

ROTAGO 8

With automatic lapping sequence

Stationary ball-lapping machine for ball workpieces with a DN range of up to 200 mm (8"), for finishing balls and two metal sealing rings.

The EFCO ROTAGO 8 is particularly suitable for the lapping-in of metal seal seats and the balls in a ball valve. The machine can be used for lapping different types of seal seats and balls with a floating or guided ball in which the surface and the surface quality are extremely important.



The main features of this machine are:

- Simultaneous lapping of the ball and both seal seats
- Siemens SIMATIC S7 controlled
- Timer with automatic shut-off
- Continuously variable control of the speed of four drives
- Independent speed control of individual drives
- Rotation direction of the drive changeable
- Integrated metering device for lapping oil for continuous dilution of the lapping mixture
- Ergonomically adjustable control panel
- Continuously variable pressure for pneumatic pressing on, for contact between valve seat and ball
- Collection tank for used lapping mixture
- Automatic mode for automatic lapping sequence
- Pre-programmed for machining ranges from DN 32 to DN 200
- Machining parameters selectable and adjustable for all machining ranges
- Localized User Interface
- Can also be used as a polishing machine for balls to produce high-gloss surfaces

Technical data

DN-range:	DN 32–200 (1 ¼"–8")
Ball diameter:	Ø 50 mm to Ø 300 mm (2"–12")
Max. ball weight:	approx. 100 kg (220.5 lbs.)

Achievable surface roughness and dimensional accuracy

Ball dimensional accuracy:	min. 0.008mm
Surface roughness:	min. Ra 0.06µm

Recommended surface roughness and dimensional accuracy before lapping

Ball dimensional accuracy:	~ 0.02 mm
Surface roughness:	~ Ra 0.4µm

Energy sources required from customer

Power supply:	230 V/120 V (50/60 Hz)
Total output:	2.80 kW
(Please inquire if different customer-provided power supply required!)	

Compressed air (network air):	max. 6–7 bar (87–100 psi)
Dimensions (L x W x H):	1,800 mm x 1,950 mm x 1,600 mm (71" x 77" x 63")
Overall weight:	approx. 900 kg (1,984.2 lbs.)

Description of function

The ball of the valve is clamped to the main spindle in the three-jaw chuck. The ball is supported in the tailstock using a lathe centre. The seal seats are clamped in the three-jaw chucks of the secondary spindles. The seal seats are pressed against the balls using pneumatic cylinders. The entire unit of the secondary spindles oscillates on a circular path around the centre by a drive. The stroke of the forwards and backwards movement can be adjusted. The lapping oil is added automatically by a metering device during the lapping procedure. A precise surface shape between the ball and the sealing sets is created during the lapping procedure via the several different movements between the ball and the seal seats. This machining step provides a perfect seal between the ball and the seal seats.

ROTAGO 8 stores its relevant lapping programs for different ball sizes in the machine's control panel. This way lapping quality and working time are exactly reproducible for a specific ball design and for quality assurance.

The operator is free to concentrate on other tasks after having started the lapping cycle.

For saving and administration of lapping programs the system provides a password-protected section for the operator.

Following parameters are entered in the lapping programs for a respective DN range:

- Main spindle rotation speed
- Change of rotation direction of the main drive (clockwise, anti-clockwise) or change of rotation direction based on time or position (e. g. for lapping not the complete ball surface but only certain areas (ball-sectors).
- Rotation speed of the auxiliary spindles
- Change of rotation direction of the auxiliary spindles (clockwise, anti-clockwise) and change of rotation direction based on sequence time
- Oscillation speed
- Contact pressure of the auxiliary spindles (intensity of surface treatment)
- Quantity of lapping oil (drip intensity)
- Total lapping time

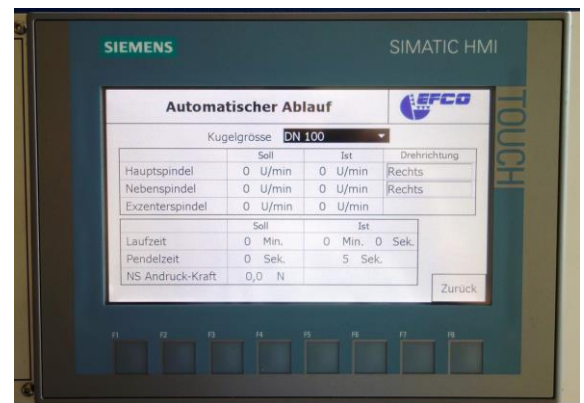
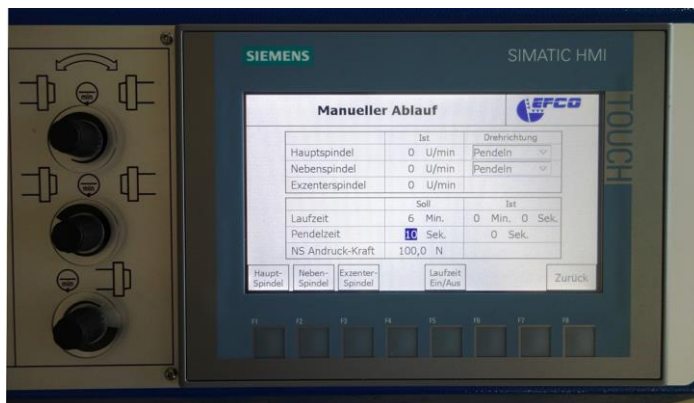
Control Panel

All switches and display instruments required for operating the ROTAGO are clearly arranged in groups on the control panel.



Manual Control Panel

Automatic Control Panel



Standard scope of delivery

- 1 pc. Basic machine, complete (incl. chuck)
- 1 set Operating and tool accessories
- 1 set Centring cone for the lathe centre at the tailstock
- 1 set Operating instructions

! **Not included in the standard scope of delivery:**
Clamping devices for balls and seat rings **required** for mounting on the machine. Provision. These **can be provided by the customer or**, after technical clarification, **by EFCO**.

Consumables included in scope of delivery

3 pcs	Lapping paste: boron carbide grain sizes 800, 1,200, 1,500 [0.5 kg (1.1 lbs.) each]
10 litres	Lapping oil
1.5 litres	Cleaning liquid

! Lapping agent for various balls and seat rings

We are happy to offer you additionally required lapping agents according to your requirements:

- material or coating of the balls and seat rings,
- surface quality of the work pieces before lapping,
- desired surface quality of the work pieces after lapping.