

PFERD



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Power tools



### Power tools

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### Robot spindle PGAS 4/52 RS

PFERD robot spindles are manufactured according to the most stringent quality criteria and the latest technological standards, and are ideal for stationary applications in robot cells and machine tools and for installation in transfer lines. Scan the QR code to find out more about PFERD's range of robot spindles.

**Advantages:**

- High torque due to planetary gear.
- Very high concentricity in continuous use.
- Double spindle bearing for a longer tool life.



### Air grinder PGAS 3/380 E-HV

With the PGAS 3/380 E-HV, PFERD offers an air grinder with an elastically mounted spindle for low-vibration working. It also guarantees a longer tool life, especially when using tungsten carbide burrs. Scan the QR code to find out more about PFERD's range of air grinders.

**Advantages:**

- The compact design enables good accessibility.
- Dead man's switch using safety lever valve.



### RCK drive system

The RCK drive system with stepless rotational speed regulation is an innovative solution that combines maximum productivity with significant ergonomic benefits. The system produces less noise and lower vibrations than conventional drives. In combination with the mobile control device and various handpieces, the system is particularly light, comfortable and flexible to use for operators. Scan the QR code to find out more about PFERD's RCK drive system.

**Advantages:**

- Boosts productivity by up to 50% thanks to constant rotational speed.
- Comfortable, ergonomic working with fast, optimal results.
- Can be used with a battery for mobile use or a power supply unit, for a variety of industrial applications.

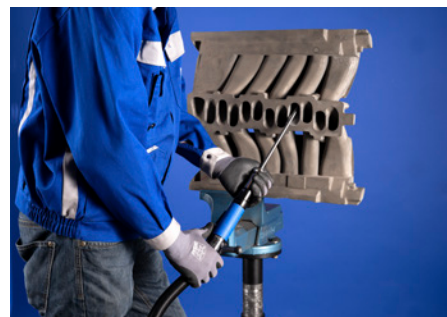


### Air-power motor PMA 4/220 HV with DIN 10 for rigid extensions

The air grinder with DIN 10 connection can be used in a variety of ways with different fixed extensions.

**Advantages:**

- Very powerful with a compact shape.
- Safe working using dead man's switch.





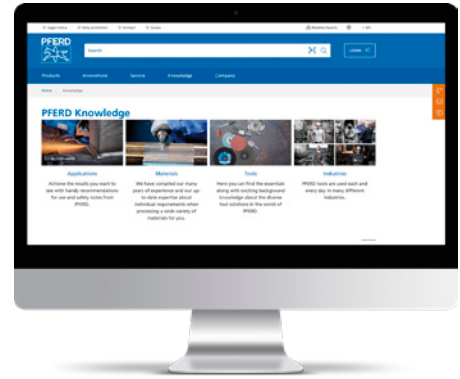
# Power tools

## Highlights from the PFERD range



### Find additional in-depth information online

Scan the QR code to find out a wide range of tool and application knowledge relating to PFERD's high-quality tools and their huge variety of materials.



## General information

The PFERD range includes tool drives for grinding, milling, brushing, cutting and polishing in manual applications as well as in robotic and semi-stationary applications. PFERD is one of only a few manufacturers that can offer a wide range of tools for work on surfaces and cutting of materials, as well as drives designed specifically for these tools, all from a single source. The wide product range includes air grinders as well as drive systems with DIN 10/DIN 15 and thus offers the best solution for almost any working environment. PFERD tool drives are characterized by their performance and durability. They are less prone to faults and comply with the latest technological standards.



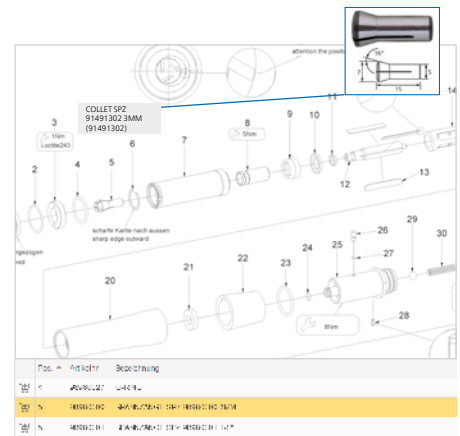
### Spare parts catalogue

In our online spare parts catalogue, we have compiled all the information about every PFERD drive. Here you will find exploded drawings and other sketches as well as photos and ordering data for each individual spare part for our drives. With just a few clicks, you can select the required spare parts or spare parts kits, add them to your shopping cart and order them online directly from PFERD.

If you ever misplace the operating instructions, you can find them in our spare parts catalogue for download along with other documents such as CE declarations of conformity and illustrated DIY instructions for minor repairs.

Our clearly organized online spare parts catalogue can be found at [spareparts.pferd.com](http://spareparts.pferd.com). In the information area you can see which documents are available for download.

Move your mouse over the different spare parts for your PFERD tool drive to see the exact product specifications. Clicking on the relevant code displays more information and a product image. In the lower section of the image, you have the option of adding the selected spare parts directly to the shopping cart and ordering them. Scan the QR code to access the online spare parts catalogue.



### Explanation of pictograms used

#### General

	Rotational speed
	Belt speed
	Power output
	Matching open-ended wrenches
	Matching hexagon socket wrenches
	Matching face pin spanners
	Matching Allen keys
<b>Tool mounting</b>	
	Clamping width
	Collet

	Stud bolt
	center hole
	Guard
	Compatible disc diameter
	Compatible drum grinder fitting
	Belt dimensions
<b>Air grinders</b>	
	Information on use – oil
	Can be used without oil
	Air pressure

	Air supply hose diameter
<b>Electric grinders and flexible shaft drives</b>	
	Voltage
	Frequency
	Protectively insulated in accordance with protection class II
	Protective earthing
	Safety extra-low voltage
	Safety extra-low voltage in accordance with protection class III
<b>Flexible shafts</b>	
	Drive-side shaft connection
	Handpiece-side sliding coupling

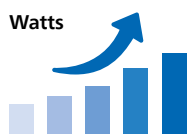
### Criteria for selecting the optimum drive

An important prerequisite for cost-effective work is selecting the optimum tool. The appropriate drive is selected taking the following criteria into consideration:



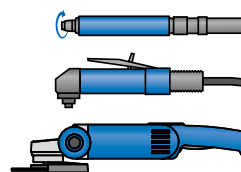
#### 1. Rotational speed

The drive should always be selected according to the rotational speed and peripheral speed recommendations for the product. Refer to catalogue sections 2 to 8 and 10 for these recommendations.



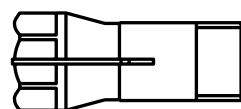
#### 2. Power output

The drive's power output is the decisive factor for maintaining the rotational speed under load. The load is determined by the material to be machined, the cutting characteristics of the tool and the contact pressure.



#### 3. Design, shape and size

Each type of application places specific demands on the design and size of the tool drive. The different designs can be used for various applications,



#### 4. Tool mounting

Depending on the PFERD tool selected, different tool mountings are available, e.g. collets or threaded spindles. Matching collets are allocated to every drive. Please refer to the accessories for tool drives in this catalog for an overview of collets and spindle extensions. If you have any further questions, your personal PFERD sales representative will be happy to help you.



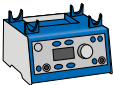


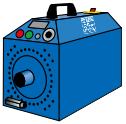


# Power tools

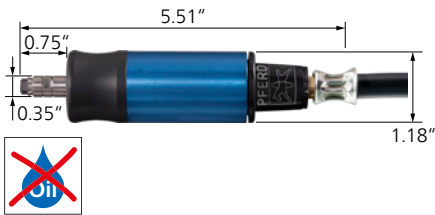
## What the machine designations mean



The PFERD machine designations are structured to provide information about the drive type, as well as designs, throttle types and tool mountings. They also enable you to quickly and easily select the right rotational speed and performance classes for the various machine types. The following overview provides a concise summary:

Figure	Description				Performance group	Rotational speed	Designs, throttle types, tool mountings
<b>Air grinders</b>							
	<b>P</b> Pneumatic	<b>G</b> Straight grinder	<b>A</b> Rear exhaust	<b>S</b> Collet	<b>2</b> x 100 watts	<b>800</b> x 100 RPM	<b>E</b> Elastic bearing <b>M</b> Medium length <b>V</b> Extended <b>DV</b> Ring throttle <b>HV</b> Lever throttle
	<b>P</b> Pneumatic	<b>W</b> Angle grinder	<b>A</b> Rear exhaust	<b>S</b> Collet	<b>1</b> x 100 watts	<b>800</b> x 100 RPM	<b>HV</b> Lever throttle
<b>MIM drive system</b>							
	<b>MIM</b> Micro motor	<b>STG</b> Control device	<b>3</b> Version	<b>S</b> with switch	<b>3</b> x 100 watts	<b>800</b> x 100 RPM	<b>230 V</b> Volts
	<b>MIM</b> Micro motor	<b>HA</b> Straight handpiece		<b>S</b> with switch	<b>3</b> x 100 watts	<b>800</b> x 100 RPM	<b>VS</b> Extended spindle <b>SP</b> Keyless quick-mounting system <b>1/8</b> Incl. collet dia. in inch
	<b>MIM</b> Micro motor	<b>WZ</b> Angle handpiece		<b>S</b> with switch	<b>3</b> x 100 watts	<b>800</b> x 100 RPM	<b>90°</b> 90 degree angle handpiece <b>S</b> Collet <b>1/8</b> Incl. collet dia. in inch
<b>DIN 10/DIN 15 drive systems</b>							
	<b>ME</b> Mammoth electronic		<b>W</b> Alternating current		<b>18</b> x 100 watts	<b>240</b> x 100 RPM	





### PGTS 1/1100 DV

Sophisticated air-powered straight grinder with turbine motor, exhaust directed to the front and ring throttle version. Offers high cutting speed for TC burrs and mounted points.

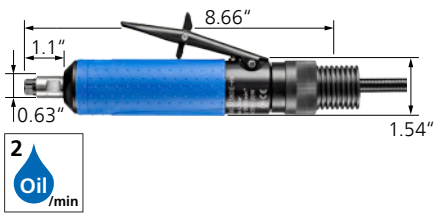
#### Contents:

4.92 inch air supply hose with 1/4" NPT male thread connection, 1/8" collet (collet group 15), 2 keys (DM SW 6/8 mm).

#### Special features:

- No oil residues on the workpiece.

RPM	Power output [HP]	Air consumption at idle [cfm]	Air consumption under load [cfm]	Air supply hose internal dia. [Inch]	Noise/sound pressure level db(A)	Net weight [lb]	Item no.	EDP no.	Designation
110,000	0.1	11.3	5.3	15/64	70	0.414	89910018	90012	PGTS 1/1100 DV



### PGAS 3/380 E-HV

Sophisticated air-powered straight grinder with exhaust directed to the rear and dead man's switch using safety lever valve.

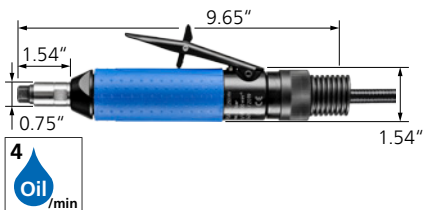
#### Contents:

3.28 inch exhaust hose and 8.2 inch air supply hose with 1/4" NPT male thread connection, 1/4" collet (collet group 6), 2 keys (1x EM SW 11 mm, 1x EM SW 14 mm).

#### Special features:

- Elastically mounted spindle guarantees a longer service life, especially when using carbide burs.
- Low vibration.
- The compact design enables good accessibility.

RPM	Power output [HP]	Air consumption at idle [cfm]	Air consumption under load [cfm]	Air supply hose internal dia. [Inch]	Noise/sound pressure level db(A)	Net weight [lb]	Item no.	EDP no.	Designation
38,000	0.39	24.72	21.19	5/16	73	1.129	89910032	90043	PGAS 3/380 E-HV



### PGAS 4/250 HV

Sophisticated air-powered straight grinder with exhaust directed to the rear and dead man's switch using safety lever valve. Can also be operated without oil; however, this will lead to a shorter service life and reduced rotational speed and power output.

#### Contents:

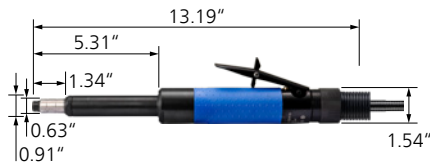
3.28 inch exhaust hose and 8.2 inch air supply hose with 1/4" NPT male thread connection, 1/4" collet (collet group 20), 2 keys (1x EM SW 12 mm, 1x EM SW 17 mm).

#### Special features:

- Very powerful with a compact design.

RPM	Power output [HP]	Air consumption at idle [cfm]	Air consumption under load [cfm]	Air supply hose internal dia. [Inch]	Noise/sound pressure level db(A)	Net weight [lb]	Item no.	EDP no.	Designation
25,000	0.59	34.61	30.72	5/16	76	1.830	89910030	90041	PGAS 4/250 HV





### PGAS 4/250 M-HV

Sophisticated air-powered straight grinder with exhaust directed to the rear and dead man's switch using safety lever valve.

#### Contents:

3.28 inch exhaust hose and 8.2 inch air supply hose with 1/4" NPT male thread connection, 1/4" collet (collet group 6), 2 keys (1x EM SW 11 mm, 1x EM SW 14 mm).

#### Special features:

- Medium-length design for use when access is restricted.

RPM	Power output [HP]	Air consumption at idle [cfm]	Air consumption under load [cfm]	Air supply hose internal dia. [Inch]	Noise/sound pressure level db(A)	Net weight [lb]	Item no.	EDP no.	Designation
25,000	0.59	34.61	30.72	5/16	76	2.641	89910031	90042	PGAS 4/250 M-HV



### PGAS 8/100 HV

Sophisticated air-powered straight grinder with exhaust directed to the rear and dead man's switch using safety lever valve.

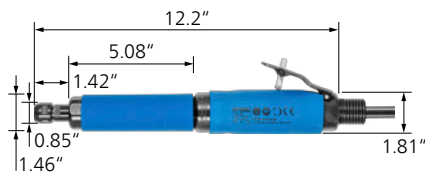
#### Contents:

3.28 inch exhaust hose and 9.84 inch air supply hose with 1/4" NPT male thread connection, 1/4" collet (collet group 7), 2 keys (1x EM SW 12 mm, 1x EM SW 17 mm).

#### Special features:

- Constant power delivery due to the centrifugal governor.
- Compact design.

RPM	Power output [HP]	Air consumption at idle [cfm]	Air consumption under load [cfm]	Air supply hose internal dia. [Inch]	Noise/sound pressure level db(A)	Net weight [lb]	Item no.	EDP no.	Designation
10,000	0.8	6	30.02	21/64	64	2.205	89910053	90064	PGAS 8/100 HV



### PGAS 8/100 V-HV

Sophisticated air-powered straight grinder with exhaust directed to the front and dead man's switch using safety lever valve. Good size/weight to output ratio.

#### Contents:

3.28 inch exhaust hose and 9.84 inch air supply hose with 1/4" NPT male thread connection, 1/4" collet (collet group 7), 2 keys (1x EM SW 9/16", 1x EM SW 3/4").

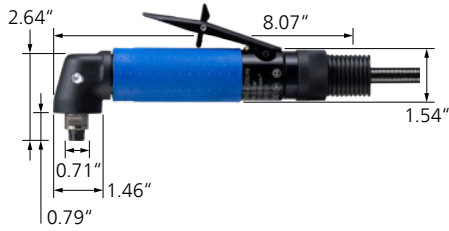
#### Special features:

- Extended version for work in hard-to-reach areas.
- Constant power delivery due to the centrifugal governor.

RPM	Power output [HP]	Air consumption at idle [cfm]	Air consumption under load [cfm]	Air supply hose internal dia. [Inch]	Noise/sound pressure level db(A)	Net weight [lb]	Item no.	EDP no.	Designation
10,000	0.8	6	30.02	21/64	64	3.086	89910054	90065	PGAS 8/100 V-HV







### PWAS 4/200 HV

Sophisticated compressed-air angle grinder with exhaust directed to the rear, dead man's switch using safety lever valve and collet. Ideal for work in hard-to-reach areas.

#### Contents:

3.28 inch exhaust hose and 8.2 inch air supply hose with 1/4" NPT male thread connection, 1/4" collet (collet group 6), 2 keys (1x EM SW 11 mm, 1x EM SW 14 mm).

#### Special features:

- Low angle head height.

RPM	Power output [HP]	Air consumption at idle [cfm]	Air consumption under load [cfm]	Air supply hose internal dia. [Inch]	Noise/sound pressure level db(A)	Net weight [lb]	Item no.	EDP no.	Designation
20,000	0.5	24.72	21.19	5/16	79	2.028	89920013	90524	PWAS 4/200 HV

## Angle grinder with threaded spindle



### PWA 2/120 HV

Sophisticated compressed-air angle grinder with 1/4-20 UNC threaded spindle, exhaust directed to the rear and dead man's switch. The drive has to be used with oil.

#### Contents:

3.28 inch exhaust hose and 8.2 inch air supply hose with 1/4" NPT male thread connection, 1 key (EM SW 11 mm).

#### Special features:

- Special spindle for holding all COMBIDISC® tools (use a backing pad without shank).
- Flat angle head for work in hard-to-reach areas.

RPM	Power output [HP]	Air consumption at idle [cfm]	Air consumption under load [cfm]	Air supply hose internal dia. [Inch]	Net weight [lb]	Item no.	EDP no.	Designation
12,000	0.31	19.42	15.89	15/64	1.138	89920012	90523	PWA 2/120 HV



### Extensions for drive spindles

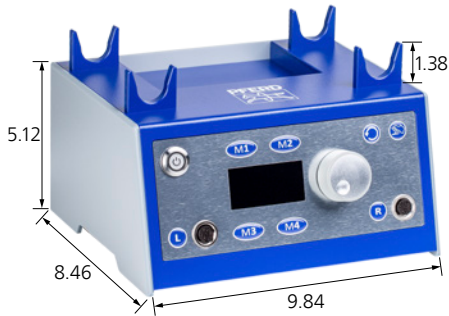
The shank of the abrasive disc holders can be replaced by compatible adapters. This enables the abrasive disc holder to be mounted directly to the drive spindle of the tool drive. Suitable for drives with spindle 1/4-20 UNC.

Net weight [lb]	Item no.	EDP no.	Designation
0.022	87100727	95808	SPV20 CD 1/4-20 UNC



# MIM drive systems

## Micro motor system



### MIM STG3S 3/800

Micro motor control device with high power stability for steplessly controlling the rotational speed of micro motor handpieces. The rotational speed control can be provided by hand or via foot switch.

#### Special features:

- Max. 80,000 RPM clockwise rotation, max. 30,000 RPM anti-clockwise rotation.
- 2 switchable connection sockets for micro motor handpieces.
- 4 free rotational speed storage spaces per connected handpiece.

For micro motor handpieces [RPM]	Power output [HP]	Voltage [volts] 50–60 Hz	Output voltage [volts]	Net weight [lb]	Item no.	EDP no.	Designation
80,000 – 1,000	0.47	115	50	6.570	89960125	91531	MIM STG3S 3/800 115V

## Micro motor handpieces



### Micro motor handpiece MIM HAS 3/800 SP1/8"

Micro motor handpiece with high power stability, very high rotation accuracy and brushless motor.

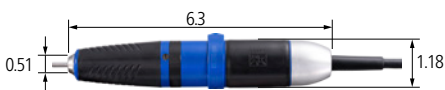
#### Contents:

2 keys (1x MIM ARS HA D 23.5 mm, 1x MIM SPS DK D 7), 1/8" collet, 5.91' handpiece cable.

#### Special features:

- Automatic speed limitation.
- Start interlock without clamped tool.
- Extremely energy-efficient and quiet in comparison to air grinders.

Rotational speed [RPM]	Power output [HP]	Low voltage [volts]	Collet group	Net weight [lb]	Item no.	EDP no.	Designation
80,000 – 1,000	0.24	50	17	0.728	89960134	91540	MIM HAS 3/800 SP1/8"



### Micro motor handpiece MIM HAS 2/600 SP1/8"

Micro motor handpiece with high power stability, very high rotation accuracy and brushless motor.

#### Contents:

3 keys (1x MIM SPS DK 7, 1x MIM ARS HA 23.5 mm, 1x BSC 2.35 mm), 1/8" collet, 5.91' handpiece cable.

#### Special features:

- Automatic speed limitation.
- Start interlock without clamped tool.
- Extremely energy-efficient and quiet in comparison to air grinders.

Rotational speed [RPM]	Power output [HP]	Low voltage [volts]	Collet group	Net weight [lb]	Item no.	EDP no.	Designation
60,000 – 1,000	0.2	36 / 50	17	0.570	89960129	91535	MIM HAS 2/600 SP1/8"



### Micro motor handpiece MIM HAS 3/600 SP1/8"

Micro motor handpiece with high power stability, very high rotation accuracy and brushless motor.

**Contents:**

2 keys (1x MIM ARS HA D 23.5 mm, 1x MIM SPS DK D 7), 1/8" collet, 5.91' hand-piece cable.

**Special features:**

- Automatic speed limitation.
- Start interlock without clamped tool.
- Extremely energy-efficient and quiet in comparison to air grinders.

Rotational speed [RPM]	Power output [HP]	Low voltage [volts]	Collet group	Net weight [lb]	Item no.	EDP no.	Designation
60,000 – 1,000	0.2	36 / 50	17	0.694	89960130	91536	MIM HAS 3/600 SP1/8"



### Micro motor handpiece MIM HAS 3/600 S1/8"

Micro motor handpiece with high power stability, very high rotation accuracy and brushless motor.

**Contents:**

2 keys (1x DM SW 10/10 mm, 1x MIM DSTS SW 11x D 2.4 mm), 1/8" collet, 5.91' handpiece cable.

**Special features:**

- Automatic speed limitation.
- Extremely energy-efficient and quiet in comparison to air grinders.

Rotational speed [RPM]	Power output [HP]	Low voltage [volts]	Collet group	Net weight [lb]	Item no.	EDP no.	Designation
60,000 – 1,000	0.2	36 / 50	19	0.866	89960132	91538	MIM HAS 3/600 S1/8"



### Micro motor handpiece MIM HAS 3/500 VS-SP1/8"

Micro motor handpiece with high power stability, very high rotation accuracy and brushless motor.

**Contents:**

2 keys (1x MIM ARS HA D 23.5 mm, 1x MIM SPS DK D 7), 1/8" collet, 5.91' hand-piece cable.

**Special features:**

- Automatic speed limitation.
- Start interlock without clamped tool.
- Extremely energy-efficient and quiet in comparison to air grinders.

Rotational speed [RPM]	Power output [HP]	Low voltage [volts]	Collet group	Net weight [lb]	Item no.	EDP no.	Designation
50,000 – 1,000	0.2	36 / 50	17	0.717	89960131	91537	MIM HAS 3/500 VS-SP1/8"



### Micro motor handpiece MIM WZS 3/300 90° S1/8"

Micro motor handpiece with high power stability, very high rotation accuracy and brushless motor.

**Contents:**

2 keys (1x MIM ARH, 1x DM SW 4/4 mm), 1/8" collet, 5.91' handpiece cable.

**Special features:**

- Automatic speed limitation.
- Extremely energy-efficient and quiet in comparison to air grinders.

Rotational speed [RPM]	Power output [HP]	Low voltage [volts]	Collet group	Net weight [lb]	Item no.	EDP no.	Designation
30,000 – 1,000	0.16	36 / 50	18	0.525	89960135	91541	MIM WZS 3/300 90° S1/8"



# MIM drive systems

## Micro motor handpieces



### Micro motor handpiece MIM WZS 3/300 45° S1/8"

Micro motor handpiece with high power stability, very high rotation accuracy and brushless motor.

#### Contents:

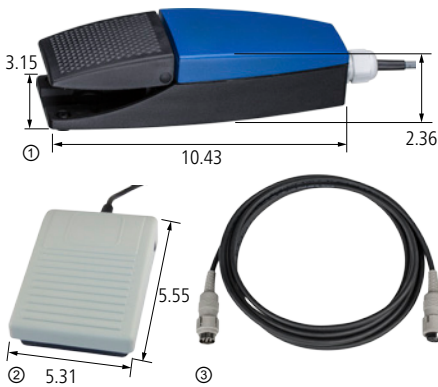
2 keys (1x MIM ARH, 1x DM SW 4/4 mm),  
1/8" collet, 5.91' handpiece cable.

#### Special features:

- Automatic speed limitation.
- Extremely energy-efficient and quiet in comparison to air grinders.

Rotational speed [RPM]	Power output [HP]	Low voltage [volts]	Collet group	Net weight [lb]	Item no.	EDP no.	Designation
30,000 – 1,000	0.16	36 / 50	18	0.408	89960136	91542	MIM WZS 3/300 45° S1/8"

## Accessories for micro motor systems



### Accessories for micro motor systems

PFERD offers a Vario micro motor foot switch for stepless rotational speed control, a micro motor foot switch for switching on and off, and a 9.8' micro motor extension cable for handpieces as accessories for micro motor systems.

Image	Net weight [lb]	Item no.	EDP no.	Designation
<b>Vario foot switch MIM FU-R</b>				
(1)	1.863	89960126	91532	MIM FU-R
<b>On/off foot switch MIM FU-E/A</b>				
(2)	0.683	89960127	91533	MIM FU-E/A
<b>Extension cable MIM VLK HAS/WZS 9.8'</b>				
(3)	0.335	89960151	91557	MIM VLK HAS/WZS 9.8'



### How to find the matching flexible shaft to your drive

Here you will find a selection of flexible shafts for the individual drives in line with the explanation below. Flexible shafts and handpieces/attachments must always be selected according to the required rotational speed and power output. Maximum cost-effectiveness is achieved through the combination of a high-performance tool and an optimal drive.

① **Drive**

Alternative drives with DIN 10 connection (Exceptions DIN 15).

② **Flexible shaft (BW)**

Possible flexible shafts.

③ **Rotational speed [RPM]**

Rotational speed range of the drive system.

④ **Rotational speed range** for flexible shafts and handpieces


⑤ **Connection**

Drive-side connection DIN 10 / DIN 15 and handpiece-side connections (G16 to G28 and DPF, SRF).

⑥ **Suitable flexible shaft**

- ideally suitable
- suitable
- unsuitable



① <b>Drive motor</b> ▶		MEW 18/240 ME 22/240 
③ <b>Rotational speed range [RPM]:</b> ▶		24,000–100
② <b>Flexible shafts</b> ▼	④ <b>Drive [RPM]</b> ▼	
BW 4 DIN 10/G16 ⑤	40,000–18,000	⑥ ○
BW 6 DIN 10/G16	25,000–11,000	●
BW 7 DIN 10/G22	25,000–11,000	●
BW 7 PST-T DIN 10	4,250–1,500	○
BW 10 SE 11 DIN 10/G28	18,000–750	●

● = ideally suitable   ○ = suitable   – = unsuitable

All data is also valid for flexible shaft versions without handpieces and 2-meter versions.





# Drive systems with DIN 10/DIN 15

## Flexible shaft drives for Mammoth Electronic and accessories



### MEW 18/240

Electronic flexible shaft drive with DIN 10 flexible shaft connection, generates very little noise and has 1-phase alternating current and high torque, even at low rotational speeds. Achieves a maximum rotational speed of 24,000 RPM.

**Contents:**

13.12' power cable with plug, 2 Allen keys.

**Special features:**

- Most powerful and stable torque with step-less rotational speed control.
- Removable operating console with possibility of extension, e.g. hanging design for work in boilers.
- With smooth start-up to protect people, tools and the drive as well as overload protection.

Rotational speed [RPM]	Power output [HP]	Voltage [volts] 50–60 Hz	Net weight [lb]	Item no.	EDP no.	Designation
24,000 – 100	2.68	200 – 240	54.013	89970014	92013	MEW 18/240 240V



### ME 22/240

Electronic flexible shaft drive with DIN 10 flexible shaft connection, generates very little noise and has 3-phase alternating current and high torque, even at low rotational speeds. Achieves a maximum rotational speed of 24,000 RPM.

**Contents:**

13.12' power cable without plug, 2 keys (STS D 4 mm).

**Special features:**

- Most powerful and stable torque with step-less rotational speed control.
- Removable operating console with possibility of extension, e.g. hanging design for work in boilers.
- With smooth start-up to protect people, tools and the drive as well as overload protection.

Rotational speed [RPM]	Power output [HP]	Voltage [volts] 50–60 Hz	Net weight [lb]	Item no.	EDP no.	Designation
24,000 – 100	3.62	380 – 480	54.013	85202041	92014	ME 22/240 400 V



### Remote control cable FSTK for Mammoth Electronic

For extending the operating console.

Net weight [lb]	Item no.	EDP no.	Designation
1.400	85202165	92046	FSTK 22

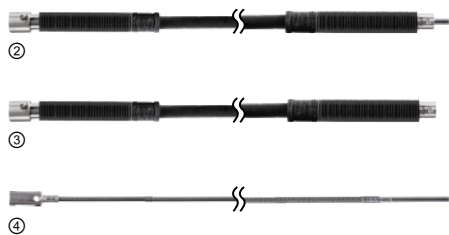


### Foot switch FSE 22 for Mammoth Electronic

For switching the drive on and off via the remote control interface.

Net weight [lb]	Item no.	EDP no.	Designation
2.205	85202105	92045	FSE 22 2-POLIG

## Flexible shaft 4 and handpieces



### Flexible shaft 4

With low power output requirements, it is possible to fall below the rotational speed range. **The radius of curvature must not be less than 3.94"**. After approximately 100 operating hours, the core of the flexible shaft must be re-lubricated.

#### Special features:

- Special lengths available on request.
- Cores and hoses with double-sided sliding coupling on request.

Image	Rotational speed range [RPM]	Drive-side coupling DIN / dia. [inch]	Handpiece-side coupling G / dia. [inch]	Dimensions dia. x length [Inch]	Net weight [lb]	Item no.	EDP no.	Designation
<b>Flexible shaft without handpiece</b>								
(2)	40,000 – 18,000	10 / 1.18	16 / 0.63	1/2 x 52	0.990	86200505	94052	BW 4 DIN10/G16 oHA
<b>Replacement casing</b>								
(3)	-	10 / 1.18	16 / 0.63	1/2 x 51	0.730	86200605	94553	SCH 4 DIN10/G16
<b>Replacement core</b>								
(4)	40,000 – 18,000	10 / M10	16 / 0.14/0.1	3/16 x 52	0.265	86200305	94854	SE 4 DIN10/G16



# Drive systems with DIN 10/DIN 15

## Flexible shaft 4 and handpieces



### Handpiece HA 4 G16

Much more ergonomic straight handpiece. Can be connected to all flexible shafts with G16 sliding coupling.

**Contents:**

1 collet 1/4", 2 keys (1x EM SW 11 mm, 1x EM SW 12 mm).

Max. RPM	Handpiece-side coupling G / dia. [inch]	Dimensions dia. x length [Inch]	Net weight [lb]	Item no.	EDP no.	Designation
40,000	16 / 0.63	0.94 x 4.72	0.400	89911105	94302	HA 4 G16



### Angle handpiece WHA 4 90° G16

Much more ergonomic straight handpiece. Can be connected to all flexible shafts with G16 sliding coupling.

**Contents:**

1 collet 1/4", 2 keys (1x EM SW 11 mm, 1x EM SW 14 mm).

Max. RPM	Handpiece-side coupling G / dia. [inch]	Dimensions dia. x length [Inch]	Transmission ratio	Net weight [lb]	Item no.	EDP no.	Designation
20,000	16 / 0.63	2.76 x 4.72	1,8:1	0.670	89911121	94361	WHA 4 90° G16

## Flexible shaft 6 and handpieces



### Flexible shaft 6

With low power output requirements, it is possible to fall below the rotational speed range. **The radius of curvature must not be less than 5.51"**. After approximately 100 operating hours, the core of the flexible shaft must be re-lubricated.

**Special features:**

- Special lengths available on request.

Image	Rotational speed range [RPM]	Drive-side coupling DIN / dia. [inch]	Handpiece-side coupling G / dia. [inch]	Dimensions dia. x length [Inch]	Net weight [lb]	Item no.	EDP no.	Designation
<b>Flexible shaft without handpiece</b>								
(2)	25,000 – 11,000	10 / 1.18	16 / 0.63	5/8 x 62	2.430	86210060	94042	BW 6 DIN10/G16 oHA
<b>Replacement casing</b>								
(3)	-	10 / 1.18	16 / 0.63	5/8 x 61	1.630	86210080	94505	SCH 6 DIN10/G16
<b>Replacement core</b>								
(4)	25,000 – 11,000	10	16 / 0.14/0.1	1/4 x 62	0.600	86210070	94805	SE 6 DIN10/G16





### Handpiece HA 4 G16

Much more ergonomic straight handpiece. Can be connected to all flexible shafts with G16 sliding coupling.

**Contents:**

1 collet 1/4", 2 keys (1x EM SW 11 mm, 1x EM SW 12 mm).

Max. RPM	Handpiece-side coupling G / dia. [inch]	Dimensions dia. x length [Inch]	Net weight [lb]	Item no.	EDP no.	Designation
40,000	16 / 0.63	0.94 x 4.72	0.400	89911105	94302	HA 4 G16



### Angle handpiece WHA 4 90° G16

Much more ergonomic straight handpiece. Can be connected to all flexible shafts with G16 sliding coupling.

**Contents:**

1 collet 1/4", 2 keys (1x EM SW 11 mm, 1x EM SW 14 mm).

Max. RPM	Handpiece-side coupling G / dia. [inch]	Dimensions dia. x length [Inch]	Transmission ratio	Net weight [lb]	Item no.	EDP no.	Designation
20,000	16 / 0.63	2.76 x 4.72	1,8:1	0.670	89911121	94361	WHA 4 90° G16

## Flexible shaft 7 and handpieces



### Flexible shaft 7

With low power output requirements, it is possible to fall below the rotational speed range. **The radius of curvature must not be less than 5.57"**. After approximately 100 operating hours, the core of the flexible shaft must be re-lubricated.

**Special features:**

- Special lengths available on request.
- Cores and hoses with double-sided sliding coupling on request.

Image	Rotational speed range [RPM]	Drive-side coupling DIN / dia. [inch]	Handpiece-side coupling G / dia. [inch]	Dimensions dia. x length [Inch]	Net weight [lb]	Item no.	EDP no.	Designation
<b>Flexible shaft without handpiece</b>								
(2)	25,000 – 11,000	10 / 1.18	22 / 0.87	3/4 x 82	3.750	86200529	94027	BW 7 DIN10/G22 2M oHA
<b>Replacement casing</b>								
(3)	-	10 / 1.18	22 / 0.87	3/4 x 81	2.430	86200629	94528	SCH 7 DIN10/G22 2M
<b>Replacement core</b>								
(4)	25,000 – 11,000	10 / M10	22 / 0.2/0.15	1/4 x 82	1.320	86200329	94829	SE 7 DIN10/G22 2M



# Drive systems with DIN 10/DIN 15

## Flexible shaft 7 and handpieces



### Handpiece HA 7 G22

Much more ergonomic straight handpiece. Can be connected to all flexible shafts with G22 sliding coupling.

**Contents:**

1 collet 1/4", 2 keys (1x EM SW 11 mm, 1x EM SW 14 mm).

Max. RPM	Handpiece-side coupling G / dia. [inch]	Dimensions dia. x length [Inch]	Net weight [lb]	Item no.	EDP no.	Designation
25,000	22 / 0.87	1.18 x 5.12	0.630	89911106	94120	HA 7 G22



### Angle handpiece WHA 7 90° G22

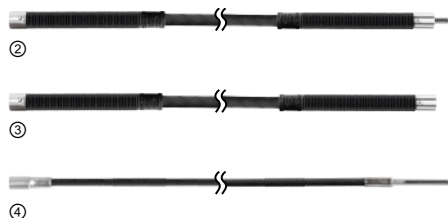
Much more ergonomic straight handpiece. Can be connected to all flexible shafts with G22 sliding coupling.

**Contents:**

1 collet 1/4", 2 keys (1x EM SW 11 mm, 1x EM SW 14 mm).

Max. RPM	Handpiece-side coupling G / dia. [inch]	Dimensions dia. x length [Inch]	Transmission ratio	Net weight [lb]	Item no.	EDP no.	Designation
17,100	22 / 0.87	2.64 x 6.5	1:1	1.430	89911122	94362	WHA 7 90° G22

## Flexible shaft 10 and handpieces



### Flexible shaft 10 SE 11

The rotational speed should not fall below or exceed the specified range. **The radius of curvature must not be less than 6.69"**. After approximately 100 operating hours, the core of the flexible shaft must be re-lubricated.

**Special features:**

■ Special lengths available on request.

■ Cores and hoses with double-sided sliding coupling on request.

Image	Rotational speed range [RPM]	Drive-side coupling DIN / dia. [inch]	Handpiece-side coupling G / dia. [inch]	Dimensions dia. x length [Inch]	Net weight [lb]	Item no.	EDP no.	Designation
<b>Flexible shaft without handpiece</b>								
(2)	18,000 – 750	10 / 1.18	28 / 1.1	7/8 x 82	5.910	86200517	94032	BW 10 SE 11 DIN10/G28 2M oHA
<b>Replacement casing</b>								
(3)	-	10 / 1.18	28 / 1.1	7/8 x 81	3.480	86200631	94533	SCH 10 DIN10/G28 2M
<b>Replacement core</b>								
(4)	18,000 – 750	10 / M10	28 / 0.3/0.23	7/16 x 82	2.430	87100133	94834	SE 11 DIN10/G28 2M







### Handpiece HA 10 G28

Much more ergonomic straight handpiece. Can be connected to all flexible shafts with G28 sliding coupling.

**Contents:**

1 collet 1/4", 2 keys (1x EM SW 11 mm, 1x EM SW 15 mm).

Max. RPM	Handpiece-side coupling G / dia. [inch]	Dimensions dia. x length [Inch]	Net weight [lb]	Item no.	EDP no.	Designation
18,000	28 / 1.1	1.38 x 6.3	0.950	89911108	94316	HA 10 G28



### Handpiece HA 12 G28

Much more ergonomic straight handpiece. Can be connected to all flexible shafts with G28 sliding coupling. Available with clamping nut for maximum clamping force and collets up to 12 mm.

**Contents:**

1 collet 1/4", 2 keys (2x DM SW 20/22 mm).

Max. RPM	Handpiece-side coupling G / dia. [inch]	Dimensions dia. x length [Inch]	Net weight [lb]	Item no.	EDP no.	Designation
18,000	28 / 1.1	1.38 x 6.69	1.202	89911109	94317	HA 12 G28



### Angle handpiece WHA 10 90° G28 for flexible shaft 10 SE 11

Much more ergonomic handpiece. Can be connected to all flexible shafts with G28 sliding coupling.

**Contents:**

1 collet 6 mm, 3 keys (1x EM SW 11 mm, 1x EM SW 12 mm, 1x EM SW 14 mm).

Max. RPM	Handpiece-side coupling G / dia. [inch]	Dimensions dia. x length [Inch]	Transmission ratio	Net weight [lb]	Item no.	EDP no.	Designation
17,100	28 / 1.1	2.64 x 6.5	1:1	1.410	89911123	94363	WHA 10 90° G28



# Drive systems with DIN 10/DIN 15

## Special flexible shafts for inner grinding of pipes and accessories



### Flexible shaft 4 PST-T | Flexible shaft 7 PST-T

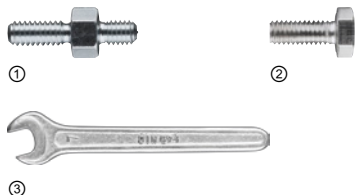
The POLISTAR-TUBE grinding tools are attached directly to the core of the special flexible shaft. **After approximately 100 operating hours, the core of the flexible shaft must be re-lubricated.**



#### Special features:

- Removable operating console with possibility of extension, e.g. hanging design for work in boilers.
- Both pipe bend ends can be deburred from the entry side.
- The special flexible shafts do not have a handpiece for tool mounting and are particularly flexible in the front section.

Image	Rotational speed range [RPM]	Drive-side coupling DIN / dia. [inch]	Dimensions dia. x length [Inch]	Fastening thread	Tool mounting [Inch]	Net weight [lb]	Item no.	EDP no.	Designation
<b>Flexible shaft</b>									
(1)	4,250 – 1,500	10 / 1.18	0.71 x 80	M5	0,2	2.910	87101804	94055	BW 7 PST-T DIN 10/M5 2 m
<b>Pre-assembled replacement casing</b>									
(2)	-	10 / 1.18	0.71 x 80	-	-	1.920	87101806	94857	SCH 7 PST-T DIN 10/M5 2 m
<b>Pre-assembled replacement core</b>									
(3)	4,250 – 1,500	10 / M10	0.28 x 79.9	M5	0,2	0.990	87101805	94556	SE 7 PST-T DIN 10/M5 2 m



### Accessories for flexible shafts BW 7 PST-T

PFERD offers thread adapters, flange screws and keys.

Image	Net weight [lb]	Item no.	EDP no.	Designation
<b>Suitable for BW 7 PST-T</b>				
(1)	0.006	87101501	95811	AD M5/8-32 UNC
(2)	0.006	87200222	97558	FLS M5
(3)	0.030	93785706	93328	EM SW 8MM G





### Handpiece HA 4 G16

Much more ergonomic straight handpiece. Can be connected to all flexible shafts with G16 sliding coupling.

**Contents:**

1 collet 1/4", 2 keys (1x EM SW 11 mm, 1x EM SW 12 mm).

Max. RPM	Handpiece-side coupling G / dia. [inch]	Dimensions dia. x length [Inch]	Net weight [lb]	Item no.	EDP no.	Designation
40,000	16 / 0.63	0.94 x 4.72	0.400	89911105	94302	HA 4 G16



### Handpiece HA 7 G22

Much more ergonomic straight handpiece. Can be connected to all flexible shafts with G22 sliding coupling.

**Contents:**

1 collet 1/4", 2 keys (1x EM SW 11 mm, 1x EM SW 14 mm).

Max. RPM	Handpiece-side coupling G / dia. [inch]	Dimensions dia. x length [Inch]	Net weight [lb]	Item no.	EDP no.	Designation
25,000	22 / 0.87	1.18 x 5.12	0.630	89911106	94120	HA 7 G22



### Handpiece HA 10 G28

Much more ergonomic straight handpiece. Can be connected to all flexible shafts with G28 sliding coupling.

**Contents:**

1 collet 1/4", 2 keys (1x EM SW 11 mm, 1x EM SW 15 mm).

Max. RPM	Handpiece-side coupling G / dia. [inch]	Dimensions dia. x length [Inch]	Net weight [lb]	Item no.	EDP no.	Designation
18,000	28 / 1.1	1.38 x 6.3	0.950	89911108	94316	HA 10 G28



### Handpiece HA 12 G28

Much more ergonomic straight handpiece. Can be connected to all flexible shafts with G28 sliding coupling. Available with clamping nut for maximum clamping force and collets up to 12 mm.

**Contents:**

1 collet 1/4", 2 keys (2x DM SW 20/22 mm).

Max. RPM	Handpiece-side coupling G / dia. [inch]	Dimensions dia. x length [Inch]	Net weight [lb]	Item no.	EDP no.	Designation
18,000	28 / 1.1	1.38 x 6.69	1.202	89911109	94317	HA 12 G28



# Drive systems with DIN 10/DIN 15

## Handpieces and accessories



### Angle handpiece WHA 4 90° G16

Much more ergonomic straight handpiece. Can be connected to all flexible shafts with G16 sliding coupling.

**Contents:**  
1 collet 1/4", 2 keys (1x EM SW 11 mm, 1x EM SW 14 mm).

Max. RPM	Handpiece-side coupling G / dia. [inch]	Dimensions dia. x length [Inch]	Transmission ratio	Net weight [lb]	Item no.	EDP no.	Designation
20,000	16 / 0.63	2.76 x 4.72	1,8:1	0.670	89911121	94361	WHA 4 90° G16



### Angle handpiece WHA 7 90° G22

**Contents:**  
1 collet 1/4", 2 keys (1x EM SW 11 mm, 1x EM SW 14 mm).

Max. RPM	Handpiece-side coupling G / dia. [inch]	Dimensions dia. x length [Inch]	Transmission ratio	Net weight [lb]	Item no.	EDP no.	Designation
17,100	22 / 0.87	2.64 x 6.5	1:1	1.430	89911122	94362	WHA 7 90° G22



### Angle handpiece WHA 10 90° G28 for flexible shaft 10 SE 11

Much more ergonomic handpiece. Can be connected to all flexible shafts with G28 sliding coupling.

**Contents:**  
1 collet 1/4", 2 keys (1x EM SW 11 mm, 1x EM SW 14 mm).

Max. RPM	Handpiece-side coupling G / dia. [inch]	Dimensions dia. x length [Inch]	Transmission ratio	Net weight [lb]	Item no.	EDP no.	Designation
17,100	28 / 1.1	2.64 x 6.5	1:1	1.410	89911123	94363	WHA 10 90° G28

## Flexible shaft adapter



①

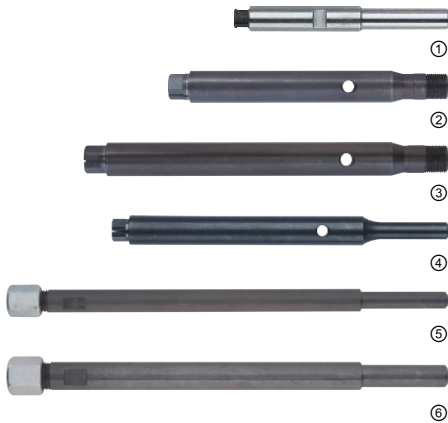


②

### Flexible shaft adapter

The flexible shaft adapter conveniently connects rigid extensions and flexible shafts.

Image	Net weight [lb]	Item no.	EDP no.	Designation
(1)	0.630	86300307	95893	BWA G22/DIN 10
(2)	1.240	86300308	95894	BWA G28/DIN10



### Extensions for drive spindles, imperial version

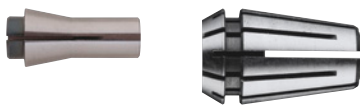
Allow access to difficult-to-reach areas and are clamped into the collet of the machine (air or electric grinder) or into the flexible shaft handpiece.

#### Special features:

- Cost-effective alternative to custom order burs and mounted points.

Image	Max. RPM	Shank mounting dia. S [Inch]	Tool mounting [Inch]	Total length L <sub>1</sub> [Inch]	Mounting pin length L <sub>2</sub> [Inch]	Max. spindle dia. D [Inch]	Collet group	Net weight [lb]	Item no.	EDP no.	Designation
(1)	44,000	1/4	1/8	2.99	1.18	0.37	14	0.062	89912000	95820	SPV 50-1/8 S1/4
(2)	20,000	SPG6	1/4	4.09	Special	0.47	10	0.161	89912001	95821	SPV 75-1/4 SPG6
		3/8	1/4	4.72	1.18	0.47	10	0.168	89912002	95822	SPV 75-1/4 S3/8
(3)	20,000	SPG6	1/4	5.08	Special	0.47	10	0.212	89912003	95823	SPV 100-1/4 SPG6
(4)	20,000	3/8	1/4	5.67	1.18	0.47	10	0.220	89912004	95824	SPV 100-1/4 S3/8
(5)	10,000	1/4	1/8	5.91	1.18	0.45	-	0.121	89912005	95825	SPV 150-1/8 S1/4
(6)	10,000	3/8	1/4	5.91	1.18	0.53	-	0.181	89912006	95826	SPV 150-1/4 S3/8

## Collets



### Collets

Different collets are available depending on the selected PFERD tool. There is a matching collet for every tool.

Diameter [mm]	Diameter [Inch]	Net weight [lb]	Item no.	EDP no.	Designation
<b>Collet group 6</b>					
3	-	0.029	95032503	93057	SPZ 950.325.03 (3 mm)
6	-	0.027	95032501	93062	SPZ 950.325.01 (6 mm)
8	-	0.015	95032517	93064	SPZ 950.325.17 (8 mm)
-	3/32	0.015	95032516	93067	SPZ 950.325.16 (3/32")
	1/8	0.029	95032504	93072	SPZ 950.325.04 (1/8")
	1/4	0.027	95032502	93074	SPZ 950.325.02 (1/4")
<b>Collet group 7</b>					
3	1/8	0.033	90000145	93081	SPZ 900.001.45 (3 mm, 1/8")
6	-	0.033	90000123	93082	SPZ 900.001.23 (6 mm)
8	-	0.033	90000143	93083	SPZ 900.001.43 (8 mm)
-	1/4	0.033	90000144	93084	SPZ 900.001.44 (1/4")
	3/8	0.033	90000100	93085	SPZ 900.001.00 (3/8")
<b>Collet group 10</b>					
3	-	0.013	95766301	93134	SPZ 957.663.01 (3 mm)
6	-	0.013	95766303	93140	SPZ 957.663.03 (6 mm)

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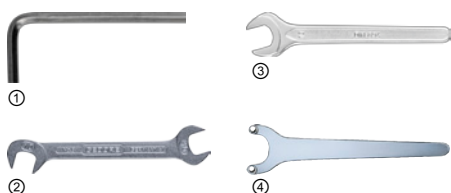
# Accessories for power tools

## Collets



Diameter [mm]	Diameter [Inch]	Net weight [lb]	Item no.	EDP no.	Designation
-	1/8	0.013	95766302	93146	SPZ 957.663.02 (1/8")
-	1/4	0.013	95766351	93148	SPZ 957.663.51 (1/4")
<b>Collet group 12</b>					
6	-	0.077	91490204	93196	SPZ 914.902.04 (6 mm)
8	-	0.061	91490206	93199	SPZ 914.902.06 (8 mm)
10	-	0.055	91490208	93201	SPZ 914.902.08 (10 mm)
12	-	0.053	91490209	93203	SPZ 914.902.09 (12 mm)
-	1/4	0.081	91490210	93211	SPZ 914.902.10 (1/4")
-	3/8	0.066	91490211	93215	SPZ 914.902.11 (3/8")
<b>Collet group 14</b>					
2.34	3/32	0.066	90110423	93227	SPZ 901.104.23 (2,34 mm, 3/32")
3	-	0.066	90110430	93226	SPZ 901.104.30 (3 mm)
-	1/8	0.066	90110418	93227	SPZ 901.104.18 (1/8")
<b>Collet group 15</b>					
3	-	0.039	98980000	93238	SPZ 989.800.00 (3 mm)
-	3/32	0.004	98980002	93240	SPZ 989.800.02 (3/32")
-	1/8	0.004	98980001	93239	SPZ 989.800.01 (1/8")
<b>Collet group 17</b>					
2.35	-	0.004	90014051	93256	SPZ 900.140.51 (2,35 mm)
3	-	0.004	90014050	93255	SPZ 900.140.50 (3 mm)
-	1/8	0.004	90014052	93257	SPZ 900.140.52 (1/8")
<b>Collet group 18</b>					
2.35	-	0.002	90014061	93266	SPZ 900.140.61 (2,35 mm)
3	-	0.002	90014060	93265	SPZ 900.140.60 (3 mm)
-	1/8	0.002	90014062	93267	SPZ 900.140.62 (1/8")
<b>Collet group 19</b>					
2.35	-	0.024	90014073	93278	SPZ 900.140.73 (2,35 mm)
3	-	0.024	90014071	93276	SPZ 900.140.71 (3 mm)
6	-	0.015	90014070	93275	SPZ 900.140.70 (6 mm)
<b>Collet group 20</b>					
3	-	0.017	98980262	93280	SPZ 98980262 (3 mm)
6	-	0.039	98980261	93283	SPZ 98980261 (6 mm)
8	-	0.046	98980263	93392	SPZ 98980263 (8 mm)
10	-	0.061	98980264	93281	SPZ 98980264 (10 mm)
-	1/4	0.039	98980265	93282	SPZ 98980265 (1/4")





## Key

PFERD offers different keys with different widths across flats (SW).

Image	Net weight [lb]	Item no.	EDP no.	Designation
<b>Hexagon L-wrench</b>				
(1)	0.002	90014005	93387	SKS SW 1,5 mm
<b>Single-head spanner</b>				
(3)	0.030	93785706	93328	EM SW 8MM G
	0.055	93785701	93335	EM SW 11MM
	0.059	98980322	93338	EM SW 12MM
	0.106	98980561	93348	
	0.140	92785611	93350	EM SW 17MM
	0.022	90000121	93383	EM SW 9/16"
	0.033	90000122	93384	EM SW 3/4"
<b>Double open-ended spanner</b>				
(2)	0.011	90014010	93390	DM SW 4/4 mm
		98980010	93325	DM SW 6/8MM
	0.004	90014004	93386	DM SW 10/10 mm
<b>Allen wrench</b>				
(4)	0.033	92792302	93312	STS D 4 mm
<b>Lock sleeve for MIM system</b>				
-	0.071	90014003	93385	MIM ARH
<b>Collet key for MIM system</b>				
-	0.049	90014008	93388	MIM SPS DK D7
<b>Lock spanner for MIM system</b>				
-	0.088	90014009	93389	MIM ARS HA D23,5
<b>Double pin spanner for MIM system</b>				
-	0.008	90014011	93391	MIM DSTS SW 11xD2,4 mm



# Accessories for power tools

## Maintenance accessories



### Maintenance set P-Set BW 4/6

Set for maintaining flexible shafts.



**Contents:**

1 hose brush BW 4/6 for removing the old grease from the flexible casing, 1x flexible shaft grease FT 4, 2 non-linting cleaning cloths (400 x 330 mm).

Contents	Use for	Net weight [lb]	Item no.	EDP no.	Designation
2 cloths, flexible shaft grease FT 4, hose brush BW 4/6	BW 4, BW 6	1.698	89913005	96111	P-Set BW 4/6



### Maintenance set P-Set BW 7

Set for maintaining flexible shafts.



**Contents:**

1 hose brush BW 7 for removing the old grease from the flexible casing, 1x flexible shaft grease FT 4, 2 non-linting cleaning cloths (400 x 330 mm).

Contents	Use for	Net weight [lb]	Item no.	EDP no.	Designation
2 cloths, flexible shaft grease FT 4, hose brush BW 7	BW 7	1.698	89913006	96112	P-Set BW 7



### Maintenance set P-Set BW 10/12

Set for maintaining flexible shafts.

**Contents:**

1 hose brush BW 10/12 for removing the old grease from the flexible casing, 1x flexible

shaft grease FT 4, 2 non-linting cleaning cloths (400 x 330 mm).

Contents	Use for	Net weight [lb]	Item no.	EDP no.	Designation
2 cloths, flexible shaft grease FT 4, hose brush BW 10/12	BW 10, BW 12	1.698	89913007	96113	P-Set BW 10/12





**Flexible shaft grease 450 g**

Flexible shaft grease with special lubrication and adhesive properties for flexible shafts.



Use for	Net weight [lb]	Item no.	EDP no.	Designation
Flexible shafts	0.992	89913003	96010	FT 4



**Special grease 100 g**

Special grease for re-greasing angle heads.

Contents	Net weight [lb]	Item no.	EDP no.	Designation
Special grease 100 g	0.220	89913002	96009	FT 5

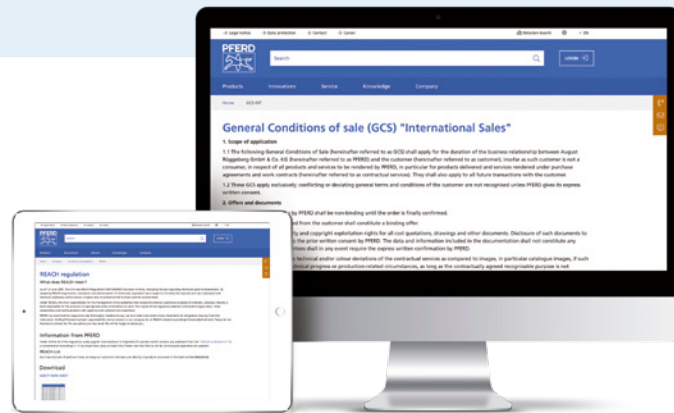


## General terms and conditions of sale

Our general terms and conditions of sale apply, which you can view at [www.pferd.com/conditions](http://www.pferd.com/conditions).



Scan the QR code for more information about our general terms and conditions of sale.



## New in the PFERD product range

Our new products have **blue** item numbers in the Tool Manual. Discontinued products are in *italics* and identified accordingly in the corresponding product tables.



Stay up to date and discover our new products digitally and online.

## REACH Regulation (EC) No. 1907/2006

By adopting REACH (registration, evaluation and authorisation of chemicals), legislators have sought to minimize the hazards and risks associated with chemical substances and to ensure a higher level of protection for humans and the environment.



Information about PFERD tools in the context of the EC REACH Regulation can be found on our website [www.pferd.com/reach](http://www.pferd.com/reach).

## PFERD repair service

Our highly experienced team at our Marienheide plant in Germany ensures that repairs are carried out quickly and looks after the provision of spare parts. Please send any queries to: [pferd.power.tools@pferd.com](mailto:pferd.power.tools@pferd.com)