

Jongen Werkzeugtechnik

EXTREME

Long Life

A revolution for longer tool life and for smooth milling

VHM 477W TS35

LONG

ALL SPEED LONG

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ALL SPEED LONG

The Tool

- Flat shaped shank type cutter, made to DIN 6527, long version
- Coupling made to DIN 6535-HB (Weldon)
- Optimized macro geometry
- Optimized micro geometry
- Front surface cutting geometry allows plunge milling
- Increasing neck length
- Dynamic twist angle
- Unequal pitch

The hard metal

- Finest grain carbide for high performance cutting in the ISO field K20-K30
- Very high tenacity with even more wear resistance

The coating

- Performance optimization of TiAlN-coating
- Finest layer structure
- High oxidation stability
- Very high tenacity and very high hardness
- Large wear volume

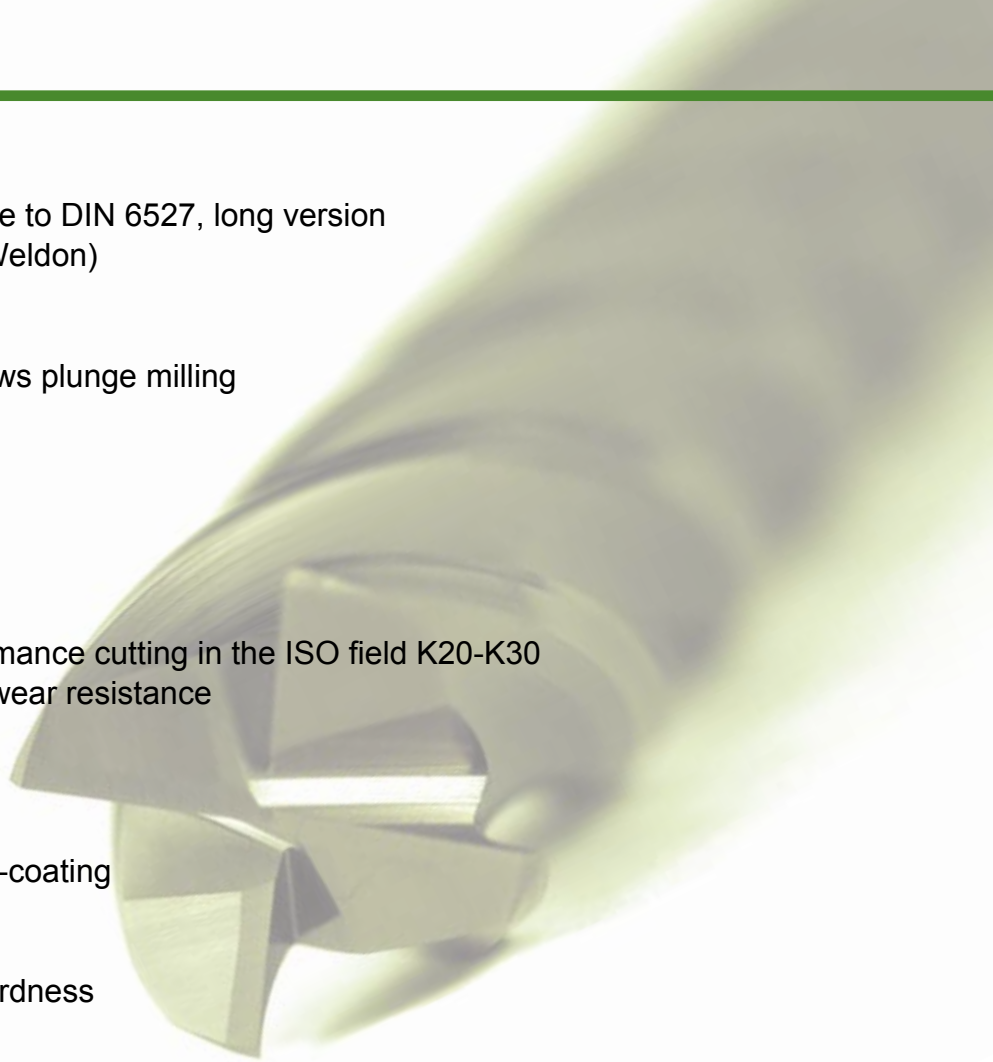
The quality „TS35“

- Optimal combination of hard metal, coating and cutting edge for working all usual steels, such as high-grade steels, cast iron materials, as well as difficult to machine materials
- Suitable for roughing as well as finishing
- For dry milling, wet milling or milling with min. lubricant grease

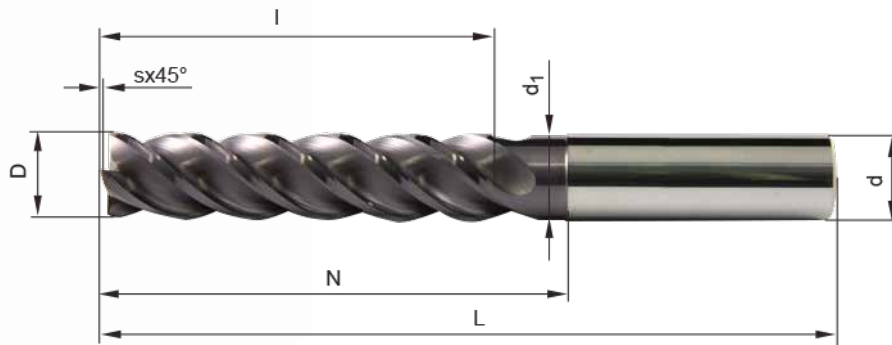
Advantages

- Extremely high feed rates also with materials that are difficult to mill
- Very long tool life and as a result a reduction of periods of disuse of the machines
- Very good surface finish
- Very smooth running of machine
- Secure mode of working procedure
- Increasing neck length for greater usable depths
- Great application range in terms of different milling operations and different materials
- Especially suitable for Inox steels, high-alloy steels, as well as Titanium etc.

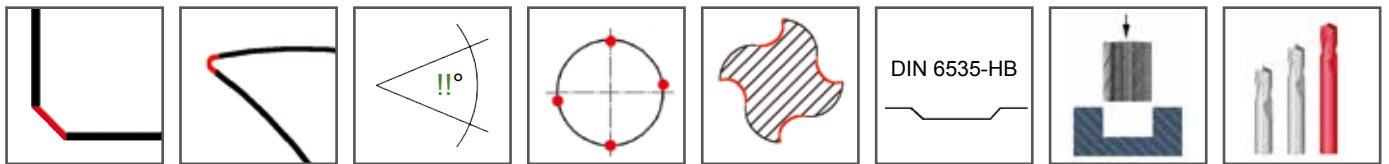
➤ **Our efficiency is your profit - tooling made by Jongen !**



Technical data

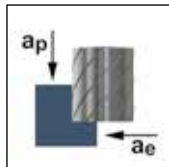


Tolerance \varnothing :
 $\varnothing 6,0 - 25,0 = -0,02$
 $-0,04$

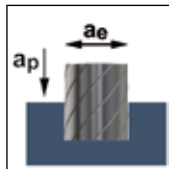


Order-No.	D	sx45°	I	N	d ₁	d _{h6}	L	Z
VHM 477W-06 TS35	6	0,20x45°	21	28	5,7	6	66	4
VHM 477W-08 TS35	8	0,25x45°	28	38	7,7	8	75	4
VHM 477W-10 TS35	10	0,30x45°	40	50	9,6	10	93	4
VHM 477W-12 TS35	12	0,40x45°	48	59	11,6	12	105	4
VHM 477W-16 TS35	16	0,50x45°	72	86	15,5	16	136	4
VHM 477W-20 TS35	20	0,50x45°	90	102	19,5	20	155	4
VHM 477W-25 TS35	25	0,50x45°	115	130	24,5	25	190	4

Cutting Data Recommendations



Material	D [mm]	V _c [m/min]	f _z [mm]	a _p [mm]	a _e [mm]	n [min ⁻¹]	V _f [mm/min]	Q [cm ³ /min]
Baustahl, Unlegierter Stahl <i>Structural steel, Unalloyed steel</i> <i>Acier de construction, Acier non allié</i> <i>Acciaio di costruzione, Acciaio non legato</i> <800 N/mm ²	6	120 (100-160)	0,05 (0,03-0,09)	21,0	0,5	6.370	1.275	12,9
	8	120 (100-160)	0,07 (0,05-0,11)	28,0	0,6	4.770	1.335	23,9
	10	120 (100-160)	0,10 (0,08-0,14)	40,0	0,8	3.820	1.530	49,0
	12	120 (100-160)	0,12 (0,10-0,16)	48,0	1,0	3.180	1.525	70,3
	16	120 (100-160)	0,14 (0,12-0,18)	72,0	1,3	2.390	1.340	123,5
	20	120 (100-160)	0,16 (0,14-0,20)	90,0	1,6	1.910	1.220	175,7
Werkzeugstahl, Vergütungsstahl, Legierter Stahl <i>Tool steel, heat-treatable steel, alloyed steel</i> <i>Acier à outil, acier par traitement thermique, acier allié</i> <i>Acciaio d'utensile, acciaio bonificato, acciaio legato</i> 800-1200 N/mm ²	6	100 (90-150)	0,05 (0,03-0,09)	21,0	0,5	5.310	1.060	10,7
	8	100 (90-150)	0,07 (0,05-0,11)	28,0	0,6	3.980	1.115	20,0
	10	100 (90-150)	0,10 (0,08-0,14)	40,0	0,8	3.180	1.270	40,6
	12	100 (90-150)	0,12 (0,10-0,16)	48,0	1,0	2.650	1.270	58,5
	16	100 (90-150)	0,14 (0,12-0,18)	72,0	1,3	1.990	1.115	102,8
	20	100 (90-150)	0,16 (0,14-0,20)	90,0	1,6	1.590	1.020	146,9
Edelstahl Hochlegierter Stahl <i>High grade steel</i> <i>High alloyed steel</i> <i>Acier noble</i> <i>Acier fortement allié</i> <i>Acciaio superiore</i> <i>Acciaio di alta lega</i>	6	80 (60-120)	0,05 (0,03-0,09)	21,0	0,5	4.240	850	8,6
	8	80 (60-120)	0,07 (0,05-0,11)	28,0	0,6	3.180	890	15,9
	10	80 (60-120)	0,10 (0,08-0,14)	40,0	0,8	2.550	1.020	32,6
	12	80 (60-120)	0,12 (0,10-0,16)	48,0	1,0	2.120	1.020	47,0
	16	80 (60-120)	0,14 (0,12-0,18)	72,0	1,3	1.590	890	82,0
	20	80 (60-120)	0,16 (0,14-0,20)	90,0	1,6	1.270	815	117,4
Titanlegierungen <i>Titanium alloys</i> <i>Alliage titane</i> <i>Leghe di titanio</i> >300 HB (z.B., e.g., p.ex., p.e. TiAlV6)	6	40 (20-60)	0,05 (0,03-0,09)	21,0	0,5	2.120	425	4,3
	8	40 (20-60)	0,07 (0,05-0,11)	28,0	0,6	1.590	445	8,0
	10	40 (20-60)	0,10 (0,08-0,14)	40,0	0,8	1.270	510	16,3
	12	40 (20-60)	0,12 (0,10-0,16)	48,0	1,0	1.060	510	23,5
	16	40 (20-60)	0,14 (0,12-0,18)	72,0	1,3	800	450	41,5
	20	40 (20-60)	0,16 (0,14-0,20)	90,0	1,6	640	410	59,0
Nickelbasislegierungen aushärtbar <i>Nickel-base alloy hardenable</i> <i>Alliages traitable à base de nickel</i> <i>Leghe a base di Nickel</i> (z.B., e.g., p.ex., p.e. Inconell 718)	6	30 (20-60)	0,05 (0,03-0,09)	21,0	0,5	1.590	320	3,2
	8	30 (20-60)	0,07 (0,05-0,11)	28,0	0,6	1.190	335	6,0
	10	30 (20-60)	0,10 (0,08-0,14)	40,0	0,8	950	380	12,2
	12	30 (20-60)	0,12 (0,10-0,16)	48,0	1,0	800	385	17,7
	16	30 (20-60)	0,14 (0,12-0,18)	72,0	1,3	600	335	30,9
	20	30 (20-60)	0,16 (0,14-0,20)	90,0	1,6	480	305	43,9
Gusseisen GG(G) <i>Cast iron GG(G)</i> <i>Fonte GG(G)</i> <i>Ghisa GG(G)</i>	6	140 (120-180)	0,05 (0,03-0,09)	21,0	0,5	7.430	1.485	15,0
	8	140 (120-180)	0,07 (0,05-0,11)	28,0	0,6	5.570	1.560	28,0
	10	140 (120-180)	0,10 (0,08-0,14)	40,0	0,8	4.460	1.785	57,1
	12	140 (120-180)	0,12 (0,10-0,16)	48,0	1,0	3.710	1.780	82,0
	16	140 (120-180)	0,14 (0,12-0,18)	72,0	1,3	2.790	1.560	143,8
	20	140 (120-180)	0,16 (0,14-0,20)	90,0	1,6	2.230	1.425	205,2
25	140 (120-180)	0,18 (0,16-0,22)	115,0	2,0	1.780	1.280	294,4	



Material	D [mm]	V _c [m/min]	f _z [mm]	a _p [mm]	a _e [mm]	n [min ⁻¹]	V _f [mm/min]	Q [cm ³ /min]
Baustahl, Unlegierter Stahl <i>Structural steel, Unalloyed steel</i> <i>Acier de construction, Acier non allié</i> <i>Acciaio di costruzione, Acciaio non legato</i> <800 N/mm ²	6	120 (100-160)	0,04 (0,02-0,08)	1,2	6	6.370	1.020	7,3
	8	120 (100-160)	0,06 (0,04-0,10)	1,3	8	4.770	1.145	12,2
	10	120 (100-160)	0,08 (0,06-0,12)	1,4	10	3.820	1.220	17,4
	12	120 (100-160)	0,10 (0,08-0,14)	1,5	12	3.180	1.270	22,9
	16	120 (100-160)	0,12 (0,10-0,18)	1,8	16	2.390	1.145	32,6
	20	120 (100-160)	0,14 (0,12-0,22)	2,0	20	1.910	1.070	42,8
Werkzeugstahl, Vergütungsstahl, Legierter Stahl <i>Tool steel, heat-treatable steel, alloyed steel</i> <i>Acier à outil, acier par traitement thermique, acier allié</i> <i>Acciaio d'utensile, acciaio bonificato, acciaio legato</i> 800-1200 N/mm ²	6	100 (90-150)	0,04 (0,02-0,08)	1,2	6	5.310	980	6,1
	8	100 (90-150)	0,06 (0,04-0,10)	1,3	8	3.980	955	10,2
	10	100 (90-150)	0,08 (0,06-0,12)	1,4	10	3.180	1.020	14,6
	12	100 (90-150)	0,10 (0,08-0,14)	1,5	12	2.650	1.060	19,1
	16	100 (90-150)	0,12 (0,10-0,18)	1,8	16	1.990	955	27,2
	20	100 (90-150)	0,14 (0,12-0,22)	2,0	20	1.590	890	35,6
Edelstahl Hochlegierter Stahl <i>High grade steel</i> <i>High alloyed steel</i> <i>Acier noble</i> <i>Acier fortement allié</i> <i>Acciaio superiore</i> <i>Acciaio di alta lega</i>	6	80 (60-120)	0,04 (0,02-0,08)	1,2	6	4.240	680	4,9
	8	80 (60-120)	0,06 (0,04-0,10)	1,3	8	3.180	765	8,2
	10	80 (60-120)	0,08 (0,06-0,12)	1,4	10	2.550	815	11,6
	12	80 (60-120)	0,10 (0,08-0,14)	1,5	12	2.120	850	15,3
	16	80 (60-120)	0,12 (0,10-0,18)	1,8	16	1.590	765	21,8
	20	80 (60-120)	0,14 (0,12-0,22)	2,0	20	1.270	710	28,4
Titanlegierungen <i>Titanium alloys</i> <i>Alliage titane</i> <i>Leghe di titanio</i> >300 HB (z.B., e.g., p.ex., p.e. TiAlV6)	6	40 (20-60)	0,03 (0,02-0,08)	1,2	6	2.120	210	1,5
	8	40 (20-60)	0,04 (0,02-0,10)	1,3	8	1.590	225	2,4
	10	40 (20-60)	0,05 (0,03-0,10)	1,4	10	1.270	255	3,6
	12	40 (20-60)	0,06 (0,04-0,10)	1,5	12	1.060	255	4,6
	16	40 (20-60)	0,08 (0,06-0,12)	1,8	16	800	255	7,3
	20	40 (20-60)	0,09 (0,06-0,14)	2,0	20	640	230	9,2
Nickelbasislegierungen aushärtbar <i>Nickel-base alloy hardenable</i> <i>Alliages traitable à base de nickel</i> <i>Leghe a base di Nickel</i> (z.B., e.g., p.ex., p.e. Inconell 718)	6	30 (20-60)	0,03 (0,02-0,08)	1,2	6	1.590	160	1,2
	8	30 (20-60)	0,04 (0,02-0,10)	1,3	8	1.190	165	1,8
	10	30 (20-60)	0,05 (0,03-0,10)	1,4	10	950	190	2,7
	12	30 (20-60)	0,06 (0,04-0,10)	1,5	12	800	190	3,4
	16	30 (20-60)	0,08 (0,06-0,12)	1,8	16	600	190	5,4
	20	30 (20-60)	0,09 (0,06-0,14)	2,0	20	480	175	7,0
Gusseisen GG(G) <i>Cast iron GG(G)</i> <i>Fonte GG(G)</i> <i>Ghisa GG(G)</i>	6	140 (120-180)	0,04 (0,02-0,08)	1,2	6	7.430	1.190	8,6
	8	140 (120-180)	0,06 (0,04-0,10)	1,3	8	5.570	1.335	14,2
	10	140 (120-180)	0,08 (0,06-0,12)	1,4	10	4.460	1.425	20,4
	12	140 (120-180)	0,10 (0,08-0,14)	1,5	12	3.710	1.485	26,7
	16	140 (120-180)	0,12 (0,10-0,18)	1,8	16	2.790	1.340	38,1
	20	140 (120-180)	0,14 (0,12-0,22)	2,0	20	2.230	1.250	50,0
25	140 (120-180)	0,16 (0,14-0,24)	2,3	25	1.780	1.140	65,6	

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 precision and rigidity. Should the available cutting speed be lower of that given in the table, reduce feed rate proportionally.