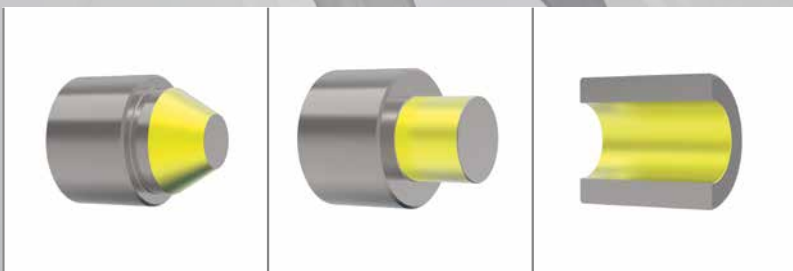
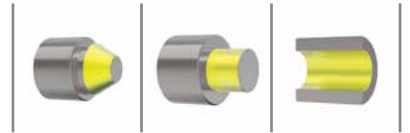


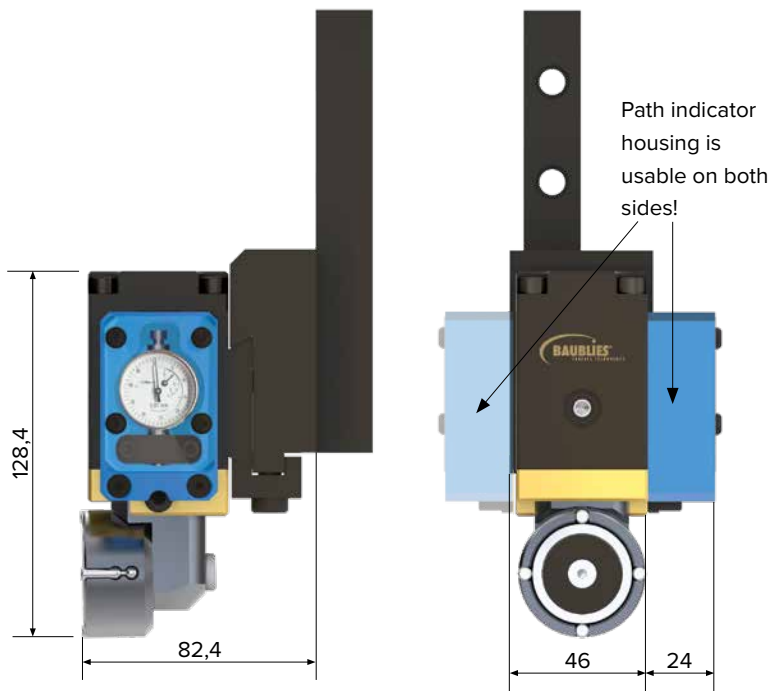
## THE PRESSURE IS ON

Powerful compression  
and smooth surface





## Single-roller burnishing tool, modular system



**Modular single-roller burnishing tool system**  
Rolling unit for smoothing and work hardening shafts. Processing cylindrical shafts also against shoulder.



### Technical details

Application	cylindrical shafts also against shoulder
Diameter range (Ø)	from 15mm
Rolling unit	with 4 small rollers (one roll in process), lower rolling forces, quick and easy change of the rollers

### Application parameters

**Please note that this information represents standard values which must be adapted to the individual cases.**

Speed	up to 200 m/min
Feed rate	up to 1 mm/U
Tool pre-load	up to 1.2 mm
Workpiece	up to 0.02 mm
Lubrication	emulsion or oil; filtration of the lubricant (< 40 µm) can improve the surface quality and the tool life
Pre-machining of workpiece	surface roughness up to 15 µm
Workpiece hardness	45HRC

### ADVANTAGE

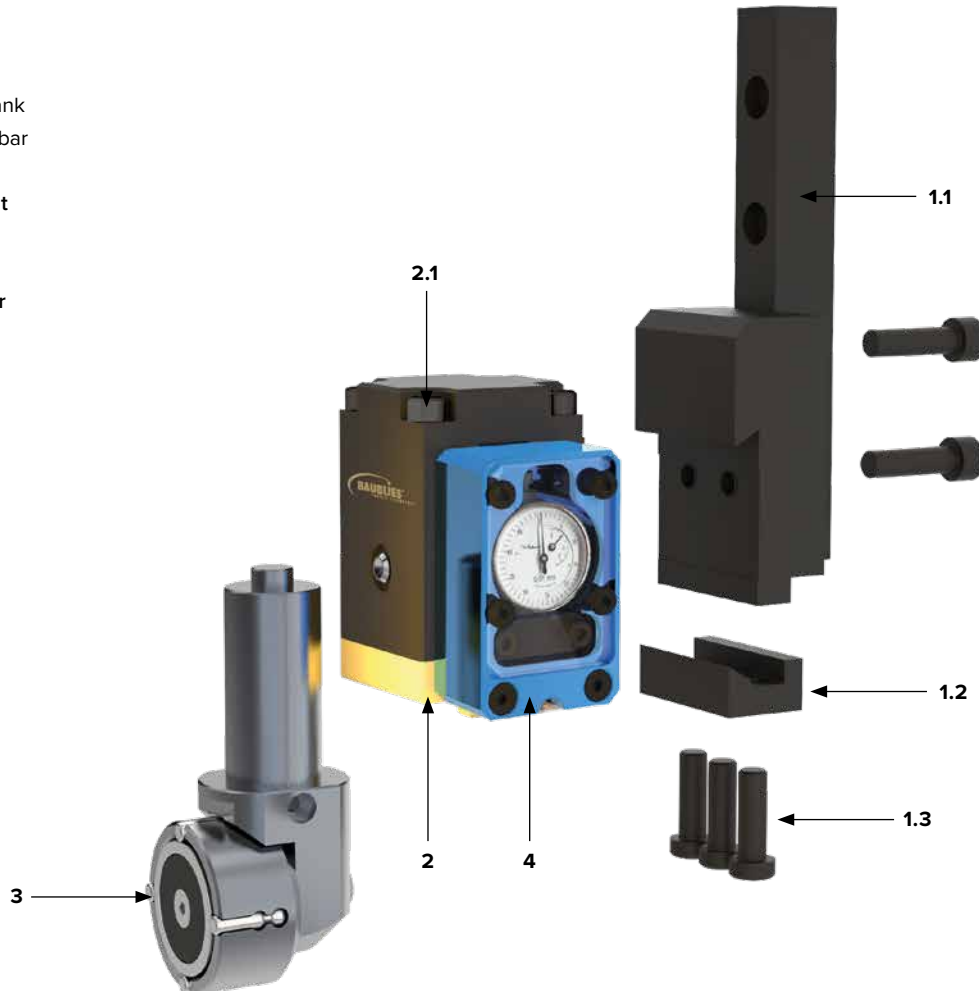
- Easy to use
- Easy exchangeable pressure spring
- Rugged tool design
- Slim design
- Fast feedrate possible
- Low wear part costs
- High surface quality > R<sub>z</sub>1

### TIP

The occurring forces can be very high! For safety reasons always ensure a sufficient clamping of the workpiece and tool on your machine.

## Tool assembly

- 1 Fixture**
  - 1.1** Square shank
  - 1.2** Clamping bar
  - 1.3** Screws
- 2 Basic element**
  - 2.1** Screw
- 3 Rolling unit**
- 4 Path indicator**



The single-roller tool system 20-235-00 is consisting of three components:

### FIXTURE

Article-nr.: 20-007-01-00-XX

**BASIC ELEMENT** Article-nr.: 20-235-02

**ROLLING UNIT** Article-nr.: 20-235-06-1

### FIXTURE

Article-nr.: 20-007-01-00-XX

The fixture **(1)** represents the connection between machine and tool. The basic element **(2)** is connected by a form-closed clamping bar **(1.2)** to the tool fixture **(1)**.

**Other tool fixtures available on request.**

**BASIC ELEMENT** Article-nr.: 20-235-02

The basic element contains the springs of the single-roller tool. This spring enables you to define the rolling force in dependence to the tool preload. The rolling force can be determined by using the chart (page 6). If the exact value of the force is required, the optionally available testing device (page 5) has to be used.

**ROLLING UNIT** Article-nr.: 20-235-06-1

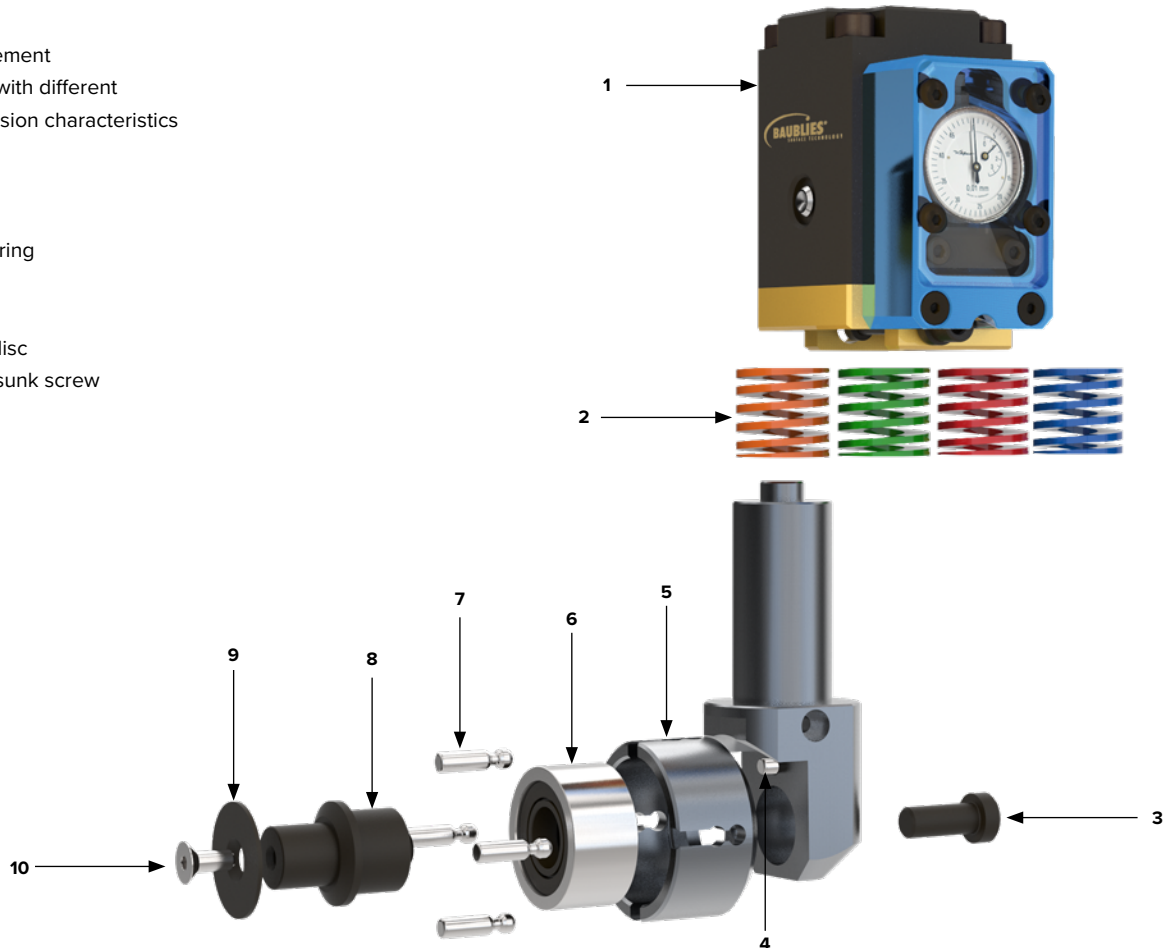
The rolling unit **(3)** guides and supports the roller and is connected to the fixture **(1)** and the basic element **(2)**. It is optimally adapted to the processing task.

### TIP

Slightly loosen the screws **(1.3)** of the clamping bar so that you can move the tool body. Adjust the tool to the centre height. For a basic setting of the center height we recommend to use the rolling tool max. 0.3mm above the center of rotation.

## Tool handling/Replacing components

- 1 Basic element
- 2 Springs with different compression characteristics
- 3 Screw
- 4 Pin
- 5 Cage
- 6 Support ring
- 7 Roller
- 8 Axle
- 9 Spacer disc
- 10 Countersunk screw



### ROLLER/SUPPORT RING

Remove the screw (3). Remove the counter sunk screw (10) with spacer disc (9). Then lift out the cage (5) with support ring (6) and axle (8) towards the front. Disassemble support ring and the rollers (7). Replace the rollers or the support ring and remount the components.

#### TIP

Coat the roller seats with some grease so that the rollers are held in place by the grease during the assembly. When replacing the rollers, clean the cage and the bearing. Check them for damage, run-in marks, rough spots etc. and replace worn out components. Worn cages or support ring can considerably reduce the lifetime of the rollers.

### CAGE

Remove the screw (3). Remove the counter sunk screw (10) with spacer disc (9). Then lift out the cage (5) with support ring (6) from the axle (8) towards the front. Disassemble support ring (6) and the rollers (7) out of the cage. Replace the cage and remount the components.

#### TIP

When replacing the cage or bearing, clean the tool interior and grease it lightly. Dirt particles, in particular chips, reduce the tool life and the quality of the roller burnishing results.

#### TIP

- The preload of the tool during burnishing should be in a range between 0.1 and 0.5 mm
- Use coolant at any time.
- Avoid interrupted cuts.
- The dial gauge helps to set up the tool, especially when using conventional machines.

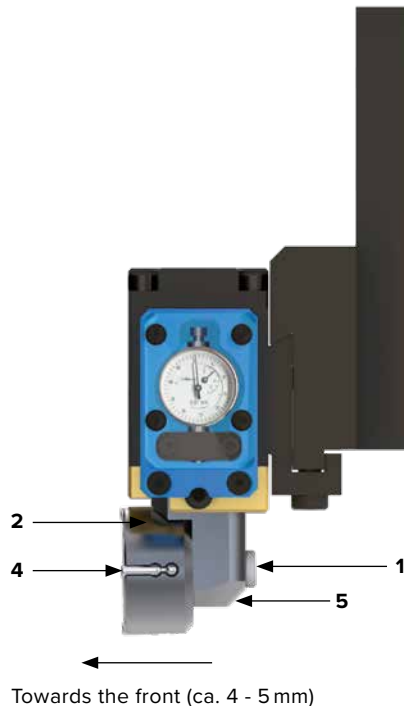
## Tool handling/Replacing components

- 1 Screw
- 2 Cage
- 3 Support ring
- 4 Roller
- 5 Holder

### CHANGING THE ROLLING UNIT POSITION

Loosen the screw (1). Then lift out the cage (2)/support ring (3) towards the front (4 - 5 mm) until you see the cylindrical pin.

Rotate the cage with the rollers (4) 90° until the pin fits to the next hole in the cage. After that step tighten the screw (1) for a new roller position (four positions possible).

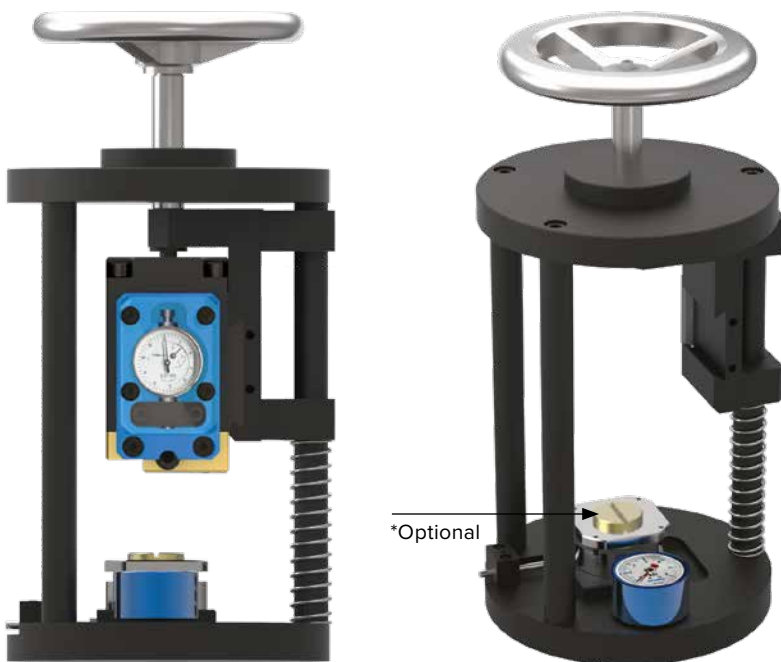


Towards the front (ca. 4 - 5 mm)



Turn the rolling unit around 90° for a new roller position

## Test device



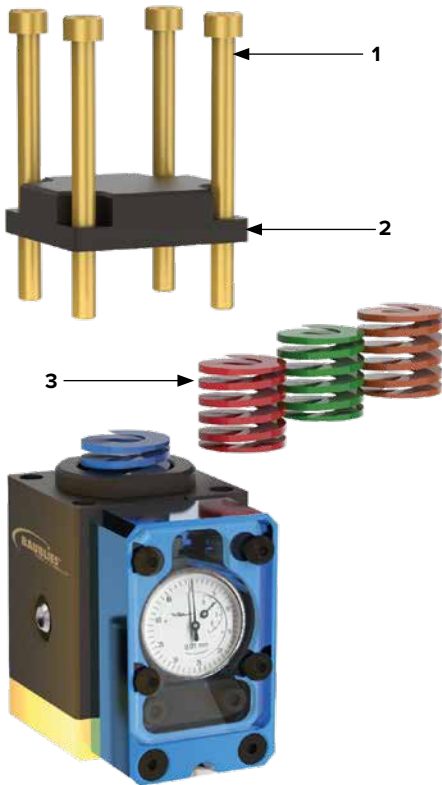
### Properties

The test device is used to set and to check the required tool preload characteristics. With the path indicator and the load cell it is then possible to correlate the tool preclamp with the rolling force to support constant process parameters.

### ADVANTAGES

- Easy to use
- Rugged design
- Useable for diverse tool types
- \*Optional with certified hydraulic load cell

## Tool handling/Replacing components



- 1 Screw
- 2 Cover
- 3 Springs with different compression characteristics

### EXCHANGE OF SPRINGS

Remove screw (1). Remove cover (2) and replace desired spring (3). Reassemble cover and tighten screws.

#### TIP

Depending on the material properties, an appropriate spring should be used. The table opposite is intended as a guide. Usually an in-feed in the range up to 0.5 mm is used. For higher power requirements, a stronger spring should be installed.







(6) Greasnipple

#### TIP

Grease greasnipple (6) as required.

### Classification Force – Spring Deflection

#### Recommended Applications According to Material Properties

Spring colour	Force	Strength up to
Blue 	290 – 380 N	250 MPa [N/mm <sup>2</sup> ]
Red 	430 – 610 N	800 MPa [N/mm <sup>2</sup> ] oder HRC 40
Green 	850 – 1300 N	1250 MPa
Brown 	1550 – 2000 N	Use only in special applications

