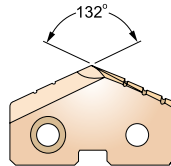


SPADE DRILL INSERTS - CARBIDE P40

- EINWEG BOHREINSATZ - VOLLHARTMETALL P40
- Plaquettes SPADE DRILL - Carbure P40
- CUSPIDI SPADE DRILL - MD P40



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

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

Cutting conditions : p.A380

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)		CARBIDE P40		
					TiN	TiCN	TiAlN
Y Ø9.50 (.374) to Ø11.07 (.436)	3/8 25/64	9.50	.3740	2.4 (3/32)	S1855095	S1860095	S1865095
		9.53	.3750		S1805024	S1810024	S1815024
		9.80	.3860		S1855098	S1860098	S1865098
		9.92	.3906		S1805025	S1810025	S1815025
		10.00	.3937		S1855100	S1860100	S1865100
		10.20	.4016		S1855102	S1860102	S1865102
		10.32	.4063		S1805026	S1810026	S1815026
		10.50	.4134		S1855105	S1860105	S1865105
		10.72	.4219		S1805027	S1810027	S1815027
		10.80	.4252		S1855108	S1860108	S1865108
Z Ø11.11(.437) to Ø12.95(.510)	7/16 29/64 15/32 31/64	11.11	.4375	2.4 (3/32)	S1805028	S1810028	S1815028
		11.50	.4528		S1855115	S1860115	S1865115
		11.51	.4531		S1805029	S1810029	S1815029
		11.91	.4688		S1805030	S1810030	S1815030
		12.00	.4724		S1855120	S1860120	S1865120
		12.30	.4844		S1805031	S1810031	S1815031
		12.50	.4921		S1855125	S1860125	S1865125
		12.70	.5000		S1805032	S1810032	S1815032
		13.00	.5118		S1855130	S1860130	S1865130
		13.10	.5156		S1805033	S1810033	S1815033
O Ø12.98 (.511) to Ø17.65 (.695)	17/32 35/64 9/16 37/64	13.49	.5313	3.2 (1/8)	S1805034	S1810034	S1815034
		13.50	.5315		S1855135	S1860135	S1865135
		13.89	.5469		S1805035	S1810035	S1815035
		14.00	.5512		S1855140	S1860140	S1865140
		14.29	.5625		S1805036	S1810036	S1815036
		14.50	.5709		S1855145	S1860145	S1865145
		14.68	.5781		S1805037	S1810037	S1815037
		15.00	.5906		S1855150	S1860150	S1865150
		15.08	.5938		S1805038	S1810038	S1815038
		15.48	.6094		S1805039	S1810039	S1815039
5/8	15.50	.6102	S1855155	S1860155	S1865155		
	15.88	.6250	S1805040	S1810040	S1815040		
	16.00	.6299	S1855160	S1860160	S1865160		

◎ : 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	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	○	○									○	○	○	○	○			◎			



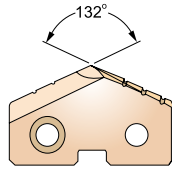
SPADE DRILL INSERTS - CARBIDE P40

- EINWEG BOHREINSATZ - VOLLHARTMETALL P40
- Plaquettes SPADE DRILL - Carbure P40
- CUSPIDI SPADE DRILL - MD P40



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- ▶ Reduzierte Rüstzeiten, einfacher Einsatzwechsel auf der Maschine
- ▶ Jede Abmessung außerhalb des Kataloges lieferbar



Cutting conditions : p.A380

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)		CARBIDE P40		
					TiN	TiCN	TiAlN
0 Ø12.98(.511) to Ø17.65(.695)	41/64	16.27	.6406	3.2 (1/8)	S1805041	S1810041	S1815041
		16.50	.6496		S1855165	S1860165	S1865165
	21/32	16.67	.6563		S1805042	S1810042	S1815042
		17.00	.6693		S1855170	S1860170	S1865170
	43/64	17.07	.6719		S1805043	S1810043	S1815043
	11/16	17.46	.6875		S1805044	S1810044	S1815044
		17.50	.6890		S1855175	S1860175	S1865175
	45/64	17.86	.7031		S1805045	S1810045	S1815045
		18.00	.7087		S1855180	S1860180	S1865180
		18.26	.7188		S1805046	S1810046	S1815046
1 Ø17.53 (.690) to Ø24.38 (.960)		18.50	.7283	4.0 (5/32)	S1855185	S1860185	S1865185
	47/64	18.65	.7344		S1805047	S1810047	S1815047
		19.00	.7480		S1855190	S1860190	S1865190
	3/4	19.05	.7500		S1805048	S1810048	S1815048
	49/64	19.45	.7656		S1805049	S1810049	S1815049
		19.50	.7677		S1855195	S1860195	S1865195
	25/32	19.84	.7813		S1805050	S1810050	S1815050
		20.00	.7874		S1855200	S1860200	S1865200
	51/64	20.24	.7969		S1805051	S1810051	S1815051
		20.50	.8071		S1855205	S1860205	S1865205
	13/16	20.64	.8125		S1805052	S1810052	S1815052
		21.00	.8268		S1855210	S1860210	S1865210
	27/32	21.43	.8438		S1805054	S1810054	S1815054
	55/64	21.83	.8594		S1805055	S1810055	S1815055
		22.00	.8661		S1855220	S1860220	S1865220
	7/8	22.23	.8750		S1805056	S1810056	S1815056
	57/64	22.62	.8906		S1805057	S1810057	S1815057
		23.00	.9055		S1855230	S1860230	S1865230
29/32	23.02	.9063	S1805058	S1810058	S1815058		
59/64	23.42	.9219	S1805059	S1810059	S1815059		
15/16	23.81	.9375	S1805060	S1810060	S1815060		
	24.00	.9449	S1855240	S1860240	S1865240		

◎ : 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	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	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	○	○									○	○	○	○	○			◎			



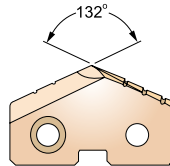
SPADE DRILL INSERTS - CARBIDE P40

- EINWEG BOHREINSATZ - VOLLHARTMETALL P40
- Plaquettes SPADE DRILL - Carbure P40
- CUSPIDI SPADE DRILL - MD P40



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Cutting conditions : p.A380

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)		CARBIDE P40		
					TiN	TiCN	TiAlN
<h1>2</h1> Ø24.41 (.961) to Ø35.05 (1.380)	31/32	24.61	.9688	4.8 (3/16)	S1805062	S1810062	S1815062
	63/64	25.00	.9843		S1855250	S1860250	S1865250
	1	25.40	1.0000		S1805100	S1810100	S1815100
	1-1/64	25.80	1.0156		S1805101	S1810101	S1815101
					S1855260	S1860260	S1865260
	1-1/32	26.19	1.0313		S1805102	S1810102	S1815102
	1-3/64	26.59	1.0469		S1805103	S1810103	S1815103
	1-1/16	26.99	1.0625		S1805104	S1810104	S1815104
					S1855270	S1860270	S1865270
	1-3/32	27.00	1.0938		S1805106	S1810106	S1815106
					S1855280	S1860280	S1865280
	1-7/64	28.18	1.1094		S1805107	S1810107	S1815107
					S1805108	S1810108	S1815108
	1-1/8	29.00	1.1417		S1855290	S1860290	S1865290
					S1805110	S1810110	S1815110
	1-5/32	29.37	1.1563		S1855300	S1860300	S1865300
					S1805112	S1810112	S1815112
	1-3/16	30.16	1.1875		S1805114	S1810114	S1815114
					S1855310	S1860310	S1865310
	1-7/32	31.00	1.2205		S1805116	S1810116	S1815116
					S1855320	S1860320	S1865320
	1-1/4	31.75	1.2500		S1805118	S1810118	S1815118
					S1855330	S1860330	S1865330
	1-9/32	32.00	1.2598		S1805120	S1810120	S1815120
					S1855340	S1860340	S1865340
	1-5/16	32.54	1.2813		S1805122	S1810122	S1815122
					S1855350	S1860350	S1865350
	1-11/32	33.00	1.2992		S1805124	S1810124	S1815124
S1855350				S1860350	S1865350		
1-5/8	33.34	1.3125	S1805124	S1810124	S1815124		
			S1855350	S1860350	S1865350		
1-3/8	34.00	1.3386	S1805124	S1810124	S1815124		
			S1855350	S1860350	S1865350		
1-1/2	34.13	1.3438	S1805124	S1810124	S1815124		
			S1855350	S1860350	S1865350		
1-7/8	34.93	1.3750	S1805124	S1810124	S1815124		
			S1855350	S1860350	S1865350		
1-3/4	35.00	1.3780	S1805124	S1810124	S1815124		
			S1855350	S1860350	S1865350		

◎ : Excellent ○ : Good

ISO	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	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	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	○	○					○				○	○	○	○	○			◎			



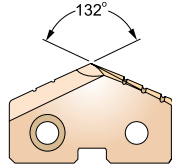
SPADE DRILL INSERTS - CARBIDE P40

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Cutting conditions : p.A380

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

Series	Diameter			Thick Metric (mm, inch)	EDP No.				
	Min. to Max. mm (inch)	Inch (inch)	Metric (mm)		CARBIDE P40				
					TiN	TiCN	TiAlN		
3	Ø34.37 (1.353) to Ø47.80 (1.882)	1-13/32	35.72	1.4063	6.4 (1/4)	S1805126	S1810126	S1815126	
			36.00	1.4173		S1855360	S1860360	S1865360	
			1-7/16	36.51		1.4375	S1805128	S1810128	S1815128
				37.00		1.4567	S1855370	S1860370	S1865370
			1-15/32	37.31		1.4688	S1805130	S1810130	S1815130
				38.00		1.4961	S1855380	S1860380	S1865380
			1-1/2	38.10		1.5000	S1805132	S1810132	S1815132
			1-17/32	38.89		1.5313	S1805134	S1810134	S1815134
			1-9/16	39.00		1.5354	S1855390	S1860390	S1865390
				39.69		1.5625	S1805136	S1810136	S1815136
			1-19/32	40.00		1.5748	S1855400	S1860400	S1865400
				40.48		1.5938	S1805138	S1810138	S1815138
			1-5/8	41.00		1.6142	S1855410	S1860410	S1865410
				41.28		1.6250	S1805140	S1810140	S1815140
			1-21/32	42.00		1.6535	S1855420	S1860420	S1865420
				42.07		1.6563	S1805142	S1810142	S1815142
			1-11/16	42.86		1.6875	S1805144	S1810144	S1815144
				43.00		1.6929	S1855430	S1860430	S1865430
			1-23/32	43.66		1.7188	S1805146	S1810146	S1815146
				44.00		1.7323	S1855440	S1860440	S1865440
1-3/4	44.45	1.7500	S1805148	S1810148	S1815148				
	45.00	1.7717	S1855450	S1860450	S1865450				
1-25/32	45.24	1.7813	S1805150	S1810150	S1815150				
	46.00	1.8110	S1855460	S1860460	S1865460				
1-13/16	46.04	1.8125	S1805152	S1810152	S1815152				
	46.83	1.8438	S1805154	S1810154	S1815154				
1-27/32	47.00	1.8504	S1855470	S1860470	S1865470				
	47.63	1.8750	S1805156	S1810156	S1815156				

◎ : Excellent ○ : Good

ISO	P										M				K							
Material Description	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	N									S						H					
Material Description	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



SURFACE TREATMENT



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	TAPER SHANK		TAPER SHANK HOLDERS - INCH/METRIC	A364
COUNTER SINKS	FLANGED SHANK		FLANGED STRAIGHT SHANK HOLDERS - INCH/METRIC	A364
COUNTER BORES	STRAIGHT SHANK		STRAIGHT SHANK HOLDERS - INCH	A382

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)
A300	A303	A307	A312	A315	A319	A322	A325	A329	A361
TiN / TiCN / TiAlN									TiN / Hardslick / TiAlN



											1	DREAM DRILLS -FLAT BOTTOM
											2	DREAM DRILLS -INOX
											3	DREAM DRILLS -ML
											4	DREAM DRILLS -ML
											5	DREAM DRILLS -ML
											6	DREAM DRILLS -ML
											7	DREAM DRILLS -ML
											8	DREAM DRILLS -ML
											9	DREAM DRILLS -ML
											10	DREAM DRILLS -ML
											11	DREAM DRILLS -ML
											12	DREAM DRILLS for HIGH HARDENED STEELS
											13	DREAM DRILLS for HIGH HARDENED STEELS
											14	DREAM DRILLS for HIGH HARDENED STEELS
											15	GENERAL CARBIDE DRILLS
											16	GENERAL CARBIDE DRILLS
											17	GENERAL CARBIDE DRILLS
											18	GENERAL CARBIDE DRILLS
											19	GENERAL CARBIDE DRILLS
											20	GENERAL CARBIDE DRILLS
											21	GENERAL CARBIDE DRILLS
											22	GENERAL CARBIDE DRILLS
											23	GENERAL CARBIDE DRILLS
											24	GENERAL CARBIDE DRILLS
											25	GENERAL CARBIDE DRILLS
											26	GENERAL CARBIDE DRILLS
											27	GENERAL CARBIDE DRILLS
											28	GENERAL CARBIDE DRILLS
											29	GENERAL CARBIDE DRILLS
											30	GENERAL CARBIDE DRILLS
											31	GENERAL CARBIDE DRILLS
											32	GENERAL CARBIDE DRILLS
											33	GENERAL CARBIDE DRILLS
											34	GENERAL CARBIDE DRILLS
											35	GENERAL CARBIDE DRILLS
											36	GENERAL CARBIDE DRILLS
											37	GENERAL CARBIDE DRILLS
											38	GENERAL CARBIDE DRILLS
											39	GENERAL CARBIDE DRILLS
											40	GENERAL CARBIDE DRILLS
											41	GENERAL CARBIDE DRILLS

Coating	Characteristics
H	<ul style="list-style-type: none"> -First choice for excellent wear resistance and toughness -Preventive of chipping due to cold welding -Achieve high penetration rates even in deep holes with reliable tool life -Coefficient of friction against steel : 0.25 -Color : Bronze
TiN	<ul style="list-style-type: none"> -Increased tool life over non-coating -Improved wear resistance and high hardness -For normal applications -Coefficient of friction against steel : 0.4 -Color : Gold

Coating	Characteristics
TiCN	<ul style="list-style-type: none"> -Maximum working temperature up to 400°C -Better wear resistance over non-coating -Coefficient of friction against steel : 0.4 -Color : Blue-Grey
TiAlN	<ul style="list-style-type: none"> -Maximum working temperature up to 800°C -Excellent heat and oxidation resistance -Coefficient of friction against steel : 0.4 -Color : Violet-Grey
Hardslick	<ul style="list-style-type: none"> -Better chip evacuation for tapping and drilling -High hardness and improved lubrication -Coefficient of friction against steel : 0.2 -Color : Black-Grey

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

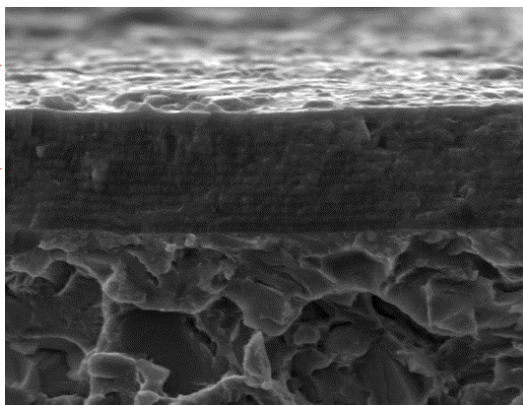


SM-Point

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".

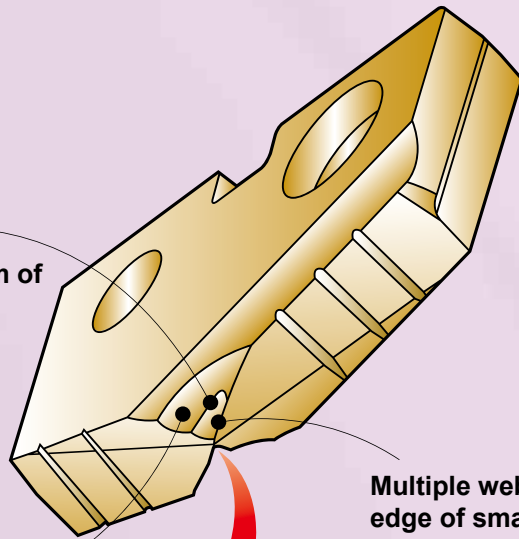
This new point increases stability, reduces thrust, improves centering and allows increased speeds and feeds.

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.

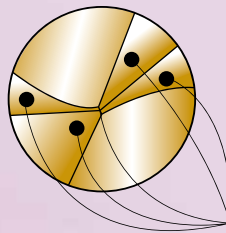
Radius back face

- ▶ Wide chip space



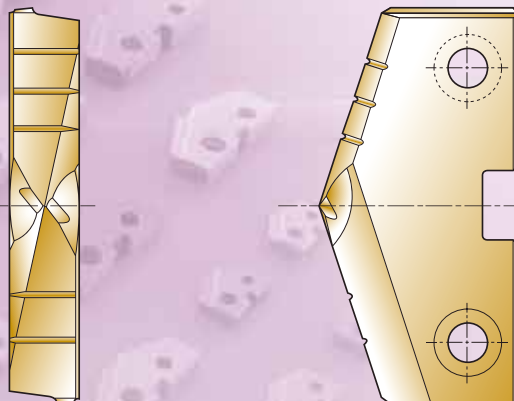
Multiple web thinning with the cutting edge of small web thinning.

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

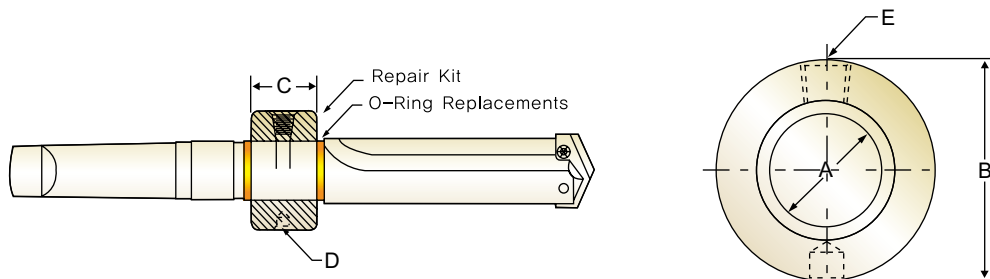


Four-facet point

- ▶ 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 CARBIDE-P40

RPM = rev./min.
FEED = mm/rev.

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
P	1	Non-alloy steel	94	110	119	0.20	0.24	0.31	0.42	0.46
	2		76	82	96	0.15	0.22	0.29	0.36	0.40
	3		66	70	84	0.15	0.22	0.28	0.36	0.40
	4		66	70	84	0.15	0.22	0.28	0.36	0.40
	6	Low alloy steel	73	81	88	0.15	0.23	0.29	0.38	0.42
	7		66	73	81	0.15	0.21	0.28	0.37	0.41
	8		62	70	78	0.12	0.20	0.27	0.33	0.40
	9		53	58	64	0.10	0.18	0.23	0.30	0.38
	10		High alloyed steel, and tool steel	50	56	67	0.09	0.18	0.22	0.28
	11	37		46	50	0.09	0.18	0.22	0.28	0.31
	M	12	Stainless steel	38	43	47	0.10	0.18	0.20	0.24
13		38		43	47	0.10	0.18	0.20	0.24	0.30
14		43		49	55	0.12	0.20	0.23	0.27	0.35
K	15	Grey cast iron	95	101	125	0.17	0.26	0.32	0.42	0.53
	16		56	70	79	0.13	0.18	0.23	0.28	0.33
	17	Nodular cast iron	95	101	125	0.17	0.26	0.32	0.42	0.53
	18		66	81	93	0.13	0.15	0.28	0.33	0.37
	19	Malleable cast iron	98	125	137	0.18	0.30	0.37	0.46	0.56
	20		66	81	93	0.13	0.15	0.28	0.33	0.37
N	21	Aluminum-wrought alloy	366	396	427	0.24	0.38	0.45	0.50	0.53
	22		244	290	291	0.22	0.33	0.40	0.45	0.48
	27	Copper and Copper Alloys (Bronze / Brass)	136	168	193	0.15	0.24	0.29	0.39	0.47
S	31	Heat Resistant Super Alloys	50	55	62	0.19	0.19	0.21	0.24	0.30
	32		38	44	46	0.15	0.17	0.20	0.21	0.25
	33		38	44	46	0.15	0.17	0.20	0.21	0.25
	34		38	44	46	0.15	0.17	0.20	0.21	0.25
	35		38	44	46	0.15	0.17	0.20	0.21	0.25
H	38	Hardened steel	38	43	47	0.10	0.18	0.20	0.24	0.30

► 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