

NORTON



JUMBO 651

OPERATING INSTRUCTIONS

clipper[®]

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: ***Jumbo 651 6.75.3 400V MWP***

Code: ***70184626446***

is in conformity with the following Directives:

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

and European standard:

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



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Business Manager Machines Europe

JUMBO 651

OPERATING INSTRUCTIONS AND SPARE PARTS LIST

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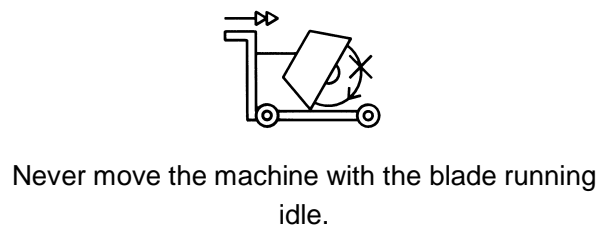
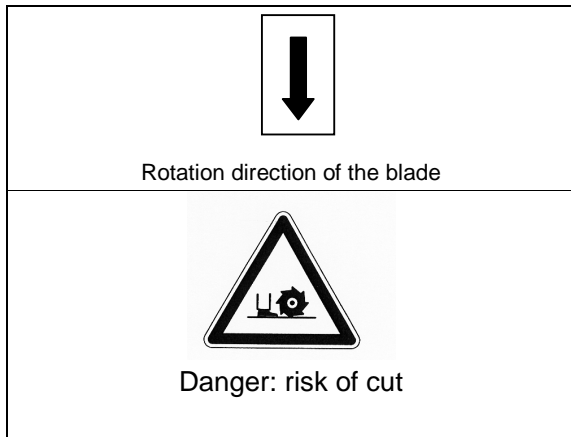
1 Basic Safety Instructions

The Jumbo 651 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.

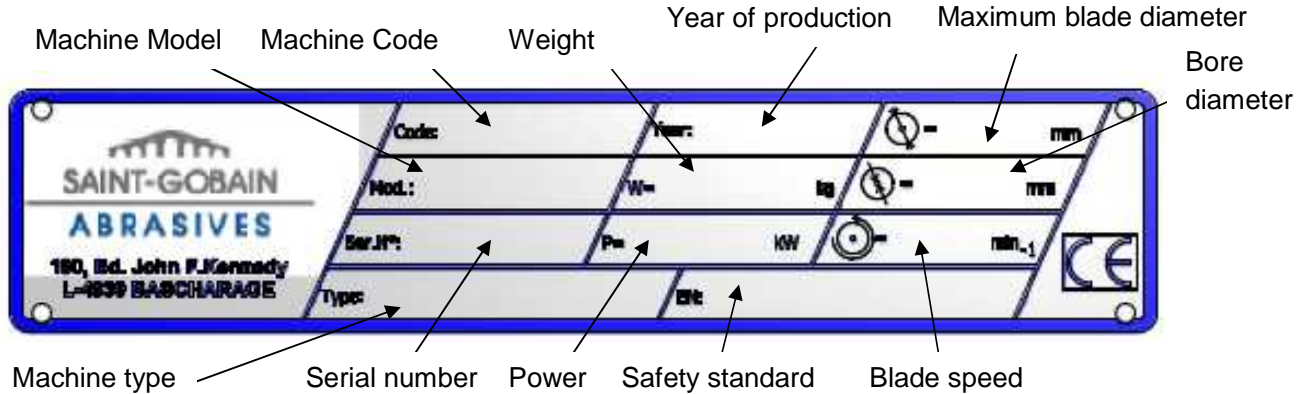
1.1 Symbols

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.
- Site the machine on an even, firm and stable base!
- During work, apply the brakes located on two of the four wheels.
- Check for correct mounting of the blade regularly.
- Immediately remove damaged or badly worn blades, as they endanger the operator whilst rotating.
- The material to be cut must be held securely in place on the conveyor cart to allow no movement during cutting operation.
- Always cut with the blade guard in position.
- Only fit NORTON diamond blades to the machine! The use of other tools can damage the machine!
- Read the blades' specifications carefully to choose the correct tool for your application.
- 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.

Electrical powered machine

- Always turn off the machine and separate it from the main source of electricity before any work on the machine is done.
- You can lock the ON-OFF-switch using a padlock.
- 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.
- 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.



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 JUMBO 651 block saw is designed for durability and high performance for onsite wet 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. It is not designed for cutting wood or metals.

2.3 Layout



Frame (1)

Jig-welded, reinforced and all-steel construction ensures perfect rigidity. The frame includes a large capacity water tray with drain plug. Frame has built-in lift brackets for easy transportation and is mounted on 4 wheels, 2 of which have a locking device to secure the machine during cutting.

Cutting head (2)

Jig-welded steel console equipped with pivot bar fixed to frame upright and housed in heavy-duty bearings. Console supports the electric motor, the belt drive with its guard and the blade shaft assembly. Bearings are machined for perfect fit and alignment.

Blade shaft

Precision-machined blade shaft, held in ballbearings and is driven by three heavy-duty V-section drive belts. The blade shaft assembly is completely enclosed in a cutting head console, accessible for inspection by way of a removable plate. The removable blade flange is tightened by means of a hexagonal nut.

Blade guard (3)

Jig-welded steel construction with 650mm-diameter blade capacity, which offers maximum operator protection and increased visibility of the work piece.

Incorporated in the blade guard is an outer detachable metal cover, which permits easy access to shaft for inspection and blade replacement when motor is switched off, while fully protecting the blade when in operation.

Down feed and cutting depth adjustment (4)

The spring-loaded cutting head, activated by hand with the grip on 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. A depth-locking device fixed to cutting head and frame enables the operator to set the cutting head to desired or to maximum cutting depth.

Conveyor cart (5)

Large, heavy-duty and galvanised conveyor cart fitted with water flow-control vents, mounted on 2 locating rollers and 2 flat rollers to give maximum stability and smooth movement. The conveyor cart is equipped with graduated scale on the backstop and with a guide-a-cut device.

Water cooling system (6)

The coolant system comprises:

- A powerful, submersible water pump
- Plastic suction pipe delivering the water from the water pan to the cutting head
- A large capacity water pan (pan is galvanised) 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
- 3 water curtains, fixed to frame and blade guard to restrict water spray and to minimise water loss

Electrical Motor

Motor with 5,5kW. Low voltage trigger (NVR) prevents the motor to restart for example after a power cut.

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

a. tripping under light load

If connection is incorrect

If a phase is not under load

Check the connections and the phase voltage before restarting the machine.

b. tripping under heavy load

If motor has been overloaded

The ON-OFF switch also serves as emergency stop.

2.4 Technical Data

| | |
|---------------------------|---|
| Electric motor | 5,5 kW, 400V, 3-Phase 50Hz 1490 min ⁻¹ |
| Electric motor protection | IP54 |
| Switch | Star-triangle switch with thermal overload protection, no volt release and emergency stop |
| Max. blade diameter | 650 mm |
| Bore | 25,4 mm |
| Cutting length mm | 500 mm |
| Cutting depth mm | 265 mm |
| Table dimension | 600x500 mm |
| Flange diameter | 118 mm |
| Blade shaft speed | 1350 min ⁻¹ |
| Machine dimensions | 1700x800x1480 mm |
| Weight | 212 kg |
| Max. operating weight | 262 kg |
| Sound pressure level | 86 dB (A) (following ISO EN 11201) |
| Sound energy level | 100 dB (A) (following ISO EN 3744) |

3 Assembly and commissioning

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

3.1 Tool assembly

Only NORTON blades with a maximum diameter of 650 mm can be used with the Jumbo 651.

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:

- Retract outside cover of blade guard.
- Loosen the hexagonal nut 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 arbor 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.

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 Electrical connections

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 2.5mm²-section per phase.

Switch on the machine

Put the ON-OFF-Switch on ON. Then put the Star-Triangle-Switch on Y. The water pump begins to work. Wait until the blade reaches its maximum rotational speed, then turn the Star-Triangle-switch on Δ .

Direction of rotation

The direction of rotation is indicated on the blade guard. If the direction of rotation does not correspond to the direction shown by the arrow, then reverse the motor polarity by turning the phase inverter inside the male plug with a screwdriver.

Emergency Stop

To restart the machine after an emergency stop, turn the Star-Triangle-Switch on "0". Then turn the ON-OFF-Switch on ON.

3.3 Water cooling system

Fill the water pan with clean water to approximately 2,5cm 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.

4 Transport and storing

Take the following measures in order to transport the Jumbo 651 securely.

4.1 Securing for transport

Before transporting or lifting the machine, always remove the blade and empty the water pan.

The conveyor cart must be secured:

- move the conveyor cart to the end of the machine
- fix it using the pin on the rear right post and the eye screw on the conveyor cart.

4.2 Transport procedure

The machine can be moved on a flat surface using its wheels. Only use the lift brackets to lift the machine, as other parts of the machine are not designed for this purpose.

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
- Loosen the drive belts
- 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 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

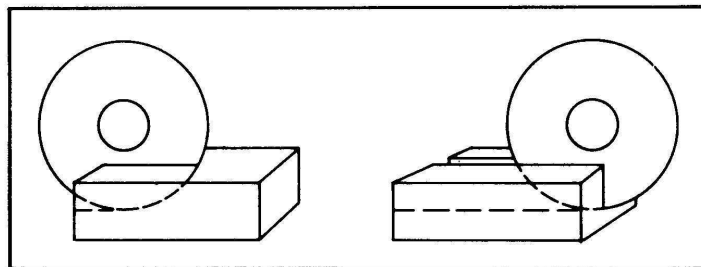
Leave 2 m in front of the machine and 1,5 m around it for usage and maintenance of the Jumbo 651.

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 handle of the conveyor cart. Always keep your hands away from the moving blade.

5.2.1 Jam or fixed cutting

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



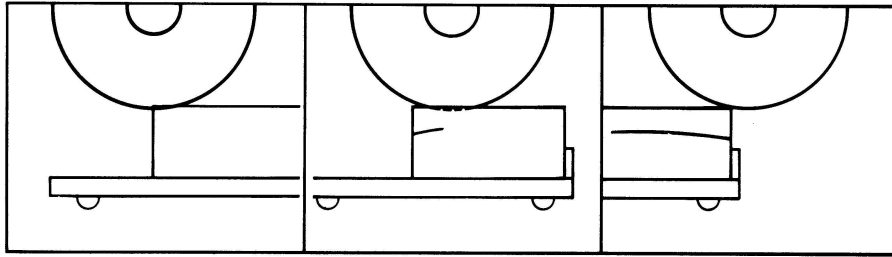
- Lower the cutting head to the desired cutting depth (in “through cutting”, lower cutting head until blade periphery reaches max. 3-5mm under the surface of the conveyor cart) by means of the handle on the blade guard
- Fix position by tightening the clamping device
- Put material on conveyor cart
- Push the conveyor cart slowly and without undue pressure towards the rotating blade and cut the material.

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.
- 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.
- Then pass the material beneath with rapid full length strokes, taking a shallow cut (approximately 3 mm deep) 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 weighing under 50 kg and having dimensions smaller than 600x500x265mm can be cut with the Jumbo 651.
- 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 (wet cut) to be carried out and the required efficiency.
- Apply cooling water continuously whilst cutting and in good time!
- When cutting work is finished, close the water-tap so you can remove the cut pieces from the conveyor cart without getting wet.
- If the thermal protection trips, 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 Jumbo 651, please follow the maintenance plan below:

| | | Begin of the day | During the changing of the tool | End of the day | 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 | | | | | | |
| Belts tension | Check tension and adjust | | | | | | |
| Water pan | Clean | | | | | | |
| Water pump | 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 Motor

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

Adjustment and replacement of the belts

To adjust the belts, firstly remove the belt guard by unscrewing the 6 nuts. Loose the 4 motor bolts and shift the motor by using the two screws on the side.

To replace the belts, move the motor completely to the left. Adjust the belts and retighten them by shifting the motor to the right.

Always use a matched set of belts. Do not replace single belts.

Lubrication

The Jumbo 651 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, motor and blade flange.

7 Faults: causes and cures

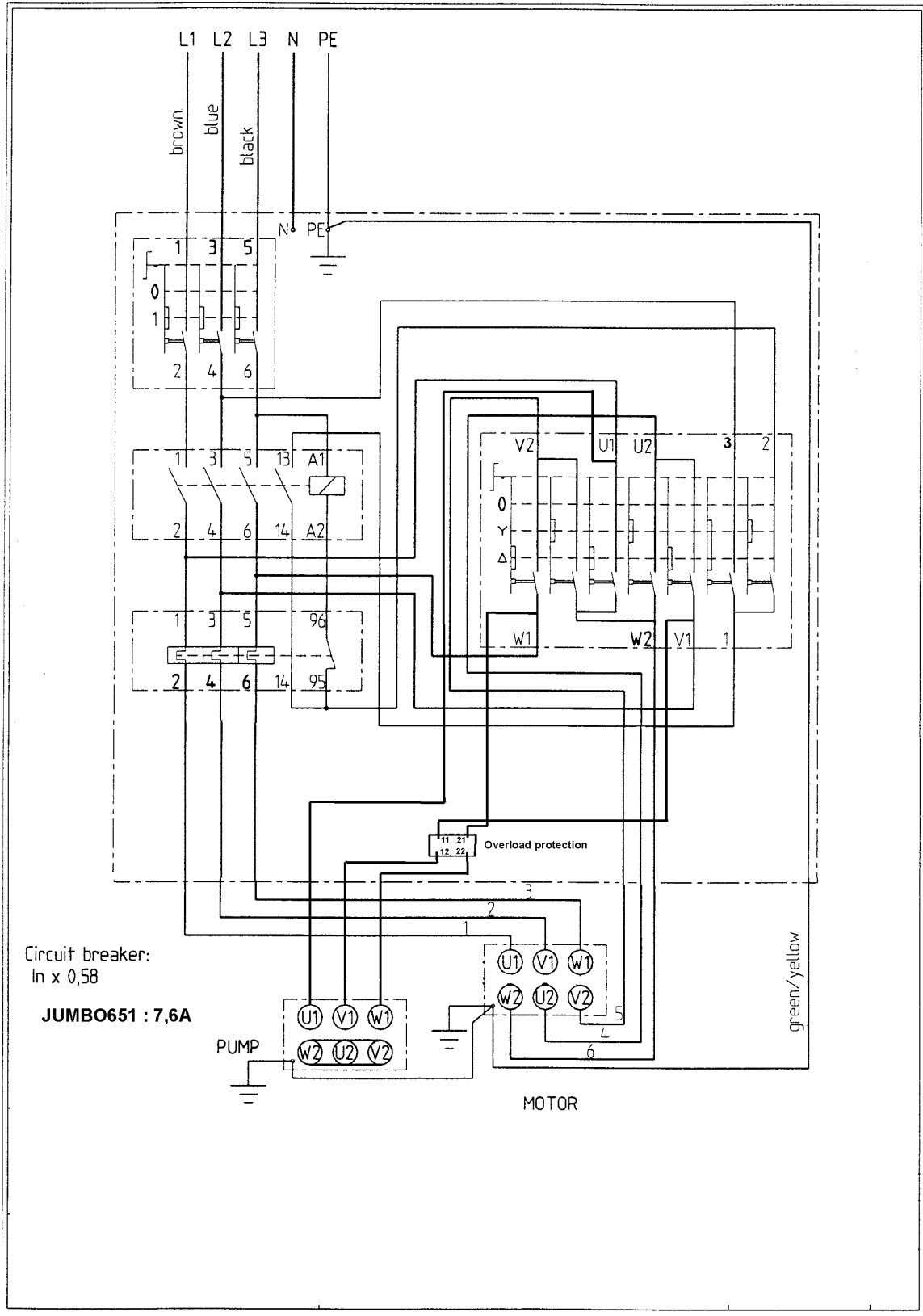
7.1 Fault-finding procedures

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 |
|---|--|---|
| Wrong direction of rotation | Wrong motor polarity | Invert polarity on male plug |
| 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 | Cutting advance too quick | Cut slowly |
| | Blade is blunt or glazed | Sharpen the blade in calcareous stone |
| | Defective blade | Change blade |
| | Wrong blade corresponding to the application | Change blade |
| No water on the blade | Water tap is closed | Open tap on blade cover |
| | Water supply system is blocked up | Clean water supply system |
| | Water pump is not working | Check that pulley is driven by belts 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:

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