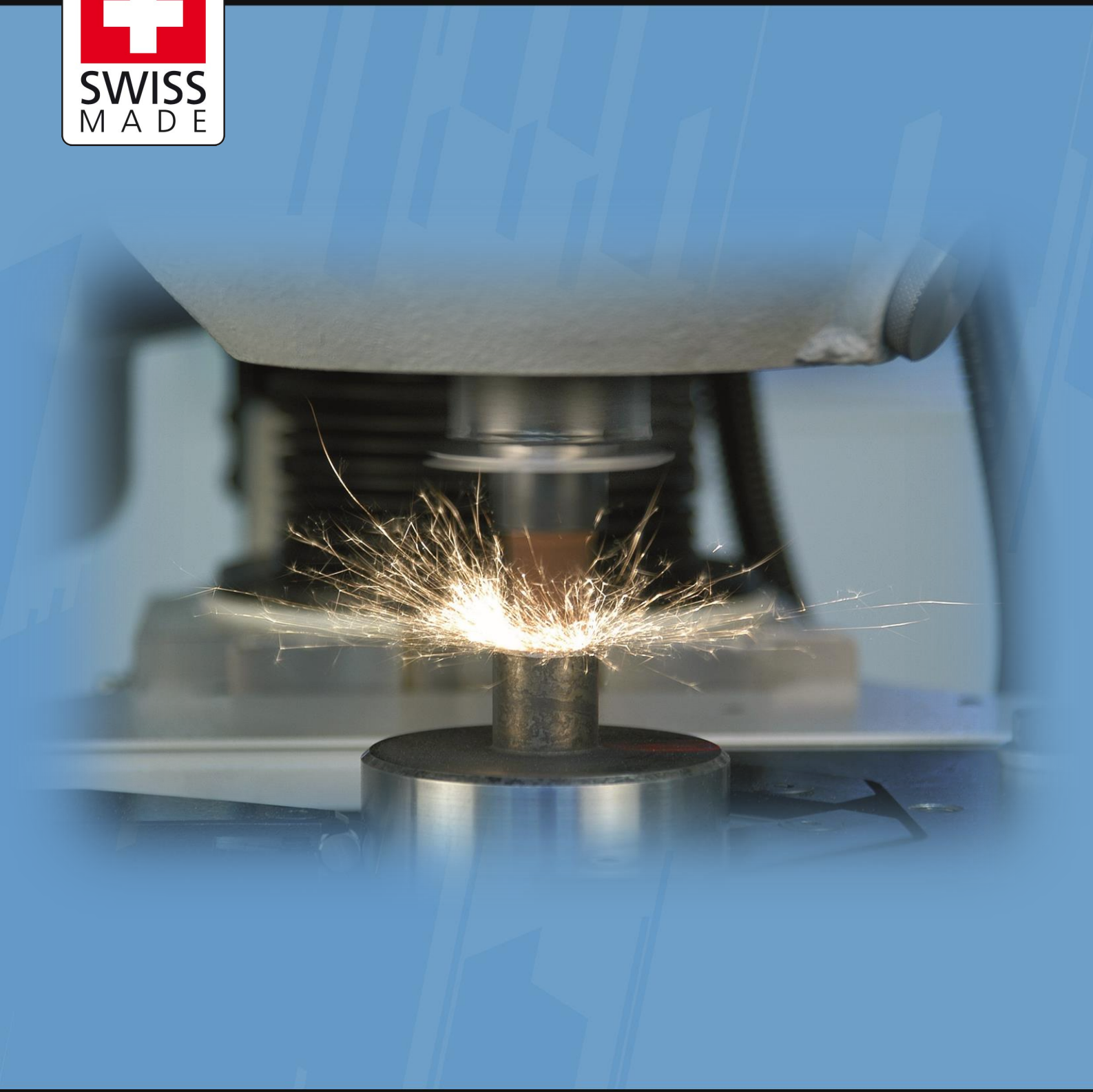
Zentroflex

Center Grinding Machines

SWISS MADE



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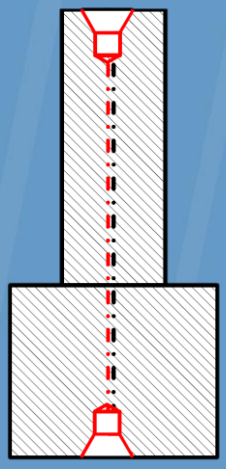
Why to use Center Grinding Machine?

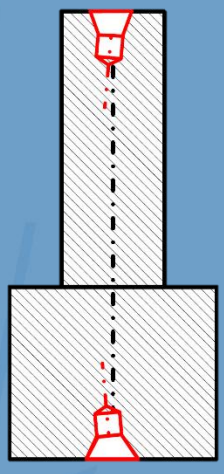
Center Grinding Machines are of vital importance in jobs where precision is required and are connected between two tailstocks for cylindrical grinding. Because the correct angle, concentricity, tolerance and geometry of the centers directly affect the quality of cylindrical grinding. Parts with ground centers can be machined to much more precise tolerances, and the grinding time is shortened.

Especially after heat treatment, the parts become distorted, causing the centers to become off-center or deformed. Connecting parts with distorted centers to a cylindrical grinding machine without correcting the centers results in tolerance loss, longer grinding times, shorter grinding wheel life, increased labor and higher costs. The result is a low-quality but high-cost job.

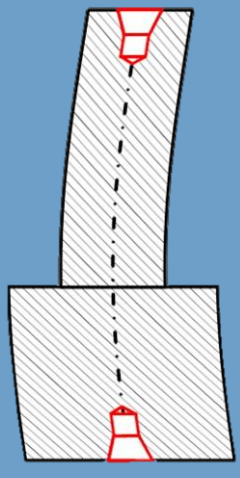
When the centers are in the correct position and within tolerances, high precision will be achieved, and grinding wheel and labor costs will decrease significantly due to reduced grinding time. The result is high-quality but less costly work.



Axis parallelism eror



Different axis centers



Distortion due to heat treatment

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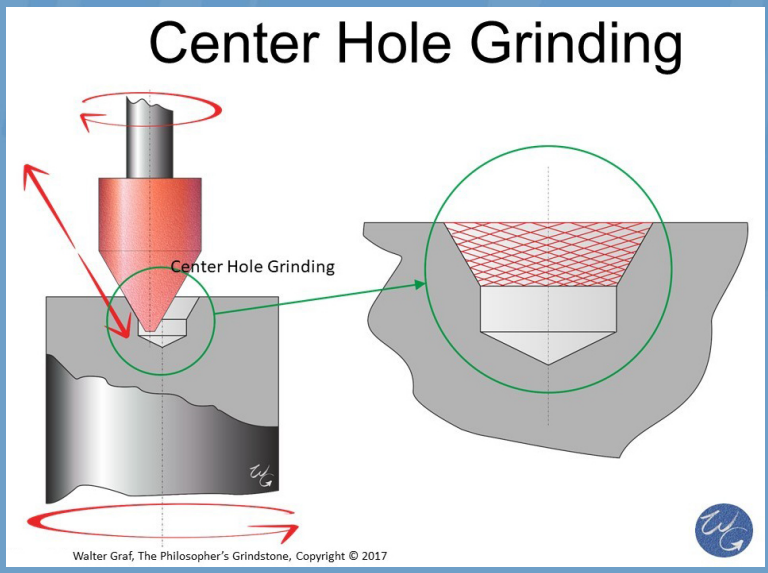
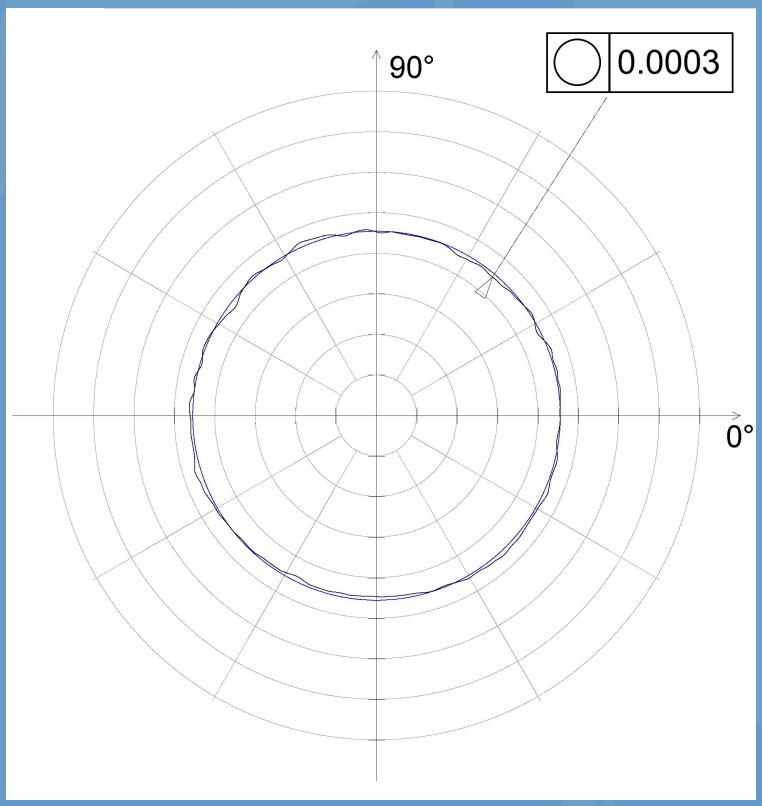
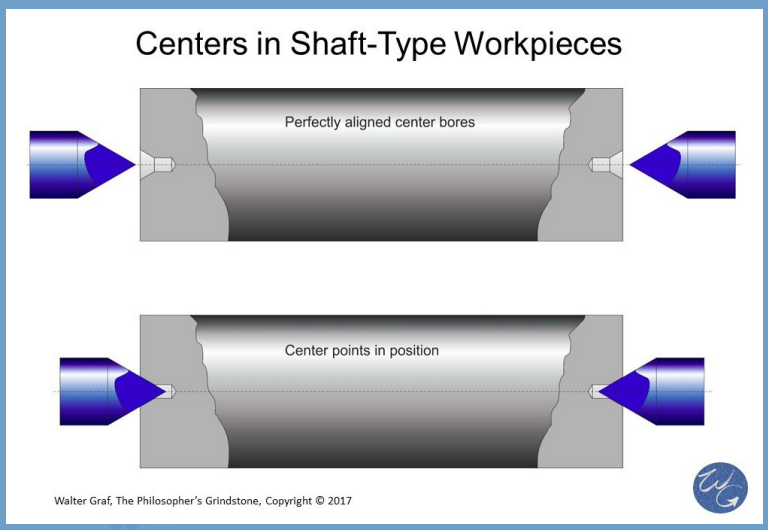
Advantages of Center Hole Grinding

Precise clamping is the first condition for precision grinding!

- Provides high precision
- Reduces grinding workload
- Process safety increases
- Reduces errors







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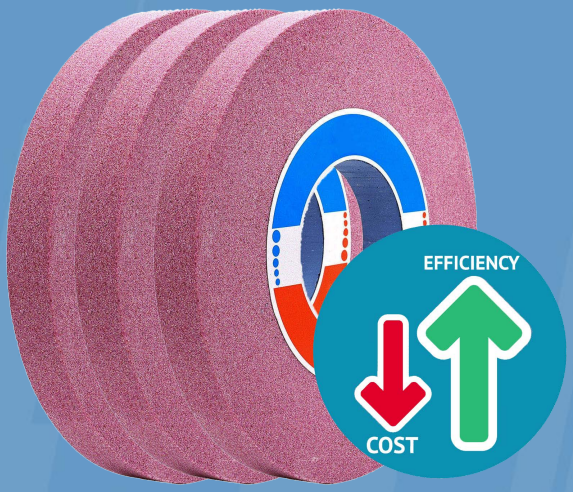
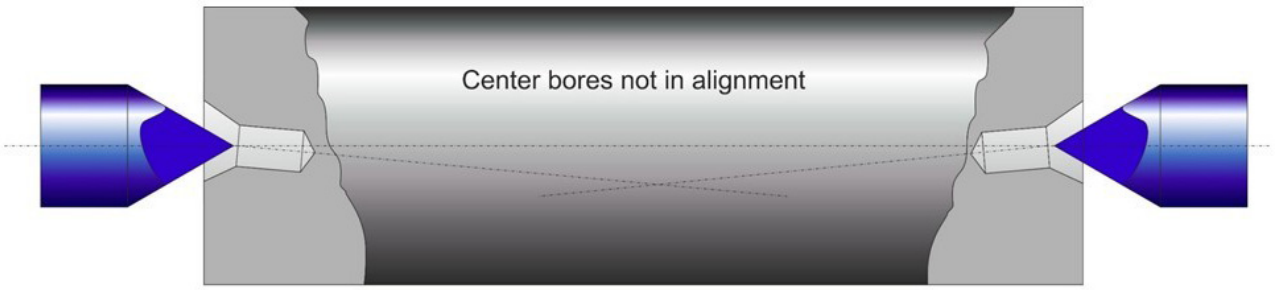
Advantages of Center Hole Grinding

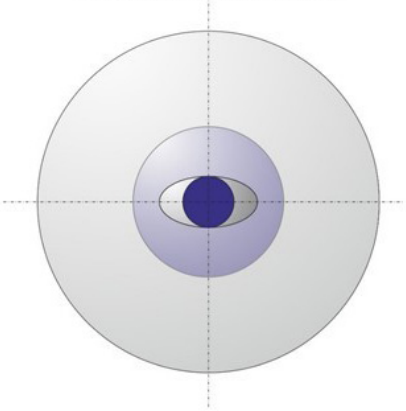
- Reduces grinding time
- Reduces labor
- Increases grinding wheel life
- Reduces scrap rate
- Reduces costs



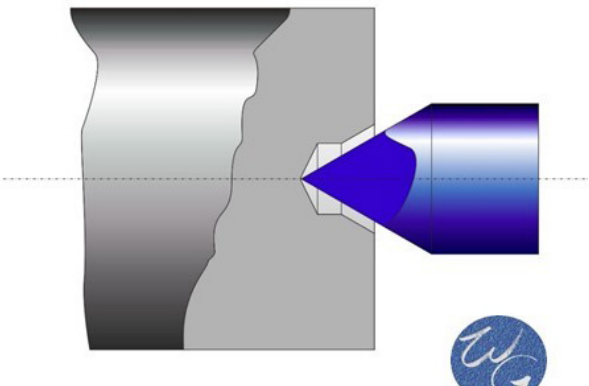
Faulty Centers in Shaft-Type Workpieces



Center bore not round



Center bore not deep enough



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technica Quirlig Grinding Technique

The Quirlig Grinding Technique, developed by technica, creates center holes that have perfect geometric form and axis at sub-micron tolerances by making three independent movements simultaneously. Additionally, the workpiece drive provides 3+1 free movement for ultra-precise grinding.

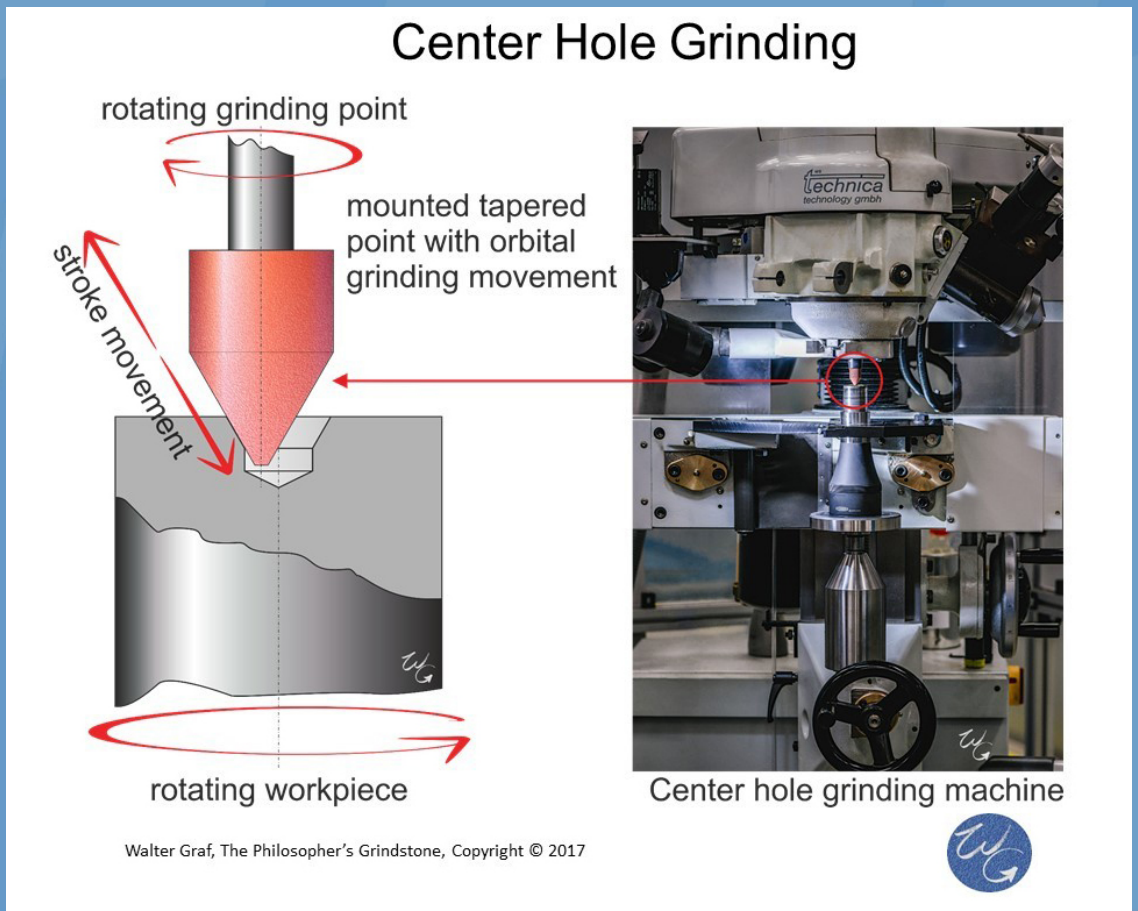
3D Grinding Movements

1.Rotation

2.Orbital Rotation

3.Stroke Movement

+1 Workpiece Rotation



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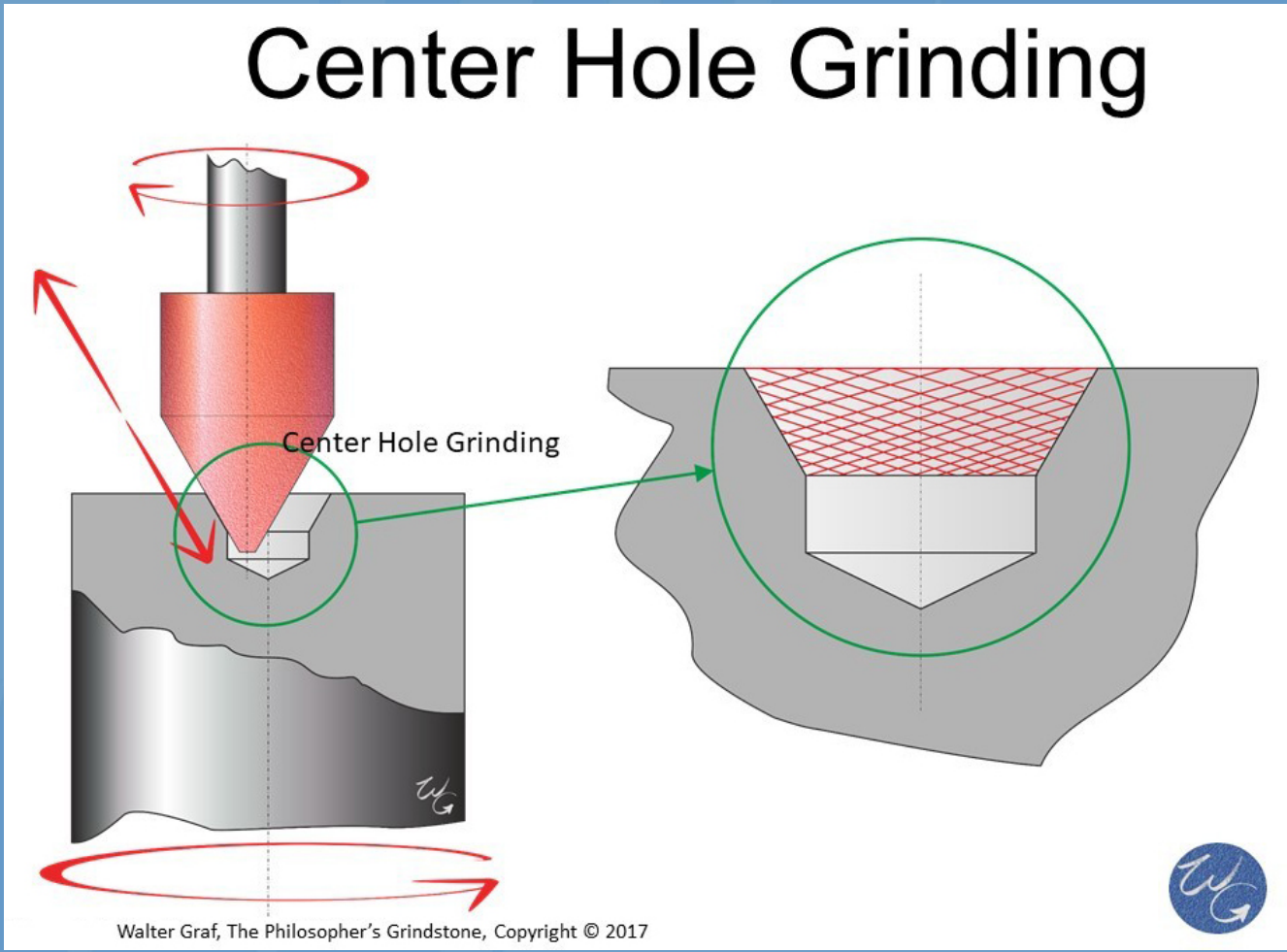
technica Quirlig Grinding Technique



Properly ground center holes have a cross-hatched grinding pattern that overlaps through the center hole wall, thanks to the Quirlig Grinding Technique. This crosshatching ensures that oil is retained when the workpiece is placed between the centers during the cylindrical grinding process, creating a micro oil layer. This prevents unwanted "dry running" during cylindrical grinding.

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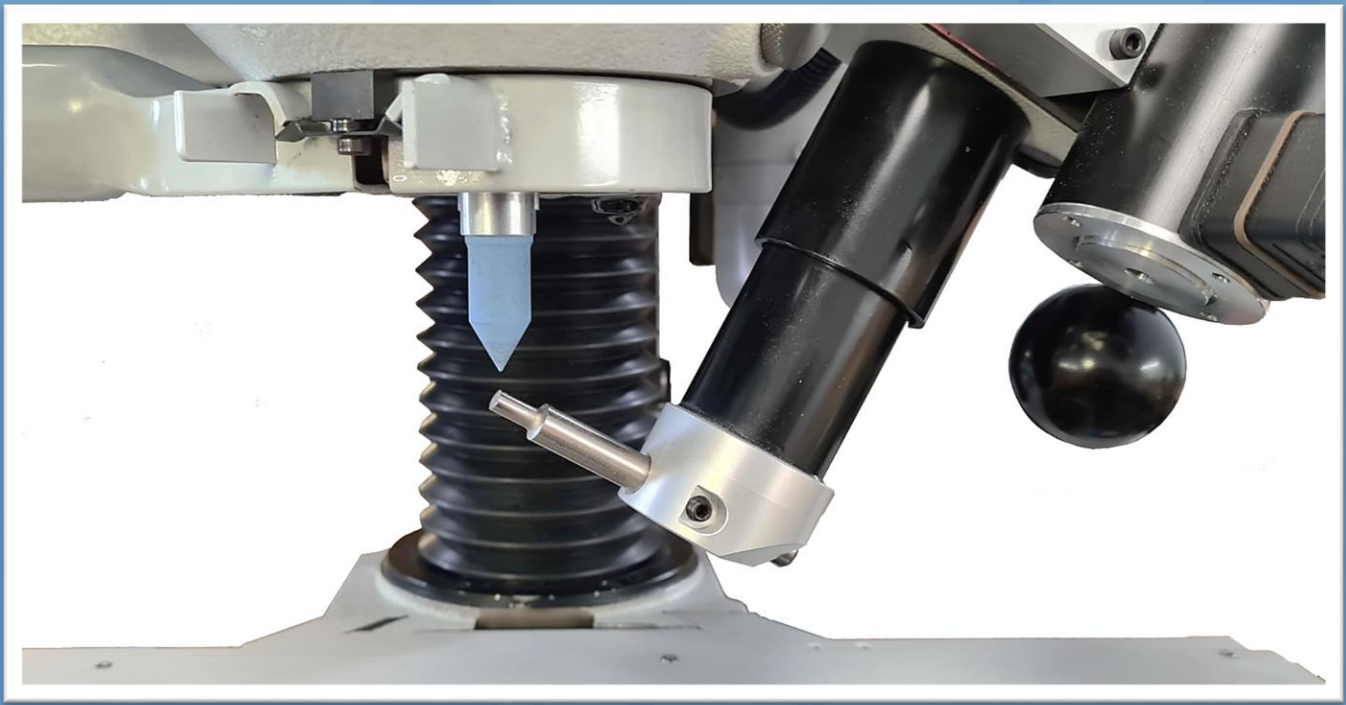
Dressing of Grinding Cones

In the Zentroflex Manual (Type M) and Semi-Automatic (Type SA) models, the grinding cones are precisely dressed with a semi-automatic device. The dressing diamond moves along the angle of the grinding cone and performs the dressing movement by oscillating to perfectly align the geometry of the grinding cone.

In the Zentroflex Automatic (Type A) models, the grinding cone is also dressed automatically, and the dressing compensations are set automatically.



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Zentroflex Center Grinding Machine

Model Overview

Zentroflex Center Grinding Machines are divided into 3 different models according to their automation levels.

Manual (Type M)

Ideal for single parts or small batches. Loading and unloading is done manually with the help of a hand wheel.

Semi-Automatic (Type SA)

Ideal for small and medium series. Z-Axis movement is provided by servo motor in CNC form. The part is loaded-unloaded and clamped manually. Settings are made from CNC control panel and grinding is started by pressing the start button. No other manual setting or control is made during grinding.

Automatic (Type A)

With 6-Axis robot arm and servo motors on all axes of the machine, Zentroflex Center Grinding Machine operates completely autonomously. All loading and unloading operations are performed by the robot arm. All axis movements of the machine are also performed autonomously with servo motors. Cone dressing and compensation are also performed automatically. All movements and measurements of the machine are performed from the CNC control panel.

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Model Overview

Sizes and Strokes

Identifying the Suitable Model

Example: Zentroflex 14-M-110

14 = Maximum clamping diameter (Ø 140 mm)
M = Automation type M (Manual)
110 = Maximum part length 110 (1100 mm)

	14-X-110	14-X-160	14-X-200	22-X-110	22-X-160	22-X-200
Workpiece clamping diameter(mm)	3 - 140	3 - 140	3 - 140	3 - 220	3 - 220	3 - 220
Workpiece length (mm)	50 - 1'100	50 - 1'600	50 - 2'000	50 - 1'100	50 - 1'600	50 - 2'000
Variable Speed rpm	5'000 - 45'000	5'000 - 45'000	5'000 - 45'000	5'000 - 45'000	5'000 - 45'000	5'000 - 45'000
Standart center size (mm)	1.5 – 60	1.5 – 60	1.5 – 60	1.5 – 60	1.5 – 60	1.5 – 60
Optional center size (mm)	1.5 – 100	1.5 – 100	1.5 – 100	1.5 – 100	1.5 – 100	1.5 – 100
Weight of workpiece max. (kg)	170	170	170	170	170	170

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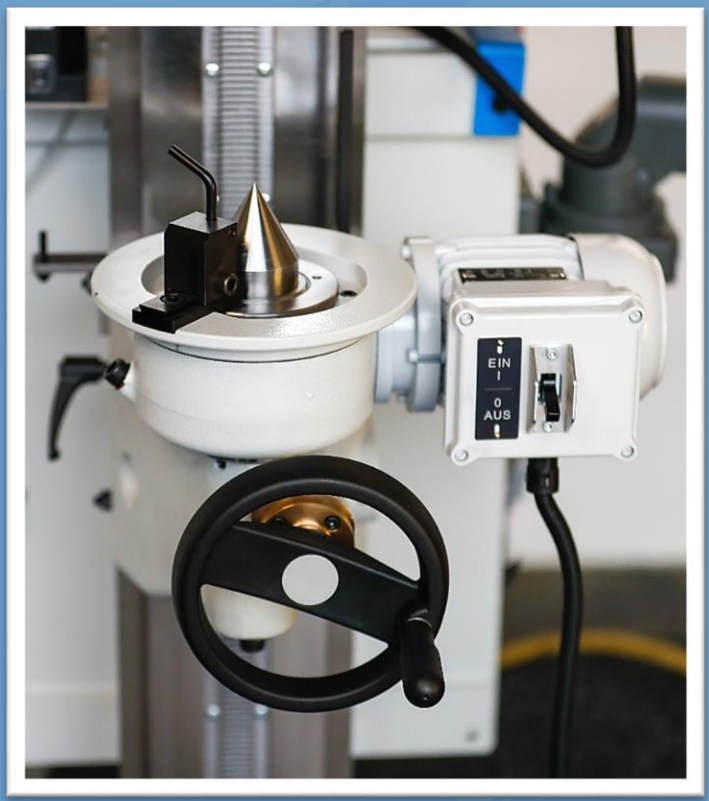
Acessories

When you need more than the standard equipment of Zentroflex Center Grinding Machines, additional accessories such as workpiece drive, grinding spindle with collet chuck, dust extraction and filtration are offered to your service.

You can consult with us to choose the most suitable accessories for your specific needs.



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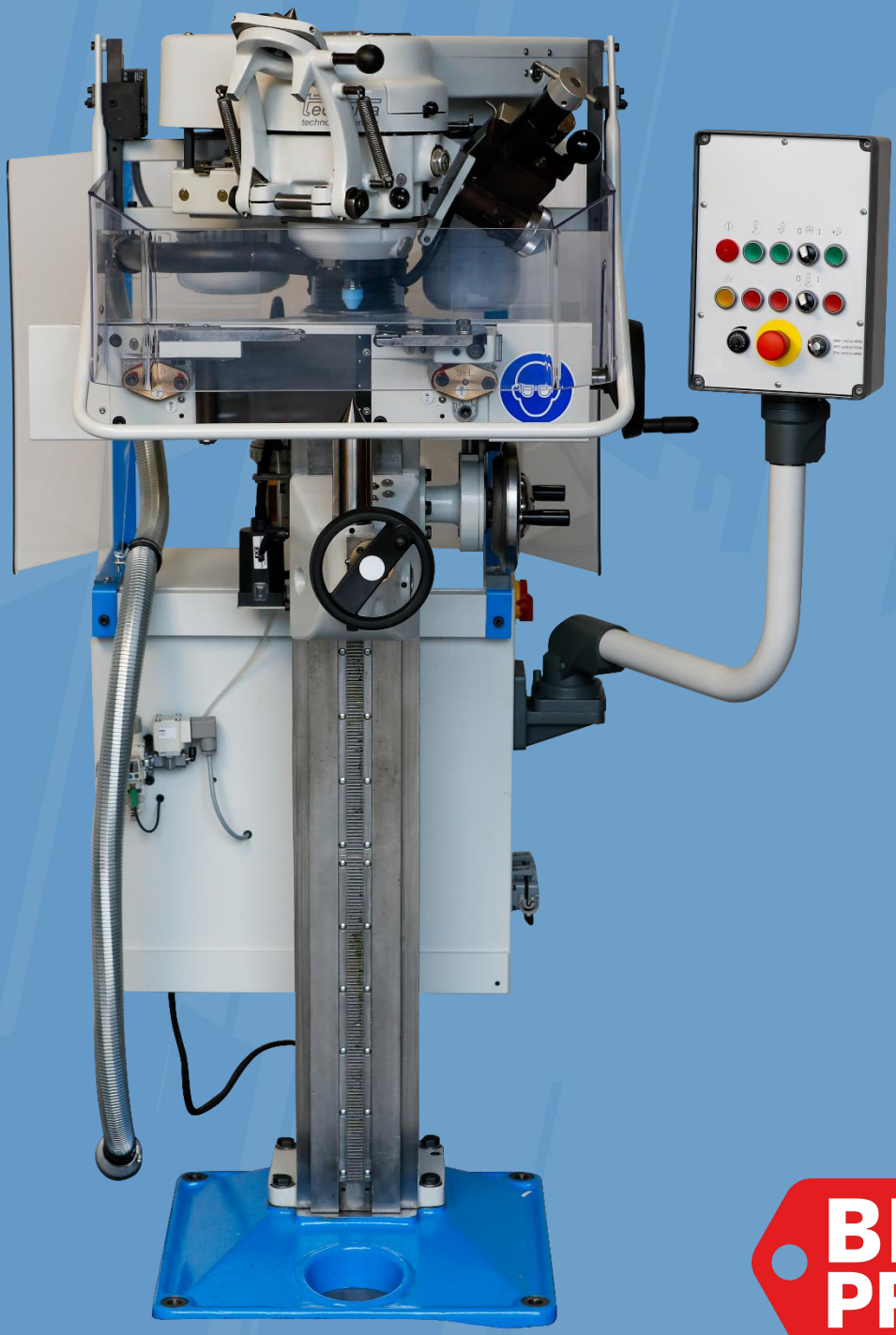
Zentroflex 14-M-110



BEST PRICE

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Zentroflex 14-SA-110

4.0 INDUSTRY

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Zentroflex 14-A-110

4.0 INDUSTRY

STÄUBLI

BECKHOFF

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The Secret of Companies that Perform Precision Grinding!

Precision Center Hole Grinding

Even though you do everything right; the reason you cannot achieve the tolerances you want may be that you skip the center hole grinding.

You can find the companies that prefer our machines below.

Rolls-Royce® AIRBUS

STUDER

ASTON MARTIN

Formula 1 ORACLE Red Bull RACING

CAT

DASSAULT AVIATION

EMAG

+GF+

gm general motors

ZF

SAFRAN AEROSPACE · DEFENCE · SECURITY

LEONARDO

SANDVIK Coromant

CERATIZIT GROUP

GÜHRING THE TOOL COMPANY

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