

# CM 41

## OPERATING INSTRUCTIONS



**clipper**®



**CE 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: **CM 41**

Code: **70184628167**

Code: **70184642281**

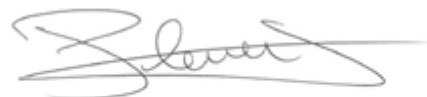
Code: **70184628645**

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**



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# CM 41

## OPERATING INSTRUCTIONS

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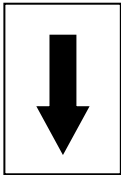

# 1 Basic Safety Instructions

The CM 41 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.

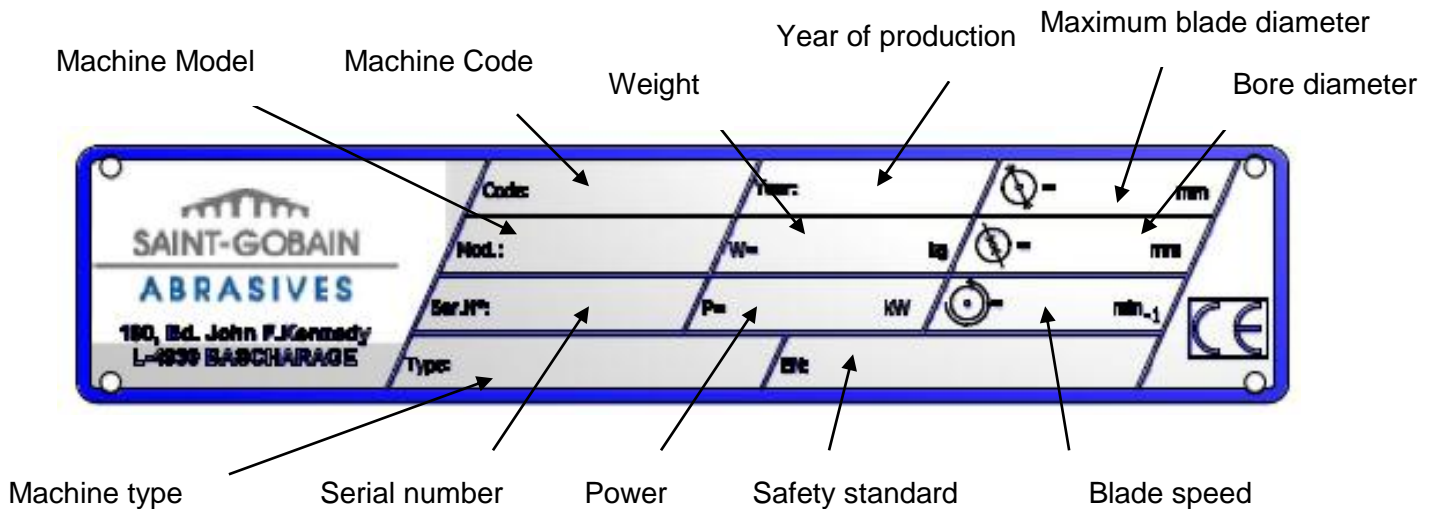
## 1.1 Symbols

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

		
<p>Read operator's instructions</p>		<p>Ear protection must be worn</p>
		
<p>Hand protection must be worn</p>		<p>Eye protection shall be worn</p>
		
<p>Rotation direction of the blade</p>		<p>Danger: risk of cut</p>

## 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!

### Petrol powered machines:

- Always use the fuel advised.
- In confined areas, exhaust gases should be evacuated and the job site properly aerated.
- Petrol and diesel machines, which by their nature emit toxic exhaust gases, must not be used in places prohibited by the Health at Work etc. Act 1974 or which are prohibited by Factory Inspectors or Safety Officers.
- Fuel is flammable. Before filling the tank, shut down the engine, extinguish all open flames and do not smoke. Take care that no petrol is spilled on any motor part. Always wipe up spilled fuel.

## 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.

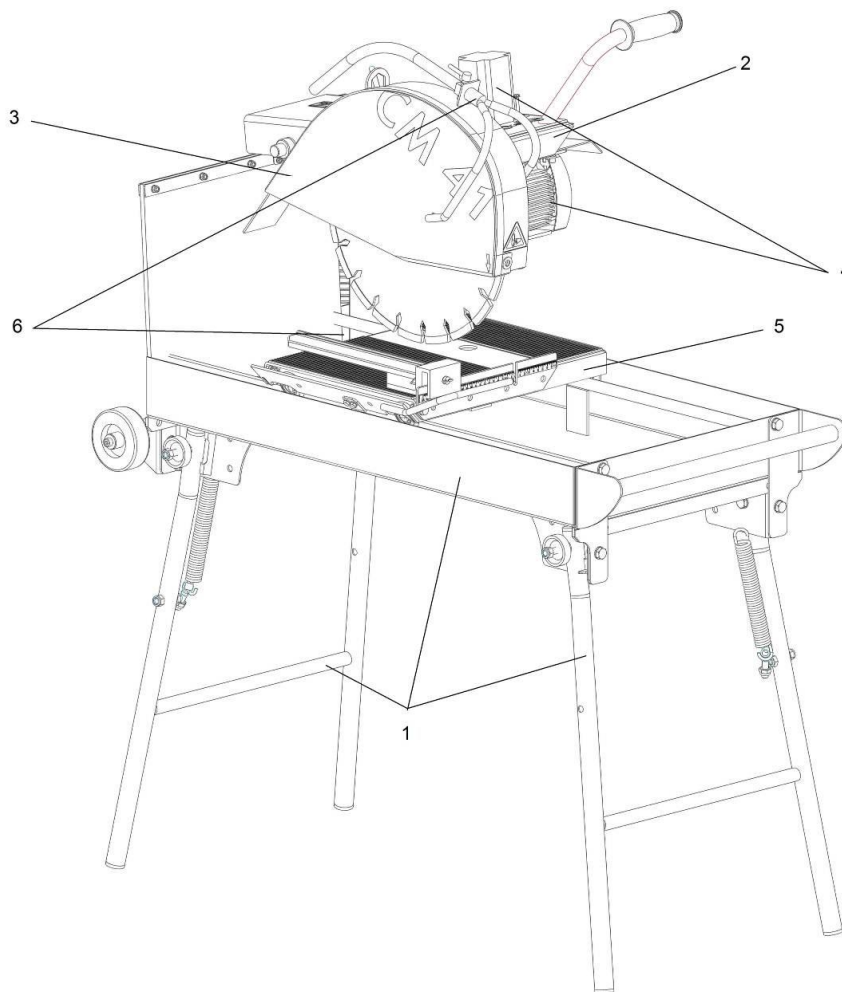
### 2.1 Short description

The CM 41 Masonry 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 CLIPPER 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 wet and dry cutting of a large range of building and refractory materials, or tiles. **It is not designed for cutting wood or metals.**

### 2.3 Layout





### **Frame and feet (1)**

The frame is made of a jig-welded reinforced steel construction to ensure perfect rigidity. 4 removable legs fit into housings welded on frame sides and locked into place with wing screws.

### **Cutting head (2)**

Spring loaded jig-welded steel console. The motor fixing points and the pivot are machined for perfect fit. A locking system allows straight-through cutting without any other accessory.

### **Blade guard (3)**

Jig-welded steel construction with 400mm-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 removed to allow easy access to shaft for inspection and blade replacement when motor is switched off, while fully protecting the blade when in operation.

### **Electrical Motor (4)**

2,2kW electrical motor with an overload protection. Thermal overload tripping can occur for two reasons: tripping under light load if connection is incorrect and tripping under heavy load if motor has been overloaded.

The ON-OFF switch also serves as emergency stop. The pump switch is located on the right side of the main switch. Low voltage trigger (NVR) built in the switch prevents the motor to restart for example after a power cut.

### **Conveyor cart (5)**

Steel welded construction with non-slip top. A part of the conveyor cart bed tilts from 0 to 45° for angle bevel tile cutting.

The machine guide system permits precise cuts to be made by virtue of four roller sheaves set at an inclination to compensate for wear.

The nylon-plastic sheaves and sealed-bearings permit easy operation. Precise positioning of the material is possible thanks to the large surface area of the conveyor cart and the variable angle guide-a-cut.

### **Water cooling system (6)**

The coolant system comprises:

- A powerful, submersible electric 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 the blade guard ensure adequate flow of water to both sides of the cutting blade.
- A water curtain, fixed to head axle restricts water spray and minimises water loss.
- The pump switch is located on the right side of the main switch.

**Attention:** The water pump must never run without water.

## 2.4 Technical Data

Electric motor	2,2 kW 230V with thermal overload protection 2,0 kW 115V with thermal overload protection
Electric motor protection	IP54
Max. blade diameter	400 mm
Bore	25,4 mm
Rotation speed of the blade	2800 min <sup>-1</sup>
Flange diameter	90 mm
Cutting depth mm	135 mm (without reversing the material)
Sound pressure level	80 dB (A) (ISO EN 11201)
Sound energy level	92 dB (A) (ISO EN 3744)
Max. cutting length mm	600 mm
Table dimension (L x W)	340x440 mm
Machine dimensions feet folded (L x W x H)	1170x600x740 mm
Machine dimensions feet unfolded (L x W x H)	1170x600x1400 mm
Weights:	
Machine complete	85 kg
Ready for use (with water)	120 kg

### 3 Assembly and commissioning

The machine is delivered fully equipped (although without diamond blade). It is ready for operation when you mount the diamond blade, the handles and the conveyor cart and after you connect to the appropriate power supply.

#### 3.1 Tool assembly

Only NORTON blades with a maximum diameter of 400 mm can be used with the CM 41.

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:

- Loosen the clamp on the front of the blade guard, disconnect the water hose on the left side of it and open the blade guard.
- Loosen the hexagonal nut on the blade shaft (**attention:** left threaded), which holds the removable outer flange.
- Remove the outer flange.
- Clean the flanges and blade shaft and inspect for wear.
- Mount the blade on arbour 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.
- Close the blade guard, retighten clamp on the front of the guard and reconnect the water hose.

**ATTENTION:** 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.

#### 3.2 Conveyor cart and handle assembly

Handle and conveyor cart are located in the water pan.

Place the conveyor cart on the guiding rails with the material stop facing the operator.

Assemble the handles with the supplied M10 nuts and bolts.

#### 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 cover on the switch and press the green button to start the machine. Either press on the red button or directly on the switch cover to stop the machine.

### **3.5 Water cooling system**

- Fill the water pan with clean water to approximately 2cm from top (ensure that bottom of pump is fully immersed in water). Use the pump switch on the side of the main switch to start the pump.
- Open the water-tap on 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 the machine, always remove the blade and empty the water pan. Also lock the conveyor cart, as it can be dangerous while you move the machine.

### **4.2 Transport procedure**

There are two ways to move the machine: By one person, its feet folded and making use of the transport wheels, or by two persons with its feet folded or unfolded.

Always fold the feet while transporting the machine in a van or truck.

**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 Siting 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 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

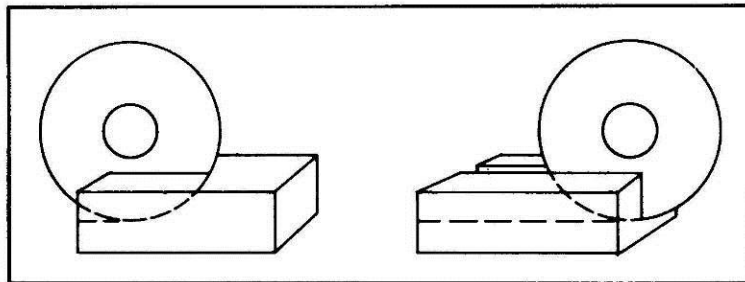
Leave 2 m in front of the machine and 1, 5 m around it for usage and maintenance of the CM 41.

### 5.2 Cutting methods

To use the machine correctly, you must face it with one hand on the handle of the cutting head, and the other on the conveyor cart. Always keep your hands away from the moving blade. 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.

#### 5.2.1 Full depth or fixed cutting

In full depth or fixed cutting, the cutting head is locked in a fixed position and the material is pushed into it as shown.

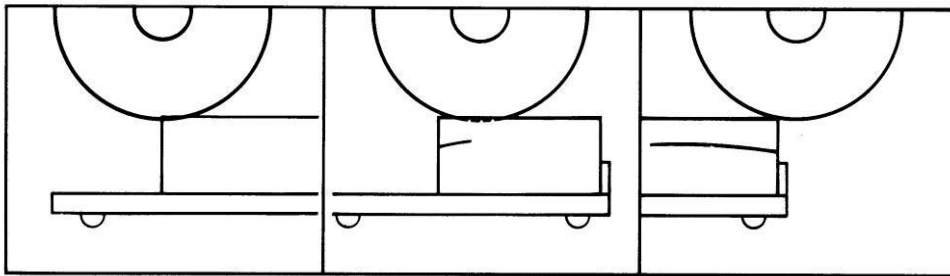


- Lower the cutting head to the desired cutting depth (in “through cutting”, lower cutting head until blade periphery reaches max. 3mm under the surface of the conveyor cart) by means of the handle on the blade guard
- Fix position by tightening the clamping device
- Put material on conveyor cart
- Start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

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.

### 5.2.2 Multiple step cutting

Multiple step cutting consists of moving the conveyor cart with the material to be cut back and forward under the rotating blade,



- Place the material to be cut on the conveyor cart firmly against the guide-a-cut and the backstop, keeping the hands well away from the blade.
- Start the machine.
- Move conveyor cart forward near the blade and pull down the cutting head until blade is lowered to a point where it will lightly contact the surface of the material.
- Pass the material beneath with rapid full length strokes, taking a shallow cut (approximately 3 mm deep as shown on the picture) on the forward. On the backward stroke, lift the blade just clear over the cutting line.
- Complete each rapid stroke backward and forward by passing the material beyond the centre of the blade before starting the reverse movement of the conveyor cart.

NOTE: the harder the material, the more rapid should be the forward and backward strokes.

Step cutting lessens the area of the blade circumference in contact with the material, keeping the blade cool, running free and cutting at peak efficiency.

### 5.2.3 General advice for the cutting

- Material weight under 40 kg and having dimensions smaller than 600x500x135mm 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!
- When cutting work is finished, close the water-tap so you can remove the cut pieces from the conveyor cart without getting wet.
- In case the thermal protection trips, wait until the motor has cooled down before starting the machine again.

## 6 Maintenance and servicing

To ensure a long-term quality from the cutting with the CM 41, 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, water tightness)						
	Clean						
Flange and blade fixing devices	Clean						
Motor cooling fans	Clean						
Water pump	Clean						
Water pan	Clean						
Water hoses and nozzles	Clean						
Water pump filter	Clean						
Cart guiding bars	Clean						
Motor housing	Clean						
Reachable nuts and screws	Tighten up						

### Maintenance of the machine

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

### Lubrication

The CM 41 uses life-lubricated bearings. Therefore, you don't need to lubricate the machine at all.

### Cleaning of the machine

Your machine will last longer if you clean it thoroughly after each day of work, especially water pump, water pan (which can be removed for easy cleaning), motor and blade flange.



## 7 Faults: causes and cures

### 7.1 Fault-finding procedures

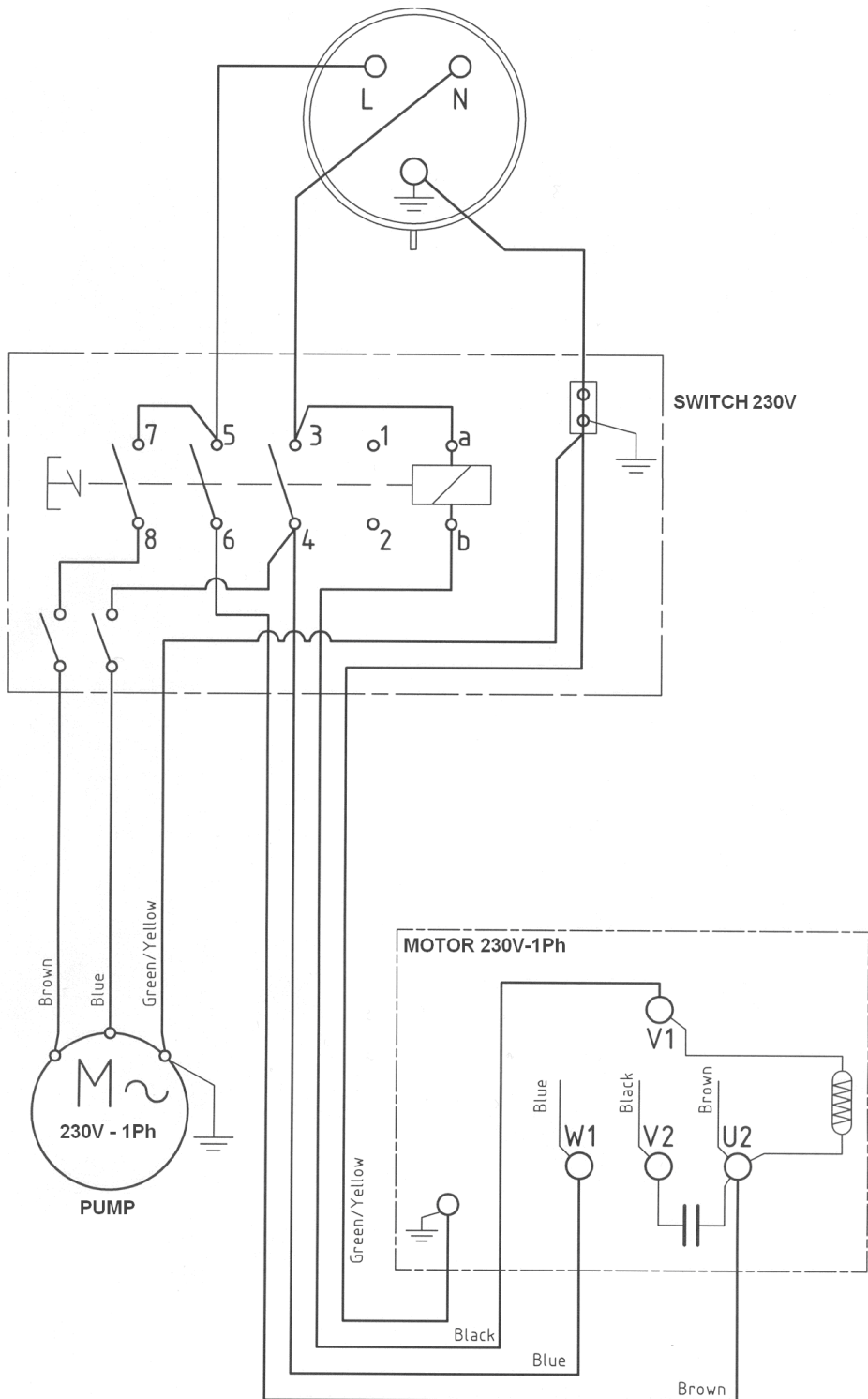
Should any fault occur during the use of the machine, turn it off, and isolate it from the electrical supply. Any works dealing with the electrical system or supply of the machine can only be carried out by a qualified electrician.

### 7.2 Trouble-shooting guide

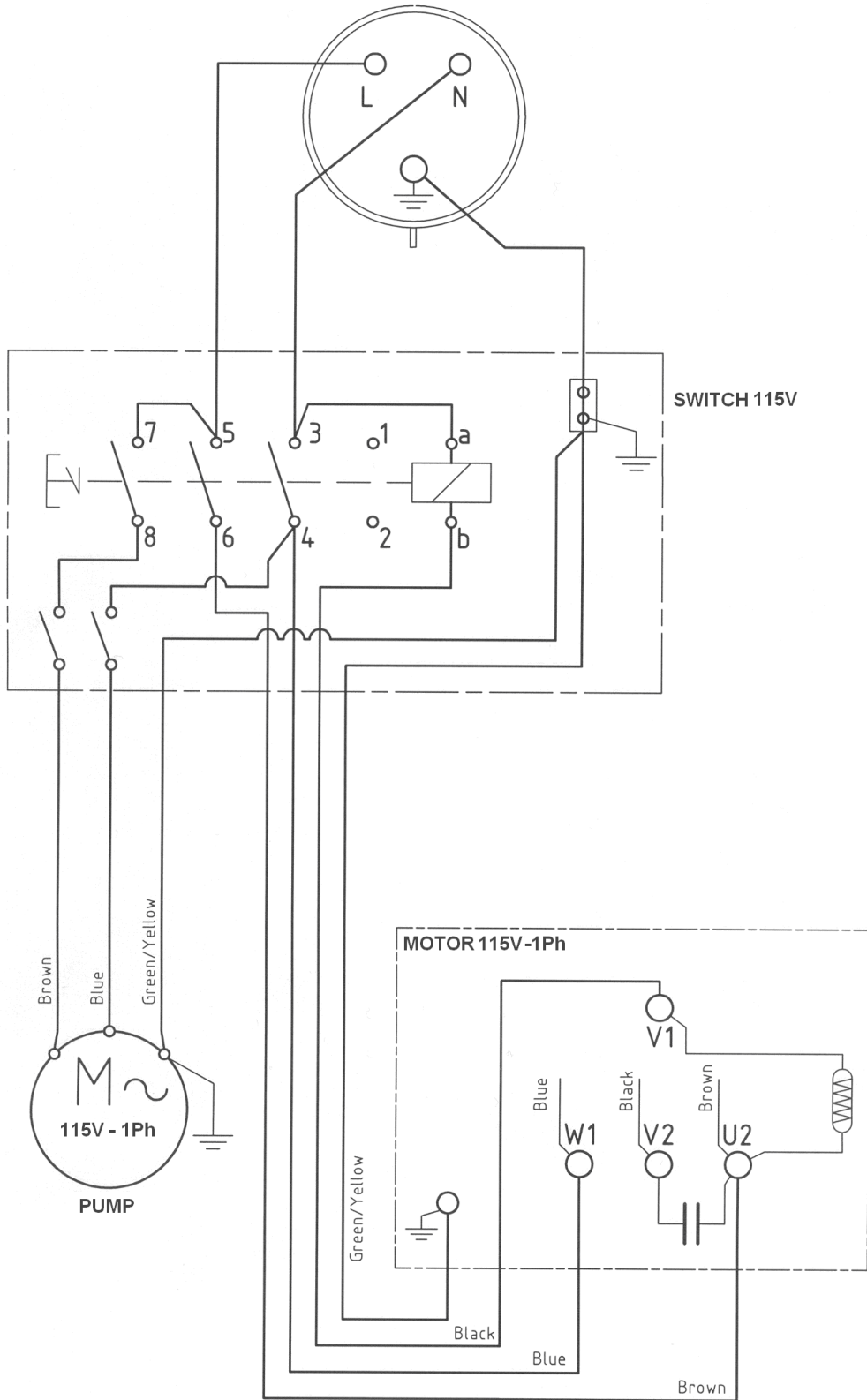
Trouble	Possible source	Resolution
Motor is not running	No electricity	Check the electrical supply (fuse for example)
	Connection cable section too small	Change connection cable
	Defective connection cable	Change connection cable
	Defective switch	CAUTION : can only be solved by qualified electrician
	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 pump is switched off	Switch the water pump on
	Water tap is closed	Open tap on blade cover
	Water supply system is blocked up	Clean water supply system
	Water pump is not working	Prime the pump Reactivate switch CAUTION : if switch trips again, problem can only be solved by a qualified electrician

### 7.3 Circuit diagram

230 V



115V



## **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.

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e-mail: [sales.nlx@saint-gobain.com](mailto:sales.nlx@saint-gobain.com)

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

France: 0 800 90 69 03

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