

**NORTON**



# CMR 351

## OPERATING INSTRUCTIONS

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*clipper*<sup>®</sup>





# Declaration of conformity

The undersigned manufacturer:

**SAINT - GOBAIN ABRASIVES S.A.**  
**190, BD J.F. KENNEDY**  
**L- 4930 BASCHARAGE**

Declares that this product:

Masonry Saws: **CMR 351230V**  
**CMR 351 230V U.K.**

Code: **70184630429**  
**70184630636**

is in conformity with the following Directives:

- ***European Machinery Directive 2006/42/EC***
- ***"LOW VOLTAGE" 2006/95/EC***
- ***Electromagnetic Compatibility Directive 2004/108/EC***

and European standard:

- ***EN 12418 – Masonry and stone cutting-off machines – Safety***

A handwritten signature in black ink, appearing to be "P. Mersch", written in a cursive style.

Pierre Mersch  
Business Manager Machines Europe



# CMR 351

## OPERATING INSTRUCTIONS AND SPARE PARTS LIST

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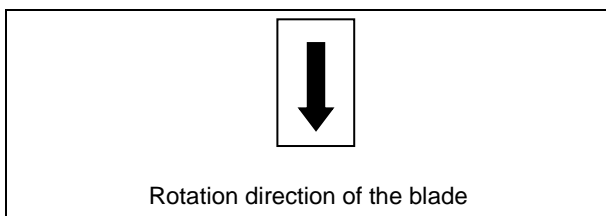
# 1 Basic Safety Instructions

The CMR 351 is exclusively designed for the cutting of construction products mainly on construction sites.

Uses other than the manufacturer's instructions shall be considered as contravening the regulations. The manufacturer shall not be held responsible for any resulting damage. Any risk shall be borne entirely by the user. Observing the operating instructions and compliance with inspection and servicing requirements shall also be considered as included under use in accordance with the regulations.

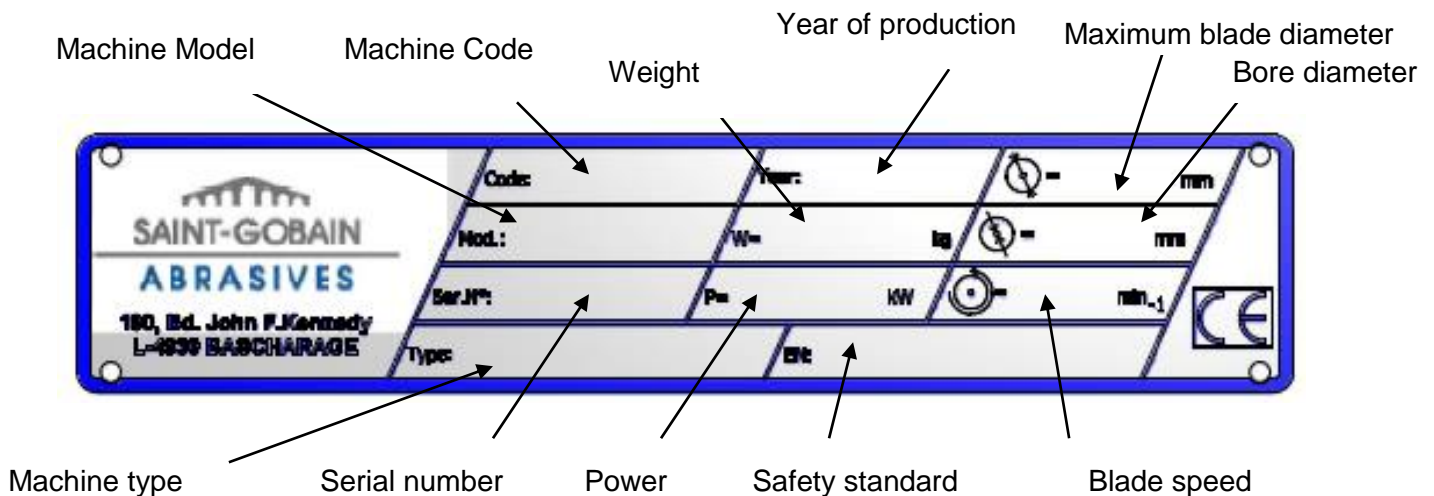
## 1.1 Symbols

Important warnings and pieces of advice are indicated on the machine using symbols. The following symbols are used on the machine:



## 1.2 Machine plate

Important data can be found on the following plate located on the machine:



## 1.3 Safety instructions for particular operating phases

### Before commencing work

- Before commencing work, make yourself familiar with the working environment at the place of use. The working environment includes: obstacles in the area of work and manoeuvre, the firmness of the floor, necessary protection at the site relating to public thoroughfares and the availability of help in the event of accidents.
- Check for correct mounting of the blade regularly.
- Immediately remove damaged or badly worn blades, as they endanger the operator whilst rotating.
- Only fit NORTON diamond blades to the machine! The use of other tools can damage the machine!
- Attention is drawn to the use of BS2092 safety goggles in conformity with specified Processes No.8 of the Protection of Eyes Regulation 1974, Regulation 2(2) Part 1.
- For security reasons, never leave the machine unattended, untied or unlocked.

### While the engine is running

- Do not move the machine whilst the blade is running idle.
- Always cut with the blade guard in position.
- Apply cooling water continuously whilst cutting and in good time!
- Always turn off the machine and separate it from the main source of electricity before any work on the machine is done.
- Make all electrical connections securely to eliminate contact of live wires with spray water or dampness.
- When the machine is used with water, it is IMPERATIVE that you earth the machine properly. Let a qualified electrician check in case of doubt.
- In the event of the machine breaking down or stopping for no apparent reason, switch off the main electricity supply. Only a qualified electrician is allowed to investigate the trouble and remedy the fault.
- In case of emergency, you can stop the machine by pushing on the front cover of the switch.

## 2 Machine description

Any modification, which could lead to a change in the original characteristics of the machine, may be done only by Saint-Gobain Abrasives who shall confirm that the machine is still in conformity with the safety regulations.

### 2.1 Short description

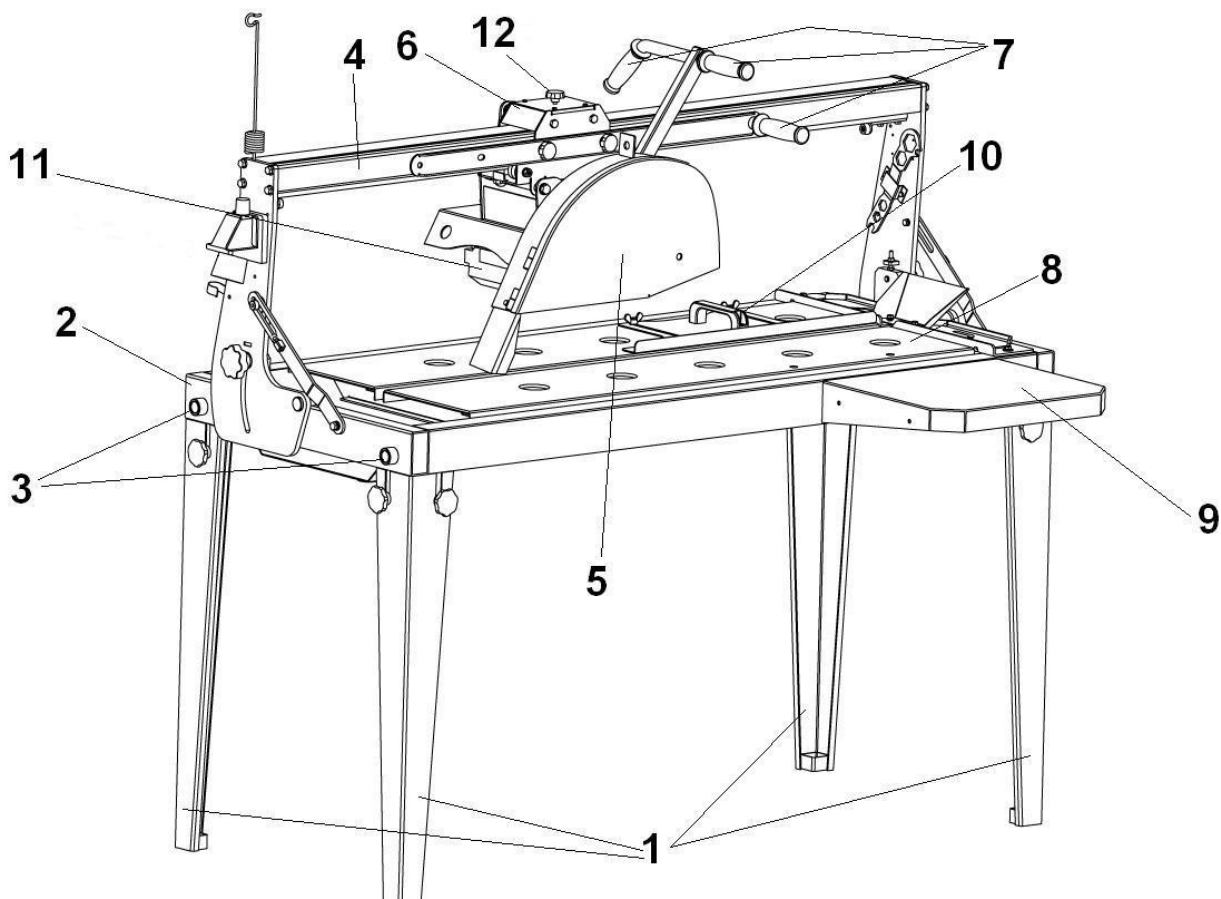
The CMR 351 block saw is designed for durability and high performance for onsite wet and dry cutting operations of a wide range of masonry, refractory and natural stone products.

As with all other NORTON products, the operator will immediately appreciate the attention given to detail and quality of materials used in construction. The machine and its component parts are assembled to high standards assuring long life and minimum maintenance.

### 2.2 Purpose of use

The machine is designed for cutting a large range of building and refractory materials like tiles, stair step or window sill. It is not designed for cutting wood or metals.

### 2.3 Layout



#### Feet (1) and handles (3)

Feet (1) ensure perfect stability of the machine. They are held in position with knob screws. 4 handles (3) can be used for the transport of the machine, and folded in the machine while it is used.

#### Frame (2)

Jig-welded steel construction, the frame is robust and resistant. The side posts of the machine



ensure that the rail (4) is parallel to the table (8). The rail assembly can also be tilted to 45° to make bevel cuts. The rail guides the cutting head (6) over the table.

### **Blade guard (5)**

Jig-welded steel construction with 350mm-diameter blade capacity, which offers maximum operator protection and increased visibility of the work piece.

Incorporated in the blade guard is an outer metal cover, which can be easily hinged open. This allows easy access to shaft for inspection and blade replacement when motor is switched off, while fully protecting the blade when in operation. An arrow on the blade guard indicates the direction of the blade rotation.

### **Cutting head (6)**

Jig-welded steel console, the cutting head supports the electric motor and the blade guard. The movement of the cutting head on the rail involves ball bearing wheels. The cutting head can be secured on the rail using a knob screw (12). The balancing of the cutting head is achieved using a heavy-duty spring. A depth-locking device fixed over the cutting head enables the operator to set the cutting head to desired or to maximum cutting depth.

### **Down feed and cutting depth adjustment**

The spring-loaded cutting head, activated by hand with any of the 2 grips (7) over the blade guard ensures smooth lowering of the cutting head for shock-free penetration of the work piece and improved control of the cutting pressure. The depth can also be maintained by securing the head in at the desired cutting depth, and using any of the 3 grips (7) on the cutting head to slide the cutting head.

### **Cutting table (8)**

Large, heavy-duty table fitted with water flow-control vents. The table is equipped with backstops and a guide-a-cut device (10). A side extension (9), which can be assembled on either side of the machine, allows the cut of wide materials. The table can easily be opened to clean the water tray.

### **Water cooling system**

The coolant system comprises:

- A powerful, submersible electrical water pump.
- Plastic suction pipe delivering the water from the water pan to the cutting head.
- A large capacity water pan supplied with drain plug.
- A water-tap, fitted to the blade guard, permitting controlled water flow.
- Two water nozzles located on both side of the blade guard ensure adequate flow of water to both sides of the cutting blade.

### **Electrical Motor (11) and switch**

Electrical motor with 2,2kW. Low voltage trigger (NVR) built in the switch prevents the motor to restart for example after a power cut.

The electric motor has an overload protection. Thermal overload tripping can occur for two reasons:

- a. tripping under light load  
    If connection is incorrect
- b. tripping under heavy load  
    If motor has been overloaded

## 2.4 Technical Data

Electric motor protection	IP54
Power	2,2kW
Tension	230V 1~
Max. blade diameter	350 mm
Bore	25,4 mm
Rotation speed of the blade	2800 min <sup>-1</sup>
Cutting depth	100 mm (without reversing the material)
Cutting length	1150 mm
Length	1650 mm
Width (with side extension)	1030 mm
Width (without extension)	700 mm
Height (with feet)	1550 mm
Height (without feet)	875 mm
Flange diameter	90 mm
Water pan capacity	65 l
Sound pressure level	80 dB (A) (following ISO EN 11201)
Sound energy level	92 dB (A) (following ISO EN 3744)
Weight (total)	125 kg
Weight (with water)	190 kg

## 3 Assembly and commissioning

The machine is delivered fully equipped (although without diamond blade) and is ready for operation after assembly of the blade and feet, and connection to the appropriate power supply.

### 3.1 Feet and side extension assembly

To assemble each foot, slide it at a corner of the machine so that the long holes on the foot are located under the head of the knob screws. Then secure the foot by tightening the knob screws. Repeat this operation for every foot on the four corners of the frame.

The side extension can be assembled either left or right on the frame of the machine. Slide the two strips on the end of the extension inside the two notches on the frame. Then secure the extension using the two knob screws.

### 3.2 Tool assembly

Only NORTON blades with a maximum diameter of 350 mm can be used with the CMR 351.

All tools used must be selected with regard to their maximum permitted cutting speed for the machine's maximum permitted rotation speed.

Before mounting a new blade into the machine, switch off the machine and isolate it from the main source of electricity.

To mount a new blade, follow these steps:

- Open the outside cover of blade guard by loosening the screw on the front side of the guard.
- Loosen the hexagonal nut (Caution: left-threaded) on the blade shaft, which holds the removable outer flange.

- Remove the outer flange.
- Clean the flanges and blade shaft and inspect for wear.
- Mount the blade on the shaft ensuring that direction of rotation is correct. Wrong direction of rotation blunts the blade quickly.
- Replace outer blade flange.
- Tighten hexagonal nut with spanner supplied for this purpose.
- Shut retractable blade guard cover and tighten the screw on the front side of the guard.

The blade bore must correspond exactly to the diameter of the blade shaft. Cracked or damaged bore is dangerous for the operator and for the machine.

### **3.3 Electrical connections**

Check that,

- the voltage/phase supply corresponds to the information indicated on the motor plate.
- Available power supply must have ground connection in conformity with safety regulations.
- The connecting cables should have at least a 2.5mm<sup>2</sup>-section per phase.

### **3.4 Starting the machine**

Open the switch cover and press the green button to start the machine. To stop either use the red button or press directly on the switch front cover.

### **3.5 Water cooling system**

- Fill the water pan with clean water to approximately 1cm from top (ensure that bottom of pump is fully immersed in water).
- Open water-tap at blade guard (note that handle on water-tap should be in line with water-flow).
- Ensure that water is flowing freely in the circuit and is delivered adequately to both sides of the blade, as insufficient water supply may result in premature failure of the diamond blade.
- The water pump must never run without water. Always make sure that there is enough water in the pan and refill if necessary.
- In case of frost, empty the water cooling system from its water.

## **4 Transport and storing**

### **4.1 Securing for transport**

Before transporting or lifting the machine, always remove the blade and empty the water pan. Also lock the cutting head on the rail. To do so, move the head in the middle of the rail and tighten the knob screw until the cutting head is secured on the rail.

### **4.2 Transport procedure**

Conform yourself to work regulations, in order to transport the machine safely. The machine is fitted with 4 foldable handles. Fold these out of the machine to transport it easily.

The machine does not have lifting hooks

### **4.3 Long period of inactivity**

If the machine is not going to be used for a long period, please take the following measures:

- Completely clean the machine
- Empty the water system
- Take the water pump out of the slurry and clean it thoroughly.

The storage site must be clean, dry and at a constant temperature.

## **5 Operating the machine**

### **5.1 Site of work**

#### 5.1.1 Sitting the machine

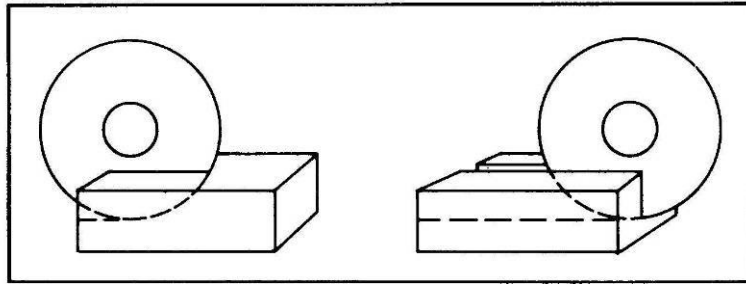
- Remove from the site anything, which might hinder the working procedure!
- Make sure the site is sufficiently well lit!
- Observe manufacturer's conditions for connecting to power supplies!
- Place electric cables in such a way that damage by the device is excluded!
- Make sure you have a continual adequate view of the working area so you can intervene in the working process at any time!
- Keep other staff out of the area, so you can work securely.

#### 5.1.2 Space required for operation and maintenance

Leave 2 m around the machine for usage and maintenance of the CMR 351.

### **5.2 Cutting material**

To use the machine correctly, you must face it with one hand on one of the 3 handles of the cutting head, and the other ready to shut the machine down in case of emergency. Always keep your hands away from the moving blade.



- Lower the cutting head to the desired cutting depth (in “through cutting”, lower cutting head until blade periphery reaches max. 3mm under the surface of the conveyor cart) by means of the handle over the cutting head
- Fix position by tightening the clamping device over the blade guard
- Put material on the table
- Push the cutting head slowly and without undue pressure towards the material and cut the material as shown on the picture.
- You can also cut thicker material by reversing the material on the table.

NOTE: While recommended, it is not absolutely necessary to lock the cutting head into a given depth position when jam cutting. The desired cutting depth can be maintained by holding firmly the depth feed handle on the blade guard. If the full depth of cut requires excessive pressure (on very dense material e.g.) make 2 or 3 shallow cuts.

### **5.3 General advice for the cutting**

- Material weighting under 30 kg and having dimensions smaller than 1150x1000x200mm can be cut with the machine.
- Before commencing work make sure tools are firmly seated!
- Select the right tools as recommended by the manufacturer depending on the material to be worked, the working procedure (dry or wet cut) to be carried out and the required efficiency.
- Apply cooling water continuously whilst cutting and in good time! Make sure the water pan contains enough water.
- When dry cutting, ensure sufficient dust extraction and wear a dusk protection mask!
- If the thermal protection trips, allow the thermal protection to cool down. Wait a few minutes to allow the motor to cool down before restarting the machine.

## 6 Maintenance and servicing

To ensure a long-term quality from the cutting with the CMR 351, please follow the maintenance plan below:

		Begin of the day	During the changing of tool	End of the day or more often if required	Every week	After a fault	After a damage
Whole machine	Visual control (general aspect, watertightness)						
	Clean						
Flange and blade fixing devices	Clean						
Motor cooling fans	Clean						
Water pump	Clean						
Water pan	Clean						
Cutting table	Clean						
Water hoses and nozzles	Clean						
Water pump filter	Clean						
Rail	Clean						
Motor housing	Clean						
Reachable nuts and screws	Tighten up						

### Maintenance of the motor

Always perform the maintenance of the motor with the machine isolated from the electrical supply.

### Cleaning of the machine

Your machine will last longer if you clean it thoroughly after each day of work, especially water pump, water pan, cutting head rail, motor and blade flange. To easily clean the water pan, open the table. Always clean the machine when any cutting dust and debris is still fresh; never allow the deposits to solidify.

### Lubrication

The CMR 351 uses life-lubricated bearings. Therefore, you don't need to lubricate the machine at all.

## 7 Faults: causes and cures

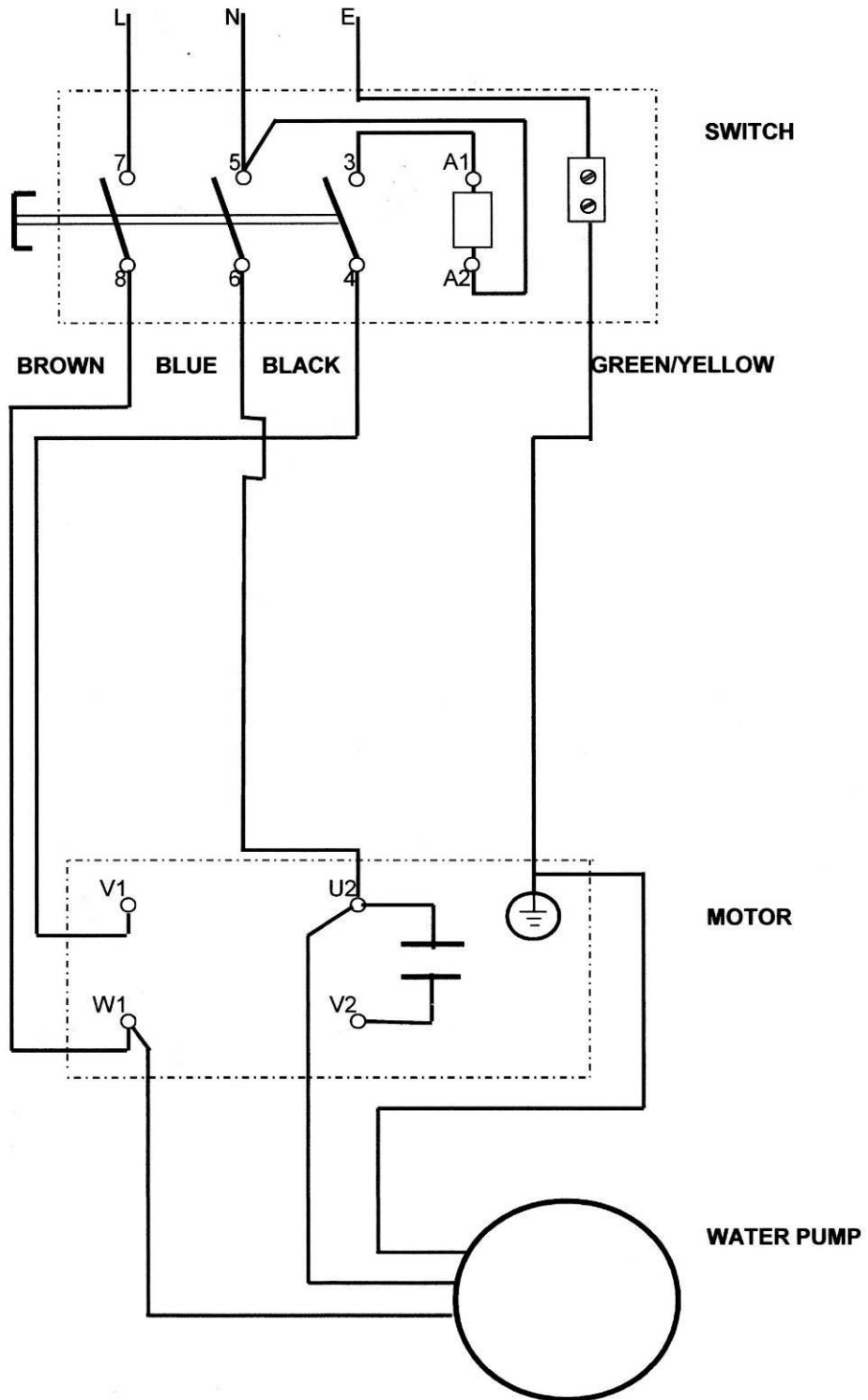
### 7.1 Fault-finding procedures

Should any fault occur during the use of the machine, turn it off, and isolate it from the electrical supply. Any works dealing with the electrical system or supply of the machine can only be carried out by a qualified electrician.

### 7.2 Trouble-shooting guide

Trouble	Possible source	Resolution
Motor is not running	No electricity	Check the electrical supply (fuse for example)
	Connection cable section too small	Change connection cable
	Defective connection cable	Change connection cable
	Defective switch	CAUTION : can only be solved by qualified electrician
	Defective motor	Change motor or contact motor manufacturer
Motor stops during the cutting, but can be restarted after a short period (overload protection)	Cutting advance too quick	Cut slowly
	Blade is blunt or glazed	Sharpen the blade in calcareous stone
	Defective blade	Change blade
	Wrong blade specification for the application	Change blade
No water on the blade	Not enough water in the pan	Refill the water pan
	Water tap is closed	Open tap on blade guard
	Water supply system is blocked up	Clean water supply system
	Water pump is not working	Change the pump

**7.3 Circuit diagram**





## 7.4 Customer service

When ordering spare parts, please mention:

- The serial number (7 digits).
- The code of the part.
- The exact denomination.
- The number of parts required.
- The delivery address.
- Please indicate clearly the means of transportation required such as "express" or "by air". Without specific instructions, we will forward the parts through the means which seem appropriate to us --- but which is not always the quickest way.

Clear instructions will avoid problems and faulty deliveries.

If not sure, please send us the defective part.

In the case of a warranty claim, the part must always be returned for evaluation.

Spare parts for the motor can be ordered with the manufacturer of the motor or with their dealer, which is often quicker and cheaper.

This machine has been manufactured by Saint-Gobain Abrasives S.A.

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Guarantee can be claimed and technical support obtained from your local distributor where machines, spare parts and consumables can be ordered as well:

### **Benelux and France:**

From Saint-Gobain Abrasives S.A.

Free telephone numbers:

Belgium : 0 800 18951

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