Operations Manual

Double Chamber Blasting Machine

Pneumatic

Manufacturer: Jolly Industries Certificate No: 2353425	
	Date of Issue: December 2025 Rev 2.0

Table of Contents

If you need to have your blast machine serviced, contact Blastline

Blastline India Private Limited
Blastline Corporate Chambers, Pottakuzhy
Elamakkara PO, Kochi - 602026, Kerala, India
Phone: +91 484 2537375 / 76, +91 9562011088
Email: info@blastlineindia.com
Web: www.blastlineindia.com

If you need to contact the manufacturer directly, contact Jolly Industries.

Jolly Industries
15/469, Mayiladumkunnu
Avanur. PP.O. Thrissur - 680541, Kerala
Phone: 0487 2217918,+91 9048669986
Email info@jollyindustries.net
Web: www.jollyindustries.net

This manual supports the following models:

300 Ltr - Double Chamber Blasting Machine

DISCLAIMER

Our company is not responsible for any death, injury, or loss of materials due to any reason of misuse, Inadequate skill, mishandling, etc. Our responsibility ends when the material leaves our warehouse.

WARNING

Before using this product, read all instructions, literature, labels, specifications, and warnings sent with and affixed to the equipment. Do not paint over, alter, or deface the equipment instruction tags, stickers, or plates. Immediately replace all stickers, tags, and plates that become illegible. If the equipment user, or any assistants of the user, cannot read or thoroughly understand the warnings and information contained in these instructions, it is the responsibility of the user's employer to educate, train, and test them on the proper cooperation and safety procedures of this equipment.

Periodic inspections at the work site should be made by supervisory personnel to ensure the equipment is being properly used and maintained in a safe working environment. A copy of this safety manual must be kept with the equipment and must be readily accessible to equipment users, user assistants, and supervisors. Failure to comply with all instructions can result in severe bodily injury or impairment, illness, or death.

Customer Name	
PO No.	
Date of Purchase	
Machine Model	
Serial No	

Introduction

Read and follow all instructions and safety precautions before installing or operating this equipment. This manual contains information needed to operate and maintain your Blastline double-chamber blast machine. Keep this manual readily available for future reference.

These instructions include the safety precautions, pre-operation setup, start-up/shut-down preparation, maintenance, troubleshooting, and replacement parts for the Blastline 300 Ltr double chamber blast machine.

The information provided, described, and illustrated in this material is intended for experienced, knowledgeable users of abrasive blast machines, surface preparation equipment, and related supplies. All operators and personnel involved with the abrasive blast process must read and understand the contents of these instructions. Ensure the operator is trained and qualified to safely operate the blast machine and all associated equipment. It is the responsibility of the user to ensure that proper and comprehensive training of operators has been performed, and all environmental and safety precautions have been observed.

Blastline India provides a variety of high-quality products pertaining to the surface preparation industry.
Consult with Blastline India for training programs and instructional materials.

Warnings and Cautions

This warning alert symbol is used to alert the operator of this equipment to potential harm and injury hazards.
Pay special attention to these safety messages that follow this symbol to avoid potential personal injury or death.
Following the instructions provided in this manual and taking the necessary accident prevention measures will greatly lower the risk of injury. Below are the two hazard levels that are used in this manual.

CAUTION

Caution indicates a potentially hazardous situation that, if not avoided, may result in minor or moderate injury. It may also be used to alert against unsafe practices that may cause property damage.

WARNING

Warning indicates a potentially hazardous situation that, if not avoided, could result in serious injury or death.

Scope of Manual

This manual covers the operation and maintenance of the double-chamber blast machine with remote controls, incorporating the following features:

- Refilling the pot with abrasive is permitted without interrupting the blast process.
- During operation, the lower chamber (volume 150 L) is not depressurized.
- For refilling, the upper chamber is periodically pressurized and depressurized.
- The air for blasting is controlled through Auto air valves.
- The abrasive metering is done through Thompson valves.
- The double-chamber blast machine is either stationary or portable. Additionally, the following Owner's Manuals should be considered:
- Auto air valve operations manual.
- Thompson valve operations manual.

Application and restrictions

Double-chamber blast machines were designed for an independent and simultaneous operation of 1 to 2 operators. Continuous operation is enabled through two working chambers (no interruption of the blast process because of abrasive refill).

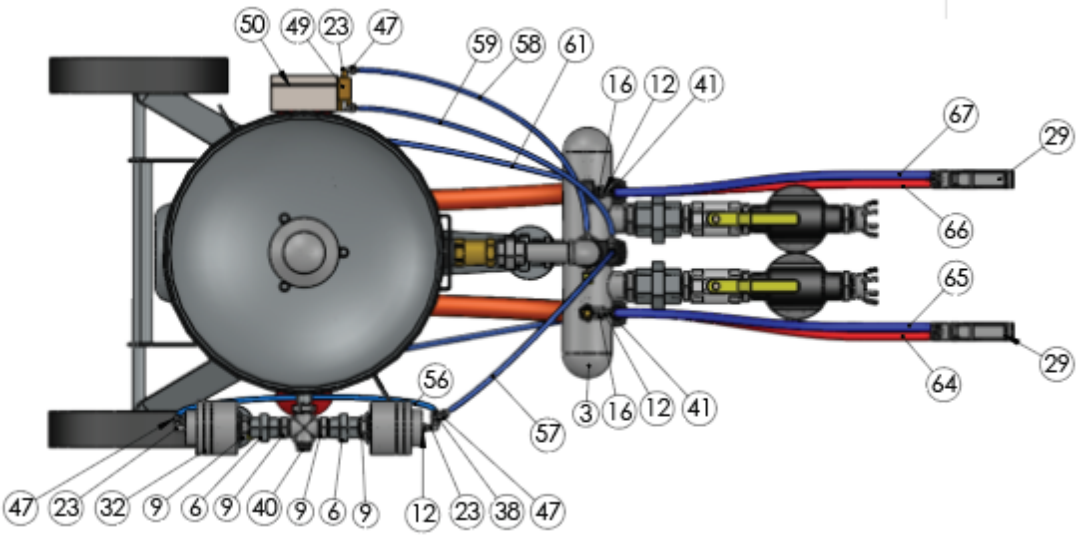
Minimum and maximum working pressure

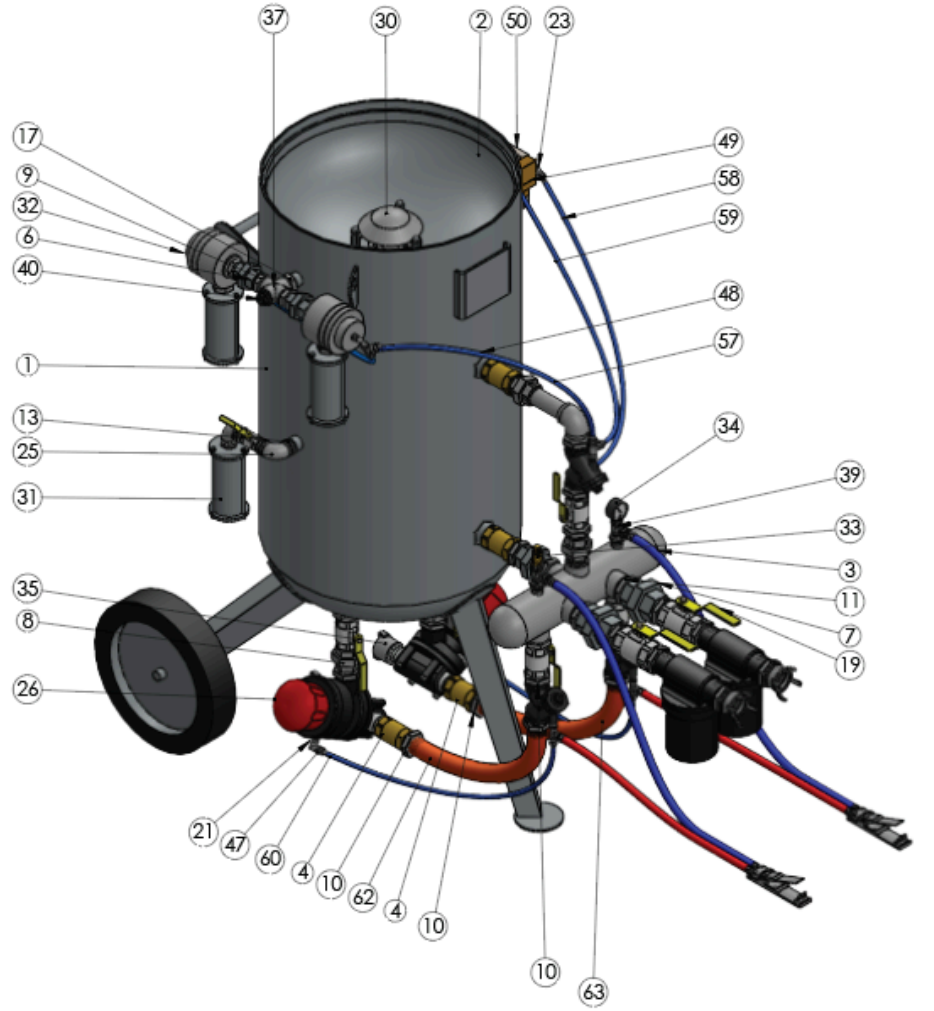
Pot and accessories are rated for a maximum working pressure of 162 Psi. Higher working pressure is only for special designs.
On the blast machine, a constant minimum working pressure of 4 bar (ideal pressure: 5.4 to 5.6 bar) is necessary for controlling the auto air valve and the Thompson Valve. When using other media metering valves, the data of the manufacturer has to be considered.

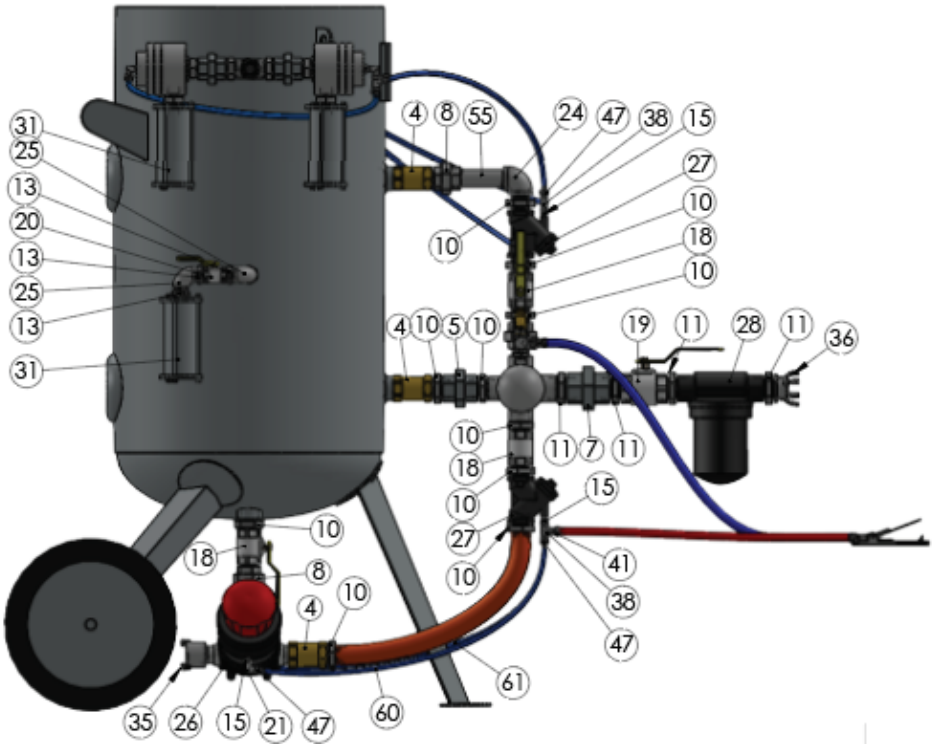
Type of blast media

Double-chamber blast machines can be used with all types of abrasives, but a steep conical bottom (special design) is necessary when using media with poor flow characteristics.

Drawing




37
30
2
50
23
17
9
32
6
40
1
13
25
31
35
8
26
49
58
59
48
57
34
39
33
3
11
7
19
21
47
60
4
10
62
4
10
10
63


31
25
13
20
13
25
13
31
4
8
55
24
47
38
15
27
10
18
10
10
4
10
5
10
19
11
28
11
36
10
18
10
27
10
11
7
11
15
41
38
47
10
18
8
4
10
61
35
26
15
21
47
60

Parts List

Sl. No.	Part Name	Qty
1	Shell	1
2	Dish	3
3	Manifold	1
4	Non-Return Valve	4
5	F-F Union 1¼”	1
6	F-F Union 1”	2
7	F-F Union 1½”	2
8	M-F Union 1¼”	4
9	Hex nipple 1”	4
10	Hex nipple 1¼”	17
11	Hex nipple 1½”	8
12	Hex nipple ¼”	10
13	Hex nipple ¾”	4
14	Hex nipple ¼”	2
15	Reducer Hex nipple 1¼” to ⅛”	5
16	Reducer Bush ½” to ¼”	3
17	Reducer Hex Nipple 1” to ¾”	3
18	Ball Valve 1¼”	5
19	Ball Valve 1½”	2
20	Ball Valve ¾”	1
21	F-F Elbow ¼”	2
22	F & F Reducer Elbow 1¼” to 1”	2
23	M-F Elbow ¼”	4
24	Elbow 1¼”	1
25	F & F Elbow ¾”	2
26	Thompson Valve 1¼”	2
27	Auto Air Valve 1¼”	3
28	Moisture Separator 1½”	2
29	Deadman Handle	2
30	Umbrella	2
31	Silencer 1”	3
32	RMS 500 1”	2
33	Safety Relier Valve ⅜”	1
34	Pressure Gauge ¼”	1

Sl. No.	Part Name	Qty
35	Blast Hose Quick Coupling - 2 lug 1¼”	2
36	Quick Disconnect Nozzle Coupling 1½”	2
37	Cross 1”	1
38	Tee ¼”	4
39	Tee ¾”	2
40	Plug 1”	1
41	Nut and Tail Fitting ¼”	8
42	Nut M10	6
43	Long Nut M10	6
44	Nut M10	6
45	Pop-up Valve	2
46	Lip Type O-Ring	2
47	Hose Fitting ¼”	12
48	Check Nut 1¼”	2
49	3-Way Solenoid Valve ¼”	1
50	Panel Box	1
51	Pipe-1 ½”	2
52	Pipe-2 1¼”	2
53	Pipe-3 1”	1
54	Pipe-4 1”	1
55	Pipe-5 1¼”	1
56	PU Pipe-1 OD 8 mm	1
57	PU Pipe-2 OD 8 mm	1
58	PU Pipe-3 OD 8 mm	1
59	PU Pipe-4 OD 8 mm	1
60	PU Pipe-5 OD 8 mm	1
61	PU Pipe-6 OD 8 mm	1
62	Blast Hose-1 1¼”	1
63	Blast Hose-2 1¼”	1
64	Twin Hose-1 ¼”	1
65	Twin Hose-2 ¼”	1
66	Twin Hose-3 ¼”	1
67	Twin Hose-4 ¼”	1
68	Reducer Bush ½” to ⅜”	1
69	Plug ½”	1

General description

Figure 1 shows the main components of the double-chamber blast machine with remote controls:

- Double-chamber blast pot with
  - ➢ 1 upper chamber (volume 150 L) and
  - ➢ 1 lower chamber (volume 150 L).
  - ➢ 1 air manifold (item 3).
  - ➢ 1 auto air valve (item 27) per operator to open or close the air supply for the blast process.
  - ➢ 1 auto air valve (item 27) to pressurize or depressurize the upper chamber.
  - ➢ 2 outlet auto air valve (item 27) with silencer (item 31) for quickly depressurizing the upper chamber.
  - ➢ 1 Thompson valve (item 26) per operator.
  - ➢ 1 pop-up valve (item 45) with a pop-up gasket (item 46) for the upper chamber.
  - ➢ 1 pop-up valve (item 45) with a pop-up gasket (item 46) for the lower chamber.
  - ➢ Non-return valves (item 4) are used to prevent a backdraft of abrasive into the control system.
  - ➢ 1 ball valve (item 20) for depressurizing the lower chamber.

- 1 cycle timer for periodically pressurizing and depressurizing the upper chamber (abrasive refill).

- 1 deadman handle per operator (item 29) with twinline hose (item 64, 65, 66, and 67).

- 1 blast hose per operator with nozzle holder and nozzle (not included in the basic equipment).

The remote controls enable the operator to start or interrupt blasting from a remote position and are a safety device to prevent accidents.

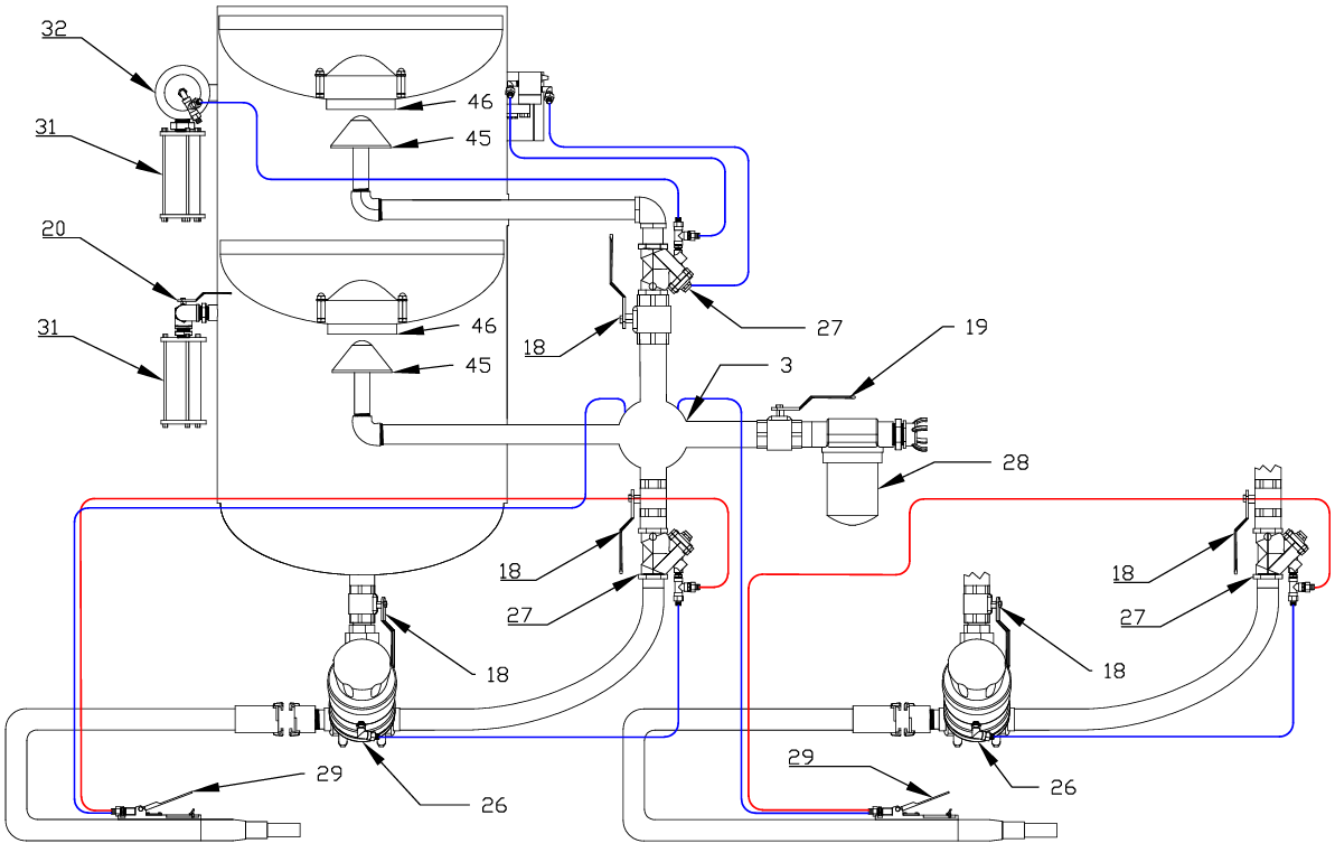


Figure 1

How the system works

When the double chamber blast machine is connected to an air line (compressor) and supplied with compressed air via the moisture separator (item 28), the pop-up valve closes, and the upper chamber is pressurized. At this time, the upper chamber is depressurized (closed air valve (item 27)) and can be filled with abrasive.
When the deadman handle is depressed (item 29), the blast process begins. The corresponding auto air valve (item 27) and the Thompson valve (item 26) open, and with the blast hose, the abrasive is guided to the nozzle.
Simultaneously, the cycle timer is supplied with control air and periodically pressurizes and depressurizes the upper chamber.
When the upper chamber is pressurized, both chambers have the same pressure level. The pop-up valve of the lower chamber opens, and the abrasive from the upper chamber falls into the lower chamber.
As soon as the operator releases the deadman handle, the blast process stops. The periodical pressurization and depressurization are interrupted as soon as none of the deadman handles is depressed.

How the remote controls work

Pneumatic remote controls (see figure 1)

Compressed air from the moisture separator (item 28) passes through the air manifold (item 3)and the twin hose to the deadman handle (item 29). When the deadman handle is depressed, the twin hose guides the air back to the auto air valve (item 27), to the Thompson valve (item 26), and both valves are opened.
When the deadman handle is released, the air supply for both valves is interrupted, and therefore the flow of air and abrasive is stopped.

Set-up and operation

Requirements

- A sufficient air supply is necessary (see Table 1).

Nozzle size [mm]	Air consumption [m3/min.] per nozzle and pressure [bar]			
	6	**8**	**10**	**12**
6.5	2.0	2.6	3.2	4.7
8	4.8	6.2	7.6	6.4
9.5	4.8	6.2	7.6	9.0
11	6.4	8.3	10.1	12.0
12.5	8.4	10.7	13.1	15.4

- You have to make sure that the individual working spaces of the operators are separated from the others in order to prevent danger. If a spatial separation is not possible, a safety distance of at least 20 metres between the individual operators is necessary. ATTENTION! Not complying with this measure can lead to death!

Set up for initial installation or reinstallation.

1. Place the blast machine on even and firm ground**.**
2. Install an air supply for the working pressure indicated on the pot.

- ➢ Place the compressor upwind of the blast machine (to prevent contaminated air from entering the compressor).
- ➢ Start the compressor and bring it up to operating temperature (5 to 10 min.). Only use compressors whose rating does not exceed the maximum working pressure of 12 bar!
- ➢ Attach an air line (appropriate dimension) with all necessary gaskets in place to the air outlet of the compressor and safety lock the couplings. Escaping air is dangerous and lowers efficiency!
- ➢ Carefully open the air valve of the compressor to blow debris and moisture out of the attached air line.
- ➢ Close the air valve.
- ➢ Install an appropriate coupling to the air inlet of the blast machine (safety coupling).
- ➢ Connect the air line to the blast machine and safety lock.
- ➢ Include a Blastline Air-cooled Aftercooler.

3. Attach the blast hose and nozzle to the blast machine.
   - ➢ Check the gasket of the coupling for wear.
   - ➢ Connect the blast hoses to the required length (all gaskets must be in place), attach them to the blast machine, and secure them with a safety lock.
   - ➢ Choose an appropriate nozzle and attach it to the nozzle holder (with a gasket).
4. Install the deadman handle and remote control hoses (pneumatic controls).
   - ➢ Connect the twinline hoses to the deadman handle.
   - ➢ With two nylon ties, band the deadman handle to the blast hose just behind the nozzle holder.
   - ➢ Every 1.5 m band the twinline hose to the blast hose (sufficient freedom of movement, because under pressure the blast hose expands).
5. Bring the Thompson Valves (item 26) and auto air valves(item 27) into operation.
6. Put on the protective equipment.
   - ➢ Abrasive-resistant clothing.
   - ➢ Airfed helmet with connection to the breathing air supply (air filter) and adjustment of the air volume with an air control valve attached to the belt.
   - ➢ Leather gloves and safety shoes.
   - ➢ Ear protection.
7. Check the moisture separator, the remote controls, and the control of the blast process, and remove moisture from the blast machine.
   This action requires an empty pot (no abrasive).
   - ➢ Check and correct the following adjustments:
     - Ball valve (item 18) opened.
     - Ball valve (item 20) for depressurization is closed.
     - Ball valves (item 18) opened.
   - ➢ Switch on the cycle timer (green light).
   - ➢ Open the air valve on the compressor.
   - ➢ Open the ball valve on the moisture separator (item 28) to pressurize the lower chamber.
   - ➢ Check the remote controls for each operator.
     - Depress the deadman handle (item 29). Air or a blend of air and abrasive must come out of the nozzle. Point the nozzle at a surface to prevent injuries from debris left in the pot!
     - Release the deadman handle after a few seconds. Blasting must stop within a few seconds.
   - ➢ Check the cycle timer.
     - Depress one deadman handle.
     - Depending on the adjustments of the cycle timer, the upper chamber has to be pressurized and depressurized periodically.
     - Release the deadman handle.
     - The upper chamber has to be depressurized.
   - ➢ Removal of moisture.
     - Depress one deadman handle (item 29) for a minimum of 5 minutes.
     - Depress the other deadman handles for 1 minute (removal of moisture from the blast hoses).
   - ➢ Adjust the drains of the moisture separator (item 28) so that a constant stream of liquid and air is expelled under pressure.

Daily Set-up

Not necessary if an initial installation or reinstallation was performed.

1. Air supply.
   Start the compressor and bring it up to operating temperature (5 to 10 min.).
2. Put on the protective equipment.
   - ➢ Abrasive-resistant clothing.
   - ➢ Airfed helmet with connection to the breathing air supply (air filter) and adjustment of the air volume with an air control valve attached to the belt.
   - ➢ Leather gloves and safety shoes.
   - ➢ Ear protection.
3. Check the moisture separator, the remote controls, and the control of the blast process, and remove moisture from the blast machine.
   This action requires an empty pot (no abrasive).
   - ➢ Check and correct the following adjustments:
     - Ball valve (item 18) opened.
     - Ball valve (item 20) for depressurization is closed.
     - Ball valves (item 18) opened.
   - ➢ Switch on the cycle timer (green light).
   - ➢ Open the air valve on the compressor.
   - ➢ Open the ball valve on the moisture separator (item 28) to pressurize the lower chamber.
   - ➢ Check the remote controls for each operator.
     - Depress the deadman handle (item 29). Air or a blend of air and abrasive must come out of the nozzle. Point the nozzle at a surface to prevent injuries from debris left in the pot!
     - Release the deadman handle after a few seconds. Blasting must stop within a few seconds.

   - ➢ Check the cycle timer
     - Depress one deadman handle.
     - Depending on the adjustments of the cycle timer, the upper chamber has to be pressurized and depressurized periodically.
     - Release the deadman handle.
     - The upper chamber has to be depressurized.
   - ➢ Removal of moisture
     - Depress one deadman handle (item 29) for a minimum of 5 minutes.
     - Depress the other deadman handles for 1 minute (removal of moisture from the blast hoses).
   - ➢ Adjust the drains of the moisture separator (item 28) so that a constant stream of liquid and air is expelled under pressure.

Operation

1. Load abrasive into the blast machine.
   - ➢ Close the media metering valve.
   - ➢ When using a Thompson valve, consider the owner's manual.
   - ➢ Close ball valve (item 18).
   - ➢ Pour the abrasive into the concave head of the pot (filling port).
   - ➢ Open the ball valve (item 18) again.
2. Blasting.
   - ➢ Point the nozzle to the surface being blasted and depress the deadman handle to start blasting.
   - ➢ Open the Thompson valve (abrasive metering knob to the left) until the flow of abrasive is sufficient (optimum blend of abrasive and air when the abrasive barely discolors the air when it comes out of the nozzle).
   - ➢ Refill the pot with abrasive (switching cycle of cycle timer). Make sure that the pot is no more than 3/4 full.

Shut-down

1. An empty pot of abrasive.
    - ➢ Standstill > 1 day.
2. Depressurize the blast machine.
    - ➢ Close the ball valve for the air supply.
    - ➢ Slowly open the ball valve (item 20).
3. Power supply.
    - ➢ Switch off the cycle timer and the electric panel RME.
4. Reinstall lock studs of the Thompson valves (item 26) and auto air valves (item 27).

Only when the air valves and Thompson valves are in use.
To avoid pinch tube deformation (standstill > 1 week).

- ➢ Turn the Thompson valve metering knob to the left.
- ➢ Remove the plastic cap from the lock stud port.
- ➢ Remove the lock stud from the storage tube.
- ➢ Install lock stud (put it into the lock stud port and turn it 90° to the right).
- ➢ Tighten the spring by turning the nut (wrench 19 mm).

Maximum torque is 68 Nm.

- ➢ Put the plastic cap into the opening of the storage tube.

Maintenance

General

During operation, blast machines are exposed to wear. To ensure safe operation and high efficiency, the blast machines should be maintained according to the following checklists.
Before maintenance, ensure that the air valve of the compressor is closed and the entire system is depressurized.

Daily checklist

1. Pot
    - ➢ Check the gasket of the filling port (item 46) of the upper chamber and replace it at the first sign of wear (replacement possible from the outside).
    - ➢ Check the pop-up valve (Item 45) and replace it at the first sign of wear.
2. Air line and blast hose
    - ➢ Check the hoses for sharp bends, which cause high loss of energy and rapid wear.

    No vehicles should pass over hoses!
3. Nozzle and nozzle holder
    - ➢ Check the nozzle gasket and replace it at the first sign of wear.
    - ➢ Check the nozzle and the nozzle holder (thread) for wear and replace them if necessary.

Weekly checklist

1. Upper chamber
    - ➢ Check the pop-up gasket and pop-up valve of the upper chamber.
        - Open both inspection doors.
        - Replace the pop-up gasket and pop-up valve at the first sign of wear.
2. Moisture separator (item 28)
    - ➢ Remove and check the filter element. If necessary, clean the filter and the sight glass with soap and warm water, and dry them with compressed air.

    A dirty filter causes loss of pressure in the system!

3. Muffler (item 31)
    - ➢ Check for wear or blockage and clean or replace the interior body.
4. Air hose and blast hose
    - ➢ Check all couplings and screws for wear or breakage and replace them if necessary.
    - ➢ Check the whole blast hose by hand for soft spots (reduced wall thickness) and replace it immediately when soft spots are detected.
    - ➢ Check the air line (air supply) and replace it when it is worn.
    - ➢ Check the gaskets of the couplings for wear and replace them if necessary.

Trouble-shooting

Problem	Probable cause	Remedy
Neither abrasive nor air comes out of the nozzle.	The air valve of the compressor is closed.	Open the air valve.
	Blocked moisture separator (item 28)	Check and clean the moisture separator.
	The auto air valve (item 27) does not work.	➢ Check if air comes out of the small hole in the valve body when the valve is in operation. If this occurs, the pinch tube or the diaphragm is damaged. ➢ Repair or replace the air valve. Read the owner's manual.
	Pneumatic remote controls: The deadman handle (item 29) or twin hose is leaky.	Check and replace the remote control hose or the rubber button of the deadman handle if necessary.
	Pressure or air volume for the control of the pneumatic valves is not sufficient (p < 4 bar).	Increase pressure/air volume. ATTENTION! This effect also occurs when the nozzle is worn, and the air volume is not sufficient anymore.
Air but no abrasive comes out of the nozzle.	Closed Thompson valve (item 26).	Open the Thompson valve (turn the metering knob to the left). See the corresponding owner's manual.
	Defective Thompson valve (item 26).	➢ Check if air comes out of the small hole in the valve body when the valve is in operation. If this occurs, the pinch tube or the diaphragm is damaged (Thompson Valve). ➢ Repair or replace the metering valve. Read the corresponding owner's manual.
	Switching the cycle of the cycle timer or a wrongly adjusted or defective cycle timer. Abrasive cannot flow from the upper to the lower chamber.	Check cycle timer adjustments or repair the cycle timer.

	Moist abrasive prevents the flow of abrasive in the bottom of the pot.	➢ Open the inspection door and clean the pot. ➢ Install an aftercooler for the air supply. ➢ If a moist abrasive is used, do not completely open the choke valve (item 18).
Irregular flow of abrasive comes out of the nozzle.	Incorrectly adjusted Thompson valve.	Check the adjustment and open it completely if necessary.
	Clogging.	Check the nozzle and gasket for wear and replace them if necessary.
	Not correctly adjusted choke valve (item 18).	Adjust correctly.
Too much abrasive comes out of the nozzle.	The Thompson valve is opened too much (item 26).	Check and correct adjustments (metering knob).
	Choke valve (item 18) not completely opened.	Check and open completely if necessary.
The pop-up valve does not remain closed.	Insufficient air volume or pressure.	➢ Check the air pressure of the compressor with a needle gauge. ➢ Close ball valves (item 18). When the pop-up valve fails to close, the air volume is insufficient.
The pop-up valve does not seal off the filling port after pressurization.	Worn pop-up valve and/or gasket.	Replace the pop-up valve and/or the gasket.
	Blocked guide for the pop-up valve.	Open the inspection door and clean the blast machine.
The blast process does not stop when the deadman handle is released.	The deadman handle is clogged (item 29).	Clean it.
	Twin hoses are incorrectly connected.	Exchange connections.
The upper chamber is not depressurized.	Defective outlet Auto air valves.	Check and repair.
	The solenoid valve of the cycle timer does not close.	Repair.
The upper chamber is not pressurized.	Blocked or defective solenoid valves of the cycle timer.	Repair.

Blastline India Private Limited
Blastline Corporate Chambers, Pottakuzhy
Elamakkara PO, Kochi - 602026, Kerala, India
Phone: +91 484 2537375 / 76, +91 9562011088
Email: info@blastlineindia.com
Web: www.blastlineindia.com