NORBLAST

SD7

Manual shot-peening sandblasting machine

USE, MAINTENANCE AND SPARE PARTS MANUAL

SHOT-PEENING / SANDBLASTING MACHINES MANUFACTURING
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11078 - 02.2022

Thanks for choosing a NORBLAST shot-peening/sandblasting machine. We congratulate on your purchase.

Remember to strictly follow the instructions provided in this "USER'S MANUAL AND SPARE PART LIST". Becoming fully familiar with the information provided in this manual is a prerequisite for proper installation, operation and maintenance of the machine.

Read this "MANUAL" in all its parts carefully before installing, operating or maintaining the machine.

This manual provides the full information and recommendations concerning the machine, as well as useful tips for optimal operation, that will help you to keep your machine in good condition so as to ensure long-term reliability and efficiency.

Closely follow the maintenance recommendations and operating instructions for proper machine operation in order to ensure long service life and avoid troublesome failures.

When you need to look up the "MANUAL", refer to the TABLE of CONTENTS and locate the SECTION and PARAGRAPH dealing with the topic you are interested in.

This manual forms an integral part of the machine. Preserve it intact and keep it in a safe place over the whole service life of the machine. In case the machine is re-sold, hand the manual over to the new user.

Where dismantling and assembling procedures, special maintenance, repair and installation instructions concerning any accessories, devices or safety items are not discussed in this manual, relevant operations may only be performed by suitably trained engineers or by Norblast authorised technical service staff.

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MANUAL SANDBLASTING - SHOT PEENING MACHINE

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0.1 PLANT AND MANUFACTURER IDENTIFICATION

This shot-peening / sandblasting system has been designed and manufactured by NORBLAST. NORBLAST will assist its customers during the whole operating life of the system, also giving detailed information in case this manual is not clear enough. Manufacturer's data are indicated on manual cover page.

In case of problems, when contacting our technical service please always precisely communicate the information included on the machine's identification plate, shown on the side.

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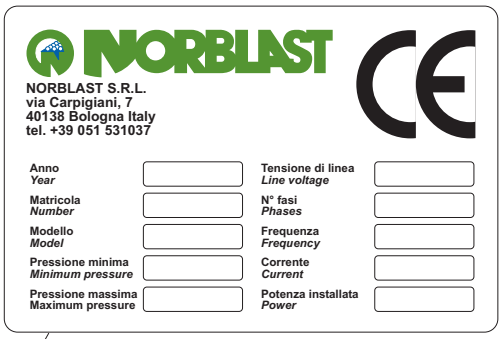


CE PLATE

0.2 SYMBOLS USED

Warning:
The presence of this symbol may indicate:
mechanical servicing to be carried out for system proper operation;
- **general danger** for the operator and the system.

Warning:
The presence of this symbol may indicate:
- **electric** servicing to be carried out for system proper operation;
- **general electric danger** for the operator and the system.

This type of intervention must be carried out by qualified and duly trained operators.

Waste disposal:
The machine must be disposed of at suitable collection centres according to the safety standards in force.

0.3 ARRANGEMENTS TO BE MADE BY THE CUSTOMER

It is up to the customer to do what follows according to the time agreed with the manufacturer:
- arrange the premises, including possible masonry works and/or required canalisation;
- power on the machine in compliance with the safety standards in the country of use;
- pneumatically power on the machine in compliance with the safety standards in the country of use.

0.4 WARRANTY CONDITIONS

- The electric system must be connected by qualified personnel, complying with the prevailing standards
- The warranty is effective if the machine is correctly used and maintained as specified in the manual.

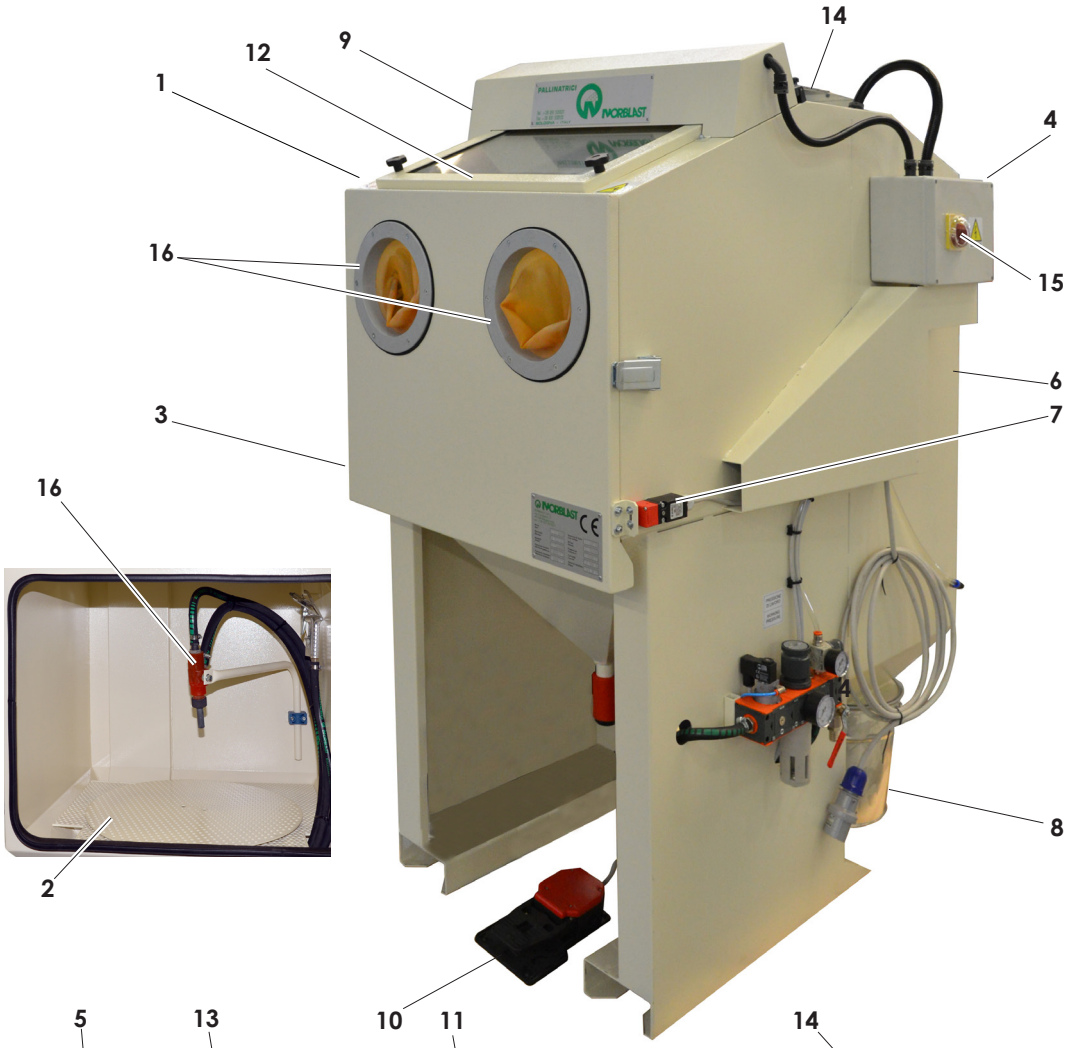
For any need regarding use, maintenance, general information or request of spare parts, the Customer is to apply directly to Norblast Srl.

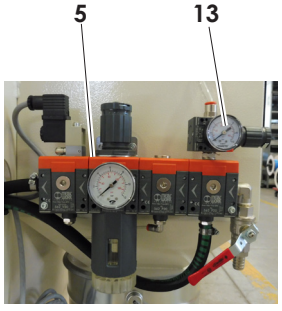
Norblast recommends using original spare parts.

SD7
MANUAL SANDBLASTING - SHOT PEENING MACHINE

1.1 MAIN UNIT LIST

1 Working cabin
2 Manual rotary table (optional)
3 Front door
4 Power control unit
5 Pneumatic system
6 Filtering cabinet
7 Door microswitch
8 Dust collection container
9 Cabin lighting lamp
10 Blasting device control pedal
11 Lug unit
12 Cabin sight glass
13 Filter cartridge cleaning pressure regulator
14 Filtering cabinet shutter
15 Main switch
16 Gloves
17 Grit blasting device gun





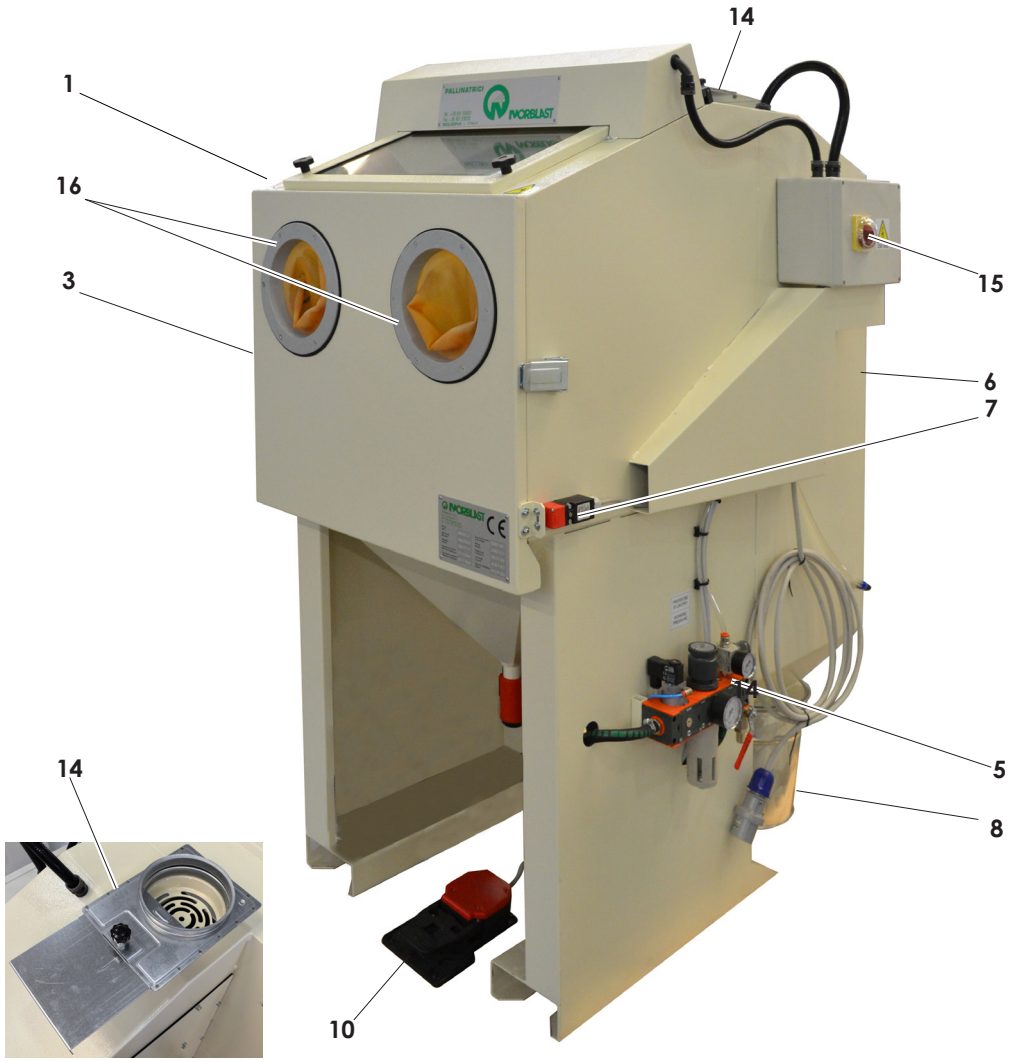
1.2 GENERAL DESCRIPTION

The shot-peening/sandblasting system consists of one working cabin **(1)** and one air filtering system **(6)**.

The working cabin fits one front access-door **(3)** for loading/unloading operations of the workpieces, and for the use of the rotary table (optional).
The door is sectioned by an electric safety microswitch **(7)** that stops the blasting job and blocks the pulse of the cleaning solenoid valve from the filtering cartridge in case the door is opened.
The front work station has a two-layer safety window in hardened glass and two flanges **(16)** on which the gloves are placed.
On the side of the cabin is the machine power main switch **(15)** with the pneumatic unit under it **(5).**
The system features the grit direct recovery function. Press the control pedal **(10)** to switch the work valve that controls grit ejection from shot-peening gun nozzle.
The ejected grit rests on the bottom of the cabin and is ready to be shot again.
The exhauster inside the filtering system takes up the crushed grit that will be deposited inside the collection bin **(8)**.

The filtering system **(6)** is of the type with cartridge with an automatic air blow contrary to the normal flow.

The contaminated air enters the lower part of the filtering cabinet **(6)** and exits filtered from the upper inlet **(14)**.



1.3 INTENDED USE

The system was designed and realised to carry out the monitored shot-peening of workpieces that are not sharp or blunt and not flammable or explosive inside the working cabin.
These pieces must be free from liquid and/or oil polluting material.
Only qualified and duly trained staff is allowed to use the machine. Any use other than the described one and/or not authorised by the manufacturer is forbidden. This system is intended to operate indoor, in areas having favourable working conditions for the operator. It can not be installed in fire and/or explosion risk environments. The system cannot treat explosive and/or flammable components. Residues of specific processes must not be explosive and/or flammable.
We recommend installing this system in premises having a relative humidity under 80%. A high humidity rate might cause troubles as grit will stick.
Compressed air must be dry and oil-free.
As some grit might fall down onto the floor during grit loading/unloading, the floor should be of the corrugated type, otherwise position an anti-skid platform. Operators must wear anti-skid shoes.

1.4 DISPOSAL OF WASTE

The waste produced during the working cycle of the system should be disposed of in compliance with the prevailing rules of the country of use.
A dedicated analysis for each specific work is required.

1.5 NOISE LEVEL

The noise level of the system does not exceed the values of Leq < 80 dBA, Lpk < 135 dBC under standard working conditions. Depending on the processed workpiece, the noise level of the system could exceed the limit set by the prevailing rules. Should this be the case, all operators must be given suitable soundproof headsets.

1.6 ELECTROSTATIC CHARGES

During the processing, electrostatic charges can be generated.
This is due to the normal grit sliding.
To avoid possible discharges that could interfere with the operator job, we recommend to carry out the processing with the workpieces to be treated in contact with the metallic elements of the system including the rotary table, the grit surface and any required support.
The metal elements of the system are adequately connected to the electric circuit grounded by Norblast.

All the possible workpiece carriers must be grounded as well.
We recommend avoiding placing insulating materials between the workpieces and the metallic elements.

The use of the manual workstation is forbidden to people with peacemakers or similar appliances.

1.7 EMISSION INTO THE ATMOSPHERE

According to process in use, the user shall ensure that all prevailing rules concerning environment protection, health and safety of the workplace are complied with, in particular the local standards in force about emissions into the atmosphere.

1.8 RESIDUAL RISKS

During intended use, the work is carried out inside the cabin; it is necessary to pay particular attention to possible microball and/or machining dust, which can cause the risk of slipping. Therefore, it is advised to keep the area surrounding the system clean and clear, and if necessary use an anti-skid platform and wear anti-skid shoes.

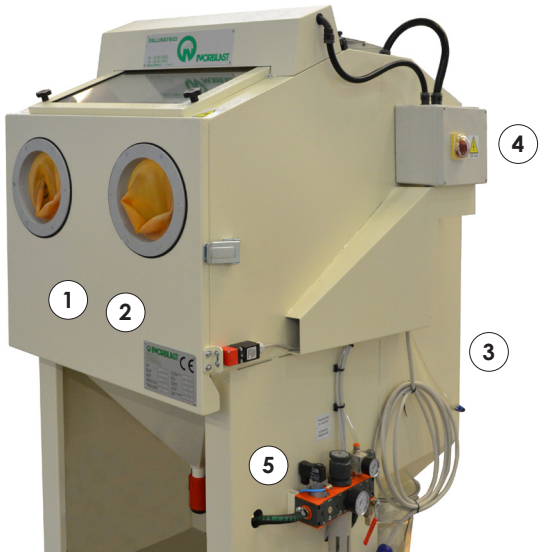
During routine maintenance please be careful of the risks posed by the opening of the power control unit.

RECOMMENDED PERSONAL PROTECTION EQUIPMENT

Standard operation
- safety shoes of the S1P type

Routine maintenance, grit refill and replacement
- safety shoes of the S1P type
- dust face mask with FFP2 filter
- general gloves against mechanical risks
- general goggles against mechanical risks

ID	POSITION	RESIDUAL RISK	PICTOGRAM	
1	workpiece loading/ unloading	slippage control/access stations		danger of slippery surface
				refer to the instructions manual
2	Manual grit refill	slippage and dusts		danger of slippery surface
				safety goggles compulsory
3	filtering cartridge replacement area			protective gloves compulsory
				face mask compulsory
4	electric cabinets	live parts		electrical danger
5	pneumatic units	system under pressure		



1.9 DECOMMISSIONING

In compliance with the prevailing standards and in order to reduce the environmental impact, it is forbidden to dispose of the machine as municipal waste. The machine must be disposed of at suitable centres for separate waste collection. Unauthorised and improper disposal of the machine and its components is subjected to a penalty, in compliance with the prevailing standards.

2.1 GENERAL SAFETY WARNINGS SAFETY DRIVE

On machine arrival, check for possible damage with the forwarder and inform the supervisor of all possible irregularities. In case of damage, immediately call NORBLAST technical service department.
Only qualified and duly trained operators wearing suitable personal protective equipment are allowed to handle the machine and its parts, either packed or unpacked, with suitable handling means. When handling the machine and its parts, ensure that nobody is within the working area of the handling equipment.
Handle with the maximum care, avoid jerks or sudden pulls, and be careful in case of narrow passageways, bumps or gradients.

2.2 PACKING OF THE MACHINE

The system parts can be shipped with the following packing types:

ON PALLET WITH PLASTIC COVER
The system disassembled parts are secured to the pallet by means of straps.

ON PALLET WITH PLASTIC PROTECTION AND CARDBOARD COVER.
In this case straps will be used to secure the disassembled parts to the pallet and to close the package.

2.3 TRANSPORT AND HANDLING OF THE MACHINE (PACKED)

Ensure that all handling and transport means used have a capacity suitable for the total weight of the packed machine.

WEIGHT OF THE MACHINE WITH PACKAGE:	kg 170
MACHINE SD9 WITH PACKAGE AND ACCESSORIES:	kg 170 + 100 max

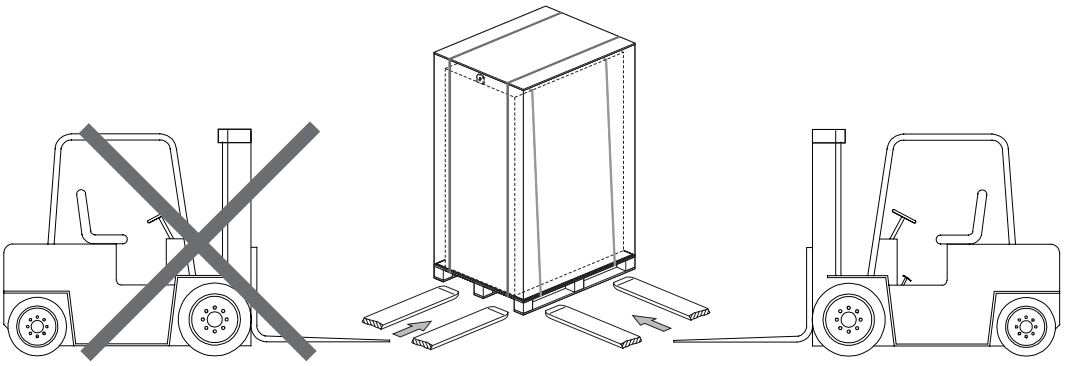
Packed machine must be lifted and handled only by qualified operators. If the load size does not allow full visibility, the operator will need the assistance of a second operator giving signals to him/her.
According to the type of packing proceed as follows:

ON PALLET WITH PLASTIC COVER;
ON PALLET WITH PLASTIC PROTECTION AND CARDBOARD COVER;

Use a forklift, place the forks in a suitable position and pay attention to possible tipping due to uneven weight distribution.

It is recommended to widen the forks as much as possible.

Before proceeding, ensure that there are no people nearby.



2.4 UNPACKING THE MACHINE

Position all packings as close as possible to the installation place.
According to the type of packing proceed as follows:

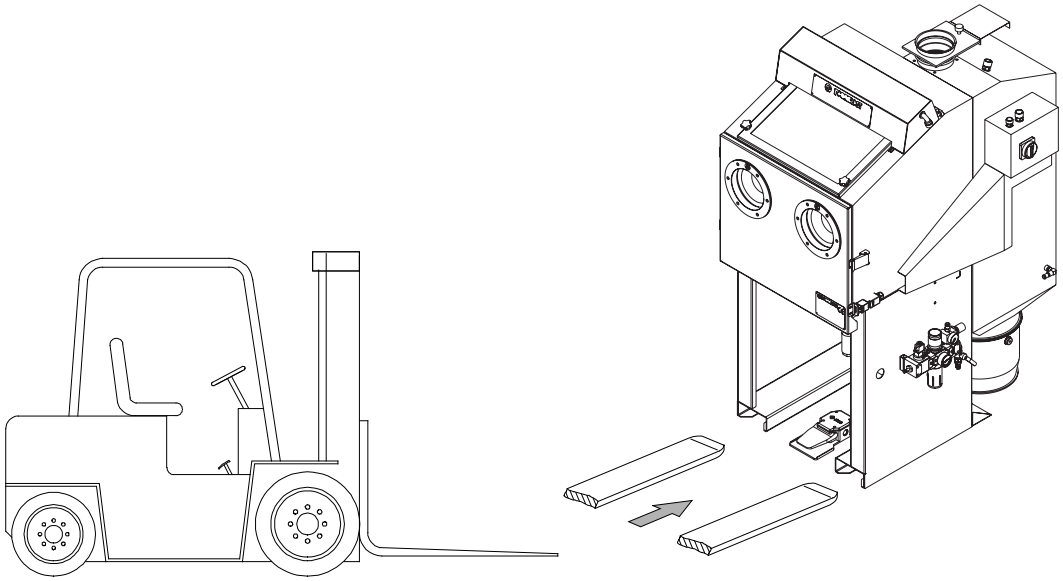
ON PALLET (1200X800) WITH PLASTIC PROTECTION
Remove the material having care, in case you use scissors, cutters or any other similar tool, not to damage the system components.
With a suitable tool, cut the straps securing the parts to the pallet.
If present, remove the beams securing the machine to the pallet from the forking base of the machine.

ON PALLET (1600X940) WITH PLASTIC PROTECTION AND CARDBOARD COVER;
With a suitable tool, cut the straps closing the packing.
Remove the material (plastic protection and cardboard cover) having care, in case you use scissors, cutters or any other similar tool, not to damage the system components.
With a suitable tool, cut the straps securing the parts to the platform.

The user must dispose of the packing material in compliance with the prevailing laws of the country of use.

2.5 HANDLING THE UNPACKED MACHINE

Use a forklift with a loading capacity suitable to lift the machine, place the forks in a suitable position and pay attention to possible tipping due to uneven weight distribution.



2.6 PLACING AND LEVELLING

After having lifted the system, it must be perfectly placed.
Make sure that bearing feet (if required) are in place and then set the machine in the place where it will be installed.
Position a water level onto a horizontal surface of the machine and then level the machine by working on the adjusting screws of the feet (if fitted) until reaching the correct position.
Under standard operating conditions, machines do not need to be anchored to the floor.

2.7 MACHINE STORAGE

Should the sandblasting machine not be used for a certain period of time, please carry out the following operations:

- empty tubes and cabin from grit;
- disconnect the unit from the power;
- thoroughly clean the whole unit including the accessories from any possible residual grit;
- store the unit in a covered and dry environment.

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MANUAL SANDBLASTING - SHOT PEENING MACHINE

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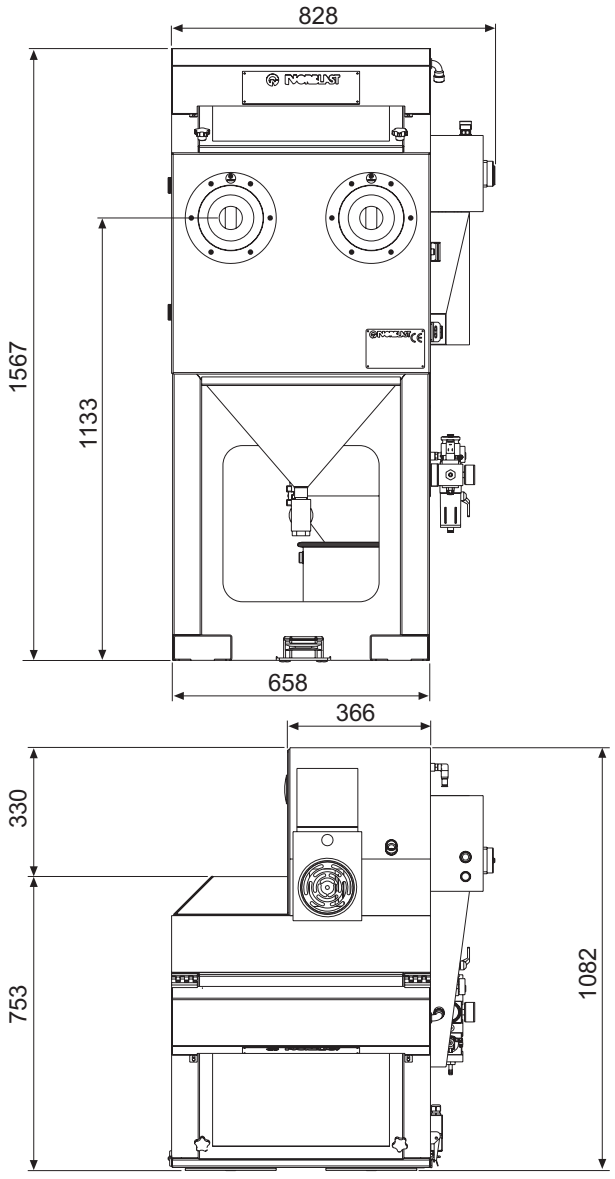
3.1 TECHNICAL SPECIFICATIONS OF THE SYSTEM

Operating pressure:	min. 2 bar , max 8 bar
Recommended blasting pressure:	min. 1 bar , max 6 bar
Min. cross-section of air line:	int.Ø 16 mm
Types of grit that can be used:	glass microballs, ceramic microballs, aluminium oxide (corundum), plastic granule, and metal grit
Grit size:	min. 40µ max. 500µ (with specific weight not over 4 Kg/ cu. dm)
Max. weight which can be loaded onto working surface:	25 kg
Weight of empty machine:	120 kg
Lighting	23 W
Filtering cartridge	5.35 SQ. M
Filtering cartridge material	Polyester
Useful working dimensions	600 x 550 x 500 mm

3.2 OVERALL DIMENSIONS



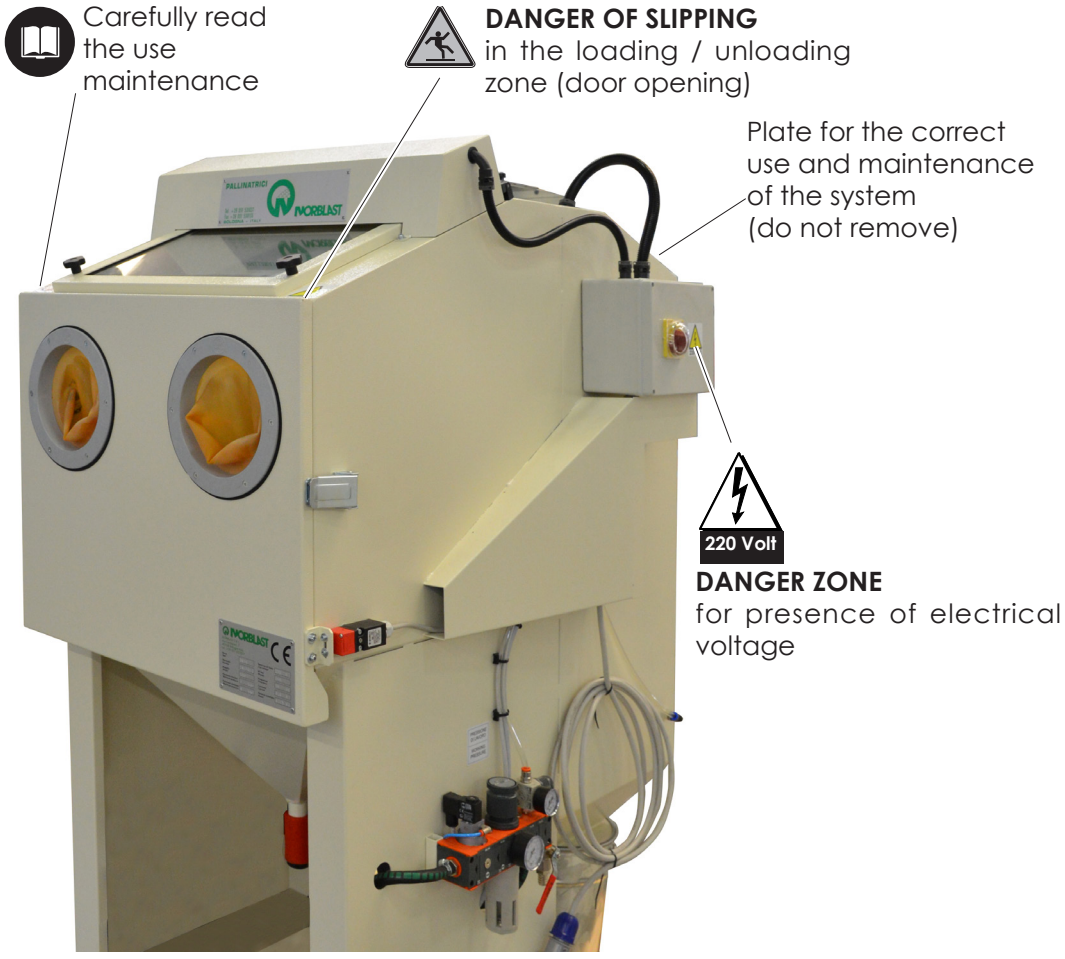
3.3 ELECTRICAL POWER SUPPLY

Voltage:	230 V
Frequency:	50/60 Hz
Number of phases:	1+N 16 amp
Minimum protection class of electric equipment:	IP54
Exhauster motor	0.14kW-230V-50/60Hz

3.4 PNEUMATIC SUPPLY

Dry air free from oil and/or grease	air quality level guaranteed in compliance with ISO 8573.1 class 2.4.2
A gun with ø 3.2 mm delivery jet, ø 8 mm nozzle at a blasting pressure of 6 bar consumes approx.:	585 Nl/min
A gun with ø 4.5 mm delivery jet, ø 10 mm nozzle at a blasting pressure of 6 bar consumes approx.:	1330 Nl/min
Air tube:	Ø16-23 with 1/2" hose barb
Filtering cabinet outlet air flow	160 cu.m/h

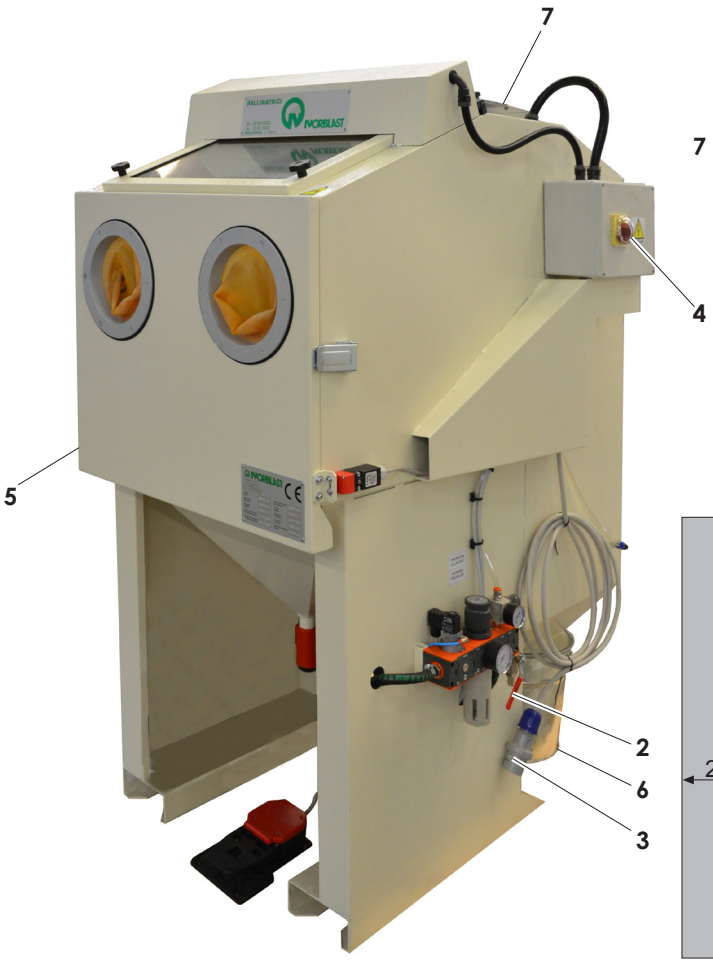
3.5 LAYOUT OF IDENTIFICATION PLATES

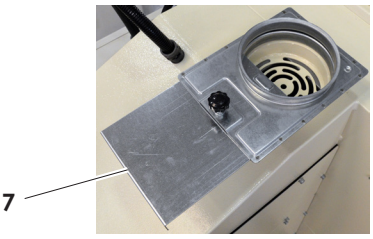


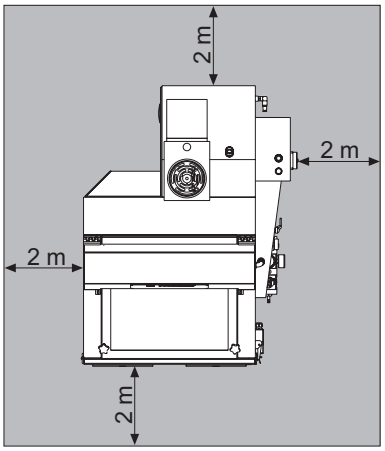
Position the system on level ground, as indicated.
Connect the main air supply pipe to the air inlet cock hose barb **(1)** of the pneumatic group, having care to well tighten the clamp so that the pipe inserted fully home does not move.
Open the pneumatic group main cock **(2)** and ensure there are no air leaks.
Connect the machine to the power supply inserting the plug of the power cord **(3)** in the plant socket (complying with the standards).
Close the main switch **(4)** of the electric panel in position "1".
With this operation the cabin light and the exhauster are turned on.
Verify the correct connection of the tubes.
Put max 15 Kg grit inside the cabin.
Verify that the door **(5)** of the machine and the dust collecting bin **(6)** are correctly closed.
Check gate opening **(7)** on filter outlet inlet.

The system can work only with working exhauster and closed cabin door.

The working area around the machine must be cleared to enable, without any obstacles, the normal operations and the possible maintenance operations.







5.1 OPERATORS

This Manual is addressed to the Installer, Operator and Qualified Personnel in charge of the system maintenance.
With the term "OPERATOR" we mean the person or the persons in charge of the operation, adjustment, cleaning and ordinary maintenance of the system.
With the term "QUALIFIED PERSONNEL" or "QUALIFIED OPERATOR" we mean those people that have attended specialisation courses, training, etc.
and have experience in system installation, start-up, maintenance,
repair and transport.
With the term "EXPOSED PERSON" we mean any person that is in a dangerous area of the system, even partially.
The system is for industrial use, therefore only qualified personnel must use it, in particular:

- they must have reached the age of majority;
- they must be physically and psychologically fit to carry out jobs of particular technical
  difficulty;
- they must be adequately trained on how to use and maintain the system;
- they must be deemed fit by the employer for the task entrusted to them;
- they must be able to understand and interpret the operator's manual and safety indications;
- they must know the emergency procedures and their implementation;
- they should be able to activate the relevant equipment;
- they should be familiar with relevant standards;
- they must understand the operating procedures defined by the system manufacturer.

Moreover, maintenance technicians should also have a further accurate technical preparation.

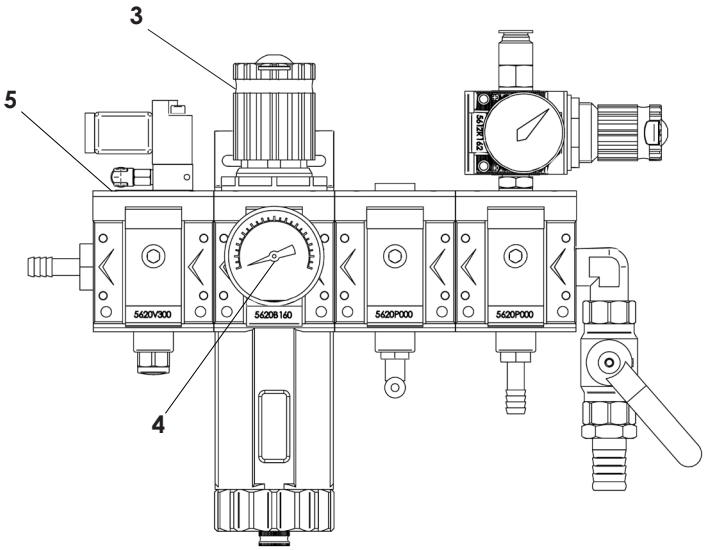
Carefully read the INSTRUCTIONS listed in this manual.

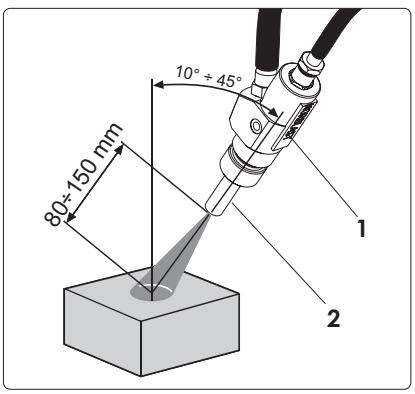
5.2 BLASTING DEVICE

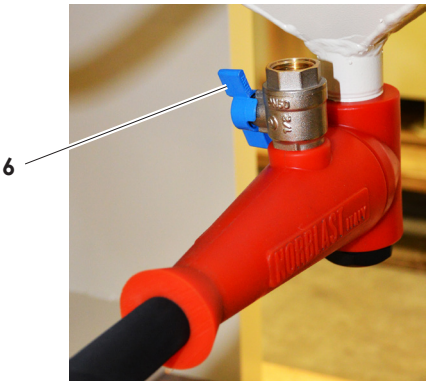
The blasting device is of the vacuum type and uses dry, oil-free compressed air.
Press the control pedal to open the operating solenoid valve **(5)** so that it conveys air inside the working gun **(1)**.
Air is made to flow through a special Venturi system that produces a vacuum inside the gun body so that grit is sucked from the bottom of the cabin.
Grit is then ejected through the nozzle **(2)** of working gun and hits the workpiece.
Ejection pressure may be adjusted by means of a pressure regulator **(3)**.
The blasting pressure value is displayed on the pressure gauge **(4)**.
We recommend keeping the nozzle at a distance of 80 to 150 mm from the workpiece surface. The grit jet must not be at a right angle to the workpiece surface and the impact angle must be between 10° and 45°.

To avoid undesired early wear, start the job at low pressure and move the gun to check its effect on the surface.

Do not keep the gun directly aimed at machine parts for too long to avoid early wear of the same.
Opening the cock **(6)** (lever in vertical position) a large quantity of air is mixed with a small quantity of grit for an aggressive action on the workpiece. On the contrary, by closing the cock (lever in horizontal position), a small quantity of air is mixed with a lot of grit for a more delicate action, but with the possibility of jamming the blasting circuit. Therefore it is suggested to operate with the cock lever in a middle position.

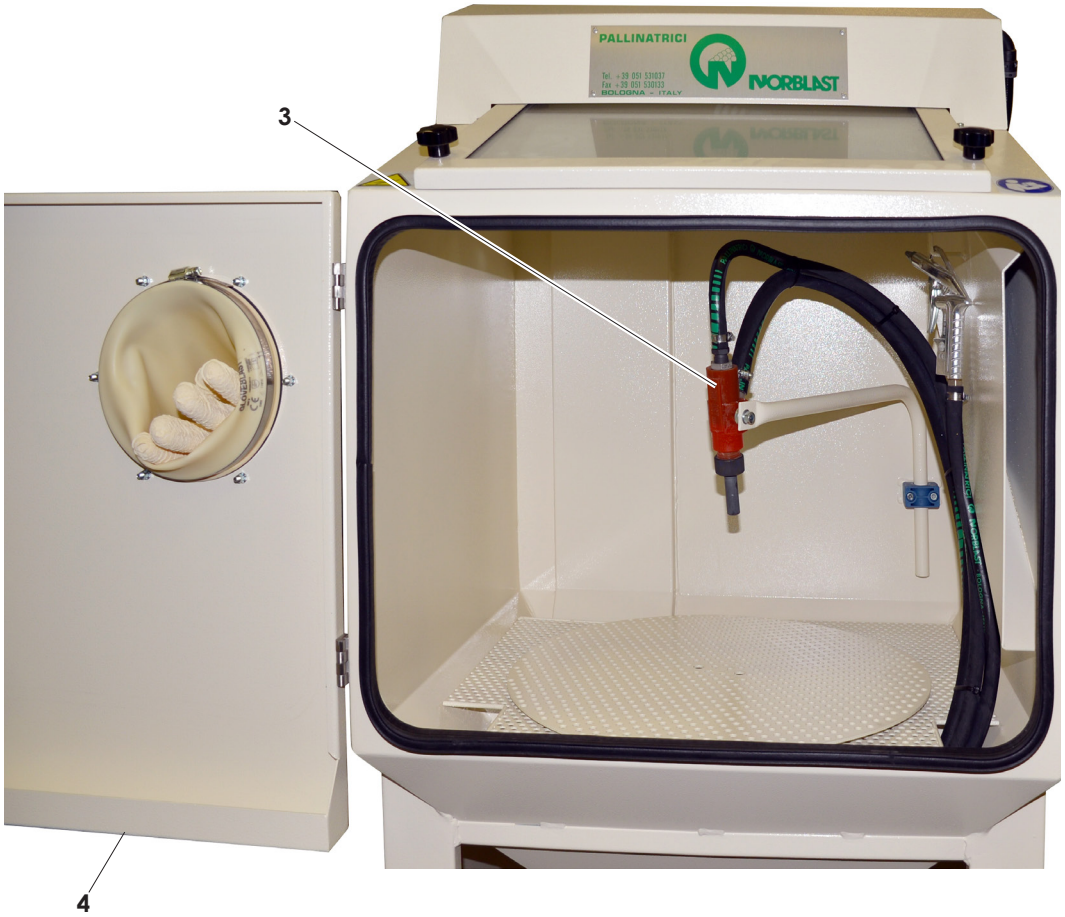






5.3 HOW TO CHANGE GRIT

Start the exhauster and thoroughly clean the cabin with a blowing gun so that the grit falls onto the hopper bottom.
Wait a few seconds until the dust is completely sucked from the cabin.
Switch off the machine using the main switch.
Place a collection bin under the recycling lug **(1)** from the cabin front side and unscrew the plug **(2)** to collect the grit from the bottom of the cabin. Empty the grit pipe by blowing with the blowing gun inside the nozzle of the working gun **(3)** until grit is no longer coming out of the lug.
Tighten the plug **(2)**.
Open the front door **(4)** and add the chosen grit inside the cabin (max. 15 Kg).
Close the door correctly.



5.4 FILTERING

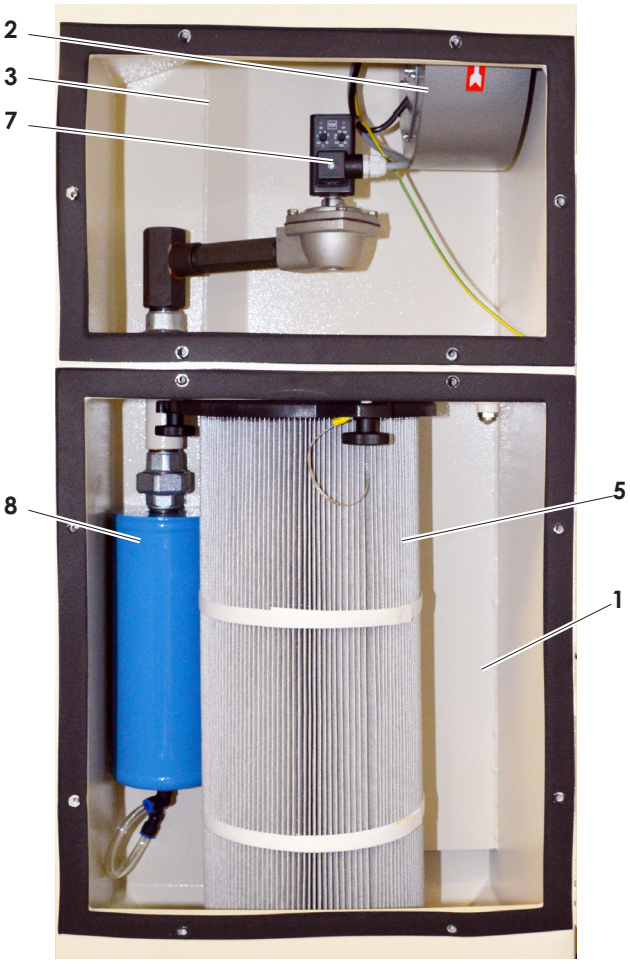
The filtering system is of the type with cartridge and automatic cleaning through back flush air jet.
The air mixed with dust enters the lower filtering chamber **(1)** thanks to the exhauster **(2)** placed inside the upper chamber **(3)** going through a first filtering of the heavier particles which will settle on the grit waste container **(4)**. The air flow goes through the filtering cartridge **(5)** and lets contaminating substances settle on cartridge outer walls, and exists through the catch **(6)**. The cartridge is "washed" with a blow of compressed air acting in the opposite direction to the normal flow. The air jet is controlled by a solenoid valve **(7)** mounted on a tube connected to the tank **(8)** under pressure with air charge.
The catch **(6)** adjusts the suction flow (opening it will increase cabin de-dusting and, in case, dust/grit waste).

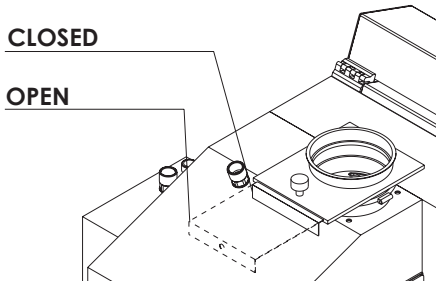
If the door is open the cleaning cycle of the cartridge will not be active.

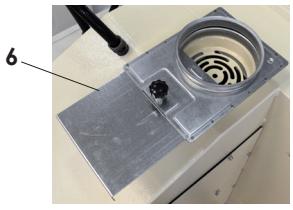
An air pressure regulator **(9)** has been installed above the pneumatic unit, with pressure gauge for pressure reading (max. 4 bar).

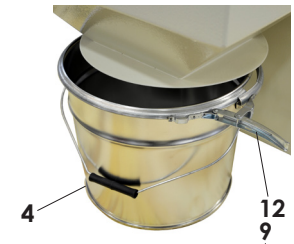
A dust collection bin **(4)** has been purposely placed to collect and empty the same. Open the ring release lever **(12)** and empty the bin. Position the bin back into place and hook it again to the filter cabinet.

Before accessing the upper/lower filtering compartment make sure that there is no electric voltage and that the pneumatic group has no air.









	GATE VALVE SHUTTER POSITION
RUBBER COATED	
STEEL	
CERAMIC MICROBALL	 B120.....B40
GLASS MICROBALL	 40/70.....400/800
CORUNDUM	 220.....16

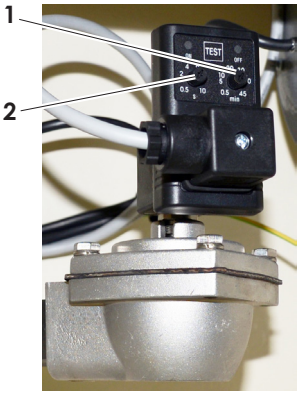
Depending on the type of blasting material and its grit size, it is necessary to adjust the shutter of the filtering cabinet to optimise the de-dusting flow inside the cabin. The position of the shutter may also vary during the life cycle of the filter cartridge, depending on its clogging. The more the clogging increases, the more it is necessary to increase the opening of the shutter until it is fully open.
Never go below shutter closing centreline level.

5.5 DIFFERENTIAL PRESSURE GAUGE

The differential pressure gauge detects the pressure difference between the upper and lower part of the filter cabinet.
When the pressure value exceeds 30 mm H_2O, it means that the filtering cartridge is clogged and must be replaced.

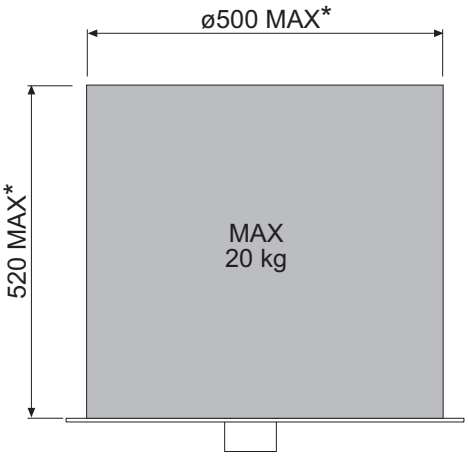
5.6 TIMER REGULATION FILTER CLEANING

The cleaning of the filtering cartridge is automatically performed with an air blow contrary to the normal flow. The "self-cleaning" operation time can be set based on the components to treat and the quantity of residual waste. The time break is set through timer **(1)**.
Do not change the timer position (2).



5.7 MANUAL ROTARY TABLE (OPTIONAL)

The manual rotary table **(1)** can be present inside cabin.
During processing, the workpiece to be processed can be easily rotated by manually rotating the table **(1)**.



** The dimensions indicated allow the workpiece to rotate freely inside the cabin and the operator to operate the shot-peening gun easily.*

5.8 SAFETY DEVICES

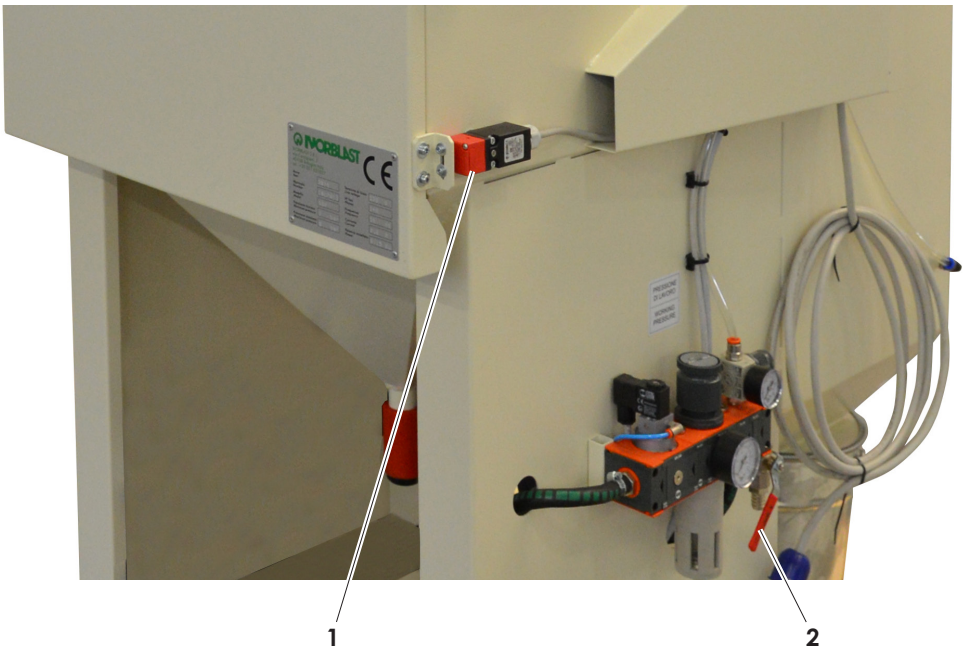
The machine is equipped with the following safety devices:

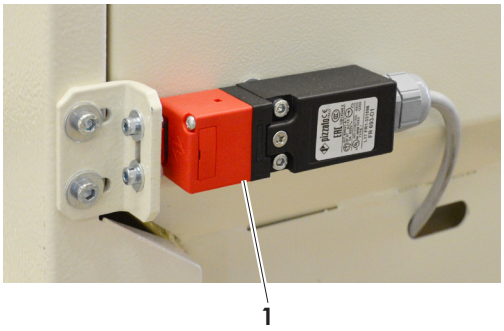
Electrical safety devices

- *Electromechanical microswitch* ***(1)***.
  Its function is to disable gun blasting and filter cartridge cleaning blow with the door open.

Auxiliary devices

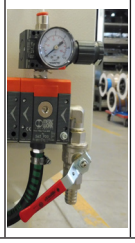
- *Pneumatic system shut-off valve* ***(2)***.
  It allows main air supply to the system and its bleeding.





SAFETY DEVICE CHECK LIST					
ID	DEVICE	POSITION	EFFECT	HOW TO ACTIVATE IT	HOW TO RESET IT
1	Electrome-chanical microswitch	Cabin ac-cess door	Door opening/clos-ing control.	Door opening/clos-ing	Door closing
2	Pneumatic system shut-off valve	Pneumatic unit	It allows the air to flow into the pneu-matic system and its bleeding.	Rotate the valve to open the circuit.	Rotate the valve to close the circuit.

5.9 LIST AND POSITION OF THE SAFETY DISCONNECTING SWITCHES

Switch		Description and type of energy	Position	Lockout procedure	Energy presence check
1		Power: 230 V	On the cabin.	Place the handle to off position. Lock the switch with a lock. Place the safety plate.	Check with tester the presence of current; try to switch on the machine and check that it does not start.
2		Pneumatic 8 bar	On the pneumatic panel.	Turn to close system pneumatic supply main valve. Place the safety plate.	Make sure that the valve is correctly closed and that the pressure gauge does not indicate any pressure.

Closely follow the maintenance recommendations. This is the key to ensuring long service life and a high efficiency level as well as avoiding troublesome failures. It is recommended to have the maintenance operations carried out by trained and qualified personnel.
Any maintenance operation must be carried out with no pressure in the system, with the sandblasting machine power cut off and after having placed a suitable sign indicating that the machine is being serviced.
All maintenance operations should be carried out by qualified personnel, wearing the suitable safety equipment usually recommended for similar operations, and in compliance with the safety procedures indicated below.
In order to make the sandblasting machine last longer, ensure high safety levels to users and clearly identify the equipment, it is fundamental to keep clean the following parts:

- the sandblasting machine and its accessories;
- the EC identification plate;
- the floor in front of the sandblasting machine;
- the door closing seals.

6.1 SAFETY RULES DURING MAINTENANCE

The main precautions to be taken when servicing the machine are as follows:

- ***the operator must be equipped with the personal protection equipment indicated at paragraph 1.8;***
- ***disconnect power and pneumatic supply and discharge the air in the pneumatic circuit (blow it with a blasting gun or a blowing nozzle), before removing any of the unit parts, replacing any of the components or access the work cabin;***
- ***please pay attention when opening the power control unit;***
- ***do not use open flames;***
- ***do not wear rings, watches, necklaces, bracelets, etc.;***
- ***use only genuine spare parts only;***
- ***do not smoke, drink nor eat.***

6.2 CLEANING

Clean the outer and inner parts of the sandblasting machine at the end of every working day or in any case at the end of every job.
This will keep the system in good working conditions.
In particular, always check the following parts and clean, if necessary:

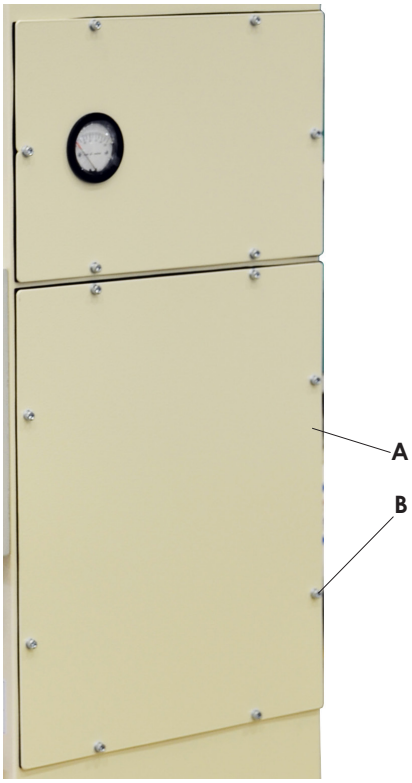
- the EC identification plate;
- the pressure gauge;
- the regulator filter;
- the pneumatic valve;
- the sight glass;
- the working grid or the rotary table (if fitted);
- the cabin hopper;
- the door closing seals.

To clean the outside of the machine, it is enough to use a soft cloth.
Suck possible grit residues on the working area.

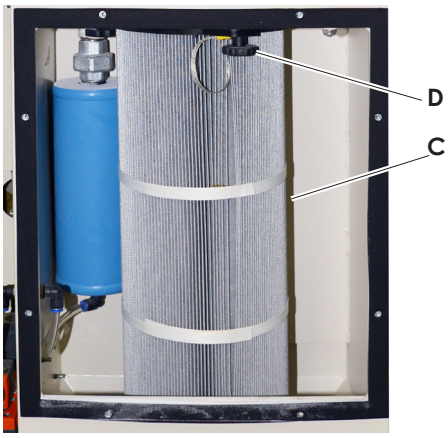
6.3 REPLACEMENT OF THE CARTRIDGE

Cut out the power of the machine.
Disconnect the machine from the pneumatic power.
Before proceeding with this operation wear all suitable protection equipment to protect the operator from dust.

1. Remove the cartridge compartment closing guard **(A)** by loosening the screws **(B)**.



2. Remove cartridge **(C)** by loosening the three knobs **(D)**.
3. Place the filter cartridge in a bag to avoid dispersing dust.
4. Carefully place the new cartridge without damaging it.
5. Tighten the three knobs **(D)**.
6. Close the cartridge compartment closing guard **(A)** by tightening the retaining screws **(B)**.



6.4 REPLACEMENT GLOVES

Loosen the clamps **(A)** and replace the damaged gloves.

6.5 REPLACING THE CABIN INTERIOR SIGHT GLASSES

Open the lamp holder guard **(A)** by loosening the two retaining screws.

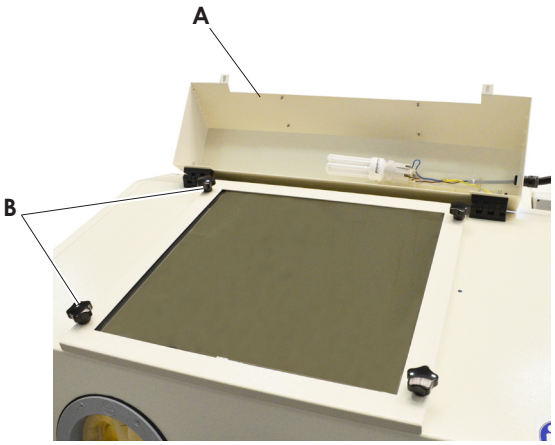
Fully loosen the 4 locking knobs **(B)** of the glass holder frame **(C)** and lift it.

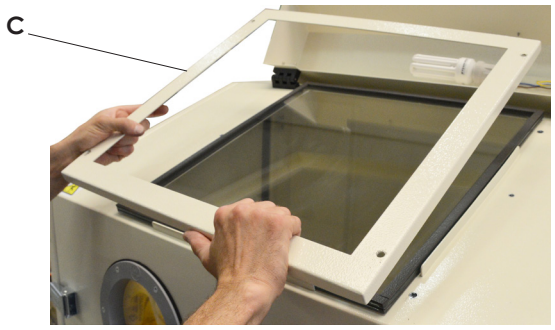
Lift the first glass and lay it in a handy and safe position since it will not have to be replaced.

Lift the second glass **(D)** and replace it with the new one.

Take special care not to damage the existing gaskets **(E)**, otherwise replace them.

Position the upper glass on the new one already resting against the cabin. Lay the glass holder frame and secure it in place with knobs.
Close the lamp holder guard and lock it in place with the two retaining screws.

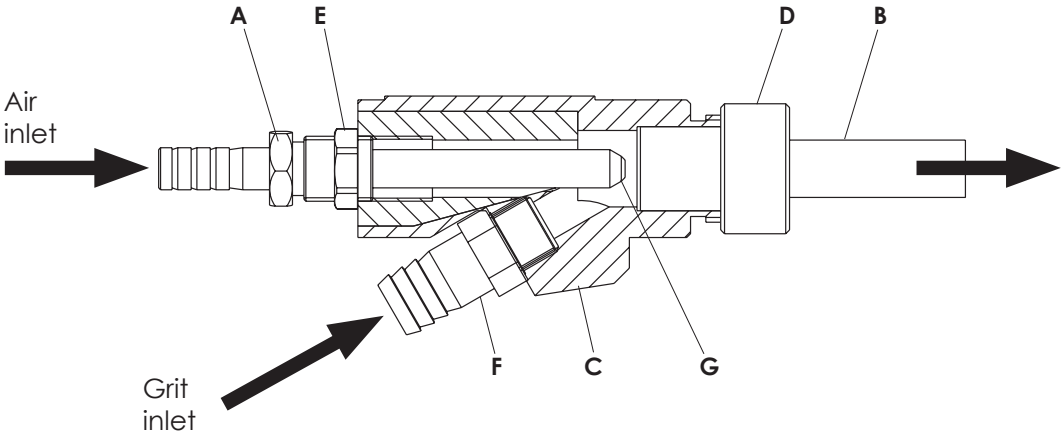




6.6 VENTURI GUN

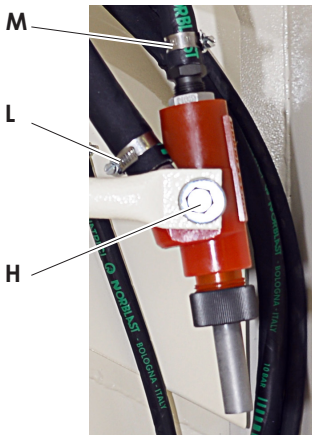
Carrying out a correct and periodical maintenance on gun components subject to wear proves useful to keep an optimal efficiency of the blasting device.

A Delivery jet
B Nozzle
C Gun body
D Nozzle ring nut
E Delivery jet locking nut
F Grit inlet hose barb
G Delivery jet wear point

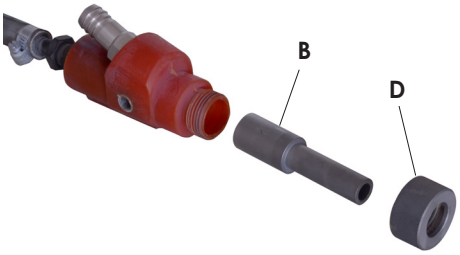


Gun bench maintenance procedure

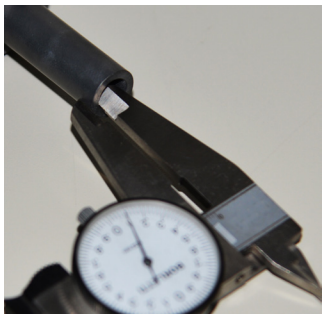
1 Loosen screw **(H)** on gun support (if any), disconnect the air inlet tube **(L)** and the grit inlet tube **(M)**.



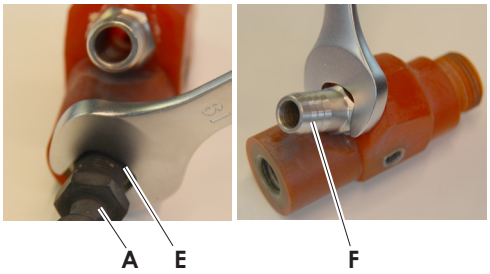
2 Take gun on bench, loosen ring nut **(D)** and take out nozzle **(B)**.



3 Check the integrity and wear status of shot-peening gun nozzle.
NOTE: The nozzle wall thickness must NOT be lower than 2 mm.

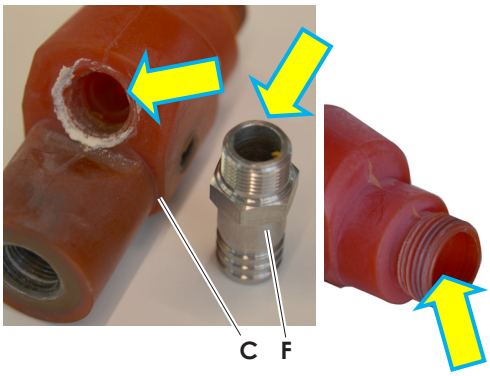


4 Loosen nut **(E)** and take out delivery jet **(A)**, loosen grit inlet hose barb **(F)** .

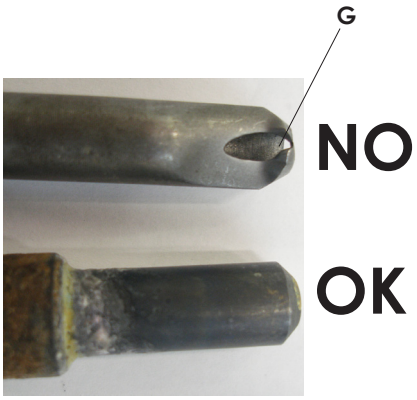


5 Visually inspect gun body **(C)** in nozzle and hose barb seats: if it shows excessive signs of wear, replace it.

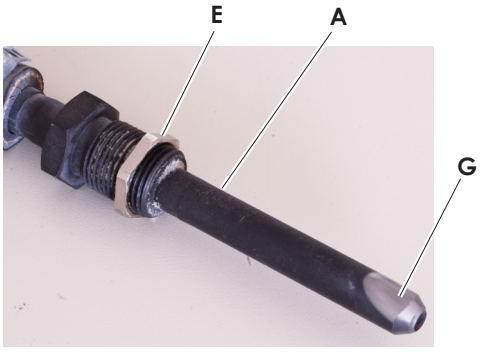
6 Visually inspect the hose barb **(F)**: replace it if worn out.

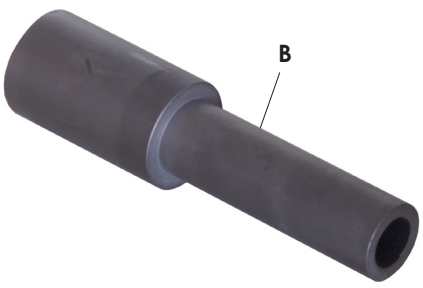


7 Check the integrity of the delivery jet: the hole at the end of the delivery jet must be perfectly circular and must not feature side cuts **(G)**.



8 If delivery jet **(A)** and nozzle **(B)** are in good conditions, they can be refitted inside the gun body.
Refit both of them turned by 180° compared to the starting position to balance the wear points.
Upon refitting, screw the delivery jet **(A)** between the 4th and 5th thread, locking it then in place with nut **(E)**.

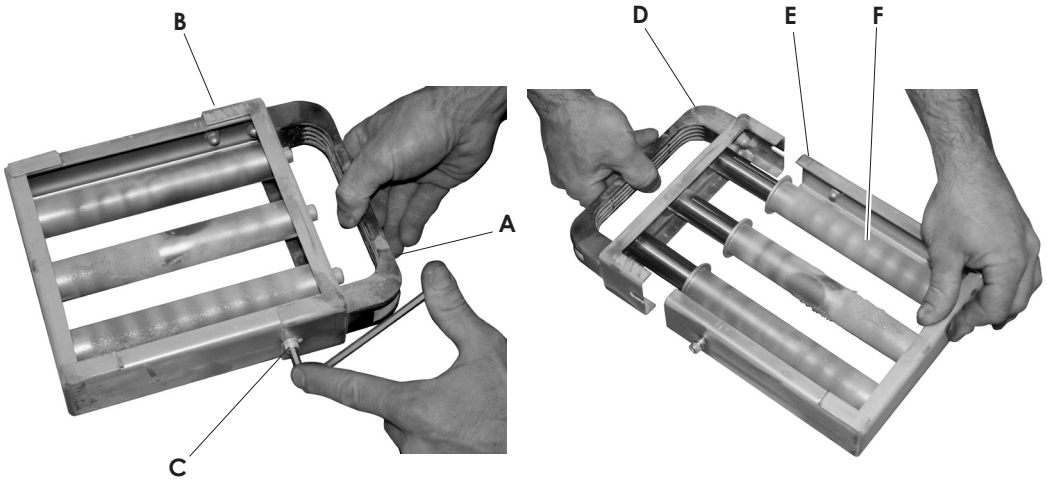




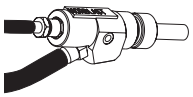
6.7 CLEANING THE MAGNETIC SEPARATOR

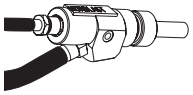
Warning! Handle magnet unit with extreme care, as their high magnetic power could cause sudden shifts and possible hand squashing. The use of working gloves is strongly recommended.

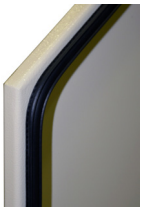
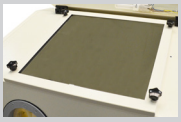
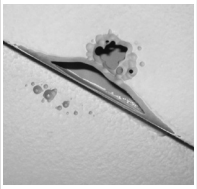
Grasp the handle **(E)** and extract the magnetic separator unit **(F)**.
Take components to the bench and slightly undo the two side screws **(C)** to release the magnet unit **(D)**.
Remove magnet unit **(D)** from its stainless steel seat **(E)**.
All metal scraps fall down; carefully clean tubes **(F)** from any dust residues with a cloth and reassemble the unit.

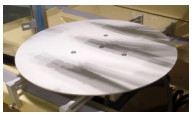


6.8 ROUTINE MAINTENANCE

Checks at work shift beginning / end	
	Check integrity of nozzle, check nozzle for wear. Replace if any damage is found
	Check for air leaks in the pneumatic system.
	Check for water and/or oil trapped inside filter-regulator sump. If water is in the sump, drain and check for proper operation of the drying and filtering system.
	Check the dust collector and empty it if necessary.
	Check that the rear door for cleaning is correctly closed

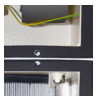
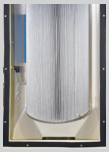
BLASTING DEVICE		40 h	160 h	1000 h
	Check the wear status of the shot-peening gun assembly: delivery jet, gun body, grit inlet hose barb, nozzle	●		
	Check grit delivery tubes for wear.		●	
	Clean the magnetic separator.	●		
	Visually inspect grit. Look for contamination from foreign particles. Most grit should have a size and shape similar to the original.		●	

CABIN		40 h	160 h	1000 h
	Check condition of door seals		●	
	Check the status of the tempered glasses	●		
	Check for worn parts inside the cabin. Nozzle jet may have been directed at the same position repeatedly. If needed, apply a 4 - 8 mm thick rubber sheet over concerned area.		●	
	Check clamping force of door closures *Turn on cabin light and make sure that no light is filtering through.*		●	

ROTARY TABLE		40 h	160 h	1000 h
	Check table surface for wear.		●	
	Make sure that the bearings for table surface rotation are clean and that the table can freely rotate.		●	

PNEUMATIC SYSTEM		40 h	160 h	1000 h
	Check for air leaks in the pneumatic system.		●	
	Check for water and/or oil trapped inside filter-regulator sump. If water is in the sump, drain and check for proper operation of the drying and filtering system.		●	

ELECTRIC SYSTEM		40 h	160 h	1000 h
	Check the condition of power control unit door seals.		●	
	Ensure no grit or dust is inside the power control unit.		●	

FILTERING CABINET		40 h	160 h	1000 h
	Check filtering cartridges for clogging, by looking at the differential pressure gauge reading.	●		
	Ensure that in the upper compartment of the filtering cabinet there is no grit.		●	
	Check door seal conditions		●	
	Replace the filtering cartridges		●	

SAFETY DEVICES		40 h	160 h	1000 h
	Check the safety devices for proper operation.	●		

PRESSING THE PEDAL THE SYSTEM DOES NOT WORK

PROBABLE CAUSE	SOLUTION
door open	close door and check catch clamping force
electrical microswitch malfunction	check locator proper operation and position
air connection cock closed	open the cock
blasting valve malfunction	replace it
blasting pedal malfunction	replace it

GRIT DOES NOT COME OUT OF THE SHOT-PEENING-GUN

PROBABLE CAUSE	SOLUTION
no grit	open cabin door and add grit
not enough air or no air at all	check that there is air in line, that the valve is open and that pressure is equal to or above 1 bar
impurities in the lug, grit delivery tube, gun body	carefully clean
delivery jet wrong position	check that it is screwed by 5 mm
worn delivery jet	replace it
worn nozzle	replace it
pierced gun body	replace it
worn grit delivery tube	replace it

GRIT IS NOT SUCKED FROM HOPPER BOTTOM AND/OR THERE IS A LOT OF DUST INSIDE CABIN

PROBABLE CAUSE	SOLUTION
pierced mixing lug	replace it
hopper bottom obstructed	remove any debris / sticking from hopper bottom
clogged filter tissue of the cartridges	clean or change the cartridge

DUST COMES OUT OF THE FILTERING UNIT

PROBABLE CAUSE	SOLUTION
broken cartridge	replace
cartridge compartment closing door not correctly closed	close it
the dust collection bin is not correctly closed	close it
cartridge compartment closing door gasket is no longer tight	replace it

SD7

MANUAL SANDBLASTING - SHOT PEENING MACHINE

NORBLAST

APPLICATIONS	glass microball	ceramic microball	steel microball	aluminium oxide	plastic grit	steel grit	cast-iron grit
sticker removal				*	o		
anti-reflection finish	o	*		*			
preparation for better adhesion of chemical coating	o	*		*			
art work restoration	*				o		
preparation before gluing			o	*	o	o	
graphite deposits removal	o	*			*		
preparation for rubber to metal bonding				*		o	*
decorative finish	o	o		*			
burr removal	*			*	*		
plastic flash removal	*			*	o		
cleaning	o	o	*	o	*	*	*
glass decoration	o	*		o			
pickling	*	*	*	o		o	o
mould cleaning	o	*			o		
die cleaning	o				o		
paint stripping				o	*	o	o
preparation for painting	o			o		o	o
controlled shot-peening	o	o	o				
cleaning before/after welding	*			o		o	*
uniform surface finish	o	o	o	*			
satin finish	o	o					
wood surface treatment	*			o			
clean./high roughness				o		o	o
clean./low roughness	o	o		*		*	*
non-ferrous parts	o	o		*			
aluminium	o	o		o			
stainless steel	o	o		*			

O recommended
✻ possible

9.1 AIR CONSUMPTION OF THE SHOT-PEENING-GUN/ LANCE FOR PRESSURE/ VACUUM SYSTEMS

NOZZLE DIAMETER (pressure vers.) DELIVERY JET DIAMETER (vacuum vers.)	WORKING PRESSURE (bar)						
	2	3	4	5	6	7	8
1	28	37	46.5	56	65	74	83.5
2	111	148	185	222	260	296	334
3	251	334	418	501	585	668	752
4	447	595	745	894	1040	1190	1340
5	695	927	1160	1390	1620	1860	2090
6	1000	1340	1670	2010	2340	2680	3010
8	1780	2380	2970	3570	4160	4760	5350

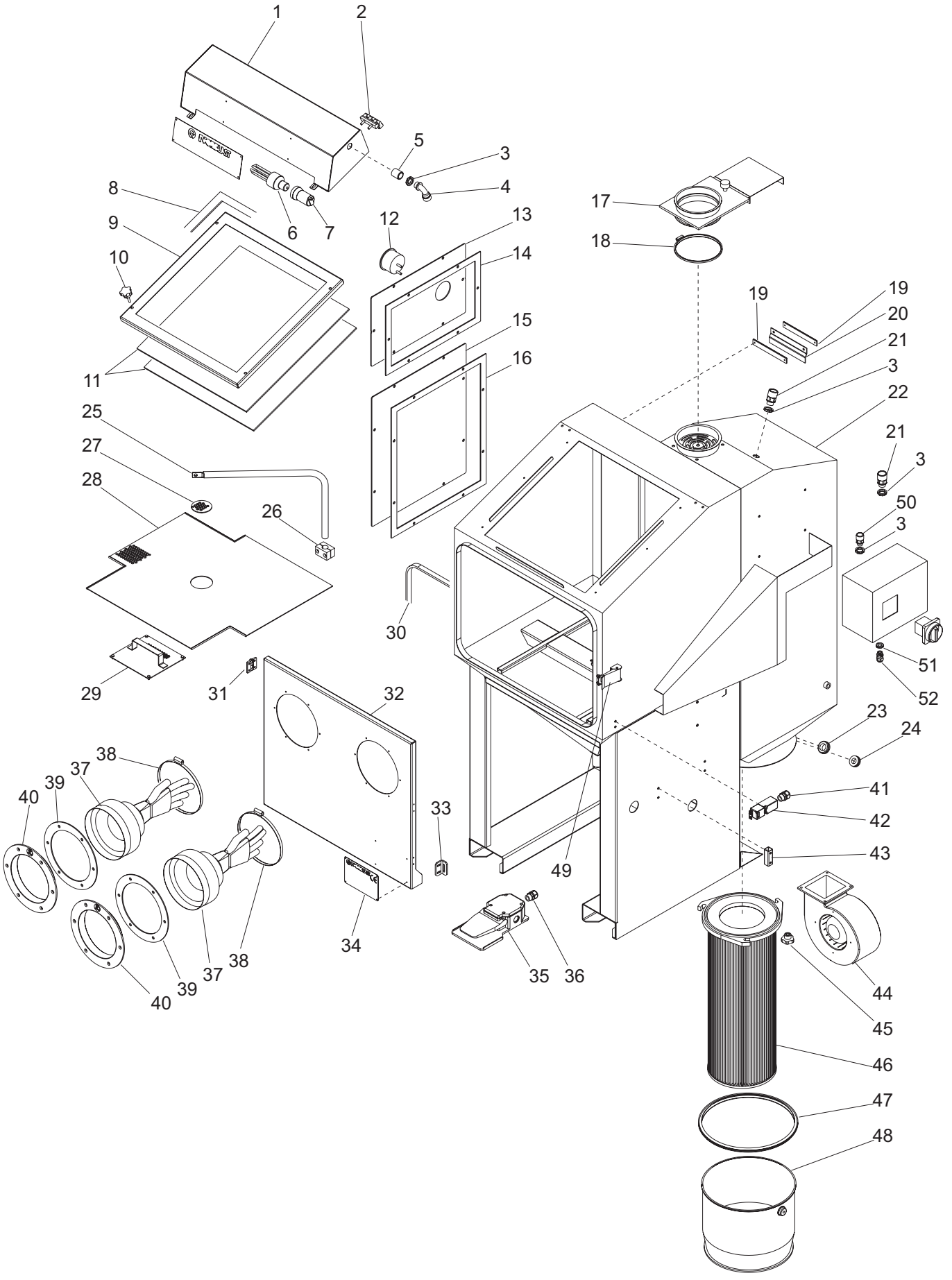
Air consumption values indicated in the table are expressed in Nl/min

Compressors operating at 7.5 bar will supply approximately 157 Nl/min per kW

Compressors operating at 10 bar will supply approximately 141 Nl/min per kW

SD7

MANUAL SANDBLASTING - SHOT PEENING MACHINE



REF.	QTY	CODE	DESCRIPTION	TYPE
1	1	012272	Ceiling lamp	
2	2	005633	Hinge	CFF.66 P-M6x16 ELESA
3	3	E00549	Polyamide check nut	PG13.5 GREY RAL 7035
4	1	E02553	Fitting	D.12 - 90° PG 13.5
5	1	E04957	Jointing hose	PG13.5
6	1	E00835	Lamp	0035011 ML HOME 23W T3
7	1	E00194	Lamp holder	VIMAR E27 °43mm
8	6 m	000004	Seal	12x3
9	1	005628	Glass frame	490x490 FN2000
10	4	002464	LOBE hand wheel	VC192/40P-M6X30
11	2	P0084	Tempered glass	490x490 MM
12	1	020424	Analogue differential pressure gauge	Mini Helic 5000 0-50 mm
13	1	005625	Filter top cover	
14	1	020431	Filter upper guard seal in EPDM	
15	1	005642	Filter bottom cover	
16	1	020434	Filter lower guard seal in EPDM	
17	1	007171	Moulded gate valve shutter	ITEM NO.169 Ø140
18	1	007172	Single ring	ITEM NO.218 Ø140
19	2	011744	Diaphragm trim	
20	1	011745	Intake stack closing diaphragm	
21	2	E00751	Straight fitting	Ø 17 PG 13.5 6BSM17P13
22	1	012270	Structural work	
23	1	002220	Rubber wiring grommet	Ø 22.5
24	2	002219	Rubber wiring grommet	Ø 17.5 code 20900017500
25	1	005802	Gun support	
26	1	005800	Tube collar	Ø20 320-PPH STAUFF
27	1	005627	Valve seat cap	
28	1	012274	Grid surface	
29	1	022318	Hopper drilled cover	
30	2.5 m	005634	Reinforced drawn seal	
31	2	006509	Hinge	EMKA 1056-U5-PH STAINLESS STEEL
32	1	012273	Front door	
33	1	012872	Electric microswitch pusher device support	
34	1	P0001	EC plate	
35	1	E01874	Electric pedal without cover	PA 10100
36	1	E00372	Plastic cable gland	M20X1.5 COLOUR RAL 7035
37	1	000548	Pair of latex gloves	SIZE 11
38	2	000579	Clamp	No.14 168-188 ZINC-PLATED
39	2	005916	Glove holder flange gasket	
40	2	000577	Glove holder flange	
41	1	E00554	Grey cable gland	RAL7035 PG13.5 - UL/CSA
42	1	E01582	Limit switch with pizzato safety device	FR693-D1
43	2	006942	Spacer for pneumatic units	
44	1	005636	Exhauster	G2E 140 AE77 01 EBM
45	3	005637	Knob	Ø40 M10 THROUGH HOLE
46	1	005635	Filter cartridge	Ø218x600 P 5.35 MQ Polyester
47	1	006441	Zinc-plated ring	Ø292 FOR CONTAINER
48	1	016478	Dust collecting bin	Ø292xh250 SD7/9/12
49	1	005720	Adjustable closed catch	2.18.00 ZINC-PLATED
50	1	E00750	Black sheath straight fitting	Ø 12 CORRUG.PG13,5
51	4	E00547	Polyamide check nut	PG9 GREY
52	4	E00552	Grey cable gland	PG9 - UL-CSA - CEMBRE
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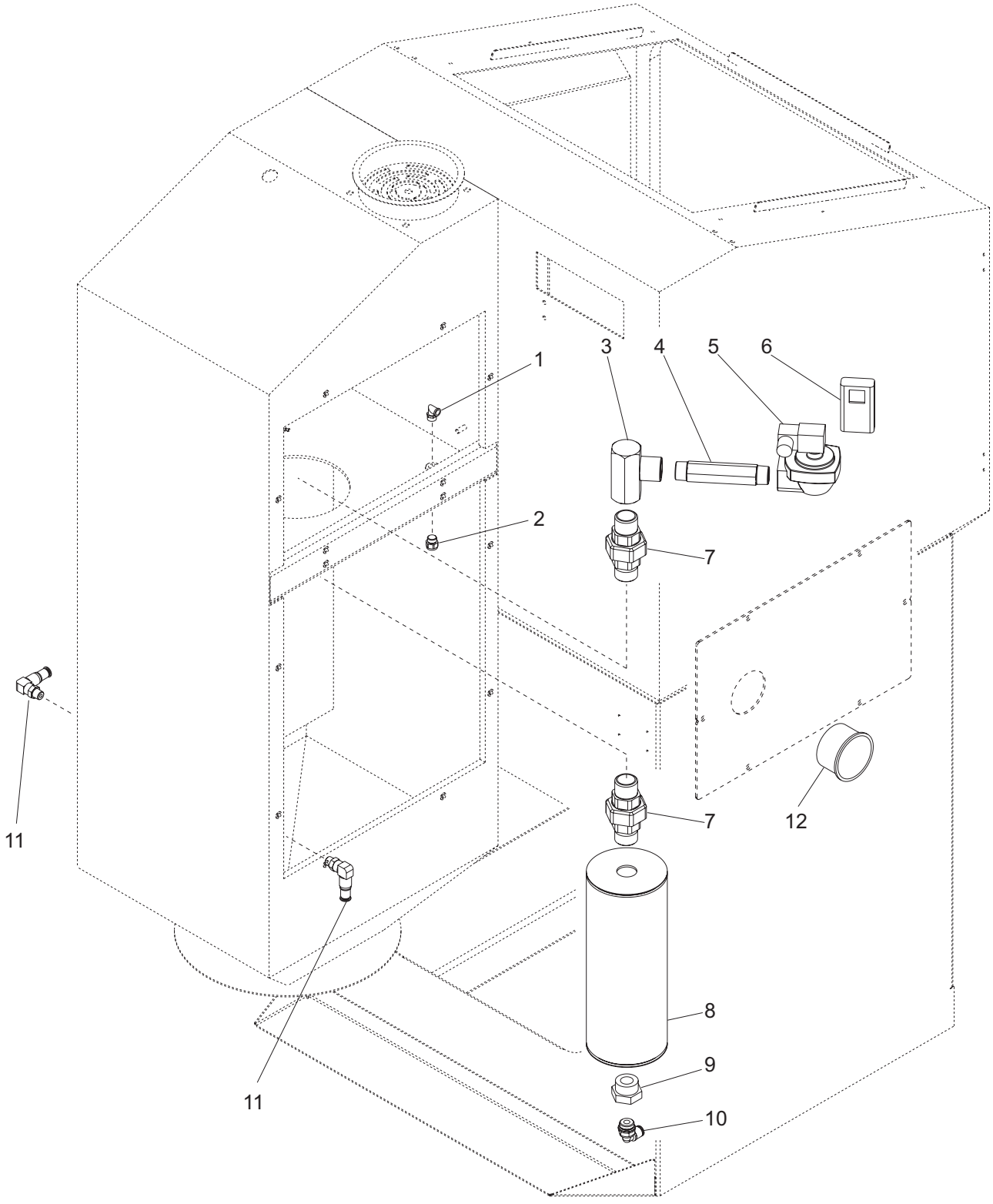
SD7

MANUAL SANDBLASTING - SHOT PEENING MACHINE



REF.	QTY	CODE	DESCRIPTION	TYPE
1	1	002470	90° fitting	1/4"M-D.8 QUICK PLG0802
2	1	000084	Silencing device	SFE 1/4" W0970530053 K
3	1	021089	Filter air distributor	ECO/9
4	1	021060	Hose	L.135 3/4" NEW ASSY
5	1	005209	Solenoid valve	FP20 3/4"N.C.230V 50/60 Hz
6	1	E03854	Pause/pulse timer	MPM - 24-240V ac/dc RSP22
7	2	002496	Union fitting	1"M/M G.F- TAPERED
8	1	005450	Cleaning tank 4"	
9	1	000199	Reducing fitting	1"-1/2" M/F
10	1	001083	90°-Fitting	1/2"M-D.10 QUICK-RELEASE
11	2	005640	90° rotating quick-release fitting	1/4"M-Ø10
12	1	020424	Analogue differential pressure gauge	Mini Helic 5000 0-50 mm
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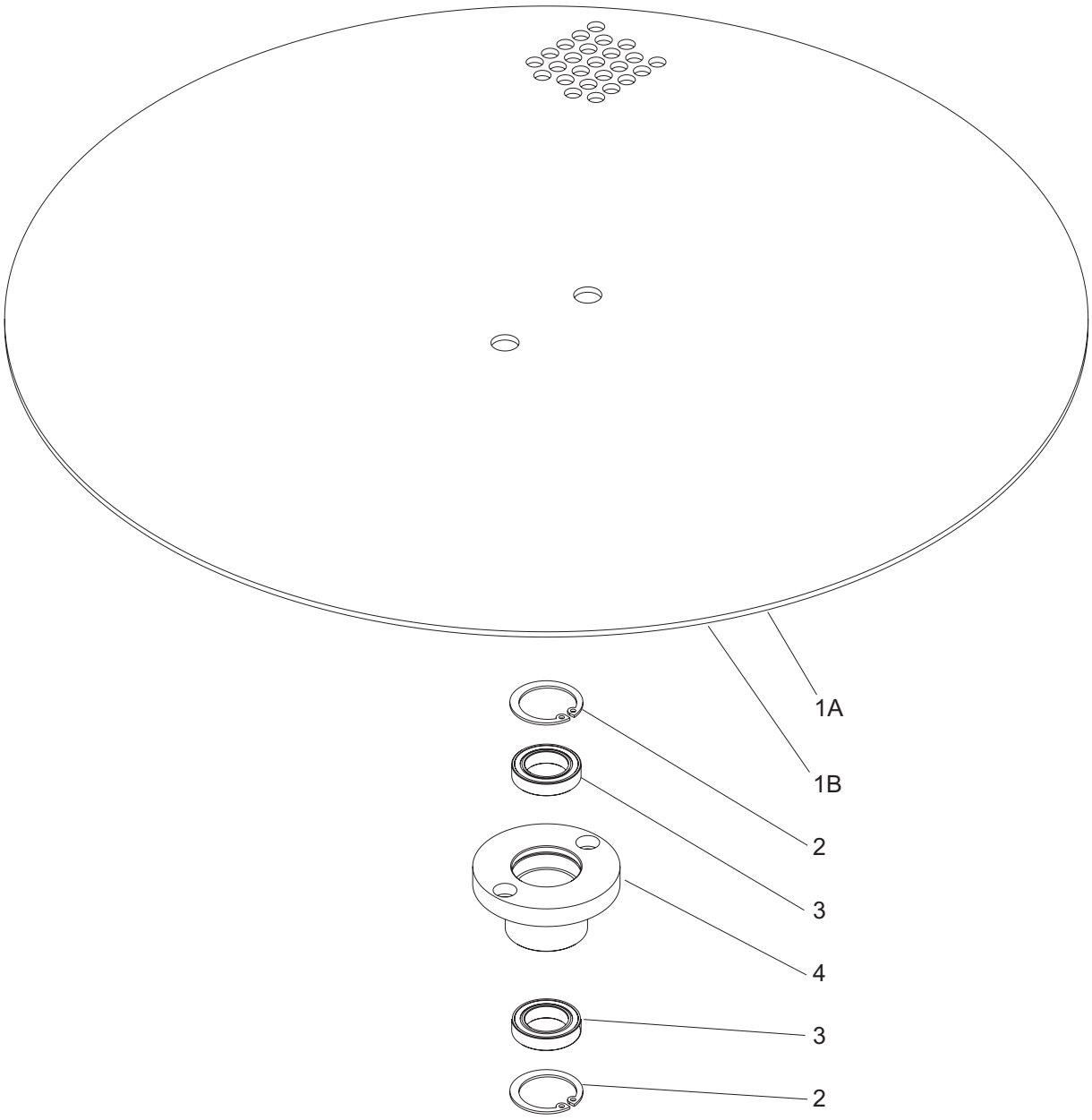
MANUAL SANDBLASTING - SHOT PEENING MACHINE



REF.	QTY	CODE	DESCRIPTION	TYPE
1A	1	005792	Plate	Ø500 TGM FN2000
1B	1	005792R	Coated plate	Ø500 TGM FN2000
2	2	001700	Circlip	Ø32 FOR INT. UNI 7437
3	2	005793	Radial ball bearing	61804-2RS1 20x32x7 SKF
4	1	005791	Bearing hub	TGM S9
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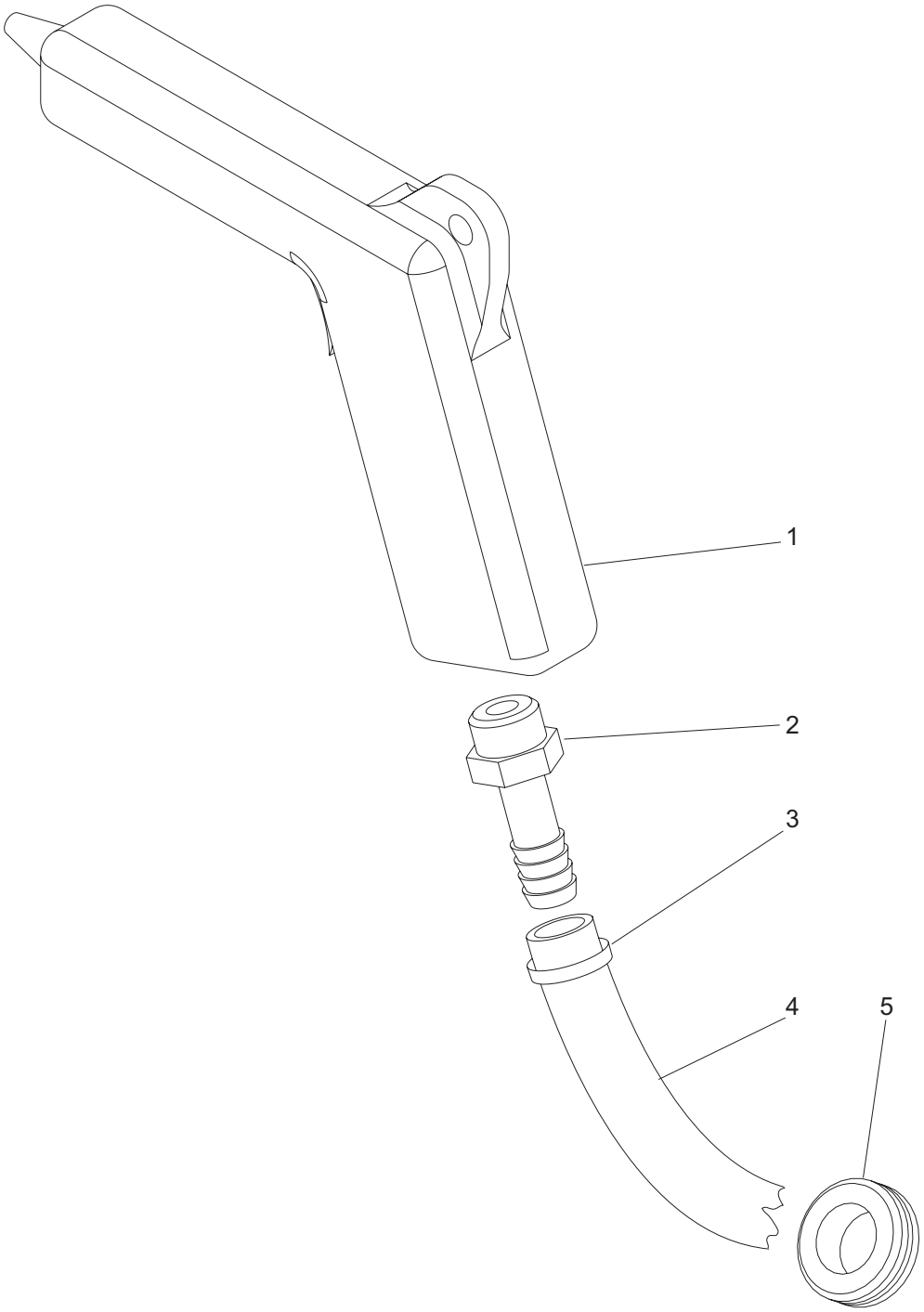
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REF.	QTY	CODE	DESCRIPTION	TYPE
1	1	000896	Blowing gun	04-115/1 04-115/1.SR
2	1	000121	Hose barb	DIAM.10 1/4"
3	2	000580	Clamp	No.2 10-18 ZINC-PLATED PIPE 10x17
4	2.5 m	000018	Tube	ø10x17
5	1	002219	Rubber wiring grommet	Ø 17.5 code 20900017500
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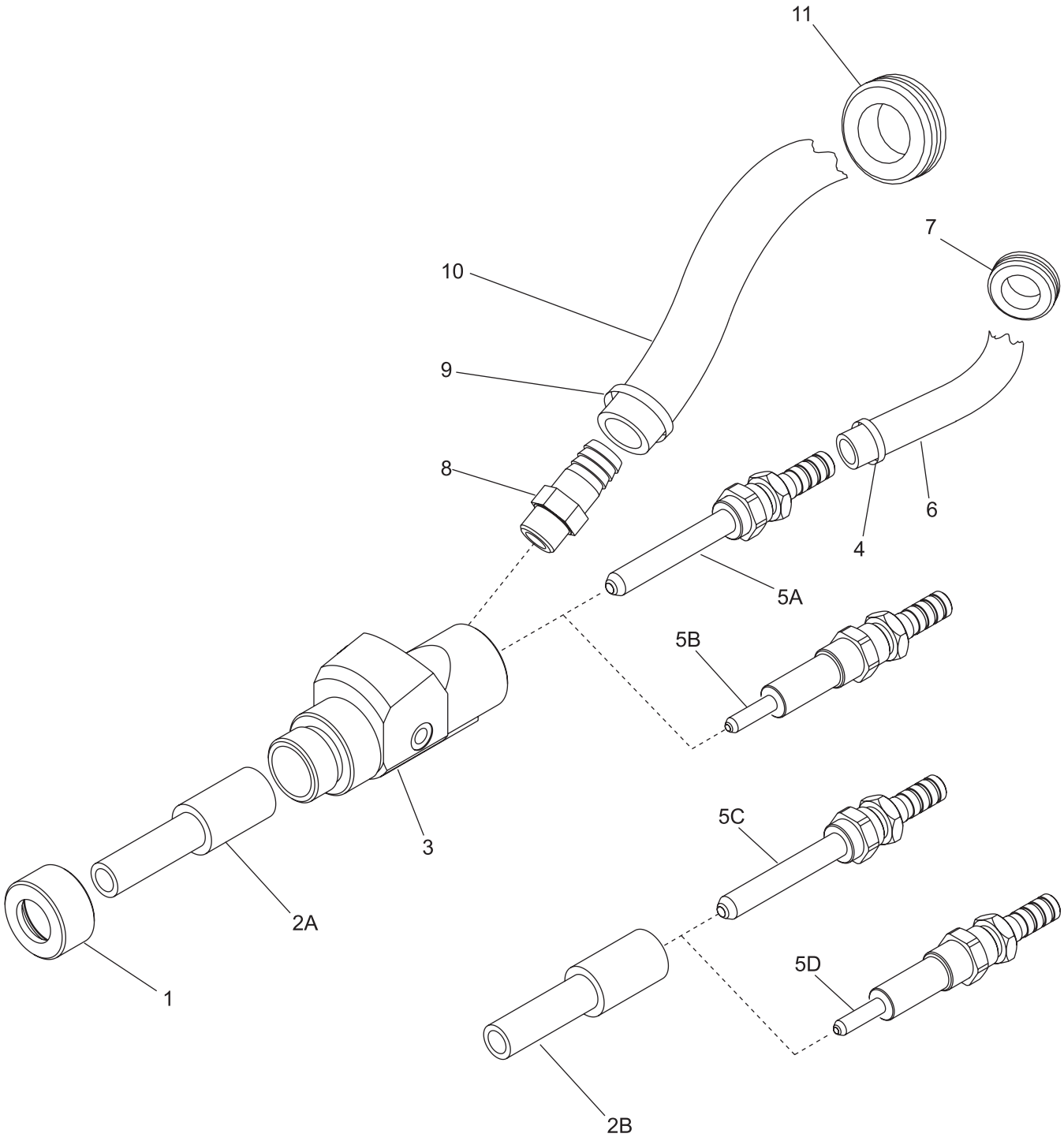
MANUAL SANDBLASTING - SHOT PEENING MACHINE



REF.	QTY	CODE	DESCRIPTION	TYPE
1	1	P0055	Vacuum nozzle ring nut	
2A	1	P0056	Vacuum nozzle INSTALLED EQUIPMENT	22x85 Ø8 CARB.TUNGS.
2B	1	P0174	Vacuum nozzle SPECIAL REQUEST EQUIPMENT	22x85 Ø10 CARB.TUNGS.
3	1	004854	Complete gun body in polyurethane with connections	
4	1	000580	Clamp	no. 2 10-18
5A	1	000561	Delivery jet + nut on P0056 INSTALLED EQUIPMENT	DOS. D.3.2
5B	1	000562	Delivery jet + nut on P0056 SPECIAL REQUEST EQUIPMENT	DOS. WIDIA D.3.2
5C	1	000756	Delivery jet + nut on P0174 SPECIAL REQUEST EQUIPMENT	DOS. D.4.5
5D	1	000773	Delivery jet + nut on P0174 SPECIAL REQUEST EQUIPMENT	DOS. WIDIA D.4.5
6	3 m	000018	Tube	ø10x17
7	1	002219	Rubber wiring grommet	ø17.5
8	1	016744	Stainless steel hose barb	3/8"-17 CODE 4GA11G03
9	1	000581	Clamp	no. 3B 17-29
10	2.5 m	000019	Tube	ø16x23
11	1	002220	Rubber wiring grommet	ø22.5
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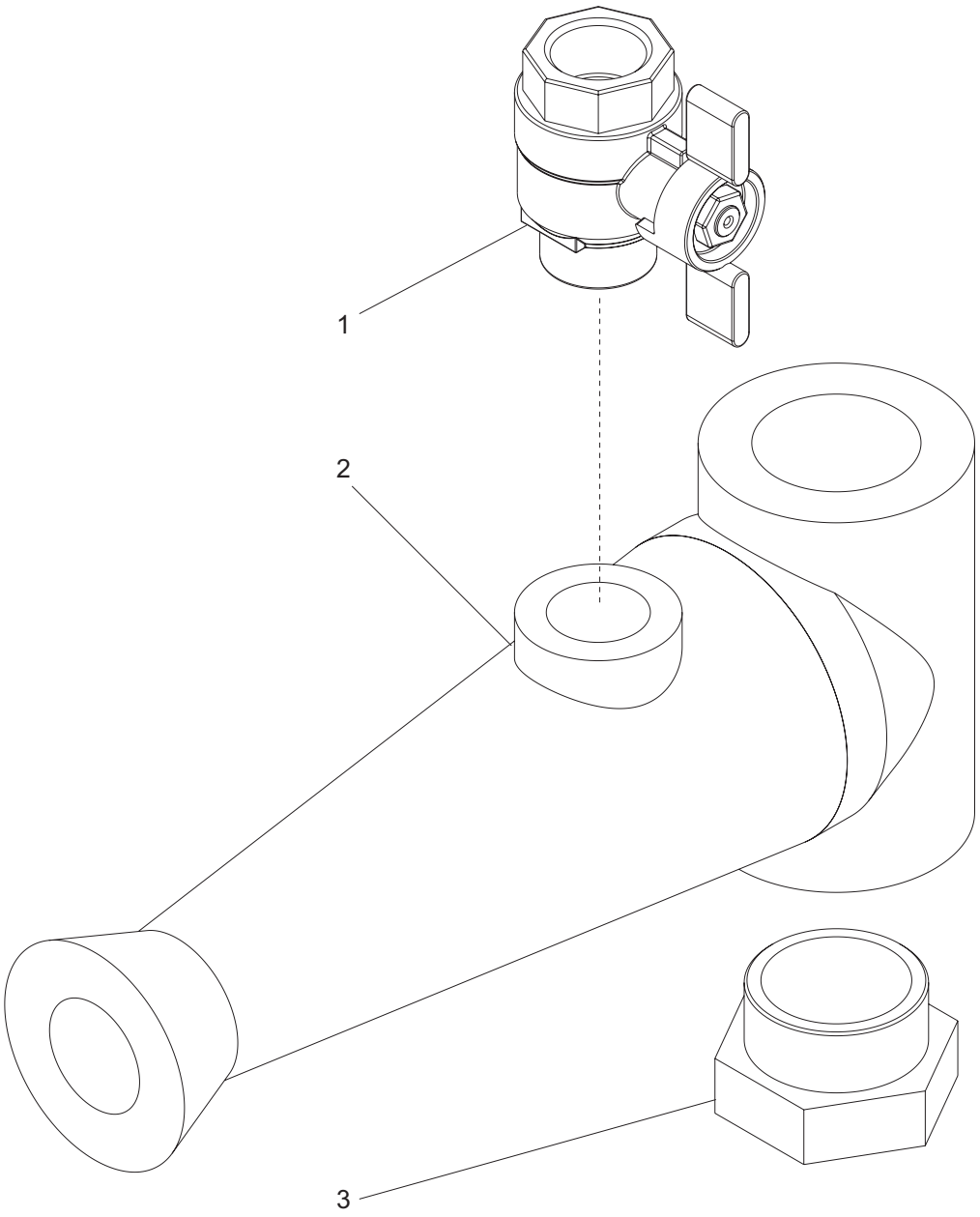
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REF.	QTY	CODE	DESCRIPTION	TYPE
1	1	016310	Ball valve	G1/2 M/F ITEM 9250TR12 TIERRE
2	1	013423	Fda polyurethane recirculation composite lug	
3	1	012635	Plug	1"M TN.1 ELESA Code 58299
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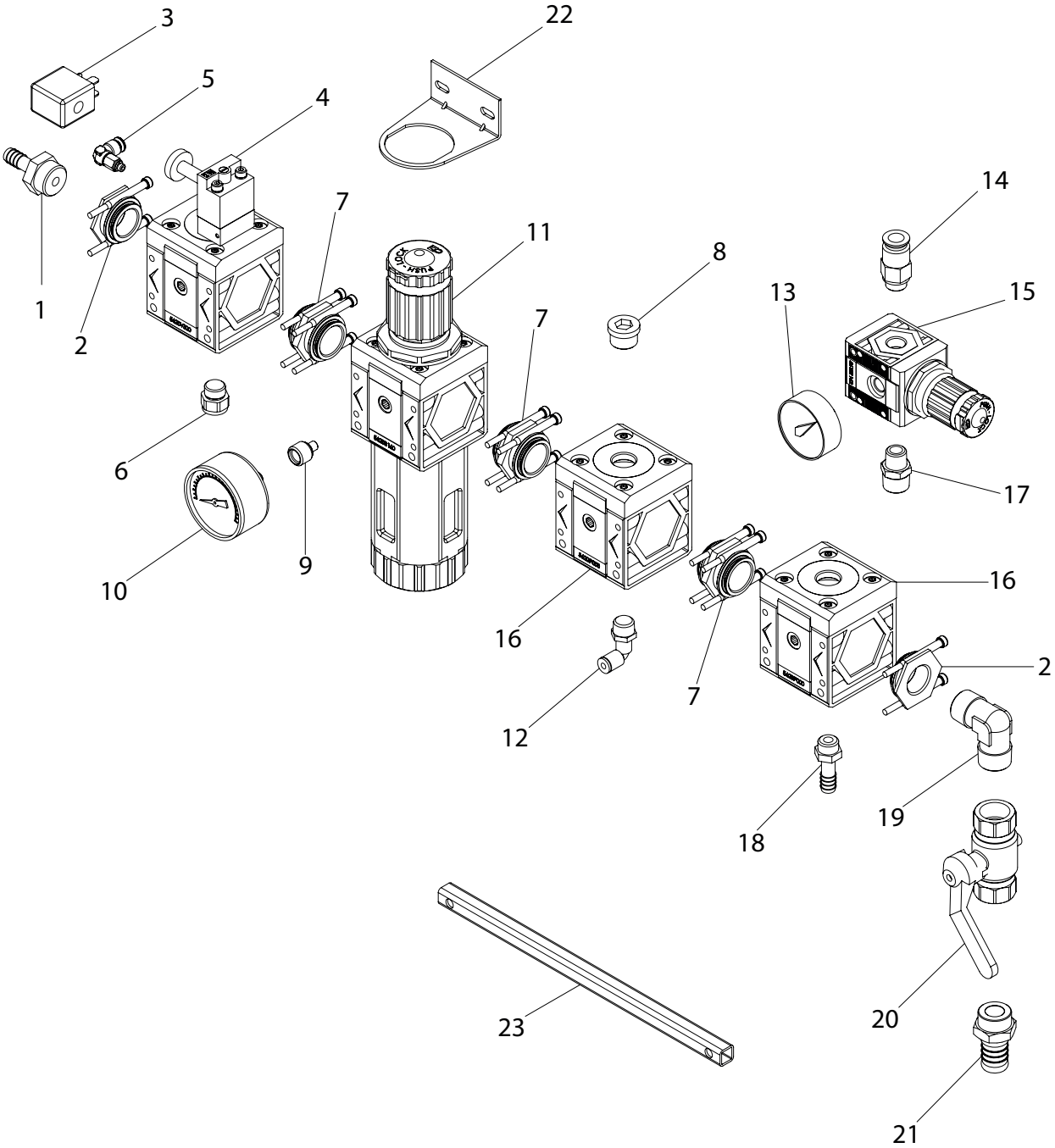
MANUAL SANDBLASTING - SHOT PEENING MACHINE



REF.	QTY	CODE	DESCRIPTION	TYPE
1	1	000087	Hose barb	DIA.10 1/2"
2	2	028256	Kit te IN/OUT 1/2 SY2	METALWORK 9210012
3	1	007013	Side coil 22 D8 3.5VA-220VAC 50/60 HZ	METALWORK W0215000131
4	1	028529	Solenoid valve V3V SY2 w/out bushings	METALWORK 5620V300
5	1	009889	Quick-release fitting	90° ROTARY M5M-Ø4
6	1	000084	Silencing device	SFE 1/4" W0970530053
7	3	028258	Connection kit SY2	METALWORK 9210010
8	1	000045	Plug	1/4"M BOSCH 1149TR38
9	1	028266	Pressure gauge adapter for SY2 1/4" 1/8"	METALWORK 9210005
10	1	007043	Pressure gauge	Ø50 0/12 A.P.1/8" 9800101
11	1	028254	Regulator filter assembly FR SY2 5 012 RMSA w/out bushings	METALWORK 5620B160
12	1	001269	90° fitting	1/4"M-D.4 QUICK-RELEASE
13	1	000116	Pressure gauge DIAM.41	1/8" REAR 0 0-12 BAR
14	1	004963	Straight fitting	1/4" Ø10 QUICK-RELEASE
15	1	028748	Pressure regulator G1/4" 0÷12 SY1	METALWORK 5612R162
16	2	028255	4-way air inlet SY2 w/out bushings	METALWORK 5620P200
17	1	000102	Nipple fitting	1/4" M/M TAPER 1110TR14
18	1	002500	Reducing fitting	3/8" 1/4" M/M
19	1	020825	90° fitting	1/2" M/M
20	1	016811	Ball valve	3/2 1/2" F/F/M5
21	1	000086	Hose barb	Ø16 1/2"
22	1	028747	Regul. filter and regul. fixing bracket 1/2''	METALWORK 9400701
23	1	027567	Spacer for pneumatic unit metalwork	SYNTESI2
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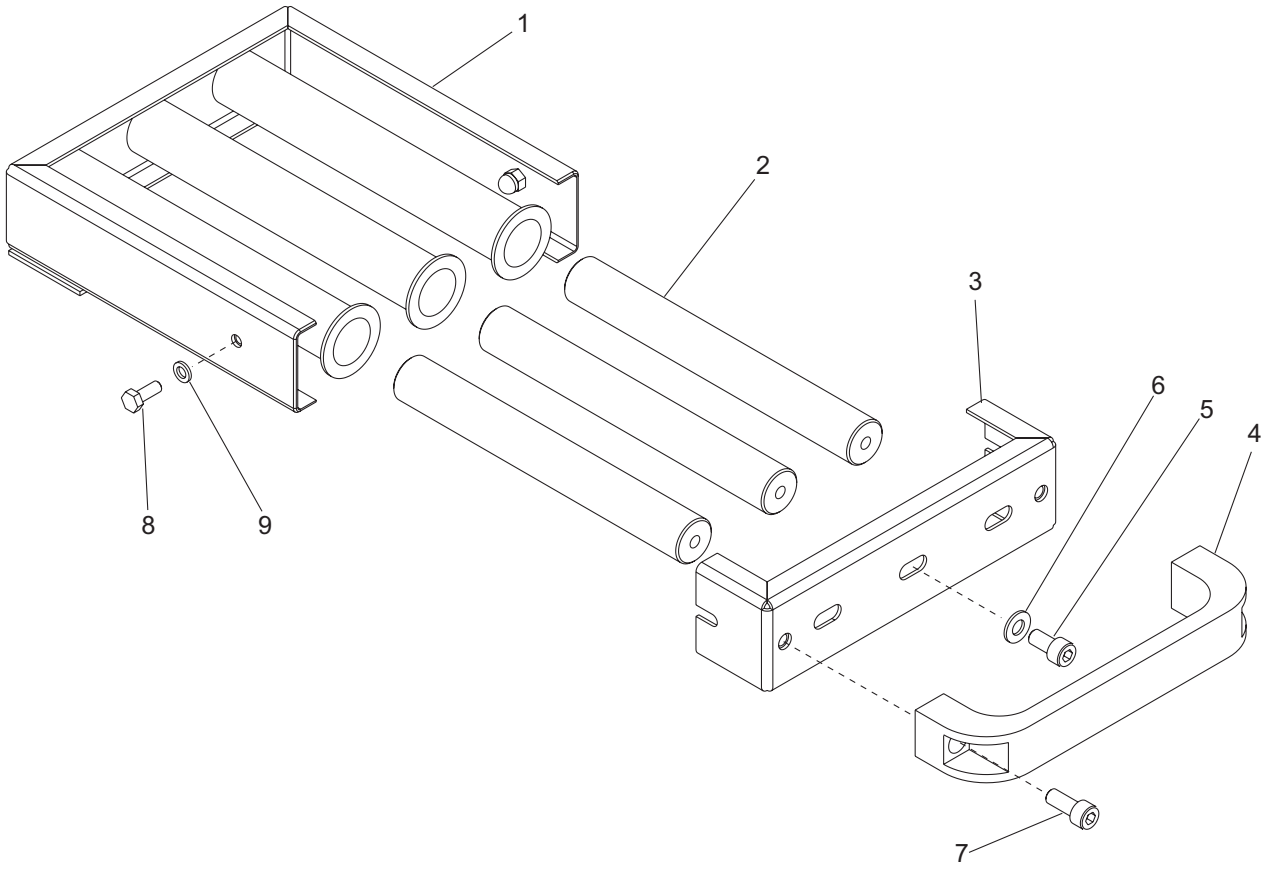
MANUAL SANDBLASTING - SHOT PEENING MACHINE



REF.	QTY	CODE	DESCRIPTION	TYPE
1	1	012724	Housing for stainless steel magnet	
2	3	001463	Magnet	ø25x200
3	1	012725	Stainless steel demagnetiser closure cap	
4	1	003886	Fixed handle	224-200 Boteco
5	3	021020	TCEI screw	M8x16 UNI 5931
6	3	021059	Washer	d.8.4 UNI 6593
7	2	021021	TCEI screw	M8x20 UNI 5931
8	2	021013	TCEI screw	M6x10 UNI 5931
9	2	021058	Washer	d.6.4 UNI 6593
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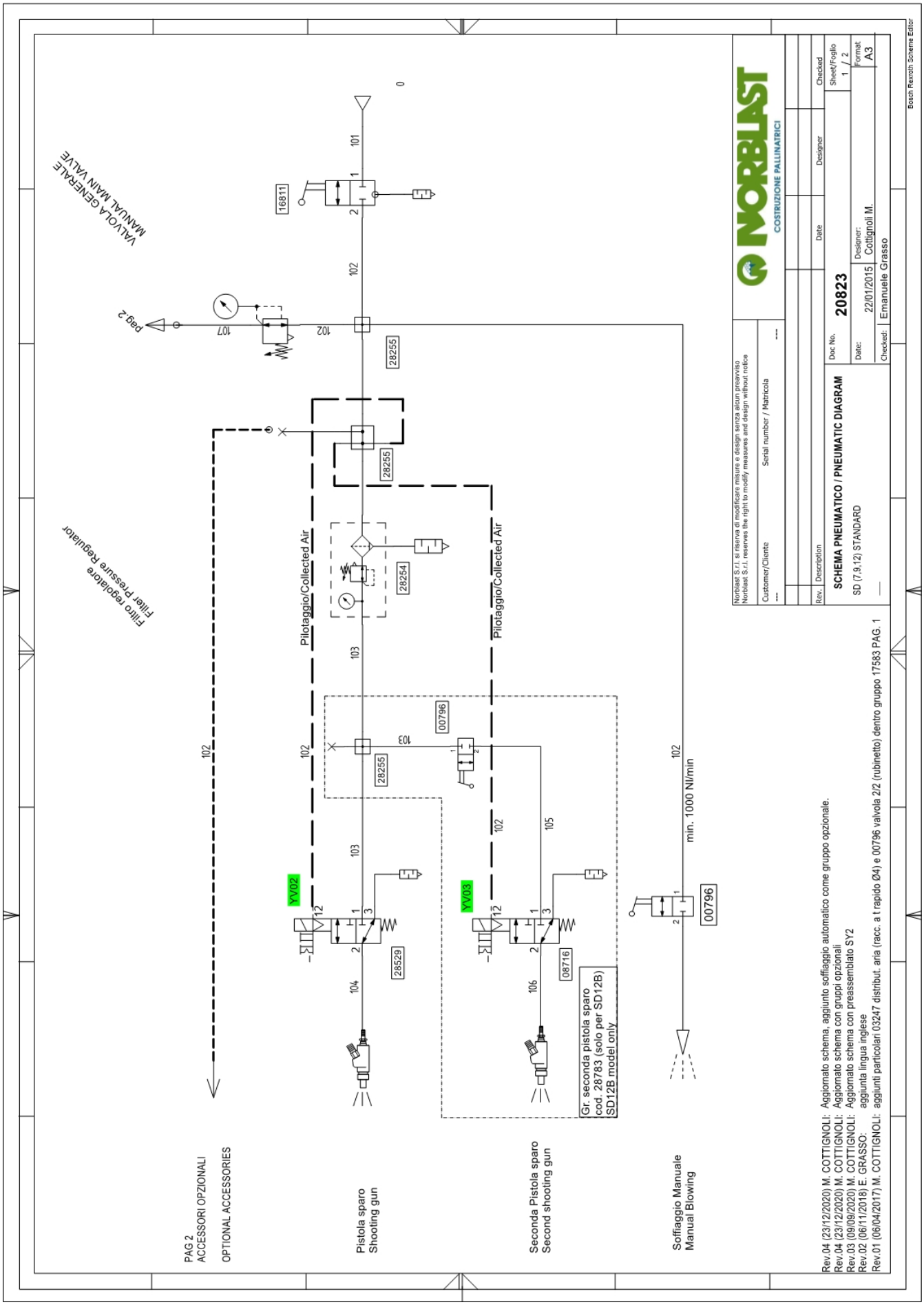
MANUAL SANDBLASTING - SHOT PEENING MACHINE



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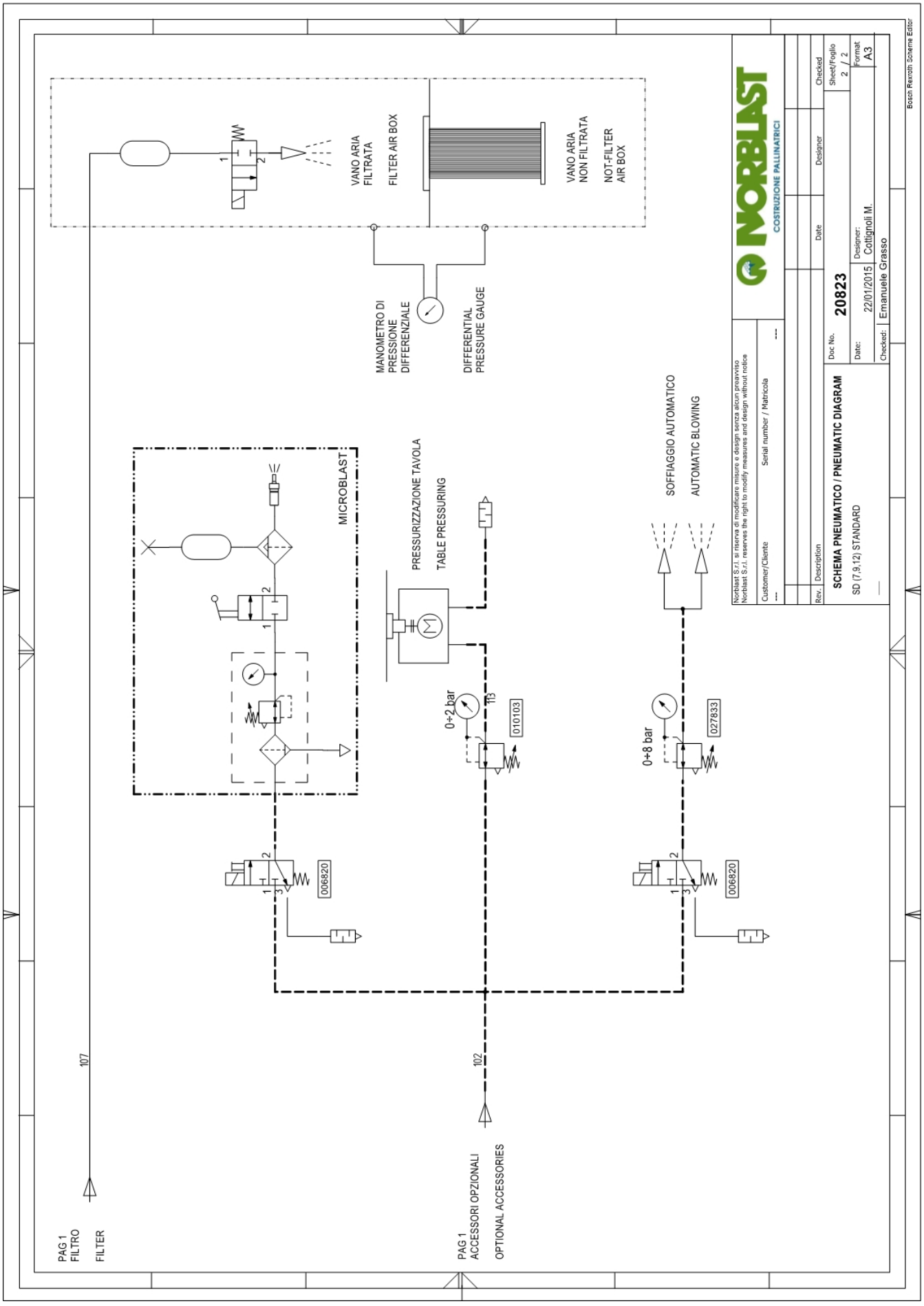

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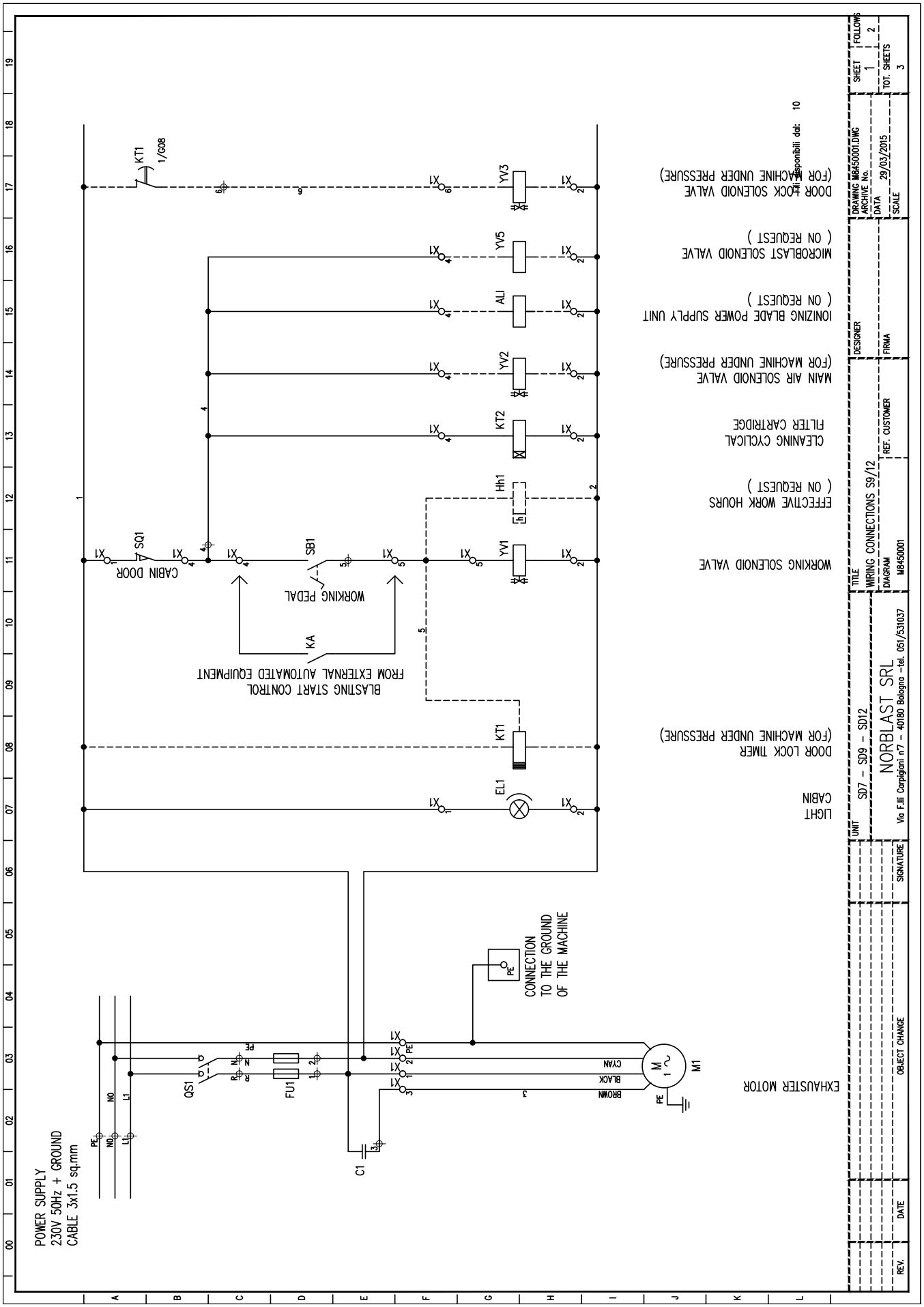
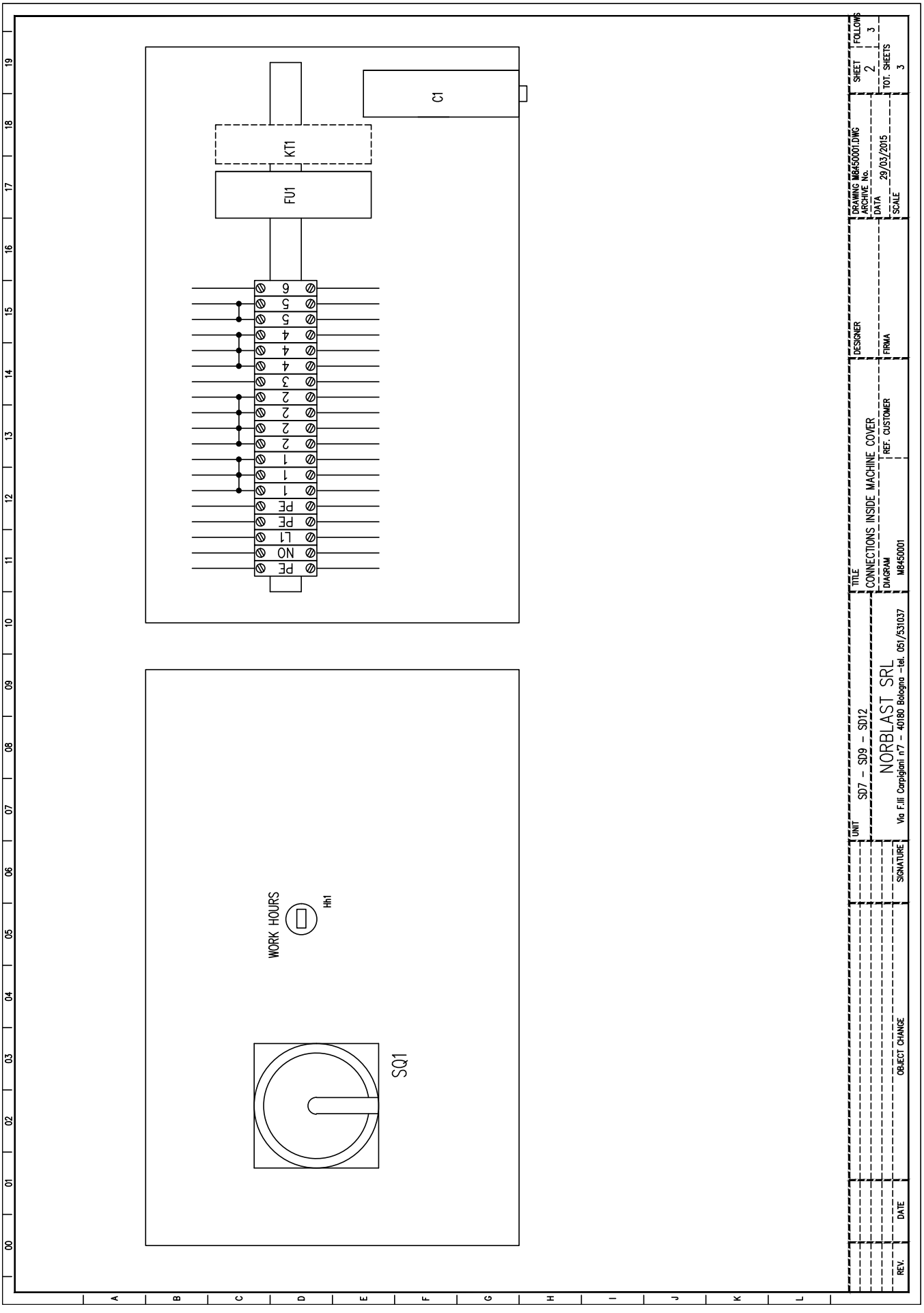
MANUAL SANDBLASTING - SHOT PEENING MACHINE

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WORK HOURS
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SQ1
SHEET 2 FOLLOWS 3
TOT. SHEETS 3
DRAWING M8450001.DWG
ARCHIVE No.
DATA 29/03/2015
SCALE
DESIGNER
FIRMA
TITLE CONNECTIONS INSIDE MACHINE COVER
DIAGRAM M8450001
REF. CUSTOMER
UNIT SD7 - SD9 - SD12
NORBLAST SRL
Via F.lli Carpigiani n°7 - 40100 Bologna - tel. 051/531037
SIGNATURE
OBJECT CHANGE
REV.
DATE

N°	SIGLA	DESCRIZIONE COMPONENTI	MARCA	TIPO	QUANT.	POSIZ.	NOTE
1		JUNCTION BOX 240x190x120	SCAME	686.408	1		BOX
2							
3		BIPOLAR VOLANT PLUG 2x16A+T CE LIGHT BLUE	SCAME	211.1633	1		BOX
4							
5	C1	PICK-UP CONDENSER 50/60Hz	UTENTRA	400V 3,15microF	1		BOX
6							
7	EL1	LAMP DULUX EL LONGLIFE 230V	OSRAM	22W/21-840	1		MACHINE BORD
8		PORCELAIN BULB HOLDER E27	VIMAR	02174-SQ	1		MACHINE BORD
9	FU1	GUIDE FUSE HOLDER 1P+N 10.3x38 (NBCH 1x38)	ITALWEBER	2301137	1		BOX
10		FUSE 10.3x38 4A gG	ITALWEBER	1421004	1		BOX
11							
12	Hh1	DIAMETER HOUR COUNTER 22 - 230V ac / dc	SCHNEIDER	XBM DSM	1		BOX
13	KT1	OFF-DELAY TIMER FROM GUIDE 24 -240VAC (IF DOOR LOCK IS FITTED)	FINDER	87.01.0.240.0000	1		BOX
14	KT2	PULSE PAUSE TIMER FOR SOLENOID VALVE	HTP	DIGITAL TIMER	1		MACHINE BORD
15							
16	M1	CENTRIFUGAL FAN MOTOR 230V 50Hz	UTENTRA	UC142AQ03	1		MACHINE BORD
17							
18	QS1	SWITCH 2x16a FROM YELLOW/RED BACK KNOB BACK PANEL IP65 67x67	PALAZZOLI	267 162	1		BOX
19							
20	SQ1	SAFETY MICROSWITCH	PIZZATO	FR693-D1	1		MACHINE BORD
21	SB1	ELECTRIC PEDAL WITH FOOT SENSING SAFETY DEVICE	PIZZATO	PX10110	1		MACHINE BORD
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REV.	DATE	OBJECT CHANGE	SIGNATURE

UNIT: SD7 - SD9 - SD12

NORBLAST SRL
Via F.lli Carpigiani n°7 - 40180 Bologna -tel. 051/531037

TITLE: POWER DIAGRAM
DIAGRAM: M8450001
REF. CUSTOMER:
DESIGNER:
FIRMA:
DRAWING M8450001.DWG
ARCHIVE No.
DATA: 29/03/2015
SCALE:
SHEET: 3
FOLLOWS:
TOT. SHEETS: 3

NORBLAST


NORBLAST

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E-mail: norblast@norblast.it - http://www.norblast.it