STORM MACHINERY

ABRASIVE BLAST POTS

Important Safety Instructions

Read all warnings and instructions in this manual.

Do not proceed until you fully understand its contents

These WARNINGS are included for the health and safety of the operator and those in the immediate vicinity.

Save these instructions.

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*Please note: Not all models may be available in your territory

2015S100BLAST

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Symbols

Warning Symbol

⚠ WARNING

This symbol alerts you to the possibility of potentially hazardous situations which may result in serious injury or death if you do not follow the instructions.

Caution Symbol

⚠ Caution

This symbol alerts you to the possibility of damage to or destruction of equipment if you do not follow the corresponding instructions.

Danger Symbol

⚠ DANGER

This symbol alerts you to imminently hazardous situations, leading to damage or destruction of equipment which may result in serious injury or death if you do not follow the corresponding instructions.

NOTICE TO PURCHASERS AND USERS OF OUR PRODUCTS AND THIS INFORMATIONAL MATERIAL

Storm Machinery proudly provides products for the abrasive blast and corrosion protection industry and is confident that industry professionals will use their knowledge and expertise for the safe and efficient use of these products.

The products described in this material, and the information relating to these products, are intended for knowledgeable, experienced users.

No representation is intended or made as to: the suitability of the products described here for any purpose or application, or to the efficiency, production rate, or useful life of these products. All estimates regarding production rates or finishes are the responsibility of the user and must be derived solely from the user's experience and expertise, not from information contained in this material.

It is possible that the products described in this material may be combined with other products by the user for purposes determined solely by the user. No representations are intended or made as to the suitability of, or compliance with regulations or standard practice of any such combination of products or components the user may employ.

Abrasive blast equipment is only one component of an abrasive blasting job. Other products, such as air compressors, air filters and receivers, abrasives, scaffolding, hydraulic work platforms or booms, equipment for lighting, painting, ventilating, dehumidifying, parts handling, or specialized respirators or other equipment, even if offered by Storm Machinery, may have been manufactured or supplied by others.

All information provided by Storm Machinery is intended to support the products Storm Machinery manufactures. Users must contact each manufacturer and supplier of products used in the blast job for warnings, information, training, and instruction relating to the proper and safe use of their equipment.

⚠ WARNING

Regulations under Section 44 of the Occupational Health and Safety Act 1993 (Act No.85 of 1993) requires employers to develop and implement written policies with required work site- specific procedures regarding the provision, maintenance and use of equipment.
The employer must provide effective training to employees who are required to use respirators.
All training must be comprehensive, understandable, and recur at least annually, and more often if necessary.
Such policies should include but not be limited to appropriate personal protective equipment PPE to be worn by all operators and their assistants and respiratory protection program elements for required respirator use including respiratory protection for blast operators and workers in the vicinity of blasting.

Blast Pot Operation

Where two or more blast machines are used, care must be taken when tracing and connecting control lines and blast hose. Cross connecting control hose or blast hose could lead to serious injury, death, or property damage from unintentional actuation of a blast machine. To prevent cross connecting blast hose and control hose, the hoses and blast machine couplings should be clearly marked, for use with two blast machines.
Carefully trace and verify each corresponding connection before operating.
Serious injury or death can occur from numerous sources, namely:

1. Involuntary activation of the Blast Pot. (Storm Machinery recommend blast pots fitted with Remote Control Valves and Deadman's Handle)

2. Exceeding the maximum working pressure. Storm Machinery blast machines are manufactured to EN13445 and conform to regultation under Section 44 of the Occupational Health and Safety Act 1993(Act No. 85 of 1993),as categorised in terms of SANS 347and carry a serial number or AS1210 and have the required registration and serial number or have an ASME pressure stamp (American Standard of Mechanical Engineering). Every machine is marked with its maximum working pressure. Never exceed the maximum working pressure limits of the blast machine.

Pressure Equipment regulation describes the necessity of pressure relief valves on compressed air equipment. Do not operate blast machines, or air compressors that are not equipped with properly functioning pressure relief valves.

3. Uncontrolled blast stream. High-velocity abrasive particles will inflict serious injury. Always point the blast nozzle in the direction of the blast surface only. Always clearly demarcate the blast area. Keep unprotected workers out of the blast area.

4. Moving the blast machine. Never manually move a blast machine containing abrasive, or any machine containing Abrasive.All machines must be moved with appropriate mechanical lifting equipment.

5. Welding, grinding, or drilling on the blast machine may affect the dimensional integrity and could weaken the vessel. Compressed air pressure could cause a weakened blast machine to rupture, resulting in death or serious injury. All repairs on pressure blast equipment, must be performed by a company specializing in the repair of pressure vessels and inspected by a competent authority following the repairs. Failure to do so voids the certification of the pressure vessel, which is deemed to be illegal.

Respirable Air:

As previously mentioned above, air-borne dust from abrasive blasting applications can be hazardous.
Fatal diseases, such as silicosis, asbestosis, lead or other poisoning, can result from inhalation of toxic dusts, which include, but are not limited to, crystalline silica, asbestos, and the removal of lead based coatings.

The ILO/WHO initiative has helped countries to develop and implement a National Programme for the Elimination of Silicosis (NPES). Government, organised labour and organised business are committed to cooperate with the ILO/WHO to eliminate Silicosis, describing policies and procedures for implementing a national emphasis program to identify and reduce or eliminate health hazards from exposure to the above mentioned toxic dusts.

Storm Machinery promote the use of Air Filters (such as the Operator's Breathing Filter - O.B.F.) in all mobile abrasive blasting applications. This unit, removes oil mist, water vapour, odours and particles larger than 0.5 microns.

In addition, **Always** make sure the breathing air supply (respirator hose) is not connected to plant lines that supply other gases that include, but are not limited to, oxygen, nitrogen, acetylene, or other non-breathable gas.
Never modify or change respirator air line connections without first testing the content of the line for safe breathing air. Failure to test the line may result in death to the respirator user.

N.B.
The O.B.F. will not remove carbon monoxide. Brief exposure to high concentrations of CO^2 can be fatal.

Abrasive:

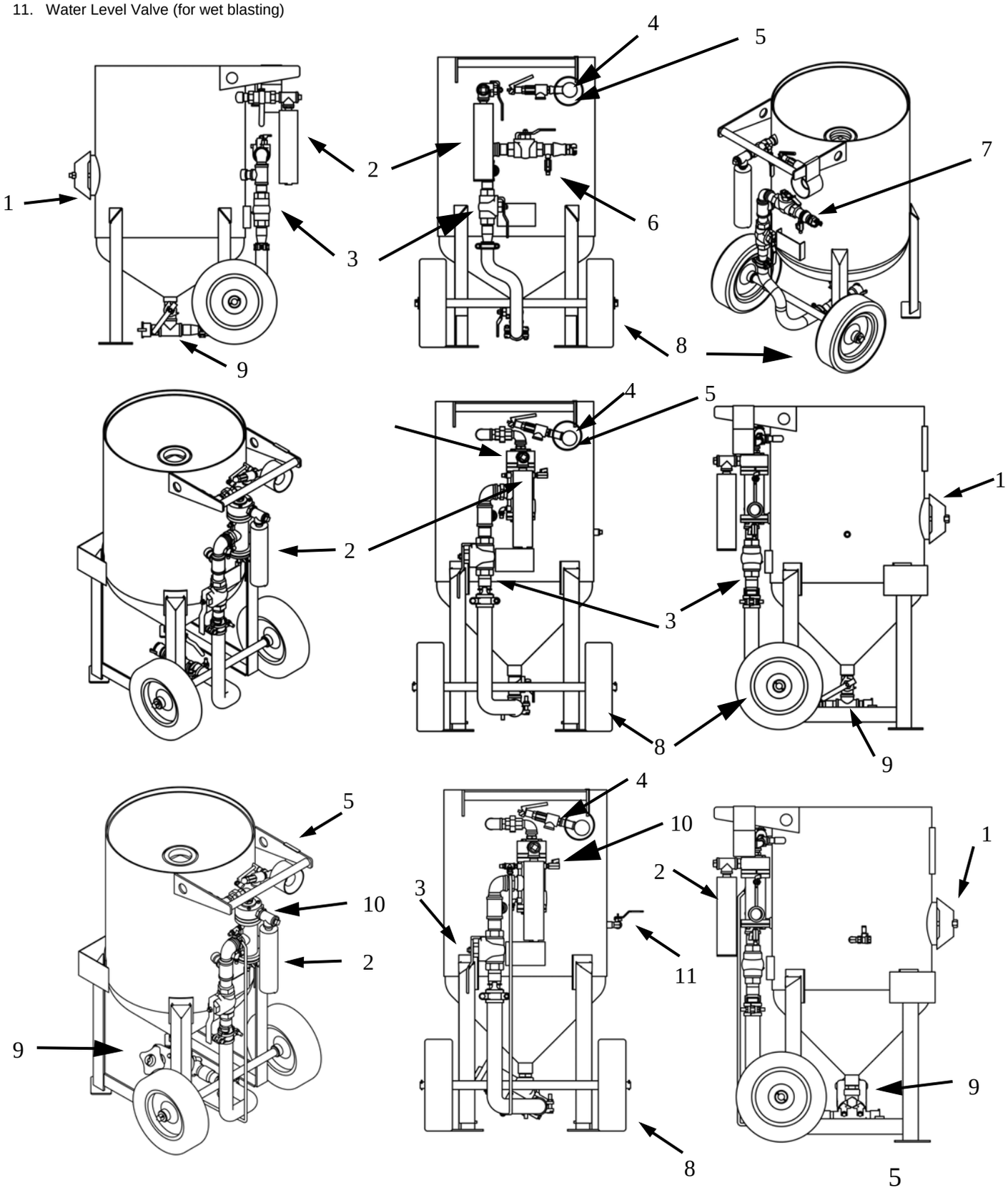
NEVER use abrasives containing more than one percent crystalline silica. (Refer to Respirable Air chapter above)

Glossary of Terms

Term	Definition
Pressure Vessel	A fabricated tank (or reservoir) that is part of the abrasive blaster which is filled with compressed air and abrasive. (Also referred to as “blast vessel” or “vessel”.)
Pressurise	To manually or automatically fill the abrasive blast vessel with compressed air. This can also be referred to as “charging.”
De-pressurise	To manually or automatically release all the compressed air from inside the abrasive blast vessel. (Also referred to as “blowdown or exhausting”.)
Pressurised System	An abrasive blaster that is automatically pressurized when the air inlet valve is opened. The blaster remains pressurized when the DMH is released
De-pressurised System	An abrasive blaster that is pressurized only when the DMH activates the blast operation. The blaster automatically depressurizes when the DMH is released.
Deadman’s Handle or DMH	Commonly referred to as the DMH. This is a manually operated valve or switch that allows remote starting and stopping of the blast operation. [Also referred to as “deadman’s valve” (pneumatic blast controls) or “deadman’s switch” (electric blast controls.)
Twinline	Twin line Signal Hose, (TSH) is two equal length hoses with an ID no bigger than 6mm, that are used to send the message signal between the DMH and RCV pneumatically.
Pop-up Valve	An air pressure operated valve that seals the abrasive inlet at the top of the pressure vessel. Its operation may be manual or automatic.
Plumbing	A collective term to describe all the fittings, valves, hoses and pipes.
Abrasive	A granular substance used in an air blast operation that is the means for blasting the surface of an object. (Also referred to as abrasive blasting media.)
CFM	Cubic Feet per Minute, is a measure of air volume. This is a critically important measurement for abrasive blasting, because productivity and performance are directly affected by air volume.
BAR	A common pressure measurement. Other common measurements include Mpa and PSI.
RCV	Remote Control Valve, a valve designed to safely charge and exhaust a blast pot used with DMH and TSH.
O.B.F.	Operators Breathing Filter, Used to clean the compressors air making it better to breath. This unit is a freestanding unit and is offered as an accessory to the package.
ASME	An acronym for, American Standard of Mechanical Engineering
HP & kW	Horse Power & Kilo Watts,- are international terms, to describe the power of a compressors motor. (It can also be utilised to determine CFM - and a conversion factor applies)
PER	Pressure Equipment Regulations- describes the regulations, relevant to pressure vessels in terms of their conformance to specifications and assessment detailed in the OHS act
OHS act	Occupational Health and Safety Act is legislation, concerned with protecting the safety, health and welfare of people engaged in work or employment. The goals of occupational safety and health programs include to foster a safe and healthy work environment. Specific applications and interpretations may vary from region to region.
PPE	Personal Protective Equipment - refers to the protective clothing worn by the operators of the blast pot and the other employees which conform to the OHS act Including but not limited to Safety Shoes, helmets, Ear plugs etc.
R-Clip	Also referred to safety wire or lock-pin. This accessory is inserted into corresponding holes in the couplings to ensure against accidental disconnection and resulting injuries.

Component Identification:

1. Inspection Cover
2. Exhaust Silencer
3. Choke Valve
4. Safety Relief Valve & Pressure Gauge
5. Gauge Guard
6. Barrel “T” & Helmet Valve
7. Inlet Valve
8. Wheel
9. Metering Valve
10. Remote Control Valve
11. Water Level Valve (for wet blasting)



GENERAL LEGISLATION AND REGULATION INFORMATION

This material describes some, but not all, of the major requirements for safe and productive use of blast machines, remote controls, respirator systems, and related accessories. All equipment and accessories must be installed, tested, operated and maintained only by trained, knowledgeable,experienced users.

Abrasive blasting requires certain equipment to be operated under pressure. Primarily this equipment is air receivers and blasting hoppers (pots) etc.
The responsibilities of the employer in relation to this type of plant includes, but is not limited to :

- Ensuring any pressure vessel i.e., air receiver or blasting pot used at their workplace is of a design registered under the Standard Specification for categorization and conformity assessment criteria for all pressure equipment published by the Relevant Local Bureau of Standards.
- All in-service inspections are carried out in accordance with the manufacturers' specifications and / or the local Pressure equipment regulations as outlined in the area where the equipment is being used.
- Pressure vessels are operated only by persons trained in their use.
- All fittings are of equivalent rating to the pressure vessel and are correctly attached.
- A safety relief valve is fitted and regularly checked.

Employers and employees (blast operators and all workers) in the vicinity must be properly protected and must ensure all necessary steps are taken to reduce the potential risk from all job site hazards including those hazards generated by blasting.

Work environments involving abrasive blasting present numerous hazards. Hazards relate to the blast process from many sources which include, but are not limited to, dust generated by blasting or from material present on the surface being blasted. The hazards from toxic materials may include, but are not limited to, silica, cyanide, arsenic, or other toxins in the abrasives or in the coatings, such as lead or heavy metals. Other hazards from toxins include, but are not limited to, fumes from coating application, carbon monoxide from engine exhaust, contaminated water, chemicals or asbestos. In addition, physical hazards that may be present include, but are not limited to, uneven work surfaces, poor visibility, excessive noise, and electricity. Employers must identify all job site hazards and protect workers in accordance with relevant regulations. Never modify Storm Machinery equipment or components or substitute parts from other manufacturers for any Storm Machinery components or parts. Any unauthorized modification or substitution of supplied-air respirator parts may violate OHS Act regulations and or warranty.

HOSES, COUPLINGS, AND NOZZLE HOLDERS

- The inside diameter (ID) of air hoses, fittings, and connections should be at least four times larger than the nozzle orifice size. Ideally, all blast hose ID should be three to four times the size of the nozzle orifice. Eg: 10 mm nozzle (10 mm / 3/8" diameter orifice) requires a 32 mm / 1-1/2" ID blast hose and 1-1/2" ID or larger compressor hose.
- All hose runs should be kept as short as possible and run in as straight a line as possible to reduce pressure loss.
- During installation, squarely cut the end of the hose so that it fits snugly against the coupling or hose end shoulder. Always use the screws recommended by the manufacturer ensuring that they do not penetrate the inner wall. Make sure the couplings tightly fit the hose. Incorrectly cut hoses can become worn or damaged prematurely .
- Fit cotter pins (r-clips) at every connection or use couplings with built-in lock-springs to prevent disengagement.
- Install safety whip-check cables at all connections to prevent whipping if hoses disconnect or blow out.
- Make sure all blast operators are properly trained and suitably attired with full PPE, (i.e. blast suit, safety boots, leather gloves, respiratory and hearing protection.)
- Every day before start up, check all equipment components, including piping, fittings, and hoses, and valves, for leaks, tightness, and wear.
  Repair or replace as needed.

INTRODUCTION

These instructions cover set-up, operation, maintenance, troubleshooting, and replacement parts for Storm Machinery Single Chamber Blast machines, with Manual or Remote Plumbing Systems.

These instructions also contain important safety information required for safe operation of the machine.

All blast operator(s) and machine (pot) assistants should be trained in the safe operation of the blast machine, remote control system, and all blasting accessories. All operators and any personnel involved with the abrasive blasting process must be aware of the hazards associated with abrasive blasting.

Before using this machine, all personnel involved with the blast machine operation must read this entire manual, and a copy must always be available for reference purposes.

N.B.
Storm Machinery uses safety alert words, and symbols, in this manual, to alert the user of a potentially hazardous situation that may be encountered while operating this equipment. Refer to the symbols and warnings sections of this manual on page 2.

TRANSPORT & INITIAL SETUP

⚠ WARNING

Failure to observe the following warnings before transporting or moving a blast machine could result in serious injury or death.

- **Always ensure the blast pot is empty before lifting or hoisting.**
- **Never hoist the machine by the handle or piping, or with a sling through the handle or piping.**
- **Always use lift equipment that is rated higher than the weight of the machine and accessories.**
- **When transporting a machine on a pallet, always securely attach the machine to a sturdy pallet.**
- **Always securely anchor the machine to the transport vehicle.**
- **Anyone using material handling equipment to move, transport, or lift the machine must be able to recognize and avoid hazards associated with handling this type of equipment, and authorised to operate the handling equipment.**

Transporting a blast machine

Always empty the machine before transporting. Transporting a machine containing abrasive will increase the weight to an unsafe handling limit, and could cause abrasive to settle in the piping and create a blockage.

Initial Set-Up for Operation

Locate the compressor upwind from the blasting operation to prevent contaminated air from entering the compressor intake.

Connect an air line from the compressor to the air supply hose connector installed on the blast machine inlet. Refer to the Hoses Informational guide on page 6.

Make sure the coupling gaskets are in place and in good condition before connecting the blast hose to the quick coupling on the blast machine. Use safety lock-pins or safety wire to lock the couplings together, to prevent accidental separation during blasting.

Make sure that all compressed-air supply hose connections are secured with safety lock pins and safety cables to prevent accidental disconnection. Lock pins and safety whip check cables are available from Storm Machinery on request.

⚠ WARNING

Hose disconnection while under pressure could cause serious injury or death. Use safety lock-pins and safety cables on all coupling connections to help prevent hose couplings from accidental disconnection.

Make sure the choke valve is open (handle in-line with the piping).

Close the abrasive metering valve. The closed position for the metering valves is when the handle is at right angles (perpendicular) to the piping and grit valve. Alternatively, turn the adjustment knob until it is all the way in (clockwise).
You are now ready to begin operating the pot.

Should it become necessary to move the machine on site, refer to the section Moving a Blast Machine detailed overleaf.

Once the unit is in place always refer to this section for connection and initial setup information.

Moving a Blast machine On Site

⚠ WARNING

Never attempt to manually move a blast machine when it contains abrasive.

Do not manually move the machine on an incline, or on a slippery or irregular surface that could cause the operator to slip or lose balance.

Sudden weight shifts when the machine is tilted on an incline, and slipping or tripping while moving the machine will cause the operator to lose control of the machine, causing severe injury and property damage.

Ensure that all piping is disconnected from the blast pot.

Empty any and all abrasives from the machine.

The empty machine should be moved manually, on a level flat surfaces, by at least two people.

Move the machine by pushing it in a forward direction.

Do not back-up while moving the machine, as potential tripping hazards cannot be seen.

Once the machine is in place and secure. Reconnect piping and ensure all fittings are secure.

Refer to the Initial setup for Operation Section on page 7 before operating the blast machine.

Operating a Manual Blast Machine

Check to ensure that all blast hose and compressed-air supply hose connections are secured with safety lock pins and safety cables.

Check that all fittings are secure. Leaks will cause the system to malfunction.

Make sure Air Inlet and Exhaust and abrasive metering valves are closed.
Ensure the choke valve is open (handle in-line with the piping).

Close the air outlet valve on the compressor.
Start the compressor, and bring it to operating temperature and pressure.
N.B. The pressure must not exceed the blast machine's rated pressure.

Slowly open the compressor air valve to pressurize the air supply line. Listen for noise that indicates any open lines or leaks.

⚠ WARNING

When approaching an idle blast machine, and before loading the blast machine with abrasive, always check to make sure the air inlet valve is closed and the exhaust valve open.
If not, close the inlet valve and open the exhaust valve while standing back and facing away from the concave head and exhaust silencer. During depressurization, abrasive could be forced out of the top of the machine, and cause injury.
Always wear suitable PPE.

Load abrasive into the machine by pouring it into the concave head. Use an optional screen (screen comes with blast machine packages) placed over the head to prevent foreign objects from falling inside. (Foreign objects can block the machine.)
Abrasive flows through the filling port into the machine. Keep the abrasive level below the pop-up valve to prevent abrasive on the pop-up valve from being forced up and out of the top of the machine when the machine is pressurized.

Do not allow anyone around the blast machine except machine tenders, who are appropriately fitted with approved personal protective equipment. All Operators and anyone else that may be exposed to the hazards generated by the blasting process must wear appropriate PPE, including abrasive-resistant clothing, leather gloves, eye and hearing protection, and an air fed helmet.

Hold the blast hose securely and point the nozzle only toward objects intended to be blast cleaned.

Signal the machine tender to close the exhaust valve and open the inlet valve. Within a few seconds the pop-up valve automatically closes, and the blast machine will pressurize to start blasting.

⚠ CAUTION

Be prepared for the recoil from the blast hose. Blasting should begin within a few seconds after the inlet valve is opened.

With the abrasive metering valve closed as instructed, in the initial setup, only air will exit the nozzle.

Adjust abrasive flow via the Abrasive Metering Valve, located at the bottom of the blast machine.

While the operator is blasting, the machine tender increases abrasive flow by moving the handle downward, slowly.

Continue to open the valve, and increase the flow until it begins to pulsate.

Close the valve slowly until the pulsation stops, allowing time for the flow to stabilize whilst readjusting.

Optimum abrasive flow depends on the type and size of abrasive and blasting pressure, and can best be determined by experience.

Use as little abrasive as possible while maintaining the maximum cleaning rate. The air/abrasive mixture should be mainly air.

As a general rule, the stream of abrasive coming out of the nozzle should barely discolor the air when seen against a contrasting background.

Once the correct flow is attained, this setting can be maintained for the duration of the task.

Adjustments to the abrasive flow via the metering valve will be required if media is changed for application.

Owing the fact that the metering valve is a wear part, check the setting periodically and adjust if necessary.

Operating a Manual Blast Machine - Con td.

To refill the machine or during shift change (day end), the machine must be stopped and depressurized.

To stop blasting, the tender must close the inlet valve and quickly open the exhaust valve to depressurize the vessel.

The pop-up valve automatically drops when air is expelled from the machine and pressure equalizes.

WARNING

To prevent serious injury always keep hands clear of the exhaust silencer and pop-up valve during start up, running and stopping of the blasting process.

Follow the steps outlined on Page 8 to continue blasting.

N.B. When working in environments subject to extreme temperature changes, or very humid conditions, condensation may develop inside the machine. Condensation wets abrasive and causes flow problems. To prevent this, empty the machine of all abrasive when shutting down for the day. This will eliminate trouble from moist abrasive when starting a new day's blasting. One way to avoid having to empty the machine is to load only as much abrasive as will be used during the work period. If the machine must be purged of abrasive, do the following:

With the blast machine off, turn the blast pressure down to approximately 30-50 psi, close the choke valve and set the abrasive metering valve at full open.

With the nozzle removed, Point the hose into a drum or suitable container, or in the direction the abrasive is to be disposed.

Hold the hose securely (do not leave the hose unattended), and pressurize the machine by closing the exhaust valve, opening the inlet valve and activating the pot.

NB: Be prepared for surging, or recoil of the hose, which can be severe.

When the machine is empty, close the inlet valve and exhaust the pot, and open the choke valve.

When removing the nozzle,remember to also remove the nozzle washer (if fitted).

Repeated incidents of purging the machine without a nozzle in place, can and will erode the thread area of the nozzle holder, which could cause a hazardous condition.

WARNING

The threads on the nozzle and nozzle holder must be inspected each time the nozzle is secured to the holder. A loose fitting nozzle may eject under pressure and could cause severe injury.
Check the threads for wear, and make sure the nozzle holder securely holds the nozzle.
The nozzle washer must also be inspected for wear. Worn nozzle washers could allow erosion of nozzle threads.

Operating a Remote Blast Machine

Connect the ends of the Twinline hose to the fittings on the remote control valve.
Most RCV's and DMH's are stamped "In and Out" to indicate connection and direction of flow.
Connect the first hose to the fitting marked "In" on the DMH and to the fitting marked "Out" on the RCV.
Connect the second hose to the "Out" on the DMH and to the "In" on the RCV.
Unless the system incorporates an OBF, the air supply hose to the helmet should be connected to the valve at the base of the RCV (only if supplied air is clean and of breathing quality).

Check to ensure that all blast hose and compressed-air supply hose connections are secured with safety lock pins and safety cables.

Check that all fittings are secure. Leaks will cause the system to malfunction.

Ensure the choke valve is open (handle in-line with the piping). Make sure the abrasive metering valve is closed.

WARNING

To prevent severe injury from accidental activation of the blast machine, open the safety valve when the blast machine is not in use. Opening the safety valve prevents accidental activation of the RCV and unintentional blasting.

Make sure that the remote control handle lever is in the up (no blast) position, and that the handle lever and safety lock move freely.

WARNING

Never leave DMH laying on the ground where dust or debris could block up the ports and cause the handle to malfunction.

If a "bleed-type" DMH is fitted, ensure that the handle lever will not seal the opening on the control handle, unless the safety lever lock is pulled down.

WARNING

Malfunctioning Deadman's handles could cause accidental activation of a blast machine, or prevent a machine from deactivating upon release. Any and all malfunctioning Deadman's handles must be taken out of service immediately and repaired or replaced. Serious injury or death could result from unexpected and unintentional blasting.

Close the air outlet valve on the compressor.

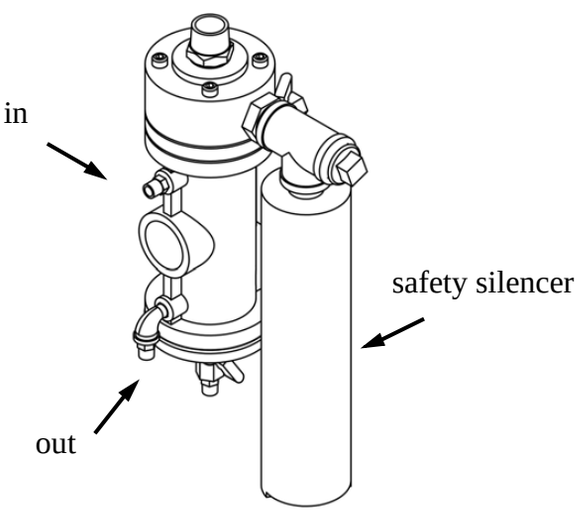
Start the compressor, and bring it to operating temperature and pressure.

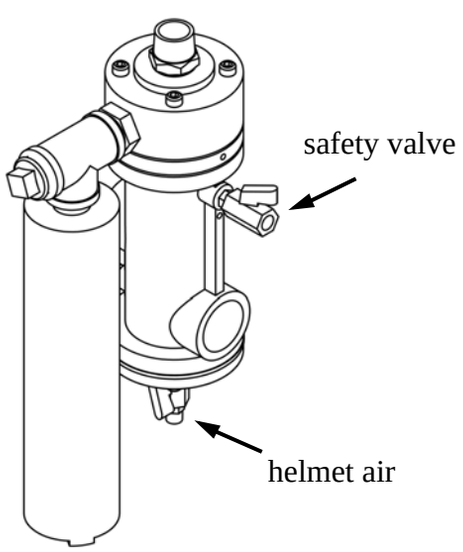
N.B. The pressure must not exceed the blast machine's rated pressure.

Slowly open the compressor air valve to pressurize the air supply line. Listen for noise that indicates any open lines or leaks.

Do not allow anyone around the blast machine except machine tenders, who are appropriately fitted with approved personal protective equipment. All Operators and anyone else that may be exposed to the hazards generated by the blasting process must wear appropriate PPE, including abrasive-resistant clothing, leather gloves, eye and hearing protection, and an air fed helmet.

Load abrasive into the machine by pouring it into the concave head. Use an optional screen (screen comes with blast machine packages) placed over the head to prevent objects from falling inside. (Foreign objects can block the machine.)
Abrasive flows through the filling port into the machine. Keep the abrasive level below the pop-up valve to prevent abrasive on the pop-up valve from being forced up and out of the top of the machine when the machine is pressurized.





Operating a Remote Blast Machine - Con td.

WARNING

All persons except for the blast machine tender must stay clear of the blast machine. The blast operator may pressurize or depressurize the machine at any time. This action may vent abrasive under pressure and cause abrasives, dust and debris to become airborne. The activation and deactivating of a remote system blast machine, generates noise by the sudden build up or release of compressed air when the machine is pressurized or depressurized. Either of the actions could result in injury.
The machine tender must must keep hands clear of filling hole and also wear suitable personal protective equipment.

When the blast operator is ready to blast, either the operator or the machine tender, while standing back and facing away from the concave filling head at the top of the blast machine and the exhaust silencer, close the safety valve on the remote control valve, preparing the machine for remote activation by the Deadman's handle.

WARNING

No dust is safe to breathe.
Abrasive blasting produces harmful dust. Failure to wear approved respirators could result in serious lung disease or death.
All operators must wear air fed helmets approved for abrasive blasting.
During abrasive blasting, abrasive particles and dust in the area around the blast machine and blast nozzle become airborne. Everyone in the vicinity of abrasive blasting must wear properly-maintained, approved, respiratory protection appropriate for the job site hazards.
Prolonged exposure to noise generated by the use of compressed air can cause hearing damage. Everyone in the blasting area must wear approved hearing protection.

Hold the blast hose securely and point the nozzle only toward objects intended to be blast cleaned.

Pull back the safety lever lock and depress the remote deadmans handle. Within a few seconds the pop-up valve automatically closes, and the blast machine will pressurize to start blasting.

Pressing the Deadmans Handle Lever

CAUTION

Be prepared for the recoil from the blast hose. Blasting should begin within a few seconds after pressing the Deadman's handle lever.

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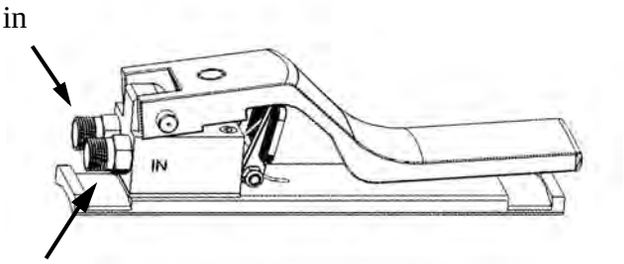

out

Operating a Remote Blast Machine - Con td.

As illustrated in the section Operating a Manual Blast Pot, the setting of the abrasive metering valve is done as follows.

Hold the blast hose securely and point the nozzle only toward objects intended to be blast cleaned.

With the abrasive metering valve closed as instructed, in the initial setup, only air will exit the nozzle.

Adjust abrasive flow via the Abrasive Metering Valve, located at the bottom of the blast machine.

While the operator is blasting, the machine tender increases abrasive flow by moving the handle downward, slowly or turn the knob counter-clockwise.

Allow time for the flow to stabilize before readjusting.

Optimum abrasive flow depends on the type and size of abrasive and blasting pressure, and can best be determined by experience.

Use as little abrasive as possible while maintaining the maximum cleaning rate. The air/abrasive mixture should be mainly air.

As a general rule, the stream of abrasive coming out of the nozzle should barely discolor the air when seen against a contrasting background.

Once the correct flow is attained, this setting can be maintained for the duration of the task.

Adjustments to the abrasive flow via the metering valve will be required if media is changed for application.

Owing the fact that the metering valve is a wear part, check the setting periodically and adjust if necessary.

To refill the machine or during shift change (day end), the machine must be stopped and depressurized.

To stop blasting, release the Deadman's handle lever.

When the control handle lever is released, the safety lever lock will flip up to lock the handle lever in the up (no blast) position.

Releasing the handle causes the pot to exhaust and depressurize.

The pop-up valve automatically drops when air is expelled from the machine and pressure equalizes.

Make sure that the control handle safety lever lock is up, and that it prevents the handle lever from engaging.

As discussed on page 9, always open the safety valve on the remote control valve during work breaks and before filling the blast machine, preventing unintentional activation of the machine.

To continue blasting, as discussed previously, pull back the safety lever lock and depress the remote control handle. The blast machine will pressurize to start blasting again.

N.B. When working in environments subject to extreme temperature changes, or very humid conditions, condensation may develop inside the machine. Condensation wets abrasive and causes flow problems. To prevent this, empty the machine of all abrasive when shutting down for the day. This will eliminate trouble from moist abrasive when starting a new day's blasting. One way to avoid having to empty the machine is to load only as much abrasive as will be used during the work period. If the machine must be purged of abrasive, do the following:

With the blast machine off, turn the blast pressure down to approximately 30-50 psi, close the choke valve and set the abrasive metering valve at full open.

Point the nozzle into a drum or suitable container, or in the direction the abrasive is to be disposed.

Hold the hose securely (do not leave the hose unattended), and pressurize the machine by activating the control handle.

NB: Be prepared for surging, or recoil of the hose, which can be severe.

When the machine is empty, release the Deadman's handle lever, open the safety valve on the remote control valve, and open the choke valve.

When removing the nozzle remember also to remove the nozzle washer.

If the nozzle was removed, thoroughly inspect the nozzle holder threads for wear before installing the nozzle washer and attaching the nozzle.

Purging the machine without a nozzle in place, will erode the thread area of the nozzle holder, which could cause a hazardous condition.

⚠ WARNING

The threads on the nozzle and nozzle holder must be inspected each time the nozzle is secured to the holder. A loose fitting nozzle may eject under pressure and could cause severe injury.
Check the threads for wear, and make sure the nozzle holder securely holds the nozzle.
The nozzle washer must also be inspected for wear. Worn nozzle washers could allow erosion of nozzle threads and holder.

Shutdown of Blast Machine

At Day end empty the blast machine as discussed in the chapters on Operating the Blast Pot

When finished blasting, and after cleanup is completed, remove the air fed helmet where the air is safe to breathe.

Close the compressed-air supply valve at the compressor.

Drain any air receiver tank, filters, and water collecting devices, and bleed the compressed-air supply hose.

Shutdown the compressor.

Cover the blast machine when not in use.

Operating a Remote Wet Blast Machine

Connect the ends of the Twinline hose to the fittings on the remote control valve.
Most RCV's and DMH's are stamped "In and Out" to indicate connection and direction of flow.
Connect the first hose to the fitting marked "In" on the DMH and to the fitting marked "Out" on the RCV.
Connect the second hose to the "Out" on the DMH and to the "In" on the RCV.
Unless the system incorporates an OBF, the air supply hose to the helmet should be connected the valve at the base of the RCV.

Check to ensure that all blast hose and compressed-air supply hose connections are secured with safety lock pins and safety cables.

Check that all fittings are secure. Leaks will cause the system to malfunction.

Ensure the choke valve is open (handle in-line with the piping). Make sure the abrasive metering valve is closed.

- Open the water level valve on the side of the pot
- Add the required amount of rust inhibitor into the vessel as per paint supplier specifications
- Fill the vessel with water until water exits the level valve then add abrasives as normal

To prevent severe injury from accidental activation of the blast machine, open the safety valve when the blast machine is not in use. Opening the safety valve prevents accidental activation of the RCV and unintentional blasting.

Make sure that the remote control handle lever is in the up (no blast) position, and that the handle lever and safety lock move freely.

If a "bleed-type" DMH is fitted, ensure that the handle lever will not seal the opening on the control handle, unless the safety lever lock is pulled down.

⚠ WARNING

Malfunctioning Deadman's handles could cause accidental activation of a blast machine, or prevent a machine from deactivating upon release. Any and all malfunctioning Deadman's handles must be taken out of service immediately and repaired or replaced. Serious injury or death could result from unexpected and unintentional blasting.

Close the air outlet valve on the compressor.

Start the compressor, and bring it to operating temperature and pressure.

N.B. The pressure must not exceed the blast machine's rated pressure.

Slowly open the compressor air valve to pressurize the air supply line. Listen for noise that indicates any open lines or leaks.

Do not allow anyone around the blast machine except machine tenders, who are appropriately fitted with approved personal protective equipment. All Operators and anyone else that may be exposed to the hazards generated by the blasting process must wear appropriate PPE, including abrasive-resistant clothing, leather gloves, eye and hearing protection, and an air fed helmet.

⚠ WARNING

All persons except for the blast machine tender must stay clear of the blast machine. The blast operator may pressurize or depressurize the machine at any time. This action may vent abrasive under pressure and cause abrasives, dust and debris to become airborne. The activation and deactivating of a remote system blast machine, generates noise by the sudden build up or release of compressed air when the machine is pressurized or depressurized. Either of the actions could result in injury.
The machine tender must also wear suitable personal protective equipment.

When the blast operator is ready to blast, either the operator or the machine tender, while standing back and facing away from the concave filling head at the top of the blast machine and the exhaust silencer, close the safety valve on the remote control valve, preparing the machine for remote activation by the Deadman's handle.

⚠ WARNING

No dust is safe to breathe.
Abrasive blasting produces harmful dust. Failure to wear approved respirators could result in serious lung disease or death.
All operators must wear air fed helmets approved for abrasive blasting.
During abrasive blasting, abrasive particles and dust in the area around the blast machine and blast nozzle become airborne. Everyone in the vicinity of abrasive blasting must wear properly-maintained, approved, respiratory protection appropriate for the job site hazards.
Prolonged exposure to noise generated by the use of compressed air can cause hearing damage. Everyone in the blasting area must wear approved hearing protection.

Hold the blast hose securely and point the nozzle only toward objects intended to be blast cleaned.

Pull back the safety lever lock and depress the remote control handle. Within a few seconds the pop-up valve automatically closes, and the blast machine will pressurize to start blasting.

⚠ CAUTION

Be prepared for the recoil from the blast hose. Blasting should begin within a few seconds after pressing the Deadman's handle lever.

As illustrated in the section Operating a Manual Blast Pot, the setting of the abrasive metering valve is done as follows.

With the abrasive metering valve closed as instructed, in the initial setup, only air will exit the nozzle.

Adjust abrasive flow via the Abrasive Metering Valve, located at the bottom of the blast machine.

While the operator is blasting, the machine tender increases abrasive flow by turning the adjustment knob counter clockwise.

Allow time for the flow to stabilize before adjusting.

Optimum abrasive flow depends on the type and size of abrasive and blasting pressure, and can best be determined by experience.

Use as little abrasive as possible while maintaining the maximum cleaning rate. For most applications +/- 4 full turns should be sufficient.

As a general rule, the stream of abrasive coming out of the nozzle should barely discolor the air when seen against a contrasting background.

Once the correct flow is attained, this setting can be maintained for the duration of the task.

Adjustments to the abrasive flow via the metering valve will be required if media is changed for application.

Owing the fact that the metering valve is a wear part, check the setting periodically and adjust if necessary.

To refill the machine or during shift change (day end), the machine must be stopped and depressurized.

To stop blasting, release the Deadman's handle lever.

When the control handle lever is released, the safety lever lock will flip up to lock the handle lever in the up (no blast) position.

Releasing the handle causes the pot to exhaust and depressurize.

The pop-up valve automatically drops when air is expelled from the machine and pressure equalizes.

Make sure that the control handle safety lever lock is up, and that it prevents the handle lever from engaging.

As discussed on page 9 always open the safety valve on the remote control valve during work breaks and before filling the blast machine, preventing unintentional activation of the machine.

To continue blasting, as discussed previously, pull back the safety lever lock and depress the remote control handle. The blast machine will pressurize to start blasting again.

With the blast machine off, turn the blast pressure down to approximately 30-50 psi, close the choke valve and set the abrasive metering valve at full open.

Point the nozzle into a drum or suitable container, or in the direction the abrasive is to be disposed.

Hold the hose securely (do not leave the hose unattended), and pressurize the machine by activating the control handle.

NB: Be prepared for surging, or recoil of the hose, which can be severe.

When the machine is empty, release the Deadman's handle lever, open the safety valve on the remote control valve, and open the choke valve.

WARNING

The threads on the nozzle and nozzle holder must be inspected each time the nozzle is secured to the holder. A loose fitting nozzle may eject under pressure and could cause severe injury.
Check the threads for wear, and make sure the nozzle holder securely holds the nozzle.
The nozzle washer must also be inspected for wear. Worn nozzle washers could allow erosion of nozzle threads.

Preventative Maintenance

WARNING

Failure to observe the following before performing any maintenance could cause serious injury or death from the sudden release of compressed air

Always depressurise the blast machine

- **Lockout and tagout the compressed air supply**
- **Bleed the air supply line to the blast machine**

N.B.: These preventive maintenance instructions refer to the blast machine and blasting accessories, for their inspection and maintenance schedules, where applicable.

Daily Inspection

With the air off, before blasting, do the following:

- Inspect the Exhaust Silencer for wear or damage. Do this at least twice a day, or more often if the machine is frequently cycled. Failure to inspect the silencer can cause sever injury, or system malfunction.

- Inspect the blast hose for wear; look for soft spots.Soft spots indicate that the hose is worn. Replace the blast hose before the tube wears as far as the fabric plies.

WARNING

Worn blast hose could suddenly fail by bursting. Couplings and nozzle holders may not adequately grip worn hose causing them to blow off under pressure. Compressed air and abrasive escaping from a burst hose, or disconnected coupling or nozzle holder, could cause severe injury.

• Check to make sure all couplings are secure and lock pins and safety cables are in place.
• Make sure the nozzle washer is in place and not worn.

WARNING

The threads on the nozzle and nozzle holder must be inspected each time the nozzle is secured to the holder. A loose fitting nozzle may eject under pressure and could cause severe injury. Check the threads for wear, and make sure the nozzle holder securely holds the nozzle. The nozzle washer must also be inspected for wear. Worn nozzle washers could erode nozzle threads or holder.

Inspect the Deadman's Handle; look for the following:

• The lever must not seal the opening on the control unless the safety lever lock is pulled down.

• The **handle lever** must return to the "up" position when released.
• The **safety lever lock** must return to the "up" position when the handle lever is released.
• Both the handle lever and safety lever lock must move freely with no drag or binding.

WARNING

Malfunctioning control handles could cause unintentional activation of the blast machine, or prevent a machine from deactivating upon release. Malfunctioning control handles must be taken out of service immediately and repaired or replaced. Serious injury or death could result from unintentional blasting.

During blasting, do the following:

- Check the Deadman's handle & Twinline for leaks.
- Inspect all couplings and coupling gaskets for leaks.
- Check the blast machine for leaks.
- If leaks are found around the pop-up valve, inspection door, or pipe fittings at the bottom of the cone, stop blasting immediately and repair or replace worn parts. If leaks are allowed to continue, abrasive erosion could cause irreparable damage to the blast machine.

- Check all external piping, control hoses, and valves for leaks.
- If leaks are found, stop blasting and repair.
- Inspect blast hose, couplings, and nozzle holders for leaks. At the first sign of a leak, stop blasting and inspect all items for wear.

WARNING

Leaks around couplings and nozzle holders indicate worn or loose-fitting parts. Nozzle holders and couplings that do not fit tight on hose, and nozzles that do not fit tight in nozzle holders could disconnect while under pressure. Impact from nozzles, couplings, hoses, or abrasive, from parts disconnected by pressure during operation could cause severe injury.

Weekly Inspection

With the air off, before blasting, do the following:

- Remove the nozzle for inspection.
- Replace if the internal diameter has worn 1.5mm or more, or if the nozzle liner is cracked.

In installations where an Operator's Breathing Filter is used, inspect the filter element, and clean the bowl.

During blasting do the following:

• Note the time it takes to fully depressurize the machine after the control handle is released. When depressurizing time increases noticeably, inspect the exhaust silencer for blockages etc.

Monthly inspection

With the air off, before blasting, do the following:

• Check the pop-up valve's urethane coating for cracks and grooves. Replace the pop-up valve at the first sign of wear.

• Inspect the rubber pop-up seal, and replace at the first sign of wear, drying, or cracking.

• Inspect the exhaust muffler for blockage and wear

Periodic Inspection

The remote control system is a safety device.
For safety and to avoid unscheduled down-time, periodically inspect the internal parts of the inlet valve, outlet valve, and abrasive trap. Inspect for wear and lubrication of o-rings, pistons, springs, seals, and castings

The control handle is the actuator of the remote control system. Periodically clean around the springs, handle lever, and safety lever lock to ensure that the unit is free of abrasive and debris that may cause the handle lever or safety lever lock to bind or malfunction.

Lubrication

Once per week while the air is off, spray one or two sprays of silicone spray through the safety valve of the remote control valve. This will lubricate the piston and o-rings in the inlet and outlet valves.

Lock and Lever Valve

With the air off, press the handle on the lever and lock safety valve to ensure it is still loose and there is no calcification build up.

Service Maintenance

WARNING

Failure to observe the following before performing any maintenance could cause serious injury or death from the sudden release of compressed air.

Always Depressurize the blast machine.

- **Lockout and tagout the compressed air supply.**
- **Bleed the air supply line to the blast Machine.**

Removing damp abrasive from the blast machine.

- To clear a minor blockage caused from damp abrasive, during operation, rapidly close and open the choke valve several times.

- For more difficult blockages, proceed as follows:

1. Remove the metering valve.
2. Check for obstructions in the metering valve.

- If the valve is clear proceed with the following steps:

  - With the blast machine off, disconnect the blast hose and remove the gasket from the quick coupling in the machine

  - Place the machine so that the outlet is pointed away from any objects or persons

WARNING

Place the machine so the outlet is pointed away from any objects or persons. Stand clear of the path of exiting abrasive. It may come out at high velocity. Impact from exiting abrasive could cause severe injury.

- Set pressure to 30-50psi
- Close the choke valve and fully open the abrasive metering valve.
- Pressurize the machine to force out any damp abrasive.
- Once the obstruction is cleared, depressurize the machine.
- Open the choke valve and close the abrasive metering valve.

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Should the nature of the obstruction require emptying the machine of abrasive, follow the instructions:

Clearing a blockage from the Blast Pot

- Turn off the compressed air supply.
- Lock-out and tag-out the air supply, and bleed the air supply line to the blast machine.
- Using a wrench, Remove the abrasive metering valve.
- Remove the blast pot inspection door assembly.
- Check and remove any foreign objects.
- Make sure the inspection door gasket is in good condition, and in place before bolting the door onto the machine.
- Ensure the inspection door is secure fastened before connecting the compressed-air supply.

Once the blockages have been cleared and the Blast pot reassembled, follow the normal start up procedures detailed in the section "Operating a Blast Pot."

Replacing the Pop-Up Valve and Pop up Seal

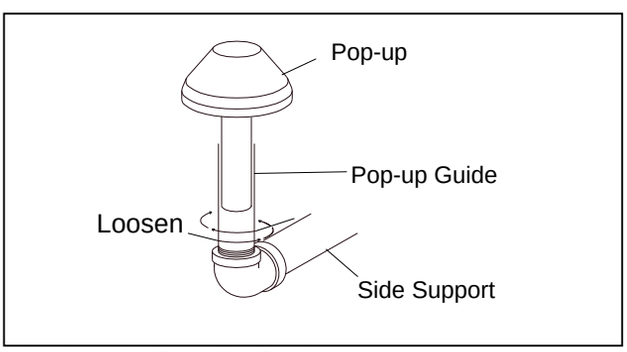
N.B. All service on the pop-up valve must be done with the compressed air off and the air supply locked-out and disconnected.

Replacing the Pop-Up Valve

- To gain access to the pop-up valve, remove the inspection door assembly.
- Using a small pipe wrench, unscrew the pop-up valve guide by turning it counterclockwise.
- Remove the pop-up valve and guide from the machine.
- Slide the new pop-up valve into the pop up valve guide.
- Then screw the valve guide (with the pop-up valve on it) into position inside the machine.

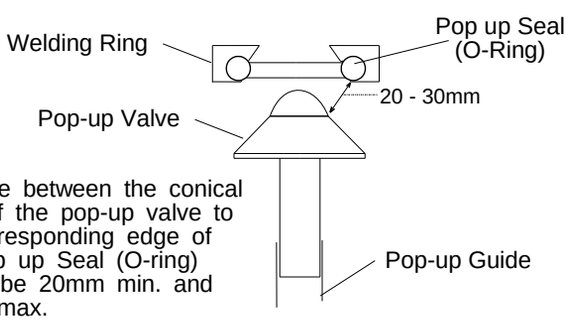
Check alignment of the Pop up valve as follows:

- Check the alignment through the pop-up filling port. (The pop up should be in the center of the port.)
- If it is not, adjust the horizontal pipe (side support) (N.B. A misaligned pop-up valve could result in early valve failure, or abrasive leakage when the machine is pressurized or depressurized.)
- Tighten the guide snug, but not wrench-tight. Over-tightening the guide will make it difficult to remove the next time the pop-up valve needs replacement.



Replacing the Pop-Up Seal

- Remove the old seal using fingers, screwdriver, or similar object, to work the seal out of the retaining groove.
- Push the new seal all the way through the port and then fit it into the retaining groove.
- Pull up on the seal and allow it to pop into position.



Distance between the conical edge of the pop-up valve to the corresponding edge of the Pop up Seal (O-ring) should be 20mm min. and 30mm max.

Exhaust Silencer

WARNING

Check and clean or replace the silencer as soon as blast machine depressurization time increases. Noticeably longer depressurization time indicates the silencer is becoming clogged. If the silencer becomes blocked, excessive air pressure could cause it to burst, which could result in injury.

Removing the silencer must be done with the compressed air supply off and the air supply locked-out and disconnected.

- Using a pipe wrench, remove the silencer from the exhaust elbow by unscrewing the threaded section.
- Inspect for blockage or wear.
- Clean the silencer if possible.
- Replace the unit if necessary.
- Once the silencer is refitted, use a pipe wrench to tighten the silencer to the exhaust elbow / tee.
- In its final position, the unattached end of the silencer must face down.

WARNING

The silencer reduces exhaust noise, and prevents abrasive from exhausting upward or sideways when the blast machine is depressurized. To reduce risk of injury from abrasive carried by high velocity air, the open unattached end of the silencer must be installed with the body facing down.

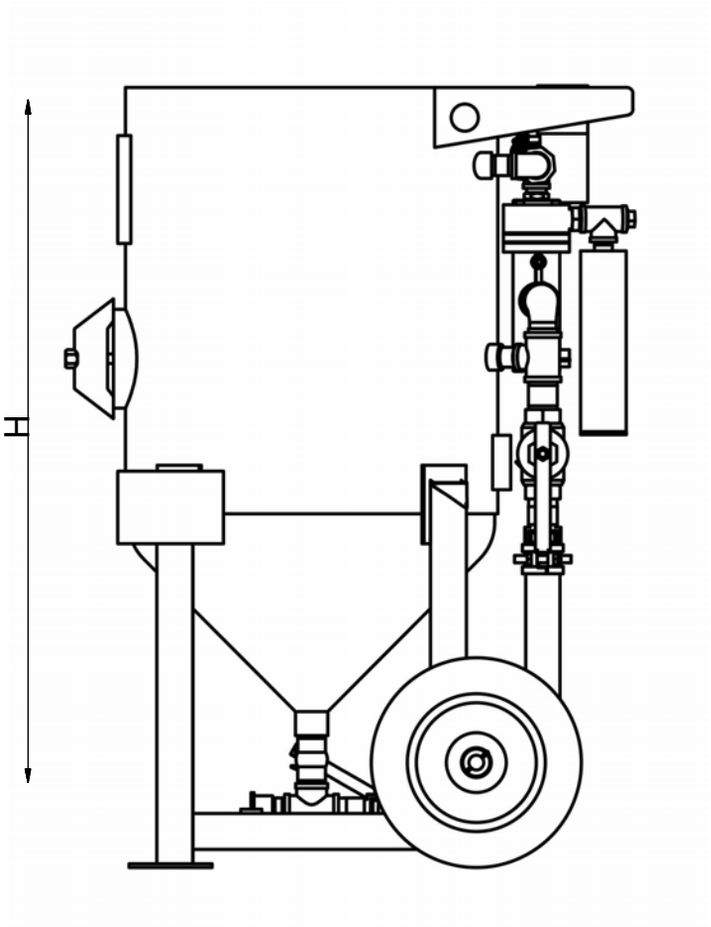
Troubleshooting.

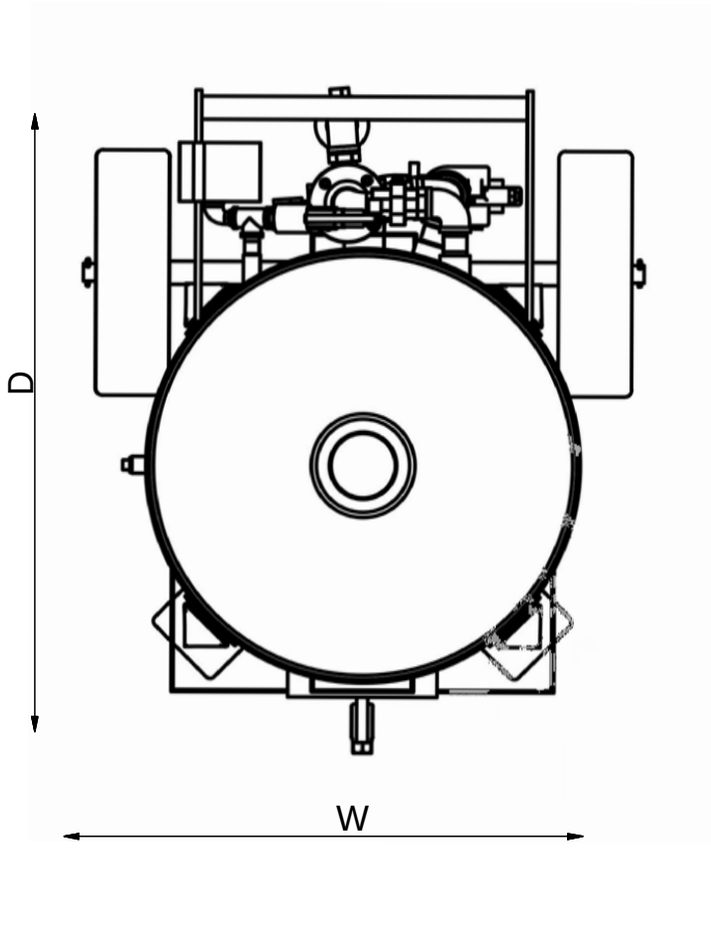
Problem	Cause	Solution
Blast pot won't charge (Pressurise)	No Air Supply	Ensure Compressor is turned on. Check all air supply connections for leaks and ensure all valves are open.
	Faulty or Blocked Deadman's Handle	Check Deadman's handle. Clear restricted nipple. (Service/ Repair or replace if required)
	Faulty Twinline Signal Hose	Check for air leaks (loose or broken hoses & fittings.
	Safety valve open on Remote Control Valve	Check safety valve on Remote control Valve and close if open.
	Faulty or damaged remote control valve	Check Remote Control Valve (Service/Repair or replace if required)
	Damaged or blocked Internal Plumbing,	Check Internal Plumbing for blockage/wear. Clear or replace as necessary.
	Damaged Pop-up Valve / O-Ring	Check components. Remove and replace if necessary.
Neither Abrasive nor air comes out of the nozzle whilst the unit is "charged" (under pressure)		**N.B. Firstly depressurize the blast pot.**
	Nozzle Blocked	Remove the nozzle. Check and clear obstruction.
	Metering & Choke valves, possibly blocked or closed	Make sure that both the metering valve and choke valve are open. Check and clear any obstruction.
Air but no Abrasive		**N.B. Firstly depressurize the blast pot.**
	No Abrasive in blast pot empty.	Refill Blast pot
	Metering valve, possibly blocked or closed	Make sure that both the metering valve and choke valve are open. Check and clear any obstruction.
	Moist or damp abrasive.	Install a Moisture (water) trap.
		To clear minor blockages, follow the steps on page (“'Removing Damp Abrasives from the Blast Machine')

Troubleshooting Con td.

Problem	Cause	Solution
Abrasive Surging	Metering Valve incorrectly adjusted	Adjust metering valve to optimal flow **(N.B. Pot must be operating to adjust flow.)**
Blast pot will not Depressurize or Depressurizes too slowly	Faulty Deadman's Handle or damaged Twinline hoses.	Repair or replace Deadman's handle. Check Twinline hoses and replace if necessary.
		Signal hose connected incorrectly.
	Faulty Remote Control Valve (Remote Pot Unit)	Check Remote Control Valve. Install Service Kit, Repair or Replace as necessary.
	Faulty Exhaust Valve (Manual Pot Unit)	Remove and Replace Valve
	Exhaust Silencer Blocked/ Damaged	Check exhaust silencer. Clean or replace as necessary.

Technical Specifications Con td.





	Height (mm)	Width (mm)	Diameter (mm)	Weight (kg)
60L	1050	680	600	95
100L	1150	650	700	140
200L	950	820	1230	214
300L	1550	1000	1150	300

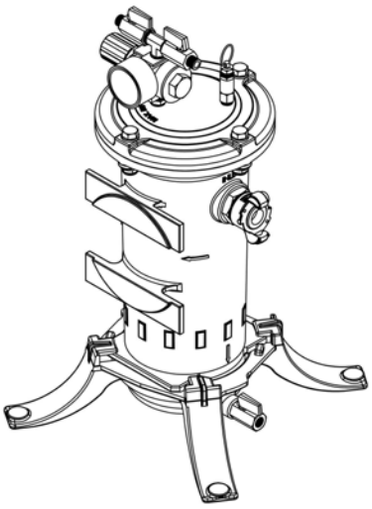
Abrasive Blast Air/Media Consumption and Production Rates

(cubic feet per minute at pressures shown)

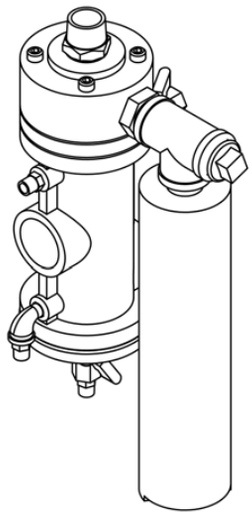
Nozzle Size mm	3.5 Bar 50 psi	4 Bar 60 psi	4.8 Bar 70 psi	5.5 Bar 80 psi	6.2 Bar 90 psi	6.8 Bar 100 psi	Abrasive Consumption kg/h	Blast Rate m^2/min
3	15	17	19	21	24	26	55-80	0.3 - 0.5
4	26	30	34	38	43	47	80-115	0.6 - 0.8
5	33	38	43	48	53	58	125-180	0.9 - 1
6.5	58	67	76	85	94	103	225-320	1.2 - 1.4
8	91	105	119	133	146	161	360-500	1.5 - 1.7
9.5	130	151	171	191	211	232	545-725	1.8 - 2
11	178	206	233	260	286	315	770-1000	2.2 - 2.3
12.7	232	268	304	340	376	412	1050-1270	2.4 - 2.6

Note: Blast area coverage per minute and abrasive consumption are approximate guidelines. Abrasive material used and surface blasted may alter coverage and consumption

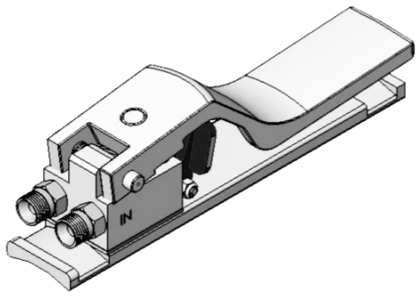
Accessories and Spares



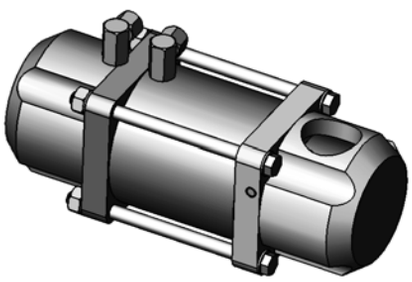
OPERATORS BREATHING FACILITATOR



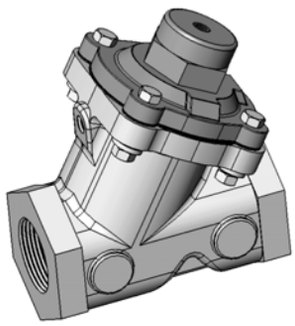
REMOTE CONTROL VALVE 2000



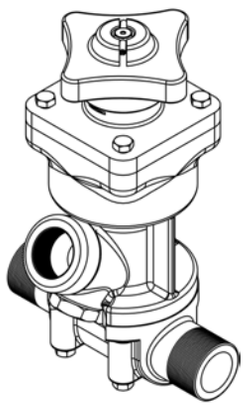
DEADMAN'S HANDLE



COMBO VALVE

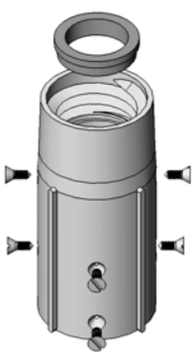


AUTO AIR VALVE

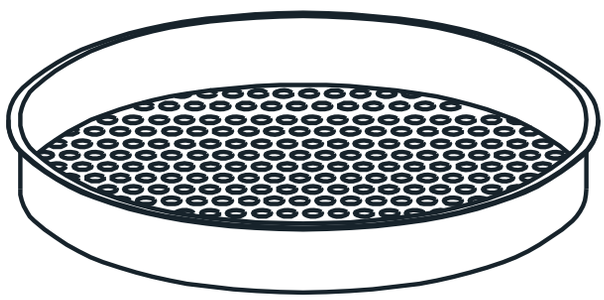


MACRO METERING VALVE

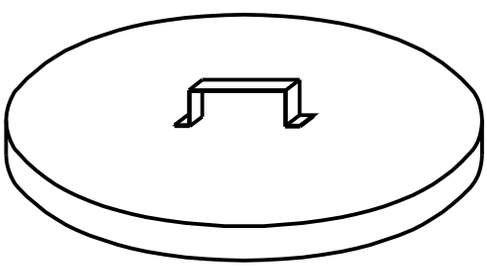
STEEL HOSE COUPLER



NYLON NOZZLE HOLDER

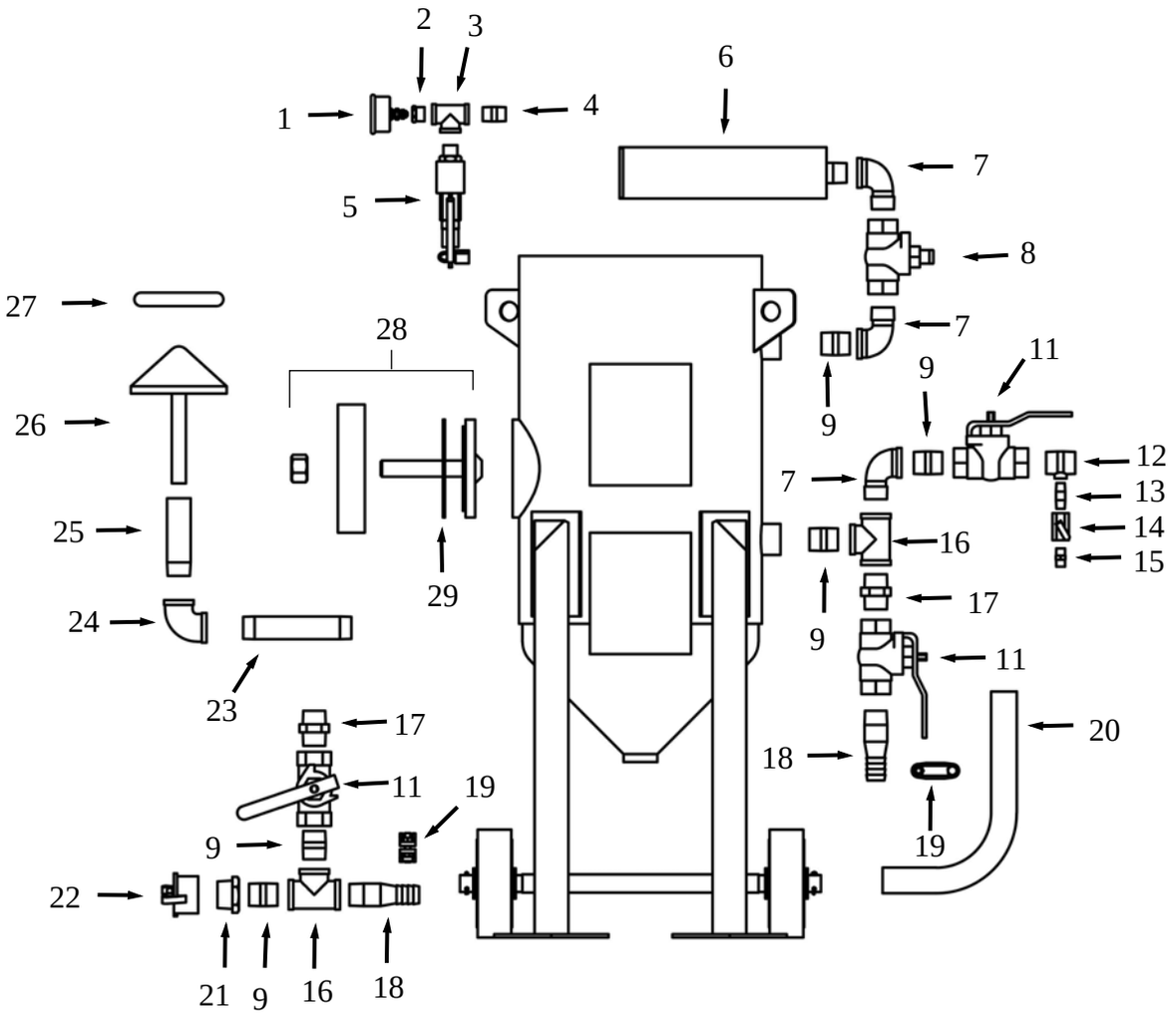


POT SIEVE



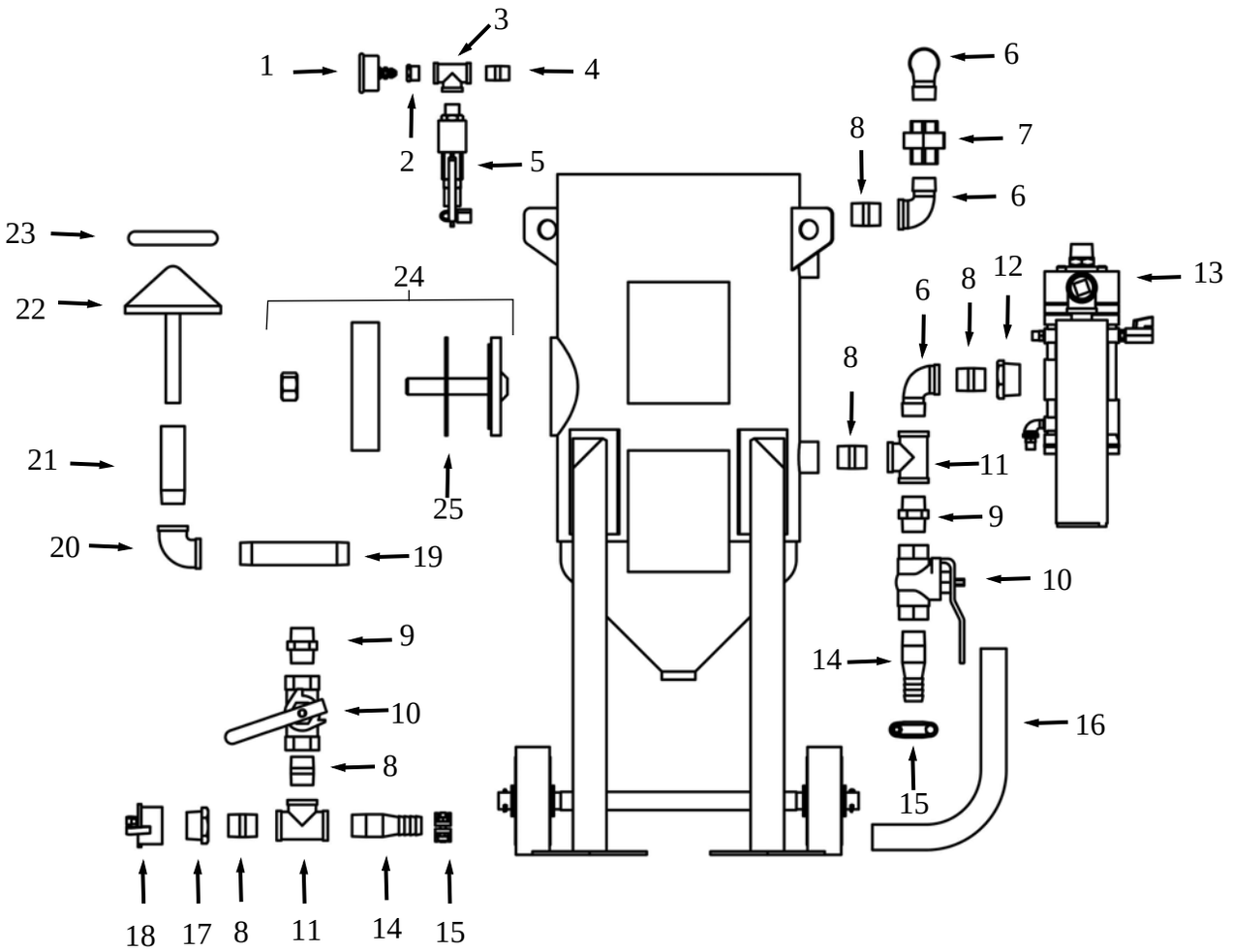
POT LID

60L MANUAL POT PLUMBING



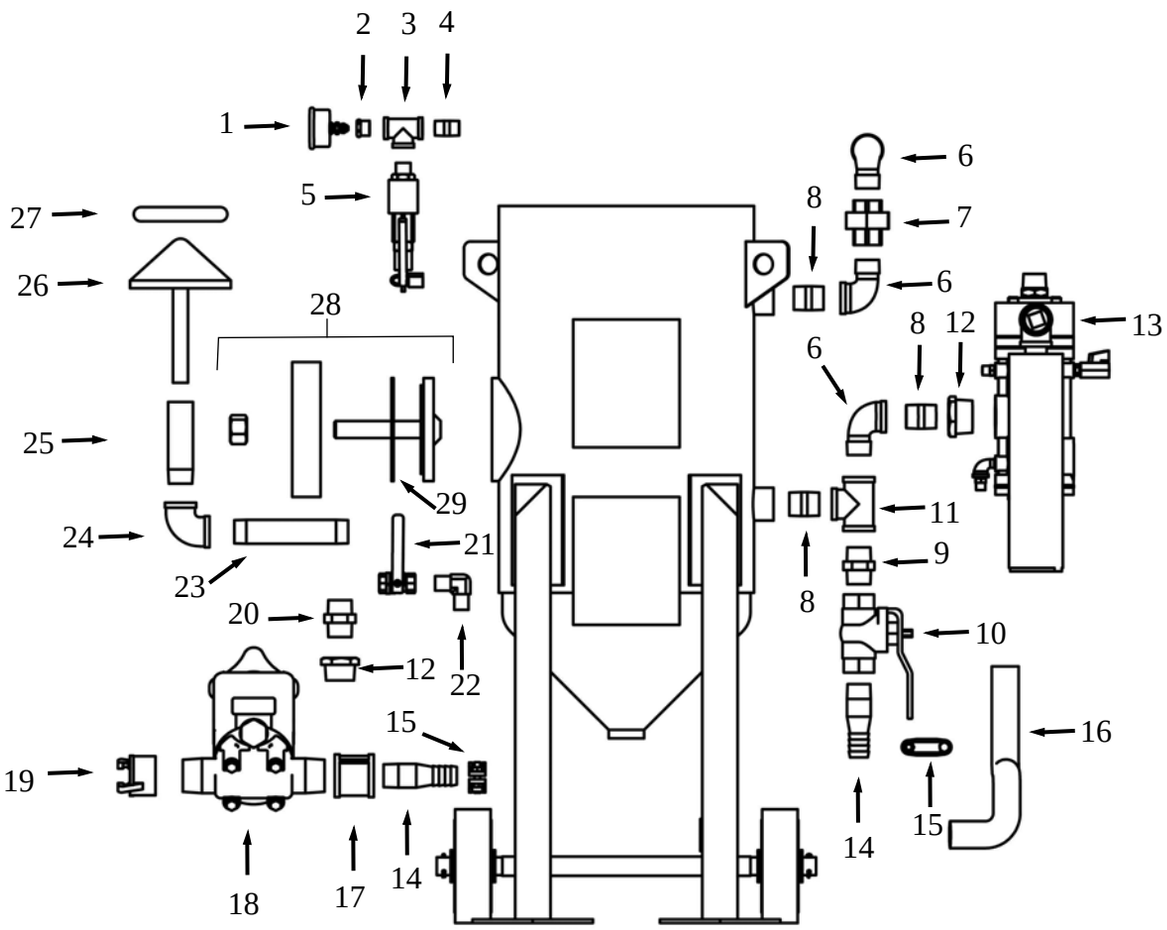
DRG#	PART#	DRG#	PART#
1. GAUGE	R3-B50-G14B-8.5	16. TEE	TG025
2. BUSH	P46	17. HEX	HEX025
3. TEE	TG015	18. SWAGE	LSW-025
4. NIPPLE	BNS015	19. CLAMP	RT5006
5. SAFETY VALVE	2361-015MM	20. HOSE	GRLH-025
6. SILENCER	CS25	21. BUSH	RB32x25
7. ELOW	ELBMFS025	22. COUPLER	PC32
8. VALVE	GLEN025	23. SIDE SUPPORT	60L-SISUP
9. NIPPLE	BNS025	24. ELBOW	ELBFG025
10. N/A		25. POP UP VALVE	RUB-POP
11. VALVE	GLEN025	26. GUIDE	STDPOP-GUIDE
12. NIPPLE	BT25	27. O-RING	STD-ORING
		28. MANHOLE COVER	POT-MANHC-E
14. VALVE	BRBV008	29. GASKET	POT-MANHG
15. NIPPLE	P12		

60L REMOTE POT PLUMBING



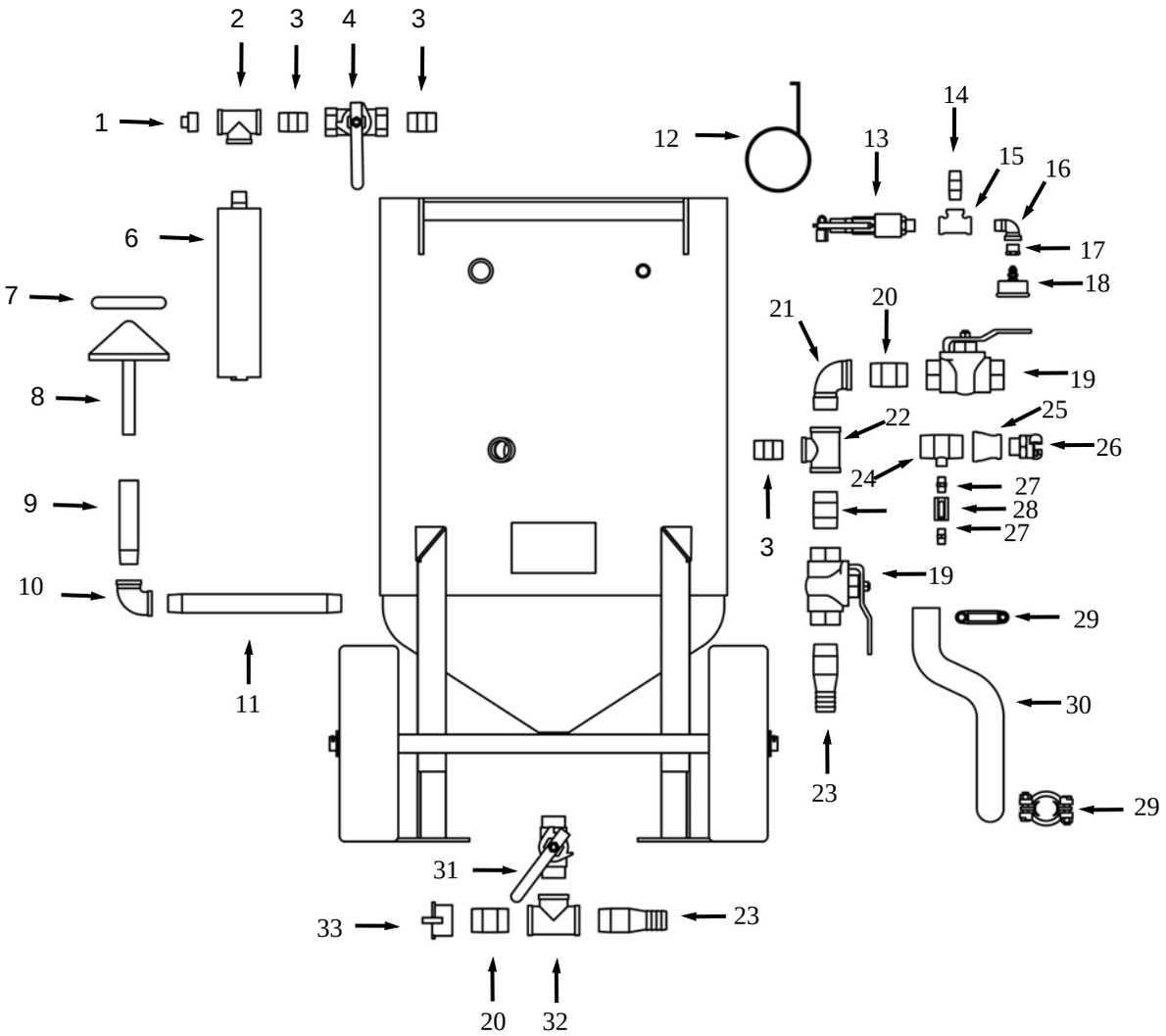
DRG#	PART#	DRG#	PART#
1. GAUGE	R3-B50-G14B-8.5	14. SWAGE	LSW-025
2. BUSH	P46	15. CLAMP	RT5006
3. TEE	TG015	16. HOSE	GOLH-025
4. NIPPLE	BNS015	17. BUSH	RB32x25
5. SAFETY VALVE	2361-015MM	18. COUPLER	PC32
6. ELBOW	ELBMFG025	19. SIDE SUPPORT	60L-SISUP
7. UNION	UG025	20. ELBOW	ELBFG025
8. NIPPLE	BNS025	21. GUIDE	STDPOP-GUIDE
9. HEX	HEX025	22. POP UP VALVE	RUB-POP
10. VALVE	GLEN025	23. O-RING	STD-ORING
11. TEE	TG025	24. MANHOLE COVER	POT-MANHC-E
12. BUSH	RB40x25	25. GASKET	POT-MANHG
13. REMOTE	RCV2000-C		

60L WET & DRY BLAST POT PLUMBING



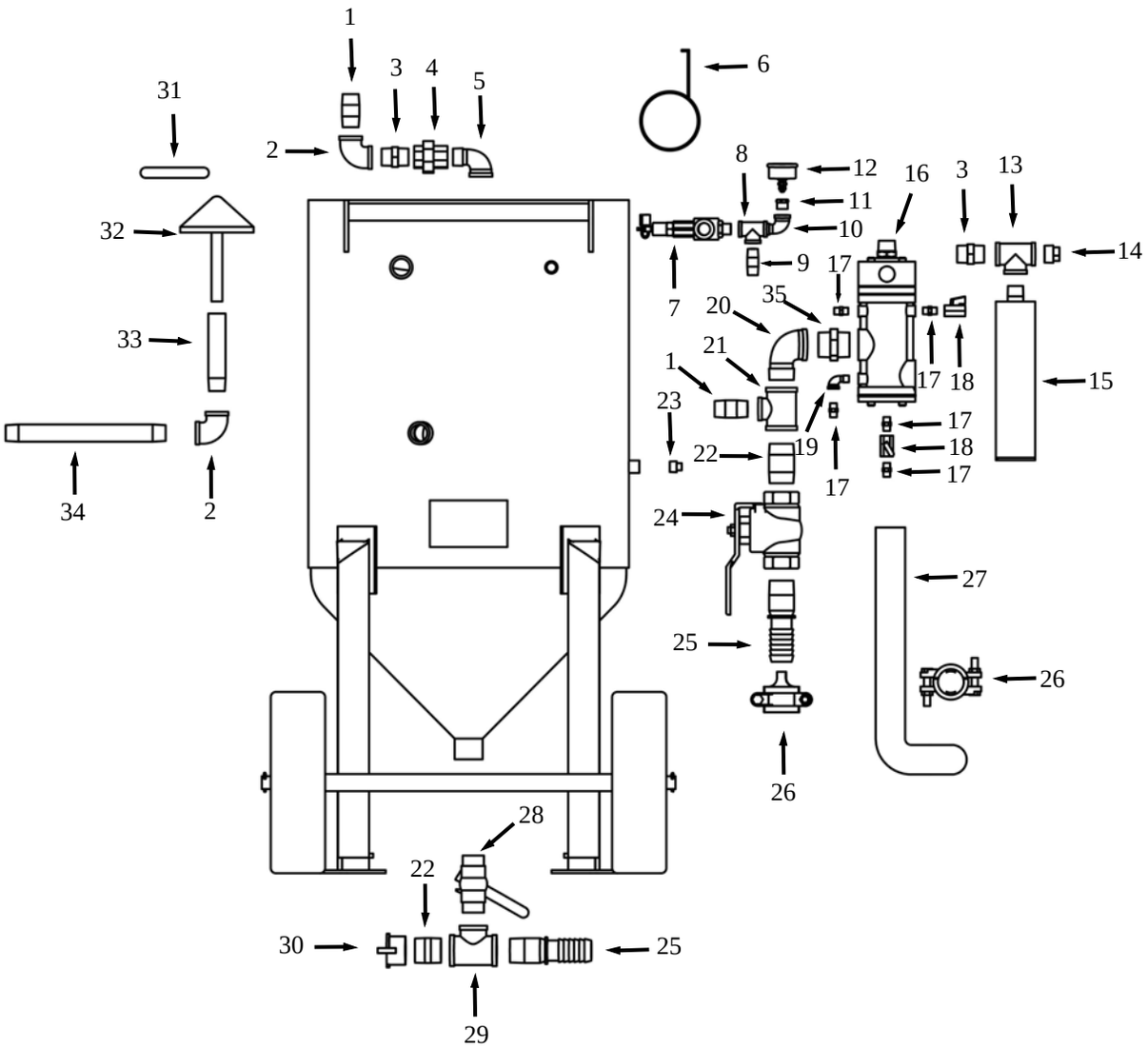
DRG#	PART#	DRG#	PART#
1. GAUGE	R3-B50-G14B-8.5	16. HOSE	GOLH-025
2. BUSH	P46	17. SOCKET	R540X25
3. TEE	TG015	18. METERING VALVE	MMV2
4. NIPPLE	BNS015	19. COUPLER	PC40
5. SAFETY VALVE	2361-015MM	20. HEX	HEX025
6. ELBOW	ELBMFG-025	21. VALVE	BRBV015
7. UNION	UG025	22. ELBOW	130-06-05
8. NIPPLE	BNS025	23. SIDE SUPPORT	60L-SISUP
9. HEX	HEX025	24. ELBOW	ELBFG025
10. VALVE	GLEN025	25. GUIDE	STDPOP-GUIDE
11. TEE	TG025	26. POP UP VALVE	RUB-POP
12. BUSH	RB40x25	27. O-RING	STD-ORING
13. REMOTE	RCV2000-C	28. MANHOLE COVER	POT-MANHC-E
14. SWAGE	LSW-025	29. GASKET	POT-MANHG
15. CLAMP	RT5006	30. BUSH	RB32X25

100L, 200L, 300L MANUAL POT PLUMBING



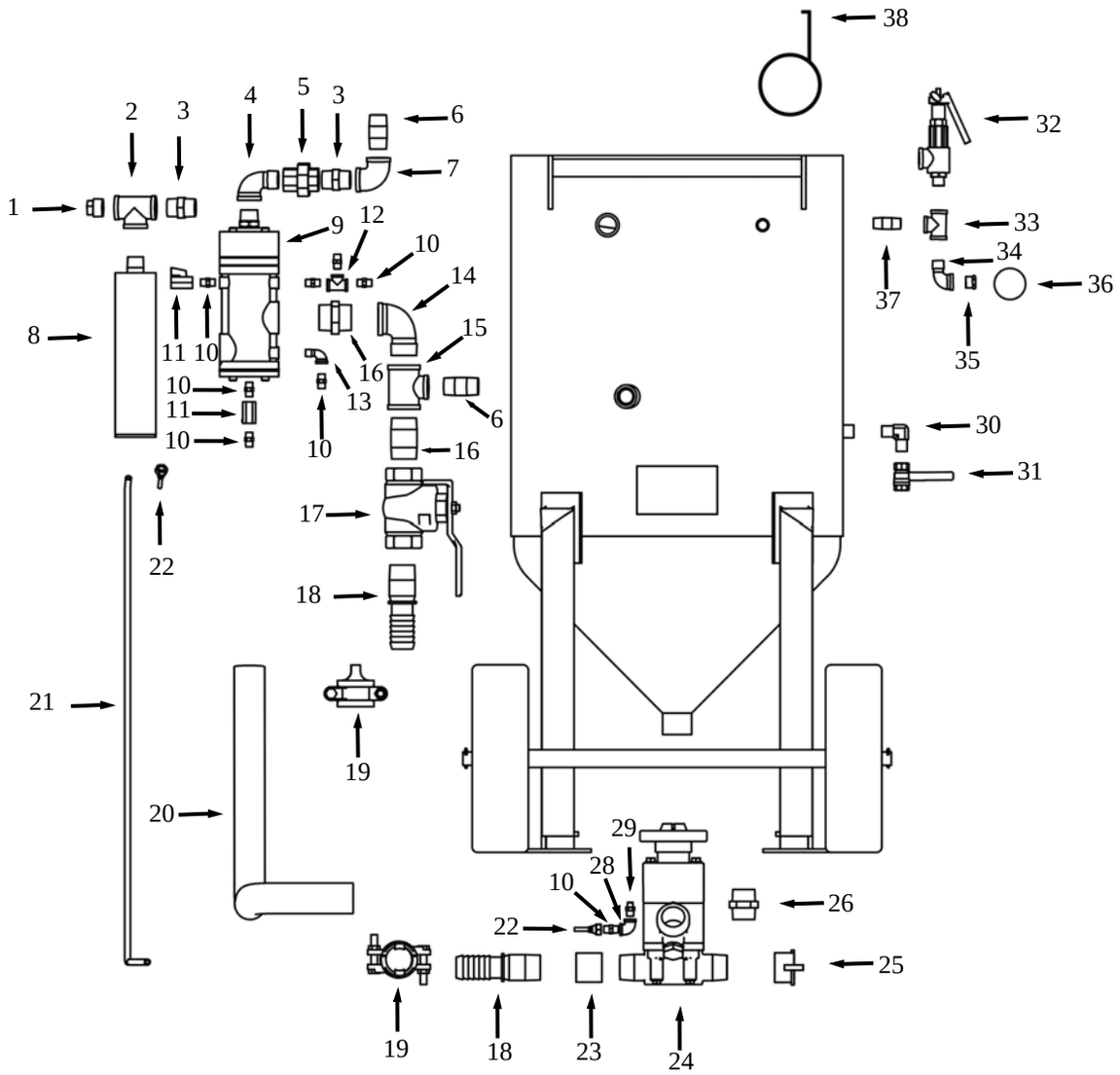
DRG#	PART#	DRG#	PART#
1. 1” PLUG	PLG025	18. GAUGE	R3-B50-G14B-8.5
2. 1” TEE	TG025	19. 32MM GLEN VALVE	GLEN032
3. 1” NIPPLE	HEX025	20. 32MM NIPPLE	BNS032
4. 1” VALVE	GLEN025	21. 32MM ELBOW	ELBMFG032
5. N/A		22. REDUCING TEE	RT32X25
6. SILENCER	CS25	23. 32MM SWAGE	LSW-032
7. O-RING	STD-ORING	24. BARREL TEE	BT-32
8. POP-UP VALVE	RUB-POP	25. REDUCING SOCKET	RS32x25
9. GUIDE	STDPOP-GUIDE	26. COUPLER	800M/RT4224
10. 1” FEMALE ELBOW	ELBFG025	27. 1/4” NIPPLE	P12
11. SIDE SUPPORT	200L-SISUP	28. 1/4” VALVE	BRBV008
12. GAUGE GUARD	BLPOT-GUARD	29. CLAMP	RT5007
13. SAFETY VALVE	2361-015MM	30. HOSE	BLASTH-032
14. 1/2” NIPPLE	BNS015	31. METERING VALVE	METERBV-25
15. 1/2” TEE	TG015	32. LINED TEE	UTP032
16. 1/2” ELBOW	ELBMFG015	33. POT COUPLER	PC32
17. BUSH	P46		

100L, 200L, 300L REMOTE POT PLUMBING



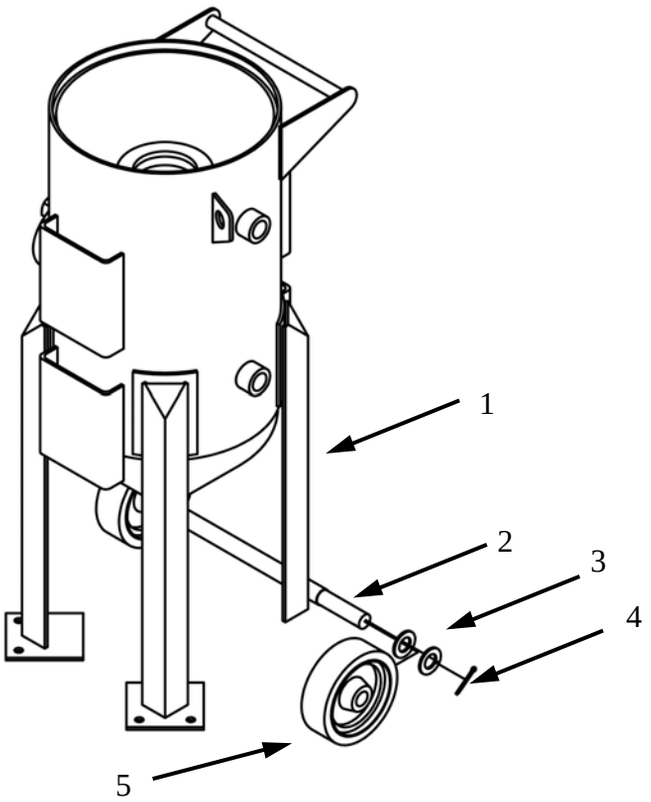
DRG#	PART#	DRG#	PART#
1. 1” NIPPLE	BNS025	19. ELBOW	ELBMFG008
2. 1” ELBOW	ELBFG025	20. ELBOW	ELBMFG032
3. 1” HEX	HEX025	21. TEE	RT32x25
4. 1” UNION	US025	22. NIPPLE	BNS032
5. 1” ELBOW	ELBMFG025	23. PLUG	PG015
6. GAUGE GUARD	BLPOT-GUARD	24. VALVE	GLEN032
7. SAFETY VALVE	2361-015MM	25. SWAGE	LSW-032
8. 1/2” TEE	TG015	26. CLAMP	RT5005
9. 1/2” NIPPLE	BNS015	27. HOSE	BLAST-HOSE 32MM
10. 1/2” ELBOW	ELBMFG015	28. METERING VALVE	METERBV-25
11. BUSH	P46	29. LINED TEE	UTP32
12. GAUGE	R3-B50-G14B-8.5	30. POT COUPLER	PC32
13. 1” TEE	TG025	31. O-RING	STD-ORING
14. 1” PLUG	PG025	32. POP UP VALVE	RUB-POP
15. SILENCER	CS25	33. GUIDE	STDPOP-GUIDE
16. REMOTE	RCV2000-001	34. SIDE SUPPORT	200L-SISUP
17. NIPPLE	P12	35. HEX	HEX032
18. VALVE	BRBV015		

100L, 200L, 300L WET & DRY POT PLUMBING



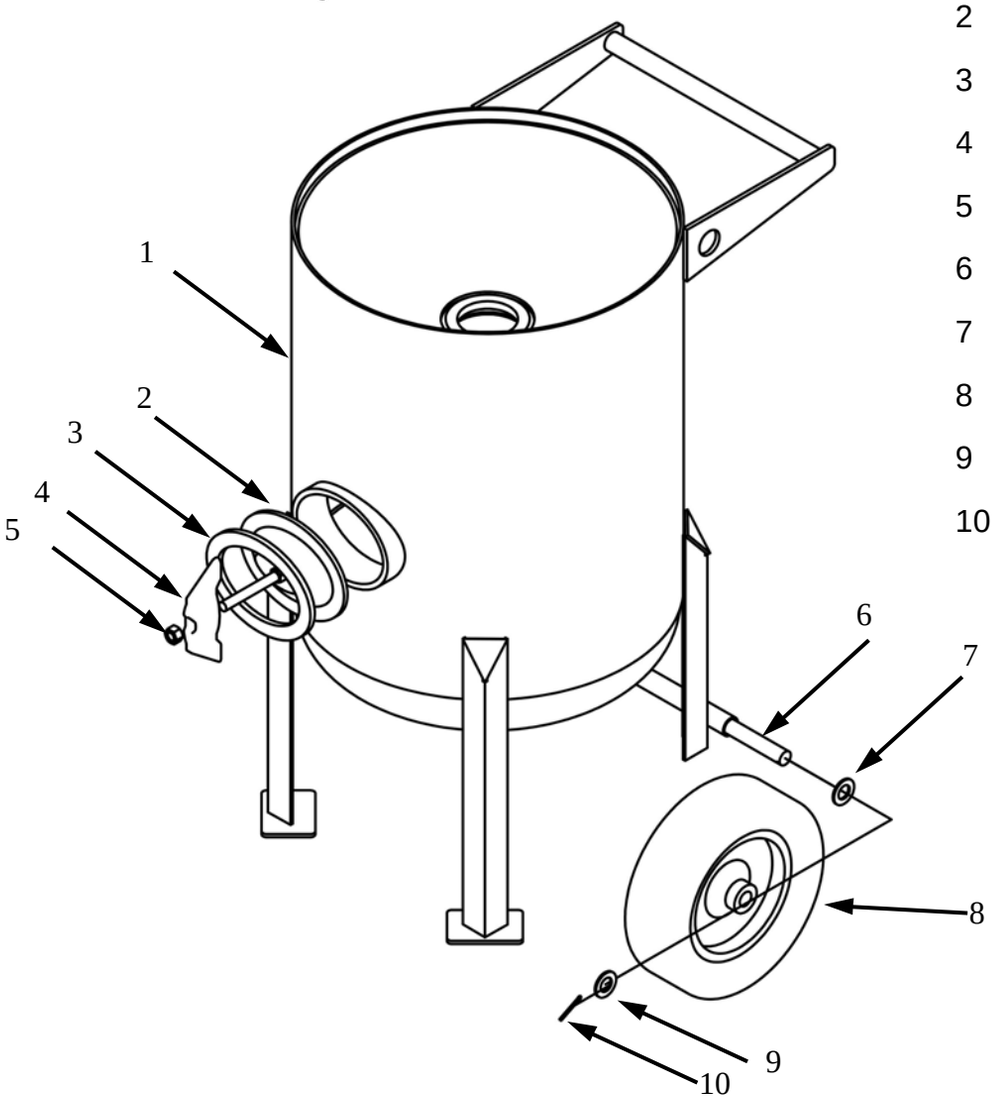
DRG#	PART#	DRG#	PART#
1. PLUG	PG025	20. HOSE	BLASTH-038
2. TEE	TG025	21. HOSE	CRH-006
3. HEX	HEX025	22. HOSETAIL	42010404
4. ELBOW	ELBMFG025	23. SOCKET	SS040
5. UNION	UG025	24. METERING VALVE	MMV2
6. NIPPLE	BNS025	25. COUPLER	PC40
7. ELBOW	ELBFG025	26. HEX	HEX032
8. SILENCER	CS25	27. NA	
9. REMOTE	RCV2000-001	28. ELBOW	ELBFG008
10. NIPPLE	P12	29. NIPPLE	P11
11. VALVE	BRBV008	30. ELBOW	130-0605
12. TEE	TG008	31. VALVE	BRBV015
13. ELBOW	ELBMFS008	32. SAFETY VALVE	2361-015MM
14. ELBOW	ELBMFS040	33. TEE	TG015
15. TEE	RT40x25	34. ELBOW	ELBMFG015
16. NIPPLE	BNS040	35. BUSH	P46
17. VALVE	GLEN040	36. GAUGE	R3-B50-G14B-8.5
18. SWAGE	LSW-040	37. NIPPLE	BNS015
19. CLAMP	RT5005	38. GAUGE GUARD	BLPOT-GUARD

PARTS LIST



60L Key:

1. Pot Shell
2. Pot Axle
3. Washer
4. Split Pin
5. Wheel



100L, 200L, 300L Key:

1 Pot Shell

2 Inspection Cover

3 Inspection Cover Gasket

4 Inspection Cover Cross Piece

5 Hex Nut

6 Pot Axle

7 Flat Washer

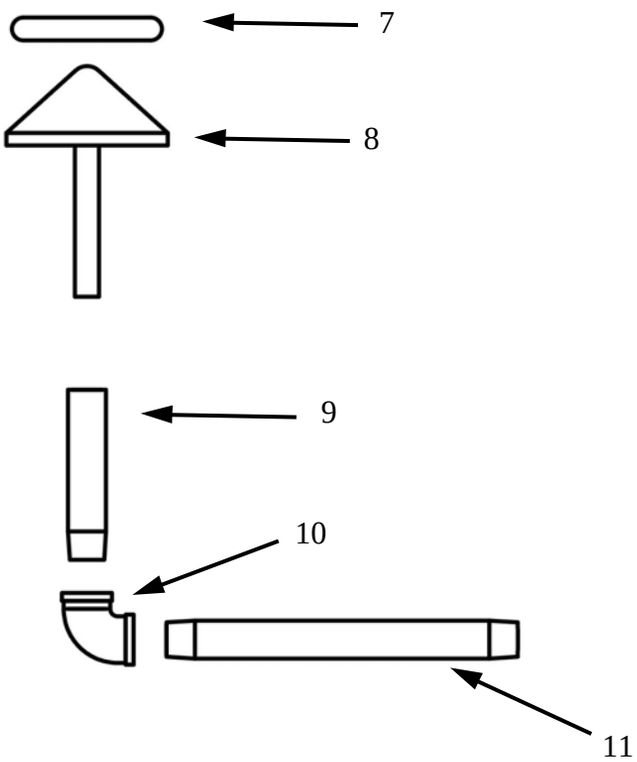
8 Wheel

9 Flat Washer

10 Split Pin

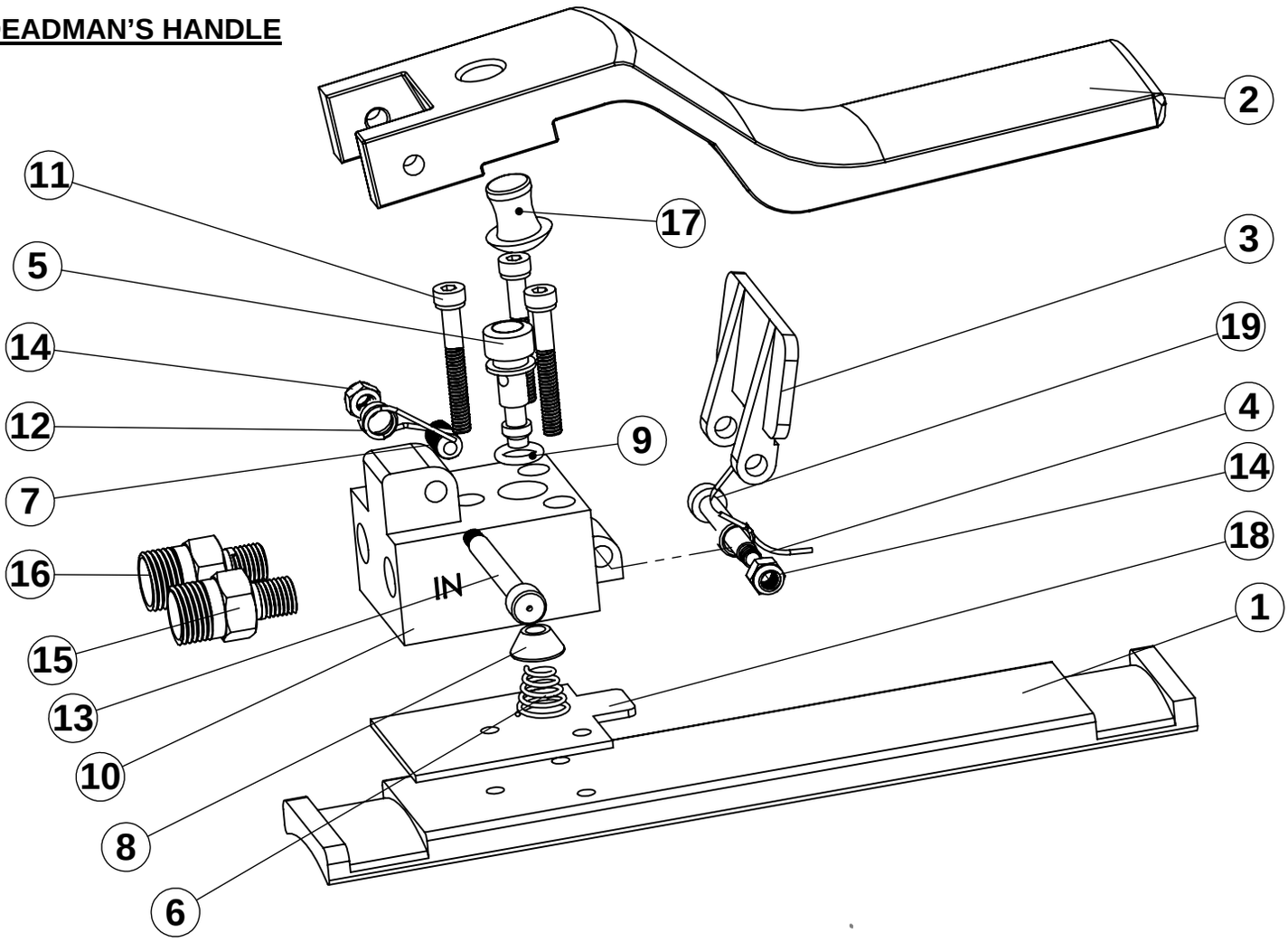
INTERNAL PLUMBING ASSEMBLY

(COMMON TO ALL POTS)

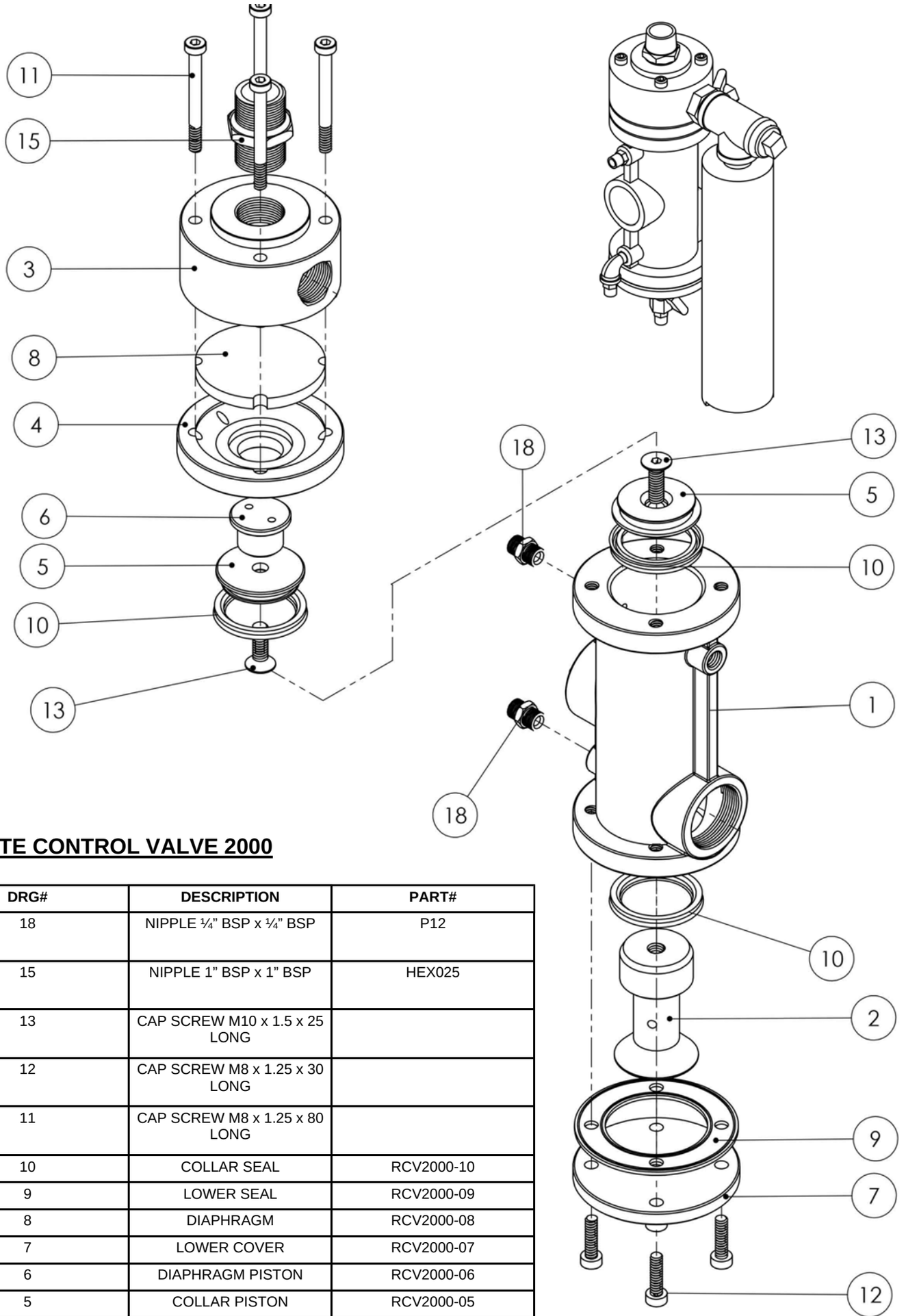


DRG #	Description	Part #
7	POP UP SEAL	STD-ORING
8	URETHANE POP-UP VALVE	STDPOP
8	RUBBER POP-UP VALVE	RUB-POP
9	POP-UP GUIDE	STD-POP-GUIDE
10	25mm F/F ELBOW	ELBFG025
11	SIDE SUPPORT	xxxL-SISUP
xxx -Refers to to Pot Volume i.e. 60l / 100l / 200l / 300l		

DEADMAN'S HANDLE

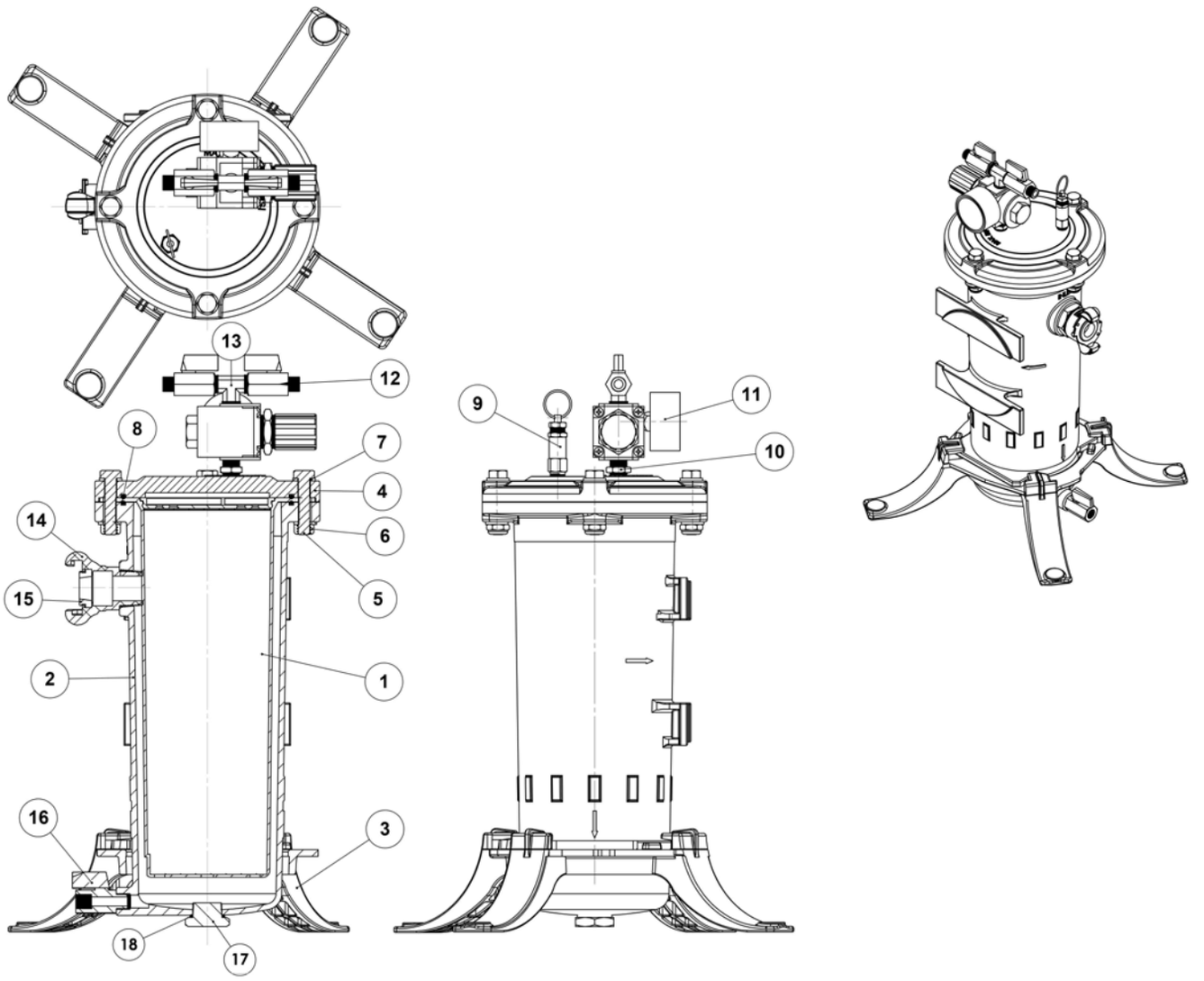


DRG. #	DESCRIPTION	SM CODE #
19	Screw M4x42	N/A
18	Gasket SP01010015	
17	Rubber Insert	DMH-RB
16	Nipple 1/8" NPSLx1/8" NPT	P11
15	Nipple 1/4" NPSLx1/8" NPT	P11-2
14	Nut M4 SP04010022	
13	Screw M4x48.9	DMH-AXLE
12	Left Hand Torsion Spring (Lever)	DMH-LS
11	Bolt M4X30 Long.	N/A
10*	Manifold FS03801004	
9*	Circle Ring (Ø11xØ7.4x1.8)	DMH-RK
8*	Packing SP01010025	
7*	Grub Screw M6	DMH-RK
6*	Spring SP03010024	
5*	Air Inlet Valve	DMH-RK
4	Left Hand Torsion Spring (Safety Lock)	DMH-SLS
3	Flap SP01010048	
2	Lever FS03801002	
1	Base Plate	N/A



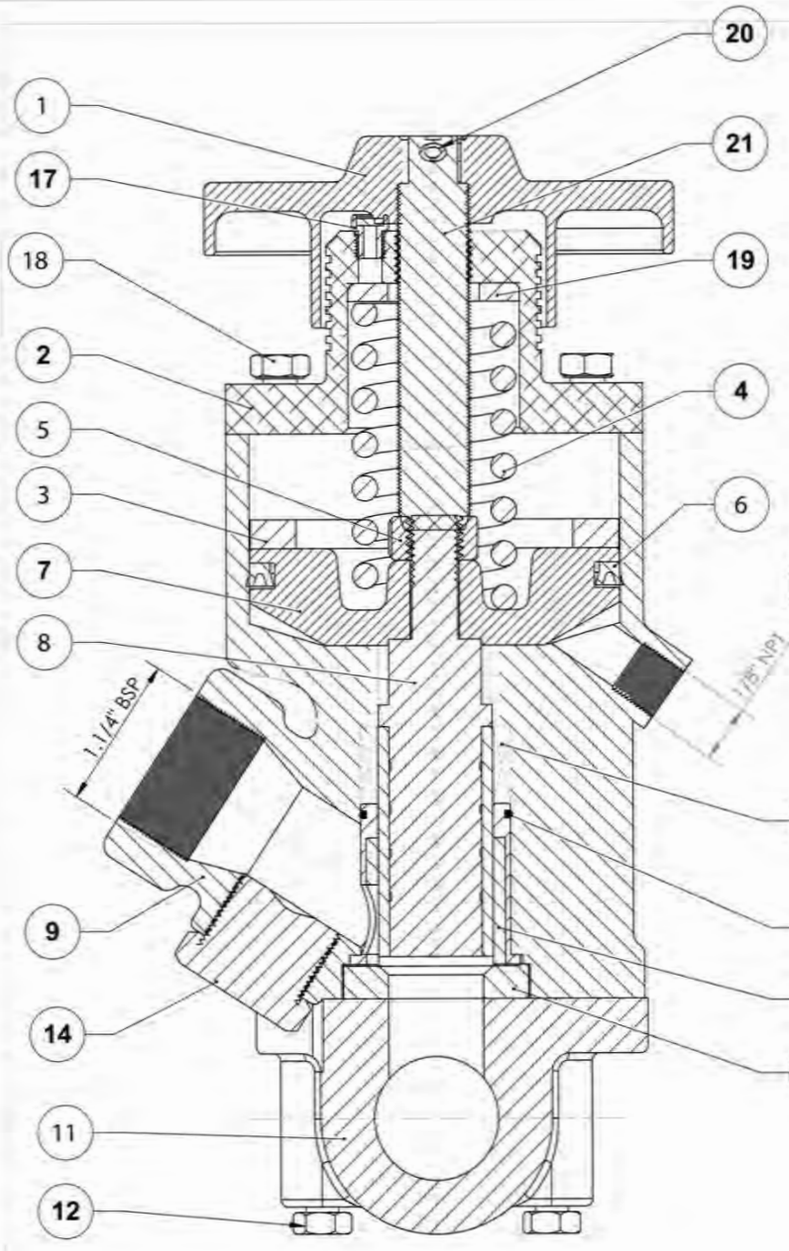
REMOTE CONTROL VALVE 2000

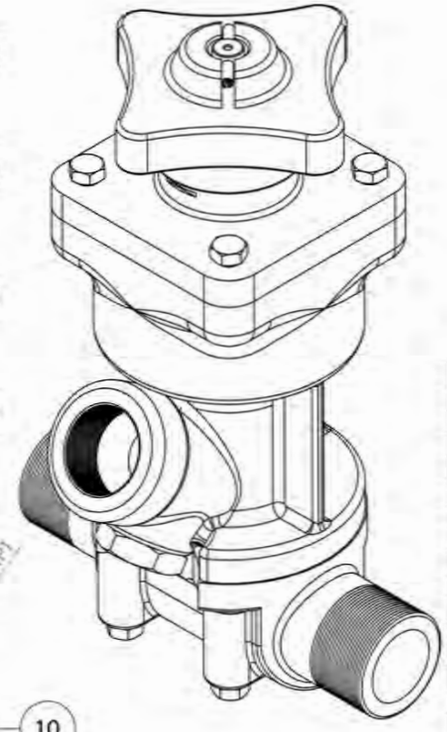
DRG#	DESCRIPTION	PART#
18	NIPPLE ¼" BSP x ¼" BSP	P12
15	NIPPLE 1" BSP x 1" BSP	HEX025
13	CAP SCREW M10 x 1.5 x 25 LONG	
12	CAP SCREW M8 x 1.25 x 30 LONG	
11	CAP SCREW M8 x 1.25 x 80 LONG	
10	COLLAR SEAL	RCV2000-10
9	LOWER SEAL	RCV2000-09
8	DIAPHRAGM	RCV2000-08
7	LOWER COVER	RCV2000-07
6	DIAPHRAGM PISTON	RCV2000-06
5	COLLAR PISTON	RCV2000-05
4	DISCHARGE COVER	RCV2000-04
3	DISCHARGE CYLINDER	RCV2000-03
2	INLET PISTON	RCV2000-02
1	VALVE HOUSING	RCV2000-01



OPERATOR'S BREATHING FILTER

DRG#	DESCRIPTION	PART#
18	RUBBER RING	
17	BRASS PLUG ¼"BSPT	P40-1
16	DRAIN COCK	BRBV008
15	PACKING FOR CLAW COUPLING	
14	CLAW COUPLING 1"BSPT	800M / RT4224
13	BRASS TEE	
12	BALL VALVE	BRBV008
11	PRESSURE REGULATOR	SAR3000
10	NIPPLE	P13
9	PRESSURE RELIEF VALVE	SAFETY010
8	O-RING	
7	PLAIN WASHER	COBF-GAS
6	NYLOCK NUT	
5	HEX BOLT	
4	TOP COVER	
3	STAND	
2	BODY	
1	AIR FILTER CARTRIDGE	





* REPAIR KIT CONSISTS OF :- #6,8,10,13,15&16

ITEM NO.	DESCRIPTION	QTY.
21	Knob Plunger	1
20	Dowel Pin	1
19	Disc	1
18	Hex. Bolt 3/8" UNCX 32mm LONG	4
17	Breather Vent 1/8"	1
16*	Tungsten Carbide Sleeve	1
15*	PU Seat	1
14	Plug for Cleanout Port	1
13*	'O Ring	1
12	Bolt 3/8" UNCX70 Long With Washer	4
	Base 1.1/2"	1
	Base 1.1/4"	1
11	Base 1"	1
10*	Composite Seal	3
9	Cylinder	1
8*	Tungsten Carbide Plunger	1
7	Piston	1
6*	Piston Seal	1
5	Nut	1
4	Spring	1
3	Rubber Washer	1
2	Cap	1
1	Knob	1

LIMITS UNLESS OTHERWISE STATED

AMENDMENTS

#	DATE	APPD BY

CROSS REFERENCES (IF ANY) E/300

WORK INSTRUCTION # .....

WHOLE NO's ± 0.5 mm

DECIMALS ± 0.2 mm

ALL SIZES IN mm UNLESS OTHERWISE STATED

TITLE

Macro Metering Valve

MMV-II

SCALE-1:1

EDITION NO . 00

DRG. # E/607.02

DRN BY	CKD	APPD
M. KUMAR	RK	LMS
19/06/12	19/06/12	19/06/12

Storm Machinery Standard Warranty

Storm Machinery warrants all equipment referenced in this document which is manufactured by Storm Machinery and bearing its name to be free from defects in material and workmanship on the date of sale to the original purchaser for use. With the exception of any special, extended, or limited warranty published by Storm Machinery, Storm Machinery will, for a period of twelve months from the date of sale, repair or replace any part of the equipment determined by Storm Machinery to be defective. This warranty applies only when the equipment is installed, operated and maintained in accordance with Storm Machinery's written recommendations.

This warranty does not cover, and Storm Machinery shall not be liable for general wear and tear, or any malfunction, damage or wear caused by faulty installation, misapplication, abrasion, corrosion, inadequate or improper maintenance, negligence, accident, tampering, or substitution of non-Storm Machinery component parts. Nor shall Storm Machinery be liable for malfunction, damage or wear caused by the incompatibility of Storm Machinery equipment with structures, accessories, equipment or materials not supplied by Storm Machinery, or the improper design, manufacture, installation, operation or maintenance of structures, accessories, equipment or materials not supplied by Storm Machinery.

This warranty is conditioned upon the prepaid return of the equipment claimed to be defective to an authorized Storm Machinery distributor for verification of the claimed defect. If the claimed defect is verified, Storm Machinery will repair or replace free of charge any defective parts. The equipment will be returned to the original purchaser transportation prepaid. If inspection of the equipment does not disclose any defect in material or workmanship, repairs will be made at a reasonable charge, which charges may include the costs of parts, labour, and transportation.

THIS WARRANTY IS EXCLUSIVE, AND IS IN LIEU OF ANY OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO WARRANTY OF MERCHANTABILITY OR WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE.

Storm Machinery's sole obligation and buyer's sole remedy for any breach of warranty shall be as set forth above. The buyer agrees that no other remedy (including, but not limited to, incidental or consequential damages for lost profits, lost sales, injury to person or property, or any other incidental or consequential loss) shall be available. Any action for breach of warranty must be brought within one (1) year of the date of sale.

Storm Machinery MAKES NO WARRANTY, AND DISCLAIMS ALL IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, IN CONNECTION WITH ACCESSORIES, EQUIPMENT, MATERIALS OR COMPONENTS SOLD BUT NOT MANUFACTURED BY Storm Machinery.

These items sold, but not manufactured by Storm Machinery (such as electric motors, switches, hose, etc.), are subject to the warranty, if any, of their manufacturer. Storm Machinery will provide purchaser with reasonable assistance in making any claim for breach of these warranties.

In no event will Storm Machinery be liable for indirect, incidental, special or consequential damages resulting from Storm Machinery supplying equipment hereunder, or the furnishing, performance, or use of any products or other goods sold hereto, whether due to a breach of contract, breach of warranty, the negligence of Storm Machinery, or otherwise.

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FRENCH

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SPANISH

Las partes reconocen haber convenido en que la redacción de este documento será en Inglés, así como todos los documentos, notificaciones y procedimientos judiciales emprendidos, dados o incoados como consecuencia de o en relación directa o indirectamente con los procedimientos pertinentes.

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TO PLACE AN ORDER, please contact your nearest Storm Machinery distributor.

www.stormmachinery.com.au

www.stormachinery.co.za

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Storm Machinery reserves the right to make changes at any time without notice.

Notes

Notes