

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	234	238	241

SURFACE TREATMENT	Gold Coloring	Steam Tempered	Gold Coloring
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HSS, HSS-E & HSSCo8 STRAIGHT SHANK DRILLS

For General Purpose (Soft & Tough Materials)

◎ : Excellent ○ : Good

Recommended cutting conditions : P.276



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 (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		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			

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
244	247	252	255	257	258	259	261
Gold Coloring	Steam Tempered	Bright	Gold Coloring	Steam Tempered	Bright		



◎	◎	◎	◎	◎	◎			1
◎	◎	◎	◎	◎	◎			2
◎	◎	◎	◎	◎	◎			3
○	○	○	○	○	○			4
								5
◎	◎	◎	◎	◎	◎			6
○	○	○	○	○	○			7
○	○	○	○	○	○			8
								9
○	○	○	○	○	○			10
								11
◎	○	○	◎	○	◎			12
○	○	○	○	○	○			13
○	○	○	○	○	○			14
○	○	○	○	○	○			15
○	○	○	○	○	○			16
○	○	○	○	○	○			17
○	○	○	○	○	○			18
○	○	○	○	○	○			19
○	○	○	○	○	○			20
○	○	○	○	○	○		◎	21
○	○	○	○	○	○		◎	22
○	○	○	○	○	○		◎	23
							◎	24
								25
								26
								27
							◎	28
○	○	○	○	○	○			29
								30
								31
								32
								33
								34
								35
○	○	○	○	○	○			36
								37
								38
								39
								40
								41

SERIES	DH100 DL510	DH100 DL508	DH100 DL509
STANDARD	DIN1897	DIN338	DIN340
LENGTH	STUB	JOBBER	LONG
SIZE MIN	D2.0	D2.0	D2.0
SIZE MAX	D20.0	D16.0	D12.0
PAGE	263	265	267

SURFACE TREATMENT

Bright

HSS-E STRAIGHT SHANK DRILLS

For General Purpose (Soft & Tough Materials)

⊙ : Excellent ○ : Good

Recommended cutting conditions : P.276



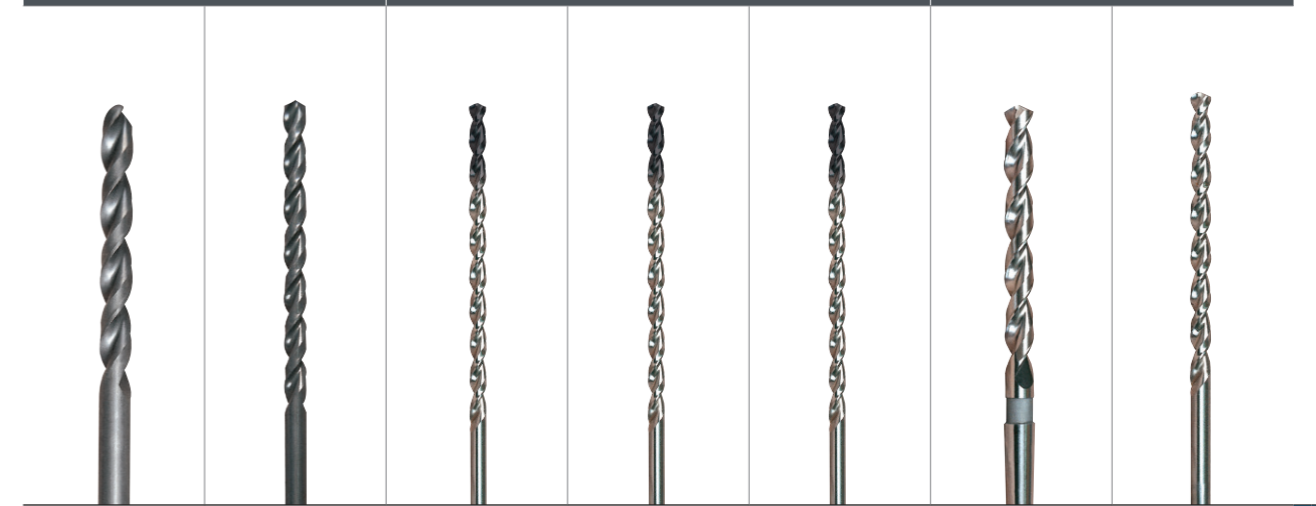
ISO	VDI 3323	Material Description	Composition / Structure / Heat Treatment	HB	HRc			
P	1	Non-alloy steel	About 0.15% C Annealed	125		⊙	⊙	⊙
	2		About 0.45% C Annealed	190	13	⊙	⊙	⊙
	3		About 0.45% C Quenched & Tempered	250	25	⊙	⊙	⊙
	4		About 0.75% C Annealed	270	28	○	○	○
	5		About 0.75% C Quenched & Tempered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

DH100 DL505	DH100 DL504	DH100 DT600	DH100 DT692	DH100 DT693	DH100 DL608	DH50 DL507
DIN338	DIN340	DIN1869/1	DIN1869/2	DIN1869/3	DIN341	-
JOBBER	LONG	EXTRA LONG			LONG	EXTRA LONG
D2.0	D2.0	D2.0	D3.0	D4.0	D13.0	D2.0
D13.0	D13.0	D10.5	D10.2	D10.0	D30.0	D13.0
269	271	272			273	274

Steam Tempered

TiAIN

Bright



⊙	⊙	⊙	⊙	⊙	⊙	○	1
⊙	⊙	⊙	⊙	⊙	⊙		2
⊙	⊙	⊙	⊙	⊙	⊙		3
○	○	○	○	○	○		4
							5
⊙	⊙	⊙	⊙	⊙	⊙		6 P
○	○	○	○	○	○		7
○	○	○	○	○	○		8
○	○	○	○	○	○		9
○	○	○	○	○	○		10
							11
							12
							13 M
							14
○	○	○	○	○	○		15
○	○	○	○	○	○		16
○	○	○	○	○	○		17 K
○	○	○	○	○	○		18
○	○	○	○	○	○		19
○	○	○	○	○	○		20
						⊙	21
						⊙	22
						○	23
							24
							25 N
							26
							27
							28
							29
							30
							31
							32
							33
							34 S
							35
							36
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							38
							39
							40
							41 H

HSSCo8, STRAIGHT SHANK TWIST DRILLS

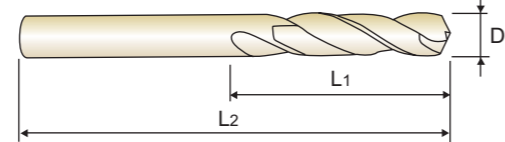
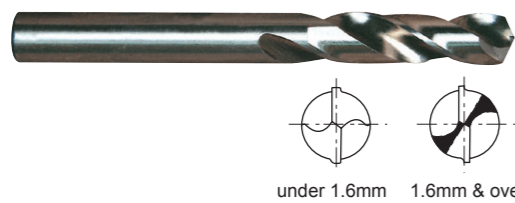
STUB

- HSSCo8, SPIRALBOHRER mit ZYLINDERSCHAFT
- Forets HSSCo8, queue cylindrique, Forme C, série extra-courte
- PUNTE ELICOIDALI, GAMBO CILINDRICO, HSSCo8

EXTRA KURZ
EXTRA-COURTE
EXTRA CORTA

► **Surface treatment** : Coloring(Gold color)
► **Application** : Suitable for drilling thin materials with portable electric drills.
Special twist drills for automatic and turret lathes

► **Oberflächenbehandlung** : Coloring(Goldfarbe)
► **Verwendung** : Sonderbohrer zum Einsatz auf Automaten und Revolverdrehbänken.
Geeignet für den Einsatz in Handbohrmaschinen zum Bohren von dünnwandigem Material.



EDP No.	Drill Diameter	Flute Length	Overall Length
	D1	L1	L2
D2107010	1.0	6	26
D2107011	1.1	7	28
D2107012	1.2	8	30
D2107912	1.25	8	30
D2107013	1.3	8	30
D2107014	1.4	9	32
D2107015	1.5	9	32
D2107016	1.6	10	34
D2107017	1.7	10	34
D2107917	1.75	11	36
D2107018	1.8	11	36
D2107019	1.9	11	36
D2107020	2.0	12	38
D2107021	2.1	12	38
D2107022	2.2	13	40
D2107922	2.25	13	40
D2107023	2.3	13	40
D2107024	2.4	14	43
D2107025	2.5	14	43
D2107026	2.6	14	43
D2107027	2.7	16	46
D2107927	2.75	16	46
D2107028	2.8	16	46
D2107029	2.9	16	46
D2107030	3.0	16	46
D2107031	3.1	18	49

EDP No.	Drill Diameter	Flute Length	Overall Length
	D1	L1	L2
D2107032	3.2	18	49
D2107932	3.25	18	49
D2107033	3.3	18	49
D2107034	3.4	20	52
D2107035	3.5	20	52
D2107036	3.6	20	52
D2107037	3.7	20	52
D2107937	3.75	20	52
D2107038	3.8	22	55
D2107039	3.9	22	55
D2107040	4.0	22	55
D2107041	4.1	22	55
D2107042	4.2	22	55
D2107942	4.25	22	55
D2107043	4.3	24	58
D2107044	4.4	24	58
D2107045	4.5	24	58
D2107046	4.6	24	58
D2107946	4.65	24	58
D2107047	4.7	24	58
D2107947	4.75	24	58
D2107048	4.8	26	62
D2107049	4.9	26	62
D2107050	5.0	26	62
D2107051	5.1	26	62
D2107052	5.2	26	62

► HSS-E(DL107) is available on your request.
► TiN(D4107), TiCN(D7107) and TiAlN(DQ107) are available on your request.

► NEXT PAGE

© : 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				
Material Description	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
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	38	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)	Heat Resistant Super Alloys			Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron								
Material Description	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	60	100	75	90	130	110	90	100			15	30	25	38	34	400 Rm	1050 Rm	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	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○

HSSCo8, STRAIGHT SHANK TWIST DRILLS

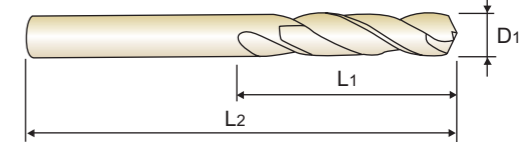
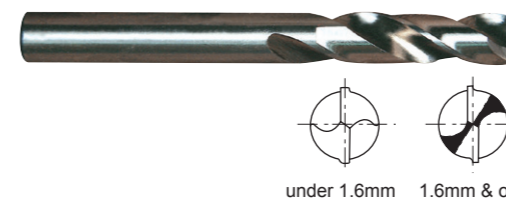
STUB

- HSSCo8, SPIRALBOHRER mit ZYLINDERSCHAFT
- Forets HSSCo8, queue cylindrique, Forme C, série extra-courte
- PUNTE ELICOIDALI, GAMBO CILINDRICO, HSSCo8

EXTRA KURZ
EXTRA-COURTE
EXTRA CORTA

► **Surface treatment** : Coloring(Gold color)
► **Application** : Suitable for drilling thin materials with portable electric drills.
Special twist drills for automatic and turret lathes

► **Oberflächenbehandlung** : Coloring(Goldfarbe)
► **Verwendung** : Sonderbohrer zum Einsatz auf Automaten und Revolverdrehbänken.
Geeignet für den Einsatz in Handbohrmaschinen zum Bohren von dünnwandigem Material.



EDP No.	Drill Diameter	Flute Length	Overall Length
	D1	L1	L2
D2107952	5.25	26	62
D2107053	5.3	26	62
D2107054	5.4	28	66
D2107055	5.5	28	66
D2107955	5.55	28	66
D2107056	5.6	28	66
D2107057	5.7	28	66
D2107957	5.75	28	66
D2107058	5.8	28	66
D2107059	5.9	28	66
D2107060	6.0	28	66
D2107061	6.1	31	70
D2107062	6.2	31	70
D2107962	6.25	31	70
D2107063	6.3	31	70
D2107064	6.4	31	70
D2107065	6.5	31	70
D2107066	6.6	31	70
D2107067	6.7	31	70
D2107967	6.75	34	74
D2107068	6.8	34	74
D2107069	6.9	34	74
D2107070	7.0	34	74
D2107071	7.1	34	74
D2107072	7.2	34	74
D2107972	7.25	34	74

EDP No.	Drill Diameter	Flute Length	Overall Length
	D1	L1	L2
D2107073	7.3	34	74
D2107074	7.4	34	74
D2107974	7.45	34	74
D2107075	7.5	34	74
D2107076	7.6	37	79
D2107077	7.7	37	79
D2107977	7.75	37	79
D2107078	7.8	37	79
D2107079	7.9	37	79
D2107080	8.0	37	79
D2107081	8.1	37	79
D2107082	8.2	37	79
D2107982	8.25	37	79
D2107083	8.3	37	79
D2107084	8.4	37	79
D2107085	8.5	37	79
D2107086	8.6	40	84
D2107087	8.7	40	84
D2107987	8.75	40	84
D2107088	8.8	40	84
D2107089	8.9	40	84
D2107090	9.0	40	84
D2107091	9.1	40	84
D2107092	9.2	40	84
D2107992	9.25	40	84
D2107093	9.3	40	84

► HSS-E(DL107) is available on your request.
► TiN(D4107), TiCN(D7107) and TiAlN(DQ107) are available on your request.

► NEXT PAGE

© : 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				
Material Description	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
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	38	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)	Heat Resistant Super Alloys			Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron								
Material Description	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	60	100	75	90	130	110	90	100			15	30	25	38	34	400 Rm	1050 Rm	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	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○

HSSCo8, STRAIGHT SHANK TWIST DRILLS

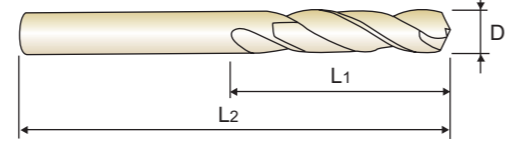
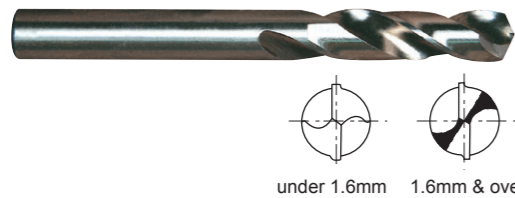
STUB

- HSSCo8, SPIRALBOHRER mit ZYLINDERSCHAFT
- Forets HSSCo8, queue cylindrique, Forme C, série extra-courte
- PUNTE ELICOIDALI, GAMBO CILINDRICO, HSSCo8

EXTRA KURZ
EXTRA-COURTE
EXTRA CORTA

► **Surface treatment** : Coloring(Gold color)
► **Application** : Suitable for drilling thin materials with portable electric drills.
Special twist drills for automatic and turret lathes

► **Oberflächenbehandlung** : Coloring(Goldfarbe)
► **Verwendung** : Sonderbohrer zum Einsatz auf Automaten und Revolverdrehbänken.
Geeignet für den Einsatz in Handbohrmaschinen zum Bohren von dünnwandigem Material.



under 1.6mm 1.6mm & over



EDP No.	Drill Diameter	Flute Length	Overall Length
	D1	L1	L2
D2107993	9.35	40	84
D2107094	9.4	40	84
D2107095	9.5	40	84
D2107096	9.6	43	89
D2107097	9.7	43	89
D2107997	9.75	43	89
D2107098	9.8	43	89
D2107099	9.9	43	89
D2107100	10.0	43	89
D2107102	10.2	43	89
D2107802	10.25	43	89
D2107105	10.5	43	89
D2107807	10.75	47	95
D2107110	11.0	47	95
D2107812	11.25	47	95
D2107115	11.5	47	95
D2107817	11.75	47	95
D2107118	11.8	47	95
D2107120	12.0	51	102
D2107822	12.25	51	102
D2107125	12.5	51	102
D2107827	12.75	51	102
D2107130	13.0	51	102
D2107832	13.25	54	107
D2107135	13.5	54	107
D2107837	13.75	54	107

EDP No.	Drill Diameter	Flute Length	Overall Length
	D1	L1	L2
D2107138	13.8	54	107
D2107140	14.0	54	107
D2107842	14.25	56	111
D2107145	14.5	56	111
D2107847	14.75	56	111
D2107150	15.0	56	111
D2107852	15.25	58	115
D2107155	15.5	58	115
D2107857	15.75	58	115
D2107160	16.0	58	115
D2107862	16.25	60	119
D2107165	16.5	60	119
D2107867	16.75	60	119
D2107170	17.0	60	119
D2107872	17.25	62	123
D2107175	17.5	62	123
D2107877	17.75	62	123
D2107180	18.0	62	123
D2107882	18.25	64	127
D2107185	18.5	64	127
D2107887	18.75	64	127
D2107190	19.0	64	127
D2107892	19.25	66	131
D2107195	19.5	66	131
D2107897	19.75	66	131
D2107200	20.0	66	131

► HSS-E(DL107) is available on your request.
► TiN(D4107), TiCN(D7107) and TiAlN(DQ107) are available on your request.

► NEXT PAGE

◎ : 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	
Material Description	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
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	38	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						
Material Description	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
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	15	30	25	38	34	15	30	25	38	34	55	60	42	55	55	
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○

HSSCo8, STRAIGHT SHANK TWIST DRILLS

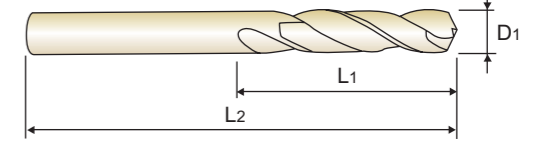
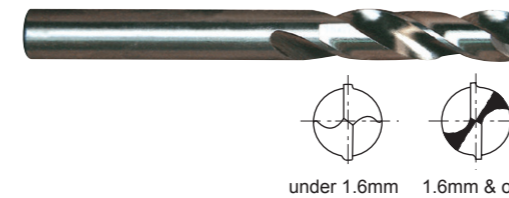
STUB

- HSSCo8, SPIRALBOHRER mit ZYLINDERSCHAFT
- Forets HSSCo8, queue cylindrique, Forme C, série extra-courte
- PUNTE ELICOIDALI, GAMBO CILINDRICO, HSSCo8

EXTRA KURZ
EXTRA-COURTE
EXTRA CORTA

► **Surface treatment** : Coloring(Gold color)
► **Application** : Suitable for drilling thin materials with portable electric drills.
Special twist drills for automatic and turret lathes

► **Oberflächenbehandlung** : Coloring(Goldfarbe)
► **Verwendung** : Sonderbohrer zum Einsatz auf Automaten und Revolverdrehbänken.
Geeignet für den Einsatz in Handbohrmaschinen zum Bohren von dünnwandigem Material.



under 1.6mm 1.6mm & over



EDP No.	Drill Diameter	Flute Length	Overall Length
	D1	L1	L2
D2107205	20.5	68	136
D2107210	21.0	68	136
D2107215	21.5	70	141
D2107220	22.0	70	141
D2107225	22.5	72	146
D2107230	23.0	72	146
D2107235	23.5	72	146
D2107240	24.0	75	151

EDP No.	Drill Diameter	Flute Length	Overall Length
	D1	L1	L2
D2107245	24.5	75	151
D2107250	25.0	75	151
D2107260	26.0	78	156
D2107270	27.0	81	162
D2107280	28.0	81	162
D2107290	29.0	84	168
D2107300	30.0	84	168
D2107310	31.0	87	174

► HSS-E(DL107) is available on your request.
► TiN(D4107), TiCN(D7107) and TiAlN(DQ107) are available on your request.

◎ : 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	
Material Description	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
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	38	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						
Material Description	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
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	15	30	25	38	34	15	30	25	38	34	55	60	42	55	55	
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○

HSS, STRAIGHT SHANK TWIST DRILLS

STUB

- HSS, SPIRALBOHRER mit ZYLINDERSCHAFT
- Forets HSS, queue cylindrique, série extra-courte
- PUNTE ELICOIDALI, GAMBO CILINDRICO, HSS

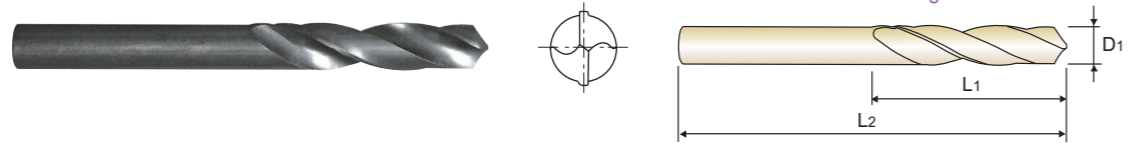
EXTRA KURZ
EXTRA-COURTE
EXTRA CORTA

► **Surface treatment** : Steam Tempered(Black Oxide Finish)
Bright Finish under 2mm

► **Application** : Suitable for drilling thin materials with portable electric drills.
Special twist drills for automatic and turret lathes.

► **Oberflächenbehandlung** : Steam Homo(Schwarzoxidation)
Helle Beschaffenheit unter 2mm

► **Verwendung** : Sonderbohrer zum Einsatz auf Automaten und Revolverdrehbänken.
Geeignet für den Einsatz in Handbohrmaschinen zum Bohren von dünnwandigem Material.



EDP No.	Drill Diameter		Overall Length	EDP No.	Drill Diameter		Overall Length
	D1	L1			D1	L1	
D1107010	1.0	6	26	D1107032	3.2	18	49
D1107011	1.1	7	28	D1107932	3.25	18	49
D1107012	1.2	8	30	D1107033	3.3	18	49
D1107912	1.25	8	30	D1107034	3.4	20	52
D1107013	1.3	8	30	D1107035	3.5	20	52
D1107014	1.4	9	32	D1107036	3.6	20	52
D1107015	1.5	9	32	D1107037	3.7	20	52
D1107016	1.6	9	34	D1107937	3.75	20	52
D1107017	1.7	10	34	D1107038	3.8	22	55
D1107917	1.75	11	36	D1107039	3.9	22	55
D1107018	1.8	11	36	D1107040	4.0	22	55
D1107019	1.9	11	36	D1107041	4.1	22	55
D1107020	2.0	12	38	D1107042	4.2	22	55
D1107021	2.1	12	38	D1107942	4.25	22	55
D1107022	2.2	13	40	D1107043	4.3	24	58
D1107922	2.25	13	40	D1107044	4.4	24	58
D1107023	2.3	13	40	D1107045	4.5	24	58
D1107024	2.4	14	43	D1107046	4.6	24	58
D1107025	2.5	14	43	D1107047	4.7	24	58
D1107026	2.6	14	43	D1107947	4.75	24	58
D1107027	2.7	16	46	D1107048	4.8	26	62
D1107927	2.75	16	46	D1107049	4.9	26	62
D1107028	2.8	16	46	D1107050	5.0	26	62
D1107029	2.9	16	46	D1107051	5.1	26	62
D1107030	3.0	16	46	D1107052	5.2	26	62
D1107031	3.1	18	49	D1107952	5.25	26	62

► NEXT PAGE

© : 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		
Material Description	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
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										
	Aluminum-wrought alloy		Aluminum-cast, alloyed		Copper and Copper Alloys (Bronze / Brass)	Heat Resistant Super Alloys			Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron								
Material Description	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	60	100	75	90	130	110	90	100			15	30	25	38	34	400 Rm	1050 Rm	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	○	○	○								○					○					

HSS, STRAIGHT SHANK TWIST DRILLS

STUB

- HSS, SPIRALBOHRER mit ZYLINDERSCHAFT
- Forets HSS, queue cylindrique, série extra-courte
- PUNTE ELICOIDALI, GAMBO CILINDRICO, HSS

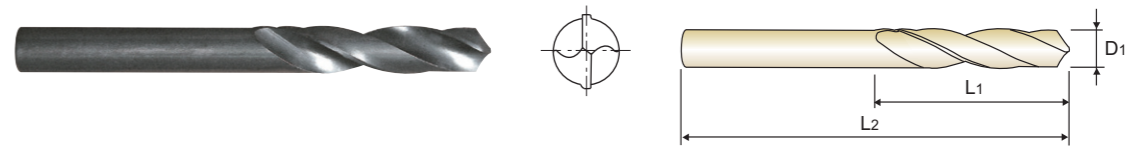
EXTRA KURZ
EXTRA-COURTE
EXTRA CORTA

► **Surface treatment** : Steam Tempered(Black Oxide Finish)

► **Application** : Suitable for drilling thin materials with portable electric drills.
Special twist drills for automatic and turret lathes.

► **Oberflächenbehandlung** : Steam Homo(Schwarzoxidation)

► **Verwendung** : Sonderbohrer zum Einsatz auf Automaten und Revolverdrehbänken.
Geeignet für den Einsatz in Handbohrmaschinen zum Bohren von dünnwandigem Material.



EDP No.	Drill Diameter		Overall Length	EDP No.	Drill Diameter		Overall Length
	D1	L1			D1	L1	
D1107053	5.3	26	62	D1107075	7.5	34	74
D1107054	5.4	28	66	D1107076	7.6	37	79
D1107055	5.5	28	66	D1107077	7.7	37	79
D1107056	5.6	28	66	D1107977	7.75	37	79
D1107057	5.7	28	66	D1107078	7.8	37	79
D1107957	5.75	28	66	D1107079	7.9	37	79
D1107058	5.8	28	66	D1107080	8.0	37	79
D1107059	5.9	28	66	D1107081	8.1	37	79
D1107060	6.0	28	66	D1107082	8.2	37	79
D1107061	6.1	31	70	D1107982	8.25	37	79
D1107062	6.2	31	70	D1107083	8.3	37	79
D1107962	6.25	31	70	D1107084	8.4	37	79
D1107063	6.3	31	70	D1107085	8.5	37	79
D1107064	6.4	31	70	D1107086	8.6	40	84
D1107065	6.5	31	70	D1107087	8.7	40	84
D1107066	6.6	31	70	D1107987	8.75	40	84
D1107067	6.7	31	70	D1107088	8.8	40	84
D1107967	6.75	34	74	D1107089	8.9	40	84
D1107068	6.8	34	74	D1107090	9.0	40	84
D1107069	6.9	34	74	D1107091	9.1	40	84
D1107070	7.0	34	74	D1107092	9.2	40	84
D1107071	7.1	34	74	D1107992	9.25	40	84
D1107072	7.2	34	74	D1107093	9.3	40	84
D1107972	7.25	34	74	D1107094	9.4	40	84
D1107073	7.3	34	74	D1107095	9.5	40	84
D1107074	7.4	34	74	D1107096	9.6	43	89

► NEXT PAGE

© : 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		
Material Description	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
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										
	Aluminum-wrought alloy		Aluminum-cast, alloyed		Copper and Copper Alloys (Bronze / Brass)	Heat Resistant Super Alloys			Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron								
Material Description	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	60	100	75	90	130	110	90	100			15	30	25	38	34	400 Rm	1050 Rm	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	○	○	○								○					○					

HSS, STRAIGHT SHANK TWIST DRILLS

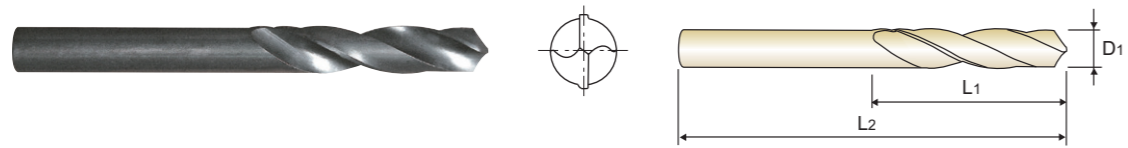
- HSS, SPIRALBOHRER mit ZYLINDERSCHAFT
- Forets HSS, queue cylindrique, série extra-courte
- PUNTE ELICOIDALI, GAMBO CILINDRICO, HSS

STUB

EXTRA KURZ
EXTRA-COURTE
EXTRA CORTA

► **Surface treatment** : Steam Tempered(Black Oxide Finish)
► **Application** : Suitable for drilling thin materials with portable electric drills.
Special twist drills for automatic and turret lathes.

► **Oberflächenbehandlung** : Steam Homo(Schwarzoxidation)
► **Verwendung** : Sonderbohrer zum Einsatz auf Automaten und Revolverdrehbänken.
Geeignet für den Einsatz in Handbohrmaschinen zum Bohren von dünnwandigem Material.



EDP No.	Drill Diameter		Flute Length		Overall Length		
	D1	L1	L2	D1	L1	L2	
D1107097	9.7	43	89	D1107812	11.25	47	95
D1107997	9.75	43	89	D1107115	11.5	47	95
D1107098	9.8	43	89	D1107817	11.75	47	95
D1107099	9.9	43	89	D1107120	12.0	51	102
D1107100	10.0	43	89	D1107822	12.25	51	102
D1107802	10.25	43	89	D1107125	12.5	51	102
D1107105	10.5	43	89	D1107827	12.75	51	102
D1107807	10.75	47	95	D1107130	13.0	51	102
D1107110	11.0	47	95				

© : 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	
Material Description	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
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	130	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					
Material Description	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	60	100	75	90	130	110	90	100			15	30	25	38	34	55	60	42	55	55	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○

HSSCo8, STRAIGHT SHANK TWIST DRILLS

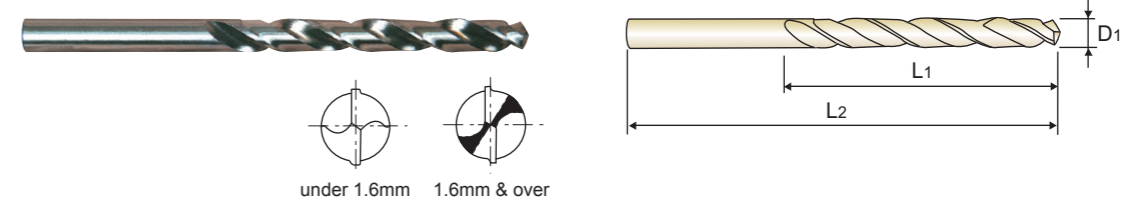
- HSSCo8, SPIRALBOHRER mit ZYLINDERSCHAFT
- Forets HSSCo8, queue cylindrique, Forme C, série courte
- PUNTE ELICOIDALI, GAMBO CILINDRICO, HSSCo8

JOBBER

KURZ
COURTE
CORTA

► **Surface treatment** : Coloring(Gold color)
► **Application** : Drilling stainless steels and difficult - to - cut materials such as titanium and inconel.

► **Oberflächenbehandlung** : Coloring(Goldfarbe)
► **Verwendung** : Zum Bohren von rostfreien und austenitischen. Stählen, schwerzerspanbaren Werkstoffen wie Titan und Inconel.



EDP No.	Drill Diameter		Flute Length		Overall Length		
	D1	L1	L2	D1	L1	L2	
D2105010	1.0	12	34	D2105032	3.2	36	65
D2105011	1.1	14	36	D2105932	3.25	36	65
D2105012	1.2	16	38	D2105033	3.3	36	65
D2105912	1.25	16	38	D2105034	3.4	39	70
D2105013	1.3	16	38	D2105035	3.5	39	70
D2105014	1.4	18	40	D2105036	3.6	39	70
D2105015	1.5	18	40	D2105037	3.7	39	70
D2105016	1.6	20	43	D2105937	3.75	39	70
D2105017	1.7	20	43	D2105038	3.8	43	75
D2105917	1.75	22	46	D2105039	3.9	43	75
D2105018	1.8	22	46	D2105040	4.0	43	75
D2105019	1.9	22	46	D2105041	4.1	43	75
D2105020	2.0	24	49	D2105042	4.2	43	75
D2105021	2.1	24	49	D2105942	4.25	43	75
D2105022	2.2	27	53	D2105043	4.3	47	80
D2105922	2.25	27	53	D2105044	4.4	47	80
D2105023	2.3	27	53	D2105045	4.5	47	80
D2105024	2.4	30	57	D2105046	4.6	47	80
D2105025	2.5	30	57	D2105047	4.7	47	80
D2105026	2.6	30	57	D2105947	4.75	47	80
D2105027	2.7	33	61	D2105048	4.8	52	86
D2105927	2.75	33	61	D2105049	4.9	52	86
D2105028	2.8	33	61	D2105050	5.0	52	86
D2105029	2.9	33	61	D2105051	5.1	52	86
D2105030	3.0	33	61	D2105052	5.2	52	86
D2105031	3.1	36	65	D2105952	5.25	52	86

► TiN(D4105), TiCN(D7105) and TiAlN(DQ105) are available on your request.

► NEXT PAGE

© : 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	
Material Description	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
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	130	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					
Material Description	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	60	100	75	90	130	110	90	100			15	30	25	38	34	55	60	42	55	55	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○

HSSCo8, STRAIGHT SHANK TWIST DRILLS

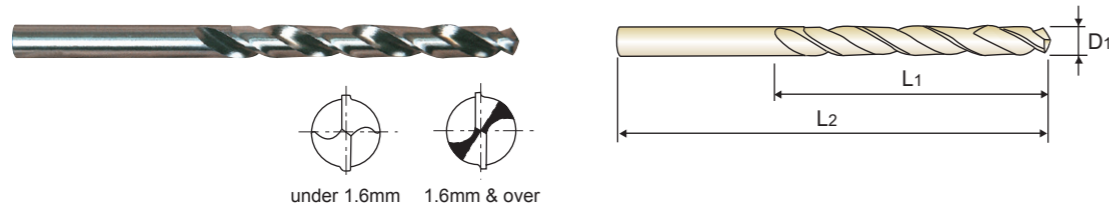
JOBBER

- HSSCo8, SPIRALBOHRER mit ZYLINDERSCHAFT
- Forets HSSCo8, queue cylindrique, Forme C, série courte
- PUNTE ELICOIDALI, GAMBO CILINDRICO, HSSCo8

- KURZ**
- COURTE**
- CORTA**

► **Surface treatment** : Coloring(Gold color)
 ► **Application** : Drilling stainless steels and difficult - to - cut materials such as titanium and inconel.

► **Oberflächenbehandlung** : Coloring(Goldfarbe)
 ► **Verwendung** : Zum Bohren von rostfreien und austenitischen. Stählen, schwerzerspanbaren Werkstoffen wie Titan und Inconel.



EDP No.	Drill Diameter	Flute Length	Overall Length	EDP No.	Drill Diameter	Flute Length	Overall Length
	D1	L1	L2		D1	L1	L2
D2105053	5.3	52	86	D2105075	7.5	69	109
D2105054	5.4	57	93	D2105076	7.6	75	117
D2105055	5.5	57	93	D2105077	7.7	75	117
D2105056	5.6	57	93	D2105977	7.75	75	117
D2105057	5.7	57	93	D2105078	7.8	75	117
D2105957	5.75	57	93	D2105079	7.9	75	117
D2105058	5.8	57	93	D2105080	8.0	75	117
D2105059	5.9	57	93	D2105081	8.1	75	117
D2105060	6.0	57	93	D2105082	8.2	75	117
D2105061	6.1	63	101	D2105982	8.25	75	117
D2105062	6.2	63	101	D2105083	8.3	75	117
D2105962	6.25	63	101	D2105084	8.4	75	117
D2105063	6.3	63	101	D2105085	8.5	75	117
D2105064	6.4	63	101	D2105086	8.6	81	125
D2105065	6.5	63	101	D2105087	8.7	81	125
D2105066	6.6	63	101	D2105987	8.75	81	125
D2105067	6.7	63	101	D2105088	8.8	81	125
D2105967	6.75	69	109	D2105089	8.9	81	125
D2105068	6.8	69	109	D2105090	9.0	81	125
D2105069	6.9	69	109	D2105091	9.1	81	125
D2105070	7.0	69	109	D2105092	9.2	81	125
D2105071	7.1	69	109	D2105992	9.25	81	125
D2105072	7.2	69	109	D2105093	9.3	81	125
D2105972	7.25	69	109	D2105094	9.4	81	125
D2105073	7.3	69	109	D2105095	9.5	81	125
D2105074	7.4	69	109	D2105096	9.6	87	133

► TIN(D4105), TICN(D7105) and TiAlN(DQ105) are available on your request.

► NEXT PAGE

◎ : 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		
Material Description	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
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	32	10	29	32	38	15	35	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										
	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						
Material Description	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	60	100	75	90	130	110	90	100			15	30	25	38	34	55	60	42	55	55	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○

HSSCo8, STRAIGHT SHANK TWIST DRILLS

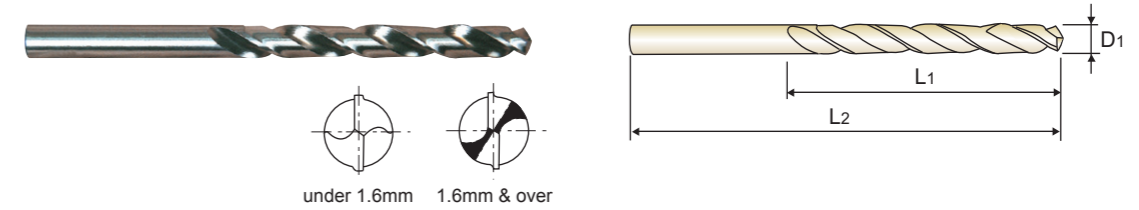
JOBBER

- HSSCo8, SPIRALBOHRER mit ZYLINDERSCHAFT
- Forets HSSCo8, queue cylindrique, Forme C, série courte
- PUNTE ELICOIDALI, GAMBO CILINDRICO, HSSCo8

- KURZ**
- COURTE**
- CORTA**

► **Surface treatment** : Coloring(Gold color)
 ► **Application** : Drilling stainless steels and difficult - to - cut materials such as titanium and inconel.

► **Oberflächenbehandlung** : Coloring(Goldfarbe)
 ► **Verwendung** : Zum Bohren von rostfreien und austenitischen. Stählen, schwerzerspanbaren Werkstoffen wie Titan und Inconel.



EDP No.	Drill Diameter	Flute Length	Overall Length	EDP No.	Drill Diameter	Flute Length	Overall Length
	D1	L1	L2		D1	L1	L2
D2105097	9.7	87	133	D2105140	14.0	108	160
D2105997	9.75	87	133	D2105145	14.5	114	169
D2105098	9.8	87	133	D2105150	15.0	114	169
D2105099	9.9	87	133	D2105155	15.5	120	178
D2105100	10.0	87	133	D2105160	16.0	120	178
D2105102	10.2	87	133	D2105165	16.5	125	184
D2105105	10.5	87	133	D2105170	17.0	125	184
D2105110	11.0	94	142	D2105175	17.5	130	191
D2105115	11.5	94	142	D2105180	18.0	130	191
D2105120	12.0	101	151	D2105185	18.5	135	198
D2105125	12.5	101	151	D2105190	19.0	135	198
D2105130	13.0	101	151	D2105195	19.5	140	205
D2105135	13.5	108	160	D2105200	20.0	140	205

► TIN(D4105), TICN(D7105) and TiAlN(DQ105) are available on your request.

◎ : 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		
Material Description	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
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	32	10	29	32	38	15	35	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										
	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						
Material Description	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	60	100	75	90	130	110	90	100			15	30	25	38	34	55	60	42	55	55	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○

HSS-E, STRAIGHT SHANK TWIST DRILLS

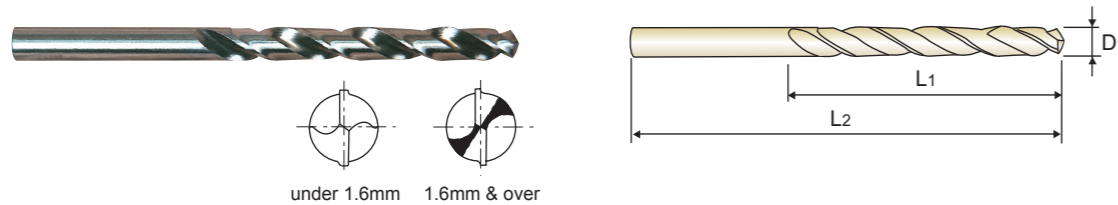
JOBBER

- HSS-E, SPIRALBOHRER mit ZYLINDERSCHAFT
- Forets HSS-E, queue cylindrique, Forme C, série courte
- PUNTE ELICOIDALI, GAMBO CILINDRICO, HSS - E

KURZ
COURTE
CORTA

► **Surface treatment** : Coloring(Gold color)
► **Application** : Drilling stainless steels and difficult - to - cut materials such as titanium and inconel.

► **Oberflächenbehandlung** : Coloring(Goldfarbe)
► **Verwendung** : Zum Bohren von rostfreien und austenitischen. Stählen, schwerzerspanbaren Werkstoffen wie Titan und Inconel.



EDP No.	Drill Diameter	Flute Length	Overall Length	EDP No.	Drill Diameter	Flute Length	Overall Length
	D1	L1	L2		D1	L1	L2
DL105010	1.0	12	34	DL105032	3.2	36	65
DL105011	1.1	14	36	DL105932	3.25	36	65
DL105012	1.2	16	38	DL105033	3.3	36	65
DL105912	1.25	16	38	DL105034	3.4	39	70
DL105013	1.3	16	38	DL105035	3.5	39	70
DL105014	1.4	18	40	DL105036	3.6	39	70
DL105015	1.5	18	40	DL105037	3.7	39	70
DL105016	1.6	20	43	DL105937	3.75	39	70
DL105017	1.7	20	43	DL105038	3.8	43	75
DL105917	1.75	22	46	DL105039	3.9	43	75
DL105018	1.8	22	46	DL105040	4.0	43	75
DL105019	1.9	22	46	DL105041	4.1	43	75
DL105020	2.0	24	49	DL105042	4.2	43	75
DL105021	2.1	24	49	DL105942	4.25	43	75
DL105022	2.2	27	53	DL105043	4.3	47	80
DL105922	2.25	27	53	DL105044	4.4	47	80
DL105023	2.3	27	53	DL105045	4.5	47	80
DL105024	2.4	30	57	DL105046	4.6	47	80
DL105025	2.5	30	57	DL105047	4.7	47	80
DL105026	2.6	30	57	DL105947	4.75	47	80
DL105027	2.7	33	61	DL105048	4.8	52	86
DL105927	2.75	33	61	DL105049	4.9	52	86
DL105028	2.8	33	61	DL105050	5.0	52	86
DL105029	2.9	33	61	DL105051	5.1	52	86
DL105030	3.0	33	61	DL105052	5.2	52	86
DL105031	3.1	36	65	DL105952	5.25	52	86

► TiN(DN105), TiCN(DX105) and TiAlN(DT105) are available on your request.

► NEXT PAGE

◎ : 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	
Material Description	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
VDI 3323																				
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										
	Aluminum-wrought alloy		Aluminum-cast, alloyed		Copper and Copper Alloys (Bronze / Brass)	Heat Resistant Super Alloys			Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron								
Material Description	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
VDI 3323																					
HRc											15	30	25	38	34	400 Rm	1050 Rm	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	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○

HSS-E, STRAIGHT SHANK TWIST DRILLS

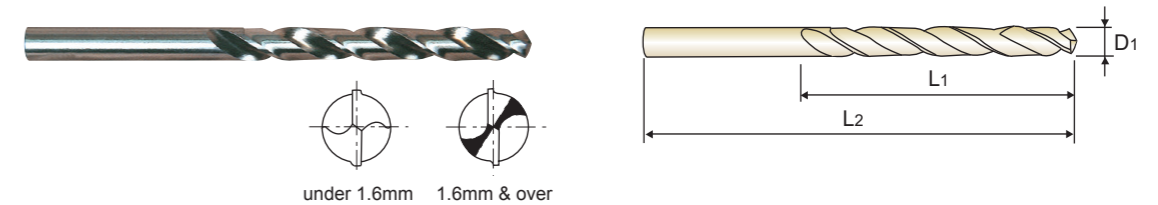
JOBBER

- HSS-E, SPIRALBOHRER mit ZYLINDERSCHAFT
- Forets HSS-E, queue cylindrique, Forme C, série courte
- PUNTE ELICOIDALI, GAMBO CILINDRICO, HSS - E

KURZ
COURTE
CORTA

► **Surface treatment** : Coloring(Gold color)
► **Application** : Drilling stainless steels and difficult - to - cut materials such as titanium and inconel.

► **Oberflächenbehandlung** : Coloring(Goldfarbe)
► **Verwendung** : Zum Bohren von rostfreien und austenitischen. Stählen, schwerzerspanbaren Werkstoffen wie Titan und Inconel.



EDP No.	Drill Diameter	Flute Length	Overall Length	EDP No.	Drill Diameter	Flute Length	Overall Length
	D1	L1	L2		D1	L1	L2
DL105053	5.3	52	86	DL105075	7.5	69	109
DL105054	5.4	57	93	DL105076	7.6	75	117
DL105055	5.5	57	93	DL105077	7.7	75	117
DL105056	5.6	57	93	DL105977	7.75	75	117
DL105057	5.7	57	93	DL105078	7.8	75	117
DL105957	5.75	57	93	DL105079	7.9	75	117
DL105058	5.8	57	93	DL105080	8.0	75	117
DL105059	5.9	57	93	DL105081	8.1	75	117
DL105060	6.0	57	93	DL105082	8.2	75	117
DL105061	6.1	63	101	DL105982	8.25	75	117
DL105062	6.2	63	101	DL105083	8.3	75	117
DL105962	6.25	63	101	DL105084	8.4	75	117
DL105063	6.3	63	101	DL105085	8.5	75	117
DL105064	6.4	63	101	DL105086	8.6	81	125
DL105065	6.5	63	101	DL105087	8.7	81	125
DL105066	6.6	63	101	DL105987	8.75	81	125
DL105067	6.7	63	101	DL105088	8.8	81	125
DL105967	6.75	69	109	DL105089	8.9	81	125
DL105068	6.8	69	109	DL105090	9.0	81	125
DL105069	6.9	69	109	DL105091	9.1	81	125
DL105070	7.0	69	109	DL105092	9.2	81	125
DL105071	7.1	69	109	DL105992	9.25	81	125
DL105072	7.2	69	109	DL105093	9.3	81	125
DL105972	7.25	69	109	DL105094	9.4	81	125
DL105073	7.3	69	109	DL105095	9.5	81	125
DL105074	7.4	69	109	DL105096	9.6	87	133

► TiN(DN105), TiCN(DX105) and TiAlN(DT105) are available on your request.

► NEXT PAGE

◎ : 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	
Material Description	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
VDI 3323																				
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										
	Aluminum-wrought alloy		Aluminum-cast, alloyed		Copper and Copper Alloys (Bronze / Brass)	Heat Resistant Super Alloys			Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron								
Material Description	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
VDI 3323																					
HRc											15	30	25	38	34	400 Rm	1050 Rm	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	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○

HSS-E, STRAIGHT SHANK TWIST DRILLS

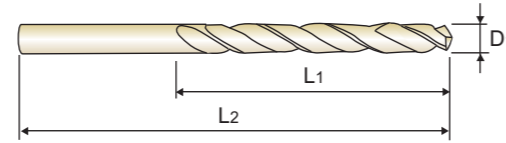
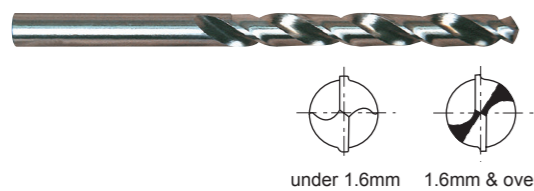
JOBBER

- HSS-E, SPIRALBOHRER mit ZYLINDERSCHAFT
- Forets HSS-E, queue cylindrique, Forme C, série courte
- PUNTE ELICOIDALI, GAMBO CILINDRICO, HSS - E

**KURZ
COURTE
CORTA**

► **Surface treatment** : Coloring(Gold color)
► **Application** : Drilling stainless steels and difficult - to - cut materials such as titanium and inconel.

► **Oberflächenbehandlung** : Coloring(Goldfarbe)
► **Verwendung** : Zum Bohren von rostfreien und austenitischen. Stählen, schwererspanbaren Werkstoffen wie Titan und Inconel.



DIN 338 HSS-E 33° h8 135° P.276-277

EDP No.	Drill Diameter		Flute Length		Overall Length		
	D1	L1	L2	D1	L1	L2	
DL105097	9.7	87	133	DL105140	14.0	108	160
DL105997	9.75	87	133	DL105145	14.5	114	169
DL105098	9.8	87	133	DL105150	15.0	114	169
DL105099	9.9	87	133	DL105155	15.5	120	178
DL105100	10.0	87	133	DL105160	16.0	120	178
DL105102	10.2	87	133	DL105165	16.5	125	184
DL105105	10.5	87	133	DL105170	17.0	125	184
DL105110	11.0	94	142	DL105175	17.5	130	191
DL105115	11.5	94	142	DL105180	18.0	130	191
DL105120	12.0	101	151	DL105185	18.5	135	198
DL105125	12.5	101	151	DL105190	19.0	135	198
DL105130	13.0	101	151	DL105195	19.5	140	205
DL105135	13.5	108	160	DL105200	20.0	140	205

Unit : mm

► TiN(DN105), TiCN(DX105) and TiAlN(DT105) are available on your request.

◎ : 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	25	28	32	30	10	29	32	38	15	35	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										
	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	15	30	25	38	34	55	60	42	55	55	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended	○	○	○						○							○					

HSS, STRAIGHT SHANK TWIST DRILLS

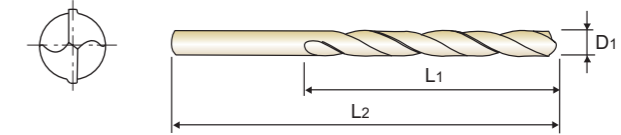
JOBBER

- HSS, SPIRALBOHRER mit ZYLINDERSCHAFT
- Forets HSS, queue cylindrique, série courte
- PUNTE ELICOIDALI, GAMBO CILINDRICO, HSS

**KURZ
COURTE
CORTA**

► **Surface treatment** : Steam Tempered(Black Oxide Finish) Bright Finish under 2mm
► **Application** : Drilling steels, cast steels alloyed and non-alloyed, grey cast iron, malleable cast iron and graphite.

► **Oberflächenbehandlung** : Steam Homo(Schwarzoxidation) Helle Beschaffenheit unter 2mm
► **Verwendung** : Zum Bohren von Stahl und Stahlguß, Grauguß, Temperguß, Sphärguß, Sintereisen, Graphite.



DIN 338 HSS 20~30° h8 118° P.276-277

EDP No.	Drill Diameter		Flute Length		Overall Length		
	D1	L1	L2	D1	L1	L2	
D1105003	0.3	3	19	D1105919	1.95	24	49
D1105004	0.4	5	20	D1105020	2.0	24	49
D1105005	0.5	6	22	D1105920	2.05	24	49
D1105006	0.6	7	24	D1105021	2.1	24	49
D1105007	0.7	9	28	D1105921	2.15	27	53
D1105008	0.8	10	30	D1105022	2.2	27	53
D1105009	0.9	11	32	D1105922	2.25	27	53
D1105010	1.0	12	34	D1105023	2.3	27	53
D1105910	1.05	12	34	D1105923	2.35	27	53
D1105011	1.1	14	36	D1105024	2.4	30	57
D1105911	1.15	14	36	D1105924	2.45	30	57
D1105012	1.2	16	38	D1105025	2.5	30	57
D1105912	1.25	16	38	D1105925	2.55	30	57
D1105013	1.3	16	38	D1105026	2.6	30	57
D1105913	1.35	18	40	D1105926	2.65	30	57
D1105014	1.4	18	40	D1105027	2.7	33	61
D1105914	1.45	18	40	D1105927	2.75	33	61
D1105015	1.5	18	40	D1105028	2.8	33	61
D1105915	1.55	20	43	D1105928	2.85	33	61
D1105016	1.6	20	43	D1105029	2.9	33	61
D1105916	1.65	20	43	D1105929	2.95	33	61
D1105017	1.7	20	43	D1105030	3.0	33	61
D1105917	1.75	22	46	D1105930	3.05	36	65
D1105018	1.8	22	46	D1105031	3.1	36	65
D1105918	1.85	22	46	D1105931	3.15	36	65
D1105019	1.9	22	46	D1105032	3.2	36	65

► NEXT PAGE

◎ : 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	25	28	32	30	10	29	32	38	15	35	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										
	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	15	30	25	38	34	55	60	42	55	55	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended	○	○	○						○							○					

HSS, STRAIGHT SHANK TWIST DRILLS

JOBBER

- HSS, SPIRALBOHRER mit ZYLINDERSCHAFT
- Forets HSS, queue cylindrique, série courte
- PUNTE ELICOIDALI, GAMBO CILINDRICO, HSS

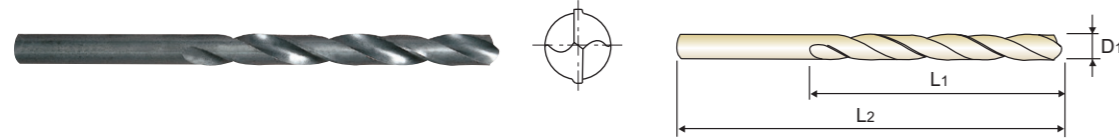
KURZ
COURTE
CORTA

► **Surface treatment** : Steam Tempered(Black Oxide Finish)
Bright Finish under 2mm

► **Application** : Drilling steels, cast steels alloyed and non-alloyed, grey cast iron, malleable cast iron and graphite.

► **Oberflächenbehandlung** : Steam Homo(Schwarzoxidation)
Helle Beschaffenheit unter 2mm

► **Verwendung** : Zum Bohren von Stahl und Stahlguß, Grauguß, Temperguß, Sphäroguß, Sinterisen, Graphite.



EDP No.	Drill Diameter	Flute Length	Overall Length	EDP No.	Drill Diameter	Flute Length	Overall Length
	D1	L1	L2		D1	L1	L2
D1105932	3.25	36	65	D1105945	4.55	47	80
D1105033	3.3	36	65	D1105046	4.6	47	80
D1105933	3.35	36	65	D1105946	4.65	47	80
D1105034	3.4	39	70	D1105047	4.7	47	80
D1105934	3.45	39	70	D1105947	4.75	47	80
D1105035	3.5	39	70	D1105048	4.8	52	86
D1105935	3.55	39	70	D1105948	4.85	52	86
D1105036	3.6	39	70	D1105049	4.9	52	86
D1105936	3.65	39	70	D1105949	4.95	52	86
D1105037	3.7	39	70	D1105050	5.0	52	86
D1105937	3.75	39	70	D1105950	5.05	52	86
D1105038	3.8	43	75	D1105051	5.1	52	86
D1105938	3.85	43	75	D1105951	5.15	52	86
D1105039	3.9	43	75	D1105052	5.2	52	86
D1105939	3.95	43	75	D1105952	5.25	52	86
D1105040	4.0	43	75	D1105053	5.3	52	86
D1105940	4.05	43	75	D1105953	5.35	57	93
D1105041	4.1	43	75	D1105054	5.4	57	93
D1105941	4.15	43	75	D1105954	5.45	57	93
D1105042	4.2	43	75	D1105055	5.5	57	93
D1105942	4.25	43	75	D1105955	5.55	57	93
D1105043	4.3	47	80	D1105056	5.6	57	93
D1105943	4.35	47	80	D1105956	5.65	57	93
D1105044	4.4	47	80	D1105057	5.7	57	93
D1105944	4.45	47	80	D1105957	5.75	57	93
D1105045	4.5	47	80	D1105058	5.8	57	93

► NEXT PAGE

◎ : 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		
Material Description	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
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				
	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		
Material Description	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	60	100	75	90	130	110	90	100			15	30	25	38	34	400 Rm	1050 Rm	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	○	○	○						○							○					

HSS, STRAIGHT SHANK TWIST DRILLS

JOBBER

- HSS, SPIRALBOHRER mit ZYLINDERSCHAFT
- Forets HSS, queue cylindrique, série courte
- PUNTE ELICOIDALI, GAMBO CILINDRICO, HSS

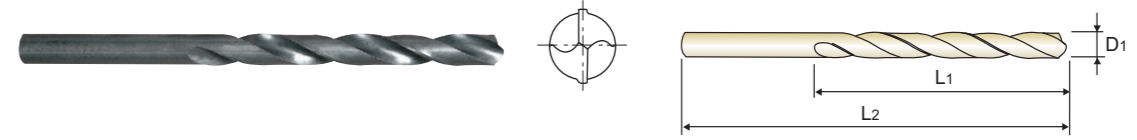
KURZ
COURTE
CORTA

► **Surface treatment** : Steam Tempered(Black Oxide Finish)
Bright Finish under 2mm

► **Application** : Drilling steels, cast steels alloyed and non-alloyed, grey cast iron, malleable cast iron and graphite.

► **Oberflächenbehandlung** : Steam Homo(Schwarzoxidation)
Helle Beschaffenheit unter 2mm

► **Verwendung** : Zum Bohren von Stahl und Stahlguß, Grauguß, Temperguß, Sphäroguß, Sinterisen, Graphite.



EDP No.	Drill Diameter	Flute Length	Overall Length	EDP No.	Drill Diameter	Flute Length	Overall Length
	D1	L1	L2		D1	L1	L2
D1105958	5.85	57	93	D1105971	7.15	69	109
D1105059	5.9	57	93	D1105072	7.2	69	109
D1105959	5.95	57	93	D1105972	7.25	69	109
D1105060	6.0	57	93	D1105073	7.3	69	109
D1105960	6.05	63	101	D1105973	7.35	69	109
D1105061	6.1	63	101	D1105074	7.4	69	109
D1105961	6.15	63	101	D1105974	7.45	69	109
D1105062	6.2	63	101	D1105075	7.5	69	109
D1105962	6.25	63	101	D1105975	7.55	75	117
D1105063	6.3	63	101	D1105076	7.6	75	117
D1105963	6.35	63	101	D1105976	7.65	75	117
D1105064	6.4	63	101	D1105077	7.7	75	117
D1105964	6.45	63	101	D1105977	7.75	75	117
D1105065	6.5	63	101	D1105078	7.8	75	117
D1105965	6.55	63	101	D1105978	7.85	75	117
D1105066	6.6	63	101	D1105079	7.9	75	117
D1105966	6.65	63	101	D1105979	7.95	75	117
D1105067	6.7	63	101	D1105080	8.0	75	117
D1105967	6.75	69	109	D1105081	8.1	75	117
D1105068	6.8	69	109	D1105082	8.2	75	117
D1105968	6.85	69	109	D1105982	8.25	75	117
D1105069	6.9	69	109	D1105083	8.3	75	117
D1105969	6.95	69	109	D1105084	8.4	75	117
D1105070	7.0	69	109	D1105085	8.5	75	117
D1105970	7.05	69	109	D1105086	8.6	81	125
D1105071	7.1	69	109	D1105087	8.7	81	125

► NEXT PAGE

◎ : 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		
Material Description	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
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				
	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		
Material Description	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	60	100	75	90	130	110	90	100			15	30	25	38	34	400 Rm	1050 Rm	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	○	○	○						○							○					

HSS, STRAIGHT SHANK TWIST DRILLS

JOBBER

- HSS, SPIRALBOHRER mit ZYLINDERSCHAFT
- Forets HSS, queue cylindrique, série courte
- PUNTE ELICOIDALI, GAMBO CILINDRICO, HSS

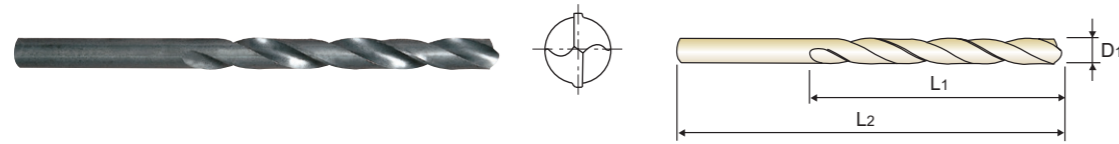
- KURZ
- COURTE
- CORTA

► **Surface treatment** : Steam Tempered(Black Oxide Finish)
Bright Finish under 2mm

► **Application** : Drilling steels, cast steels alloyed and non-alloyed, grey cast iron, malleable cast iron and graphite.

► **Oberflächenbehandlung** : Steam Homo(Schwarzoxidation)
Helle Beschaffenheit unter 2mm

► **Verwendung** : Zum Bohren von Stahl und Stahlguß, Grauguß, Temperguß, Sphäroguß, Sinterisen, Graphite.



EDP No.	Drill Diameter		Flute Length		Overall Length		
	D1	L1	L2	D1	L1	L2	
D1105987	8.75	81	125	D1105109	10.9	94	142
D1105088	8.8	81	125	D1105110	11.0	94	142
D1105089	8.9	81	125	D1105111	11.1	94	142
D1105090	9.0	81	125	D1105112	11.2	94	142
D1105091	9.1	81	125	D1105812	11.25	94	142
D1105092	9.2	81	125	D1105113	11.3	94	142
D1105992	9.25	81	125	D1105114	11.4	94	142
D1105093	9.3	81	125	D1105115	11.5	94	142
D1105094	9.4	81	125	D1105116	11.6	94	142
D1105095	9.5	81	125	D1105117	11.7	94	142
D1105096	9.6	87	133	D1105817	11.75	94	142
D1105097	9.7	87	133	D1105118	11.8	94	142
D1105997	9.75	87	133	D1105119	11.9	101	151
D1105098	9.8	87	133	D1105120	12.0	101	151
D1105099	9.9	87	133	D1105121	12.1	101	151
D1105100	10.0	87	133	D1105122	12.2	101	151
D1105101	10.1	87	133	D1105822	12.25	101	151
D1105102	10.2	87	133	D1105123	12.3	101	151
D1105802	10.25	87	133	D1105124	12.4	101	151
D1105103	10.3	87	133	D1105125	12.5	101	151
D1105104	10.4	87	133	D1105126	12.6	101	151
D1105105	10.5	87	133	D1105127	12.7	101	151
D1105106	10.6	87	133	D1105827	12.75	101	151
D1105107	10.7	94	142	D1105128	12.8	101	151
D1105807	10.75	94	142	D1105129	12.9	101	151
D1105108	10.8	94	142	D1105130	13.0	101	151

► NEXT PAGE

◎ : 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	25	28	32	30	10	29	32	38	15	35	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				
	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	○	○	○								○					○					

HSS, STRAIGHT SHANK TWIST DRILLS

JOBBER

- HSS, SPIRALBOHRER mit ZYLINDERSCHAFT
- Forets HSS, queue cylindrique, série courte
- PUNTE ELICOIDALI, GAMBO CILINDRICO, HSS

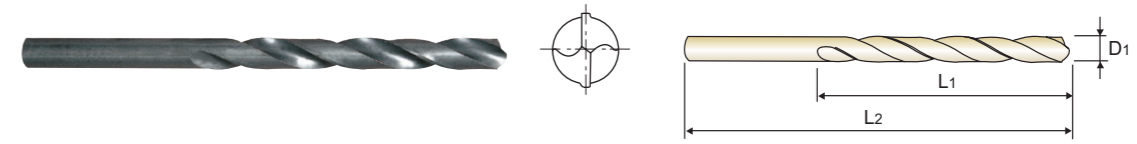
- KURZ
- COURTE
- CORTA

► **Surface treatment** : Steam Tempered(Black Oxide Finish)
Bright Finish under 2mm

► **Application** : Drilling steels, cast steels alloyed and non-alloyed, grey cast iron, malleable cast iron and graphite.

► **Oberflächenbehandlung** : Steam Homo(Schwarzoxidation)
Helle Beschaffenheit unter 2mm

► **Verwendung** : Zum Bohren von Stahl und Stahlguß, Grauguß, Temperguß, Sphäroguß, Sinterisen, Graphite.



EDP No.	Drill Diameter		Flute Length		Overall Length		
	D1	L1	L2	D1	L1	L2	
D1105832	13.25	108	160	D1105867	16.75	125	184
D1105135	13.5	108	160	D1105170	17.0	125	184
D1105837	13.75	108	160	D1105872	17.25	130	191
D1105140	14.0	108	160	D1105175	17.5	130	191
D1105842	14.25	114	169	D1105877	17.75	130	191
D1105145	14.5	114	169	D1105180	18.0	130	191
D1105847	14.75	114	169	D1105882	18.25	135	198
D1105150	15.0	114	169	D1105185	18.5	135	198
D1105155	15.25	120	178	D1105887	18.75	135	198
D1105155	15.5	120	178	D1105190	19.0	135	198
D1105852	15.25	120	178	D1105892	19.25	140	205
D1105155	15.5	120	178	D1105195	19.5	140	205
D1105857	15.75	120	178	D1105897	19.75	140	205
D1105160	16.0	120	178	D1105200	20.0	140	205
D1105862	16.25	125	184				
D1105165	16.5	125	184				

◎ : 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	25	28	32	30	10	29	32	38	15	35	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				
	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	○	○	○								○					○					

HSS, STRAIGHT SHANK TWIST DRILLS

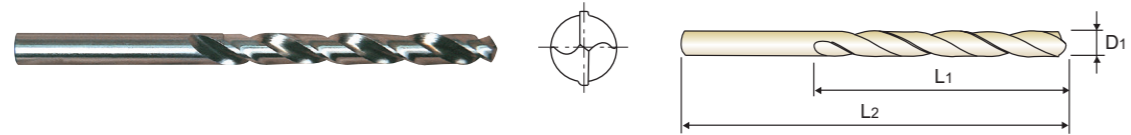
JOBBER

- HSS, SPIRALBOHRER mit ZYLINDERSCHAFT
- Forets HSS, queue cylindrique, série courte
- PUNTE ELICOIDALI, GAMBO CILINDRICO, HSS

- KURZ**
- COURTE**
- CORTA**

► **Surface treatment** : Bright Finish
 ► **Application** : Drilling steels, cast steels alloyed and non-alloyed, grey cast iron, malleable cast iron and graphite.

► **Oberflächenbehandlung** : Helle Beschaffenheit
 ► **Verwendung** : Zum Bohren von Stahl und Stahlguß, Grauguß, Temperguß, Sphärguß, Sintereisen, Graphite.



EDP No.	Drill Diameter		Flute Length		Overall Length	
	D1	L1	L2	D1	L1	L2
D1125020	2.0	24	49	D1125046	4.6	80
D1125021	2.1	24	49	D1125047	4.7	80
D1125022	2.2	27	53	D1125048	4.8	86
D1125023	2.3	27	53	D1125049	4.9	86
D1125024	2.4	30	57	D1125050	5.0	86
D1125025	2.5	30	57	D1125051	5.1	86
D1125026	2.6	30	57	D1125052	5.3	86
D1125027	2.7	33	61	D1125053	5.3	86
D1125028	2.8	33	61	D1125054	5.4	93
D1125029	2.9	33	61	D1125055	5.5	93
D1125030	3.0	33	61	D1125056	5.6	93
D1125031	3.1	36	65	D1125057	5.7	93
D1125032	3.2	36	65	D1125058	5.8	93
D1125033	3.3	36	65	D1125059	5.9	93
D1125034	3.4	39	70	D1125060	6.0	93
D1125035	3.5	39	70	D1125061	6.1	101
D1125036	3.6	39	70	D1125062	6.2	101
D1125037	3.7	39	70	D1125063	6.3	101
D1125038	3.8	43	75	D1125064	6.4	101
D1125039	3.9	43	75	D1125065	6.5	101
D1125040	4.0	43	75	D1125066	6.6	101
D1125041	4.1	43	75	D1125067	6.7	101
D1125042	4.2	43	75	D1125068	6.8	109
D1125043	4.3	47	80	D1125069	6.9	109
D1125044	4.4	47	80	D1125070	7.0	109
D1125045	4.5	47	80	D1125071	7.1	109

► NEXT PAGE

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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	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	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	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	○	○	○						○							○					

HSS, STRAIGHT SHANK TWIST DRILLS

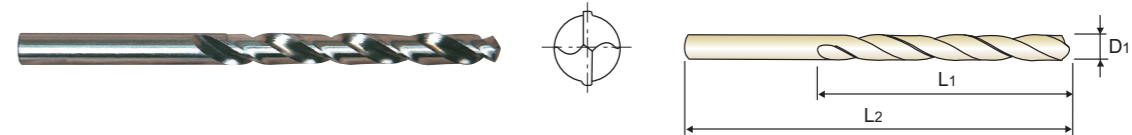
JOBBER

- HSS, SPIRALBOHRER mit ZYLINDERSCHAFT
- Forets HSS, queue cylindrique, série courte
- PUNTE ELICOIDALI, GAMBO CILINDRICO, HSS

- KURZ**
- COURTE**
- CORTA**

► **Surface treatment** : Bright Finish
 ► **Application** : Drilling steels, cast steels alloyed and non-alloyed, grey cast iron, malleable cast iron and graphite.

► **Oberflächenbehandlung** : Helle Beschaffenheit
 ► **Verwendung** : Zum Bohren von Stahl und Stahlguß, Grauguß, Temperguß, Sphärguß, Sintereisen, Graphite.



EDP No.	Drill Diameter		Flute Length		Overall Length	
	D1	L1	L2	D1	L1	L2
D1125072	7.2	69	109	D1125098	9.8	133
D1125073	7.3	69	109	D1125099	9.9	133
D1125074	7.4	69	109	D1125100	10.0	133
D1125075	7.5	69	109	D1125101	10.1	133
D1125076	7.6	75	117	D1125102	10.2	133
D1125077	7.7	75	117	D1125103	10.3	133
D1125078	7.8	75	117	D1125104	10.4	133
D1125079	7.9	75	117	D1125105	10.5	133
D1125080	8.0	75	117	D1125106	10.6	133
D1125081	8.1	75	117	D1125107	10.7	142
D1125082	8.2	75	117	D1125108	10.8	142
D1125083	8.3	75	117	D1125109	10.9	142
D1125084	8.4	75	117	D1125110	11.0	142
D1125085	8.5	75	117	D1125111	11.1	142
D1125086	8.6	81	125	D1125112	11.2	142
D1125087	8.7	81	125	D1125113	11.3	142
D1125088	8.8	81	125	D1125114	11.4	142
D1125089	8.9	81	125	D1125115	11.5	142
D1125090	9.0	81	125	D1125116	11.6	142
D1125091	9.1	81	125	D1125117	11.7	142
D1125092	9.2	81	125	D1125118	11.8	142
D1125093	9.3	81	125	D1125119	11.9	151
D1125094	9.4	81	125	D1125120	12.0	151
D1125095	9.5	81	125	D1125121	12.1	151
D1125096	9.6	87	133	D1125122	12.2	151
D1125097	9.7	87	133	D1125123	12.3	151

► NEXT PAGE

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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	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	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	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	○	○	○						○							○					

HSS, STRAIGHT SHANK TWIST DRILLS

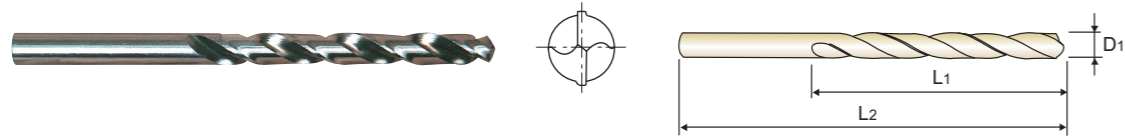
JOBBER

- HSS, SPIRALBOHRER mit ZYLINDERSCHAFT
- Forets HSS, queue cylindrique, série courte
- PUNTE ELICOIDALI, GAMBO CILINDRICO, HSS

- KURZ**
- COURTE**
- CORTA**

► **Surface treatment** : Bright Finish
 ► **Application** : Drilling steels, cast steels alloyed and non-alloyed, grey cast iron, malleable cast iron and graphite.

► **Oberflächenbehandlung** : Helle Beschaffenheit
 ► **Verwendung** : Zum Bohren von Stahl und Stahlguß, Grauguß, Temperguß, Sphäroguß, Sintereisen, Graphite.



Unit : mm

EDP No.	Drill Diameter	Flute Length	Overall Length
	D1	L1	L2
D1125124	12.4	101	151
D1125125	12.5	101	151
D1125126	12.6	101	151
D1125127	12.7	101	151
D1125128	12.8	101	151
D1125129	12.9	101	151
D1125130	13.0	101	151
D1125132	13.2	101	151
D1125133	13.3	108	160
D1125135	13.5	108	160
D1125140	14.0	108	160
D1125145	14.5	114	169

EDP No.	Drill Diameter	Flute Length	Overall Length
	D1	L1	L2
D1125150	15.0	114	169
D1125155	15.5	120	178
D1125160	16.0	120	178
D1125165	16.5	125	184
D1125170	17.0	125	184
D1125175	17.5	130	191
D1125180	18.0	130	191
D1125185	18.5	135	198
D1125190	19.0	135	198
D1125195	19.5	140	205
D1125200	20.0	140	205

◎ : 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	25	28	32	30	10	29	32	38	35	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	42	55	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended	○	○	○						○							○					

HSSCo8, STRAIGHT SHANK TWIST DRILLS

LONG

- HSSCo8, SPIRALBOHRER mit ZYLINDERSCHAFT
- Forets HSSCo8, queue cylindrique, série longue
- PUNTE ELICOIDALI, GAMBO CILINDRICO, HSSCo8

- LANG**
- LONGUE**
- LUNGA**

► **Surface treatment** : Coloring(Gold color)
 ► **Application** : Drilling deep holes in stainless steels and difficult - to - cut materials such as titanium and inconel.

► **Oberflächenbehandlung** : Coloring(Goldfarbe)
 ► **Verwendung** : Für Bohrarbeiten mit Bohrungen oder an tief liegenden Stellen. Zum Bohren von rostfreien und austenitischen Stählen, schwerzerspanbaren Werkstoffen wie Titan und Inconel.



Unit : mm

EDP No.	Drill Diameter	Flute Length	Overall Length
	D1	L1	L2
D2104020	2.0	56	85
D2104021	2.1	56	85
D2104022	2.2	59	90
D2104023	2.3	59	90
D2104024	2.4	62	95
D2104025	2.5	62	95
D2104026	2.6	62	95
D2104027	2.7	66	100
D2104028	2.8	66	100
D2104029	2.9	66	100
D2104030	3.0	66	100
D2104031	3.1	69	106
D2104032	3.2	69	106
D2104033	3.3	69	106
D2104034	3.4	73	112
D2104035	3.5	73	112
D2104036	3.6	73	112
D2104037	3.7	73	112
D2104038	3.8	78	119
D2104039	3.9	78	119
D2104040	4.0	78	119
D2104041	4.1	78	119
D2104042	4.2	78	119
D2104043	4.3	82	126
D2104044	4.4	82	126
D2104045	4.5	82	126

EDP No.	Drill Diameter	Flute Length	Overall Length
	D1	L1	L2
D2104046	4.6	82	126
D2104047	4.7	82	126
D2104048	4.8	87	132
D2104049	4.9	87	132
D2104050	5.0	87	132
D2104051	5.1	87	132
D2104052	5.2	87	132
D2104053	5.3	87	132
D2104054	5.4	91	139
D2104055	5.5	91	139
D2104056	5.6	91	139
D2104057	5.7	91	139
D2104058	5.8	91	139
D2104059	5.9	91	139
D2104060	6.0	91	139
D2104061	6.1	97	148
D2104062	6.2	97	148
D2104063	6.3	97	148
D2104064	6.4	97	148
D2104065	6.5	97	148
D2104066	6.6	97	148
D2104067	6.7	97	148
D2104068	6.8	102	156
D2104069	6.9	102	156
D2104070	7.0	102	156
D2104071	7.1	102	156

► HSS-E(DL104) is available on your request.
 ► TiN(D4104), TiCN(D7104) and TiAlN(DQ104) are available on your request.

► NEXT PAGE

◎ : 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	25	28	32	30	10	29	32	38	35	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	42	55	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended	○	○	○						○							○					

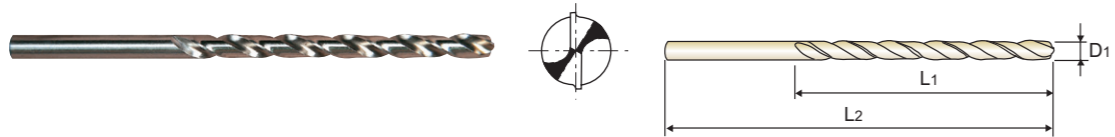
HSSCo8, STRAIGHT SHANK TWIST DRILLS

LONG
LANG
LONGUE
LUNGA

- HSSCo8, SPIRALBOHRER mit ZYLINDERSCHAFT
- Forets HSSCo8, queue cylindrique, série longue
- PUNTE ELICOIDALI, GAMBO CILINDRICO, HSSCo8

► **Surface treatment** : Coloring(Gold color)
► **Application** : Drilling deep holes in stainless steels and difficult - to - cut materials such as titanium and inconel.

► **Oberflächenbehandlung** : Coloring(Goldfarbe)
► **Verwendung** : Für Bohrarbeiten mit Bohrbuchsen oder an tief liegenden Stellen. Zum Bohren von rostfreien und austenitischen. Stählen, schwerzerspanbaren Werkstoffen wie Titan und Inconel.



EDP No.	Drill Diameter	Flute Length	Overall Length	EDP No.	Drill Diameter	Flute Length	Overall Length
	D1	L1	L2		D1	L1	L2
D2104072	7.2	102	156	D2104091	9.1	115	175
D2104073	7.3	102	156	D2104092	9.2	115	175
D2104074	7.4	102	156	D2104093	9.3	115	175
D2104075	7.5	102	156	D2104094	9.4	115	175
D2104076	7.6	109	165	D2104095	9.5	115	175
D2104077	7.7	109	165	D2104096	9.6	121	184
D2104078	7.8	109	165	D2104097	9.7	121	184
D2104079	7.9	109	165	D2104098	9.8	121	184
D2104080	8.0	109	165	D2104099	9.9	121	184
D2104081	8.1	109	165	D2104100	10.0	121	184
D2104082	8.2	109	165	D2104102	10.2	121	184
D2104083	8.3	109	165	D2104105	10.5	121	184
D2104084	8.4	109	165	D2104108	10.8	128	195
D2104085	8.5	109	165	D2104110	11.0	128	195
D2104086	8.6	115	175	D2104112	11.2	128	195
D2104087	8.7	115	175	D2104115	11.5	128	195
D2104088	8.8	115	175	D2104118	11.8	128	195
D2104089	8.9	115	175	D2104120	12.0	134	205
D2104090	9.0	115	175				

► HSS-E(DL104) is available on your request.
► TiN(D4104), TiCN(D7104) and TiAlN(DQ104) are available on your request.

© : 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	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										
	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	○	○	○						○							○					

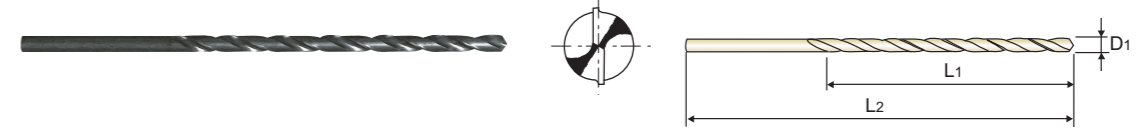
HSS, STRAIGHT SHANK TWIST DRILLS

EXTRA LONG
ÜBERLANG
EXTRA-LONGUE
EXTRA LUNGA

- HSS, SPIRALBOHRER MIT ZYLINDERSCHAFT
- Forets HSS, queue cylindrique, série extra-longue
- PUNTE ELICOIDALI, GAMBO CILINDRICO, HSS

► **Surface treatment** : Steam Tempered(Black Oxide Finish)
► **Application** : Designed for drilling deep holes or deeply located holes. Drilling steels, cast steels alloyed and non-alloyed, grey cast iron, malleable cast iron and graphite.

► **Oberflächenbehandlung** : Steam Homo(Schwarzoxidation)
► **Verwendung** : Standardbohrer zum Bohren extrem tiefer Löcher, zum Bohren von Stahl und Stahlguß, Grauguß, Temperguß, Sphäroguß, Sintereisen, Graphit.



EDP No.	Drill Diameter	Flute Length	Overall Length	EDP No.	Drill Diameter	Flute Length	Overall Length
	D1	L1	L2		D1	L1	L2
D1121020	2.0	85	125	D1121080	8.0	165	240
D1121025	2.5	95	140	D1121085	8.5	165	240
D1121030	3.0	100	150	D1121090	9.0	175	250
D1121035	3.5	115	165	D1121095	9.5	175	250
D1121040	4.0	120	175	D1121100	10.0	185	265
D1121045	4.5	125	185	D1121105	10.5	185	265
D1121050	5.0	135	195	D1121110	11.0	195	280
D1121055	5.5	140	205	D1121115	11.5	195	280
D1121060	6.0	140	205	D1121120	12.0	205	295
D1121065	6.5	150	215	D1121125	12.5	205	295
D1121070	7.0	155	225	D1121130	13.0	205	295
D1121075	7.5	155	225				

© : Excellent ○ : Good

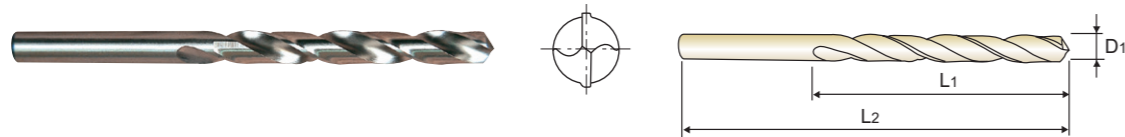
ISO	P										M				K									
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel				Stainless steel		Grey cast iron		Nodular cast iron		Malleable cast iron			
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20				
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	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										
	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	○	○	○						○							○					

HSS-E, STRAIGHT SHANK TWIST DRILLS for HEAVY DUTY **JOBBER**

● HSS-E, SPIRALBOHRER für HOHE LEISTUNGEN mit ZYLINDERSCHAFT **KURZ**
● Forets HSS-E, queue cylindrique pour matériaux durs, série courte **COURTE**
● PUNTE ELICOIDALI PER IMPIEGHI GRAVOSI, GAMBO CILINDRICO, HSS - E **CORTA**

►Application : Drilling steels, cast steels alloyed and non-alloyed, grey cast iron, malleable cast iron and graphite.
►Verwendung : Zum Bohren von Stahl und Stahlguß, Grauguß, Temperguß, Sphäroguß, Sinterisen, Graphit.



EDP No.	Drill Diameter	Flute Length	Overall Length	EDP No.	Drill Diameter	Flute Length	Overall Length
	D1	L1	L2		D1	L1	L2
DL109015	1.5	18	40	DL109967	6.75	69	109
DL109917	1.75	22	46	DL109070	7.0	69	109
DL109020	2.0	24	49	DL109972	7.25	69	109
DL109922	2.25	27	53	DL109075	7.5	69	109
DL109025	2.5	30	57	DL109977	7.75	75	117
DL109927	2.75	33	61	DL109080	8.0	75	117
DL109030	3.0	33	61	DL109982	8.25	75	117
DL109932	3.25	36	65	DL109085	8.5	75	117
DL109035	3.5	39	70	DL109987	8.75	81	125
DL109937	3.75	39	70	DL109090	9.0	81	125
DL109040	4.0	43	75	DL109992	9.25	81	125
DL109942	4.25	43	75	DL109095	9.5	81	125
DL109045	4.5	47	80	DL109997	9.75	87	133
DL109947	4.75	47	80	DL109100	10.0	87	133
DL109050	5.0	52	86	DL109105	10.5	87	133
DL109952	5.25	52	86	DL109110	11.0	94	142
DL109055	5.5	57	93	DL109115	11.5	94	142
DL109957	5.75	57	93	DL109120	12.0	101	151
DL109060	6.0	57	93	DL109125	12.5	101	151
DL109962	6.25	63	101	DL109130	13.0	101	151
DL109065	6.5	63	101				

► TiN(DN109), TiCN(DX109) and TiAlN(DT109) are available on your request.

◎ : Excellent ○ : Good

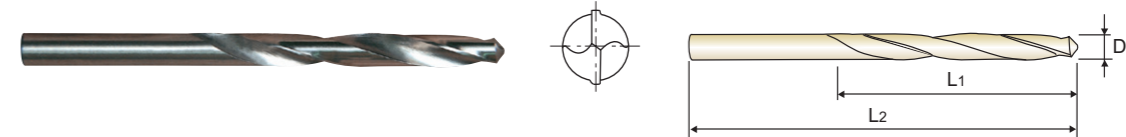
ISO	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron		Malleable cast iron		
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	
HB	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										
	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	400 Rm	1050 Rm	550	630	400	550
Recommended	○	○	○						○							○					

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.



EDP No.	Drill Diameter	Flute Length	Overall Length	EDP No.	Drill Diameter	Flute Length	Overall Length
	D1	L1	L2		D1	L1	L2
D1100015	1.5	18	40	D1100041	4.1	43	75
D1100016	1.6	20	43	D1100042	4.2	43	75
D1100017	1.7	20	43	D1100043	4.3	47	80
D1100018	1.8	22	46	D1100044	4.4	47	80
D1100019	1.9	22	46	D1100045	4.5	47	80
D1100020	2.0	24	49	D1100046	4.6	47	80
D1100021	2.1	24	49	D1100047	4.7	47	80
D1100022	2.2	27	53	D1100048	4.8	52	86
D1100023	2.3	27	53	D1100049	4.9	52	86
D1100024	2.4	30	57	D1100050	5.0	52	86
D1100025	2.5	30	57	D1100051	5.1	52	86
D1100026	2.6	30	57	D1100052	5.2	52	86
D1100027	2.7	33	61	D1100053	5.3	52	86
D1100028	2.8	33	61	D1100054	5.4	57	93
D1100029	2.9	33	61	D1100055	5.5	57	93
D1100030	3.0	33	61	D1100056	5.6	57	93
D1100031	3.1	36	65	D1100057	5.7	57	93
D1100032	3.2	36	65	D1100058	5.8	57	93
D1100033	3.3	36	65	D1100059	5.9	57	93
D1100034	3.4	39	70	D1100060	6.0	57	93
D1100035	3.5	39	70	D1100061	6.1	63	101
D1100036	3.6	39	70	D1100062	6.2	63	101
D1100037	3.7	39	70	D1100063	6.3	63	101
D1100038	3.8	43	75	D1100064	6.4	63	101
D1100039	3.9	43	75	D1100065	6.5	63	101
D1100040	4.0	43	75	D1100066	6.6	63	101

► NEXT PAGE

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

HSS, STRAIGHT SHANK TWIST DRILLS for BRASS/BRONZE

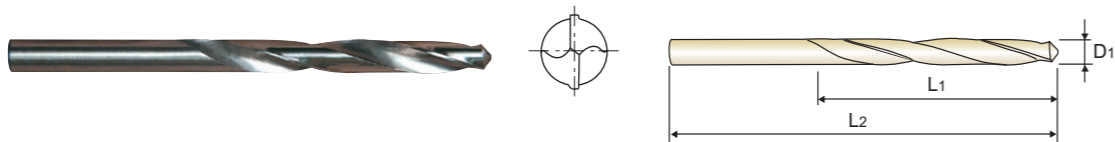
JOBBER

- HSS, SPIRALBOHRER für MESSING/BRONZE mit ZYLINDERSCHAFT
- Forets HSS, queue cylindrique pour Laiton/Bronze, série courte
- PUNTE ELICOIDALI, GAMBO CILINDRICO PER OTTONE (HSS)

KURZ
COURTE
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.



EDP No.	Drill Diameter	Flute Length	Overall Length	EDP No.	Drill Diameter	Flute Length	Overall Length
	D1	L1	L2		D1	L1	L2
D1100067	6.7	63	101	D1100087	8.7	81	125
D1100068	6.8	69	109	D1100088	8.8	81	125
D1100069	6.9	69	109	D1100089	8.9	81	125
D1100070	7.0	69	109	D1100090	9.0	81	125
D1100071	7.1	69	109	D1100091	9.1	81	125
D1100072	7.2	69	109	D1100092	9.2	81	125
D1100073	7.3	69	109	D1100093	9.3	81	125
D1100074	7.4	69	109	D1100094	9.4	81	125
D1100075	7.5	69	109	D1100095	9.5	81	125
D1100076	7.6	75	117	D1100096	9.6	87	133
D1100077	7.7	75	117	D1100097	9.7	87	133
D1100078	7.8	75	117	D1100098	9.8	87	133
D1100079	7.9	75	117	D1100099	9.9	87	133
D1100080	8.0	75	117	D1100100	10.0	87	133
D1100081	8.1	75	117	D1100105	10.5	87	133
D1100082	8.2	75	117	D1100110	11.0	94	142
D1100083	8.3	75	117	D1100115	11.5	94	142
D1100084	8.4	75	117	D1100120	12.0	101	151
D1100085	8.5	75	117	D1100125	12.5	101	151
D1100086	8.6	81	125	D1100130	13.0	101	151

Unit : mm

HSS, STRAIGHT SHANK TWIST DRILLS for ALUMINUM

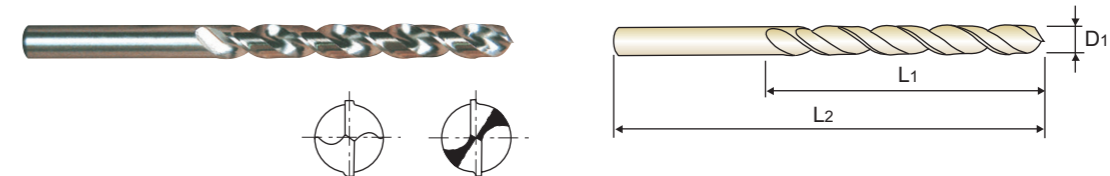
JOBBER

- HSS, SPIRALBOHRER für ALUMINIUM mit ZYLINDERSCHAFT
- Forets HSS, queue cylindrique pour ALU, Forme C, série courte
- PUNTE ELICOIDALI, GAMBO CILINDRICO, PER ALLUMINIO (HSS)

KURZ
COURTE
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.



under 1.6mm 1.6mm & over



EDP No.	Drill Diameter	Flute Length	Overall Length	EDP No.	Drill Diameter	Flute Length	Overall Length
	D1	L1	L2		D1	L1	L2
D1106015	1.5	18	40	D1106041	4.1	43	75
D1106016	1.6	20	43	D1106042	4.2	43	75
D1106017	1.7	20	43	D1106043	4.3	47	80
D1106018	1.8	22	46	D1106044	4.4	47	80
D1106019	1.9	22	46	D1106045	4.5	47	80
D1106020	2.0	24	49	D1106046	4.6	47	80
D1106021	2.1	24	49	D1106047	4.7	47	80
D1106022	2.2	27	53	D1106048	4.8	52	86
D1106023	2.3	27	53	D1106049	4.9	52	86
D1106024	2.4	30	57	D1106050	5.0	52	86
D1106025	2.5	30	57	D1106051	5.1	52	86
D1106026	2.6	30	57	D1106052	5.2	52	86
D1106027	2.7	33	61	D1106053	5.3	52	86
D1106028	2.8	33	61	D1106054	5.4	57	93
D1106029	2.9	33	61	D1106055	5.5	57	93
D1106030	3.0	33	61	D1106056	5.6	57	93
D1106031	3.1	36	65	D1106057	5.7	57	93
D1106032	3.2	36	65	D1106058	5.8	57	93
D1106033	3.3	36	65	D1106059	5.9	57	93
D1106034	3.4	39	70	D1106060	6.0	57	93
D1106035	3.5	39	70	D1106061	6.1	63	101
D1106036	3.6	39	70	D1106062	6.2	63	101
D1106037	3.7	39	70	D1106063	6.3	63	101
D1106038	3.8	43	75	D1106064	6.4	63	101
D1106039	3.9	43	75	D1106065	6.5	63	101
D1106040	4.0	43	75	D1106066	6.6	63	101

Unit : mm

► NEXT PAGE

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	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								
	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																					

◎ : 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	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								
	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																					

◎ : Excellent ○ : Good

HSS, STRAIGHT SHANK TWIST DRILLS for ALUMINUM

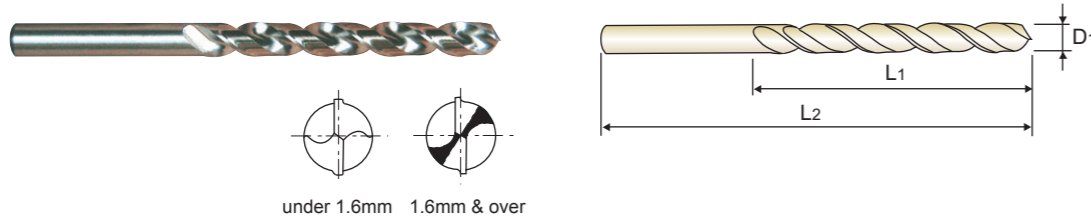
JOBBER

- HSS, SPIRALBOHRER für ALUMINIUM mit ZYLINDERSCHAFT
- Forets HSS, queue cylindrique pour ALU, Forme C, série courte
- PUNTE ELICOIDALI, GAMBO CILINDRICO, PER ALLUMINIO (HSS)

**KURZ
COURTE
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.



under 1.6mm 1.6mm & over



EDP No.	Drill Diameter	Flute Length	Overall Length
	D1	L1	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	Flute Length	Overall Length
	D1	L1	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

Unit : mm

© : 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		
Material Description	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
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				
	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
Material Description	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
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	15	30	25	38	34	15	30	25	38	34	400Rm	1050Rm	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	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙

HSS-E, STRAIGHT SHANK TWIST DRILLS for DEEP HOLES

STUB

- HSS-E, SPIRALBOHRER für TIEFLOCH mit ZYLINDERSCHAFT
- Forets HSS-E, queue cylindrique pour perçage profond, série extra-courte
- PUNTA IN HSS-E, GAMBO CILINDRICO PER FORI NON - STOP

**EXTRA KURZ
EXTRA-COURTE
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.



EDP No.	Drill Diameter	Flute Length	Overall Length
	D1	L1	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	Flute Length	Overall Length
	D1	L1	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

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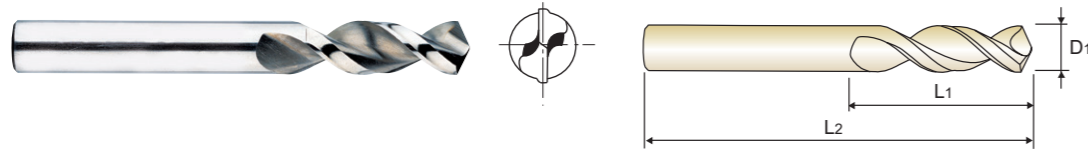
ISO	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron		Malleable cast iron		
Material Description	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	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				
	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
Material Description	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
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	15	30	25	38	34	15	30	25	38	34	400Rm	1050Rm	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	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙

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

Unit : mm

EDP No.	Drill Diameter	Flute Length	Overall Length	EDP No.	Drill Diameter	Flute Length	Overall Length
	D1	L1	L2		D1	L1	L2
DL510072	7.2	34	74	DL510099	9.9	43	89
DL510073	7.3	34	74	DL510100	10.0	43	89
DL510074	7.4	34	74	DL510102	10.2	43	89
DL510075	7.5	34	74	DL510105	10.5	43	89
DL510076	7.6	37	79	DL510108	10.8	47	95
DL510077	7.7	37	79	DL510110	11.0	47	95
DL510078	7.8	37	79	DL510112	11.2	47	95
DL510079	7.9	37	79	DL510115	11.5	47	95
DL510080	8.0	37	79	DL510118	11.8	47	95
DL510081	8.1	37	79	DL510120	12.0	51	102
DL510082	8.2	37	79	DL510125	12.5	51	102
DL510083	8.3	37	79	DL510130	13.0	51	102
DL510084	8.4	37	79	DL510135	13.5	54	107
DL510085	8.5	37	79	DL510140	14.0	54	107
DL510086	8.6	40	84	DL510145	14.5	56	111
DL510087	8.7	40	84	DL510150	15.0	56	111
DL510088	8.8	40	84	DL510155	15.5	58	115
DL510089	8.9	40	84	DL510160	16.0	58	115
DL510090	9.0	40	84	DL510165	16.5	60	119
DL510091	9.1	40	84	DL510170	17.0	60	119
DL510092	9.2	40	84	DL510175	17.5	62	123
DL510093	9.3	40	84	DL510180	18.0	62	123
DL510094	9.4	40	84	DL510185	18.5	64	127
DL510095	9.5	40	84	DL510190	19.0	64	127
DL510096	9.6	43	89	DL510195	19.5	66	131
DL510097	9.7	43	89	DL510200	20.0	66	131
DL510098	9.8	43	89				

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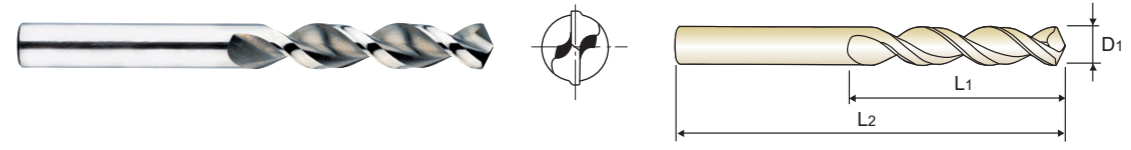
ISO	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron		Malleable cast iron		
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	
HB	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										
	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	400 Rm	1050 Rm	550	630	400	550
Recommended																					

HSS-E, STRAIGHT SHANK TWIST DRILLS for DEEP HOLES *JOBBER*

● HSS-E, SPIRALBOHRER für TIEFLOCH mit ZYLINDERSCHAFT *KURZ*
● Forets HSS-E, queue cylindrique pour perçage profond, série courte *COURTE*
● PUNTA IN HSS-E, GAMBO CILINDRICO PER FORI NON - STOP *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

Unit : mm

EDP No.	Drill Diameter	Flute Length	Overall Length	EDP No.	Drill Diameter	Flute Length	Overall Length
	D1	L1	L2		D1	L1	L2
DL508020	2.0	24	49	DL508046	4.6	47	80
DL508021	2.1	24	49	DL508047	4.7	47	80
DL508022	2.2	27	53	DL508048	4.8	52	86
DL508023	2.3	27	53	DL508049	4.9	52	86
DL508024	2.4	30	57	DL508050	5.0	52	86
DL508025	2.5	30	57	DL508051	5.1	52	86
DL508026	2.6	30	57	DL508052	5.2	52	86
DL508027	2.7	33	61	DL508053	5.3	52	86
DL508028	2.8	33	61	DL508054	5.4	57	93
DL508029	2.9	33	61	DL508055	5.5	57	93
DL508030	3.0	33	61	DL508056	5.6	57	93
DL508031	3.1	36	65	DL508057	5.7	57	93
DL508032	3.2	36	65	DL508058	5.8	57	93
DL508033	3.3	36	65	DL508059	5.9	57	93
DL508034	3.4	39	70	DL508060	6.0	57	93
DL508035	3.5	39	70	DL508061	6.1	63	101
DL508036	3.6	39	70	DL508062	6.2	63	101
DL508037	3.7	39	70	DL508063	6.3	63	101
DL508038	3.8	43	75	DL508064	6.4	63	101
DL508039	3.9	43	75	DL508065	6.5	63	101
DL508040	4.0	43	75	DL508066	6.6	63	101
DL508041	4.1	43	75	DL508067	6.7	63	101
DL508042	4.2	43	75	DL508068	6.8	69	109
DL508043	4.3	47	80	DL508069	6.9	69	109
DL508044	4.4	47	80	DL508070	7.0	69	109
DL508045	4.5	47	80	DL508071	7.1	69	109

► NEXT PAGE

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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	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										
	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	400 Rm	1050 Rm	550	630	400	550
Recommended																					

HSS-E, STRAIGHT SHANK TWIST DRILLS for DEEP HOLES

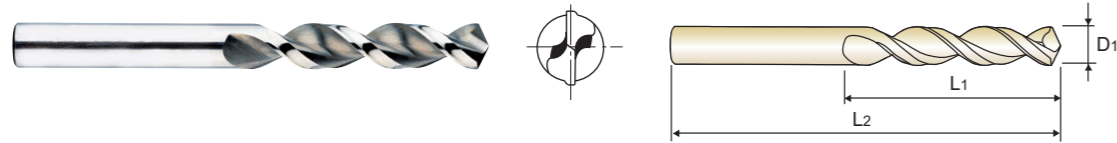
JOBBER

- HSS-E, SPIRALBOHRER für TIEFLOCH mit ZYLINDERSCHAFT
- Forets HSS-E, queue cylindrique pour perçage profond, série courte
- PUNTA IN HSS-E, GAMBO CILINDRICO PER FORI NON - STOP

KURZ
COURTE
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

Unit : mm

EDP No.	Drill Diameter		Overall Length	EDP No.	Drill Diameter		Overall Length
	D1	L1			D1	L1	
DL508072	7.2	69	109	DL508094	9.4	81	125
DL508073	7.3	69	109	DL508095	9.5	81	125
DL508074	7.4	69	109	DL508096	9.6	87	133
DL508075	7.5	69	109	DL508097	9.7	87	133
DL508076	7.6	75	117	DL508098	9.8	87	133
DL508077	7.7	75	117	DL508099	9.9	87	133
DL508078	7.8	75	117	DL508100	10.0	87	133
DL508079	7.9	75	117	DL508102	10.2	87	133
DL508080	8.0	75	117	DL508105	10.5	87	133
DL508081	8.1	75	117	DL508110	11.0	94	142
DL508082	8.2	75	117	DL508112	11.2	94	142
DL508083	8.3	75	117	DL508115	11.5	94	142
DL508084	8.4	75	117	DL508120	12.0	101	151
DL508085	8.5	75	117	DL508125	12.5	101	151
DL508086	8.6	81	125	DL508130	13.0	101	151
DL508087	8.7	81	125	DL508135	13.5	108	160
DL508088	8.8	81	125	DL508140	14.0	108	160
DL508089	8.9	81	125	DL508145	14.5	114	169
DL508090	9.0	81	125	DL508150	15.0	114	169
DL508091	9.1	81	125	DL508155	15.5	120	178
DL508092	9.2	81	125	DL508160	16.0	120	178
DL508093	9.3	81	125				

HSS-E, STRAIGHT SHANK TWIST DRILLS for DEEP HOLES

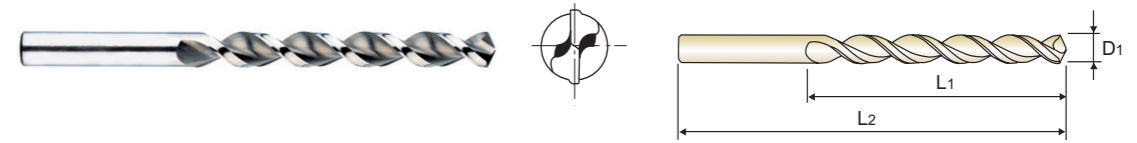
LONG

- HSS-E, SPIRALBOHRER für TIEFLOCH mit ZYLINDERSCHAFT
- Forets HSS-E, queue cylindrique pour perçage profond, série longue
- PUNTA IN HSS-E, GAMBO CILINDRICO PER FORI NON - STOP

LANG
LONGUE
LUNGA

►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

Unit : mm

EDP No.	Drill Diameter		Overall Length	EDP No.	Drill Diameter		Overall Length
	D1	L1			D1	L1	
DL509020	2.0	56	85	DL509046	4.6	82	126
DL509021	2.1	56	85	DL509047	4.7	82	126
DL509022	2.2	59	90	DL509048	4.8	87	132
DL509023	2.3	59	90	DL509049	4.9	87	132
DL509024	2.4	62	95	DL509050	5.0	87	132
DL509025	2.5	62	95	DL509051	5.1	87	132
DL509026	2.6	62	95	DL509052	5.2	87	132
DL509027	2.7	66	100	DL509053	5.3	87	132
DL509028	2.8	66	100	DL509054	5.4	91	139
DL509029	2.9	66	100	DL509055	5.5	91	139
DL509030	3.0	66	100	DL509056	5.6	91	139
DL509031	3.1	69	106	DL509057	5.7	91	139
DL509032	3.2	69	106	DL509058	5.8	91	139
DL509033	3.3	69	106	DL509059	5.9	91	139
DL509034	3.4	73	112	DL509060	6.0	91	139
DL509035	3.5	73	112	DL509061	6.1	97	148
DL509036	3.6	73	112	DL509062	6.2	97	148
DL509037	3.7	73	112	DL509063	6.3	97	148
DL509038	3.8	78	119	DL509064	6.4	97	148
DL509039	3.9	78	119	DL509065	6.5	97	148
DL509040	4.0	78	119	DL509066	6.6	97	148
DL509041	4.1	78	119	DL509067	6.7	97	148
DL509042	4.2	78	119	DL509068	6.8	102	156
DL509043	4.3	82	126	DL509069	6.9	102	156
DL509044	4.4	82	126	DL509070	7.0	102	156
DL509045	4.5	82	126	DL509071	7.1	102	156

► NEXT PAGE

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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	25	28	32	30	10	29	32	38	15	35	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										
	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	15	30	25	38	34	400 Rm	1050 Rm	55	60	42	55	55	60	42	55	
HB	60	100	75	90	130	110	90	100			400 Rm	1050 Rm	550	630	400	550	400	550	400	550	
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

◎ : 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	25	28	32	30	10	29	32	38	15	35	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										
	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	15	30	25	38	34	400 Rm	1050 Rm	55	60	42	55	55	60	42	55	
HB	60	100	75	90	130	110	90	100			400 Rm	1050 Rm	550	630	400	550	400	550	400	550	
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

HSS-E, STRAIGHT SHANK TWIST DRILLS for DEEP HOLES

LONG

- HSS-E, SPIRALBOHRER für TIEFLOCH mit ZYLINDERSCHAFT
- Forets HSS-E, queue cylindrique pour perçage profond, série longue
- PUNTA IN HSS-E, GAMBO CILINDRICO PER FORI NON - STOP

LANG
LONGUE
LUNGA

►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

Unit : mm

EDP No.	Drill Diameter	Flute Length	Overall Length	EDP No.	Drill Diameter	Flute Length	Overall Length
	D1	L1	L2		D1	L1	L2
DL509072	7.2	102	156	DL509089	8.9	115	175
DL509073	7.3	102	156	DL509090	9.0	115	175
DL509074	7.4	102	156	DL509091	9.1	115	175
DL509075	7.5	102	156	DL509092	9.2	115	175
DL509076	7.6	109	165	DL509093	9.3	115	175
DL509077	7.7	109	165	DL509094	9.4	115	175
DL509078	7.8	109	165	DL509095	9.5	115	175
DL509079	7.9	109	165	DL509096	9.6	121	184
DL509080	8.0	109	165	DL509097	9.7	121	184
DL509081	8.1	109	165	DL509098	9.8	121	184
DL509082	8.2	109	165	DL509099	9.9	121	184
DL509083	8.3	109	165	DL509100	10.0	121	184
DL509084	8.4	109	165	DL509102	10.2	121	184
DL509085	8.5	109	165	DL509105	10.5	121	184
DL509086	8.6	115	175	DL509110	11.0	128	195
DL509087	8.7	115	175	DL509115	11.5	128	195
DL509088	8.8	115	175	DL509120	12.0	134	205

◎ : 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	21	22	23	24	25
HRc	13	25	28	32	38	10	29	32	38	45	15	35	40	48	10	26	3	25	28	32	10	13	15	18	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230	130	230	130	230	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	42	43	44
HRc	15	30	25	38	34	15	30	25	38	34	40	45	50	55	60	55	60	65	70	75	80	40	45	50
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550	400	550	550
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

HSS-E, STRAIGHT SHANK TWIST DRILLS for DEEP HOLES

JOBBER

- HSS-E, SPIRALBOHRER für TIEFLOCH mit ZYLINDERSCHAFT
- Forets HSS-E, queue cylindrique pour perçage profond, série courte
- PUNTA IN HSS-E, GAMBO CILINDRICO PER FORI NON - STOP

KURZ
COURTE
CORTA

►Surface treatment : Steam Tempered(Black Oxide Finish)
►Application : Drilling deep holes in non alloy steels, alloy steels, grey cast iron, malleable cast iron, special aluminum or magnesium alloys.

►Oberflächenbehandlung : Steam Homo(Schwarzoxidation)
►Verwendung : Zum Bohren von legiertem und unlegiertem stahl, Grauguß, Temperguß, Sphäroguß, Druckguß, Alu-Legierungen kurzspanend, Bronze, Messing zäh, Neusilber.



► DH100 worm pattern drills

Unit : mm

EDP No.	Drill Diameter	Flute Length	Overall Length	EDP No.	Drill Diameter	Flute Length	Overall Length
	D1	L1	L2		D1	L1	L2
DL505020	2.0	24	49	DL505046	4.6	47	80
DL505021	2.1	24	49	DL505047	4.7	47	80
DL505022	2.2	27	53	DL505048	4.8	52	86
DL505023	2.3	27	53	DL505049	4.9	52	86
DL505024	2.4	30	57	DL505050	5.0	52	86
DL505025	2.5	30	57	DL505051	5.1	52	86
DL505026	2.6	30	57	DL505052	5.2	52	86
DL505027	2.7	33	61	DL505053	5.3	52	86
DL505028	2.8	33	61	DL505054	5.4	57	93
DL505029	2.9	33	61	DL505055	5.5	57	93
DL505030	3.0	33	61	DL505056	5.6	57	93
DL505031	3.1	36	65	DL505057	5.7	57	93
DL505032	3.2	36	65	DL505058	5.8	57	93
DL505033	3.3	36	65	DL505059	5.9	57	93
DL505034	3.4	39	70	DL505060	6.0	57	93
DL505035	3.5	39	70	DL505061	6.1	63	101
DL505036	3.6	39	70	DL505062	6.2	63	101
DL505037	3.7	39	70	DL505063	6.3	63	101
DL505038	3.8	43	75	DL505064	6.4	63	101
DL505039	3.9	43	75	DL505065	6.5	63	101
DL505040	4.0	43	75	DL505066	6.6	63	101
DL505041	4.1	43	75	DL505067	6.7	63	101
DL505042	4.2	43	75	DL505068	6.8	69	109
DL505043	4.3	47	80	DL505069	6.9	69	109
DL505044	4.4	47	80	DL505070	7.0	69	109
DL505045	4.5	47	80	DL505071	7.1	69	109

► TIN(DN505), TICN(DX505) and TIAIN(DT505) are available on your request.

► NEXT PAGE

◎ : 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	21	22	23	24	25
HRc	13	25	28	32	38	10	29	32	38	45	15	35	40	48	10	26	3	25	28	32	10	13	15	18	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230	130	230	130	230	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	42	43	44
HRc	15	30	25	38	34	15	30	25	38	34	40	45	50	55	60	55	60	65	70	75	80	40	45	50
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550	400	550	550
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

HSS-E, STRAIGHT SHANK TWIST DRILLS for DEEP HOLES

JOBBER

- HSS-E, SPIRALBOHRER für TIEFLOCH mit ZYLINDERSCHAFT
- Forets HSS-E, queue cylindrique pour perçage profond, série courte
- PUNTA IN HSS-E, GAMBO CILINDRICO PER FORI NON - STOP

KURZ
COURTE
CORTA

► **Surface treatment** : Steam Tempered(Black Oxide Finish)
► **Application** : Drilling deep holes in non alloy steels, alloy steels, grey cast iron, malleable cast iron, special aluminum or magnesium alloys.

► **Oberflächenbehandlung** : Steam Homo(Schwarzoxidation)
► **Verwendung** : Zum Bohren von legiertem und unlegiertem stahl, Grauguß, Temperguß, Sphäroguß, Druckguß, Alu-Legierungen kurzspanend, Bronze, Messing zäh, Neusilber.



► DH100
worm pattern drills

Unit : mm

EDP No.	Drill Diameter	Flute Length	Overall Length	EDP No.	Drill Diameter	Flute Length	Overall Length
	D1	L1	L2		D1	L1	L2
DL505072	7.2	69	109	DL505093	9.3	81	125
DL505073	7.3	69	109	DL505094	9.4	81	125
DL505074	7.4	69	109	DL505095	9.5	81	125
DL505075	7.5	69	109	DL505096	9.6	87	133
DL505076	7.6	75	117	DL505097	9.7	87	133
DL505077	7.7	75	117	DL505098	9.8	87	133
DL505078	7.8	75	117	DL505099	9.9	87	133
DL505079	7.9	75	117	DL505100	10.0	87	133
DL505080	8.0	75	117	DL505101	10.1	87	133
DL505081	8.1	75	117	DL505102	10.2	87	133
DL505082	8.2	75	117	DL505105	10.5	87	133
DL505083	8.3	75	117	DL505108	10.8	94	142
DL505084	8.4	75	117	DL505110	11.0	94	142
DL505085	8.5	75	117	DL505112	11.2	94	142
DL505086	8.6	81	125	DL505115	11.5	94	142
DL505087	8.7	81	125	DL505118	11.8	94	142
DL505088	8.8	81	125	DL505120	12.0	101	151
DL505089	8.9	81	125	DL505122	12.2	101	151
DL505090	9.0	81	125	DL505125	12.5	101	151
DL505091	9.1	81	125	DL505128	12.8	101	151
DL505092	9.2	81	125	DL505130	13.0	101	151

► TiN(DN505), TiCN(DX505) and TiAlN(DT505) are available on your request.

© : 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	
Material Description	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
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	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
Material Description	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
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	15	30	25	38	34	15	30	25	38	34	55	60	42	55	55	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

HSS-E, STRAIGHT SHANK TWIST DRILLS for DEEP HOLES

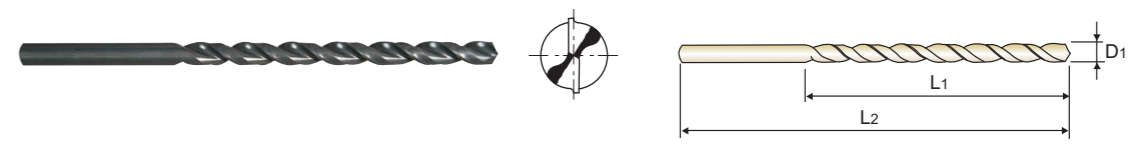
LONG

- HSS-E, SPIRALBOHRER für TIEFLOCH mit ZYLINDERSCHAFT
- Forets HSS-E, queue cylindrique pour perçage profond, série longue
- PUNTA IN HSS-E, GAMBO CILINDRICO PER FORI NON - STOP

LANG
LONGUE
LUNGA

► **Surface treatment** : Steam Tempered(Black Oxide Finish)
► **Application** : Drilling deep holes in non alloy steels, alloy steels, grey cast iron, malleable cast iron, special aluminum or magnesium alloys.

► **Oberflächenbehandlung** : Steam Homo(Schwarzoxidation)
► **Verwendung** : Zum Bohren von legiertem und unlegiertem stahl, Grauguß, Temperguß, Sphäroguß, Druckguß, Alu-Legierungen kurzspanend, Bronze, Messing zäh, Neusilber.



► DH100
worm pattern drills

Unit : mm

EDP No.	Drill Diameter	Flute Length	Overall Length	EDP No.	Drill Diameter	Flute Length	Overall Length
	D1	L1	L2		D1	L1	L2
DL504020	2.0	56	85	DL504052	5.2	87	132
DL504021	2.1	56	85	DL504055	5.5	91	139
DL504022	2.2	59	90	DL504058	5.8	91	139
DL504023	2.3	59	90	DL504060	6.0	91	139
DL504024	2.4	62	95	DL504062	6.2	97	148
DL504025	2.5	62	95	DL504065	6.5	97	148
DL504026	2.6	62	95	DL504068	6.8	102	156
DL504027	2.7	66	100	DL504070	7.0	102	156
DL504028	2.8	66	100	DL504072	7.2	102	156
DL504029	2.9	66	100	DL504075	7.5	102	156
DL504030	3.0	66	100	DL504078	7.8	109	165
DL504031	3.1	69	106	DL504080	8.0	109	165
DL504032	3.2	69	106	DL504082	8.2	109	165
DL504033	3.3	69	106	DL504085	8.5	109	165
DL504034	3.4	73	112	DL504090	9.0	115	175
DL504035	3.5	73	112	DL504095	9.5	115	175
DL504036	3.6	73	112	DL504098	9.8	121	184
DL504037	3.7	73	112	DL504100	10.0	121	184
DL504038	3.8	78	119	DL504105	10.5	121	184
DL504039	3.9	78	119	DL504110	11.0	128	195
DL504040	4.0	78	119	DL504115	11.5	128	195
DL504042	4.2	78	119	DL504120	12.0	134	205
DL504045	4.5	82	126	DL504125	12.5	134	205
DL504048	4.8	87	132	DL504130	13.0	134	205
DL504050	5.0	87	132				

► TiN(DN504), TiCN(DX504) and TiAlN(DT504) are available on your request.

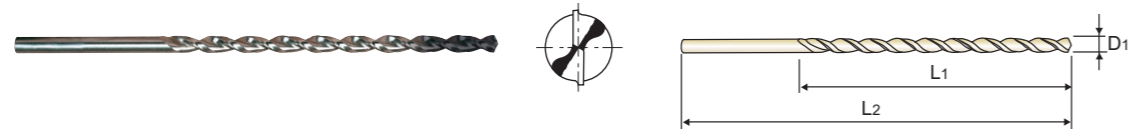
© : Excellent ○ : Good

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	
Material Description	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
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	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
Material Description	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
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	15	30	25	38	34	15	30	25	38	34	55	60	42	55	55	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

HSS-E, STRAIGHT SHANK TWIST DRILLS for DEEP HOLES *EXTRA LONG*
 HSS-E, SPIRALBOHRER für TIEFLOCH mit ZYLINDERSCHAFT *ÜBERLANG*
 Forets HSS-E, queue cylindrique pour perçage profond, Forme C, série extra-longue *EXTRA-LONGUE*
 PUNTA IN HSS-E, GAMBO CILINDRICO PER FORI NON - STOP *EXTRA LUNGA*

► **Surface treatment** : TiAlN coating on working area. ► **Verwendung** : Zum Bohren von legiertem und unlegiertem stahl, Grauguß, Temperguß, Sphäroguß, Druckguß, Alu-Legierungen kurzspanend, Bronze, Messing zäh, Neusilber.
 ► **Application** : Drilling deep holes in non alloy steels, alloy steels, grey cast iron, malleable cast iron, special aluminum or magnesium alloys.



► DH100 worm pattern drills

DT600 SERIES (DIN1869/1)

EDP No.	Drill Diameter D1	Flute Length L1	Overall Length L2
DT600020	2.0	85	125
DT600025	2.5	95	140
DT600030	3.0	100	150
DT600035	3.5	115	165
DT600040	4.0	120	175
DT600045	4.5	125	185
DT600050	5.0	135	195
DT600055	5.5	140	205
DT600060	6.0	140	205
DT600065	6.5	150	215
DT600070	7.0	155	225
DT600075	7.5	155	225
DT600080	8.0	165	240
DT600085	8.5	165	240
DT600090	9.0	175	250
DT600095	9.5	175	250
DT600100	10.0	185	265
DT600105	10.5	185	265

DT692 SERIES (DIN1869/2) Unit : mm

EDP No.	Drill Diameter D1	Flute Length L1	Overall Length L2
DT692030	3.0	130	190
DT692035	3.5	145	210
DT692040	4.0	150	220
DT692045	4.5	160	235
DT692050	5.0	170	245
DT692055	5.5	180	260
DT692060	6.0	180	260
DT692065	6.5	190	275
DT692070	7.0	200	290
DT692075	7.5	200	290
DT692080	8.0	210	305
DT692085	8.5	210	305
DT692090	9.0	220	320
DT692095	9.5	220	320
DT692100	10.0	235	340
DT692102	10.2	235	340

DT693 SERIES (DIN1869/3)

EDP No.	Drill Diameter D1	Flute Length L1	Overall Length L2
DT693040	4.0	190	280
DT693050	5.0	210	315
DT693060	6.0	225	330
DT693080	8.0	265	390
DT693100	10.0	295	430

► TiN(DN600) and TiCN(DX600) are available on your request.

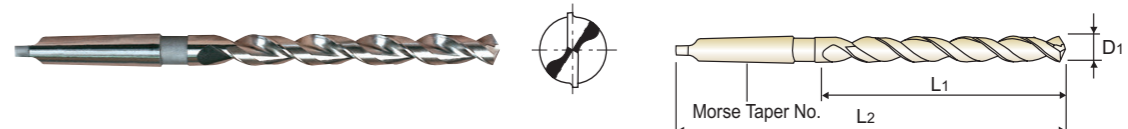
© : Excellent ○ : Good

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	25	28	32	30	10	29	32	38	15	35	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										
	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	15	30	25	38	34	55	60	42	55	55	55	60	42	55	55	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended																					

HSS-E, MORSE TAPER SHANK TWIST DRILLS for DEEP HOLES *LONG*
 HSS-E, SPIRALBOHRER für TIEFLOCH mit MORSEKEGELSCHAFT *LANG*
 Forets HSS-E, queue cône morse pour perçage profond, série longue *LONGUE*
 PUNTE IN HSS - E, ATTACCO CONO MORSE PER FORI NON - STOP *LUNGA*

► **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

Unit : mm

EDP No.	Drill Diameter D1	Flute Length L1	Overall Length L2	No. of Morse Taper
DL608130	13.0	134	215	1
DL608135	13.5	142	223	1
DL608140	14.0	142	223	1
DL608145	14.5	147	245	2
DL608150	15.0	147	245	2
DL608155	15.5	153	251	2
DL608160	16.0	153	251	2
DL608165	16.5	159	257	2
DL608170	17.0	159	257	2
DL608175	17.5	165	263	2
DL608180	18.0	165	263	2
DL608185	18.5	171	269	2
DL608190	19.0	171	269	2

Unit : mm

EDP No.	Drill Diameter D1	Flute Length L1	Overall Length L2	No. of Morse Taper
DL608195	19.5	177	275	2
DL608200	20.0	177	275	2
DL608210	21.0	184	282	2
DL608220	22.0	191	289	2
DL608230	23.0	198	296	2
DL608240	24.0	206	327	3
DL608250	25.0	206	327	3
DL608260	26.0	214	335	3
DL608270	27.0	222	343	3
DL608280	28.0	222	343	3
DL608290	29.0	230	351	3
DL608300	30.0	230	351	3

© : 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	25	28	32	30	10	29	32	38	15	35	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										
	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	15	30	25	38	34	55	60	42	55	55	55	60	42	55	55	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended																					

HSS-E, STRAIGHT SHANK TWIST DRILLS for ALUMINUM DEEP HOLES *EXTRA LONG*
 HSS-E, SPIRALBOHRER für ALUMINIUM TIEFLOCH mit ZYLINDERSCHAFT *ÜBERLANG*
 Forets HSS-E, queue cylindrique pour ALU, perçage profond, série extra-longue *EXTRA-LONGUE*
 PUNTE HSS-E, GAMBO CILINDRICO PER FORATURE NON - STOP SU ALLUMINIO *EXTRA LUNGA*

Application : Drilling deep holes in aluminum and its alloys, silumin, zinc, refined copper, wood and other soft synthetic materials.
Verwendung : Zum Bohren von weichen und langspanenden Werkstoffen wie Alu-Legierungen, Zink, Kupfer, Kunststoffe und Holz.



► DH50 worm pattern drills

Unit : mm

EDP No.	Drill Diameter		Flute Length		Overall Length	
	D1	L1	L2	L1	L2	L2
DL507120	2.0	40	75			
DL507121	2.1	40	75			
DL507220	2.0	50	100			
DL507221	2.1	50	100			
DL507225	2.5	50	100			
DL507227	2.7	50	100			
DL507230	3.0	50	100			
DL507233	3.3	50	100			
DL507235	3.5	50	100			
DL507320	2.0	75	150			
DL507321	2.1	75	150			
DL507325	2.5	75	150			
DL507327	2.7	75	150			
DL507330	3.0	75	150			
DL507333	3.3	75	150			
DL507335	3.5	75	150			
DL507340	4.0	75	150			
DL507342	4.2	75	150			
DL507345	4.5	75	150			
DL507350	5.0	75	150			
DL507353	5.3	75	150			
DL507355	5.5	75	150			
DL507360	6.0	75	150			
DL507430	3.0	100	200			
DL507433	3.3	100	200			
DL507435	3.5	100	200			
DL507440	4.0	100	200			
DL507442	4.2	100	200			
DL507445	4.5	100	200			
DL507450	5.0	100	200			
DL507453	5.3	100	200			
DL507455	5.5	100	200			
DL507460	6.0	100	200			
DL507465	6.5	100	200			
DL507468	6.8	100	200			
DL507470	7.0	100	200			
DL507475	7.5	100	200			
DL507480	8.0	100	200			
DL507485	8.5	100	200			
DL507488	8.8	100	200			
DL507490	9.0	100	200			
DL507495	9.5	100	200			
DL507700	10.0	100	200			
DL507540	4.0	150	250			
DL507542	4.2	150	250			
DL507545	4.5	150	250			
DL507550	5.0	150	250			
DL507553	5.3	150	250			

► NEXT PAGE

◎ : 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		
Material Description	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
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					
	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	
Material Description	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	60	100	75	90	130	110	90	100			15	30	25	38	34	400 Rm	1050 Rm	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	◎	◎	○																		

HSS-E, STRAIGHT SHANK TWIST DRILLS for ALUMINUM DEEP HOLES *EXTRA LONG*
 HSS-E, SPIRALBOHRER für ALUMINIUM TIEFLOCH mit ZYLINDERSCHAFT *ÜBERLANG*
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Application : Drilling deep holes in aluminum and its alloys, silumin, zinc, refined copper, wood and other soft synthetic materials.
Verwendung : Zum Bohren von weichen und langspanenden Werkstoffen wie Alu-Legierungen, Zink, Kupfer, Kunststoffe und Holz.



► DH50 worm pattern drills

Unit : mm

EDP No.	Drill Diameter		Flute Length		Overall Length	
	D1	L1	L2	L1	L2	L2
DL507555	5.5	150	250			
DL507560	6.0	150	250			
DL507565	6.5	150	250			
DL507568	6.8	150	250			
DL507570	7.0	150	250			
DL507575	7.5	150	250			
DL507580	8.0	150	250			
DL507585	8.5	150	250			
DL507588	8.8	150	250			
DL507590	9.0	150	250			
DL507595	9.5	150	250			
DL507800	10.0	150	250			
DL507803	10.3	150	250			
DL507805	10.5	150	250			
DL507810	11.0	150	250			
DL507815	11.5	150	250			
DL507820	12.0	150	250			
DL507825	12.5	150	250			
DL507830	13.0	150	250			
DL507650	5.0	180	300			
DL507653	5.3	180	300			
DL507655	5.5	180	300			
DL507660	6.0	180	300			
DL507665	6.5	180	300			
DL507668	6.8	180	300			
DL507670	7.0	180	300			
DL507675	7.5	180	300			
DL507680	8.0	180	300			
DL507685	8.5	180	300			
DL507688	8.8	180	300			
DL507690	9.0	180	300			
DL507695	9.5	180	300			
DL507900	10.0	180	300			
DL507903	10.3	180	300			
DL507905	10.5	180	300			
DL507910	11.0	180	300			
DL507915	11.5	180	300			
DL507920	12.0	180	300			
DL507925	12.5	180	300			
DL507930	13.0	180	300			

◎ : 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		
Material Description	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
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					
	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	
Material Description	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	60	100	75	90	130	110	90	100			15	30	25	38	34	400 Rm	1050 Rm	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	◎	◎	○																		

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

**HSS, HSS-E & HSSCo8
COBALT DRILLS**

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

ISO	VDI 3323	Material Description	Vc (m/min)	Parameter	Drill Diameter (mm)				
					2.0	3.0	4.0	6.0	8.0
P	1	Non-alloy steel	30	RPM	4770	3180	2390	1590	1190
				FEED	0.02~0.04	0.03~0.05	0.04~0.06	0.05~0.08	0.10~0.13
				RPM	3980	2650	1990	1330	990
				FEED	0.02~0.04	0.03~0.05	0.04~0.06	0.05~0.08	0.10~0.13
				RPM	3180	2120	1590	1060	800
	2	Low alloy steel	20	RPM	3180	2120	1590	1060	800
				FEED	0.02~0.04	0.03~0.05	0.04~0.06	0.05~0.08	0.10~0.13
				RPM	3180	2120	1590	1060	800
				FEED	0.02~0.04	0.03~0.05	0.04~0.06	0.05~0.08	0.10~0.13
				RPM	3180	2120	1590	1060	800
	3	High alloyed steel, and tool steel	15	RPM	2390	1590	1190	800	600
FEED	0.02~0.04	0.03~0.05	0.04~0.06	0.05~0.08	0.10~0.13				
M	12	Stainless steel	20	RPM	3180	2120	1590	1060	800
				FEED	0.02~0.04	0.03~0.05	0.04~0.06	0.05~0.08	0.10~0.13
				RPM	2390	1590	1190	800	600
K	15	Grey cast iron	30	RPM	4770	3180	2390	1590	1190
				FEED	0.02~0.04	0.03~0.05	0.04~0.06	0.05~0.08	0.10~0.13
				RPM	3980	2650	1990	1330	990
N	16	Nodular cast iron	25	RPM	4770	3180	2390	1590	1190
				FEED	0.02~0.04	0.03~0.05	0.04~0.06	0.05~0.08	0.10~0.13
				RPM	3980	2650	1990	1330	990
S	17	Malleable cast iron	25	RPM	3980	2650	1990	1330	990
				FEED	0.02~0.04	0.03~0.05	0.04~0.06	0.05~0.08	0.10~0.13
				RPM	3980	2650	1990	1330	990
H	18	Aluminum-wrought alloy	55	RPM	8750	5840	4380	2920	2190
				FEED	0.03~0.06	0.05~0.09	0.07~0.11	0.12~0.16	0.12~0.18
				RPM	8750	5840	4380	2920	2190
H	19	Aluminum-cast, alloyed	40	RPM	6370	4240	3180	2120	1590
				FEED	0.03~0.06	0.05~0.09	0.07~0.11	0.12~0.16	0.12~0.18
				RPM	6370	4240	3180	2120	1590
H	20	Copper and Copper Alloys (Bronze / Brass)	20	RPM	3180	2120	1590	1060	800
				FEED	0.02~0.04	0.03~0.05	0.04~0.06	0.05~0.08	0.10~0.13
				RPM	3180	2120	1590	1060	800
H	21	Non Metallic Materials	20	RPM	3180	2120	1590	1060	800
				FEED	0.02~0.04	0.03~0.05	0.04~0.06	0.05~0.08	0.10~0.13
				RPM	3180	2120	1590	1060	800
H	22	Heat Resistant Super Alloys	10	RPM	1590	1060	800	530	400
				FEED	0.01~0.03	0.02~0.04	0.03~0.05	0.04~0.07	0.05~0.08
				RPM	1590	1060	800	530	400
H	23	Titanium Alloys	10	RPM	1590	1060	800	530	400
				FEED	0.01~0.03	0.02~0.04	0.03~0.05	0.04~0.07	0.05~0.08
				RPM	1590	1060	800	530	400
H	24	Hardened steel		RPM					
				FEED					
				RPM					
H	25	Chilled Cast Iron		RPM					
				FEED					
				RPM					
H	26	Hardened Cast Iron		RPM					
				FEED					
				RPM					

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

VDI 3323	Parameter	Drill Diameter (mm)					
		10.0	13.0	16.0	18.0	20.0	30.0
1	RPM	950	730	600	530	480	320
	FEED	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	RPM	800	610	500	440	400	270
	FEED	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	RPM	640	490	400	350	320	210
	FEED	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	RPM	640	490	400	350	320	210
	FEED	0.03~0.06	0.04~0.10	0.06~0.12	0.08~0.14	0.10~0.16	0.12~0.18
5	RPM	800	610	500	440	400	270
	FEED	0.11~0.15	0.11~0.17	0.12~0.18	0.14~0.20	0.19~0.25	0.22~0.28
6	RPM	640	490	400	350	320	210
	FEED	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	RPM	640	490	400	350	320	210
	FEED	0.03~0.06	0.04~0.10	0.06~0.12	0.08~0.14	0.10~0.16	0.12~0.18
8	RPM	480	370	300	270	240	160
	FEED	0.11~0.15	0.11~0.17	0.12~0.18	0.14~0.20	0.19~0.25	0.22~0.28
9	RPM	640	490	400	350	320	210
	FEED	0.11~0.15	0.11~0.17	0.12~0.18	0.14~0.20	0.19~0.25	0.22~0.28
10	RPM	480	370	300	270	240	160
	FEED	0.11~0.15	0.11~0.17	0.12~0.18	0.14~0.20	0.19~0.25	0.22~0.28
11	RPM	640	490	400	350	320	210
	FEED	0.11~0.15	0.11~0.17	0.12~0.18	0.14~0.20	0.19~0.25	0.22~0.28
12	RPM	480	370	300	270	240	160
	FEED	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	RPM	320	240	200	180	160	110
	FEED	0.03~0.06	0.04~0.10	0.06~0.12	0.08~0.14	0.10~0.16	0.12~0.18
14	RPM	950	730	600	530	480	320
	FEED	0.11~0.15	0.11~0.17	0.12~0.18	0.14~0.20	0.19~0.25	0.22~0.28
15	RPM	800	610	500	440	400	270
	FEED	0.03~0.06	0.04~0.10	0.06~0.12	0.08~0.14	0.10~0.16	0.12~0.18
16	RPM	950	730	600	530	480	320
	FEED	0.11~0.15	0.11~0.17	0.12~0.18	0.14~0.20	0.19~0.25	0.22~0.28
17	RPM	800	610	500	440	400	270
	FEED	0.03~0.06	0.04~0.10	0.06~0.12	0.08~0.14	0.10~0.16	0.12~0.18
18	RPM	950	730	600	530	480	320
	FEED	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	RPM	800	610	500	440	400	270
	FEED	0.11~0.15	0.11~0.17	0.12~0.18	0.14~0.20	0.19~0.25	0.22~0.28
20	RPM	1750	1350	1090	970	880	580
	FEED	0.14~0.20	0.16~0.22	0.18~0.24	0.20~0.28	0.20~0.30	0.28~0.38
21	RPM	1750	1350	1090	970	880	580
	FEED	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	RPM	1270	980	800	710	640	420
	FEED	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	RPM	640	490	400	350	320	210
	FEED	0.11~0.15	0.11~0.17	0.12~0.18	0.14~0.20	0.19~0.25	0.22~0.28
24	RPM	320	240	200	180	160	110
	FEED	0.05~0.09	0.06~0.10	0.05~0.11	0.06~0.12	0.09~0.13	0.12~0.18
25	RPM						
	FEED						
26	RPM						
	FEED						
27	RPM						
	FEED						
28	RPM						
	FEED						
29	RPM						
	FEED						
30	RPM						
	FEED						
31	RPM						
	FEED						
32	RPM						
	FEED						
33	RPM						
	FEED						
34	RPM						
	FEED						
35	RPM						
	FEED						
36	RPM						
	FEED						
37	RPM						
	FEED						
38	RPM						
	FEED						
39	RPM						
	FEED						
40	RPM						
	FEED						
41	RPM						
	FEED						



STRAIGHT SHANK DRILLS

RECOMMENDED CUTTING CONDITIONS EMPFOHLENE SCHNEIDPARAMETER

D1100 SERIES

HSS, TWIST DRILLS for BRASS / BRONZE

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

ISO	VDI 3323	Material Description	Vc (m/min)	Parameter	Drill Diameter (mm)							
					2.0	3.0	4.0	5.0	6.0	8.0	10.0	13.0
P	1	Non-alloy steel										
	2											
	3											
	4											
	5											
	6	Low alloy steel										
	7											
	8											
	9											
	10		High alloyed steel, and tool steel									
	11											
M	12	Stainless steel										
	13											
	14											
K	15	Grey cast iron										
	16	Nodular cast iron										
	17											
	18											
	19	Malleable cast iron										
20												
N	21	Aluminum-wrought alloy										
	22	Aluminum-cast, alloyed										
	23											
	24											
	25											
	26		Copper and Copper Alloys (Bronze / Brass)	45	RPM	7160	4770	3580	2860	2390	1790	1430
	27	FEED		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	RPM		4770	3180	2390	1910	1590	1190	950	730	
	28	FEED		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	
	29	Non Metallic Materials										
30												
S	31	Heat Resistant Super Alloys										
	32											
	33											
	34											
	35											
	36	Titanium Alloys										
	37											
H	38	Hardened steel										
	39	Chilled Cast Iron										
	40											
	41	Hardened Cast Iron										



STRAIGHT SHANK DRILLS

RECOMMENDED CUTTING CONDITIONS EMPFOHLENE SCHNEIDPARAMETER

D1106 SERIES

HSS, TWIST DRILLS for ALUMINUM

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

ISO	VDI 3323	Material Description	Vc (m/min)	Parameter	Drill Diameter (mm)								
					2.0	3.0	4.0	5.0	6.0	8.0	10.0	13.0	
P	1	Non-alloy steel											
	2												
	3												
	4												
	5												
	6	Low alloy steel											
	7												
	8												
	9												
	10		High alloyed steel, and tool steel										
	11												
M	12	Stainless steel											
	13												
	14												
K	15	Grey cast iron											
	16	Nodular cast iron											
	17												
	18												
	19	Malleable cast iron											
20													
N	21	Aluminum-wrought alloy	50	RPM	7960	5310	3980	3180	2650	1990	1590	1220	
	21		FEED	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	Aluminum-cast, alloyed	50	RPM	7960	5310	3980	3180	2650	1990	1590	1220	
	22			FEED	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			40	RPM	6370	4240	3180	2550	2120	1590	1270	980
	23			FEED	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	4770	3180	2390	1910	1590	1190	950	730
	24		FEED	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		
	25	Copper and Copper Alloys (Bronze / Brass)											
	26												
27													
28													
29	Non Metallic Materials												
30													
S	31	Heat Resistant Super Alloys											
	32												
	33												
	34												
	35												
	36	Titanium Alloys											
	37												
H	38	Hardened steel											
	39	Chilled Cast Iron											
	40												
	41	Hardened Cast Iron											

DL510, DL508, DL509, DL505, DL504, DL608 SERIES

HSS-E, DH100 WORM PATTERN DRILLS

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

ISO	VDI 3323	Material Description	Vc (m/min)	Parameter	Drill Diameter (mm)				
					2.0	3.0	4.0	6.0	8.0
P	1	Non-alloy steel	30	RPM	4770	3180	2390	1590	1190
				FEED	0.02~0.04	0.03~0.05	0.04~0.06	0.05~0.08	0.10~0.13
				RPM	3980	2650	1990	1330	990
				FEED	0.02~0.04	0.03~0.05	0.04~0.06	0.05~0.08	0.10~0.13
				RPM	3180	2120	1590	1060	800
	2	Low alloy steel	20	RPM	3180	2120	1590	1060	800
				FEED	0.02~0.04	0.03~0.05	0.04~0.06	0.05~0.08	0.10~0.13
				RPM	3180	2120	1590	1060	800
				FEED	0.01~0.02	0.01~0.03	0.02~0.04	0.02~0.05	0.03~0.06
	3	High alloyed steel, and tool steel	15	RPM	2390	1590	1190	800	600
				FEED	0.02~0.04	0.03~0.05	0.04~0.06	0.05~0.08	0.10~0.13
M	12	Stainless steel							
K	15	Grey cast iron	30	RPM	4770	3180	2390	1590	1190
				FEED	0.02~0.04	0.03~0.05	0.04~0.06	0.05~0.08	0.10~0.13
	16	Nodular cast iron	25	RPM	3980	2650	1990	1330	990
				FEED	0.01~0.02	0.01~0.03	0.02~0.04	0.02~0.05	0.03~0.06
	17	Malleable cast iron	30	RPM	4770	3180	2390	1590	1190
				FEED	0.02~0.04	0.03~0.05	0.04~0.06	0.05~0.08	0.10~0.13
	18		20	RPM	3180	2120	1590	1060	800
				FEED	0.01~0.02	0.01~0.03	0.02~0.04	0.02~0.05	0.03~0.06
19		25	RPM	3980	2650	1990	1330	990	
			FEED	0.02~0.04	0.03~0.05	0.04~0.06	0.05~0.08	0.10~0.13	
20		20	RPM	3180	2120	1590	1060	800	
			FEED	0.01~0.02	0.01~0.03	0.02~0.04	0.02~0.05	0.03~0.06	
N	21	Aluminum-wrought alloy							
	23	Aluminum-cast, alloyed							
	26	Copper and Copper Alloys (Bronze / Brass)							
29	Non Metallic Materials								
S	31	Heat Resistant Super Alloys							
	36	Titanium Alloys							
H	38	Hardened steel							
	40	Chilled Cast Iron							
41	Hardened Cast Iron								

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

VDI 3323	Parameter	Drill Diameter (mm)					
		10.0	13.0	16.0	18.0	20.0	30.0
1	RPM	950	730	600	530	480	320
	FEED	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	RPM	800	610	500	440	400	270
	FEED	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	RPM	640	490	400	350	320	210
	FEED	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	RPM	640	490	400	350	320	210
	FEED	0.03~0.06	0.04~0.10	0.06~0.12	0.08~0.14	0.10~0.16	0.12~0.18
5							
6	RPM	800	610	500	440	400	270
	FEED	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	RPM	640	490	400	350	320	210
	FEED	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	RPM	640	490	400	350	320	210
	FEED	0.03~0.06	0.04~0.10	0.06~0.12	0.08~0.14	0.10~0.16	0.12~0.18
9							
10	RPM	480	370	300	270	240	160
	FEED	0.11~0.15	0.11~0.17	0.12~0.18	0.14~0.20	0.19~0.25	0.22~0.28
11							
12							
13							
14							
15	RPM	950	730	600	530	480	320
	FEED	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	RPM	800	610	500	440	400	270
	FEED	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	RPM	950	730	600	530	480	320
	FEED	0.11~0.15	0.11~0.17	0.12~0.18	0.14~0.20	0.19~0.25	0.22~0.28
18	RPM	640	490	400	350	320	210
	FEED	0.03~0.06	0.04~0.10	0.06~0.12	0.08~0.14	0.10~0.16	0.12~0.18
19	RPM	800	610	500	440	400	270
	FEED	0.11~0.15	0.11~0.17	0.12~0.18	0.14~0.20	0.19~0.25	0.22~0.28
20	RPM	640	490	400	350	320	210
	FEED	0.03~0.06	0.04~0.10	0.06~0.12	0.08~0.14	0.10~0.16	0.12~0.18
21							
22							
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DT600, DT692, DT693 SERIES HSS-E, DH100 WORM PATTERN DRILLS (EXTRA LONG)

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

ISO	VDI 3323	Material Description	Vc (m/min)	Parameter	Drill Diameter (mm)						
					2.0	3.0	4.0	6.0	8.0	10.0	13.0
P	1	Non-alloy steel	20	RPM FEED	3180 0.01~0.03	2120 0.03~0.05	1590 0.04~0.06	1060 0.05~0.08	800 0.08~0.11	640 0.09~0.13	490 0.10~0.16
	2		15	RPM FEED	2390 0.01~0.03	1590 0.03~0.05	1190 0.04~0.06	800 0.05~0.08	600 0.08~0.11	480 0.09~0.13	370 0.10~0.16
	3		10	RPM FEED	1590 0.01~0.03	1060 0.03~0.05	800 0.04~0.06	530 0.05~0.08	400 0.08~0.11	320 0.09~0.13	240 0.10~0.16
	4		10	RPM FEED	1590 0.01~0.02	1060 0.01~0.03	800 0.02~0.04	530 0.02~0.05	400 0.03~0.06	320 0.03~0.06	240 0.04~0.10
	5										
	6	Low alloy steel	15	RPM FEED	2390 0.01~0.03	1590 0.03~0.05	1190 0.04~0.06	800 0.05~0.08	600 0.08~0.11	480 0.09~0.13	370 0.10~0.16
	7		10	RPM FEED	1590 0.01~0.03	1060 0.03~0.05	800 0.04~0.06	530 0.05~0.08	400 0.08~0.11	320 0.09~0.13	240 0.10~0.16
	8		10	RPM FEED	1590 0.01~0.02	1060 0.01~0.03	800 0.02~0.04	530 0.02~0.05	400 0.03~0.06	320 0.03~0.06	240 0.04~0.10
	9										
	10	High alloyed steel, and tool steel	5	RPM FEED	800 0.01~0.03	530 0.03~0.05	400 0.04~0.06	270 0.05~0.08	200 0.08~0.11	160 0.09~0.13	120 0.10~0.16
	11										
M	12	Stainless steel									
	13										
	14										
K	15	Grey cast iron	20	RPM FEED	3180 0.01~0.03	2120 0.03~0.05	1590 0.04~0.06	1060 0.05~0.08	800 0.08~0.11	640 0.09~0.13	490 0.10~0.16
	16		15	RPM FEED	2390 0.01~0.02	1590 0.01~0.03	1190 0.02~0.04	800 0.02~0.05	600 0.03~0.06	480 0.03~0.06	370 0.04~0.10
	17	Nodular cast iron	20	RPM FEED	3180 0.01~0.03	2120 0.03~0.05	1590 0.04~0.06	1060 0.05~0.08	800 0.08~0.11	640 0.09~0.13	490 0.10~0.16
	18		10	RPM FEED	1590 0.01~0.02	1060 0.01~0.03	800 0.02~0.04	530 0.02~0.05	400 0.03~0.06	320 0.03~0.06	240 0.04~0.10
	19	Malleable cast iron	15	RPM FEED	2390 0.01~0.03	1590 0.03~0.05	1190 0.04~0.06	800 0.05~0.08	600 0.08~0.11	480 0.09~0.13	370 0.10~0.16
	20		10	RPM FEED	1590 0.01~0.02	1060 0.01~0.03	800 0.02~0.04	530 0.02~0.05	400 0.03~0.06	320 0.03~0.06	240 0.04~0.10
N	21	Aluminum-wrought alloy									
	22										
	23	Aluminum-cast, alloyed									
	24										
	25										
	26										
	27		Copper and Copper Alloys (Bronze / Brass)								
	28										
	29		Non Metallic Materials								
	30										
S	31	Heat Resistant Super Alloys									
	32										
	33										
	34										
	35										
	36	Titanium Alloys									
	37										
H	38	Hardened steel									
	39										
	40	Chilled Cast Iron									
	41	Hardened Cast Iron									

DL507 SERIES HSS-E, DH50 WORM PATTERN DRILLS

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

ISO	VDI 3323	Material Description	Vc (m/min)	Parameter	Drill Diameter (mm)						
					2.0	3.0	4.0	6.0	8.0	10.0	13.0
P	1	Non-alloy steel	15	RPM FEED	2390 0.01~0.03	1590 0.02~0.04	1190 0.03~0.06	800 0.04~0.08	600 0.04~0.10	480 0.07~0.13	370 0.09~0.15
	2										
	3										
	4										
	5										
	6	Low alloy steel									
	7										
	8										
	9										
	10	High alloyed steel, and tool steel									
	11										
M	12	Stainless steel									
	13										
	14										
K	15	Grey cast iron									
	16										
	17	Nodular cast iron									
	18										
	19	Malleable cast iron									
	20										
N	21	Aluminum-wrought alloy	55	RPM FEED	8750 0.02~0.04	5840 0.03~0.06	4380 0.04~0.08	2920 0.08~0.12	2190 0.10~0.16	1750 0.14~0.20	1350 0.16~0.26
	22		45	RPM FEED	7160 0.02~0.04	4770 0.03~0.06	3580 0.04~0.08	2390 0.08~0.12	1790 0.10~0.16	1430 0.14~0.20	1100 0.16~0.26
	23	Aluminum-cast, alloyed	40	RPM FEED	6370 0.02~0.04	4240 0.03~0.06	3180 0.04~0.08	2120 0.08~0.12	1590 0.10~0.16	1270 0.14~0.20	980 0.16~0.26
	24										
	25										
	26										
	27		Copper and Copper Alloys (Bronze / Brass)								
	28										
	29		Non Metallic Materials								
	30										
S	31	Heat Resistant Super Alloys									
	32										
	33										
	34										
	35										
	36	Titanium Alloys									
	37										
H	38	Hardened steel									
	39										
	40	Chilled Cast Iron									
	41	Hardened Cast Iron									