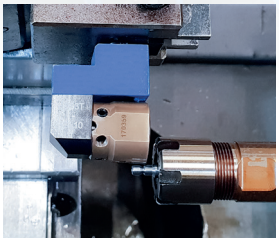
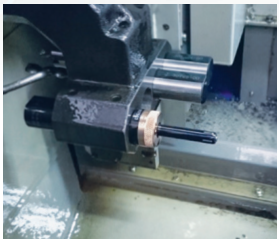
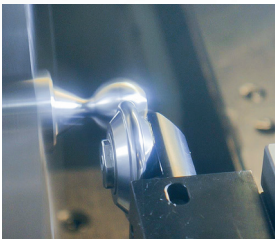
ECO compact

ECOROLL
surface matters



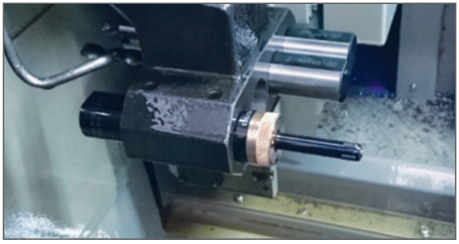




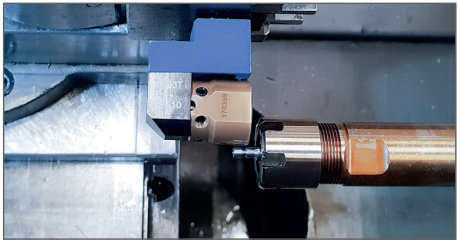
Designed for the smallest workspaces

ECO *compact*

As a technology leader in roller burnishing and deep rolling, Ecoroll is expanding their portfolio with the new product line, **ECO *compact*** . Ecoroll is keeping pace with the high demand small component market by launching a product line suited for these workpiece requirements.



Type GMI on a long-turning lathe



Type EG3T machining a delicate component

The **ECO *compact*** tools are optimally used in all machine types that have a limited working space, such as sliding headstock lathes, Swiss-type lathes or rotary transfer machines.

Industries

How?

Sliding headstock lathes | Swiss-type lathes
Rotary transfer machines

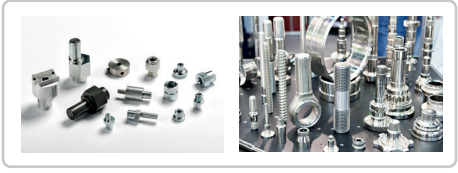
Why?

Special toolholding system | Delicate components
Limited workspace

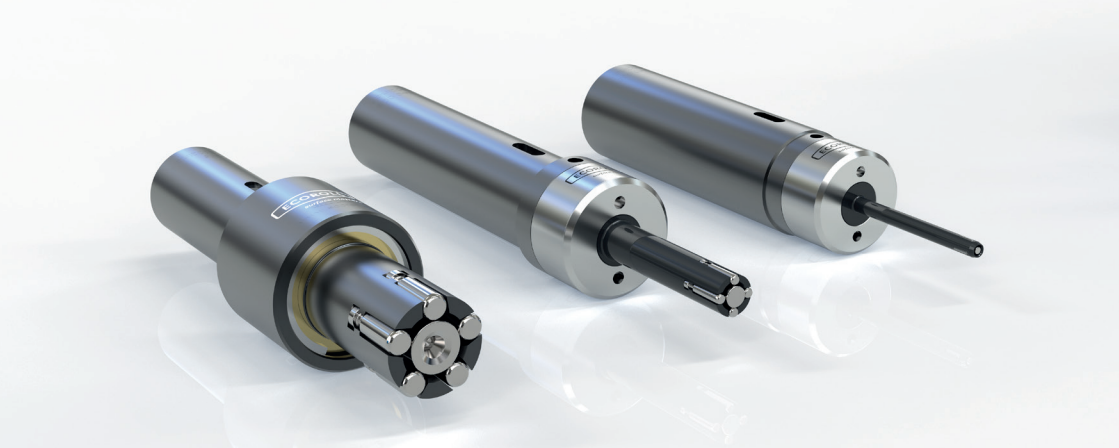
Who?

Mass and batch production

What?



Standard parts | Micro components
Medical implants



Multi-roller burnishing tools GMI

The innovative GMI design combines all the familiar advantages of the G tool series in an extremely small-sized design for manufacturing micro components in constricted workspaces. The GMI design concept is based on our customers' wish to use the well-known G tool on sliding headstock lathes as well.

The complete adjustment mechanism has been transferred into the tool shank. This offers multiple advantages for use in machines with limited installation space. The protruding length of the entire tool and the total diameter could be significantly reduced.

Multi-roller burnishing tools GMI

Type GMI:
Machining cylindrical bores in diameters 3.70 mm to 21.00 mm

Through-hole: I.D. 3.70 – 6.00 mm

Blind hole: I.D. 6.00 – 21.00 mm

Features

- Can be used up to tolerance class IT8
- Suitable for all metal materials up to a tensile strength of 1400 N/mm² and a maximum hardness of HRC ≤ 45
- Can achieve a surface quality of $R_z < 1$ µm ($R_a \leq 0.1$ µm)
- Application ideal for sliding headstock lathes, but also on CNC controlled turning, drilling or milling machines, machining centers or conventional machine tools
- Machining in pushing motion with clockwise rotation
- Available with straight shank

Parameter recommendation:

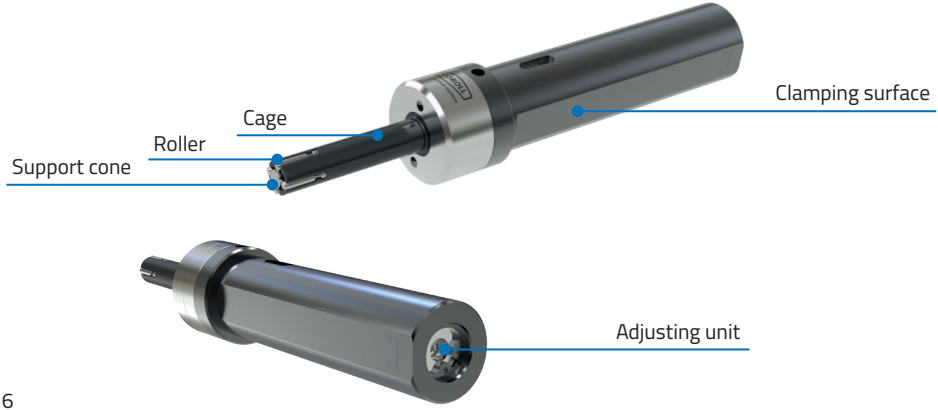
- Max rotary speed: up to 250 m/min
- Feed: 0.05–0.3 mm/rev per roller

Multi-roller burnishing tools GMI

Advantages

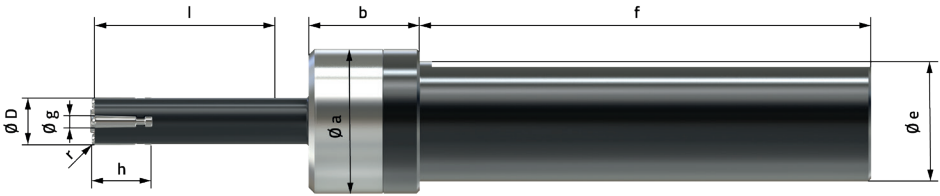
- Compact design for applications in machines with limited workspace
- Short cycle time
- Diameter adjustment is easy and repeatable
- Requires minimal lubrication (oil or emulsion)
- Tool automatically contracts upon retraction, preventing damage to the roller burnished surface
- Wear parts are easy to exchange

Design



Multi-roller burnishing tools GMI

Tool body	Diameter range D	Adjustment range through-hole blind hole	Number of rollers	Roller diameter Ø g x h	Roller radius r	Standard burnishing length l	Tool shank Ø e x f	Housing Ø a x b
	mm	+ / - mm		mm				
GMI11 Ø ≥ 3.70 < 9.10	≥ 3.70 < 5.00	- 0,05 / + 0,06 no blind hole	3	1 x 4	0,5	30	ZS16 x 050	24 x 18,5
	≥ 5.00 < 6.00	- 0,05 / + 0,11 no blind hole		1,5 x 6	1			
	≥ 6.00 < 8.00	- 0,05 / + 0,20		2 x 10				
	≥ 8.00 < 9.10		4					
GMI21 Ø ≥ 9.10 < 14.00	≥ 9.10 < 10.00	- 0,05 / + 0,40			1,5			26 x 25
	≥ 10.00 < 11.00			3 x 9				
	≥ 11.00 < 14.00		5					
GMI31 Ø ≥ 14.00 < 21.00	≥ 14.00 < 17.00			5 x 16			ZS20 x 050	32 x 27
	≥ 17.00 < 20.50							



Single roller burnishing tools EG3T and EG5T

Single roller burnishing tools EG3T and EG5T are based on the proven technology of the EG5 type tool. The compact design and miniaturization of these tools now enables roller burnishing applications on machines with limited workspace. These tools can be used especially on machine types as sliding head-stock lathes, swiss-type lathes, and rotary transfer machines. Furthermore these tools can be applied on larger machines as well. The single roller design covers a wide diameter range and thus offers high flexibility.

Single roller burnishing tool EG5T

Type EG5T:
Cost-effective roller burnishing of any rotationally symmetric surfaces with straight edges



Features

- Machines all metal materials up to a tensile strength of 1400 N/mm² and a maximum hardness of HRC ≤ 45
- Can achieve a surface quality of $R_z < 1$ µm ($R_a \leq 0.1$ µm)
- The modular design makes is universally usable also on CNC or conventional turning lathes

Parameter recommendation

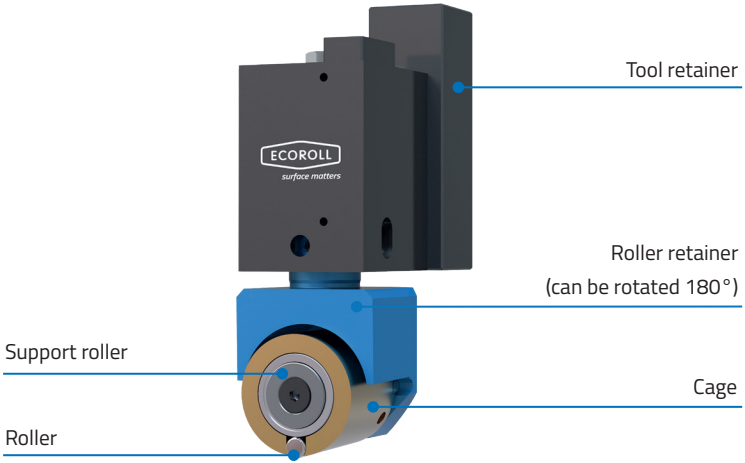
- Max rotary speed: up to 150 m/min
- Max feed: 0.3 mm/rev
- Max rolling force: 2100 N

Single roller burnishing tool EG5T

Advantages

- Versatile, compact, inexpensive
- Compact design for application in machines with limited workspace
- Complete processing in one setting; changeover and auxiliary process time eliminated
- Wear parts are easy to exchange

Design



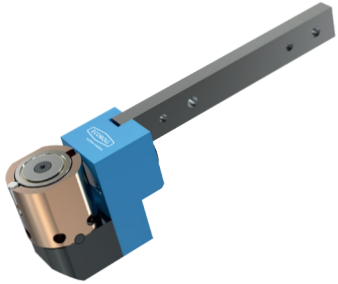
Single roller burnishing tool EG3T

Type EG3T:
Cost-effective roller burnishing of any rotationally symmetric surfaces with straight edges



Features

- Purpose-built for application on sliding headstock lathes and machines with limited workspace
- Can achieve a surface quality of $R_z < 1$ µm ($R_a \leq 0.1$ µm)
- Machines all metal materials up to a tensile strength of 1400 N/mm² and a maximum hardness of HRC ≤ 45
- The modular design makes is universally usable also on CNC or conventional turning lathes



Parameter recommendation

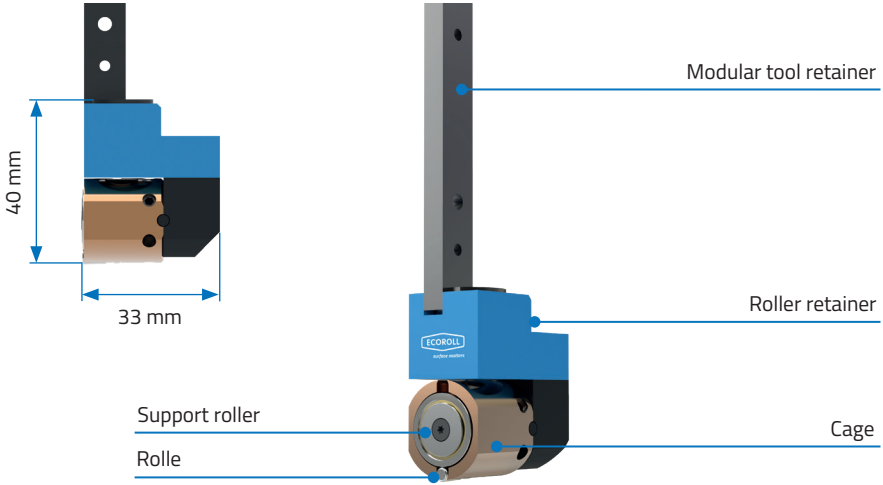
- Max rotary speed: up to 150 m/min
- Max feed: 0.3 mm/rev
- Max rolling force: 600 N

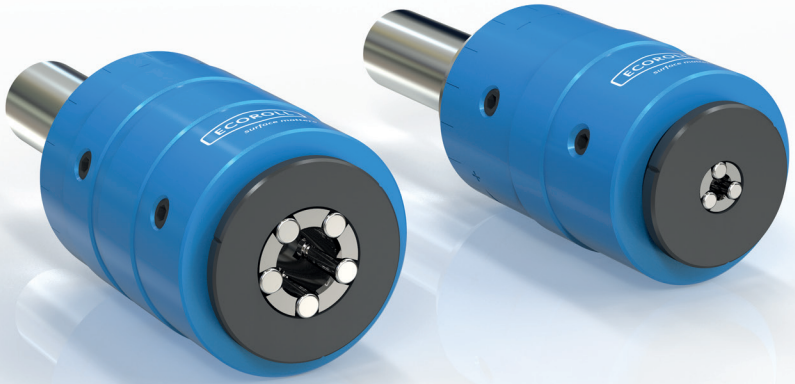
Single roller burnishing tool EG3T

Features:

- Very low rolling force required, low radial force on the workpiece
- Versatile, extremely compact, inexpensive
- Compact design for application in machines with limited workspace
- Complete processing in one setting; changeover and auxiliary process time eliminated
- Wear parts are easy to exchange

Design





Multi-roller burnishing tools RA

Multi-roller burnishing tools RA are used for economically roller burnishing of cylindrical external surfaces. The compact design of these tools takes into account the limited installation space for tools on sliding headstock lathes, Swiss-type lathes or rotary transfer machines. Based on the design these tools are made for a specific nominal diameter and offer – due to multi-roller design – high feed rates and thus high productivity in serial and mass production.

Multi-roller burnishing tools RA

Type RA:
Machining cylindrical external surfaces from diameter 1 mm

Features

- Can be used up to tolerance class IT8
- Suitable for all metal materials up to a tensile strength of 1400 N/mm² and a maximum hardness of HRC ≤ 45
- Can achieve a surface quality of R_z < 1 µm (R_a ≤ 0.1 µm)
- Application ideal for sliding headstock lathes, but also on CNC controlled turning, drilling or milling machines, machining centers or conventional machine tools
- Machining in pushing motion with clockwise rotation
- Available with different straight shanks (optional with hollow shank for very long workpieces)
- Internal coolant-lubricant supply optional

Parameter recommendation

- Max rotary speed: up to 250 m/min
- Max feed: 0.3 mm/rev per roller

Multi-roller burnishing tools RA

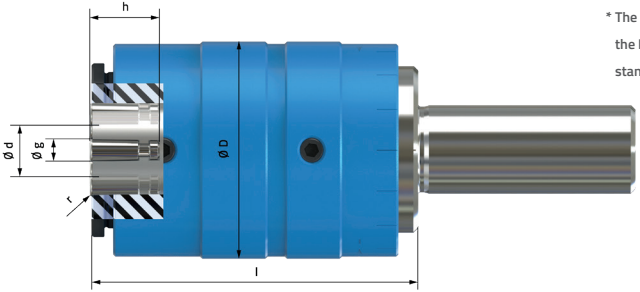
Advantages

- Compact design for application in machines with limited workspace
- High degree of accuracy
- Short cycle time
- Diameter adjustment is easy and reproducible
- Requires minimal lubrication (oil or emulsion)
- Tool automatically contracts upon retraction, preventing damage to the roller burnished surface
- Wear parts are easy to exchange

Design

Multi-roller burnishing tools RA

Tool body	Diameter range d	Adjustment range	Number of rollers	Roller diameter Ø g x h	Roller radius r	Burnishing length l	Housing diameter D	Standard tool shank
	mm	+ / - mm		mm				
RA01*	1.00 - 1.99	- 0,1 / + 0,05	3	2 x 10 S	1,0	55	38	ZS08 DIN 1835A
	2.00 - 2.99			3 x 9 S				
RA11	3.00 - 5.99	- 0,2 / + 0,05	4	5 x 16 S	0,5	85 ab ZS20 unlimited	50	ZS20 DIN 1835B (hollow shank)
	6.00 - 7.99							
	8.00 - 11.99		5					
RA21	12.00 - 14.99	- 0,4 / + 0,05	6			100 ab ZS25 unlimited	66	ZS25 DIN 1835B (hollow shank)
	15.00 - 16.99					100		
	17.00 - 24.99		8					
RA31	25.00 - 35.99	- 0,4 / + 0,05				100	89	ZS25 DIN 1835B
	36.00 - 43.99		10					
RA41	44.00 - 68.99	- 0,6 / + 0,05	12			120	124	



* The RA01 tool body is smaller than the RA11 tool body. Note: RA11 is the standard design

Roller burnishing tools UMK

Roller burnishing tools UMK represent a special design and are tailor-made for burnishing convex faces on rotational symmetric workpieces. The burnishing element of these tools is a roller burnishing calotte corresponding to the negative contour of the workpiece face with convex radius. For machining such a face the tool is moved coaxially across the workpiece end face (using a defined rolling force) and pressed against the surface. The workpiece or tool rotates and is in contact with the convex sphere including the workpiece center. The process is finished within few workpiece – or tool – revolutions.

Type UMK:
Roller burnishing convex surfaces of rotational symmetric workpieces with very small diameters

Features:

- Suitable for all metal materials up to a tensile strength of 1400 N/mm² and a maximum hardness of HRC ≤ 45
- Can achieve a surface quality of R_z < 1 µm (R_a ≤ 0.1 µm)
- Application ideal for sliding headstock lathes but also on CNC controlled turning, drilling or milling machines, machining centers or conventional machine tools
- Surface is burnished (smooth) after few revolutions
- Workpiece and/or tool can rotate

Parameter recommendation

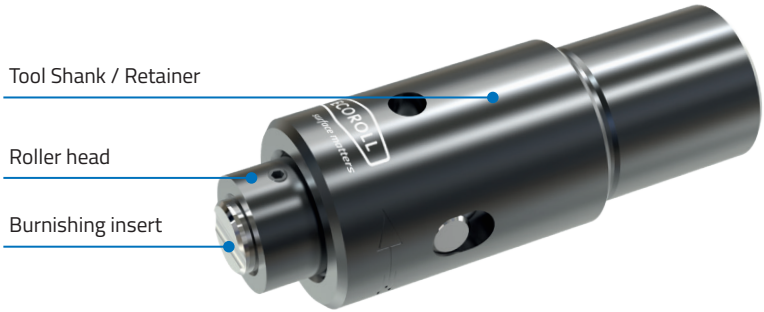
- Only few revolutions necessary
- Max rolling force 2100 N

Roller burnishing tools UMK

Advantages

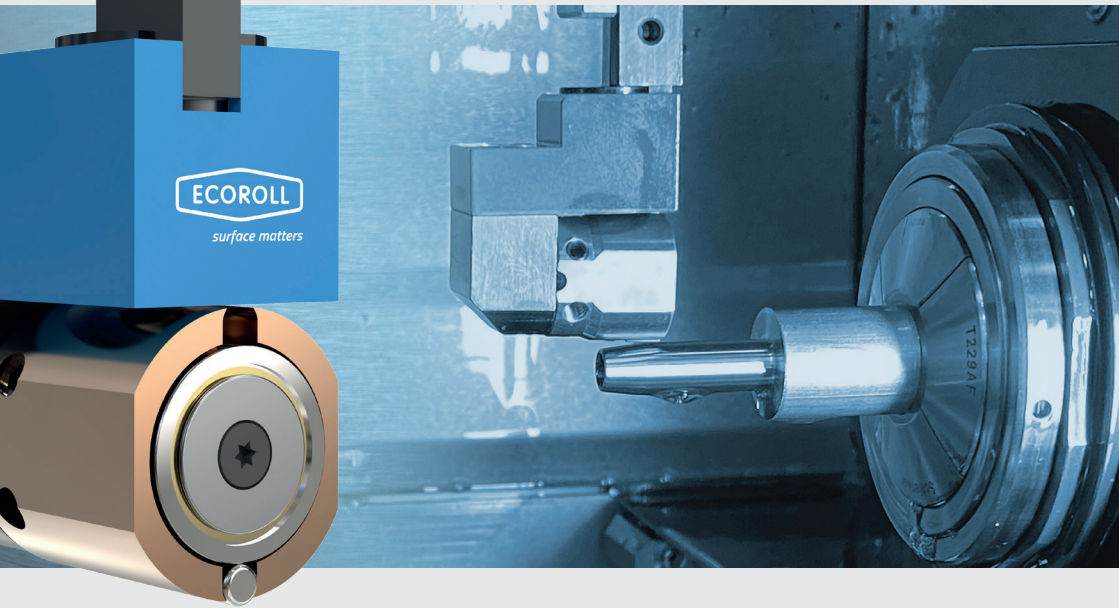
- Effective, compact, inexpensive
- Small design, short protruding length, various tool shanks
- Designed for machines with limited workspace
- Alternative to polishing / grinding
- Wear parts are easy to exchange

Design



ECOROLL

surface matters



ECOROLL AG Werkzeugtechnik

Hans-Heinrich-Warnke-Str. 8 | D-29227 Celle

Phone: +49 5141 98650 | Fax: +49 5141 881440

Mail: mail@ecoroll.de | www.ecoroll.com