



Jongen Werkzeugtechnik



# Jongen UNI-MILL Solid Carbide Drills

## VHB 55508 DR20 8xD



Products from



Willich



North-Rhine  
Westphalia



Germany



Europe

for



Europe

and the



## The Tools

These Jongen solid carbide drills have been especially developed for universal drilling operations of different steels, high grade steels and cast iron materials

The tools are available in diameter range from 2,0 mm up to 20,0 mm.

The front surface geometry allow precise pre-drilling, the great chip spaces provide an optimal chip flow even for drilling depths of **8xD**.

All tools are equipped with cooling channels.

Up to shank diameter 6mm the drills are equipped with 2 cooling channels, starting with shank diameter 8 mm the drills have 4 cooling channels. Thus also for bigger diameters an optimal cooling at the chisel edge can be granted during the drilling process.

The tools in diameter 2,0 up to 10 mm are available in  $1/10$  gradations.

## Product Characteristics

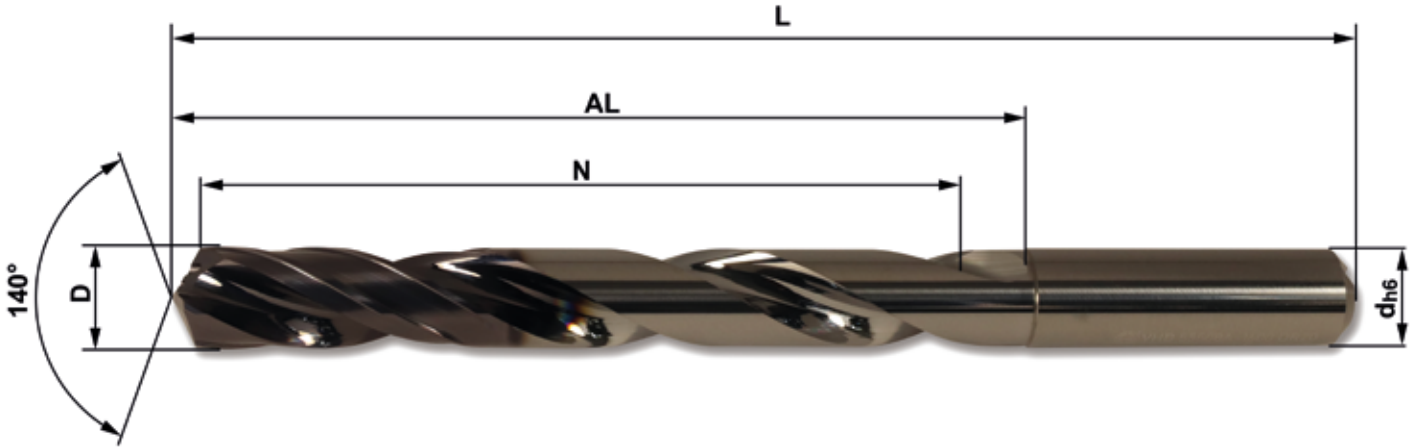
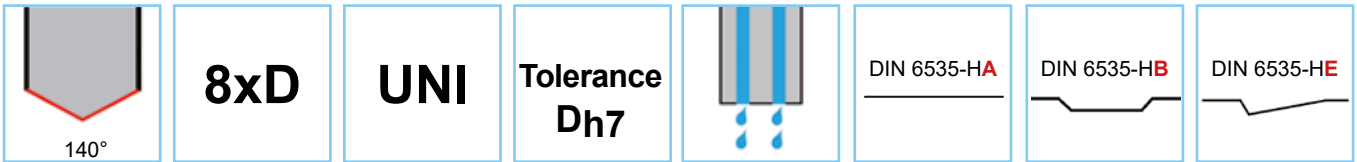
Characteristic	Your advantage
Universal programme	<ul style="list-style-type: none"><li>- Drill with 2 cutting edges for milling and for turning machines</li><li>- Can be adopted for almost all entry and exit machining types</li><li>- Less necessity of tools ensure a reduction of storage costs</li></ul>
Optimized macro geometry	<ul style="list-style-type: none"><li>- Cutting pressure reduction</li><li>- Excellent removal rates</li><li>- Extremely high tool lives</li></ul>
Polished flutes	<ul style="list-style-type: none"><li>- Better chip evacuation and higher chip flow speed thanks to less frictional resistance</li><li>- Avoid bird nesting</li><li>- Chipping force reduction</li></ul>
Main cutting edge as long and even version	<ul style="list-style-type: none"><li>- High productivity and very good drill hole quality also for high feed rates and cutting speeds</li><li>- Reduced cutting forces</li><li>- Improved tool lives</li><li>- The tool enters cleanly in the material and leaves no feathering</li></ul>



## Product Characteristics

Characteristic	Your advantage
Point angle of 140°	Excellent centering capability
Faced cut edge at the top	Total centering accuracy by perfectly executed top
Double-faced guiding chamfer	<ul style="list-style-type: none"> <li>- Increases the drilling precision and drilling alignment by the guiding stability given at 4 specifically to each other arranged contact faces</li> <li>- The particularly high surface quality on the guiding chamfers reduce friction with the bore hole wall, despite the guidance of totally 4 chamfers</li> </ul>
Optimized micro geometry	<ul style="list-style-type: none"> <li>- Very long tool lives thanks to the best combination of coating and carbide</li> <li>- Stable cutting edge for safe machining processes</li> </ul>
Optimized groove shape with outlet radius	<p>Forms the chip in the groove surface and not along the wall of the drill hole</p> <ul style="list-style-type: none"> <li>→ avoid bucklings and adherences</li> <li>→ higher surface quality</li> <li>→ lower friction</li> <li>→ very high operational security</li> </ul>
Shank	<p>Up to shank diameter &lt;6mm - shank made to DIN 6535-HA. Starting by shank diameter 6mm - there are 3 different shank-variations available:</p> <p>VHB 55508A =&gt; Shank made to DIN 6535-HA  VHB 55508B =&gt; Shank made to DIN 6535-HB  VHB 55508E =&gt; Shank made to DIN 6535-HE</p>
Internal cooling channels	<ul style="list-style-type: none"> <li>- Optimized chip flow</li> <li>- Longer tool lives by low temperatures</li> <li>- The heat input in the working material is minimized</li> <li>- Increased cooling capacity at the top level, also for deep bore holes</li> <li>- Increased flushing volume due to higher duct cross-sections*</li> </ul> <p>(*In sum, the 4 cooling channels instead of only 2 cooling channels allow a higher coolant flow (approx. 25% possible))</p>
Carbide and coating = Quality DR20	<ul style="list-style-type: none"> <li>- Finest grain carbide, DIN ISO field K20-40</li> <li>- Very even AlTiN-supernitride coating</li> <li>→ high stability and reliability</li> <li>→ low fracture susceptibility</li> <li>→ universally applicable</li> <li>→ very good drill hole quality</li> </ul>
Tools can be reconditioned	High cost-benefit ratio

## Technical Data VHB 55508 DR20



Up to shank diameter <6mm all solid carbide drills have a shank made to DIN 6535-HA (cylindrical).

Starting by shank diameter 6mm there are 3 different shank-variations available:

- Shank DIN 6535-HA (cylindrical) => Order-No. VHB 55505A-... DR20
- Shank DIN 6535-HB (Weldon) => Order-No. VHB 55505B-... DR20
- Shank DIN 6535-HE (Whistle-Notch) => Order-No. VHB 55505E-... DR20

Order-No.: **VHB 55508\*-...**

(Please instead of \* indicate the shank type and complete the remaining part of the article code by below stated chart)

VHB 55508*-	D	AL	N	L	d	Z	IK	VHB 55508*-	D	AL	N	L	d	Z	IK
...0200 DR20	2,00	31,3	20	61,5	3	2	2	...0400 DR20	4,00	51,8	40	95,0	6	2	2
...0210 DR20	2,10	31,3	21	61,5	3	2	2	...0410 DR20	4,10	51,8	41	95,0	6	2	2
...0220 DR20	2,20	31,3	22	61,5	3	2	2	...0420 DR20	4,20	51,8	42	95,0	6	2	2
...0230 DR20	2,30	31,3	23	61,5	3	2	2	...0430 DR20	4,30	51,8	43	95,0	6	2	2
...0240 DR20	2,40	31,3	24	61,5	3	2	2	...0440 DR20	4,40	51,8	44	95,0	6	2	2
...0250 DR20	2,50	31,3	25	61,5	3	2	2	...0450 DR20	4,50	51,8	45	95,0	6	2	2
...0260 DR20	2,60	31,3	26	61,5	4	2	2	...0460 DR20	4,60	51,8	46	95,0	6	2	2
...0270 DR20	2,70	31,3	27	61,5	4	2	2	...0470 DR20	4,70	51,8	47	95,0	6	2	2
...0280 DR20	2,80	31,3	28	61,5	4	2	2	...0480 DR20	4,80	51,8	48	95,0	6	2	2
...0290 DR20	2,90	31,3	29	61,5	4	2	2	...0490 DR20	4,90	51,8	49	95,0	6	2	2
...0300 DR20	3,00	40,0	30	82,0	6	2	2	...0500 DR20	5,00	62,5	50	103,0	6	2	2
...0310 DR20	3,10	40,0	31	82,0	6	2	2	...0510 DR20	5,10	62,5	51	103,0	6	2	2
...0320 DR20	3,20	40,0	32	82,0	6	2	2	...0520 DR20	5,20	62,5	52	103,0	6	2	2
...0330 DR20	3,30	40,0	33	82,0	6	2	2	...0530 DR20	5,30	62,5	53	103,0	6	2	2
...0340 DR20	3,40	40,0	34	82,0	6	2	2	...0540 DR20	5,40	62,5	54	103,0	6	2	2
...0350 DR20	3,50	40,0	35	82,0	6	2	2	...0550 DR20	5,50	62,5	55	103,0	6	2	2
...0360 DR20	3,60	40,0	36	82,0	6	2	2	...0560 DR20	5,60	62,5	56	103,0	6	2	2
...0370 DR20	3,70	40,0	37	82,0	6	2	2	...0570 DR20	5,70	62,5	57	103,0	6	2	2
...0380 DR20	3,80	51,8	38	95,0	6	2	2	...0580 DR20	5,80	62,5	58	103,0	6	2	2
...0390 DR20	3,90	51,8	39	95,0	6	2	2	...0590 DR20	5,90	62,5	59	103,0	6	2	2

Order-No.: **VHB 55508\*-...**

(Please instead of \* indicate the shank type and complete the remaining part of the article code by below stated chart)

VHB 55508*-	D	AL	N	L	d	Z	IK
...0600 DR20	6,00	62,5	59	103,0	6	2	2
...0610 DR20	6,10	77,0	60	117,0	8	2	4
...0620 DR20	6,20	77,0	61	117,0	8	2	4
...0630 DR20	6,30	77,0	62	117,0	8	2	4
...0640 DR20	6,40	77,0	63	117,0	8	2	4
...0650 DR20	6,50	77,0	64	117,0	8	2	4
...0660 DR20	6,60	77,0	65	117,0	8	2	4
...0670 DR20	6,70	77,0	66	117,0	8	2	4
...0680 DR20	6,80	77,0	66	117,0	8	2	4
...0690 DR20	6,90	77,0	67	117,0	8	2	4
...0700 DR20	7,00	77,0	68	117,0	8	2	4
...0710 DR20	7,10	77,0	69	117,0	8	2	4
...0720 DR20	7,20	77,0	70	117,0	8	2	4
...0730 DR20	7,30	77,0	71	117,0	8	2	4
...0740 DR20	7,40	77,0	72	117,0	8	2	4
...0750 DR20	7,50	77,0	73	117,0	8	2	4
...0760 DR20	7,60	77,0	73	117,0	8	2	4
...0770 DR20	7,70	77,0	74	117,0	8	2	4
...0780 DR20	7,80	77,0	74	117,0	8	2	4
...0790 DR20	7,90	77,0	74	117,0	8	2	4
...0800 DR20	8,00	77,0	74	117,0	8	2	4
...0810 DR20	8,10	92,5	75	140,0	10	2	4
...0820 DR20	8,20	92,5	76	140,0	10	2	4
...0830 DR20	8,30	92,5	77	140,0	10	2	4
...0840 DR20	8,40	92,5	78	140,0	10	2	4
...0850 DR20	8,50	92,5	79	140,0	10	2	4
...0860 DR20	8,60	92,5	80	140,0	10	2	4
...0870 DR20	8,70	92,5	81	140,0	10	2	4
...0880 DR20	8,80	92,5	81	140,0	10	2	4
...0890 DR20	8,90	92,5	82	140,0	10	2	4
...0900 DR20	9,00	92,5	83	140,0	10	2	4
...0910 DR20	9,10	92,5	84	140,0	10	2	4
...0920 DR20	9,20	92,5	85	140,0	10	2	4
...0930 DR20	9,30	92,5	86	140,0	10	2	4
...0940 DR20	9,40	92,5	87	140,0	10	2	4
...0950 DR20	9,50	92,5	88	140,0	10	2	4
...0960 DR20	9,60	92,5	89	140,0	10	2	4
...0970 DR20	9,70	92,5	90	140,0	10	2	4
...0980 DR20	9,80	92,5	90	140,0	10	2	4
...0990 DR20	9,90	92,5	90	140,0	10	2	4
...1000 DR20	10,00	92,5	90	140,0	10	2	4
...1010 DR20	10,10	106,0	91	156,0	12	2	4
...1020 DR20	10,20	106,0	92	156,0	12	2	4
...1030 DR20	10,30	106,0	93	156,0	12	2	4
...1040 DR20	10,40	106,0	94	156,0	12	2	4
...1050 DR20	10,50	106,0	95	156,0	12	2	4
...1060 DR20	10,60	106,0	96	156,0	12	2	4
...1070 DR20	10,70	106,0	97	156,0	12	2	4
...1080 DR20	10,80	106,0	97	156,0	12	2	4
...1090 DR20	10,90	106,0	98	156,0	12	2	4

VHB 55508*-	D	AL	N	L	d	Z	IK
...1100 DR20	11,00	106,0	99	156,0	12	2	4
...1110 DR20	11,10	106,0	100	156,0	12	2	4
...1120 DR20	11,20	106,0	101	156,0	12	2	4
...1130 DR20	11,30	106,0	101	156,0	12	2	4
...1140 DR20	11,40	106,0	102	156,0	12	2	4
...1150 DR20	11,50	106,0	102	156,0	12	2	4
...1160 DR20	11,60	106,0	102	156,0	12	2	4
...1170 DR20	11,70	106,0	103	156,0	12	2	4
...1180 DR20	11,80	106,0	103	156,0	12	2	4
...1190 DR20	11,90	106,0	103	156,0	12	2	4
...1200 DR20	12,00	106,0	103	156,0	12	2	4
...1220 DR20	12,20	117,5	105	168,0	14	2	4
...1250 DR20	12,50	117,5	107	168,0	14	2	4
...1280 DR20	12,80	117,5	110	168,0	14	2	4
...1300 DR20	13,00	117,5	112	168,0	14	2	4
...1350 DR20	13,50	117,5	115	168,0	14	2	4
...1380 DR20	13,80	117,5	116	168,0	14	2	4
...1400 DR20	14,00	117,5	116	168,0	14	2	4
...1420 DR20	14,20	133,0	117	188,0	16	2	4
...1450 DR20	14,50	133,0	120	188,0	16	2	4
...1480 DR20	14,80	133,0	122	188,0	16	2	4
...1500 DR20	15,00	133,0	124	188,0	16	2	4
...1550 DR20	15,50	133,0	128	188,0	16	2	4
...1580 DR20	15,80	133,0	130	188,0	16	2	4
...1600 DR20	16,00	133,0	132	188,0	16	2	4
...1650 DR20	16,50	147,5	136	202,0	18	2	4
...1680 DR20	16,80	147,5	139	202,0	18	2	4
...1700 DR20	17,00	147,5	140	202,0	18	2	4
...1750 DR20	17,50	147,5	144	202,0	18	2	4
...1780 DR20	17,80	147,5	146	202,0	18	2	4
...1800 DR20	18,00	147,5	147	202,0	18	2	4
...1850 DR20	18,50	162,0	151	220,0	20	2	4
...1880 DR20	18,80	162,0	153	220,0	20	2	4
...1900 DR20	19,00	162,0	155	220,0	20	2	4
...1950 DR20	19,50	162,0	159	220,0	20	2	4
...1980 DR20	19,80	162,0	160	220,0	20	2	4
...2000 DR20	20,00	162,0	160	220,0	20	2	4



AL=Settle length

IK = No. of internal cooling channels

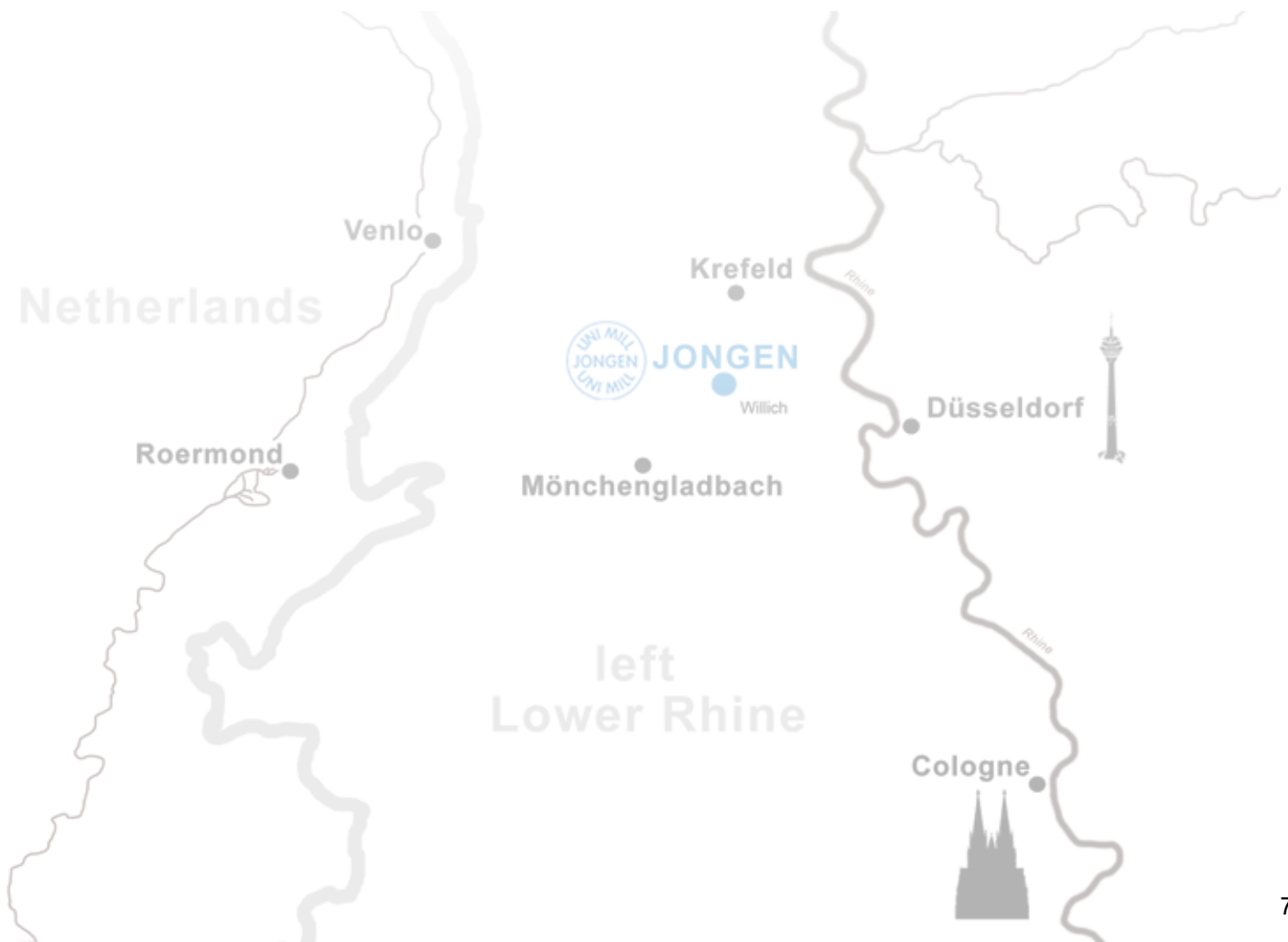
## Parameters Recommendation

Material	D [mm]	Vc [m/min]	f [mm/U]	n [min <sup>-1</sup> ]	Vf [mm/min]
Structural steel Unalloyed steel  <800 N/mm <sup>2</sup>	2	120 (90 - 140)	0,065 (0,062 - 0,074)	19.099	1.249
	3	120 (90 - 140)	0,094 (0,089 - 0,105)	12.732	1.194
	4	120 (90 - 140)	0,120 (0,114 - 0,135)	9.549	1.143
	5	120 (90 - 140)	0,143 (0,136 - 0,161)	7.639	1.096
	6	120 (90 - 140)	0,165 (0,157 - 0,186)	6.366	1.052
	7	120 (90 - 140)	0,186 (0,176 - 0,209)	5.457	1.013
	8	120 (90 - 140)	0,204 (0,194 - 0,230)	4.775	976
	9	120 (90 - 140)	0,222 (0,211 - 0,249)	4.244	941
	10	120 (90 - 140)	0,238 (0,226 - 0,268)	3.820	909
	11	120 (90 - 140)	0,253 (0,241 - 0,285)	3.472	879
	12	120 (90 - 140)	0,267 (0,254 - 0,301)	3.183	851
	13	120 (90 - 140)	0,281 (0,267 - 0,316)	2.938	825
	14	120 (90 - 140)	0,293 (0,279 - 0,330)	2.728	800
	15	120 (90 - 140)	0,305 (0,290 - 0,343)	2.546	777
	16	120 (90 - 140)	0,316 (0,300 - 0,356)	2.387	755
	17	120 (90 - 140)	0,327 (0,310 - 0,368)	2.247	734
	18	120 (90 - 140)	0,337 (0,320 - 0,379)	2.122	715
	19	120 (90 - 140)	0,346 (0,329 - 0,389)	2.010	696
	20	120 (90 - 140)	0,355 (0,337 - 0,400)	1.910	678
	Tool steel Heat-treatable steel Alloyed steel  800-1.200 N/mm <sup>2</sup>	2	100 (75 - 120)	0,062 (0,057 - 0,070)	15.915
3		100 (75 - 120)	0,087 (0,082 - 0,097)	10.610	919
4		100 (75 - 120)	0,108 (0,103 - 0,122)	7.958	860
5		100 (75 - 120)	0,127 (0,121 - 0,143)	6.366	808
6		100 (75 - 120)	0,144 (0,136 - 0,161)	5.305	761
7		100 (75 - 120)	0,158 (0,150 - 0,178)	4.547	720
8		100 (75 - 120)	0,172 (0,163 - 0,193)	3.979	683
9		100 (75 - 120)	0,184 (0,175 - 0,207)	3.537	650
10		100 (75 - 120)	0,195 (0,185 - 0,219)	3.183	620
11		100 (75 - 120)	0,205 (0,194 - 0,230)	2.894	592
12		100 (75 - 120)	0,214 (0,203 - 0,240)	2.653	567
13		100 (75 - 120)	0,222 (0,211 - 0,250)	2.449	544
14		100 (75 - 120)	0,230 (0,218 - 0,259)	2.274	523
15		100 (75 - 120)	0,237 (0,225 - 0,267)	2.122	503
16		100 (75 - 120)	0,244 (0,231 - 0,274)	1.989	485
17		100 (75 - 120)	0,250 (0,237 - 0,281)	1.872	468
18		100 (75 - 120)	0,255 (0,243 - 0,287)	1.768	452
19		100 (75 - 120)	0,261 (0,248 - 0,293)	1.675	437
20		100 (75 - 120)	0,266 (0,252 - 0,299)	1.592	423
High grade steel High alloyed steel		2	60 (40 - 75)	0,038 (0,035 - 0,043)	9.549
	3	60 (40 - 75)	0,054 (0,050 - 0,061)	6.366	345
	4	60 (40 - 75)	0,069 (0,063 - 0,077)	4.775	327
	5	60 (40 - 75)	0,082 (0,076 - 0,092)	3.820	312
	6	60 (40 - 75)	0,094 (0,086 - 0,105)	3.183	298
	7	60 (40 - 75)	0,104 (0,097 - 0,117)	2.728	285
	8	60 (40 - 75)	0,114 (0,106 - 0,129)	2.387	273
	9	60 (40 - 75)	0,123 (0,114 - 0,139)	2.122	262
	10	60 (40 - 75)	0,132 (0,122 - 0,148)	1.910	252
	11	60 (40 - 75)	0,140 (0,129 - 0,157)	1.736	243
	12	60 (40 - 75)	0,147 (0,136 - 0,165)	1.592	234
	13	60 (40 - 75)	0,154 (0,142 - 0,173)	1.469	226
	14	60 (40 - 75)	0,160 (0,148 - 0,180)	1.364	218
	15	60 (40 - 75)	0,166 (0,153 - 0,187)	1.273	211
	16	60 (40 - 75)	0,171 (0,159 - 0,193)	1.194	205
	17	60 (40 - 75)	0,177 (0,163 - 0,199)	1.123	198
	18	60 (40 - 75)	0,182 (0,168 - 0,204)	1.061	193
	19	60 (40 - 75)	0,186 (0,172 - 0,209)	1.005	187
	20	60 (40 - 75)	0,190 (0,176 - 0,214)	955	182



Material	D [mm]	Vc [m/min]	f [mm/U]	n [min <sup>-1</sup> ]	Vf [mm/min]
Cast iron GG(G)	2	120 (90 - 135)	0,095 (0,090 - 0,107)	19.099	1.819
	3	120 (90 - 135)	0,133 (0,126 - 0,149)	12.732	1.690
	4	120 (90 - 135)	0,165 (0,157 - 0,186)	9.549	1.578
	5	120 (90 - 135)	0,194 (0,184 - 0,218)	7.639	1.480
	6	120 (90 - 135)	0,219 (0,208 - 0,246)	6.366	1.393
	7	120 (90 - 135)	0,241 (0,229 - 0,271)	5.457	1.316
	8	120 (90 - 135)	0,261 (0,248 - 0,294)	4.775	1.247
	9	120 (90 - 135)	0,279 (0,265 - 0,314)	4.244	1.185
	10	120 (90 - 135)	0,296 (0,281 - 0,333)	3.820	1.129
	11	120 (90 - 135)	0,310 (0,295 - 0,349)	3.472	1.078
	12	120 (90 - 135)	0,324 (0,308 - 0,364)	3.183	1.031
	13	120 (90 - 135)	0,336 (0,320 - 0,378)	2.938	988
	14	120 (90 - 135)	0,348 (0,330 - 0,391)	2.728	949
	15	120 (90 - 135)	0,358 (0,340 - 0,403)	2.546	913
	16	120 (90 - 135)	0,368 (0,350 - 0,414)	2.387	879
	17	120 (90 - 135)	0,377 (0,358 - 0,424)	2.247	848
	18	120 (90 - 135)	0,386 (0,366 - 0,434)	2.122	819
	19	120 (90 - 135)	0,394 (0,374 - 0,443)	2.010	791
	20	120 (90 - 135)	0,401 (0,381 - 0,451)	1.910	766

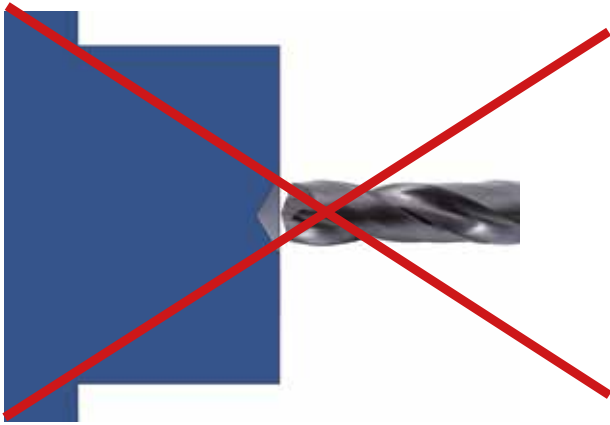
For the intermediate sizes the parameters are to be adjusted consequently. The indicated cutting data are standard values that can change depending on type of processing, machine type and material.



## Application Instructions

Spot-Drilling – always without centering bore!

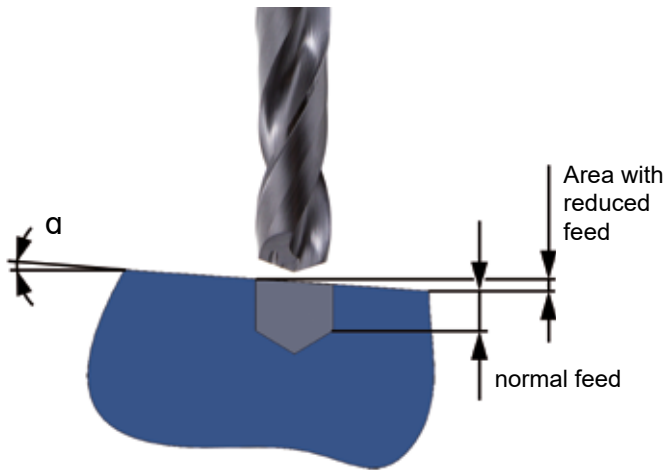
Incorrect!



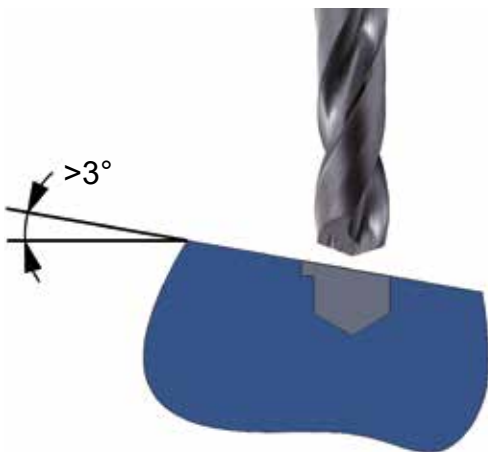
Correct!



Reduced feed when working piece-surface is inclined



Reduced feed (in % from standard value) for spot-drilling of inclined surfaces	
Inclination of working piece $\alpha$	feed
1°	90%
2°	80%
3°	65%



The surface must be pre-machined with another tool when stronger inclined working angles are given!

Jongen UNI-MILL solid carbide drills must be adequately cooled for an optimal performance.

Only in this way a maximal exhaustion of the tools can be granted. The correct cooling allows longer tool lives and higher cutting speeds. The higher the coolant pressure, the better the drill results.

Caused by the high stability of the solid carbide drills, associated with the possibility to produce bore holes with tight tolerances and high positional accuracy, the adoption of most stable machines is preferred.