

SM-POINT SPADE DRILL INSERTS - PREMIUM HSS M48

- SM-POINT EINWEG BOHREINSATZ - PREMIUM HSS M48
- Plaquettes SPADE DRILL, pointe SM - HSS Premium M48
- CUSPIDI, SM-POINT - PREMIUM HSS M48



- ▶ For use in high temperature alloys and materials with 350~500 Brinell.
- ▶ Improved stability and hole straightness by newly developed thinning design.
- ▶ Less thrust force and excellent self-centering.
- ▶ Any non-standard size available.
- ▶ Zur Anwendung bei hitzebeständigen Legierungen und Werkstoffen mit 350~500 Brinell
- ▶ Erhöhte Stabilität und Fluchtgenauigkeit durch neu entwickelte Querschnitengeometrie
- ▶ Verminderte Bohrkraft und ausgezeichnete Selbstzentrierung
- ▶ Jede Abmessung außerhalb des Kataloges lieferbar

cutting conditions : p.A377

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	EDP No.		
	Inch (inch)	Metric (mm)	Decimal (inch)	Metric (mm, inch)	PREMIUM HSS M48		
					TiN	TiCN	TiAlN
Y Ø9.50 (.374) to Ø11.07 (.436)	3/8	9.50	.3740	2.4 (3/32)	SM555095	SM560095	SM565095
		9.53	.3750		SM505024	SM510024	SM515024
		9.80	.3858		SM555098	SM560098	SM565098
	25/64	9.92	.3906		SM505025	SM510025	SM515025
		10.00	.3937		SM555100	SM560100	SM565100
		10.20	.4016		SM555102	SM560102	SM565102
	13/32	10.32	.4062		SM505026	SM510026	SM515026
		10.50	.4134		SM555105	SM560105	SM565105
		10.72	.4219		SM505027	SM510027	SM515027
	27/64	10.80	.4252		SM555108	SM560108	SM565108
		11.00	.4331		SM555110	SM560110	SM565110
		11.11	.4375		SM505028	SM510028	SM515028
Z Ø11.11(.437) to Ø12.95(.510)	7/16	11.50	.4528	2.4 (3/32)	SM555115	SM560115	SM565115
		11.51	.4531		SM505029	SM510029	SM515029
		11.91	.4688		SM555120	SM560120	SM565120
	15/32	12.00	.4724		SM505030	SM510030	SM515030
		12.30	.4844		SM555125	SM560125	SM565125
		12.50	.4921		SM505031	SM510031	SM515031
	31/64	12.70	.5000		SM555130	SM560130	SM565130
		13.00	.5118		SM505032	SM510032	SM515032
		13.10	.5156		SM555135	SM560135	SM565135
	17/32	13.49	.5312		SM505033	SM510033	SM515033
		13.50	.5315		SM555140	SM560140	SM565140
		13.89	.5469		SM505034	SM510034	SM515034
35/64	14.00	.5512	SM555145	SM560145	SM565145		
	14.29	.5625	SM505035	SM510035	SM515035		
	14.50	.5709	SM555150	SM560150	SM565150		
9/16	14.68	.5781	SM505036	SM510036	SM515036		
	15.00	.5906	SM555155	SM560155	SM565155		
	15.08	.5938	SM505037	SM510037	SM515037		
37/64	15.09	.5938	SM555160	SM560160	SM565160		
	15.88	.6250	SM505038	SM510038	SM515038		
	15.88	.6250	SM555160	SM560160	SM565160		
0 Ø12.98 (.511) to Ø17.65 (.695)	5/8	15.88	.6250	3.2 (1/8)	SM505039	SM510039	SM515039
		15.50	.6102		SM555155	SM560155	SM565155
		15.48	.6094		SM505040	SM510040	SM515040
	39/64	15.48	.6094		SM555155	SM560155	SM565155
		16.00	.6299		SM505040	SM510040	SM515040
		16.00	.6299		SM555160	SM560160	SM565160

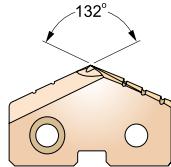
◎ : Excellent ○ : Good

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	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	○	○									◎	◎	◎	◎	◎			◎			

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cutting conditions : p.A377

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	EDP No.		
	Inch (inch)	Metric (mm)	Decimal (inch)	Metric (mm, inch)	PREMIUM HSS M48		
					TiN	TiCN	TiAlN
0 Ø12.98(.511) to Ø17.65(.695)	41/64	16.27	.6406	3.2 (1/8)	SM505041	SM510041	SM515041
		16.50	.6496		SM555165	SM560165	SM565165
	21/32	16.67	.6562		SM505042	SM510042	SM515042
		17.00	.6693		SM555170	SM560170	SM565170
	43/64	17.07	.6719		SM505043	SM510043	SM515043
	11/16	17.46	.6875		SM505044	SM510044	SM515044
		17.50	.6890		SM555175	SM560175	SM565175
	45/64	17.86	.7031		SM505045	SM510045	SM515045
		18.00	.7087		SM555180	SM560180	SM565180
		23/32	18.26		.7188	SM505046	SM510046
1 Ø17.53 (.690) to Ø24.38 (.960)		18.50	.7283	4.0 (5/32)	SM555185	SM560185	SM565185
	47/64	18.65	.7344		SM505047	SM510047	SM515047
		19.00	.7480		SM555190	SM560190	SM565190
	3/4	19.05	.7500		SM505048	SM510048	SM515048
	49/64	19.45	.7656		SM505049	SM510049	SM515049
		19.50	.7677		SM555195	SM560195	SM565195
	25/32	19.84	.7812		SM505050	SM510050	SM515050
		20.00	.7874		SM555200	SM560200	SM565200
	51/64	20.24	.7969		SM505051	SM510051	SM515051
		20.50	.8071		SM555205	SM560205	SM565205
	13/16	20.64	.8125		SM505052	SM510052	SM515052
		21.00	.8268		SM555210	SM560210	SM565210
	27/32	21.43	.8438		SM505054	SM510054	SM515054
	55/64	21.83	.8594		SM505055	SM510055	SM515055
		22.00	.8661		SM555220	SM560220	SM565220
	7/8	22.23	.8750		SM505056	SM510056	SM515056
	57/64	22.62	.8906		SM505057	SM510057	SM515057
		23.00	.9055		SM555230	SM560230	SM565230
29/32	23.02	.9062	SM505058	SM510058	SM515058		
59/64	23.42	.9219	SM505059	SM510059	SM515059		
15/16	23.81	.9375	SM505060	SM510060	SM515060		
	24.00	.9449	SM555240	SM560240	SM565240		

◎ : 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	36	10	29	32	38	42	48	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	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	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	○	○					○				◎	◎	◎	◎	◎			◎			

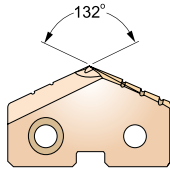
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Cutting conditions : p.A377

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)		PREMIUM HSS M48		
					TiN	TiCN	TiAlN
<p style="font-size: 2em; font-weight: bold; text-align: center;">2</p> <p>Ø24.41 (.961) to Ø35.05 (1.380)</p>	31/32	24.61	.9688	4.8 (3/16)	SM505062	SM510062	SM515062
	63/64	25.00	.9843		SM555250	SM560250	SM565250
	1	25.40	1.0000		SM505100	SM510100	SM515100
	1-1/64	25.80	1.0156		SM505101	SM510101	SM515101
		26.00	1.0236		SM555260	SM560260	SM565260
	1-1/32	26.19	1.0312		SM505102	SM510102	SM515102
	1-3/64	26.59	1.0469		SM505103	SM510103	SM515103
	1-1/16	26.99	1.0625		SM505104	SM510104	SM515104
		27.00	1.0630		SM555270	SM560270	SM565270
	1-3/32	27.78	1.0938		SM505106	SM510106	SM515106
		28.00	1.1024		SM555280	SM560280	SM565280
	1-7/64	28.18	1.1094		SM505107	SM510107	SM515107
	1-1/8	28.58	1.1250		SM505108	SM510108	SM515108
		29.00	1.1417		SM555290	SM560290	SM565290
	1-5/32	29.37	1.1562		SM505110	SM510110	SM515110
		30.00	1.1811		SM555300	SM560300	SM565300
	1-3/16	30.16	1.1875		SM505112	SM510112	SM515112
	1-7/32	30.96	1.2188		SM505114	SM510114	SM515114
		31.00	1.2205		SM555310	SM560310	SM565310
	1-1/4	31.75	1.2500		SM505116	SM510116	SM515116
		32.00	1.2598		SM555320	SM560320	SM565320
	1-9/32	32.54	1.2812		SM505118	SM510118	SM515118
		33.00	1.2992		SM555330	SM560330	SM565330
	1-5/16	33.34	1.3125		SM505120	SM510120	SM515120
		34.00	1.3386		SM555340	SM560340	SM565340
	1-11/32	34.13	1.3438		SM505122	SM510122	SM515122
	1-3/8	34.93	1.3750		SM505124	SM510124	SM515124
		35.00	1.3780		SM555350	SM560350	SM565350

◎ : 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 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



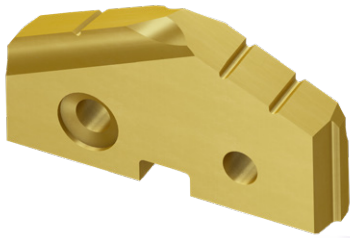
ISO	VDI 3323	Material Description	Composition / Structure / Heat Treatment	HB	HRc			
P	1	Non-alloy steel	About 0.15% C Annealed	125		○	◎	◎
	2		About 0.45% C Annealed	190	13	○	◎	◎
	3		About 0.45% C Quenched & Tempered	250	25	○	◎	◎
	4		About 0.75% C Annealed	270	28	○	◎	◎
	5		About 0.75% C Quenched & Tempered	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	Copper Alloys (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

PRODUCT FEATURES

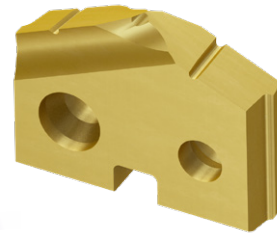
SPADE DRILLS (Standard, SM-Point)

Reference page : p.A299 - p.A380



Standard-Point

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



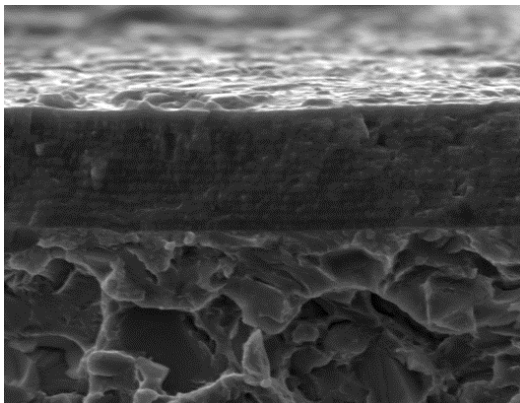
SM-Point

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".

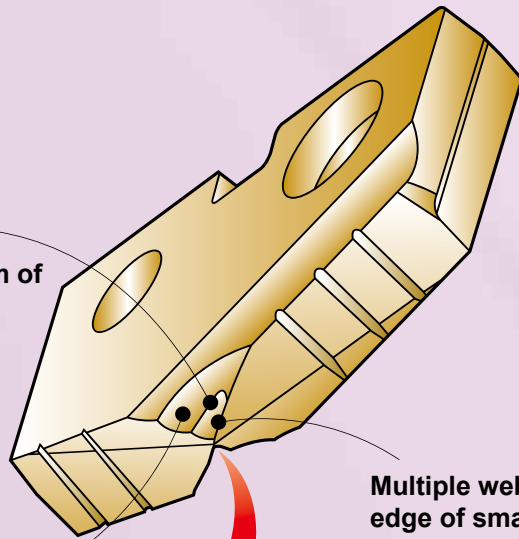
This new point increases stability, reduces thrust, improves centering and allows increased speeds and feeds.

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.

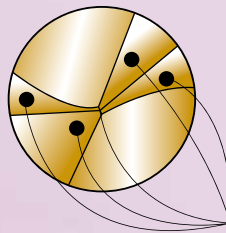
Radius back face

- ▶ Wide chip space



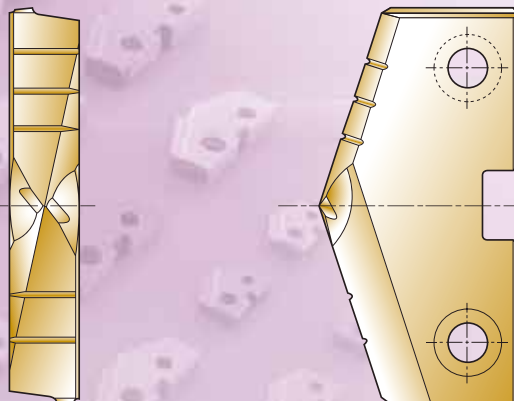
Multiple web thinning with the cutting edge of small web thinning.

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

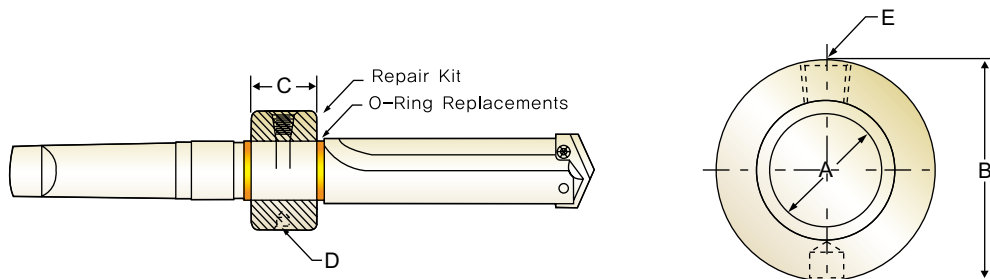


Four-facet point

- ▶ 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-M48

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
P	1	Non-alloy steel	54	67	75	0.15	0.22	0.28	0.37	0.46	0.56	0.67
	2		49	58	69	0.13	0.19	0.24	0.34	0.43	0.50	0.57
	3		45	56	63	0.13	0.19	0.23	0.34	0.43	0.50	0.58
	4		45	56	63	0.13	0.19	0.23	0.34	0.43	0.50	0.58
	6	Low alloy steel	45	56	58	0.13	0.20	0.24	0.36	0.42	0.46	0.55
	7		41	50	56	0.13	0.16	0.23	0.35	0.41	0.44	0.55
	8		39	47	53	0.09	0.15	0.22	0.28	0.38	0.41	0.50
	9		36	43	46	0.08	0.15	0.21	0.27	0.38	0.40	0.51
	10		High alloyed steel, and tool steel	25	34	36	0.08	0.17	0.20	0.24	0.30	0.37
	11	19		27	29	0.08	0.14	0.18	0.19	0.25	0.29	0.34
	K	15	Grey cast iron	48	58	70	0.14	0.26	0.35	0.45	0.56	0.64
16		29		35	41	0.10	0.15	0.16	0.23	0.28	0.35	0.40
17		Nodular cast iron	48	58	70	0.14	0.26	0.35	0.45	0.56	0.64	0.68
18			35	44	52	0.13	0.17	0.23	0.30	0.35	0.43	0.50
19		Malleable cast iron	52	64	75	0.16	0.30	0.40	0.49	0.59	0.69	0.75
20			35	44	52	0.13	0.17	0.23	0.30	0.35	0.43	0.50
N	21	Aluminum-wrought alloy	187	229	244	0.19	0.33	0.41	0.50	0.54	0.64	0.70
	22		92	137	137	0.19	0.33	0.41	0.46	0.54	0.64	0.70
	27	Copper and Copper Alloys (Bronze / Brass)	95	128	142	0.19	0.31	0.43	0.53	0.64	0.74	0.79
S	31	Heat Resistant Super Alloys	9	11	12	0.08	0.17	0.20	0.24	0.30	0.37	0.39
	32		8	9	11	0.08	0.14	0.18	0.19	0.25	0.29	0.34
	33		8	9	11	0.08	0.14	0.18	0.19	0.25	0.29	0.34
	34		8	9	11	0.08	0.14	0.18	0.19	0.25	0.29	0.34
	35		8	9	11	0.08	0.14	0.18	0.19	0.25	0.29	0.34
H	38	Hardened steel	20	23	29	0.12	0.18	0.20	0.24	0.30	0.36	0.46

► 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.