Turn Cut Milling

mimatic®
Tool Systems

mimaticDTF
always with eltimon®

Turn Cut Milling
instead
of parting off

NEW Industry 4.0 (IIoT) ready!

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Tool Systems

Turn Cut Milling with PolySAW

Turn Cut Milling instead of parting off: Faster parting off than anybody else!

mimatic DTF advantages:

- **Short process times**
- **Process reliability**
- **Material saving**
- **Surface quality**
- **Absence of burrs**
- **Short chips**

The new process technology from mimatic is called **Turn Cut Milling with PolySAW:** Turn Cut Milling instead of parting off! This is the combined know how of live tools and cutting tools by mimatic.

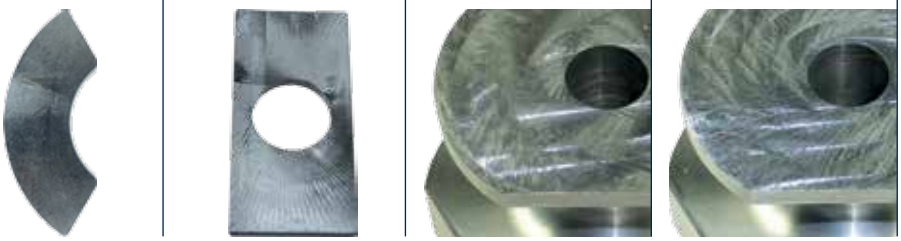
PolySAW turn cut milling is enabled by the new **QUADROGON** interface developed by mimatic. Quadrogon safely and reliable transmits the high performance during Turn Cut Milling.

The high number of cutting-teeth of the PolySAW milling cutter also has a positive effect when machining asymmetric or thin components. Due to its continuous and uninterrupted tooth engagement and the resulting smooth machining process.

PolySAW milling cutters may look like conventional saws on first sight, however, mimatic has provided PolySAW with all the properties of high-value milling tools. The process reliability and performance of PolySAW is unmatched by conventional saws.

Examples for high quality TurnCut Milling:

Material: steel	Material: aluminium	Material: aluminium	Material: aluminium
R_z=1,0 - 2,7	R_z =1,7 - 2,8	R_z =1,7-4,0	R_z =1,6-3,2
R_a=0,17 - 0,53	R_a =0,36 - 0,6	R_a =0,39-0,85	R_a =0,38-0,62
f_z =0,015 - 0,03 mm	f_z =0,02 - 0,03 mm	f_z =0,02 - 0,03 mm	f_z =0,02 - 0,03 mm
V_c=120-200 m/min	V_c =200-600 m/min	V_c =200-600 m/min	V_c =200-600 m/min



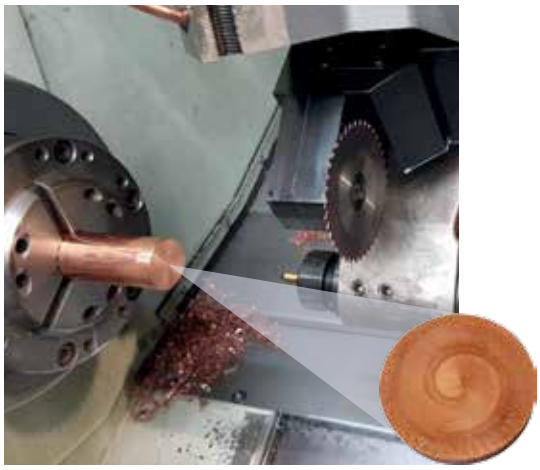
Turn Cut Milling with PolySAW

Turn Cut Milling instead of parting off:
Faster parting off than anybody else!

Cutting of VA structured components
Vc = 160 m/min
Fz = 0,1 mm

Turn Cut Milling : steel 16MnCrS5
Vc = 160 m/min
Fz = 0,05 mm bei 40 Zähnen

Turn Cut Milling: aluminium
Vc = 800 m/min
feed = 7m / min



Turn Cut Milling: copper ETP
Vc = 300 m/min
Fz = 0,08 mm

videos to be found on youtube:
www.mimatic.de

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Turn Cut Milling with PolySAW

Turn Cut Milling is the efficient alternative to parting off: mimatic is shifting the parting off into a new dimension.

Manufacturing of parts in modern machines has to be competitive through automation solutions. One person is operating several machines. Endless long chips are a big risk for a reliable process. Up to now the following alternatve solutions are in use:

1. conventional parting off:
+ tooling cost low
+ fast at round parts
- low realiabilty in the process
- slow with non circular parts
- cutting surface
- formation of burrs and bosses

2. milling cutter with inserts:
+ reliable Process
- slow
- burrs

3. conventional saws:
+ short chips
- low realiabilty in the process
- slow
- burrs

new from mimatic:
4. Turn Cut Milling with PolySAW:
+ fast at all geometries
+ highest reliability
+ short chips
+ absence of burrs
+ space between surface quality

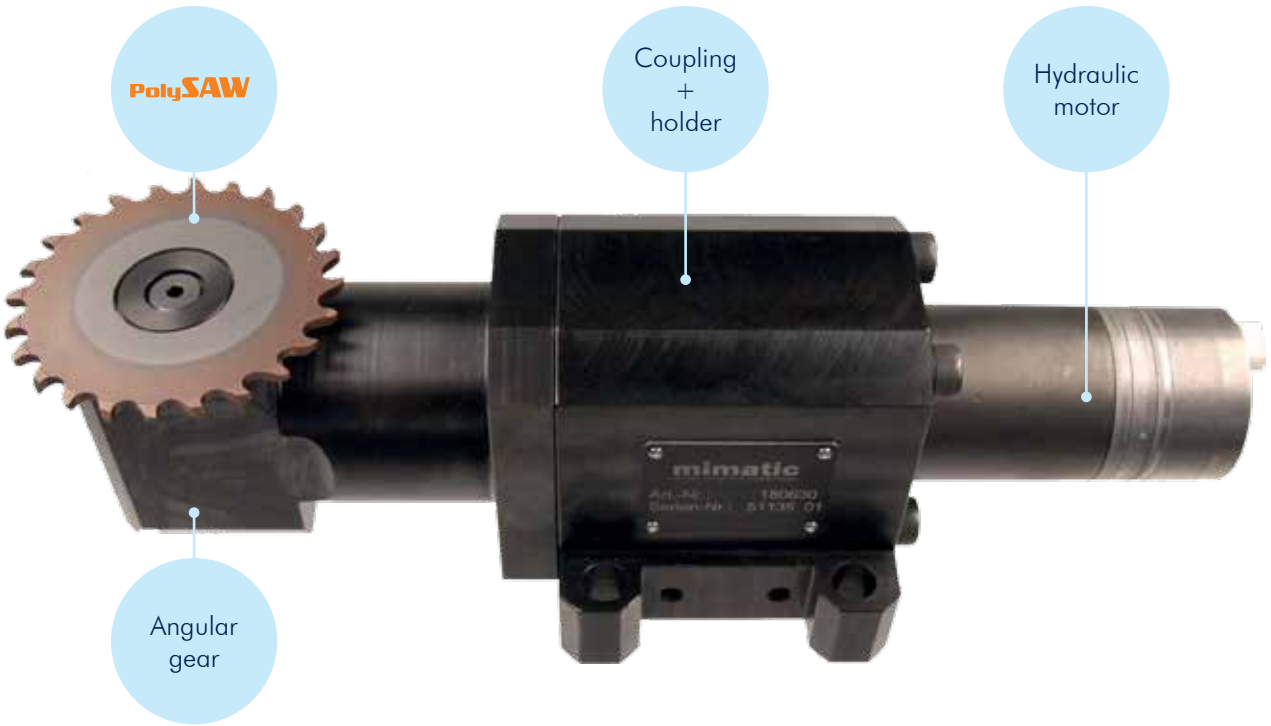
Turn Cut Milling the process:
a) The part (square, angled, non symetric or round) rotates slowly, PolySAW -as a multi teeth milling cutter- rotates faster. PolySAW. The turret moves PolySAW continously into the part. The parting off -depending on material and partsize- will be finished after 2-5 rotations of the part.

b) The part does not move. PolySAW rotates fast. PolySAW moves continously into the part passing the center. Than the part rotates .

mimatic has developed a software for calculating the process parameters. Customers are getting this support.

Turn Cut Milling with PolySAW is enabled through the new Quadrogon interface from mimatic. The Qudrogon transmits the required forces for Turn Cut Milling with PolySAW. The high number of teeth is especially positive to non symetric or thin walled parts. PolySAW may look like a conventional saw, but it has the properties of a high performance milling tool. PolySAW reliability and performance is not to be compared with conventional saws!

Complete solution in the working chamber of a machine tool



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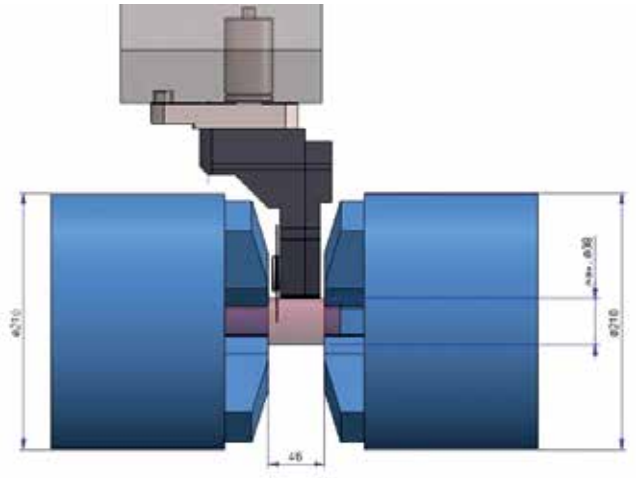
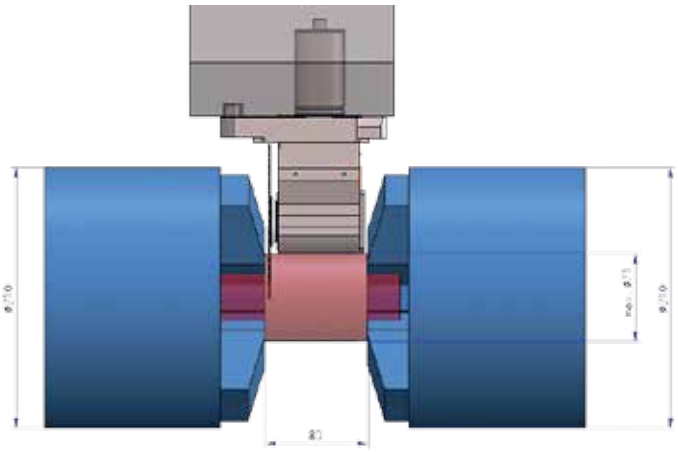
Turn Cut Milling with PolySAW

Examples for high quality Turn Cut Milling

machine with 2 spindles, 2 turrets, mimatic live tool for Turn Cut Milling
and **PolySAW 80**



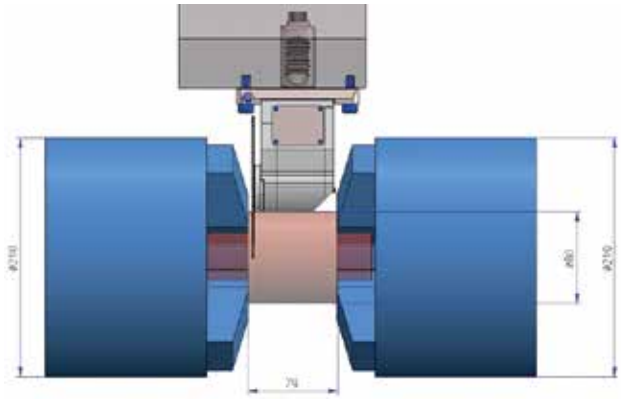
torque: 10 Nm
cutting depth: 17 mm
width of tool: 46 mm



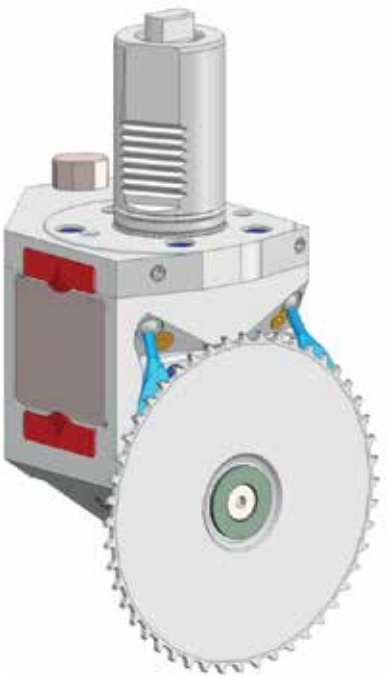
torque: 25 Nm
cutting depth: 15 mm
width of tool: 85 mm

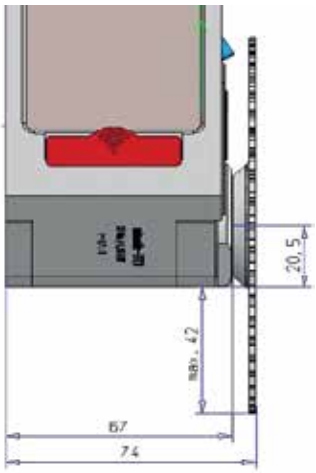
new: PolySAW 125 + DTF HD + eltimon®

DTF HD Turn Cut Milling „heavy duty“ with PolySAW 125: Turn Cut milling instead of parting off. DTF HD is the standard tool for all turning machines size similar to VDI 30 and VDI 40. High performance, high torque, high reliability and great cutting depth are the reasons! Reliable parting off for all parts until 80 mm diameter. The cutting is fast for all geometries, is burr free and with a super surface.



torque: 55 Nm
cutting depth: 40,5 mm
width of tool: 79 mm





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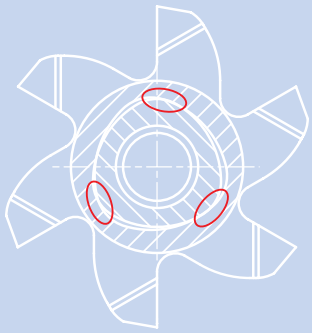
Turn Cut Milling with PolySAW

Quadrogon*-Interface
For the new generation of mimatic tools

Since more than 40 years, mimatic has experience in the development and production of interfaces between tool holders and carbide inserts for milling. The most successful of these developments was the mimatic P-interface, which is today in use in many countries in the world.
This interface has a front face with a polygonal power transmission of the cutting forces. The so-called triple-polygon is statically determined and has a self-centring effect of the carbide insert against the holder.

The main features of the previous mimatic P-interface have been maintained in the development of the **Quadrogon** interface.



Advantages

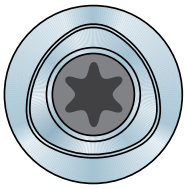
- Concentricity by 3-point polygon
- Power transmission by 3-point polygon
- High stability through closed circular ring
- High resistance against breakage during interrupted cut

= Transmission zones

* Patent-protected

The front face as well as the declining behavior against stress peaks are also central features. The fact, that there are four polygonale elements in the Quadrogon interface causes, that the cutting forces can be shared on a larger area and thus stress peakes can be reduced still more effectively.

This means, that higher forces can be transferred for same diameters.



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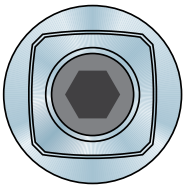
Polygon Interface



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Quadrogon*

Turn Cut Milling in action

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Turn Cut Milling with PolySAW

We adjust Turn Cut Milling to your turning machine, your material and your components!

Company	
Name	
Street	
Zip/City	
Phone	
Fax	
E-Mail	

Specifications of the Machine

Manufacturer		
Type, Year of manufacturing		
Machine No.		
Coolant		
Coolant pressure (internal coolant)		
max. Spindle speed	r.p.m.	
max. torque of the spindle	Nm	
Turret manufacturer	Typ No.	
Turret type	Disc-tape turret	Star-type Turret
Number of slots		
max. required diameter for tools on turret	mm	
Operation	Main spindle	Sub spindle
interface	☐ BMT, ☐ VDI30, ☐ VDI 40, other:	
turret drive	please mark with a cross:	


☐ DIN 1809 Duplomatic


☐ Baruffaldi TOEM


☐ DIN 5480 Sauter


☐ DIN 5482 Sauter


☐ OKUMA single level


☐ OKUMA dual level


☐ INDEX


☐ Bevel gear

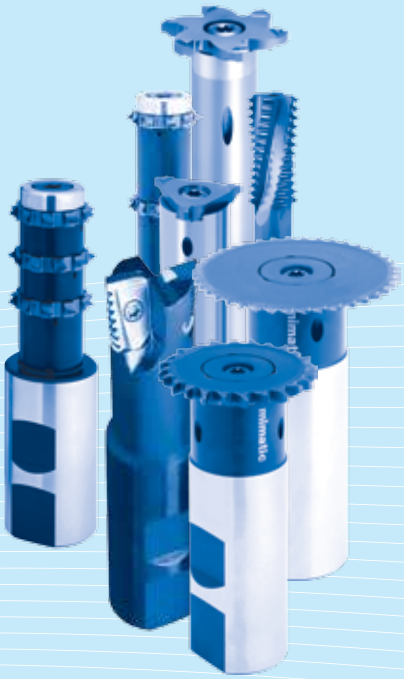

☐ BIGLIA NAKAMURA

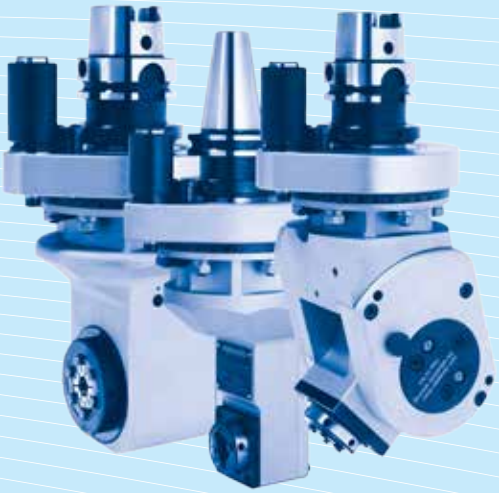

☐ MORI SEIKI

Info for Turn Cut Milling:		previous:	
diameter parts			
cutting width			mm
Material			
tool type			
cutting speed			m/min
Part drawing	yes (please transmit)		
time for parting off			sec
other			
required surface quality			Rz
burrs		☐yes	☐no
boss		☐yes	☐no
Coolant		☐yes	☐no
internal coolant pressure max.			bar
Nozzle		☐yes	☐no
Coolant pipe		☐yes	☐no
Remarks:			

We do Specials!

- Circular- and Thread Milling Tools
- RPK-Reamers with Polygonal Interface
- Driven Toolholders for CNC Machining Centers
- Driven Toolholders for CNC Turning Machines
- Multi-Spindle Technology
- Modular Quick Change Toolhlders mimatic mi
- Static Toolholders for CNC Turning Machines
- Precision Chucks
- Special Cutting Tools





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BLUECOMPETENCE
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