

OPERATING AND MAINTENANCE
INSTRUCTIONS
FOR BURWELL BLAST MACHINE



(FOR 1642 & 2449 MODELS)

AUSTRALIA'S LEADING MANUFACTURER AND DISTRIBUTOR OF SURFACE PREPARATION EQUIPMENT
PAINT APPLICATION EQUIPMENT AND ABRASIVES, EXCLUSIVE AUSTRALIAN DISTRIBUTOR FOR
CLEMCO INDUSTRIES AND AQUAMISER WATER JETTING EQUIPMENT

BURWELL TECHNOLOGIES PTY LTD A.B.N. 86 001 262 013
100% AUSTRALIAN OWNED

CONTENTS

- 1.0 Introduction
- 2.0 Safety Risk Management
 - 2.1 Hazard Identification
 - 2.2 Risk Assessment
- 3.0 Hazard and Control Measures
 - 3.1 Prohibited and Restricted Chemicals
 - 3.2 Asbestos
 - 3.3 Lead
 - 3.4 Naturally Occurring Radioactive Material
- 4.0 Identifying Dust Hazards
- 5.0 Risk and Control Measures
 - 5.1 Administrative Controls – Exclusion Zones
- 6.0 Personal Protective Equipment (PPE)
 - 6.1 Respiratory Protection
 - 6.2 Eye Protection – Helmet
 - 6.3 Protective Clothing
 - 6.4 Maintenance of PPE
- 7.0 Method of Operation
 - 7.1 Operating Instructions
 - 7.2 Abrasive Flow
 - 7.3 Air Pressure requirements
 - 7.4 Blast Nozzle Detail
- 8.0 Troubleshooting
- 9.0 Blast Pot Schematic
 - 9.1 Valve Diagrams and Spares Listing
 - 9.2 Deadman Controls
 - 9.3 Breathing Air Filter
 - 9.4 Blast Helmets
- 10.0 General Consumables Listing
- 11.0 Specifications and Test Reports

1.0: INTRODUCTION

Abrasive blasting is the process of using compressed air or water to direct a high velocity stream of an abrasive material to clean an object or surface, abrade, etch or profile the condition of the surface for the application of paint or other type of coating. It is used across a wide range of industries for many different purposes, including the removal of rust and mill scale from metal objects.

Other uses include the frosting of glass for decorative purposes, removal of finishes from wood, cleaning plastic parts such as dentures, electronic parts etc. and removal of latence from concrete, cleaning brick and stone buildings, removal of heat treat scales, removal of tool marks from finished parts and a multitude of other uses. Some other applications of abrasive blasting include:

Surface Treatment and Preparation

- Strength surfaces
- Add fatigue resistance.
- Improve corrosion resistance.
- Finishing and removing imperfections
- Expose flaws for inspection.
- Etch for bonding and adhesion

Cleaning and Removal

- Paint and coatings
- Rust and oxidation
- Carbon deposits
- Burrs and flashing
- Excess brazing
- Sealants and adhesives

Burwell Abrasive Blast Equipment is designed and built-in accordance with all Authorities. All pressure vessels are Crown stamped and numbered for registration by customers with the Workcover Authority of NSW.

The equipment is manufactured and marketed to meet with ever demanding requirements of the contractors and users. It is for this reason that Burwell reserves the right to change design specifications without notice. The result of this is that you, the customer has purchased the most sophisticated and updated equipment possible in its field.

2.0: SAFETY AND RISK MANAGEMENT

Due to the dangerous nature of abrasive blasting, it is important to consider the hazards and risks associated with such a process to minimise the potential for harm. Employers must protect workers from hazardous dust levels and toxic metals that may be generated from both the blasting material and the underlying substrate and coatings being blasted. The *Abrasive Blasting Code of Practice (2015)* provides practical guidance for persons conducting a business or undertaking the management of health and safety risks associated with abrasive blasting. Reference should be made to this code which provides guidance on managing the risks of abrasive blasting by following a systematic process that involves:

- Identifying hazards
- Assessing the risks associated with these hazards.
- Implementing & Reviewing control measures

2.1: Hazard Identification

The first step in managing risks associated with abrasive blasting activities is to identify all the hazards that have the potential to cause harm. Potential hazards may be identified in a number of different ways including:

- Conducting a walk-through assessment of the workplace
- Observing the work and talking to workers about how work is carried out.
- Inspecting the plant and equipment that will be used during the abrasive blasting activity.
- Reading product labels, safety data sheets and manufacturer's instruction manuals
- Talking to manufacturers, suppliers, industry associations and health and safety specialists
- Reviewing incident reports

Common hazards include dusts, hazardous chemicals and risks associated with the use of plant and equipment. Examples of abrasive blasting hazards include:

- Airborne contaminants such as dust
- Hazardous chemicals, particulate matter, E.g. small particles of the substrate or blasting medium
- Abrasive blasting plant and equipment.
- Noise

2.2: Risk Assessment

A risk assessment for abrasive blasting activities can be effective in minimising potential harm and will assist in determining the control measures that should be implemented. It will help to:

- identify which workers are at risk of exposure.
- determine what sources and processes are causing that risk.
- identify if and what kind of control measures should be implemented.
- check the effectiveness of existing control measures.

The following questions may help to assess the risk:

- What conditions will the operator be exposed to?
- What are the properties of the blasting medium being used?
- What is the substrate being blasted?
- What are the surface coatings of the items being blasted? E.g., do they contain toxic metals?
- What are the conditions under which abrasive blasting is carried out (E.g., confined spaces)?
- What are the skills, competence, and experience of the operator?

3.0: Hazards and Control Measures

3.1: Prohibited and Restricted Chemicals

The WHS Regulations prohibit and restrict the use of some hazardous chemicals as abrasive material in an abrasive blasting process. According to *WHS Regulation 381*: A person conducting a business or undertaking must not use, handle, or store, or direct a worker to use, handle or store the hazardous chemicals (listed below) for abrasive blasting.

| Do not use: | Blast material which may be used: |
|--|---|
| <ul style="list-style-type: none"> • Materials with any radioactive substances where the level of radiation exceeds 1 becquerels per gram, so far as is reasonably practicable • Materials containing more than: <ul style="list-style-type: none"> ○ 0.1% antimony ○ 0.1% arsenic ○ 0.1% beryllium ○ 0.1% cadmium ○ 0.5% chromium (except as specified for wet blasting) ○ 0.1% cobalt ○ 0.1% lead (or which would expose the operator to levels in excess of those set out in Part 7.2 of the Regulations) ○ 0.1% nickel ○ 0.1% tin • Materials containing more than 1% free silica (crystalline silicon dioxide) including: <ul style="list-style-type: none"> ○ River sand ○ Beach sand or other white sand ○ Dust from quartz rock ○ Diatomaceous earth (pool filter material) <p>In dry abrasive blasting:</p> <ul style="list-style-type: none"> • Recycled materials which have not been treated to remove respirable dust • Recycled materials for which treatment has not removed toxic materials to below the prescribed concentrations • Any substance likely to harm the upper respiratory tract <p>In wet abrasive blasting:</p> <ul style="list-style-type: none"> • any substance that contains chromate, nitrate or nitrite | <p>The following materials will not usually result in exposures greater than national exposure standards. However, you should check the Safety Data Sheet to ensure the composition of substances does not exceed prohibited levels</p> <ul style="list-style-type: none"> • ilmenite • aluminium oxide • garnet (low crystalline silica content only) • other rocks and mineral sands which do not contain significant levels of silica • metal shot • steel grit • crushed glass • sodium bicarbonate • plastic beads • glass beads • some metal slags (check content analysis before purchase) • dry ice <p>Note: There are environmental requirements in relation to abrasive blasting mediums. If in doubt, seek advice from your local council.</p> |

(Reference: *Work Healthy and Safety (Abrasive Blasting) Code of Practice 2015, p.35*)

3.2: Asbestos

A person conducting a business or undertaking must not use, direct or allow a worker to use high pressure water spray or compressed air on asbestos or asbestos containing materials.

3.3: Lead

Lead may be present in surface coatings or the object being blasted. The WHS Regulations contain specific requirements for working with lead in addition to the hazardous chemical's requirements. These include the identification of lead risk work and removing a worker from lead risk work in certain circumstances.

3.4: Naturally Occurring Radioactive Material

The use of abrasives containing any radioactive substance where the level of radiation exceeds 1 becquerels per gram (Bq/g) is prohibited, so far as reasonably practicable. You should actively source material with lower radioactive content levels to minimise the risks from radiation.

4.0: Identifying Dust Hazards

Abrasive blasting can generate large quantities of respirable and inhalable dust from the abrasive blasting medium and the surface of the object being blasted. 'Inhalable' dust means the dust present in the air which a worker can inhale through the nose or mouth during breathing. 'Respirable' dust is that portion of inhalable dust that is small enough to enter the lungs down to the lower bronchioles and alveolar regions. Respirable dusts may be more hazardous than inhalable dusts for some materials, such as crystalline silica which can result in permanent scarring of the lung tissue.

Dust hazards presented by the surface being blasted should also be considered, which could discharge particles of hazardous chemicals. Hazards include any paint or coating on the surface (which, for example, could contain lead) and the composition of the object or structure being blasted (which could contain asbestos or other hazardous chemicals).

5.0: Risk and Control Measures

A combination of control measures may be required to adequately manage hazards and associated risk with abrasive blasting. This can be achieved for example through substitution, isolation or implementing different engineering controls. The control measures put into place to protect health and safety should be regularly reviewed to make sure they are effective and relevant. If not, it must be revised to ensure it is effective in controlling risk. Please additional information please refer to the *Abrasive Blasting Code of Practice (2015)*.

5.1: Administrative Controls - Exclusion Zones

Although open air blasting activities are not recommended, there may be occasions where there is no alternative. In these circumstances, exclusion zones (also known as buffer zones) should be used to protect workers and other persons in the vicinity from exposure to hazardous dust.

The size of the exclusion zone should be determined after assessing the risk to all unprotected people. The prevailing conditions at the time of blasting should be considered, for example, the exclusion zone may need to be extended down-wind. An exclusion zone should be established and maintained to exclude workers and other persons who are not wearing Respiratory Protective Equipment (RPE). Warning signs should be located so that they are clearly visible before entering the area. Where an exclusion zone interferes with other activities at a workplace, other workers should only work within the exclusion zone after being provided with RPE.

6.0: PERSONAL PROTECTIVE EQUIPMENT (PPE)

Abrasive blasting operators must use suitable protective equipment to protect themselves against high velocity abrasive particles. Equipment is selected to minimise risk to health and safety by ensuring that the equipment is:

- Suitable for the nature of the work and any hazard associated with the work.
- A suitable size and fit and reasonably comfortable for the person wearing it.
- Maintained, repaired or replaced so it continues to minimise the risk.

It is important to provide the worker with information, training and instruction in the proper use and wearing of personal protective equipment, as well as the storage and maintenance of personal protective equipment.

- **ALWAYS ensure appropriate Personal Protective Equipment (PPE) is worn when blasting.**

PPE should include:

- CE-approved air-fed helmet
 - Air for helmet must be supplied by a breathing air compressor or through a helmet air filter
- Abrasive-resistant clothing
- Protective gloves
- Protective footwear
- Hearing protection



6.1: Respiratory protection

Workers engaged in abrasive blasting should be supplied with and wear an airline positive pressure hood or helmet fitted with an inner bib and a high visibility shoulder cape, jacket or protective suit. Respirator helmets must be supplied with breathing air of an adequate quality. An air purifying respirator should also be worn by the pot attendant and any other person within the work area while abrasive blasting is in progress, during maintenance or repair work or during the clean-up of dust.

6.2: Helmets and eye protection

Helmets will provide protection from flying fragments to the eyes, head, and neck. Helmets should not be held or hung up by the air feed hose, dropped or left in areas where they might be exposed to dust and dirt or be subject to distortion. The helmet cape should be frequently inspected, periodic cleaning and immediate replacement if damaged. Protective eye equipment includes safety glasses, goggles, face shields, hoods or helmets with lenses designed to withstand medium to high velocity impact by flying objects.

6.3: Protective clothing

To keep out dust and abrasive grit, protective suits or clothing should be worn and should have leather or elastic straps at the wrist and ankles and overlapping flaps at all suit closures. Protective gloves should be industrial safety gloves or mittens of an appropriate material to reduce penetration of particulate matter. Protective footwear should be made of material which reduces penetration from particulate matter, and where appropriate, should be waterproof.

6.4: Maintenance of PPE

PPE must be maintained, repaired, or replaced to ensure that it continues to be effective. Maintenance of PPE includes:

- Daily cleaning and inspection of PPE by the worker for wear and damage
- Identification and repair or replacement of any worn or defective components of equipment
- Regular periodic inspection, maintenance, and testing of respiratory protective equipment in accordance with the manufacturer's instructions

7.0: METHOD OF OPERATION

The Burwell Abrasive Blast Machine is built in cylindrical form with the abrasive feed point, known as the Abrasive Control Valve, located at the base of the Blast Machine Vessel. This device is designed and engineered for the exact metering of abrasive.

At the top of the machine is the filler (pop-up) Valve (4/22), which floats on a guide (5/23). The Valve, when closed, seats on a rubber ring (6/24) to ensure a leak proof condition. It will be seen that the body of the machine is made of rolled steel with a dished end at the top and a coned end at the base. The compressed air is fed to the machine via the Inlet Valve (20/12), after which the pipe is branched, one pipe leading to the pop-up valve guide (5/23) to pressurise the vessel and the other to the main airline leading to the abrasive control valve. The then pressurised machine feeds abrasive through the base of the vessel to the abrasive control valve (7/19). From there the abrasive is forced out of the "Y" piece and pot coupling (8/20) by means of the main airline previously mentioned, into the attached blast hose and the particles normally exit from the nozzle at approximately 650 Km/Hr.

Burwell Blast Machines are fitted with an inspection hole (28/25) for ease of maintenance. They also have the capabilities of full adjustment of the abrasive flow.

These machines are fitted with immediate shut down "Feathertouch" Dump Valves, which, when the trigger is released, instantaneous depressurisation occurs.

7.1: OPERATING INSTRUCTIONS

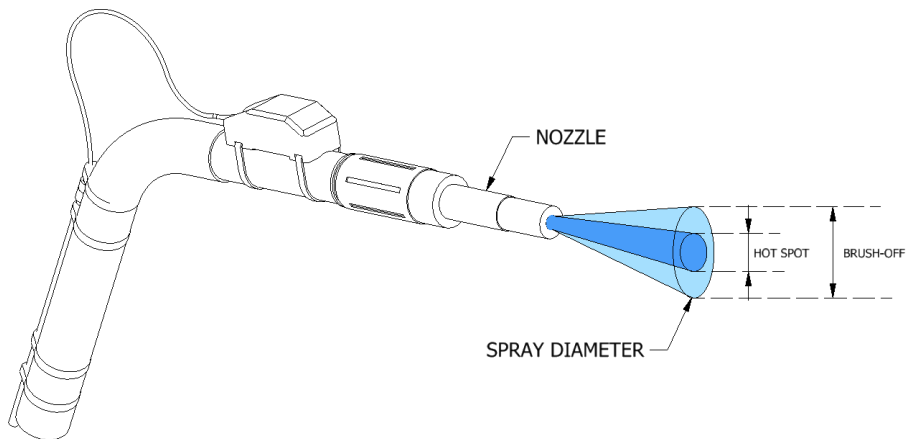
1. Connect Air Supply Hose from Compressor to inlet of Blast Machine and ensure all safety pins and whip checks are installed.
2. Ensure Choke Valve is Open (19/11).
3. Ensure Pneumatic Deadman (standard) is connected.
4. Ensure Electric Deadman (if fitted) trigger cable is plugged into ECK.
5. Check condition of Nozzle and Coupling Rubbers.
5. Connect Blast Hose to Blast Machine Pot Coupling (8/20), ensuring all safety pins and whip checks are installed.
7. Screw Nozzle into Nozzle Holder.
8. Ensure Moisture Trap (if fitted) is free of condensates.
9. Start Compressor.
10. Ensure Operator is wearing correct PPE.
11. Check Blast Helmet (visors, cape, air supply).
12. Depress and release trigger whilst pointing nozzle at object to be blasted to check operation of machine.

IMPORTANT NOTES

1. Do not DROP or DRAG Deadman Switch.
2. Do not TAPE or WIRE UP Deadman Trigger.
3. Check Deadman Trigger control lines/cable for Wear or Damage daily.

TO ADJUST ABRASIVE FLOW

1. More Abrasive - Turn knob on abrasive valve anti-clockwise until you achieve correct amount of grit
2. Less Abrasive - Turn knob on abrasive valve clockwise until you achieve correct amount of grit



Pressure-Blast Air Requirements (SCFM)

| Pressure (PSI) | 20 | 30 | 40 | 50 | 60 | 80 | 100 | 120 |
|----------------|----|----|----|-----|-----|-----|-----|-----|
| 1/8" nozzle | 6 | 8 | 10 | 13 | 14 | 17 | 20 | 25 |
| 3/16" nozzle | 15 | 18 | 22 | 26 | 30 | 38 | 45 | 55 |
| 1/4" nozzle | 27 | 32 | 41 | 49 | 55 | 68 | 81 | 97 |
| 5/16" nozzle | 42 | 50 | 64 | 76 | 88 | 113 | 137 | 152 |
| 3/8" nozzle | 55 | 73 | 91 | 109 | 126 | 161 | 196 | 220 |

4 SCFM = 1 horsepower

Compressors should be sized to the next larger nozzle to allow for nozzle wear.

Pressure-Blast Spray Diameters

| Nozzle ID | Distance from Workpiece | | | | | |
|-----------|-------------------------|--------|--------|--------|--------|--------|
| | 6" | 12" | 18" | 24" | 30" | 36" |
| 1/8" | 3/4" | 1" | 1" | 1 1/2" | — | 1 1/8" |
| 3/16" | 1 1/4" | 1 3/8" | 1 1/2" | 2" | 1 5/8" | 2 1/2" |
| 1/4" | 1 1/4" | 1 1/2" | 1 7/8" | 2 1/4" | 2 1/8" | 2 3/4" |
| 3/8" | 1 5/8" | 1 3/4" | 2" | 2 1/4" | 2 1/4" | 3" |

Brush-off
Hot Spot

8.0: TROUBLESHOOTING

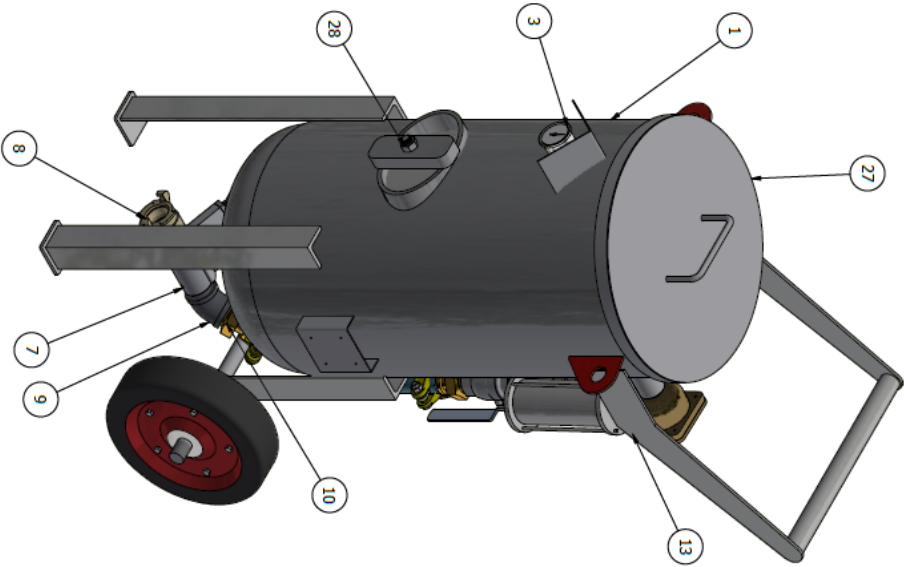
| PROBLEM | REMEDY |
|--|--|
| 1. Abrasive will not flow from nozzle | <ul style="list-style-type: none"> a. Unscrew nozzle, check for blockage. b. Dismantle hand hole cover from blast machine, check for large foreign objects blocking outlet hole. c. Ensure abrasive is completely dry. d. Check Abrasive valve for blockages. e. Use Choke valve to choke hose and clear blockage. f. Dismantle abrasive control valve, clean, and reassemble as per drawing attached. |
| 2. Abrasive flowing intermittently. | <ul style="list-style-type: none"> a. Turn choke valve on and off in fast succession ensuring it is in the on position when you stop. b. Adjust abrasive control valve to desired setting. |
| 3. Blast Machine leaks through top dish. | <ul style="list-style-type: none"> a. Visually check for wear on pop up valve and pop-up valve seating rubber. If they are worn, replace them through the hand hole. b. Check to ensure that the pop-up valve is central to the top hole. If not, remove hand hole and centre the pop-up valve with a lever. |
| 4. Dump Valve leaking during operation | <ul style="list-style-type: none"> a. Dismantle and check for wear. If worn, replace parts as necessary and reassemble as per attached drawing. |
| 5. Machine seems to be blasting slowly and all of the above have been checked. | <ul style="list-style-type: none"> a. Dismantle moisture trap (if fitted). Replace filter element if clogged and reassemble. b. Check compressor for output pressure. Auto Inlet Valve may need dismantling, cleaning, lubricating, or servicing. |
| 6. Machine will not operate. | <ul style="list-style-type: none"> a. Check air supply to the machine. b. Check for leaks in twin line. c. Check dead man control and rubber button bumper for seal. |
| 7. Machine will not stop | <ul style="list-style-type: none"> a. Check electric cable for continual supply. Power, use ohms meter (electric Deadman). b. Check Manual Override Button on Solenoid (electric). c. Check Exhaust Filter is clean. d. Check Inlet Valve (AAV valve). |

9.0: 1642 & 2449 Blast Machine Schematic

| No: | PART No: | DESCRIPTION | QTY |
|-----|------------|---|-----|
| | 0302-2007 | Thompson II Abrasive Valve – 1-1/4" (fitted to constant pressure pots only) | 1 |
| | 0304-3852 | Pop Up Valve | 1 |
| | 0404-02325 | Pop Up Valve Seating Rubber | 1 |
| | B48F-15 | Pop Up Valve Guide (1642) | 1 |
| | 0304-5215 | Pop Up Valve Guide (2449) | 1 |
| | 0304-4836 | Hand Hold Cover Only | 1 |
| | 0304-4839 | Hand Hold Cover Gasket | 1 |
| | 0302-6821 | Micromiser Abrasive Valve 1-1/4" | 1 |
| | 0304-1476 | Pressure Gauge, 1/4" Rear Entry | 1 |
| | 0304-8635 | Valve, Ball, 1 1/4" BSP, F and F | 1 |
| | 0601-0075 | Choke Valve Hose 1-1/4" | 1 |
| | 0601-2146 | Hose Tail, 1 1/4" BSP x 1" (P3) | 2 |
| | 0304-4810 | Wheel 2801 Dia Rubber (1642 Only) | 2 |
| | 0304-0164 | Lid for 1642 Blast Machine | 1 |
| | 0304-0166 | Screen for 1642 Blast Machine | 1 |
| | 0304-2244 | Lid for 2449 Blast Machine (V2.0) | 1 |
| | 0304-2246 | Screen for 2449 Blast Machine (V2.0) | 1 |

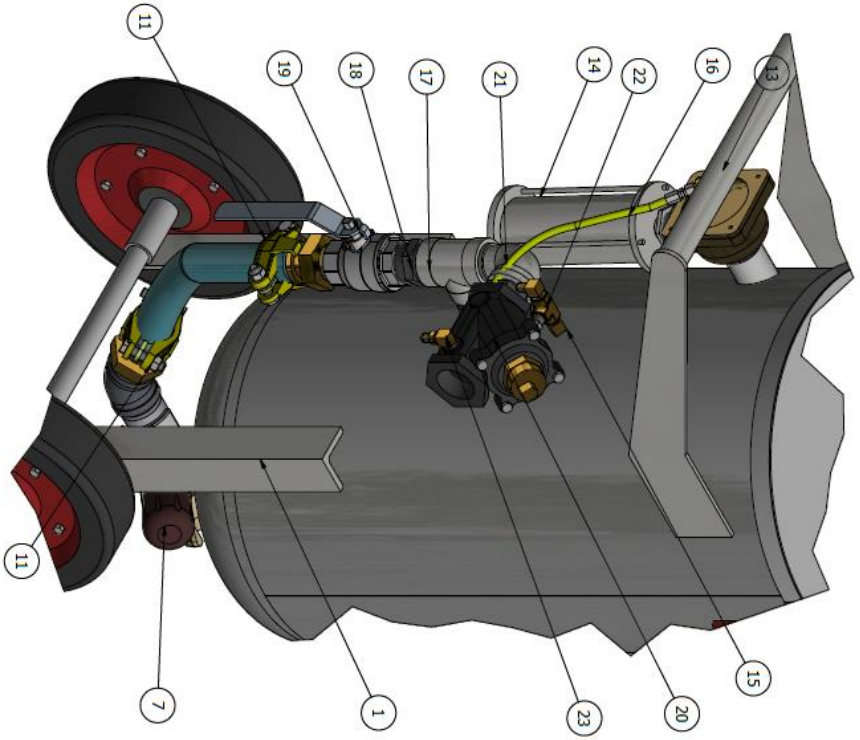
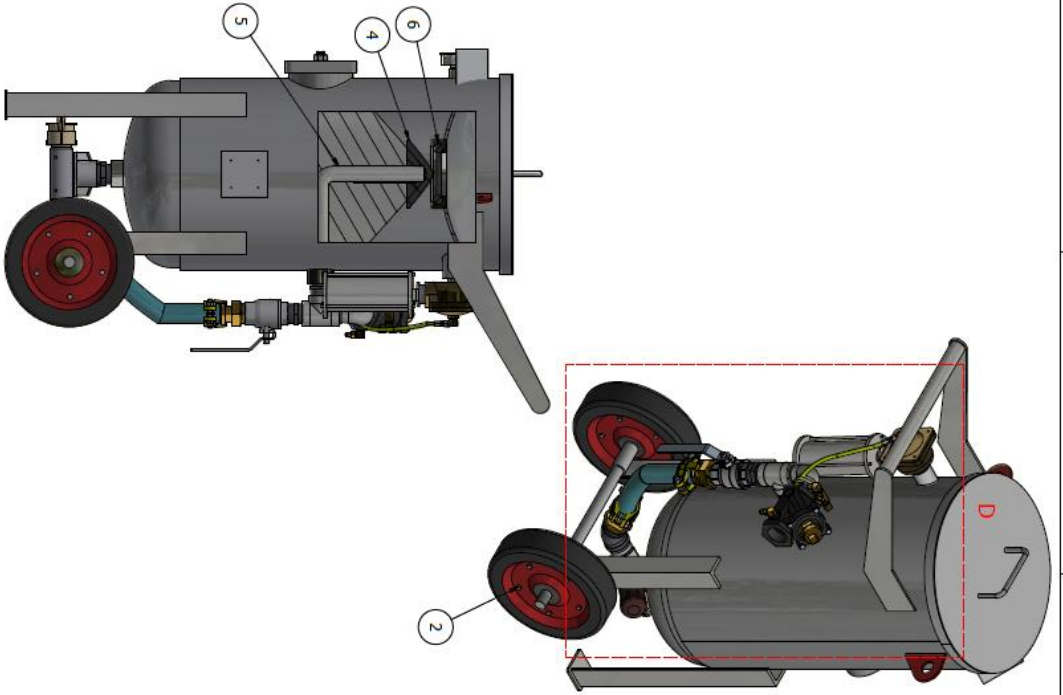


| REVISION HISTORY | | | |
|------------------|----|------------|----------------------|
| REV | BY | DATE | DESCRIPTION |
| B | MC | 19/12/2022 | PART NUMBERS UPDATED |



| ASSEMBLY - PARTS LIST (BOM QTY FOR 1 OFF UNIT) | | | | |
|--|----------|----------------------|--|-----------------|
| ITEM | ITEM QTY | PART NUMBER | DESCRIPTION | DRAWING NUMBER |
| 1 | 1 | 1642 BLAST POT WM-02 | BLAST POT WM-02 | Bp1642-0002 |
| 2 | 2 | 0304-4810 | WHEEL POT, LGE 280 X 67 MM (NO BEARING) | BPN: 0304-4810 |
| 3 | 1 | 0304-1476 | GAUGE, PRESSURE - 1/4" R/E | BPN: 0304-1476 |
| 4 | 1 | 0302-8352 | POP UP VALVE COMPLETE | BVCACA-0001 |
| 5 | 1 | B48F-15 | POP UP VALVE GUIDE 1 1/4" | BPN: B48F-15 |
| 6 | 1 | 0404-02325 | POP UP VALVE SEATING RUBBER | BPN: 0404-02325 |
| 7 | 1 | 0302-6821 | MICROMISER ABRASIVE VALVE 1 1/4" BSP | BPN: 0302-6821 |
| 8 | 1 | 0304-7772 | COUPLING, POT NYLON 7716 EA | BPN: 0304-7772 |
| 9 | 1 | 5509-0114 | ELBOW, GAL 1 1/4" BSP 45 DEG | BPN: 5509-0114 |
| 10 | 2 | 0601-2146 | MALE STEM (HOSE TAIL) 1 1/4" | BPN: 0601-2146 |
| 11 | 2 | 3016-1140 | CLAMP HOSE, 2 BOL T C/W CLAW (SK44) | BPN: 3016-1140 |
| 12 | 2 | 0305-5811 | NIPPLE, B/S 1 1/4" BSP | BPN: 0305-5811 |
| 13 | 1 | 0405-3371 | CLEMCO 1" DIAPHRAGM VALVE (15TLR3371) | BPN: 0405-3371 |
| 14 | 1 | 0305-1012 | DUMP SILENCER | BPN: 0305-1012 |
| 15 | 3 | 0405-02513 | ELBOW 90 DEG 1/4" NPT X 3/16 HOSE | BPN: 0405-02513 |
| 16 | 1 | 2454 | HOSE COUPLED 3/16" ID X 18" | BPN: 2454 |
| 17 | 1 | 3008-1369 | TEE, GAL MAL 1 1/4" BSP FR. F FULL BORE 3000P-SI | BPN: 3008-1369 |
| 18 | 3 | 0305-8634 | NIPPLE, GAL MAL 1 1/4" BSP | BPN: 0305-8634 |
| 19 | 1 | 0304-8635 | VALVE, BALL 1 1/4" BSP FULL BORE | BPN: 0304-8635 |
| 20 | 1 | 0302-2281 | 1 1/4 INCH AAV VALVE | BPN: 0302-2281 |
| 21 | 1 | 0305-8631 | ELBOW, GAL MAL 1 1/4" BSP M & F | BPN: 0305-8631 |
| 22 | 1 | 3008-0761 | TEE, BRASS 1/4" x 1/4" BSP M & M | BPN: 3008-0761 |
| 23 | 2 | 0405-03993 | ELBOW, BRASS 1/8" NPT 90 DEG | BPN: 0405-03993 |
| 24 | 1 | 0405-01945 | ADAPTOR 1/8" NPT x 1/16" ORIFICE | BPN: 0405-01945 |
| 25 | 1 | 3006-1418 | NIPPLE, GAL MAL 1/4" x 1/8" BSP RED | BPN: 3006-1418 |
| 26 | 1 | 0304-0167 | 16" SCREEN | BVSCR16-0001 |
| 27 | 1 | 0304-0164 | 16" LID | BVCALID16-0001 |
| 28 | 1 | 0304-4836 | HAND HOLE COVER - 180X125mm | BPCHH-0001 / 2 |
| 29 | 1 | 0601-0075 | 1 1/4" CHOKE HOSE | BPN: 0601-0075 |

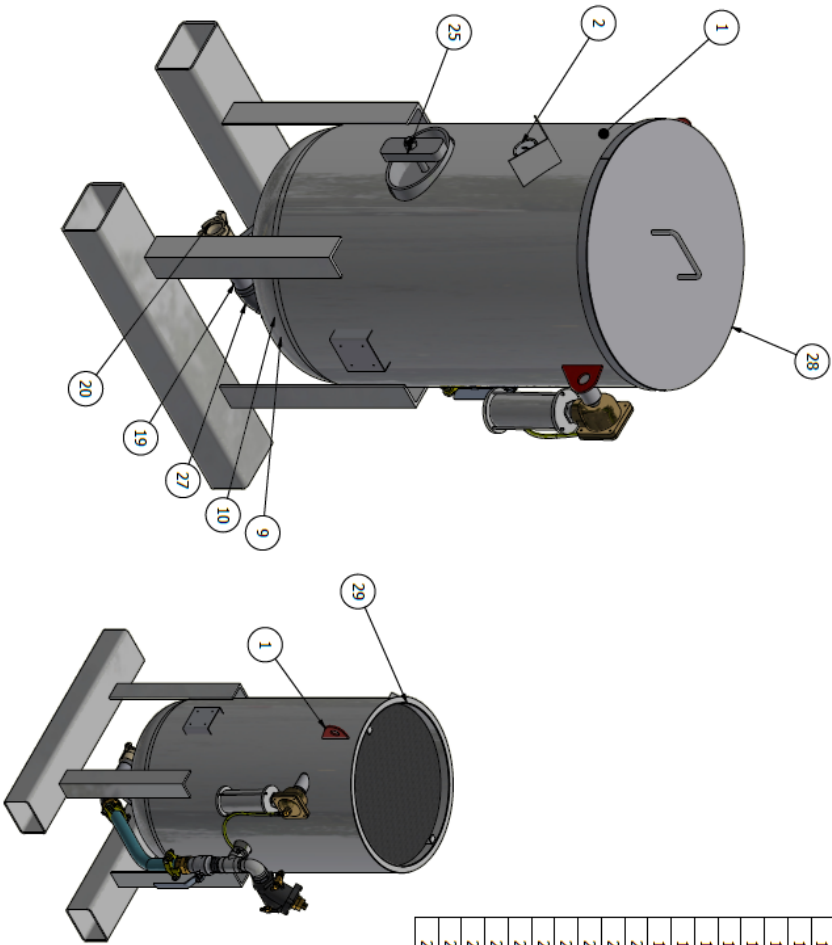
1642 PARTS BREAKDOWN



DETAIL D
(1:5) ON A3

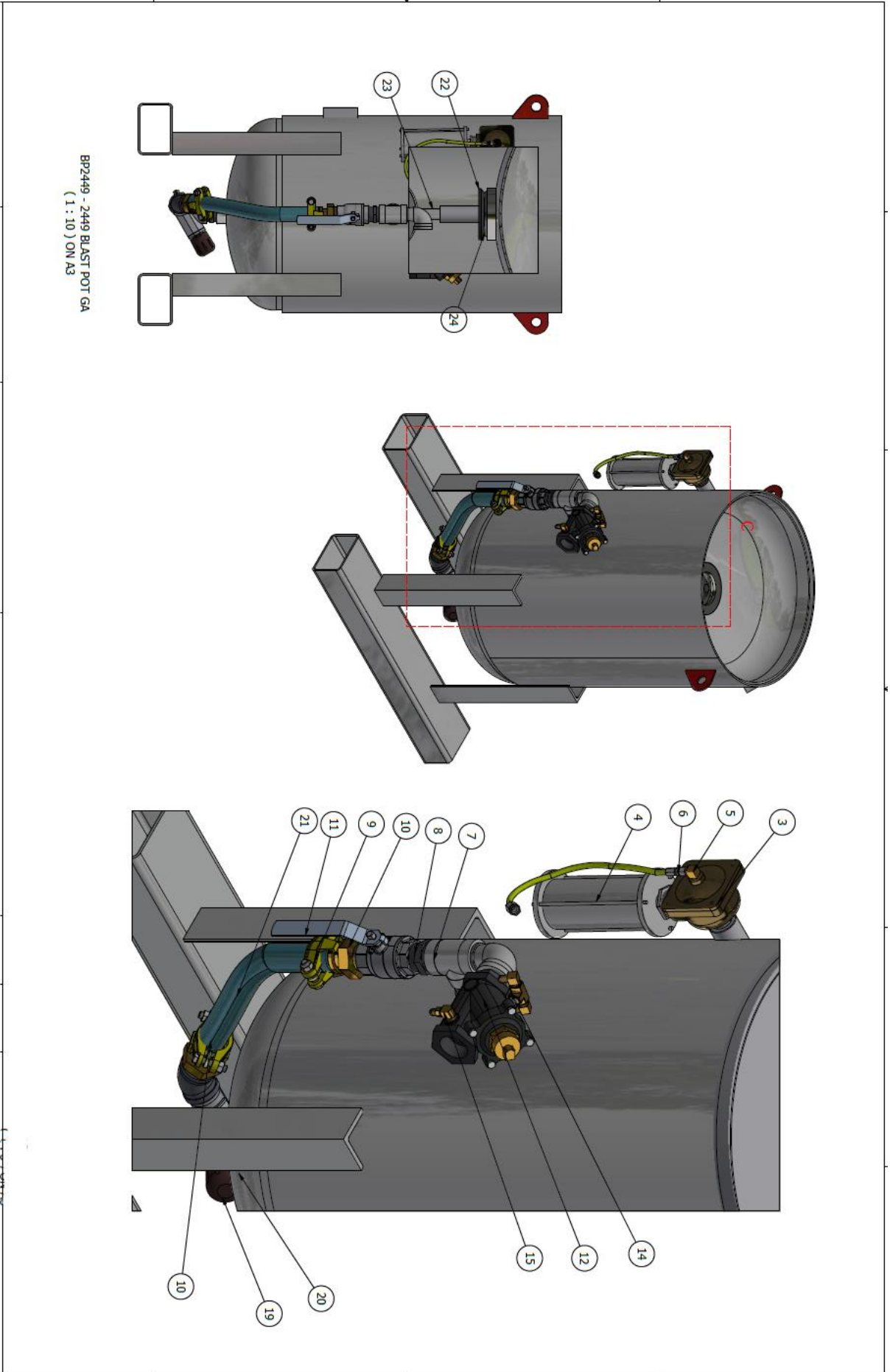
1642 PARTS BREAKDOWN

| REVISION HISTORY | | | |
|------------------|----|------------|----------------------|
| REV | BY | DATE | DESCRIPTION |
| B | MC | 19/12/2022 | PART NUMBERS UPDATED |



| ASSEMBLY - PARTS LIST (BOM QTY FOR 1 OFF UNIT) | | | | |
|--|----------|----------------------|--|-----------------|
| ITEM | ITEM QTY | PART NUMBER | DESCRIPTION | DRAWING NUMBER |
| 1 | 1 | 2449 BLAST POT WM-02 | BLAST POT WM-02 | BP2449-0002 |
| 2 | 1 | 0304-1476 | GAUGE, PRESSURE - 1/4" R/E | BPN: 0304-1476 |
| 3 | 1 | 0405-3371 | CLEMCO 1" DIAPHRAGM VALVE (15TLR3371) | BPN: 0405-3371 |
| 4 | 1 | 0305-1012 | DUMP SILENCER | BPN: 0305-1012 |
| 5 | 3 | 0405-02513 | ELBOW 90 DEG 1/4" NPT x 3/16 HOSE | BPN: 0405-02513 |
| 6 | 1 | 2454 | HOSE COUPLED 3/16" ID x 18" | BPN: 2454 |
| 7 | 1 | 3008-1369 | TEE, GAL MAL 1 1/4" BSP F& F FULL BORE 3000PSI | BPN: 3008-1369 |
| 8 | 3 | 0305-8634 | NIPPLE, GAL MAL 1 1/4" BSP | BPN: 0305-8634 |
| 9 | 2 | 3016-1140 | CLAMP HOSE, 2 BOLT C/W CLAW (SK44) | BPN: 3016-1140 |
| 10 | 2 | 0601-2146 | MALE STEM (HOSE TAIL) 1 1/4" | BPN: 0601-2146 |
| 11 | 1 | 0304-8635 | VALVE, BALL 1 1/4" BSP FULL BORE | BPN: 0304-8635 |
| 12 | 1 | 0302-2281 | 1 1/4 INCH AAV VALVE | BPN: 0302-2281 |
| 13 | 1 | 0305-8631 | ELBOW, GAL MAL 1 1/4" BSP M & F | BPN: 0305-8631 |
| 14 | 1 | 3008-0761 | TEE, BRASS 1/4" x 1/4" BSP M & M | BPN: 3008-0761 |
| 15 | 2 | 0405-03993 | ELBOW, BRASS 1/8" NPT 90 DEG | BPN: 0405-03993 |
| 16 | 1 | 0405-01945 | ADAPTOR 1/8" NPT x 1/16" ORIFICE | BPN: 0405-01945 |
| 17 | 1 | 0305-5811 | NIPPLE, B/S 1 1/4" BSP | BPN: 0305-5811 |
| 18 | 1 | 3006-1418 | NIPPLE, GAL MAL 1/4" x 1/8" BSP RED | BPN: 3006-1418 |
| 19 | 1 | 0302-6821 | MICROMISER ABRASIVE VALVE 1 1/4" BSP | BPN: 0302-6821 |
| 20 | 1 | 0304-7772 | COUPLING, POT NYLON 7716 EA | BPN: 0304-7772 |
| 21 | 1 | 0601-0075 | 1 1/4" CHOKE HOSE | BPN: 0601-0075 |
| 22 | 1 | 0302-8352 | POP UP VALVE COMPLETE | BVCACA-0001 |
| 23 | 1 | 0304-5215 | POP UP VALVE GUIDE 1" NB | BPN: 0304-5215 |
| 24 | 1 | 0404-02325 | POP UP VALVE SEATING RUBBER | BPN: 0404-02325 |
| 25 | 1 | 0304-4836 | HAND HOLE COVER - 180x125mm | BPCGHH-0001 / 2 |
| 26 | 1 | 0304-4837 | SEATING RING (LARGE) | BVCPSR-0002 |
| 27 | 1 | 5509-0114 | ELBOW, GAL 1 1/4" BSP 45 DEG | BPN: 5509-0114 |
| 28 | 1 | 0304-2244 | 24" LID | BVCALID24-0001 |
| 29 | 1 | 0304-2246 | 24" SCREEN WM-01 | BVSCR24-0001 |

2449 PARTS BREAKDOWN

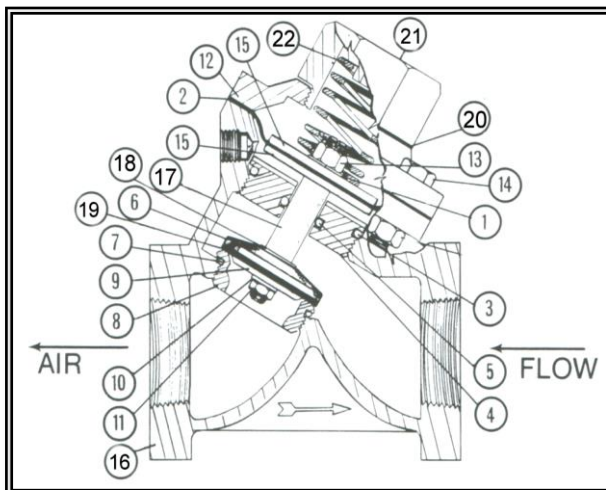


2449 PARTS BREAKDOWN

9.1: Valve Diagrams and Spares Listing

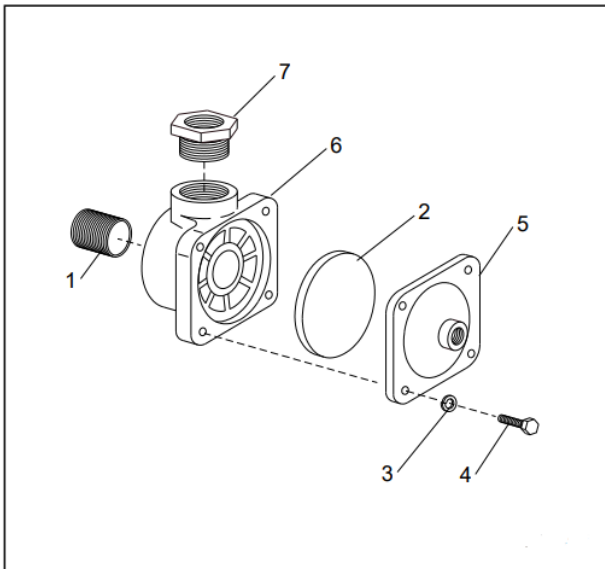
Air Inlet Valves - AAV 1-1/4" and AAV 1-1/2"

| NO. | OLD PART # | NEW PART # | DESCRIPTION |
|------|------------|------------|--------------------------------------|
| Assy | AAV-1000 | 0302-2281 | Auto Air Valve 1 1/4 |
| Assy | AAV-1500 | 0302-2282 | Auto Air Valve 1 1/2 |
| 1 | AAV-1 | 0305-2801 | Lock Nut and Washer (4 off) |
| 2 | AAV-2 | 0305-2802 | Diaphragm |
| 3 | AAV-3 | 0305-2803 | O Ring |
| 4 | AAV-4 | 0305-2804 | Retainer Bushing |
| 5 | AAV-5 | 0305-2805 | O Ring |
| 6 | AAV-6 | 0305-2806 | Disc Retainer |
| 7 | AAV-7 | 0305-2807 | O Ring |
| 8 | AAV-8 | 0305-2808 | Seat |
| 9 | AAV-9 | 0305-2809 | Disc Plate |
| 10 | AAV-10 | 0305-2810 | Washer |
| 11 | AAV-11 | 0305-2811 | Lock Nut |
| 12 | AAV-12 | 0305-2812 | Cap |
| 13 | AAV-13 | 0305-2813 | Lock Nut |
| 14 | AAV-14 | | Cap Screw (4 off) NS |
| 15 | AAV-15 | 0305-2815 | Diaphragm Plate (2 off) |
| 16 | AAV-18 | | Body. 1-1/4", 1-1/2" NS |
| 17 | AAV-19 | 0305-2819 | Shaft |
| 18 | AAV-20 | 0305-2820 | Washer |
| 19 | AAV-21 | 0305-2821 | Disc |
| 20 | AAV-22 | 0305-2822 | O Ring |
| 21 | AAV-23 | 0305-2823 | Spring Retainer |
| 22 | AAV-24 | 0305-2824 | Spring |
| | | 0305-1050 | Repair Kit for 1-1/4" and 1-1/2" AAV |



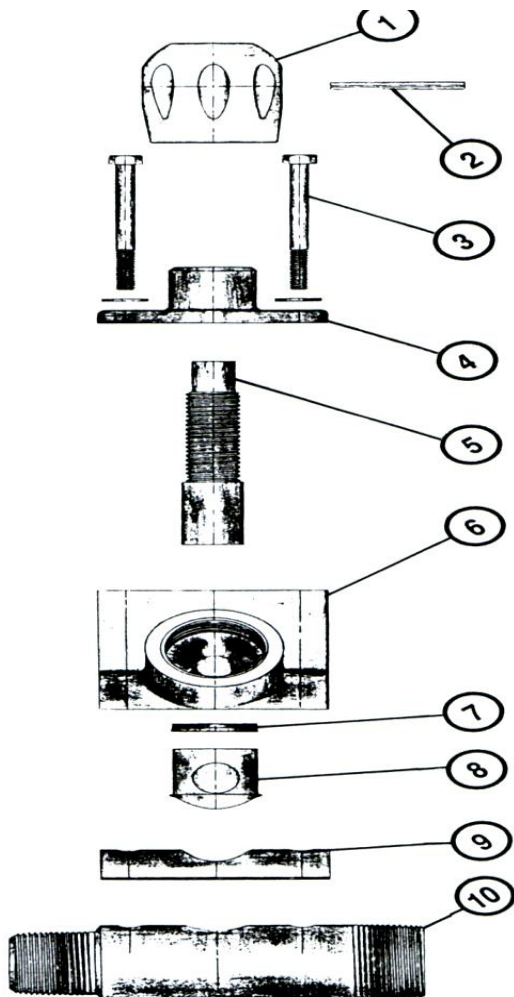
1" Diaphragm Outlet/Dump Valve

| NO. | PART NO. | DESCRIPTION |
|-----|------------|--------------------------------------|
| | 0405-3371 | Diaphragm outlet valve, complete |
| 1 | 01701 | Nipple. 1" x close NS |
| 2 | 0405-06149 | Diaphragm |
| 3 | 0405-03117 | Lock washer, 1/4" |
| 4 | 0405-03053 | Cap Screw, Hex Head 1/4" NC x 1" Hex |
| 5 | 0405-03393 | Cap, Diaphragm outlet valve |
| 6 | 0405-06135 | Body, Diaphragm outlet valve |
| 7 | 01804 | Bushing, 1-1/4" x 1" NS |



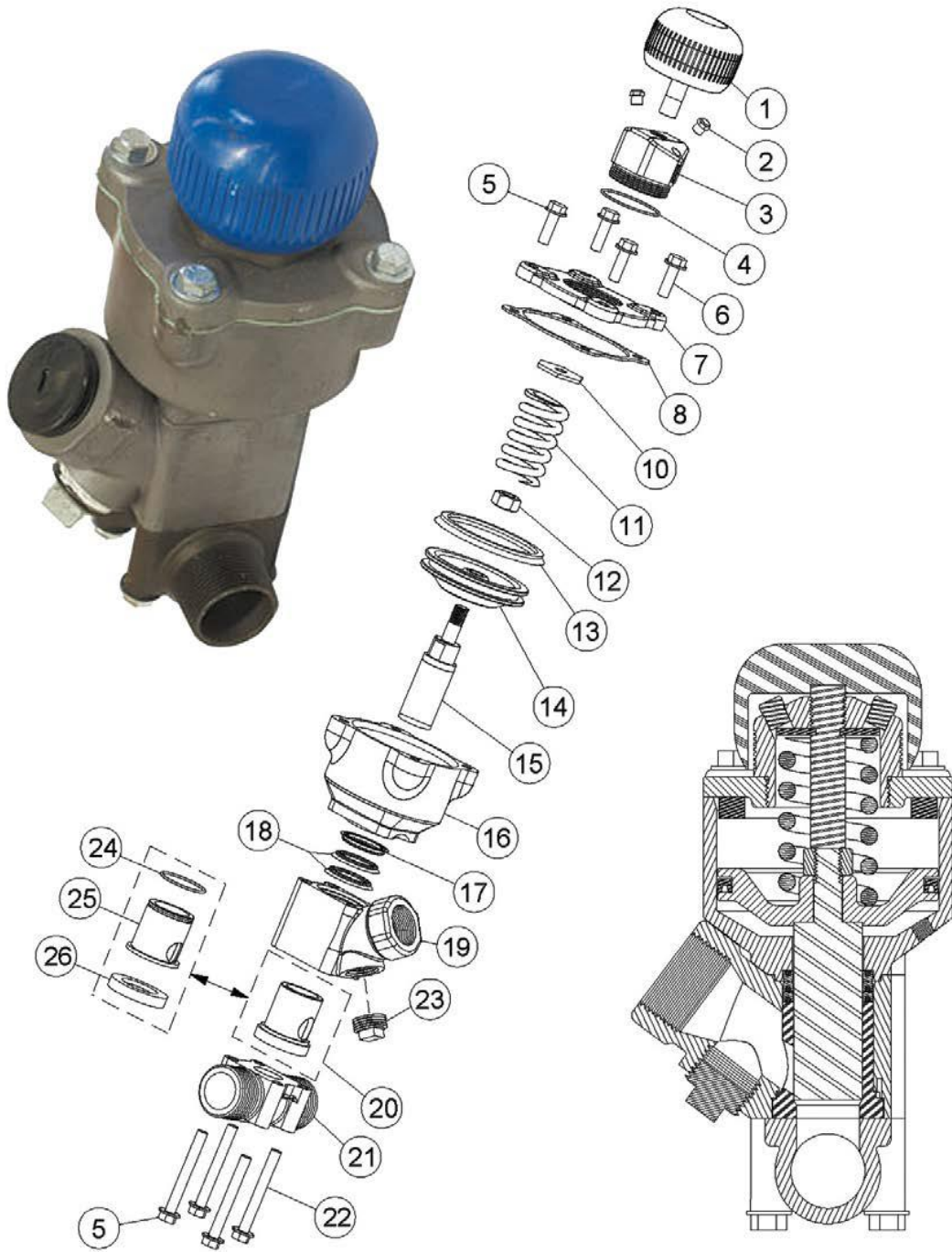
Micromiser Abrasive Valve (MPV 210)

| No: | Part No: | Description | QTY |
|------|-----------|---|-----|
| Assy | 0302-6821 | Micromiser Abrasive Valve 1-1/4" x 1-1/4" | 1 |
| 1 | 0305-6801 | Knob | 1 |
| 2 | 0305-6802 | Roll Pin | 1 |
| 3 | 0305-6803 | Bolt and Washer | 1 |
| 4 | 0305-6804 | Cap | 1 |
| 5 | 0305-6805 | Plunger* | 1 |
| 6 | 0305-6806 | Body | 1 |
| 7 | 0305-6807 | Plunger Seal* | 1 |
| 8 | 0305-6808 | Urethane Sleeve* | 1 |
| 9 | 0305-6809 | Gasket* | 1 |
| 10 | 0305-6821 | Pipe Nipple 1-1/4" x 1-1/4" | 1 |
| 10 | 0305-0217 | Pipe Nipple 1-1/4" x 1-1/2" | 1 |
| * | 0305-6899 | Repair Kit | 1 |



THOMPSON II VALVE (if fitted)

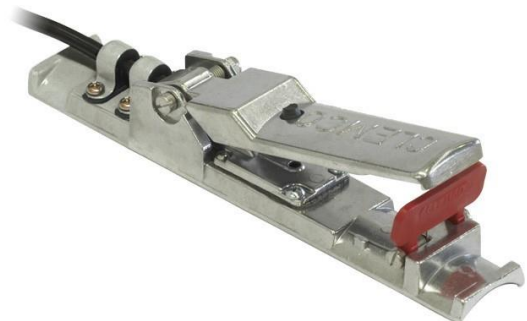
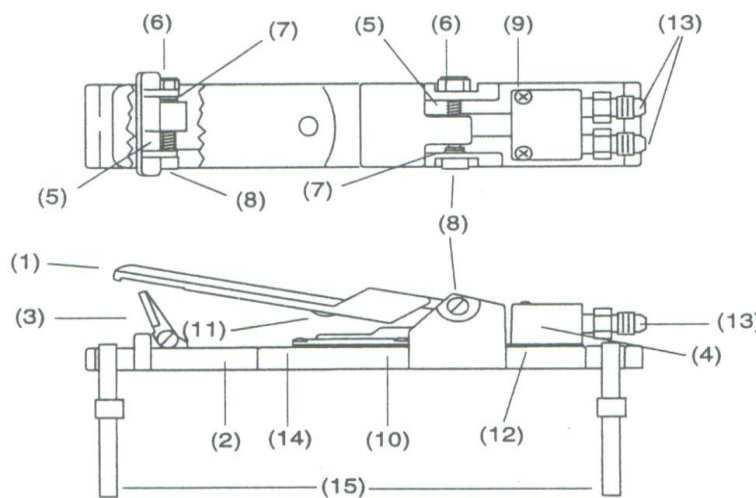
| NO | OLD PART NO | NEW PART NO | DESCRIPTION | QTY |
|-----|-------------|-------------|--|-----|
| | 2152-007 | 0302-2007 | Thompson Valve II 1-1/4" c/w Tungsten Carbide Sleeve | |
| 1 | 2152-000-01 | | Knob NS | 1 |
| 2 | 2152-000-17 | | Breather Vent NS | 1 |
| 3 | 2152-000-12 | 0305-5212 | Spring Retainer | 1 |
| 4 | 2152-000-18 | 0305-5218 | O-Ring | 1 |
| 5 | 7027-503-02 | 0302-0302 | Washer | 1 |
| 6 | 7010-507-07 | | Hex Bolt, 3/8" UNC 1-1/4" NS | 4 |
| 7 | 2152-000-02 | 215200002 | Cap Plate | 1 |
| 8 | 2152-000-16 | 0305-5216 | Cap Gasket | 1 |
| 9 | 2149-000-19 | 2149-000-19 | Bump Ring | 1 |
| 10 | 2152-000-25 | 0305-5225 | Vibration Disc | 1 |
| 11 | 2152-000-03 | 0305-5213 | Spring | 1 |
| 12 | 2149-000-08 | | Nut NS | 1 |
| 13 | 2149-000-04 | 0305-4904 | Piston Seal | 1 |
| 14 | 2152-000-05 | 0305-5205 | Piston | 1 |
| 15 | 2152-000-07 | 0305-5207 | Tungsten Carbide Plunger | 1 |
| 16 | 2152-000-09 | 0305-5209 | Cylinder | 1 |
| 17 | 2149-500-06 | 0305-4956 | Plunger Seal (Molythene) | 1 |
| 18 | 2152-000-06 | 0305-5206 | Plunger Seal (Urethane) | 1 |
| 19 | 2152-000-14 | 0305-5214 | Body | 1 |
| 20 | 2152-100-13 | 0305-52113 | Urethane Sleeve | 1 |
| 21a | 2152-000-15 | 0305-5215 | Base 1-1/4", machined BSP | 1 |
| 22 | 7010-507-95 | 0302-0795 | Hex Bolt 3/8 x 4-3/8" | 1 |
| 23 | 3014-505 | | Plug NS | 1 |
| 24 | 2152-000-21 | 0305-5221 | O-Ring | 1 |
| 25 | 2152-000-13 | 0305-5213 | Tungsten Sleeve | 1 |
| 26 | 2152-000-10 | 0305-5210 | Seat | 1 |
| 27a | 2152-000-99 | 0305-0099 | Repair Kit, Tungsten includes Tungsten Carbide Sleeve, O-Rings, Piston Seal, Tungsten Carbide Plunger, Plunger Seals, Seat, Cap Gasket | 1 |
| 28a | 2152-000-98 | 0305-5298 | Seals Kit, Tungsten includes O-Rings, Piston Seal, Plunger Seals, Seat and Cap Gasket | 1 |



9.2: Remote Deadman Control Systems

RLX Pneumatic Remote-Control System

| NO. | PART NO. | DESCRIPTION | QTY |
|-----|-------------|---|-----|
| - | 0402-10565 | RLX Pneumatic Control Handle complete | |
| - | 0402-07625 | RLX Pneumatic control Handle with ACS switch | |
| - | 0301-20525A | Hose, Twinline Coupled 10mtr Deadman | |
| - | 0401-20525 | Hose, Twinline Coupled 20mtr Deadman | |
| - | 0304-2240 | Hose, Coupled Twinline 3' | |
| 1 | 0402-10573 | Handle | |
| 2 | 0402-10568 | Body | |
| 3 | 0402-10564 | Lever Lock | |
| 4 | 0402-10562 | Pneumatic Adaptor | |
| 5 | 0402-05823 | Spring, lever, 2 required | |
| 6 | 0402-05815 | Nut, 8-32 lock s/s, 2 required | |
| 7 | 0402-05434 | Spacer washer, s/s, 4 required | |
| 8 | 0402-05817 | Screw, 3/16"x 1 1/4" shoulder, 2 required | |
| 9 | 0402-05819 | Screw, 8-32 x 1" round head, 2 required | |
| 10 | 0402-05818 | Screw, 4-40 x 3/8" fillister head, 2 required | |
| 11 | 0402-05821 | Rubber button bumper | |
| 12 | 0402-10563 | Gasket, pneumatic adaptor | |
| 13 | 0404-01940 | Adaptor 1/8" NPT | |
| 14 | 0402-05814 | Screw 8-32 x 3/8" s/s, round head, 2 required | |
| 15 | 0402-02195 | Tie Nylon | |



RLX Pneumatic Remote Control Handle

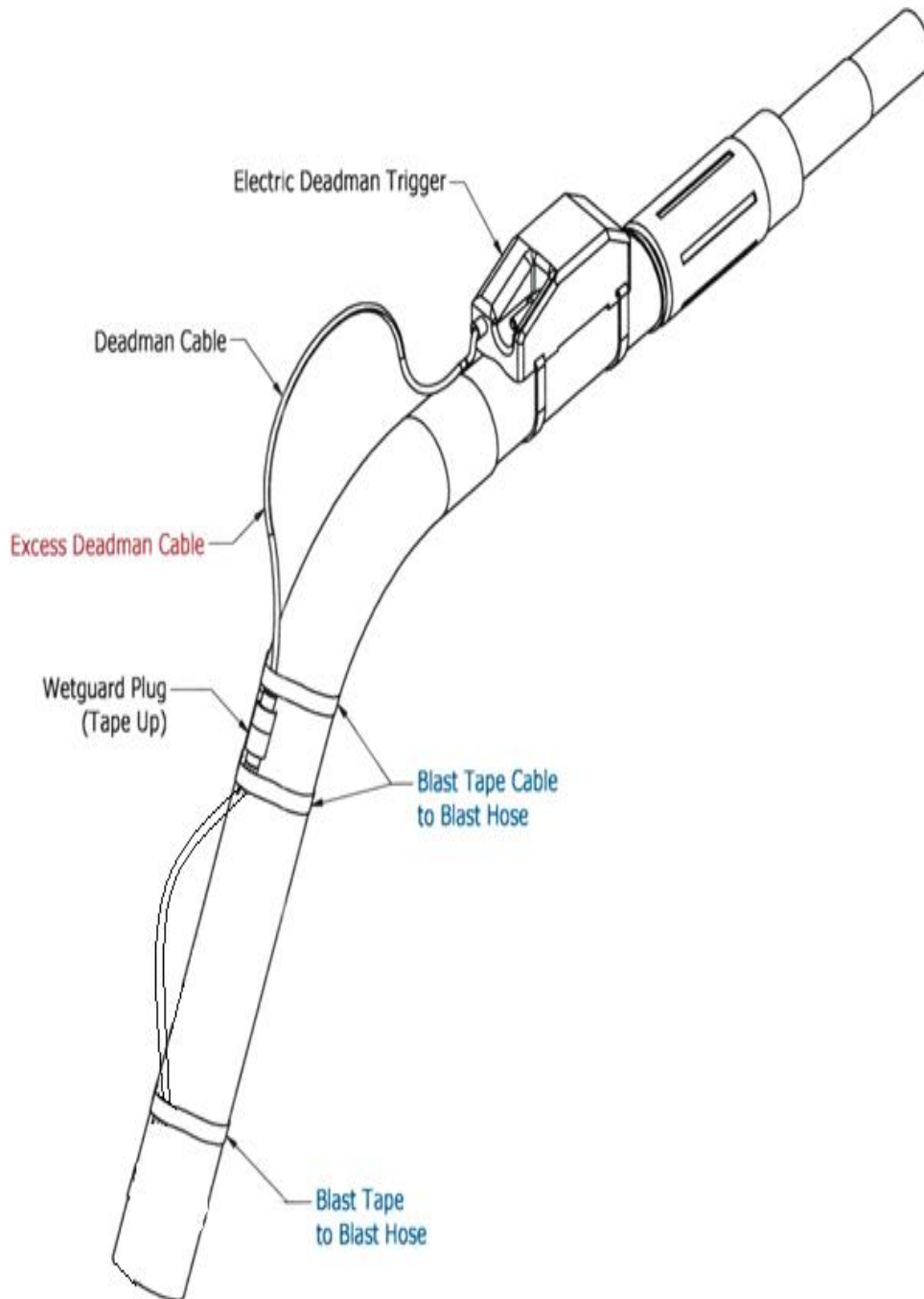
Burwell Pro Series **Electric (12V)** Deadman System

| NO. | OLD PART # | NEW PART # | DESCRIPTION |
|-----|----------------|------------|---|
| | ECK-100-12DC | 0301-1232 | Pro Series Electric Deadman Remote Control Conversion Kit including Trigger, 25 Metre Cable, Solenoid, T Junction, and all parts to Convert Auto Air to Auto Electric to run off Battery Power |
| | ECK-100-24DC | 0301-2432 | Pro Series Electric Deadman Remote Control Conversion Kit including Trigger, 25 Metre Cable, Solenoid, T Junction and all parts to Convert Auto Air to Auto Electric to run off Battery Power. |
| | ECK-100-24AC-T | 0301-2422 | Pro Series Electric Deadman Remote Control Conversion Kit including Trigger, Transformer (nominate primary power) 25 Metre Cable, Solenoid, T Junction and all parts to Convert Auto Air to Auto Electric to run off standard Electric power. |
| | BPET-1 | 0301-7381 | Green Enclosed Electric Single Function Deadman Trigger |
| | 69110005 | 0301-0005 | Cord Electric 2 Mt (for BPET-1) |
| | 69110006 | 0301-0006 | Strain Relief (for BPET-1) |
| | 69110002 | 0301-0002 | Toggle Switch (for BPET-1) |
| | 69110003 | 0301-0003 | Toggle Boot (for BPET-1) |



ELECTRIC DEADMANS

If fitted with electric deadman please follow illustration below.



9.3: Blast Helmets

Bullard GVX Blast Helmet

| PART NO. | DESCRIPTION |
|-----------|----------------------------------|
| 0704-2805 | Bullard GVX Hemet c/w Flow Valve |
| 0704-2806 | Bullard GVX Hemet c/w Cool Tube |
| 0704-2800 | 28" Bullard GVX Cape |
| 0704-2804 | Bullard GVX Breathing Tube |
| 0704-2803 | Bullard GVX Tear Off Visor |
| 0704-2801 | Bullard GVX Outer Visor |
| 0704-2802 | Bullard GVX Inner Visor |
| 0704-6803 | Cool Air Tube |



Nova 3 Blast Helmet

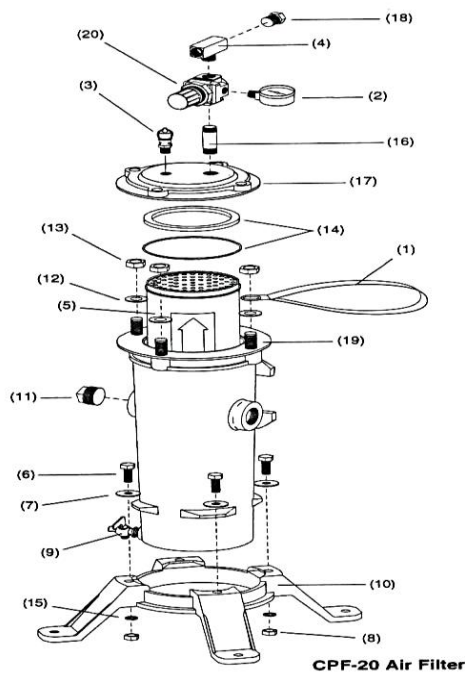
| PART NO. | DESCRIPTION | UOM |
|-----------------|---|------------|
| 0703-6323 | Complete Nova 3 Helmet with Cool Air Tube, Cape, Breathing Tube | Ea |
| 0703-3900 | Adjustable Head Support | Ea |
| 0703-3759 | Cape Cover Band | Ea |
| 0703-3755 | Leather Cape complete with Inner Bib | Ea |
| 0703-3751 | Nylon Cape 38" | Ea |
| 0703-3721 | Gasket, Inner Frame | Ea |
| 0703-3416 | Head Liner Clips (4 per packet) | Pkt |
| 0703-3735 | Head Liner Foam Padding | Ea |
| 0703-3734 | Head Liner Kit | Ea |
| 0703-2021 | Breathing Hose | Ea |
| 0703-3729 | Air Inlet Kit | Ea |
| 0703-3726 | Visor Kit (includes Hinge and Latch) | Ea |
| 0703-3516 | Neck Pad | Ea |
| 0703-3731 | Padding Frames, Side (Left and Right) | Ea |
| 0703-3733 | Side Padding Covers (5 pairs per pack) | Pkt |
| 0703-3732 | Side Padding, Style A, Size 15 | Ea |
| 0703-3722 | Visor, Inner Lens | Ea |
| 0703-3724 | Visor, Outer Lens | Ea |
| 0703-3725 | Visor, Tear Off (50 per packet) | Pkt |




9.4: Breathing Air Filter


CPF 20 Breathing Air Filter


| NO. | PART NO. | DESCRIPTION |
|-----|------------|---|
| | 0702-03580 | CPF-20 Air Filter with Regulator |
| 1 | 0702-03623 | Handle (strap) |
| 2 | 0702-00024 | Pressure gauge |
| 3 | 0702-01909 | Pressure relief valve |
| 4 | 0702-22843 | Tee, 3/8" NPT, male branch |
| 5 | 0702-03547 | Filter Cartridge |
| 6 | 0702-03252 | 3/8" NC x 1" hex head cap screw NS |
| 7 | 0702-03310 | Washer, 3/8" ID x 1 1/4" OD NS |
| 8 | 0702-03311 | 3/8-NC hex nut NS |
| 9 | 0702-01993 | 1/4" petcock |
| 10 | 0702-03557 | Base bracket |
| 11 | 0702-03532 | Pipe plug, 1" NPT NS |
| 12 | 0702-03515 | 1/2" SAE flat washer NS |
| 13 | 0702-03511 | 1/2"NC hex nut |
| 14 | 0702-08942 | Gasket and o-ring kit |
| 15 | 0702-03318 | 3/8" dia. Lock washer NS |
| 16 | 0702-03720 | Nipple, 3/8" NPT x 2", brass |
| 17 | 0702-03584 | Air filter cap |
| 18 | 0702-03536 | Plug, 3/8" NPT, brass |
| 19 | 0702-03545 | Stud, filter cap |
| 20 | 0702-03582 | Pressure regulator |





10.0 - General Consumables


| DESCRIPTION | Part # | Image |
|--|-----------|---|
| Auto Inlet Valve | |  |
| 1 1/4" AAV Valve – Complete | 0302-2281 | |
| 1 1/4" & 1 1/2" AAV Valve – Repair Kit | 0305-1050 | |


| | | |
|--|-----------|---|
| Thompson II – Abrasive Metering Valve | |  |
| 1 1/4" Thompson II Valve – Complete | 0302-2007 | |
| 1 1/4" & 1 1/2" Thompson II Valve – Repair Kit | 0305-0099 | |
| 1 1/4" & 1 1/2" Thompson II Valve – Seal Kit | 0305-5298 | |
| 1 1/4" Thompson II Valve - Base | 0305-5215 | |


| | | |
|--|-----------|---|
| Blasting Equipment | |  |
| 32mm ID x 55mm OD Blast Hose - Extension p/m | 0501-2450 | |
| 38mm ID x 60mm OD Blast Hose - 5m, Dump back to room p/m | 0501-2464 | |

| | | |
|--|-----------|---|
| Light Wall Blast Hoses - Fitted | |  |
| Hose, Blast 32mm x 48mm 10M L/W fitted - Nylon/Steel | 0501-2551 | |

| | | |
|--------------------------------------|-----------|---|
| Pot Couplings | |  |
| 1 1/4" Pot Coupling (Female) – Steel | 0304-7772 | |
| | | |

| | | |
|--|------------|---|
| Pot Coupling Rubbers | |  |
| Pot Coupling Rubbers - Brass | 0501-0272 | |
| Pot Coupling Rubbers - Nylon (10 pack) | 0502-08853 | |

| | | |
|-------------------------------|------------|---|
| Hose Couplings | |  |
| Brass Coupling (48mm OD Hose) | 0503-7227 | |
| Brass Coupling (55mm OD Hose) | 0503-7327 | |
| Nylon Coupling (48mm OD Hose) | 0502-08413 | |
| Nylon Coupling (55mm OD Hose) | 0502-08414 | |

| | | |
|---|------------|---|
| Hose Coupling Rubbers | |  |
| Coupling Rubber For all Brass Coupings (Each) | 0501-0272 | |
| Coupling Rubber For all Nylon Couplings (10 pack) | 0502-08853 | |

| | | |
|---|------------|---|
| CPF Filter | |  |
| Filter Cartridge Only | 0702-03547 | |
| Gasket and O-Ring Kit | 0702-08942 | |
| Blast Hose Safety Accessories | |  |
| D Style Safety Clips | 0503-1319 | |
| Small Whip Checks (15mm to 60mm OD Hoses) | 0503-5012 | |
| Large Whip Checks (45mm to 90mm OD Hoses) | 0503-5013 | |
| Nozzles – 2" Coarse Thread Tungsten Carbide (Boride) | |  |
| 3/8" Bore 50mm Threaded Case | 0805-9657 | |
| 7/16" Bore 50mm Threaded Case | 0805-9757 | |
| Nozzle Holders | |  |
| Aluminium Nozzle Holder 1" x 1-7/8" (48mm OD Hose) | 0501-6432 | |
| Nylon Nozzle Holder (48mm OD Hose) | 0501-04127 | |
| Nozzle Holder Rubbers | |  |
| Nozzle Rubbers (10 Pk) – For Aluminium Holders | 0502-6702 | |
| Nozzle Rubbers (10 Pk) - For Nylon Holders | 0502-91026 | |
| Triggers | |  |
| Schmidt Deadman Twin-Line Pneumatic Trigger | 1301-3002 | |
| Trigger Extensions | |  |
| Ryco Hose Twin-Line Trigger 10m | 0301-9429 | |
| Deadman Twin-Line Extension - 1.8m Length | 0301-3006 | |
| Deadman Twin-Line Extension - 10m Length | 0301-3005 | |