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1 609 92A 4DN



## PEX 220 A



**BOSCH**

**de** Originalbetriebsanleitung

**en** Original instructions

**fr** Notice originale

**es** Manual original

**pt** Manual original

**it** Istruzioni originali

**nl** Oorspronkelijke gebruiksaanwijzing

**da** Original brugsanvisning

**sv** Bruksanvisning i original

**no** Original driftsinstruks

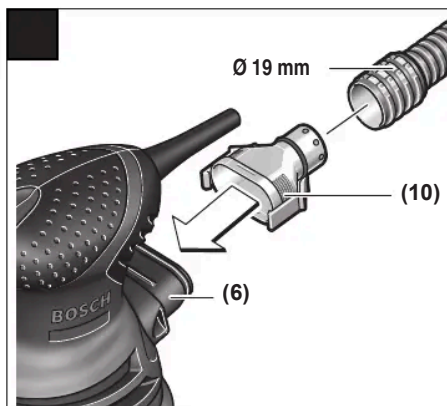
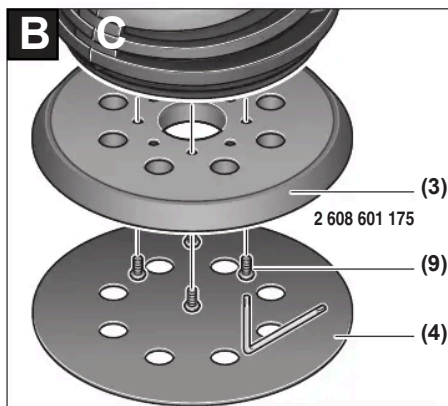
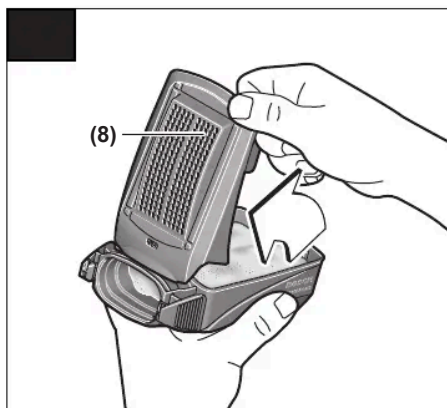
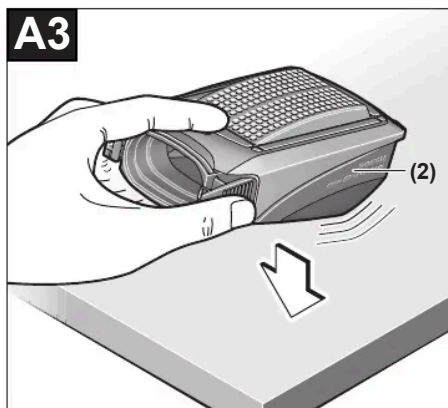
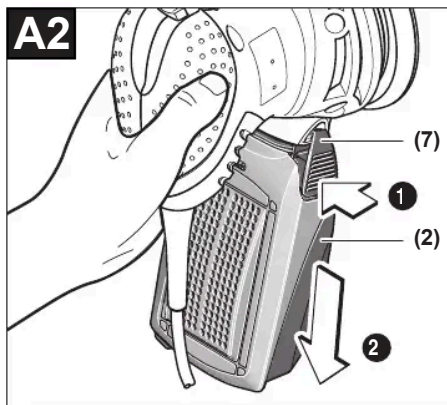
**fi** Alkuperäiset ohjeet

**el** Πρωτότυπο οδηγιών χρήσης

**tr** Orijinal işletme talimatı

دليل التشغيل الأصلي

**PEX 220 A**



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## Entsorgung

Elektrowerkzeuge, Zubehör und Verpackungen sollen einer umweltgerechten Wiederverwertung zugeführt werden.



Werfen Sie Elektrowerkzeuge nicht in den Hausmüll!

### Nur für EU-Länder:

Gemäß der Europäischen Richtlinie 2012/19/EU über Elektro- und Elektronik-Altgeräte und ihrer Umsetzung in nationales Recht müssen nicht mehr gebrauchsfähige Elektrowerkzeuge getrennt gesammelt und einer umweltgerechten Wiederverwertung zugeführt werden.

## English

## Safety instructions

### General Power Tool Safety Warnings

**⚠ WARNING** 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.

#### 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.

#### Work area safety

- ▶ **Keep work area clean and well lit.** Cluttered or dark areas invite accidents.
- ▶ **Do not operate power tools in explosive atmospheres, 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.

#### 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.

#### 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 a dust mask, non-skid safety shoes, hard hat, or hearing protection 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 and clothing 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.
- ▶ **Do not let familiarity gained from frequent use of tools allow you to become complacent and ignore tool safety principles.** A careless action can cause severe injury within a fraction of a second.

#### 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 remove the battery pack, if detachable, 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 power tool or these instructions to operate the power tool.** Power tools are dangerous in the hands of untrained users.
- ▶ **Maintain power tools and accessories. 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, taking 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.
- ▶ **Keep handles and grasping surfaces dry, clean and free from oil and grease.** Slippery handles and grasping surfaces do not allow for safe handling and control of the tool in unexpected situations.

### 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 for Sander

- ▶ **Only use the power tool for dry sanding.** Water entering a power tool will increase the risk of electric shock.
- ▶ **Ensure that no persons are at risk due to flying sparks. Remove combustible materials from the surrounding area.** Flying sparks are created when sanding metals.
- ▶ **Warning: Danger of fire! Avoid overheating the workpiece and the sander. Always empty the dust collector before taking a break from work.** Sanding dust in the dust bag, microfilter, paper bag (or in the filter bag or vacuum cleaner filter) can spontaneously combust under certain conditions, for example if flying sparks are created when sanding metals. This risk is increased if the sanding dust is mixed with paint or polyurethane residue or with other chemical substances and if the workpiece is hot as a result of prolonged work.
- ▶ **Clean the air vents on your power tool regularly.** The motor's fan will draw the dust inside the housing and ex-

cessive accumulation of powdered metal may cause electrical hazards.

### Products sold in GB only:

Your product is fitted with an BS 1363/A approved electric plug with internal fuse (ASTA approved to BS 1362).

If the plug is not suitable for your socket outlets, it should be cut off and an appropriate plug fitted in its place by an authorised customer service agent. The replacement plug should have the same fuse rating as the original plug.

The severed plug must be disposed of to avoid a possible shock hazard and should never be inserted into a mains socket elsewhere.

- ▶ **Always wait until the power tool has come to a complete stop before placing it down.**
- ▶ **Secure the workpiece.** A workpiece clamped with clamping devices or in a vice is held more secure than by hand.

## Product description and specifications



### Read all the safety and general instructions.

Failure to observe the safety and general instructions may result in electric shock, fire and/or serious injury.

Please observe the illustrations at the beginning of this operating manual.

### Intended Use

The power tool is intended for dry sanding of wood, plastic, metal, filler and varnished surfaces.

### Product features

The numbering of the product features refers to the diagram of the power tool on the graphics page.

- (1) On/off switch
- (2) Complete dust box (Microfilter system)
- (3) Sanding pad
- (4) Sanding sheet<sup>A)</sup>
- (5) Handle (insulated gripping surface)
- (6) Extraction outlet
- (7) Locking lever for dust box
- (8) Filter element (Microfilter system)
- (9) Screws for sanding pad
- (10) Dust extraction adapter<sup>A)</sup>

A) **Accessories shown or described are not included with the product as standard. You can find the complete selection of accessories in our accessories range.**

### Technical data

#### Random orbit sander PEX 220 A

Article number

**3 603 C78 0..**

**Random orbit sander PEX 220 A**

Rated power input W 220

No-load speed rpm 12,000

No-load orbital stroke rate rpm 24,000

Orbit diameter mm 5.0

Sanding pad diameter mm 125

Weight according to EPTA-  
Procedure 01:2014 kg 1.2

Protection class / II



The specifications apply to a rated voltage [U] of 230 V. For different voltages and models for specific countries, these values can vary.

**Noise/vibration information**

Noise emission values determined according to

**EN 62841-2-4.**

Typically, the A-weighted sound pressure level of the power tool is **77 dB(A)**. Uncertainty  $K = 3$  dB. The noise level when working can exceed 80 dB(A).

**Wear hearing protection**

Total vibration values  $a_h$  (triax vector sum) and uncertainty  $K$  determined according to **EN 62841-2-4:**

$a_h = 3.5 \text{ m/s}^2$ ,  $K = 1.5 \text{ m/s}^2$ ,

The vibration level and noise emission value given in these instructions have been measured in accordance with a standardised measuring procedure detailed in EN 62841 and may be used to compare power tools. They may also be used for a preliminary estimation of vibration and noise emissions.

The given vibration level and noise emission value represent the main applications of the power tool. However, if the power tool is used for other applications, with different application tools or is poorly maintained, the vibration level and noise emission value may differ. This may significantly increase the vibration and noise emissions over the total working period.

To estimate vibration and noise emissions accurately, the times when the tool is switched off or when it is running but not actually being used should also be taken into account. This may significantly reduce vibration and noise emissions over the total working period.

Implement additional safety measures to protect the operator from the effects of vibration, such as servicing the power tool and application tools, keeping the hands warm, and organising workflows correctly.

**Assembly**

- **Pull the plug out of the socket before carrying out any work on the power tool.**

**Choosing the Sanding Sheet**

Select a sanding sheet with a grit suitable for how much material you want to remove. Bosch sanding sheets are suitable for paint, wood and metal.

Use Application Grit			
<b>Sanding down (coarse sanding)</b>	<ul style="list-style-type: none"> <li>– Coarse sanding work with a high material removal rate</li> <li>– Removing old paint</li> </ul>	– Sanding down old paint, varnish and filler Extra coarse	40
		– Removing thin paint	Coarse 60
		– Pre-sanding rough, unplanned surfaces	
<b>Preparing (intermediate sanding)</b>	<ul style="list-style-type: none"> <li>– Light sanding</li> <li>– Abrading surfaces for further processing later on</li> </ul>	– Sanding uneven surfaces to make them even	Medium 80
		– Removing marks left by coarse sanding	
		– Repairing surfaces before applying paint or varnish	Fine 120
<b>Fine sanding</b>	<ul style="list-style-type: none"> <li>– Intermediate paint sanding</li> <li>– Abrading flaws in the paintwork</li> </ul>	– Removing fibres from the surface	Very fine 180
		– Fine sanding before staining	
		– Abrading primer before painting Extra fine 240	

**Changing the Sanding Sheet**

To remove the sanding sheet **(4)**, lift it from the side and pull it from the sanding pad **(3)**.

Remove dirt and dust from the sanding pad **(3)**, e.g. with a paintbrush, before attaching a new sanding sheet.

The surface of the sanding pad **(3)** is fitted with a hook-and-loop fastening, allowing sanding sheets with a similar backing to be secured quickly and easily.

Press the sanding sheet **(4)** firmly onto the underside of the sanding pad **(3)**.

To ensure optimum dust extraction, make sure that the punched holes in the sanding sheet are aligned with the drilled holes in the sanding pad.

**Changing the Sanding Pad (see figure B)**

**Note:** Replace damaged sanding pads **(3)** immediately.

Pull off the sanding sheet. Unscrew the four screws completely **(9)** and remove the sanding pad **(3)**. Attach the new sanding pad **(3)** and retighten the screws.

## Dust/chip extraction

The dust from materials such as lead paint, some types of wood, minerals and metal can be harmful to human health. Touching or breathing in this dust can trigger allergic reactions and/or cause respiratory illnesses in the user or in people in the near vicinity.

Certain dusts, such as oak or beech dust, are classified as carcinogenic, especially in conjunction with wood treatment additives (chromate, wood preservative). Materials containing asbestos may only be machined by specialists.

- Use a dust extraction system that is suitable for the material wherever possible.

- Provide good ventilation at the workplace.

- It is advisable to wear a P2 filter class breathing mask.

The regulations on the material being machined that apply in the country of use must be observed.

- **Avoid dust accumulation at the workplace.** Dust can easily ignite.

## Self-generated Dust Extraction with Dust Box (see figure A1-A4)

Place the dust box **(2)** onto the extraction outlet **(6)** until it clicks into place.

To empty the dust box **(2)**, press the locking lever **(7)** on the side of the dust box **(9)**. Remove the dust box by pulling it downwards **(9)**.

Before opening the dust box **(2)**, knock the dust box against a firm surface as shown in the figure to loosen the dust from the filter element.

Take hold of the dust box **(2)** by the recessed grip, fold the filter element **(8)** upwards out of the way and empty the dust box. Use a soft brush to clean the flaps of the filter element **(8)**.

**Note:** In order to ensure optimum dust extraction, empty the dust box **(2)** in good time and clean the filter element **(8)** regularly.

When working on vertical surfaces, hold the power tool with the dust box **(2)** facing downwards.

## External Dust Extraction (see figure C)

Attach the dust extraction adapter **(10)** to the extraction outlet **(6)**. Make sure that the locking levers of the dust extraction adapter lock into place. A dust extraction hose with a diameter of 19 mm can be connected to the dust extraction adapter **(10)**.

The dust extractor must be suitable for the material being worked.

When extracting dry dust that is especially detrimental to health or carcinogenic, use a special dust extractor.

In Germany, wood dust extraction requires extraction devices which have been tested on the basis of TRGS 553; self-generated dust extraction must not be used in the commercial sector. Commercial operators must clarify the spe-

cific requirements for other materials with the responsible trade association.

When working on vertical surfaces, hold the power tool with the dust extraction hose facing downwards.

To remove the dust extraction adapter **(10)**, press its locking levers down simultaneously and take off the dust extraction adapter.

## Operation

### Starting Operation

- **Pay attention to the mains voltage. The voltage of the power source must match the voltage specified on the rating plate of the power tool. Power tools marked 230 V can also be operated at 220 V.**

- **Products that are only sold in AUS and NZ:** Use a residual current device (RCD) with a nominal residual current of 30 mA or less.

### Switching On and Off

- **Make sure that you are able to press the On/Off switch without releasing the handle.**

To **switch on** the power tool, flick the on/off switch **(1)** to position **"I"**.

To **switch off** the power tool, flick the on/off switch **(1)** to position **"0"**.

### Sanding Plate Brake

An integrated sanding pad brake reduces the orbital stroke rate when running without load to prevent scoring when the power tool is placed on the workpiece.

If the no-load orbital stroke rate constantly increases over time, this means that the sanding pad is damaged and must be replaced, or that the sanding pad brake is worn. A worn sanding pad brake must be replaced by an after-sales service centre authorised to work with Bosch power tools.

## Working Advice

- **Pull the plug out of the socket before carrying out any work on the power tool.**

- **Always wait until the power tool has come to a complete stop before placing it down.**

### Sanding Surfaces

Switch the power tool on, place the entire sanding surface against the surface of the workpiece and apply moderate pressure as you move the sander over the workpiece.

The material removal rate and the sanding result are primarily determined by the choice of sanding sheet and the contact pressure.

Only immaculate sanding sheets achieve good sanding performance and make the power tool last longer.

Be sure to apply consistent contact pressure in order to increase the lifetime of the sanding sheets.

Excessively increasing the contact pressure will not lead to increased sanding performance, rather it will cause more severe wear of the power tool and of the sanding sheet.



Do not use a sanding sheet for other materials after it has been used to work on metal.

Use only original Bosch sanding accessories.

### Rough Sanding

Attach a coarse grit sanding sheet.

Apply only light pressure to the power tool so that it runs at a higher orbital stroke rate and a higher material removal rate is achieved.

### Fine Sanding

Attach a fine grit sanding sheet.

You can reduce the sanding plate orbital stroke rate by lightly varying the contact pressure; the random orbit motion will be retained.

Applying moderate pressure, move the power tool over the surface of the workpiece, either in a circular motion or alternating between crossways and lengthways. To avoid sanding through the workpiece, e.g. veneers, do not tilt the power tool.

Switch the power tool off once you have finished your work.

### Usage Table

The figures in the table below are recommended values.

The best method for determining the best combination while sanding or polishing is practical experimentation.

Application Grit	(coarse/fine sanding)
Abrading paint 180/320	
Retouching paint 120/400	
Removing paint 40/80	
Softwood 40/240	
Hardwood 60/320	
Veneer 240/320	
Aluminium 80/240	
Steel 60/240	
Derusting steel 40/120	
Stainless steel 120/240	
Stone 80/200	

## Maintenance and Service

### Maintenance and cleaning

- **Pull the plug out of the socket before carrying out any work on the power tool.**
- **To ensure safe and efficient operation, always keep the power tool and the ventilation slots clean.**

In order to avoid safety hazards, if the power supply cord needs to be replaced, this must be done by Bosch or by a customer service centre that is authorised to repair Bosch power tools.

### After-sales service and advice on using products

Our after-sales service can answer questions concerning product maintenance and repair, as well as spare parts. You can find exploded drawings and information on spare parts at: **www.bosch-pt.com**

The Bosch product use advice team will be happy to help you with any questions about our products and their accessories.

In all correspondence and spare parts orders, please always include the 10-digit article number given on the type plate of the product.

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