



Sabre G230



Index

1. EU Declaration Of Conformity
2. Guidelines For The Operation Of 110v Sabre G230
3. Technical data
4. Application of tools
5. Safety rules for the operation of the floor grinder
6. Operating
7. Changing of tools
8. Appendix



EU-Declaration of Conformity

According to Machine Directive 98/37/EC (89/392/EWG), Appendix II A

We hereby declare that the machine

Type: Floor grinder

Name: Sabre G230

Conforms with the following standards which have been valid at the date written below:

EC-Directive 98/37/EC (89/392/EEC), in its current wording

EC-Directive 89/336/EEC, in its current wording

EC-Directive 73/23/EEG (89/392/EEC), in its current wording

List of harmonized standards:

EN 12100 Safety of machines

EN418 Emergency stop devices

EN953 Separating safety devices

EN 60204 Part 1 Electric equipment of machinery, general requirements

EN1050 Guiding principles for the judgement of risk

Pollington 27/01/2021

(Authorized signature)

P. Welburn, Engineering

(Name and position of authorized person)

info@pwm-sales.co.uk Tel 01405 862688

IMPORTANT Guidelines for reliable operation of 110v Sabre G230

PLEASE READ

If you have decided to use 110v power supply rather than 415V then the following limitations have to be considered. They are restrictions resulting from the laws of physics they are not conditions dreamt up by PWM to make life more difficult for you, equally they are not conditions resulting from inferior equipment or poor design. They apply regardless of the manufacturer's badge

Comply with these conditions and the machines are 100% reliable. Choose to ignore the advice given and you will experience problems resulting in frustration, added costs and wasted time.

Generator requirements - absolutely the bare minimum!

Sabre 110v 10kva

Sabre + TV150 20kva

When using an extension lead it must be 4.0mm cable fitted with 32A plug and socket and maximum length 15M

If you use 2.5mm cable with 32A plug and socket the machine will not work.

Mains supply:

One 5kva transformer is required for each tool, it is not possible to run two tools from one transformer. You cannot run the Sabre G230 and a vacuum from one transformer.

When starting the Sabre or Alpha machine always apply downward pressure to the handle to reduce the weight on the grinding disc. Allow the machine to reach full speed before starting to grind.

When using an extension lead it must be 4.0mm cable fitted with 32A plug and socket and maximum length 15M

If you use 2.5mm cable with 32A plug and socket the machine will not work.

All our equipment has been developed over many years and there are literally thousands in daily use. All machines are fully tested before shipping to a customer. If you experience problems starting and running the machine then the problem is likely an inadequate power supply, usually long, undersized cables causing a voltage drop.

If the machine will not start or run, repeated attempts will destroy the start / run capacitors. This is a chargeable repair and not covered by warranty. If the machine does not start instantly then trying a second, third, fourth, fifth time will not change the situation – you will simply damage the machine.

To help customers operate 110V machines correctly we can supply a "Power Meter" that displays voltage and current in a digital display. You can quickly determine the supply voltage and how hard the machine is working. If you exceed the operating current of the motor then the switch will trip to protect the motor.

Other possibilities for consideration:

- If the machine starts and runs then trips out after 15 – 20 mins. of use then the reason could be overloading e.g. removing thick adhesive. Reduce the load on the machine by taking smaller cuts / passes with the machine or try a different grade of diamond.
- The machine cannot be ideal for every application, if it trips out more than two or three times then possibly it is the wrong machine for the job.
- The machine tripping out does not mean the switch is faulty – it is performing exactly the task that it was designed for i.e. to protect the motor from damage and overload. Repeatedly tripping the switch will weaken it to the point where it stops working altogether. The only possibility is to find out the reason for the overload situation and rectify the problem.
- Long undersized cables result in voltage drop. As voltage drops the current increases, causing the switch to trip. The solution is to use cable sizes as above.

If you want to use long cables (up to 100M!!)
If you want to work the machine really hard.
If you want maximum productivity
If you want total, idiot proof reliability

Then use three phase powered machines!!

Consider, a 2.2 kW, 110v motor will need a 26/28Amp supply, a 2.2kW, 3 phase motor will need only 4.85Amp. For many applications the power supply will be by a transformer plugged into a 13A supply. So halve the voltage you double the current. 220v mains supply becomes 110v the maximum available current is typically 13A this is doubled on the 110v supply so becomes 26A. So you see no margin for error when using a 2.2kW machine. Nothing to do with PWM or our machines and everything to do with the laws of physics.

Flexible drive coupling's impact on the electrics

The flexible drive coupling is a consumable wear part that deteriorates over time with use. Life varies depending on the surface being prepped. As it wears vibration levels increase. Excessive vibration will cause the switch to trip.

If the machine is not set level, extra load is placed on the coupling causing increased vibrations as well as uneven diamond wear. As a result, the switch will trip.

Damaged and missing diamond segments will cause vibrations that will in turn make the switch trip.

Technical Data

Grinding width	230 mm
Width	30 cm
Length	60 cm
Height	51 cm
Weight	42 kg
Speed of grinding head	1500 rpm
Hose 	50 mm
Average value of acceleration a_{hv} *	2.6 m/s ²
Noise level L_{wa} *	100 dB(A)
Noise level L_{eq} *	90 dB(A)

Application of tools

3.1 General applications

Tool Application	Diamond	Tungsten carbide grit	Cutters
Grinding of plain floors, - Smooth surface - Semi rough surface - Rough surface	A A A	C B A	C C C
Levelling of uneven surfaces - Smooth surface - Semi rough surface - Rough surface	A A B	A A A	C C C
Levelling of Steps, corners, joints etc.	B	A	C
Renovation	A	B	A
Repair	A	B	A
Faults in concrete	A	B	A
Grinding of - Hard concrete - Oily and greasy floors - Painted floors - Epoxy coatings	A A A A	C B A A	B A A A
Removal of floor surfaces up to 5 mm	A	C	A
Removal of carpet and tile glue	C	A	A
Grinding of asphalt	B	B	A
A Suitable B Less suitable C Unsuitable			

3.2 Application of diamond discs

Grinding of:	Description:	Colour:
Hard floors	DFG5-3	silver
Normal concrete	DFG7-4	blue
Aggressive concrete	DFG8-4	brown
Smoothing	DFG7-5/7-6	Blue
Epoxy / PU glue	PCD	Silver/gold

Safety rules for the operation of the floor grinder

Attention! The Sabre 230 floor grinders are constructed according to existing safety rules and regulations. These technical precautions should not be removed or changed under any circumstances. While operating the machines the following points should also be kept in mind:

1. The grinders should always be operated with all safety covers and technical precautions.
2. During transport, cleaning, repair or maintenance the grinder must be disconnected from the mains. That also applies to the changing of tools.
3. The safety ring (Diagram No. 17) can only be removed while operating the machine directly against the wall. While operating the machine without the safety ring dust can be generated. In this case the operator must wear a mask. In all other cases the grinder must be operated with the safety ring.
4. The operator should never leave the machine unattended during operation.
5. Before leaving the machine all rotary parts should be brought to a standstill. Electric models must be disconnected from the mains. Make sure that the machine cannot roll or move by itself.
6. After any maintenance and adjustment all safety covers must be reattached.
7. Ear protectors must be worn.
8. Eye protectors must be worn.
9. Safety shoes with steel caps must be worn.
10. In the event of a large amount of dust during operation, connect a dust collector to the grinder.
11. Depending on the floor (floor coating) grinding can produce gases. The operator must be held responsible if these generated gases are dangerous and if protection is necessary. Grinding floors containing asbestos is especially dangerous and can cause health problems. Special masks must be worn which keep the breathing air clean. A dust collector must be used and should be equipped with filters suitable for asbestos dust.
12. The floor must be brushed before grinding because loose material could get into the tools and fly away. Anchor screws and bolts coming out of the floor can also be seen better if the floor is clean. If the grinding head hits a anchor screw or bolt then serious damage can be caused to the machine or grinding head.

Operating

Disconnect the grinder from the power supply!

After mounting the appropriate tools, the operation of the grinder can begin.

Adjust the grinder by loosening the screws of the rear wheel swing and changing its position in the slots so that the motor axis is 90° level to the floor. Tighten the screws again. Connect the grinder to the mains. Lift the tool from the floor by tilting the machine onto its back wheels. Switch the motor on.

Attention, when switching on the motor, beware the machine jumps slightly.

After the motor has reached full speed, place the grinding head carefully on the floor. If the machine is correctly adjusted (see above) it is easy to move across the floor. If the machine pulls to the left or right, the machine has to be re-adjusted by changing the position of the rear wheel swing (see above).

Attention: Never switch the motor on while the grinding head is on the floor.

Dust emission should be prevented by connecting a dust collector.

Before finishing the grinding process the machine must be switched off and the tools have to be brought to a standstill by letting them touch the floor. Disconnect from the power supply.

Changing of the tools

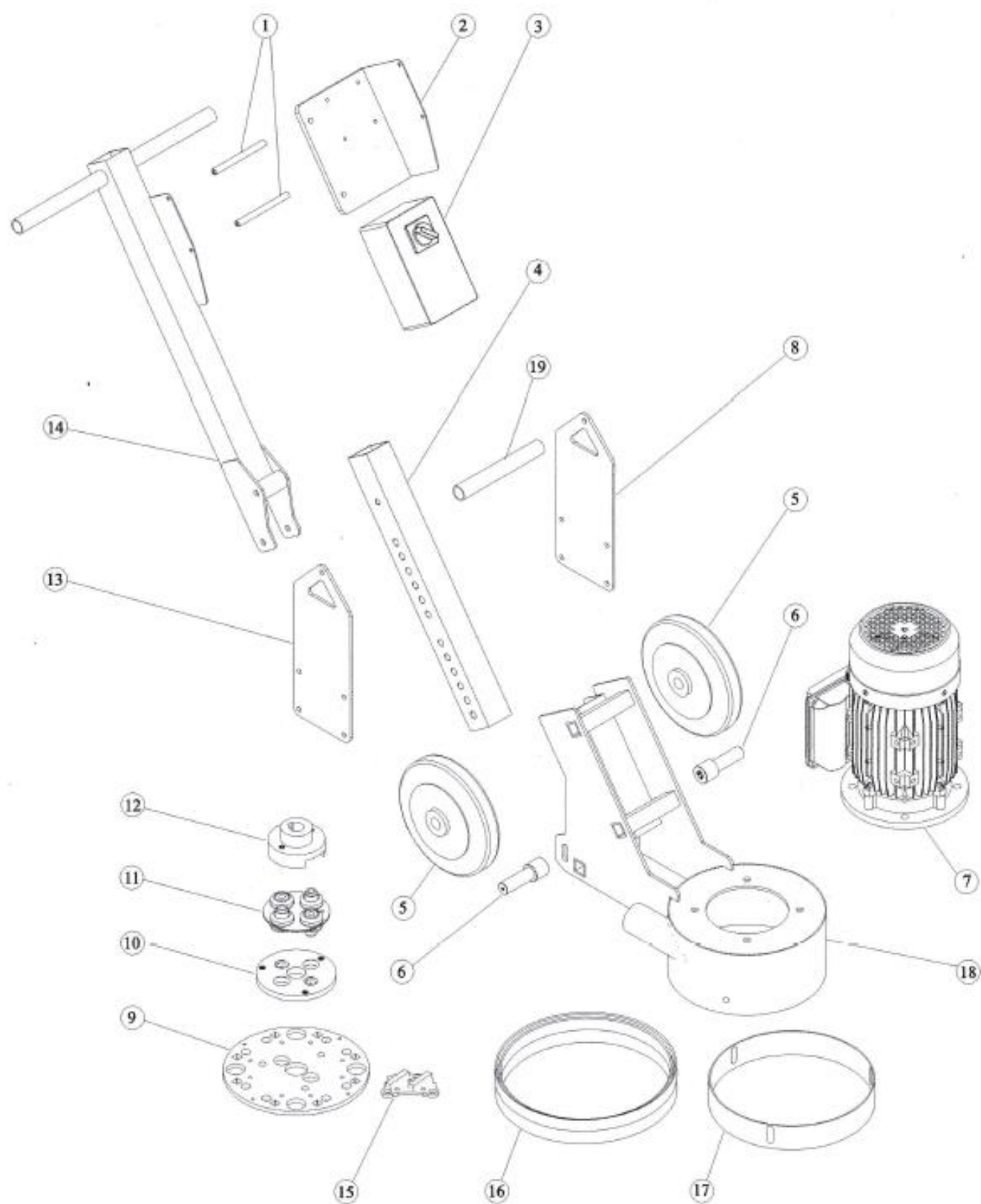
Attention: Before working on the grinder bring the motor to a total stand still and disconnect from the power supply.

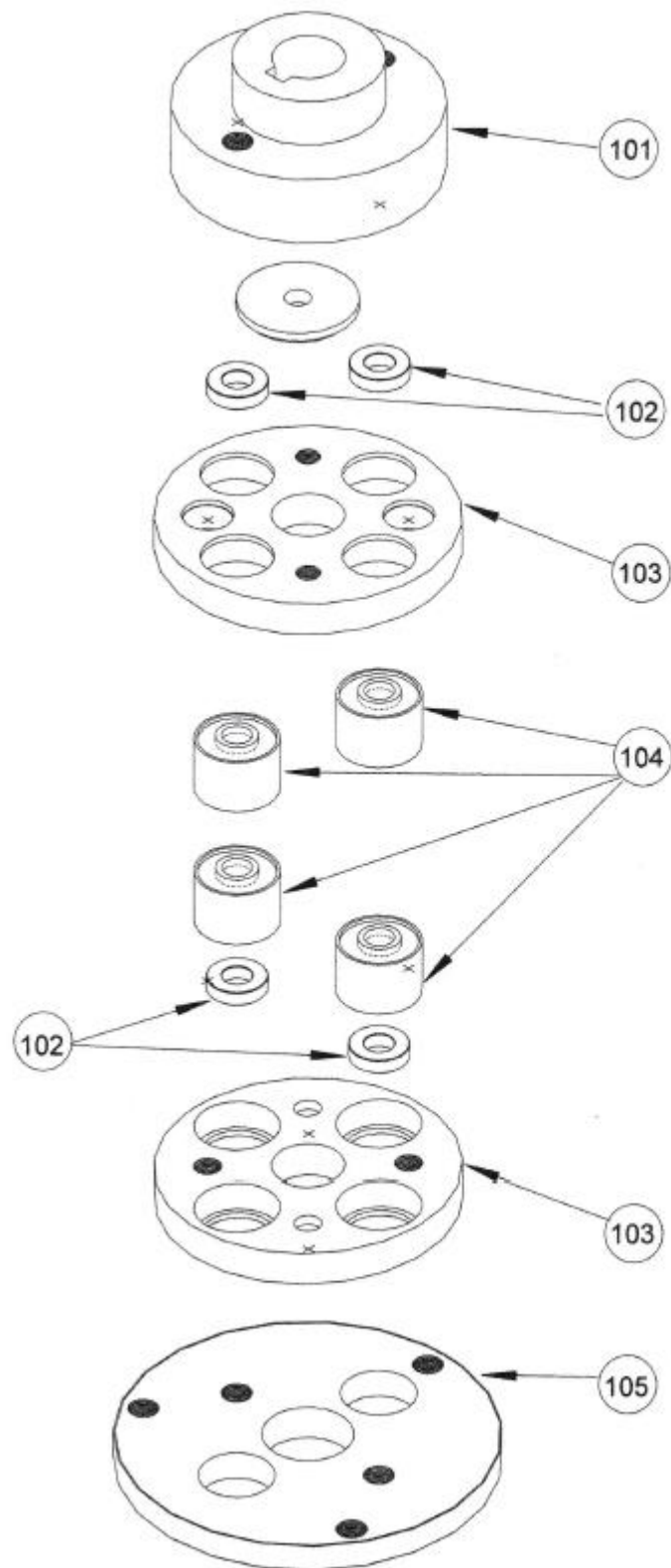
Warning: Tools can be hot after use.

- Tilt the machine onto the back wheels and rest it on the handlebar.
- Remove the diamond segment drive plate, held in position by 3 hex caphead screws in centre of plate.
- All tools or tool brackets are attached to the drive plate with three, M8 hex screws.
- Remove the screws with a 13mm spanner.
- Check the grinding tool for wear and tear for the next application.
- Fix new tools
- Adjust the different heights of the tools by changing the position of the rear wheel swing (see chapter 5 Operating). The motor axis of the grinder must be 90° perpendicular to the floor.

Appendix

- Diagrams
- Tools
- Part list





SABRE G230 DRIVE COUPLING
ASSEMBLY

JANUARY 2023

Parts list

SABRE G230 Main component list

1	Switch mounting tube	2/machine
2	Switch protection plate	
3	Motor protective switch	
4	Adjustable main handle	
5	Wheel	2/machine
6	Axle	2/machine
7	Motor	
8	Front handle plate, left	
9	Diamond drive plate	
10	Intermediate drive plate	
11	Flexible drive coupling	
12	Motor drive boss	
13	Front handle plate, right	
14	Main handle	
15	Diamond segment	4/ set
16	Rubber dust skirt	
17	Dust skirt clamping ring	
18	Main body	
19	Lifting Handle	

SABRE G230 DRIVE COUPLING ASSEMBLY

101	Drive shaft flange	1	040118
102	Steel spacer	4	040120
103	Coupling plates	2	040117
104	Rubber / steel bushes	4	040119
105	Intermediate plate	1	040115