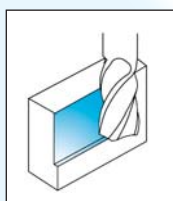
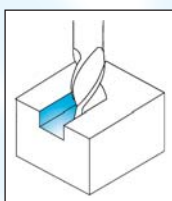
50°



Multi Flute Square End Double Core Extra Long VISION 21 for Shallow Slotting and Peripheral Extra Long Milling of Hard Steels

Size				Flutes	Radius	Item No.
d ₁ x d ₂	x l ₂	x l ₁				
6 x 6	x 21	x 76		4	-	752506002
8 x 8	x 28	x 100		4	-	752508003
10 x 10	x 35	x 100		5	-	752510004
12 x 12	x 42	x 125		6	-	752512005
16 x 16	x 56	x 125		6	-	752516006
20 x 20	x 70	x 150		6	-	752520007
25 x 25	x 88	x 150		6	-	752525008

Suffix Category	
TiAIN	LT



ST>45 HRc

20<ST<45 HRc

30>ST HRc

7545

S.C. Vision Multi-Flute Square End Double Core Short Type



PREMIUM CARBIDE

HANITA Standard

50°

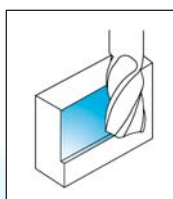
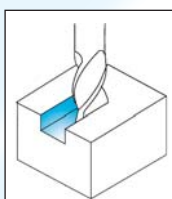
NEW!

Multi-Flute Square End Double Core Short Type for Peripheral Milling of Hard Steels



Size				Flutes	Radius	Item No.
d ₁ x d ₂	x l ₂	x l ₁				
6 x 6	x 9	x 50		4	-	754506002
8 x 8	x 12	x 63		4	-	754508003
10 x 10	x 15	x 76		4	-	754510004
12 x 12	x 18	x 76		4	-	754512005
16 x 16	x 24	x 89		4	-	754516006
20 x 20	x 30	x 104		4	-	754520007
25 x 25	x 38	x 121		5	-	754525008

Suffix Category		
TiAIN	LW	LT



ST>45 HRc

30<ST<45 HRc

30>ST HRc

50° HANITA Standard PREMIUM CARBIDE Corner Radius S.C. Multi-Flute Double Core Corner Radii Regular Length 7585

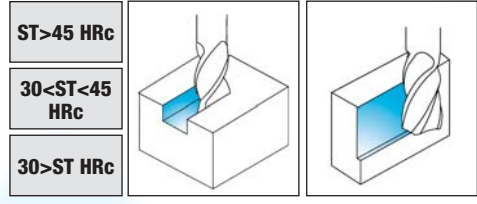
Size				Flutes	Radius	Item No.
d ₁ x	d ₂ x	l ₂ x	l ₁			
6 x	6 x	9 x	76	4	0.25	758506002
8 x	8 x	12 x	100	4	0.5	758508003
10 x	10 x	15 x	100	4	0.5	758510004
12 x	12 x	18 x	125	4	0.5	758512005
16 x	16 x	24 x	125	4	0.5	758516006
20 x	20 x	30 x	150	4	0.5	758520007
25 x	25 x	38 x	150	5	0.5	758525008
6 x	6 x	9 x	76	4	0.5	758506012
8 x	8 x	12 x	100	4	1.0	758508013
10 x	10 x	15 x	100	4	1.0	758510014
12 x	12 x	18 x	125	4	1.5	758512015
16 x	16 x	24 x	125	4	1.5	758516016
20 x	20 x	30 x	150	4	2.0	758520017
25 x	25 x	38 x	150	5	3.0	758525018

Multi-Flute Double Core Corner Radii Regular Length for Deep Slotting and Peripheral Milling of Hard Steels

NEW!



Suffix Category	
TiAlN	LT



50° HANITA Standard PREMIUM CARBIDE Corner Radius S.C. Multi-Flute Square End Double Core Corner Radii Short Type 7595

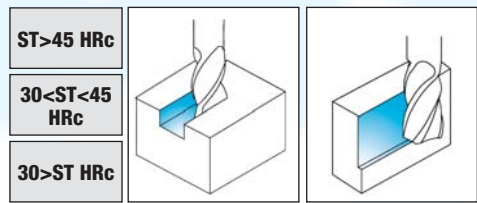
Size				Flutes	Radius	Item No.
d ₁ x	d ₂ x	l ₂ x	l ₁			
6 x	6 x	9 x	50	4	0.25	759506002
8 x	8 x	12 x	63	4	0.5	759508003
10 x	10 x	15 x	76	4	0.5	759510004
12 x	12 x	18 x	76	4	0.5	759512005
16 x	16 x	24 x	89	4	0.5	759516006
20 x	20 x	30 x	104	4	0.5	759520007
25 x	25 x	38 x	121	5	0.5	759525008
6 x	6 x	9 x	50	4	0.5	759506012
8 x	8 x	12 x	63	4	1.0	759508013
10 x	10 x	15 x	76	4	1.0	759510014
12 x	12 x	18 x	76	4	1.5	759512015
16 x	16 x	24 x	89	4	1.5	759516016
20 x	20 x	30 x	104	4	2.0	759520017
25 x	25 x	38 x	121	5	3.0	759525018

Multi-Flute Square End Double Core Corner Radii Short Type for Peripheral Milling of Hard Steels

NEW!



Suffix Category	
TiAlN	LT



75N5

S.C. Vision Multi-Flute Square End Double Core Neck Geometry 3D Reach



PREMIUM CARBIDE

HANITA
Standard

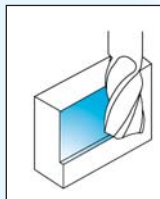
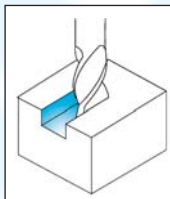
50°

NEW!

Multi- Flute Square End Double Core with Neck Geometry 3D Reach for Deep Slotting and Peripheral Milling of Hard Steels, Long Reach



Suffix Category	<input type="checkbox"/>
TiAIN	LT



ST>45 HRc

30<ST<45 HRc

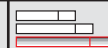
30>ST HRc

Size				Flutes	Radius	Item No.
d ₁ x	d ₂ x	l ₂ x	l ₁			
6 x	6 x	9 x	76	4	-	75N506002
8 x	8 x	12 x	100	4	-	75N508003
10 x	10 x	15 x	100	4	-	75N510004
12 x	12 x	18 x	125	4	-	75N512005
16 x	16 x	24 x	125	4	-	75N516006
20 x	20 x	30 x	150	4	-	75N520007
25 x	25 x	38 x	150	5	-	75N525008

7670

S.C. Multi-Flute Square End Corner Radii Flat Shallow Profile

Corner Radius



PREMIUM CARBIDE

HANITA
Standard

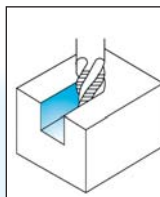
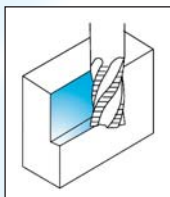
45°

Multi Flute Square End Flat Shallow Profile with Corner Radii for Roughing in 3 D Milling of Hard Die & Mold



Flat Shallow Pitch
NEW GENERATION

Suffix Category	<input type="checkbox"/>
TiAIN	LT



ST>45 HRc

30<ST<45 HRc

30>ST HRc

Size				Flutes	Radius	Item No.
d ₁ x	d ₂ x	l ₂ x	l ₁			
4 x	6 x	4 x	75	3	0.75	767004002
5 x	6 x	5 x	75	3	0.75	767005002
6 x	10 x	6 x	100	4	0.75	767006004
8 x	10 x	8 x	100	4	0.75	767008004
10 x	12 x	10 x	125	4	0.75	767010005
12 x	16 x	12 x	125	4	1.0	767012006
16 x	16 x	16 x	125	6	1.0	767016006
20 x	20 x	20 x	150	6	1.25	767020007
25 x	25 x	25 x	150	6	1.25	767025008



4906

S.C. Multi-Flute Square End Fine Pitch

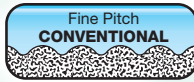


CARBIDE

HANITA
Standard

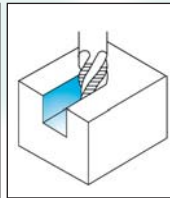
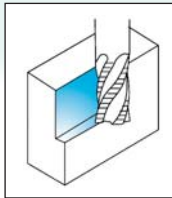
20°

Multi Flute Fine Pitch Square End for General Purpose Roughing Operation



Suffix Category	
TiN	TW*
Z-Coat	ZW*
TiCN	CW
TiAlN	RW, LW

* Available upon request



GENERAL PURPOSE

30<ST<45 HRC

30>ST HRC

Size				Flutes	Radius	Item No.
d ₁ x	d ₂ x	l ₂ x	l ₁			
4 x	6 x	11 x	55	3	-	490604002
5 x	6 x	13 x	57	3	-	490605002
6 x	6 x	13 x	57	3	-	490606002
7 x	8 x	16 x	63	3	-	490607003
8 x	8 x	16 x	63	3	-	490608003
9 x	10 x	19 x	72	3	-	490609004
10 x	10 x	22 x	72	4	-	490610004
11 x	12 x	26 x	83	4	-	490611005
12 x	12 x	26 x	83	4	-	490612005
13 x	14 x	26 x	83	4	-	490613014
14 x	14 x	26 x	83	4	-	490614014
16 x	16 x	32 x	92	4	-	490616006
18 x	18 x	32 x	92	4	-	490618018
20 x	20 x	38 x	104	4	-	490620007
25 x	25 x	45 x	121	5	-	490625008

4909

S.C. 3 Flute Square End Coarse Pitch



CARBIDE

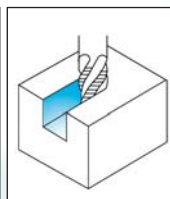
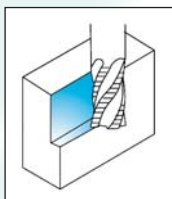
HANITA
Standard

30°

3 Flute Square End Coarse Pitch for Roughing Operation on Aluminium



Suffix Category		
Uncoated	••	WW



NF

Al

AISI

Size				Flutes	Radius	Item No.
d ₁ x	d ₂ x	l ₂ x	l ₁			
6 x	6 x	13 x	57	3	-	490906002
8 x	8 x	16 x	63	3	-	490908003
10 x	10 x	22 x	72	3	-	490910004
12 x	12 x	26 x	83	3	-	490912005
14 x	14 x	26 x	83	3	-	490914014
16 x	16 x	32 x	92	3	-	490916006
18 x	18 x	32 x	92	3	-	490918018
20 x	20 x	38 x	104	3	-	490920007
25 x	25 x	45 x	121	3	-	490925008

45°	HANITA Standard	CARBIDE		Corner Radius	S.C. Multi-Flute Semi-Finisher Flat Shallow Profile, Corner Radius	4940
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Size				Flutes	Radius	Item No.
d ₁ x	d ₂ x	l ₂ x	l ₁			
6 x	6 x	6 x	57	4	0.75	494006002
8 x	8 x	8 x	63	4	0.75	494008003
10 x	10 x	10 x	72	4	0.75	494010004
12 x	12 x	12 x	83	4	1.0	494012005
16 x	16 x	16 x	92	6	1.0	494016006
20 x	20 x	20 x	104	6	1.25	494020007
25 x	25 x	25 x	121	6	1.25	494025008

Multi-Flute Square End Semi-Finisher Flat Shallow Profile with Corner Radii for High Tensile Strength Steels

Suffix Category		
TiAlN	LW	LT

Ti	ST>45 HRC	30<ST<45 HRC	30>ST HRC

20°	DIN 6527 Standard	CARBIDE		Corner Radius	S.C. Multi-Flute Ball Nose	4966
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Size				Flutes	Radius	Item No.
d ₁ x	d ₂ x	l ₂ x	l ₁			
5 x	6 x	13 x	57	3	-	496605002
6 x	6 x	13 x	57	3	-	496606002
8 x	8 x	16 x	63	3	-	496608003
10 x	10 x	22 x	72	4	-	496610004
12 x	12 x	26 x	83	4	-	496612005
14 x	14 x	26 x	83	4	-	496614014 NEW!
16 x	16 x	32 x	92	4	-	496616006
18 x	18 x	32 x	92	4	-	496618018
20 x	20 x	38 x	104	4	-	496620007
25 x	25 x	45 x	121	5	-	496625008 NEW!

Multi-Flute Ball Nose for 3 D Roughing Operation

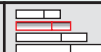
Suffix Category		
TiN	TW	TF
Z-Coat	ZW	ZF
TiCN	CW	CF
TiAlN	LW	LF

30<ST<45 HRC	
30>ST HRC	

* Available upon request

4970

S.C. Multi-Flute Square End Semi-Finisher Flat Shallow Profile



CARBIDE

HANITA
Standard

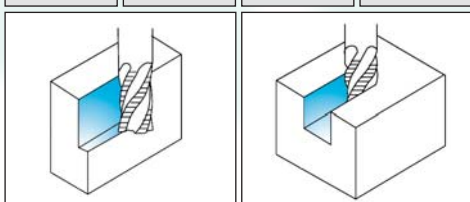
45°

Multi Flute Square End Semi-Finisher Flat Profile for High Tensile Strength Steels



Suffix Category		
Uncoated		••
TiCN		CT
TiAlN	LW	LT

Ti	ST>45 HRc	30<ST<45 HRc	30>ST HRc



Size				Flutes	Radius	Item No.
d ₁ x	d ₂ x	l ₂ x	l ₁			
6 x	6 x	13 x	57	4	-	497006002
8 x	8 x	16 x	63	4	-	497008003
10 x	10 x	22 x	72	4	-	497010004
12 x	12 x	26 x	83	4	-	497012005
16 x	16 x	32 x	92	6	-	497016006
20 x	20 x	38 x	104	6	-	497020007
25 x	25 x	45 x	121	6	-	497025008

4979

S.C. 3 Flute Square End Corner Radii New Generation Chamfered Pitch

Corner Radius

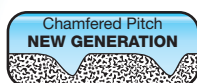


CARBIDE

HANITA
Standard

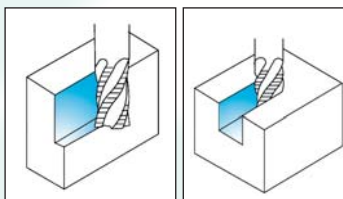
40°

3 Flute Square End Corner Radii - New Generation- Chamfered Pitch for Roughing and Semi-Finishing Aluminium Alloys



Suffix Category	
Uncoated	••
TiCN	CT

	NF
	AI
	AISI



Size				Flutes	Radius	Item No.
d ₁ x	d ₂ x	l ₂ x	l ₁			
6 x	6 x	13 x	57	3	0.25	497906002
8 x	8 x	16 x	63	3	0.25	497908003
10 x	10 x	22 x	72	3	0.50	497910004
12 x	12 x	26 x	83	3	0.50	497912005
16 x	16 x	32 x	92	3	1.0	497916006
20 x	20 x	38 x	104	3	1.0	497920007
25 x	25 x	45 x	121	3	1.5	497925008

40°	HANITA Standard	CARBIDE		S.C. 3 Flute New Generation Chamfered Pitch with Internal Coolant	49G9
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Size				Flutes	Radius	Item No.				
d ₁	x	d ₂	x l ₂					x l ₁		
8	x	8	x	16	x	63	3	0.25	49G908003	
10	x	10	x	22	x	72	3	0.50	49G910004	
12	x	12	x	26	x	83	3	0.50	49G912005	
16	x	16	x	12	x	92	3	1.0	49G916006	
20	x	20	x	38	x	104	3	1.0	49G920007	
25	x	25	x	45	x	121	3	1.5	49G925008	

3 Flute Square End Chamfered Pitch with Internal Coolant for Roughing and Finishing Aluminium Alloys, Improving Chip Evacuation

Chamfered Pitch
NEW GENERATION

Suffix Category		
TiCN	CT	CW

NF		
AI		
AISI		

20°	HANITA Standard	CARBIDE		S.C Multi-Flute Square End Fine Pitch with Internal Coolant	49H6
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Size				Flutes	Radius	Item No.				
d ₁	x	d ₂	x l ₂					x l ₁		
6	x	6	x	13	x	57	3	-	49H606002	NEW!
8	x	8	x	16	x	63	3	-	49H608003	
10	x	10	x	22	x	72	4	-	49H610004	
12	x	12	x	26	x	83	4	-	49H612005	
14	x	14	x	26	x	83	4	-	49H614014	
16	x	16	x	32	x	92	4	-	49H616006	NEW!
18	x	18	x	32	x	92	4	-	49H618018	
20	x	20	x	38	x	104	4	-	49H620007	
25	x	25	x	45	x	121	4	-	49H625008	NEW!

Multi Flute Square End Fine Pitch with Internal Coolant for General Purpose Deep Roughing Operation

Fine Pitch
CONVENTIONAL

Suffix Category	
TiN	TW*
Z-Coat	ZW*
TiCN	CW
TiAlN	RW, LW

*Available upon request

ST>45 HRC		
30<ST<45 HRC		
GENERAL PURPOSE		

49H9

S.C. 3 Flute Square End Coarse Pitch with Internal Coolant



CARBIDE

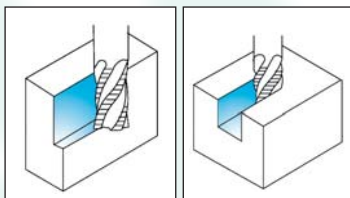
HANITA
Standard

30°

3 Flute Square End Coarse Pitch with Internal Coolant for Deep Roughing Operation on Aluminium



Suffix Category	
Uncoated	WW



AI
AISI

Size				Flutes	Radius	Item No.
d ₁ x d ₂	x l ₂	x l ₁				
8 x 8	x 16	x 63		3	-	49H908003
10 x 10	x 22	x 72		3	-	49H910004
12 x 12	x 26	x 83		3	-	49H912005
16 x 16	x 32	x 92		3	-	49H916006
20 x 20	x 38	x 104		3	-	49H920007

DQ13

S.C. 3 Flute Square End Flat Profile Chip Breaker with Corner Radii

Corner Radius



CARBIDE

DIN 6527
Standard

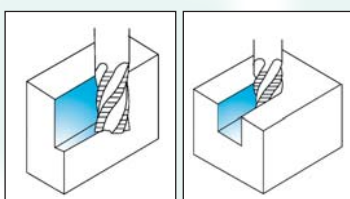
35°

NEW!

3 Flute Square End Flat Profile Chip Breaker with Corner Radii for Roughing and Semi-Finishing Stainless Steel



Suffix Category	
TiAlN	LW



St S

Size				Flutes	Radius	Item No.
d ₁ x d ₂	x l ₂	x l ₁				
3 x 6	x 7	x 57		3	0.25	DQ1303002
4 x 6	x 8	x 57		3	0.25	DQ1304002
5 x 6	x 10	x 57		3	0.25	DQ1305002
6 x 6	x 10	x 57		3	0.45	DQ1306002
7 x 8	x 13	x 63		3	0.45	DQ1307003
8 x 8	x 16	x 63		3	0.45	DQ1308003
10 x 10	x 19	x 72		3	0.45	DQ1310004
12 x 12	x 22	x 83		3	0.45	DQ1312005
14 x 14	x 22	x 83		3	0.45	DQ1314014
16 x 16	x 32	x 92		3	0.45	DQ1316006
18 x 18	x 32	x 92		3	0.45	DQ1318018
20 x 20	x 38	x 104		3	0.45	DQ1320007



M112

S.C. Jobber Drill Point 118°

continued on page 69



CARBIDE

DIN 338
Standard

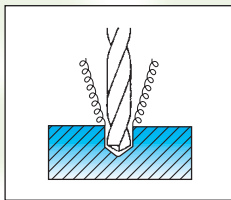
30°



Jobber Drill, Point 118° for General Purpose Drilling

Suffix Category	Icon
Uncoated	••
TiN	TT
TiCN	CT*
TiAlN	RT


* Available upon request



GENERAL PURPOSE

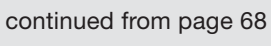
Size				Flutes	Radius	Item No.
d ₁	x d ₂	x l ₂	x l ₁			
1	x 1	x 12	x 34	2	-	M11201000
1.1	x 1.1	x 14	x 36	2	-	M11201100
1.2	x 1.2	x 16	x 38	2	-	M11201200
1.3	x 1.3	x 16	x 38	2	-	M11201300
1.4	x 1.4	x 18	x 40	2	-	M11201400
1.5	x 1.5	x 18	x 40	2	-	M11201500
1.6	x 1.6	x 20	x 43	2	-	M11201600
1.7	x 1.7	x 20	x 43	2	-	M11201700
1.8	x 1.8	x 22	x 46	2	-	M11201800
1.9	x 1.9	x 22	x 46	2	-	M11201900
2	x 2	x 24	x 49	2	-	M11202000
2.1	x 2.1	x 24	x 49	2	-	M11202100
2.2	x 2.2	x 27	x 53	2	-	M11202200
2.3	x 2.3	x 27	x 53	2	-	M11202300
2.4	x 2.4	x 30	x 57	2	-	M11202400
2.5	x 2.5	x 30	x 57	2	-	M11202500
2.6	x 2.6	x 30	x 57	2	-	M11202600
2.7	x 2.7	x 33	x 61	2	-	M11202700
2.8	x 2.8	x 33	x 61	2	-	M11202800
2.9	x 2.9	x 33	x 61	2	-	M11202900
3	x 3	x 33	x 61	2	-	M11203000
3.1	x 3.1	x 36	x 65	2	-	M11203100
3.2	x 3.2	x 36	x 65	2	-	M11203200
3.3	x 3.3	x 36	x 65	2	-	M11203300
3.4	x 3.4	x 39	x 70	2	-	M11203400
3.5	x 3.5	x 39	x 70	2	-	M11203500
3.6	x 3.6	x 39	x 70	2	-	M11203600
3.7	x 3.7	x 39	x 70	2	-	M11203700
3.8	x 3.8	x 43	x 75	2	-	M11203800
3.9	x 3.9	x 43	x 75	2	-	M11203900
4	x 4	x 43	x 75	2	-	M11204000
4.1	x 4.1	x 43	x 75	2	-	M11204100

Size				Flutes	Radius	Item No.
d ₁	x d ₂	x l ₂	x l ₁			
4.2	x 4.2	x 43	x 75	2	-	M11204200
4.3	x 4.3	x 47	x 80	2	-	M11204300
4.4	x 4.4	x 47	x 80	2	-	M11204400
4.5	x 4.5	x 47	x 80	2	-	M11204500
4.6	x 4.6	x 47	x 80	2	-	M11204600
4.7	x 4.7	x 47	x 80	2	-	M11204700
4.8	x 4.8	x 52	x 86	2	-	M11204800
4.9	x 4.9	x 52	x 86	2	-	M11204900
5	x 5	x 52	x 86	2	-	M11205000
5.1	x 5.1	x 52	x 86	2	-	M11205100
5.2	x 5.2	x 52	x 86	2	-	M11205200
5.3	x 5.3	x 52	x 86	2	-	M11205300
5.4	x 5.4	x 57	x 93	2	-	M11205400
5.5	x 5.5	x 57	x 93	2	-	M11205500
5.6	x 5.6	x 57	x 93	2	-	M11205600
5.7	x 5.7	x 57	x 93	2	-	M11205700
5.8	x 5.8	x 57	x 93	2	-	M11205800
5.9	x 5.9	x 57	x 93	2	-	M11205900
6	x 6	x 57	x 93	2	-	M11206000
6.1	x 6.1	x 63	x 101	2	-	M11206100
6.2	x 6.2	x 63	x 101	2	-	M11206200
6.3	x 6.3	x 63	x 101	2	-	M11206300
6.4	x 6.4	x 63	x 101	2	-	M11206400
6.5	x 6.5	x 63	x 101	2	-	M11206500
6.6	x 6.6	x 63	x 101	2	-	M11206600
6.7	x 6.7	x 63	x 101	2	-	M11206700
6.8	x 6.8	x 69	x 109	2	-	M11206800
6.9	x 6.9	x 69	x 109	2	-	M11206900
7	x 7	x 69	x 109	2	-	M11207000
7.1	x 7.1	x 69	x 109	2	-	M11207100
7.2	x 7.2	x 69	x 109	2	-	M11207200
7.3	x 7.3	x 69	x 109	2	-	M11207300
7.4	x 7.4	x 69	x 109	2	-	M11207400
7.5	x 7.5	x 69	x 109	2	-	M11207500
7.6	x 7.6	x 75	x 117	2	-	M11207600
7.7	x 7.7	x 75	x 117	2	-	M11207700
7.8	x 7.8	x 75	x 117	2	-	M11207800
7.9	x 7.9	x 75	x 117	2	-	M11207900
8	x 8	x 75	x 117	2	-	M11208000
8.1	x 8.1	x 75	x 117	2	-	M11208100
8.2	x 8.2	x 75	x 117	2	-	M11208200
8.3	x 8.3	x 75	x 117	2	-	M11208300
8.4	x 8.4	x 75	x 117	2	-	M11208400
8.5	x 8.5	x 75	x 117	2	-	M11208500
8.6	x 8.6	x 81	x 125	2	-	M11208600
8.7	x 8.7	x 81	x 125	2	-	M11208700
8.8	x 8.8	x 81	x 125	2	-	M11208800
8.9	x 8.9	x 81	x 125	2	-	M11208900
9	x 9	x 81	x 125	2	-	M11209000
9.1	x 9.1	x 81	x 125	2	-	M11209100
9.2	x 9.2	x 81	x 125	2	-	M11209200


30°

DIN 338 Standard

CARBIDE


 continued from page 68
 
S.C. Jobber Drill Point 118°

M112

Size				Flutes	Radius	Item No.
d ₁	x d ₂	x l ₂	x l ₁			
9.3	x 9.3	x 81	x 125	2	-	M11209300
9.4	x 9.4	x 81	x 125	2	-	M11209400
9.5	x 9.5	x 81	x 125	2	-	M11209500
9.6	x 9.6	x 87	x 133	2	-	M11209600
9.7	x 9.7	x 87	x 133	2	-	M11209700
9.8	x 9.8	x 87	x 133	2	-	M11209800
9.9	x 9.9	x 87	x 133	2	-	M11209900
10	x 10	x 87	x 133	2	-	M11210000
10.2	x 10.2	x 87	x 133	2	-	M11210200
10.5	x 10.5	x 87	x 133	2	-	M11210500
10.8	x 10.8	x 94	x 142	2	-	M11210800
11	x 11	x 94	x 142	2	-	M11211000
11.5	x 11.5	x 94	x 142	2	-	M11211500
12	x 12	x 101	x 151	2	-	M11212000
12.5	x 12.5	x 101	x 151	2	-	M11212500

Size				Flutes	Radius	Item No.
d ₁	x d ₂	x l ₂	x l ₁			
13	x 13	x 101	x 151	2	-	M11213000
13.5	x 13.5	x 108	x 160	2	-	M11213500
14	x 14	x 108	x 160	2	-	M11214000
14.5	x 14.5	x 114	x 169	2	-	M11214500
15	x 15	x 114	x 169	2	-	M11215000
15.5	x 15.5	x 120	x 178	2	-	M11215500
16	x 16	x 120	x 178	2	-	M11216000
16.5	x 16.5	x 125	x 184	2	-	M11216500
17	x 17	x 125	x 184	2	-	M11217000
17.5	x 17.5	x 130	x 191	2	-	M11217500
18	x 18	x 130	x 191	2	-	M11218000
18.5	x 18.5	x 135	x 198	2	-	M11218500
19	x 19	x 135	x 198	2	-	M11219000
19.5	x 19.5	x 140	x 205	2	-	M11219500
20	x 20	x 140	x 205	2	-	M11220000


30°

DIN 1897 Standard

CARBIDE


 continued on page 70
 
S.C. Stub Length Drill point 135°

M132

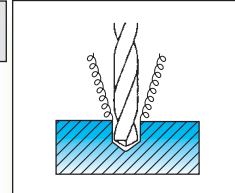
Size				Flutes	Radius	Item No.
d ₁	x d ₂	x l ₂	x l ₁			
0.5	x 0.5	x 3	x 20	2	-	M13200500
0.6	x 0.6	x 3.5	x 21	2	-	M13200600
0.7	x 0.7	x 4.5	x 23	2	-	M13200700
0.8	x 0.8	x 5	x 24	2	-	M13200800
0.9	x 0.9	x 5.5	x 25	2	-	M13200900
1	x 1	x 6	x 26	2	-	M13201000
1.1	x 1.1	x 7	x 28	2	-	M13201100
1.2	x 1.2	x 8	x 30	2	-	M13201200
1.3	x 1.3	x 8	x 30	2	-	M13201300
1.4	x 1.4	x 9	x 32	2	-	M13201400
1.5	x 1.5	x 9	x 32	2	-	M13201500
1.6	x 1.6	x 10	x 34	2	-	M13201600
1.7	x 1.7	x 10	x 34	2	-	M13201700
1.8	x 1.8	x 11	x 36	2	-	M13201800
1.9	x 1.9	x 11	x 36	2	-	M13201900
2	x 2	x 12	x 38	2	-	M13202000
2.1	x 2.1	x 12	x 38	2	-	M13202100
2.2	x 2.2	x 13	x 40	2	-	M13202200
2.3	x 2.3	x 13	x 40	2	-	M13202300
2.4	x 2.4	x 14	x 43	2	-	M13202400
2.5	x 2.5	x 14	x 43	2	-	M13202500
2.6	x 2.6	x 14	x 43	2	-	M13202600
2.7	x 2.7	x 16	x 46	2	-	M13202700
2.8	x 2.8	x 16	x 46	2	-	M13202800
2.9	x 2.9	x 16	x 46	2	-	M13202900
3	x 3	x 16	x 46	2	-	M13203000
3.1	x 3.1	x 18	x 49	2	-	M13203100
3.2	x 3.2	x 18	x 49	2	-	M13203200
3.3	x 3.3	x 18	x 49	2	-	M13203300

Stub Length Drill Point 135° for Shallow Depth Holes

Suffix Category	
Uncoated	••
TiN	TT
TiCN	CT*
TiAlN	RT

*Available upon request

GENERAL PURPOSE



Size				Flutes	Radius	Item No.
d ₁	x d ₂	x l ₂	x l ₁			
3.4	x 3.4	x 20	x 52	2	-	M13203400
3.5	x 3.5	x 20	x 52	2	-	M13203500
3.6	x 3.6	x 20	x 52	2	-	M13203600
3.7	x 3.7	x 20	x 52	2	-	M13203700
3.8	x 3.8	x 22	x 55	2	-	M13203800
3.9	x 3.9	x 22	x 55	2	-	M13203900
4	x 4	x 22	x 55	2	-	M13204000
4.1	x 4.1	x 22	x 55	2	-	M13204100
4.2	x 4.2	x 22	x 55	2	-	M13204200
4.3	x 4.3	x 24	x 58	2	-	M13204300
4.4	x 4.4	x 24	x 58	2	-	M13204400
4.5	x 4.5	x 24	x 58	2	-	M13204500

M132

S.C. Stub Length Drill point 135°

continued from page 69



CARBIDE

DIN 1897
Standard

30°



Size				Flutes	Radius	Item No.	
d ₁	x d ₂	x l ₂	x l ₁				
4.6	x 4.6	x 24	x 58	2	-	M13204600	
4.7	x 4.7	x 24	x 58	2	-	M13204700	
4.8	x 4.8	x 26	x 62	2	-	M13204800	
4.9	x 4.9	x 26	x 62	2	-	M13204900	
5	x 5	x 26	x 62	2	-	M13205000	
5.1	x 5.1	x 26	x 62	2	-	M13205100	
5.2	x 5.2	x 26	x 62	2	-	M13205200	
5.3	x 5.3	x 26	x 62	2	-	M13205300	
5.4	x 5.4	x 28	x 66	2	-	M13205400	
5.5	x 5.5	x 28	x 66	2	-	M13205500	
5.6	x 5.6	x 28	x 66	2	-	M13205600	
5.7	x 5.7	x 28	x 66	2	-	M13205700	
5.8	x 5.8	x 28	x 66	2	-	M13205800	
5.9	x 5.9	x 28	x 66	2	-	M13205900	
6	x 6	x 28	x 66	2	-	M13206000	
6.1	x 6.1	x 31	x 70	2	-	M13206100	
6.2	x 6.2	x 31	x 70	2	-	M13206200	
6.3	x 6.3	x 31	x 70	2	-	M13206300	
6.4	x 6.4	x 31	x 70	2	-	M13206400	
6.5	x 6.5	x 31	x 70	2	-	M13206500	
6.6	x 6.6	x 31	x 70	2	-	M13206600	
6.7	x 6.7	x 31	x 70	2	-	M13206700	
6.8	x 6.8	x 34	x 74	2	-	M13206800	
6.9	x 6.9	x 34	x 74	2	-	M13206900	
7	x 7	x 34	x 74	2	-	M13207000	
7.1	x 7.1	x 34	x 74	2	-	M13207100	
7.2	x 7.2	x 34	x 74	2	-	M13207200	
7.3	x 7.3	x 34	x 74	2	-	M13207300	
7.4	x 7.4	x 34	x 74	2	-	M13207400	
7.5	x 7.5	x 34	x 74	2	-	M13207500	
7.6	x 7.6	x 37	x 79	2	-	M13207600	
7.7	x 7.7	x 37	x 79	2	-	M13207700	
7.8	x 7.8	x 37	x 79	2	-	M13207800	
7.9	x 7.9	x 37	x 79	2	-	M13207900	
8	x 8	x 37	x 79	2	-	M13208000	
8.1	x 8.1	x 37	x 79	2	-	M13208100	
8.2	x 8.2	x 37	x 79	2	-	M13208200	
8.3	x 8.3	x 37	x 79	2	-	M13208300	
8.4	x 8.4	x 37	x 79	2	-	M13208400	

Size				Flutes	Radius	Item No.	
d ₁	x d ₂	x l ₂	x l ₁				
8.5	x 8.5	x 37	x 79	2	-	M13208500	
8.6	x 8.6	x 40	x 84	2	-	M13208600	
8.7	x 8.7	x 40	x 84	2	-	M13208700	
8.8	x 8.8	x 40	x 84	2	-	M13208800	
8.9	x 8.9	x 40	x 84	2	-	M13208900	
9	x 9	x 40	x 84	2	-	M13209000	
9.1	x 9.1	x 40	x 84	2	-	M13209100	
9.2	x 9.2	x 40	x 84	2	-	M13209200	
9.3	x 9.3	x 40	x 84	2	-	M13209300	
9.4	x 9.4	x 40	x 84	2	-	M13209400	
9.5	x 9.5	x 40	x 84	2	-	M13209500	
9.6	x 9.6	x 43	x 89	2	-	M13209600	
9.7	x 9.7	x 43	x 89	2	-	M13209700	
9.8	x 9.8	x 43	x 89	2	-	M13209800	
9.9	x 9.9	x 43	x 89	2	-	M13209900	
10	x 10	x 43	x 89	2	-	M13210000	
10.2	x 10.2	x 43	x 89	2	-	M13210200	
10.5	x 10.5	x 43	x 89	2	-	M13210500	
10.8	x 10.8	x 47	x 95	2	-	M13210800	
11	x 11	x 47	x 95	2	-	M13211000	
11.5	x 11.5	x 47	x 95	2	-	M13211500	
11.8	x 11.5	x 47	x 95	2	-	M13211800	
12	x 12	x 51	x 102	2	-	M13212000	
12.5	x 12.5	x 51	x 102	2	-	M13212500	
13	x 13	x 51	x 102	2	-	M13213000	
13.5	x 13.5	x 54	x 107	2	-	M13213500	
14	x 14	x 54	x 107	2	-	M13214000	
14.5	x 14.5	x 56	x 111	2	-	M13214500	
15	x 15	x 56	x 111	2	-	M13215000	
15.5	x 15.5	x 58	x 115	2	-	M13215500	
16	x 16	x 58	x 115	2	-	M13216000	
16.5	x 16.5	x 60	x 119	2	-	M13216500	
17	x 17	x 60	x 119	2	-	M13217000	
17.5	x 17.5	x 62	x 123	2	-	M13217500	
18	x 18	x 62	x 123	2	-	M13218000	
18.5	x 18.5	x 64	x 127	2	-	M13218500	
19	x 19	x 64	x 127	2	-	M13219000	
19.5	x 19.5	x 66	x 131	2	-	M13219500	
20	x 20	x 66	x 131	2	-	M13220000	



DIN 1897
Standard

CARBIDE



continued on page 72

S.C. 3 Flute Stub Length Drill Point 135°

M133

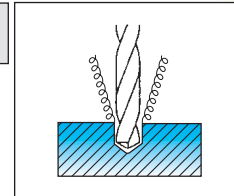
Size				Flutes	Radius	Item No.
d ₁ x d ₂ x l ₂ x l ₁						
3 x 3 x 16 x 46	3	-	M13303000			
3.1 x 3.1 x 18 x 49	3	-	M13303100			
3.2 x 3.2 x 18 x 49	3	-	M13303200			
3.3 x 3.3 x 18 x 49	3	-	M13303300			
3.4 x 3.4 x 20 x 52	3	-	M13303400			
3.5 x 3.5 x 20 x 52	3	-	M13303500			
3.6 x 3.6 x 20 x 52	3	-	M13303600			
3.7 x 3.7 x 20 x 52	3	-	M13303700			
3.8 x 3.8 x 22 x 55	3	-	M13303800			
3.9 x 3.9 x 22 x 55	3	-	M13303900			
4 x 4 x 22 x 55	3	-	M13304000			
4.1 x 4.1 x 22 x 55	3	-	M13304100			
4.2 x 4.2 x 22 x 55	3	-	M13304200			
4.3 x 4.3 x 24 x 58	3	-	M13304300			
4.4 x 4.4 x 24 x 58	3	-	M13304400			
4.5 x 4.5 x 24 x 58	3	-	M13304500			
4.6 x 4.6 x 24 x 58	3	-	M13304600			
4.7 x 4.7 x 24 x 58	3	-	M13304700			
4.8 x 4.8 x 26 x 62	3	-	M13304800			
4.9 x 4.9 x 26 x 62	3	-	M13304900			
5 x 5 x 26 x 62	3	-	M13305000			
5.1 x 5.1 x 26 x 62	3	-	M13305100			
5.2 x 5.2 x 26 x 62	3	-	M13305200			
5.3 x 5.2 x 26 x 62	3	-	M13305300			
5.4 x 5.4 x 28 x 66	3	-	M13305400			
5.5 x 5.5 x 28 x 66	3	-	M13305500			
5.6 x 5.6 x 28 x 66	3	-	M13305600			
5.7 x 5.6 x 28 x 66	3	-	M13305700			
5.8 x 5.8 x 28 x 66	3	-	M13305800			
5.9 x 5.9 x 28 x 66	3	-	M13305900			
6 x 6 x 28 x 66	3	-	M13306000			
6.1 x 6.1 x 31 x 70	3	-	M13306100			
6.2 x 6.2 x 31 x 70	3	-	M13306200			
6.3 x 6.3 x 31 x 70	3	-	M13306300			
6.4 x 6.4 x 31 x 70	3	-	M13306400			
6.5 x 6.5 x 31 x 70	3	-	M13306500			
6.6 x 6.6 x 31 x 70	3	-	M13306600			
6.7 x 6.7 x 31 x 70	3	-	M13306700			
6.8 x 6.8 x 34 x 74	3	-	M13306800			
6.9 x 6.9 x 34 x 74	3	-	M13306900			
7 x 7 x 34 x 74	3	-	M13307000			
7.1 x 7.1 x 34 x 74	3	-	M13307100			
7.2 x 7.2 x 34 x 74	3	-	M13307200			
7.3 x 7.3 x 34 x 74	3	-	M13307300			
7.4 x 7.4 x 34 x 74	3	-	M13307400			
7.5 x 7.5 x 34 x 74	3	-	M13307500			
7.6 x 7.6 x 37 x 79	3	-	M13307600			
7.7 x 7.7 x 37 x 79	3	-	M13307700			
7.8 x 7.8 x 37 x 79	3	-	M13307800			
7.9 x 7.9 x 37 x 79	3	-	M13307900			
8 x 8 x 37 x 79	3	-	M13308000			

3 Flute Stub Length Drill Point 135° for Shallow Depth Holes with Self Centering

Suffix Category	
Uncoated	••
TiN	TT
TiCN	CT*
TiAlN	RT

*Available upon request

GENERAL PURPOSE



Size				Flutes	Radius	Item No.
d ₁ x d ₂ x l ₂ x l ₁						
8.1 x 8 x 37 x 79	3	-	M13308100			
8.2 x 8.2 x 37 x 79	3	-	M13308200			
8.3 x 8.3 x 37 x 79	3	-	M13308300			
8.4 x 8.4 x 37 x 79	3	-	M13308400			
8.5 x 8.5 x 37 x 79	3	-	M13308500			
8.6 x 8.6 x 40 x 84	3	-	M13308600			
8.7 x 8.7 x 40 x 84	3	-	M13308700			
8.8 x 8.8 x 40 x 84	3	-	M13308800			
8.9 x 8.9 x 40 x 84	3	-	M13308900			
9 x 9 x 40 x 84	3	-	M13309000			
9.1 x 9.1 x 40 x 84	3	-	M13309100			
9.2 x 9.2 x 40 x 84	3	-	M13309200			
9.3 x 9.3 x 40 x 84	3	-	M13309300			
9.4 x 9.4 x 40 x 84	3	-	M13309400			
9.5 x 9.5 x 40 x 84	3	-	M13309500			
9.6 x 9.6 x 43 x 89	3	-	M13309600			
9.7 x 9.7 x 43 x 89	3	-	M13309700			
9.8 x 9.8 x 43 x 89	3	-	M13309800			
9.9 x 9.9 x 43 x 89	3	-	M13309900			
10 x 10 x 43 x 89	3	-	M13310000			
10.2 x 10.2 x 43 x 89	3	-	M13310200			
10.5 x 10.5 x 43 x 89	3	-	M13310500			
10.8 x 10.8 x 47 x 95	3	-	M13310800			
11 x 11 x 47 x 95	3	-	M13311000			
11.5 x 11.5 x 47 x 95	3	-	M13311500			
12 x 12 x 51 x 102	3	-	M13312000			
12.5 x 12.5 x 51 x 102	3	-	M13312500			
13 x 13 x 51 x 102	3	-	M13313000			
13.5 x 13.5 x 54 x 107	3	-	M13313500			
14 x 14 x 54 x 107	3	-	M13314000			
14.5 x 14.5 x 56 x 111	3	-	M13314500			
15 x 15 x 56 x 111	3	-	M13315000			
15.5 x 15.5 x 58 x 115	3	-	M13315500			
16 x 16 x 58 x 115	3	-	M13316000			
16.5 x 16.5 x 60 x 119	3	-	M13316500			

M133

S.C. 3 Flute Stub Length Drill Point 135° continued from page 71



CARBIDE

DIN 1897
Standard

30°



Size				Flutes	Radius	Item No.
d ₁	d ₂	l ₂	l ₁			
17	17	60	119	3	-	M13317000
17.5	17.5	62	123	3	-	M13317500
18	18	62	123	3	-	M13318000
18.5	18.5	64	127	3	-	M13318500

Size				Flutes	Radius	Item No.
d ₁	d ₂	l ₂	l ₁			
19	19	64	127	3	-	M13319000
19.5	19.5	66	131	3	-	M13319500
20	20	66	131	3	-	M13320000

M150

S.C. Drill and 2 Flute Ball Nose End Mill



CARBIDE

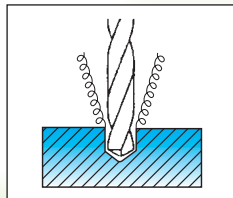
DIN 6537
Standard

30°



Drill and 2 Flute Ball Nose End Mill for Drilling and Milling

Suffix Category	
TiAlN	RT



ST>45 HRc

30<ST<45 HRc

Size				Flutes	Radius	Item No.
d ₁	d ₂	l ₂	l ₁			
3	3	16	63	2	-	M15003000
4	4	19	63	2	-	M15004000
5	5	23	63	2	-	M15005000
6	6	23	63	2	-	M15006000
8	8	32	76	2	-	M15008000
10	10	37	89	2	-	M15010000
12	12	45	100	2	-	M15012000
14	14	52	100	2	-	M15014000
16	16	60	110	2	-	M15016000
18	18	67	125	2	-	M15018000
20	20	74	125	2	-	M15020000

M152

S.C. High Performance Short Drill Point 140° continued on page 73



CARBIDE

DIN 6537
Standard

30°

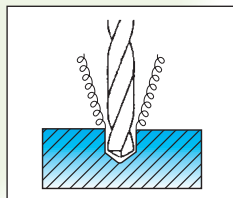


High Performance Short Drill Point 140° for Drilling Depth of 3 D with Self Centering



Suffix Category		
Uncoated		WN
TiN		TN*
TiCN		CN*
TiAlN	RT	RN

* Available upon request



St S

Ti

INCONEL

ST>45 HRc

30<ST<45 HRc

Size				Flutes	Radius	Item No.
d ₁	d ₂	l ₂	l ₁			
3	6	20	62	2	-	M15203000
3.1	6	20	62	2	-	M15203100
3.2	6	20	62	2	-	M15203200
3.3	6	20	62	2	-	M15203300
3.4	6	20	62	2	-	M15203400
3.5	6	20	62	2	-	M15203500

Size				Flutes	Radius	Item No.
d ₁	d ₂	l ₂	l ₁			
3.6	6	20	62	2	-	M15203600
3.7	6	24	66	2	-	M15203700
3.8	6	24	66	2	-	M15203800
3.9	6	24	66	2	-	M15203900
4	6	24	66	2	-	M15204000
4.1	6	24	66	2	-	M15204100
4.2	6	24	66	2	-	M15204200
4.3	6	24	66	2	-	M15204300
4.4	6	24	66	2	-	M15204400
4.5	6	24	66	2	-	M15204500
4.6	6	24	66	2	-	M15204600
4.7	6	24	66	2	-	M15204700
4.8	6	28	66	2	-	M15204800
4.9	6	28	66	2	-	M15204900
5	6	28	66	2	-	M15205000
5.1	6	28	66	2	-	M15205100
5.2	6	28	66	2	-	M15205200
5.3	6	28	66	2	-	M15205300
5.4	6	28	66	2	-	M15205400
5.5	6	28	66	2	-	M15205500
5.6	6	28	66	2	-	M15205600
5.7	6	28	66	2	-	M15205700



30°

DIN 6537
Standard

CARBIDE



continued from page 72 S.C High Performance Short Drill Point 140°

M152

Size				Flutes	Radius	Item No.	
d ₁	x	d ₂	x l ₂ x l ₁				
5.8	x	6	x 28 x 66	2	-	M15205800	
5.9	x	6	x 28 x 66	2	-	M15205900	
6	x	6	x 28 x 66	2	-	M15206000	
6.1	x	8	x 34 x 79	2	-	M15206100	
6.2	x	8	x 34 x 79	2	-	M15206200	
6.3	x	8	x 34 x 79	2	-	M15206300	
6.4	x	8	x 34 x 79	2	-	M15206400	
6.5	x	8	x 34 x 79	2	-	M15206500	
6.6	x	8	x 34 x 79	2	-	M15206600	
6.7	x	8	x 34 x 79	2	-	M15206700	
6.8	x	8	x 34 x 79	2	-	M15206800	
6.9	x	8	x 34 x 79	2	-	M15206900	
7	x	8	x 34 x 79	2	-	M15207000	
7.1	x	8	x 41 x 79	2	-	M15207100	
7.2	x	8	x 41 x 79	2	-	M15207200	
7.3	x	8	x 41 x 79	2	-	M15207300	
7.4	x	8	x 41 x 79	2	-	M15207400	
7.5	x	8	x 41 x 79	2	-	M15207500	
7.6	x	8	x 41 x 79	2	-	M15207600	
7.7	x	8	x 41 x 79	2	-	M15207700	
7.8	x	8	x 41 x 79	2	-	M15207800	
7.9	x	8	x 41 x 79	2	-	M15207900	
8	x	8	x 41 x 79	2	-	M15208000	
8.1	x	10	x 47 x 89	2	-	M15208100	
8.2	x	10	x 47 x 89	2	-	M15208200	
8.3	x	10	x 47 x 89	2	-	M15208300	
8.4	x	10	x 47 x 89	2	-	M15208400	
8.5	x	10	x 47 x 89	2	-	M15208500	
8.6	x	10	x 47 x 89	2	-	M15208600	
8.7	x	10	x 47 x 89	2	-	M15208700	
8.8	x	10	x 47 x 89	2	-	M15208800	
8.9	x	10	x 47 x 89	2	-	M15208900	
9	x	10	x 47 x 89	2	-	M15209000	
9.1	x	10	x 47 x 89	2	-	M15209100	
9.2	x	10	x 47 x 89	2	-	M15209200	
9.3	x	10	x 47 x 89	2	-	M15209300	
9.4	x	10	x 47 x 89	2	-	M15209400	
9.5	x	10	x 47 x 89	2	-	M15209500	
9.6	x	10	x 47 x 89	2	-	M15209600	
9.7	x	10	x 47 x 89	2	-	M15209700	
9.8	x	10	x 47 x 89	2	-	M15209800	
9.9	x	10	x 47 x 89	2	-	M15209900	

Size				Flutes	Radius	Item No.	
d ₁	x	d ₂	x l ₂ x l ₁				
10	x	10	x 47 x 89	2	-	M15210000	
10.1	x	12	x 55 x 102	2	-	M15210100	
10.2	x	12	x 55 x 102	2	-	M15210200	
10.3	x	12	x 55 x 102	2	-	M15210300	
10.4	x	12	x 55 x 102	2	-	M15210400	
10.5	x	12	x 55 x 102	2	-	M15210500	
10.6	x	12	x 55 x 102	2	-	M15210600	
10.7	x	12	x 55 x 102	2	-	M15210700	
10.8	x	12	x 55 x 102	2	-	M15210800	
10.9	x	12	x 55 x 102	2	-	M15210900	
11	x	12	x 55 x 102	2	-	M15211000	
11.1	x	12	x 55 x 102	2	-	M15211100	
11.2	x	12	x 55 x 102	2	-	M15211200	
11.3	x	12	x 55 x 102	2	-	M15211300	
11.4	x	12	x 55 x 102	2	-	M15211400	
11.5	x	12	x 55 x 102	2	-	M15211500	
11.6	x	12	x 55 x 102	2	-	M15211600	
11.7	x	12	x 55 x 102	2	-	M15211700	
11.8	x	12	x 55 x 102	2	-	M15211800	
11.9	x	12	x 55 x 102	2	-	M15211900	
12	x	12	x 55 x 102	2	-	M15212000	
12.5	x	14	x 60 x 107	2	-	M15212500	
12.8	x	14	x 60 x 107	2	-	M15212800	
13	x	14	x 60 x 107	2	-	M15213000	
13.5	x	14	x 60 x 107	2	-	M15213500	
13.8	x	14	x 60 x 107	2	-	M15213800	
14	x	14	x 60 x 107	2	-	M15214000	
14.5	x	16	x 65 x 115	2	-	M15214500	
14.8	x	16	x 65 x 115	2	-	M15214800	
15	x	16	x 65 x 115	2	-	M15215000	
15.5	x	16	x 65 x 115	2	-	M15215500	
15.8	x	16	x 65 x 115	2	-	M15215800	
16	x	16	x 65 x 115	2	-	M15216000	
16.5	x	18	x 73 x 123	2	-	M15216500	
17	x	18	x 73 x 123	2	-	M15217000	
17.5	x	18	x 73 x 123	2	-	M15217500	
18	x	18	x 73 x 123	2	-	M15218000	
18.5	x	20	x 79 x 131	2	-	M15218500	
19	x	20	x 79 x 131	2	-	M15219000	
19.5	x	20	x 79 x 131	2	-	M15219500	
20	x	20	x 79 x 131	2	-	M15220000	

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S.C. High Performance Long Drill Point 140° continued on page 75



CARBIDE

DIN 6538
Standard

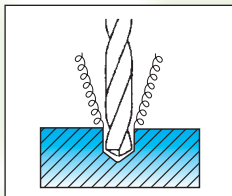
30°



High Performance Long Drill Point 140° for Drilling Depth of 5 D with Self Centering

Suffix Category		
Uncoated		WN
TiN		TN*
TiCN		CN*
TiAlN	RT	RN

* Available upon request



St S	Ti
INCONEL	30<ST<45 HRc
ST>45 HRc	

Size				Flutes	Radius	Item No.
d ₁	x d ₂	x l ₂	x l ₁			
3	x 6	x 28	x 66	2	-	M16203000
3.1	x 6	x 28	x 66	2	-	M16203100
3.2	x 6	x 28	x 66	2	-	M16203200
3.3	x 6	x 28	x 66	2	-	M16203300
3.4	x 6	x 28	x 66	2	-	M16203400
3.5	x 6	x 28	x 66	2	-	M16203500
3.6	x 6	x 28	x 66	2	-	M16203600
3.7	x 6	x 28	x 66	2	-	M16203700
3.8	x 6	x 36	x 74	2	-	M16203800
3.9	x 6	x 36	x 74	2	-	M16203900
4	x 6	x 36	x 74	2	-	M16204000
4.1	x 6	x 36	x 74	2	-	M16204100
4.2	x 6	x 36	x 74	2	-	M16204200
4.3	x 6	x 36	x 74	2	-	M16204300
4.4	x 6	x 36	x 74	2	-	M16204400
4.5	x 6	x 36	x 74	2	-	M16204500
4.6	x 6	x 36	x 74	2	-	M16204600
4.7	x 6	x 36	x 74	2	-	M16204700
4.8	x 6	x 44	x 82	2	-	M16204800
4.9	x 6	x 44	x 82	2	-	M16204900
5	x 6	x 44	x 82	2	-	M16205000
5.1	x 6	x 44	x 82	2	-	M16205100
5.2	x 6	x 44	x 82	2	-	M16205200
5.3	x 6	x 44	x 82	2	-	M16205300
5.4	x 6	x 44	x 82	2	-	M16205400
5.5	x 6	x 44	x 82	2	-	M16205500
5.6	x 6	x 44	x 82	2	-	M16205600
5.7	x 6	x 44	x 82	2	-	M16205700
5.8	x 6	x 44	x 82	2	-	M16205800
5.9	x 6	x 44	x 82	2	-	M16205900
6	x 6	x 44	x 82	2	-	M16206000
6.1	x 8	x 53	x 91	2	-	M16206100
6.2	x 8	x 53	x 91	2	-	M16206200
6.3	x 8	x 53	x 91	2	-	M16206300
6.4	x 8	x 53	x 91	2	-	M16206400

Size				Flutes	Radius	Item No.
d ₁	x d ₂	x l ₂	x l ₁			
6.5	x 8	x 53	x 91	2	-	M16206500
6.6	x 8	x 53	x 91	2	-	M16206600
6.7	x 8	x 53	x 91	2	-	M16206700
6.8	x 8	x 53	x 91	2	-	M16206800
6.9	x 8	x 53	x 91	2	-	M16206900
7	x 8	x 53	x 91	2	-	M16207000
7.1	x 8	x 53	x 91	2	-	M16207100
7.2	x 8	x 53	x 91	2	-	M16207200
7.3	x 8	x 53	x 91	2	-	M16207300
7.4	x 8	x 53	x 91	2	-	M16207400
7.5	x 8	x 53	x 91	2	-	M16207500
7.6	x 8	x 53	x 91	2	-	M16207600
7.7	x 8	x 53	x 91	2	-	M16207700
7.8	x 8	x 53	x 91	2	-	M16207800
7.9	x 8	x 53	x 91	2	-	M16207900
8	x 8	x 53	x 91	2	-	M16208000
8.1	x 10	x 61	x 103	2	-	M16208100
8.2	x 10	x 61	x 103	2	-	M16208200
8.3	x 10	x 61	x 103	2	-	M16208300
8.4	x 10	x 61	x 103	2	-	M16208400
8.5	x 10	x 61	x 103	2	-	M16208500
8.6	x 10	x 61	x 103	2	-	M16208600
8.7	x 10	x 61	x 103	2	-	M16208700
8.8	x 10	x 61	x 103	2	-	M16208800
8.9	x 10	x 61	x 103	2	-	M16208900
9	x 10	x 61	x 103	2	-	M16209000
9.1	x 10	x 61	x 103	2	-	M16209100
9.2	x 10	x 61	x 103	2	-	M16209200
9.3	x 10	x 61	x 103	2	-	M16209300
9.4	x 10	x 61	x 103	2	-	M16209400
9.5	x 10	x 61	x 103	2	-	M16209500
9.6	x 10	x 61	x 103	2	-	M16209600
9.7	x 10	x 61	x 103	2	-	M16209700
9.8	x 10	x 61	x 103	2	-	M16209800
9.9	x 10	x 61	x 103	2	-	M16209900
10	x 10	x 61	x 103	2	-	M16210000
10.1	x 12	x 71	x 118	2	-	M16210100
10.2	x 12	x 71	x 118	2	-	M16210200
10.3	x 12	x 71	x 118	2	-	M16210300
10.4	x 12	x 71	x 118	2	-	M16210400
10.5	x 12	x 71	x 118	2	-	M16210500
10.6	x 12	x 71	x 118	2	-	M16210600
10.7	x 12	x 71	x 118	2	-	M16210700
10.8	x 12	x 71	x 118	2	-	M16210800
10.9	x 12	x 71	x 118	2	-	M16210900
11	x 12	x 71	x 118	2	-	M16211000
11.1	x 12	x 71	x 118	2	-	M16211100
11.2	x 12	x 71	x 118	2	-	M16211200
11.3	x 12	x 71	x 118	2	-	M16211300
11.4	x 12	x 71	x 118	2	-	M16211400
11.5	x 12	x 71	x 118	2	-	M16211500

30°	DIN 6538 Standard	CARBIDE		continued from page 73 S.C. High Performance Long Drill Point 140°	M162
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Size				Flutes	Radius	Item No.	
d ₁	x d ₂	x l ₂	x l ₁				
11.6	x 12	x 71	x 118	2	-	M16211600	
11.7	x 12	x 71	x 118	2	-	M16211700	
11.8	x 12	x 71	x 118	2	-	M16211800	
11.9	x 12	x 71	x 118	2	-	M16211900	
12	x 12	x 71	x 118	2	-	M16212000	
12.5	x 14	x 77	x 124	2	-	M16212500	
13	x 14	x 77	x 124	2	-	M16213000	
13.5	x 14	x 77	x 124	2	-	M16213500	
14	x 14	x 77	x 124	2	-	M16214000	
14.5	x 16	x 83	x 133	2	-	M16214500	
15	x 16	x 83	x 133	2	-	M16215000	

Size				Flutes	Radius	Item No.	
d ₁	x d ₂	x l ₂	x l ₁				
15.5	x 16	x 83	x 133	2	-	M16215500	
16	x 16	x 83	x 133	2	-	M16216000	
16.5	x 18	x 93	x 143	2	-	M16216500	
17	x 18	x 93	x 143	2	-	M16217000	
17.5	x 18	x 93	x 143	2	-	M16217500	
18	x 18	x 93	x 143	2	-	M16218000	
18.5	x 20	x 101	x 153	2	-	M16218500	
19	x 20	x 101	x 153	2	-	M16219000	
19.5	x 20	x 101	x 153	2	-	M16219500	
20	x 20	x 101	x 153	2	-	M16220000	

30°	DIN 6539 Standard	CARBIDE		continued on page 76 S.C. High Performance Short Drill with Internal Coolant Point 140°	M252
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Size				Flutes	Radius	Item No.	
d ₁	x d ₂	x l ₂	x l ₁				
3	x 6	x 20	x 62	2	-	M25203000	
3.1	x 6	x 20	x 62	2	-	M25203100	
3.2	x 6	x 20	x 62	2	-	M25203200	
3.3	x 6	x 20	x 62	2	-	M25203300	
3.4	x 6	x 20	x 62	2	-	M25203400	
3.5	x 6	x 20	x 62	2	-	M25203500	
3.6	x 6	x 20	x 62	2	-	M25203600	
3.7	x 6	x 20	x 62	2	-	M25203700	
3.8	x 6	x 24	x 66	2	-	M25203800	
3.9	x 6	x 24	x 66	2	-	M25203900	
4	x 6	x 24	x 66	2	-	M25204000	
4.1	x 6	x 24	x 66	2	-	M25204100	
4.2	x 6	x 24	x 66	2	-	M25204200	
4.3	x 6	x 24	x 66	2	-	M25204300	
4.4	x 6	x 24	x 66	2	-	M25204400	
4.5	x 6	x 24	x 66	2	-	M25204500	
4.6	x 6	x 24	x 66	2	-	M25204600	
4.7	x 6	x 24	x 66	2	-	M25204700	
4.8	x 6	x 28	x 66	2	-	M25204800	
4.9	x 6	x 28	x 66	2	-	M25204900	
5	x 6	x 28	x 66	2	-	M25205000	
5.1	x 6	x 28	x 66	2	-	M25205100	
5.2	x 6	x 28	x 66	2	-	M25205200	
5.3	x 6	x 28	x 66	2	-	M25205300	
5.4	x 6	x 28	x 66	2	-	M25205400	
5.5	x 6	x 28	x 66	2	-	M25205500	
5.6	x 6	x 28	x 66	2	-	M25205600	
5.7	x 6	x 28	x 66	2	-	M25205700	
5.8	x 6	x 28	x 66	2	-	M25205800	
5.9	x 6	x 28	x 66	2	-	M25205900	
6	x 6	x 28	x 66	2	-	M25206000	
6.1	x 8	x 34	x 79	2	-	M25206100	
6.2	x 8	x 34	x 79	2	-	M25206200	

High Performance Short Drill with Internal Coolant Point 140° for Drilling Depth of 3 D with Self Centering

Suffix Category		
Uncoated		WN
TiN		TN*
TiCN		CN*
TiAlN	RT	RN

St S	Ti	
INCONEL	30<ST<45 HRc	
	ST>45 HRc	

Size				Flutes	Radius	Item No.	
d ₁	x d ₂	x l ₂	x l ₁				
6.3	x 8	x 34	x 79	2	-	M25206300	
6.4	x 8	x 34	x 79	2	-	M25206400	
6.5	x 8	x 34	x 79	2	-	M25206500	
6.6	x 8	x 34	x 79	2	-	M25206600	
6.7	x 8	x 34	x 79	2	-	M25206700	
6.8	x 8	x 34	x 79	2	-	M25206800	
6.9	x 8	x 34	x 79	2	-	M25206900	
7	x 8	x 34	x 79	2	-	M25207000	
7.1	x 8	x 41	x 79	2	-	M25207100	
7.2	x 8	x 41	x 79	2	-	M25207200	
7.3	x 8	x 41	x 79	2	-	M25207300	
7.4	x 8	x 41	x 79	2	-	M25207400	
7.5	x 8	x 41	x 79	2	-	M25207500	
7.6	x 8	x 41	x 79	2	-	M25207600	
7.7	x 8	x 41	x 79	2	-	M25207700	
7.8	x 8	x 41	x 79	2	-	M25207800	

M252

S.C. High Performance Short Drill with Internal Coolant Point 140°

continued from page 75



CARBIDE

DIN 6539
Standard

30°

Size				Flutes	Radius	Item No.
d ₁ x d ₂ x l ₂ x l ₁						
7.9 x 8 x 41 x 79	2	-	M25207900			
8 x 8 x 41 x 79	2	-	M25208000			
8.1 x 10 x 47 x 89	2	-	M25208100			
8.2 x 10 x 47 x 89	2	-	M25208200			
8.3 x 10 x 47 x 89	2	-	M25208300			
8.4 x 10 x 47 x 89	2	-	M25208400			
8.5 x 10 x 47 x 89	2	-	M25208500			
8.6 x 10 x 47 x 89	2	-	M25208600			
8.7 x 10 x 47 x 89	2	-	M25208700			
8.8 x 10 x 47 x 89	2	-	M25208800			
8.9 x 10 x 47 x 89	2	-	M25208900			
9 x 10 x 47 x 89	2	-	M25209000			
9.1 x 10 x 47 x 89	2	-	M25209100			
9.2 x 10 x 47 x 89	2	-	M25209200			
9.3 x 10 x 47 x 89	2	-	M25209300			
9.4 x 10 x 47 x 89	2	-	M25209400			
9.5 x 10 x 47 x 89	2	-	M25209500			
9.6 x 10 x 47 x 89	2	-	M25209600			
9.7 x 10 x 47 x 89	2	-	M25209700			
9.8 x 10 x 47 x 89	2	-	M25209800			
9.9 x 10 x 47 x 89	2	-	M25209900			
10 x 10 x 47 x 89	2	-	M25210000			
10.1 x 12 x 55 x 102	2	-	M25210100			
10.2 x 12 x 55 x 102	2	-	M25210200			
10.3 x 12 x 55 x 102	2	-	M25210300			
10.4 x 12 x 55 x 102	2	-	M25210400			
10.5 x 12 x 55 x 102	2	-	M25210500			
10.6 x 12 x 55 x 102	2	-	M25210600			
10.7 x 12 x 55 x 102	2	-	M25210700			

Size				Flutes	Radius	Item No.
d ₁ x d ₂ x l ₂ x l ₁						
10.8 x 12 x 55 x 102	2	-	M25210800			
10.9 x 12 x 55 x 102	2	-	M25210900			
11 x 12 x 55 x 102	2	-	M25211000			
11.1 x 12 x 55 x 102	2	-	M25211100			
11.2 x 12 x 55 x 102	2	-	M25211200			
11.3 x 12 x 55 x 102	2	-	M25211300			
11.4 x 12 x 55 x 102	2	-	M25211400			
11.5 x 12 x 55 x 102	2	-	M25211500			
11.6 x 12 x 55 x 102	2	-	M25211600			
11.7 x 12 x 55 x 102	2	-	M25211700			
11.8 x 12 x 55 x 102	2	-	M25211800			
11.9 x 12 x 55 x 102	2	-	M25211900			
12 x 12 x 55 x 102	2	-	M25212000			
12.5 x 14 x 60 x 107	2	-	M25212500			
13 x 14 x 60 x 107	2	-	M25213000			
13.5 x 14 x 60 x 107	2	-	M25213500			
14 x 14 x 60 x 107	2	-	M25214000			
14.5 x 16 x 65 x 115	2	-	M25214500			
15 x 16 x 65 x 115	2	-	M25215000			
15.5 x 16 x 65 x 115	2	-	M25215500			
16 x 16 x 65 x 115	2	-	M25216000			
16.5 x 18 x 73 x 123	2	-	M25216500			
17 x 18 x 73 x 123	2	-	M25217000			
17.5 x 18 x 73 x 123	2	-	M25217500			
18 x 18 x 73 x 123	2	-	M25218000			
18.5 x 20 x 79 x 131	2	-	M25218500			
19 x 20 x 79 x 131	2	-	M25219000			
19.5 x 20 x 79 x 131	2	-	M25219500			
20 x 20 x 79 x 131	2	-	M25220000			

M262

S.C. High Performance Long Drill with Internal Coolant Point 140°

continued on page 77



CARBIDE

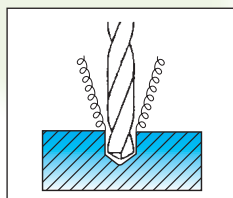
DIN 6540
Standard

30°

High Performance Long Drill with Internal Coolant Point 140° for Drilling Depth of 5 D with Self Centering



Suffix Category		
Uncoated		WN
TiN		TN*
TiCN		CN*
TiAlN	RT	RN



St S	Ti
INCONEL	30<ST<45 HRc
ST>45 HRc	

Size				Flutes	Radius	Item No.
d ₁ x d ₂ x l ₂ x l ₁						
3 x 6 x 28 x 66	2	-	M26203000			
3.1 x 6 x 28 x 66	2	-	M26203100			
3.2 x 6 x 28 x 66	2	-	M26203200			
3.3 x 6 x 28 x 66	2	-	M26203300			
3.4 x 6 x 28 x 66	2	-	M26203400			
3.5 x 6 x 28 x 66	2	-	M26203500			
3.6 x 6 x 28 x 66	2	-	M26203600			
3.7 x 6 x 28 x 66	2	-	M26203700			
3.8 x 6 x 36 x 74	2	-	M26203800			
3.9 x 6 x 36 x 74	2	-	M26203900			
4 x 6 x 36 x 74	2	-	M26204000			
4.1 x 6 x 36 x 74	2	-	M26204100			
4.2 x 6 x 36 x 74	2	-	M26204200			
4.3 x 6 x 36 x 74	2	-	M26204300			
4.4 x 6 x 36 x 74	2	-	M26204400			



30°

DIN 6540
Standard

CARBIDE



continued from page 76

S.C. High Performance Long Drill
with Internal Coolant Point 140°

M262

Size				Flutes	Radius	Item No.	
d ₁ x	d ₂ x	l ₂ x	l ₁				
4.5 x	6 x	36 x	74	2	-	M26204500	
4.6 x	6 x	36 x	74	2	-	M26204600	
4.7 x	6 x	36 x	74	2	-	M26204700	
4.8 x	6 x	44 x	82	2	-	M26204800	
4.9 x	6 x	44 x	82	2	-	M26204900	
5 x	6 x	44 x	82	2	-	M26205000	
5.1 x	6 x	44 x	82	2	-	M26205100	
5.2 x	6 x	44 x	82	2	-	M26205200	
5.3 x	6 x	44 x	82	2	-	M26205300	
5.4 x	6 x	44 x	82	2	-	M26205400	
5.5 x	6 x	44 x	82	2	-	M26205500	
5.6 x	6 x	44 x	82	2	-	M26205600	
5.7 x	6 x	44 x	82	2	-	M26205700	
5.8 x	6 x	44 x	82	2	-	M26205800	
5.9 x	6 x	44 x	82	2	-	M26205900	
6 x	6 x	44 x	82	2	-	M26206000	
6.1 x	8 x	53 x	91	2	-	M26206100	
6.2 x	8 x	53 x	91	2	-	M26206200	
6.3 x	8 x	53 x	91	2	-	M26206300	
6.4 x	8 x	53 x	91	2	-	M26206400	
6.5 x	8 x	53 x	91	2	-	M26206500	
6.6 x	8 x	53 x	91	2	-	M26206600	
6.7 x	8 x	53 x	91	2	-	M26206700	
6.8 x	8 x	53 x	91	2	-	M26206800	
6.9 x	8 x	53 x	91	2	-	M26206900	
7 x	8 x	53 x	91	2	-	M26207000	
7.1 x	8 x	53 x	91	2	-	M26207100	
7.2 x	8 x	53 x	91	2	-	M26207200	
7.3 x	8 x	53 x	91	2	-	M26207300	
7.4 x	8 x	53 x	91	2	-	M26207400	
7.5 x	8 x	53 x	91	2	-	M26207500	
7.6 x	8 x	53 x	91	2	-	M26207600	
7.7 x	8 x	53 x	91	2	-	M26207700	
7.8 x	8 x	53 x	91	2	-	M26207800	
7.9 x	8 x	53 x	91	2	-	M26207900	
8 x	8 x	53 x	91	2	-	M26208000	
8.1 x	10 x	61 x	103	2	-	M26208100	
8.2 x	10 x	61 x	103	2	-	M26208200	
8.3 x	10 x	61 x	103	2	-	M26208300	
8.4 x	10 x	61 x	103	2	-	M26208400	
8.5 x	10 x	61 x	103	2	-	M26208500	
8.6 x	10 x	61 x	103	2	-	M26208600	
8.7 x	10 x	61 x	103	2	-	M26208700	
8.8 x	10 x	61 x	103	2	-	M26208800	
8.9 x	10 x	61 x	103	2	-	M26208900	
9 x	10 x	61 x	103	2	-	M26209000	

Size				Flutes	Radius	Item No.	
d ₁ x	d ₂ x	l ₂ x	l ₁				
9.1 x	10 x	61 x	103	2	-	M26209100	
9.2 x	10 x	61 x	103	2	-	M26209200	
9.3 x	10 x	61 x	103	2	-	M26209300	
9.4 x	10 x	61 x	103	2	-	M26209400	
9.5 x	10 x	61 x	103	2	-	M26209500	
9.6 x	10 x	61 x	103	2	-	M26209600	
9.7 x	10 x	61 x	103	2	-	M26209700	
9.8 x	10 x	61 x	103	2	-	M26209800	
9.9 x	10 x	61 x	103	2	-	M26209900	
10 x	10 x	61 x	103	2	-	M26210000	
10.1 x	12 x	71 x	118	2	-	M26210100	
10.2 x	12 x	71 x	118	2	-	M26210200	
10.3 x	12 x	71 x	118	2	-	M26210300	
10.4 x	12 x	71 x	118	2	-	M26210400	
10.5 x	12 x	71 x	118	2	-	M26210500	
10.6 x	12 x	71 x	118	2	-	M26210600	
10.7 x	12 x	71 x	118	2	-	M26210700	
10.8 x	12 x	71 x	118	2	-	M26210800	
10.9 x	12 x	71 x	118	2	-	M26210900	
11 x	12 x	71 x	118	2	-	M26211000	
11.1 x	12 x	71 x	118	2	-	M26211100	
11.2 x	12 x	71 x	118	2	-	M26211200	
11.3 x	12 x	71 x	118	2	-	M26211300	
11.4 x	12 x	71 x	118	2	-	M26211400	
11.5 x	12 x	71 x	118	2	-	M26211500	
11.6 x	12 x	71 x	118	2	-	M26211600	
11.7 x	12 x	71 x	118	2	-	M26211700	
11.8 x	12 x	71 x	118	2	-	M26211800	
11.9 x	12 x	71 x	118	2	-	M26211900	
12 x	12 x	71 x	118	2	-	M26212000	
12.5 x	14 x	77 x	124	2	-	M26212500	
13 x	14 x	77 x	124	2	-	M26213000	
13.5 x	14 x	77 x	124	2	-	M26213500	
14 x	14 x	77 x	124	2	-	M26214000	
14.5 x	16 x	83 x	133	2	-	M26214500	
15 x	16 x	83 x	133	2	-	M26215000	
15.5 x	16 x	83 x	133	2	-	M26215500	
16 x	16 x	83 x	133	2	-	M26216000	
16.5 x	18 x	93 x	143	2	-	M26216500	
17 x	18 x	93 x	143	2	-	M26217000	
17.5 x	18 x	93 x	143	2	-	M26217500	
18 x	18 x	93 x	143	2	-	M26218000	
18.5 x	20 x	101 x	153	2	-	M26218500	
19 x	20 x	101 x	153	2	-	M26219000	
19.5 x	20 x	101 x	153	2	-	M26219500	
20 x	20 x	101 x	153	2	-	M26220000	

High Performance Tools

For Aluminium and Titanium Machining,
Automotive, Aerospace and General Engi



2-STEP
The new 2-STEP
3-STEP
Uncoated
TICN
TiAIN

SIZE	Grade	Shank
1.5	W	CT
1.5	W	CW
1.5	W	LW
1.5	W	CT
1.5	W	CW
1.5	W	LW
1.5	W	CT
1.5	W	CW
1.5	W	LW
1.5	W	CT
1.5	W	CW
1.5	W	LW
1.5	W	CT
1.5	W	CW
1.5	W	LW
1.5	W	CT
1.5	W	CW
1.5	W	LW

3-STEP
THE SURF
Uncoated
TICN
TiAIN

Finisher with New Rake
Thin Wall Finishing in

Endmill 45° Helix short

ITEM No.	Grade	Shank
410201000	CT	
410201500	CT	
410202000	CT	
410202500	CT	
410203000	CT	
410204001	CT	
410205002	CT	
410206002	CT	
410208003	CT	
410210004	CT	

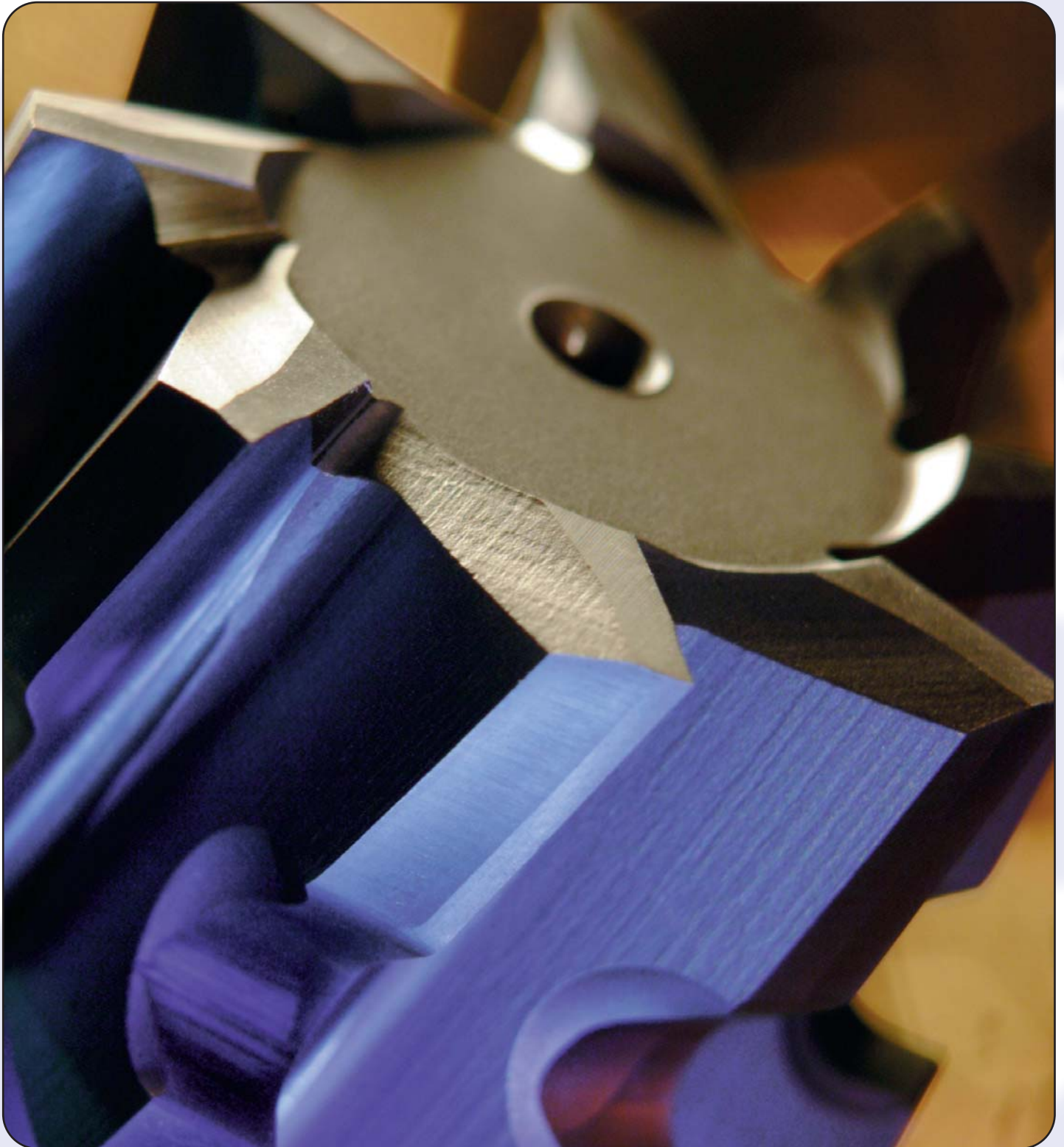


High Performance Tools

For Alloyed and Hard Steel Machining
Die & Mold – General Engineering



HA.DM.01GB



**FOR TURBINE BLADES PRODUCTION . . .
THE AEROSPACE, AUTOMOTIVE, NUCLEAR,
AND DEFENSE INDUSTRIES.**

Highest standards, precise cutting tools.

Manufactured as per drawing.

State-of-the-art CAD design.

High precision CNC manufacturing.

Quick delivery.

Tight tolerance profile cutters.

Helical (constant) and straight reliefs.

HSSE, PM and Carbide tipped flutes.

Mathematically defined profiles.





**Special tools optimized for machining:
Titanium, Aluminium, Inconel, Stainless,
Steels, Exotic Alloys, HRC > 55**

Specific designs for extreme operations.
Very high speed machining tools (40,000 RPM).
Innovative new profile roughers.
Specials tools for molds and dies.



The department for Special Tools at HANITA Metal Works, is entirely dedicated to the design and manufacturing of special milling solutions for high demanding operations and focused on manufacturing.

Unique advantages such as In-house PVD high quality coating facilities (TiN, TiCN, TiAlN, and Z-Coat), a wide range of raw materials (HSS, HSSE, HSS-Powder, Solid Carbide and Carbide Tipped) and capabilities for a wide range of diameters (0.4mm to 65mm) places HANITA as

the preferred solution for high quality and specific application special tools.

Among other tools, we specialise in making: End Mills, Drills, Step Drills, Routers, Reamers, Counterbores, Tapered Tools and Roughing Cutters.

For Special Tool enquiries please copy and fill in the form shown down here.

COMPANY NAME _____
 ADDRESS _____
 CITY / STATE / ZIP _____
 TEL/FAX - EMAIL _____
 CONTACT _____

MILLING / DRILLING APPLICATIONS

WORKPIECE MATERIAL _____ ALLOY GROUP _____
 ANNEALED _____ HEAT TREATED _____ FRICTION CUT _____
 MATERIAL HARDNESS _____ (Rc or Bhn) _____
 TYPE OF MACHINE _____ H.P./ Kw _____
 CNC _____ VERTICAL _____ HORIZONTAL _____
 SIMILAR AS HANITA LIST No. _____
 TOOL DESCRIPTION _____
 COOLANT _____ COATINGS _____

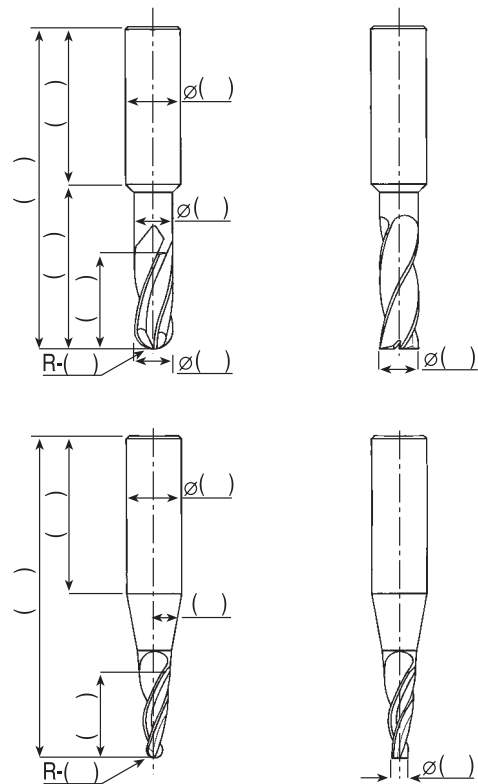
TOOL ACTUALLY USED:

Brand _____ Style _____
 No.Flutes _____ Helix _____ Size _____

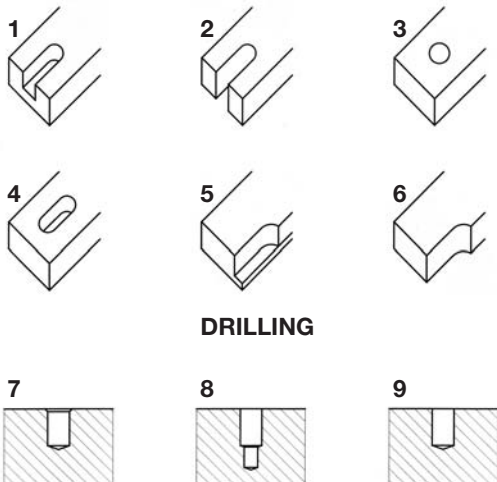
Current Cutting Parameters:

Cutting Speed Vc _____
 Spindle Feed n _____
 Feed per Tooth fz _____
 Feed per Revolution mm/rev _____
 Table Feed Vf _____
 Print or Drawing Enclosed _____
 Notes _____

FILL IN MISSING DETAILS

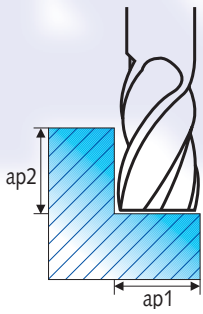


CUTTING CONDITIONS (Circle Appropriate Number)

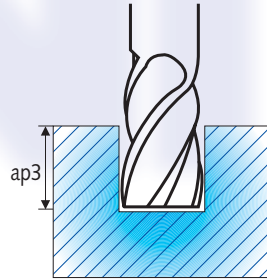


DRILLING

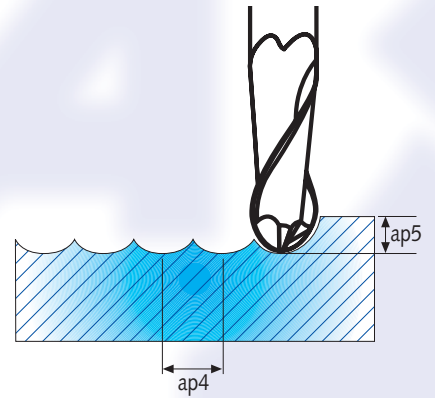
Formulars



Side Milling



Slotting



Profiling

Cutting Speed $V_c = \frac{D \times \pi \times n}{1000}$ (m/min)

Spindle Speed $n = \frac{V_c \times 1000}{\pi \times d}$ (1/min)

Feed per Tooth $f_z = \frac{V_f}{z \times n}$ (mm)

Table Feed $V_f = f_z \times z \times n$ (mm/min)

Formular Symbols

- D** (mm) Tool diameter
- z** No. of Flutes
- V_c** (m/min) Cutting Speed
- F_z** (mm) Feed per Tooth
- n** (1/min) Spindle Speed
- V_f** (mm/min) Table Feed
- π** 3.1416

Cutting Data Recommendations

1601 JJ

Cutting Section Geometry			
Material	Tensile Strength		
		a p4	a p5
Steels	500-700	0.30 x D	0.90 x D
Steels	800-1000	0.25 x D	0.45 x D
Steels	1050-1300	0.20 x D	0.40 x D

Material	Tensile Strength	Vc - Cutting Speed			fz - Feed per Tooth														
		Uncoated	TiN	TiCN	D - Diameter in mm														
					m/min	m/min	m/min	3	4	5	6	8	10	12	14	16	18	20	22
Steels	500-700	30	45	70	0.019	0.032	0.041	0.052	0.084	0.010	0.113	0.124	0.139	0.150	0.167	0.173	0.180	0.188	
Steels	800-1000	25	35	55	0.017	0.029	0.038	0.045	0.075	0.093	0.104	0.113	0.132	0.148	0.165	0.173	0.180	0.188	
Steels	1050-1300	15	23	40	0.014	0.024	0.032	0.040	0.059	0.075	0.085	0.085	0.113	0.128	0.143	0.146	0.150	0.158	

4503 JJ

Cutting Section Geometry

Material	Tensile Strength	Rockwell Hardness			
	N/mm ²	HRC	a p1	a p2	a p3
Steels	1050 - 1300	32 - 40	1.0 x D	0.1 x D	0.25 x D
Steels	1300 - 1450	40 - 45	1.0 x D	0.1 x D	0.25 x D
Steels	1450 - 1600	45 - 50	1.0 x D	0.1 x D	0.25 x D
Stainless Steels			1.0 x D	0.1 x D	0.25 x D

Side Milling

Material	Tensile Strength	Rockwell Hardness	Vc - Cutting Speed		fz - Feed per Tooth												
			TiCN	TiAlN	D - Diameter in mm												
			m/min	m/min	2	3	4	5	6	8	10	12	14	16	18	20	
	N/mm ²	HRC															
Steels	1050 - 1300	32 - 40	100	150	0.005	0.010	0.013	0.017	0.023	0.028	0.043	0.056	0.071	0.086	0.099	0.113	
Steels	1300 - 1450	40 - 45	85	125	0.005	0.009	0.011	0.016	0.020	0.025	0.039	0.050	0.064	0.077	0.089	0.101	
Steels	1450 - 1600	45 - 50	90	0.004	0.008	0.010	0.012	0.014	0.016	0.018	0.022	0.030	0.033	0.039	0.047		
Stainless Steels			80	90	0.010	0.012	0.015	0.020	0.025	0.035	0.045	0.055	0.065	0.070	0.075	0.080	

Slotting

Material	Tensile Strength	Rockwell Hardness	Vc - Cutting Speed		fz - Feed per Tooth												
			TiCN	TiAlN	D - Diameter in mm												
			m/min	m/min	2	3	4	5	6	8	10	12	14	16	18	20	
	N/mm ²	HRC															
Steels	1050 - 1300	32 - 40	100	150	0.003	0.005	0.007	0.010	0.013	0.017	0.020	0.024	0.030	0.034	0.039	0.049	
Steels	1300 - 1450	40 - 45	85	125	0.003	0.005	0.006	0.009	0.012	0.015	0.018	0.022	0.028	0.031	0.036	0.045	
Steels	1450 - 1600	45 - 50	90	0.002	0.004	0.006	0.008	0.011	0.014	0.017	0.021	0.025	0.029	0.034	0.039		
Stainless Steels			80	90	0.006	0.008	0.010	0.015	0.020	0.030	0.040	0.045	0.050	0.055	0.060	0.065	

4906

Cutting Section Geometry

Material	Tensile Strength	Rockwell Hardness			
	N/mm ²	HRC	a p1	a p2	a p3
Steels	500 - 700		1.5 x D	0.5 x D	0.75 x D
Steels	800 - 1000	22 - 32	1.5 x D	0.4 x D	0.75 x D
Steels	1050 - 1300	32 - 40	1.5 x D	0.4 x D	0.60 x D
Steels	1300 - 1450	40 - 45	1.0 x D	0.4 x D	0.50 x D
Steels	1450 - 1600	45 - 50	1.0 x D	0.3 x D	0.40 x D
Cast Iron			1.5 x D	0.5 x D	1.00 x D

Side Milling

Material	Tensile Strength	Rockwell Hardness	Vc - Cutting Speed		fz - Feed per Tooth										
			TiCN	TiAlN	D - Diameter in mm										
			m/min	m/min	6	8	10	12	14	16	20	25			
	N/mm ²	HRC													
Steels	500 - 700		120	210	0.030	0.035	0.045	0.050	0.065	0.075	0.085	0.100			
Steels	800 - 1000	22 - 32	100	180	0.025	0.030	0.040	0.045	0.060	0.070	0.080	0.090			
Steels	1050 - 1300	32 - 40	80	120	0.017	0.022	0.027	0.032	0.037	0.042	0.047	0.052			
Steels	1300 - 1450	40 - 45	70	90	0.015	0.019	0.023	0.027	0.031	0.035	0.039	0.043			
Steels	1450 - 1600	45 - 50	80	0.012	0.015	0.018	0.021	0.024	0.027	0.030	0.033				
Cast Iron			150	180	0.030	0.036	0.048	0.054	0.062	0.072	0.096	0.120			

For Slotting: multiply by 0.7 the feed per tooth (fz) in the table

4909 / 4979 / 49G9

Cutting Section Geometry

Material	a p1	a p2	a p3
Aluminium Alloys	1.5 x D	0.5 x D	1.0 x D
Aluminium Alloys Silicon	1.5 x D	0.5 x D	1.0 x D

Side Milling

Material	Vc – Cutting Speed		fz - Feed per Tooth								
	Uncoated		D - Diameter in mm								
	m/min		6	8	10	12	14	16	20	25	
Aluminium Alloys	250 - 1000		0.054	0.069	0.085	0.100	0.115	0.131	0.146	0.162	0.200
Aluminium Alloys Silicon	150 - 400		0.045	0.058	0.071	0.083	0.096	0.109	0.122	0.135	0.167

For 4979 Uncoated Cutting Speed 2000 m/min

For 4979 Coated TiCN Max Cutting Speed 2500 m/min

For 49G9 Coated TiCN Max Cutting Speed 3000 m/min

For Slotting: multiply by 0.8 the feed per tooth (fz) in the table

4940 / 4970

Cutting Section Geometry

Material	Tensile Strength	Rockwell Hardness			
	N/mm ²	HRc	a p1	a p2	a p3
Steels	1100 - 1450	35 - 45	1.5 x D	0.40 x D	0.50 x D
Steels	1450 - 1995	40 - 45	1.5 x D	0.30 x D	0.50 x D
Steels		55 - 60	1.5 x D	0.25 x D	0.30 x D
Titanium	< 1300		1.5 x D	0.30 x D	0.50 x D
Titanium	> 1300		1.5 x D	0.25 x D	0.30 x D
Inconel			1.0 x D	0.20 x D	0.25 x D

Side Milling

Material	Tensile Strength	Rockwell Hardness	Vc – Cutting Speed		fz - Feed per Tooth									
			D - Diameter in mm											
			TICN	TIAlN	6	8	10	12	16	20	25			
	N/mm ²	HRc	m/min	m/min										
Steels	1100 - 1450	35 - 45	100	150	0.020	0.025	0.030	0.040	0.050	0.065	0.070			
Steels	1450 - 1995	40 - 45	73	110	0.015	0.020	0.025	0.030	0.040	0.050	0.055			
Steels		55 - 60	90	90	0.010	0.015	0.020	0.025	0.030	0.040	0.045			
Titanium	< 1300		45	70	0.030	0.035	0.040	0.050	0.070	0.080	0.085			
Titanium	> 1300		40	60	0.025	0.030	0.035	0.045	0.060	0.075	0.080			
Inconel			20	30	0.015	0.020	0.025	0.030	0.040	0.050	0.055			

Feed per tooth (fz) in the table is for 4970. For 4940 multiply feed per tooth by 1.2

For Slotting: multiply by 0.8 the feed per tooth (fz) in the table

6605 / 6606

Cutting Section Geometry

Material	Tensile Strength	Rockwell Hardness			
	N/mm ²	HRc	a p1	a p2	a p3
Steels	500 - 700		1.5 x D	0.5 x D	1.0 x D
Steels	800 - 1000	20 - 30	1.5 x D	0.5 x D	1.0 x D
Steels	1050 - 1300	32 - 40	1.5 x D	0.5 x D	1.0 x D
Stainless Steels			1.5 x D	0.5 x D	1.0 x D
Titanium	> 1300		1.5 x D	0.5 x D	1.0 x D

Side Milling

Material	Tensile Strength	Rockwell Hardness	Vc – Cutting Speed				fz - Feed per Tooth																					
			D - Diameter in mm																									
			Uncoated	TIN	TICN	TIAlN	6	7	8	9	10	11	12	13	14	16	18	20	22	24	25	28	30	32	35	36	40	50
Steels	500 - 700		30	45	70	90	0.015	0.020	0.024	0.030	0.036	0.048	0.054	0.056	0.060	0.066	0.078	0.090	0.096	0.102	0.108	0.096	0.096	0.102	0.108	0.120	0.120	0.120
Steels	800 - 1000	20 - 30	25	35	55	75	0.012	0.018	0.022	0.027	0.032	0.043	0.048	0.050	0.054	0.060	0.070	0.081	0.086	0.092	0.097	0.086	0.086	0.092	0.107	0.108	0.108	0.108
Steels	1050 - 1300	32 - 40	15	23	35	45	0.012	0.016	0.020	0.024	0.029	0.039	0.043	0.045	0.049	0.054	0.063	0.073	0.077	0.083	0.087	0.077	0.077	0.083	0.083	0.097	0.097	0.097
Stainless Steels			10	15	25	35	0.011	0.015	0.019	0.023	0.027	0.037	0.041	0.043	0.046	0.050	0.060	0.070	0.073	0.079	0.079	0.073	0.079	0.079	0.079	0.092	0.092	0.092
Titanium	> 1300		10	15	20	25	0.011	0.015	0.019	0.023	0.027	0.037	0.041	0.043	0.046	0.050	0.060	0.070	0.073	0.079	0.079	0.073	0.079	0.079	0.079	0.092	0.092	0.092

For Slotting: multiply by 0.6 the feed per tooth (fz) in the table

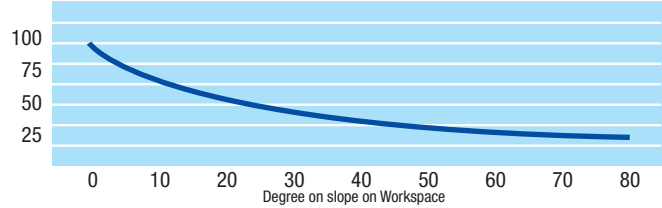
7050 / 7150 / 7151

Cutting Section Geometry

Material	Rockwell Hardness	Finishing		Semi Finishing		Roughing	
		a p4	a p5	a p4	a p5	a p4	a p5
Steels	<30	0.01 x D	0.01 x D	0.05 x D	0.05 x D	0.10 x D	0.10 x D
Steels	30-40	0.01 x D	0.01 x D	0.05 x D	0.05 x D	0.10 x D	0.07 x D
Steels	40-50	0.01 x D	0.01 x D	0.05 x D	0.05 x D	0.10 x D	0.05 x D
Steels	50-60	0.01 x D	0.01 x D	0.04 x D	0.04 x D	0.05 x D	0.05 x D
Steels	60-70	0.01 x D	0.01 x D	0.03 x D	0.03 x D	0.05 x D	0.03 x D

Percentage of Cutting Speed

Slope Cutting Speed Factor



Side Milling

Material	Rockwell Hardness	Vc - Cutting Speed			fz - Feed per Tooth										
		TiAlN m/min			D - Diameter in mm										
		Finishing	Semi-Finishing	Roughing	2	2.5	3	4	5	6	8	10	12	16	20
Steels	<30	3000	1500	1000	0.050	0.060	0.080	0.120	0.150	0.200	0.200	0.220	0.240	0.260	0.300
Steels	30-40	2400	1200	800	0.040	0.050	0.060	0.100	0.130	0.180	0.180	0.200	0.220	0.240	0.280
Steels	40-50	1500	750	500	0.040	0.040	0.060	0.070	0.080	0.100	0.120	0.140	0.160	0.180	0.200
Steels	50-60	1200	600	400	0.030	0.020	0.030	0.040	0.040	0.050	0.060	0.060	0.070	0.080	0.080
Steels	60-70	900	500	300	0.020	0.020	0.030	0.040	0.040	0.050	0.060	0.060	0.070	0.080	0.080

Cutting data is for a p4 and a p5 equal 0.01D, for every 0.01D of dia. addition to a p4, decrease feed per tooth by 3%.
Cutting data is for dry machining or mist cooling.
Use the diagram to determine cutting speed incase of slopes on workpiece.

7505 / 7515 / 7525

Roughing

Material	Tensile Strength	Rockwell Hardness	Stub 7505			Regular - 7515 Long - 7525		
			a p1	a p2	a p3	a p1	a p2	a p3
Steels	<1000	<30	0.40 x D	1.0 x D	1.00 x D	0.3 x D	1.0 x D	0.3 x D
Steels	1000-1300	30-40	0.40 x D	1.0 x D	0.75 x D	0.2 x D	1.0 x D	0.3 x D
Steels	1300-1450	40-45	0.40 x D	1.0 x D	0.75 x D	0.2 x D	1.0 x D	0.3 x D
Steels	1450-1600	45-50	0.25 x D	1.0 x D	0.50 x D	0.2 x D	1.0 x D	0.3 x D
Steels	1600-2000	50-55	0.25 x D	1.0 x D	0.40 x D	0.2 x D	1.0 x D	0.3 x D
Steels	>2000	>55	0.25 x D	1.0 x D	0.40 x D	0.2 x D	1.0 x D	0.2 x D

These cutting sections are obvious for heavy stock removal-semifinishing / roughing. For finishing where a p2 dimension is 0.1D or less, a p1 dimension can be 1.5 x D, 2.5 x D or 3.5 x D according to the length of cut.
Use this table with the cutting conditions on the previous page.
Tool to be resharpened when wear size is no more than 0.8% of tool diameter.

Finishing

Material	Tensile Strength	Rockwell Hardness	Stub			Regular/Long		
			a p1	a p2	a p3	a p1	a p2	a p3
Steels	<1000	<30	1.25 x D	0.1 x D	2.5 x D	0.1 x D	3.5 x D	0.1 x D
Steels	1000-1300	30-40	1.25 x D	0.1 x D	2.5 x D	0.1 x D	3.5 x D	0.1 x D
Steels	1300-1450	40-45	1.25 x D	0.1 x D	2.5 x D	0.1 x D	3.5 x D	0.1 x D
Steels	1450-1600	45-50	1.25 x D	0.1 x D	2.5 x D	0.1 x D	3.5 x D	0.1 x D
Steels	1600-2000	50-55	1.25 x D	0.1 x D	2.5 x D	0.1 x D	3.5 x D	0.1 x D
Steels	>2000	>55	1.25 x D	0.1 x D	2.5 x D	0.1 x D	3.5 x D	0.1 x D

Side Milling TiAlN

Material	Tensile Strength	Rockwell Hardness	Vc - Cutting Speed			fz - Feed per Tooth					
			TiAlN			D - Diameter in mm					
			m/min	6	8	10	12	16	20	25	
Steels	<1000	<30	200	0.055	0.070	0.090	0.110	0.150	0.180	0.200	
Steels	1000-1300	30-40	180	0.050	0.060	0.085	0.100	0.140	0.170	0.190	
Steels	1300-1450	40-45	160	0.040	0.055	0.070	0.080	0.110	0.130	0.170	
Steels	1450-1600	45-50	120	0.030	0.045	0.055	0.070	0.090	0.110	0.140	
Steels	1600-2000	50-55	80	0.020	0.030	0.040	0.045	0.060	0.075	0.090	
Steels	>2000	>55	70	0.015	0.020	0.030	0.035	0.050	0.060	0.070	

Conditions are for Stub - 7505 tool in side milling.

For Slotting: multiply by 0.5 the feed per tooth (fz) in the table.
FOR REGULAR - 7575 OR LONG - 7525 TOOL: Multiply feed per tooth of stub tool by 0.7.
Use this cutting data on a rigid machine and work piece clamping only.

7670

Cutting Section Geometry

Material	Tensile Strength	Rockwell Hardness			
	N/mm ²	HRC	a p1	a p2	a p3
Steels	<1000	<30	0.8 x D	0.50 x D	0.80 x D
Steels	1000 - 1300	30 - 40	0.8 x D	0.40 x D	0.80 x D
Steels	1300 - 1600	40 - 50	0.8 x D	0.40 x D	0.50 x D
Steels		50 - 60	0.8 x D	0.25 x D	0.30 x D
Steels		60 - 70	0.8 x D	0.20 x D	0.25 x D

Side Milling

Material	Tensile Strength	Rockwell Hardness	Vc - Cutting Speed		fz - Feed per Tooth								
			TiAlN		D - Diameter in mm								
			m/min		4	5	6	8	10	12	16	20	25
Steels	<1000	<30	180		0.020	0.025	0.030	0.040	0.060	0.060	0.080	0.100	0.120
Steels	1000 - 1300	30 - 40	120		0.015	0.020	0.025	0.030	0.040	0.045	0.060	0.080	0.100
Steels	1300 - 1600	40 - 50	80		0.010	0.015	0.020	0.025	0.030	0.040	0.050	0.060	0.070
Steels		50 - 60	60		0.007	0.008	0.010	0.015	0.020	0.025	0.030	0.040	0.045
Steels		60 - 70	40		0.006	0.007	0.010	0.010	0.015	0.020	0.025	0.030	0.035

For Slotting: multiply by 0.7 the feed per tooth (fz) in the table

D518

Cutting Section Geometry

Material	Rockwell Hardness			
	HRC	a p1	a p2	a p3
Steels	40 - 50	1.5 x D	0.070 x D	0.20 x D
Steels	50 - 55	1.5 x D	0.050 x D	0.18 x D
Steels	55 - 60	1.5 x D	0.030 x D	0.13 x D
Steels	≥60	1.5 x D	0.025 x D	0.10 x D

Side Milling

Material	Rockwell Hardness	Vc - Cutting Speed		fz - Feed per Tooth						
		TiCN	TiAlN	D - Diameter in mm						
		m/min	m/min	4	6	8	10	12	16	20
Steels	40 - 50	80	300	0.021	0.026	0.037	0.046	0.055	0.083	0.110
Steels	50 - 55	60	250	0.018	0.024	0.034	0.042	0.050	0.076	0.100
Steels	55 - 60	50	180	0.013	0.018	0.024	0.034	0.042	0.050	0.076
Steels	≥60		120	0.009	0.013	0.034	0.024	0.034	0.042	0.050

DC03

Cutting Section Geometry

Material	Type	a p3
Stainless Steels	AISI 17-4PH & AISI 316	0.5 x D
Stainless Steels	AISI 302 & 303	0.5 x D
Stainless Steels	AISI 416 & AISI 420	0.5 x D

Side Milling

Material	Type	Vc - Cutting Speed	fz - Feed per Tooth					
		TiAlN m/min	D - Diameter in mm					
			6	8	10	12	16	20
Stainless Steels	AISI 17-4PH & AISI 316	80 - 90	0.030	0.040	0.050	0.055	0.060	0.065
Stainless Steels	AISI 302 & 303	90 - 100	0.030	0.040	0.050	0.055	0.060	0.065
Stainless Steels	AISI 416 & AISI 420	100 - 120	0.040	0.050	0.060	0.065	0.070	0.075

Cutting Section Geometry

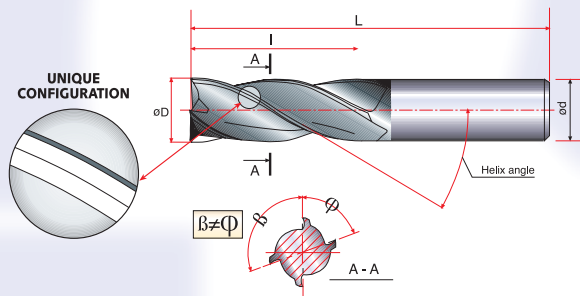
Material	Type	Rockwell Hardness	a p1
		HRc	1 x D
Steels		<25	1 x D
Stainless Steels	AISI 302		1 x D
Stainless Steels	AISI 410		1 x D
Stainless Steels	AISI 316		1 x D
Inconel 718			1 x D
Aluminium			1 x D

Side Milling

Material	Type	Rockwell Hardness	Vc - Cutting Speed	fz - Feed per Tooth												
				TIAIN	D - Diameter in mm											
					m/min	3	4	5	6	7	8	10	12	14	16	18
Steels		<25	150	0.015	0.020	0.025	0.030	0.033	0.036	0.041	0.061	0.061	0.061	0.064	0.066	
Stainless Steels	AISI 302		120	0.015	0.020	0.025	0.030	0.033	0.036	0.041	0.061	0.061	0.061	0.064	0.066	
Stainless Steels	AISI 410		100	0.010	0.015	0.020	0.025	0.028	0.030	0.036	0.051	0.053	0.056	0.058	0.061	
Stainless Steels	AISI 316		80	0.005	0.010	0.015	0.020	0.023	0.025	0.030	0.041	0.043	0.046	0.048	0.051	
Inconel 718			25	0.003	0.005	0.010	0.015	0.018	0.020	0.023	0.030	0.033	0.028	0.043	0.051	
Aluminium			500-1500	0.041	0.046	0.051	0.056	0.058	0.061	0.076	0.102	0.109	0.119	0.135	0.152	

Cutting Section Geometry

Material	Type	Rockwell Hardness	Performance			
			a p3	a p4	a p5	
Easy to cut Stainless Steels (304)		<25	1 x D	0.5 x D	1 x D	E
Moderately to cut Stainless Steels	AISI 302		1 x D	0.5 x D	1 x D	E
Difficult to cut Stainless Steels (316L)	AISI 410		1 x D	0.5 x D	1 x D	E
High Temperature Alloys	AISI 316		0.3 x D	0.2 x D	1 x D	E
Soft Steel			1 x D	0.5 x D	1 x D	E
Titanium			0.5 x D	0.2 x D	1 x D	R
Gray Cast Iron			1 x D	0.5 x D	1 x D	R



Side Milling

Material	Type	Rockwell Hardness	Vc - Cutting Speed	fz - Feed per Tooth										
				TIAIN	D - Diameter in mm									
					m/min	4	5	6	8	10	12	16	18	20
Easy to cut Stainless Steels (304)		<25	90-115	0.015	0.015	0.020	0.030	0.030	0.040	0.050	0.055	0.060	0.060	
Moderately to cut Stainless Steels	AISI 302		70-85	0.013	0.013	0.018	0.028	0.028	0.038	0.048	0.053	0.058	0.058	
Difficult to cut Stainless Steels (316L)	AISI 410		60-80	0.011	0.011	0.016	0.016	0.026	0.036	0.046	0.051	0.056	0.056	
High Temperature Alloys	AISI 316		25-35	0.011	0.011	0.017	0.027	0.027	0.038	0.049	0.055	0.060	0.060	
Soft Steel			150-180	0.020	0.020	0.020	0.030	0.030	0.040	0.050	0.060	0.060	0.070	
Titanium			50-70	0.012	0.012	0.016	0.022	0.027	0.033	0.038	0.044	0.055	0.066	
Gray Cast Iron			120-150	0.015	0.020	0.020	0.030	0.030	0.040	0.050	0.060	0.060	0.070	

Drills M152/M162/M252/M262

Material	Coolant	Coating	Cutting Speed m/min	fz - Feed per Tooth D - Diameter in mm
Soft Steels 30 > St HRc	External up to 3 x D Internal above 3 x D	FTR	80-100	0.025 x D
Medium Hard Steels 30 < St < 45 HRc	External up to 3 x D Internal above 3 x D	FTR	50-70	0.020 x D
Hardened Steels 45 < St HRc	External up to 3 x D Internal above 3 x D	FTR	30-50	0.015 x D
Cast Iron	External up to 3 x D Internal above 3 x D	FTR	80-120	0.025 x D
Aluminium	External up to 3 x D Internal above 3 x D	TiCN	600-750	0.030 x D
Titanium	Internal	FTR	30-40	0.020 x D
Stainless Steels 400 Series	Internal	TiCN	50-60	0.018 x D
Stainless Steels 300 Series or PH	Internal	TiCN	40-50	0.016 x D
Inconel	Internal	FTR	15-20	0.016 x D

Index by Application Material

Application Material	Family	No. of Flutes	Type No.	Ball Nose Square End	Shank	Application	Page
SOFT STEELS	HSS FINISHER	2	1601	BALL	W, S	PR	10
SOFT STEELS	HSS FINISHER	2	1N02	SQUARE	W	SL	15
SOFT STEELS	HSS FINISHER	3+	3605	SQUARE	W	SL, SM	18
SOFT STEELS	HSS FINISHER	3+	3615	SQUARE	W	SL, SM	19
SOFT STEELS	HSS FINISHER	3+	3N05	SQUARE	W	SL, SM	20
SOFT STEELS	HSS FINISHER	4+	1600	BALL	W, S	PR	10
SOFT STEELS	HSS FINISHER	4+	1N05 / 1N07	SQUARE	W	SM	16
SOFT STEELS	HSS FINISHER	4+	1NL5 / 1NL7	SQUARE	T	SM	16
SOFT STEELS	HSS FINISHER JJ	2	1601 JJ	BALL	T	SL, PR	22
SOFT STEELS	HSS FINISHER JJ	2	1N52 JJ	SQUARE	T	SL	24
SOFT STEELS	HSS FINISHER JJ	4	1634 JJ	SQUARE	T	SM	22
SOFT STEELS	HSS FINISHER JJ	4	1N34 JJ	SQUARE	T	SM	24
SOFT STEELS	HSS ROUGHER	3+	6604	SQUARE	W	SL, SM	26
SOFT STEELS	HSS ROUGHER	3+	6605 / 6606	SQUARE	W, S	SL, SM	26
SOFT STEELS	HSS ROUGHER	3+	6607 / 6608	SQUARE	W, S	SL, SM	27
SOFT STEELS	HSS ROUGHER	3+	6645	SQUARE	W	SL, SM	30
SOFT STEELS	HSS ROUGHER	3+	6N04	SQUARE	W	SL, SM	33
SOFT STEELS	HSS ROUGHER	3+	6N08	SQUARE	W	SL, SM	34
SOFT STEELS	HSS ROUGHER	4+	6667 JJ	BALL	T	SL	30
SOFT STEELS	HSS ROUGHER	4+	6674	SQUARE	W	SM	31
SOFT STEELS	HSS ROUGHER	4+	6N06	SQUARE	W	SL, SM	33
SOFT STEELS	HSS ROUGHER	4+	6N70	SQUARE	W	SL, SM	34
SOFT STEELS	HSS ROUGHER	4+	6NL6	SQUARE	W	SL, SM	34
SOFT STEELS	S.C FINISHER	2	4011	BALL	T	SL, PR	39
SOFT STEELS	S.C FINISHER	2	4012	SQUARE	T	SL	39
SOFT STEELS	S.C FINISHER	2	D001	BALL	W	SL, PR	46
SOFT STEELS	S.C FINISHER	2	D011	BALL	W	PR	49
SOFT STEELS	S.C FINISHER	3	DC19	BALL	W	PR	54
SOFT STEELS	S.C FINISHER	4	4000	BALL	T	SL, PR	36
SOFT STEELS	S.C FINISHER	4	4010	BALL	T	SL, PR	38
SOFT STEELS	S.C FINISHER	4	D000	BALL	W	SL, PR	45
SOFT STEELS	S.C FINISHER	4	D010	BALL	W	PR	48
SOFT STEELS	S.C VISION	3+	7670	SQUARE	T	SL, SM	60
SOFT STEELS	S.C VISION	4+	7505	SQUARE	T	SL, SM	57
SOFT STEELS	S.C VISION	4+	7515	SQUARE	T	SL, SM	57
SOFT STEELS	S.C VISION	4+	7525	SQUARE	T	SL, SM	58
SOFT STEELS	S.C VISION	4+	7545	SQUARE	T	SL, SM	58
SOFT STEELS	S.C VISION	4+	7585	SQUARE	T	SL, SM	59
SOFT STEELS	S.C VISION	4+	7595	SQUARE	T	SL, SM	59
SOFT STEELS	S.C VISION	4+	75N5	SQUARE	T	SL, SM	60
SOFT STEELS	S.C ROUGHER	3+	4906	SQUARE	W	SL, SM	62
SOFT STEELS	S.C ROUGHER	3+	4966	BALL	W	SL	63
SOFT STEELS	S.C ROUGHER	4+	4940	SQUARE	T	SL, SM	63
SOFT STEELS	S.C ROUGHER	4+	4970	SQUARE	T	SL, SM	64
MEDIUM HARD STEELS	HSS ROUGHER	3+	6N04	SQUARE	W	SL, SM	33
MEDIUM HARD STEELS	HSS ROUGHER	4+	6N70	SQUARE	W	SL, SM	34
MEDIUM HARD STEELS	S.C FINISHER	2	4011	BALL	T	SL, PR	39
MEDIUM HARD STEELS	S.C FINISHER	2	4012	SQUARE	T	SL	39
MEDIUM HARD STEELS	S.C FINISHER	2	D001	BALL	W	SL, PR	46
MEDIUM HARD STEELS	S.C FINISHER	2	D011	BALL	W	PR	49
MEDIUM HARD STEELS	S.C FINISHER	2	D501	BALL	T	PR	51
MEDIUM HARD STEELS	S.C FINISHER	4	4000	BALL	T	SL, PR	36
MEDIUM HARD STEELS	S.C FINISHER	4	4010	BALL	T	SL, PR	38
MEDIUM HARD STEELS	S.C FINISHER	4	D000	BALL	W	SL, PR	45
MEDIUM HARD STEELS	S.C FINISHER	4	D010	BALL	W	PR	48
MEDIUM HARD STEELS	S.C FINISHER	4+	D518	SQUARE	W	SM	53
MEDIUM HARD STEELS	S.C FINISHER	6	D507	SQUARE	W	SM	52
MEDIUM HARD STEELS	S.C FINISHER	6	D517	SQUARE	W	SM	53
MEDIUM HARD STEELS	S.C VISION	2	7151	BALL	T	PR	56
MEDIUM HARD STEELS	S.C VISION	3+	7670	SQUARE	T	SL, SM	60
MEDIUM HARD STEELS	S.C VISION	4	7050	BALL	T	PR	56
MEDIUM HARD STEELS	S.C VISION	4	7150	BALL	T	PR	56
MEDIUM HARD STEELS	S.C VISION	4+	7505	SQUARE	T	SL, SM	57
MEDIUM HARD STEELS	S.C VISION	4+	7515	SQUARE	T	SL, SM	57
MEDIUM HARD STEELS	S.C VISION	4+	7525	SQUARE	T	SL, SM	58
MEDIUM HARD STEELS	S.C VISION	4+	7545	SQUARE	T	SL, SM	58
MEDIUM HARD STEELS	S.C VISION	4+	7585	SQUARE	T	SL, SM	59
MEDIUM HARD STEELS	S.C VISION	4+	7595	SQUARE	T	SL, SM	59
MEDIUM HARD STEELS	S.C VISION	4+	75N5	SQUARE	T	SL, SM	60
MEDIUM HARD STEELS	S.C ROUGHER	3+	4906	SQUARE	W	SL, SM	62
MEDIUM HARD STEELS	S.C ROUGHER	3+	4966	BALL	W	SL	63
MEDIUM HARD STEELS	S.C ROUGHER	3+	49H6	SQUARE	W	SL, SM	65

ALL MATERIALS

S.C ROUGHER

4

4777

SQUARE

T

SL, SM

45

Shank: T - Plain S - Screwed W - Weldon Wh - Whistle Notch
 Application: D - Drilling PR - Profiling SL - Slotting SM - Side Milling

Application Material	Family	No. of Flutes	Type No.	Ball Nose Square End	Shank	Application	Page
MEDIUM HARD STEELS	S.C ROUGHER	4+	4940	SQUARE	T	SL, SM	63
MEDIUM HARD STEELS	S.C ROUGHER	4+	4970	SQUARE	T	SL, SM	64
MEDIUM HARD STEELS	S.C DRILLS	2	M150	BALL	T	D	72
MEDIUM HARD STEELS	S.C DRILLS	2	M152	SQUARE	Wh	D	72
MEDIUM HARD STEELS	S.C DRILLS	2	M162	SQUARE	Wh	D	75
MEDIUM HARD STEELS	S.C DRILLS	2	M252	SQUARE	Wh	D	76
MEDIUM HARD STEELS	S.C DRILLS	2	M262	SQUARE	Wh	D	76
HARDENED STEELS	S.C FINISHER	2	4011	BALL	T	SL, PR	39
HARDENED STEELS	S.C FINISHER	2	4012	SQUARE	T	SL	39
HARDENED STEELS	S.C FINISHER	2	D001	BALL	W	SL, PR	46
HARDENED STEELS	S.C FINISHER	2	D011	BALL	W	PR	49
HARDENED STEELS	S.C FINISHER	2	D501	BALL	T	PR	51
HARDENED STEELS	S.C FINISHER	3	4503 JJ	SQUARE	T	SL, SM	43
HARDENED STEELS	S.C FINISHER	3	D503	SQUARE	W	SL, SM	47
HARDENED STEELS	S.C FINISHER	3	D513	SQUARE	W	SL, SM	52
HARDENED STEELS	S.C FINISHER	4	4000	BALL	T	SL, PR	36
HARDENED STEELS	S.C FINISHER	4	4010	BALL	T	SL, PR	38
HARDENED STEELS	S.C FINISHER	4	D000	BALL	W	SL, PR	45
HARDENED STEELS	S.C FINISHER	4	D010	BALL	W	PR	48
HARDENED STEELS	S.C FINISHER	4+	D518	SQUARE	W	SM	53
HARDENED STEELS	S.C FINISHER	6	D507	SQUARE	W	SM	52
HARDENED STEELS	S.C FINISHER	6	D517	SQUARE	W	SM	53
HARDENED STEELS	S.C VISION	2	7151	BALL	T	PR	56
HARDENED STEELS	S.C VISION	3+	7670	SQUARE	T	SL, SM	60
HARDENED STEELS	S.C VISION	4	7050	BALL	T	PR	56
HARDENED STEELS	S.C VISION	4	7150	BALL	T	PR	56
HARDENED STEELS	S.C VISION	4+	7505	SQUARE	T	SL, SM	57
HARDENED STEELS	S.C VISION	4+	7515	SQUARE	T	SL, SM	57
HARDENED STEELS	S.C VISION	4+	7525	SQUARE	T	SL, SM	58
HARDENED STEELS	S.C VISION	4+	7545	SQUARE	T	SL, SM	58
HARDENED STEELS	S.C VISION	4+	7585	SQUARE	T	SL, SM	59
HARDENED STEELS	S.C VISION	4+	7595	SQUARE	T	SL, SM	59
HARDENED STEELS	S.C VISION	4+	75N5	SQUARE	T	SL, SM	60
HARDENED STEELS	S.C ROUGHER	3+	49H6	SQUARE	W	SL, SM	65
HARDENED STEELS	S.C ROUGHER	4+	4940	SQUARE	T	SL, SM	63
HARDENED STEELS	S.C ROUGHER	4+	4970	SQUARE	T	SL, SM	64
HARDENED STEELS	S.C DRILLS	2	M150	BALL	T	D	72
HARDENED STEELS	S.C DRILLS	2	M152	SQUARE	Wh	D	72
HARDENED STEELS	S.C DRILLS	2	M162	SQUARE	Wh	D	73
HARDENED STEELS	S.C DRILLS	2	M252	SQUARE	Wh	D	76
HARDENED STEELS	S.C DRILLS	2	M262	SQUARE	Wh	D	76
STAINLESS STEELS	HSS FINISHER	3+	3605	SQUARE	W	SL, SM	18
STAINLESS STEELS	HSS FINISHER	3+	3615	SQUARE	W	SL, SM	19
STAINLESS STEELS	HSS FINISHER	3+	3N05	SQUARE	W	SL, SM	20
STAINLESS STEELS	HSS ROUGHER	3+	6604	SQUARE	W	SL, SM	26
STAINLESS STEELS	HSS ROUGHER	3+	6605 / 6606	SQUARE	W, S	SL, SM	26
STAINLESS STEELS	HSS ROUGHER	3+	6607 / 6608	SQUARE	W, S	SL, SM	27
STAINLESS STEELS	HSS ROUGHER	3+	6645	SQUARE	W	SL, SM	30
STAINLESS STEELS	HSS ROUGHER	4+	6675	SQUARE	W	SM	32
STAINLESS STEELS	HSS ROUGHER	4+	6N70	SQUARE	W	SL, SM	34
STAINLESS STEELS	S.C FINISHER	3	4503 JJ	SQUARE	T	SL, SM	43
STAINLESS STEELS	S.C FINISHER	3	4603	SQUARE	T	SM	44
STAINLESS STEELS	S.C FINISHER	3	D503	SQUARE	W	SL, SM	51
STAINLESS STEELS	S.C FINISHER	3	D513	SQUARE	W	SL, SM	52
STAINLESS STEELS	S.C FINISHER	3	DC03	SQUARE	W	SL	54
STAINLESS STEELS	S.C FINISHER	3	DC19	BALL	W	PR	54
STAINLESS STEELS	S.C FINISHER	4+	D518	SQUARE	W	SM	53
STAINLESS STEELS	S.C FINISHER	6	D507	SQUARE	W	SM	52
STAINLESS STEELS	S.C FINISHER	6	D517	SQUARE	W	SM	53
STAINLESS STEELS	S.C ROUGHER	3	DQ13	SQUARE	W	SL, SM	66
STAINLESS STEELS	S.C DRILLS	2	M152	SQUARE	Wh	D	72
STAINLESS STEELS	S.C DRILLS	2	M162	SQUARE	Wh	D	74
STAINLESS STEELS	S.C DRILLS	2	M252	SQUARE	Wh	D	75
STAINLESS STEELS	S.C DRILLS	2	M262	SQUARE	Wh	D	76
TITANIUM	HSS FINISHER	3+	3605	SQUARE	W	SL, SM	18
TITANIUM	HSS FINISHER	3+	3615	SQUARE	W	SL, SM	19
TITANIUM	HSS FINISHER	3+	3N05	SQUARE	W	SL, SM	20
TITANIUM	HSS ROUGHER	4+	6673	SQUARE	W	SM	31
TITANIUM	HSS ROUGHER	4+	6675	SQUARE	W	SM	32
TITANIUM	HSS ROUGHER	4+	6N70	SQUARE	W	SL, SM	34
TITANIUM	S.C FINISHER	3	4503 JJ	SQUARE	T	SL, SM	43
TITANIUM	S.C FINISHER	3	4603	SQUARE	T	SM	44

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Application Material	Family	No. of Flutes	Type No.	Ball Nose Square End	Shank	Application	Page
TITANIUM	S.C FINISHER	3	DC03	SQUARE	W	SL	54
TITANIUM	S.C FINISHER	4+	D518	SQUARE	W	SM	53
TITANIUM	S.C FINISHER	6	D507	SQUARE	W	SM	52
TITANIUM	S.C FINISHER	6	D517	SQUARE	W	SM	53
TITANIUM	S.C ROUGHER	4+	4940	SQUARE	T	SL, SM	63
TITANIUM	S.C ROUGHER	4+	4970	SQUARE	T	SL, SM	64
TITANIUM	S.C DRILLS	2	M152	SQUARE	Wh	D	72
TITANIUM	S.C DRILLS	2	M162	SQUARE	Wh	D	74
TITANIUM	S.C DRILLS	2	M252	SQUARE	Wh	D	75
TITANIUM	S.C DRILLS	2	M262	SQUARE	Wh	D	76
INCONEL	HSS FINISHER	3+	3605	SQUARE	W	SL, SM	18
INCONEL	HSS FINISHER	3+	3615	SQUARE	W	SL, SM	19
INCONEL	HSS FINISHER	3+	3N05	SQUARE	W	SL, SM	20
INCONEL	HSS ROUGHER	4+	6675	SQUARE	W	SM	32
INCONEL	HSS ROUGHER	4+	6N70	SQUARE	W	SL, SM	34
INCONEL	S.C FINISHER	3	4503 JJ	SQUARE	T	SL, SM	43
INCONEL	S.C FINISHER	3	4603	SQUARE	T	SM	44
INCONEL	S.C FINISHER	3	DC03	SQUARE	W	SL	54
INCONEL	S.C FINISHER	4+	D518	SQUARE	W	SM	53
INCONEL	S.C FINISHER	6	D507	SQUARE	W	SM	52
INCONEL	S.C FINISHER	6	D517	SQUARE	W	SM	53
INCONEL	S.C DRILLS	2	M152	SQUARE	Wh	D	72
INCONEL	S.C DRILLS	2	M162	SQUARE	Wh	D	74
INCONEL	S.C DRILLS	2	M252	SQUARE	Wh	D	75
INCONEL	S.C DRILLS	2	M262	SQUARE	Wh	D	76
ALUMINIUM	HSS FINISHER	2	3502	SQUARE	W, S	SL, SM	17
ALUMINIUM	HSS FINISHER	3+	3605	SQUARE	W	SL, SM	18
ALUMINIUM	HSS FINISHER	3+	3615	SQUARE	W	SL, SM	19
ALUMINIUM	HSS FINISHER	3+	3N05	SQUARE	W	SL, SM	20
ALUMINIUM	HSS ROUGHER	3	6609	SQUARE	W	SL, SM	27
ALUMINIUM	HSS ROUGHER	3	6619	SQUARE	W	SL, SM	29
ALUMINIUM	HSS ROUGHER	3	6676	SQUARE	W	SL, SM	32
ALUMINIUM	S.C FINISHER	2	4102	SQUARE	T	SL, SM	42
ALUMINIUM	S.C FINISHER	2	D501	BALL	T	PR	51
ALUMINIUM	S.C FINISHER	2	D502	SQUARE	T	SL, SM	51
ALUMINIUM	S.C FINISHER	3	4103	SQUARE	T	SL, SM	43
ALUMINIUM	S.C FINISHER	3	DC03	SQUARE	W	SL	54
ALUMINIUM	S.C FINISHER	3	DC19	BALL	W	PR	54
ALUMINIUM	S.C ROUGHER	3	4909	SQUARE	W	SL, SM	62
ALUMINIUM	S.C ROUGHER	3	4979	SQUARE	T	SL, SM	64
ALUMINIUM	S.C ROUGHER	3	4969	SQUARE	T, W	SL, SM	65
ALUMINIUM	S.C ROUGHER	3	49H9	SQUARE	W	SL, SM	66
HIGH SILICON ALUMINIUM	HSS FINISHER	3+	3605	SQUARE	W	SL, SM	18
HIGH SILICON ALUMINIUM	HSS FINISHER	3+	3615	SQUARE	W	SL, SM	19
HIGH SILICON ALUMINIUM	HSS FINISHER	3+	3N05	SQUARE	W	SL, SM	20
HIGH SILICON ALUMINIUM	HSS ROUGHER	3	6609	SQUARE	W	SL, SM	27
HIGH SILICON ALUMINIUM	HSS ROUGHER	3	6619	SQUARE	W	SL, SM	29
HIGH SILICON ALUMINIUM	S.C FINISHER	2	4102	SQUARE	T	SL, SM	42
HIGH SILICON ALUMINIUM	S.C FINISHER	2	D502	SQUARE	T	SL, SM	51
HIGH SILICON ALUMINIUM	S.C FINISHER	3	4103	SQUARE	T	SL, SM	43
HIGH SILICON ALUMINIUM	S.C FINISHER	3	DC03	SQUARE	W	SL	54
HIGH SILICON ALUMINIUM	S.C FINISHER	3	DC19	BALL	W	PR	54
HIGH SILICON ALUMINIUM	S.C ROUGHER	3	4909	SQUARE	W	SL, SM	62
HIGH SILICON ALUMINIUM	S.C ROUGHER	3	4979	SQUARE	T	SL, SM	64
HIGH SILICON ALUMINIUM	S.C ROUGHER	3	4969	SQUARE	T, W	SL, SM	65
HIGH SILICON ALUMINIUM	S.C ROUGHER	3	49H9	SQUARE	W	SL, SM	66
GRAPHITE	S.C FINISHER	2	4011	BALL	T	SL, PR	39
GRAPHITE	S.C FINISHER	2	4012	SQUARE	T	SL	39
GRAPHITE	S.C FINISHER	2	D001	BALL	W	SL, PR	46
GRAPHITE	S.C FINISHER	2	D011	BALL	W	PR	49
GRAPHITE	S.C FINISHER	4	4010	BALL	T	SL, PR	38
GRAPHITE	S.C FINISHER	4	D000	BALL	W	SL, PR	45
GRAPHITE	S.C FINISHER	4	D010	BALL	W	PR	48
GRAPHITE	S.C VISION	2	7151	BALL	T	PR	56
GRAPHITE	S.C VISION	4	7050	BALL	T	PR	56
GRAPHITE	S.C VISION	4	7150	BALL	T	PR	56
NON FERROUS	HSS ROUGHER	3	6609	SQUARE	W	SL, SM	27
NON FERROUS	HSS ROUGHER	3	6619	SQUARE	W	SL, SM	29
NON FERROUS	S.C FINISHER	2	4102	SQUARE	T	SL, SM	42
NON FERROUS	S.C FINISHER	2	D502	SQUARE	T	SL, SM	51
NON FERROUS	S.C FINISHER	3	4103	SQUARE	T	SL, SM	43
NON FERROUS	S.C FINISHER	3	DC03	SQUARE	W	SL	47

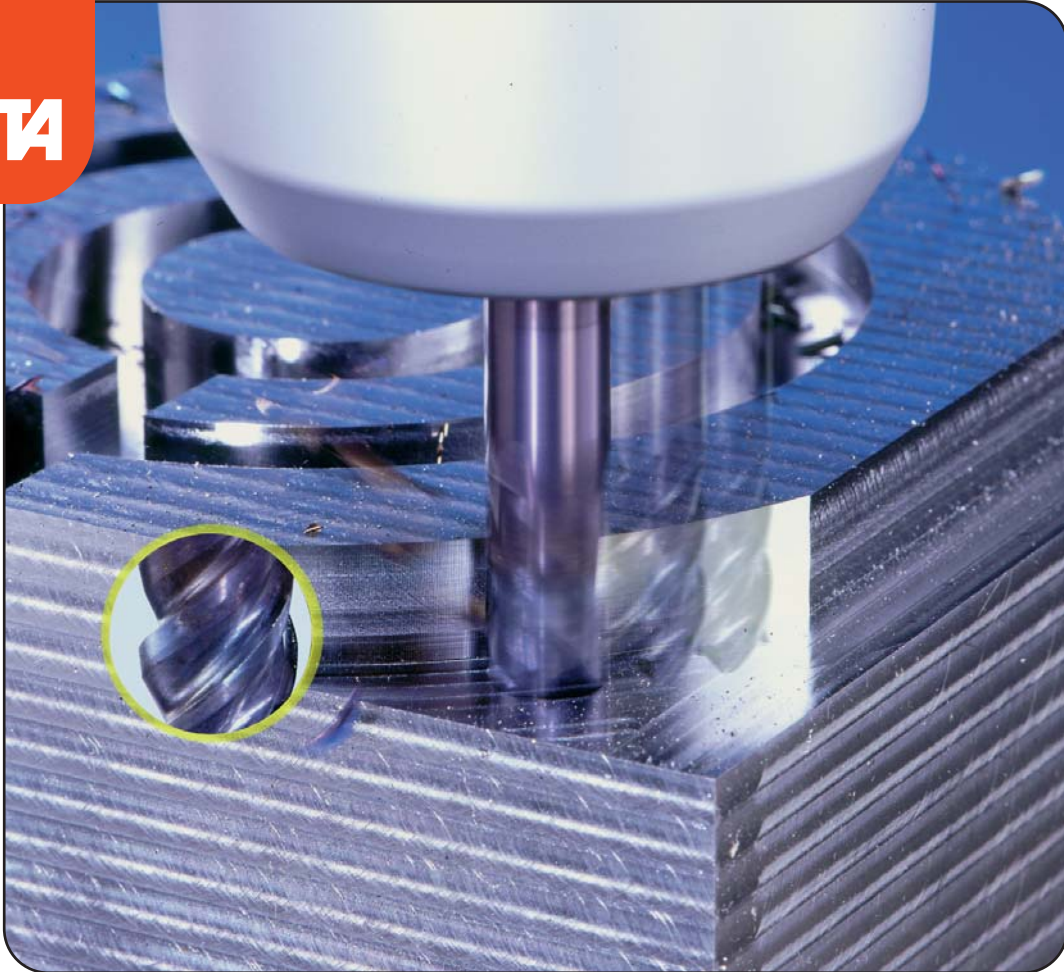
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NON FERROUS	S.C FINISHER	3	DC19	BALL	W	PR	54
NON FERROUS	S.C ROUGHER	3	4909	SQUARE	W	SL, SM	62
NON FERROUS	S.C ROUGHER	3	4979	SQUARE	T	SL, SM	64
NON FERROUS	S.C ROUGHER	3	49G9	SQUARE	T, W	SL, SM	65
GENERAL PURPOSE	HSS FINISHER	2	1602	SQUARE	W, S	SL	11
GENERAL PURPOSE	HSS FINISHER	2	1612	SQUARE	W	SL	13
GENERAL PURPOSE	HSS FINISHER	2	1N02	SQUARE	W	SL	15
GENERAL PURPOSE	HSS FINISHER	3	1603	SQUARE	W, S	SL, SM	12
GENERAL PURPOSE	HSS FINISHER	3	3603 AA	SQUARE	W	SL	17
GENERAL PURPOSE	HSS FINISHER	3	3603 BB	SQUARE	W	SL	16
GENERAL PURPOSE	HSS FINISHER	3	3613 AA	SQUARE	W	SL	18
GENERAL PURPOSE	HSS FINISHER	3	3613 BB	SQUARE	W	SL	19
GENERAL PURPOSE	HSS FINISHER	4	1605	SQUARE	W, S	SM	12
GENERAL PURPOSE	HSS FINISHER	4	1615	SQUARE	W, S	SM	14
GENERAL PURPOSE	HSS FINISHER	4	1625	SQUARE	W	SM	15
GENERAL PURPOSE	HSS FINISHER	4+	1N05 / 1N07	SQUARE	W	SM	16
GENERAL PURPOSE	HSS FINISHER	4+	1NL5 / 1NL7	SQUARE	T	SM	16
GENERAL PURPOSE	HSS FINISHER	6	1616	SQUARE	W, S	SM	14
GENERAL PURPOSE	HSS FINISHER	6+	1606 / 1608	SQUARE	W, S	SL, SM	13
GENERAL PURPOSE	HSS FINISHER JJ	2	1652 JJ	SQUARE	T	SL	23
GENERAL PURPOSE	HSS FINISHER JJ	2	1662 JJ / 1672 JJ	SQUARE	T	SL	23
GENERAL PURPOSE	HSS FINISHER JJ	2	1N52 JJ	SQUARE	T	SL	24
GENERAL PURPOSE	HSS FINISHER JJ	4	1634 JJ	SQUARE	T	SM	22
GENERAL PURPOSE	HSS FINISHER JJ	4	1N34 JJ	SQUARE	T	SM	24
GENERAL PURPOSE	HSS ROUGHER	3+	6604	SQUARE	W	SL, SM	26
GENERAL PURPOSE	HSS ROUGHER	3+	6605 / 6606	SQUARE	W, S	SL, SM	26
GENERAL PURPOSE	HSS ROUGHER	3+	6607 / 6608	SQUARE	W, S	SL, SM	27
GENERAL PURPOSE	HSS ROUGHER	3+	6645	SQUARE	W	SL, SM	30
GENERAL PURPOSE	HSS ROUGHER	3+	6N04	SQUARE	W	SL, SM	33
GENERAL PURPOSE	HSS ROUGHER	3+	6N08	SQUARE	W	SL, SM	34
GENERAL PURPOSE	HSS ROUGHER	4+	6615 / 6616	SQUARE	W, S	SL, SM	28
GENERAL PURPOSE	HSS ROUGHER	4+	6617 / 6618	SQUARE	W, S	SL, SM	28
GENERAL PURPOSE	HSS ROUGHER	4+	6637 JJ / 6638 JJ	SQUARE	T	SL, SM	29
GENERAL PURPOSE	HSS ROUGHER	4+	6667 JJ	BALL	T	SL	30
GENERAL PURPOSE	HSS ROUGHER	4+	6N06	SQUARE	W	SL, SM	33
GENERAL PURPOSE	HSS ROUGHER	4+	6NL6	SQUARE	W	SL, SM	34
GENERAL PURPOSE	S.C FINISHER	2	4001	BALL	T	SL, PR	36
GENERAL PURPOSE	S.C FINISHER	2	4001 JJ	BALL	T	SL	36
GENERAL PURPOSE	S.C FINISHER	2	4002	SQUARE	T	SL, SM	37
GENERAL PURPOSE	S.C FINISHER	2	4011	BALL	T	SL, PR	39
GENERAL PURPOSE	S.C FINISHER	2	4012	SQUARE	T	SL	39
GENERAL PURPOSE	S.C FINISHER	2	4021	BALL	T, W	PR	41
GENERAL PURPOSE	S.C FINISHER	2	4022	BALL	T, W	SL, SM	41
GENERAL PURPOSE	S.C FINISHER	2	4632	SQUARE	T	SL	44
GENERAL PURPOSE	S.C FINISHER	2	4651	BALL	T	SL	45
GENERAL PURPOSE	S.C FINISHER	2	D001	BALL	W	SL, PR	46
GENERAL PURPOSE	S.C FINISHER	2	D002	SQUARE	W	SL	46
GENERAL PURPOSE	S.C FINISHER	2	D011	BALL	W	PR	49
GENERAL PURPOSE	S.C FINISHER	2	D012	SQUARE	W	SL	49
GENERAL PURPOSE	S.C FINISHER	3	4003	SQUARE	T	SL, SM	37
GENERAL PURPOSE	S.C FINISHER	3	4013	SQUARE	T	SL, SM	40
GENERAL PURPOSE	S.C FINISHER	3	4633	SQUARE	T	SL	44
GENERAL PURPOSE	S.C FINISHER	3	D003	SQUARE	W	SL, SM	47
GENERAL PURPOSE	S.C FINISHER	3	D009	BALL	W	PR	48
GENERAL PURPOSE	S.C FINISHER	3	D013	SQUARE	W	SL, SM	50
GENERAL PURPOSE	S.C FINISHER	3	D503	SQUARE	W	SL, SM	51
GENERAL PURPOSE	S.C FINISHER	3	D513	SQUARE	W	SL, SM	52
GENERAL PURPOSE	S.C FINISHER	4	4004	SQUARE	T	SM	38
GENERAL PURPOSE	S.C FINISHER	4	4010	BALL	T	SL, PR	38
GENERAL PURPOSE	S.C FINISHER	4	4014	SQUARE	T	SM	40
GENERAL PURPOSE	S.C FINISHER	4	4024	SQUARE	T, W	SM	42
GENERAL PURPOSE	S.C FINISHER	4	D000	BALL	W	SL, PR	45
GENERAL PURPOSE	S.C FINISHER	4	D004	SQUARE	W	SM	47
GENERAL PURPOSE	S.C FINISHER	4	D010	BALL	W	PR	48
GENERAL PURPOSE	S.C FINISHER	4	D014	SQUARE	W	SM	50
GENERAL PURPOSE	S.C ROUGHER	3+	4906	SQUARE	W	SL, SM	62
GENERAL PURPOSE	S.C ROUGHER	3+	49H6	SQUARE	W	SL, SM	65
GENERAL PURPOSE	S.C DRILLS	2	M112	SQUARE	T	D	69
GENERAL PURPOSE	S.C DRILLS	2	M132	SQUARE	T	D	69
GENERAL PURPOSE	S.C DRILLS	3	M133	SQUARE	T	D	71

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2	HSS FINISHER	1602	SQUARE	W, S	GENERAL	SL	11
2	HSS FINISHER	1612	SQUARE	W	GENERAL	SL	13
2	HSS FINISHER	1N02	SQUARE	W	GENERAL, 30>ST	SL	15
2	HSS FINISHER	3502	SQUARE	W, S	AI	SL, SM	17
2	HSS FINISHER JJ	1601 JJ	BALL	T	30>ST	SL, PR	22
2	HSS FINISHER JJ	1652 JJ	SQUARE	T	GENERAL	SL	23
2	HSS FINISHER JJ	1662 JJ / 1672 JJ	SQUARE	T	GENERAL	SL	23
2	HSS FINISHER JJ	1N52 JJ	SQUARE	T	GENERAL, 30>ST	SL	24
2	S.C FINISHER	4001	BALL	T	GENERAL	SL, PR	36
2	S.C FINISHER	4001 JJ	BALL	T	GENERAL	SL	36
2	S.C FINISHER	4002	SQUARE	T	GENERAL	SL, SM	37
2	S.C FINISHER	4011	BALL	T	GRAPHITE, ST>45, 30<ST<45, 30>ST, GENERAL	SL, PR	39
2	S.C FINISHER	4012	SQUARE	T	GRAPHITE, ST>45, 30<ST<45, 30>ST, GENERAL	SL	39
2	S.C FINISHER	4021	BALL	T, W	GENERAL	PR	41
2	S.C FINISHER	4022	BALL	T, W	GENERAL	SL, SM	41
2	S.C FINISHER	4102	SQUARE	T	NF, AI, AISI	SL, SM	42
2	S.C FINISHER	4632	SQUARE	T	GENERAL	SL	44
2	S.C FINISHER	4651	BALL	T	GENERAL	SL	45
2	S.C FINISHER	D001	BALL	W	GRAPHITE, ST>45, 30<ST<45, 30>ST, GENERAL	SL, PR	46
2	S.C FINISHER	D002	SQUARE	W	GENERAL	SL	46
2	S.C FINISHER	D011	BALL	W	GRAPHITE, ST>45, 30<ST<45, 30>ST, GENERAL	PR	49
2	S.C FINISHER	D012	SQUARE	W	GENERAL	SL	49
2	S.C FINISHER	D501	BALL	T	AI, ST>45, 30<ST<45	PR	51
2	S.C FINISHER	D502	SQUARE	T	NF, AI, AISI	SL, SM	51
2	S.C VISION	7151	BALL	T	GRAPHITE, ST>45, 30<ST<45	PR	56
2	S.C DRILLS	M112	SQUARE	T	GENERAL	D	68
2	S.C DRILLS	M132	SQUARE	T	GENERAL	D	69
2	S.C DRILLS	M150	BALL	T	ST>45, 30<ST<45	D	72
2	S.C DRILLS	M152	SQUARE	Wh	St S, Ti, INCONEL, ST>45, 30<ST<45	D	72
2	S.C DRILLS	M162	SQUARE	Wh	St S, Ti, INCONEL, ST>45, 30<ST<45	D	74
2	S.C DRILLS	M252	SQUARE	Wh	St S, Ti, INCONEL, ST>45, 30<ST<45	D	75
2	S.C DRILLS	M262	SQUARE	Wh	St S, Ti, INCONEL, ST>45, 30<ST<45	D	76
3	HSS FINISHER	1603	SQUARE	W, S	GENERAL	SL, SM	12
3	HSS FINISHER	3603 AA	SQUARE	W	GENERAL	SL	17
3	HSS FINISHER	3603 BB	SQUARE	W	GENERAL	SL	16
3	HSS FINISHER	3613 AA	SQUARE	W	GENERAL	SL	18
3	HSS FINISHER	3613 BB	SQUARE	W	GENERAL	SL	19
3	HSS ROUGHER	6609	SQUARE	W	NF, AI, AISI	SL, SM	27
3	HSS ROUGHER	6619	SQUARE	W	NF, AI, AISI	SL, SM	29
3	HSS ROUGHER	6676	SQUARE	W	AI	SL, SM	32
3	S.C FINISHER	4003	SQUARE	T	GENERAL	SL, SM	37
3	S.C FINISHER	4013	SQUARE	T	GENERAL	SL, SM	40
3	S.C FINISHER	4103	SQUARE	T	NF, AI, AISI	SL, SM	43
3	S.C FINISHER	4503 JJ	SQUARE	T	St S, Ti, INCONEL, ST>45	SL, SM	43
3	S.C FINISHER	4603	SQUARE	T	St S, Ti, INCONEL	SM	44
3	S.C FINISHER	4633	SQUARE	T	GENERAL	SL	44
3	S.C FINISHER	D003	SQUARE	W	GENERAL	SL, SM	47
3	S.C FINISHER	D009	BALL	W	GENERAL	PR	48
3	S.C FINISHER	D013	SQUARE	W	GENERAL	SL, SM	50
3	S.C FINISHER	D503	SQUARE	W	St S, ST>45, GENERAL	SL, SM	51
3	S.C FINISHER	D513	SQUARE	W	St S, ST>45, GENERAL	SL, SM	52
3	S.C FINISHER	DC03	SQUARE	W	NF, AI, AISI, St S, Ti, INCONEL	SL	54
3	S.C FINISHER	DC19	BALL	W	NF, AI, AISI, St S, 30>ST	PR	54
3	S.C ROUGHER	4909	SQUARE	W	NF, AI, AISI	SL, SM	62
3	S.C ROUGHER	4979	SQUARE	T	NF, AI, AISI	SL, SM	64
3	S.C ROUGHER	49G9	SQUARE	T, W	NF, AI, AISI	SL, SM	65
3	S.C ROUGHER	49H9	SQUARE	W	AI, AISI	SL, SM	66
3	S.C ROUGHER	DQ13	SQUARE	W	St S	SL, SM	66
3	S.C DRILLS	M133	SQUARE	T	GENERAL	D	71
3+	HSS FINISHER	3605	SQUARE	W	AI, AISI, St S, Ti, INCONEL, 30>ST	SL, SM	18
3+	HSS FINISHER	3615	SQUARE	W	AI, AISI, St S, Ti, INCONEL, 30>ST	SL, SM	19
3+	HSS FINISHER	3N05	SQUARE	W	AI, AISI, St S, Ti, INCONEL, 30>ST	SL, SM	20
3+	HSS ROUGHER	6604	SQUARE	W	GENERAL, 30>ST, St S	SL, SM	26
3+	HSS ROUGHER	6605 / 6606	SQUARE	W, S	GENERAL, 30>ST, St S	SL, SM	26
3+	HSS ROUGHER	6607 / 6608	SQUARE	W, S	GENERAL, 30>ST, St S	SL, SM	27
3+	HSS ROUGHER	6645	SQUARE	W	GENERAL, 30>ST, St S	SL, SM	30
3+	HSS ROUGHER	6N04	SQUARE	W	GENERAL, 30<ST<45, 30>ST	SL, SM	33
3+	HSS ROUGHER	6N08	SQUARE	W	GENERAL, 30>ST	SL, SM	34
3+	S.C VISION	7670	SQUARE	T	ST>45, 30<ST<45, 30>ST	SL, SM	60
3+	S.C ROUGHER	4906	SQUARE	W	30<ST<45, 30>ST, GENERAL	SL, SM	62
3+	S.C ROUGHER	4966	BALL	W	30<ST<45, 30>ST	SL	63

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3+	S.C ROUGHER	49H6	SQUARE	W	ST>45, 30<ST<45, GENERAL	SL, SM	65
4	HSS FINISHER	1605	SQUARE	W, S	GENERAL	SM	12
4	HSS FINISHER	1615	SQUARE	W, S	GENERAL	SM	14
4	HSS FINISHER	1625	SQUARE	W	GENERAL	SM	15
4	HSS FINISHER JJ	1634 JJ	SQUARE	T	GENERAL, 30>ST	SM	22
4	HSS FINISHER JJ	1N34 JJ	SQUARE	T	GENERAL, 30>ST	SM	24
4	S.C FINISHER	4000	BALL	T	ST>45, 30<ST<45, 30>ST	SL, PR	36
4	S.C FINISHER	4004	SQUARE	T	GENERAL	SM	38
4	S.C FINISHER	4010	BALL	T	GRAPHITE, ST>45, 30<ST<45, 30>ST, GENERAL	SL, PR	38
4	S.C FINISHER	4014	SQUARE	T	GENERAL	SM	40
4	S.C FINISHER	4024	SQUARE	T, W	GENERAL	SM	42
4	S.C FINISHER	4777	SQUARE	T	GENERAL	SL, SM	45
4	S.C FINISHER	D000	BALL	W	GRAPHITE, ST>45, 30<ST<45, 30>ST, GENERAL	SL, PR	45
4	S.C FINISHER	D004	SQUARE	W	GENERAL	SM	47
4	S.C FINISHER	D010	BALL	W	GRAPHITE, ST>45, 30<ST<45, 30>ST, GENERAL	PR	48
4	S.C FINISHER	D014	SQUARE	W	GENERAL	SM	50
4	S.C VISION	7050	BALL	T	GRAPHITE, ST>45, 30<ST<45	PR	56
4	S.C VISION	7150	BALL	T	GRAPHITE, ST>45, 30<ST<45	PR	56
4+	HSS FINISHER	1600	BALL	W, S	30>ST	PR	10
4+	HSS FINISHER	1N05 / 1N07	SQUARE	W	GENERAL, 30>ST	SM	16
4+	HSS FINISHER	1NL5 / 1NL7	SQUARE	T	GENERAL, 30>ST	SM	16
4+	HSS ROUGHER	6615 / 6616	SQUARE	W, S	GENERAL	SL, SM	28
4+	HSS ROUGHER	6617 / 6618	SQUARE	W, S	GENERAL	SL, SM	28
4+	HSS ROUGHER	6637 JJ / 6638 JJ	SQUARE	T	GENERAL	SL, SM	29
4+	HSS ROUGHER	6667 JJ	BALL	T	GENERAL, 30>ST	SL	30
4+	HSS ROUGHER	6673	SQUARE	W	Ti	SM	31
4+	HSS ROUGHER	6674	SQUARE	W	30>ST	SM	31
4+	HSS ROUGHER	6675	SQUARE	W	St S, Ti, INCONEL	SM	32
4+	HSS ROUGHER	6N06	SQUARE	W	GENERAL, 30>ST	SL, SM	33
4+	HSS ROUGHER	6N70	SQUARE	W	St S, Ti, INCONEL, 30<ST<45, 30>ST	SL, SM	34
4+	HSS ROUGHER	6NL6	SQUARE	W	GENERAL, 30>ST	SL, SM	34
4+	S.C FINISHER	D518	SQUARE	W	St S, Ti, INCONEL, ST>45, 30<ST<45	SM	53
4+	S.C VISION	7505	SQUARE	T	ST>45, 30<ST<45, 30>ST	SL, SM	57
4+	S.C VISION	7515	SQUARE	T	ST>45, 30<ST<45, 30>ST	SL, SM	57
4+	S.C VISION	7525	SQUARE	T	ST>45, 30<ST<45, 30>ST	SL, SM	58
4+	S.C VISION	7545	SQUARE	T	ST>45, 30<ST<45, 30>ST	SL, SM	58
4+	S.C VISION	7585	SQUARE	T	ST>45, 30<ST<45, 30>ST	SL, SM	59
4+	S.C VISION	7595	SQUARE	T	ST>45, 30<ST<45, 30>ST	SL, SM	59
4+	S.C VISION	75N5	SQUARE	T	ST>45, 30<ST<45, 30>ST	SL, SM	60
4+	S.C ROUGHER	4940	SQUARE	T	Ti, ST>45, 30<ST<45, 30>ST	SL, SM	63
4+	S.C ROUGHER	4970	SQUARE	T	Ti, ST>45, 30<ST<45, 30>ST	SL, SM	64
6	HSS FINISHER	1616	SQUARE	W, S	GENERAL	SM	14
6	S.C FINISHER	D507	SQUARE	W	St S, Ti, INCONEL, ST>45, 30<ST<45	SM	52
6	S.C FINISHER	D517	SQUARE	W	St S, Ti, INCONEL, ST>45, 30<ST<45	SM	53
6+	HSS FINISHER	1606 / 1608	SQUARE	W, S	GENERAL	SL, SM	13

Shank: T - Plain S - Screwed W - Weldon Wh - Whistle Notch
Application Material: 30>St - Soft Steels 30<St<45 - Medium Hard Steels St>45 - Hardened Steels StS - Stainless Steels
Ti - Titanium Al - Aluminium AISi - High Silicon Aluminium NF - Non Ferrous
Application: D - Drilling PR - Profiling SL - Slotting SM - Side Milling



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