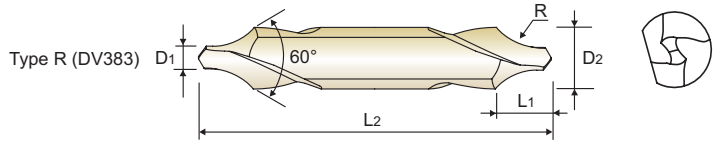


**HSS-E, CENTER DRILLS / FORM R**

- 🇩🇪 HSS-EX, ZENTRIERBOHRER / FORM R
- 🇫🇷 Forets HSS-EX à centrer / Forme R
- 🇮🇹 PUNTE A CENTRARE PER TORNI IN HSS-EX / FORMA R

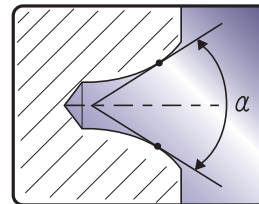


DIN 333
HSS-E
h8
k12
120°
P.318

**FORM R / FLAT**

Unit : mm

EDP No.	Drill Diameter	Shank Diameter	Pilot Length (Include Radius)	Overall Length	Radius
	D1	D2	L1	L2	R
DV383016	1.6	4	4.25	35.5	4
DV383020	2.0	5	5.3	40	5
DV383025	2.5	6.3	6.7	45	6.3
DV383931	3.15	8	8.5	50	8
DV383040	4.0	10	10.6	56	10
DV383050	5.0	12.5	13.2	63	12.5
DV383063	6.3	16	17	71	16



◎ : 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	400Rm	1050Rm	550	630	400	550
Recommended																					



**CENTER DRILLS**

**RECOMMENDED CUTTING CONDITIONS  
EMPFOHLENE SCHNEIDKONDITIONEN**

**DV303, DV333, DV334, D1303, D1343, D1313, D1353, D1363, D1373, DV383** SERIES

**HSS & HSS-E, CENTER DRILLS**

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

ISO	VDI 3323	Material Description	Vc (m/min)	Parameter	Drill Diameter (mm)							
					1.0	2.0	3.0	4.0	5.0	6.0	8.0	10.0
<b>P</b>	1	Non-alloy steel	40	RPM FEED	12730 0.02-0.04	6370 0.03-0.06	4240 0.04-0.08	3180 0.05-0.09	2550 0.06-0.10	2120 0.07-0.12	1590 0.09-0.15	1270 0.12-0.18
	2		30	RPM FEED	9550 0.02-0.04	4770 0.03-0.06	3180 0.04-0.08	2390 0.05-0.09	1910 0.06-0.10	1590 0.07-0.12	1190 0.09-0.15	950 0.12-0.18
	3		25	RPM FEED	7960 0.01-0.03	3980 0.01-0.035	2650 0.015-0.05	1990 0.02-0.06	1590 0.03-0.07	1330 0.04-0.08	990 0.06-0.12	800 0.08-0.14
	4											
	5											
	6	Low alloy steel	30	RPM FEED	9550 0.02-0.04	4770 0.03-0.06	3180 0.04-0.08	2390 0.05-0.09	1910 0.06-0.10	1590 0.07-0.12	1190 0.09-0.15	950 0.12-0.18
	7		20	RPM FEED	6370 0.01-0.03	3180 0.01-0.035	2120 0.015-0.05	1590 0.02-0.06	1270 0.03-0.07	1060 0.04-0.08	800 0.06-0.12	640 0.08-0.14
	8											
	9											
	10		High alloyed steel, and tool steel									
	11											
<b>M</b>	12	Stainless steel	10	RPM FEED	3180 0.01-0.03	1590 0.01-0.035	1060 0.015-0.05	800 0.02-0.06	640 0.03-0.07	530 0.04-0.08	400 0.06-0.12	320 0.08-0.14
	13											
	14											
<b>K</b>	15	Grey cast iron	40	RPM FEED	12730 0.02-0.04	6370 0.03-0.06	4240 0.04-0.08	3180 0.05-0.09	2550 0.06-0.10	2120 0.07-0.12	1590 0.09-0.15	1270 0.12-0.18
	16		30	RPM FEED	9550 0.01-0.03	4770 0.01-0.035	3180 0.015-0.05	2390 0.02-0.06	1910 0.03-0.07	1590 0.04-0.08	1190 0.06-0.12	950 0.08-0.14
	17	Nodular cast iron	40	RPM FEED	12730 0.02-0.04	6370 0.03-0.06	4240 0.04-0.08	3180 0.05-0.09	2550 0.06-0.10	2120 0.07-0.12	1590 0.09-0.15	1270 0.12-0.18
	18											
	19		Malleable cast iron	25	RPM FEED	7960 0.02-0.04	3980 0.03-0.06	2650 0.04-0.08	1990 0.05-0.09	1590 0.06-0.10	1330 0.07-0.12	990 0.06-0.12
20												
<b>N</b>	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											
<b>S</b>	31	Heat Resistant Super Alloys										
	32											
	33											
	34											
	35											
	36	Titanium Alloys										
	37											
<b>H</b>	38	Hardened steel										
	39											
	40	Chilled Cast Iron										
	41	Hardened Cast Iron										

SELECTION GUIDE



SERIES

D5303	DV303	DV333
CARBIDE	HSS-E	HSS-E
FORM A	FORM A	FORM A
D1.0	D0.5	D1.6
D6.3	D6.3	D6.3
310	311	311

TOOL MATERIAL

TYPE

SIZE MIN

SIZE MAX

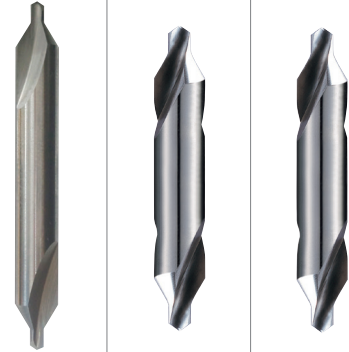
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SURFACE TREATMENT

Bright

# SOLID CARBIDE, HSS & HSS-E CENTER DRILLS

For General Purpose



Please visit [globalyg1.com/mat](http://globalyg1.com/mat) for material search

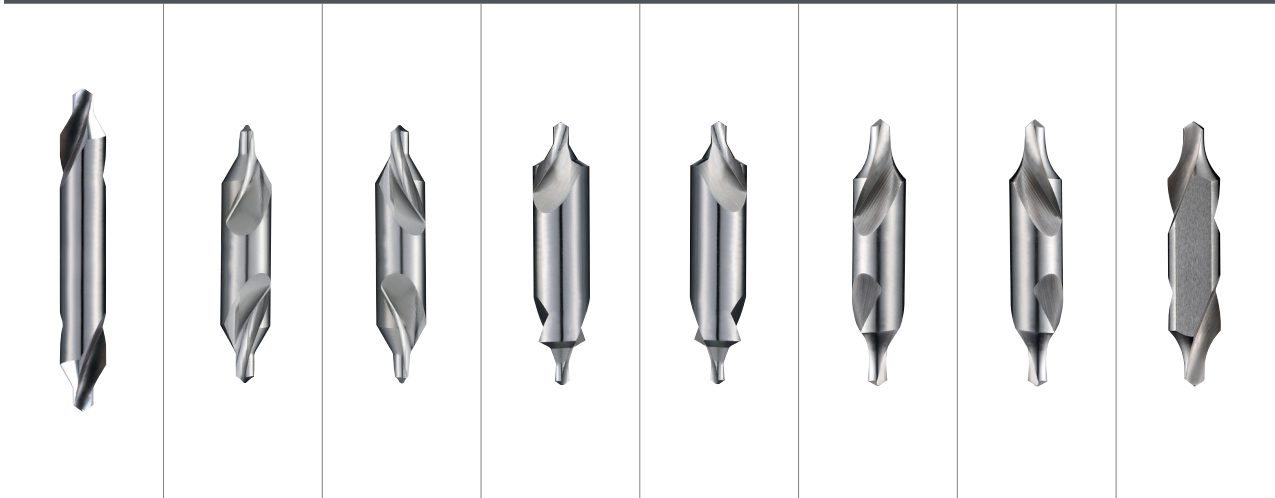
◎ : Excellent ○ : Good

Recommended cutting conditions : P.317

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	Malleable cast iron	Ferritic	130		○	○	○
20	Pearlitic		230	21				
N	21	Aluminum-wrought alloy	Not Curable	60				
	22		Curable Hardened	100				
	23	Aluminum-cast, alloyed	≤ 12% Si, Not Curable	75				
	24		≤ 12% Si, Curable Hardened	90				
	25		> 12% Si, Not Curable	130				
	26	Copper and Copper Alloys	Cutting Alloys, PB>1%	110				
	27		CuZn, CuSnZn (Brass)	90				
	28	(Bronze / Brass)	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	Titanium Alloys	Ni or Co Based Cured	350	38			
	35		Cast	320	34			
	36		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			

DV334	D1303	D1343	D1313	D1353	D1363	D1373	DV383
HSS-E	HSS	HSS	HSS	HSS	HSS	HSS	HSS-E
FORM A	FORM A	FORM A	FORM B	FORM B	FORM R	FORM R	FORM R
D1.0	D0.5	D0.5	D1.0	D2.0	D0.5	D0.8	D1.6
D5.0	D10.0	D8.0	D6.3	D6.3	D8.0	D5.0	D6.3
312	313	313	314	314	315	315	316

Bright



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