

**Garant**
**Solid carbide milling cutter with chip separators TPC, TiAlN, Ø f8 DC: 20mm**

**Order data**

Order number	203091 20
GTIN	4045197814449
Item class	11X

**Description**
**Version:**

High-performance end mills for general-purpose machining, **specially designed for TPC applications.**

Strengthened core. Offset chip breaker. **Optimised bending strength** due to the use of ultra-fine grain substrates.

**Note:**

$h_{max}$ : The values stated in the table are maximum values.

$a_{e,max} = 0.03 \times D$  for TPC machining.

Tolerance nominal Ø: f8

No. of teeth Z: 5

Helix angle: 40°

Direction of infeed: horizontal and oblique

Shank: DIN 6535 HB to h6

Balance quality with shank: G 2.5 with HB

No. of teeth Z: 5

Flute length  $L_c$ : 100 mm

Overall length L: 160 mm

Shank Ø  $D_s$ : 20 mm

Corner chamfer width at 45°: 0.4 mm

Average chip thickness  $h_{max}$  for TPC milling in Toolox 44 HRC: 0.07 mm

**Technical description**

Flute length $L_c$	100 mm
Average chip thickness $h_{max}$ for TPC milling in Toolox 44 HRC	0.07 mm

No. of teeth Z	5
Shank $\varnothing D_s$	20 mm
Balance quality with shank	G 2.5 with HB
Corner chamfer width at 45°	0.4 mm
Tolerance nominal $\varnothing$	f8
Shank	DIN 6535 HB to h6
Cutting edge $\varnothing D_c$	20 mm
Direction of infeed	horizontal and oblique
Overall length L	160 mm
Helix angle	40°
Corner chamfer angle	45°
Coating	TiAlN
Tool material	Solid carbide
Standard	Manufacturer's standard
Type	N
Helix angle characteristic	unequal spacing
Spacing of the cutters	unequal spacing
Cutting width $a_e$ for milling operation	0.03×D
Through-coolant	no
Machining strategy	TPC
Colour ring	green
Type of product	End / face mill

## User data

	Suitability	$V_c$	ISO code
Steel < 500 N/mm <sup>2</sup>	suitable	350 m/min	P
Steel < 750 N/mm <sup>2</sup>	suitable	310 m/min	P
Steel < 900 N/mm <sup>2</sup>	suitable	270 m/min	P
Steel < 1100 N/mm <sup>2</sup>	suitable	200 m/min	P

Steel < 1400 N/mm <sup>2</sup>	suitable	120 m/min	P
TOOLOX 33	suitable	50 m/min	H
TOOLOX 44	suitable	30 m/min	H
HARDOX 500 < 1600 N/mm <sup>2</sup>	suitable	20 m/min	H
INOX < 900 N/mm <sup>2</sup>	suitable	190 m/min	M
INOX > 900 N/mm <sup>2</sup>	suitable only under restricted conditions	120 m/min	M
Uni	suitable		
wet maximum	Suitable		
dry	Suitable only under restricted conditions		
Air	suitable		
<b>Services</b>			

Shank clamping flats for shrink-fit chucks, with retainer function Shank Ø tool 20 mm

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