



2100W ANGLE GRINDER
PAG-230/2100

If you are requested by the manufacturer to return the item for repair please complete the enclosed section and send it together with your product and your receipt (proof of purchase) to the service address shown below.

Name: _____
 Address: _____

 Contact Telephone No.: _____
 E-mail: _____
 Location of purchase: _____
 Fault Description: _____



In order to deal with your enquiry as quickly and efficiently as possible, we ask you to send your enquiry by email (technical@omegawolf.co.uk). Do not forget to include your name, address and a daytime telephone number.

Alternatively, you can contact our freephone service hot-line on the number given below.
 Office hours are as follows:
 Mon - Fri: 8 am - 6 pm, Sat: 10 am - 2 pm, Sun: 10 am - 4 pm

UK / NORTHERN IRELAND HELPLINE:
0870 7323023

REPUBLIC OF IRELAND HELPLINE:
1800 481005

WEB SUPPORT:
www.omegawolf.com/powercraft

Omega, Interex House, Prospect Close, Lowmoor Business Park
 NG17 7LF Kirkby In Ashfield, England

Replacements or repairs under guarantee regulations are free of charge.

GB/IRE-0706-12



User Guide & Warranty

2100W ANGLE GRINDER



After Sales Support

Now you have purchased a Power Craft product you can rest assured in the knowledge that as well as your 3 year parts and labour warranty you have the added peace of mind of dedicated helplines and web support.

AFTER SALES SUPPORT

UK / N.IRELAND HELPLINE NO **0870 7323023**
 REP IRELAND HELPLINE NO **1800 481005**
 WEB SUPPORT www.omegawolf.com/powercraft
 MODEL NUMBER: **PAG-230/2100**

Contents

- 03 Introduction
- 04 Machine specifications
- 06 Safety instructions
 - General Safety Instructions
 - Additional safety instructions
- 11 Assembly
 - Mounting a disc
 - Mounting the protective guard
 - Rotating the handgrip
 - Mounting the side handle
 - Mounting the flange
- 14 Operation
 - Starting the machine
 - Switching on and off
 - Operation
- 16 Maintenance
- 18 Exploded view
- 19 Warranty

Warranty

EC DECLARATION OF CONFORMITY



We Ferm B.V.
Lingenstraat 6, 8028 PM Zwolle, The Netherlands
declare that the design and construction of the following machine, in the form supplied by us, comply with the requirements of the appropriate EC directives.
Product Description: **2100W ANGLE GRINDER**
Model: **PAG-230/2100**
Appropriate EC directives: **98/37 EEC, 73/23 EEC, 89/336 EEC, 89/686/EEC**
Applicable harmonised norms: **EN 50144-1, EN 50144-2-3, EN55014-1, EN55014-2, EN 61000-3-2, EN 61000-3-3, EN 166**

J.A. Bakker - van Ingen
CEO Ferm B.V.

J. Lodewijk
Quality Manager Ferm Global

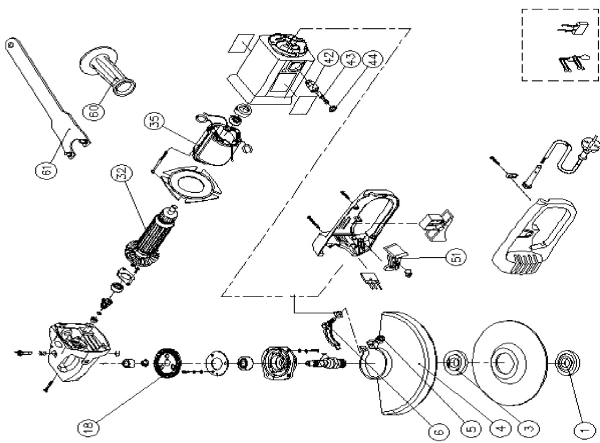
10/2007

WARRANTY CERTIFICATE



Year of manufacture: **10/2007** ANGLE GRINDER **PAG-230/2100**
Congratulations! You have made an excellent choice with the purchase of this Quality product. Our commitment to quality also includes our service. Should you, contrary to expectations, experience defects due to material or manufacturing faults during private use within 36 months of the date of purchase we shall be liable for warranty in accordance with statutory warranty regulations, provided that: - The device was not put to any use other than the intended. - Was not overloaded. - Was not used with the wrong accessories. - Repairs where not carried out by any other than the authorised workshop. The warranty certificate is only valid in connection with the receipt. Please keep both in a safe place. The warranty does not affect your statutory rights.
The product is guaranteed for a period of three years beginning on the day of purchase. Keep your purchase receipt safe as proof of the date of purchase. The guarantee period can only be extended for the duration of any repair required.
During the warranty period, defective devices can be sent **FREIGHT PREPAID** to the service address stated at the end of this booklet. We will, at our discretion either repair or exchange the device in accordance with warranty legislation.
Please include the following when sending in your product for repair:
1. The receipt (proof of purchase)
2. This warranty certificate with your name, address, contact details and a fault description completed overleaf.
If the original receipt is not enclosed the repair will be charged for in all cases. After the warranty has expired you can still send defective devices for repairs **FREIGHT PREPAID** to the address at the end of this booklet. Quotes as well as repairs after warranty period are to be paid for in all cases. Ensure the product is sent well packed as no responsibility can be accepted for items lost or damaged in transit. This warranty does not affect your statutory rights.

Exploded view



Parts list

No.	Description	Position
406941	Flange outside	1
406940	Flange inside	3
407015	Wheel cover	4 till 6
406943	Spindle gear	18
406944	Pinion gear	28
407016	Rotor	32
407017	Stator	35
406947	Brush holder	42
406948	Carbon brush set (2 pcs)	43
406949	Brush cap	44
406950	Switch	51
406877	Side handle	60
406814	Cam wrench	61

Introduction

Congratulations on choosing to buy a PowerCraft product.

By doing so you now have the assurance and peace of mind that comes with purchasing a product made by one of Europe's leading manufacturers.

All products brought to you by PowerCraft are manufactured to the highest standards of performances and safety, and, as part of our philosophy for customer service and satisfaction, are backed by our comprehensive 3 Year Warranty.

We hope you will enjoy using your purchase for many years to come.

2100W ANGLE GRINDER



Always read the instructions for electrical products carefully before use. It will help you understand your product better and avoid unnecessary risks. Keep this instructions manual in a safe place for future use.

This Angle grinder is ideal for cutting, grinding and roughing metal and stone.

Machine specifications

Technical specifications

Voltage	230 V~
Frequency	50 Hz
Power input	2100 W
No-load speed	6000/min
Disc diameter	230 mm
Spindle dimension	M 14
Weight	4.9 kg
Lpa (sound pressure)	98.1 dB (A)
Lwa (sound power)	111.1 dB (A)
Vibration value aux. handle	7.43 m/s ²
Vibration value main handle	24.16 m/s ²

Product information

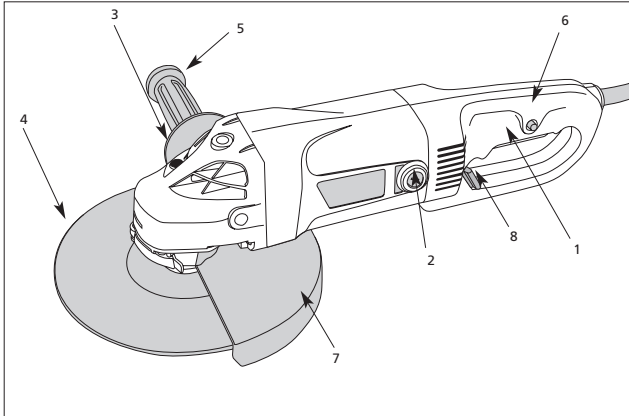


Fig. 1

Maintenance

Troubleshooting

<ul style="list-style-type: none"> Machine fails to operate: 	<ul style="list-style-type: none"> Power turned off 	<ul style="list-style-type: none"> (Extension) cable damaged
<ul style="list-style-type: none"> The motor does not reach maximum speed: 	<ul style="list-style-type: none"> The extension cable is too thin and/or too long 	<ul style="list-style-type: none"> The mains voltage is lower than 230 V
<ul style="list-style-type: none"> Machine overheats: 	<ul style="list-style-type: none"> Air vents are blocked. Clean them with a dry cloth. 	<ul style="list-style-type: none"> The machine has been overloaded. Use the machine for the purpose it is made for.
<ul style="list-style-type: none"> Excessive sparking or motor runs irregular: 	<ul style="list-style-type: none"> There's dirt inside the motor or the carbon brushes are worn. Replace the carbon brushes or bring the machine to a specialized repair centre. 	



Faulty and/or discarded electrical or electronic machines have to be collected at the appropriate recycling locations.

Maintenance



Disconnect the machine from the mains before carrying out cleaning and maintenance work.

This machine has been designed to operate over a long period of time with a minimum of maintenance. Continuous satisfactory operation depends upon proper machine care and regular cleaning.

Cleaning

Regularly clean the machine housing with a soft cloth, preferably after each use. Keep the ventilation slots free from dust and dirt. If the dirt does not come off use a soft cloth moistened with soapy water. Never use solvents such as petrol, alcohol, ammonia water, etc. These solvents may damage the plastic parts.

Lubrication

The machine requires no additional lubrication.

Faults

Should a fault occur, please contact the address on the warranty card. On the back page of this manual you find an exploded view showing the parts that can be ordered.

Environment

In order to prevent the machine from damage during transport, it is delivered in a sturdy packaging. Most of the packaging materials can be recycled. Take these materials to the appropriate recycling locations.

Machine specifications

1. On/off switch
2. Screw-on lid carbon brush (both sides)
3. Spindle lock
4. Grinding disc (not included)
5. Side handle
6. Lock-off button
7. Protective guard
8. Knob

Package contents

- 1 Angle grinder
- 1 Goggles
- 1 Protective guard
- 1 Side handle
- 1 Wrench
- 1 Set spare carbon brush
- 1 Instruction manual

Safety instructions

The following symbols are used in these instructions:



Read the instructions carefully.



Conformity with the relevant EU safety directives.



Class II machine - double insulation - earth connection not required.



Danger of life and risk of injury as well as risk of damage to the machine in case of non-adherence to the safety instructions in these instructions of use.



Danger of electric shock.



Risk of fire.



Keep bystanders away.



Remove the plug from the mains socket.



Wear safety glasses and ear protection.



Wear protective gloves.



Faulty and/or discarded electrical or electronic machine have to be collected at the appropriate recycling locations.

Operation

- Hold the machine firmly and move it against the workpiece. Move the grinding disc evenly across the workpiece.
- Move the machine during roughing under an angle of 30° - 40° across the workpiece (fig. 7).
- The machine must be moved in same direction as the arrow on the tool head shows, in order to prevent the tool from being pushed out of the cut in an uncontrolled manner (fig.8). Let the speed of the cutting disc do the work, do not apply pressure on the tool. Do not break cutting discs with side pressure and do not tilt the tool while cutting.
- Inspect the grinding disc regularly. Worn discs have a negative effect on the machine.
- Do not put the machine down when the motor is still running. Do not place the machine on a dusty surface. Dust particles may enter the mechanism.
- Always switch off the machine first before removing the plug from the wall socket.



Never use the spindle lock to stop the motor.

Operation

Starting the machine

- Clamp the workpiece and make sure that the workpiece cannot slide from under the machine during the cutting activities.
- When working with the machine, always hold it firmly with both hands and provide for a secure stance.
- Always direct the cable to the rear of the machine.
- Insert the mains plug only when the machine is switched off.
- Apply the machine to the workpiece only when switched on



Never use the machine for grinding magnesium workpieces.

Switching on and off

- This machine is equipped with a safety switch.
- Press lock-off switch to engage start switch.



Before starting work, the machine must be run at the max. speed.

Operation

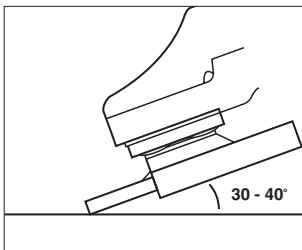


Fig. 7

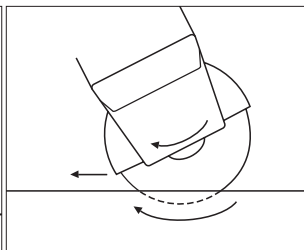


Fig. 8

Safety instructions

General Safety Instructions

Attention!

When using electric machines always observe the safety regulations applicable in your country to reduce the risk of fire, electric shock and personal injury. Read the following safety instructions and also the enclosed safety instructions.

Keep these instructions in a safe place!

1. **Keep work area clear.**
Cluttered areas and benches invite injuries.
2. **Consider work area environment.**
Do not expose power tools to rain. Do not use power tools in damp or wet locations. Keep work area well lit. Do not use power tools in presence of flammable liquids or gases.
3. **Guard against electric shock.**
Prevent body contact with grounded surfaces (e.g. pipes, radiators, refrigerators).
4. **Keep visitors away.**
Visitors should be kept away from the work area at all times. Do not let visitors handle the machine at any time.
5. **Store unused tools.**
When not in use keep tools out of reach of children. Store in a dry and secure location.
6. **Do not force tool.**
Do not apply undue pressure as this may affect performance and may cause damage to the machine. Forcing the job also increases the potential for accidents.
7. **Use right tool.**
Do not force small tools or attachments to do the job of heavy duty tool. Do not use a tool for purposes not intended.
8. **Dress properly.**
Do not wear loose clothing or Jewellery. They can be caught in moving parts. Rubber gloves and nonskid footwear are recommended when working outdoors. Wear protective hair covering to contain long hair.
9. **Use safety glasses.**
Also use face or dust mask when operation is dusty. Use ear protection.
10. **Connect dust extraction equipment**
If devices are provided for the connection of dust extraction and collection facilities ensure these are connected and properly used.
11. **Do not abuse cord.**

Safety instructions

Never carry tool by cord or yank it to disconnect it from electrical socket. Keep cord from heat, oil and sharp edges.

12. **Secure work.**
Use clamps or a vice to hold work. It's safer than using your hand and it frees both hands to operate tool.
13. **Do not overreach.**
Keep proper footing and balance at all times.
14. **Maintain tools with care.**
Keep tools sharp and clean for better and safer performance. Follow instructions for lubricating and changing accessories. Inspect tool cords periodically and, if damaged, have repaired by authorized service facility. Inspect extension cords periodically and replace if damaged. Keep handles dry, clean and free from oil and grease.
15. **Disconnect tools.**
When not in use, before servicing and when changing accessories such as blades, bits and cutters.
16. **Remove adjusting keys and wrenches.**
Form the habit of checking to see that keys and adjusting wrenches are removed from tool before turning it on.
17. **Avoid unintentional starting.**
Do not carry plugged-in tools with finger on switch. Be sure switch is off when plugging in.
18. **Outdoor use extension cords.**
When tool is used outdoors, use only extension cords intended for use outdoors and so marked. Always use tool in conjunction with a residual circuit breaker device.
19. **Stay alert.**
Watch what you are doing. Use common sense. Do not operate tool when you are tired.
20. **Check damaged parts.**
Check the angle grinder for damaged parts before use. Check for alignment of moving parts, binding of moving parts, breakage of parts, mounting, and any other conditions that may affect its operation. Any part that is damaged should be properly repaired or replaced by our customer service centre unless otherwise indicated elsewhere in this instructions manual. Have defective switches replaced by our customer service centre. Do not use tool if the switch does not turn on and off.
21. **Warning.**
The use of any other accessory or attachment other than recommended in this operation instructions or the catalogue may present a risk of

Assembly



Make sure that the side handle is fastened properly and cannot loosen unexpectedly.

Mounting the flange

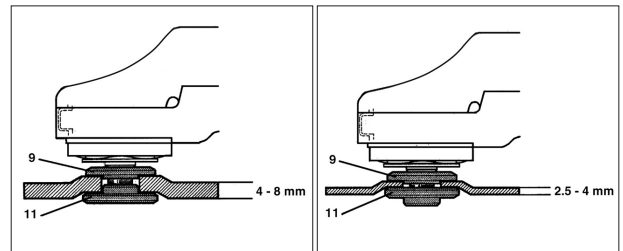


Fig. 5

Fig. 5 and 6 show how to mount the flange (11) when using thick (4 – 8 mm) and thin (2,5 – 4 mm) discs.

Fig. 6

The following grinding discs can be used with this grinder.

- For deburring: grooved, fibreglass reinforced type 27. Dimensions $\text{\O} 230 \text{ mm}$.
- For slitting/cutting: grooved, fibreglass reinforced, type 41 and type 42. Dimensions $\text{\O} 230 \text{ mm}$.

Assembly

- in the required position
- Close the clamping lever (14, page 11) to clamp the protective guard (7, page 11).

Warning: the closed side of the protective guard has to point towards the user.

Rotating the handgrip

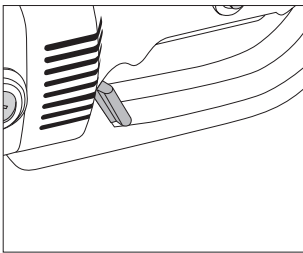


Fig. 4
The handgrip can be rotated 90° regard to the machine housing. This can result in a better control of the On/Off switch during special working positions; for example grinding or left-hand users.

- Pull the knob (8) backwards with thumb and forefinger.
- Rotate the handgrip in the new position (until the blocking).

Mounting the side handle

Fig. 1
The side handle can be used for both left-hand and right-hand control.

- Fasten the side handle (5, page 4) for left-hand operation on the right-hand side of the machine.
- Fasten the side handle for right-hand operation on the left-hand side of the machine.
- Fasten the side handle for upright working at the top of the machine.

Safety instructions

- personal injury.
- 22. Have your tool repaired by an expert.**
This appliance is manufactured to very high standards and meets relevant safety regulations. Repairs should only be done by a suitable qualified electrical engineer or otherwise.
- 23. Hearing protection should be worn.**

Additional safety instructions

- Check that the maximum speed indicated on the grinding disc corresponds to the maximum speed of the machine. The speed of the machine must not exceed the value on the grinding disc.
- Make sure that the dimensions of the grinding disc correspond to the specifications of the machine.
- Make sure that the grinding disc has been mounted and fastened properly. Do not use reducing rings or adapters to make the grinding disc fit properly.
- Treat and store grinding discs in conformance with the supplier's instructions.
- Do not use the machine for grinding workpieces with a maximum thickness exceeding the maximum grinding depth of the grinding disc.
- Do not use grinding discs for deburring.
- When grinding discs have to be mounted on the thread of the spindle, make sure that the spindle has sufficient thread. Make sure that the spindle is sufficiently protected and does not touch the grinding surface.
- Before use, inspect the grinding disc for any damage. Do not use grinding discs which are cracked, ripped or otherwise damaged.
- Before use, let the machine run for 30 seconds. Immediately switch off the machine if there is abnormal vibrations or occurrence of another defect. Carefully inspect the machine and grinding disc before switching the machine on again.
- Make sure that sparks do not put people into danger or that they contact highly flammable substances.
- Make sure that the workpiece is sufficiently supported or clamped. Keep your hands away from the surface to be cut.
- Always wear safety goggles and hearing protection. If desired or required also use other kinds of protection, for example an apron or helmet.
- Ensure that mounted wheels and points are fitted in accordance with the manufacturer's instructions.
- If a guard is supplied with the tool never use the tool without such a guard.

Safety instructions

- For tools intended to be fitted with threaded hole wheel, ensure that the thread in the wheel is long enough to accept the spindle length.
- Ensure that ventilation openings are kept clear when working in dusty conditions. If it should become necessary to clear dust, first disconnect the tool from the mains supply (use non metallic objects) and avoid damaging internal parts.
- Should your electricity supply be in poor condition, the voltage might drop when starting the equipment. This can influence other equipment (for example blinking of a lamp). If the mains-impedance $Z_{max} < 0.348$ Ohm, such disturbances are not expected. (In this case contact your local supply authority for further information)

Assembly



Prior to mounting an accessory always unplug the tool.

Mounting a disc

Use grinding discs with the correct dimension. Use fibre reinforced grinding discs only. The grinding disc must not touch the edge of the guard.

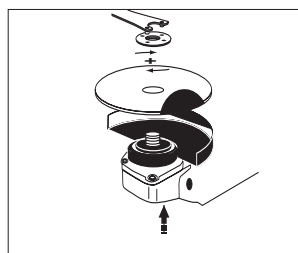


Fig. 2

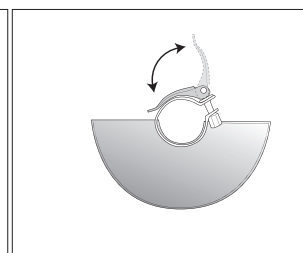


Fig. 3

- Press the spindle lock (3) and turn the spindle (10) until it engages in the lock. Keep the spindle lock pressed during this procedure.
- Remove the flange nut (11) from the spindle using the spanner (12).
- Position the grinding disc (4) on the flange (9).
- Place the flange nut on the spindle and tighten it using the spanner.
- Release the spindle lock and check that the spindle is unlocked by rotating it.

Mounting the toolless protective guard

The protective guard is pre-adjusted for the diameter of the spindle shaft. If necessary, the tension of the clamping lever can be adjusted by turning the adjustment-bolt (13). Pay attention to the correct fitting of the guard (7) on the spindle shaft (10).

- Open the clamping lever (14)
- Place the protective guard across the spindle shaft on the machine head