Leading Through Innovation

HSS, HSS-E & HSSCo8

STRAIGHT SHANK DRILLS

BOHRER MIT ZYLINDERSCHAFT

- For General Purpose (Soft &Tough Materials)
- Für allgemeine Anwendungen (weiche & zähe Materialien)

SELECTION GUIDE

YG HOLEMAKING TOOLS

HSS, HSS-E & HSSCo8
STRAIGHT SHANK DRILLS

For General Purpose (Soft &Tough Materials)

Please visit globalyg1.com/mat for material search

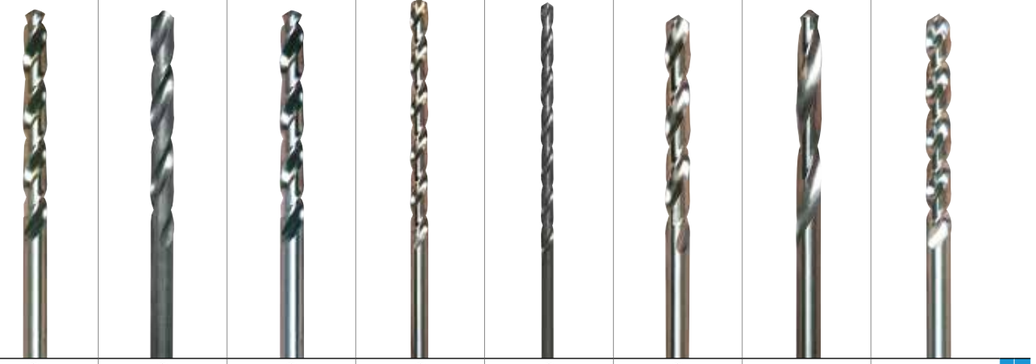
◎ : Excellent ○ : Good

Recommended cutting conditions : p.A262

SERIES	D2107	D1107	D2105
STANDARD	DIN1897	DIN1897	DIN338
LENGTH	STUB	STUB	JOBBER
SIZE MIN	D1.0	D1.0	D1.0
SIZE MAX	D31.0	D13.0	D20.0
PAGE	A220	A224	A227
SURFACE TREATMENT	Gold Coloring	Steam Tempered	Gold Coloring

ISO	VDI 3323	Material Description	Composition / Structure / Heat Treatment		HB	HRc	D2107	D1107	D2105
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	Malleable cast iron	Ferritic		130		○	○	○
	20		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 (Bronze / Brass)	Cutting Alloys, PB>1%		110				
	27		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		Ni or Co Based	Annealed	250	25			
	34			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			

DL105	D1105	D1125	D2104	D1121	DL109	D1100	D1106
DIN338	DIN338	DIN338	DIN340	DIN1869/1	DIN338	DIN338	DIN338
JOBBER	JOBBER	JOBBER	LONG	EXTRA LONG	JOBBER	JOBBER	JOBBER
D1.0	D0.3	D2.0	D2.0	D2.0	D1.5	D1.5	D1.5
D20.0	D20.0	D20.0	D12.0	D13.0	D13.0	D13.0	D13.0
A230	A233	A238	A241	A243	A244	A245	A247
Gold Coloring	Steam Tempered	Bright	Gold Coloring	Steam Tempered	Bright		



DL105	D1105	D1125	D2104	D1121	DL109	D1100	D1106	
◎	◎	◎	◎	◎	◎			P
◎	◎	◎	◎	◎	◎			P
◎	◎	◎	◎	◎	◎			P
○	○	○	○	○	○			P
								P
◎	◎	◎	◎	◎	◎			P
○	○	○	○	○	○			P
○	○	○	○	○	○			P
								P
○	○	○	○	○	○			P
◎	○	○	◎	○	◎			M
○	○	○	○	○	○			M
○	○	○	○	○	○			M
○	○	○	○	○	○			K
○	○	○	○	○	○			K
○	○	○	○	○	○			K
								K
○	○	○	○	○	○			K
								K
○	○	○	○	○	○		◎	N
○	○	○	○	○	○		◎	N
○	○	○	○	○	○		◎	N
							◎	N
						◎		N
						◎		N
○	○	○	○	○	○			N
								N
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○	○	○	○	○	○			S
								S
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								H

STRAIGHT SHANK DRILLS

D1100 SERIES

HSS, STRAIGHT SHANK TWIST DRILLS for BRASS/BRONZE

JOBBER

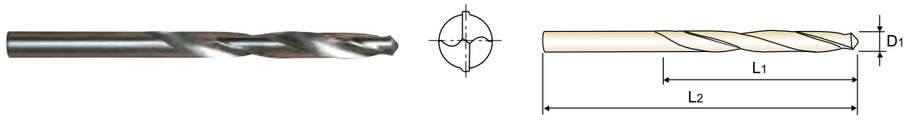
HSS, SPIRALBOHRER für MESSING/BRONZE mit ZYLINDERSCHAFT — *KURZ*

Forets HSS, queue cylindrique pour Laiton/Bronze, série courte — *COURTE*

PUNTE ELICOIDALI, GAMBO CILINDRICO PER OTTONE (HSS) — *CORTA*

▶**Application** : Drilling hard, brittle and short-chip materials. i.e., brass, bronze, phosphor bronze and magnesium alloys.

▶**Verwendung** : Zum Bohren von harten und spröden Werkstoffen wie Messing, Magnesium-Legierungen, Bronze, Phosphorbronze.



DIN 338 | HSS | N 15~20° | h8 | 118° | Bright

p.A263

Recommended ToolHolder — Plain Shank — ER COLLET CHUCK — Page D73-115

Unit : mm

EDP No.	Drill Diameter D1	Flute Length L1	Overall Length L2
D1100067	6.7	63	101
D1100068	6.8	69	109
D1100069	6.9	69	109
D1100070	7.0	69	109
D1100071	7.1	69	109
D1100072	7.2	69	109
D1100073	7.3	69	109
D1100074	7.4	69	109
D1100075	7.5	69	109
D1100076	7.6	75	117
D1100077	7.7	75	117
D1100078	7.8	75	117
D1100079	7.9	75	117
D1100080	8.0	75	117
D1100081	8.1	75	117
D1100082	8.2	75	117
D1100083	8.3	75	117
D1100084	8.4	75	117
D1100085	8.5	75	117
D1100086	8.6	81	125

EDP No.	Drill Diameter D1	Flute Length L1	Overall Length L2
D1100087	8.7	81	125
D1100088	8.8	81	125
D1100089	8.9	81	125
D1100090	9.0	81	125
D1100091	9.1	81	125
D1100092	9.2	81	125
D1100093	9.3	81	125
D1100094	9.4	81	125
D1100095	9.5	81	125
D1100096	9.6	87	133
D1100097	9.7	87	133
D1100098	9.8	87	133
D1100099	9.9	87	133
D1100100	10.0	87	133
D1100105	10.5	87	133
D1100110	11.0	94	142
D1100115	11.5	94	142
D1100120	12.0	101	151
D1100125	12.5	101	151
D1100130	13.0	101	151

◎ : 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	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	400 Rm	1050 Rm	550	630	400	550
Recommended							◎	◎													

STRAIGHT SHANK DRILLS

D1106 SERIES

HSS, STRAIGHT SHANK TWIST DRILLS for ALUMINUM

JOBBER

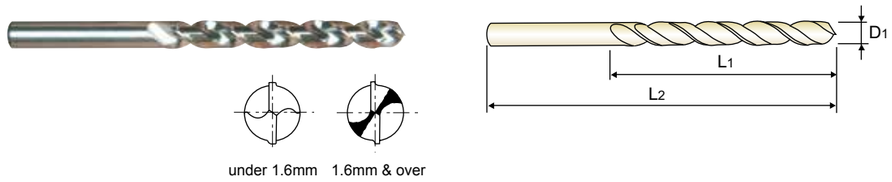
HSS, SPIRALBOHRER für ALUMINIUM mit ZYLINDERSCHAFT — *KURZ*

Forets HSS, queue cylindrique pour ALU, Forme C, série courte — *COURTE*

PUNTE ELICOIDALI, GAMBO CILINDRICO, PER ALLUMINIO (HSS) — *CORTA*

▶**Application** : Drilling hard, brittle and short-chip materials. i.e., brass, bronze, phosphor bronze aluminum and magnesium alloys.

▶**Verwendung** : Zum Bohren von harten und spröden Werkstoffen wie Messing, Magnesium-Legierungen, Bronze, Phosphorbronze.



DIN 338 | HSS | 38° | h8 | 135° | Bright

p.A263

Recommended ToolHolder — Plain Shank — ER COLLET CHUCK — Page D73-115

Unit : mm

EDP No.	Drill Diameter D1	Flute Length L1	Overall Length L2
D1106015	1.5	18	40
D1106016	1.6	20	43
D1106017	1.7	20	43
D1106018	1.8	22	46
D1106019	1.9	22	46
D1106020	2.0	24	49
D1106021	2.1	24	49
D1106022	2.2	27	53
D1106023	2.3	27	53
D1106024	2.4	30	57
D1106025	2.5	30	57
D1106026	2.6	30	57
D1106027	2.7	33	61
D1106028	2.8	33	61
D1106029	2.9	33	61
D1106030	3.0	33	61
D1106031	3.1	36	65
D1106032	3.2	36	65
D1106033	3.3	36	65
D1106034	3.4	39	70
D1106035	3.5	39	70
D1106036	3.6	39	70
D1106037	3.7	39	70
D1106038	3.8	43	75
D1106039	3.9	43	75
D1106040	4.0	43	75

EDP No.	Drill Diameter D1	Flute Length L1	Overall Length L2
D1106041	4.1	43	75
D1106042	4.2	43	75
D1106043	4.3	47	80
D1106044	4.4	47	80
D1106045	4.5	47	80
D1106046	4.6	47	80
D1106047	4.7	47	80
D1106048	4.8	52	86
D1106049	4.9	52	86
D1106050	5.0	52	86
D1106051	5.1	52	86
D1106052	5.2	52	86
D1106053	5.3	52	86
D1106054	5.4	57	93
D1106055	5.5	57	93
D1106056	5.6	57	93
D1106057	5.7	57	93
D1106058	5.8	57	93
D1106059	5.9	57	93
D1106060	6.0	57	93
D1106061	6.1	63	101
D1106062	6.2	63	101
D1106063	6.3	63	101
D1106064	6.4	63	101
D1106065	6.5	63	101
D1106066	6.6	63	101

▶ NEXT PAGE

◎ : 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	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	400 Rm	1050 Rm	550	630	400	550
Recommended	◎	◎	◎	◎																	

STRAIGHT SHANK DRILLS

D1106 SERIES

HSS, STRAIGHT SHANK TWIST DRILLS for ALUMINUM

JOBBER

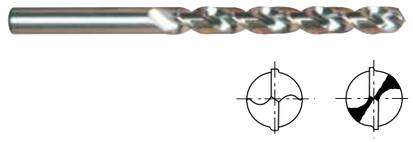
HSS, SPIRALBOHRER für ALUMINIUM mit ZYLINDERSCHAFT — *KURZ*

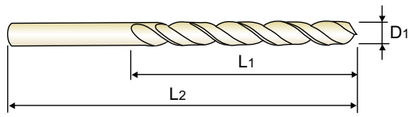
Forets HSS, queue cylindrique pour ALU, Forme C, série courte — *COURTE*

PUNTE ELICOIDALI, GAMBO CILINDRICO, PER ALLUMINIO (HSS) — *CORTA*

▶**Application** : Drilling hard, brittle and short-chip materials. i.e., brass, bronze, phosphor bronze aluminum and magnesium alloys.

▶**Verwendung** : Zum Bohren von harten und spröden Werkstoffen wie Messing, Magnesium-Legierungen, Bronze, Phosphorbronze.





DIN 338 | HSS | 38° | h8 | 135° | Bright p.A263

Recommended ToolHolder — Plain Shank: ER COLLET CHUCK — Page: D73 - 115

Unit : mm

EDP No.	Drill Diameter D1	Flute Length L1	Overall Length L2
D1106067	6.7	63	101
D1106068	6.8	69	109
D1106069	6.9	69	109
D1106070	7.0	69	109
D1106071	7.1	69	109
D1106072	7.2	69	109
D1106073	7.3	69	109
D1106074	7.4	69	109
D1106075	7.5	69	109
D1106076	7.6	75	117
D1106077	7.7	75	117
D1106078	7.8	75	117
D1106079	7.9	75	117
D1106080	8.0	75	117
D1106081	8.1	75	117
D1106082	8.2	75	117
D1106083	8.3	75	117
D1106084	8.4	75	117
D1106085	8.5	75	117
D1106086	8.6	81	125

EDP No.	Drill Diameter D1	Flute Length L1	Overall Length L2
D1106087	8.7	81	125
D1106088	8.8	81	125
D1106089	8.9	81	125
D1106090	9.0	81	125
D1106091	9.1	81	125
D1106092	9.2	81	125
D1106093	9.3	81	125
D1106094	9.4	81	125
D1106095	9.5	81	125
D1106096	9.6	87	133
D1106097	9.7	87	133
D1106098	9.8	87	133
D1106099	9.9	87	133
D1106100	10.0	87	133
D1106105	10.5	87	133
D1106110	11.0	94	142
D1106115	11.5	94	142
D1106120	12.0	101	151
D1106125	12.5	101	151
D1106130	13.0	101	151

◎ : Excellent ○ : Good

ISO	P																			
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	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	400 Rm	1050 Rm	550	630	400	550
Recommended	◎	◎	◎	◎																	

STRAIGHT SHANK DRILLS

DL510 SERIES

HSS-E, STRAIGHT SHANK TWIST DRILLS for DEEP HOLES

STUB

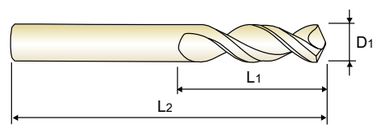
HSS-E, SPIRALBOHRER für TIEFLOCH mit ZYLINDERSCHAFT — *EXTRA KURZ*

Forets HSS-E, queue cylindrique pour perçage profond, série extra-courte — *EXTRA-COURTE*

PUNTA IN HSS-E, GAMBO CILINDRICO PER FORI NON - STOP — *EXTRA CORTA*

▶**Application** : Drilling deep holes in non alloy steels, alloy steels, grey cast iron, malleable cast iron, special aluminum or magnesium alloys.

▶**Verwendung** : Zum Bohren von legiertem und unlegiertem stahl, Grauguß, Temperguß, Sphäroguß, Druckguß, Alu-Legierungen kurzspanend, Bronze, Messing zäh, Neusilber.



▶DH100 worm pattern drills

DIN 1897 | HSS-E | 42° | h8 | 130° | Bright p.A264

Recommended ToolHolder — Plain Shank: ER COLLET CHUCK — Page: D73 - 115

Unit : mm

EDP No.	Drill Diameter D1	Flute Length L1	Overall Length L2
DL510020	2.0	12	38
DL510021	2.1	12	38
DL510022	2.2	13	40
DL510023	2.3	13	40
DL510024	2.4	14	43
DL510025	2.5	14	43
DL510026	2.6	14	43
DL510027	2.7	16	46
DL510028	2.8	16	46
DL510029	2.9	16	46
DL510030	3.0	16	46
DL510031	3.1	18	49
DL510032	3.2	18	49
DL510033	3.3	18	49
DL510034	3.4	20	52
DL510035	3.5	20	52
DL510036	3.6	20	52
DL510037	3.7	20	52
DL510038	3.8	22	55
DL510039	3.9	22	55
DL510040	4.0	22	55
DL510041	4.1	22	55
DL510042	4.2	22	55
DL510043	4.3	24	58
DL510044	4.4	24	58
DL510045	4.5	24	58

EDP No.	Drill Diameter D1	Flute Length L1	Overall Length L2
DL510046	4.6	24	58
DL510047	4.7	24	58
DL510048	4.8	26	62
DL510049	4.9	26	62
DL510050	5.0	26	62
DL510051	5.1	26	62
DL510052	5.2	26	62
DL510053	5.3	26	66
DL510054	5.4	28	66
DL510055	5.5	28	66
DL510056	5.6	28	66
DL510057	5.7	28	66
DL510058	5.8	28	66
DL510059	5.9	28	66
DL510060	6.0	28	66
DL510061	6.1	31	70
DL510062	6.2	31	70
DL510063	6.3	31	70
DL510064	6.4	31	70
DL510065	6.5	31	70
DL510066	6.6	31	70
DL510067	6.7	31	70
DL510068	6.8	34	74
DL510069	6.9	34	74
DL510070	7.0	34	74
DL510071	7.1	34	74

▶ NEXT PAGE

◎ : Excellent ○ : Good

ISO	P																			
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	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	400 Rm	1050 Rm	550	630	400	550
Recommended																					

STRAIGHT SHANK DRILLS

RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDPARAMETER

D2107, D1107, D2105, DL105, D1105, D1125, D2104, D1121, DL109 SERIES

HSS, HSS-E & HSSCo8 COBALT DRILLS

VC = M/MIN
RPM = rev./min.
FEED = mm/rev.

ISO	VDI 3323	Material Description	Vc	Parameter	Drill Diameter (mm) 2.0	3.0	4.0	6.0	8.0	10.0	13.0	16.0	18.0	20.0	30.0
P	1	Non-alloy steel	30	RPM	4770	3180	2390	1590	1190	950	730	600	530	480	320
				FEED	0.02~0.04	0.03~0.05	0.04~0.06	0.05~0.08	0.10~0.13	0.11~0.15	0.11~0.17	0.12~0.18	0.14~0.20	0.19~0.25	0.22~0.28
	2		25	RPM	3980	2650	1990	1330	990	800	610	500	440	400	270
				FEED	0.02~0.04	0.03~0.05	0.04~0.06	0.05~0.08	0.10~0.13	0.11~0.15	0.11~0.17	0.12~0.18	0.14~0.20	0.19~0.25	0.22~0.28
	3		20	RPM	3180	2120	1590	1060	800	640	490	400	350	320	210
				FEED	0.02~0.04	0.03~0.05	0.04~0.06	0.05~0.08	0.10~0.13	0.11~0.15	0.11~0.17	0.12~0.18	0.14~0.20	0.19~0.25	0.22~0.28
	4		20	RPM	3180	2120	1590	1060	800	640	490	400	350	320	210
				FEED	0.01~0.02	0.01~0.03	0.02~0.04	0.02~0.05	0.03~0.06	0.03~0.06	0.04~0.10	0.06~0.12	0.08~0.14	0.10~0.16	0.12~0.18
	6	Low alloy steel	25	RPM	3980	2650	1990	1330	990	800	610	500	440	400	270
				FEED	0.02~0.04	0.03~0.05	0.04~0.06	0.05~0.08	0.10~0.13	0.11~0.15	0.11~0.17	0.12~0.18	0.14~0.20	0.19~0.25	0.22~0.28
	7		20	RPM	3180	2120	1590	1060	800	640	490	400	350	320	210
				FEED	0.02~0.04	0.03~0.05	0.04~0.06	0.05~0.08	0.10~0.13	0.11~0.15	0.11~0.17	0.12~0.18	0.14~0.20	0.19~0.25	0.22~0.28
	8		20	RPM	3180	2120	1590	1060	800	640	490	400	350	320	210
				FEED	0.01~0.02	0.01~0.03	0.02~0.04	0.02~0.05	0.03~0.06	0.03~0.06	0.04~0.10	0.06~0.12	0.08~0.14	0.10~0.16	0.12~0.18
	10	High alloyed steel, and tool steel	15	RPM	2390	1590	1190	800	600	480	370	300	270	240	160
				FEED	0.02~0.04	0.03~0.05	0.04~0.06	0.05~0.08	0.10~0.13	0.11~0.15	0.11~0.17	0.12~0.18	0.14~0.20	0.19~0.25	0.22~0.28
M	12	Stainless steel	20	RPM	3180	2120	1590	1060	800	640	490	400	350	320	210
				FEED	0.02~0.04	0.03~0.05	0.04~0.06	0.05~0.08	0.10~0.13	0.11~0.15	0.11~0.17	0.12~0.18	0.14~0.20	0.19~0.25	0.22~0.28
	13		15	RPM	2390	1590	1190	800	600	480	370	300	270	240	160
				FEED	0.02~0.04	0.03~0.05	0.04~0.06	0.05~0.08	0.10~0.13	0.11~0.15	0.11~0.17	0.12~0.18	0.14~0.20	0.19~0.25	0.22~0.28
	14		10	RPM	1590	1060	800	530	400	320	240	200	180	160	110
				FEED	0.01~0.02	0.01~0.03	0.02~0.04	0.02~0.05	0.03~0.06	0.03~0.06	0.04~0.10	0.06~0.12	0.08~0.14	0.10~0.16	0.12~0.18
K	15	Grey cast iron	30	RPM	4770	3180	2390	1590	1190	950	730	600	530	480	320
				FEED	0.02~0.04	0.03~0.05	0.04~0.06	0.05~0.08	0.10~0.13	0.11~0.15	0.11~0.17	0.12~0.18	0.14~0.20	0.19~0.25	0.22~0.28
	16		25	RPM	3980	2650	1990	1330	990	800	610	500	440	400	270
				FEED	0.01~0.02	0.01~0.03	0.02~0.04	0.02~0.05	0.03~0.06	0.03~0.06	0.04~0.10	0.06~0.12	0.08~0.14	0.10~0.16	0.12~0.18
	17	Nodular cast iron	30	RPM	4770	3180	2390	1590	1190	950	730	600	530	480	320
				FEED	0.02~0.04	0.03~0.05	0.04~0.06	0.05~0.08	0.10~0.13	0.11~0.15	0.11~0.17	0.12~0.18	0.14~0.20	0.19~0.25	0.22~0.28
	19	Malleable cast iron	25	RPM	3980	2650	1990	1330	990	800	610	500	440	400	270
				FEED	0.02~0.04	0.03~0.05	0.04~0.06	0.05~0.08	0.10~0.13	0.11~0.15	0.11~0.17	0.12~0.18	0.14~0.20	0.19~0.25	0.22~0.28
N	21	Aluminum-wrought alloy	55	RPM	8750	5840	4380	2920	2190	1750	1350	1090	970	880	580
				FEED	0.03~0.06	0.05~0.09	0.07~0.11	0.12~0.16	0.12~0.18	0.14~0.20	0.16~0.22	0.18~0.24	0.20~0.28	0.20~0.30	0.28~0.38
	22		55	RPM	8750	5840	4380	2920	2190	1750	1350	1090	970	880	580
				FEED	0.03~0.06	0.05~0.09	0.07~0.11	0.12~0.16	0.12~0.18	0.14~0.20	0.16~0.22	0.18~0.24	0.20~0.28	0.20~0.30	0.28~0.38
	23	Aluminum-cast, alloyed	40	RPM	6370	4240	3180	2120	1590	1270	980	800	710	640	420
				FEED	0.03~0.06	0.05~0.09	0.07~0.11	0.12~0.16	0.12~0.18	0.14~0.20	0.16~0.22	0.18~0.24	0.20~0.28	0.20~0.30	0.28~0.38
	29	Non Metallic Materials	20	RPM	3180	2120	1590	1060	800	640	490	400	350	320	210
				FEED	0.02~0.04	0.03~0.05	0.04~0.06	0.05~0.08	0.10~0.13	0.11~0.15	0.11~0.17	0.12~0.18	0.14~0.20	0.19~0.25	0.22~0.28
	36	Titanium Alloys	10	RPM	1590	1060	800	530	400	320	240	200	180	160	110
				FEED	0.01~0.03	0.02~0.04	0.03~0.05	0.04~0.07	0.05~0.08	0.05~0.09	0.06~0.10	0.05~0.11	0.06~0.12	0.09~0.13	0.12~0.18

CARBIDE
HSS
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

STRAIGHT SHANK DRILLS

RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDPARAMETER

D1100 SERIES

HSS, TWIST DRILLS for BRASS / BRONZE

VC = M/MIN
RPM = rev./min.
FEED = mm/rev.

ISO	VDI 3323	Material Description	Vc	Parameter	Drill Diameter (mm) 1.5	2.0	3.0	4.0	5.0	6.0	8.0	10.0	13.0
N	27	Copper and Copper Alloys (Bronze / Brass)	45	RPM	9550	7160	4770	3580	2860	2390	1790	1430	1100
				FEED	0.03-0.06	0.05~0.08	0.06~0.10	0.08~0.12	0.10~0.14	0.12~0.16	0.16~0.20	0.19~0.25	0.22~0.32
	28		30	RPM	6370	4770	3180	2390	1910	1590	1190	950	730
				FEED	0.01-0.03	0.02~0.05	0.03~0.06	0.04~0.08	0.05~0.09	0.07~0.11	0.09~0.13	0.10~0.16	0.11~0.21

D1106 SERIES

HSS, TWIST DRILLS for ALUMINUM

ISO	VDI 3323	Material Description	Vc	Parameter	Drill Diameter (mm) 1.5	2.0	3.0	4.0	5.0	6.0	8.0	10.0	13.0
N	21	Aluminum-wrought alloy	50	RPM	10610	7960	5310	3980	3180	2650	1990	1590	1220
				FEED	0.03-0.06	0.05~0.08	0.06~0.10	0.08~0.12	0.10~0.14	0.14~0.18	0.14~0.20	0.19~0.25	0.25~0.35
	22		50	RPM	10610	7960	5310	3980	3180	2650	1990	1590	1220
				FEED	0.03-0.06	0.05~0.08	0.06~0.10	0.08~0.12	0.10~0.14	0.14~0.18	0.14~0.20	0.19~0.25	0.25~0.35
	23	Aluminum-cast, alloyed	40	RPM	8490	6370	4240	3180	2550	2120	1590	1270	980
				FEED	0.03-0.06	0.05~0.08	0.06~0.10	0.08~0.12	0.10~0.14	0.14~0.18	0.14~0.20	0.19~0.25	0.25~0.35
	24		30	RPM	6370	4770	3180	2390	1910	1590	1190	950	730
				FEED	0.01-0.04	0.03~0.06	0.03~0.07	0.04~0.08	0.05~0.09	0.04~0.10	0.06~0.12	0.10~0.16	0.12~0.22