UNI MILL® JONGEN UNI MILL

Jongen Werkzeugtechnik

VHM 470W HD08

Products from Willich → North-Rhine Westphalia → Germany → Europe for Europe and the

The Tool

The new Jongen UNI-MILL solid carbide end mills VHM 470W HD08 with internal coolant channels have been designed especially for the heavy-duty machining of all usual steel materials, like low alloyed and high alloyed steels, as well as cast iron materials. It is however also possible to process stainless steel.

Furthermore these end mills are suitable for all milling operations under adverse conditions, e.g. with clamping fixtures with vibration sensitivity and / or older machines with vibration sensitivity.

These tools can be identified directly next to our Jongen UNI-MILL VHM 478W HD08 range, which gained a very successful product launch, they are identical in terms of geometry and cutting material, but the VHM 470 HD08 is provided with an higher working depth.

The Geometry:

- Unequal helix angles und unequal front surface pitch against vibrations.
- Optimal balance between big chip spaces and stable core.
- Two straight coolant channels with front side exit, as a result better cooling and chip flow with full slot milling, ramping, helix and pocket milling.
- Optimized toric cut with flowing transitions to the shank => improved tool stiffness with higher tolerance against vibrations
- Stable edge blade geometry for more unstable operations, as well as vibration sensitive operations.
- Homogeneous cutting edge with marked edge radius for longest tool lives and reliable high process safety, under difficult circumstances.

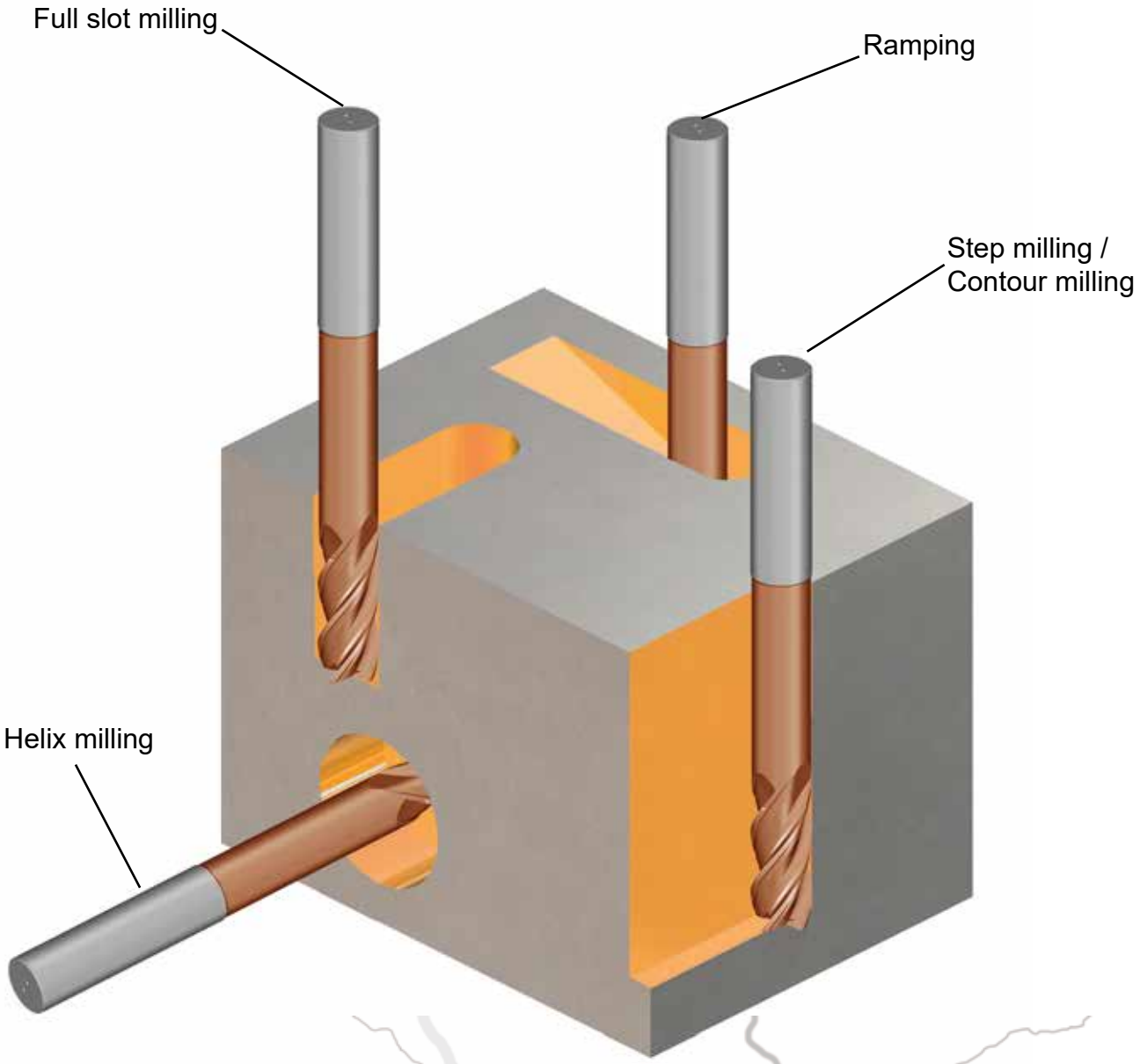
The quality HD08:

The Carbide:
Special finest grain quality (1,0µm grain size) in the field of K10-K20 with middle hardness, very good wear resistance and edge stability with extraordinary high flexural strength.

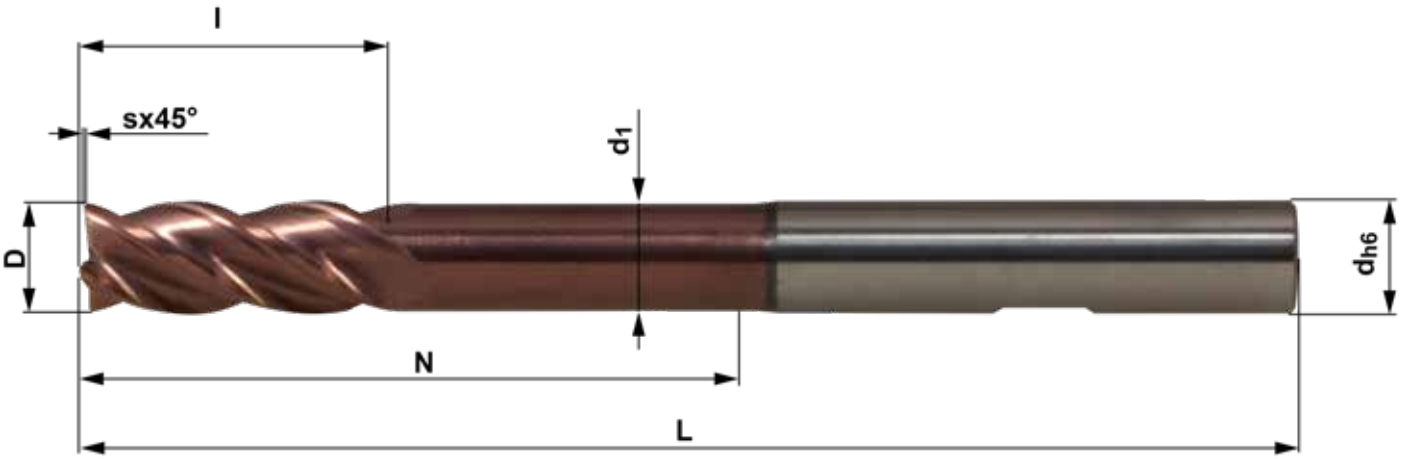
The Coating :
TiAlSiN-based HiPIMS(High Power Impulse Magnetron Sputtering)-layer of the latest development stage

- Thanks to dotation of silicon very high hardness and temperature stability.
- Thanks to the HiPIMS-technology extremely homogeneous and still efficient layer structure.
- Maximal operating temperature up to 1.100°C

Application Areas:



Technical Data VHM 470W HD08



Tolerance D

ø3,0-25,0= $^{-0,02}_{-0,04}$

Order No.	D	s	l	N	d_1	d	L	Z	IC
VHM 470W-03 HD08	3	0,075	6	31	2,85	6	70	4	✗
VHM 470W-04 HD08	4	0,100	8	32	3,80	6	70	4	✗
VHM 470W-05 HD08	5	0,125	10	33	4,75	6	70	4	✗
VHM 470W-06 HD08	6	0,150	13	33	5,70	6	70	4	✓
VHM 470W-08 HD08	8	0,200	18	46	7,60	8	84	4	✓
VHM 470W-10 HD08	10	0,250	22	51	9,50	10	93	4	✓
VHM 470W-12 HD08	12	0,300	26	63	11,40	12	110	4	✓
VHM 470W-14 HD08	14	0,350	30	75	13,30	14	120	4	✓
VHM 470W-16 HD08	16	0,400	34	91	15,20	16	140	4	✓
VHM 470W-20 HD08	20	0,500	42	91	19,00	20	150	4	✓
VHM 470W-25 HD08	25	0,600	54	92	23,80	25	150	4	✓

IC = Internal Cooling

Key to symbols


Roughing


Pre-Finishing


Finishing


Steel


High grade steel


Cast iron GG(G)


Edge Chamfer


Rounded cutting edge


Uneven cutting pitch

Unequal spiral angle

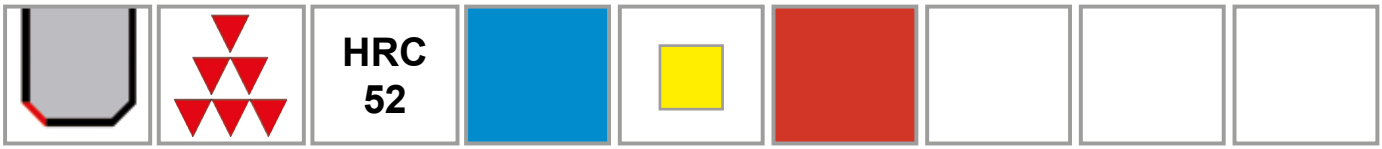

Conical core

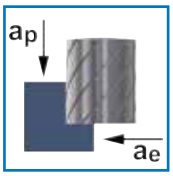

The tool has multiple internal channels with front side exit


Submersible milling tool

Shaft shape made to DIN 6535-HB (Weldon)

Cutting Data Recommendations VHM 470W HD08 - Step Milling

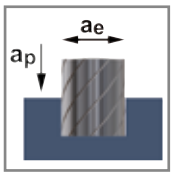




Material	D [mm]	Z	V_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min-1]	V_f [mm/min]	Q [cm³/min]	hm
Structural steel Unalloyed steel <800 N/mm²	3	4	240 (220-265)	0,023 (0,022 - 0,024)	4,0	1,4	25.722	2.332	12,6	0,015
	4	4	240 (220-265)	0,030 (0,029 - 0,032)	5,8	1,8	19.243	2.326	24,3	0,020
	5	4	240 (220-265)	0,038 (0,036 - 0,04)0	7,7	2,3	15.371	2.323	40,3	0,025
	6	4	240 (220-265)	0,045 (0,043 - 0,048)	10,5	2,7	12.796	2.320	65,8	0,030
	8	4	240 (220-265)	0,060 (0,057 - 0,063)	14,1	3,6	9.585	2.317	117,5	0,041
	10	4	240 (220-265)	0,076 (0,072 - 0,079)	17,7	4,5	7.662	2.316	184,4	0,051
	12	4	240 (220-265)	0,091 (0,086 - 0,095)	21,2	5,4	6.382	2.314	265,0	0,061
	14	4	240 (220-265)	0,106 (0,100 - 0,111)	24,8	6,3	5.468	2.314	361,7	0,071
	16	4	240 (220-265)	0,121 (0,115 - 0,127)	28,3	7,2	4.784	2.313	471,7	0,081
	20	4	240 (220-265)	0,151 (0,144 - 0,159)	35,4	9,0	3.825	2.312	736,0	0,101
	25	4	240 (220-265)	0,189 (0,179 - 0,198)	44,3	11,3	3.059	2.311	1.151,2	0,127
Tool steel Heat-treatable steel Alloyed steel 800-1200 N/mm2	3	4	160 (140-185)	0,022 (0,021 - 0,023)	3,8	1,3	17.148	1.495	7,2	0,014
	4	4	160 (140-185)	0,029 (0,028 - 0,031)	5,5	1,7	12.829	1.491	13,8	0,019
	5	4	160 (140-185)	0,036 (0,035 - 0,038)	7,4	2,1	10.247	1.489	23,2	0,024
	6	4	160 (140-185)	0,044 (0,041 - 0,046)	10,2	2,5	8.531	1.488	38,3	0,028
	8	4	160 (140-185)	0,058 (0,055 - 0,061)	13,7	3,4	6.390	1.486	68,4	0,038
	10	4	160 (140-185)	0,073 (0,069 - 0,076)	17,1	4,2	5.108	1.485	106,7	0,047
	12	4	160 (140-185)	0,087 (0,083 - 0,092)	20,6	5,0	4.255	1.484	154,2	0,057
	14	4	160 (140-185)	0,102 (0,097 - 0,107)	24,0	5,9	3.646	1.483	209,6	0,066
	16	4	160 (140-185)	0,116 (0,110 - 0,122)	27,4	6,7	3.189	1.483	273,4	0,075
	20	4	160 (140-185)	0,145 (0,138 - 0,153)	34,3	8,4	2.550	1.483	427,9	0,094
	25	4	160 (140-185)	0,182 (0,173 - 0,191)	42,9	10,5	2.040	1.482	666,7	0,118
Cast Iron GG(G)	3	4	150 (130-175)	0,021 (0,020 - 0,022)	4,0	1,2	16.076	1.368	6,6	0,013
	4	4	150 (130-175)	0,028 (0,027 - 0,030)	5,5	1,6	12.027	1.364	12,0	0,018
	5	4	150 (130-175)	0,035 (0,034 - 0,037)	7,4	2,0	9.607	1.362	20,1	0,022
	6	4	150 (130-175)	0,043 (0,040 - 0,045)	10,2	2,4	7.998	1.361	33,3	0,027
	8	4	150 (130-175)	0,057 (0,054 - 0,060)	13,7	3,2	5.991	1.359	59,6	0,036
	10	4	150 (130-175)	0,071 (0,067 - 0,074)	17,2	4,0	4.789	1.358	93,6	0,045
	12	4	150 (130-175)	0,085 (0,081 - 0,089)	20,6	4,8	3.989	1.357	134,0	0,054
	14	4	150 (130-175)	0,099 (0,094 - 0,104)	24,1	5,6	3.418	1.357	182,9	0,063
	16	4	150 (130-175)	0,113 (0,108 - 0,119)	27,5	6,4	2.990	1.356	238,5	0,072
	20	4	150 (130-175)	0,142 (0,135 - 0,149)	34,4	8,0	2.391	1.356	372,9	0,090
	25	4	150 (130-175)	0,177 (0,168 - 0,186)	43,0	10,0	1.912	1.356	582,7	0,112
High grade steel High alloyed steel	3	4	110 (90-125)	0,020 (0,019 - 0,021)	3,6	1,1	11.789	956	3,9	0,012
	4	4	110 (90-125)	0,027 (0,026 - 0,028)	5,2	1,5	8.820	954	7,4	0,017
	5	4	110 (90-125)	0,034 (0,032 - 0,035)	6,9	1,9	7.045	952	12,3	0,021
	6	4	110 (90-125)	0,041 (0,039 - 0,043)	9,5	2,3	5.865	951	20,3	0,025
	8	4	110 (90-125)	0,054 (0,051 - 0,057)	12,8	3,0	4.393	950	36,5	0,033
	10	4	110 (90-125)	0,068 (0,064 - 0,071)	16,0	3,8	3.512	949	57,0	0,041
	12	4	110 (90-125)	0,081 (0,077 - 0,085)	19,2	4,5	2.925	949	82,1	0,050
	14	4	110 (90-125)	0,095 (0,090 - 0,099)	22,5	5,3	2.506	948	112,2	0,058
	16	4	110 (90-125)	0,108 (0,103 - 0,114)	25,7	6,0	2.192	948	146,5	0,066
	20	4	110 (90-125)	0,135 (0,128 - 0,142)	32,1	7,5	1.753	948	228,7	0,083
	25	4	110 (90-125)	0,169 (0,160 - 0,177)	40,1	9,4	1.402	948	357,1	0,103

The mentioned cutting parameters are standard values that may vary depending on processing, type of machine and material grade. For trochoidal milling with ae up to 0,2 x D, the values V_c and f_z can be increased by up to 50%.

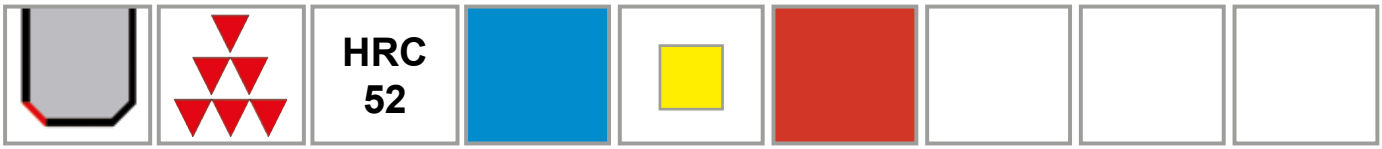
Cutting Data Recommendations VHM 470W HD08 - Full Slot Milling

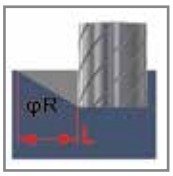


Material	D [mm]	Z	V_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min-1]	V_f [mm/min]	Q [cm³/min]
Structural steel Unalloyed steel <800 N/mm²	3	4	220 (200-245)	0,015 (0,014 - 0,015)	2,2	3,0	23.579	1.415	9,3
	4	4	220 (200-245)	0,020 (0,019 - 0,021)	3,0	4,0	17.639	1.411	16,9
	5	4	220 (200-245)	0,025 (0,023 - 0,026)	3,7	5,0	14.090	1.409	26,1
	6	4	220 (200-245)	0,029 (0,028 - 0,031)	4,5	6,0	11.730	1.408	38,0
	8	4	220 (200-245)	0,039 (0,037 - 0,041)	6,0	8,0	8.786	1.406	67,5
	10	4	220 (200-245)	0,049 (0,047 - 0,052)	7,5	10,0	7.024	1.404	105,3
	12	4	220 (200-245)	0,059 (0,056 - 0,062)	9,0	12,0	5.850	1.404	151,6
	14	4	220 (200-245)	0,069 (0,065 - 0,072)	10,5	14,0	5.013	1.403	206,2
	16	4	220 (200-245)	0,079 (0,075 - 0,082)	12,0	16,0	4.385	1.402	269,1
	20	4	220 (200-245)	0,098 (0,093 - 0,103)	15,0	20,0	3.507	1.404	421,2
	25	4	220 (200-245)	0,123 (0,117 - 0,129)	18,7	25,0	2.804	1.400	654,5
Tool steel Heat-treatable steel Alloyed steel 800-1200 N/mm2	3	4	140 (120-165)	0,014 (0,013 - 0,015)	2,0	3,0	15.005	835	5,0
	4	4	140 (120-165)	0,019 (0,018 - 0,019)	2,7	4,0	11.225	833	9,0
	5	4	140 (120-165)	0,023 (0,022 - 0,024)	3,3	5,0	8.966	832	13,7
	6	4	140 (120-165)	0,028 (0,026 - 0,029)	4,0	6,0	7.465	831	19,9
	8	4	140 (120-165)	0,037 (0,035 - 0,039)	5,4	8,0	5.591	830	35,9
	10	4	140 (120-165)	0,046 (0,044 - 0,049)	6,7	10,0	4.470	830	55,6
	12	4	140 (120-165)	0,056 (0,053 - 0,058)	8,1	12,0	3.723	829	80,6
	14	4	140 (120-165)	0,065 (0,062 - 0,068)	9,4	14,0	3.190	829	109,1
	16	4	140 (120-165)	0,074 (0,071 - 0,078)	10,8	16,0	2.790	829	143,2
	20	4	140 (120-165)	0,093 (0,088 - 0,097)	13,5	20,0	2.232	828	223,6
	25	4	140 (120-165)	0,116 (0,110 - 0,122)	16,9	25,0	1.785	828	349,8
Cast Iron GG(G)	3	4	130 (110-155)	0,014 (0,013 - 0,014)	2,0	3,0	13.933	757	4,5
	4	4	130 (110-155)	0,018 (0,017 - 0,019)	2,7	4,0	10.423	755	8,2
	5	4	130 (110-155)	0,023 (0,022 - 0,024)	3,3	5,0	8.326	754	12,4
	6	4	130 (110-155)	0,027 (0,026 - 0,029)	4,0	6,0	6.931	753	18,1
	8	4	130 (110-155)	0,036 (0,034 - 0,038)	5,4	8,0	5.192	752	32,5
	10	4	130 (110-155)	0,045 (0,043 - 0,048)	6,7	10,0	4.150	751	50,3
	12	4	130 (110-155)	0,054 (0,052 - 0,057)	8,1	12,0	3.457	751	73,0
	14	4	130 (110-155)	0,063 (0,060 - 0,067)	9,4	14,0	2.962	751	98,8
	16	4	130 (110-155)	0,072 (0,069 - 0,076)	10,8	16,0	2.591	751	129,7
	20	4	130 (110-155)	0,091 (0,086 - 0,095)	13,5	20,0	2.072	750	202,6
	25	4	130 (110-155)	0,113 (0,108 - 0,119)	16,9	25,0	1.657	750	316,9
High grade steel High alloyed steel	3	4	100 (80-110)	0,013 (0,013 - 0,014)	1,8	3,0	10.718	566	3,1
	4	4	100 (80-110)	0,018 (0,017 - 0,018)	2,4	4,0	8.018	565	5,4
	5	4	100 (80-110)	0,022 (0,021 - 0,023)	3,0	5,0	6.405	564	8,5
	6	4	100 (80-110)	0,026 (0,025 - 0,028)	3,6	6,0	5.332	563	12,2
	8	4	100 (80-110)	0,035 (0,033 - 0,037)	4,8	8,0	3.994	562	21,6
	10	4	100 (80-110)	0,044 (0,042 - 0,046)	6,0	10,0	3.193	562	33,7
	12	4	100 (80-110)	0,053 (0,050 - 0,055)	7,2	12,0	2.659	562	48,5
	14	4	100 (80-110)	0,062 (0,059 - 0,065)	8,4	14,0	2.279	562	66,0
	16	4	100 (80-110)	0,070 (0,067 - 0,074)	9,6	16,0	1.993	561	86,2
	20	4	100 (80-110)	0,088 (0,084 - 0,092)	12,0	20,0	1.594	561	134,7
	25	4	100 (80-110)	0,110 (0,105 - 0,116)	15,0	25,0	1.275	561	210,4

The mentioned cutting parameters are standard values that may vary depending on processing, type of machine and material grade.

Cutting Data Recommendations VHM 470W HD08 - Ramping

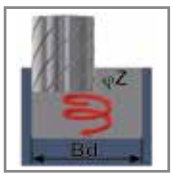




Material	D [mm]	Z	V_c [m/min]	f_z [mm]	a_p max. [mm]	a_e [mm]	φR max. [°]	L [mm]	n [min-1]	Vf [mm/min]
Structural steel Unalloyed steel <800 N/mm²	3	4	220 (200-245)	0,015 (0,014 - 0,015)	2,2	3,0	35	3,100	23.579	1.389
	4	4	220 (200-245)	0,020 (0,019 - 0,021)	3,0	4,0	35	4,200	17.639	1.386
	5	4	220 (200-245)	0,025 (0,023 - 0,026)	3,7	5,0	35	5,200	14.090	1.383
	6	4	220 (200-245)	0,029 (0,028 - 0,031)	4,5	6,0	35	6,400	11.730	1.382
	8	4	220 (200-245)	0,039 (0,037 - 0,041)	6,0	8,0	35	8,500	8.786	1.380
	10	4	220 (200-245)	0,049 (0,047 - 0,052)	7,5	10,0	35	10,700	7.024	1.379
	12	4	220 (200-245)	0,059 (0,056 - 0,062)	9,0	12,0	35	12,800	5.850	1.379
	14	4	220 (200-245)	0,069 (0,065 - 0,072)	10,5	14,0	35	14,900	5.013	1.378
	16	4	220 (200-245)	0,079 (0,075 - 0,082)	12,0	16,0	35	17,100	4.385	1.378
	20	4	220 (200-245)	0,098 (0,093 - 0,103)	15,0	20,0	35	21,400	3.507	1.377
	25	4	220 (200-245)	0,123 (0,117 - 0,129)	18,7	25,0	35	26,700	2.804	1.377
Tool steel Heat-treatable steel Alloyed steel 800-1200 N/mm2	3	4	140 (120-165)	0,014 (0,013 - 0,015)	2,0	3,0	20	5,400	15.005	835
	4	4	140 (120-165)	0,019 (0,018 - 0,019)	2,7	4,0	20	7,400	11.225	833
	5	4	140 (120-165)	0,023 (0,022 - 0,024)	3,3	5,0	20	9,000	8.966	832
	6	4	140 (120-165)	0,028 (0,026 - 0,029)	4,0	6,0	20	10,900	7.465	831
	8	4	140 (120-165)	0,037 (0,035 - 0,039)	5,4	8,0	20	14,800	5.591	830
	10	4	140 (120-165)	0,046 (0,044 - 0,049)	6,7	10,0	20	18,400	4.470	830
	12	4	140 (120-165)	0,056 (0,053 - 0,058)	8,1	12,0	20	22,200	3.723	829
	14	4	140 (120-165)	0,065 (0,062 - 0,068)	9,4	14,0	20	25,800	3.190	829
	16	4	140 (120-165)	0,074 (0,071 - 0,078)	10,8	16,0	20	29,600	2.790	829
	20	4	140 (120-165)	0,093 (0,088 - 0,097)	13,5	20,0	20	37,000	2.232	828
	25	4	140 (120-165)	0,116 (0,11 - 0,122)	16,9	25,0	20	46,400	1.785	828
Cast Iron GG(G)	3	4	130 (110-155)	0,014 (0,013 - 0,014)	2,0	3,0	20	5,400	13.933	757
	4	4	130 (110-155)	0,018 (0,017 - 0,019)	2,7	4,0	20	7,400	10.423	755
	5	4	130 (110-155)	0,023 (0,022 - 0,024)	3,3	5,0	20	9,000	8.326	754
	6	4	130 (110-155)	0,027 (0,026 - 0,029)	4,0	6,0	20	10,900	6.931	753
	8	4	130 (110-155)	0,036 (0,034 - 0,038)	5,4	8,0	20	14,800	5.192	752
	10	4	130 (110-155)	0,045 (0,043 - 0,048)	6,7	10,0	20	18,400	4.150	751
	12	4	130 (110-155)	0,054 (0,052 - 0,057)	8,1	12,0	20	22,200	3.457	751
	14	4	130 (110-155)	0,063 (0,06 - 0,067)	9,4	14,0	20	25,800	2.962	751
	16	4	130 (110-155)	0,072 (0,069 - 0,076)	10,8	16,0	20	29,600	2.591	751
	20	4	130 (110-155)	0,091 (0,086 - 0,095)	13,5	20,0	20	37,000	2.072	750
	25	4	130 (110-155)	0,113 (0,108 - 0,119)	16,9	25,0	20	46,400	1.657	750
High grade steel High alloyed steel	3	4	100 (80-110)	0,013 (0,013 - 0,014)	1,8	3,0	5	20,500	10.718	566
	4	4	100 (80-110)	0,018 (0,017 - 0,018)	2,4	4,0	5	27,400	8.018	565
	5	4	100 (80-110)	0,022 (0,021 - 0,023)	3,0	5,0	5	34,200	6.405	564
	6	4	100 (80-110)	0,026 (0,025 - 0,028)	3,6	6,0	5	41,100	5.332	563
	8	4	100 (80-110)	0,035 (0,033 - 0,037)	4,8	8,0	5	54,800	3.994	562
	10	4	100 (80-110)	0,044 (0,042 - 0,046)	6,0	10,0	5	68,500	3.193	562
	12	4	100 (80-110)	0,053 (0,05 - 0,055)	7,2	12,0	5	82,200	2.659	562
	14	4	100 (80-110)	0,062 (0,059 - 0,065)	8,4	14,0	5	96,000	2.279	562
	16	4	100 (80-110)	0,070 (0,067 - 0,074)	9,6	16,0	5	109,700	1.993	561
	20	4	100 (80-110)	0,088 (0,084 - 0,092)	12,0	20,0	5	137,100	1.594	561
	25	4	100 (80-110)	0,110 (0,105 - 0,116)	15,0	25,0	5	171,400	1.275	561

The mentioned cutting parameters are standard values that may vary depending on processing, type of machine and material grade. For boring operations, we recommend to reduce the obove mentioned ramping feed rate f_Z by 50%.

Cutting Data Recommendations VHM 470W HD08 - Helix Milling



Material	D [mm]	Z	V_c [m/min]	f_z [mm]	a_p max./turn [mm]	a_e [mm]	ϕZ max. [°]	Bd [mm]	n [min-1]	Vf [mm/min]
Structural steel Unalloyed steel <800 N/mm²	3	4	220 (200-245)	0,015 (0,014 - 0,015)	2,2	3,0	15,60	5,50	23.579	1.389
	4	4	220 (200-245)	0,020 (0,019 - 0,021)	2,9	4,0	15,10	7,40	17.639	1.386
	5	4	220 (200-245)	0,025 (0,023 - 0,026)	3,7	5,0	15,60	9,20	14.090	1.383
	6	4	220 (200-245)	0,029 (0,028 - 0,031)	4,4	6,0	15,30	11,10	11.730	1.382
	8	4	220 (200-245)	0,039 (0,037 - 0,041)	5,9	8,0	15,40	14,80	8.786	1.380
	10	4	220 (200-245)	0,049 (0,047 - 0,052)	7,4	10,0	15,40	18,50	7.024	1.379
	12	4	220 (200-245)	0,059 (0,056 - 0,062)	8,9	12,0	15,50	22,20	5.850	1.379
	14	4	220 (200-245)	0,069 (0,065 - 0,072)	10,4	14,0	15,50	25,90	5.013	1.378
	16	4	220 (200-245)	0,079 (0,075 - 0,082)	11,9	16,0	15,50	29,60	4.385	1.378
	20	4	220 (200-245)	0,098 (0,093 - 0,103)	14,9	20,0	15,50	37,00	3.507	1.377
	25	4	220 (200-245)	0,123 (0,117 - 0,129)	18,7	25,0	15,60	46,20	2.804	1.377
Tool steel Heat-treatable steel Alloyed steel 800-1200 N/mm2	3	4	140 (120-165)	0,014 (0,013 - 0,015)	2,0	3,0	14,20	5,50	15.005	835
	4	4	140 (120-165)	0,019 (0,018 - 0,019)	2,7	4,0	14,10	7,40	11.225	833
	5	4	140 (120-165)	0,023 (0,022 - 0,024)	3,3	5,0	14,00	9,20	8.966	832
	6	4	140 (120-165)	0,028 (0,026 - 0,029)	4,0	6,0	14,00	11,10	7.465	831
	8	4	140 (120-165)	0,037 (0,035 - 0,039)	5,4	8,0	14,10	14,80	5.591	830
	10	4	140 (120-165)	0,046 (0,044 - 0,049)	6,7	10,0	14,00	18,50	4.470	830
	12	4	140 (120-165)	0,056 (0,053 - 0,058)	8,1	12,0	14,10	22,20	3.723	829
	14	4	140 (120-165)	0,065 (0,062 - 0,068)	9,4	14,0	14,10	25,90	3.190	829
	16	4	140 (120-165)	0,074 (0,071 - 0,078)	10,8	16,0	14,10	29,60	2.790	829
	20	4	140 (120-165)	0,093 (0,088 - 0,097)	13,5	20,0	14,10	37,00	2.232	828
	25	4	140 (120-165)	0,116 (0,110 - 0,122)	16,9	25,0	14,20	46,20	1.785	828
Cast Iron GG(G)	3	4	130 (110-155)	0,014 (0,013 - 0,014)	2,0	3,0	14,20	5,50	13.933	757
	4	4	130 (110-155)	0,018 (0,017 - 0,019)	2,7	4,0	14,10	7,40	10.423	755
	5	4	130 (110-155)	0,023 (0,022 - 0,024)	3,3	5,0	14,00	9,20	8.326	754
	6	4	130 (110-155)	0,027 (0,026 - 0,029)	4,0	6,0	14,00	11,10	6.931	753
	8	4	130 (110-155)	0,036 (0,034 - 0,038)	5,4	8,0	14,10	14,80	5.192	752
	10	4	130 (110-155)	0,045 (0,043 - 0,048)	6,7	10,0	14,00	18,50	4.150	751
	12	4	130 (110-155)	0,054 (0,052 - 0,057)	8,1	12,0	14,10	22,20	3.457	751
	14	4	130 (110-155)	0,063 (0,060 - 0,067)	9,4	14,0	14,10	25,90	2.962	751
	16	4	130 (110-155)	0,072 (0,069 - 0,076)	10,8	16,0	14,10	29,60	2.591	751
	20	4	130 (110-155)	0,091 (0,086 - 0,095)	13,5	20,0	14,10	37,00	2.072	750
	25	4	130 (110-155)	0,113 (0,108 - 0,119)	16,9	25,0	14,20	46,20	1.657	750
High grade steel High alloyed steel	3	4	100 (80-110)	0,013 (0,013 - 0,014)	1,8	3,0	14,10	5,50	10.718	566
	4	4	100 (80-110)	0,018 (0,017 - 0,018)	2,7	4,0	14,10	7,40	8.018	565
	5	4	100 (80-110)	0,022 (0,021 - 0,023)	3,3	5,0	14,00	9,20	6.405	564
	6	4	100 (80-110)	0,026 (0,025 - 0,028)	4,0	6,0	14,00	11,10	5.332	563
	8	4	100 (80-110)	0,035 (0,033 - 0,037)	5,4	8,0	14,10	14,80	3.994	562
	10	4	100 (80-110)	0,044 (0,042 - 0,046)	6,7	10,0	14,00	18,50	3.193	562
	12	4	100 (80-110)	0,053 (0,050 - 0,055)	8,1	12,0	14,10	22,20	2.659	562
	14	4	100 (80-110)	0,062 (0,059 - 0,065)	9,4	14,0	14,10	25,90	2.279	562
	16	4	100 (80-110)	0,070 (0,067 - 0,074)	10,8	16,0	14,10	29,60	1.993	561
	20	4	100 (80-110)	0,088 (0,084 - 0,092)	13,5	20,0	14,10	37,00	1.594	561
	25	4	100 (80-110)	0,110 (0,105 - 0,116)	16,9	25,0	14,20	46,20	1.275	561

The mentioned cutting parameters are standard values that may vary depending on processing, type of machine and material grade.

Jongen Werkzeugtechnik GmbH

Siemensring 11 · 47877 Willich · Germany

Phone: +49 2154 / 9285-2900 · Fax: +49 2154 / 9285 929000

Free Fax: 00 800 / 56 64 36 33

www.jongen.de · email: export@jongen.de