## VHM - Schaftfräser Fightmax

Art.-Nr. 233

**Flutes** 4





















Tool recommendation

















### Areas of application and special features

High-quality HPC multi-twist cutter with micro geometry, new solid carbide and polished high performance coating Varacon Plus especially for steel. The Fightmax uses a new milling cutter front for better dipping and ramp cutting.

#### Competitive advantages and profitability

The durability was increased by a special edge finishing and better production tolerances. Best results in 16MnCr5, 42CrMo4 andToolox 33.

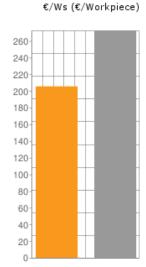
Competition to Hoffmann, Hanita, Maier

#### **Example application**

23312010 Art.-Nr.:

Material: Tempering steel <1000 N/mm2 (<32 HRC)

Inovatools								
D1	12,00	mm	Diameter					
z	4		Flutes					
ae	11,000	mm	Row pitch					
ар	12,000	mm	Cutting depth					
vc	184,64	m/min	Cutting speed					
n	4898	U/min	Rotation speed					
fz	0,06016	mm	Feed per tooth					
vf	1178,52	mm/min	Feed rate					
Q	155,56424172	cm³/min	Material removal rate					
hm	0,04315	mm	Middle chipping thickness					
K/M	120	€/std	Machine hourly cost					
K/W	85	€	Tool cost					
Т	54,87	min	Tool life					
٧	9072	cm³	Processing volume					
Tb	58,32	min	Process time					
€/Ws	206,98	€	Cost workpiece					



Efficiency

Deutschland Competitor: Art.-Nr.:

		Calcul	ator
D1	12,00	mm	Diameter
z	4		Flutes
ae	11	mm	Row pitch
ар	12	mm	Cutting depth
vc	180,01	m/min	Cutting speed
n	4775	U/min	Rotation speed
fz	0,06000	mm	Feed per tooth
vf	1145,98	mm/min	Feed rate
Q	151,26926130	cm³/min	Material removal rate
hm	0,04304	mm	Middle chipping thickness
K/M	120	€/std	Machine hourly cost
K/W	81,6	€	Tool cost
Т	32,06	min	Tool life
٧	9072	cm³	Processing volume
Tb	59,97	min	Process time
€/Ws	272,58	€	Cost workpiece



Roughing

# **Cutting data and application recommendations**

Caption:

D1

D1

D1

D1

D1

D1

D1

D1

Art.-Nr. 233 / 1 - Fightmax STEEL - example Toolox

D1

D1

D1

D1

D1

D1

ap: 1,00 Good ae: 1,00 Applica Limited		able d applicable			10,00		16,00	20,00								
Material	vc m/mir	φ Grad	fz mm													
General steels <500 N/mm² (<150 HB)																
General steels <700 N/mm² (<205 HB)	191	50	0,034	0,042	0,050	0,059	0,084	0,109								
General steels <850 N/mm² (<25 HRC)	187	48	0,034	0,042	0,050	0,059	0,084	0,109								
Tempering steel <850 N/mm² (<25 HRC)	184	50	0,034	0,042	0,050	0,059	0,084	0,109								
Tempering steel <1000 N/mm² (<32 HRC	) 177	45	0,034	0,042	0,050	0,059	0,084	0,109								
Tempering steel <1400 N/mm² (<44 HRC		40	0,034	0,042	0,050	0,059	0,084	0,109								
Tempered steels 45-55 HRC (1400-2000																
Tempered steels 55-60 HRC (>2000 N/mi																
Tempered steels 60-65 HRC	,															
Cast iron <180HB																
Malleable cast iron																
Cast iron with nodular graphite																
Aluminium long-chipping																
Aluminium short-chipping																
Aluminium alloyed over >8% S																
Copper, brass, bronze, red brass																
Plastics - thermoplast																
Plastics - duroplast																
GFK/CFK (fibreglass/carbon fibre plastics)																
Graphite																
Rust and acid constant steels <700 N/mm	2 (<21															
Rust and acid constant steels >700 N/mm																
	(>2)															
Inconel, Hastelloy, Nimonic, Monel																
Titanium																
Finishina																
Finishing Ca	ption:		D1													
ap: 1,00 Go			6,00	8,00	10,00	12,00	16,00	20,00								
	plicable															
Lin	nited applica	able														
Material	vc m/mir	φ Grad	fz mm													
General steels <500 N/mm² (<150 HB)	,	0.44														
	270	50	0.040	0.050	0.060	0,070	0.100	0.130								
General steels <700 N/mm² (<205 HB)	265	48	_	-	-	0,070	-	-								
General steels <850 N/mm² (<25 HRC)						0,070										
Tempering steel <850 N/mm² (<25 HRC)	260	50				0.070										
T / / / / / / / /			_			0,070										
Tempering steel <1000 N/mm² (<32 HRC		45	0,040	0,050	0,060	0,070	0,100	0,130								
Tempering steel <1400 N/mm² (<44 HRC	_	45 40	0,040	0,050	0,060		0,100	0,130								
	180		0,040	0,050	0,060	0,070	0,100	0,130								
Tempering steel <1400 N/mm² (<44 HRC	<b>180</b> N/mr		0,040	0,050	0,060	0,070	0,100	0,130								
Tempering steel <1400 N/mm² (<44 HRC Tempered steels 45-55 HRC (1400-2000	<b>180</b> N/mr		0,040	0,050	0,060	0,070	0,100	0,130								
Tempering steel <1400 N/mm² (<44 HRC Tempered steels 45-55 HRC (1400-2000 Tempered steels 55-60 HRC (>2000 N/mr	<b>180</b> N/mr		0,040	0,050	0,060	0,070	0,100	0,130								
Tempering steel <1400 N/mm² (<44 HRC Tempered steels 45-55 HRC (1400-2000 Tempered steels 55-60 HRC (>2000 N/m Tempered steels 60-65 HRC Cast iron <180HB	<b>180</b> N/mr		0,040	0,050	0,060	0,070	0,100	0,130								
Tempering steel <1400 N/mm² (<44 HRC) Tempered steels 45-55 HRC (1400-2000 Tempered steels 55-60 HRC (>2000 N/mi Tempered steels 60-65 HRC Cast iron <180HB Malleable cast iron	<b>180</b> N/mr		0,040	0,050	0,060	0,070	0,100	0,130								
Tempering steel <1400 N/mm² (<44 HRC) Tempered steels 45-55 HRC (1400-2000) Tempered steels 55-60 HRC (>2000 N/mi) Tempered steels 60-65 HRC Cast iron <180HB Malleable cast iron Cast iron with nodular graphite	<b>180</b> N/mr		0,040	0,050	0,060	0,070	0,100	0,130								
Tempering steel <1400 N/mm² (<44 HRC) Tempered steels 45-55 HRC (1400-2000) Tempered steels 55-60 HRC (>2000 N/mi) Tempered steels 60-65 HRC Cast iron <180HB Malleable cast iron Cast iron with nodular graphite Aluminium long-chipping	<b>180</b> N/mr		0,040	0,050	0,060	0,070	0,100	0,130								
Tempering steel <1400 N/mm² (<44 HRC) Tempered steels 45-55 HRC (1400-2000) Tempered steels 55-60 HRC (>2000 N/mr) Tempered steels 60-65 HRC Cast iron <180HB Malleable cast iron Cast iron with nodular graphite Aluminium long-chipping Aluminium short-chipping	<b>180</b> N/mr		0,040	0,050	0,060	0,070	0,100	0,130								
Tempering steel <1400 N/mm² (<44 HRC) Tempered steels 45-55 HRC (1400-2000) Tempered steels 55-60 HRC (>2000 N/mr) Tempered steels 60-65 HRC Cast iron <180HB Malleable cast iron Cast iron with nodular graphite Aluminium long-chipping Aluminium short-chipping Aluminium alloyed over >8% S	<b>180</b> N/mr		0,040	0,050	0,060	0,070	0,100	0,130								
Tempering steel <1400 N/mm² (<44 HRC) Tempered steels 45-55 HRC (1400-2000) Tempered steels 55-60 HRC (>2000 N/mr) Tempered steels 60-65 HRC Cast iron <180HB Malleable cast iron Cast iron with nodular graphite Aluminium long-chipping Aluminium short-chipping Aluminium alloyed over >8% S Copper, brass, bronze, red brass	<b>180</b> N/mr		0,040	0,050	0,060	0,070	0,100	0,130								
Tempering steel <1400 N/mm² (<44 HRC Tempered steels 45-55 HRC (1400-2000 Tempered steels 55-60 HRC (>2000 N/mr Tempered steels 60-65 HRC Cast iron <180HB Malleable cast iron Cast iron with nodular graphite Aluminium long-chipping Aluminium short-chipping Aluminium alloyed over >8% S Copper, brass, bronze, red brass	<b>180</b> N/mr		0,040	0,050	0,060	0,070	0,100	0,130								
Tempering steel <1400 N/mm² (<44 HRC Tempered steels 45-55 HRC (1400-2000 Tempered steels 55-60 HRC (>2000 N/mr Tempered steels 60-65 HRC Cast iron <180HB Malleable cast iron Cast iron with nodular graphite Aluminium long-chipping Aluminium short-chipping Aluminium alloyed over >8% S Copper, brass, bronze, red brass Plastics - thermoplast Plastics - duroplast	<b>180</b> N/mr		0,040	0,050	0,060	0,070	0,100	0,130								
Tempering steel <1400 N/mm² (<44 HRC Tempered steels 45-55 HRC (1400-2000 Tempered steels 55-60 HRC (>2000 N/mr Tempered steels 60-65 HRC Cast iron <180HB Malleable cast iron Cast iron with nodular graphite Aluminium long-chipping Aluminium short-chipping Aluminium alloyed over >8% S Copper, brass, bronze, red brass Plastics - thermoplast	<b>180</b> N/mr		0,040	0,050	0,060	0,070	0,100	0,130								
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Tempering steel <1400 N/mm² (<44 HRC Tempered steels 45-55 HRC (1400-2000 Tempered steels 55-60 HRC (>2000 N/mr Tempered steels 60-65 HRC Cast iron <180HB Malleable cast iron Cast iron with nodular graphite Aluminium long-chipping Aluminium short-chipping Aluminium alloyed over >8% S Copper, brass, bronze, red brass Plastics - thermoplast Plastics - duroplast GFK/CFK (fibreglass/carbon fibre plastics)	N/mr m²)		0,040	0,050	0,060	0,070	0,100	0,130								
Tempering steel <1400 N/mm² (<44 HRC) Tempered steels 45-55 HRC (1400-2000) Tempered steels 55-60 HRC (>2000 N/m) Tempered steels 60-65 HRC Cast iron <180HB Malleable cast iron Cast iron with nodular graphite Aluminium long-chipping Aluminium short-chipping Aluminium alloyed over >8% S Copper, brass, bronze, red brass Plastics - thermoplast Plastics - duroplast GFK/CFK (fibreglass/carbon fibre plastics) Graphite	N/mr m²)		0,040	0,050	0,060	0,070	0,100	0,130								
Tempering steel <1400 N/mm² (<44 HRC) Tempered steels 45-55 HRC (1400-2000) Tempered steels 55-60 HRC (>2000 N/mr) Tempered steels 60-65 HRC Cast iron <180HB Malleable cast iron Cast iron with nodular graphite Aluminium long-chipping Aluminium short-chipping Aluminium alloyed over >8% S Copper, brass, bronze, red brass Plastics - thermoplast Plastics - duroplast GFK/CFK (fibreglass/carbon fibre plastics) Graphite Rust and acid constant steels <700 N/mm²	N/mr m²)		0,040	0,050	0,060	0,070	0,100	0,130								