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Symbols used in this manual

WARNING!

Denotes impending danger. Non-observance of this warning may result in death or extremely severe injuries.

CAUTION!

Denotes a possibly dangerous situation. Non-observance of this warning may result in slight injury or damage to property.

NOTE

Denotes application tips and important information.

Symbols on the power tool



Before switching on the power tool, read the operating manual!



Wear goggles!



Protection class II (completely insulated)



Disposal information for the old machine (see page 27)

For your safety



WARNING!

Before using the angle grinder, please read and follow:

- these operating instructions,
- the “General safety instructions” on the handling of power tools in the enclosed booklet (leaflet-no.: 315.915),
- the currently valid site rules and the regulations for the prevention of accidents.

This angle grinder is state of the art and has been constructed in accordance with the acknowledged safety regulations.

Nevertheless, when in use, the power tool may be a danger to life and limb of the user or a third party, or the power tool or other property may be damaged. The angle grinder may be operated only if it is

- as intended,
- in perfect working order.

Faults which impair safety must be repaired immediately.

Intended use

The drive unit BME 14-3 L must be used solely as a drive for the attachments described below.

With the burnishing attachment BSE 14-3 100 / BBE 14-3 110 the power tool is intended

- for commercial use in industry and trade,
- for the machining of surfaces, such as the satinising, structuring, polishing, brushing, smoothing, derusting or deburring of steel, stainless steel or non-ferrous metals,
- for use with tools which are offered for this machine by the manufacturer.

It is not permitted to machine the surface of wood.

With the belt sander attachment BRE 14-3 125 the power tool is intended

- for commercial use in industry and trade,
- for finishing stainless steel pipes, round railing parts,
- for sanding round bar profiles as well as pipes in general,

- for use with sanding belts and accessories which are specified in these instructions or recommended by the manufacturer.

Safety Instructions for power tools with a burnishing attachment



WARNING!

Read all safety warnings and all instructions. Failure to follow the warnings and instructions may result in electric shock, fire and/or serious injury. Save all warnings and instructions for future reference.

Safety Warnings Common for Sanding, Wire Brushing or Polishing

- This power tool is intended to function as a sander, wire brush or polisher. Read all safety warnings, instructions, illustrations and specifications provided with this power tool. Failure to follow all instructions listed below may result in electric shock, fire and/or serious injury.
- Operations such as grinding or abrasive cutting-off operations are not recommended to be performed with this power tool. Operations for which the power tool was not designed may create a hazard and cause personal injury.
- Do not use accessories which are not specifically designed and recommended by the tool manufacturer. Just because the accessory can be attached to your power tool, it does not assure safe operation.
- The rated speed of the accessory must be at least equal to the maximum speed marked on the power tool. Accessories running faster than their rated speed can break and fly apart.
- The outside diameter and the thickness of your accessory must be within the capacity rating of your power tool. Incorrectly sized accessories cannot be adequately guarded or controlled.
- Threaded mounting of accessories must match the grinder spindle thread. For accessories mounted by flanges, the arbour hole of the accessory must fit the locating diameter of the flange. Accessories that do not match the mounting hardware of the power tool will run out of balance, vibrate excessively and may cause loss of control.
- Do not use a damaged accessory. Before each use inspect the accessory such as abrasive wheels for chips and cracks, backing pad for cracks, tear or excess wear, wire brush for loose or cracked wires. If power tool or accessory is dropped, inspect for damage or install an undamaged accessory. After inspecting and installing an accessory, position yourself and bystanders away from the plane of the rotating accessory and run the power tool at maximum no-load speed for one minute. Damaged accessories will normally break apart during this test time.
- Wear personal protective equipment. Depending on application, use face shield, safety goggles or safety glasses. As appropriate, wear dust mask, hearing protectors, gloves and workshop apron capable of stopping small abrasive or workpiece fragments. The eye protection must be capable of stopping flying debris generated by various operations. The dust mask or respirator must be capable of filtering particles generated by your operation. Prolonged exposure to high intensity noise may cause hearing loss.
- Keep bystanders a safe distance away from work area. Anyone entering the work area must wear personal protective equipment. Fragments of workpiece or of a broken accessory may fly away and cause injury beyond immediate area of operation.
- Hold the power tool by insulated gripping surfaces only, when performing an operation where the cutting accessory may contact hidden wiring or its own cord. Cutting accessory contacting a “live” wire may make exposed metal parts of the power tool “live” and could give the operator an electric shock.
- Position the cord clear of the spinning accessory. If you lose control, the cord may be cut or snagged and your hand or arm may be pulled into the spinning accessory.
- Never lay the power tool down until the accessory has come to a complete stop. The spinning accessory may grab the surface and pull the power tool out of your control.

- **Do not run the power tool while carrying it at your side.** Accidental contact with the spinning accessory could snag your clothing, pulling the accessory into your body.
- **Regularly clean the power tool's air vents.** The motor's fan will draw the dust inside the housing and excessive accumulation of powdered metal may cause electrical hazards.
- **Do not operate the power tool near flammable materials.** Sparks could ignite these materials.
- **Do not use accessories that require liquid coolants.** Using water or other liquid coolants may result in electrocution or shock.

Kickback and Related Warnings

Kickback is a sudden reaction to a pinched or snagged rotating wheel, backing pad, brush or any other accessory. Pinching or snagging causes rapid stalling of the rotating accessory which in turn causes the uncontrolled power tool to be forced in the direction opposite of the accessory's rotation at the point of the binding. For example, if an abrasive wheel is snagged or pinched by the workpiece, the edge of the wheel that is entering into the pinch point can dig into the surface of the material causing the wheel to climb out or kick out. The wheel may either jump toward or away from the operator, depending on direction of the wheel's movement at the point of pinching. Abrasive wheels may also break under these conditions. Kickback is the result of power tool misuse and/or incorrect operating procedures or conditions and can be avoided by taking proper precautions as given below.

- **Maintain a firm grip on the power tool and position your body and arm to allow you to resist kickback forces. Always use auxiliary handle, if provided, for maximum control over kickback or torque reaction during start-up.** The operator can control torque reactions or kickback forces, if proper precautions are taken.
- **Never place your hand near the rotating accessory.** Accessory may kickback over your hand.

- **Do not position your body in the area where power tool will move if kickback occurs.** Kickback will propel the tool in direction opposite to the wheel's movement at the point of snagging.
- **Use special care when working corners, sharp edges etc. Avoid bouncing and snagging the accessory.** Corners, sharp edges or bouncing have a tendency to snag the rotating accessory and cause loss of control or kickback.
- **Do not attach a saw chain woodcarving blade or toothed saw blade.** Such blades create frequent kickback and loss of control.

Safety Warnings Specific for Sanding Operations

- **Do not use excessively oversized sanding disc paper. Follow manufacturers recommendations, when selecting sanding paper.** Larger sanding paper extending beyond the sanding pad presents a laceration hazard and may cause snagging, tearing of the disc, or kickback.

Safety Warnings Specific for Polishing Operations

- **Do not allow any loose portion of the polishing bonnet or its attachment strings to spin freely. Tuck away or trim any loose attachment strings.** Loose and spinning attachment strings can entangle your fingers or snag on the workpiece.

Safety Warnings Specific for Wire Brushing Operations

- **Be aware that wire bristles are thrown by the brush even during ordinary operation. Do not overstress the wires by applying excessive load to the brush.** The wire bristles can easily penetrate light clothing and/or skin.
- **If the use of a guard is recommended for wire brushing, do not allow any interference of the wire wheel or brush with the guard.** Wire wheel or brush may expand in diameter due to work load and centrifugal forces.

Safety Instructions for power tools with a pipe belt sander attachment



WARNING!

Read all safety warnings and all instructions. Failure to follow the warnings and instructions may result in electric shock, fire and/or serious injury. Save all warnings and instructions for future reference.

- **Hold the device by the insulated grip surfaces, as the sanding belt may come into contact with the power cord itself.** A damaged live cable may cause metal parts of the device to become live and result in an electric shock.
- **Do not use the electric power tool if it has a damaged power cord. Do not touch the damaged power cord and pull out the mains plug if the power cord is damaged during work.** Damaged power cords increase the risk of an electric shock.
- **Use the electric power tool for dry sanding only.** If water penetrates the electric power tool, there is an increased risk of electric shock.
- **When working, guide the electric power tool with both hands. The handle must be attached!** Do not switch on the machine until both hands are in the grip position.
- **Keep hands away from the running sanding belt. There is a risk of injury caused by crushing in the area of the guide rollers.** On account of the operating mode and the guaranteed flexibility of the power tool these danger areas cannot be completely shielded.
- **Dust released from materials, such as lead paints, some types of wood, minerals and metal, may be hazardous to the operator or people in the vicinity.** Inhaling or touching these dusts may result in respiratory diseases and/or allergic reactions.
 - Ensure the work place is well ventilated!
 - If possible, use external dust extraction.
 - It is recommended to wear a respirator mask belonging to filter class P2.
- Do not work on materials which release hazardous substances (e.g. asbestos).
- Never grind or cut light metals which have a magnesium content greater than 80%. Risk of fire!

- If power tools are used outdoors or are exposed to excessive amounts of metal dust, connect them via a residual-current-operated circuit-breaker (tripping current maximum 30 mA). Do not use any worn, torn or severely clogged sanding belts. Damaged sanding belts may rip, fly off and cause an injury.
- Before using the machine, check that the grinding tools have been installed and secured correctly. Switch on the machine at no load for 30 seconds!
- Interrupt the test run immediately if violent vibrations occur or other damage is established. Check the machine to determine the cause.
- Do not load electric power tool to such an extent that it comes to a standstill or the sanding belt slips.
- Before putting down the electric power tool, switch it off and wait until it comes to a standstill.
- Do not clamp the electric power tool in a vice.
- Always lay the power cord to the rear away from the electric power tool.
- Clamp the workpiece if it is loose or not positioned securely by its own weight.
- Store and handle grinding tools according to the manufacturer's instructions.

Additional safety instructions

- Use only extension cables permitted for outdoor use.
- Identify the power tool with stickers only. Do not drill any holes into the housing.
- The mains voltage and the voltage specifications on the rating plate must correspond.

Noise and vibration



NOTE

Values for the A-weighted sound pressure level and for the total vibration values can be found in the "Technical specifications" table.

The noise and vibration values have been determined in accordance with EN 62841.



CAUTION!

The indicated measurements refer to new power tools. Daily use causes the noise and vibration values to change.

**NOTE**

The vibration emission level given in this information sheet has been measured in accordance with a standardised test given in EN 62841 and may be used to compare one tool with another. It may be used for a preliminary assessment of exposure. The declared vibration emission level represents the main applications of the tool. However if the tool is used for different applications, with different accessories or poorly maintained, the vibration emission may differ. This may significantly increase the exposure level over the total working period.

However if the tool is used for different applications, with different accessories or poorly maintained, the vibration emission may differ. This may significantly decrease the exposure level over the total working period. Identify additional safety measures to protect the operator from the effects of vibration such as: maintain the tool and the accessories, keep the hands warm, organisation of work patterns.

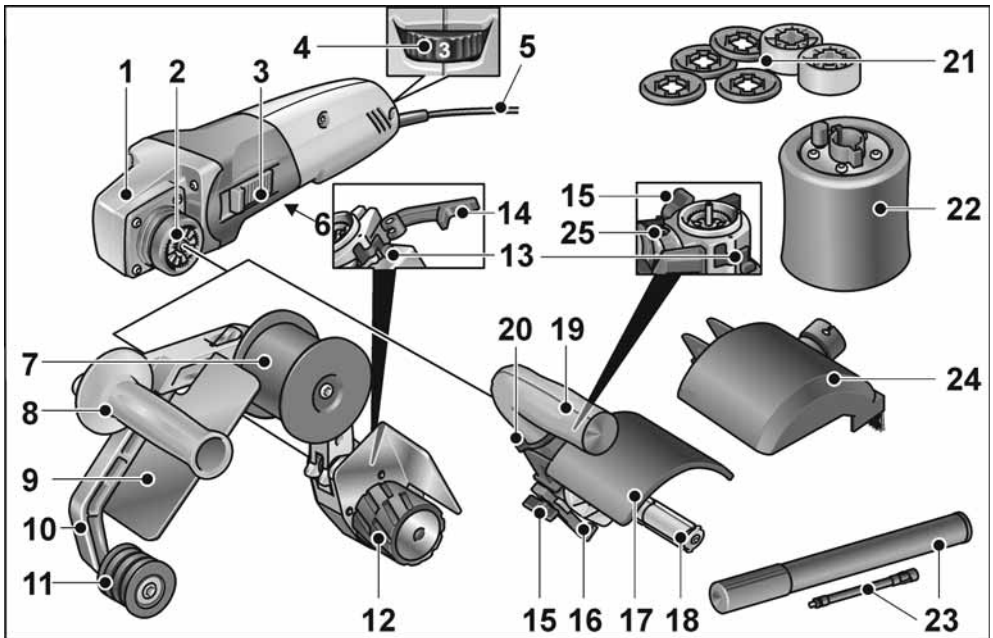
**CAUTION!**

Wear ear protection at a sound pressure above 85 dB(A).

Technical specifications

Machine type		Burnishing machine BSE 14-3 100 BBE 14-3 110	Pipe belt sander BRE 14-3 125
Power input (--> 110 V)	W	1400 (1150)	
Rated speed	r.p.m.	4300	
No load speed	r.p.m.	1000 – 3500	
Tool Ø max.	mm	125	–
Tool width	mm	100	–
Tool holder	mm	19	–
Belt dimensions (length x width)	mm	–	760 x 40
Belt speed	m/s	–	3.0 - 10.0
Weight according to “EPTA Procedure 01/2003”			
Drive without attachments (without cable)	kg	2.1	
Drive with attachment (without cable)	kg	2.9	3.6
Protection class		II/□	
A-weighted sound pressure level according to EN 62841 (see “Noise and vibration”):			
Sound pressure level L_{pA}	dB(A)	82.1	82.5
Sound power level L_{WA}	dB(A)	93.1	93.5
Uncertainty K	db	3,0	
Total vibration value according to EN 62841 (see “Noise and vibration”):			
Emission value a_h when ... – satinising metal surfaces – sanding metal pipes	m/s^2	< 2.5 –	– <2.5
Uncertainty K	m/s^2	1.5	

Overview



Drive unit BME 14-3 L

- 1 Gear head
- 2 Snap coupling for attachments
- 3 Switch rocker
Switches the power tool on and off.
With notched position for continuous operation.
- 4 Dial for preselecting the speed
- 5 4.0 m power cord with plug
- 6 Rating plate ¹⁾

Burnishing attachment BRE 14-3 125

- 7 Guide roller with guide edge
- 8 Handle
- 9 Hand protection
- 10 Swing arm
Spring-mounted, for tensioning the sanding belt.
- 11 Guide roller with guide edge
- 12 Drive roller without guide edge
- 13 Release lever for snap coupling
- 14 Clamping lever for snap coupling

Belt sander attachment BSE 14-3 100 / BBE 14-3 110

- 15 Locking screw for parallel guide
- 16 Parallel guide
- 17 Guard
- 18 Tool holder
- 19 Handle
- 20 Locking ring for fastening the cover
- 21 Spacer rings ²⁾
- 22 Rubber air roller ²⁾
- 23 Air pump ²⁾
- 24 Guard with extractor
- 25 Securing bolt

1) not illustrated

2) included in the set

Instructions for use

WARNING!

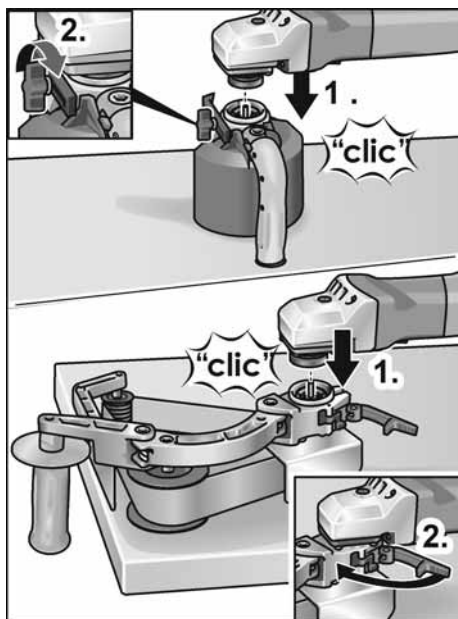
Before performing any work on the electric power tool, pull out the mains plug.

Before switching on the power tool

Unpack the drive unit and attachments, and check that no parts are missing or were damaged during transport.

Mounting attachments

- Place the required attachment on a level work surface with the snap coupling facing upwards.
- Open the clamping lever on the attachment.

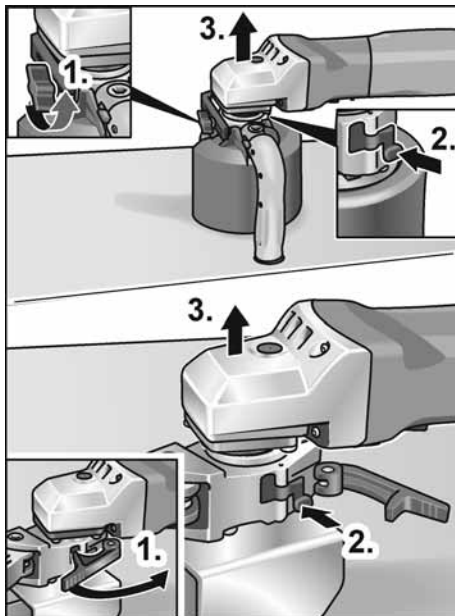


- Place the drive unit in the required position to the attachment and press down until it audibly engages (1).
- Close the clamp lever or tighten the locking bolt (2).

NOTE

The gear teeth in the snap coupling of the drive unit and the attachment are automatically interlocked when the machine is switched on.

Removal of attachments



- Open the clamping lever on the attachment or loosen the locking bolt (1).
- Press and hold down the release lever (2).
- Lift the drive unit off the attachment (3).

Burnishing attachment BSE 14-3 100 / BBE 14-3 110

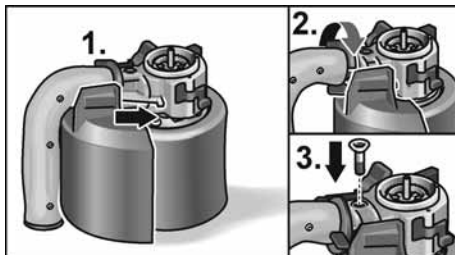
WARNING!

Before performing any work on the electric power tool, pull out the mains plug.

Mounting the protective cover

CAUTION!

The burnishing attachment may only be operated after the protective cover has been mounted.

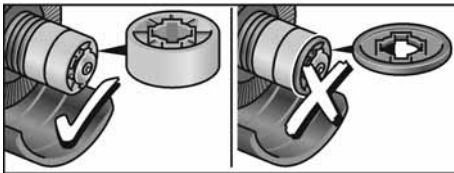
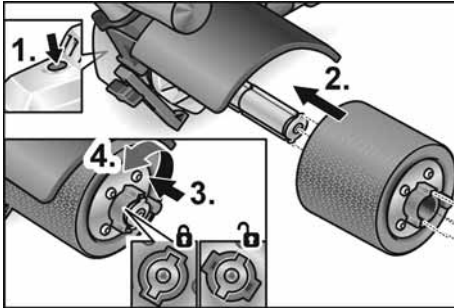


- Open the locking ring for fastening the cover.
- Attach the protective cover (1.).
- Close the closing ring for fastening the cover (2.).
- Screw in the securing bolt (3.).

Attaching tool

The tool holder enables the tool to be changed without any tools.

- Pull out the mains plug.
- Press and hold down the spindle lock (1.).



- Push tool or tool support onto the tool holder (tongue and groove form fit) (2.).
- Press the tool downwards against the spring pressure (3.) and turn clockwise (4.). The tool holder is locked.



NOTE

The tool holder has a width of 100 mm. Depending on the tool width, several tools must be attached or differences in width must be equalised with the spacer rings.

Example:

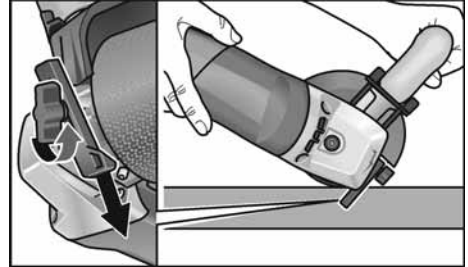
- Polishing wheel 50 mm wide: 2 tools
- Wire brush 70 mm wide: spacer rings
- Buffing wheel 10 mm wide:
..... 8 tools and spacer rings

- Insert the mains plug into the socket.
- Switch on the electric power tool (without locking the button) and leave it running for approx. 30 seconds. Check for imbalances and vibrations.
- Switch off the electric power tool.

Using the parallel guide

The parallel guide ensures exact straight running when machining profiles.

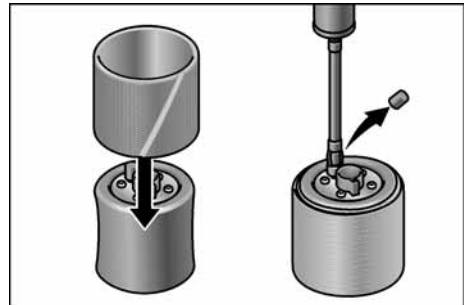
- Loosen the locking screw on the parallel guide (1.).
- Adjust the parallel guide (2.).



- Re-tighten the locking screw.

Working with the rubber air roller

The rubber air roller is particularly suitable for sanding contours, as it can be adjusted to the surface shape of the workpiece.



- Push sanding sleeves over the uninflated rubber air roller.
- Remove valve cap. Inflate the rubber air roller using the air pump.
- To release the air at the back of the valve cap, open the valve.



NOTE

If the grain of the sanding sleeve has to be changed very frequently, we recommend using a second rubber air roll from the accessories range.

Work instructions for the burnishing attachment



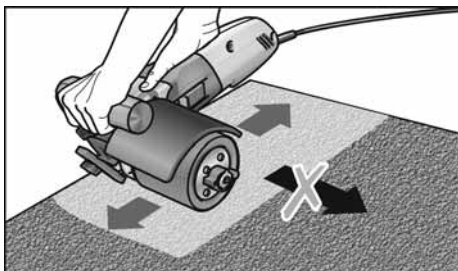
CAUTION!

When the appliance is switched off, the grinding tool continues running briefly.

Machining flat areas:

- Hold electric power tool with both hands.

To give the surface a decorative finish:



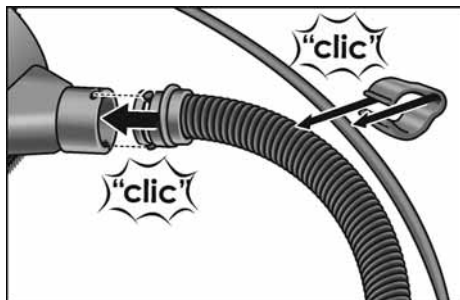
- Carefully place the electric power tool on the area to be machined and move the power tool forwards and backwards in a linear motion.

Connecting an extraction system

i NOTE

It is recommended to use a FLEX Class M dust extractor.

- Attach extraction hose to the connector on the guard hood.
- Attach power cord to the extraction hose using the enclosed cable holders (3x).



- Connect extraction hose to the dust extraction system. Follow the operating instructions for the dust extraction system! Check the attachment! If required, use an appropriate adapter.

i NOTE

If your dust extractor requires a special connection (i.e. a connection other than the 32 mm/36 mm standard connection which is included with the electric power tool), contact your dust extractor supplier to obtain the appropriate adapter.

Belt sander attachment BRE 14-3 125

⚠ WARNING!

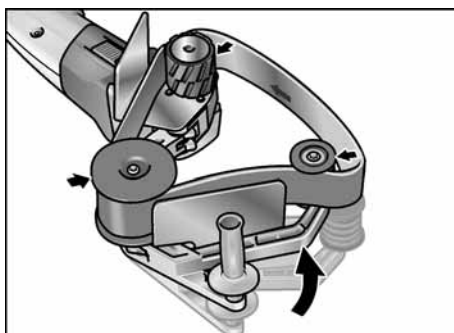
Before performing any work on the electric power tool, pull out the mains plug.

Attaching or changing the sanding belt

⚠ CAUTION!

Observe the specified running direction of the belt! Running direction must correspond with the arrow on the gear head.

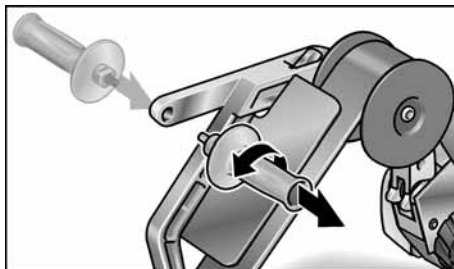
- Pull out the mains plug.
- Press the swing arm towards the rubber drive roller and hold down



- Place the sanding belt over the rollers.
- Release the swing arm.
- Check that the belt is situated fully on the rollers.

Adjusting the handle

When working in areas which are difficult to access, e.g. handrails attached to walls, the handle can be attached to the other side of the swing arm.



Work instructions for the pipe belt sander attachment

i NOTE

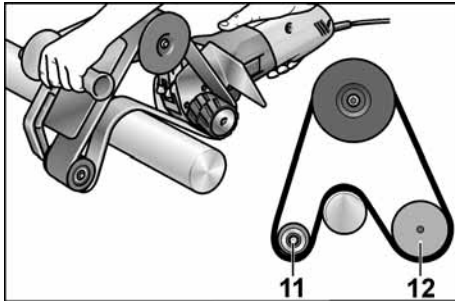
When the appliance is switched off, the grinding tool continues running briefly. A belt sander has the following advantages over a grinding disc:

- cool sanding,
- clean finish without grooves,
- high stock removal rate,
- high productivity on account of large angle of contact (depending on diameter).

Sanding:

i NOTE

After placing the machine on the workpiece and before switching it on, check that the belt is situated fully on the rollers.



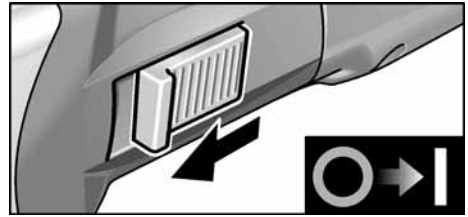
- Pipes are machined between the rollers 11 and 12.
- The angle of contact and the stock removal rate can be varied by the contact pressure.
- The smaller the pipe diameter, the larger the possible angle of contact. Up to 270° are possible.

Sealing the surface:

Many manufacturers recommend sealing finished surfaces with a protective spray (see Flex stainless steel accessories). For further information on the manufacturer's products go to www.flex-tools.com.

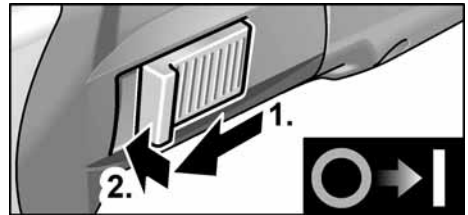
Switching on and off

Brief operation without engaged switch

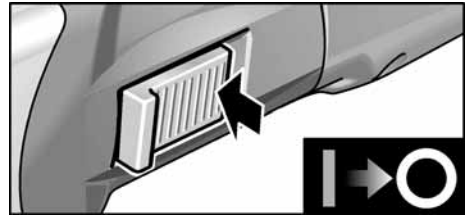


- Push the switch rocker forwards and hold in position.
- To switch off the power tool, release the switch rocker.

Continuous operation with engaged switch



- Push the switch rocker forwards (1.) and engage by pressing the front end (2.).



- To switch off the power tool, release the switch rocker by pressing the rear end.

i NOTE

Following a power failure, the switched on power tool does not restart.

Preselecting the speed

The adjusting wheel enables the operating speed to be continuously adapted to the material requirements.



Setting	Speed burnishing attachment [r.p.m.]	Belt speed belt sander attachment [m/s]
1	1000	3,5
2	1500	4,8
3	2000	6,1
4	2500	7,4
5	3000	8,7
6	3500	10,0

Maintenance and care

WARNING!

Before performing any work on the electric power tool, pull out the mains plug.

Cleaning

WARNING!

If metals are ground or cut over a prolonged period, conductive dust may become deposited inside the housing. Impairment of the protective insulation! Operate the power tool via a residual-current-operated circuit-breaker (tripping current 30 mA).

- Regularly clean the power tool and ventilation slots. Frequency of cleaning is dependent on the material and duration of use.
- Regularly blow out the housing interior and motor with dry compressed air.

Carbon brushes

The drive unit is fitted with cut-off carbon brushes. When the cut-off carbon brushes reach their wear limit, the power tool switches off automatically.

NOTE

Use only original parts supplied by the manufacturer for replacement purposes. If non-original parts are used, the guarantee obligations of the manufacturer will be deemed null and void.

When the power tool is being used, the carbon brushes can be seen sparking through the rear air inlet apertures. If the carbon brushes are sparking excessively, switch off the power tool immediately. Take the drive unit to a customer service centre authorised by the manufacturer.

Gears

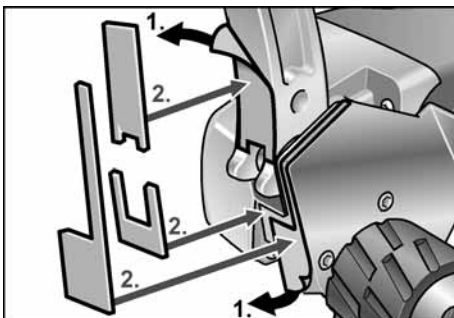
NOTE

Do not loosen the screws on the gear head during the warranty period. Non-compliance will deem the guarantee obligations of the manufacturer null and void.

Repairs

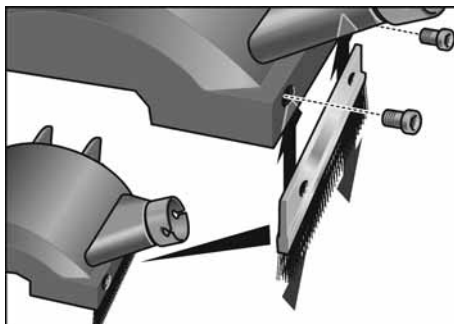
Repairs may be carried out by an authorised customer service centre only.

Replacing wearing parts



During the operating time of the belt sander the felt pads on the swing arm wear out.

Spare parts are available from the manufacturer or your dealer.



Spare parts and accessories

For other accessories, in particular grinding tools, see the manufacturer's catalogues. Exploded drawings and spare-part lists can be found on our homepage:

www.flex-tools.com

Disposal information



WARNING!

Render redundant power tools unusable by removing the power cord.



EU countries only
Do not throw electric power tools into the household waste!

In accordance with the European Directive 2012/19/EC on Waste Electrical and Electronic Equipment and transposition into national law used electric power tools must be collected separately and recycled in an environmentally friendly manner.



NOTE

Please ask your dealer about disposal options!

CE Declaration of Conformity

We declare under our sole responsibility that the product described under "Technical specifications" conforms to the following standards or normative documents:

EN 62841 in accordance with the regulations of the directives 2014/30/EU, 2006/42/EC, 2011/65/EU.

Responsible for technical documents:
FLEX-Elektrowerkzeuge GmbH, R & D
Bahnhofstrasse 15, D-71711 Steinheim/Murr

Eckhard Rühle
Manager Research &
Development (R & D)

Klaus Peter Weinper
Head of Quality
Department (QD)

13.03.2018

FLEX-Elektrowerkzeuge GmbH
Bahnhofstrasse 15, D-71711 Steinheim/Murr



Declaration of Conformity

We as the manufacturer: **FLEX Elektrowerkzeuge GmbH**,
Business address: **Bahnhofstr. 15, 71711 Steinheim, Germany**

declare under our sole responsibility, that the product(s) described under „Technical specifications“ fulfills all the relevant provisions of **The Supply of Machinery (Safety) Regulations S.I. 2008/1597** and also fulfills all the relevant provisions of the following UK Regulations: **Electromagnetic Compatibility Regulations S.I. 2016/1091, The Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment Regulations S.I. 2012/3032** and are manufactured in accordance with the following designated Standards:

BS EN 62841-1:2015, BS EN 62841-2-4:2014, BS EN 55014-1:2017, BS EN 55014-2:2015, BS EN 61000-3-2:2014, BS EN 61000-3-3:2013

Place of declaration: **Steinheim, Germany.**

Responsible person: **Peter Lameli, Technical Director – FLEX-Elektrowerkzeuge GmbH**

Contact details for Great Britain: **FLEX Power Tools Limited, Unit 8 Anglo Office Park, Lincoln Road, HP 12, 3RH Buckinghamshire, United Kingdom**

Peter Lameli
Technical Head

Klaus Peter Weinper
Head of Quality
Department (QD)

19.05.2021

Exemption from liability

The manufacturer and his representative are not liable for any damage and lost profit due to interruption in business caused by the product or by an unusable product. The manufacturer and his representative are not liable for any damage which was caused by improper use of the product or by use of the product with products from other manufacturers.