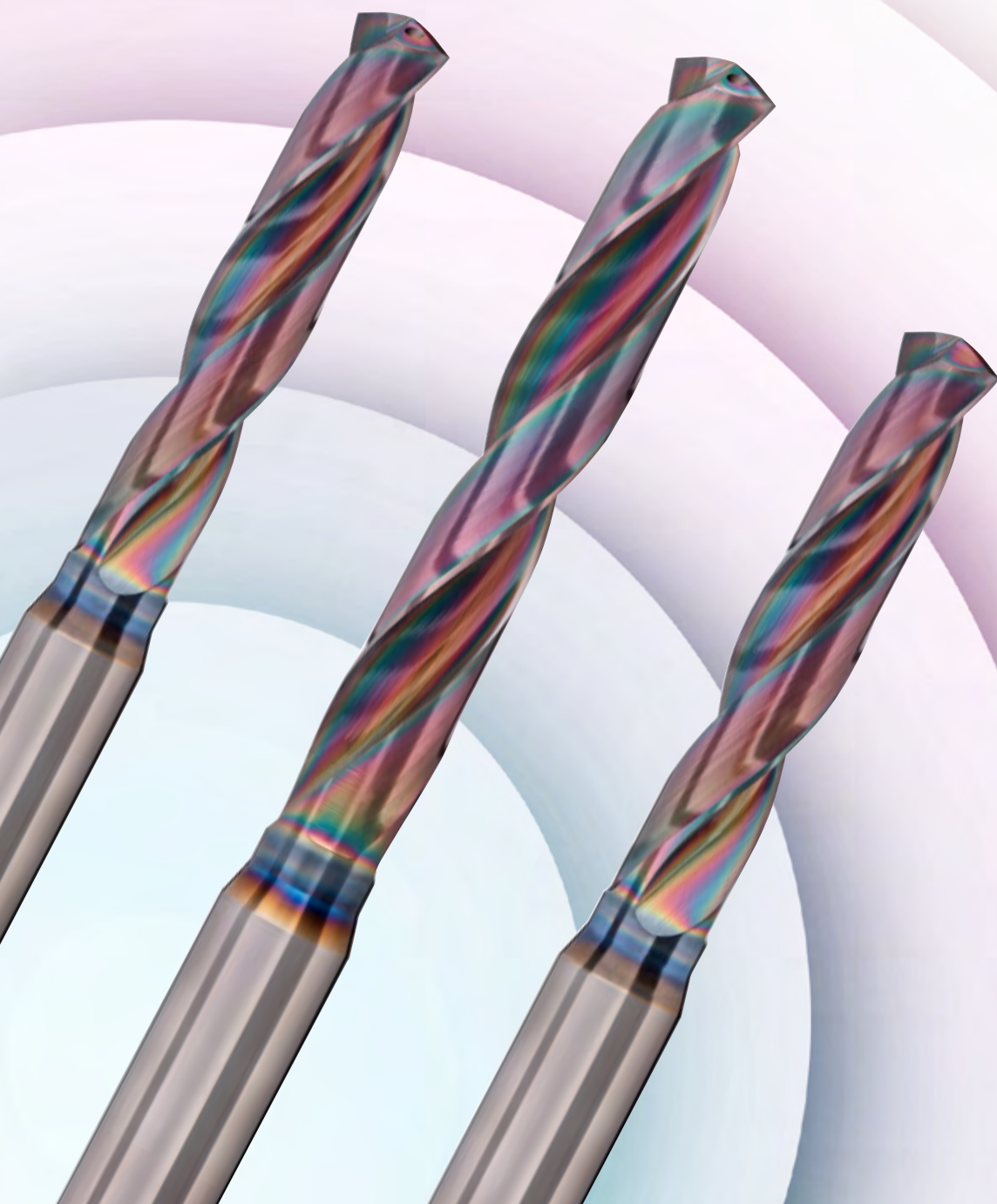




FORANT TWIST DRILL
FOR UNIVERSAL APPLICATIONS



FORANT

General information	4 – 5
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Application table	6 – 11
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Twist drill	12 – 17
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FORANT 3xD BA	12 – 13
FORANT 3xD KA BA	14 – 15
FORANT 5xD KA BA	16 – 17

FORANT – THE UNIVERSAL TWIST DRILL

140°

Point angle

High cutting edge stability, low torque and greater cutting depth

30°

Helix angle

Stable but sharp cutting edge

m7

Drill tolerance

Plus tolerance for high accuracy

BA

Coating

For high tool lives across a wide range of materials

KA

Axial coolant

For reliable chip evacuation and high tool lives

h6

Shank tolerance

For best clamping characteristics

VHM

Solid carbide

For high wear resistance



YOUR DRILL FOR THE PRE-HOLE IN THREADING

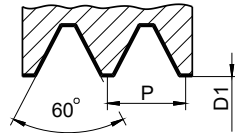
Limit of nut thread core diameter and bore hole diameters

An optimal thread does not begin with the threading process itself, but one step earlier: at the drilling of the pre-hole. Only precise drilling ensures a clean, dimensionally accurate and durable thread.

With our FORANT range, we offer you the ideal solution: versatile twist drills which, thanks to their robust design and precise geometry, deliver reliable results in a wide variety of materials.

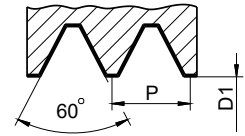
You can find further bore hole diameters in our main catalogue from page 239 onwards, or directly on the product page and in the online shop.

Metric threads



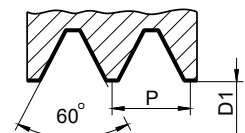
MF ISO metric fine thread DIN 13 tol. 6H (P 0.25 = 5H acc. DIN ISO 965-1)				
	P	D1 in mm		
		min.	max.	
MF 4	0.50	3.459	3.599	3.50
MF 5	0.50	4.459	4.599	4.50
MF 6	0.50	5.459	5.599	5.50
MF 6	0.75	5.188	5.378	5.20
MF 8	0.75	7.188	7.378	7.20
MF 8	1.00	6.917	7.153	7.00
MF 9	1.00	7.917	8.153	8.00
MF 10	0.75	9.188	9.378	9.20
MF 10	1.00	8.917	9.153	9.00
MF 10	1.25	8.647	8.912	8.80
MF 12	0.75	11.188	11.378	11.20
MF 12	1.00	10.917	11.153	11.00
MF 12	1.25	10.647	10.912	10.80
MF 12	1.50	10.376	10.676	10.50
MF 14	1.00	12.917	13.153	13.00
MF 14	1.25	12.647	12.912	12.80
MF 14	1.50	12.376	12.676	12.50
MF 16	1.00	14.917	15.153	15.00
MF 16	1.50	14.376	14.676	14.50
MF 18	1.00	16.917	17.153	17.00
MF 18	1.50	16.376	16.676	16.50
MF 18	2.00	15.835	16.210	16.00
MF 20	1.00	18.917	19.153	19.00
MF 20	1.50	18.376	18.676	18.50
MF 20	2.00	17.835	18.210	18.00

Metric threads



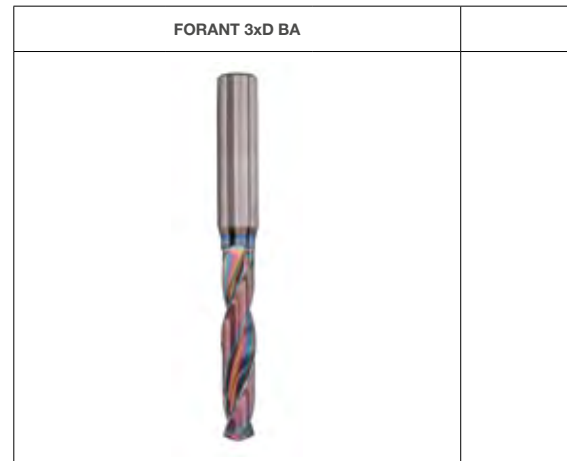
M ISO metric coarse thread DIN 13 tol. 6H (M1 – 1.4 = 5H acc. DIN ISO 65-1)				
	P	D1 in mm		
		min.	max.	
M 3	0.50	2.459	2.599	2.50
M 3.5	0.60	2.850	3.010	2.90
M 4	0.70	3.242	3.422	3.30
M 4.5	0.75	3.688	3.878	3.70
M 5	0.80	4.134	4.334	4.20
M 6	1.00	4.917	5.153	5.00
M 7	1.00	5.917	6.153	6.00
M 8	1.25	6.647	6.912	6.80
M 9	1.25	7.647	7.912	7.80
M 10	1.50	8.376	8.676	8.50
M 11	1.50	9.376	9.676	9.50
M 12	1.75	10.106	10.441	10.20
M 14	2.00	11.835	12.210	12.00
M 16	2.00	13.835	14.210	14.00
M 18	2.50	15.294	15.744	15.50
M 20	2.50	17.294	17.744	17.50
M 22	2.50	19.294	19.744	19.50

American unified threads



UNC Unified coarse thread ASME B1.1					
	P	D1 in mm			
		min. 2B/3B	max. 2B	max. 3B	
UNC No6	32	2.642	2.896	2.893	2.85
UNC No8	32	3.302	3.531	3.528	3.50
UNC No10	24	3.683	3.962	3.950	3.90
UNC No12	24	4.343	4.597	4.590	4.50
UNC 1/4"	20	4.978	5.258	5.250	5.10
UNC 5/16"	18	6.401	6.731	6.680	6.60
UNC 3/8"	16	7.798	8.153	8.082	8.00
UNC 7/16"	14	9.144	9.550	9.441	9.40
UNC 1/2"	13	10.592	11.024	10.881	10.80
UNC 9/16"	12	11.989	12.446	12.301	12.20
UNC 5/8"	11	13.386	13.868	13.693	13.50
UNC 3/4"	10	16.307	16.840	16.624	16.50
UNC 7/8"	9	19.177	19.761	19.520	19.50

APPLICATION TABLE FOR TWIST DRILLS



	Application	R _m N/mm ²	HB	HRC	vc m/min	f (mm/U)		
						Ø 3	Ø 4	
P	Steel materials < 40 HRC							
	Magnetic soft steel	> 100 < 450			100–150	0.09–0.12	0.10–0.15	
	Construction steel / case hardening steel	> 300 < 700			100–150	0.09–0.12	0.10–0.15	
	Carbon steel	> 400 < 950			80–120	0.09–0.12	0.10–0.15	
	Alloyed / heat-treatable steel	> 450 < 950			80–120	0.09–0.12	0.10–0.15	
	Alloyed steel	> 800 < 1250	> 235 < 370	> 22 < 40	70–110	0.09–0.12	0.10–0.15	
M	Stainless steel							
	Ferritic / martensitic steel	> 450 < 1200						
	Austenitic steel	> 400 < 950						
	High temperature steel	> 850 < 1550	> 250 < 455	> 25 < 48				
K	Cast iron							
	Grey cast iron	> 150 < 1000	> 100 < 300		150–200	0.12–0.15	0.13–0.18	
	Cast iron with nodular graphite	> 350 < 1000	> 100 < 350		150–200	0.12–0.15	0.13–0.18	
	Malleable cast iron	> 300 < 700	> 100 < 200		150–200	0.12–0.15	0.13–0.18	
	Cast iron with vermicular graphite	> 700 < 1000	> 200 < 300	> 20 < 32	100–150	0.12–0.15	0.13–0.18	
N	Copper							
	Copper non-alloyed	> 200 < 400	> 60 < 120		50–90	0.02–0.03	0.02–0.04	
	Copper alloyed (short chipping)	> 350 < 700	> 100 < 200		50–90	0.02–0.03	0.02–0.04	
	Copper alloyed (long chipping)	> 150 < 700	> 45 < 200		50–90	0.02–0.03	0.02–0.04	
	Copper-alu-nickel alloyed (short chipping)	> 150 < 700	> 45 < 200		50–90	0.02–0.03	0.02–0.04	
	Copper-alu-nickel alloyed (long chipping)	> 500 < 750	> 150 < 220		50–90	0.02–0.03	0.02–0.04	
	Special copper alloyed ≤ Ampco 20	> 550 < 650	> 160 < 190		15–25	0.05–0.09	0.06–0.10	
	Special copper alloyed ≥ Ampco 21	> 700 < 1500	> 200 < 440	> 21 < 47	15–25	0.05–0.09	0.06–0.10	
	Aluminium / Magnesium							
	Alu wrought alloy Si ≤0.5%	> 100 < 700	> 30 < 200		60–110	0.09–0.20	0.10–0.24	
	Alu alloyed Si ≤6%	> 150 < 700	> 45 < 200		60–110	0.09–0.20	0.10–0.24	
	Alu alloyed Si >6%	> 150 < 900	> 45 < 265		120–220	0.09–0.28	0.10–0.38	
	Magnesium wrought alloy	> 150 < 500	> 45 < 150		120–220	0.09–0.28	0.10–0.38	
	Synthetics							
	Thermoplastic (long chipping)	> 20 < 80						
	Duroplastic (short chipping)	> 80 < 110						
	Fibre-reinforced plastic	> 800 < 1500	> 235 < 440					
	Special materials							
	Cobalt alloyed	> 400 < 2000	> 120 < 590					
	Tungsten alloyed	> 1400 < 1800	> 410 < 530	> 44 < 52				
	TiC-hard material		> 440 < 495	> 47 < 50				
	Graphite	> 38 < 60						
S	Titanium							
	Titanium non-alloyed	> 300 < 700	> 90 < 200					
	Titanium alloyed	> 450 < 900	> 135 < 265	> 14 < 27				
	Titanium alloyed	> 900 < 1250	> 265 < 370	> 27 < 40				
	Nickel							
	Nickel non-alloyed	> 400 < 600	> 120 < 175					
	Nickel alloyed	> 400 < 1200	> 120 < 350	> 12 < 39				
Nickel alloyed	> 1200 < 1550	> 350 < 455	> 39 < 48					
H	Steel materials 40-63 HRC							
	Alloyed steel	> 1100 < 1400	> 325 < 410	> 34 < 45	15–25	0.05–0.09	0.06–0.10	
	Alloyed steel	> 1200 < 1550	> 350 < 455	> 39 < 48	15–25	0.05–0.09	0.06–0.10	
	Hardened steel	> 1600 < 2000	> 470 < 590	> 48 < 53	15–25	0.05–0.09	0.06–0.10	
	Hardened steel			> 53 < 63	15–25	0.03–0.05	0.04–0.06	

	FORANT 3xD BA								
									
	f (mm/U)								
	Ø 5	Ø 6	Ø 8	Ø 10	Ø 12	Ø 14	Ø 16	Ø 18	Ø 20
	Steel materials < 40 HRC								
	0.12–0.18	0.14–0.20	0.16–0.24	0.18–0.27	0.20–0.30	0.22–0.35	0.25–0.36	0.28–0.38	0.30–0.40
	0.12–0.18	0.14–0.20	0.16–0.24	0.18–0.27	0.20–0.30	0.22–0.35	0.25–0.36	0.28–0.38	0.30–0.40
	0.12–0.18	0.14–0.20	0.16–0.24	0.18–0.27	0.20–0.30	0.22–0.35	0.25–0.36	0.28–0.38	0.30–0.40
	0.12–0.18	0.14–0.20	0.16–0.24	0.18–0.27	0.20–0.30	0.22–0.35	0.25–0.36	0.28–0.38	0.30–0.40
	0.12–0.18	0.14–0.20	0.16–0.24	0.18–0.27	0.20–0.30	0.22–0.35	0.25–0.36	0.28–0.38	0.30–0.40
	Stainless steel								
	Cast iron								
	0.15–0.22	0.18–0.25	0.20–0.30	0.23–0.33	0.25–0.38	0.30–0.43	0.35–0.50	0.38–0.55	0.40–0.63
	0.15–0.22	0.18–0.25	0.20–0.30	0.23–0.33	0.25–0.38	0.30–0.43	0.35–0.50	0.38–0.55	0.40–0.63
	0.15–0.22	0.18–0.25	0.20–0.30	0.23–0.33	0.25–0.38	0.30–0.43	0.35–0.50	0.38–0.55	0.40–0.63
	0.15–0.22	0.18–0.25	0.20–0.30	0.23–0.33	0.25–0.38	0.30–0.43	0.35–0.50	0.38–0.55	0.40–0.63
	Copper								
	0.03–0.05	0.03–0.06	0.04–0.08	0.05–0.10	0.06–0.12	0.08–0.16	0.10–0.18	0.12–0.20	0.20–0.28
	0.03–0.05	0.03–0.06	0.04–0.08	0.05–0.10	0.06–0.12	0.08–0.16	0.10–0.18	0.12–0.20	0.20–0.28
	0.03–0.05	0.03–0.06	0.04–0.08	0.05–0.10	0.06–0.12	0.08–0.16	0.10–0.18	0.12–0.20	0.20–0.28
	0.03–0.05	0.03–0.06	0.04–0.08	0.05–0.10	0.06–0.12	0.08–0.16	0.10–0.18	0.12–0.20	0.20–0.28
	0.03–0.05	0.03–0.06	0.04–0.08	0.05–0.10	0.06–0.12	0.08–0.16	0.10–0.18	0.12–0.20	0.20–0.28
	0.08–0.12	0.09–0.15	0.12–0.20	0.13–0.23	0.14–0.24	0.15–0.26	0.16–0.26	0.18–0.28	0.20–0.30
	0.08–0.12	0.09–0.15	0.12–0.20	0.13–0.23	0.14–0.24	0.15–0.26	0.16–0.26	0.18–0.28	0.20–0.30
	Aluminium / Magnesium								
	0.12–0.28	0.14–0.34	0.16–0.38	0.18–0.45	0.20–0.53	0.22–0.57	0.25–0.61	0.28–0.63	0.28–0.68
	0.12–0.28	0.14–0.34	0.16–0.38	0.18–0.45	0.20–0.53	0.22–0.57	0.25–0.61	0.28–0.63	0.28–0.68
	0.12–0.40	0.14–0.48	0.16–0.53	0.18–0.63	0.20–0.75	0.22–0.81	0.25–0.85	0.28–0.90	0.30–0.98
	0.12–0.40	0.14–0.48	0.16–0.53	0.18–0.63	0.20–0.75	0.22–0.81	0.25–0.85	0.28–0.90	0.30–0.98
	Synthetics								
	Special materials								
	Titanium								
	Nickel								
	Steel materials 40-63 HRC								
	0.08–0.12	0.09–0.15	0.12–0.20	0.13–0.23	0.14–0.24	0.15–0.26	0.16–0.26	0.18–0.28	0.20–0.30
	0.08–0.12	0.09–0.15	0.12–0.20	0.13–0.23	0.14–0.24	0.15–0.26	0.16–0.26	0.18–0.28	0.20–0.30
	0.08–0.12	0.09–0.15	0.12–0.20	0.13–0.23	0.14–0.24	0.15–0.26	0.16–0.26	0.18–0.28	0.20–0.30
	0.05–0.07	0.05–0.07	0.06–0.08	0.07–0.10	0.09–0.12	0.10–0.13	0.10–0.13	0.12–0.16	0.14–0.18

APPLICATION TABLE FOR TWIST DRILLS



	Application	R _m N/mm ²	HB	HRC	vc m/min	f (mm/U)		
						Ø 3	Ø 4	
P	Steel materials < 40 HRC							
	Magnetic soft steel	> 100 < 450			100–150	0.09–0.12	0.10–0.15	
	Construction steel / case hardening steel	> 300 < 700			100–150	0.09–0.12	0.10–0.15	
	Carbon steel	> 400 < 950			80–120	0.09–0.12	0.10–0.15	
	Alloyed / heat-treatable steel	> 450 < 950			80–120	0.09–0.12	0.10–0.15	
	Alloyed steel	> 800 < 1250	> 235 < 370	> 22 < 40	70–110	0.09–0.12	0.10–0.15	
M	Stainless steel							
	Ferritic / martensitic steel	> 450 < 1200			40–50	0.09–0.12	0.10–0.15	
	Austenitic steel	> 400 < 950			40–50	0.09–0.12	0.10–0.15	
	High temperature steel	> 850 < 1550	> 250 < 455	> 25 < 48	50–60	0.07–0.11	0.08–0.13	
K	Cast iron							
	Grey cast iron	> 150 < 1000	> 100 < 300		150–200	0.12–0.15	0.13–0.18	
	Cast iron with nodular graphite	> 350 < 1000	> 100 < 350		150–200	0.12–0.15	0.13–0.18	
	Malleable cast iron	> 300 < 700	> 100 < 200		150–200	0.12–0.15	0.13–0.18	
	Cast iron with vermicular graphite	> 700 < 1000	> 200 < 300	> 20 < 32	100–150	0.12–0.15	0.13–0.18	
N	Copper							
	Copper non-alloyed	> 200 < 400	> 60 < 120		50–90	0.02–0.03	0.02–0.04	
	Copper alloyed (short chipping)	> 350 < 700	> 100 < 200		50–90	0.02–0.03	0.02–0.04	
	Copper alloyed (long chipping)	> 150 < 700	> 45 < 200		50–90	0.02–0.03	0.02–0.04	
	Copper-alu-nickel alloyed (short chipping)	> 150 < 700	> 45 < 200		50–90	0.02–0.03	0.02–0.04	
	Copper-alu-nickel alloyed (long chipping)	> 500 < 750	> 150 < 220		50–90	0.02–0.03	0.02–0.04	
	Special copper alloyed ≤ Ampco 20	> 550 < 650	> 160 < 190		15–25	0.05–0.09	0.06–0.10	
	Special copper alloyed ≥ Ampco 21	> 700 < 1500	> 200 < 440	> 21 < 47	15–25	0.05–0.09	0.06–0.10	
	Aluminium / Magnesium							
	Alu wrought alloy Si ≤0.5%	> 100 < 700	> 30 < 200		60–110	0.09–0.20	0.10–0.24	
	Alu alloyed Si ≤6%	> 150 < 700	> 45 < 200		60–110	0.09–0.20	0.10–0.24	
	Alu alloyed Si >6%	> 150 < 900	> 45 < 265		120–220	0.09–0.28	0.10–0.38	
	Magnesium wrought alloy	> 150 < 500	> 45 < 150		120–220	0.09–0.28	0.10–0.38	
	Synthetics							
	Thermoplastic (long chipping)	> 20 < 80						
	Duroplastic (short chipping)	> 80 < 110						
	Fibre-reinforced plastic	> 800 < 1500	> 235 < 440					
	Special materials							
	Cobalt alloyed	> 400 < 2000	> 120 < 590					
	Tungsten alloyed	> 1400 < 1800	> 410 < 530	> 44 < 52				
	TiC-hard material		> 440 < 495	> 47 < 50				
	Graphite	> 38 < 60						
	S	Titanium						
Titanium non-alloyed		> 300 < 700	> 90 < 200		15–25	0.05–0.09	0.06–0.10	
Titanium alloyed		> 450 < 900	> 135 < 265	> 14 < 27	15–25	0.05–0.09	0.06–0.10	
Titanium alloyed		> 900 < 1250	> 265 < 370	> 27 < 40	15–25	0.05–0.09	0.06–0.10	
Nickel								
Nickel non-alloyed		> 400 < 600	> 120 < 175		15–25	0.05–0.09	0.06–0.10	
Nickel alloyed		> 400 < 1200	> 120 < 350	> 12 < 39	15–25	0.05–0.09	0.06–0.10	
Nickel alloyed		> 1200 < 1550	> 350 < 455	> 39 < 48	15–25	0.05–0.09	0.06–0.10	
H	Steel materials 40-63 HRC							
	Alloyed steel	> 1100 < 1400	> 325 < 410	> 34 < 45	15–25	0.05–0.09	0.06–0.10	
	Alloyed steel	> 1200 < 1550	> 350 < 455	> 39 < 48	15–25	0.05–0.09	0.06–0.10	
	Hardened steel	> 1600 < 2000	> 470 < 590	> 48 < 53	15–25	0.05–0.09	0.06–0.10	
	Hardened steel			> 53 < 63	15–25	0.03–0.05	0.04–0.06	

	FORANT 3xD KA BA								
									
	f (mm/U)								
	Ø 5	Ø 6	Ø 8	Ø 10	Ø 12	Ø 14	Ø 16	Ø 18	Ø 20
	Steel materials < 40 HRC								
	0.12–0.18	0.14–0.20	0.16–0.24	0.18–0.27	0.20–0.30	0.22–0.35	0.25–0.36	0.28–0.38	0.30–0.40
	0.12–0.18	0.14–0.20	0.16–0.24	0.18–0.27	0.20–0.30	0.22–0.35	0.25–0.36	0.28–0.38	0.30–0.40
	0.12–0.18	0.14–0.20	0.16–0.24	0.18–0.27	0.20–0.30	0.22–0.35	0.25–0.36	0.28–0.38	0.30–0.40
	0.12–0.18	0.14–0.20	0.16–0.24	0.18–0.27	0.20–0.30	0.22–0.35	0.25–0.36	0.28–0.38	0.30–0.40
	Stainless steel								
	0.12–0.18	0.14–0.20	0.16–0.24	0.18–0.27	0.20–0.30	0.22–0.35	0.25–0.36	0.28–0.38	0.30–0.40
	0.12–0.18	0.14–0.20	0.16–0.24	0.18–0.27	0.20–0.30	0.22–0.35	0.25–0.36	0.28–0.38	0.30–0.40
	0.10–0.15	0.12–0.18	0.14–0.22	0.15–0.25	0.17–0.26	0.18–0.30	0.20–0.32	0.23–0.33	0.25–0.35
	Cast iron								
	0.15–0.22	0.18–0.25	0.20–0.30	0.23–0.33	0.25–0.38	0.30–0.43	0.35–0.50	0.38–0.55	0.40–0.63
	0.15–0.22	0.18–0.25	0.20–0.30	0.23–0.33	0.25–0.38	0.30–0.43	0.35–0.50	0.38–0.55	0.40–0.63
	0.15–0.22	0.18–0.25	0.20–0.30	0.23–0.33	0.25–0.38	0.30–0.43	0.35–0.50	0.38–0.55	0.40–0.63
	0.15–0.22	0.18–0.25	0.20–0.30	0.23–0.33	0.25–0.38	0.30–0.43	0.35–0.50	0.38–0.55	0.40–0.63
	Copper								
	0.03–0.05	0.03–0.06	0.04–0.08	0.05–0.10	0.06–0.12	0.08–0.16	0.10–0.18	0.12–0.20	0.20–0.28
	0.03–0.05	0.03–0.06	0.04–0.08	0.05–0.10	0.06–0.12	0.08–0.16	0.10–0.18	0.12–0.20	0.20–0.28
	0.03–0.05	0.03–0.06	0.04–0.08	0.05–0.10	0.06–0.12	0.08–0.16	0.10–0.18	0.12–0.20	0.20–0.28
	0.03–0.05	0.03–0.06	0.04–0.08	0.05–0.10	0.06–0.12	0.08–0.16	0.10–0.18	0.12–0.20	0.20–0.28
	0.03–0.05	0.03–0.06	0.04–0.08	0.05–0.10	0.06–0.12	0.08–0.16	0.10–0.18	0.12–0.20	0.20–0.28
	0.08–0.12	0.09–0.15	0.12–0.20	0.13–0.23	0.14–0.24	0.15–0.26	0.16–0.26	0.18–0.28	0.20–0.30
	0.08–0.12	0.09–0.15	0.12–0.20	0.13–0.23	0.14–0.24	0.15–0.26	0.16–0.26	0.18–0.28	0.20–0.30
	Aluminium / Magnesium								
	0.12–0.28	0.14–0.34	0.16–0.38	0.18–0.45	0.20–0.53	0.22–0.57	0.25–0.61	0.28–0.63	0.28–0.68
	0.12–0.28	0.14–0.34	0.16–0.38	0.18–0.45	0.20–0.53	0.22–0.57	0.25–0.61	0.28–0.63	0.28–0.68
	0.12–0.40	0.14–0.48	0.16–0.53	0.18–0.63	0.20–0.75	0.22–0.81	0.25–0.85	0.28–0.90	0.30–0.98
	0.12–0.40	0.14–0.48	0.16–0.53	0.18–0.63	0.20–0.75	0.22–0.81	0.25–0.85	0.28–0.90	0.30–0.98
	Synthetics								
	Special materials								
	Titanium								
	0.08–0.12	0.09–0.15	0.12–0.20	0.13–0.23	0.14–0.24	0.15–0.26	0.16–0.26	0.18–0.28	0.20–0.30
	0.08–0.12	0.09–0.15	0.12–0.20	0.13–0.23	0.14–0.24	0.15–0.26	0.16–0.26	0.18–0.28	0.20–0.30
	0.08–0.12	0.09–0.15	0.12–0.20	0.13–0.23	0.14–0.24	0.15–0.26	0.16–0.26	0.18–0.28	0.20–0.30
	Nickel								
	0.08–0.12	0.09–0.15	0.12–0.20	0.13–0.23	0.14–0.24	0.15–0.26	0.16–0.26	0.18–0.28	0.20–0.30
	0.08–0.12	0.09–0.15	0.12–0.20	0.13–0.23	0.14–0.24	0.15–0.26	0.16–0.26	0.18–0.28	0.20–0.30
	0.08–0.12	0.09–0.15	0.12–0.20	0.13–0.23	0.14–0.24	0.15–0.26	0.16–0.26	0.18–0.28	0.20–0.30
	Steel materials 40-63 HRC								
	0.08–0.12	0.09–0.15	0.12–0.20	0.13–0.23	0.14–0.24	0.15–0.26	0.16–0.26	0.18–0.28	0.20–0.30
	0.08–0.12	0.09–0.15	0.12–0.20	0.13–0.23	0.14–0.24	0.15–0.26	0.16–0.26	0.18–0.28	0.20–0.30
	0.08–0.12	0.09–0.15	0.12–0.20	0.13–0.23	0.14–0.24	0.15–0.26	0.16–0.26	0.18–0.28	0.20–0.30
	0.05–0.07	0.05–0.07	0.06–0.08	0.07–0.10	0.09–0.12	0.10–0.13	0.10–0.13	0.12–0.16	0.14–0.18

APPLICATION TABLE FOR TWIST DRILLS



	Application	R _m N/mm ²	HB	HRC	vc m/min (< Ø3)	vc m/min	f (mm/U)		
							Ø 1	Ø 2	
P	Steel materials < 40 HRC								
	Magnetic soft steel	> 100 < 450			40–60	100–150	0.01–0.03	0.02–0.06	
	Construction steel / case hardening steel	> 300 < 700			40–60	100–150	0.01–0.03	0.02–0.06	
	Carbon steel	> 400 < 950			40–60	80–120	0.01–0.03	0.02–0.06	
	Alloyed / heat-treatable steel	> 450 < 950			40–60	80–120	0.01–0.03	0.02–0.06	
	Alloyed steel	> 800 < 1250	> 235 < 370	> 22 < 40	40–60	70–110	0.01–0.03	0.02–0.06	
M	Stainless steel								
	Ferritic / martensitic steel	> 450 < 1200			30–50	40–50	0.01–0.03	0.02–0.06	
	Austenitic steel	> 400 < 950			30–50	40–50	0.01–0.03	0.02–0.06	
	High temperature steel	> 850 < 1550	> 250 < 455	> 25 < 48	40–60	50–60	0.01–0.03	0.02–0.06	
K	Cast iron								
	Grey cast iron	> 150 < 1000	> 100 < 300		50–60	150–200	0.02–0.04	0.04–0.08	
	Cast iron with nodular graphite	> 350 < 1000	> 100 < 350		50–60	150–200	0.02–0.04	0.04–0.08	
	Malleable cast iron	> 300 < 700	> 100 < 200		50–60	150–200	0.02–0.04	0.04–0.08	
	Cast iron with vermicular graphite	> 700 < 1000	> 200 < 300	> 20 < 32	50–60	100–150	0.02–0.04	0.04–0.08	
N	Copper								
	Copper non-alloyed	> 200 < 400	> 60 < 120		20–50	50–90	0.007–0.01	0.014–0.02	
	Copper alloyed (short chipping)	> 350 < 700	> 100 < 200		20–50	50–90	0.007–0.01	0.014–0.02	
	Copper alloyed (long chipping)	> 150 < 700	> 45 < 200		20–50	50–90	0.007–0.01	0.014–0.02	
	Copper-alu-nickel alloyed (short chipping)	> 150 < 700	> 45 < 200		20–50	50–90	0.007–0.01	0.014–0.02	
	Copper-alu-nickel alloyed (long chipping)	> 500 < 750	> 150 < 220		20–50	50–90	0.007–0.01	0.014–0.02	
	Special copper alloyed ≤ Ampco 20	> 550 < 650	> 160 < 190		15–20	15–25	0.015–0.03	0.03–0.06	
	Special copper alloyed ≥ Ampco 21	> 700 < 1500	> 200 < 440	> 21 < 47	15–20	15–25	0.015–0.03	0.03–0.06	
	Aluminium / Magnesium								
	Alu wrought alloy Si ≤0.5%	> 100 < 700	> 30 < 200		40–60	60–110	0.01–0.03	0.02–0.06	
	Alu alloyed Si ≤6%	> 150 < 700	> 45 < 200		40–60	60–110	0.01–0.03	0.02–0.06	
	Alu alloyed Si >6%	> 150 < 900	> 45 < 265		50–70	120–220	0.02–0.06	0.04–0.12	
	Magnesium wrought alloy	> 150 < 500	> 45 < 150		50–70	120–220	0.02–0.06	0.04–0.12	
	Synthetics								
	Thermoplastic (long chipping)	> 20 < 80							
	Duroplastic (short chipping)	> 80 < 110							
	Fibre-reinforced plastic	> 800 < 1500	> 235 < 440						
	Special materials								
	Cobalt alloyed	> 400 < 2000	> 120 < 590						
	Tungsten alloyed	> 1400 < 1800	> 410 < 530	> 44 < 52					
	TiC-hard material		> 440 < 495	> 47 < 50					
	Graphite	> 38 < 60							
	S	Titanium							
Titanium non-alloyed		> 300 < 700	> 90 < 200		15–20	15–25	0.015–0.03	0.03–0.06	
Titanium alloyed		> 450 < 900	> 135 < 265	> 14 < 27	15–20	15–25	0.015–0.03	0.03–0.06	
Titanium alloyed		> 900 < 1250	> 265 < 370	> 27 < 40	15–20	15–25	0.015–0.03	0.03–0.06	
Nickel									
Nickel non-alloyed		> 400 < 600	> 120 < 175		15–20	15–25	0.015–0.03	0.03–0.06	
Nickel alloyed		> 400 < 1200	> 120 < 350	> 12 < 39	15–20	15–25	0.015–0.03	0.03–0.06	
Nickel alloyed	> 1200 < 1550	> 350 < 455	> 39 < 48	15–20	15–25	0.015–0.03	0.03–0.06		
H	Steel materials 40-63 HRC								
	Alloyed steel	> 1100 < 1400	> 325 < 410	> 34 < 45	15–20	15–25	0.015–0.03	0.03–0.06	
	Alloyed steel	> 1200 < 1550	> 350 < 455	> 39 < 48	15–20	15–25	0.015–0.03	0.03–0.06	
	Hardened steel	> 1600 < 2000	> 470 < 590	> 48 < 53	15–20	15–25	0.015–0.03	0.03–0.06	
	Hardened steel			> 53 < 63	15–20	15–25	0.01–0.015	0.02–0.03	

	FORANT 5xD KA BA										
											
	f (mm/U)										
	Ø 3	Ø 4	Ø 5	Ø 6	Ø 8	Ø 10	Ø 12	Ø 14	Ø 16	Ø 18	Ø 20
	Steel materials < 40 HRC										
	0.09–0.12	0.10–0.15	0.12–0.18	0.14–0.20	0.16–0.24	0.18–0.27	0.20–0.30	0.22–0.35	0.25–0.36	0.28–0.38	0.30–0.40
	0.09–0.12	0.10–0.15	0.12–0.18	0.14–0.20	0.16–0.24	0.18–0.27	0.20–0.30	0.22–0.35	0.25–0.36	0.28–0.38	0.30–0.40
	0.09–0.12	0.10–0.15	0.12–0.18	0.14–0.20	0.16–0.24	0.18–0.27	0.20–0.30	0.22–0.35	0.25–0.36	0.28–0.38	0.30–0.40
	0.09–0.12	0.10–0.15	0.12–0.18	0.14–0.20	0.16–0.24	0.18–0.27	0.20–0.30	0.22–0.35	0.25–0.36	0.28–0.38	0.30–0.40
	Stainless steel										
	0.09–0.12	0.10–0.15	0.12–0.18	0.14–0.20	0.16–0.24	0.18–0.27	0.20–0.30	0.22–0.35	0.25–0.36	0.28–0.38	0.30–0.40
	0.09–0.12	0.10–0.15	0.12–0.18	0.14–0.20	0.16–0.24	0.18–0.27	0.20–0.30	0.22–0.35	0.25–0.36	0.28–0.38	0.30–0.40
	0.07–0.11	0.08–0.13	0.10–0.15	0.12–0.18	0.14–0.22	0.15–0.25	0.17–0.26	0.18–0.30	0.20–0.32	0.23–0.33	0.25–0.35
	Cast iron										
	0.12–0.15	0.13–0.18	0.15–0.22	0.18–0.25	0.20–0.30	0.23–0.33	0.25–0.38	0.30–0.43	0.35–0.50	0.38–0.55	0.40–0.63
	0.12–0.15	0.13–0.18	0.15–0.22	0.18–0.25	0.20–0.30	0.23–0.33	0.25–0.38	0.30–0.43	0.35–0.50	0.38–0.55	0.40–0.63
	0.12–0.15	0.13–0.18	0.15–0.22	0.18–0.25	0.20–0.30	0.23–0.33	0.25–0.38	0.30–0.43	0.35–0.50	0.38–0.55	0.40–0.63
	0.12–0.15	0.13–0.18	0.15–0.22	0.18–0.25	0.20–0.30	0.23–0.33	0.25–0.38	0.30–0.43	0.35–0.50	0.38–0.55	0.40–0.63
	Copper										
	0.02–0.03	0.02–0.04	0.03–0.05	0.03–0.06	0.04–0.08	0.05–0.10	0.06–0.12	0.08–0.16	0.10–0.18	0.12–0.20	0.20–0.28
	0.02–0.03	0.02–0.04	0.03–0.05	0.03–0.06	0.04–0.08	0.05–0.10	0.06–0.12	0.08–0.16	0.10–0.18	0.12–0.20	0.20–0.28
	0.02–0.03	0.02–0.04	0.03–0.05	0.03–0.06	0.04–0.08	0.05–0.10	0.06–0.12	0.08–0.16	0.10–0.18	0.12–0.20	0.20–0.28
	0.02–0.03	0.02–0.04	0.03–0.05	0.03–0.06	0.04–0.08	0.05–0.10	0.06–0.12	0.08–0.16	0.10–0.18	0.12–0.20	0.20–0.28
	0.02–0.03	0.02–0.04	0.03–0.05	0.03–0.06	0.04–0.08	0.05–0.10	0.06–0.12	0.08–0.16	0.10–0.18	0.12–0.20	0.20–0.28
	0.05–0.09	0.06–0.10	0.08–0.12	0.09–0.15	0.12–0.20	0.13–0.23	0.14–0.24	0.15–0.26	0.16–0.26	0.18–0.28	0.20–0.30
	0.05–0.09	0.06–0.10	0.08–0.12	0.09–0.15	0.12–0.20	0.13–0.23	0.14–0.24	0.15–0.26	0.16–0.26	0.18–0.28	0.20–0.30
	Aluminium / Magnesium										
	0.09–0.20	0.10–0.24	0.12–0.28	0.14–0.34	0.16–0.38	0.18–0.45	0.20–0.53	0.22–0.57	0.25–0.61	0.28–0.63	0.28–0.68
	0.09–0.20	0.10–0.24	0.12–0.28	0.14–0.34	0.16–0.38	0.18–0.45	0.20–0.53	0.22–0.57	0.25–0.61	0.28–0.63	0.28–0.68
	0.09–0.28	0.10–0.38	0.12–0.40	0.14–0.48	0.16–0.53	0.18–0.63	0.20–0.75	0.22–0.81	0.25–0.85	0.28–0.90	0.30–0.98
	0.09–0.28	0.10–0.38	0.12–0.40	0.14–0.48	0.16–0.53	0.18–0.63	0.20–0.75	0.22–0.81	0.25–0.85	0.28–0.90	0.30–0.98
	Synthetics										
	Special materials										
	Titanium										
	0.05–0.09	0.06–0.10	0.08–0.12	0.09–0.15	0.12–0.20	0.13–0.23	0.14–0.24	0.15–0.26	0.16–0.26	0.18–0.28	0.20–0.30
	0.05–0.09	0.06–0.10	0.08–0.12	0.09–0.15	0.12–0.20	0.13–0.23	0.14–0.24	0.15–0.26	0.16–0.26	0.18–0.28	0.20–0.30
	0.05–0.09	0.06–0.10	0.08–0.12	0.09–0.15	0.12–0.20	0.13–0.23	0.14–0.24	0.15–0.26	0.16–0.26	0.18–0.28	0.20–0.30
	Nickel										
	0.05–0.09	0.06–0.10	0.08–0.12	0.09–0.15	0.12–0.20	0.13–0.23	0.14–0.24	0.15–0.26	0.16–0.26	0.18–0.28	0.20–0.30
	0.05–0.09	0.06–0.10	0.08–0.12	0.09–0.15	0.12–0.20	0.13–0.23	0.14–0.24	0.15–0.26	0.16–0.26	0.18–0.28	0.20–0.30
	0.05–0.09	0.06–0.10	0.08–0.12	0.09–0.15	0.12–0.20	0.13–0.23	0.14–0.24	0.15–0.26	0.16–0.26	0.18–0.28	0.20–0.30
	Steel materials 40-63 HRC										
	0.05–0.09	0.06–0.10	0.08–0.12	0.09–0.15	0.12–0.20	0.13–0.23	0.14–0.24	0.15–0.26	0.16–0.26	0.18–0.28	0.20–0.30
	0.05–0.09	0.06–0.10	0.08–0.12	0.09–0.15	0.12–0.20	0.13–0.23	0.14–0.24	0.15–0.26	0.16–0.26	0.18–0.28	0.20–0.30
	0.05–0.09	0.06–0.10	0.08–0.12	0.09–0.15	0.12–0.20	0.13–0.23	0.14–0.24	0.15–0.26	0.16–0.26	0.18–0.28	0.20–0.30
	0.03–0.05	0.04–0.06	0.05–0.07	0.05–0.07	0.06–0.08	0.07–0.10	0.09–0.12	0.10–0.13	0.10–0.13	0.12–0.16	0.14–0.18

Twist drill

3xD

DIN 6537K
DIN 63535-HA

series

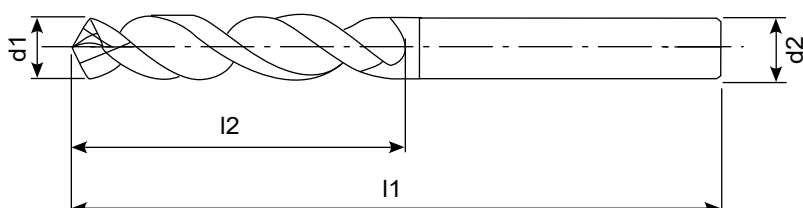
FORANT

model

3xD BA

material

VHM



helix angle

30°

shank tol.

h6

point angle

140°

tolerance

m7

P

●

M

●

K

●

N

●

S

●

H

●

i For detailed cutting speeds please refer to the application table.

d_1	l_1	d_2	l_2	identification number
2	45	3	13	630200
2.1	45	3	13	630210
2.2	45	3	13	630220
2.3	45	3	13	630230
2.4	45	3	15	630240
2.5	50	3	15	630250
2.6	50	3	15	630260
2.7	50	3	17	630270
2.8	50	3	17	630280
2.9	50	3	17	630290
3	62	6	20	630300
3.1	62	6	20	630310
3.2	62	6	20	630320
3.3	62	6	20	630330
3.4	62	6	20	630340
3.5	62	6	20	630350
3.6	62	6	20	630360
3.7	62	6	20	630370
3.8	66	6	24	630380
3.9	66	6	24	630390
4	66	6	24	630400
4.1	66	6	24	630410
4.2	66	6	24	630420
4.3	66	6	24	630430

d_1	l_1	d_2	l_2	identification number
4.4	66	6	24	630440
4.5	66	6	24	630450
4.6	66	6	24	630460
4.7	66	6	24	630470
4.8	66	6	28	630480
4.9	66	6	28	630490
5	66	6	28	630500
5.1	66	6	28	630510
5.2	66	6	28	630520
5.3	66	6	28	630530
5.4	66	6	28	630540
5.5	66	6	28	630550
5.6	66	6	28	630560
5.7	66	6	28	630570
5.8	66	6	28	630580
5.9	66	6	28	630590
6	66	6	28	630600
6.1	79	8	34	630610
6.2	79	8	34	630620
6.3	79	8	34	630630
6.4	79	8	34	630640
6.5	79	8	34	630650
6.6	79	8	34	630660
6.7	79	8	34	630670

d_1	l_1	d_2	l_2	identification number
6.8	79	8	34	630680
6.9	79	8	34	630690
7	79	8	34	630700
7.1	79	8	41	630710
7.2	79	8	41	630720
7.3	79	8	41	630730
7.4	79	8	41	630740
7.5	79	8	41	630750
7.6	79	8	41	630760
7.7	79	8	41	630770
7.8	79	8	41	630780
7.9	79	8	41	630790
8	79	8	41	630800
8.1	89	10	47	630810
8.2	89	10	47	630820
8.3	89	10	47	630830
8.4	89	10	47	630840
8.5	89	10	47	630850
8.6	89	10	47	630860
8.7	89	10	47	630870
8.8	89	10	47	630880
8.9	89	10	47	630890
9	89	10	47	630900
9.1	89	10	47	630910

Twist drill

3xD

DIN 6537K
DIN 63535-HA

series
model
material

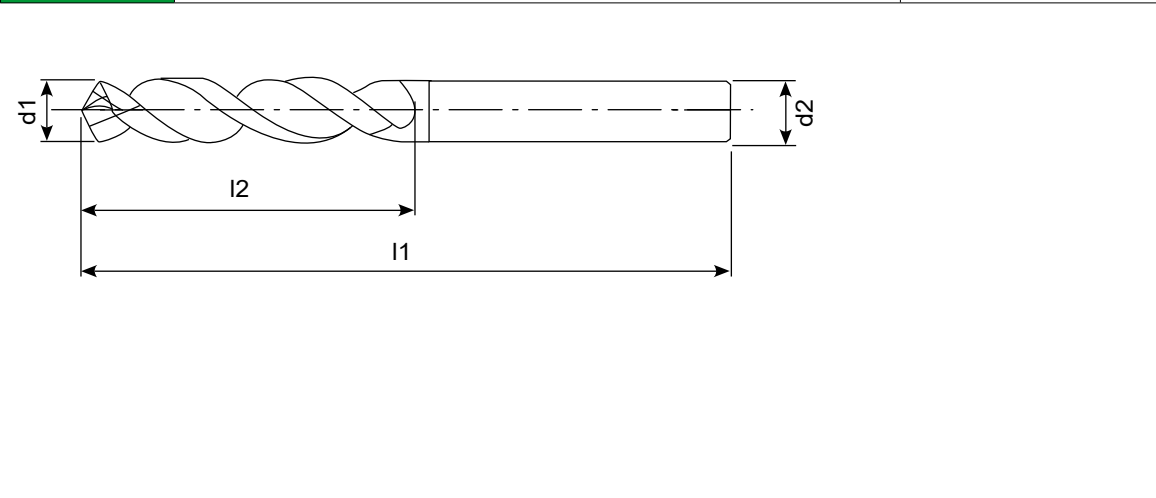
model
material

	material
--	----------

FORANT
3xD BA
VHM

3xD BA
VHM

VHM



helix angle

 30°

shank tol.

h6

point angle

140°

tolerance

m7

P

M

A blank coordinate plane with a horizontal x-axis and a vertical y-axis intersecting at the origin. The axes are represented by thin black lines. The area is divided into four quadrants by these axes. The top-right quadrant is shaded light yellow, and the bottom-left quadrant is shaded light pink. The other two quadrants are white.

K

A diagram illustrating a point on a horizontal line. The line is horizontal and divides the space into two regions: a pink region above and a green region below. A single black dot is placed on the line, with its upper half in the pink region and its lower half in the green region.

N

S

H

Page 10

 For detailed cutting speeds please refer to the application table.

d_1	l_1	d_2	l_2	identification number
9.2	89	10	47	630920
9.3	89	10	47	630930
9.4	89	10	47	630940
9.5	89	10	47	630950
9.6	89	10	47	630960
9.7	89	10	47	630970
9.8	89	10	47	630980
9.9	89	10	47	630990
10	89	10	47	631000
10.1	102	12	55	631010
10.2	102	12	55	631020
10.3	102	12	55	631030
10.4	102	12	55	631040
10.5	102	12	55	631050
10.6	102	12	55	631060
10.7	102	12	55	631070
10.8	102	12	55	631080
10.9	102	12	55	631090
11	102	12	55	631100
11.1	102	12	55	631110
11.2	102	12	55	631120
11.3	102	12	55	631130
11.4	102	12	55	631140
11.5	102	12	55	631150

d_1	l_1	d_2	l_2	identification number
11.6	102	12	55	631160
11.7	102	12	55	631170
11.8	102	12	55	631180
11.9	102	12	55	631190
12	102	12	55	631200
12.2	107	14	60	631220
12.5	107	14	60	631250
12.8	107	14	60	631280
13	107	14	60	631300
13.5	107	14	60	631350
13.8	107	14	60	631380
14	107	14	60	631400
14.2	115	16	65	631420
14.5	115	16	65	631450
14.8	115	16	65	631480
15	115	16	65	631500
15.5	115	16	65	631550
15.8	115	16	65	631580
16	115	16	65	631600
16.5	123	18	73	631650
17	123	18	73	631700
17.5	123	18	73	631750
18	123	18	73	631800
18.5	131	20	79	631850

[illegible]

Twist drill

3xD

**DIN 6537K
DIN 63535-HA**

series

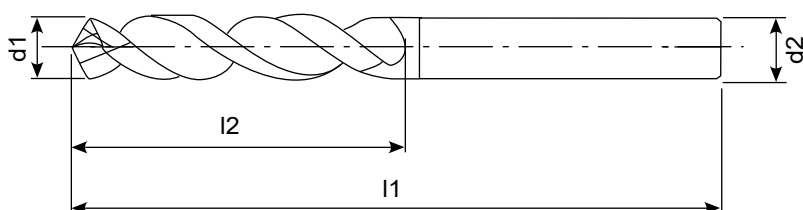
FORANT

model

3xD KA BA

material

VHM



helix angle

30°

shank tol.

h6

point angle

140°

tolerance

m7

P

●

M

●

K

●

N

●

S

●

H

●

i For detailed cutting speeds please refer to the application table.

d_1	l_1	d_2	l_2	identification number
3	62	6	20	640300
3.1	62	6	20	640310
3.2	62	6	20	640320
3.3	62	6	20	640330
3.4	62	6	20	640340
3.5	62	6	20	640350
3.6	62	6	20	640360
3.7	62	6	20	640370
3.8	66	6	24	640380
3.9	66	6	24	640390
4	66	6	24	640400
4.1	66	6	24	640410
4.2	66	6	24	640420
4.3	66	6	24	640430
4.4	66	6	24	640440
4.5	66	6	24	640450
4.6	66	6	24	640460
4.7	66	6	24	640470
4.8	66	6	28	640480
4.9	66	6	28	640490
5	66	6	28	640500
5.1	66	6	28	640510
5.2	66	6	28	640520
5.3	66	6	28	640530

d_1	l_1	d_2	l_2	identification number
5.4	66	6	28	640540
5.5	66	6	28	640550
5.6	66	6	28	640560
5.7	66	6	28	640570
5.8	66	6	28	640580
5.9	66	6	28	640590
6	66	6	28	640600
6.1	79	8	34	640610
6.2	79	8	34	640620
6.3	79	8	34	640630
6.4	79	8	34	640640
6.5	79	8	34	640650
6.6	79	8	34	640660
6.7	79	8	34	640670
6.8	79	8	34	640680
6.9	79	8	34	640690
7	79	8	34	640700
7.1	79	8	41	640710
7.2	79	8	41	640720
7.3	79	8	41	640730
7.4	79	8	41	640740
7.5	79	8	41	640750
7.6	79	8	41	640760
7.7	79	8	41	640770

d_1	l_1	d_2	l_2	identification number
7.8	79	8	41	640780
7.9	79	8	41	640790
8	79	8	41	640800
8.1	89	10	47	640810
8.2	89	10	47	640820
8.3	89	10	47	640830
8.4	89	10	47	640840
8.5	89	10	47	640850
8.6	89	10	47	640860
8.7	89	10	47	640870
8.8	89	10	47	640880
8.9	89	10	47	640890
9	89	10	47	640900
9.1	89	10	47	640910
9.2	89	10	47	640920
9.3	89	10	47	640930
9.4	89	10	47	640940
9.5	89	10	47	640950
9.6	89	10	47	640960
9.7	89	10	47	640970
9.8	89	10	47	640980
9.9	89	10	47	640990
10	89	10	47	641000
10.1	102	12	55	641010

Twist drill

3xD

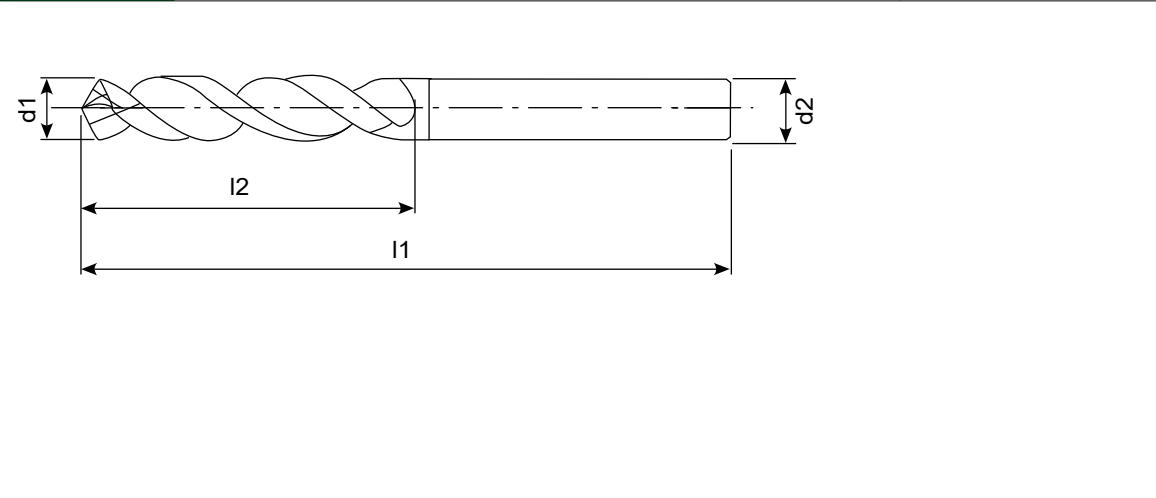
DIN 6537K
DIN 63535-HA

series

	model
--	-------

	material
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FORANT
3xD KA BA
VHM



helix angle

 30°

shank tol.

h6

point angle

 140°

tolerance

m7

P

M

K

N

A coordinate plane with a horizontal x-axis and a vertical y-axis. A single point is plotted in the upper right quadrant, representing a positive x-value and a positive y-value.

	S
	U

H

Page 10

 For detailed cutting speeds please refer to the application table.

d_1	l_1	d_2	l_2	identification number
10.2	102	12	55	641020
10.3	102	12	55	641030
10.4	102	12	55	641040
10.5	102	12	55	641050
10.6	102	12	55	641060
10.7	102	12	55	641070
10.8	102	12	55	641080
10.9	102	12	55	641090
11	102	12	55	641100
11.1	102	12	55	641110
11.2	102	12	55	641120
11.3	102	12	55	641130
11.4	102	12	55	641140
11.5	102	12	55	641150
11.6	102	12	55	641160
11.7	102	12	55	641170
11.8	102	12	55	641180
11.9	102	12	55	641190
12	102	12	55	641200
12.2	107	14	60	641220
12.5	107	14	60	641250
12.8	107	14	60	641280
13	107	14	60	641300
13.5	107	14	60	641350

d_1	l_1	d_2	l_2	identification number
13.8	107	14	60	641380
14	107	14	60	641400
14.2	115	16	65	641420
14.5	115	16	65	641450
14.8	115	16	65	641480
15	115	16	65	641500
15.2	115	16	65	641520
15.5	115	16	65	641550
15.8	115	16	65	641580
16	115	16	65	641600
16.4	123	18	73	641640
16.5	123	18	73	641650
17	123	18	73	641700
17.5	123	18	73	641750
18	123	18	73	641800
18.5	131	20	79	641850
19	131	20	79	641900
19.5	131	20	79	641950
20	131	20	79	642000

[illegible]

Twist drill

5xD

DIN 6537L
DIN 63535-HA

series

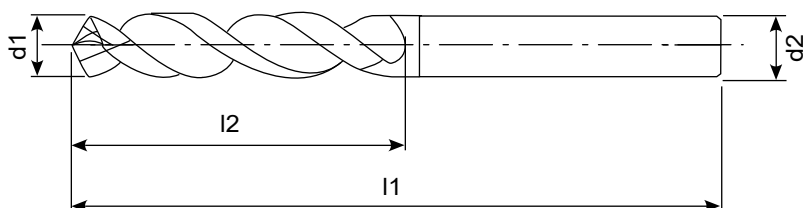
FORANT

model

5xD KA BA

material

VHM



helix angle

30°

shank tol.

h6

point angle

140°

tolerance

m7

P

●

M

●

K

●

N

●

S

●

H

●

i For detailed cutting speeds please refer to the application table.

d ₁	l ₁	d ₂	l ₂	identification number
1	38	3	9	650100*
1.1	38	3	9	650110*
1.2	38	3	11	650120*
1.3	38	3	11	650130*
1.4	38	3	12	650140*
1.5	45	3	12	650150*
1.6	45	3	14	650160*
1.7	45	3	14	650170*
1.8	45	3	16	650180*
1.9	45	3	16	650190*
2	57	4	21	650200
2.1	57	4	21	650210
2.2	57	4	21	650220
2.3	57	4	21	650230
2.4	57	4	21	650240
2.5	57	4	21	650250
2.6	57	4	21	650260
2.7	57	4	21	650270
2.8	57	4	21	650280
2.85	57	4	21	650285
2.9	57	4	21	650290
3	66	6	28	650300
3.1	66	6	28	650310
3.2	66	6	28	650320

d ₁	l ₁	d ₂	l ₂	identification number
3.3	66	6	28	650330
3.4	66	6	28	650340
3.5	66	6	28	650350
3.6	66	6	28	650360
3.7	66	6	28	650370
3.8	74	6	36	650380
3.9	74	6	36	650390
4	74	6	36	650400
4.1	74	6	36	650410
4.2	74	6	36	650420
4.3	74	6	36	650430
4.4	74	6	36	650440
4.5	74	6	36	650450
4.6	74	6	36	650460
4.65	74	6	36	650465
4.7	74	6	36	650470
4.8	82	6	44	650480
4.9	82	6	44	650490
5	82	6	44	650500
5.1	82	6	44	650510
5.2	82	6	44	650520
5.3	82	6	44	650530
5.4	82	6	44	650540
5.5	82	6	44	650550

d ₁	l ₁	d ₂	l ₂	identification number
5.55	82	6	44	650555
5.6	82	6	44	650560
5.65	82	6	44	650565
5.7	82	6	44	650570
5.8	82	6	44	650580
5.9	82	6	44	650590
6	82	6	44	650600
6.1	91	8	53	650610
6.2	91	8	53	650620
6.3	91	8	53	650630
6.4	91	8	53	650640
6.5	91	8	53	650650
6.6	91	8	53	650660
6.7	91	8	53	650670
6.8	91	8	53	650680
6.9	91	8	53	650690
7	91	8	53	650700
7.1	91	8	53	650710
7.2	91	8	53	650720
7.3	91	8	53	650730
7.4	91	8	53	650740
7.5	91	8	53	650750
7.55	91	8	53	650755
7.6	91	8	53	650760

Twist drill

5xD

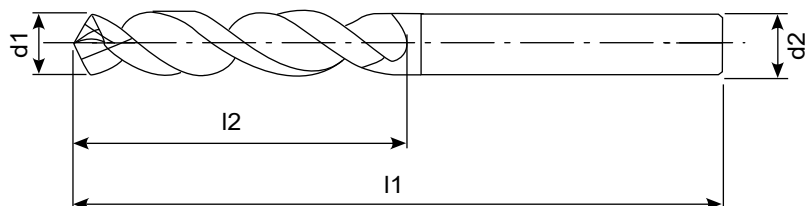
DIN 6537L
DIN 63535-HA

series

model

material

FORANT
5xD KA BA
VHM



helix angle 30°

shank tol. h6

point angle 140°

tolerance m7

P

M

K

N

S

H

i For detailed cutting speeds please refer to the application table.

d_1	l_1	d_2	l_2	identification number
7.7	91	8	53	650770
7.8	91	8	53	650780
7.9	91	8	53	650790
8	91	8	53	650800
8.1	103	10	61	650810
8.2	103	10	61	650820
8.3	103	10	61	650830
8.4	103	10	61	650840
8.5	103	10	61	650850
8.6	103	10	61	650860
8.7	103	10	61	650870
8.8	103	10	61	650880
8.9	103	10	61	650890
9	103	10	61	650900
9.1	103	10	61	650910
9.2	103	10	61	650920
9.3	103	10	61	650930
9.4	103	10	61	650940
9.5	103	10	61	650950
9.55	103	10	61	650955
9.6	103	10	61	650960
9.7	103	10	61	650970
9.8	103	10	61	650980
9.9	103	10	61	650990

d_1	l_1	d_2	l_2	identification number
10	103	10	61	651000
10.1	118	12	71	651010
10.2	118	12	71	651020
10.3	118	12	71	651030
10.4	118	12	71	651040
10.5	118	12	71	651050
10.6	118	12	71	651060
10.7	118	12	71	651070
10.8	118	12	71	651080
10.9	118	12	71	651090
11	118	12	71	651100
11.1	118	12	71	651110
11.2	118	12	71	651120
11.3	118	12	71	651130
11.4	118	12	71	651140
11.5	118	12	71	651150
11.6	118	12	71	651160
11.7	118	12	71	651170
11.8	118	12	71	651180
11.9	118	12	71	651190
12	118	12	71	651200
12.2	124	14	77	651220
12.5	124	14	77	651250
12.8	124	14	77	651280

d_1	l_1	d_2	l_2	identification number
13	124	14	77	651300
13.3	124	14	77	651330
13.5	124	14	77	651350
13.8	124	14	77	651380
14	124	14	77	651400
14.2	133	16	83	651420
14.5	133	16	83	651450
14.8	133	16	83	651480
15	133	16	83	651500
15.1	133	16	83	651510
15.2	133	16	83	651520
15.3	133	16	83	651530
15.5	133	16	83	651550
15.8	133	16	83	651580
16	133	16	83	651600
16.5	143	18	93	651650
17	143	18	93	651700
17.5	143	18	93	651750
18	143	18	93	651800
18.5	153	20	101	651850
19	153	20	101	651900
19.5	153	20	101	651950
20	153	20	101	652000

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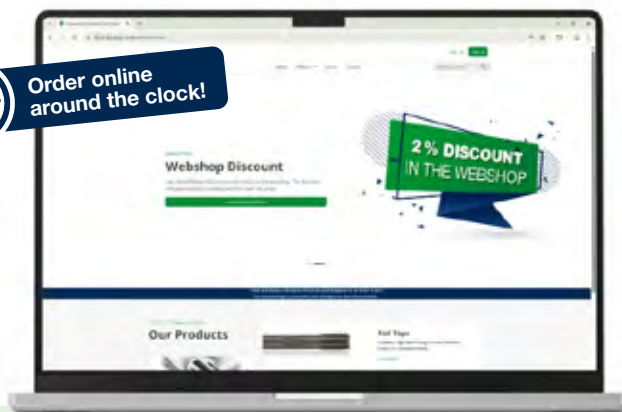
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