



Jongen Werkzeugtechnik



VHM 440W T108

for the machining of
high grade steel



Products from



Willich



North-Rhine
Westphalia



Germany



Europe

for



Europe

and the



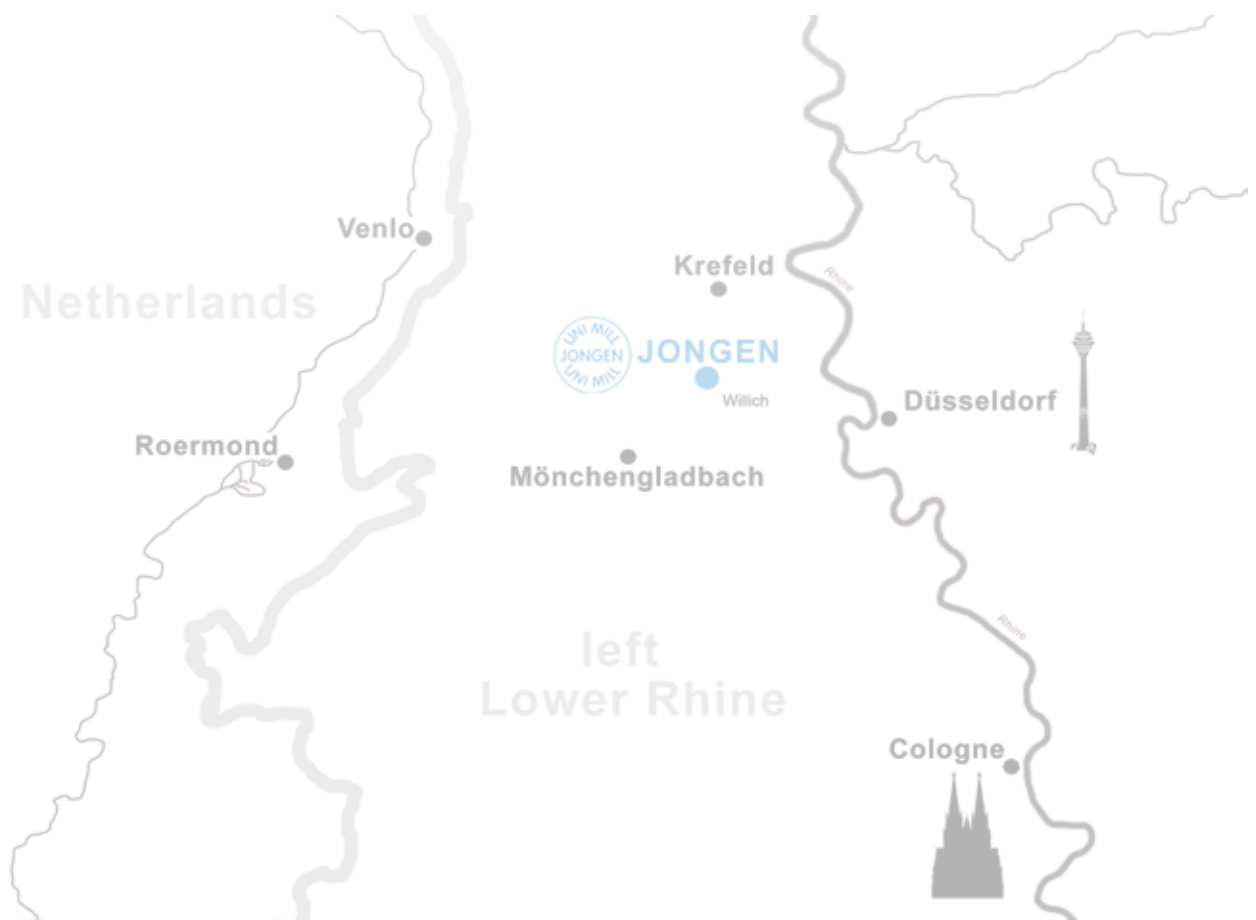
The tools


The high performance solid carbide cutter type VHM 440W Ti08 represents a product enhancement for the already successfully realised programme implementation for the milling of stainless materials and special alloys.

In terms of cutting material and geometry, these tools are perfectly adapted to the machining of stainless materials and special alloys.

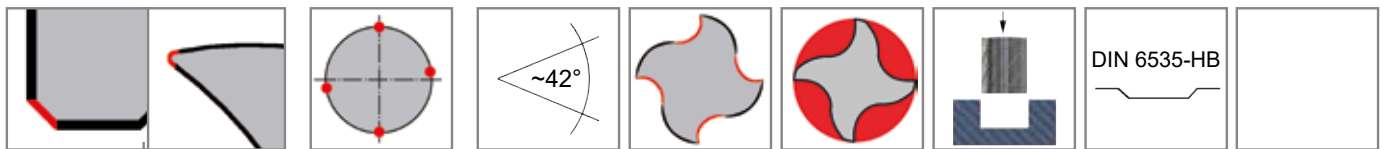
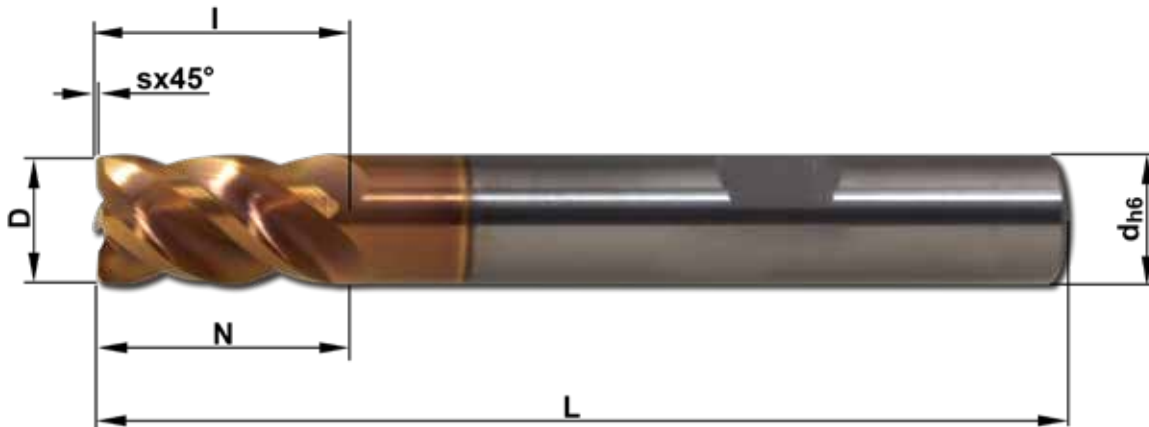
Compared to the VHM 441W and VHM 441W R.. types, this type has a shorter cutting edge and working depth.

Thus, the Jongen UNI-MILL VHM 440W offers an even higher stability and process reliability.



Characteristics VHM 440W TI08	Your advantage
Front geometry: Flat shaped shank type cutter with edge chamfer	 → Suitable for roughing as well as finishing
Edge chamfer	→ High edge stability
Cutting edges over centre	→ Allows plunge milling
Holding shaft made to DIN 6535-HB (Weldon)	→ Stable mounting of the tool
Dynamic angle of twist 41°/43°	→ High running smoothness → Excellent surface finish
Differential tooth pitch	→ High running smoothness → Excellent surface finish
Optimized macro geometry	→ Special geometry for stainless steels → High edge stability and support of the chip flow
Optimized micro geometry	→ For long tool life
Hard metal: Finest grain carbide for high performance cutting in the ISO field K20	→ High tenacity with very high wear resistance
Coating type: TiALN / TiALSiN	→ Finest layer structure → High oxidation stability
Hard metal + coating type = quality TI08	- Especially suitable for Inox steels, high-alloy steels, and materials difficult to mill - Suitable for roughing as well as finishing - For dry milling, wet milling or milling with min. lubricant grease
Regrinding capability of the tools	→ High cost-benefit factor

Technical data VHM 440W Ti08



Order-No.	D	s	l	N	d	L	Z
VHM 440W-03 Ti08	3	0,06x45°	4,5	4,5	6	50	4
VHM 440W-04 Ti08	4	0,09x45°	6,0	6,0	6	54	4
VHM 440W-05 Ti08	5	0,11x45°	8,0	8,0	6	54	4
VHM 440W-06 Ti08	6	0,13x45°	9,0	9,0	6	54	4
VHM 440W-08 Ti08	8	0,18x45°	12,0	12,0	8	58	4
VHM 440W-10 Ti08	10	0,22x45°	14,0	14,0	10	66	4
VHM 440W-12 Ti08	12	0,27x45°	16,0	16,0	12	73	4
VHM 440W-16 Ti08	16	0,36x45°	22,0	22,0	16	82	4
VHM 440W-20 Ti08	20	0,45x45°	26,0	26,0	20	92	4

Key to symbols



Roughing



Pre-Finishing



Finishing



Steel



High grade steel



Cast iron GG(G)



Highly heat-resistant materials



Edge Chamfer



Rounded cutting edge



Uneven cutting pitch



Average spiral angle



Submersible milling tool



Large chip spaces

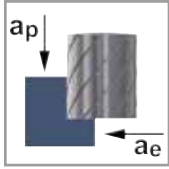
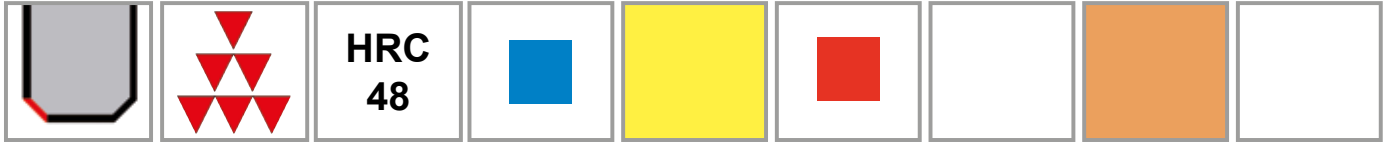


Special slot geometry



Shank shape made to DIN 6535-HB (Weldon)

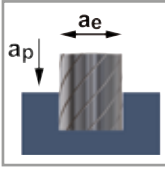
Cutting data recommendations STEP MILLING - VHM 440W TI08



Material	D [mm]	Z	Vc [m/min]	fz [mm]	ap [mm]	ae [mm]	n [min ⁻¹]	Vf [mm/min]	Q [cm ³ /min]	hm
High grade steel High alloyed steel	3	4	100 (60-120)	0,015 (0,013-0,017)	3,75	1,20	10.610	637	2,9	0,009
	4	4	100 (60-120)	0,018 (0,015-0,021)	5,00	1,60	7.958	573	4,6	0,011
	5	4	100 (60-120)	0,030 (0,026-0,035)	6,25	2,00	6.366	764	9,5	0,019
	6	4	100 (60-120)	0,040 (0,034-0,046)	7,50	2,40	5.305	850	15,3	0,025
	8	4	100 (60-120)	0,050 (0,043-0,058)	10,00	3,20	3.979	796	25,6	0,032
	10	4	100 (60-120)	0,060 (0,051-0,069)	12,50	4,00	3.183	763	38,0	0,038
	12	4	100 (60-120)	0,070 (0,060-0,081)	15,00	4,80	2.653	742	53,3	0,044
	16	4	100 (60-120)	0,080 (0,068-0,092)	20,00	6,40	1.989	637	81,9	0,051
20	4	100 (60-120)	0,100 (0,085-0,115)	25,00	8,00	1.592	636	128,0	0,063	
Titanium alloys >300 HB (e.g. TiAlV6)	3	4	50 (30-80)	0,015 (0,013-0,017)	3,75	1,20	5.305	319	1,4	0,009
	4	4	50 (30-80)	0,018 (0,015-0,021)	5,00	1,60	3.979	287	2,3	0,011
	5	4	50 (30-80)	0,030 (0,026-0,035)	6,25	2,00	3.183	382	4,8	0,019
	6	4	50 (30-80)	0,040 (0,034-0,046)	7,50	2,40	2.653	424	7,6	0,025
	8	4	50 (30-80)	0,050 (0,043-0,058)	10,00	3,20	1.989	398	12,8	0,032
	10	4	50 (30-80)	0,060 (0,051-0,069)	12,50	4,00	1.592	382	19,0	0,038
	12	4	50 (30-80)	0,070 (0,060-0,081)	15,00	4,80	1.326	372	26,6	0,044
	16	4	50 (30-80)	0,080 (0,068-0,092)	20,00	6,40	995	317	41,0	0,051
20	4	50 (30-80)	0,100 (0,085-0,115)	25,00	8,00	796	320	64,0	0,063	
Nickel-base alloys hardenable (e.g. Inconel 718)	3	4	30 (20-60)	0,015 (0,013-0,017)	3,75	1,20	3.183	191	0,9	0,009
	4	4	30 (20-60)	0,018 (0,015-0,021)	5,00	1,00	2.387	172	0,9	0,009
	5	4	30 (20-60)	0,030 (0,026-0,035)	6,25	1,25	1.910	229	1,8	0,015
	6	4	30 (20-60)	0,040 (0,034-0,046)	7,50	1,50	1.592	254	2,8	0,020
	8	4	30 (20-60)	0,050 (0,043-0,058)	10,00	2,00	1.194	238	4,8	0,025
	10	4	30 (20-60)	0,060 (0,051-0,069)	12,50	2,50	955	228	7,2	0,030
	12	4	30 (20-60)	0,070 (0,060-0,081)	15,00	3,00	796	224	9,9	0,035
	16	4	30 (20-60)	0,080 (0,068-0,092)	20,00	4,00	597	192	15,2	0,040
20	4	30 (20-60)	0,100 (0,085-0,115)	25,00	5,00	477	192	23,8	0,050	
Structural steel Unalloyed steel <800 N/mm2	3	4	160 (140-180)	0,015 (0,013-0,017)	3,75	1,20	16.977	1.019	4,6	0,009
	4	4	160 (140-180)	0,018 (0,015-0,021)	5,00	1,80	12.732	917	8,3	0,012
	5	4	160 (140-180)	0,030 (0,026-0,035)	6,25	2,25	10.186	1.223	17,2	0,020
	6	4	160 (140-180)	0,040 (0,034-0,046)	7,50	2,70	8.488	1.358	27,5	0,027
	8	4	160 (140-180)	0,050 (0,043-0,058)	10,00	3,60	6.366	1.274	45,7	0,034
	10	4	160 (140-180)	0,060 (0,051-0,069)	12,50	4,50	5.093	1.222	68,6	0,040
	12	4	160 (140-180)	0,070 (0,060-0,081)	15,00	5,40	4.244	1.187	96,4	0,047
	16	4	160 (140-180)	0,080 (0,068-0,092)	20,00	7,20	3.183	1.018	146,9	0,054
20	4	160 (140-180)	0,100 (0,085-0,115)	25,00	9,00	2.546	1.020	229,5	0,067	
Tool steel Heat-treatable steel Alloyed steel 800-1200 N/mm2	3	4	120 (90-150)	0,015 (0,013-0,017)	3,75	1,20	12.732	764	3,4	0,009
	4	4	120 (90-150)	0,018 (0,015-0,021)	5,00	1,80	9.549	688	6,2	0,012
	5	4	120 (90-150)	0,030 (0,026-0,035)	6,25	2,25	7.639	917	12,9	0,020
	6	4	120 (90-150)	0,040 (0,034-0,046)	7,50	2,70	6.366	1.019	20,7	0,027
	8	4	120 (90-150)	0,050 (0,043-0,058)	10,00	3,60	4.775	954	34,2	0,034
	10	4	120 (90-150)	0,060 (0,051-0,069)	12,50	4,50	3.820	917	51,8	0,040
	12	4	120 (90-150)	0,070 (0,060-0,081)	15,00	5,40	3.183	890	72,1	0,047
	16	4	120 (90-150)	0,080 (0,068-0,092)	20,00	7,20	2.387	765	109,4	0,054
20	4	120 (90-150)	0,100 (0,085-0,115)	25,00	9,00	1.910	764	171,0	0,067	

The above-mentioned data are standard values that may vary depending on processing, type of machine and material grade.

Cutting data recommendations SLOT MILLING - VHM 440W TI08



Material	D [mm]	Z	Vc [m/min]	fz [mm]	ap [mm]	ae [mm]	n [min ⁻¹]	Vf [mm/min]	Q [cm ³ /min]	hm
High grade steel High alloyed steel	3	4	80 (60-120)	0,009 (0,008-0,011)	3,00	3,00	8.488	322	2,9	0,009
	4	4	80 (60-120)	0,011 (0,010-0,013)	4,00	4,00	6.366	290	4,6	0,011
	5	4	80 (60-120)	0,019 (0,016-0,022)	5,00	5,00	5.093	386	9,8	0,019
	6	4	80 (60-120)	0,025 (0,022-0,029)	6,00	6,00	4.244	429	15,5	0,025
	8	4	80 (60-120)	0,032 (0,027-0,036)	8,00	8,00	3.183	402	25,6	0,032
	10	4	80 (60-120)	0,038 (0,032-0,044)	10,00	10,00	2.546	387	39,0	0,038
	12	4	80 (60-120)	0,044 (0,038-0,051)	12,00	12,00	2.122	375	54,7	0,044
	16	4	80 (60-120)	0,051 (0,043-0,058)	16,00	16,00	1.592	322	81,9	0,051
20	4	80 (60-120)	0,070 (0,060-0,081)	20,00	20,00	1.273	356	144,0	0,070	
Titanium alloys >300 HB (e.g. TiAlV6)	3	4	40 (30-80)	0,009 (0,008-0,011)	3,00	3,00	4.244	161	1,4	0,009
	4	4	40 (30-80)	0,011 (0,010-0,013)	4,00	4,00	3.183	145	2,2	0,011
	5	4	40 (30-80)	0,019 (0,016-0,022)	5,00	5,00	2.546	194	4,8	0,019
	6	4	40 (30-80)	0,025 (0,022-0,029)	6,00	6,00	2.122	215	7,6	0,025
	8	4	40 (30-80)	0,032 (0,027-0,036)	8,00	8,00	1.592	201	12,8	0,032
	10	4	40 (30-80)	0,038 (0,032-0,044)	10,00	10,00	1.273	193	19,0	0,038
	12	4	40 (30-80)	0,044 (0,038-0,051)	12,00	12,00	1.061	188	27,4	0,044
	16	4	40 (30-80)	0,051 (0,043-0,058)	16,00	16,00	796	162	41,0	0,051
20	4	40 (30-80)	0,070 (0,060-0,081)	20,00	20,00	637	179	72,0	0,070	
Nickel-base alloys hardenable (e.g. Inconell 718)	3	4	30 (20-60)	0,009 (0,008-0,011)	3,00	3,00	3.183	121	1,1	0,009
	4	4	30 (20-60)	0,011 (0,010-0,013)	4,00	4,00	2.387	109	1,8	0,011
	5	4	30 (20-60)	0,019 (0,016-0,022)	5,00	5,00	1.910	145	3,5	0,019
	6	4	30 (20-60)	0,025 (0,022-0,029)	6,00	6,00	1.592	161	5,8	0,025
	8	4	30 (20-60)	0,032 (0,027-0,036)	8,00	8,00	1.194	151	9,6	0,032
	10	4	30 (20-60)	0,038 (0,032-0,044)	10,00	10,00	955	144	14,0	0,038
	12	4	30 (20-60)	0,044 (0,038-0,051)	12,00	12,00	796	142	20,2	0,044
	16	4	30 (20-60)	0,051 (0,043-0,058)	16,00	16,00	597	121	30,7	0,051
20	4	30 (20-60)	0,070 (0,060-0,081)	20,00	20,00	477	134	52,0	0,070	
Structural steel Unalloyed steel <800 N/mm2	3	4	140 (120-180)	0,009 (0,008-0,011)	3,60	3,00	14.854	564	6,0	0,009
	4	4	140 (120-180)	0,011 (0,010-0,013)	4,80	4,00	11.141	507	9,8	0,011
	5	4	140 (120-180)	0,019 (0,016-0,022)	6,00	5,00	8.913	676	20,4	0,019
	6	4	140 (120-180)	0,025 (0,022-0,029)	7,20	6,00	7.427	752	32,4	0,025
	8	4	140 (120-180)	0,032 (0,027-0,036)	9,60	8,00	5.570	705	53,8	0,032
	10	4	140 (120-180)	0,038 (0,032-0,044)	12,00	10,00	4.456	677	81,6	0,038
	12	4	140 (120-180)	0,044 (0,038-0,051)	14,40	12,00	3.714	657	114,0	0,044
	16	4	140 (120-180)	0,051 (0,043-0,058)	19,20	16,00	2.785	565	172,0	0,051
20	4	140 (120-180)	0,070 (0,060-0,081)	24,00	20,00	2.228	624	297,6	0,070	
Tool steel Heat-treatable steel Alloyed steel 800-1200 N/mm2	3	4	100 (90-150)	0,009 (0,008-0,011)	3,30	3,00	10.610	403	4,0	0,009
	4	4	100 (90-150)	0,011 (0,010-0,013)	4,40	4,00	7.958	362	6,3	0,011
	5	4	100 (90-150)	0,019 (0,016-0,022)	5,50	5,00	6.366	483	13,2	0,019
	6	4	100 (90-150)	0,025 (0,022-0,029)	6,60	6,00	5.305	537	21,4	0,025
	8	4	100 (90-150)	0,032 (0,027-0,036)	8,80	8,00	3.979	503	35,2	0,032
	10	4	100 (90-150)	0,038 (0,032-0,044)	11,00	10,00	3.183	483	52,8	0,038
	12	4	100 (90-150)	0,044 (0,038-0,051)	13,20	12,00	2.653	469	74,4	0,044
	16	4	100 (90-150)	0,051 (0,043-0,058)	17,60	16,00	1.989	403	112,6	0,051
20	4	100 (90-150)	0,070 (0,060-0,081)	22,00	20,00	1.592	445	198,0	0,070	

The above-mentioned data are standard values that may vary depending on processing, type of machine and material grade.

Errors, omissions and technical modifications are reserved.

09/22



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