UNI MILL® JONGEN UNI MILL

Jongen Werkzeugtechnik

VHM 643 Ti02

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

The Tool

This high-precision solid carbide cutter has been designed especially for contour milling and finishing operations.
The application areas range from the machining of steel, stainless steel as well as cast iron.

Product characteristics

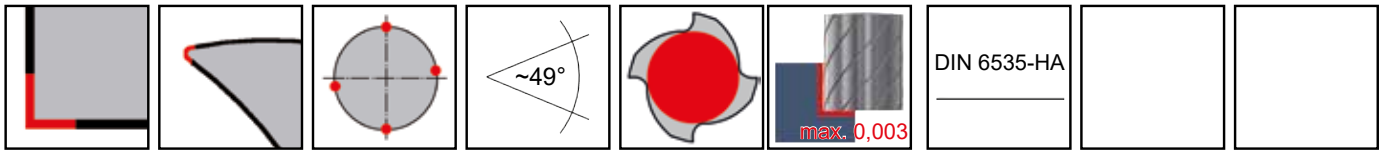
Characteristic	**Your advantages**
High-precision shank type milling cutter	Highest precision at work piece Conicity max. in µm- range
Excellent surface finish	Surface finish withinin range of R_z 0,3-0,5 can be easily produced
Dynamic angle of twist >45° Dynamic tooth pitch	High running smoothness Excellent surface finish
6 cutting edges	High productivity
Holding shaft made to DIN 6535-HA	Stable tool holder
Micro geometry	Improved micro geometries for long tool life
Hard metal	Ultra finest-grain carbide type K20 Very good wear resistance
Coating type	TiAlN- Nanokomposit-coating for highest wear resistance at very high operating temperatures
Hard metal + coating type = Type Ti02	Long tool lives at high application parameters Universally applicable

Technical Data

Tolerance D

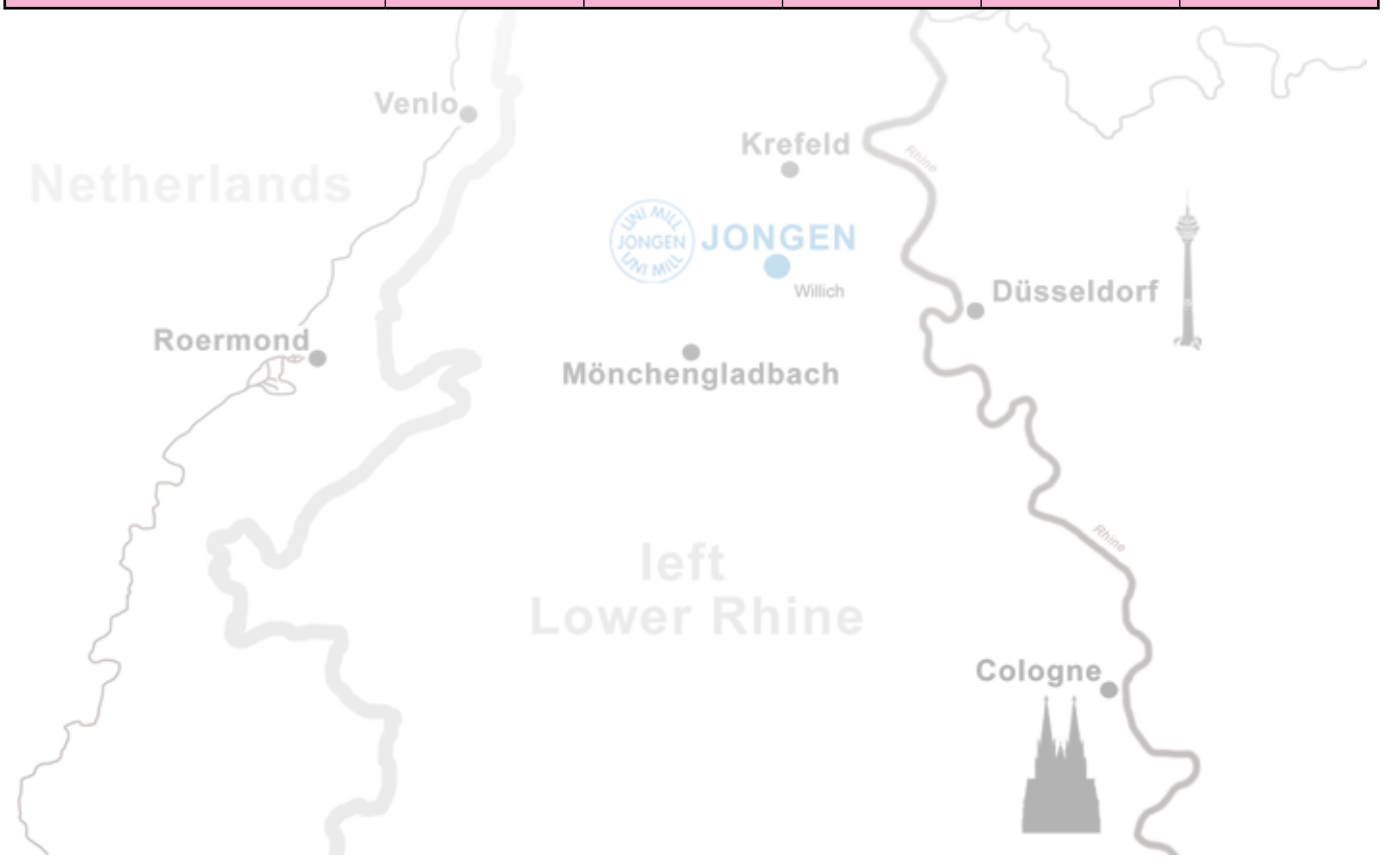
ø 6,0- 8,0= -0,015 / -0,025

ø10,0-25,0= -0,020 / -0,035



Key to symbols see main catalogue pages XII-4+5

Order-No.	D	l	d_{h6}	L	Z
VHM 643-06 Ti02	6	19	6	64	6
VHM 643-08 Ti02	8	28	8	75	6
VHM 643-10 Ti02	10	34	10	83	6
VHM 643-12 Ti02	12	40	12	100	6
VHM 643-16 Ti02	16	48	16	110	6
VHM 643-20 Ti02	20	56	20	125	6
VHM 643-25 Ti02	25	75	25	140	6



Cutting Data Recommendations

Material	D [mm]	V_c [m/min]		F_z [m/min]		a_p [mm]	a_e [mm]	n [min^{-1}]	V_f [mm/min]	Q [cm^3/min]
Structural steel, Unalloyed steel <800 N/mm2	6	220	(180-240)	0,030	(0,015-0,060)	19	0,2	11.670	2.100	8,0
	8	220	(180-240)	0,040	(0,020-0,060)	28	0,2	8.750	2.100	11,8
	10	220	(180-240)	0,045	(0,030-0,090)	34	0,2	7.000	1.890	12,9
	12	220	(180-240)	0,050	(0,030-0,090)	40	0,2	5.840	1.750	14,0
	16	220	(180-240)	0,060	(0,040-0,120)	48	0,2	4.380	1.575	15,1
	20	220	(180-240)	0,070	(0,050-0,140)	56	0,2	3.500	1.470	16,5
	25	220	(180-240)	0,080	(0,060-0,140)	75	0,2	2.800	1.345	20,2
Tool steel, Heat-treatable steel, Alloyed steel 800-1200 N/mm^2	6	180	(140-220)	0,030	(0,015-0,060)	19	0,2	9.550	1.720	6,5
	8	180	(140-220)	0,040	(0,020-0,060)	28	0,2	7.160	1.720	9,6
	10	180	(140-220)	0,045	(0,030-0,090)	34	0,2	5.730	1.545	10,5
	12	180	(140-220)	0,050	(0,030-0,090)	40	0,2	4.770	1.430	11,4
	16	180	(140-220)	0,060	(0,040-0,120)	48	0,2	3.580	1.290	12,4
	20	180	(140-220)	0,070	(0,050-0,140)	56	0,2	2.860	1.200	13,4
	25	180	(140-220)	0,080	(0,060-0,140)	75	0,2	2.290	1.100	16,5
High grade steel, High alloyed steel	6	140	(100-160)	0,030	(0,015-0,060)	19	0,2	7.430	1.335	5,1
	8	140	(100-160)	0,040	(0,020-0,060)	28	0,2	5.570	1.335	7,5
	10	140	(100-160)	0,045	(0,030-0,090)	34	0,2	4.460	1.205	8,2
	12	140	(100-160)	0,050	(0,030-0,090)	40	0,2	3.710	1.115	8,9
	16	140	(100-160)	0,060	(0,040-0,120)	48	0,2	2.790	1.005	9,6
	20	140	(100-160)	0,070	(0,050-0,140)	56	0,2	2.230	935	10,5
	25	140	(100-160)	0,090	(0,070-0,150)	75	0,2	1.780	855	12,8
Titanium alloys >300 HB (e.g.TiAlV6)	6	60	(20-80)	0,030	(0,015-0,060)	19	0,2	3.180	570	2,2
	8	60	(20-80)	0,040	(0,020-0,060)	28	0,2	2.390	575	3,2
	10	60	(20-80)	0,045	(0,030-0,090)	34	0,2	1.910	515	3,5
	12	60	(20-80)	0,050	(0,030-0,090)	40	0,2	1.590	475	3,8
	16	60	(20-80)	0,060	(0,040-0,120)	48	0,2	1.190	430	4,1
	20	60	(20-80)	0,070	(0,050-0,140)	56	0,2	950	400	4,5
	25	60	(20-80)	0,080	(0,060-0,140)	75	0,2	760	365	5,5
Nickel-base alloys hardenable (e.g. Inconell 718)	6	30	(20-60)	0,030	(0,015-0,060)	19	0,2	1.590	285	1,1
	8	30	(20-60)	0,040	(0,020-0,060)	28	0,2	1.190	285	1,6
	10	30	(20-60)	0,045	(0,030-0,090)	34	0,2	950	255	1,7
	12	30	(20-60)	0,050	(0,030-0,090)	40	0,2	800	240	1,9
	16	30	(20-60)	0,060	(0,040-0,120)	48	0,2	600	215	2,1
	20	30	(20-60)	0,070	(0,050-0,140)	56	0,2	480	200	2,2
	25	30	(20-60)	0,080	(0,060-0,140)	75	0,2	380	180	2,7
Cast iron GG(G)	6	180	(150-200)	0,030	(0,015-0,060)	19	0,2	9.550	1.720	6,5
	8	180	(150-200)	0,040	(0,020-0,060)	28	0,2	7.160	1.720	9,6
	10	180	(150-200)	0,045	(0,030-0,090)	34	0,2	5.730	1.545	10,5
	12	180	(150-200)	0,050	(0,030-0,090)	40	0,2	4.770	1.430	11,4
	16	180	(150-200)	0,060	(0,040-0,120)	48	0,2	3.580	1.290	12,4
	20	180	(150-200)	0,070	(0,050-0,140)	56	0,2	2.860	1.200	13,4
	25	180	(150-200)	0,080	(0,060-0,140)	75	0,2	2.290	1.100	16,5

The above-mentioned data are standard values that may vary depending on processing, type of machine and material grade. For processing use a machine with the highest preciseness and rigidity. Should the available cutting speed be lower of that given in the table, reduce feed rate proportionally.

Jongen Werkzeugtechnik GmbH

Siemensring 11 • 47877 Willich • Germany

Phone: 49 2154 / 9285 2900 • Fax: +49 2154 / 9285 929000

www.jongen.de • Email: export@jongen.de

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