

Instructions Manual

GS 9075X

Suction Blasting Gabinets



cmv



Index

To the owner and / or operator	5
Machine presentation	6
Components identification	7
Working cycle	13
Items that comes with the machine	14
Safety rules.....	15
Receiving and unpacking the machine	16
Cares with transportation	16
Unpacking the machine	16
Installing and preparing the machine for operation	18
Machine installation layout	18
Exhaust fan installation	19
Electric installation	20
Pneumatic installation	21
Step by step operation	23
Adjustments prior to machine start-up	23
Starting-up	26
Optional items	28



Maintenance and conservation	30
Cleaning-up the dust collector's filter and removing the residues	30
Replacement of the dust collector filters	31
Replacement of air inlet filter	32
Purge of moisture separator	33
Substitution of gloves	34
Substitution of abrasive blasting nozzle	34
Replacement of air jet nozzle	35
Replacement of glass window	36
Change of lighting and of the protective glass	37
Pneumatic schematic	38
Electric schematic	39
Stock items	40
Troubleshooting	41
Serial number identification	43
Warranty terms	44
Parts catalog	45



To the owner and / or operator

Congratulations for choosing a CMV product ! We believe that you have made a careful choice and we are sure that it will show you an excellent performance with substantial savings and full satisfaction. Please read carefully these instructions manual before start working with this equipment for the first time.

Owner / Company:

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Machine presentation

The CMV blasting cabinets are compact. The GS-9075X model has a blasting chamber measuring 900 mm (35.4 inches) wide, 750 mm (29.5 inches) deep and 700 mm (27.6 inches) high. It also has two side doors, an armored lighting with fluorescent lamps (2 x 20 W) and an exhaust system with a 0.56 kW (¾ hp) electric motor.

✓ Main applications:

Cleaning, oxidation removal, incrustation removal, engraving, precision cleaning without damaging the parts that are being blasted, deburring, shot peening, carbon removal, frosted type finishing, etc.

✓ Advantages:

The patented exhaust system (PI 9.603.394-4), besides being extremely compact and efficient, assures a perfect abrasive media recovery with optimum operational visibility. The savings with abrasive media of this equipment are so meaningful that in most cases it is worth replacing the previous models.

✓ Basic characteristics:

Foot pedal driven blasting gun, internal lighting with fluorescent lamps in an armored enclosure, quick-look doors, armored viewing window, needled polyester filters, air / abrasive metering valve, pressure regulator filter, pair of gloves with sleeves and main switch for simultaneous start up of both lighting and exhaust fan.





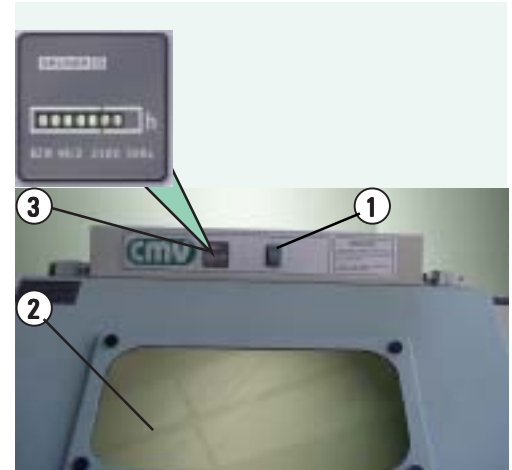
Components identification

- 1 - Main switch: turns on / off both exhaust fan and lighting.
- 2 - Armored viewing window: composed by a polycarbonate sheet and by a glass in order to provide safety.
- 3 - Hourmeter: indicates the number of working hours. (optional item).
- 4 - Gloves orifices: the place where the operator put his hands in order to blast the parts.

WARNING Never operate this machine without gloves (5) properly installed at the gloves orifices (4).

- 5 - Gloves: made from PVC, are extremely abrasive resistant, assuring hands protection.

REMARK Before operating the machine, verify the gloves condition.
In case it is necessary, replace them.

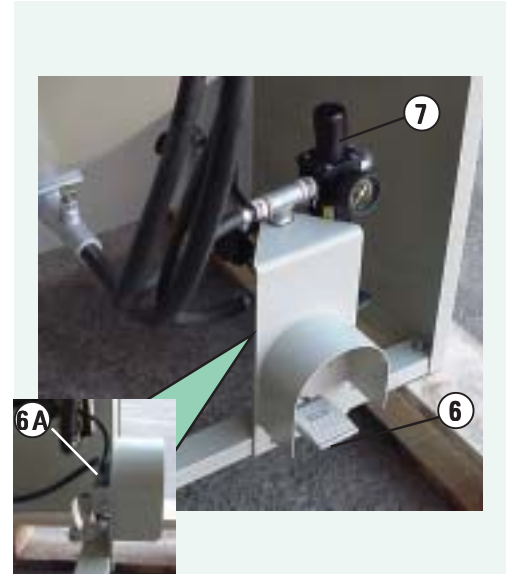




- 6 - Foot pedal: has the function of activating the blasting gun.
- 7 - Pressure regulator filter: holds the existing condensate moisture in the supplied compressed air and regulates (reduces) the air pressure

REMARK Check / remove the moisture at the pressure regulator filter on every working hour. See page 32.

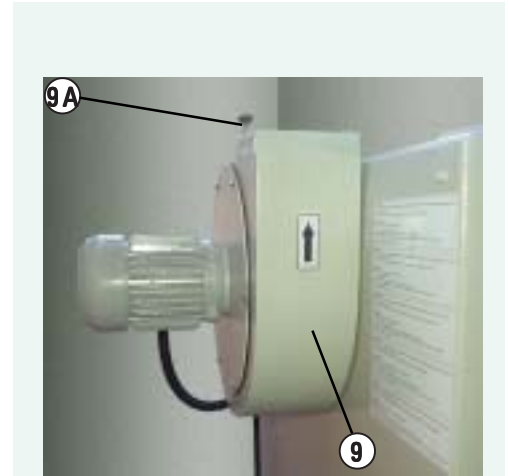
- 8 - 7-Air / abrasive metering valve: this adjustment allows the usage of several different types of abrasive media.





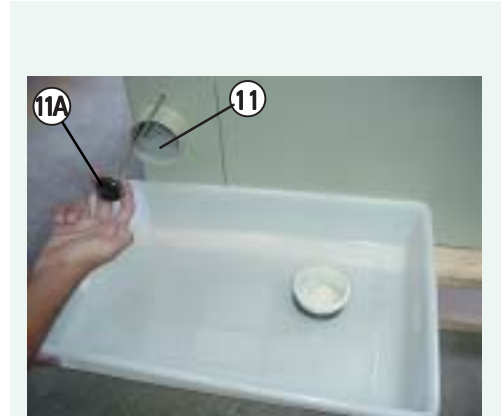
9 - Exhaust fan: removes the residues from the blasting chamber, making easier the operation and visualization inside of it. The gate type valve (9a) allows the adjustment – see page 24.

10 - Filter shaker: allows the cleaning of the dust collector's filter. Note that this operation can only take place with the exhaust system turned off.





11 - Residues container: where the residues that were kept by the filter are stored. After pulling the filter shaker (10), the residues must be collected, via the scraper (11a).

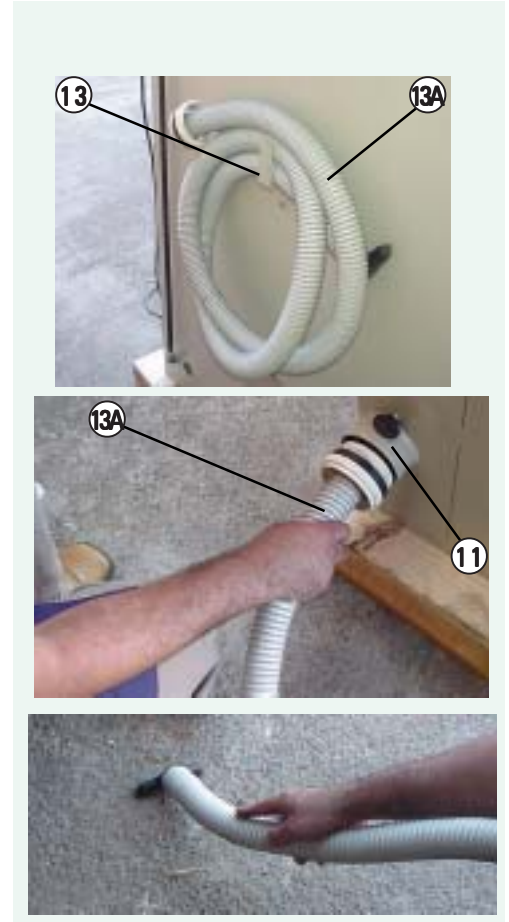


12 - Filter element: holds the residues extracted from the blasting chamber.





13 - Holder for vacuum cleaner hose: located at the rear part of the machine. In order to use the vacuum cleaner, turn on the exhaust system and plug-in the hose (13A) to the nozzle of the dust container (11). To remove it, just do the other way round.





14 - Door: the machine has two quick-lock doors that are equipped with sensors (14A), one on each side, which does not allow blasting when there is an open door.



15 - Blasting gun: foot pedal driven (6), does the abrasive blasting of the parts.

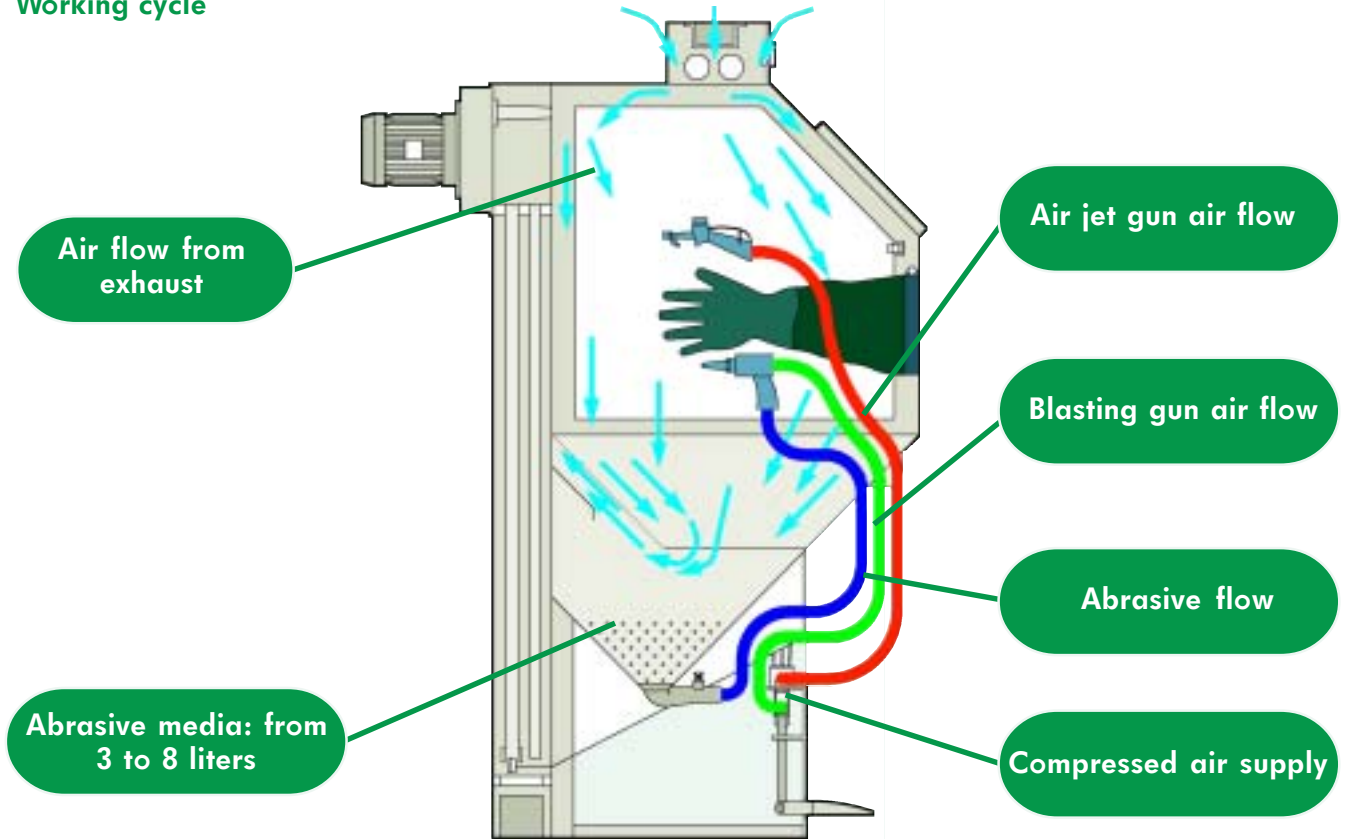
16 - Air jet gun: helps the cleaning of the blasted parts (x) and of the machine itself by blowing air.

17 - Work table: a perforated table that allows the abrasive recovery and residues suction. In case any part or object falls through the holes, it will be kept by the sieve located under the table.





Working cycle

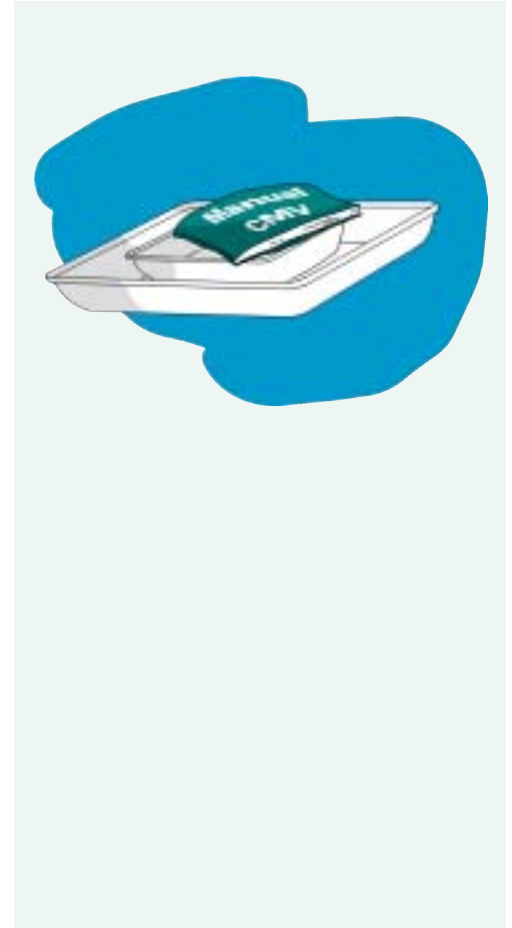




Items that comes with the machine

The following items come with the machine:

- ✓ Tray (two units).
- ✓ Instructions manual (one unit).
- ✓ Vacuum cleaner set (one unit).





Safety rules

General recommendations:

- ✓ Before working with the machine for the first time, read this manual carefully.
- ✓ Keep this manual always in good condition and at the operators reach.
- ✓ Do not let unauthorized persons attempt to operate the machine and / or do any maintenance procedure on it.
- ✓ Never try to do any maintenance procedure when the machine is switched on.
- ✓ Always keep the machine and the working place in good shape and clean. The cleaning and the organization are great allies of the safety.
- ✓ Place the electric cables and pneumatic hoses in an appropriate location, where they can not be hit by vehicles or interfere on the working place.

ATTENTION Never open the machine doors when it is blasting. Even being the machine equipped with a safety device that stops blasting when any door is open, this can be dangerous.

Cautions with the electric system:

- ✓ Do not improvise with the electric system. If, for instance, an electric cable is damaged, do not try to fix it; replace it for your safety.
- ✓ Any repair to the electric must be done only by qualified personnel that are fully aware of the risks involved on it.
- ✓ It is of major importance the correct grounding of the equipment and the usage of properly sized electric cables.





Receiving and unpacking the machine

The GS-9075X is protected with plastic and a wooden cage. In order to lift or to move the cage, use a pallet lifter (pic. 1) or a forklift truck (pic. 2).

Cares with transportation

To avoid damages with transportation, it is important to keep in mind the following recommendations:

- ✓ Do not turn or lay down the wooden cage.
- ✓ Do not shake the wooden cage.
- ✓ Do not pile up the cages.

REMARK Never leave the machine exposed to the weather action, even when it is in the cage.

Unpacking the machine

- 1) Verify if the package is not damaged.
- 2) Disassemble the wooden cage in order to remove the machine. See the procedure on the next page.
- 3) Disassemble the wooden cage in order to remove the machine. See the procedure on the next page.



FIG. 01



FIG. 02



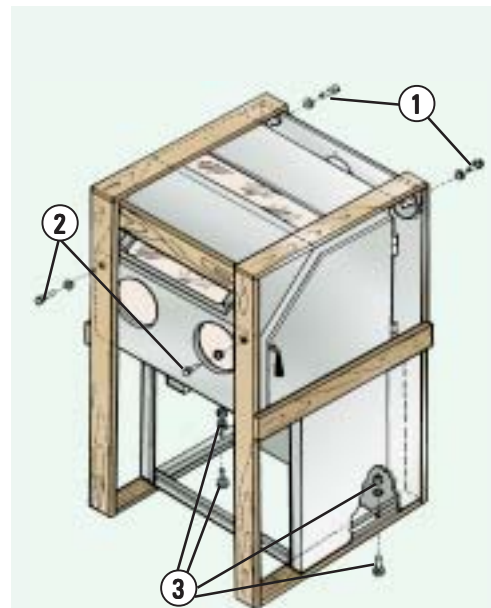
Procedures to unpack the cage

- 1 - Remove the screws indicated by the numbers (1 and 2).
- 2 - Dismantle the cage.

ATTENTION After dismantling the cage, reinstall the screws (2) that were removed, avoiding the exit of abrasive via that hole.

- 3 - Remove the screws (3) that are fixing the wooden base (4) to the machine, in order to do the transportation.

REMARK It is preferable to fix the machine to the ground with four fasteners, although this is not indispensable.
In order to do it, please use the existing holes (3).

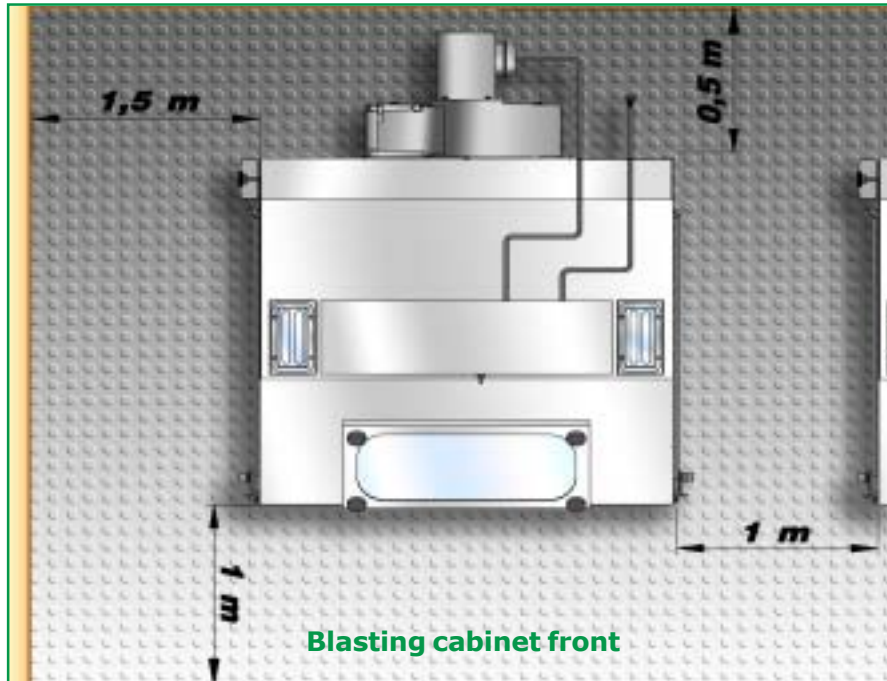




Installing and preparing the machine for operation

Machine installation layout

Observe the measures below in order to properly place the machine.





Exhaust fan installation

The exhaust fan comes with the machine in a cartoon box inside the blasting chamber.

To do the installation:

- 1 - Install the fan housing as per picture 1;
- 2 - Install the exhaust fan as shown at picture 2, watching that the electric connection box (1) must stay to the left side;
- 3 - Do the electric installation according to the description on the next page.

REMARK

To remove the exhaust fan follow the above procedure from bottom to top. This operation is needed when the dust collector filter replacement is done.



FIG. 01



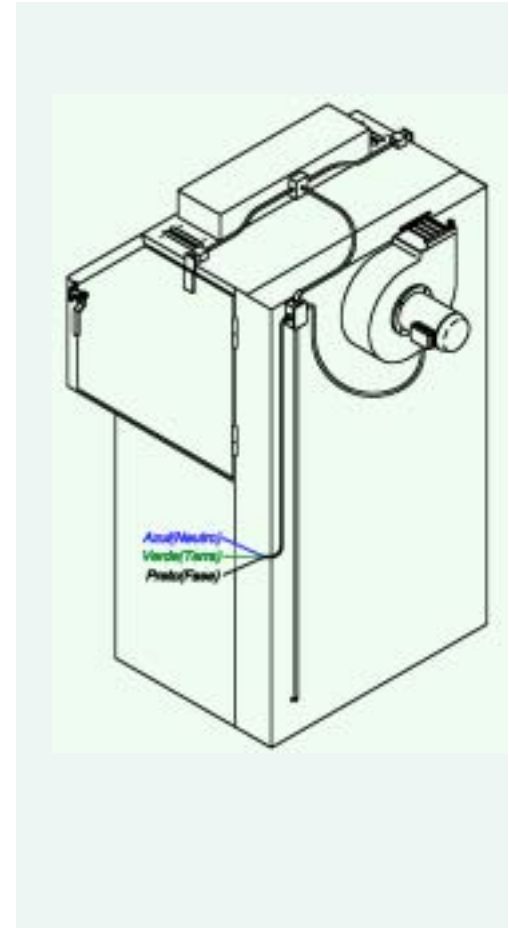
FIG. 02



Electric installation

A) Connecting the machine to the electric supply

- ✓ The electric installation is single phase, consider that:
- ✓ Black wire: Phase
- ✓ Blue wire: Null
- ✓ Green wire: Ground





Pneumatic installation

A) Procedures for installation

1 - Pass the hose through the hole (1).

REMARK Use a hose with a diameter of $\frac{3}{4}$ " (19 mm)

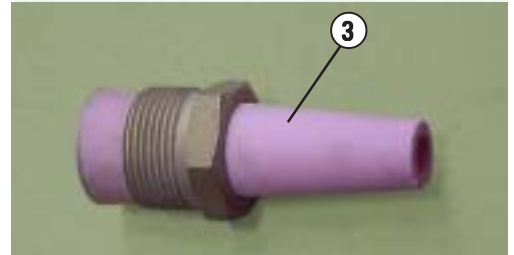
2 - Connect the hose to the nipple (2).

REMARK The air consumption depends on each the set of air jet and blasting nozzle used (3). Please see the following table:

KGS nozzle set	Air flow		Displacement		Minimum power in HP
	cfm	m ³ /h	cfm	m ³ /h	
*GSC 2563	14 cfm	24 m ³ /h	20 cfm	32 m ³ /h	5 HP (3,75 kW)
*GST 2563	14 cfm	24 m ³ /h	20 cfm	32 m ³ /h	5 HP (3,75 kW)
*GSC 2580	14 cfm	24 m ³ /h	20 cfm	32 m ³ /h	5 HP (3,75 kW)
*GST 2580	14 cfm	24 m ³ /h	20 cfm	32 m ³ /h	5 HP (3,75 kW)
*GSC 3280	23 cfm	39 m ³ /h	30 cfm	52 m ³ /h	7,5 HP (5,6 kW)
*GST 3280	23 cfm	39 m ³ /h	30 cfm	52 m ³ /h	7,5 HP (5,6 kW)
*GSC 4095					

*GST - Set of nozzles with tungsten carbide blasting nozzle

*GSC - Set of nozzles with aluminum oxide ceramic blasting nozzle.





B) Air compressor

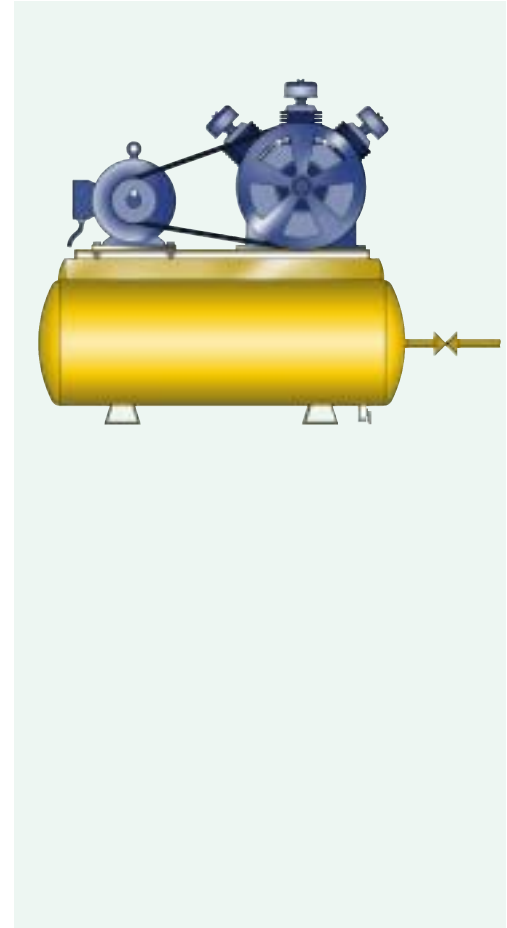
The nozzles (blasting and air jet) are a variable item and each air jet nozzle requires a specific air flow.

The recommended compressor to be used with the GS-9075X cabinet must be of continual type with a safety valve adjusted to a maximum pressure in the range of 7 up to 8 bar (100 up to 115 psi).

See the below table that shows the piping diameter in relation to the distance and the air flow of compressed air.

Table of air hose or piping diameter

Air Flow	Air hose or piping length				
	CFM	m ³ /h	Up to 10 m	Up to 20 m	Up to 40 m
14	24	3/4"	3/4"	3/4"	1"
23	39	3/4"	3/4"	3/4"	1"
35	60	3/4"	1"	1"	1"
45	78	3/4"	1"	1"	1,1/4"
69	118	1"	1,1/4"	1,1/4"	1,1/4"





Step by step operation

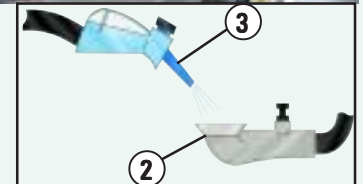
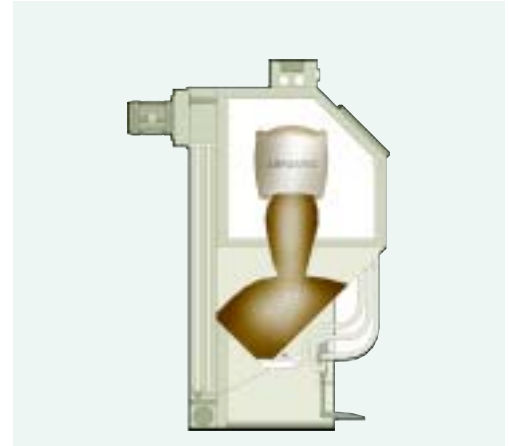
Adjustments prior to machine start-up

The cabinet has three adjustments that can be done when the machine is switched on. In order to do the adjustments it is necessary to put the abrasive media as per the below description.

Put the abrasive media that will be used for blasting inside the blasting chamber. Keep in mind that the minimum quantity of abrasive for proper operation is of 3 liters and the maximum is of 8 liters.

REMARK

Before you put the abrasive media or when there is a clogging; remember to clean up the valve (1): release the fasteners (2), put it away and blow compressed air as per the image. You can use the air jet gun that comes with the machine to do it.



A) Exhaust system adjustment

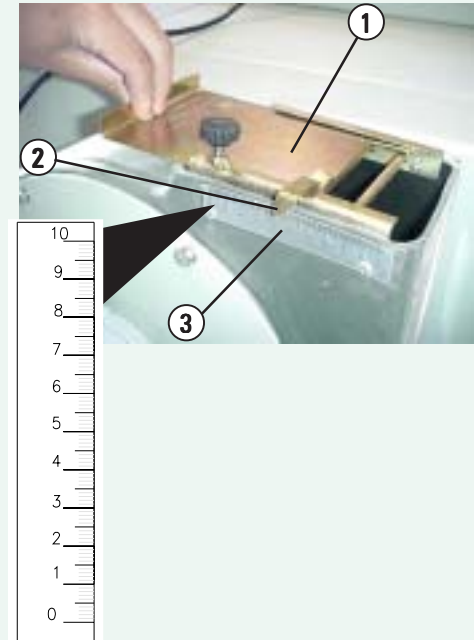
Consists of gate type valve tuning (1) and the table below indicates some general recommendations for the position of the pointer (2) in relation to the scale (3).

Scale number	Abrasive media to be used
1	Fine glass beads (from 45 microns up to 150 microns)
2	Thick glass beads (over 150 microns)
3	Fine aluminum oxide (from 0.07 up to 0.15 mm)
5	Medium aluminum oxide (from 0.29 up to 0.6 mm)
8	Steel shot or steel grit

The above indications are approximate; in order to adjust it you need to consider the following aspects:

- ✓ In case the visibility inside the blasting chamber is not good you should open further the cover (1).
- ✓ In case there is no useful abrasive media being wasted, you can try to close a bit further the cover (1).

Always try to get the best possible balance between visibility and abrasive media waste

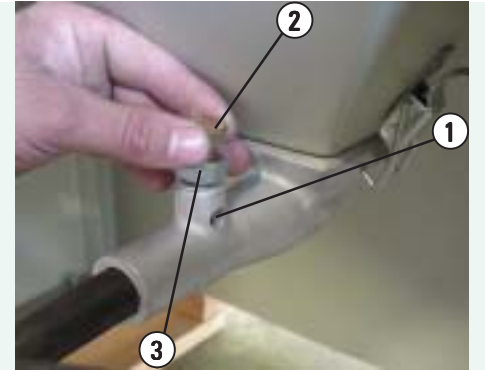




B) Abrasive metering valve regulation

When the blasting gum is working, open the false air inlet (1) via the screw (2) till you find the ideal blasting setting. The ideal positioning is only achieved when there is a uniform flow (no pulsation at the blasting gum).

After that, remember to lock the screw (2) via the counter-nut (3).



C) Compressed air pressure adjustment

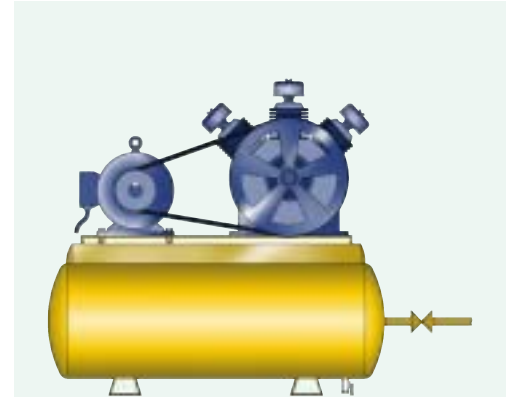
Regulate the air pressure via the knob (4) by pulling up and turning it. The pressure adjustment needs to be done according to the blasting application and the wished finishing.





Starting-up

- 1 - Put the abrasive media that will be used for blasting – see page 23.
- 2 - Turn on the air compressor and wait till the working pressure is achieved.
- 3 - Turn on the main switch (4) that will run the exhaust system and the lighting.





5 - Put the part to be blasted inside the blasting chamber via the side doors (5).

ATTENTION After you put the parts inside the blasting chamber always check if all doors are properly closed. The maximum allowable weight over the work table is of 50 kg. Never open a side door while the machine is blasting because it can cause serious injury.

6 - Introduce your hands via the openings (6) in order to start blasting.

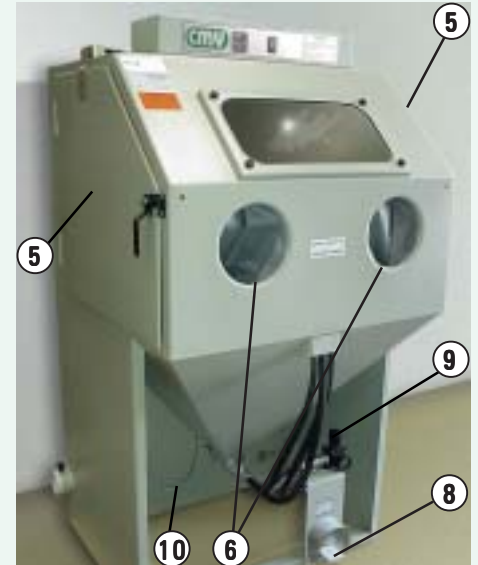
7 - Hold the blasting gun (7) as shown on the picture and press the foot pedal (8) to start blasting.

REMARKS 1 - The type of finishing and the production rate to be achieved depends upon a wide range of variables. You will find below the most important ones:

- o Abrasive media used;
- o Sizes of air jet and blasting nozzles;
- o Distance of the blasting nozzle in relation to the parts. A longer distance represents a more uniform finishing;
- o Blasting angle (the blasting nozzle inclination in relation to the parts)

2 - On every working hour dry up the moisture separator (9) – see page 33 for this operation.

3 - On every four hours of working pull the filters shaker cable (10) – see page 30 for this operation.





Optional items

A) Blasting cabinet with electric driven rotating drum for batch blasting of small parts.

B) Blasting cabinet with turntable (electric driven or manual) for manual blasting of medium size with uniform abrasive action.





C) Blasting cabinet with turntable and inner and outer rails for blasting of medium size parts such as molds, engine blocks, etc.





Maintenance and conservation

Cleaning-up the dust collector's filter and removing the residues

Clean-up the filters and the dust collector on every four hours of work as follows:

A - Turn off the exhaust system via the main switch (1).

B - Pull firmly the filters shaker cable (2) for five to six times.

C - Reclaim the residues.

For this:

- Remove the cover (3).
- Place the plastic tray under the dust collector output (4) and pull knob (5) till the end.
- Return the knob and reinstall the cover (3).



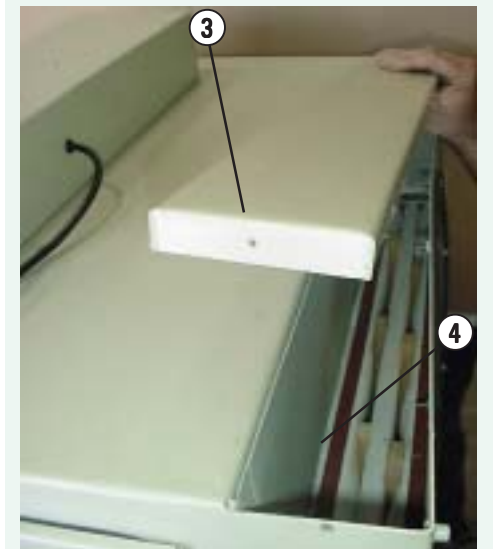
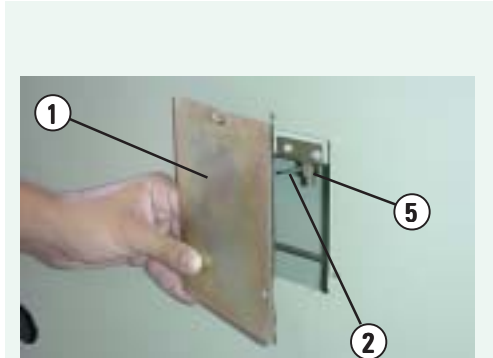


Replacement of the dust collector filters

While the machine is turned off, follow the instructions below to remove the filters.

Procedure:

- A - Open the cover (1) located over the rear part of the machine and release the shaker cable (2).
- B - Remove the exhaust fan as per the description on page 19.
- C - Remove the upper the cover (3) and pull the protection (4) between the machine wall and the filters frame.
- D - To put a new filter set, do the operation on the other way round, observing the following points:
 - ✓ Observe that the doors (5) that are holding the shaker cable (2) stay at the outside part (rear part of the machine), as per the picture 2.
 - ✓ Observe that the filter frame housing (4) stays firmly around the frame, assuring a proper sealing.





Replacement of air inlet filter

Replace the air inlet filter always when it is saturated or broken.

Procedure:

A - Remove the screws (1);

B - Remove the filters (2) and replace it by a new one (3).



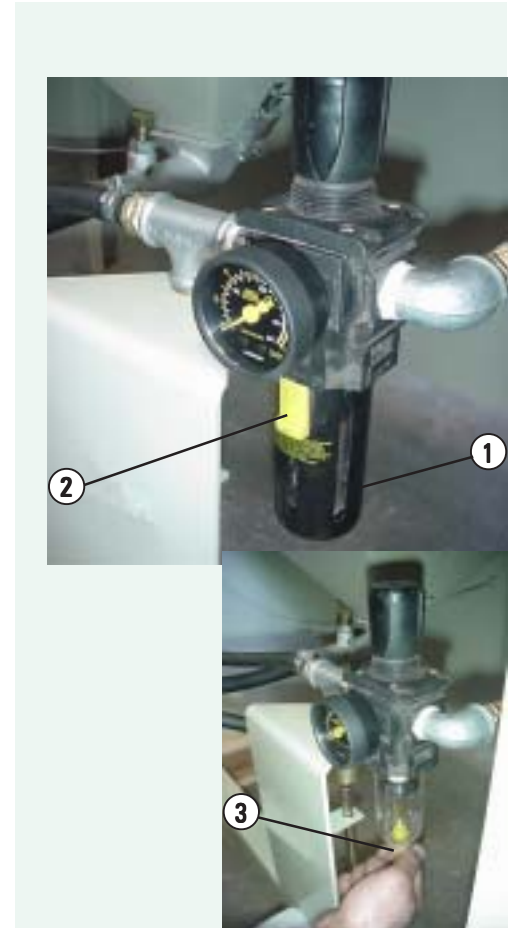


Purge of moisture separator

The dry up of the moisture separator must be carried out on every working hour

Procedure:

- A - Remove the protection cover (1) by pulling the lock (2) downwards and turning the protection cover, as per the rotating sense indicated on the lock.
- B - Turn slowly the knob (3) to do the purge.
- C - Reinstall the protection cover (1).





Substitution of gloves

Always check the gloves situation before running the blasting equipment. In case the gloves are worn out, replace them by new ones.

Procedure:

- A- Open the blasting chamber side doors.
- B - With a screw driver, release the clamps (1) and replace the gloves (2).
- C - On the other way round, install the new gloves (2).

Substitution of abrasive blasting nozzle

Procedure:

- A - Switch off the compressed air supply.
- B - Remove the blasting nozzle (4) by turning it counter-clockwise.

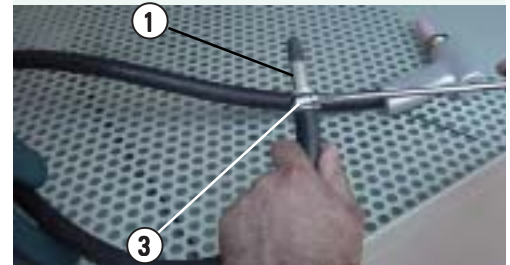




Replacement of air jet nozzle

Procedure:

- A - Turn off the compressed air supply.
- B - Remove the air jet nozzle (1) from the blasting gun by releasing the screw (2) with a 3mm screw driver.
- C - Release the air jet nozzle from the hose by releasing the clamp (3).
- D - Replace the air jet nozzle by a new one following the instructions the other way round.





Replacement of glass window

Procedure:

1 - Remove the frame (1) by releasing the knobs (2).

REMARK Be careful to do not let the glass fall and cause an eventual injury. Always use proper safety gloves with adequate bonding for the glass replacement.

2 - Put the glass at the inner part of the blasting chamber.

3 - Reinstall the frame (1) of the glass.





Change of lighting and of the protective glass

To do this operation turn off the electric system.

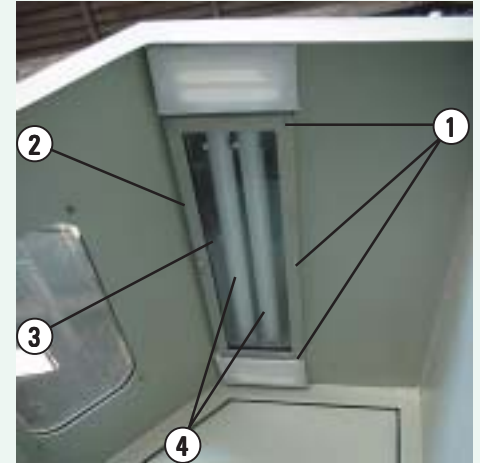
Procedure:

- 1 - Remove the screws (1) from the frame (2).

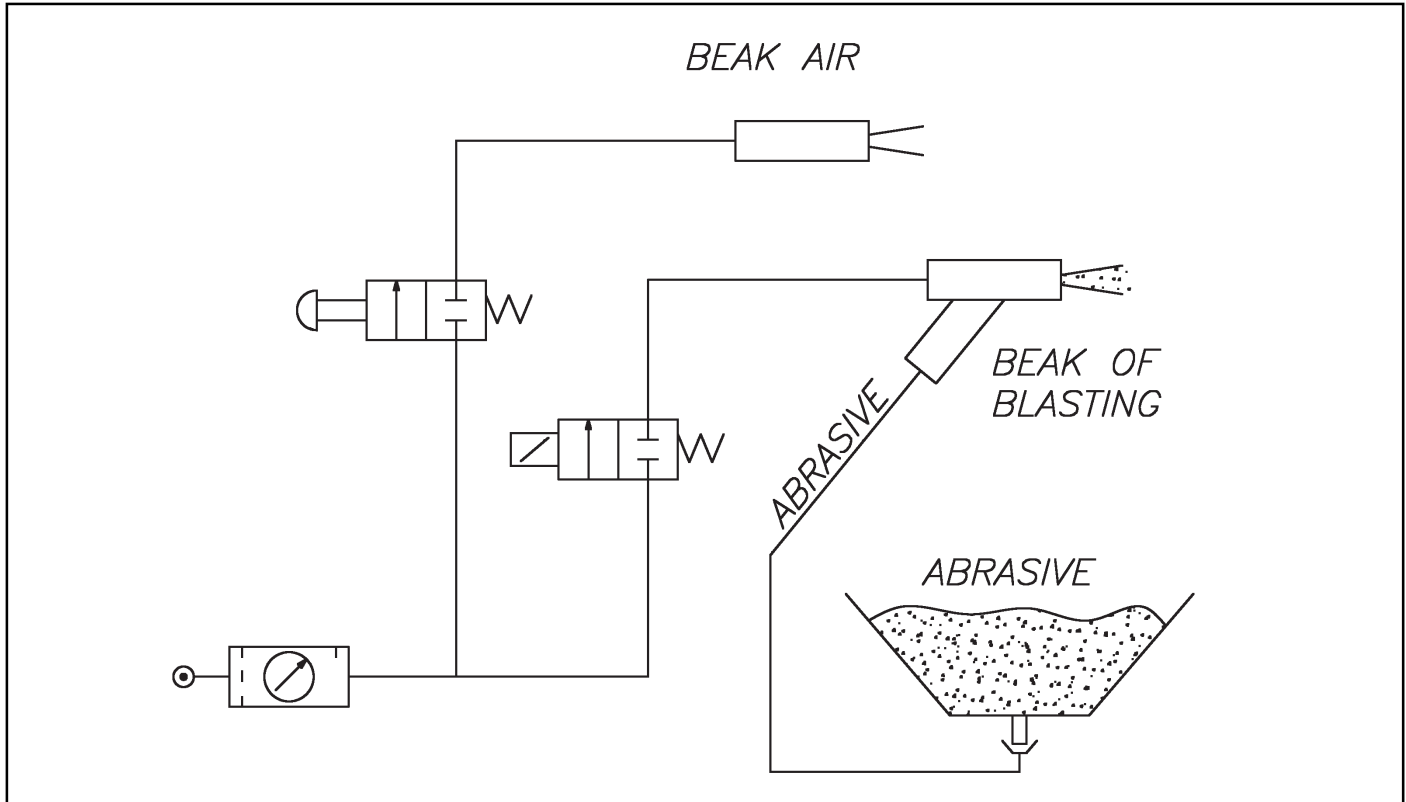
REMARK

Be careful to do not let the glass fall and cause an eventual injury. Always use proper safety gloves with adequate bonding for the glass replacement.

- 2 - After that, take out the frame (2) and replace the glass (3) and/or fluorescent lamp (4) according to the case.
- 3 - Reinstall the frame (2) always with the glass (3).

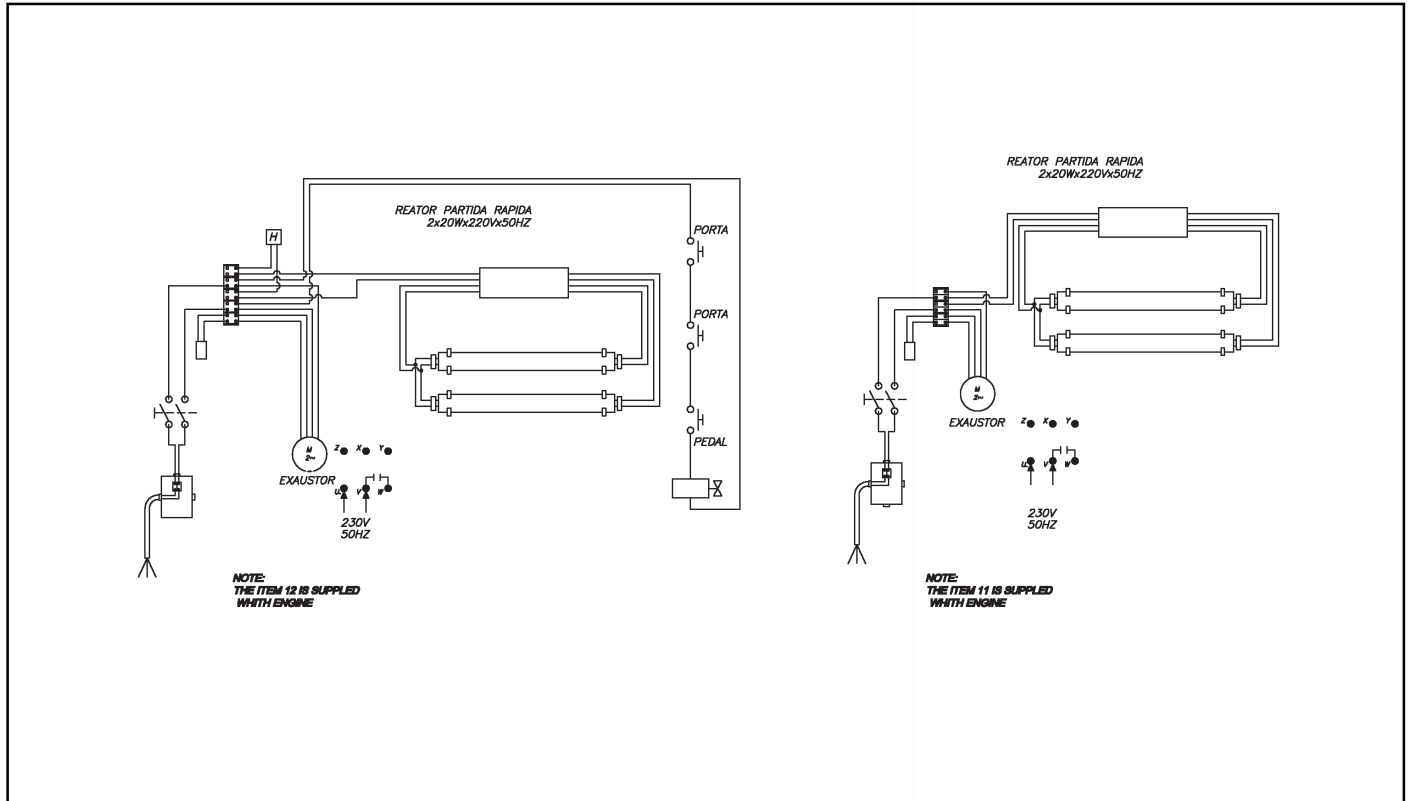


Pneumatic schematic





Electric schematic

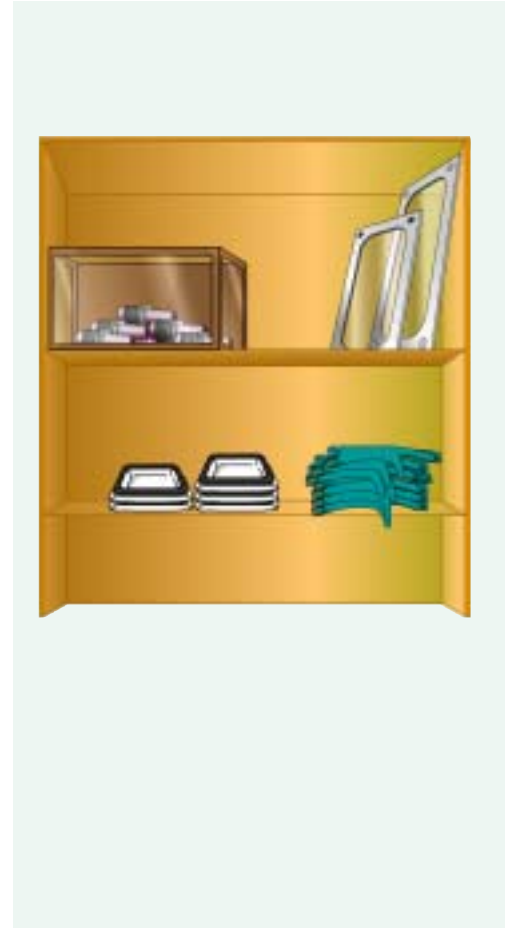




Stock items

Try to keep in your stock the following items, which are extremely important and often needs to be replaced:

- ✓ Gloves.
- ✓ Lighting glass.
- ✓ Viewing window glass.
- ✓ Air inlet filters.
- ✓ Blasting nozzle.
- ✓ Air jet nozzle.
- ✓ Blasting gun.
- ✓ Blasting hose.





Troubleshooting

Problems	Possibles causes	Solutions
There is no abrasive media getting out of the blasting gun or the abrasive is not getting out uniformly	Not enough abrasive media	Put more abrasive media – see page 23.
	Wet abrasive media	Take out the abrasive media and dry it up.
	Abrasive media with impurities	Remove the abrasive media and screen it up.
	Blasting hose or blasting gun worn out	Replace them.
	Air jet nozzle worn out	Replace it.
	Obstruction on the circuit by residues or by twisted hose	Remove the obstructions.
	Abrasive metering valve with the false air inlet too closed	Adjust it – see page 25.
	Moisture separator has not been purged	Purge it – see page 23.
The compressed air is too hot	Install an after cooler or review your pneumatic installation, see if the pressure is not too high (over 8 bar – 120 psi). See the instructions manual of your air compressor.	



Problems	Causes	Solution
Not enough visibility inside the blasting chamber	Dirty dust collector filter	Clean it up – see page 30.
	Exhaust fan opening is not enough open	Adjust it – see page 24.
	Excessive quantity of abrasive media	Reduce the quantity of abrasive media.
Not enough cleaning power	Incorrect air hose size	Verify the correct hose size – see page 22.
	Worn blasting nozzle	Replace it – see page 34
	Loosen air compressor belt	Tighten it – see the air compressor instructions manual.
	Abrasive metering valve with false air inlet too open	Adjust it – see page 25
	Air compressor incorrectly sized	Verify if the air compressor is adequate – see page 21
Cabinet does not blast	Open doors	Close them
	Exhaust system and lighting are switched off	Switch them on via the main switch.
	Faulty safety sensors	Replace them



Serial number identification

When asking for spare parts or any additional information about your blasting cabinet it is indispensable to inform its identification details:

Model: _____

Serial Number: _____

You can find the above information at the machine identification plate (1), which is attached at the front part of the machine.

It is very important to inform the part number, description and quantity of the requested spare parts. See the attached spare parts catalog.

Correct information can assure a prompt delivery of spare parts and reduced equipment downtime.



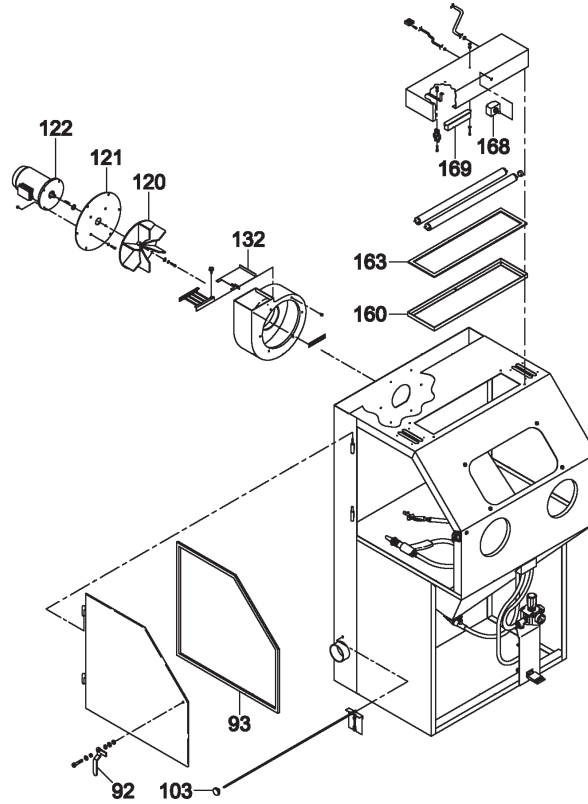
Warranty Terms

- A) Construções Mecânicas Ltda. assures its products against material or manufacturing defects for a period of 12 (twelve) months from the sale date.
- B) The warranty covers only the faulty part or the faulty equipment; it does not cover any loss or material damage or parts that are normally wearing with the usage of the equipment.
- C) As far as electric motors, pressure gauges, hoses and other parts that we supply, but not produced by ourselves, we extend to the buyer only the original warranty from the manufacturer.
- D) On the conditions of our above warranty terms, we assume to fix, or to according to our criteria, to replace, free of charge, any part of machine that, after our examination, shows material or manufacturing defect.
- E) The user of the equipment is responsible to prove that the product is within the warranty period by the presentation of the invoice from CMV or the invoice from the distributor.
- F) In order to use our warranty, the faulty equipment must be delivered to our local service assistance. All transportation costs will be sponsored by the purchaser/user.
- G) The replacement of faulty parts or repair within the warranty period does not mean an extension of the initial warranty period.
- H) All parts claimed for warranty, via the distribution / service assistance, must be delivered to CMV for examination purposes. The faulty part that has been recognized as warranty case and replaced will become property of CMV.
- I) The user will lose the right to claim warranty when:
 - Uses non-original spare parts;
 - Damages the equipment or uses it in improper way;
 - Fixes the equipment with non-authorized personnel;
 - Does not observe the recommended instructions for operation, maintenance and lubrication.
 - Has a default status with CMV
- J) CMV reserves itself the right to change the specifications or to introduce improvements, at any time, without having the obligation to effect the same improvements or modifications on the machines that were previously sold.

Parts Catalog

GS - 9075X

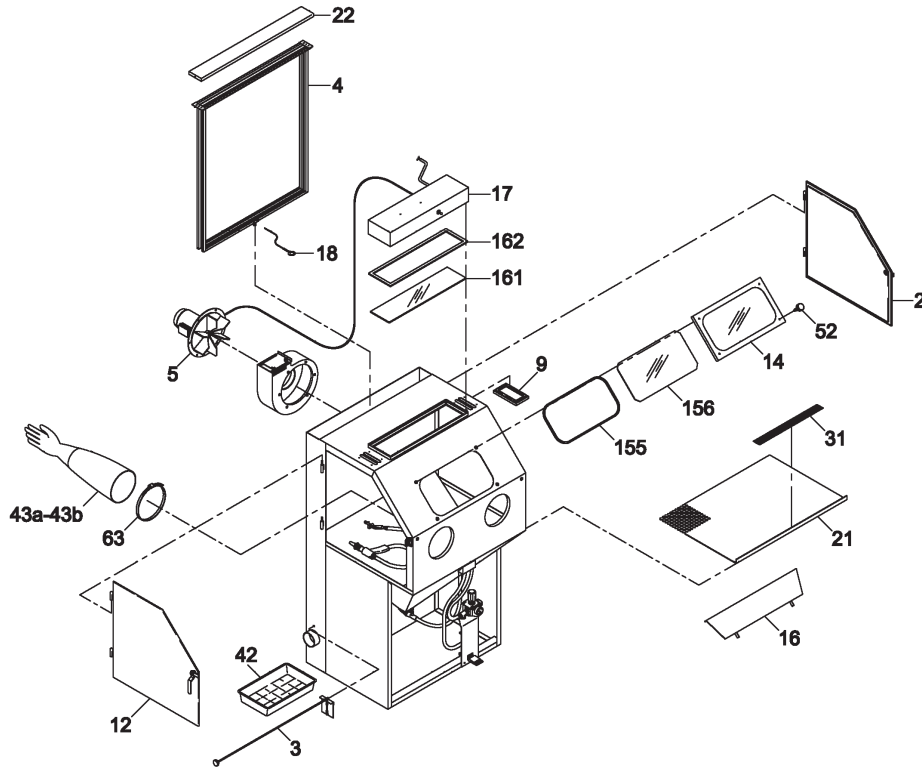
POS.	CODE	QTD.	DESCRIPTION
8	02350		Abrasive metering valve
19	05935		Foot pedal set
33	02567		Air jet nozzle Ø 2.5 mm
33	A7554		Air jet nozzle Ø 3.2 mm
33	02574		Air jet nozzle Ø 4.0 mm
33	02578		Air jet nozzle Ø 4.8 mm
34	03746		Blasting gun
39	03855		Air jet gun
40	02552		Ceramic nozzle Ø 6.3 mm
40	02553		Ceramic nozzle Ø 7.9 mm
40	02554		Ceramic nozzle Ø 9.5 mm
40	02608		Tungsten carbide nozzle Ø 11.1 mm
40	02609		Tungsten carbide nozzle Ø 12.7 mm
40	02595		Tungsten carbide nozzle Ø 6.3 mm
40	02596		Tungsten carbide nozzle Ø 7.9 mm
40	02607		Tungsten carbide nozzle Ø 9.5 mm
41	02541		Ceramic nozzle adaptor
44	03125		Air hose 10 x 17 mm
45	03126		Blasting hose 13 x 21 mm
64	01003		Clamp 13 x 19
98	03274		Doors safety sensor
148	03854		Foot pedal
151	01950		Pressure gauge
152	02943		Foot pedal driving set
153	05223		Solenoid valve





Components

POS.	CODE	QTD.	DESCRIPTION
92	05602		Door latches (pair)
93	03713		Rubber sealing
120	05735		Fan blades (50 Hz)
121	05736		Electric motor flange
122	03459		Electric motor ¼ hp single phase 230V/50Hz
132	05744		Air flow adjustment set
160	03737		Lighting frame
163	03715		Lighting frame sealing





Components (continuation)

POS.	CODE	QTD.	DESCRIPTION
2	04622		Right door
3	04623		Dust collector scraper
4	04133		Dust collector filter
5	05739		Exhaust fan 50 Hz
9	05698		Air inlet filter
12	04631		Left door
14	07821		Viewing window frame
16	09184		Hopper deflector
17	05767		Lighting
18	05417		Filter shaker cable
21	03763		Perforate work table
22	05291		Filter output cover
31	05298		Deflector screen
42	01215		Plastic tray 300 x 400 mm
43a	01911		Glove 305 mm – right
43b	01910		Glove 305 mm – left
52	02837		Screw M6 x 15
63	01006		Clamp 191 x 210
155	07822		Lower sealing for viewing window
156	02373		Viewing window
161	02356		Lighting window
162	03715		Lower sealing for lighting window

Construções Mecânicas CMV LTDA.

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