# Garant

# GARANT Master Steel SlotMachine solid carbide roughing end mill HPC, TIAIN, Ø d11 DC: 16 mm



## Order data

Order number	205552 16
GTIN	4045197959904
Item class	11X

## Description

#### Version:

With a new-type knurled profile, optimised for higher feed rates. Improved cutting edge protection thanks to slight edge honing. Tremendous bending strength due to the use of ultra-fine grain substrate.

#### Advantage:

The tool geometry produces particularly tightly rolled swarf that is discharged via flat chip breaker recesses. As a result, the tool maintains an extremely stable core. Plunge angle of up to 10° possible thanks to generous recess on the front face.

#### **Application:**

For roughing machining, particularly suitable for full-slot machining. Tolerance nominal  $\emptyset$ : d11 No. of teeth Z: 5 Helix angle: 42 degrees Direction of infeed: horizontal, oblique and vertical Shank: DIN 6535 HB to h6 No. of teeth Z: 5 Flute length L<sub>c</sub>: 36 mm Overhang length L<sub>1</sub> incl. recess: 58 mm Recess  $\emptyset$  D<sub>1</sub>: 14.8 mm Overall length L: 108 mm Shank  $\emptyset$  D<sub>s</sub>: 16 mm

## **Technical description**

Feed  $f_z$  for side milling in steel < 900 N/mm<sup>2</sup>

0.1 mm

# roup 🔥

Overhang length L, incl. recess58 mmFeed f, for slot milling in steel < 900 N/mm²0.07 mmShankDIN 6535 HB to h6Corner chamfer width at 45°0.8 mmDirection of infeedhorizontal, oblique and verticalHelix angle42 degreesNo. of teeth Z5Recess Ø D,14.8 mmShank Ø D,16 mmOverall length L108 mmCutting edge Ø Dc16 mmTolerance nominal Ød11Corner chamfer angle45 degreesSeriesGARANT Master SteelCoatingTiAINTool materialSolid carbideStandardManufacturer's standardMilling profileNRSpacing of the cuttersunequal spacingCutting width a, for milling operation0.4×D for side millingThrough-coolantnoMachining strategyHPCColour ringgreenType of productEnd mill	Flute length L <sub>c</sub>	36 mm
ShankDIN 6535 HB to h6Corner chamfer width at 45°0.8 mmDirection of infeedhorizontal, oblique and verticalHelix angle42 degreesNo. of teeth Z5Recess Ø D114.8 mmShank Ø D216 mmOverall length L108 mmCutting edge Ø Dc16 mmTolerance nominal Ød11Corner chamfer angle45 degreesSeriesGARANT Master SteelCoatingTiAINTool materialSolid carbideStandardManufacturer's standardMilling profileNRSpacing of the cuttersunequal spacingCutting width a, for milling operation0.4×D for side millingThrough-coolantnoMachining strategyHPCColour ringGreen	Overhang length L <sub>1</sub> incl. recess	58 mm
Corner chamfer width at 45°0.8 mmDirection of infeedhorizontal, oblique and verticalHelix angle42 degreesNo. of teeth Z5Recess Ø D,14.8 mmShank Ø D,16 mmOverall length L108 mmCutting edge Ø Dc16 mmTolerance nominal Ød11Corner chamfer angle45 degreesSeriesGARANT Master SteelCotaingTiAINTool materialSolid carbideStandardManufacturer's standardMilling profileNRSpacing of the cuttersunequal spacingCutting width a, for milling operation0.4×D for side millingThrough-coolantnoMachining strategyHPCColour ringgreen	Feed $f_z$ for slot milling in steel < 900 N/mm <sup>2</sup>	0.07 mm
Direction of infeedhorizontal, oblique and verticalHelix angle42 degreesNo. of teeth Z5Recess Ø D,14.8 mmShank Ø D,16 mmOverall length L108 mmCutting edge Ø Dc16 mmTolerance nominal Ød11Corner chamfer angle45 degreesSeriesGARANT Master SteelCotingTiAlNTool materialSolid carbideStandardManufacturer's standardMilling profileNRSpacing of the cuttersunequal spacingCutting width a, for milling operation0.4×D for side millingThrough-coolantnoMachining strategyHPCColour ringgreen	Shank	DIN 6535 HB to h6
Helix angle42 degreesNo. of teeth Z5Recess Ø D114.8 mmShank Ø D516 mmOverall length L108 mmCutting edge Ø Dc16 mmTolerance nominal Ød11Corner chamfer angle45 degreesSeriesGARANT Master SteelCoatingTiAINTool materialSolid carbideStandardManufacturer's standardMilling profileNRSpacing of the cuttersunequal spacingCutting width a, for milling operation0.4×D for side millingThrough-coolantnoMachining strategyHPCColour ringgreen	Corner chamfer width at 45°	0.8 mm
No. of teeth Z5Recess Ø D,14.8 mmShank Ø D,16 mmOverall length L108 mmCutting edge Ø Dc16 mmTolerance nominal Ød11Corner chamfer angle455 degreesSeriesGARANT Master SteelCoatingTiAlNTool materialSolid carbideStandardManufacturer's standardMilling profileNRSpacing of the cuttersunequal spacingCutting width a, for milling operation0.4×D for side millingThrough-coolantnoMachining strategyHPCColour ringgreen	Direction of infeed	horizontal, oblique and vertical
Recess Ø D114.8 mmShank Ø D316 mmOverall length L108 mmCutting edge Ø Dc16 mmTolerance nominal Ød11Corner chamfer angle45 degreesSeriesGARANT Master SteelCoatingTiAINTool materialSolid carbideStandardManufacturer's standardMilling profileNRSpacing of the cuttersunequal spacingCutting width ae for milling operation0.4×D for side millingThrough-coolantnoMachining strategyHPCColour ringgreen	Helix angle	42 degrees
Shank Ø D,16 mmOverall length L108 mmCutting edge Ø Dc16 mmTolerance nominal Ød11Corner chamfer angle45 degreesSeriesGARANT Master SteelCoatingTiAINTool materialSolid carbideStandardManufacturer's standardMilling profileNRSpacing of the cuttersunequal spacingCutting width ae for milling operation0.4×D for side millingThrough-coolantnoMachining strategyHPCColour ringGreen	No. of teeth Z	5
Overall length L108 mmCutting edge Ø Dc16 mmTolerance nominal Ød11Corner chamfer angle45 degreesSeriesGARANT Master SteelCoatingTiAlNTool materialSolid carbideStandardManufacturer's standardMilling profileNRSpacing of the cuttersunequal spacingCutting width ae for milling operation0.4×D for side millingThrough-coolantnoMachining strategyHPCColour ringgreen	Recess Ø D <sub>1</sub>	14.8 mm
Cutting edge Ø Dc16 mmTolerance nominal Ød11Corner chamfer angle45 degreesSeriesGARANT Master SteelCoatingTiAINTool materialSolid carbideStandardManufacturer's standardMilling profileNRSpacing of the cuttersunequal spacingCutting width ac for milling operation0.4×D for side millingThrough-coolantnoMachining strategyHPCColour ringgreen	Shank Ø D <sub>s</sub>	16 mm
Tolerance nominal Ød11Corner chamfer angle45 degreesSeriesGARANT Master SteelCoatingTiAINTool materialSolid carbideStandardManufacturer's standardMilling profileNRSpacing of the cuttersunequal spacingCutting width ae for milling operation0.4×D for side millingThrough-coolantnoMachining strategyHPCColour ringgreen	Overall length L	108 mm
Corner chamfer angle45 degreesSeriesGARANT Master SteelCoatingTiAINTool materialSolid carbideStandardManufacturer's standardMilling profileNRSpacing of the cuttersunequal spacingCutting width ae for milling operationFull slot cutting depth 1×DCutting width ae for milling operation0.4×D for side millingThrough-coolantnoMachining strategyHPCColour ringGreen	Cutting edge $Ø D_c$	16 mm
SeriesGARANT Master SteelCoatingTiAINTool materialSolid carbideStandardManufacturer's standardMilling profileNRSpacing of the cuttersunequal spacingCutting width ae for milling operationFull slot cutting depth 1×DCutting width ae for milling operation0.4×D for side millingThrough-coolantnoMachining strategyHPCColour ringgreen	Tolerance nominal Ø	d11
CoatingTiAINTool materialSolid carbideStandardManufacturer's standardMilling profileManufacturer's standardSpacing of the cuttersunequal spacingCutting width ae for milling operationFull slot cutting depth 1×DCutting width ae for milling operation0.4×D for side millingThrough-coolantnoMachining strategyHPCColour ringgreen	Corner chamfer angle	45 degrees
Tool materialSolid carbideStandardManufacturer's standardMilling profileManufacturer's standardSpacing of the cuttersunequal spacingCutting width ae for milling operationFull slot cutting depth 1×DCutting width ae for milling operation0.4×D for side millingThrough-coolantnoMachining strategyHPCColour ringgreen	Series	GARANT Master Steel
StandardManufacturer's standardMilling profileNRSpacing of the cuttersunequal spacingCutting width ae for milling operationFull slot cutting depth 1×DCutting width ae for milling operation0.4×D for side millingThrough-coolantnoMachining strategyHPCColour ringgreen	Coating	TiAIN
Milling profileNRSpacing of the cuttersunequal spacingCutting width ae for milling operationFull slot cutting depth 1×DCutting width ae for milling operation0.4×D for side millingThrough-coolantnoMachining strategyHPCColour ringgreen	Tool material	Solid carbide
Spacing of the cuttersunequal spacingCutting width ae for milling operationFull slot cutting depth 1×DCutting width ae for milling operation0.4×D for side millingThrough-coolantnoMachining strategyHPCColour ringgreen	Standard	Manufacturer's standard
Cutting width ae for milling operationFull slot cutting depth 1×DCutting width ae for milling operation0.4×D for side millingThrough-coolantnoMachining strategyHPCColour ringgreen	Milling profile	NR
Cutting width ae for milling operation0.4×D for side millingThrough-coolantnoMachining strategyHPCColour ringgreen	Spacing of the cutters	unequal spacing
Through-coolantnoMachining strategyHPCColour ringgreen	Cutting width $a_e$ for milling operation	Full slot cutting depth 1×D
Machining strategy HPC   Colour ring green	Cutting width $a_e$ for milling operation	0.4×D for side milling
Colour ring green	Through-coolant	no
	Machining strategy	HPC
Type of product End mill	Colour ring	green
	Type of product	End mill