



SURFSAVIOUR

User Manual



Brushless

SurfSaviour Pro+ Angle Grinder

Product Specification

Voltage(V)	110
Frequency(Hz)	50/60
Rated Input Power(W)	1550
Rated Speed(r/min)	2300-7000
Weight(KG)	2.0

Instructions for Safe Operation

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. Working 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. Electric 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 the 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 or 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, pay attention to 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 energizing 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 jewelry. Keep your hair, clothing and gloves away from moving parts. Loose clothes, jewelry 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.
- h) Use clamps or other means to secure work piece to platform. Unevenness caused by holding the machine in your hands or leaning it against your body can cause loss of control.
- i) Do not use ladders or other unstable support methods. In special cases, a firm foothold allows the use of better control of the machine.
- j) Keep hands dry, clean and free of grease. Greasy hands can lead to loss of control.
- k) Always wear goggles with side shields. Everyday glasses may have impact resistant lenses, but they are not safety goggles. Following this precaution will reduce eye injuries.
- l) Protect your respiratory organs. Wear a dust mask when working with dust. Following this precaution will reduce serious bodily injury.
- m) Protect your hearing. Earplugs are required for long periods of sustained work. Following this precaution will reduce serious bodily injury.

4. Power Tool Use and Care

- a) Do not abuse 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 tools that cannot be controlled by a switch are 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 people who are not familiar with power tools or do not understand these instructions to operate them. 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.
- h) Save this manual. Provide this manual to the user of the machine. If you lend the machine to someone else, lend this manual as well.

5. Protect and Maintain

- a) Take your power tool to a professional repairer and it must be replaced with the same spare parts. This will ensure the safety of the power tool being repaired.
- b) When servicing, use only marked parts.
- c) Follow the maintenance section of this manual. The use of Unauthorized parts or failure to follow the instructions in this manual may provoke a risk of electric shock.

Safety Warnings for Angle Grinder

1. This power tool is intended to function as a grinder, sander, wire brush, or polisher. Read all safety warnings, instructions, illustrations and specifications provided with this power tool. Failure to follow all instructions listed below may result in electric shock, fire and/or serious injury.
2. Operations such as polishing are not recommended to be performed with this power tool. Operations for which the power tool was not designed may create a hazard and cause personal injury.
3. 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.
4. 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.
5. 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.
6. Threaded mounting of accessories must match the grinder spindle thread. For accessories mounted by flanges, the arbour hole of the accessory must fit the locating diameter of the flange. Accessories that do not match the mounting hardware of the power tool will run out of balance, vibrate excessively and may cause loss of control.

7. Do not use a damaged accessory. Before each use inspect the accessory such as abrasive wheels for chips and cracks, backing pad for cracks, tear or excess wear, wire brush for loose or cracked wires. If power tool or accessory is dropped, inspect for damage or install an undamaged accessory. After inspecting and installing an accessory, position yourself and bystanders away from the plane of the rotating accessory and run the power tool at maximum no load speed for one minute. Damaged accessories will normally break apart during this test time.

8. 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 dusk mask or respirator must be capable of filtering particles generated by your operation. Prolonged exposure to high intensity noise may cause hearing loss.

9. 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.

10. 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.

11. Position the cord clear of the spinning accessory. If you lose control, the cord may be cut or snagged and your hand or arm may be pulled into the spinning accessory.

12. 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.

13. 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.

14. 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.

15. Do not operate the power tool near flammable materials. Sparks could ignite these materials.

16. Do not use accessories that require liquid coolants. Using water or other liquid coolants may result in electrocution or shock.

NOTE: This warning does not apply to power tools specifically designed for use with a water source.

Additional safety instructions

Kickback and Related Warnings:

Kickback is a sudden reaction to a pinched or snagged rotating wheel, backing pad, brush or any other accessory. Pinching or snagging causes rapid stalling of the rotating accessory which in turn causes the uncontrolled power tool to be forced in the direction opposite of the accessory's rotation at the point of the binding.

For example, if an abrasive wheel is snagged or pinched by the workpiece, the edge of the wheel that is entering into the pinch point can dig into the surface of the material causing the wheel to climb out or kick out. The wheel may either jump toward or away from the operator, depending on direction of the wheel's movement at the point of pinching. Abrasive wheels may also break under these conditions.

Kickback is the result of power tool misuse and/or incorrect operating procedures or conditions and can be avoided by taking proper precautions as given below.

a) Maintain a firm grip on the power tool and position your body and arm to allow you to resist kickback forces. Always use auxiliary

handle, if provided, for maximum control over kickback or torque reaction during start-up. The operator can control torque reactions or kickback forces, if proper precautions are taken.

b) Never place your hand near the rotating accessory. Accessory may kickback over your hand.

c) Do not position your body in the area where power tool will move if kickback occurs. Kickback will propel the tool in direction opposite to the wheel's movement at the point of snagging.

d) Use special care when working corners, sharp edges etc. Avoid bouncing and snagging the accessory. Corners, sharp edges or bouncing have a tendency to snag the rotating accessory and cause loss of control or kickback.

e) Do not attach a saw chain woodcarving blade or toothed saw blade. Such blades create frequent kickback and loss of control.

Safety warnings specific for all operations

1. Safety Warnings specific for Grinding and Abrasive Cutting-Off operations

a) Use only wheel types that are recommended for your power tool and the specific guard designed for the selected wheel. Wheels for which the power tool was not designed cannot be adequately guarded and are unsafe.

b) The grinding surface of centre depressed wheels must be mounted below the plane of the guard lip. An improperly mounted wheel that projects through the plane of the guard lip cannot be adequately protected.

c) Wheels must be used only for recommended applications. For example: do not grind with the side of cut-off wheel. Abrasive cut-off wheels are intended for peripheral grinding, side forces applied to these wheels may cause them to shatter.

d) Always use undamaged wheel flanges that are of correct size and shape for your selected wheel. Proper wheel flanges support the wheel thus reducing the possibility of wheel breakage. Flanges for cut-off wheels maybe different from grinding wheel flanges.

e) Do not use worn down wheels from larger power tools. Wheel intended for larger power tool is not suitable for the higher speed of a smaller tool and may burst.

2. Special safety warnings for wire brush operation

a) Be aware that the wire line can be thrown out with the brush even during normal operation. Do not over stress the wire threads by placing too much load on the wire brush. The wire may easily pierce thin clothing and/or skin.

b) If a guard is recommended for the wire brushes, the guard must not be allowed to interfere with the wire wheel or wire brushes in any way. The diameter of the wheel or brush will increase under work load and centrifugal force.

Before operation

1. Electric Power Source

Verify that the power supply used matches the specifications indicated on the name-plate of the tool.

2. Power Switch

Check that the power switch is turned off. If the power switch is on, the power tool will turn unexpectedly and immediately when the plug is inserted into the power outlet, resulting in a serious accident.

3. Extension Cables

If the workplace is moved to a location away from the power supply, use an extension cable of sufficient capacity, suitably fitted and as short as possible.

4. Install and adjust wheel covers

The wheel cover is a protective device to prevent injuries to the human body caused by the breakage of the grinding wheel during operation. Before starting the grinding operation, make sure that the wheel cover is properly installed. After loosening the fixing screws slightly, the wheel cover can be rotated and fixed at the desired angle for maximum efficiency. After adjusting the wheel cover, make sure that the fixing screws are fully tightened.

5. Verify that the grinding wheel to be used is of the correct type and is free of cracks and surface defects. Also make sure that the grinding wheel is mounted and that the grinding wheel nut is tight. Refer to the section "Installation of the grinding wheel".

6. Carrying out test runs

Before starting the grinding operation, the machine should be test run in a safe area to verify that the assembly is correct and that the grinding wheels are free of significant defects.

The recommended running times are as follows:

More than 3 minutes after changing the grinding wheel

More than 1 minute before starting daily work

7. Check the spindle locking mechanism

Before switching on the power switch of the power tool, the locking pin must be pushed two to three times to verify that the base locking pin can be released.

8. Fixed Side Handle

Screw the side handle into the gear cover.

Applications for Practical Angle Grinders

1. Strain

Do not overload the machine by applying excessive pressure. This will prolong the life of the machine and ensure quality processing. In most uses, the weight of the machine itself is sufficient for grinding. Excessive pressure will result in reduced speed, poor surface finish and overloading, which will shorten the life of the machine.

2. Grinding Angle

Never apply the full surface of the grinding wheel to the material to be ground. The machine should be held at 15~30 degrees so that the outer edge of the grinding wheel is in contact with the workpiece at an optimum angle, as shown in Figure 2.

3. When grinding for the first time with a new wheel, the angle grinder should be pulled from the opposite side across the workpiece towards the operator. (Figure 2, direction B). Once the leading edge of the grinding wheel is properly worn, grinding can be done in any direction.

4. Angle Grinder on/off switch

Connect: As in Figure 3, push the dip switch to the "ON" position and the machine will be switched on.

Disconnect: As in Figure 3, push the dip switch to the "OFF" position and the switch will be disconnected.

5. RPM Control System

As shown in Fig. 4, the machine is set at different speeds from 1 to 6 speeds for different job requirements:

SurfSaviour Pro+ Angle Grinder

Gear	No load speed
1	2300
2	3000
3	4000
4	5000
5	6000
6	7000

6. What to do after closing

After switching off the machine, wait until the angle grinder has come to a complete stop before putting it down to avoid serious accidents, and to reduce the inhalation of machine dust and chips.

***Note: When the machine is not in use, make sure the switch is in the "OFF" position or unplug it from the mains.**

Assembly & disassembly of grinding wheels

***NOTE: In order to prevent serious malfunctions, the power supply must be switched off and the mains plug removed from the mains socket.**

1. Assembly (Figure 1)

- (1) Turn the top of the machine down so that the spindle side is facing up.
- (2) Install the grinding wheel washer on the spindle.
- (3) The protrusion of the grinding wheel is mounted on the grinding wheel washer.
- (4) Screw the wheel nut onto the spindle.
- (5) Press the locking pin to prevent the spindle from rotating and tighten the nut with a spanner (accessory) (as shown in Figure 1).

2. Decomposition

The order of disassembly is reversed from the order of installation.

Maintenance and inspection

1. Inspection of Grinding Wheels

Check the grinding wheel for cracks and other defects.

2. Check Mounting Screws

Always check that the mounting screws are strong and proper. If the screws are found to be loose, re-torque them immediately, otherwise serious accidents may result.

3. Cleaning of the Control Box

Remove the rear cover screws with a Phillips screwdriver, pull out the cover, and clean the surface with a hair dryer or a clean brush to remove dust and dirt.

4. Maintenance of Electric Motors

The motor winding is the heart part of the power tool. It should be carefully inspected for damage and whether it is wet with oil or water.

***Note: Specifications contained in this manual are subject to change without notice in the interest of improvement.**

Standard accessories

1. Inspection of Grinding Wheels

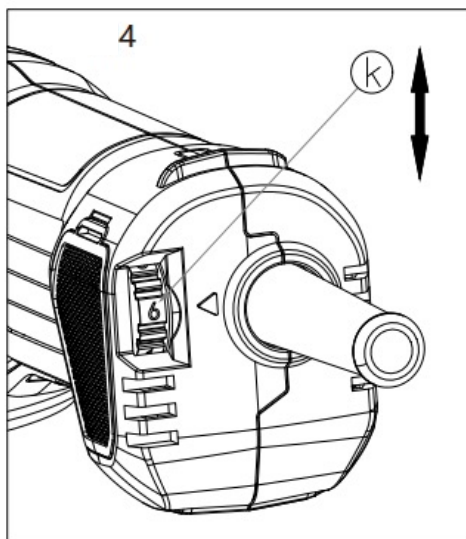
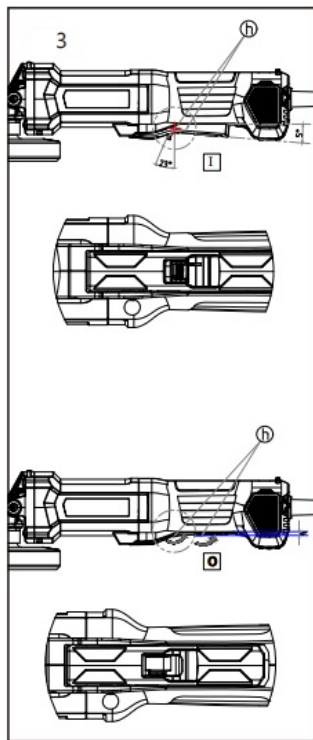
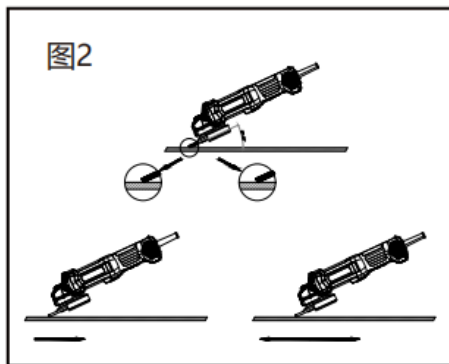
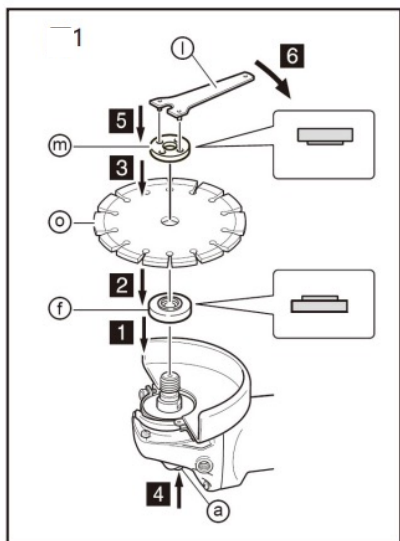
[1] Spanner x1

[2] Shank x1

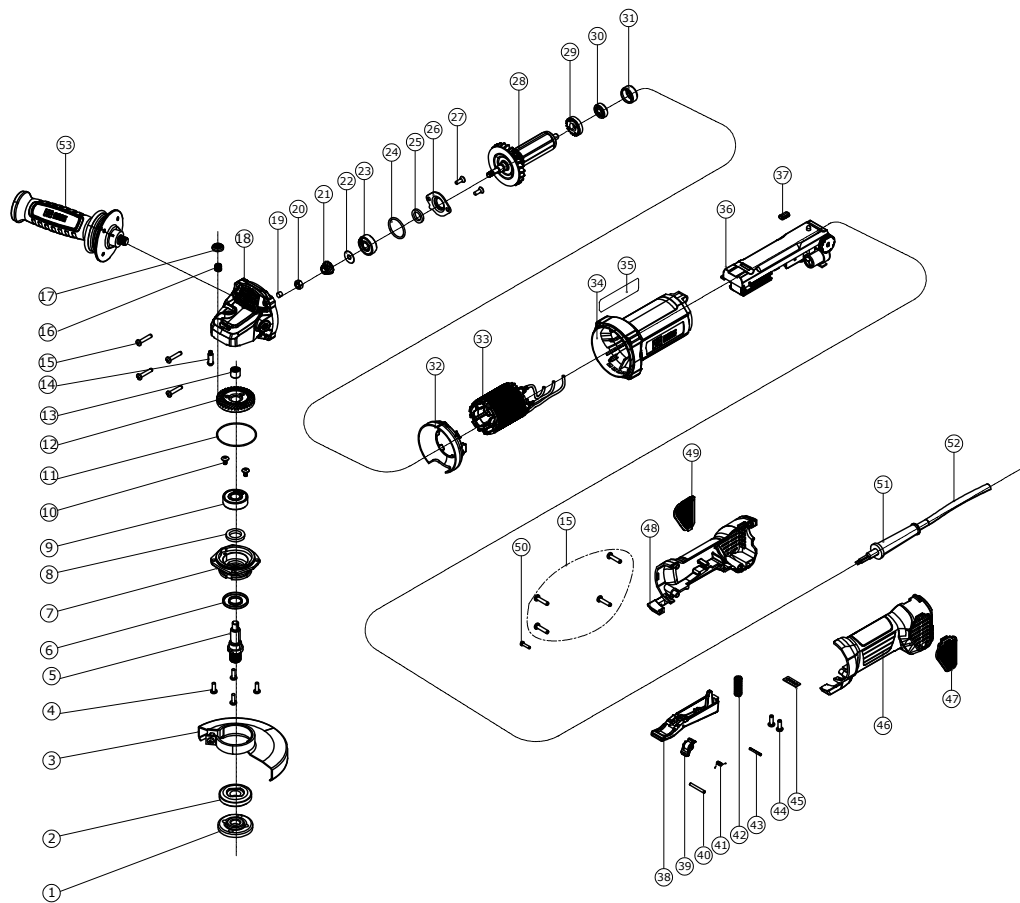
Grinding wheels are not included as standard accessories.

Standard annexes are subject to change without notice.

Figures



Exploded view



Spare parts list

View No.	Name	Config	View No.	Name	Config
1	Outer Flange	1	28	Rotor Assembly	1
2	Inner Flange	1	29	Dustproof Pad	1
3	Wheel Guard	1	30	607 bearing	1
4	M4*12 Cross Pan Screw	4	31	Bearing sleeve	1
5	Spindle	1	32	Wind Shield	1
6	Dust Cover	1	33	Stator Assembly	1
7	Bearing Housing	1	34	Housing	1
8	Wool felt	1	35	Parameter label	1
9	6201 Bearing	1	36	Controller	1
10	M4*8 Cross Pan Screw	2	37	LED cover	1
11	O-ring for Bearing Pedestal	1	38	Switch cap	1
12	Big bevel gear	1	39	Anti-lock button	1
13	Needle bearing HK0810	1	40	Cylindrical pin	1
14	Lock pin	1	41	Torsion spring	1
15	ST4.2*22 Cross Pan Screw	8	42	Compression spring	1
16	Lock pin spring	1	43	Split hollow pin	1
17	Lock pin cap	1	44	Cord clip	1
18	Gearbox	1	45	ST4.2*14 Self-tapping Screw with Washer	2
19	Wool Felt Columns	1	46	Left handle housing	1
20	M6 Nut	1	47	Left filter screen	1
21	Small Bevel Gear	1	48	Right handle housing	1
22	Stainless steel plate	1	49	Right filter screen	1
23	629 Bearing	1	50	ST2.6*12 Cross Pan Screw	1
24	O-ring	1	51	Cable sheath	1
25	Wool felt	1	52	2.85m power cord	1
26	Bearing plate	1	53	Side handle	1
27	M4*14 Hex countersunk head screws	2			

Guarantee Card

Dear User,

Thank you for purchasing our power tools.

In order to protect your safety and the safety of others, to extend the life of the tool, please read the instruction manual before operation, and according to the safety regulations for operation.

Power tools produced by our company have a three-month warranty from the date of purchase (based on the invoice). When the warranty is required, the customer will send the tool to the special dealership or professional power tool repair shop with the warranty card, and use the original or high-quality parts for repair.(Customers are responsible for shipping and insurance costs).

The following are not covered by the warranty:

- a. Any wear and tear due to natural wear and tear (e.g. carbon brushes, belts, etc.).
- b. Human damage such as overloading and misuse.
- c. Damage caused by improper transport by the user after sale.
- d. Losses caused by failure to use appropriate tool attachments as required.
- e. Any self-modified or dismantled product.

Please keep the warranty card in a safe place.

No replacement will be issued for loss or damage.

Note: The warranty card is not valid without the seal of the distributor.

Product Number:

Nameplate number:

User name:

Purchase Date:

Invoice number:

Distributor (stamp):

Maintenance records: