

EN

ORIGINAL INSTRUCTIONS
170W MULTI-FUNCTION TOOL



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Information on the use of these instructions


Symbols


 **Warning of electrical voltage**
This symbol indicates dangers to the life and health of persons due to electrical voltage.

 **Warning of explosive substances**
This symbol indicates dangers to the life and health of persons due to potentially explosive substances.


 **Warning of hot surface**
This symbol indicates dangers to the life and health of persons due to hot surface.


 **Warning of sharp object**
This symbol indicates dangers to the life and health of persons due to pointed objects.

 **Warning**
This signal word indicates a hazard with an average risk level which, if not avoided, can result in serious injury or death.


 **Caution**
This signal word indicates a hazard with a low risk level which, if not avoided, can result in minor or moderate injury.


Notice
This signal word indicates important information (e.g. material damage), but does not indicate hazards.


 **Info**
Information marked with this symbol helps you to carry out your tasks quickly and safely.


 **Follow the manual**
Information marked with this symbol indicates that the instructions must be observed.

 **Wear hearing protection**
Information marked with this symbol indicates that you should wear hearing protection.

 **Wear safety glasses**
Information marked with this symbol indicates that you should wear eye protection.

 **Wear a protective mask**
Information marked with this symbol indicates that you should wear a protective mask.

 **Wear protective clothing**
Information marked with this symbol indicates that you should wear protective clothing.

 **Wear protective gloves**
Information marked with this symbol indicates that you should wear protective gloves.

You can download the current version of these instructions via the following link:




PMTS 01-230V



<https://hub.trotec.com/?id=43673>

Safety

General Power Tool Safety Warnings

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

The term "power tool" in the warnings refers to your mains-operated (corded) power tool or battery-operated (cordless) power tool.

 **General Power Tool Safety Warnings – Work area safety**

- **Keep work area clean and well lit.** Clutter or dark areas invite accidents.
- **Do not operate power tools in explosive atmosphere, such as in the presence of flammable liquids, gases or dust.** Power tools create sparks which may ignite the dust or fumes.
- **Keep children and bystanders away while operating a power tool.** Distractions can cause you to lose control.

 **General Power Tool Safety Warnings – Electrical safety**

- **Power tool plugs must match the outlet. Never modify the plug in any way. Do not use any adapter plugs with earthed (grounded) power tools.** Unmodified plugs and matching outlets will reduce risk of electric shock.
- **Avoid body contact with earthed or grounded surfaces, such as pipes, radiators, ranges and refrigerators.** There is an increased risk of electric shock if your body is earthed or grounded.
- **Do not expose power tools to rain or wet conditions.** Water entering a power tool will increase the risk of electric shock.
- **Do not abuse the cord. Never use the cord for carrying, pulling or unplugging the power tool. Keep cord away from heat, oil, sharp edges or moving parts.** Damaged or entangled cords increase the risk of electric shock.
- **When operating a power tool outdoors, use an extension cord suitable for outdoor use.** Use of a cord suitable for outdoor use reduces the risk of electric shock.
- **If operating a power tool in a damp location is unavoidable, use a residual current device (RCD) protected supply.** Use of an RCD reduces the risk of electric shock.

 **General Power Tool Safety Warnings – Personal safety**

- **Stay alert, watch what you are doing and use common sense when operating a power tool. Do not use a power tool while you are tired or under the influence of drugs, alcohol or medication.** A moment of inattention while operating power tools may result in serious personal injury.
- **Use personal protective equipment. Always wear eye protection.** Protective equipment such as protective mask, non-skid safety shoes, hard hat, hearing protection or tight-fitting protective clothing used for appropriate conditions will reduce personal injuries.

- **Prevent unintentional starting. Ensure the switch is in the off-position before connecting to power source and/or battery pack, picking up or carrying the tool.** Carrying power tools with your finger on the switch or energising power tools that have the switch on invites accidents.
- **Remove any adjusting key or wrench before turning the power tool on.** A wrench or a key left attached to a rotating part of the power tool may result in personal injury.
- **Do not overreach. Keep proper footing and balance at all times.** This enables better control of the power tool in unexpected situations.
- **Dress properly. Do not wear loose clothing or jewellery. Keep your hair, clothing and gloves away from moving parts.** Loose clothes, jewellery or long hair can be caught in moving parts.
- **If devices are provided for the connection of dust extraction and collection facilities, ensure these are connected and properly used.** Use of dust collection can reduce dust-related hazards.

 **General Power Tool Safety Warnings – Power tool use and care**

- **Do not force the power tool. Use the correct power tool for your application.** The correct power tool will do the job better and safer at the rate for which it was designed.
- **Do not use the power tool if the switch does not turn it on and off.** Any power tool that cannot be controlled with the switch is dangerous and must be repaired.
- **Disconnect the plug from the power source and / or the battery pack from the power tool before making any adjustments, changing accessories, or storing power tools.** Such preventive safety measures reduce the risk of starting the power tool accidentally.
- **Store idle power tools out of the reach of children and Do not allow persons unfamiliar with the device or these instructions to operate the device.** Power tools are dangerous in the hands of untrained users.
- **Maintain power tools. Check for misalignment or binding of moving parts, breakage of parts and any other condition that may affect the power tool's operation. If damaged, have the power tool repaired before use.** Many accidents are caused by poorly maintained power tools.
- **Keep cutting tools sharp and clean.** Properly maintained cutting tools with sharp cutting edges are less likely to bind and are easier to control.

- **Use the power tool, accessories and tool bits etc. in accordance with these instructions. Take into account the working conditions and the work to be performed.** Use of the power tool for operations different from those intended could result in a hazardous situation.



General Power Tool Safety Warnings – Service

- **Have your power tool serviced by a qualified repair person using only identical replacement parts.** This will ensure that the safety of the power tool is maintained.



Safety Warnings Common for Grinding, Sanding, Wire Brushing, Polishing or Abrasive Cutting-Off Operations

- **This power tool is intended to function as a grinder, sander, wire brush, polisher or cut-off tool. 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.
- **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.
- **Abrasive wheels, abrasive rolls or other accessories must fit exactly on the grinder spindle or collet chuck of your power tool.** Accessories that do not precisely match the holder of the power tool will run out of balance, vibrate excessively and may cause loss of control.
- **Wheels, abrasive cylinders, cutting tools or other accessories mounted on a mandrel must be fully inserted into the collet chuck or jaw chuck. The “protrusion” or the exposed part of the mandrel between the abrasive accessory and the collet chuck or jaw chuck must be minimal.** If the mandrel is not sufficiently tensioned or the abrasive accessory protrudes too far forward, the accessory may become loose and be ejected at high speed.
- **Do not use a damaged accessory. Before each use inspect the accessory such as abrasive wheels for chips and cracks, abrasive rolls for cracks, tear or excess wear, wire brushes 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 filtrating 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.
- **Always hold onto the power tool firmly when starting it.** When running up to full speed, the reaction torque of the motor can cause the power tool to twist.
- **If possible, use clamps to hold the workpiece in place. Never hold a small workpiece in one hand and the power tool in the other while using it.** Tightly clamping small workpieces allows you to have both hands free and to have better control of the power tool. When removing round workpieces such as wooden dowels, bar stock or pipes, they tend to roll away, causing the accessory to jam and be catapulted towards you.
- **Keep the connecting cable away from spinning accessories.** If you lose control of the device, the cord may be cut or snagged and your hand or arm may be pulled into the spinning accessories.
- **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.

- **After changing accessories or making adjustments to the device, firmly tighten the collet chuck nut, the jaw chuck or other fixing elements.** Loose fixing elements can shift unexpectedly and cause loss of control; and rotating components that are not attached will be forcefully ejected.
- **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.
- **Always move the accessory into the material in the same direction in which the cutting edge leaves the material (corresponds to the same direction in which the chips are ejected).** Guiding the power tool in the wrong direction causes the cutting edge of the accessory to climb out of the workpiece, which will pull the power tool in that feed direction.
- **Always clamp the workpiece firmly when using rotary files, cutting wheels, high-speed milling tools or carbide milling tools.** If these accessories become only slightly jammed in the groove, they will get caught and may cause a kickback. If a cutting wheel gets caught, it usually breaks. If rotary files, high-speed milling tools or carbide milling tools get caught, the tool insert may be ejected from the groove and cause loss of control of the power tool.



Safety Warnings Specific for Grinding and Abrasive Cutting-Off Operations



Kickback and Related Warnings

A kickback is a sudden reaction to a pinched or snagged rotating wheel, abrasive wheel, abrasive belt, brush or any other accessory. Pinching or jamming causes rapid stalling of the rotating accessory. This will accelerate an uncontrolled power tool towards the direction opposite of the accessory's rotation.

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. Kickback 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.** The operator can control kickback forces, if proper precautions are taken.
- **Never place your hand near the rotating accessory.** Accessory may kickback over your hand.
- **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. The result would be a 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.
- **Only use abrasives approved for your power tool and for the recommended applications. Example: do not grind with the side of cut-off wheel.** Cutting discs are designed for material removal using the edge of the disc. Exerting force to the sides of these abrasives may break them.
- **For conical and straight abrasive pencils with a thread, only use undamaged mandrels of the correct size and length without an undercut on the shoulder.** Suitable mandrels reduce the risk of breakage.
- **Do not "jam" the cut-off wheel or apply excessive pressure. Do not attempt to make an excessive depth of cut.** Overstressing the wheel increases the loading and susceptibility to twisting or binding of the wheel in the cut and the possibility of kickback or wheel breakage.
- **Do not position your hand in line with and behind the rotating cutting wheel.** When the wheel, at the point of operation, is moving away from your hand, the possible kickback may propel the spinning wheel and the power tool directly at you.
- **When wheel is binding or when interrupting a cut for any reason, switch off the power tool and hold the power tool motionless until the wheel comes to a complete stop. Never attempt to remove the cut-off wheel from the cut while the wheel is in motion otherwise kickback may occur.** Investigate and take corrective action to eliminate the cause of wheel binding.
- **Do not restart the cutting operation in the workpiece. Let the wheel reach full speed and carefully re-enter the cut.** The wheel may bind, walk up or kickback if the power tool is restarted in the workpiece.

- **Support panels or any oversized workpiece to minimize the risk of wheel pinching and kickback.** Large workpieces tend to sag under their own weight. Supports must be placed under the workpiece near the line of cut and near the edge of the workpiece on both sides of the wheel.
- **Use extra caution when making a pocket cut into existing walls or other blind areas.** The protruding wheel may cut gas or water pipes, electrical wiring or objects that can cause kickback.

 **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.
- **Let brushes run at operating speed for at least one minute before starting work. Make sure that during this time no other person is standing in line with the brush.** During the start-up time, loose wire bristles may fly.
- **Direct the rotating wire brush away from yourself.** When working with these brushes, small particles and tiny bits of wire may fly at high speed and penetrate the skin.

 **Safety Warnings Specific for Grinding and Abrasive Cutting-Off Operations**

- **Use only the abrasive products recommended for your power tool and only for the recommended applications. Example: do not grind with the side of cut-off wheel.** Cutting discs are designed for material removal using the edge of the disc. Exerting force to the sides of these abrasives may break them.
- **For conical and straight abrasive pencils with a thread, only use undamaged mandrels of the correct size and length without an undercut on the shoulder.** Suitable mandrels prevent the risk of breakage.
- **Do not "jam" the cut-off wheel or apply excessive pressure. Do not attempt to make an excessive depth of cut.** Overstressing the wheel increases the loading and susceptibility to twisting or binding of the wheel in the cut and the possibility of kickback or wheel breakage.
- **Do not position your hand in line with and behind the rotating cutting wheel.** When the wheel, at the point of operation, is moving away from your hand, the possible kickback may propel the spinning wheel and the power tool directly at you.

- **When wheel is binding or when interrupting a cut for any reason, switch off the power tool and hold the power tool motionless until the wheel comes to a complete stop. Never attempt to remove the cut-off wheel from the cut while the wheel is in motion otherwise kickback may occur.** Investigate and take corrective action to eliminate the cause of wheel binding.
- **Do not restart the cutting operation in the workpiece. Let the wheel reach full speed and carefully re-enter the cut.** The wheel may bind, walk up or kickback if the power tool is restarted in the workpiece.
- **Support panels or any oversized workpiece to minimize the risk of wheel pinching and kickback.** Large workpieces tend to sag under their own weight. Supports must be placed under the workpiece near the line of cut and near the edge of the workpiece on both sides of the wheel.
- **Use extra caution when making a pocket cut into existing walls or other blind areas.** The protruding wheel may cut gas or water pipes, electrical wiring or objects that can cause kickback.

Intended use

Only use the device PMTS 01-230V:

- Drilling into wood or metal
- Milling into wood or plastics
- For sawing and cutting
 - Wood
 - Plastics
 - Non-ferrous metals
 - Fixing elements (e.g. screws, nails, clamps etc.)
- For sanding small, dry areas
- Engraving
 - Metal
 - Plastics
 - Glass
 - Ceramics
 - Wood
 - Leather
- Polishing

observing the technical data provided.

We recommend using the power tool with original Trotec accessories.

Any use other than the intended use is regarded as misuse.

Reasonably foreseeable misuse

Do not use the device for:

- cutting up tiles
- sawing large screws or stainless steel
- processing workpieces requiring a continuous water supply
- drilling into concrete or natural stone

Only use the device in weatherproof surroundings.

Personnel qualification

People who use this device must:

- be aware of the dangers that occur when working with electric devices in damp areas.
- have read and understood the instructions, especially the Safety chapter.

Personal protective equipment



Wear hearing protection.

Excessive noise can lead to hearing loss.



Wear eye protection.

With it you protect your eyes from splintering, falling and flying pieces which could cause injuries.



Wear a protective mask.

It saves you from inhaling harmful dusts generated when processing workpieces.



Wear protective gloves.

They protect your hands from burns, crushing injuries and skin abrasions.



Wear tight-fitting protective clothing.

This protects you from the draw-in and entanglement hazard posed by rotating parts.

Residual risks



Warning of electrical voltage

Electric shock due to insufficient insulation!

Check the device for damages and proper functioning before each use.

If you detect damages, do not use the device any longer.

Do not use the device when either the device or your hands are damp or wet!



Warning of electrical voltage

Work on the electrical components must only be carried out by an authorised specialist company!



Warning of electrical voltage

Before any work on the device, remove the mains plug from the mains socket!

Do not touch the mains plug with wet or damp hands.

Hold onto the mains plug while pulling the power cable out of the mains socket.



Warning of electrical voltage

There is a risk of a short-circuit due to liquids penetrating the housing!

Do not immerse the device and the accessories in water. Make sure that no water or other liquids can enter the housing.



Warning of hot surface

The insertion tool might still be hot after the application.

Burn hazard when touching the insertion tool.

Do not touch the insertion tool bare-handed!

Wear protective gloves!



Warning of hot surface

If the flexible shaft forms a loop or becomes kinked during operation, the shaft can heat up and melt with the hose. Ensure that the flexible shaft does not become kinked or heated up and do not burn yourself. Wear protective gloves!



Warning of sharp object

Parts of the saw blade are sharp. Risk of injuries if handled without due care.

Wear protective gloves!



Warning

Toxic dusts!



The harmful / toxic dusts produced during operation pose of risk to the health of the operator and persons in the vicinity.



Wear eye protection and a dust mask!

**Warning**

Do not process materials containing asbestos. Asbestos is considered carcinogenic.

**Warning**

Make sure not to hit power, gas or water lines when working with a power tool. If necessary, use a pipe detector to check the wall you want to drill in or slit open.

**Warning**

Risk of injuries caused by flying parts or bursting tool heads.

**Warning**

Dangers can occur at the device when it is used by untrained people in an unprofessional or improper way! Observe the personnel qualifications!

**Warning**

The device is not a toy and does not belong in the hands of children.

**Warning**

Risk of suffocation!
Do not leave the packaging lying around. Children may use it as a dangerous toy.

**Caution**

Vibration emissions can cause a health hazard if the device is used for an extended period of time or if it is not properly handled and maintained.

**Caution**

Keep a sufficient distance from heat sources.

Notice

If you store or transport the device improperly, the device may be damaged.
Note the information regarding transport and storage of the device.

Behaviour in the event of an emergency / emergency stop function

Emergency stop:

Removing the mains plug from the mains socket results in the function of the device immediately stopping. In order to secure the device against accidental switch-on, leave the mains plug disconnected.

Behaviour in the event of an emergency:

1. Switch the device off.
2. In an emergency, disconnect the device from the mains feed-in: Hold onto the mains plug while pulling the power cable out of the mains socket.
3. Do not reconnect a defective device to the mains.

Information about the device

Device description

The multi-function tool PMTS 01-230V is a high-precision tool for performing especially fine and detailed tasks in the fields of drilling, milling, cutting, engraving or polishing. It is ideally suited for tasks like for example: model construction and the use in wood and metal processing or for polishing jewellery.

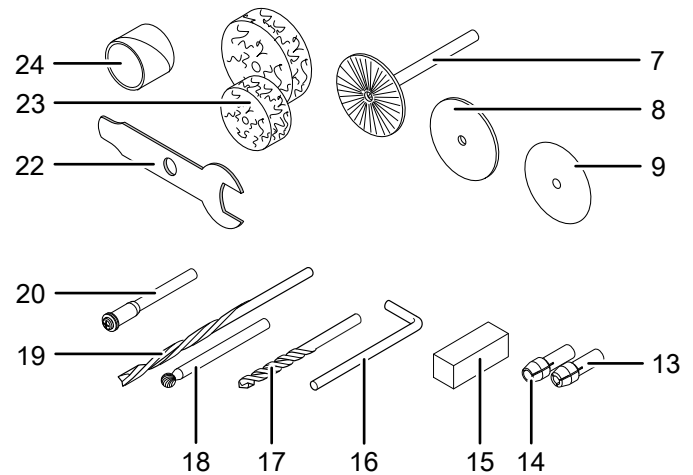
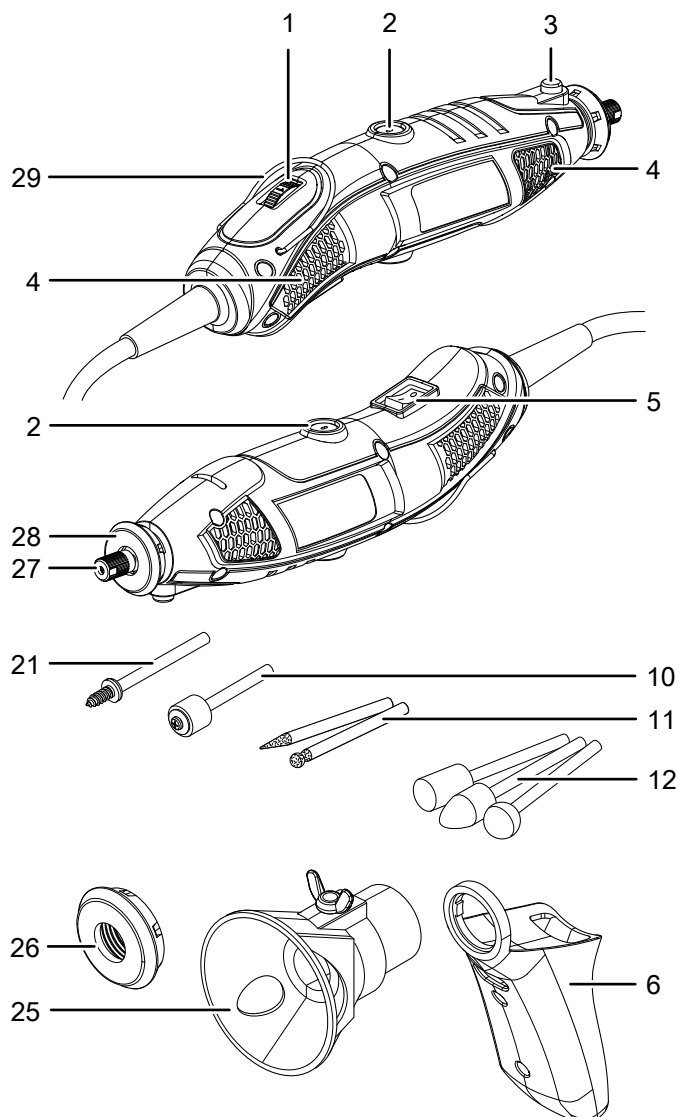
The highly flexible shaft supplied allows for fatigue-free working and especially precise working.

For material-compatible working, the rated speed can be set steplessly selected within a range of 10,000 rpm to 35,000 rpm at the setting wheel.

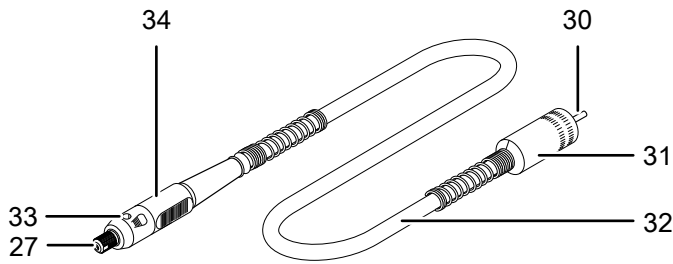
The positioning fixture included in the scope of delivery allows for steplessly limiting the plunging depth to the range from 0 mm to 20 mm when performing milling tasks.

The additional handle makes it possible to work with both hands and therefore ensures reliable guidance of the tool.

Device depiction



No.	Designation
1	Setting wheel for speed selection
2	Carbon brush cover
3	Spindle lock
4	Venting slots
5	On/off switch
6	Additional handle
7	Stainless steel brush
8	Cutting discs
9	Abrasive wheels
10	Mandrel for abrasive belts
11	Engraving bits, diamond-tipped
12	Aluminium oxide grinding head (different types)
13	Collet chuck 2.3 mm
14	Collet chuck 3.2 mm
15	Grinding stone
16	Locking key for flexible shaft
17	HSS twist drill bit 2 mm and 3 mm
18	Milling cutter (ball head)
19	Milling cutter (groove)
20	Mandrel for cutting discs/abrasive wheels
21	Mandrel for polishing attachments
22	Wrench
23	Polishing attachments
24	Abrasive belts
25	Positioning fixture with depth adjustment 0 - 20 mm
26	Fixing screw for additional handle
27	Tool holder with clamping nut
28	Union nut
29	Suspension bracket



No.	Designation
27	Tool holder with clamping nut
30	Inner axis
31	Union nut (flexible shaft)
32	Flexible shaft
33	Spindle lock
34	Handle

Scope of delivery

- 1 x Device PMTS 01-230V
- 1 x Flexible shaft
- 1 x Additional handle
- 1 x Fixing screw for the handle
- 1 x Positioning fixture with depth adjustment 0 - 20 mm
- 1 x Wrench
- 1 x Locking key
- 1 x Mandrel for cutting/abrasive wheels
- 25 x Cutting wheel
- 25 x Abrasive wheel
- 1 x Collet chuck 3.2 mm
- 1 x Collet chuck 2.3 mm
- 2 x Engraving bit diamond-tipped
- 1 x Grinding mandrel
- 5 x Abrasive belt
- 1 x HSS twist drill bit 3 mm
- 1 x HSS twist drill bit 2 mm
- 8 x Aluminium oxide grinding head
- 1 x Mandrel for polishing attachment
- 4 x Polishing attachment
- 1 x Grinding stone
- 1 x Milling cutter (groove)
- 1 x Milling cutter (ball head)
- 1 x Stainless steel brush
- 1 x Storage box
- 1 x Transport case
- 1 x Manual

Technical data

Parameter	Value
Model	PMTS 01-230V
Mains supply	1/N/PE ~ 230 V / 50 Hz
Power consumption	170 W
Rated no-load speed	10,000 – 35,000 rpm
Cable length	1.8 m
Protection class	II (double insulation) /
Weight	0.65 kg
Sound values according to EN 60745	
Sound pressure level	72 dB(A)
Sound power level	83 dB(A)
Uncertainty K	3 dB
Vibration information according to EN 60745	
Vibration emission value a_h	1.65 m/s ²
Uncertainty K	1.5 m/s ²



Wear hearing protection.

Excessive noise can lead to hearing loss.

Information on noise and vibration:

- The vibration level specified in these instructions was determined by means of a measuring method standardized in EN 60745 and can be used for a device comparison. The specified vibration emission value may also be used for a preliminary assessment of the exposure.



Caution

Vibration emissions can cause a health hazard if the device is used for an extended period of time or if it is not properly handled and maintained.

- The vibration level will change depending on the application of the power tool and may in some cases differ from the value specified in these instructions. The vibration load may be underestimated if the power tool is used regularly in such a way. For a precise estimation of the vibration load during a certain work period, it is also important to consider the periods during which the device is switched off, or is running but not actually employed. This can reduce the vibration load over the entire work period significantly.

Transport and storage

Notice

If you store or transport the device improperly, the device may be damaged.

Note the information regarding transport and storage of the device.

Transport

For transporting the device, use the transport case included in the scope of delivery in order to protect the device from external influences.

Before transporting the device, observe the following:

- Switch off the device.
- Hold onto the mains plug while pulling the power cable out of the mains socket.
- Allow the device to cool down.
- Remove the tool from the tool holder.

Storage

Before storing the device, proceed as follows:

- Switch off the device.
- Hold onto the mains plug while pulling the power cable out of the mains socket.
- Allow the device to cool down.
- Remove the tool from the tool holder.
- Clean the device as described in the Maintenance chapter.
- For storing the device, use the transport case included in the scope of delivery in order to protect the device from external influences.

When the device is not being used, observe the following storage conditions:

- dry and protected from frost and heat
- Ambient temperature below 45 °C
- Protected from dust and direct sunlight inside the transport case

Start-up

Unpacking the device

- Take the transport case out of the packaging.



Warning of electrical voltage

Electric shock due to insufficient insulation!

Check the device for damages and proper functioning before each use.

If you detect damages, do not use the device any longer.

Do not use the device when either the device or your hands are damp or wet!

- Check the contents of the transport case for completeness and look for damages.



Warning

Risk of suffocation!

Do not leave the packaging lying around. Children may use it as a dangerous toy.

- Dispose of the packaging material according to the national regulations.

Mounting the handle

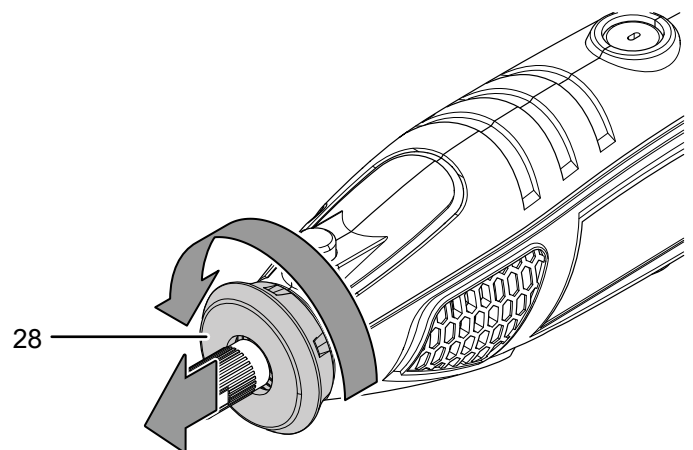


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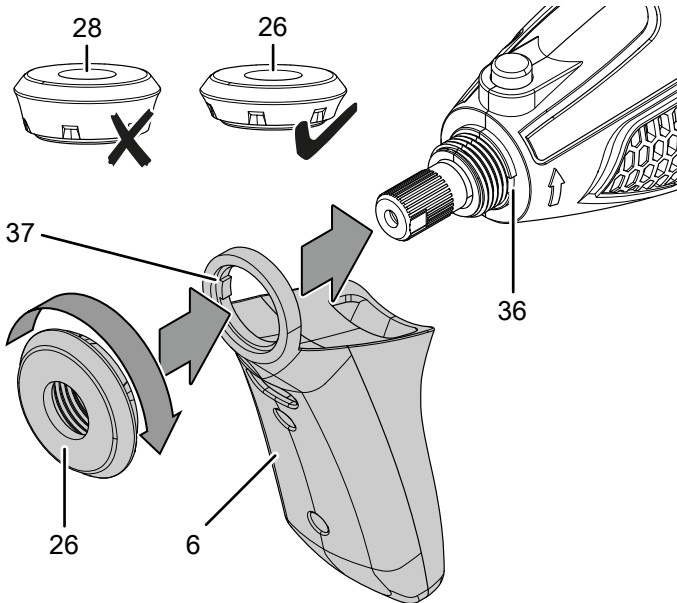
Use the supplied additional handle for precise and safe guiding.

If you wish to mount the additional handle (6) for the intended task, please proceed as follows:

1. Unscrew the union nut (28) on the tool by turning the nut in counter-clockwise direction.



- Slide the additional handle (6) onto the tool. Make sure that the coded projections (37) are locked in the coded groove (36) in each case.



- Tighten the fixing screw (26) of the additional handle (6) in clockwise direction.
- Check the additional handle (6) for tight fit.
- For disassembly, unscrew the fixing screw (26), remove the additional handle (6) and put on the union nut (28) again.

Replacing the collet chuck



Warning of electrical voltage

Before any work on the device, remove the mains plug from the mains socket!
Do not touch the mains plug with wet or damp hands. Hold onto the mains plug while pulling the power cable out of the mains socket.



Wear protective gloves

Wear appropriate protective gloves when inserting or exchanging tools.

Notice

Never actuate the spindle lock (3) button while the tool is running! This may damage the tool.

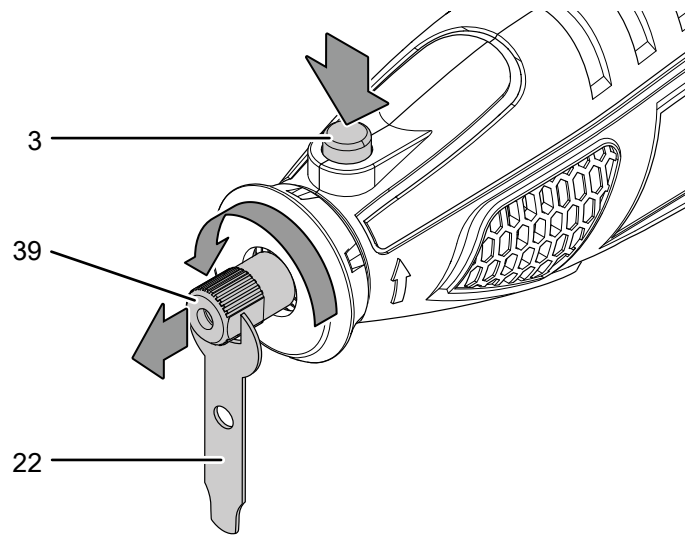


Info

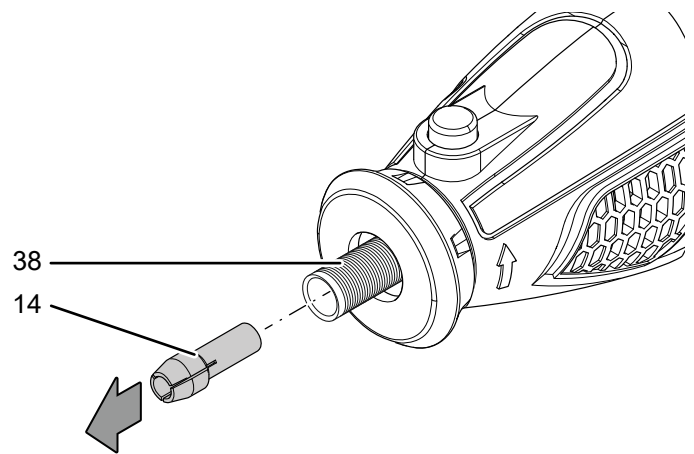
If you want to use the 2 mm twist drill bit or another tool with a 2 mm shank the collet chuck must be replaced.

Please proceed as follows:

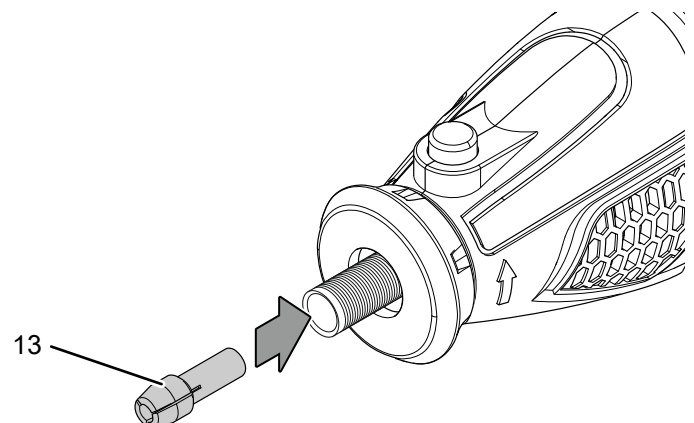
- Press the spindle lock (3) button and keep it pressed.
- Slowly rotate the tool holder (27) to the locking point until the locking mechanism is latched.
- Unscrew the clamping nut (39) in counter-clockwise direction using the wrench (22).



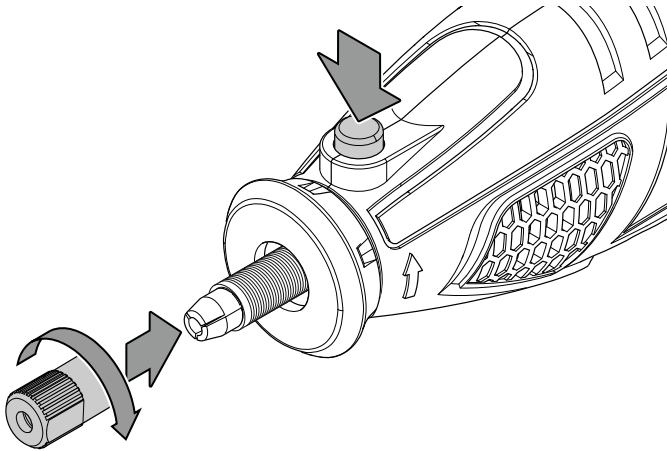
- Remove the 3.2 mm collet chuck (14) from the collet chuck holder (38).



- Insert the 2.3 mm collet chuck (13) into the collet chuck holder (38).



6. Screw the clamping nut (39) onto the collet chuck holder in clockwise direction (38) and tighten the clamping nut (39) using the wrench (22). Then let go of the spindle lock (3).



Tool change



Wear protective gloves

Wear appropriate protective gloves when inserting or exchanging tools.

Notice

Never actuate the spindle lock (3) button while the tool is running! This may damage the tool.

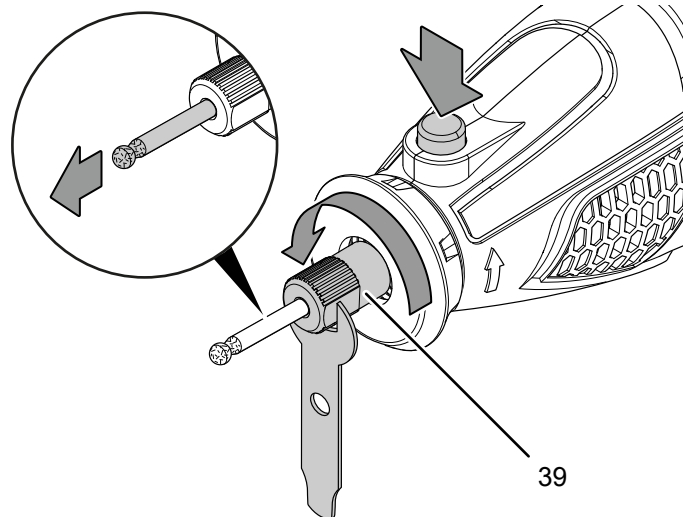


Info

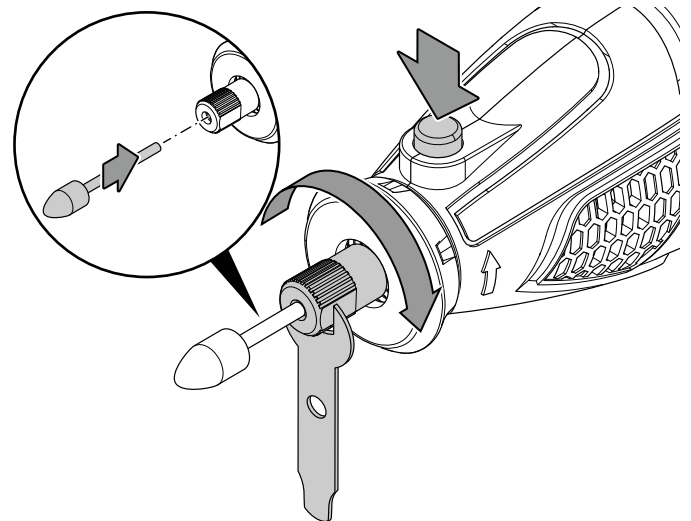
Before changing the tool, check whether the suitable collet chuck is mounted and replace it, if necessary.

In order to change the tool, proceed as follows:

1. Press the spindle lock (3) and keep it pressed.
2. Slowly rotate the tool holder (27) to the locking point until the locking mechanism is fixed.
3. Unscrew the clamping nut (39) using the wrench (22) by turning it in counter-clockwise direction. It is not necessary to fully unscrew the clamping nut.
4. Remove the tool from the tool holder (27), if any.



5. Insert the tool required into the tool holder (27).



6. Tighten the clamping nut (39) using the wrench (22) and let go of the spindle lock (3).
7. Make sure that the tool is attached securely.

Using a tool with mandrel

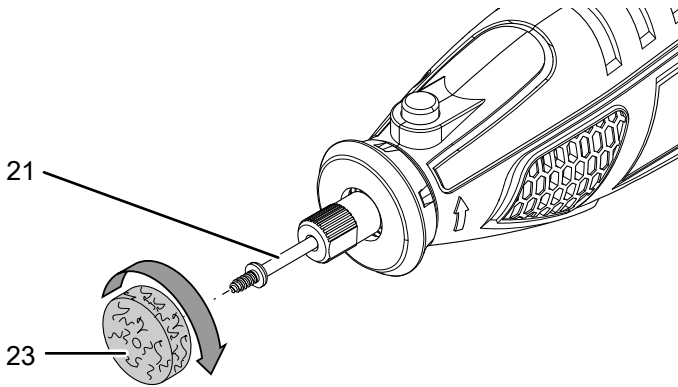
The following tools are mounted by means of a corresponding mandrel:

- Polishing attachments (23)
- Cutting discs (8)
- Abrasive wheels (9)
- Abrasive belts (24)

To mount the tool on the mandrel, please proceed as follows:

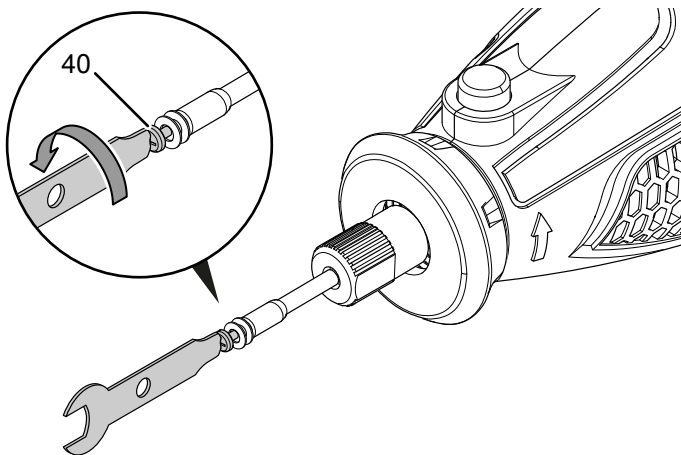
Polishing attachments:

1. Insert the mandrel for polishing attachments (21) into the device as described in the chapter "Tool change".
2. Press the spindle lock (3) button and keep it pressed.
3. Screw the polishing attachment (23) onto the thread of the mandrel in clockwise direction and then let go of the spindle lock (3) button again.

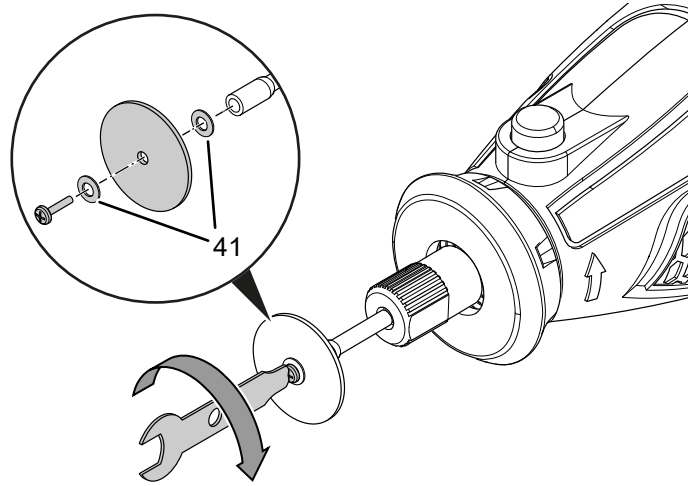


Cutting discs/abrasive wheels:

1. Insert the mandrel for cutting discs/abrasive wheels (20) into the device as described in the "Tool change" chapter.
2. Press the spindle lock (3) button and keep it pressed.
3. Unscrew the screw (40) from the mandrel by turning the screw in counter-clockwise direction.



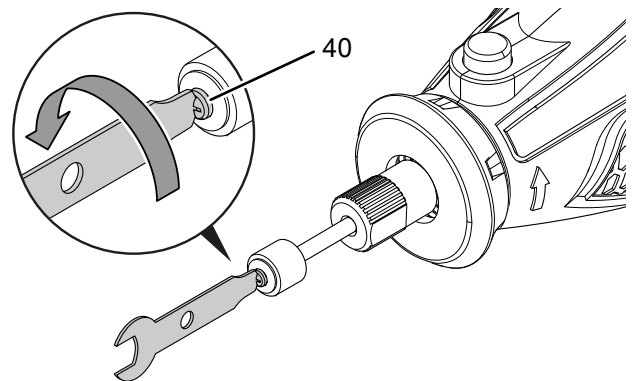
4. Place a cutting disc (8) or abrasive wheel (9) between the two washers (41) onto the screw (40) and tighten it to the mandrel again in clockwise direction.



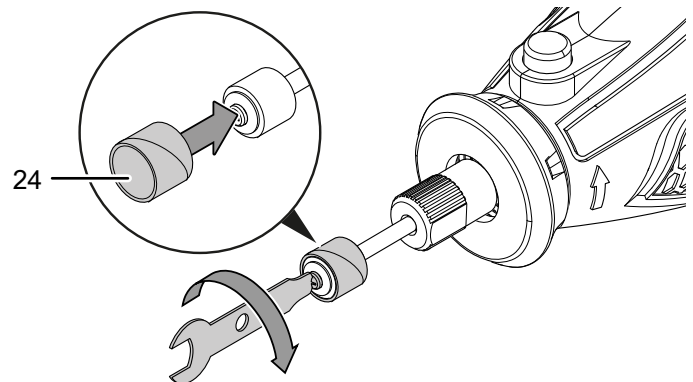
5. Release the button of the spindle lock (3) again.

Abrasive belt:

1. Insert the mandrel for abrasive belts (10) into the device as described in the chapter "Tool change".
2. Press the spindle lock (3) button and keep it pressed.
3. Turn the screw (40) on the mandrel in counter-clockwise direction until it has a little backlash.



4. Place the abrasive belt (24) onto the rubberized holder and tighten the screw (40) again in clockwise direction.



5. Release the button of the spindle lock (3) again.

Using a flexible shaft

Notice

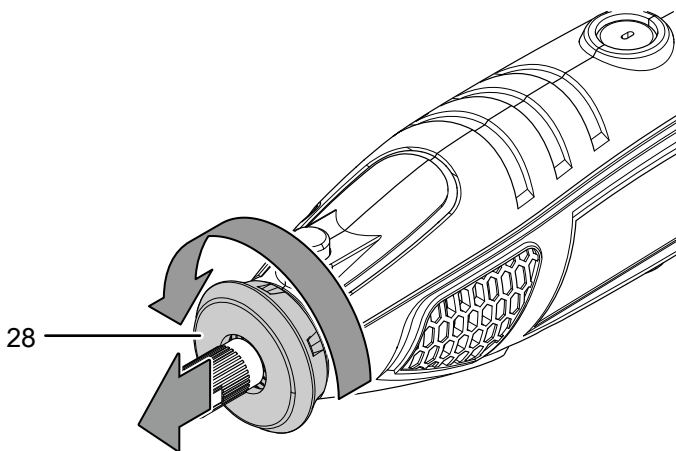
Never actuate the spindle lock (3) button while the tool is running! This may damage the tool.



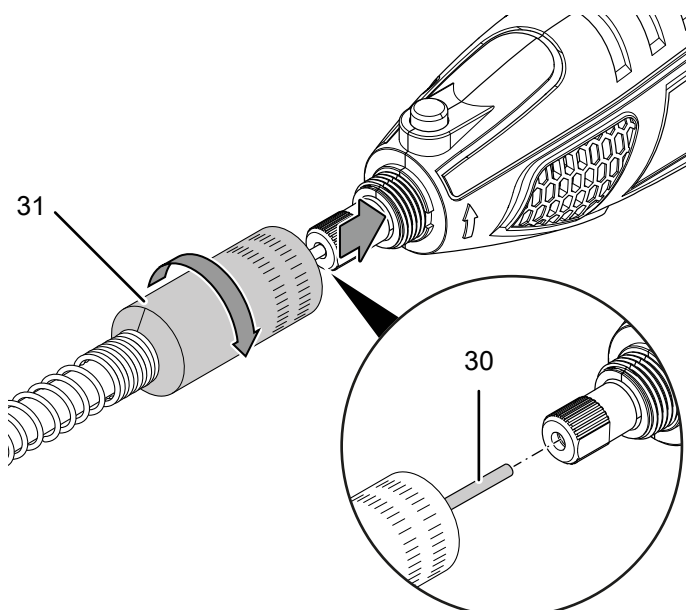
Info

Use the flexible shaft for tasks requiring fine and precise guidance of the tool.

- ✓ There is no tool in the tool holder (27).
 - ✓ The 3.2 mm collet chuck (14) is mounted.
1. Unscrew the union nut (28) on the tool by turning the nut in counter-clockwise direction.

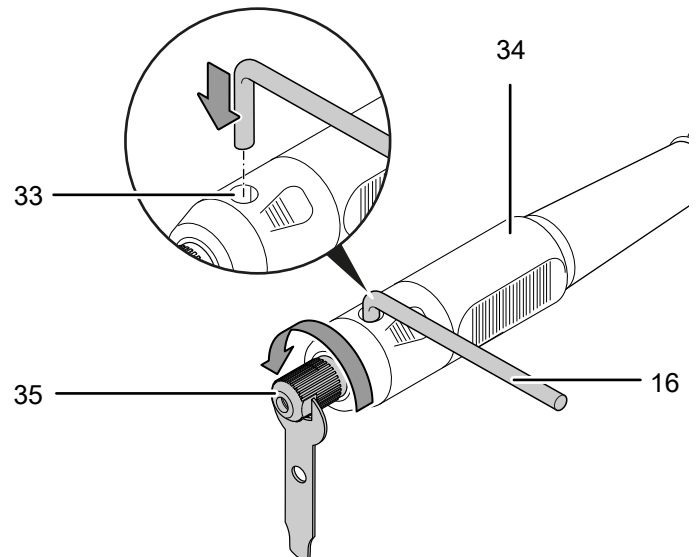


2. Slightly pull the inner axis (30) from the union nut (31) of the flexible shaft.
3. Clamp the inner axis (30) into the tool holder (27) by proceeding as described in the chapter "Tool change."
4. Slide the union nut (31) of the flexible shaft over the tool holder (27) and tighten it in clockwise direction.



Proceed as follows to clamp a tool on the handle (34) of the flexible shaft:

1. In order to block the spindle at the handle (34), insert the locking wrench (16) into the spindle lock (33).
2. Slowly turn the tool holder (27) to the locking point until the locking wrench (16) fully engages with the lock and fixes it.
3. Loosen the clamping nut (35) by means of the wrench (22) by turning it in counter-clockwise direction.



4. Remove the tool from the tool holder (27), if any.
5. Insert the tool required into the tool holder (27).
6. Tighten the clamping nut (35) in clockwise direction using the wrench (22).
7. Remove the locking wrench (16) from the spindle lock (33).
8. Check the tool for tight fit.



Warning of hot surface

Ensure that the flexible shaft does not form a loop or become kinked during operation. There is a risk of the shaft becoming hot and melting with the hose. Do not touch the handle if it became hot. Risk of burns.

Using the positioning fixture

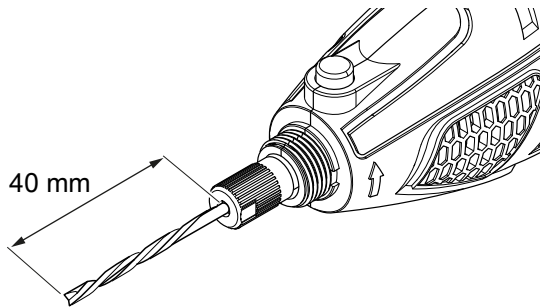


Info

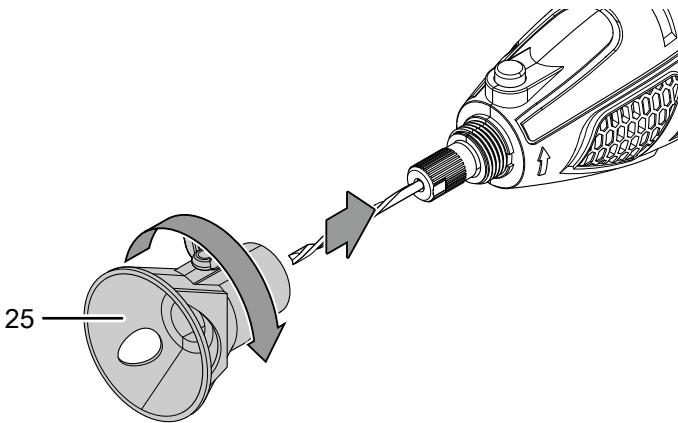
The positioning fixture (25) allows for exact, vertical milling of a groove maintaining a defined depth setting at the same time. Furthermore, the positioning fixture enables working with a lateral limit stop.

1. Unscrew the union nut (28) on the tool by turning the nut in counter-clockwise direction.

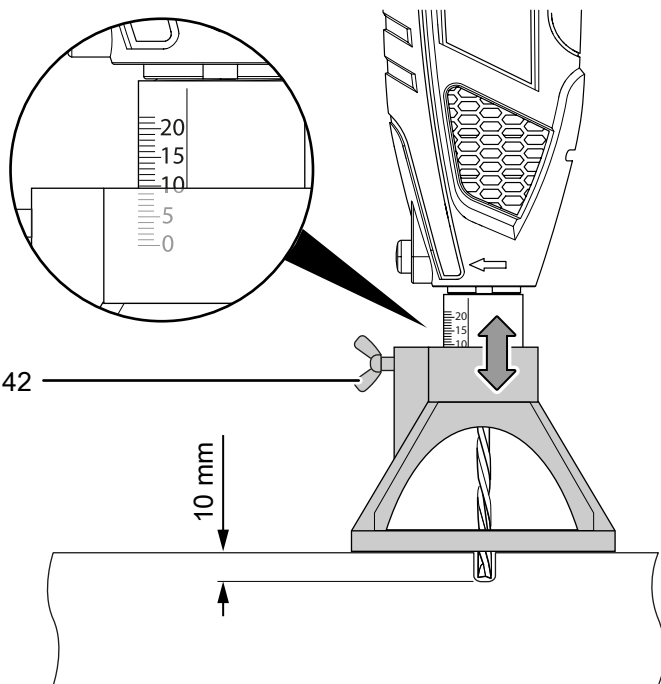
2. Mount the milling cutter (19) as described in the "Tool change" chapter. Observe that the milling cutter (19) protrudes exactly 40 mm from the tool holder in this case.



3. Screw the positioning fixture (25) onto the tool by turning the fixture in clockwise direction.



4. Loosen the wing nut (42) on the positioning fixture (25) and set the desired depth adjustment on the scale.

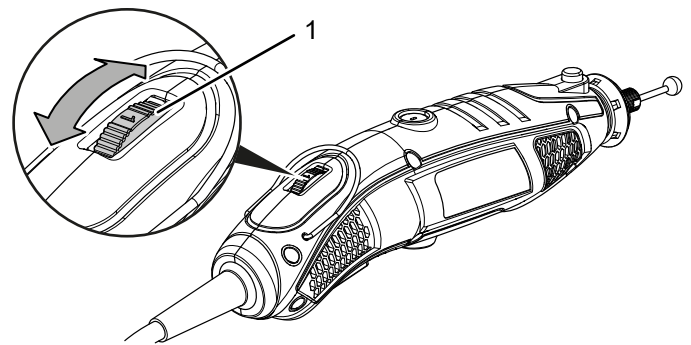


Speed selection

The required speed depends on the material and the operating conditions and can be determined by way of field-testing. For most tasks like for example sawing, cutting and grinding harder materials such as wood or metal, we recommend using the **max** speed level. Some materials (certain plastics and soft metals), however, may be damaged by the heat generated at a high speed and should therefore be processed at a correspondingly lower speed.

The setting range covers the levels 1–5 as well as the maximum level (10,000–35,000 rpm). You can change the preselected speed level at any time.

1. Turn the setting wheel (1) to the desired speed level.



Tips and notes for selecting the correct speed level

- Select a high speed level for cutting, forming, chamfering or milling grooves in the wood, and for sanding or grinding wood or metal.
- If you wish to cut plastics or other materials with a low melting point, select a low speed level.
- For drilling into wood, select a low speed level, in order to prevent the tool from being overheated
- For polishing, buffing and cleaning with a wire brush, select the lowest speed level 1 or MIN, in order to prevent the brush from damage by bristles coming loose from the brush holder.
- For milling or drilling into non-ferrous metals, e.g.: aluminium, copper, lead, zinc alloys, select a low speed level. Additionally use a cutting oil or another suitable lubricant (not water) in order to prevent chips from settling on the cutting edges of the tool, and to prevent the tool from being overheated.

As an orientation for selecting the right speed level, you can use the table below:

Speed	Speed
1	10,000 - 14,000 rpm
2	15,000 - 19,000 rpm
3	20,000 - 24,000 rpm
4	25,000 - 29,000 rpm
5	30,000 - 34,000 rpm
Max.	35,000 rpm



Info

Even with lower speed values, you should work without pressure. Applying higher pressure to the workpiece will not improve the result. Use a different tool or another speed setting to obtain the desired result.

Operation

Tips and notes on handling the cordless grinder

General information:

- Keep the venting slots clear to prevent the motor from overheating.
- Check the tool in the tool holder for proper fit before every application. The tool must be firmly locked in place in the tool holder.
- Before every application, make sure that you have selected the correct tool and the correct speed for the intended use. By adapting the speed to the task you have planned and to the m to be machined, better results can be obtained.
- Always hold the tool away from your face. Parts of damaged accessories might come loose when high speeds are reached.
- Before using the tool, you should get a feel for the tool. Take the tool into your hand and familiarize yourself with its weight and centre of gravity. Use some scrap material to practise a bit and to learn how the tool responds with different speed settings.
- For tasks requiring precision, like for example engraving, polishing or sanding, you can also hold the tool between your thumb and index finger like a pen. The tapering of the housing on the lower part of the tool serves this purpose.

Cutting:

- Only use intact, flawless cutting discs. Bent, blunt or otherwise damaged cutting discs could break.
- Never use the cutting disc for roughing!
- Only advance moderately during operation and make sure that the cutting disc does not get jammed.
- Do not slow down the decelerating cutting disc by pressing against the side of the disc.

- Always move the cutting disc through the workpiece in reverse rotation.
- Hold onto the tool with both hands.

Sanding:

- Maintain a consistent grinding pressure to increase the lifetime of the abrasive wheels and abrasive belts.
- You'll obtain better results if the machining process not only involves one single work cycle, but if you move over the surface several times with the tool.

Milling:

- For milling a groove, use the positioning fixture (25) provided to ensure vertical guiding.
- Provide for an even forward motion to prevent overheating of the milling cutter.
- Hold onto the tool with both hands.

Engraving:

- For engraving, use the flexible shaft supplied to obtain precise guiding of the tool.
- Hold the handle of the flexible shaft at a slight angle while performing the engraving task, similar to the position of holding a pen. Your arm should be resting on the table.
- Guide the engraving bit over the workpiece applying light grinding pressure.
- Preferably use excess material to test the feed rate.



Warning of hot surface

Ensure that the flexible shaft does not form a loop or become kinked during operation. There is a risk of the shaft becoming hot and melting with the hose. Do not touch the handle if it became hot. Risk of burns.

Polishing:

- When you polish the workpiece, guide the tool over the workpiece only applying light grinding pressure.
- For polishing jewellery, the flexible shaft supplied is suited to obtain precise guiding of the tool.

Applying the stainless steel brush

- When you polish the workpiece, guide the tool over the workpiece only applying light grinding pressure.
- For polishing, buffing or cleaning with a wire brush, select the lowest speed level 1 to prevent the brush and material from damage.

Switching the device on and off



Warning



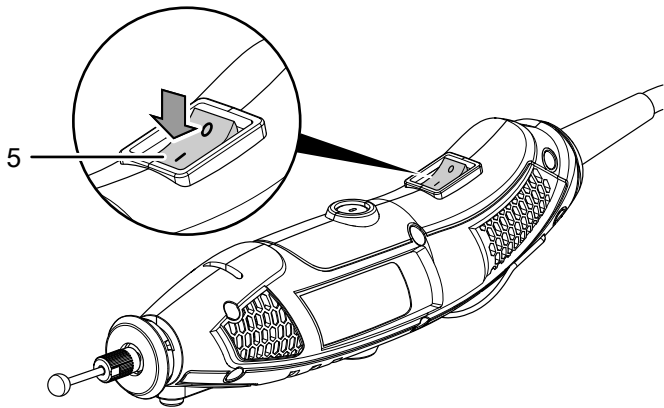
The event of a temporary power failure can lead to the device accidentally switching on.

Even if there is no voltage present, always switch the device off using the on/off switch.

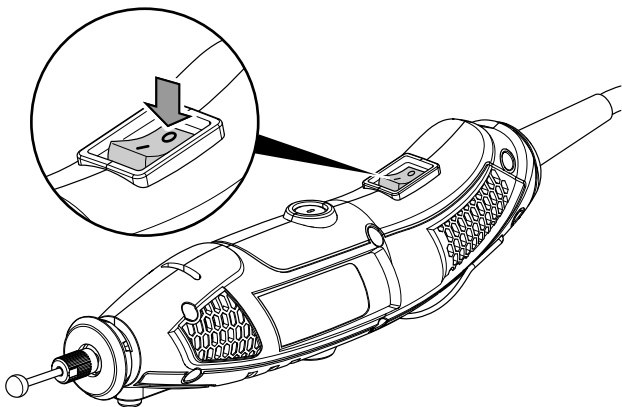
Hold onto the mains plug while pulling the power cable out of the mains socket.

Wear your personal protective equipment when working with the device.

1. Check whether the fixed tool and the speed set are suitable for the intended application.
2. Check whether the workpiece is secured and the worktop prepared correspondingly.
3. Switch the device on by setting the on/off switch (5) to position **I**.



4. Switch the device off by setting the on/off switch (5) to position **0**.



Operating mode: Cutting

For cutting and cutting to length materials like for instance wood, plastics, aluminium, brass or metal as well as protruding nails or screws:

- use the cutting discs (8)

Operating mode: Sanding

For sanding wood, metal or steel:

- use the abrasive belts (24)
- use the abrasive wheels (9)

For grinding rock or ceramic:

- use the aluminium oxide grinding heads (12)

For grinding or deburring tiles, glass or hard, brittle materials such as ceramic:

- use the grinding stone (15)

Operating mode: Milling

For milling grooves, milling out moulds, apertures or feedthroughs in wood or plastics:

- use the milling cutter for grooves (19)
- as well as the positioning fixture (25)

For recessing or grooving material, e.g. when machining jewellery:

- use the milling cutter with the ball head (18)

Operating mode: Engraving

For creating engravings in materials like metal, plastics, glass, ceramic, wood or leather:

- use the diamond-tipped engraving bits (11)
- and the flexible shaft (32)

Operating mode: Polishing

For polishing plastics or precious metals like gold and silver:

- use the polishing attachments (23)

Operating mode: Rust removal

For removing rust from damaged areas, for instance in the motor vehicle sector:

- use the stainless steel brush (7)

Operating mode: Drilling

For drilling 3 mm or 2 mm holes into metal, wood or plastics:

- use the HSS twist drill bits (17)

Further accessories for any other applications

Note that the maximum diameter of **combined abrasive accessories**, as well as **abrasive cones and abrasive pencils** must not exceed 55 mm, and that the maximum diameter of sandpaper sanding accessories must not exceed 80 mm.

Shutdown



Warning of electrical voltage

Do not touch the mains plug with wet or damp hands.

- Switch off the device.
- Hold onto the mains plug while pulling the power cable out of the mains socket.
- If required, allow the device to cool down.
- Remove the tool from the device (see Start-up chapter).
- Clean the device according to the Maintenance chapter.
- Store the device according to the Transport and storage chapter.

Available accessories



Warning

Only use accessories and additional equipment specified in the instructions.

Using insertion tools or accessories other than those specified in the instructions may cause a risk of injury.

Accessories	Article number
Multi-function tool accessories set 282-piece	6.210.000.301

Errors and faults

The device has been checked for proper functioning several times during production. If malfunctions occur nonetheless, check the device according to the following list.

Troubleshooting tasks which require the housing to be opened must only be carried out by an authorized specialist electrical company or by Trotec.

The only exception is the replacement of the carbon brushes (see chapter Replacing the carbon brushes).

Notice

Wait for at least 3 minutes after maintenance and repair work. Only then switch the device back on.

Light smoke or odour is emitted during the first use:

- This is not a fault. These phenomena disappear after a brief runtime.

The device does not start:

- Check the power connection.
- Check the power cable and mains plug for damage. If you notice damages, do not try to take the device back into operation.

If the supply cord is damaged, it must be replaced by the manufacturer, its service agent or similarly qualified persons in order to avoid a hazard.

- Check the on-site fusing.

The device becomes hot:

- Make sure not to exert too much pressure on the device during grinding.
- Select a lower speed by turning the setting wheel for speed selection (1) to a low level.
- Check whether the tool is suitable for the tasks to be carried out.
- Keep the venting slots clear to prevent the motor from overheating.

The tool is loose:

- Make sure that the clamping nut (39) is tightened properly to the tool holder.

The cutting disc has difficulties with penetrating the material to be processed or the cutting performance of the abrasive wheel is insufficient:

- Check whether the chosen tool is suitable for the material to be processed.
- Check the set speed; it must be suitable for both the tool and the material.
- Select a higher speed by turning the setting wheel for speed selection (1) to a higher level.
- If the cutting disc or abrasive wheel is worn, replace it with a new one.

The device is running but the flexible shaft does not work:

- Check whether the inner axis (30) of the flexible shaft is fixed firmly in the tool holder (27).

The device still does not operate correctly after these checks:

Please contact the customer service. If necessary, bring the device to an authorised specialist electrical company or to Trotec for repair.

Maintenance

Activities required before starting maintenance



Warning of electrical voltage

Do not touch the mains plug with wet or damp hands.

- Switch off the device.
- Hold onto the mains plug while pulling the power cable out of the mains socket.
- Allow the device to cool down completely.



Warning of electrical voltage

Maintenance tasks which require the housing to be opened must only be carried out by authorised specialist companies or by Trotec.

Notes on maintenance

Inside the device, there are no parts that need to be lubricated by the user.

Cleaning

The device should be cleaned before and after each use.

Notice

The device does not have to be lubricated after cleaning.



Warning of electrical voltage

There is a risk of a short-circuit due to liquids penetrating the housing!

Do not immerse the device and the accessories in water. Make sure that no water or other liquids can enter the housing.

- Clean the device with a soft, damp and lint-free cloth. Make sure that no moisture enters the housing. Protect electrical components from moisture. Do not use any aggressive cleaning agents such as cleaning sprays, solvents, alcohol-based or abrasive cleaners to dampen the cloth.
- Dry the device with a soft, lint-free cloth.
- Remove any abrasive dust and, if applicable, wood chips from the tool holder.
- Keep the ventilation openings free from dust deposits to prevent overheating of the motor.

Replacing the carbon brushes

The carbon brushes have to be replaced as soon as they are worn. This is brought to light e.g. by a reduced capacity (see chapter Errors and faults).



Warning of electrical voltage

Before any work on the device, remove the mains plug from the mains socket!

Do not touch the mains plug with wet or damp hands. Hold onto the mains plug while pulling the power cable out of the mains socket.

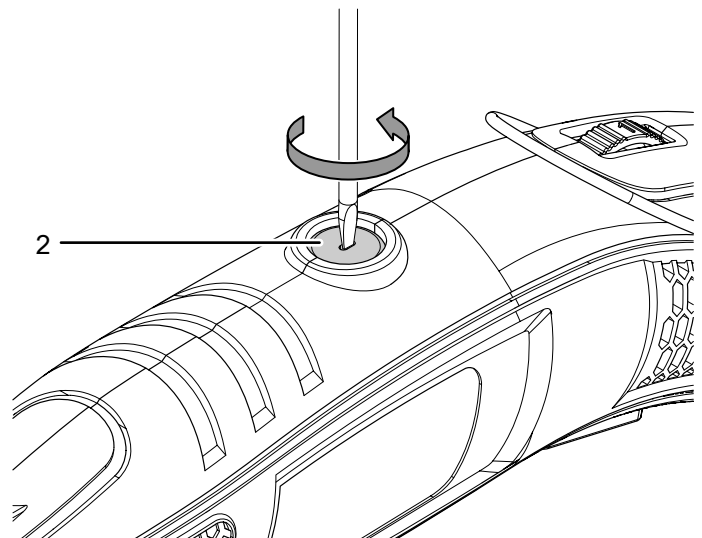


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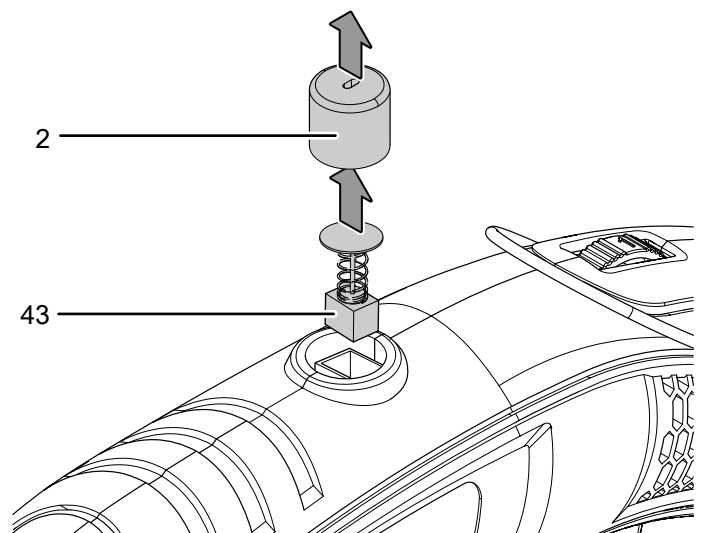
Always replace the carbon brushes in pairs.

- ✓ Make sure to have a pair of unused carbon brushes ready.
- ✓ Use tools suitable for the intended task.

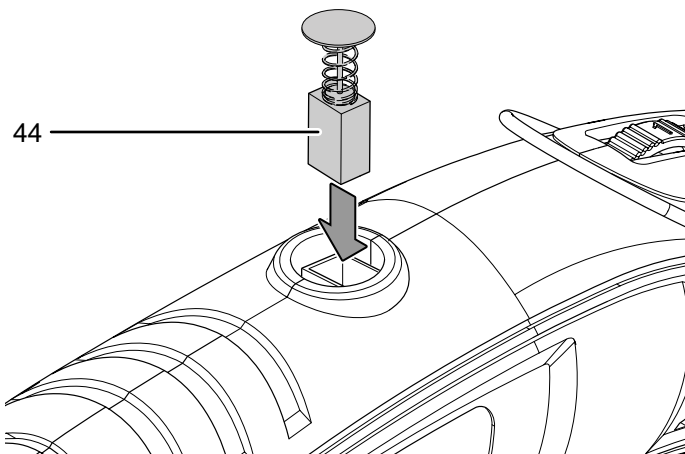
1. Unscrew the carbon brush cover (2).



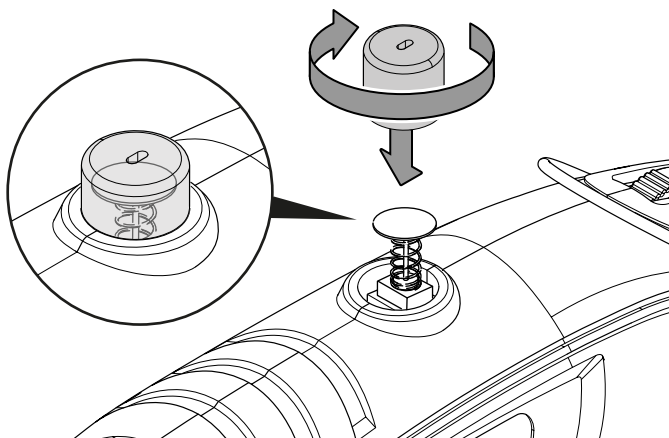
2. Remove the cover (2) and the worn carbon brush (43) from the device.



3. Insert the new carbon brush (44) into the guidance.



4. Carefully place the cover (2) into the housing and screw the cover tight again. In doing this, observe the spring of the carbon brush (44), which must fit exactly into the cover (2) and should not be tilted.



5. Repeat this process on the other side of the device.

Disposal

Always dispose of packing materials in an environmentally friendly manner and in accordance with the applicable local disposal regulations.



The icon with the crossed-out waste bin on waste electrical or electronic equipment is taken from Directive 2012/19/EU. It states that this device must not be disposed of with the household waste at the end of its life. You will find collection points for free return of waste electrical and electronic equipment in your vicinity. The addresses can be obtained from your municipality or local administration. You can also find out about other return options that apply for many EU countries on the website <https://hub.trotec.com/?id=45090>. Otherwise, please contact an official recycling centre for electronic and electrical equipment authorised for your country.

The separate collection of waste electrical and electronic equipment aims to enable the re-use, recycling and other forms of recovery of waste equipment as well as to prevent negative effects for the environment and human health caused by the disposal of hazardous substances potentially contained in the equipment.

Only for United Kingdom

According to Waste Electrical and Electronic Equipment Regulations 2013 (SI 2013/3113) (as amended) devices that are no longer usable must be collected separately and disposed of in an environmentally friendly manner.

Declaration of conformity

Declaration of conformity in accordance with the EC Machinery Directive 2006/42/EC, Annex II, Part 1, Section A

We – Trotec GmbH – declare in sole responsibility that the product designated below was developed, constructed and produced in compliance with the requirements of the EC Machinery Directive in the version 2006/42/EC.

Product model / Product: PMTS 01-230V
Product type: 170W multi-function tool
Year of manufacture as of: 2023

Relevant EU directives:

- 2011/65/EU
- 2012/19/EU
- 2014/30/EU
- 2015/863/EU

Applied harmonised standards:

- EN 60745-1:2009/A11:2010
- EN 60745-2-23:2013

Applied national standards and technical specifications:

- EN IEC 55014-1:2021
- EN IEC 55014-2:2021
- EN IEC 61000-3-2:2019/A1:2021
- EN 61000-3-3:2013/A2:2021

Manufacturer and name of the authorised representative of the technical documentation:

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Place and date of issue:

Heinsberg, 11.04.2023



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