

# Pneumatic Tools for Professionals: Grinding Spindles and Robot Tools





**BIAX pneumatic tools – only the best is good enough for manufacturing your quality products!**

**BIAX – over 75 years of quality.**

Schmid & Wezel was one of the first companies to concentrate on pneumatic tools and has since gained a reputation for pioneering achievements in this field. For the past 75 years the company has stood for the highest standards of precision and quality, and is renowned as a reliable partner.

**BIAX – partner to industry.**

For companies that design and produce industrial tools, an awareness of what their customers actually want is vital – they have to develop a "feeling" for the market. All BIAX tools are tailored to meeting the needs, requirements and wishes of our partners.

**BIAX – the professionals' brand.**

The superior technology of BIAX products is reflected, among other things, in numerous ingenious details. They include the high-quality materials with which all our products are made. Our tools are also characterized by exceptional workmanship and a guaranteed long service life. To us simply the rules of our business – to you indispensable!

BIAX tools are simply the best to be found anywhere on the market

**Into the future with BIAX.**

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### Basic characteristic curves for a pneumatic motor without a controller:

- M = Torque [Nm]
- Q = Air consumption [l/min]
- P = Power [W]

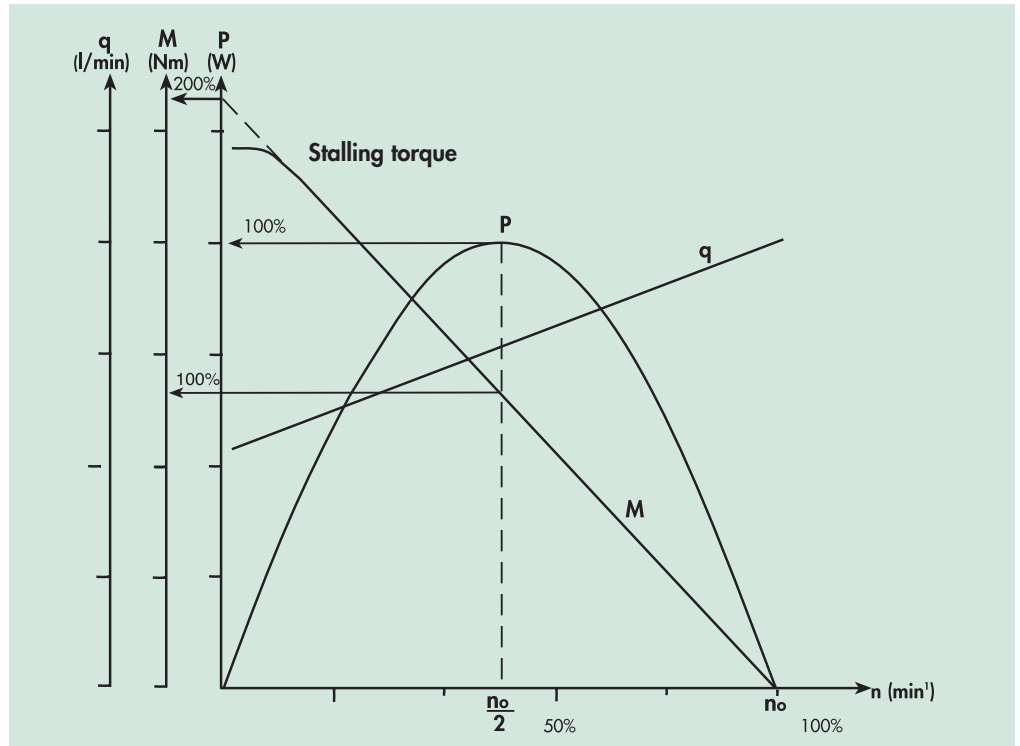
The graph opposite shows the characteristic curves of a fixed-speed pneumatic motor.

Power, torque and air consumption are plotted as a function of speed.

The curve reveals that the power increases as the speed is reduced down to approximately 50% of idling speed before being reduced again as the motor comes to a standstill.

The torque increases continuously up to 100% at 50% of idling speed, reaching 200% when the motor stalls. The power and torque can thus be read off directly at any operating speed.

It should be noted that the stalling torque is approximately 200% and the starting torque only 150% of the rated torque.



### Die Formel hierfür:

$$P [w] = [Nm] \cdot \omega [1/5] \quad \omega = 2 \pi f$$

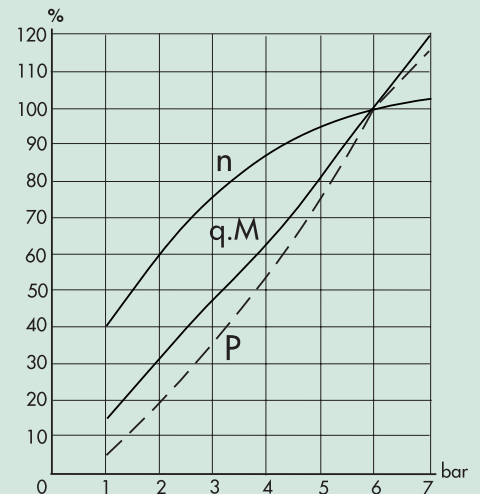
$$P [w] = [Nm] \cdot \frac{\pi \cdot n \cdot [1/m \text{ in}]}{30} \quad \omega = 2 \pi \frac{n}{60}$$

$$\omega = \frac{\pi n}{30}$$

Pneumatic motors from 100 to 600 W available on request.



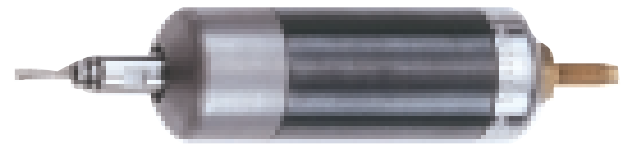
### Characteristic values for deviating pressure



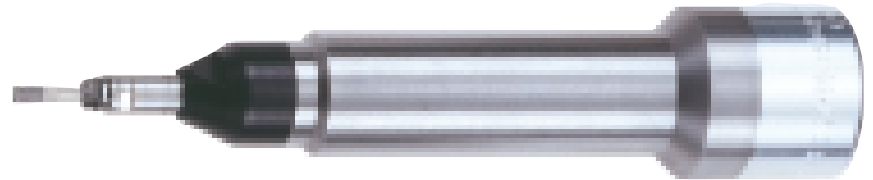
- n = Speed (min)
- q = Air consumption (m/min)
- M = Torque (Nm)
- P = Power (kW)

Please ask for performance curves for individual machines.

# BIAX Pneumatic grinding spindles with oil-free turbine motor



T 29-100



T 27-65

### The main advantages at a glance:

- Oil-free operation means no oil mist on the workpieces.
- High speeds, optimized for each tool, guarantee perfect grinding and milling patterns.
- Very accurate concentric running.
- Low noise level.
- The T 29-100 and T 27-65 turbine grinders are characterized by exceptional wear resistance and a long service life in continuous operation.

### Accessories included:

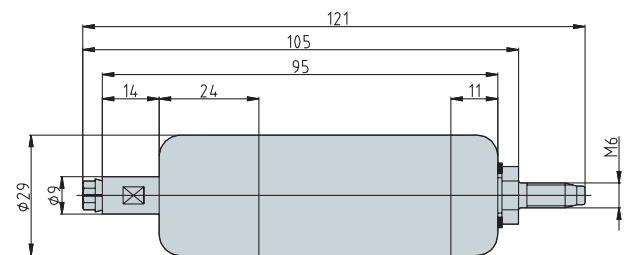
- Wrench set for tool changing

All collets in the **ZG 5 series** are available with diameters from 1 to 3 mm in steps of 0.5 mm; 3/32" and 1/8" sizes can also be supplied. Other special sizes available on request.

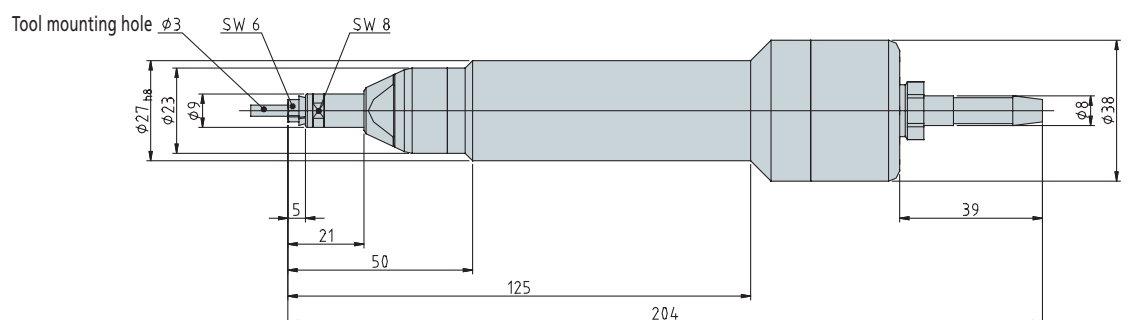
Type designation	T 29-100	T 27-65
Motor type	<b>Oil-free turbine motor</b>	<b>Oil-free turbine motor</b>
Order number	150 420 100	150 420 200
Speed	100,000 min <sup>-1</sup>	65,000
Power	80 Watt	100
Front bearing set	single	single
Collet type	ZG 5/3	2G 5/3
Max. collet diameter	3	3
Max. tool diameter		
Carbide tools	3	6
Profile grinding wheels	5	8
Direction of rotation	clockwise	clockwise
Exhaust air direction	forward	rear
Air consumption under load	180 l/min	180
Noise level	70 dB (A)	70
Weight	290 g	485
Connection thread	R 1/8"	R 1/8"

### Hose unit

Order number	T 29-100	T 27-65
Order number	001 366 537	001 366 502
Hose length	1.5	3
Air hose diameter	4.5	7
Hose unit included	no	no



T 29-100



T 27-65

**BIAX**  
Pneumatic grinding spindles  
with oil-free vane motor



TR 1785



TR 3624

**The main advantages at a glance:**

- Oil-free operation means no oil mist on the workpieces.
- High speeds, optimized for each tool, guarantee perfect grinding and milling patterns.
- Very accurate concentric running.
- Low noise level.
- Due to the vane motor, the lubricant-free drive of these grinding spindles is absolutely unique and patented.

**Accessories included:**

- Wrench set for tool changing

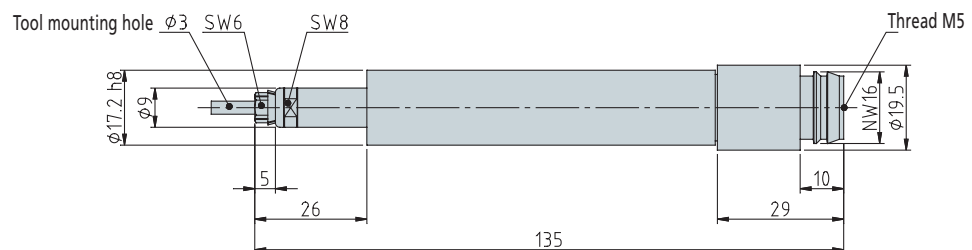
All collets in the **ZG 4 series** are available with diameters from 1 to 6 mm in steps of 0.5 mm; 3/32", 1/8" and 1/4" sizes can also be supplied. Other special sizes available on request.

All collets in the **ZG 7 series** are available with diameters from 1 to 8 mm in steps of 1 mm; 1/8" and 1/4" sizes can also be supplied. Other special sizes available on request.

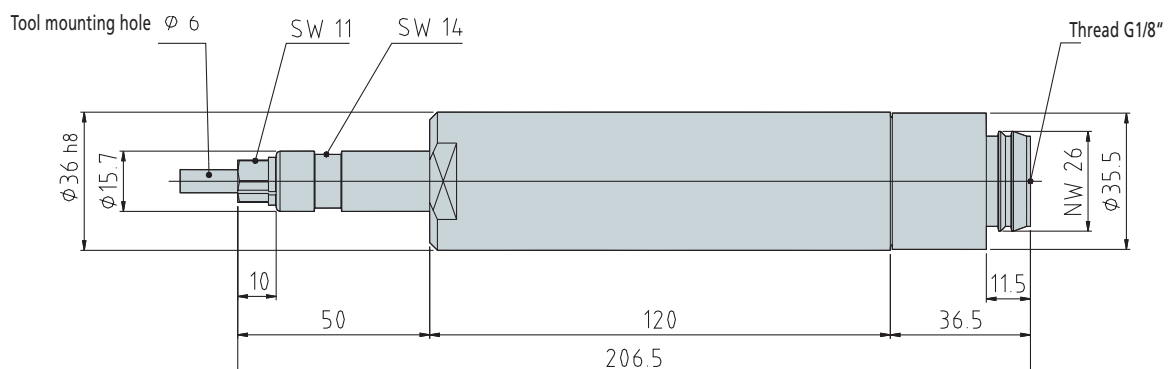
Type designation	TR 1785	TR 3624
Motor type	Oil-free vane motor	Oil-free vane motor
Order number	150 401 400	150 421 500
Speed	85,000 min <sup>-1</sup>	24,000
Power	100 Watt	300
Front bearing set	paired	single
Collet type	ZG 5/3	ZG 7/6
Max. collet diameter	3	8
Max. tool diameter		
Carbide tools	4	12
Profile grinding wheels	6	24
Direction of rotation	clockwise	clockwise
Exhaust air direction	rear	rear
Air consumption under load	170 l/min	600
Noise level	70 dB (A)	74
Weight	130 g	750
Connection thread	M5	R 1/8"

**Hose unit**

Order number	001 366 595	001 366 578
Hose length	1.5	3
Air hose diameter	4.5	7
Hose unit included	yes	no



TR 1785



TR 3624

## BIAX Pneumatic grinding spindles

For installation in transfer lines,  
machine tools and fixtures



RO 1785

### The main advantages at a glance:

- Compact dimensions.
- High-powered vane motors.
- Very accurate concentric running.
- Loadable down to standstill.
- Low pollution due to central exhaust.
- Low noise level.
- Robust, clamping-type steel body.



R 2732\*

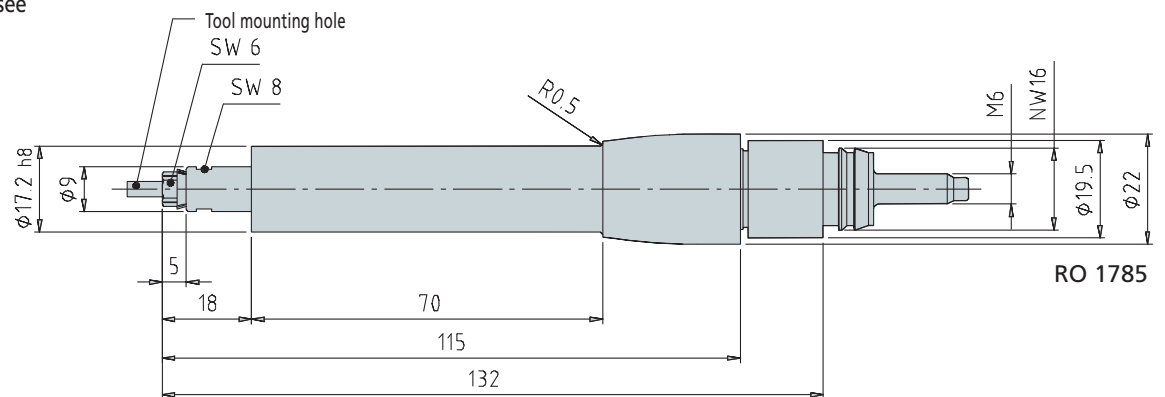


R 3030\*\*/ R 3040

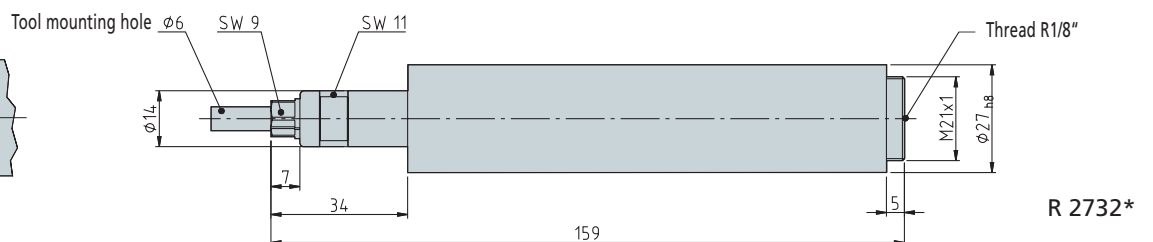
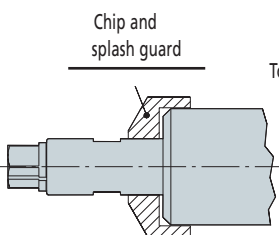
### Accessories included:

- Wrench set for tool changing

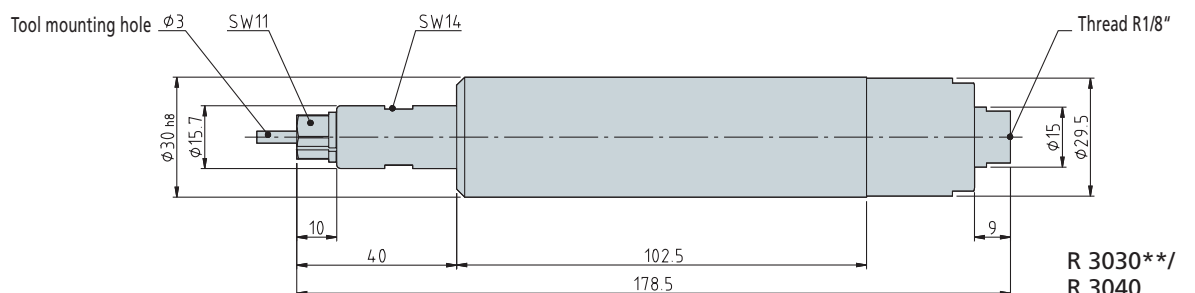
All the grinding spindles shown  
on this page can also be supplied  
with a revolving splash  
and chip guard on the front to  
protect the tool spindle (see  
drawing).



RO 1785



R 2732\*



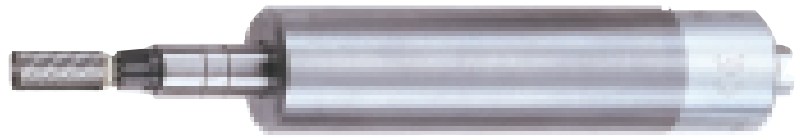
R 3030\*\*/  
R 3040

**For installation in transfer lines,  
machine tools and fixtures**

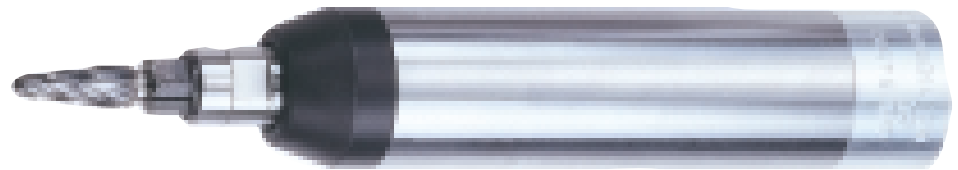
\* The R 2732 and R 3622 grinding spindles can also be supplied in a counterclockwise version. Their specifications are otherwise identical to those of the clockwise spindles.

RL 2732 Order-Nr. 150 412 801  
RL 3622 Order-Nr. 150 425 220

\*\* **With single bearing set**  
RL 3030 Order-Nr. 150 414 100



R 3622\*



R 4112

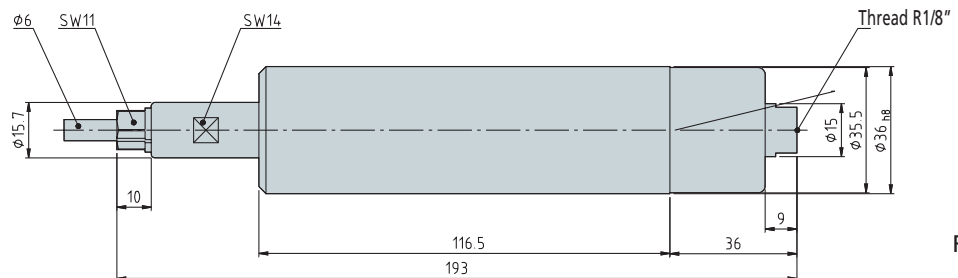
Type designation	RO 1785	R 2732*	R 3040	R 3030**	R 3622*	R 4112
Order number	150 401 202	150 412 702	150 414 120	150 414 110	150 425 210	150 414 520
Speed min <sup>-1</sup>	85,000	32,000	40,000	30,000	22,000	12,000
Power Watt	100	200	240	240	300	650
Front bearing set	paired	paired	paired	paired	paired	single
Collet type mm	ZG 5/3	ZG 4/6	ZG 7/6	ZG 7/6	ZG 7/6	ZG 8/6
Exhaust air direction	rear	rear	rear	rear	rear	rear
Max. collet diameter mm	3	6	8	8	8	10
Max. tool diameter mm						
Carbide tools mm	4	8	8	10	12	15
Profile grinding wheels mm	6	12	10	16	24	24
Direction of rotation	clockwise	clockwise	clockwise	clockwise	clockwise	clockwise
Air consumption under load l/min	180	400	400	400	500	790
Noise level dB (A)	70	75	76	75	73	78
Weight g	200	365	420	420	640	750
Connection thread	M 6 external	R 1/8"	R 1/8"	R 1/8"	R 1/8"	R 1/4"

Please ensure adequate lubrication with a maintenance unit (water separator with oiler and pressure gauge).

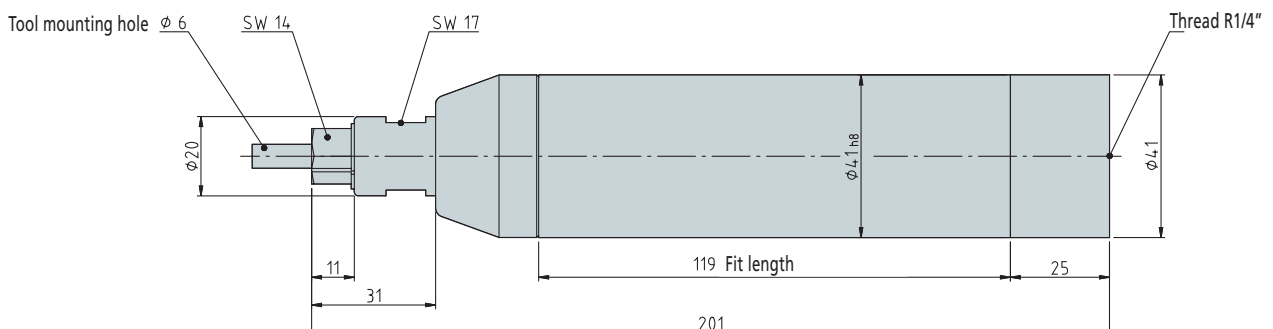
**Hose unit**

Order number	001 366 595	001 366 529	001 366 505	001 366 505	001 366 505	001 366 580
Hose length m	1.5	3	3	3	3	3
Air hose diameter mm	4.5	7	7	7	7	10
Hose unit included	yes	no	no	no	no	no

All collets in the ZG 8 series are available with a diameter of 6 mm, 8 mm or 10 mm. Other special sizes available on request.



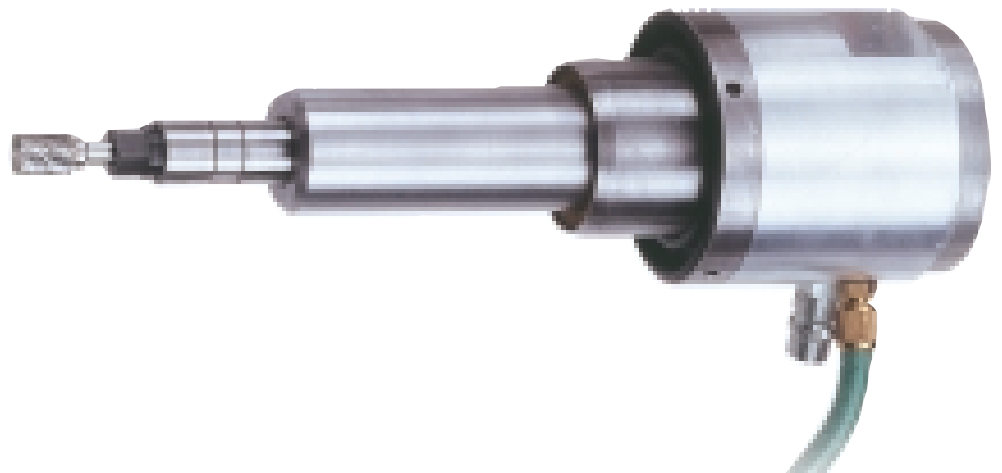
R 3622\*



R 4112

## The main advantages at a glance:

- Deflection force continuously adjustable by means of the compressed air.
- The compressed air applied to the piston ensures that the tool always returns to its starting position at the fixed stop following a deflection.
- Zero hysteresis.



Type designation	RWA 2-40	RWA 2-30	RWA 2-22	RWA 5-12	RWA 2-24
Integrated grinding spindle	R 3040	R 3030	R 3622	R 4112	TR 3624
	Oil-lubricated	Oil-lubricated	Oil-lubricated	Oil-lubricated	Oil-lubricated
Order number	150 830 835	150 830 820	150 830 825	150 830 885	150 830 860
Speed	min 40,000	30,000	22,000	12,000	24,000
Power	Watt 240	240	300	600	300
Tool mounting hole	max. 8	8	8	10	10
Collet type	mm Zg 7/6	Zg 7/6	Zg 7/6	Zg 8/6	Zg 7/6
Direction of rotation	clockwise	clockwise	clockwise	clockwise	clockwise
Exhaust air direction	forwards	forwards	forwards	forwards	forwards
Weight	g 1120	1135	1400	2095	1465
Air inlet	R 1/8"	R 1/8"	R 1/8"	R 1/4"	R 1/8"
Overall L dimension X	mm 193	193	207	263	219
Grinding spindle L dimension S	mm 110	110	124	176	138
Tool mounting hole L dimension W	mm 83	83	83	87	81
Chop spindle L dimension Z	mm 41	41	41	31	51
Spindle diameter dimension D	mm 30	30	36	41	36

### Table for deflection systems: RWA 2-40, RWA 2-30, RWA 2-22, RWA 2-24

Deflection force at measuring point 1 with spindle rotating

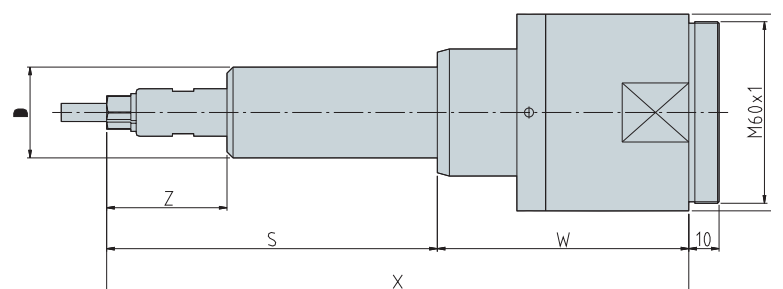
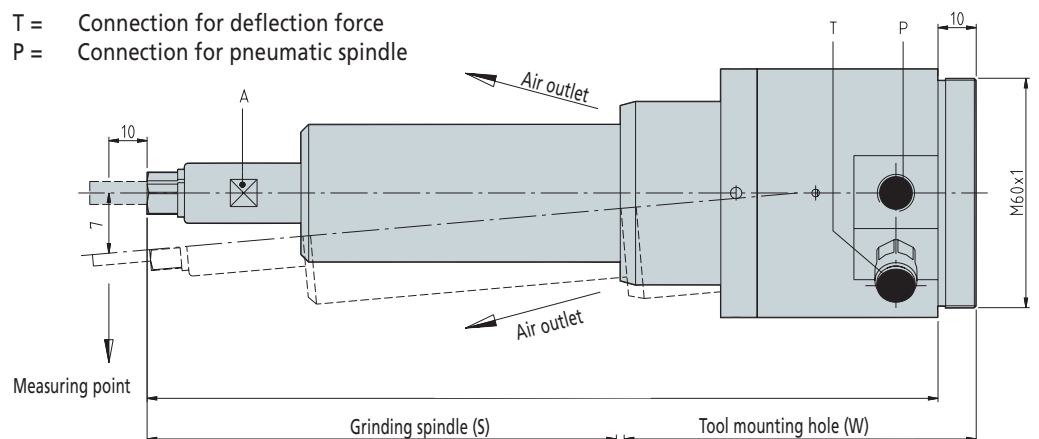
Air pressure	Force
2 bar	12 N
3 bar	20 N
4 bar	24 N
5 bar	28 N
6 bar	32 N

### Table for deflection system: RWA 5-12 with spindle rotating

Deflection force at measuring point 1 with spindle rotating.

Air pressure	Force
2 bar	26 N
3 bar	38 N
4 bar	50 N
5 bar	62 N
6 bar	70 N

T = Connection for deflection force  
P = Connection for pneumatic spindle



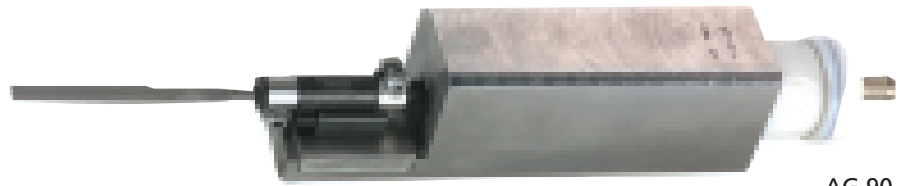


## Oscillating drives

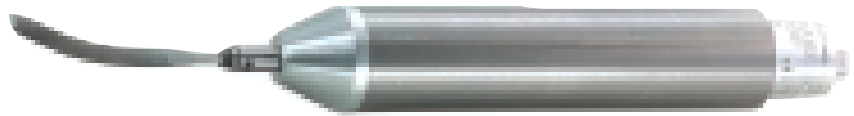
BLAX oscillating drives are used, among other things:

- In plotters to cut cardboard, polystyrene, etc.
- To deburr parts when the workpiece is guided to the robot.

A straight-line pneumatic tool in a robot version is also available: the FR 8-2 filing tool (see page 19 of the BLAX Pneumatic Tools catalog for details).



AG 90

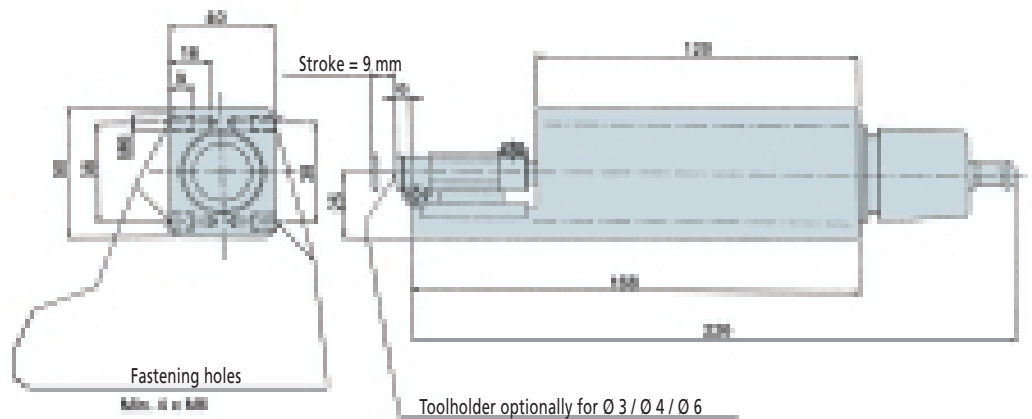


F 5-4 R  
F 5-4 R SA

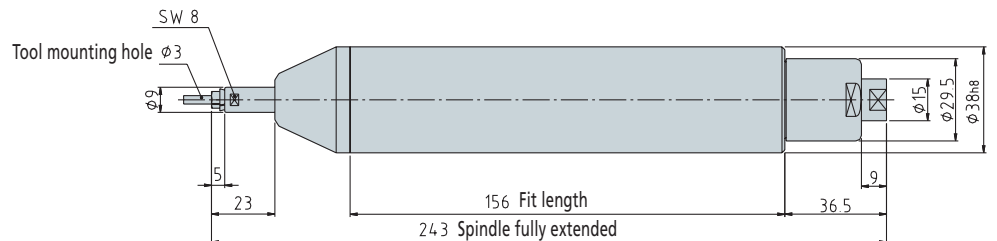
Type designation	F 5-4 R	F 5-4 R SA	F 5-4 R SA	AG 90
Order number	150 310 820	150 310 825	150 310 830	150 310 900
Stroke rate	min 4,000	4,000	4,000	up to 12,000
Stroke length	mm 1-5	3	2	2-8
	Continuously adjustable	fixed	fixed	Continuously adjustable
Drive type	vane motor with swash plate drive			Reciprocating piston
Tool mounting hole max.	mm 3	3	3	up to 6
Exhaust air direction	mm rear	rear	rear	rear
Weight	g 960	960	960	1.900
Matching hose unit	001 366 505	001 366 505	001 366 505	001 974 552

The following pneumatic tools from the BLAX Pneumatic Tools catalog are also available in a robot version:

- Straight grinder, type SBRH 818, page 11
- Angle grinder with collet, type WRD 6-20/3 Z, page 12
- Angle grinder with M 10 spindle, type WRD 10-20/3 S, page 12
- Angle grinder with collet, type WRD 6-20/2 ZL 90, page 13
- Angle grinder with collet, type WRD 6-20/2 ZL 45, page 13
- Belt grinder, type HBD 200, page 14



AG 90



F 5-4 R  
F 5-4 R SA

- These tools are supplied without opening and closing valves and are driven externally with air.
- The machines for mid-range motors are fitted with a polished steel sleeve for clamping in a clamping fixture.

## Straight drilling deburrers. Optionally with push start or external start



BE 309 R\*



BE 805 R\*

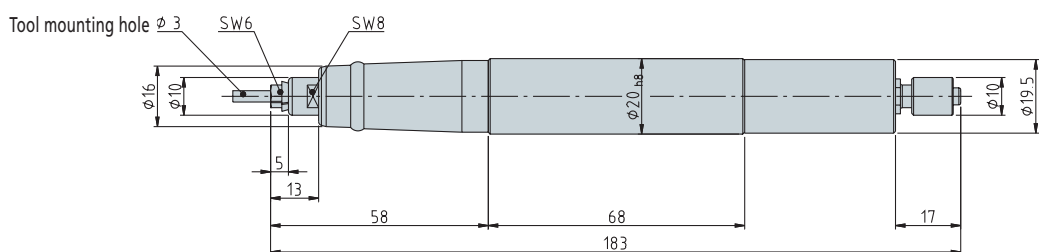
\* Types BE 309 R and BE 805 R do not start until the countersink is pressed against the workpiece. This principle is referred to as „push start“. Advantage: Reduced air consumption

\*\* Type BE 805 R-2 is driven by means of an external valve. This tool is also ideal for brushing bore holes with sinks or slanted bore holes that need to be deburred. It operates with compressive and tensile loads.

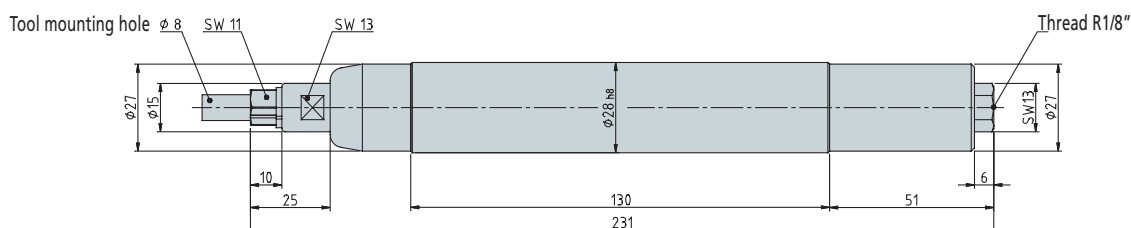
Type designation	BE 309 R*	BE 805 R*	BE 805 R-2**
Order number	150 800 715	150 810 905	150 810 920
Speed $\text{min}^{-1}$	900	500	500
Start	Push start	Push start	external
Exhaust air direction $\text{mm}$	rear	rear	rear
Air consumption $(\text{L}/\text{min})$	150	300	300
Collet type	ZG 5/3 mm	ZG 7/8 mm	ZG 7/8 mm
Noise level $\text{db (A)}$	71	71	71
Weight $\text{g}$	195	570	570
Max. collet diameter $\text{mm}$	3	8	8
Min./max. countersink diameter $\text{mm}$	2-5.5	3.5-14 5-24	3.5-14 5-24

### Hose unit

Order number	001 366 549	001 366 548	001 366 548
Hose length $\text{m}$	1.5	1.5	1.5
Air hose diameter $\text{mm}$	4.5	7	7
Exhaust air hose length $\text{m}$	0.4	0.5	0.5
Hose unit included	yes	yes	no



BE 309 R\*



BE 805 R\*  
BE 805 R-2\*\*

# Angle drilling deburrers with external start.



\* BEW 309 R



\*\* BEW 605 R

\* This angle drilling deburrer can also be supplied without an angle connector for the exhaust air hose. The tool has an overall length of 255 mm.

Designation: BEW 309 R  
Order No. 150 800 730

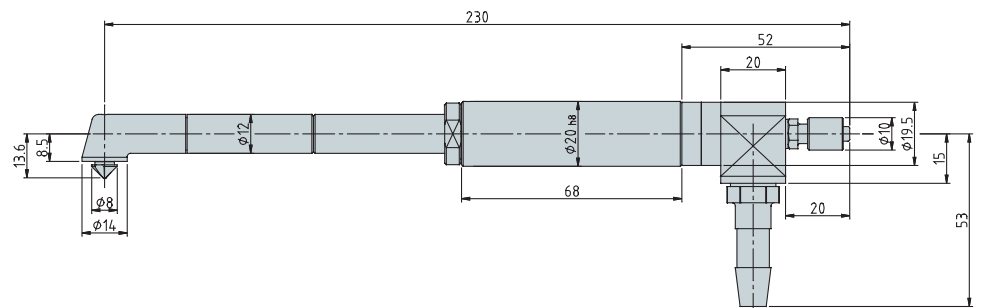
\*\* This angle drilling deburrer can also be supplied with a smaller angle head. In combination with a D 15 mm countersink the head has a height of 26.5 mm. The head diameter is 20 mm.

Designation: BEW 606 R

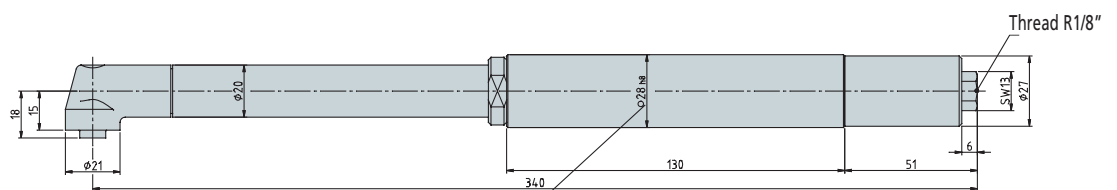
Type designation	* BEW 309 R	** BEW 605 R
Order number	150 800 740	150 810 935
Speed	900 min <sup>-1</sup>	500
Start	extern	extern
Exhaust air direction	rear	rear
Air consumption	150 (L/min)	300
Collet type	3 mm/hexagon	special collet (Ø 6 mm)
Noise level	71 db (A)	71
Weight	340 g	800
Max. collet diameter	3 mm/6 kant	6
Min./max. countersink diameter	2-6 2-10 mm	3,5-14 5-24
Head height with countersink	20,5 21,5 mm	40 48
Exhaust air hose length	14	21

### Hose unit

Order number	001 366 549	001 366 548
Hose length	1.5 m	1.5
Air hose diameter	4.5 mm	7
Exhaust air hose length	0.4 m	0.5
Hose unit included	no	no



\* BEW 309 R



\*\* BEW 605 R



**Schmid & Wezel  
GmbH & Co.  
Maschinenfabrik**

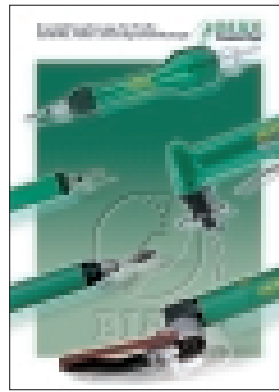
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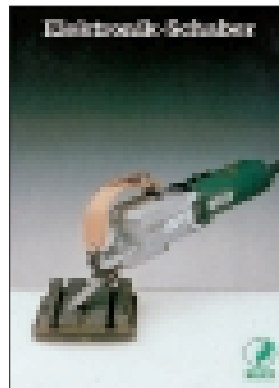
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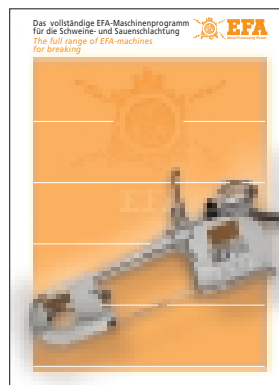
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