Brochure

Center hole grinding machine ZAMAG

ZSM-M6-1000-SP150

with precision chuck ø150mm

swiss technology

Center hole grinding machine

Initial situation

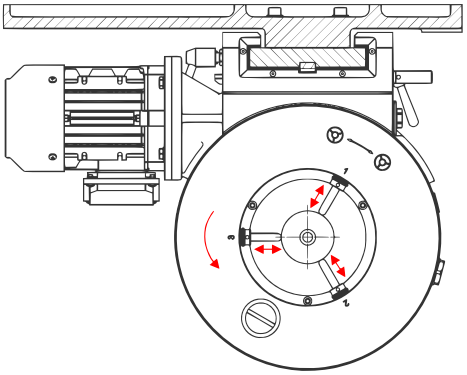
Even the most modern cylindrical grinding machine is not able to grind an outside diameter accurately, if the centers have poor roundness. Our center hole grinding machine - System FISCHER - helps you to solve this task.

Application

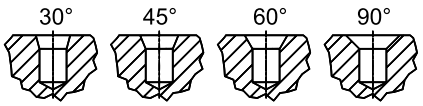
The ZAMAG center hole grinding machine ZSM guarantees a concentricity of 1µm - even with non-circular workpieces. The simple construction and user-friendly operation of the machine allows the work without a great deal of specialist knowledge.

Characteristics

Clamping of the workpieces in the chuck:
With the help of the three adjustable quills even workpieces with an inaccurate surface can be clamped and aligned

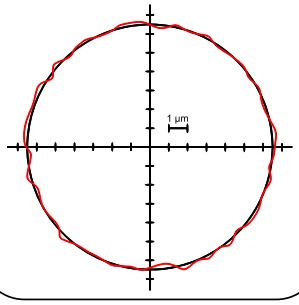


Swivelling grinding head:
With the swivelling head the grinding angle can be adjusted between 0° and 90°



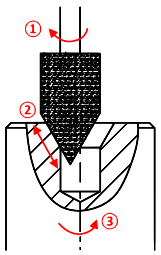
Swiss quality:
- Stable cast iron machine base (stress-free)
- Carriage with roller guides

Highest precision:
The machine achieves a concentricity accuracy of 0.001mm

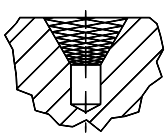


With a lot of experience to the optimal result:

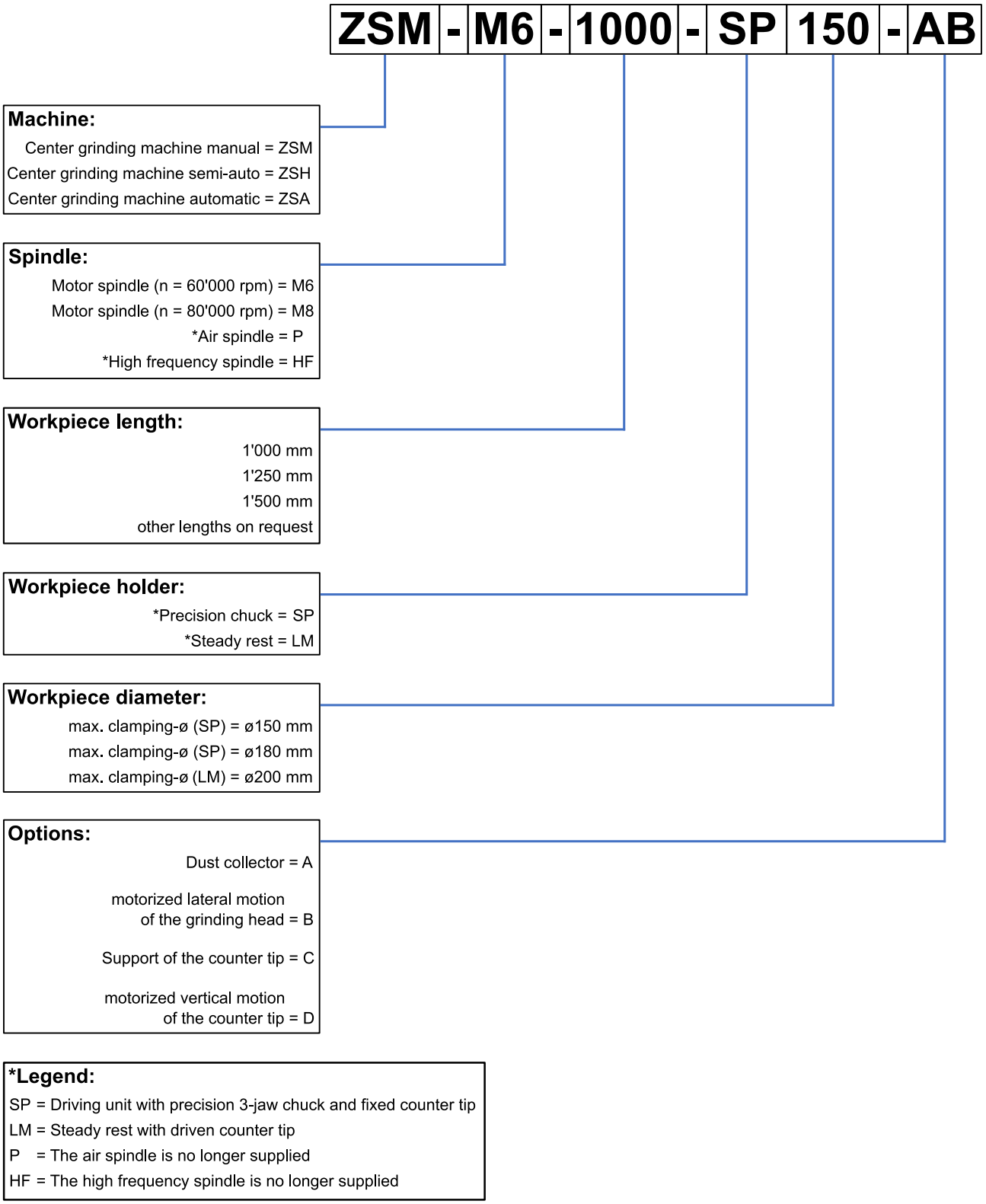
Grinding principle:
1. rotary movement of the grinding wheel
2. stroke movement of the grinding wheel
3. rotating workpiece



Result:
A cross hatch pattern with oil pockets that provides optimum oil retention in the center holes

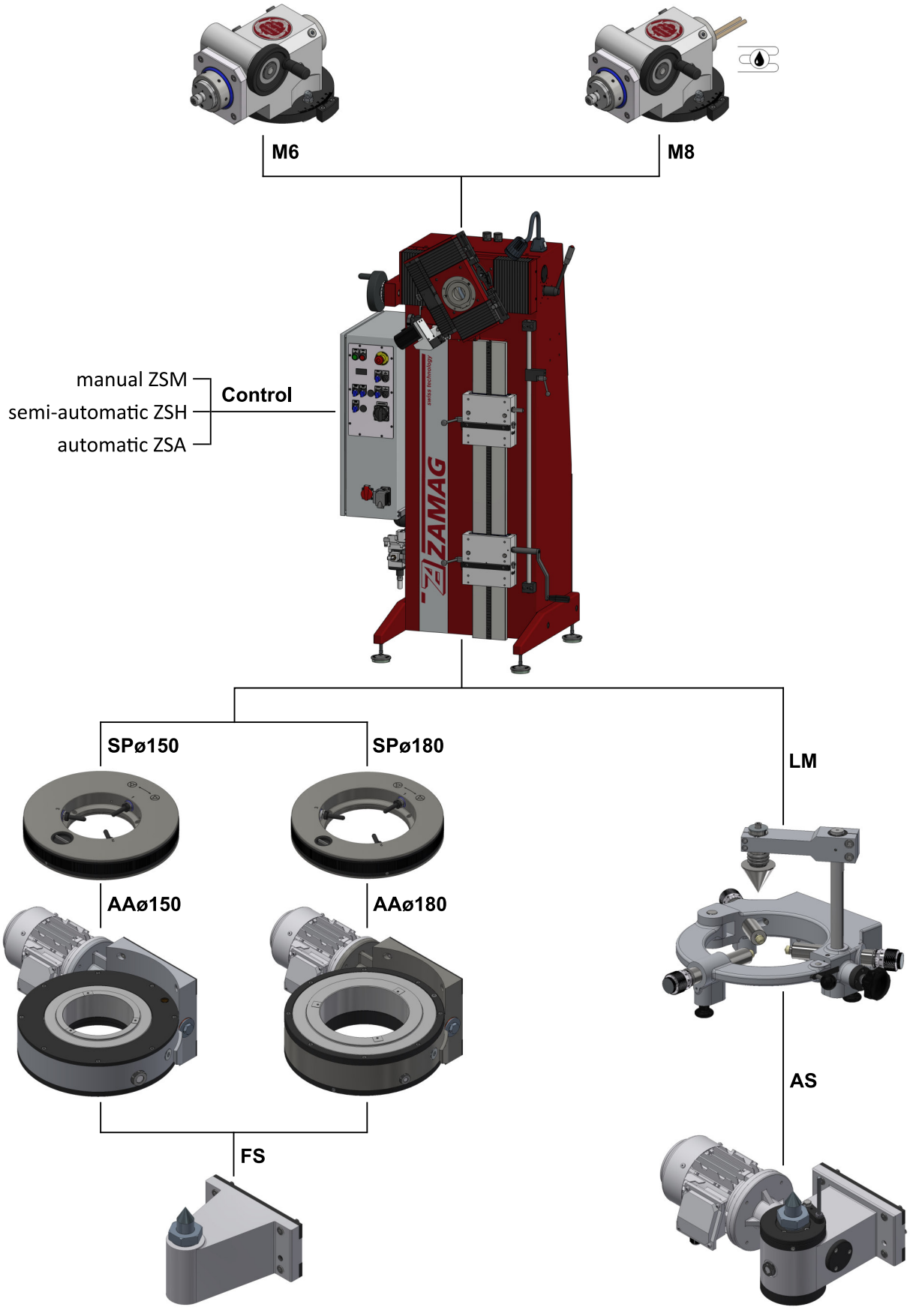


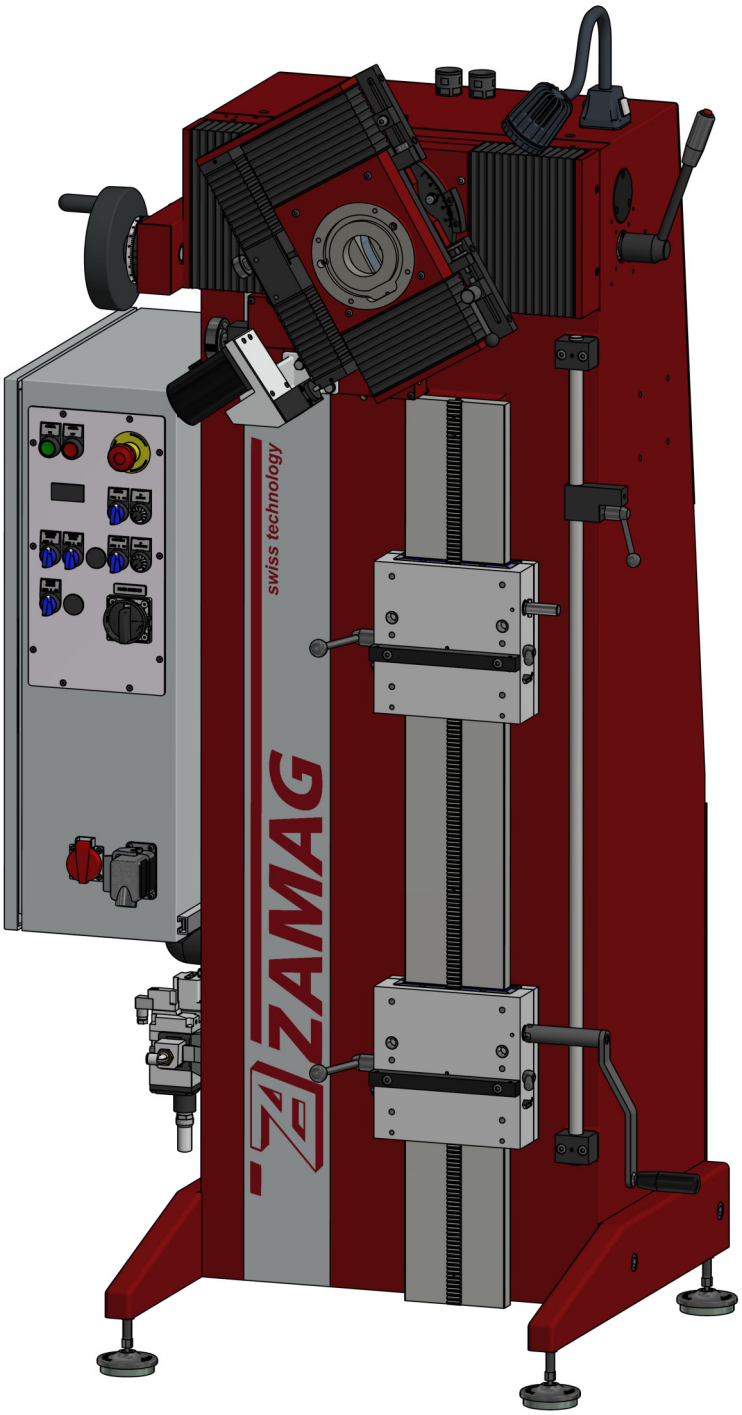
Identification key



Semi-automatic center hole grinding machine: **see product flyer ZSH**
Automatic center hole grinding machine: **see product flyer ZSA**

The basic machine, equipment options and accessories are explained in detail on the following pages. We would be happy to advise you and help you to find the right equipment for your needs and your workpieces!



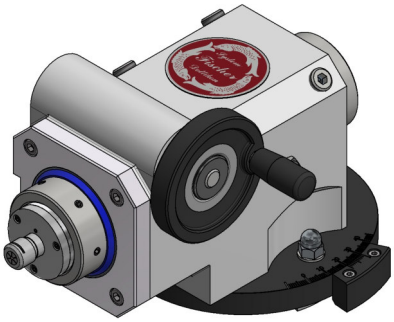


Features:

- Stable cast iron machine base (stress-free) (for workpiece lengths up to 1'000mm)
- Swivelling grinding head (0°-90°)
- Carriage with roller guides
- Cross slide (adjustable with handwheel)
- Lift slide (adjustable with lever)
- Adjustable trueing unit
- Two vertical slides to hold the equipment (adjustable with hand crank)
- Dial gauge holder over the whole length
- Automatic stroke movement of the grinding head
- Machine lamp
- Electrical equipment
- Colour: RAL 3003 (ruby red)

Standard accessories:

- Machine feet with leveling screws
- 1l Hydraulic oil
- Funnel set
- 1x dressing diamond ø6
- 10x grinding pin ø12 (corundum, 100)
- Collet ø6 for spindle
- Open-ended wrench set for spindle
- Dial gauge 0.01mm
- Morse taper extension MK4
- Morse taper ejecting drift MK4
- Morse taper cleaner MK4
- Grease gun
- Allen key set (2-8mm)
- Open-ended wrench set (13, 17, 18, 19, 22)
- Magnetic spirit level
- Control cabinet key
- 2x operation manuals

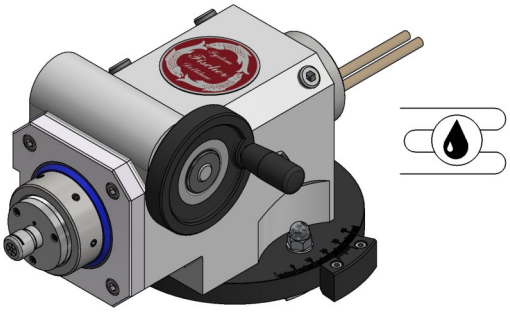


Motor spindle M6

Motor spindle with a speed of n_{max}= 60'000 rpm. This spindle is particularly suitable for grinding very small to medium-sized centers. The spindle has grease lubricated ball bearings (permanently lubricated). A compressed air preparation for the sealing air is mounted on the machine base. (required pressure: 2 bar)

Specifications of the M6 motor spindle:

- Power: 500 W
- Torque: 8 Ncm

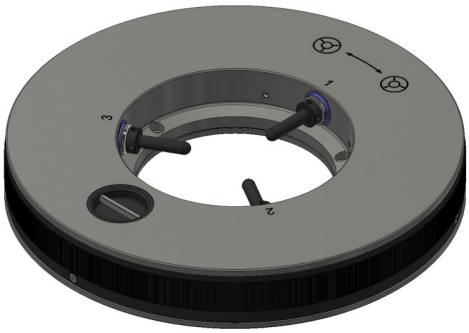


Motor spindle M8

Motor spindle with a speed of n_{max}= 80'000 rpm. Thanks to the internal water cooling, this spindle is particularly suitable for grinding large centers in continuous operation. The spindle has air-oil lubricated ball bearings. The required compressed air supply is mounted on the machine base. (required pressure: 2 bar)

Specifications of the motor spindle M8 with water cooling:

- Power: 1000 W
- Torque: 12 Ncm

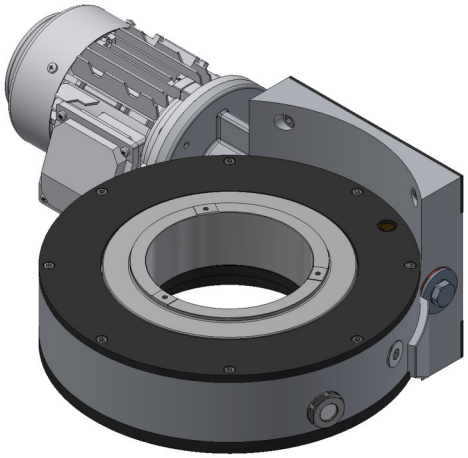


Precision 3-jaw chuck SP

Special clamping chuck for grinding workpieces with an imprecise surface. The concentricity can be adjusted with three adjustable quills. This enables center grinding, for example, directly after the workpieces have hardened without pre-grinding them.

Two sizes are available:

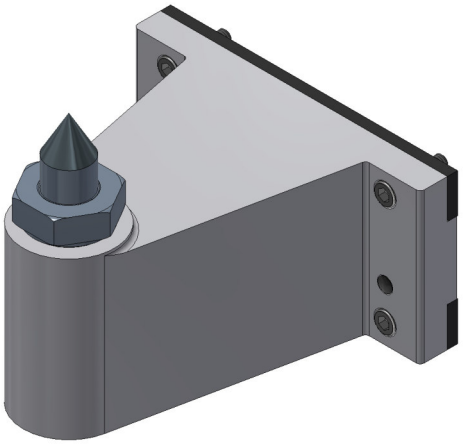
- SPø150 -> for workpieces with max. clamping-ø150mm
- SPø180 -> for workpieces with max. clamping-ø180mm



Driving unit AA

Driving unit for the 3-jaw chuck. Due to the rotating movement of the workpiece during grinding, the exact concentricity of the center can be guaranteed.

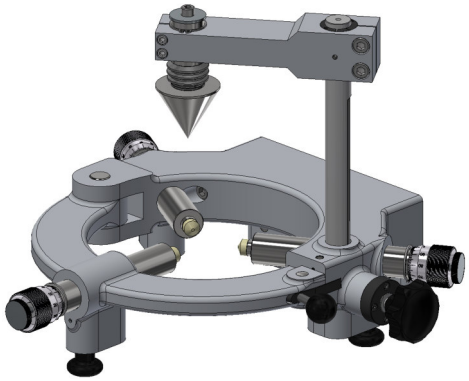
The size of the drive unit must correspond to the size of the 3-jaw chuck (AAø150 or AAø180).



Fixed counter tip FS

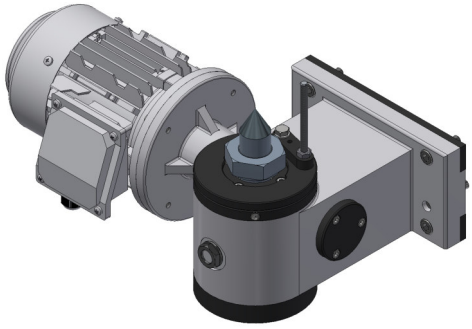
The fixed counter tip serves as a tailstock for grinding the workpiece with the driving unit.

It is equipped with a carbide centering tip ø31.6mm / 60° / MK4 as standard.



Steady rest LM

The steady rest is used for clamping workpieces with a precise surface. In order to obtain a precise concentricity in the center, the workpieces must be pre-grinded. Thanks to the swivel support, the steady rest can be opened and the workpieces can be easily inserted from the operator's side. The steady rest also has a pivoting centering tip, which makes the alignment of the workpieces much easier. The steady rest is suitable for workpieces with a maximum outer diameter of 200mm.

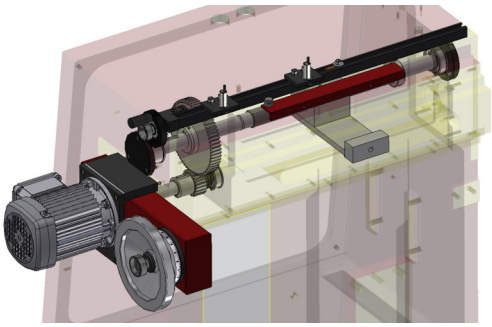


Driven counter tip AS

The driven counter tip is used as tailstock for grinding the workpiece with the steady rest. It serves as a drive for the workpiece by the help of a lathe dog.
It is equipped with a carbide centering tip ø31.6mm / 60° / MK4 as standard.

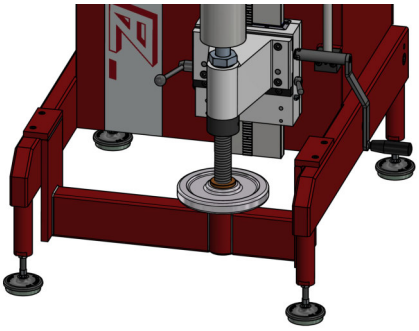
Dust collector

The mobile industrial dust collector sucks off grinding particles and grinding dust during the trueing and filters the extracted air in several stages. The dust collector has a pre-filter mat, a particle filter and a BAC filter with activated carbon. The system is mounted on rollers and can be relocated at any time.



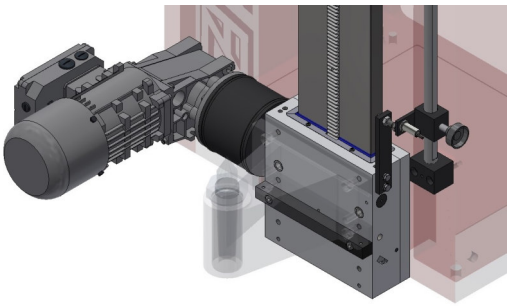
Motorized lateral motion

With the motorized lateral motion, the cross slide cannot only be adjusted by handwheel, but also be adjusted motorized at the push of a button. This is useful when large workpieces are inserted with a crane from above and the grinding head must therefore be moved away. A fixed and an adjustable sensor make it possible to reach exactly the previous grinding position after changing the workpiece.



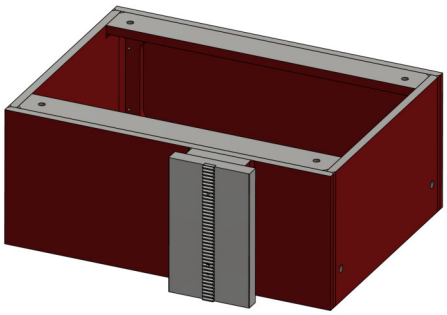
Support of the counter tip

A support of the counter tip is used for heavy workpieces (over 100kg). There is a version for the fixed counter tip FS and the driven counter tip AS.



Motorized vertical motion of the fixed counter tip FS

Instead of the hand lever, the fixed counter tip FS can be adjusted by motor. It is operated by foot switch. The adjustment range is set by initiators. The driving unit is equipped with a safety edge.

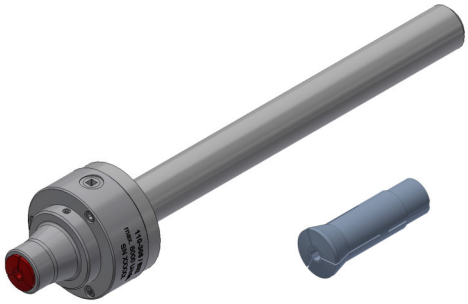


Extension

The standard machine is designed for a workpiece length of 1'000mm. If longer workpieces need to be ground, the machine base can be equipped with an extension.

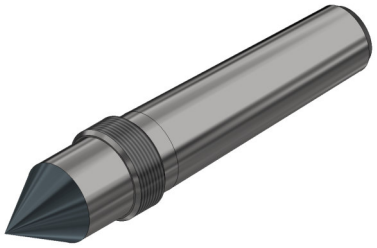
- Extension 250 -> for workpiece lengths up to 1’250mm
- Extension 500 -> for workpiece lengths up to 1’500mm

(other workpiece lengths on request)



Collet holder

The collet holder with BT32 collets can be used for very small and short workpieces. This holder is clamped and aligned like a normal workpiece between the clamping chuck or the steady rest and the counter tip.



Centering tip

The following centering tips can be used with the fixed counter tip FS or driven counter tip AS:

- Carbide centering tip ø31.6mm / 60° / MK4 (standard)
- Carbide centering tip ø52mm / 60° / MK4

Grinding pins: *(other dimensions and grain sizes on request)*

- Grinding body: ø8x30mm / ø12x25mm / ø12x30mm
- Shaft: ø6x40mm (or 1/4")
- Angle: 60°
- Grain size: Corundum 100 *(CBN or diamond on request)*

Collets for grinding spindle: *(other dimensions on request)*

- ø3mm (Typ: ER11-UP D3) for motor spindle M6 / M8
- ø6mm (Typ: ER11-UP D6) for motor spindle M6 / M8
- ø1/4" (Typ: ER11-UP D6.35) for motor spindle M6 / M8

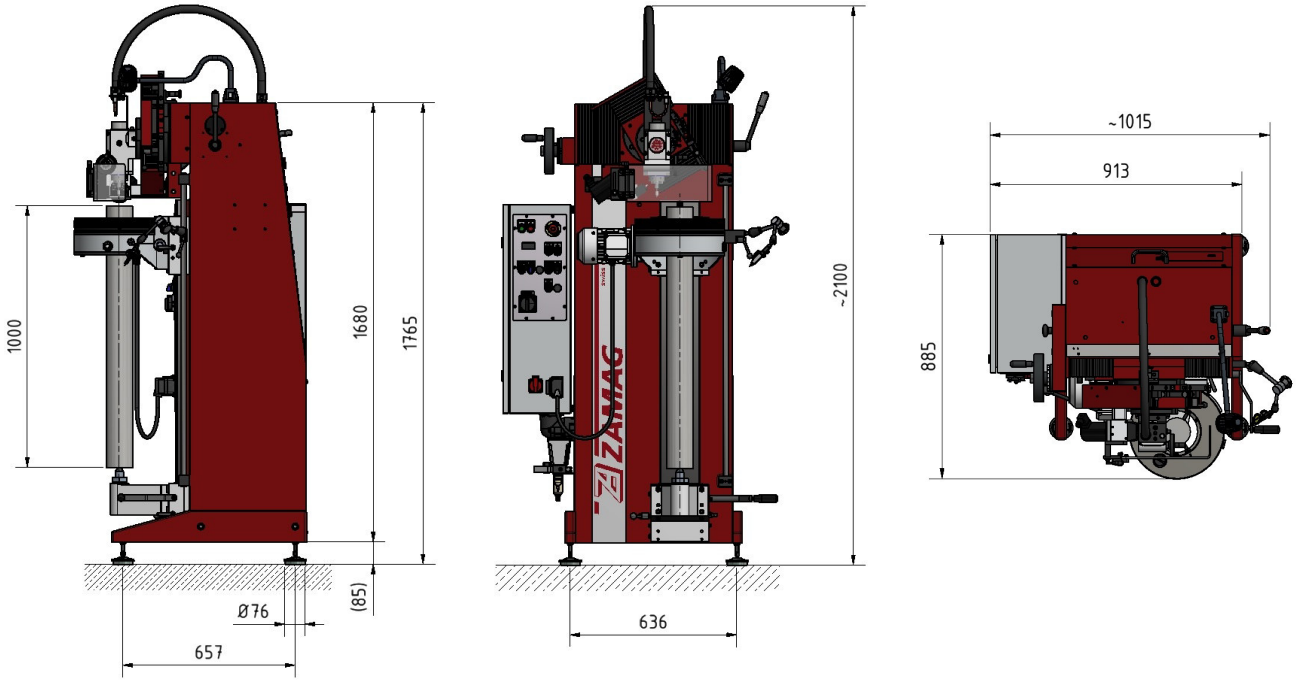
Dial gauge:

- Dial gauge ø37 / range: 0.8mm / resolution: 0.01mm (standard)
- Dial gauge ø37 / range: 0.8mm / resolution: 0.01mm (inch)
- Dial gauge ø37 / range: 0.4mm / resolution: 0.002mm

Dressing diamond:

- Shaft ø6mm, diamond size: ø5x8mm, typ: ST3

Dimension of the machine: *(ZSM-M6-1000-SP150)*



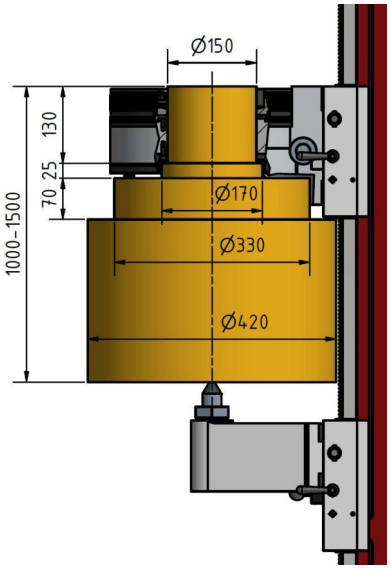
Dimensions of the packaging:
Wooden box L x W x H = 230 x 135 x 140 cm

Weight: *(depending on the machine configuration)*
- Center hole grinding machine: approx. 850kg
- Center hole grinding machine with accessories: approx. 900kg
- Center hole grinding machine with accessories and packaging: approx. 1'200kg

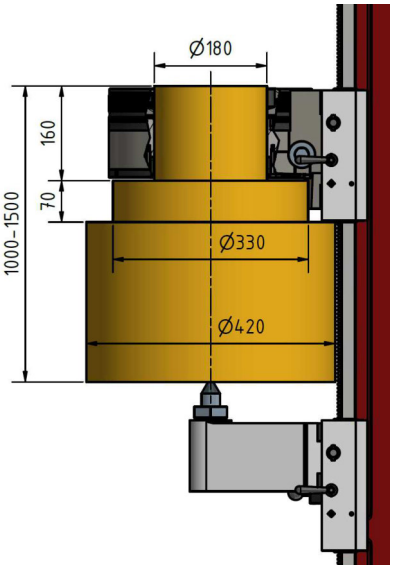
Electrical connection: *(other voltages on request)*
Standard: 3x400V + N + PE / 16A / 50Hz

Largest possible dimension of the workpieces:

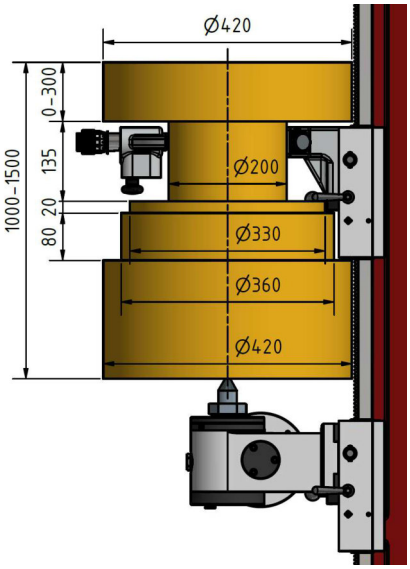
with 3-jaw chuck SPø150



with 3-jaw chuck SPø180



with steady rest LM



Contact us!

We are happy to advise you competently,
help you to find a solution for your task
and equip a center hole grinding machine for you -
according to your needs and your workpieces.

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ZELLER AUTOMATIK AG
Bernstrasse 52
CH-4923 Wynau
+41 62 926 60 50
+41 62 926 60 59
mitracon@zamag.ch
www.zamag.ch

swiss technology