

**Jongen Werkzeugtechnik GmbH & Co. KG**

**VHM 309**



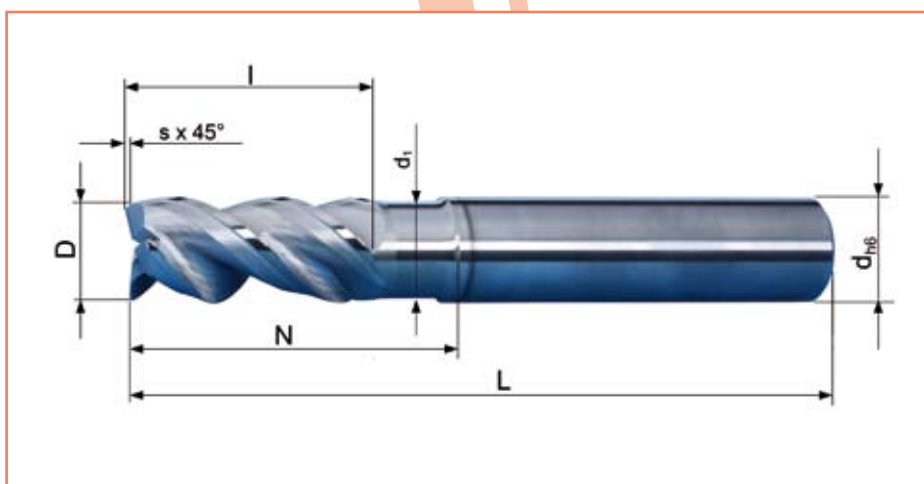
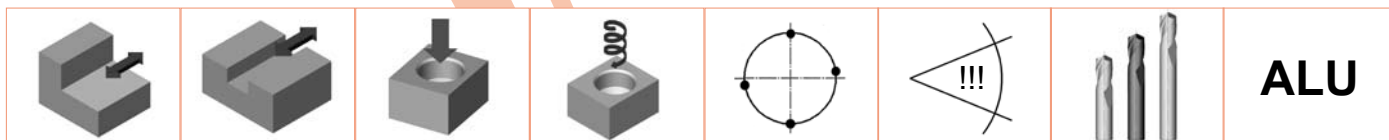
# VHM 309

This solid carbide cutter – Type 309 – has been especially designed for machining aluminium and non-ferrous metals.

The optimal cutting characteristics of this universally applicable tool, comprise a smooth running maintaining high chip removal rates in roughing, as well as very good surface quality in finishing.

Product characteristics	Advantages
Flat-faced Weldon cutter	Universally applicable - for boring and pre-boring - for 90° step milling - for full slot milling - for roughing and finishing
3-flutes	High cutting volume
Differential tooth pitch	Smooth running of machine by full slot milling
Dynamic spiral angle	Smooth running of machine also by adopting the maximum depth of cut
Coupling made to DIN 6535-HA	- Suitable for collet chuck and hydraulic chuck - As well applicable for shrinking
Improved chip space	- Stable tool core - Generously carried out chip space
Optimized macro geometry	High cutting volume
Optimized micro geometry	Long tool life
Reduced shank for more axial speed	Increment of utility length to DIN-clamping length
The hard metal	Fine grain carbide according to ISO K05-K10 for higher wearing quality
The coating	- Low coefficient of friction - Prevention of adhesion and build-up material on cutting edge - Improved chip flow - High cutting parameters - High protection against wearing process

# VHM 309



**Tolerance  $\varnothing$ :**  
 $\varnothing 3,0 - 20,0 = \begin{matrix} -0,02 \\ -0,04 \end{matrix}$

Order-No.	D	s x 45°	l	N	d <sub>1</sub>	d <sub>h6</sub>	L	Z
VHM 309-03 AL05	3	0,10 x 45°	8,0	12,0	2,7	6	58,0	3
VHM 309-04 AL05	4	0,10 x 45°	11,0	18,0	3,7	6	58,0	3
VHM 309-05 AL05	5	0,10 x 45°	13,0	18,0	4,7	6	58,0	3
VHM 309-06 AL05	6	0,10 x 45°	13,0	19,0	5,7	6	58,0	3
VHM 309-08 AL05	8	0,15 x 45°	21,0	26,0	7,4	8	64,0	3
VHM 309-10 AL05	10	0,15 x 45°	22,0	30,0	9,2	10	73,5	3
VHM 309-12 AL05	12	0,20 x 45°	26,0	36,0	11,0	12	84,0	3
VHM 309-16 AL05	16	0,20 x 45°	36,0	47,0	15,0	16	93,0	3
VHM 309-20 AL05	20	0,25 x 45°	42,0	54,0	19,0	20	104,0	3

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Cutting data		Alu long-chip milling		Alu short-chip milling		Alu cast iron > 10% Si		CuZn alloys	
Cutting speed $V_c$ (in m / min)		500 (460 - 540)		480 (400 - 520)		250 (200 - 300)		270 (230 - 300)	
D		Feed rates per tooth $f_z$ (in mm)	RPM (in $\text{min}^{-1}$ )	Feed rates per tooth $f_z$ (in mm)	RPM (in $\text{min}^{-1}$ )	Feed rates per tooth $f_z$ (in mm)	RPM (in $\text{min}^{-1}$ )	Feed rates per tooth $f_z$ (in mm)	RPM (in $\text{min}^{-1}$ )
3	up to $0,45 \times a_e$	0,06 (0,04-0,08)	53.000	0,06 (0,04-0,08)	50.900	0,06 (0,04-0,08)	26.500	0,05 (0,03-0,07)	28.500
	$> 0,45 \times a_e$	0,05 (0,03-0,07)		0,05 (0,03-0,07)		0,05 (0,03-0,07)		0,04 (0,02-0,06)	
4	up to $0,45 \times a_e$	0,06 (0,04-0,08)	39.700	0,06 (0,04-0,08)	38.100	0,06 (0,04-0,08)	19.800	0,05 (0,03-0,07)	21.400
	$> 0,45 \times a_e$	0,05 (0,03-0,07)		0,05 (0,03-0,07)		0,05 (0,03-0,07)		0,04 (0,02-0,06)	
5	up to $0,45 \times a_e$	0,09 (0,07-0,11)	31.800	0,09 (0,07-0,11)	30.500	0,08 (0,06-0,10)	15.900	0,08 (0,06-0,10)	17.100
	$> 0,45 \times a_e$	0,07 (0,05-0,09)		0,07 (0,05-0,09)		0,06 (0,04-0,08)		0,06 (0,04-0,08)	
6	up to $0,45 \times a_e$	0,10 (0,08-0,12)	26.500	0,10 (0,08-0,12)	25.400	0,09 (0,07-0,11)	13.200	0,08 (0,06-0,10)	14.300
	$> 0,45 \times a_e$	0,08 (0,06-0,10)		0,08 (0,06-0,10)		0,07 (0,05-0,09)		0,06 (0,04-0,08)	
8	up to $0,45 \times a_e$	0,10 (0,08-0,12)	19.800	0,10 (0,08-0,12)	19.000	0,09 (0,07-0,11)	9.900	0,08 (0,06-0,10)	10.700
	$> 0,45 \times a_e$	0,08 (0,06-0,10)		0,08 (0,06-0,10)		0,07 (0,05-0,09)		0,06 (0,04-0,08)	
10	up to $0,45 \times a_e$	0,11 (0,09-0,13)	15.900	0,10 (0,08-0,12)	15.200	0,09 (0,07-0,11)	7.900	0,08 (0,06-0,10)	8.500
	$> 0,45 \times a_e$	0,09 (0,07-0,11)		0,08 (0,06-0,10)		0,07 (0,05-0,09)		0,06 (0,04-0,08)	
12	up to $0,45 \times a_e$	0,11 (0,09-0,13)	13.200	0,10 (0,08-0,12)	12.700	0,09 (0,07-0,11)	6.600	0,08 (0,06-0,10)	7.100
	$> 0,45 \times a_e$	0,09 (0,07-0,11)		0,08 (0,06-0,10)		0,07 (0,05-0,09)		0,06 (0,04-0,08)	
16	up to $0,45 \times a_e$	0,13 (0,11-0,15)	9.900	0,13 (0,11-0,15)	9.500	0,15 (0,13-0,17)	4.900	0,12 (0,10-0,14)	5.300
	$> 0,45 \times a_e$	0,11 (0,09-0,13)		0,11 (0,09-0,13)		0,14 (0,12-0,16)		0,10 (0,08-0,12)	
20	up to $0,45 \times a_e$	0,16 (0,14-0,18)	7.900	0,22 (0,20-0,24)	7.600	0,20 (0,18-0,22)	3.900	0,16 (0,14-0,18)	4.200
	$> 0,45 \times a_e$	0,14 (0,12-0,16)		0,18 (0,16-0,20)		0,18 (0,16-0,20)		0,14 (0,12-0,16)	

\* Mean chip thickness has to be considered by side milling operations!

\* The indicated figures are starting parameters. The adjustments top-down as well as bottom-up are possible depending on processing, type of machine and material grade.

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