



**Robert Bosch GmbH**  
Power Tools Division  
70745 Leinfelden-Echterdingen

[www.bosch-pt.com](http://www.bosch-pt.com)

1 609 929 M15 (2007.11) T / 106

## PEX 220 A



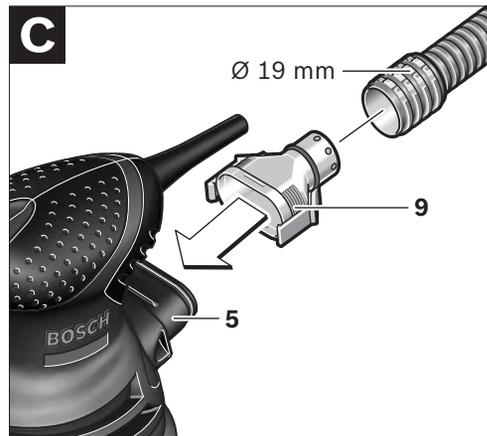
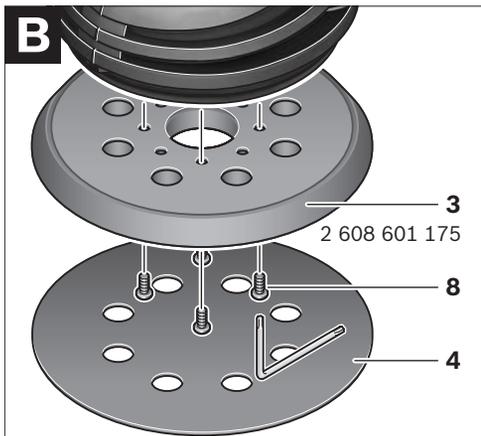
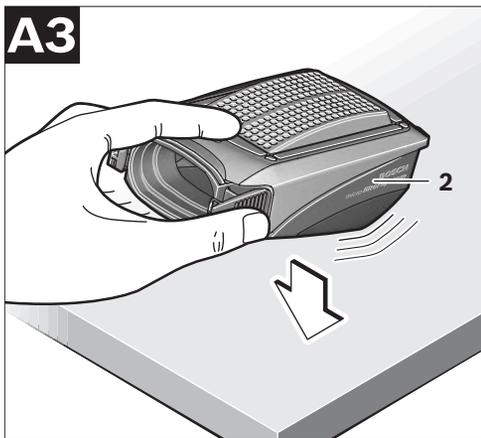
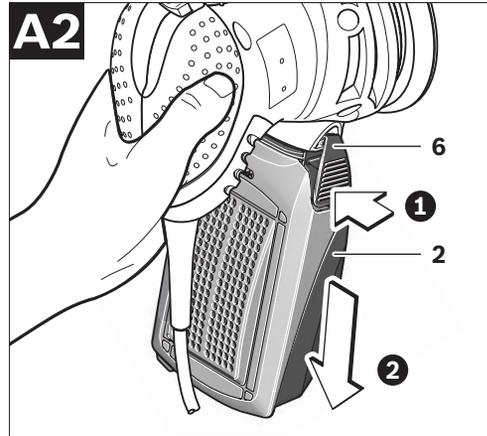
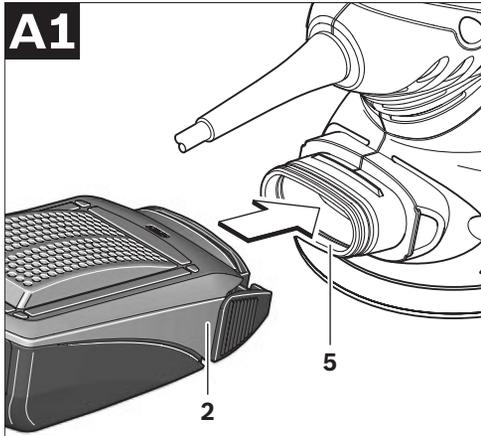
**de** Originalbetriebsanleitung  
**en** Original instructions  
**fr** Notice originale  
**es** Manual original  
**pt** Manual original  
**it** Istruzioni originali  
**nl** Oorspronkelijke gebruiksaanwijzing

**da** Original brugsanvisning  
**sv** Bruksanvisning i original  
**no** Original driftsinstruks  
**fi** Alkuperäiset ohjeet  
**el** Πρωτότυπο οδηγιών χρήσης  
**tr** Orijinal işletme talimatı





4 |



## General Power Tool Safety Warnings

**⚠ 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.

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

### 1) Work area safety

- a) **Keep work area clean and well lit.**  
Cluttered or dark areas invite accidents.
- b) **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.
- c) **Keep children and bystanders away while operating a power tool.** Distractions can cause you to lose control.

### 2) Electrical safety

- a) **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.
- b) **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.
- c) **Do not expose power tools to rain or wet conditions.** Water entering a power tool will increase the risk of electric shock.
- d) **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 and moving parts.** Damaged or entangled cords increase the risk of electric shock.

- e) **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.
- f) **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.

### 3) Personal safety

- a) **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.
- b) **Use personal protective equipment. Always wear eye protection.** Protective equipment such as dust mask, non-skid safety shoes, hard hat, or hearing protection used for appropriate conditions will reduce personal injuries.
- c) **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.
- d) **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.
- e) **Do not overreach. Keep proper footing and balance at all times.** This enables better control of the power tool in unexpected situations.
- f) **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.
- g) **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.

#### 4) Power tool use and care

- a) **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.
- b) **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.
- c) **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.
- d) **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.
- e) **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.
- f) **Keep cutting tools sharp and clean.** Properly maintained cutting tools with sharp cutting edges are less likely to bind and are easier to control.
- g) **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.

#### 5) Service

- a) **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.

## Machine-specific Safety Warnings

- ▶ **Use the machine only for dry sanding.** Penetration of water into the machine increases the risk of an electric shock.
- ▶ **Pay attention that no persons are put at risk through sparking. Remove any combustible materials in the vicinity.** Sparking occurs when sanding metal materials.
- ▶ **Caution, fire hazard! Avoid overheating the object being sanded as well as the sander. Always empty the dust collector before taking breaks.** In unfavourable conditions, e.g., when sparks emit from sanding metals, sanding debris in the dust bag, micro filter or paper sack (or in the filter sack or filter of the vacuum cleaner) can self-ignite. Particularly when mixed with remainders of varnish, polyurethane or other chemical materials and when the sanding debris is hot after long periods of working.
- ▶ **Secure the workpiece.** A workpiece clamped with clamping devices or in a vice is held more secure than by hand.
- ▶ **Keep your workplace clean.** Blends of materials are particularly dangerous. Dust from light alloys can burn or explode.
- ▶ **Never use the machine with a damaged cable. Do not touch the damaged cable and pull the mains plug when the cable is damaged while working.** Damaged cables increase the risk of an electric shock.

## Functional Description



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

### Intended Use

The machine is intended for dry sanding of wood, plastic, metal, filler as well as coated surfaces.

## 16 | English

**Product Features**

The numbering of the product features refers to the illustration of the machine on the graphics page.

- 1 On/Off switch
- 2 Dust box, complete (micro filtersystem)
- 3 Sanding plate
- 4 Sanding sheet\*
- 5 Extraction outlet
- 6 Latching lever for dust box
- 7 Filter element (micro filtersystem)
- 8 Screws for sanding plate
- 9 Extraction adapter\*

\*The accessories illustrated or described are not included as standard delivery.

**Technical Data**

| Random Orbital Sander                      |     | PEX 220 A     |
|--|-----|---------------|
| Article number                             |     | 3 603 C78 0.. |
| Rated power input                          | W   | 220           |
| No-load speed                              | rpm | 12000         |
| Orbital stroke rate                        | opm | 24000         |
| Orbit diameter                             | mm  | 5.0           |
| Sanding plate diameter                     | mm  | 125           |
| Weight according to EPTA-Procedure 01/2003 | kg  | 1.2           |
| Protection class                           |     | □ / II        |

The values given are valid for nominal voltages [U] of 230/240 V. For lower voltage and models for specific countries, these values can vary.

Please observe the article number on the type plate of your machine. The trade names of the individual machines may vary.

**Noise/Vibration Information**

Measured values determined according to EN 60745.

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

**Wear hearing protection!**

Vibration total values (triax vector sum) determined according to EN 60745:

Vibration emission value  $a_{\text{h}} = 3.5 \text{ m/s}^2$ , Uncertainty  $K < 1.5 \text{ m/s}^2$ .

The vibration emission level given in this information sheet has been measured in accordance with a standardised test given in EN 60745 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.

An estimation of the level of exposure to vibration should also take into account the times when the tool is switched off or when it is running but not actually doing the job. This may significantly reduce 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.

**Declaration of Conformity** 

We declare under our sole responsibility that the product described under "Technical Data" is in conformity with the following standards or standardization documents: EN 60745 according to the provisions of the directives 2004/108/EC, 98/37/EC (until Dec. 28, 2009), 2006/42/EC (from Dec. 29, 2009 on).

Technical file at:  
Robert Bosch GmbH, PT/ESC,  
D-70745 Leinfelden-Echterdingen

Dr. Egbert Schneider      Dr. Eckerhard Strötgen  
Senior Vice President      Head of Product  
Engineering                      Certification

 i.v. 

18.09.2007, Robert Bosch GmbH, Power Tools Division  
D-70745 Leinfelden-Echterdingen

## Assembly

► Before any work on the machine itself, pull the mains plug.

### Selecting the Sanding Sheet

Depending on the material to be worked and the required rate of material removal, different sanding sheets are available:

|  | Material   | Application  | Grain size |     |
|--|--|--|------------|-----|
| <b>White: Paint</b>                      | – Paint<br>– Varnish   | For sanding off paint  | coarse     | 40  |
|  |  |  |            | 60  |
|  | – Filling compound<br>– Filler   | For sanding primer (e.g., for removing brush dashes, drops of paint and paint run) | medium     | 80  |
|  |  |  |            | 100 |
|  |  |  |            | 120 |
|  | For final sanding of primers before coating  | fine   | 180        |     |
|  |  |  | 240        |     |
|  |  |  | 320        |     |
|  |  |  | 400        |     |
| <b>red: Wood</b><br><b>red: Wood top</b> | red: Wood  | For coarse-sanding, e.g. of rough, unplanned beams and boards                      | coarse     | 40  |
|  | – All wooden materials (e.g., hardwood, softwood, chipboard, building board)             |  |            | 60  |
|  | red: Wood top<br>– Hardwood<br>– Particle Board<br>– Building board<br>– Metal materials | For face sanding and planing small irregularities                                  | medium     | 80  |
|  |  |  |            | 100 |
|  |  |  |            | 120 |
|  |  | For finish and fine sanding of wood  | fine       | 180 |
|  |  |  |            | 240 |
| 320                                      |  |  |            |     |
| 400                                      |  |  |            |     |
| <b>black: Stone</b>                      | – Automotive paint   | For pre-sanding  | coarse     | 80  |
|  | – Masonry, stone<br>– Marble   | For shaping and braking edges  | medium     | 100 |
|  | – Granite  |  |            | 120 |
|  | – Glass<br>– Plexiglas<br>– Glass-fibre plastics   | For final sanding and forming  | fine       | 180 |
|  |  |  |            | 240 |
|  |  |  |            | 320 |
|  | For polish-sanding and rounding off edges  | very fine  | 600        |     |
|  |  |  | 1200       |     |

### Replacing the Sanding Sheet

To remove the sanding sheet **4**, lift it from the side and pull it off of the sanding plate **3**.

When attaching a new sanding sheet, remove any dust or debris from the sanding plate **3**, e.g., with a brush.

The surface of the sanding plate **3** is fitted with Velcro backing for quick and easy fastening of sanding sheets with Velcro adhesion.

Press the sanding sheet **4** firmly against the bottom side of the sanding plate **3**.

To ensure optimum dust extraction, pay attention that the punched holes in the sanding sheet match with the holes in the sanding plate.

### Replacing the Sanding Plate (see figure B)

**Note:** Replace a damaged sanding plate **3** immediately.

Pull off the sanding sheet. Unscrew the four screws **8** completely and remove the sanding plate **3**. Attach the new sanding plate **3** and tighten the screws again.

### Dust/Chip Extraction

► Dusts from materials such as lead-containing coatings, some wood types, minerals and metal can be harmful to one's health. Touching or breathing-in the dusts can cause allergic reactions and/or lead to respiratory infections of the user or bystanders.

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

- Use dust extraction whenever possible.
- Provide for good ventilation of the working place.
- It is recommended to wear a P2 filter-class respirator.

Observe the relevant regulations in your country for the materials to be worked.

### Integrated Dust Extraction with Dust Box (see Fig. A1 – A4)

Attach the dust box **2** onto the extraction outlet **5** until it latches.

To empty the dust box **2**, press the latching levers **6** on the side of the dust box (❶). Pull off the dust box toward the bottom (❷).

Before opening the dust box **2**, it is recommended to loosen the dust from the filter element by gently striking it against a firm support (as shown in the figure).

Grasp the dust box **2** by the recessed grip, fold the filter element **7** upward and empty the dust box. Clean the thin plates of the filter element **7** with a soft brush.

**Note:** To ensure optimum dust extraction, empty the dust box **2** in good time and clean the filter element **7** at regular intervals.

When working vertical surfaces, hold the power tool in such a manner that the dust box **2** faces downward.

### External Dust Extraction (see figure C)

Slide the extraction adapter **9** onto the outlet piece **5**. Ensure that the latching levers of the extraction adapter engage. The extraction adapter **9** accepts a vacuum hose with a diameter of 19 mm.

The vacuum cleaner must be suitable for the material being worked.

An overview for connecting to different vacuum cleaners can be found at the end of these operating instructions.

When vacuuming dry dust that is especially detrimental to health or carcinogenic, use a special vacuum cleaner.

When working vertical surfaces, hold the power tool in such a manner that the vacuum hose faces downward.

For removal of the extraction adapter **9**, press the latching levers together at the rear and pull the extraction adapter off.

## Operation

### Starting Operation

► **Observe correct mains voltage! The voltage of the power source must agree with the voltage specified on the nameplate of the machine. Power tools marked with 230 V can also be operated with 220 V.**

### Switching On and Off

To **start** the machine, tilt the On/Off switch **1** to position **"1"**.

To **switch off** the machine, tilt the On/Off switch **1** to position **"0"**.

### Sanding Plate Brake

An integrated sanding plate brake reduces the stroke rate when running at no-load so that scoring is prevented when placing the machine onto the workpiece.

If the no-load stroke rate continuously increases over the course of time, then the sanding plate is damaged and must be replaced or the sanding plate brake is worn. A worn sanding plate brake must be replaced by an authorised after-sales service agent for Bosch power tools.

### Working Advice

- **Wait until the machine has come to a standstill before placing it down.**

### Sanding Surfaces

Switch the machine on, place it with the complete sanding surface on the surface to be worked and move the machine with moderate pressure over the workpiece.

The removal capacity and the sanding pattern are mainly determined by the selection of the sanding sheet and the applied pressure.

Only flawless sanding sheets achieve good sanding capacity and extend the service life of the machine.

Pay attention to apply uniform sanding pressure; this increases the working life of the sanding sheets.

Intensifying the sanding pressure does not lead to an increase of the sanding capacity, but to increased wear of the machine and the sanding sheet.

A sanding sheet that has been used for metal should not be used for other materials.

Use only original Bosch sanding accessories.

### Rough Sanding

Attach a sanding sheet with coarse grain.

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

### Fine Sanding

Attach a sanding sheet with fine grain.

By lightly varying the application pressure, the sanding plate stroke rate can be reduced whereby the orbital action is maintained.

With moderate pressure, move the machine in a circular pattern or alternately in lengthwise and crosswise directions over the workpiece. Do not tilt the machine to avoid sanding through the workpiece (e.g. when sanding veneer).

After finishing the working procedure, switch the power tool off.

### Application Table

The data in the following table are recommended values.

The most favourable combination for working is best determined by practical testing.

| Application         | Grain Size<br>(course sanding/<br>fine sanding) |
|---------------------|---|
| Roughening varnish  | 180/320   |
| Touching up varnish | 120/400   |
| Removing varnish    | 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   |
| Masonry, stone      | 80/200  |

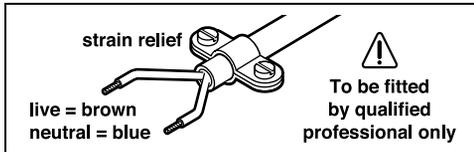
## Maintenance and Service

### Maintenance and Cleaning

- **Before any work on the machine itself, pull the mains plug.**
- **For safe and proper working, always keep the machine and ventilation slots clean.**

**WARNING! Important instructions for connecting a new 3-pin plug to the 2-wire cable.**

The wires in the cable are coloured according to the following code:



Do **not** connect the blue or brown wire to the earth terminal of the plug.

**Important:** If for any reason the moulded plug is removed from the cable of this power tool, it must be disposed of safely.

If the machine should fail despite the care taken in manufacturing and testing procedures, repair should be carried out by an after-sales service centre for Bosch power tools.

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

**After-sales service and customer assistance**

Our after-sales service responds to your questions concerning maintenance and repair of your product as well as spare parts. Exploded views and information on spare parts can also be found under:

**[www.bosch-pt.com](http://www.bosch-pt.com)**

Our customer consultants answer your questions concerning best buy, application and adjustment of products and accessories.

**Great Britain**

Robert Bosch Ltd. (B.S.C.)

P.O. Box 98

Broadwater Park

North Orbital Road

Denham

Uxbridge

UB 9 5HJ

Tel. Service: +44 (0844) 736 0109

Fax: +44 (0844) 736 0146

E-Mail: [SPT-Technical.de@de.bosch.com](mailto:SPT-Technical.de@de.bosch.com)

**Ireland**

Origo Ltd.

Unit 23 Magna Drive

Magna Business Park

City West

Dublin 24

Tel. Service: +353 (01) 4 66 67 00

Fax: +353 (01) 4 66 68 88

**Australia, New Zealand and Pacific Islands**

Robert Bosch Australia Pty. Ltd.

Power Tools

Locked Bag 66

Clayton South VIC 3169

Customer Contact Center

Inside Australia:

Phone: +61 (01300) 307 044

Fax: +61 (01300) 307 045

Inside New Zealand:

Phone: +64 (0800) 543 353

Fax: +64 (0800) 428 570

Outside AU and NZ:

Phone: +61 (03) 9541 5555

[www.bosch.com.au](http://www.bosch.com.au)

**Disposal**

The machine, accessories and packaging should be sorted for environmental-friendly recycling.

**Only for EC countries:**

Do not dispose of power tools into household waste!

According the European Guideline 2002/96/EC for Waste Electrical and Electronic Equipment and its implementation into national right,

power tools that are no longer usable must be collected separately and disposed of in an environmentally correct manner.

**Subject to change without notice.**