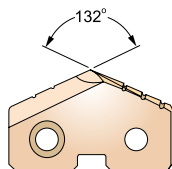




SPADE DRILL INSERTS - HSS M4

- EINWEG BOHREINSATZ - HSS M4
- Plaquettes SPADE DRILL - HSS M4
- CUSPIDI SPADE DRILL - HSS M4



- ▶ For general use in steels and cast irons.
- ▶ Set up time can be reduced due to changing inserts easily on the machine.
- ▶ Any non-standard size available.

- ▶ Für allgemeine Anwendung in Stahl und Gusseisen
- ▶ Reduzierte Rüstzeiten, einfacher Einsatzwechsel auf der Maschine
- ▶ Jede Abmessung außerhalb des Kataloges lieferbar

Cutting conditions : p.A375

Recommended ToolHolder	Flat Shank	Page	Plain Shank	Page
	INDEXABLE DRILL HOLDER	D245-246	-	-
	ER COLLET CHUCK		D73-115	

Series Min. to Max. mm (inch)	Diameter			Thick Metric (mm, inch)	EDP No.		
	Inch (inch)	Metric (mm)	Decimal (inch)		HSS M4		
					TiN	TiCN	TiAlN
1 Ø17.53 (.690) to Ø24.38 (.960)	45/64	17.86	.7031	4.0 (5/32)	S1405045	S1410045	S1415045
		18.00	.7087		S1455180	S1460180	S1465180
	23/32	18.26	.7188		S1405046	S1410046	S1415046
		18.50	.7283		S1455185	S1460185	S1465185
	47/64	18.65	.7344		S1405047	S1410047	S1415047
		19.00	.7480		S1455190	S1460190	S1465190
	3/4	19.05	.7500		S1405048	S1410048	S1415048
		19.45	.7656		S1405049	S1410049	S1415049
	25/32	19.50	.7677		S1455195	S1460195	S1465195
		20.00	.7874		S1405050	S1410050	S1415050
	51/64	20.24	.7969		S1455200	S1460200	S1465200
		20.50	.8071		S1405051	S1410051	S1415051
	13/16	20.64	.8125		S1455205	S1460205	S1465205
		21.00	.8268		S1405052	S1410052	S1415052
	27/32	21.43	.8438		S1455210	S1460210	S1465210
		21.83	.8594		S1405054	S1410054	S1415054
55/64	21.83	.8594	S1405055	S1410055	S1415055		
	22.00	.8661	S1455220	S1460220	S1465220		
7/8	22.23	.8750	S1405056	S1410056	S1415056		
	22.62	.8906	S1405057	S1410057	S1415057		
57/64	23.00	.9055	S1455230	S1460230	S1465230		
	23.02	.9063	S1405058	S1410058	S1415058		
29/32	23.42	.9219	S1405059	S1410059	S1415059		
	23.81	.9375	S1405060	S1410060	S1415060		
15/16	24.00	.9449	S1455240	S1460240	S1465240		
	24.61	.9688	S1405062	S1410062	S1415062		
2 Ø24.41 (.961) to Ø35.05 (1.380)	63/64	25.00	.9843	S1455250	S1460250	S1465250	
	1	25.40	1.0000	S1405100	S1410100	S1415100	
	1-1/64	25.80	1.0156	S1405101	S1410101	S1415101	
		26.00	1.0236	S1455260	S1460260	S1465260	
	1-1/32	26.19	1.0313	S1405102	S1410102	S1415102	
	1-3/64	26.59	1.0469	S1405103	S1410103	S1415103	
1-1/16	26.99	1.0625	S1405104	S1410104	S1415104		
	27.00	1.0630	S1455270	S1460270	S1465270		

◎ : Excellent ○ : Good

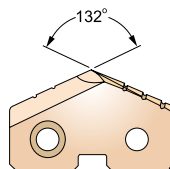
ISO Material Description	P										M			K						
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel			Stainless steel			Grey cast iron		Nodular cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	36	40	45	50	55	60	65	70	75	80	85	90	95	100	105	110
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	○	○	○	○	○	○	○	○	○	○	○	◎	◎	◎	◎	○	◎	○	◎	○

ISO Material Description	N										S					H					
	Aluminum- wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)		Non Metallic Materials			Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron	
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	◎	◎							◎												

### SPADE DRILL INSERTS - HSS M4

- EINWEG BOHREINSATZ - HSS M4
- Plaquettes FORETS A LAME - HSS M4
- CUSPIDI SPADE DRILL - HSS M4



- ▶ For general use in steels and cast irons.
- ▶ Set up time can be reduced due to changing inserts easily on the machine.
- ▶ Any non-standard size available.

- ▶ Für allgemeine Anwendung in Stahl und Gusseisen
- ▶ Reduzierte Rüstzeiten, einfacher Einsatzwechsel auf der Maschine
- ▶ Jede Abmessung außerhalb des Kataloges lieferbar

Cutting conditions : p.A375

Recommended ToolHolder	Flat Shank	Page	Plain Shank	Page
	INDEXABLE DRILL HOLDER D245-246	-	-	-
	ER COLLET CHUCK		D73-115	

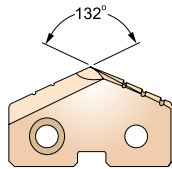
Series Min. to Max. mm (inch)	Diameter			Thick Metric (mm, inch)	EDP No.		
	Inch (inch)	Metric (mm)	Decimal (inch)		HSS M4		
					TiN	TiCN	TiAlN
2 Ø24.41 (.961) to Ø35.05 (1.380)	1-3/32	27.78	1.0938	4.8 (3/16)	S1405106	S1410106	S1415106
		28.00	1.1024		S1455280	S1460280	S1465280
	1-7/64	28.18	1.1094		S1405107	S1410107	S1415107
		28.58	1.1250		S1405108	S1410108	S1415108
	1-1/8	29.00	1.1417		S1455290	S1460290	S1465290
		29.37	1.1563		S1405110	S1410110	S1415110
	1-5/32	30.00	1.1811		S1455300	S1460300	S1465300
		30.16	1.1875		S1405112	S1410112	S1415112
	1-3/16	30.96	1.2188		S1405114	S1410114	S1415114
		31.00	1.2205		S1455310	S1460310	S1465310
	1-7/32	31.75	1.2500		S1405116	S1410116	S1415116
		32.00	1.2598		S1455320	S1460320	S1465320
	1-1/4	32.54	1.2813		S1405118	S1410118	S1415118
		33.00	1.2992		S1455330	S1460330	S1465330
	1-5/16	33.34	1.3125		S1405120	S1410120	S1415120
		34.00	1.3386		S1455340	S1460340	S1465340
1-11/32	34.13	1.3438	S1405122	S1410122	S1415122		
	34.93	1.3750	S1405124	S1410124	S1415124		
1-3/8	35.00	1.3780	S1455350	S1460350	S1465350		
	35.72	1.4063	S1405126	S1410126	S1415126		
1-13/32	36.00	1.4173	S1455360	S1460360	S1465360		
	36.51	1.4375	S1405128	S1410128	S1415128		
1-7/16	37.00	1.4567	S1455370	S1460370	S1465370		
	37.31	1.4688	S1405130	S1410130	S1415130		
1-15/32	38.00	1.4961	S1455380	S1460380	S1465380		
	38.10	1.5000	S1405132	S1410132	S1415132		
1-1/2	38.89	1.5313	S1405134	S1410134	S1415134		
	39.00	1.5354	S1455390	S1460390	S1465390		
1-17/32	39.69	1.5625	S1405136	S1410136	S1415136		
	40.00	1.5748	S1455400	S1460400	S1465400		
1-9/16	40.48	1.5938	S1405138	S1410138	S1415138		
	41.00	1.6142	S1455410	S1460410	S1465410		
1-19/32	41.28	1.6250	S1405140	S1410140	S1415140		
	42.00	1.6535	S1455420	S1460420	S1465420		
3 Ø34.37 (1.353) to Ø47.80 (1.882)	1-13/32	35.72	1.4063	6.4 (1/4)	S1405126	S1410126	S1415126
		36.00	1.4173		S1455360	S1460360	S1465360
	1-7/16	36.51	1.4375		S1405128	S1410128	S1415128
		37.00	1.4567		S1455370	S1460370	S1465370
	1-15/32	37.31	1.4688		S1405130	S1410130	S1415130
		38.00	1.4961		S1455380	S1460380	S1465380
	1-1/2	38.10	1.5000		S1405132	S1410132	S1415132
		38.89	1.5313		S1405134	S1410134	S1415134
	1-17/32	39.00	1.5354		S1455390	S1460390	S1465390
		39.69	1.5625		S1405136	S1410136	S1415136
	1-9/16	40.00	1.5748		S1455400	S1460400	S1465400
		40.48	1.5938		S1405138	S1410138	S1415138
	1-19/32	41.00	1.6142		S1455410	S1460410	S1465410
		41.28	1.6250		S1405140	S1410140	S1415140
	1-5/8	42.00	1.6535		S1455420	S1460420	S1465420

◎ : Excellent ○ : Good

ISO Material Description	P											M				K							
	Non-alloy steel					Low alloy steel						High alloyed steel, and tool steel				Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20			
HRc	13	23	25	28	32	10	29	32	38	35	38	15	23	10	10	26	3	25	21	21			
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230			
Recommended	○	○	○	○	○	○	○	○	○	○	○	◎	◎	◎	◎	○	◎	○	◎	○			
ISO Material Description	N										S						H						
	Aluminum- wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys						Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron		
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41		
HRc											15	30	25	38	34			55	60	42	55		
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550		
Recommended	◎	◎					◎																

## SPADE DRILL INSERTS - HSS M4

- EINWEG BOHREINSATZ - HSS M4
- Plaquettes FORETS A LAME - HSS M4
- CUSPIDI SPADE DRILL - HSS M4



Cutting conditions : p.A375

- ▶ For general use in steels and cast irons.
- ▶ Set up time can be reduced due to changing inserts easily on the machine.
- ▶ Any non-standard size available.

- ▶ Für allgemeine Anwendung in Stahl und Gusseisen
- ▶ Reduzierte Rüstzeiten, einfacher Einsatzwechsel auf der Maschine
- ▶ Jede Abmessung außerhalb des Kataloges lieferbar

Recommended ToolHolder	Flat Shank	Page	Plain Shank	Page
	INDEXABLE DRILL HOLDER	D245-246	-	-
	ER COLLET CHUCK		D73-115	

Series Min. to Max. mm (inch)	Diameter			Thick Metric (mm, inch)	EDP No.		
	Inch (inch)	Metric (mm)	Decimal (inch)		HSS M4		
					TiN	TiCN	TiAlN
<b>3</b> Ø34.37 (1.353) to Ø47.80 (1.882)	1-21/32	42.07	1.6563	6.4 (1/4)	S1405142	S1410142	S1415142
	1-11/16	42.86	1.6875		S1405144	S1410144	S1415144
		43.00	1.6929		S1455430	S1460430	S1465430
	1-23/32	43.66	1.7188		S1405146	S1410146	S1415146
		44.00	1.7323		S1455440	S1460440	S1465440
	1-3/4	44.45	1.7500		S1405148	S1410148	S1415148
		45.00	1.7717		S1455450	S1460450	S1465450
	1-25/32	45.24	1.7813		S1405150	S1410150	S1415150
		46.00	1.8110		S1455460	S1460460	S1465460
	1-13/16	46.04	1.8125		S1405152	S1410152	S1415152
	46.83	1.8438	S1405154	S1410154	S1415154		
	47.00	1.8504	S1455470	S1460470	S1465470		
	1-7/8	47.63	1.8750	S1405156	S1410156	S1415156	
		48.00	1.8898	S1455480	S1460480	S1465480	
	1-29/32	48.42	1.9063	S1405158	S1410158	S1415158	
		49.00	1.9291	S1455490	S1460490	S1465490	
	1-15/16	49.21	1.9375	S1405160	S1410160	S1415160	
		50.00	1.9685	S1455500	S1460500	S1465500	
	1-31/32	50.01	1.9688	S1405162	S1410162	S1415162	
	2	50.80	2.0000	S1405200	S1410200	S1415200	
		51.00	2.0079	S1455510	S1460510	S1465510	
	2-1/32	51.59	2.0313	S1405202	S1410202	S1415202	
	2-3/64	52.00	2.0472	S1455520	S1460520	S1465520	
	2-1/16	52.39	2.0625	S1405204	S1410204	S1415204	
		53.00	2.0866	S1455530	S1460530	S1465530	
	2-3/32	53.18	2.0938	S1405206	S1410206	S1415206	
	2-1/8	53.98	2.1250	S1455540	S1460540	S1465540	
		54.00	2.1260	S1405208	S1410208	S1415208	
	2-5/32	54.77	2.1563	S1455550	S1460550	S1465550	
		55.00	2.1654	S1405210	S1410210	S1415210	
	2-3/16	55.56	2.1875	S1455560	S1460560	S1465560	
		56.00	2.2047	S1405212	S1410212	S1415212	
	2-7/32	56.36	2.2188	S1455570	S1460570	S1465570	
		57.00	2.2441	S1405214	S1410214	S1415214	
				S1455570	S1460570	S1465570	

◎ : Excellent ○ : Good

ISO Material Description	P										M			K								
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel			Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20		
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25		21		
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230		
Recommended	○	○	○	○	○	○	○	○	○	○	○	◎	◎	◎	◎	○	◎	○	◎	○		
ISO Material Description	N									S						H						
	Aluminum- wrought alloy			Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials			Heat Resistant Super Alloys						Titanium Alloys		Hardened steel	Chilled Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	
HRc											15	30	25	38	34			55	60	42	55	
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550	
Recommended	◎	◎																				

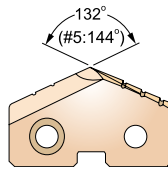
### SPADE DRILL INSERTS - HSS M4

- EINWEG BOHREINSATZ - HSS M4
- Plaquettes FORETS A LAME - HSS M4
- CUSPIDI SPADE DRILL - HSS M4



- ▶ For general use in steels and cast irons.
- ▶ Set up time can be reduced due to changing inserts easily on the machine.
- ▶ Any non-standard size available.

- ▶ Für allgemeine Anwendung in Stahl und Gusseisen
- ▶ Reduzierte Rüstzeiten, einfacher Einsatzwechsel auf der Maschine
- ▶ Jede Abmessung außerhalb des Kataloges lieferbar



Cutting conditions : p.A375

Recommended ToolHolder	Flat Shank	Page	Plain Shank	Page
	INDEXABLE DRILL HOLDER	D245-246	-	-
	ER COLLET CHUCK		D73-115	

Series Min. to Max. mm (inch)	Diameter			Thick Metric (mm, inch)	EDP No. HSS M4		
	Inch (inch)	Metric (mm)	Decimal (inch)		TiN	TiCN	TiAlN
<b>4</b> Ø46.99 (1.850) to Ø65.28 (2.570)	2-1/4	57.15	2.2500	7.9 (5/16)	S1405216	S1410216	S1415216
	2-9/32	57.94	2.2813		S1405218	S1410218	S1415218
		58.00	2.2835		S1455580	S1460580	S1465580
	2-5/16	58.74	2.3125		S1405220	S1410220	S1415220
		59.00	2.3228		S1455590	S1460590	S1465590
	2-11/32	59.53	2.3438		S1405222	S1410222	S1415222
		60.00	2.3622		S1455600	S1460600	S1465600
	2-3/8	60.33	2.3750		S1405224	S1410224	S1415224
		61.00	2.4016		S1455610	S1460610	S1465610
	2-13/32	61.12	2.4063		S1405226	S1410226	S1415226
	2-7/16	61.91	2.4375		S1405228	S1410228	S1415228
		62.00	2.4409		S1455620	S1460620	S1465620
	2-15/32	62.71	2.4688		S1405230	S1410230	S1415230
		63.00	2.4803		S1455630	S1460630	S1465630
<b>5</b> Ø62.38 (2.456) to Ø76.20 (3.000)	2-1/2	63.50	2.5000	11.1 (7/16)	S1405232	S1410232	S1415232
		64.00	2.5197		S1455640	S1460640	S1465640
	2-17/32	64.29	2.5313		S1405234	S1410234	S1415234
		65.00	2.5591		S1455650	S1460650	S1465650
	2-9/16	65.09	2.5625		S1405236	S1410236	S1415236
	2-1/2	63.50	2.5000		S14052D2	S14102D2	S14152D2
		64.00	2.5197		S145564A	S146064A	S146564A
	2-17/32	64.29	2.5313		S14052D4	S14102D4	S14152D4
	2-9/16	65.09	2.5625		S14052D6	S14102D6	S14152D6
	2-19/32	65.88	2.5938		S1405238	S1410238	S1415238
		66.00	2.5984		S1455660	S1460660	S1465660
	2-5/8	66.68	2.6250		S1405240	S1410240	S1415240
	2-21/32	67.47	2.6563		S1405242	S1410242	S1415242
		68.00	2.6772		S1455680	S1460680	S1465680
2-11/16	68.26	2.6875	S1405244	S1410244	S1415244		
2-23/32	69.05	2.7188	S1405246	S1410246	S1415246		
2-3/4	69.85	2.7500	S1405248	S1410248	S1415248		
	70.00	2.7559	S1455700	S1460700	S1465700		
2-25/32	70.64	2.7813	S1405250	S1410250	S1415250		
2-13/16	71.44	2.8125	S1405252	S1410252	S1415252		

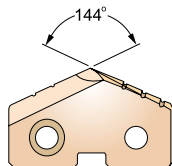
◎ : Excellent ○ : Good

ISO Material Description	P											M				K						
	Non-alloy steel					Low alloy steel						High alloyed steel, and tool steel			Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20		
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21		
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230		
Recommended	○	○	○	○	○	○	○	○	○	◎	◎	◎	◎	◎	◎	○	◎	○	◎	○		
ISO Material Description	N										S						H					
	Aluminum- wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys						Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron	
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	
HRc											15	30	25	38	34			55	60	42	55	
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550	
Recommended	◎	◎					◎															



SPADE DRILL INSERTS - HSS M4

- EINWEG BOHREINSATZ - HSS M4
- Plaquettes FORETS A LAME - HSS M4
- CUSPIDI SPADE DRILL - HSS M4



Cutting conditions : p.A375

- ▶ For general use in steels and cast irons.
- ▶ Set up time can be reduced due to changing inserts easily on the machine.
- ▶ Any non-standard size available.

- ▶ Für allgemeine Anwendung in Stahl und Gusseisen
- ▶ Reduzierte Rüstzeiten, einfacher Einsatzwechsel auf der Maschine
- ▶ Jede Abmessung außerhalb des Kataloges lieferbar

Recommended ToolHolder	Flat Shank	Page	Plain Shank	Page
	INDEXABLE DRILL HOLDER	D245-246	-	-
	ER COLLET CHUCK			D73-115

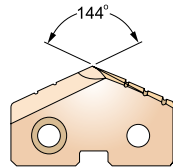
Series Min. to Max. mm (inch)	Diameter			Thick Metric (mm, inch)	EDP No.		
	Inch (inch)	Metric (mm)	Decimal (inch)		HSS M4		
					TiN	TiCN	TiAlN
5 Ø62.38 (2.456) to Ø76.20 (3.000)		72.00	2.8346	11.1 (7/16)	S1455720	S1460720	S1465720
	2-27/32	72.23	2.8438		S1405254	S1410254	S1415254
	2-7/8	73.03	2.8750		S1405256	S1410256	S1415256
	2-29/32	73.82	2.9063		S1405258	S1410258	S1415258
		74.00	2.9134		S1455740	S1460740	S1465740
	2-15/16	74.61	2.9375		S1405260	S1410260	S1415260
	2-31/32	75.41	2.9688		S1405262	S1410262	S1415262
		76.00	2.9921		S1455760	S1460760	S1465760
	3	76.20	3.0000		S1405300	S1410300	S1415300
	3-1/32	76.99	3.0313		S1405302	S1410302	S1415302
	3-1/16	77.79	3.0625		S1405304	S1410304	S1415304
		78.00	3.0709		S1455780	S1460780	S1465780
6 Ø76.23 (3.001) to Ø89.08 (3.507)	3-3/32	78.58	3.0938	11.1 (7/16)	S1405306	S1410306	S1415306
	3-1/8	79.38	3.1250		S1405308	S1410308	S1415308
		80.00	3.1496		S1455800	S1460800	S1465800
	3-5/32	80.17	3.1563		S1405310	S1410310	S1415310
	3-3/16	80.96	3.1875		S1405312	S1410312	S1415312
	3-7/32	81.76	3.2188		S1405314	S1410314	S1415314
		82.00	3.2283		S1455820	S1460820	S1465820
	3-1/4	82.55	3.2500		S1405316	S1410316	S1415316
	3-9/32	83.34	3.2813		S1405318	S1410318	S1415318
		84.00	3.3071		S1455840	S1460840	S1465840
	3-5/16	84.14	3.3125		S1405320	S1410320	S1415320
	3-11/32	84.93	3.3438		S1405322	S1410322	S1415322
7	3-3/8	85.73	3.3750	11.1 (7/16)	S1405324	S1410324	S1415324
		86.00	3.3858		S1455860	S1460860	S1465860
	3-13/32	86.52	3.4063		S1405326	S1410326	S1415326
	3-7/16	87.31	3.4375		S1405328	S1410328	S1415328
		88.00	3.4646		S1455880	S1460880	S1465880
	3-15/32	88.11	3.4688		S1405330	S1410330	S1415330
	3-1/2	88.90	3.5000		S1405332	S1410332	S1415332
	3-17/32	89.69	3.5313		S1405334	S1410334	S1415334
		90.00	3.5433		S1455900	S1460900	S1465900
	3-9/16	90.49	3.5625		S1405336	S1410336	S1415336

◎ : Excellent ○ : Good

ISO Material Description	P											M			K						
	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron		
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230	
Recommended	○	○	○	○	○	○	○	○	○	○	○	◎	◎	◎	◎	○	◎	○	◎	○	
ISO Material Description	N										S					H					
	Aluminum- wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron	
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	◎	◎																			

### SPADE DRILL INSERTS - HSS M4

- EINWEG BOHREINSATZ - HSS M4
- Plaquettes FORETS A LAME - HSS M4
- CUSPIDI SPADE DRILL - HSS M4



Cutting conditions : p.A375

- ▶ For general use in steels and cast irons.
- ▶ Set up time can be reduced due to changing inserts easily on the machine.
- ▶ Any non-standard size available.

- ▶ Für allgemeine Anwendung in Stahl und Gusseisen
- ▶ Reduzierte Rüstzeiten, einfacher Einsatzwechsel auf der Maschine
- ▶ Jede Abmessung außerhalb des Kataloges lieferbar

Recommended ToolHolder	Flat Shank	Page	Plain Shank	Page
	INDEXABLE DRILL HOLDER	D245-246	-	-
	ER COLLET CHUCK			D73-115

Series Min. to Max. mm (inch)	Diameter			Thick Metric (mm, inch)	EDP No.		
	Inch (inch)	Metric (mm)	Decimal (inch)		HSS M4		
					TiN	TiCN	TiAlN
7 Ø87.76 (3.455) to Ø101.60 (4.000)	3-19/32	91.28	3.5938	11.1 (7/16)	S1405338	S1410338	S1415338
		92.00	3.6221		S1455920	S1460920	S1465920
	3-5/8	92.08	3.6250		S1405340	S1410340	S1415340
	3-21/32	92.87	3.6563		S1405342	S1410342	S1415342
	3-11/16	93.66	3.6875		S1405344	S1410344	S1415344
		94.00	3.7008		S1455940	S1460940	S1465940
	3-23/32	94.46	3.7188		S1405346	S1410346	S1415346
	3-3/4	95.25	3.7500		S1405348	S1410348	S1415348
		96.00	3.7795		S1455960	S1460960	S1465960
	3-25/32	96.04	3.7813		S1405350	S1410350	S1415350
	3-13/16	96.84	3.8125		S1405352	S1410352	S1415352
	3-27/32	97.63	3.8438		S1405354	S1410354	S1415354
		98.00	3.8583		S1455980	S1460980	S1465980
	3-7/8	98.43	3.8750		S1405356	S1410356	S1415356
	3-29/32	99.22	3.9063		S1405358	S1410358	S1415358
		100.00	3.9370		S1455A00	S1460A00	S1465A00
3-15/16	100.01	3.9375	S1405360	S1410360	S1415360		
3-31/32	100.81	3.9688	S1405362	S1410362	S1415362		
4	101.60	4.0000	S1405400	S1410400	S1415400		
8 Ø101.63 (4.001) to Ø114.48 (4.507)	4-1/64	102.00	4.0157	11.1 (7/16)	S1455A20	S1460A20	S1465A20
	4-1/16	103.19	4.0625		S1405404	S1410404	S1415404
	4-3/32	104.00	4.0945		S1455A40	S1460A40	S1465A40
	4-1/8	104.78	4.1250		S1405408	S1410408	S1415408
		106.00	4.1732		S1455A60	S1460A60	S1465A60
	4-3/16	106.36	4.1875		S1405412	S1410412	S1415412
	4-1/4	107.95	4.2500		S1405416	S1410416	S1415416
		108.00	4.2520		S1455A80	S1460A80	S1465A80
	4-5/16	109.54	4.3125		S1405420	S1410420	S1415420
		110.00	4.3307		S1455B00	S1460B00	S1465B00
	4-3/8	111.13	4.3750		S1405424	S1410424	S1415424
		112.00	4.4094		S1455B20	S1460B20	S1465B20
	4-7/16	112.71	4.4375		S1405428	S1410428	S1415428
		114.00	4.4882		S1455B40	S1460B40	S1465B40
	4-1/2	114.30	4.5000		S1405432	S1410432	S1415432

◎ : Excellent ○ : Good

ISO Material Description	P											M				K						
	Non-alloy steel					Low alloy steel						High alloyed steel, and tool steel			Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20		
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21		
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230		
Recommended	○	○	○	○	○	○	○	○	○	○	○	◎	◎	◎	◎	○	◎	○	◎	○		
ISO Material Description	N										S						H					
	Aluminum- wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys						Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron	
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	
HRc											15	30	25	38	34			55	60	42	55	
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550	
Recommended	◎	◎					◎															

SELECTION GUIDE



SERIES	1~8	Y,Z,0,1~4	Y,Z,0,1,2
TOOL MATERIAL	HSS M4	SUPER HSS T15	PREMIUM HSS M48
POINT	STANDARD	STANDARD	STANDARD
SIZE MIN	Ø17.86(#1)	Ø9.5(#Y)	Ø9.5(#Y)
SIZE MAX	Ø114.3(#8)	Ø65.09(#4)	Ø35(#2)
PAGE	A286	A292	A297

Please visit [globalyg1.com/mat](http://globalyg1.com/mat) for material search

SURFACE TREATMENT

TiN / TiCN / TiAIN

# INSERTS & HOLDERS SPADE DRILLS

For General Machines and Drilling Large Diameters  
Longer Tool Life and High Productivity

◎ : Excellent ○ : Good

Recommended cutting conditions : p.A375



ISO	VDI 3323	Material Description	Composition / Structure / Heat Treatment	HB	HRc			
P	1	Non-alloy steel	About 0.15% C Annealed	125		○	◎	◎
	2		About 0.45% C Annealed	190	13	○	◎	◎
	3		About 0.45% C Quenched & Tempered	250	25	○	◎	◎
	4		About 0.75% C Annealed	270	28	○	◎	◎
	5		About 0.75% C Quenched & Tempered	300	32			
	6	Low alloy steel	Annealed	180	10	○	◎	◎
	7		Quenched & Tempered	275	29	○	◎	◎
	8		Quenched & Tempered	300	32		○	◎
	9		Quenched & Tempered	350	38		○	◎
	10		High alloyed steel, and tool steel	Annealed	200	15		○
	11	Quenched & Tempered		325	35		○	◎
M	12	Stainless steel	Ferritic / Martensitic Annealed	200	15	◎	○	
	13		Martensitic Quenched & Tempered	240	23	◎	○	
	14		Austenitic	180	10	◎	○	
K	15	Grey cast iron	Pearlitic / ferritic	180	10	◎	○	○
	16		Pearlitic (Martensitic)	260	26	○	◎	◎
	17	Nodular cast iron	Ferritic	160	3	◎	○	○
	18		Pearlitic	250	25	○	◎	◎
	19		Ferritic	130		◎	○	○
20	Malleable cast iron	Pearlitic	230	21	○	◎	◎	
N	21	Aluminum-wrought alloy	Not Curable	60		◎	○	○
	22		Curable Hardened	100		◎	○	○
	23	Aluminum-cast, alloyed	≤ 12% Si, Not Curable	75				
	24		≤ 12% Si, Curable Hardened	90				
	25		> 12% Si, Not Curable	130				
	26		Copper and Copper Alloys	Cutting Alloys, PB>1%	110			
	27	(Bronze / Brass)	CuZn, CuSnZn (Brass)	90		◎	○	○
	28		CuSn, lead-free copper and electrolytic copper	100				
	29		Non Metallic Materials	Duroplastic, Fiber Reinforced Plastic				
	30		Rubber, Wood, etc.					
S	31	Heat Resistant Super Alloys	Fe Based Annealed	200	15		◎	◎
	32		Cured	280	30		○	◎
	33		Annealed	250	25		○	◎
	34		Ni or Co Based Cured	350	38		○	◎
	35	Cast	320	34		○	◎	
	36	Titanium Alloys	Pure Titanium	400 Rm				
	37		Alpha + Beta Alloys Hardened	1050 Rm				
H	38	Hardened steel	Hardened	550	55		○	◎
	39		Hardened	630	60			
	40	Chilled Cast Iron	Cast	400	42			
	41	Hardened Cast Iron	Hardened	550	55			

REAMERS	<b>TAPER SHANK</b>		TAPER SHANK HOLDERS - INCH/METRIC	<b>A364</b>
COUNTER SINKS	<b>FLANGED SHANK</b>		FLANGED STRAIGHT SHANK HOLDERS - INCH/METRIC	<b>A364</b>
COUNTER BORES	<b>STRAIGHT SHANK</b>		STRAIGHT SHANK HOLDERS - INCH	<b>A382</b>

Y,Z,0,1,2	Y,Z,0,1~3	Y,Z,0,1~3	1~3	Y,Z,0,1~3	Y,Z,0,1,2	Y,Z,0,1,2	Y,Z,0,1~3	Y,Z,0,1~3	Y,Z,0,1,2
CARBIDE K10	CARBIDE K20	CARBIDE P40	HSS M4	SUPER HSS T15	PREMIUM HSS M48	CARBIDE K10	CARBIDE K20	CARBIDE P40	SUPER COBALT T15
STANDARD	STANDARD	STANDARD	SM-POINT	SM-POINT	SM-POINT	SM-POINT	SM-POINT	SM-POINT	FALT BOTTOM
Ø9.5(#Y)	Ø9.5(#Y)	Ø9.5(#Y)	Ø17.86(#1)	Ø9.5(#Y)	Ø9.5(#Y)	Ø9.5(#Y)	Ø9.5(#Y)	Ø9.5(#Y)	Ø9.5(#Y)
Ø35(#2)	Ø47.63(#3)	Ø47.63(#3)	Ø47.63(#3)	Ø47.63(#3)	Ø35(#2)	Ø35(#2)	Ø47.63(#3)	Ø47.63(#3)	Ø35(#2)
<b>A300</b>	<b>A303</b>	<b>A307</b>	<b>A312</b>	<b>A315</b>	<b>A319</b>	<b>A322</b>	<b>A325</b>	<b>A329</b>	<b>A361</b>
TiN / TiCN / TiAlN									TiN / Hardslick / TiAlN

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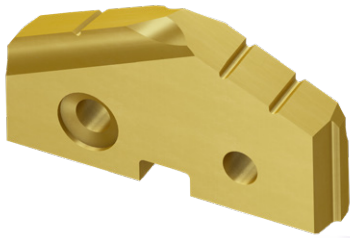
Coating	Characteristics	Coating	Characteristics
H	<ul style="list-style-type: none"> <li>-First choice for excellent wear resistance and toughness</li> <li>-Preventive of chipping due to cold welding</li> <li>-Achieve high penetration rates even in deep holes with reliable tool life</li> <li>-Coefficient of friction against steel : 0.25</li> <li>-Color : Bronze</li> </ul>	TiCN	<ul style="list-style-type: none"> <li>-Maximum working temperature up to 400°C</li> <li>-Better wear resistance over non-coating</li> <li>-Coefficient of friction against steel : 0.4</li> <li>-Color : Blue-Grey</li> </ul>
		TiAlN	<ul style="list-style-type: none"> <li>-Maximum working temperature up to 800°C</li> <li>-Excellent heat and oxidation resistance</li> <li>-Coefficient of friction against steel : 0.4</li> <li>-Color : Violet-Grey</li> </ul>
TiN	<ul style="list-style-type: none"> <li>-Increased tool life over non-coating</li> <li>-Improved wear resistance and high hardness</li> <li>-For normal applications</li> <li>-Coefficient of friction against steel : 0.4</li> <li>-Color : Gold</li> </ul>	Hardslick	<ul style="list-style-type: none"> <li>-Better chip evacuation for tapping and drilling</li> <li>-High hardness and improved lubrication</li> <li>-Coefficient of friction against steel : 0.2</li> <li>-Color : Black-Grey</li> </ul>



# PRODUCT FEATURES

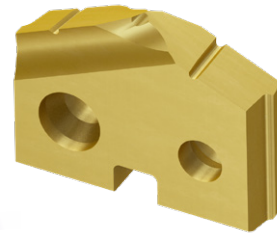
## SPADE DRILLS (Standard, SM-Point)

Reference page : p.A299 - p.A380



### Standard-Point

Standard Point  
and Neutral Rake Angle for  
**Stable Cutting**  
**Self Centering**  
**Chip Breaking**  
**Rigidity on Center**

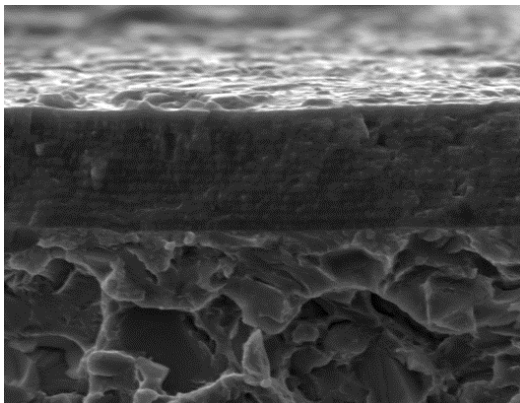


### SM-Point

Multiple Web Thinning for and Radius Back Face  
for Increased Cutting Speed and Feed  
**Wide Chip Space**  
**Good Self-Centering**  
**Less Tool Lead-off**  
**Reduction in bell moutinging**



Multi Layers  
Carbide



### Multi layered 'H'-coating Micro Grain Carbide Insert

Outstanding Productivity & Reliability

#### H - Coating

(Upgraded AlCrN-Based : **Multi-Layer coating**)

- Higher worn-out resistance and Lower friction
- Higher Cutting Speed and Feed
- Improved drill Hole Quality



# Special features of SM-Point Spade Drill

This new "Hybrid Point" combines the strength of the standard point with additional "Web Thinning".

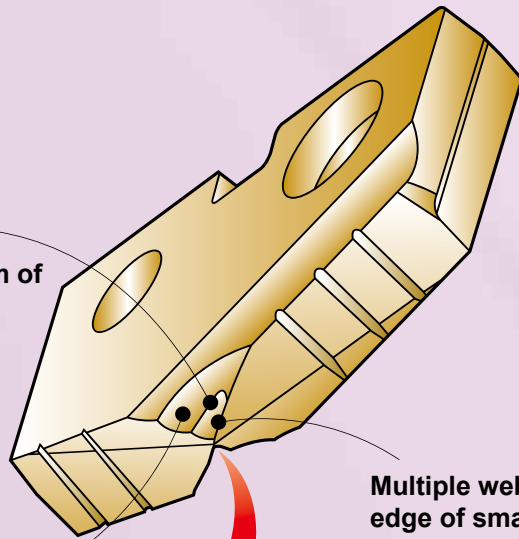
This new point increases stability, reduces thrust, improves centering and allows increased speeds and feeds.

**Multiple thinning form at the bottom of the large thinning.**

- ▶ The optimum thinning for the difference from the cutting speed, the cutting quantity and the cutting load according to the distance from the drill point to the cutting edge.

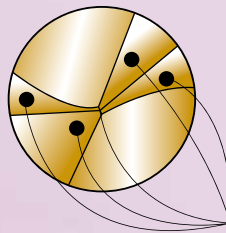
**Radius back face**

- ▶ Wide chip space



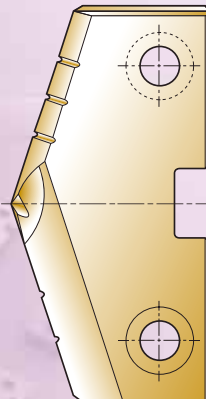
**Multiple web thinning with the cutting edge of small web thinning.**

- ▶ Good self-centering
- ▶ Less tool lead off
- ▶ Reduction in bell mouching, thrust
- ▶ Increased stability

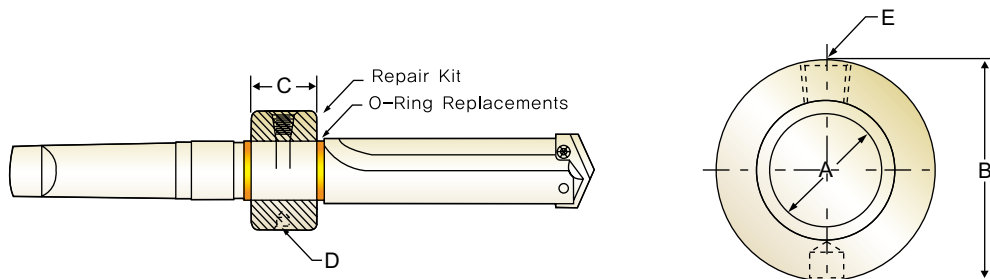


**Four-facet point**

- ▶ Self-centering
- ▶ Less thrust force



**HOLDER ACCESSORIES**  
**ROTARY COOLANT ADAPTER (RCA) AND ACCESSORIES**



**Inch**

Item No.	I.D.	O.D.	Length	Thread for Driving Rod	Pipe Tap	RCA Repair Kit Item No.	RCA O-Ring Replacements Item No.
	A	B	C	D	E		
PR110048	3/4	1-3/4	7/8	5/16-NC	◆1/8	PR210048	PR310048
PR110100	1	2-1/8	1-1/8	5/16-NC	◆1/8	PR210100	PR310100
PR110116	1-1/4	2-1/2	1-3/8	3/8-NC	◆1/4	PR210116	PR310116
PR110148	1-3/4	3	1-3/8	3/8-NC	◆1/4	PR210148	PR310148
PR110216	2-1/4	3-3/4	1-3/4	1/2-NC	◆1/2	PR210216	PR310216

**Metric**

Item No.	I.D.	O.D.	Length	Thread for Driving Rod	Pipe Tap	RCA Repair Kit Item No.	RCA O-Ring Replacements Item No.
	A	B	C	D	E		
PR120190	19.05	44.45	22.23	M8 × 1.25	◆1/8	PR220190	PR320190
PR120254	25.40	53.97	28.57	M8 × 1.25	◆1/8	PR220254	PR320254
PR120317	31.75	63.50	34.92	M10 × 1.5	◆1/4	PR220317	PR320317
PR120444	44.45	76.20	34.92	M10 × 1.5	◆1/4	PR220444	PR320444
PR120571	57.15	95.27	44.45	M12 × 1.75	◆1/2	PR220571	PR320571

◆ Thread to BSP & ISO 7-1

**TORX SCREWS**

Holder Series	Item No.	TORX Hand Driver	Drill Range Used With	
			Inch	Metric
Y	J07Y0010	J05Y0070	3/8 ~ 27/64	9.5 mm ~ 11.0 mm
Z	J07Z0110		7/16 ~ 1/2	11.5 mm ~ 12.5 mm
0	J0800210	J0500080	33/64 ~ 11/16	13.0 mm ~ 17.5 mm
0.5	J0805310		39/64 ~ 11/16	15.5 mm ~ 17.5 mm
1	J0910410	J0510090	45/64 ~ 15/16	18.0 mm ~ 24.0 mm
1.5	J0915510		55/64 ~ 15/16	22.0 mm ~ 24.0 mm
2	J1520610	J0520150	31/32 ~ 1-3/8	25.0 mm ~ 35.0 mm
2.5	J1525710		1-3/16 ~ 1-3/8	30.0 mm ~ 35.0 mm
3,4	J2030810		1-13/32 ~ 2-9/16	36.0 mm ~ 65.0 mm
5 ~ 8	J2550910	J0550250	2-1/2 ~ 4-1/2	64.0 mm ~ 114.0 mm

\*\* Note : Replacement screws sold in packages(10 screws per package)

**SPADE DRILL HSS-M4**

ISO	VDI 3323	Material Description	Vc(m/min)			Feed(mm/rev)						
			TiN	TiCN	TiAlN	Ø9.5-12.5	Ø13-17.5	Ø18-24	Ø25-35	Ø36-47	Ø48-65	Ø66-114
<b>P</b>	1	Non-alloy steel	<b>54</b>	<b>67</b>	<b>75</b>	0.15	0.22	0.28	0.37	0.46	0.56	0.67
	2		<b>49</b>	<b>58</b>	<b>69</b>	0.13	0.19	0.24	0.34	0.43	0.50	0.57
	3		<b>45</b>	<b>56</b>	<b>63</b>	0.13	0.19	0.23	0.34	0.43	0.50	0.58
	4		<b>45</b>	<b>56</b>	<b>63</b>	0.13	0.19	0.23	0.34	0.43	0.50	0.58
	6	Low alloy steel	<b>45</b>	<b>56</b>	<b>58</b>	0.13	0.20	0.24	0.36	0.42	0.46	0.55
	7		<b>41</b>	<b>50</b>	<b>56</b>	0.13	0.16	0.23	0.35	0.41	0.44	0.55
	<b>M</b>	12	Stainless steel	<b>20</b>	<b>23</b>	<b>29</b>	0.12	0.18	0.20	0.24	0.30	0.36
13		<b>20</b>		<b>23</b>	<b>29</b>	0.12	0.18	0.20	0.24	0.30	0.36	0.46
14		<b>24</b>		<b>29</b>	<b>34</b>	0.14	0.20	0.23	0.26	0.36	0.41	0.50
<b>K</b>	15	Grey cast iron	<b>48</b>	<b>58</b>	<b>70</b>	0.14	0.26	0.35	0.45	0.56	0.64	0.68
	16		<b>29</b>	<b>35</b>	<b>41</b>	0.10	0.15	0.16	0.23	0.28	0.35	0.40
	17	Nodular cast iron	<b>48</b>	<b>58</b>	<b>70</b>	0.14	0.26	0.35	0.45	0.56	0.64	0.68
	18		<b>35</b>	<b>44</b>	<b>52</b>	0.13	0.17	0.23	0.3	0.35	0.43	0.50
	19	Malleable cast iron	<b>52</b>	<b>64</b>	<b>75</b>	0.16	0.30	0.40	0.49	0.59	0.69	0.75
	20		<b>35</b>	<b>44</b>	<b>52</b>	0.13	0.17	0.23	0.30	0.35	0.43	0.50
<b>N</b>	21	Aluminum-wrought alloy	<b>187</b>	<b>229</b>	<b>244</b>	0.19	0.33	0.41	0.50	0.54	0.64	0.70
	22		<b>92</b>	<b>137</b>	<b>137</b>	0.19	0.33	0.41	0.46	0.54	0.64	0.70
	27	Copper and Copper Alloys (Bronze / Brass)	<b>95</b>	<b>128</b>	<b>142</b>	0.19	0.31	0.43	0.53	0.64	0.74	0.79

► The recommendations for speeds, feeds and other parameters presented in this chart are nominal recommendations and should be considered only as good starting points. Speed and feed reductions (20% reduction in speed and 10% reduction in feed) are recommended.

i-ONE DRILLS

i-DREAM DRILLS

DREAM DRILLS -PRO

DREAM DRILLS -GENERAL

DREAM DRILLS -HIGH FEED

DREAM DRILLS -FLAT BOTTOM

DREAM DRILLS -INOX

DREAM DRILLS -ALU

DREAM DRILLS -MQL

DREAM DRILLS for HIGH HARDENED STEELS

GENERAL CARBIDE DRILLS

MULTI-1 DRILLS

HPD DRILLS

GOLD-P DRILLS

SUPER-GP DRILLS

STRAIGHT SHANK DRILLS

TAPER SHANK DRILLS

NC-SPOTTING DRILLS

CENTER DRILLS

SPADE DRILLS

REAMERS

COUNTER SINKS

COUNTER BORES

TECHNICAL DATA