

STRAIGHT SHANK DRILLS

DL504 SERIES

HSS-E, STRAIGHT SHANK TWIST DRILLS for DEEP HOLES

LONG

LANG

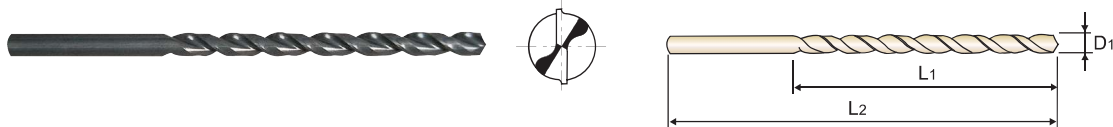
LONGUE

LUNGA

- 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

► **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.



DIN 340
HSS-E
38°
h8
130°
P.280-281

► DH100 worm pattern drills

Unit : mm

EDP No.	Drill Diameter	Flute Length	Overall Length
	D1	L1	L2
DL504052	5.2	87	132
DL504055	5.5	91	139
DL504058	5.8	91	139
DL504060	6.0	91	139
DL504062	6.2	97	148
DL504065	6.5	97	148
DL504068	6.8	102	156
DL504070	7.0	102	156
DL504072	7.2	102	156
DL504075	7.5	102	156
DL504078	7.8	109	165
DL504080	8.0	109	165
DL504082	8.2	109	165
DL504085	8.5	109	165
DL504090	9.0	115	175
DL504095	9.5	115	175
DL504098	9.8	121	184
DL504100	10.0	121	184
DL504105	10.5	121	184
DL504110	11.0	128	195
DL504115	11.5	128	195
DL504120	12.0	134	205
DL504125	12.5	134	205
DL504130	13.0	134	205

EDP No.	Drill Diameter	Flute Length	Overall Length
	D1	L1	L2
DL504052	5.2	87	132
DL504055	5.5	91	139
DL504058	5.8	91	139
DL504060	6.0	91	139
DL504062	6.2	97	148
DL504065	6.5	97	148
DL504068	6.8	102	156
DL504070	7.0	102	156
DL504072	7.2	102	156
DL504075	7.5	102	156
DL504078	7.8	109	165
DL504080	8.0	109	165
DL504082	8.2	109	165
DL504085	8.5	109	165
DL504090	9.0	115	175
DL504095	9.5	115	175
DL504098	9.8	121	184
DL504100	10.0	121	184
DL504105	10.5	121	184
DL504110	11.0	128	195
DL504115	11.5	128	195
DL504120	12.0	134	205
DL504125	12.5	134	205
DL504130	13.0	134	205

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

◎ : Excellent ○ : Good

ISO Material Description	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	23	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	○		◎	○	○		○					○	○	○	○	○	○

ISO Material Description	N										S						H				
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys						Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended																					

i-ONE DRILLS

i-DREAM DRILLS

DREAM DRILLS -GENERAL

DREAM DRILLS -HIGH FEED

DREAM DRILLS -FLAT BOTTOM

DREAM DRILLS -INOX

DREAM DRILLS -ALU

DREAM DRILLS -CFRP

DREAM DRILLS -MQL

DREAM DRILLS for HIGH HARDENED STEELS

GENERAL CARBIDE DRILLS

MULTI-1 DRILLS

HPD DRILLS

GOLD-P DRILLS

SUPER-GP DRILLS

STRAIGHT SHANK DRILLS

TAPER SHANK DRILLS

NC-SPOTTING DRILLS

CENTER DRILLS

SPADE DRILLS

REAMERS

COUNTER SINKS

COUNTER BORES

TECHNICAL DATA



STRAIGHT SHANK DRILLS

RECOMMENDED CUTTING CONDITIONS EMPFOLHENE SCHNEIDPARAMETER

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

**HSS-E, DH100 WORM
PATTERN DRILLS**

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

- i-ONE DRILLS
- i-DREAM DRILLS
- DREAM DRILLS -GENERAL
- DREAM DRILLS -HIGH FEED
- DREAM DRILLS -FLAT BOTTOM
- DREAM DRILLS -INOX
- DREAM DRILLS -ALU
- DREAM DRILLS -CFRP
- DREAM DRILLS -MQL
- DREAM DRILLS for HIGH HARDENED STEELS
- GENERAL CARBIDE DRILLS
- MULTI-1 DRILLS
- HPD DRILLS
- GOLD-P DRILLS
- SUPER-GP DRILLS
- STRAIGHT SHANK DRILLS
- TAPER SHANK DRILLS
- NC-SPOTTING DRILLS
- CENTER DRILLS
- SPADE DRILLS
- REAMERS
- COUNTER SINKS
- COUNTER BORES
- TECHNICAL DATA

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 FEED	4770 0.02~0.04	3180 0.03~0.05	2390 0.04~0.06	1590 0.05~0.08	1190 0.10~0.13	
	2		25	RPM FEED	3980 0.02~0.04	2650 0.03~0.05	1990 0.04~0.06	1330 0.05~0.08	990 0.10~0.13	
	3		20	RPM FEED	3180 0.02~0.04	2120 0.03~0.05	1590 0.04~0.06	1060 0.05~0.08	800 0.10~0.13	
	4		20	RPM FEED	3180 0.01~0.02	2120 0.01~0.03	1590 0.02~0.04	1060 0.02~0.05	800 0.03~0.06	
	5									
	6	Low alloy steel	25	RPM FEED	3980 0.02~0.04	2650 0.03~0.05	1990 0.04~0.06	1330 0.05~0.08	990 0.10~0.13	
	7		20	RPM FEED	3180 0.02~0.04	2120 0.03~0.05	1590 0.04~0.06	1060 0.05~0.08	800 0.10~0.13	
	8		20	RPM FEED	3180 0.01~0.02	2120 0.01~0.03	1590 0.02~0.04	1060 0.02~0.05	800 0.03~0.06	
	9									
	10		High alloyed steel, and tool steel	15	RPM FEED	2390 0.02~0.04	1590 0.03~0.05	1190 0.04~0.06	800 0.05~0.08	600 0.10~0.13
	11									
M	12	Stainless steel								
	13									
	14									
K	15	Grey cast iron	30	RPM FEED	4770 0.02~0.04	3180 0.03~0.05	2390 0.04~0.06	1590 0.05~0.08	1190 0.10~0.13	
	16		25	RPM FEED	3980 0.01~0.02	2650 0.01~0.03	1990 0.02~0.04	1330 0.02~0.05	990 0.03~0.06	
	17	Nodular cast iron	30	RPM FEED	4770 0.02~0.04	3180 0.03~0.05	2390 0.04~0.06	1590 0.05~0.08	1190 0.10~0.13	
	18		20	RPM FEED	3180 0.01~0.02	2120 0.01~0.03	1590 0.02~0.04	1060 0.02~0.05	800 0.03~0.06	
	19	Malleable cast iron	25	RPM FEED	3980 0.02~0.04	2650 0.03~0.05	1990 0.04~0.06	1330 0.05~0.08	990 0.10~0.13	
20	20		RPM FEED	3180 0.01~0.02	2120 0.01~0.03	1590 0.02~0.04	1060 0.02~0.05	800 0.03~0.06		
N	21	Aluminum- wrought alloy								
	22									
	23	Aluminum-cast, alloyed								
	24									
	25									
	26	Copper and Copper Alloys (Bronze / Brass)								
	27									
	28									
	29									
	30	Non Metallic Materials								
S	31	Heat Resistant Super Alloys								
	32									
	33									
	34									
	35	Titanium Alloys								
	36									
	37									
H	38	Hardened steel								
	39									
	40	Chilled Cast Iron								
	41	Hardened Cast Iron								



STRAIGHT SHANK DRILLS

RECOMMENDED CUTTING CONDITIONS EMPFOHLENE SCHNEIDPARAMETER

HSS

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	0.14~0.2	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	0.14~0.2	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
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