



ROLLER BURNISHING TOOLS and MACHINES



Wenaroll tools and systems GmbH
Grünwalder Straße 29-31 42657 Solingen

Telephone 0212-24 94 65-0
Telefax 0212-24 94 65-4
E-Mail info@wenaroll.de
Online www.wenaroll.de

iki hokta +90 232 465 18 28

DIN EN ISO 9001:2000
ZQM 04095

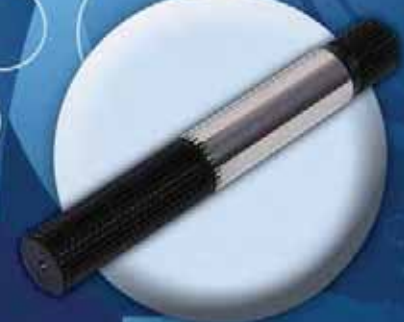


External Roller Burnishing Tools

Type WAW Ø3 - Ø110 mm

Type WAW for cylindrical shafts

Plain shafts between Type WAW Ø3 - Ø14 mm Stepped shafts between Ø3 - Ø14 mm

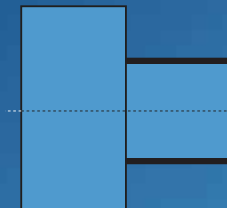


Here you can see some examples of possible workpieces

- torque converter
- pins
- clutches
- pinion shaft hub
- belt – pulley etc.

Tool Structure

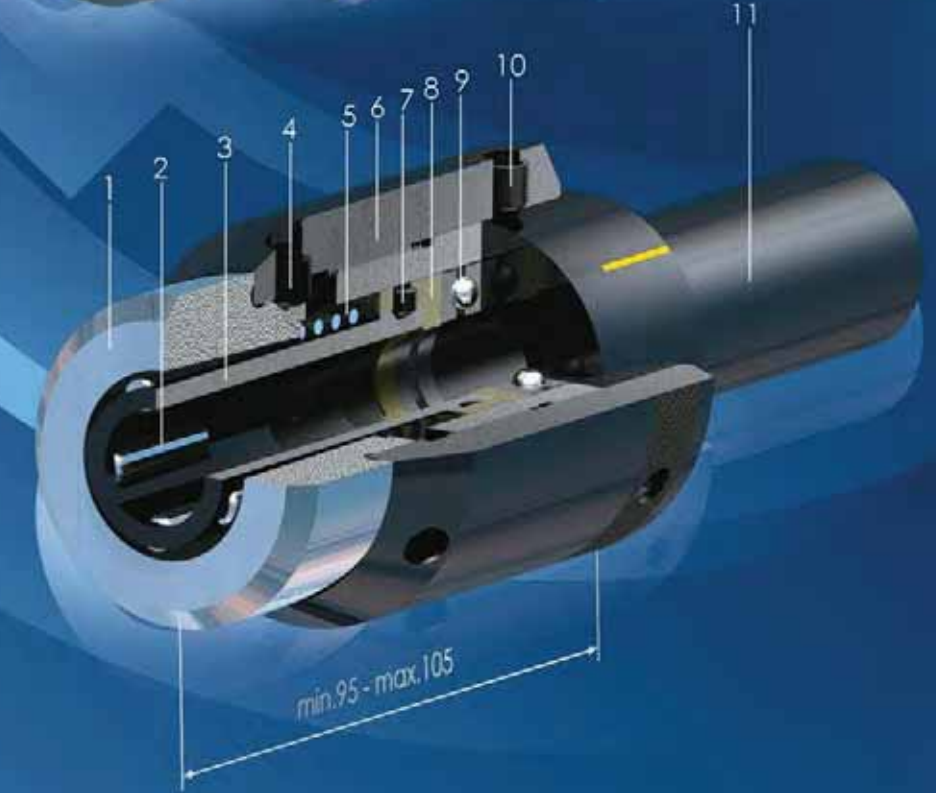
WENAROLL WAW type roller burnishing tools consist of a body and a rolling head. The tool body has a precise adjustment mechanism. Cage, cone and rollers are the parts of the rolling head. The rolling heads, fitting in to the same body, can be changed. The tool shank may be Morse Taper or cylindrical. Rolling lengths are related to shank selection. ZU shanks have unlimited rolling length, but ZS and MK shanks are limited. (see table beside)



stepped shafts



Through shafts



1. Cone
2. Roller
3. Cage
4. Screw
5. Spring
6. Housing
7. Screw
8. Frame ring
9. Ball bearing
10. Screw
11. Shank

STANDARD TYPE

Tool body	Diameter	Process type							Tool Shank			Settin range	Roller		
		Plain			Stepped				Morse taper	Cylindrical			Roller number		Quantity Piece
		EV	MV	MV	MK	ZS	ZU	MK		ZS	ZU		Plain	Stepped	
WAW 1	003,00	1	2	3	75	75	UNLIMITED	MK2	ZS 20 Ø20 h6 x 50	ZU 25 Ø25 h6 x 60 x Ø15	-0,40 +0,10	500112	500311	3	
	004,00													4	
	005,00													5	
	006,00														
	007,00														
	008,00														
	009,00														
	010,00														
	011,00														
	012,00														
	013,00														
	014,00														

All dimensions in mm. EV: Self feeding MV: Machine feeding

Type WAW for cylindrical shafts

Plain shafts between Ø15 – Ø24 mm Stepped shafts between Ø15 – Ø24 mm



1. Cone
2. Roller
3. Cage
4. Screw
5. Spring
6. Housing
7. Screw
8. Frame ring
9. Ball bearing
10. Screw
11. Shank

Tool body	Diameter	Order sample							Setting range	Roller				
		Process type			Rolling length					Tool Shank				
		Plain	Stepped		MK	ZS	ZU	Morsetaper		Cylindrical				
		EV	MV	MV	MK	ZS	ZU	MK	ZS	ZU	Plain	Stepped	Quantity Piece	
WAW 2	015,00													5
	016,00													
	017,00													
	018,00													6
	019,00	1	2	3	75	75	UNLIMITED	MK3	ZS 25	ZU 40				
	020,00													
	021,00													
022,00													7	
023,00														
024,00														

All dimensions in mm. EV: Self feeding MV: Machine feeding

Type WAW for cylindrical shafts

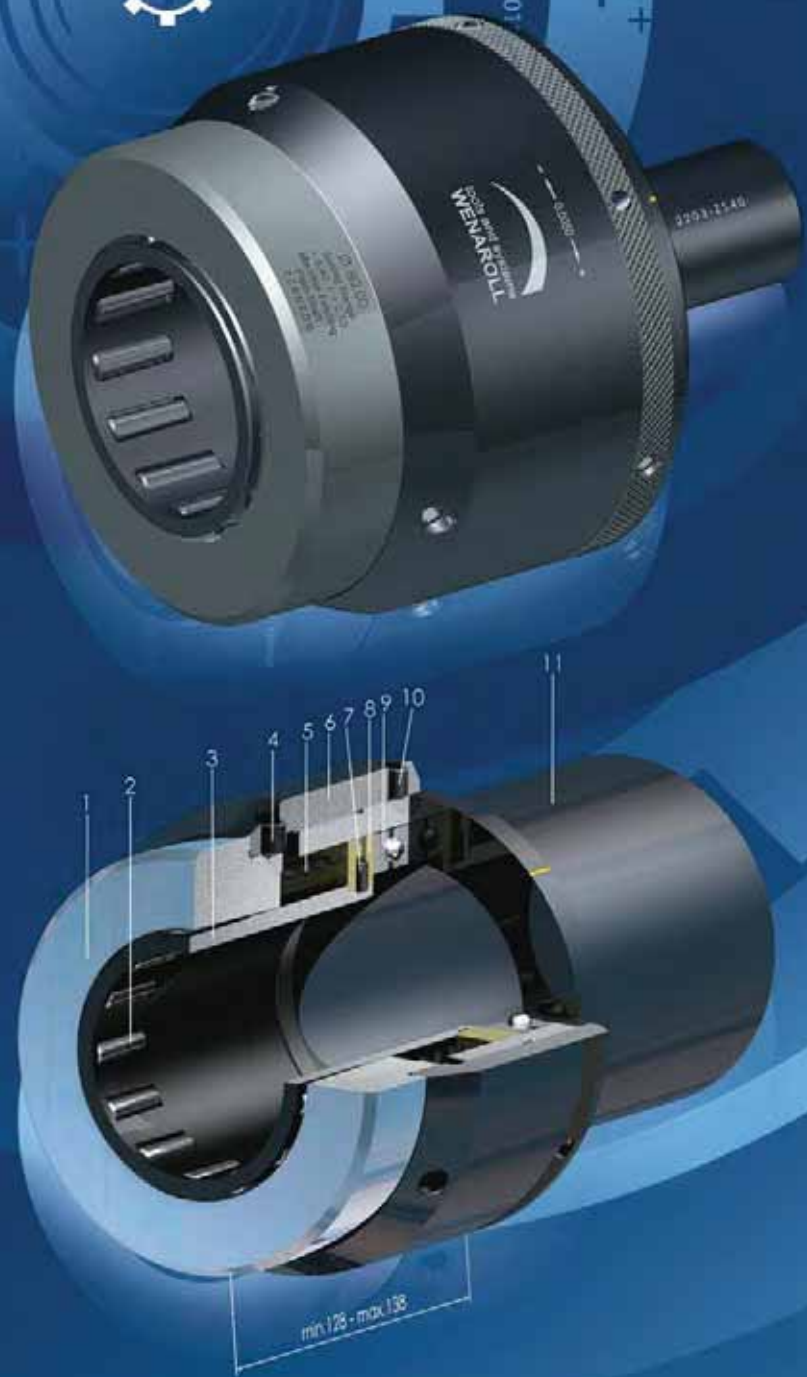
Plain shafts between Ø25 – Ø49 mm Stepped shafts between Ø25 – Ø49 mm



1. Cone
2. Roller
3. Cage
4. Screw
5. Spring
6. Housing
7. Screw
8. Frame ring
9. Ball bearing
10. Screw
11. Shank

Tool body	Diameter	Order sample							Setting range	Roller				
		Process type			Rolling length					Tool Shank				
		Plain	Stepped		MK	ZS	ZU	Morsetaper		Cylindrical				
		EV	MV	MV	MK	ZS	ZU	MK	ZS	ZU	Plain	Stepped	Quantity Piece	
WAW 3	025,00													7
	038,00	1	2	3	100	100	UNLIMITED	MK4	ZS 40	ZU 80				
	039,00													9
	049,00													

All dimensions in mm. EV: Self feeding MV: Machine feeding



1. Cone
2. Roller
3. Cage
4. Screw
5. Spring
6. Housing
7. Screw
8. Frame ring
9. Ball bearing
10. Screw
11. Shank

Order Requirements

WENAROLL WAW Type burnishing tools can process the medium diameters thanks to the variable specification. As an example, WAW2-020,00-2-75-ZS25 model burnishing tool having a nominal size of Ø 20,00 mm is capable to process all sizes between Ø19.60 mm and Ø20.10 mm.

WENAROLL WAW type tools are produced in standard diameters as well as special diameters and sizes upon request.

Tool Body

Select the tool body number according to diameter.

Processing Diameter

Define the diameter accurately which you will process. (eg.15.87...).

Process Type
It is selected according machine and workpiece:

1. Self feeding for plain shafts
2. Machine feeding for plain shafts
3. Machine feeding for stepped shafts



Standard Rolling Length

Rolling lengths are related to shaft selection. ZU shafts have unlimited rolling length, but ZS and MK shafts are limited. If work piece is long, choose unlimited rolling length.

Tool Shank

Depending on your preference.
ZU: Cylinder shaft for unlimited rolling lengths
ZS: Cylinder shaft for limited rolling lengths
MK: Morse Taper shaft for limited rolling lengths

Order Sample
WAW2-020,00-2-75-ZS25
WAW2 : Tool body
020,00 : Diameter
2 : Process type
75 : Rolling length
ZS25 : Shank

Order sample												Setting range	Roller		
Tool body	Diameter	Process type			Rolling length			Tool Shank							
		Plain		Stepped	MK	ZS	ZU	Morsetaper		ZU					
		EV	MV	MV				MK	ZS		ZU				
WAW 4	050,00	1	2	3	100	100	UNLIMITED	MK4	ZS 40 Ø40 h6 x 70	ZU 110 Ø110 h6 x 110 x Ø87	-0,40 +0,10	500109	500307	9	
	051,00													11	
	052,00													11	
	069,00													11	
	070,00													13	
085,00															

Order sample												Setting range	Roller		
Tool body	Diameter	Process type			Rolling length			Tool Shank							
		Plain		Stepped	MK	ZS	ZU	Morsetaper		ZU					
		EV	MV	MV				MK	ZS		ZU				
WAW 5	086,00	1	2	3	115	115	UNLIMITED	MK5	ZS 50 Ø50 h6 x 80	ZU 150 Ø150 h6 x 120 x Ø112	-0,40 +0,10	500107	500306	9	
	095,00													11	
	096,00													11	
	110,00													11	

All dimensions in mm. EV: Self feeding MV: Machine feeding

Application

WENAROLL WIK, WAK, WPF are used to process the interior-exterior conus and flat surfaces. All workpieces requiring sensitiveness can be burnished by using these tools. The tool body is equipped with a special spring system. Such a spring system enables the pressure, which is applied on the workpiece to be adjusted specifically. At the same time, this spring system provides the tool with a special safety stroke (safety distance) to the tool. The safety stroke prevents overload on the workpiece and the machine. Furthermore it gives a standard and perfect surface quality. The spring system is designed specifically for each tool. It ensures the tool applies the same force on the workpiece and thus a precise and standard size is obtained.



The tool cannot be adjusted. The burnishing process occurs when the roller head, which was prepared specifically to the sizes of workpiece, contacts the workpiece with a certain force. During the process, the tool or workpiece turns. Whether the workpiece or tool turns, the result remains the same. The tools can be used by fixing to any kind of machine that performs the process by turning. These tools are capable to process any kind of metallic material with the tensile strength up to 1400 N/mm² and hardness up to max. 45 HRC.



Tool Structure

WENAROLL WIK, WAK and WPF type tools are consisting of a body and a roller head. The tool body includes a very sensitive shell case equipped with the pressurized spring system and shaft used to attach the tool to the machine. The special spring system placed in the body is designed to the requirements of the work specifications. The tool shaft is given as Morse Taper or cylindrical according to preference. The roller head consists of cage, cone and rollers. These parts are designed to the dimensions of the workpiece then installed in the tool body. Since the roller heads are designed according the specifications of the desired work it is not possible to keep these types in stock.



Order Requirements

The tool bodies and roller heads are designed in accordance with the sizes of the parts to be processed and the material type. In order to select the most ideal burnishing tool for you, it is necessary to submit the technical drawing of the workpiece to be processed and the information such as the material type, material hardness. If the technical drawing is not available, the surface sizes of the workpiece and the material type must be given

Order sample :

- WAK - 45,00 - 30,45 - 45° - ZS25
- WAK: Type
- 45,00: Ø D
- 30,45: Ø d
- 45°: Angle (only for WIK and WAK)
- ZS25: Shank

Tool body	Diameter range ØD	Tool Shank		e	f	g	x
		Morse taper	Cylindrical (Øk x m)				
W 1	006,00 - 044,99	MK2	Ø20 h6 x 50	78,5	65	25	it is changed according to the workpiece and surface dimensions which will be operated.
W 2	045,00 - 099,99	MK3	Ø25 h6 x 56	98	92	48	
W 3	100,00 - 149,99	MK4	Ø32 h6 x 60	123	107	63	

All dimensions in mm

Single roller burnishing tool

This tool can be used on universal- and CNC- drillingmachines. You need only one tool for several diameters. It is capable to burnish all kinds of metallic material up to the tensile strength of 1400N/mm and to the hardness of 45 degree. (HRC)



Advantages:

- Short processing time
- No set up times
- Burnishing force continuously adjustable
- Guaranteed results because of measurable burnishing force
- Easy handling

Standard Mounting:

- Square 25 x 100 mm

Also deliverable:

- Weldorn D 32 x 60 mm
- VDI 30 Din 69880
- VDI 40 Din 69880
- Weldorn D 25 x 56 mm
- Square 20 x 100 mm
- Square 32 x 100 mm

Tools can be used on both sides for plane surfaces and male taper. After assembling the tool, you can use it immediately

Order Sample

ERGW5-2-SL32

ERGW :Tool body
5 : Ø rollers
2 : Process type
SL25 : Shank



Application

Combined skiving-burnishing tool Type WSG was developed for the inner-machining of cylinder tubes or other workpieces with very short processing time. The machining takes place in one step, as the burnishing-skiving head only works in one direction, so that the rolling and burnishing process happens at the same time.

Using a switching system –featured by the machine, tools can move back in fast movement without spoiling the already rolled surface.

Tools are adjustable with a precise repeatable diameter setting.

Examples for application

- Seamless steel tubes made of material ST 52 or ST 35
- Welded precision tube (ST 37)
- Seamless Steel tubes cold drawn or cold welding
- Dom tubes of material
- DIN SHE 1020
- DIN SHE 1026 and US Material

Tool Type	Diameter range Ø	BTA Boring bar Ø	Skiving knives		Roller head		
			Range	Cross-section	Range	Number of rollers	Roller Øg x h
WSG 1	38,00 - 49,99	33	Nominal Ø ± 0,05	20 x 14	-0,05/+0,2	8	6 x 20
WSG 2	50,00 - 64,99	43		18 x 18			
WSG 3	65,00 - 84,99	56		24 x 24	-0,05/+0,3	12	8 x 25
WSG 4	85,00 - 104,99	68					
WSG 5	105,00 - 139,99	82					
WSG 6	140,00 - 169,99	118		34 x 34	-0,05/+0,5	16	14 x 35
WSG 7	170,00 - 199,99	142					
WSG 8	200,00 - 249,99	178					
WSG 9	250,00 - 300,99	214		40 x 40	20		



some examples of possible workpieces

- shock absorber shaft
- gudgeon pin
- pumpshafts
- electric toothbrushes
- optical drum for copier

Furter details

- WAM is generally used to burnish pins, shafts, shock absorber mandrel, pump mandrel, motor mandrel etc. In addition it is also ideal to burnish rapidly the workpiece and the surfaces of the parts. It is possible to process any kind of metallic material by using WAM. It is capable to process all workpieces with the tolerance up to H8 at sole adjustment.
- All metallic materials featuring the hardness up to max. 42 - 45 HRC can be burnished.
- Super finish surfaces up to Ra=0,02 µm can be obtained.
- WAM Model Burnishing Machines enables an automatic infeed. The workpiece is taken then removed after burnishing process completed i.e. it features full automatic specification. It is capable of achieving a rapid production thanks to the automatic feeding system (self-feeding). It can be integrated in any production line for every kind of serial production

Design and function

- WAM Roller Burnishing Machines are capable to process any kind of diameter between Ø3-Ø40 mm by changing the roller heads. The relevant roller head is used for each nominal diameter. The head is selected to install in machine depending on the process type.
- Each head features the adjustment capacity of 0,5 mm. The burnishing head can be adjusted in nominal diameter with the tolerance between -0,40 and +0,10mm

Machining attributes	MODELS					
	WAM1 NC HORIZONTAL	WAM1 MHP HORIZONTAL	WAM1 MHV HORZ.-VERT	WAM2 NC HORIZONTAL	WAM2 MHP HORIZONTAL	WAM2 MHV HORZ.-VERT
Diameter-region (mm)	Ø3 - Ø 20	Ø3 - Ø 20	Ø3 - Ø 20	Ø21 - Ø 40	Ø21 - Ø 40	Ø21 - Ø 40
Workpiece length	unlimited	unlimited	unlimited	unlimited	unlimited	unlimited
max. Infeed (mm/U)	2	2	2	2	2	2
Min. surface roughness (Ra, µm)	0.02	0.02	0.02	0.02	0.02	0.02
Machining possibilities for plain and stepped shaft	x	x	x	x	x	x
Capacity range						
Engine capacity	1.5 kW	1.5 kW	1.5 kW	2.2 kW	2.2 kW	2.2 kW
Electric plug	380 V	380 V	380 V	380 V	380 V	380 V
Speed control	1.5 kW	1.5 kW	1.5 kW	2.2 kW	2.2 kW	2.2 kW
Oilpump	90 W	90 W	-	90 W	90 W	-
Instruction control						
Lighting	x	x	x	x	x	x
Dischargesystem for transfixed workpiece	x	x	x	x	x	x
Emergencybutton	x	x	x	x	x	x
Control desk	x	x	x	x	x	x
Speed control	x	x	x	x	x	x
Automatic emergency button	x	x	x	x	x	x
Electric speed indicator	x	x	x	x	x	x
Lubrication	x	x	-	x	x	-
Alarm device for low oil level	x	-	-	x	-	-
Computer supporting operation with coloured LCD-Display	x	-	-	x	-	-
Daily workpiece indicator	x	-	-	x	-	-
Total quantity indicator	x	-	-	x	-	-
Machining time indicator (by request)	x	-	-	x	-	-
Memory after machining	x	-	-	x	-	-
Programprintout	x	-	-	x	-	-
Complete rotation adjustment by keyboard	x	-	-	x	-	-
Additional module	x	-	-	x	-	-
Integration of an automatic loading system	x	x	x	x	x	x
Handling and programming of the automatic loading system by keyboard	x	-	-	x	-	-
Changeable Components						
Rollerhead	x	x	x	x	x	x
Input-Output concentrically components	x	x	x	x	x	x
Cooling Tank						
Lubrication	x	x	-	x	x	-
oil level indicator	x	x	-	x	x	-
filter	x	x	-	x	x	-
capacity (liter)	30	30	-	30	30	-
Dimension						
Breadth (mm)	780	780	500	780	780	500
Length (mm)	1400	1400	1000	1400	1400	900
Height (mm)	1200	1200	500	1200	1200	500

1) Sender's Information (*Required Fields)

Company Name *
 Date
 Address *

 P.O. Box
 City *
 Country *
 Phone *
 Fax
 E-Mail *
 Contact Person *
 Title

2) WorkPiece

Name of workpiece
 Material
 Hardness (HRC,HRB,HB,Hs,Hv,Other):
 Tensile strength (N/mm_)

3) Surface to be burnished: Place a cross in the following boxes

Through holes Blind holes Plain shafts Stepped shafts
 Workpiece diameter ØD Roller Length

Male Taper Female Taper
 Workpiece Diameter(Ø) Ød Angle

Flat Surface
 Workpiece Diameter ØD Ød

Other Dimensions

NOT

4) Burnishing specification

Workpiece	Before Process	after process
Surface roughness(Rz,Ra,Rmax, other)
Size Tolerance (mm)
Roundness (mm)
Hardness
Others

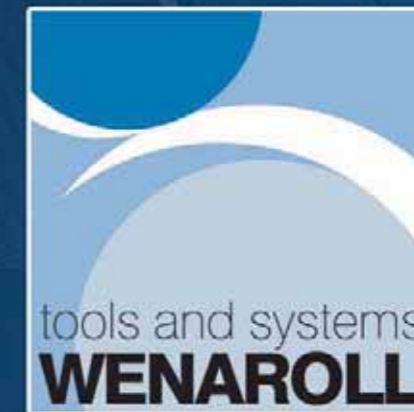
5) Purpose of burnishing: Place a cross in the following boxes

Improvement of Surface Roughness Improvement Of Accuracy Improvement of Roundness
 Increase Of Surface Hardness Other.....

6) What type of machine to be used

7) Tool shank MK
 ZS ZU Non-standard (please provide details)

8) sketch of workpiece drawing No.
 (please attach drawing and underline the burnishing points)



ROLLER BURNISHING TOOLS and MACHINES

Your Representative

Summary



Roller Burnishing Technology

- Roller Burnishing
- Surface Roughness
- Advantages of Roller Burnishing
- Roller Burnishing Process
- Machine conditions
- Surface Roughness

page 2 - 3

Internal Burnishing Tool

- Type WIW Ø5-Ø350 mm description
- Type WIW Ø005 - Ø014 mm
- Type WIW Ø015 - Ø021 mm
- Type WIW Ø022 - Ø031 mm
- Type WIW Ø032 - Ø034 mm
- Type WIW Ø035 - Ø049 mm
- Type WIW Ø050 - Ø080 mm
- Type WIW Ø081 - Ø160 mm
- Type WIW Ø161 - Ø350 mm
- Type WIW Ø5 - Ø350 mm order requirements



page 4 - 14



External Burnishing Tool

- Type WAW Ø003 - Ø110 mm description
- Type WAW Ø003 - Ø014 mm
- Type WAW Ø015 - Ø024 mm
- Type WAW Ø025 - Ø049 mm
- Type WAW Ø050 - Ø110 mm
- Type WAW Ø003 - Ø110 mm order requirements

page 15 - 21

Male-Female Taper and Flat Surface Burnishing Tools

- Type WIK, WAK, WPF description
- Type WIK, WAK, WPF order requirements



page 22 - 23



Single Roller Burnishing Tool

- Type ERGW5-1
- Type ERGW5-2
- Type ERGW8-1
- Type ERGW8-2
- Type ERGW14-1
- Type ERGW14-2

page 24

Combined Skiving Burnishing Tools

- Type WSG



page 25



Roller Burnishing Machines

- Type WAM 1 NC between Ø03 - 20
- Type WAM 1 MHP between Ø03 - 20
- Type WAM 1 MHV between Ø03 - 20
- Type WAM 2 NC between Ø21 - 40
- Type WAM 2 MHP between Ø21 - 40
- Type WAM 2 NC between Ø21 - 40

page 26 - 27



ABOUT US

WENAROLL GMBH has experience from 1980. The company increases the product line by using the technology that has been developed continuously due to increased market demands and needs as well as the contribution of experienced staff and can therefore offer the newest products in world's markets. It enables many companies to make significant savings in time and money with improved quality by offering the roller burnishing technology that has been designed by the company.

As the result of intensive studies carried over many years WENAROLL became expert in the field of roller burnishing and developed roller burnishing technology. Now we would like to draw your attention to the basic tools and systems using this technology



Roller Burnishing Process

The roller burnishing is a method to make the workpiece, after pre-machining, smooth and wear resistant. It is possible to process any kind of metallic material with 1400 N/mm² tensile strength by using this technology.



The roller burnishing is done by pressure with specified rotation and speed on the surface of the workpiece. The uneven parts of the pre-machined work piece are pressed and the gaps in bottom are filled up simultaneously. Plastic deformation occurs, which is repeated as long as this process continues (fig. 1) and the smooth and bright surfaces are obtained. The progressing speed of the roller and the pressure to be applied on the workpiece are adjusted according to the type of material and surface roughness in question. The roughness values decrease in parallel to the decreased progressing speed by increasing the pressure. Similarly when the pressure is decreasing and the speed of progressing increases, the surface roughness values will increase.

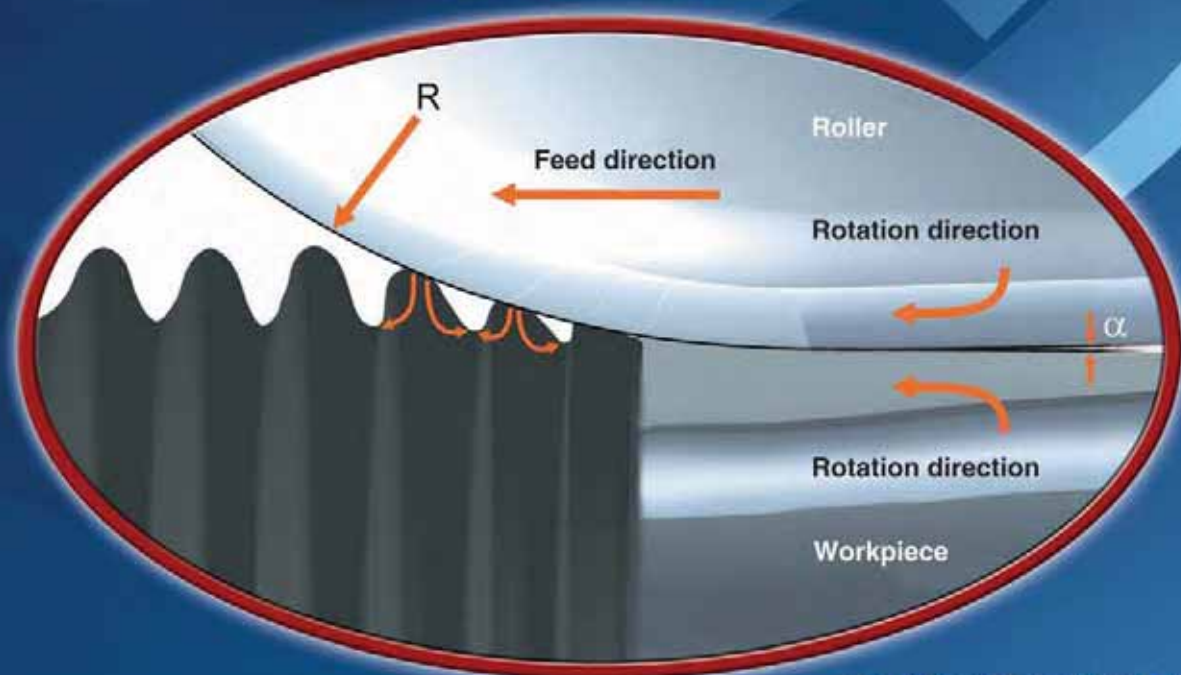


Fig. 1 Roller Burnishing Process

Advantages of roller burnishing

- The surface in quality of $RZ < 1 \mu m$
- It is possible to obtain the desired size easily and rapidly
- The process is completed in one stage
- Long service life of tool and workpiece
- The processed surface became stronger and more brilliant
- It saves time, money and energy
- No swarf or other wastes occur. No noise and damage to the environment
- No need for any additional equipment thanks to simple and practical connection specification
- It can be used with all Universal and CNC machines
- No loss of size due to abrasion during the long life of a tool
- Reduced lubrication and cooling

Pre-machining of work piece

Tools are able to burnish all kinds of metallic material up to the hardness of 45 C degree Rockwell. The burnishing tools do not break off pieces but roll the roughness on the surface into each other. Therefore the roller burnishing tolerance \varnothing (mm) becomes equal to roughness depth (Rz). The roughness depth in pre-machining can be selected between $Rz=5 \mu m$ and $Rz=50 \mu m$ depending on the material type.

The most appropriate pre-machining lathe formula to be used to obtain the most appropriate surface for the process of roller burnishing is as given as follows: Feed rate per revolution (mm/rev.) = $0.5 \times$ cutter radius (mm)

After pre-machining the workpiece becomes ready for the roller burnishing process. The surface roughness can be removed with such roller burnishing processes. (Fig.2)

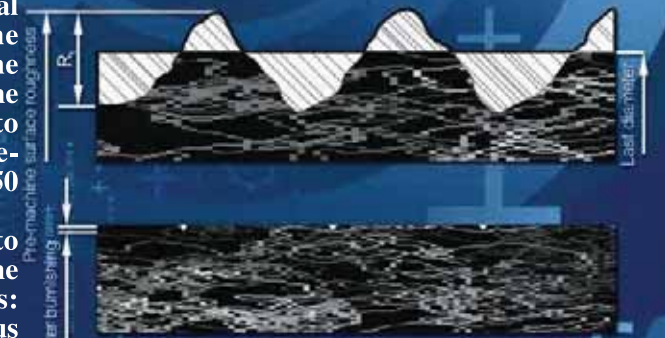


Fig.2 - Surface profiles after pre-machining and roller burnishing

Available machines

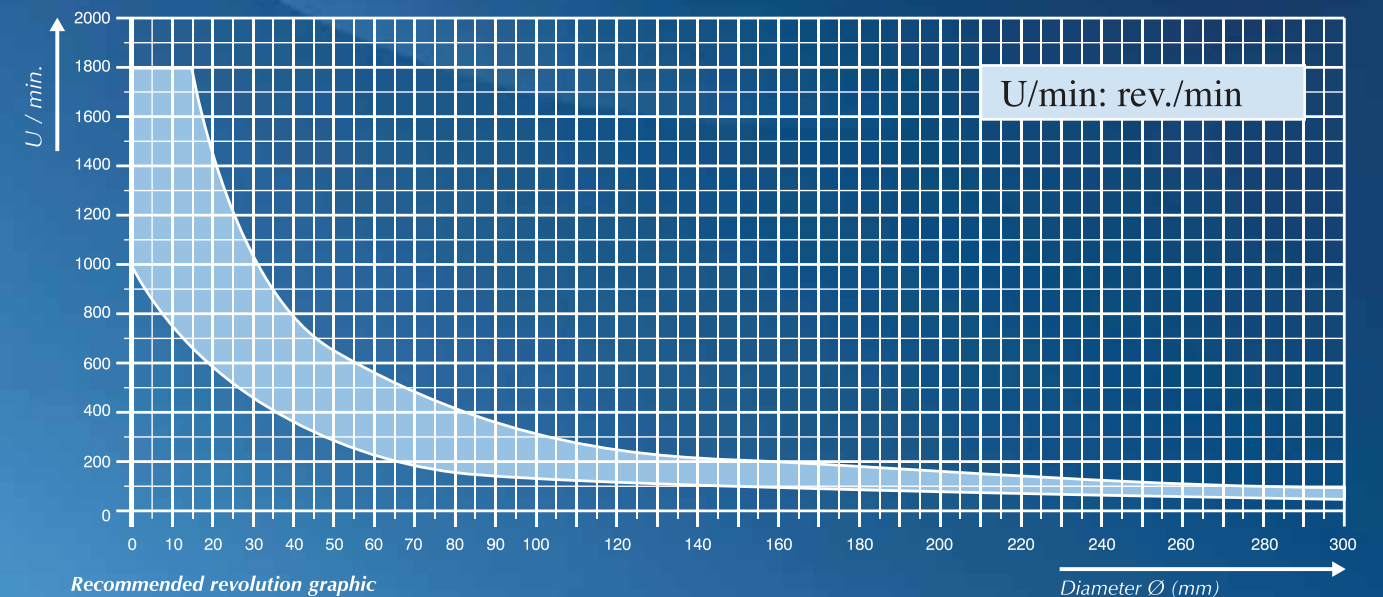
WENAROLL roller burnishing tools can be used on drilling machines, universal and CNC machines, machining centers, transfer lines and special machines.



Fig.3

Available surfaces

Such process method can be used on the surface in cylindrical holes or cylindrical outer surfaces, interior-outer conic and flat surfaces



Recommended revolution graphic

Internal Roller Burnishing Tool

Type WIW Ø5 - Ø350 mm explanations

Through hole Ø5 - Ø350 mm
blind hole Ø6 - Ø350 mm

Application

WENAROLL WIW type roller burnishing tools for cylindrical holes can work in H8 tolerances with a single adjustment. These tools are capable of processing all kinds of metallic materials with 1400 N/mm² tensile strength and hardness up to max. 45 HRC. Tools work by turning clockwise direction. Either tool or workpiece may turn, it doesn't affect the result of the burnishing. These tools can be used on universal or CNC machines, machining centers, drilling machines or other turning machines. The tools are adjusted. For Ø5 - Ø80 mm tools, adjustment precision is 0,0025 mm. For tools larger than Ø80 mm the tool adjustment precision is 0,005 mm. There are two types of WENAROLL WIW type roller burnishing tools, for through holes and blind holes. For through holes, burnishing tools process the holes that have an open end. For blind holes, burnishing tools process stepped or fully closed holes up to deepest point. For through holes burnishing tools can be used automatically or machine feeding but for blind holes only machine feeding is suitable. The tool or the workpiece can be turned with speed of 250 m/min. Machine feeding speed is possible from 0,01 mm/rev. to 0,3 mm/rev. per roller.

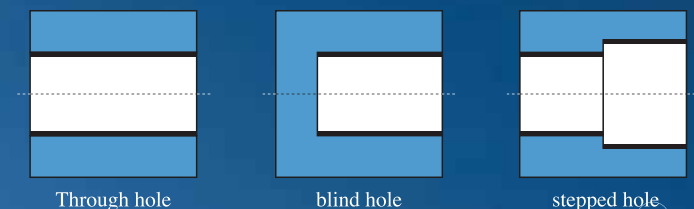


Tool Structure WENAROLL WIW type roller burnishing tools consist of a body and a rolling head. The tool body has a precious an adjustment mechanism. Cage, cone and rollers are the parts of the rolling head. The rolling heads fitting in to the same body can be changed. The tool shank may be Morse Taper or cylindrical. The tools bigger than Ø34 have unlimited rolling length, but smaller than Ø35 there are only standard rolling lengths exist (see table below). For special orders, longer rolling length tools can be produced

Some examples of work pieces that can be processed with the roller burnishing technology.

- Valve seats of fuel pumps
- Internal surfaces of bushings for connection rods
- Internal surfaces of gun barrels
- Holes for inserting bearings
- External surfaces of shafts for torque converters
- Internal surfaces of brass liners for cast-iron valves
- Internal of hydraulic oil brake cylinders
- Spherical seat surfaces of oil joints
- External surface tapers for joints
- Taper seat surfaces and internal surfaces of valve bodies
- Gas cocks, piston housing, piston, clutch parts,
- Master cylinder, Motor stator, Cap body, Carburetor, etc.

Tool Structure WENAROLL WIW type roller burnishing tools consist of a body and a rolling head. The tool body has a precise adjustment mechanism. Cage, cone and rollers are the parts of the rolling head. The rolling heads fitting in to the same body can be changed. The tool shank may be Morse Taper or cylindrical. The tools bigger than Ø34 have unlimited rolling length, but smaller than Ø35 there are only standard rolling lengths exist (see table beside). For special orders, longer rolling length tools can be produced



Tool body	Diameter range ØD	Tool shank		e	f	g	h	Remarks
		Morse taper	Cylindrical (Øk x m)					
WIW 1.1	005-014	MK2	Ø20 h6 x 50	78,5	146	34	1,5	Standard rolling length 50 mm. Rolling length can be extended upon special order.
WIW 1.2	015-021				2			
	022-034				2,5			
WIW 1.3	035-049				3			
WIW 2	050-080	MK3	Ø25 h6 x 56	98	177,5	48	3,5	Unlimited rolling length.
WIW 3	081-160	MK4	Ø32 h6 x 60	123	195	62	4	
WIW 4	161-350	MK5	Ø40 h6 x 80	155,5	272,5	89	4,5	

All dimensions in mm.

Type WIW for cylindrical holes

Through hole between Ø5 – Ø14mm Blind hole between Ø6- Ø14mm

Type WIW for cylindrical holes

Through holes between Ø15-Ø21mm Blind holes between Ø15 -21mm



1. Cone
2. Roller
3. Cage
4. Housing nut
5. Thrust ring
6. Spring
7. Thrust ring
8. Ball bearing
9. Housing
10. Adjustment gear
11. Pin
12. Adjustmentlock
13. Shank



1. Cone
2. Roller
3. Cage
4. Housing nut
5. Thrust ring
6. Spring
7. Thrust ring
8. Ball bearing
9. Housing
10. Adjustment gear
11. Pin
12. Adjustmentlock
13. Shank

Order sample						Setting range			Roller				
Tool body	Diameter	Process type			Rolling length	Tool Shank		Through			Blind	Quantity	
		Through EV	MV	Blind MV		Morse taper	Cylindrical	EV	MV	MV			Through
WIW 1.1	005,00	1	2	3	50	MK2	ZS 20 Ø20 h6 x 50	-0,05 +0,20	-0,05 +0,20	-0,05 +0,20	500115	-	3
	006,00										500100	500308	
	007,00										500108	500300	
	008,00										4	500102	500301
	009,00												
	010,00												
	011,00												
012,00	-0,10 +0,40	-0,10 +0,40	-0,05 +0,40										
013,00													
014,00													

Order sample						Setting range			Roller				
Tool body	Diameter	Process type			Rolling length	Tool Shank		Through			Blind	Quantity	
		Through EV	MV	Blind MV		Morse taper	Cylindrical	EV	MV	MV			Through
WIW 1.1	006,00	1	2	3	100	MK2	ZS 20 Ø20 h6 x 50	-0,05 +0,20	-0,05 +0,20	-0,05 +0,20	500100	500308	3
	007,00										500108	500300	
	008,00										4	500102	
	009,00												
	010,00												
	011,00												
	012,00										-0,10 +0,40	-0,10 +0,40	-0,05 +0,40
013,00													
014,00													

All dimensions in mm. EV: Self feeding MV: Machine feeding

Order sample						Setting range			Roller				
Tool body	Diameter	Process type			Rolling length	Tool Shank		Through			Blind	Quantity	
		Through EV	MV	Blind MV		Morse taper	Cylindrical	EV	MV	MV			Through
WIW 1.2	015,00	1	2	3	50	MK2	ZS 20 Ø20 h6 x 50	-0,10 +0,90	-0,10 +0,40	-0,05 +0,40	500111	500310	5
	016,00										500112	500311	
	017,00										4	500102	
	018,00												
	019,00												
	020,00												
	021,00												

Order sample						Setting range			Roller				
Tool body	Diameter	Process type			Rolling length	Tool Shank		Through			Blind	Quantity	
		Through EV	MV	Blind MV		Morse taper	Cylindrical	EV	MV	MV			Through
WIW 1.2	015,00	1	2	3	100	MK2	ZS 20 Ø20 h6 x 50	-0,10 +0,90	-0,10 +0,40	-0,05 +0,40	500111	500310	5
	016,00										500112	500311	
	017,00										4	500102	
	018,00												
	019,00												
	020,00												
	021,00												

All dimensions in mm. EV: Self feeding MV: Machine feeding

Type WIW for cylindrical holes
Through holes between Ø22-Ø31mm Blind holes between Ø22 -31mm



1. Cone
2. Roller
3. Cage
4. Housing nut
5. Thrust ring
6. Spring
7. Thrust ring
8. Ball bearing
9. Housing
10. Adjustment gear
11. Pin
12. Adjustment not lock
13. Shank
14. Screw
15. Cage Sleeve

Type WIW for cylindrical holes
Through holes between Ø32-Ø34mm Blind holes between Ø32 -34mm



1. Cone
2. Roller
3. Cage
4. Housing nut
5. Thrust ring
6. Spring
7. Thrust ring
8. Ball bearing
9. Housing
10. Adjustment gear
11. Pin
12. Adjustment lock
13. Shank
14. Screw
15. Cage Sleeve
16. Locking ring

Tool body	Diameter	Order sample				Setting range			Roller		Quantity		
		Process type		Rolling length	Tool Shank		Through	Blind	Roller number				
		Through EV	Blind MV		Morse taper	Cylindrical			Through	Blind			
WIW 1.2	022,00	1	2	3	50	MK2	ZS 20 Ø20 h6 x 50	-0,10 +0,90	-0,10 +0,40	-0,05 +0,40	500112	500311	5
	023,00										500113	500312	
	024,00												
	025,00												
	026,00												
	027,00												
	028,00												
	029,00												
	030,00												
031,00													

Tool body	Diameter	Order sample				Setting range			Roller		Quantity		
		Process type		Rolling length	Tool Shank		Through	Blind	Roller number				
		Through EV	Blind MV		Morse taper	Cylindrical			Through	Blind			
WIW 1.2	022,00	1	2	3	100	MK2	ZS 20 Ø20 h6 x 50	-0,10 +0,90	-0,10 +0,40	-0,05 +0,40	500112	500311	5
	023,00										500113	500312	
	024,00												
	025,00												
	026,00												
	027,00												
	028,00												
	029,00												
	030,00												
031,00													

All dimensions in mm. EV: Self feeding MV: Machine feeding

Tool body	Diameter	Order sample				Setting range			Roller		Quantity		
		Process type		Rolling length	Tool Shank		Through	Blind	Roller number				
		Through EV	Blind MV		Morse taper	Cylindrical			Through	Blind			
WIW 1.3	032,00	1	2	3	50	MK2	ZS 20 Ø20 h6 x 50	-0,10 +0,90	-0,10 +0,40	-0,05 +0,40	500109	500307	5
	033,00												
	034,00												

Tool body	Diameter	Order sample				Setting range			Roller		Quantity		
		Process type		Rolling length	Tool Shank		Through	Blind	Roller number				
		Through EV	Blind MV		Morse taper	Cylindrical			Through	Blind			
WIW 1.3	032,00	1	2	3	100	MK2	ZS 20 Ø20 h6 x 50	-0,10 +0,90	-0,10 +0,40	-0,05 +0,40	500109	500307	5
	033,00												
	034,00												

All dimensions in mm. EV: Self feeding MV: Machine feeding

Type WIW for cylindrical holes

Through holes between Ø35-Ø49mm Blind holes between Ø35 -49mm



1. Cone
2. Roller
3. Cage
4. Housing nut
5. Thrust ring
6. Spring
7. Thrust ring
8. Ball bearing
9. Housing
10. Adjustment gear
11. Pin
12. Adjustment lock
13. Shank
14. Screw
15. Cage Sleeve
16. Locking ring

Type WIW for cylindrical holes

Through holes between Ø50-Ø80mm Blind holes between Ø50 -80mm



1. Cone
2. Roller
3. Cage
4. Housing nut
5. Thrust ring
6. Spring
7. Thrust ring
8. Ball bearing
9. Housing
10. Adjustment gear
11. Pin
12. Adjustment lock
13. Shank
14. Screw
15. Cage Sleeve
16. Locking ring
17. Conical ring
18. Screw
19. Wedge

Tool body	Diameter	Process type			Rolling length	Tool Shank			Setting range			Roller		Quantity
		Through	Blind	Blind		Morse taper	Cylindrical	Through		Blind	Roller number			
								EV	MV		EV	MV	Through	
WIW 1.3	035,00	1	2	3	UNLIMITED	MK2	ZS 20 Ø20 h6 x 50	-0,10 +0,90	-0,10 +0,40	-0,05 +0,40	500109	500307	6	
	036,00													
	037,00													
	038,00													
	039,00													
	040,00													
	041,00													
	042,00													
	043,00													
	044,00													
	045,00													
046,00														
047,00														
048,00														
049,00														

All dimensions in mm. EV: Self feeding MV: Machine feeding

Tool body	Diameter	Process type			Rolling length	Tool Shank		Setting range			Roller		Quantity
		Through	Blind	Blind		Morse taper	Cylindrical	Through		Blind	Roller number		
								EV	MV		EV	MV	
WIW2	050,00	1	2	3	UNLIMITED	MK3	ZS 25 Ø25 h6 x 56	-0,10 +0,90	-0,10 +0,40	-0,05 +0,40	500109	500307	8
	055,00												
	060,00												
	065,00												
	070,00												
	075,00												
	080,00												

All dimensions in mm. EV: Self feeding MV: Machine feeding

Type WIW for cylindrical holes

Through holes between Ø81-Ø160mm Blind holes between Ø81- 160mm

Type WIW for cylindrical holes

Through holes between Ø161-Ø350mm Blind holes between Ø161- 350mm



1. Cone
2. Roller
3. Cage
4. Housing nut
5. Thrust ring
6. Spring
7. Thrust ring
8. Ball bearing
9. Housing
10. Adjustment gear
11. Pin
12. Adjustment lock
13. Shank
14. Screw
15. Cage Sleeve
16. Locking ring
17. Conical ring
18. Screw
19. Wedge



1. Cone
2. Roller
3. Cage
4. Housing nut
5. Thrust ring
6. Spring
7. Thrust ring
8. Ball bearing
9. Housing
10. Adjustment gear
11. Pin
12. Adjustment lock
13. Shank
14. Screw
15. Cage Sleeve
16. Locking ring
17. Conical ring
18. Screw
19. Wedge

STANDARD TYPE

Tool body	Diameter	Order sample			Rolling length	Tool Shank			Setting range			Roller		Quantity
		Through EV	Blind MV	Blind MV		Morse taper	Cylindrical	Through EV	Blind MV	Blind MV	Through	Blind		
													Through	
WIW 3	081,00	1	2	3	UNLIMITED	MK4	ZS 32 Ø32 h6 x 60	-0,10 +0,90	-0,10 +0,40	-0,05 +0,40	500107	500306	12	
	090,00													
	100,00													
	110,00													
	120,00													
	121,00													
	130,00													
	140,00													
	150,00													
	151,00													
	160,00													

All dimensions in mm. EV: Self feeding MV: Machine feeding

STANDARD TYPE

Tool body	Diameter	Order sample			Rolling length	Tool Shank		Setting range			Roller		Quantity
		Through EV	Blind MV	Blind MV		Morse taper	Cylindrical	Through EV	Blind MV	Blind MV	Through	Blind	
WIW 4	161,00	1	2	3	UNLIMITED	MK5	ZS 40 Ø40 h6 x 80	-0,10 +0,90	-0,10 +0,40	-0,05 +0,40	500107	500306	12
	170,00												
	171,00												
	200,00												
	201,00												
	230,00												
	231,00												
	260,00												
	261,00												
	280,00												
	281,00												
	310,00												
	311,00												
	330,00												
	331,00												
	350,00												

All dimensions in mm. EV: Self feeding MV: Machine feeding

Order Requirements

WENAROLL WIW type burnishing tools can process the medium diameters thanks to the variable specification. As an example, WIW1.2-020.00-1-50-ZS20 model burnishing tool having a nominal size of Ø25,00 mm is capable to process all sizes between Ø 24,90 mm and Ø25,90 mm. WENAROLL WIW type tools are produced in standard diameters as well as special diameters and sizes upon request. In addition, the tools with the special rolling length can also be produced.

Tool Body

Select the tool body number according to diameter.

Processing Diameter

Define the diameter accurately which you will process (eg.15.87 ...).



Process Type

It is selected according to machine and workpiece.
1: Automatic feeding for through holes. (Not self feeding)
2: Machine feeding for through holes. (Not self feeding)
3: Machine feeding for blind holes

Standard Rolling Length

(to be specified for diameter 5 to 35 only)
It doesn't need to be stated for bigger than Ø35 mm diameter because they have unlimited rolling length but it must be stated smaller than Ø35 mm diameter. Besides standard models, rolling lengths can be as 100, 150, 200, 250, 300 mm. The other demands of these rolling lengths will be considered specifically.

Tool Shank

Depending on your preference:
MK: Morse Taper Shank
ZS: Cylindrical Shank.

Application

WENAROLL WAW type roller burnishing tools for cylindrical shafts can work in H8 tolerances with a single adjustment. These tools are capable of processing all kinds of metallic materials with 1400 N/mm² tensile strength and hardness up to max. 45 HRC. Tools work by turning clockwise direction. Either tool or work piece may turn, it doesn't affect the result of the burnishing. These tools can be used on universal or CNC machines, machining centers, drilling machines or other turning machines. The tools are adjusted. The adjustment capacity is 0.5 mm and the tool adjustment precision is 0.005 mm.

There are two types of WENAROLL WAW type roller burnishing tools, for plain shafts and stepped shafts. For plain shafts, burnishing tools process the surface of shafts that have a fixed diameter. For stepped shafts, burnishing tools process stepped shafts. For plain shafts burnishing tools can be used automatically or machine feeding but for stepped shafts only machine feeding is suitable.

The tool or the workpiece can be turned with speed of 250 U/min. Machine feeding speed is possible from 0,1 mm/rev. to 0,3 mm/rev. per roller.



Order Sample
WIW1.2-025.00-1-100-ZS20
WIW1.2 : Tool body
025,00 : Diameter
1 : Process type
100 : Rolling length
ZS20 : Shank

Tool body	Diameter range ØD	Tool Shank Morse taper or cylindrical shank			f	g	h	s	e
		For limited rolling length		For unlimited rolling length					
		MK	ZS (Øk x m)	ZU (Øt x i x Øp)					
WAW 1	03-14	MK2	Ø 20 h6 x 50	Ø 25 h6 x 60 x Ø 15	min 95 - max 105	54	2,0	44	78,5
WAW 2	15-24	MK3	Ø 25 h6 x 56	Ø 40 h6 x 70 x Ø 26	min 100 - max 110	74	2,5	62	98
WAW 3	25-49	MK4	Ø 40 h6 x 70	Ø 80 h6 x 90 x Ø 50	min 119 - max 129	106	3,0	94	123
WAW 4	50-85			Ø 110 h6 x 110 x Ø 87	min 128 - max 138	149	3,5	138	123
WAW 5	86-110	MK5	Ø 50 h6 x 80	Ø 150 h6 x 120 x Ø 112	min 141 - max 151	193	3,5	177	155,5

All dimensions in mm