

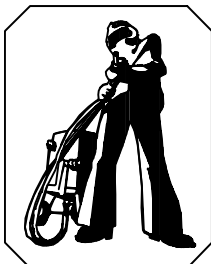
OWNER'S MANUAL

AQUASTORM

IMPORTANT WARNING FOR SAFER BLAST CLEANING

It must always be adhered to the rules and regulations valid for wet abrasive blasting and also to the valid rules and regulations for the prevention of accidents to be applied to the respective field of application; special attention must be paid to the following:

- Any and all recommendations and instructions, in particular the basic safety instructions included in the instructions for operation!
- The machine must be operated by trained and skilled personnel only!
- The blasting lance should never be directed towards persons and/or animals!
- The magnetic clamp of the remote control must always be securely fixed at the wrist!
- Helmet, hearing- and breathing protection apparatus must always be worn!
- Protective clothing must always be worn!
- Before putting into operation make sure that the machine and its accessories are in perfect condition.
- The control cabinet of the machine must be opened only for adjustments, inspections or maintenance work.
- A regular maintenance of the machine is strongly recommended.
- The compressor must always be operated without tool lubricator.



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1. Basic Instructions

Instructions for application of the manual

A fundamental prerequisite for the safe and troublefree operation of this machine is the knowledge of the basic safety rules, regulations and instructions. The manual includes the essential instructions for a safe operation of the machine. The manual and in particular the safety instructions must be adhered to by all persons operating the machine. Moreover, the instructions for the prevention of accidents during blasting as well as the rules and regulations for the prevention of accidents valid on site must be adhered to.

Duties of the operator and of the personnel

The operator is obliged to have operated the machine only by those persons, who

- are familiar with the basic regulations for safety at work and for the prevention of accidents and who have been adequately instructed and trained for the operation of the machine and
- have read, understood and confirmed by their signature the content of the chapter on safety and the respective caution notes.
- At regular intervals, it has to be checked whether the safety instructions are adhered to by the personnel.

Before starting to work, all persons authorized to operate the machine shall commit themselves to

- strictly adhere to the basic rules and regulations regarding safety at work and prevention of accidents;
- read the chapter on safety and the caution notes in this manual and to confirm by their signature to have understood same.

Dangers in operating the machine

The Airblast wet abrasive blasting machine has been designed in accordance with the latest state of the art and in conformity with the approved safety requirements. In spite of that, the use of the machine may entail dangers to life and limb of the user or third parties resp. impairments for the machine or other material assets.

The machine must be operated only

- in a safe and perfect operating condition and
- for use to the intended purpose.

Any troubles which might impair the operational safety, must be eliminated immediately.

Usage to the intended purpose

The Airblast wet abrasive blasting machine has been designed exclusively for surface treatment of natural and artificial stones, ferrous and non-ferrous metals, wood and similar materials by the wet abrasive blasting process using blasting media and water.

Any other or exceeding use is not regarded as in conformity with the intended purpose.

Airblast BV shall not be liable for any damages arising from such inappropriate use.

The 'usage to the intended purpose' also implies:

- the adherence to all instructions of the manual and
- the proper performance of all inspection and maintenance work.

Please also take into consideration that a loss of material of the various types of surfaces as well as a deformation or breakage of objects by wet abrasive blasting (in particular in case of wet abrasive blasting using hard and sharp-edged blasting media and a high jet pressure on thin sheet material and glass panes) cannot be excluded.

As blasting media all conventional and commercially available blasting media are suitable which are heavier than water and which, by the addition of water, do not lump or emit hazardous vapours or gases and which are approved for wet abrasive blasting on the surface to be treated.

Warranty and liability

On principle, our "General Conditions for Sale and Delivery" shall apply which will be at disposal upon conclusion of the contract at the latest.

Warranty and liability claims in case of personal injury and damage to property are excluded if they are due to one or several of the reasons mentioned hereunder:

- usage of the machine not in conformity with the intended purpose;
- improper putting into operation, operation, maintenance and assembly of the machine;
- operation of the machine with defective or not properly fitted and/or not operational safety devices and protective guards;
- non-adherence to the advice and instructions of the manual regarding transport, storage, assembly, putting into operation, operation, maintenance and setting of the machine;
- unauthorized and/or improper alterations of the machine design;
- inappropriate control of machine- and wearing parts;
- improper performance of maintenance or repair;
- accidents by the influence of foreign matter or Force Majeure.

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The copyright regarding this manual remains with Airblast BV. This manual is intended exclusively for use by the operator and its personnel. It contains instructions and advice which - neither wholly nor partly - may be copied, divulged or otherwise disclosed. Any infringement may entail criminal prosecution.

2. Basic Safety Instructions

Definition of symbols and references

In this manual, the following symbols and definitions of dangers are used:



Danger !

This symbol defines an **imminent danger** for life and health of persons. The non-adherence to these instructions will entail severe effects detrimental to health and even highly dangerous injuries.



Warning

This symbol defines a **possible danger** for life and health of persons. The non-adherence to these instructions may entail severe effects detrimental to health and even highly dangerous injuries.



Caution

This symbol defines a situation which **might become dangerous**. The non-adherence to these instructions may entail slight injuries or damages to property.



This symbol means essential instructions for a proper handling of the machine. The non-adherence to these instructions may entail troubles at the machine or in the environment.



This symbol refers to hints and recommendations for use and in particular to useful information. They will help you to make an optimal use of all functions of the machine.

Organizational measures

The operator is obliged to place at disposal the required personal protective outfit (e.g. hearing- and breathing apparatus and face guards). The available protective and safety equipment must be checked at regular intervals.

Safety devices

be properly installed and operable. Protective devices, guards etc. may be removed only at standstill of the depressurized machine which has been secured against re-start.

Informal safety measures

The manual forms part of the machine and has always to be kept on site. Apart from the manual, the rules and regulations for the prevention of accidents during abrasive blasting as well as the locally valid rules and regulations for the prevention of accidents and for environmental protection must always be at disposal and adhered to. It must be ensured that the safety instructions and warning boards at the machine are always legible.

Training of the personnel

The machine must be operated resp. put into operation only by trained and instructed personnel. Untrained personnel or personnel to be trained and instructed may operate the machine only under the supervision of experienced and skilled persons. The competence with regard to putting into operation, operating, maintenance, assembly, setting and repair must be clearly stipulated.

Safety measures under normal service conditions

In normal operation of the blasting machine, the following points must be observed:

The machine must be put into operation only if:

- all protective devices are fully operable,
- all connections have been made and secured,

contact the remote control and, if the operator keeps a firm hold on the manual blasting nozzle/lance.

- Before switching on or starting the machine it must be made sure that nobody can be jeopardized hereby.
- At least once per shift, the machine and its equipment must be checked for externally visible damages.



Danger !

- The blasting lance must never be directed to persons and/or animals !
- Never direct the blasting lance to objects which are not to be subject to surface treatment.
- The inspection of the machine also includes its equipment.

Dangers due to electric energy

- If works have to be performed at the electric supply system, this must be done by a skilled electrician only.
- The electric equipment of the machine must be checked at regular intervals. Loose connections and scorched cables must be eliminated immediately.
- The control cabinet must always be kept closed. Authorized personnel only shall have access to the control cabinet using a key or adequate tool.
- When working at live parts, a second person must assist who in case of need could actuate the main switch.

Dangers due to pneumatic energy

- Pneumatic equipment must be operated only by personnel disposing of special knowledge and experience in the field of pneumatics.
- Before tackling any repair work, sections of the pneumatic system and delivery conducts to be opened must be depressurized.
- At reasonable intervals, pneumatic hose pipes are to be exchanged even if no deficiencies impairing the safety are visible.

Special hazards

When operating the machine, special attention has to be paid to the following in order to avoid hazards:

- Never direct the blasting nozzle towards persons and/or animals !
- The blasting nozzle must not be directed towards objects which are not allowed to be blasted !
- Keep a tight hold on the blasting lance during start (back kick of the blasting lance!)
- Unauthorized starting of the machine in case of interruptions (also short interruptions) must be avoided.
- Machine to be made inaccessible for unauthorized people. Blasting nozzle and remote control to be made inaccessible for unauthorized people.
- When operating the machine, the control cabinet must be kept closed and made inaccessible for unauthorized people.

Dangers due to superfines as well as noxious gases and vapours

The concentration of fine dusts during operation of the machine is detrimental to health. The operators therefore have to be protected by an adequate protective outfit or protective measures against inhalation of superfines.

The addition of chemical or other agents must be clarified with the producer and/or supplier of the agents. If on account of these agents or by using these agents in combination with water and/or blasting media health risks should arise, adequate protective measures must be taken.

If by the use of these agents the functions of the machine should be impaired, a written confirmation must be obtained from Airblast BV, before using such agents.



Warning

- Adequate breathing protection is to be ensured when working on the machine.
- Adhere to the instructions of the producer when using other substances than water and/or commercially available blasting media.

Dangers due to the noise of the machine

During the operation of the machine, the continuous sound intensity level depending on the setting amounts to 105 dB(A) which might be higher on account of unfavourable local conditions.

The operating staff must be protected by an adequate outfit or protective measures against impairment of hearing.



Warning

- Adequate hearing protection is to be ensured when working on the machine.

Maintenance, repair, trouble-shooting

Regarding maintenance, repair and trouble-shooting the following requirements must be fulfilled:

- The specified maintenance and inspection work must be carried through according to schedule.
- The operating staff must be informed in time of any intended maintenance and/or repair.
- All plants, systems, machines, appliances upstream and downstream of the wet abrasive blasting machine, as well as all supply systems like current, compressed air and pressurized water are to be secured against accidental actuation.
- For all maintenance-, inspection- and repair works, the machine must be de-energized and depressurized and secured against re-start,
- attach warning board to prevent from restarting the machine;
- uncouple compressed-air- and pressurized-water hoses from the machine;
- disconnect cable from power source.
- After completion of the works check loosened screws and connections for tight fitting.
- After completion of the works check all safety devices for correct functioning.

Alterations of the machine design

No alterations, attachments or conversions of the machine are allowed without the approval of the manufacturer.

All conversion measures are subject to the written approval of Airblast BV.

Any machine parts which are not in a perfect state and condition, must be exchanged immediately.

Only original spare- and wear parts are to be used as in case of parts bought elsewhere it cannot be warranted that they have been designed and manufactured to fulfil the requirements regarding quality and safety.

Disposal of substances/materials and cleaning of machine

All substances and materials used have to be properly handled and disposed of. In particular, this applies to:

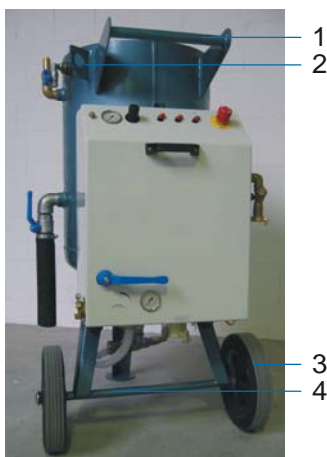
- Blasting media and water used in the performance of any works and jobs,
- Additives used, like e.g. rust retarding agents, solvents for cleaning the machine etc.

1. Instructions for Transport



Caution

- For transporting it must be ensured that the pressure vessel is empty;
- The machine must be placed on a plane surface to be applied in order to avoid tilting or slippage;
- During transport, the machine must be secured in conformity with the rules and regulations for the prevention of accidents applicable to the transport of piece goods.



Chapt. 1, Figure 1: transporting (part 1)

Transporting single machines

Put a foot against a wheel (3) or Axis (4) of the machine. pull after it at lever (1).

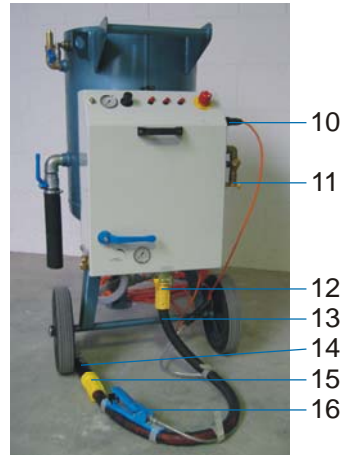
For the transportation of the machine, use the rings (2) for the fortification of the machine.

2. Operating Instructions

2.1. Connecting the Machine



Chapt. 2, Figure 1: connecting (part 1)



Chapt. 2, Figure 2: connecting (part 2)

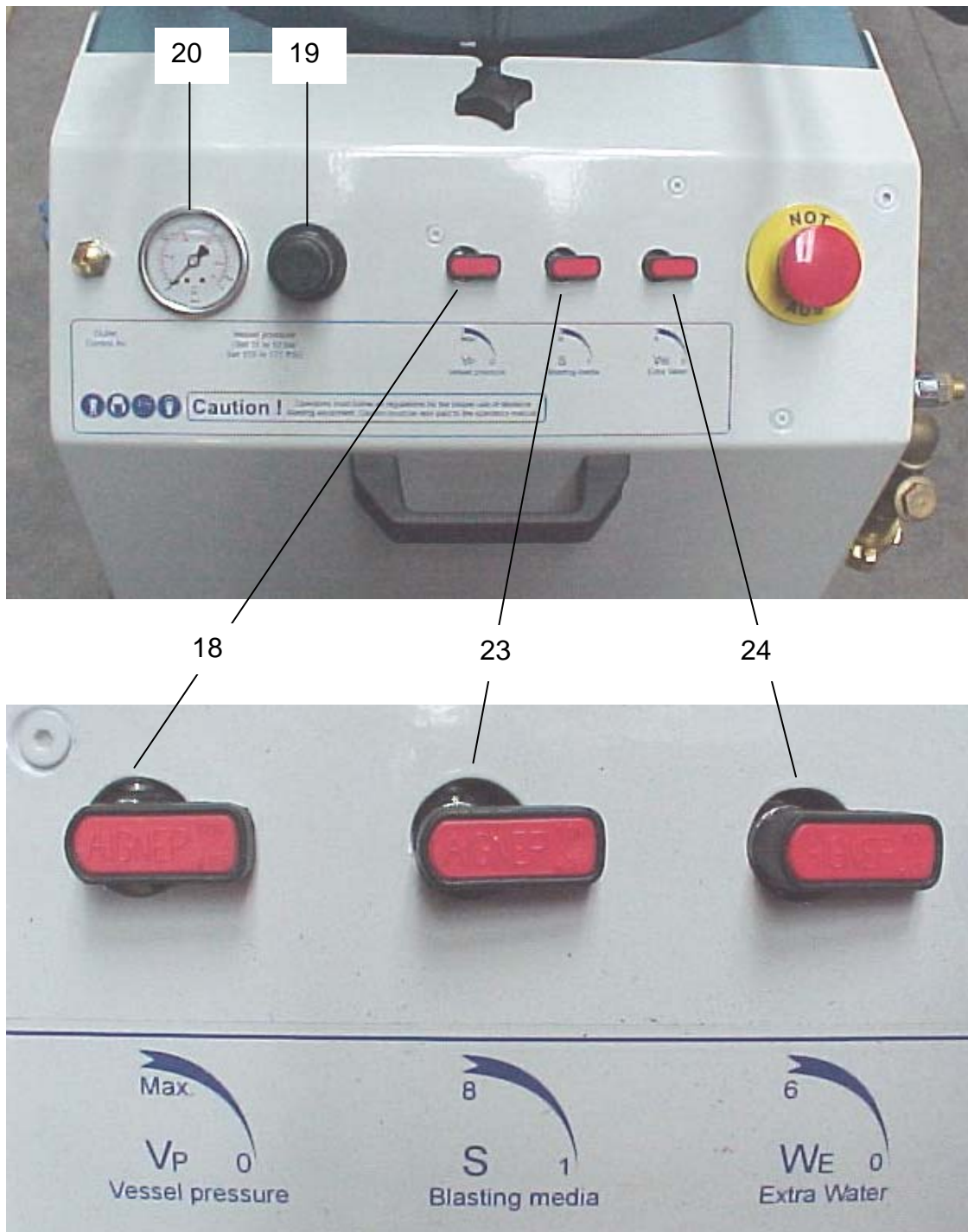
Connecting the machine as follows:

- Close hand bar „P“ (6) (turn right);
- If necessary, connect hose (8) at the vessel bottom and the control cabinet;
- Connect overflow hose (5) at the overflow;
- Connect water hose on coupling (11);
- Connect compressed air hose on coupling (7);
- With electric system: connect pole tongs (9) on 12 Volt DC;
Connect remote control (16) with cable on coupling (10);
- Screw the nozzle (14) into the nozzle holder (15) at the blasting hose (13);
- Connect a minimum of 10 mtrs. of blasting hose (13) - on coupling (12);
- Fix remote control (16) approx. 30 cm (12 Inch) behind the nozzle holder (15) at the blasting hose (13);
- Check all connections for leakproofness.
 - Connections must always be secured against loosening.



Warning

Main features Control Panel



18. Only open while (re)filling the machine. After (re)filling close valve.
19. Pressure regulator, adjustment wheel. After filling set at 10 - 11 bar.
20. Pressure gauge.
23. Adjust this valve depending on application (see document "Info for Practice).
24. Set extra water at valve to increase the water proportion in the blasting mixture (for soft blasting).

2.2. Normal Operation

2.2.1. Filling the machine

A. First filling at location



Chapt. 2, Figure 3: Normal operation (part 1)

Chapt. 2, Figure 4: Normal operation (part 2)

Please proceed as follows:

- Select blasting media;
- Start air compressor and open compressed-air supply to the machine;
- Open water to the machine;
- Open ball valve at overflow (5) and ball valve (21) on the underside of the vessel;
- Open ball valve „Vp“ (18) and ball valve (17);
- Fill blasting media through the top into the vessel until blasting media penetrates from the overflow hose (5);
- Close ball valve on the overflow (5);
- Wait until water penetrates on the top of the vessel;
- Pull up the vessel locking (22) by the ring until the pressure has built up;
- Wait until water penetrates out of ball valve (17) than close the ball valve;
- Close ball valve „Vp“ (18);
- Set the pressure (20) with adjustment wheel (19) to 10 bar.



- Filling of the vessel can be accelerated by the addition of water at the upper opening of the vessel;
- It must be checked whether the EMERGENCY-OFF-switch is unlocked.

B. Repeating the filling

Please proceed as follows:

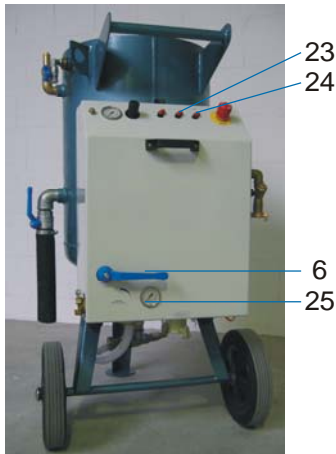
- Open ball valve on overflow (5);
- Open ball valve „Vp“ (18);
- Fill blasting media through the top into the vessel until blasting media penetrates from the overflow hose (5);
- Close ball valve on the overflow (5);
- Wait until water penetrates on the top of the vessel;
- Pull up the vessel locking (22) by the ring until the pressure has built up;
- Wait until water penetrates out of ball valve (17) than close the ball valve;
- Close ball valve „Vp“ (18).



Warning

- When leaving the remote control unattended, the remote control must be secured so that the machine cannot be started by unauthorized people !

2.2.2. Setting up the machine



Chapt. 2, Figure 5: Setting up the machine

When the machine is connected, the vessel is closed respectively the vessel pressure is adjusted, the machine has to be adjusted to the application; please proceed as follows:

- Set blasting media at ball valve (23);
- Set extra water at ball valve (24), to increase the water-proportion in the blasting mixture (for soft cleaning);
- Open ball valve (6) and then set the blasting pressure (25) at ball valve (6) after starting the machine at the remote control (do not close this ball valve complete during blasting).



- If necessary, connect more blasting hose and extension cable and control and re-set the blasting pressure again.



Warning

- When more than 20 m (60 ft.) blasting hose are connected, check if the past-flow time is more than 1 second. If so, additionally the switch-off device has to be installed approx. 10 to 20 m (30 to 60 ft.) behind the blasting nozzle to reduce the past-flow time to less than 1 second.

2.2.3. Operating with Remote control



Chapt. 2, Figure 8: Operating with Remote control



- Read chapter 2.1. and 2.2.1. first for better understandability.

- Press in Levers (16b);
- To start blasting, push down Levers (16a).
- To switch off, Levers (16a) let go.



Warning

- Any and all recommendations and instructions, in particular the basic safety instructions, must be paid attention to !
- The blasting lance should never be directed towards persons and/or animals !
- The higher the blasting pressure is, the higher is the recoil at the nozzle.
- The longer the blasting hose is, the longer is the shut down time at the nozzle.



- Before starting read "Information for practice" to find the right setting.
- If necessary, connect more blasting hose and extension cable/tube and control the blasting pressure again.

2.2.4. Switching from blasting mode to cleaning/drying mode



Chapt. 2, Figure 9: Switching (part 1)

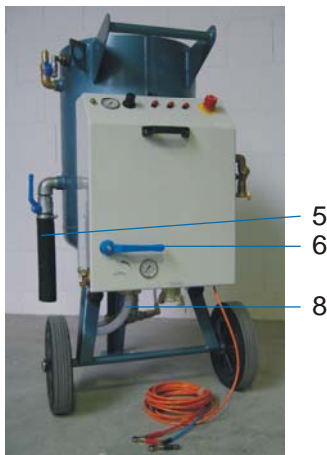


Chapt. 2, Figure 10: Switching (part 2)

The switching „ZW“ will change the operating mode from blasting to cleaning/drying and back at the machine.

- For blasting: Open ball valve (21) and set ball valve „S“ (23) for blasting media and if necessary set ball valve „W_E“ (24) for extra water;
- For cleaning: Close ball valve (21) and set ball valve „W_E“ (24);
- For drying: Close ball valve (21) and „W_E“ (24).

2.3. Switching off the Machine



Chapt. 2, Figure 11: Switching off

If there is a longer break after removing the magnet from the remote control (for example lunch), please proceed as follows:

- Open ball valve (5) at overflow;
- Interrupt compressed-air to the machine and switch off the compressor.

If there is a longer break (for example overnight), please proceed as follows:

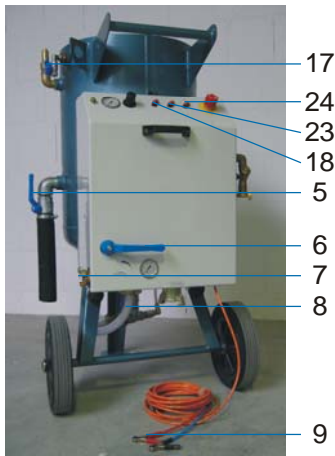
- Interrupt water feed to the machine;
- Uncouple hose (8) and empty the vessel;
- Uncouple pole tongs, remote control and extension cable, water hose, compressed air hose, blasting hose and save these.



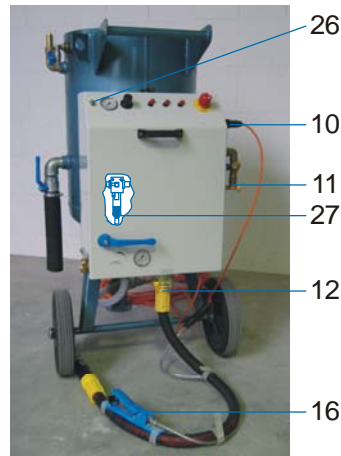
Warning

- If necessary, the machine can also be switched off by using the EMERGENCY-OFF switch.

2.4. Frost precaution in winter



Chapt. 2, Figure 12: Frost precaution (part 1)



Chapt. 2, Figure 13: Frost precaution (part 2)



Chapt. 2, Figure 12: Frost precaution (part 3)

In order to protect the machine from damage by frost following steps must be made:

- Uncouple Remote control (16) from coupling (10);
- Uncouple blasting hose from coupling (12);
- Uncouple water hose from coupling (11);
- Uncouple hose (8) from the cabinet and from the underside of the vessel (and put it on top of the vessel);
- Connect compressed air on coupling (7);
- Connect pole tongs (9) on 12 Volt DC;
- Open all ball valves (5, 6, 17, 18, 21, 23, 24);
- Let the pump work until no water comes out off one of the ball valves or outlet on the underside of the vessel;
- Uncouple compressed air from coupling (7);
- Uncouple pole tongs (9) on 12 Volt DC;
- Push valve (26) until the pressure left out of the reserve tank;
- Clean the airfilter (27) and waterfilter (if they have connected one);
- Ensure dry storage of the machine!

3.1. Maintenance work

Daily before connecting the machine

- cleaning of compressed-air and water connections

Weekly

- equipment cleaned externally
- cleaning of compressed air und water filter
- check gaskets of connecting couplings; if necessary, replace gaskets

Inspection I

- check non-return valves, safety check-valve and clean if needed
- check stoppers and counterparts
- check blasting coupling at the machine
- check insulation of electric components incl. cable
- check hoses and couplings (pneumatic compressed-air and pressurized water hoses, air and water couplings)
- check connections and screwings for leakproofness
- check piston pump for leakproofness and slightly grease it
- check dosing valve(s) and clean if necessary
- check manometer(s) for perfect functioning
- functional test of the machine

Inspection II

Includes all items of inspection I; in addition:

- replace filter elements of compressed-air and water filter
- replace dirty and bucked pneumatic hoses
- dosing valve(s) to be cleaned
- check electric connections for corrosion
- check function of control valves
- clean and check non-return valves at compressed-air connection
- check vessel for leakproofness
- grease hinges, spring in safety check valve and locks

In one-shift-operations the inspection I and inspection II are to be carried through at intervals of 3 to 6 months.

Any occurring troubles, faults etc. are to be eliminated immediately by adequately trained personnel; before starting the machine again, any defective parts are to be replaced by new original parts.



Warnung

- Before beginning any maintenance work, the power, compressed-air and water connections are to be detached and the machine is to be depressurized.
- The machine must be protected from re-start.
- Repairs and the inspection I and II may be carried through by adequately trained personnel only, being at disposal via the Airblast trading partners.
- For mobile units with compressors the inspections of the respective manufacturer must be adhered to for maintenance at the compressor or chassis respectively.
- For a safe operation and a long service life of the machine and its accessories, it must be adhered to the cleaning and maintenance advises shown in the instructions for operation.



4. Technical Data

4.1. General data

		Aquastorm 100
Volume of vessel	l (dm ³) / Cu. ft	100 / 3,5
Control pressure (max.)	bar / PSI	10 / 140
Weight (empty)	Kg / lbs.	140 / 310
Dimensions (height x width x depth)	Mm	1.190 x 720 x 850
	inches	47 x 28,5 x 33,5
Size Air-connection	mm / inches	38 / 1 1/2
Air Connection (min. – max.)	m ³ /min	3,0 – 11
	Cu. ft. per min.	70 – 385
	bar	4,0 – 8,0
	PSI	56 – 115
Connected power	Volt / Watt	12 / 1,2
	Pressurized water (min. - max.)	bar
PSI		0,0 – 140
Blasting hose connection	mm / inches	32 / 1 1/4
Consumption of blasting media (min. – max.)	l/min	1,0 – 8,0
	US gal per min.	0,26 – 2,11
Blasting time (100% period of use)	Std. / h	1,87 – 0,25
Average blasting time per filling	Std. / h	0,6
Standard blasting mixture	Blasting media / water	75 % / 25 %
Water consumption during blasting	l/min.	0,2 – 1,6
	gals. per min.	0,05– 0,42