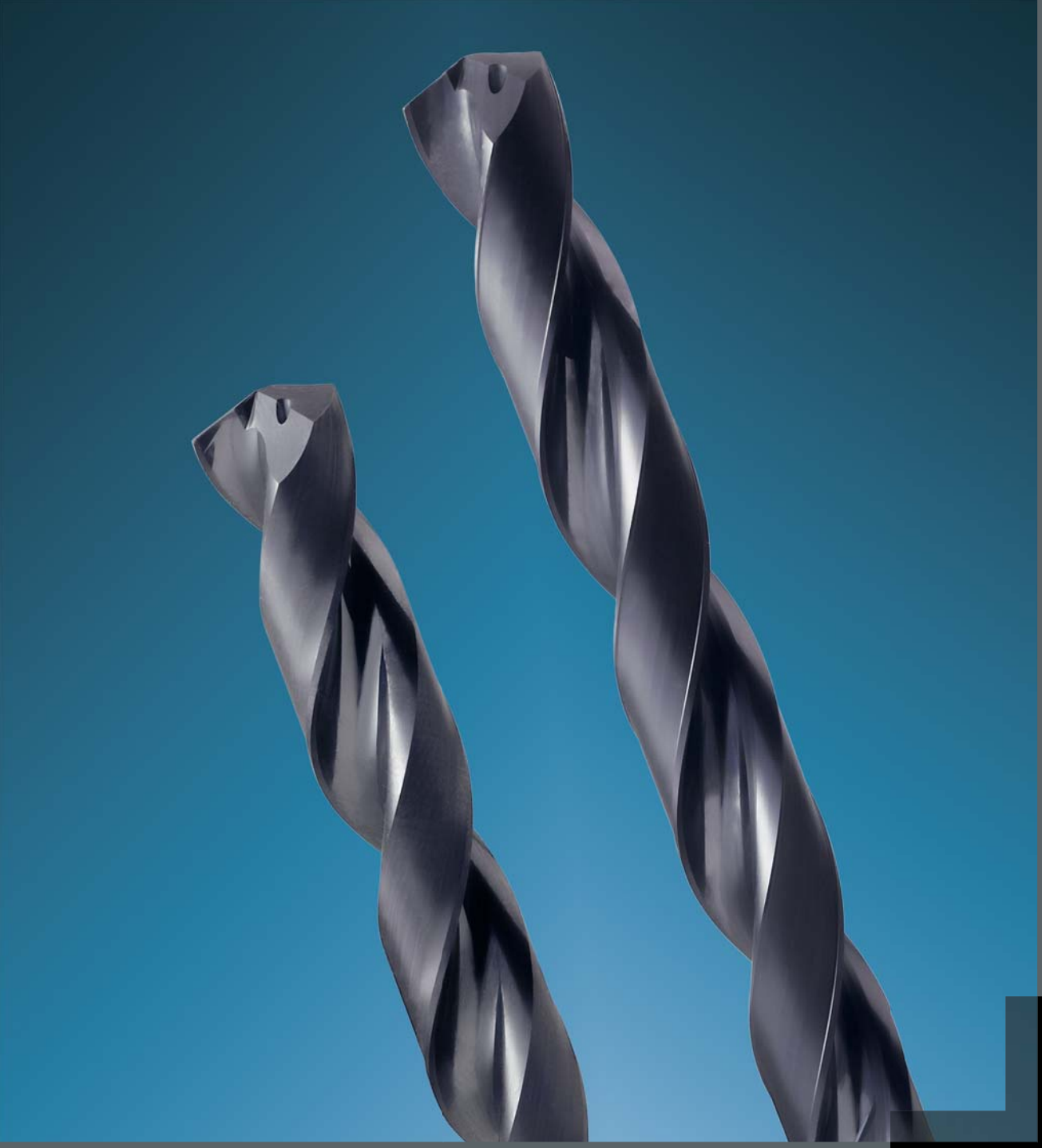
KOMET GROUP



KOMET KUB® Drillmax

High-performance drills for small diameters
Inch-size program

TOOLS + IDEAS®

KOMET KUB® Drillmax

High-performance drill for small diameters – Inch-size program – 0.120" - 0.750"

The new inch program for the KUB® Drillmax high-performance solid carbide drills completes our range of metric drills. The inch drills are available in diamters of 0.120" to 0.750" and length/diameter ratios of 5×D and 7-8×D*.

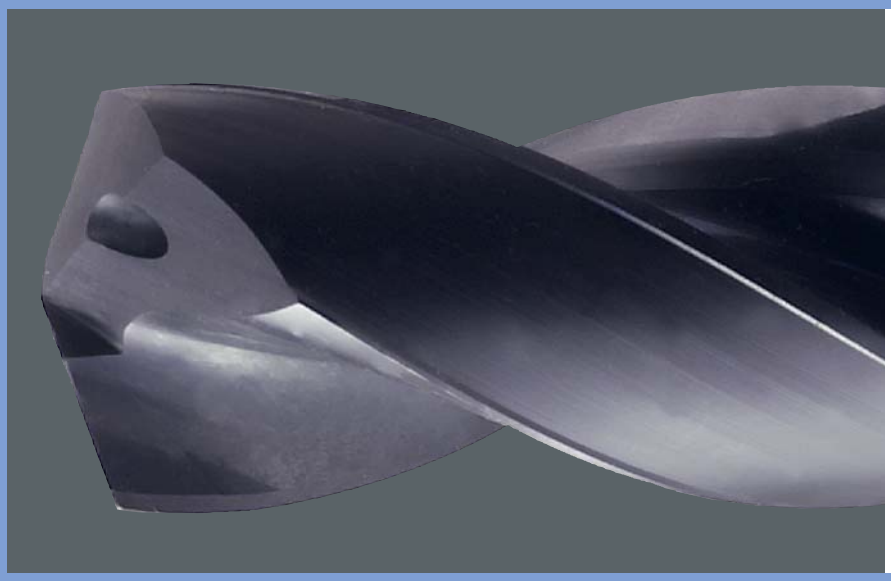
Optimized, special flutes are ideal for removing chips and for highly productive machining.

Details:

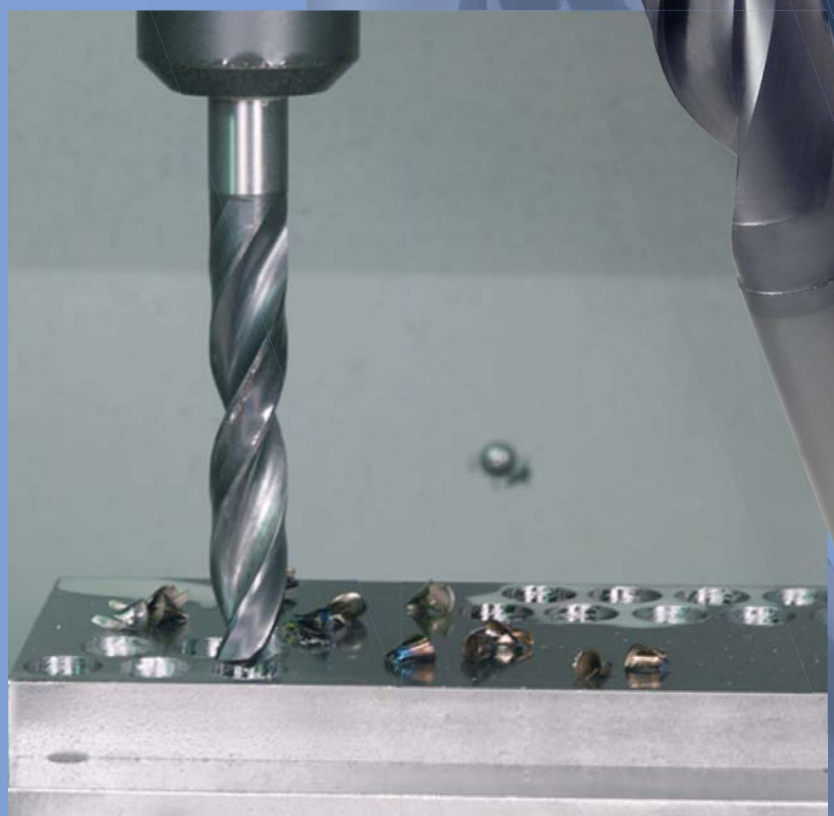
- Drill diameter (5xD): 0.120 – 0.750 inch
- Drill diameter (7-8xD): 0.120 – 0.500 inch
- Hole tolerance: IT9 (achievable)
- Drilling depth: 5×D, 7-8×D
- Shank shape: HA, HE and HB (DIN 6535)
- Coating: TiAlN
- Point angle: 140°
- Helix angle: 30°
- Internal coolant supply

Your PLUS:

- Inch program designed for the North American market
- Excellent hole tolerances
- Optimum chip removal thanks to special flutes
- Optimum machining result thanks to good coordination of carbide and coating with drill geometry
- Long tool edge life thanks to effective coating
- Double margins for optimum alignment and stability (7xD and longer)



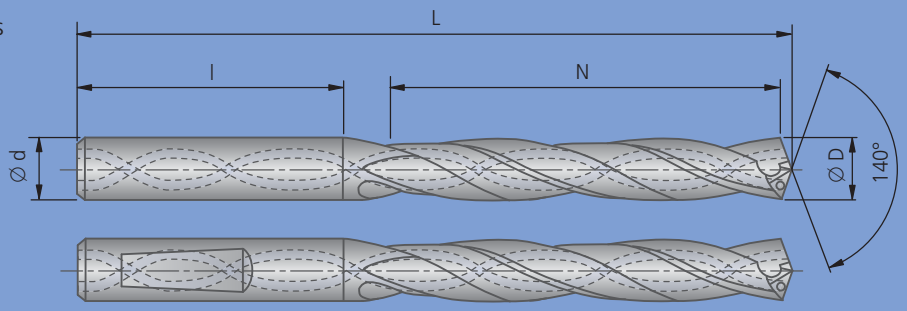
*Please refer to the KomPass Bore Machining & Tools Plus Ideas catalogs for the complete metric program.



L / D	solid drilling	blind hole	forge/casting skin, interface	angled	convex	cross bore	centering bore	chamber	stack plate drilling	rough boring	adjustable
5×D	●	●	◐	○	○	○	○	✕	◐	○	✕

● very good ◐ good ○ possible: see technical notes, page ✕ not possible

- coating: TiAlN
- with coolant channels



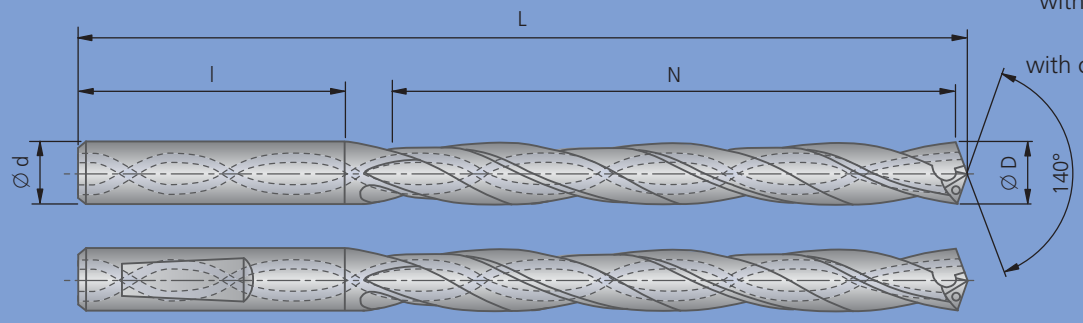
5 × D							for workpiece material
Ø D	Ø d × l	DIN 6535 HA Order No.	DIN 6535 HE Order No.	DIN 6535 HB Order No.	L	N	P M K N S H
0.120	0.188 × 1.417	V03 12000.412730	V03 12000.512730	V03 12000.612730	2.598	0.944	
0.125	0.188 × 1.417	V03 12500.412730	V03 12500.512730	V03 12500.612730	2.598	0.944	
0.129	0.188 × 1.417	V03 12850.412730	V03 12850.512730	V03 12850.612730	2.598	0.944	
0.136	0.188 × 1.417	V03 13600.412730	V03 13600.512730	V03 13600.612730	2.598	0.944	
0.141	0.188 × 1.417	V03 14060.412730	V03 14060.512730	V03 14060.612730	2.598	0.944	● ◐ ◐
0.156	0.188 × 1.417	V03 15620.412730	V03 15620.512730	V03 15620.612730	2.913	1.181	
0.159	0.188 × 1.417	V03 15900.412730	V03 15900.512730	V03 15900.612730	2.913	1.181	
0.172	0.188 × 1.417	V03 17190.412730	V03 17190.512730	V03 17190.612730	2.913	1.181	
0.188	0.188 × 1.417	V03 18750.412730	V03 18750.512730	V03 18750.612730	3.228	1.377	
0.203	0.250 × 1.417	V03 20310.412730	V03 20310.512730	V03 20310.612730	3.228	1.377	
0.219	0.250 × 1.417	V03 21870.412730	V03 21870.512730	V03 21870.612730	3.228	1.377	
0.221	0.250 × 1.417	V03 22100.412730	V03 22100.512730	V03 22100.612730	3.228	1.377	● ◐ ◐
0.234	0.250 × 1.417	V03 23440.412730	V03 23440.512730	V03 23440.612730	3.228	1.377	
0.250	0.250 × 1.417	V03 25000.412730	V03 25000.512730	V03 25000.612730	3.582	1.692	
0.257	0.312 × 1.417	V03 25700.412730	V03 25700.512730	V03 25700.612730	3.582	1.692	
0.261	0.312 × 1.417	V03 26100.412730	V03 26100.512730	V03 26100.612730	3.582	1.692	
0.266	0.312 × 1.417	V03 26560.412730	V03 26560.512730	V03 26560.612730	3.582	1.692	● ◐ ◐
0.281	0.312 × 1.417	V03 28120.412730	V03 28120.512730	V03 28120.612730	3.582	1.692	
0.297	0.312 × 1.417	V03 29690.412730	V03 29690.512730	V03 29690.612730	3.582	1.692	
0.313	0.437 × 1.574	V03 31250.412730	V03 31250.512730	V03 31250.612730	3.582	1.692	
0.328	0.437 × 1.574	V03 32810.412730	V03 32810.512730	V03 32810.612730	4.055	1.929	
0.332	0.437 × 1.574	V03 33200.412730	V03 33200.512730	V03 33200.612730	4.055	1.929	
0.344	0.437 × 1.574	V03 34380.412730	V03 34380.512730	V03 34380.612730	4.055	1.929	
0.359	0.437 × 1.574	V03 35940.412730	V03 35940.512730	V03 35940.612730	4.055	1.929	● ◐ ◐
0.375	0.437 × 1.574	V03 37500.412730	V03 37500.512730	V03 37500.612730	4.055	1.929	
0.391	0.437 × 1.574	V03 39060.412730	V03 39060.512730	V03 39060.612730	4.055	1.929	
0.406	0.437 × 1.574	V03 40620.412730	V03 40620.512730	V03 40620.612730	4.645	2.204	
0.422	0.437 × 1.574	V03 42190.412730	V03 42190.512730	V03 42190.612730	4.645	2.204	
0.438	0.500 × 1.771	V03 43750.412730	V03 43750.512730	V03 43750.612730	4.645	2.204	
0.453	0.500 × 1.771	V03 45310.412730	V03 45310.512730	V03 45310.612730	4.645	2.204	
0.469	0.500 × 1.771	V03 46880.412730	V03 46880.512730	V03 46880.612730	4.645	2.204	● ◐ ◐
0.484	0.500 × 1.771	V03 48440.412730	V03 48440.512730	V03 48440.612730	4.881	2.362	
0.500	0.500 × 1.771	V03 50000.412730	V03 50000.512730	V03 50000.612730	4.881	2.362	
0.516	0.562 × 1.771	V03 51560.412730	V03 51560.512730	V03 51560.612730	4.881	2.362	
0.531	0.562 × 1.771	V03 53120.412730	V03 53120.512730	V03 53120.612730	4.881	2.362	● ◐ ◐
0.547	0.562 × 1.771	V03 54690.412730	V03 54690.512730	V03 54690.612730	5.236	2.480	
0.563	0.625 × 1.771	V03 56250.412730	V03 56250.512730	V03 56250.612730	5.236	2.480	
0.594	0.625 × 1.771	V03 59380.412730	V03 59380.512730	V03 59380.612730	5.236	2.480	● ◐ ◐
0.625	0.625 × 1.771	V03 62500.412730	V03 62500.512730	V03 62500.612730	5.236	2.480	
0.656	0.687 × 1.771	V03 65620.412730	V03 65620.512730	V03 65620.612730	5.236	2.480	
0.688	0.750 × 1.771	V03 68750.412730	V03 68750.512730	V03 68750.612730	5.236	2.480	● ◐ ◐
0.750	0.750 × 1.771	V03 75000.412730	V03 75000.512730	V03 75000.612730	5.236	2.480	

Note: with whistle notch clamping surface conforming to DIN 6535 HE.

L / D	solid drilling	blind hole	forge/casting skin, interface	angled	convex	cross bore	centering bore	chamber	stack plate drilling	rough boring	adjustable
7–8×D	●	●	◐	○	○	○	○	✕	◐	○	✕

● very good ◐ good ○ possible: see technical notes, page ✕ not possible

with double margins ■
coating: TiAlN ■
with coolant channels ■



7 – 8 × D							for workpiece material
Ø D	Ø d × l	DIN 6535 HA Order No.	DIN 6535 HE Order No.	DIN 6535 HB Order No.	L	N	P M K N S H
0.120	0.188 × 1.417	V04 12000.412730	V04 12000.512730	V04 12000.612730	2.755	1.102	
0.125	0.188 × 1.417	V04 12500.412730	V04 12500.512730	V04 12500.612730	2.755	1.102	
0.129	0.188 × 1.417	V04 12850.412730	V04 12850.512730	V04 12850.612730	2.755	1.102	
0.136	0.188 × 1.417	V04 13600.412730	V04 13600.512730	V04 13600.612730	2.755	1.102	
0.141	0.188 × 1.417	V04 14060.412730	V04 14060.512730	V04 14060.612730	3.622	1.771	● ◐ ◐
0.156	0.188 × 1.417	V04 15620.412730	V04 15620.512730	V04 15620.612730	3.622	1.771	
0.159	0.188 × 1.417	V04 15900.412730	V04 15900.512730	V04 15900.612730	3.622	1.771	
0.172	0.188 × 1.417	V04 17190.412730	V04 17190.512730	V04 17190.612730	3.622	1.771	
0.188	0.188 × 1.417	V04 18750.412730	V04 18750.512730	V04 18750.612730	3.622	1.771	
0.203	0.250 × 1.417	V04 20310.412730	V04 20310.512730	V04 20310.612730	3.622	1.771	
0.219	0.250 × 1.417	V04 21870.412730	V04 21870.512730	V04 21870.612730	3.622	1.771	
0.221	0.250 × 1.417	V04 22100.412730	V04 22100.512730	V04 22100.612730	3.622	1.771	● ◐ ◐
0.234	0.250 × 1.417	V04 23440.412730	V04 23440.512730	V04 23440.612730	3.622	1.771	
0.250	0.250 × 1.417	V04 25000.412730	V04 25000.512730	V04 25000.612730	3.937	2.047	
0.257	0.312 × 1.417	V04 25700.412730	V04 25700.512730	V04 25700.612730	3.937	2.047	
0.261	0.312 × 1.417	V04 26100.412730	V04 26100.512730	V04 26100.612730	3.937	2.047	
0.266	0.312 × 1.417	V04 26560.412730	V04 26560.512730	V04 26560.612730	3.937	2.047	● ◐ ◐
0.281	0.312 × 1.417	V04 28120.412730	V04 28120.512730	V04 28120.612730	4.251	2.362	
0.297	0.312 × 1.417	V04 29690.412730	V04 29690.512730	V04 29690.612730	4.251	2.362	
0.313	0.437 × 1.574	V04 31250.412730	V04 31250.512730	V04 31250.612730	4.251	2.362	
0.328	0.437 × 1.574	V04 32810.412730	V04 32810.512730	V04 32810.612730	4.803	2.677	
0.332	0.437 × 1.574	V04 33200.412730	V04 33200.512730	V04 33200.612730	4.803	2.677	
0.344	0.437 × 1.574	V04 34380.412730	V04 34380.512730	V04 34380.612730	4.803	2.677	
0.359	0.437 × 1.574	V04 35940.412730	V04 35940.512730	V04 35940.612730	5.118	2.992	● ◐ ◐
0.375	0.437 × 1.574	V04 37500.412730	V04 37500.512730	V04 37500.612730	5.118	2.992	
0.391	0.437 × 1.574	V04 39060.412730	V04 39060.512730	V04 39060.612730	5.118	2.992	
0.406	0.437 × 1.574	V04 40620.412730	V04 40620.512730	V04 40620.612730	5.984	3.543	
0.422	0.437 × 1.574	V04 42190.412730	V04 42190.512730	V04 42190.612730	5.984	3.543	
0.438	0.500 × 1.771	V04 43750.412730	V04 43750.512730	V04 43750.612730	5.984	3.543	
0.453	0.500 × 1.771	V04 45310.412730	V04 45310.512730	V04 45310.612730	5.984	3.543	
0.469	0.500 × 1.771	V04 46880.412730	V04 46880.512730	V04 46880.612730	5.984	3.543	● ◐ ◐
0.484	0.500 × 1.771	V04 48440.412730	V04 48440.512730	V04 48440.612730	6.692	4.173	
0.500	0.500 × 1.771	V04 50000.412730	V04 50000.512730	V04 50000.612730	6.692	4.173	

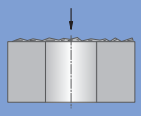
Other diameters on request.

Guideline values for solid drilling: page 6

Guidelines for solid drilling

5×D / 7-8×D

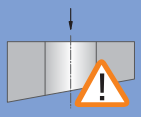
Material group		Strength Rm lbf/ins²	Hardness HB	Material	Material example ANSI / SAE	Cutting speed v_c ft/min			Feed f in/rev															
									Ø 0.120-0.197			Ø 0.198-0.315			Ø 0.316-0.394			Ø 0.395-0.472			Ø 0.473-0.551			Ø 0.552-0.750		
						min	opt.	max	min	opt.	max	min	opt.	max	min	opt.	max	min	opt.	max	min	opt.	max	min	opt.	max
P	1.0	≤72500		non-alloy steels	A570.36 1213 A573.81	310	380	440	0.003	0.006	0.008	0.006	0.008	0.010	0.006	0.009	0.012	0.008	0.011	0.014	0.010	0.013	0.016	0.012	0.015	0.018
	2.0	72500-130000		non-alloy / low alloy steels	5120 1055 5115	230	280	330	0.002	0.005	0.007	0.005	0.007	0.009	0.006	0.008	0.010	0.007	0.009	0.012	0.008	0.011	0.014	0.012	0.017	0.019
	2.1	<72500		lead alloys	12L13	230	280	330	0.002	0.005	0.007	0.004	0.007	0.010	0.008	0.011	0.014	0.010	0.013	0.016	0.012	0.015	0.018	0.014	0.017	0.020
	3.0	>130000-174000		non alloy / low alloy steels: heat resistant structural, heat treated, nitride and tools steels	4140 1064	230	245	260	0.002	0.004	0.006	0.004	0.006	0.008	0.005	0.007	0.010	0.006	0.009	0.012	0.008	0.011	0.014	0.010	0.013	0.016
	4.0	>174000		high alloy steels	H13 H21	145	195	245	0.002	0.004	0.005	0.004	0.006	0.007	0.005	0.007	0.009	0.006	0.009	0.011	0.007	0.010	0.013	0.008	0.011	0.014
	4.1			HSS																						
S	5.0		250	special alloys: Inconel, Hastelloy, Nimonic, stc.	Inconel® 718 Nimonic® 80A																					
	5.1	58000		titanium, titanium alloys	AMS R54520																					
M	6.0	≤87000		stainless steels	304L 316	130	180	230	0.002	0.005	0.007	0.005	0.007	0.009	0.006	0.008	0.010	0.007	0.009	0.012	0.008	0.011	0.014	0.009	0.012	0.016
	6.1	<130000		stainless steels	630	80	150	210	0.002	0.003	0.004	0.004	0.006	0.008	0.004	0.007	0.009	0.006	0.008	0.010	0.006	0.009	0.012	0.008	0.011	0.014
	7.0	>130000		stainless / fireproof steels	420 403	50	100	130	0.002	0.003	0.004	0.002	0.004	0.006	0.003	0.005	0.007	0.005	0.007	0.009	0.006	0.008	0.010	0.006	0.009	0.012
K	8.0		180	gray cast iron	No 35 B No 50 B	295	380	460	0.004	0.007	0.010	0.006	0.009	0.012	0.008	0.012	0.016	0.010	0.013	0.016	0.010	0.014	0.018	0.012	0.016	0.020
	8.1		250	alloy gray cast iron	A436 Type 2	230	310	390	0.004	0.007	0.010	0.006	0.009	0.012	0.008	0.012	0.016	0.010	0.013	0.016	0.010	0.014	0.018	0.012	0.016	0.020
	9.0	≤87000	130	ductile cast iron, ferritic	60-40-18	330	390	460	0.003	0.006	0.008	0.006	0.008	0.010	0.006	0.009	0.012	0.008	0.011	0.014	0.010	0.013	0.016	0.012	0.015	0.018
	9.1		230	ductile cast iron, ferritic / perlitic	80-55-06	260	330	390	0.002	0.005	0.007	0.004	0.006	0.008	0.006	0.008	0.010	0.007	0.009	0.012	0.008	0.011	0.014	0.010	0.013	0.016
	10.0	>87000	250	spheroidal graphite cast iron, perlitic malleable iron	100-70-03 70003	230	295	360	0.002	0.005	0.007	0.004	0.006	0.008	0.006	0.008	0.010	0.007	0.009	0.012	0.008	0.011	0.014	0.010	0.013	0.016
	10.1		200	alloyed spheroidal graphite cast iron	A43D2	195	230	260	0.002	0.005	0.007	0.004	0.006	0.008	0.006	0.008	0.010	0.007	0.009	0.012	0.008	0.011	0.014	0.010	0.013	0.016
	10.2		300	vermicular cast iron		195	230	260	0.002	0.005	0.007	0.004	0.006	0.008	0.006	0.008	0.010	0.007	0.009	0.012	0.008	0.011	0.014	0.010	0.013	0.016
N	12.0		90	copper alloy, brass, lead-alloy bronze, lead bronze: good cut	UNS C36000																					
	12.1		100	copper alloy, brass, bronze: average cut																						
	13.0		60	wrought aluminum alloys	GD-AlSi12																					
	13.1		75	cast aluminum alloy: Si-content <10% magnesium alloy																						
	14.0		100	cast aluminum alloy: Si-content > 10%	A360.2																					
H	15.0	203000		hardened steels < 45 HRC																						
	16.0	261000		hardened steels > 45 HRC, ≤ 55 HRC																						

1. 

Starting on uneven surfaces (cast surfaces)
- depending on the quality of the surface or when spot drilling, reduce the feed

2. 

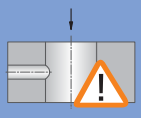
Starting on angled surfaces
- spot face surface before starting bore

3. 

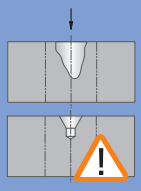
Angled bore exit
- reduce feed by 50 % in the exit area

4. 

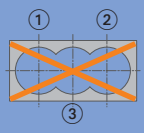
Starting on cambered surfaces
- drilling on centre with reduced feed is possible
- spot facing is required if the bore start point is outside the radius centre

5. 

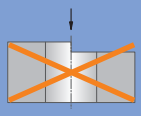
Drilling through a cross bore
- half feed rate at interruption

6. 

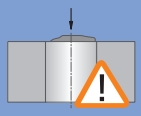
Starting on a groove or large centering bore
- end-face the seam or centre beforehand where applicable (diameter min. 0.1 mm greater than drill diameter)
- possible under certain conditions. Reduce feed where necessary

7. 

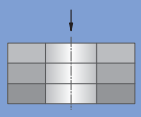
Drilling a chamfer
- not possible

8. 

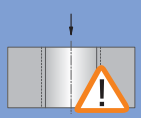
Starting on an edge
- not possible (start point must be flat)

9. 

Starting on a welded seam
- spot face surface before starting bore

10. 

Drilling through stacked plates
- possible in principle
- good workpiece clamping required
- avoid large spaces between elements

11. 

Roughing
- 5×D and 7-8×D possible

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