Valco EPP9 Piston Pump

9:1 Electronic Piston Pump

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This manual written and designed at Valco Melton, 497 Circle Freeway Drive, Suite 490, Cincinnati, Ohio 45246. http://www.valcomelton.com

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Valco Cincinnati, Inc.
497 Circle Freeway Drive
Suite 490
Cincinnati, OH 45246
Tel: (513) 874-6550
Fax: (513) 874-3612
Email: sales@valcomelton.com
Web: http://www.valcocincinnatiinc.com

Valco Cincinnati Limited
Hortonwood 32
Telford, TFI 7YN, England
Tel: (+44) 1952-677911
Fax: (+44) 1952-677945
Email: sales@valco.co.uk
Web: http://www.valco.co.uk

Valco Cincinnati GmbH
Bonnerstrasse 349
40589 Dusseldorf-Benrath, Germany
Tel: +49 211 984 798-0
Fax: +49 211 984 798-20

Melton S.L.U.
Pol. Industrial Agustinos
calle G, n. 34
31160 Orcoyen, Navarra, Spain
Tel: (34) 948-321-580
Fax: (34) 948-326-584

Valco Melton France
Technoparc des Hautes Faventines
32 Rue Jean Bertin
26000 Valence
Tel: +33 (0)4 75 78 13 73
Fax: +33 (0)4 75 55 74 20

Declaration of Conformity

(According to EN 45014)

CE

The following declaration is issued under the sole responsibility of the manufacturer:

Manufacturer:	Valco Melton A division of Valco Cincinnati, Incorporated 411 Circle Freeway Drive Cincinnati, OH 45246 USA	
Authorized Representatives in Europe:	Valco Cincinnati, Ltd. Unit 7-8 Hortonwood 32 Telford TF1 7YN England	Melton S.L.U. Pol. Industrial Agustinos calle G, n. 34 31160 Orcoyen Navarra, Spain

declares that the product:

Product Name:	EPP9 Piston Pump

complies with the following Council Directives:

Safety of Machinery:	2006/42/EC
Low Voltage Equipment:	2014/35/EU
EMC:	2014/30/EU
Reduction of Hazardous Substances (RoHS):	2011/65/EC

and conforms to the following standards:

Safety:	EN60204-1:2006/A1:2009 EN13849-1
Risk:	ISO12100:2010
EMC Emissions:	EN61000-6-4:2007/A1:2009 EN61000-4-2
EMC Immunity:	EN61000-6-2:2005 EN61000-4-3 EN61000-4-4 EN61000-4-5 EN61000-4-6 EN61000-4-8 EN61000-4-11
Place and Date:	Cincinnati, Ohio USA CE Mark first fixed 2006
Signature:	Cincinnati, OH USA David H. Swedes, Vice President of Engineering & Manufacturing

Table of Contents

Section 1 - Introduction

Valco Cincinnati has prepared this manual as an aid for installing, operating, and servicing the Valco EPP9 Piston Pump. The manual also contains a list of part numbers for replacement parts. If you need more information, please contact your Valco Cincinnati representative.

Description of the Valco EPP9 Piston Pump

The Valco EPP9 Piston Pump is a shop-air-driven, electronically controlled 9:1 pump designed for years of efficient, reliable fluid delivery. The Valco EPP9 is capable of continuous or intermittent operation at air pressure rates of between 20 and 80 psi.

Stainless steel construction and easy-to-follow maintenance procedures make the Valco EPP9 extremely dependable and durable.

With the EPP9 Piston Pump, cycling is achieved electronically. Two Hall effect sensors are positioned close to the air cylinder. These are activated by a magnet attached to the piston. The switch signal is passed to an electronic control circuit mounted in the manifold that operates standard solenoid air valves. Flow is controlled by check valves that are mounted in the pump.

Section 2 - Safety and Use

Read Thoroughly Before Handling Equipment

WARNING!

Read and follow all safety precautions, warnings, cautions, and other recommendations in this manual. OTHERWISE, DEATH, PERSONAL INJURY OR EQUIPMENT DAMAGE COULD OCCUR.

Read this entire section before handling the equipment.

Symbols

The following symbols may be used on the equipment and/or in this manual.

	This symbol represents a **Caution** or a **Warning**. *Cautions* draw special attention to anything that could damage equipment or cause the loss of data. *Warnings* draw special attention to anything that could injure or kill the reader. Both Cautions and Warnings are placed before the step they apply to.
	This symbol represents a **Hot Surface**.
	This symbol represents a **Puncture Risk.** It is usually used in regard to nozzle cleaning appliances and other sharp instruments that can cause puncture wounds and risk exposure to bloodborne pathogens and other debris.
	This symbol means that **Working Gloves** are required.
	This symbol means that **Goggles** are required.
	This symbol indicates a Shock Hazard. There is a presence of non-insulated dangerous voltage within the product's enclosure. This voltage may cause electrical shock or fire.
	This symbol indicates the need to Unplug/Disconnect All Power Sources and to let them de-energize before attempting any type of work or maintenance. Remember that there can still be energy in equipment, cords, and wires even when unplugged/disconnected.
	This symbol indicates the need to **Lock Out All Power Sources** and to let them de-energize before attempting any type of work or maintenance. If power is not locked out, the person working on the equipment may be injured or killed if someone unknowingly switches on the power to the equipment.
	This symbol indicates a Note. Notes point out something of special interest or importance to the reader. They give tips, hints, and information in addition to what is necessary for the step preceding it.

Owner Responsibilities

The owner of the equipment is under obligation to manage all safety information. Some examples include:

- Examine all safety materials and documents as well as jurisdictional laws and make certain all laws, recommendations, and other safety/hazard laws, certification requirements, training, and instructions are followed and kept current.
- Maintain all safety materials including tags, labels, documents, and MSDS information. Make certain they are distinct and can be read/understood. Replace any that are dirty, worn, or unreadable.
- Make sure all personnel who will handle, install, maintain, operate, fix, and work around the equipment have ready access to the safety information, training, and equipment according to jurisdictional authorities.

The owner of the equipment is under obligation to make certain that all instructions, requirements, and jurisdictional laws are met. Some examples include:

- Make sure there are regular inspections of equipment and safety devices.
- Have regular safety drills and inspections supervised by the proper authorities.
- Provide all required safety items, first aid equipment, and training.

The owner of the equipment is under obligation to make certain that all personnel who will handle, install, maintain, operate, fix, and work around the equipment are qualified, trained, and up-to-date with all information regarding the equipment. Some examples include:

- Make sure all personnel have the proper safety training, equipment, education, and abilities necessary for the job function according to safety instructions and all jurisdictional laws and regulations.
- It is strongly advised that personnel receive first-responder medical care training in case of burns, medical emergencies, or other injuries. Training should be kept up to date.
- Make sure all personnel understand and can follow safety policies and procedures for the organization as well as for the specific equipment.
- Make sure that all personnel are consistently trained, evaluated, free of alcohol and medications that may impair judgment and reflexes, and are tested for banned substances according to jurisdictional authorities.

Limitations of Use

Read this document and all information regarding the equipment before handling the equipment. The intended use of the equipment is stated in Section 1 of this manual.

Do not use this equipment for anything other than its intended use. Do not modify, change, or alter the equipment in any way. If you are unsure of the intended use and the limitations of use for the equipment, contact your Valco Melton Representative before handling the equipment.

Installation/Startup/Use Safety Information

Valco Melton hot melt units, cold glue units, controllers, inspection systems and all related accessories have the following universal safety precautions (this is not intended to be an exhaustive list; follow all instructions and safety precautions for the specific type of equipment involved):

WARNING!

Only qualified personnel should install the equipment. Valco Melton strongly recommends that a Valco Melton Technician install all equipment. OTHERWISE, DEATH, PERSONAL INJURY, OR DAMAGE TO EQUIPMENT COULD OCCUR.

WARNING!

The equipment should be installed so that it can be turned off at a location **away** from the equipment in case of injury, electrical problems, or malfunction. OTHERWISE, DEATH OR PERSONAL INJURY COULD OCCUR.

WARNING!

Properly route all electrical wires. Never tamper with equipment. Only use approved and correct voltage, type of current, fuses, and other power supplies. Replace worn cords, hoses, etc. immediately. FAILURE TO OBSERVE WARNING MAY RESULT IN DEATH, PERSONAL INJURY, AND/OR EQUIPMENT DAMAGE.

WARNING!

Poor ventilation, smoking, and open flames can cause overheated hot melt to ignite. Adequate ventilation must be provided. Smoking should be prohibited in the immediate vicinity of the molten adhesive. Open flames must be kept away from the area around molten adhesive. OTHERWISE, DEATH, PERSONAL INJURY, OR DAMAGE TO EQUIPMENT COULD OCCUR.

WARNING!

Never use any Valco Melton equipment in an explosive environment. Explosive environments include, but are not limited to, solvent-based cleaners or adhesives, explosive materials, radioactive materials, etc. OTHERWISE, DEATH OR PERSONAL INJURY COULD OCCUR.

WARNING!

Equipment will start automatically when remotely controlled by triggering devices. Be sure to disable all triggering devices, carefully release hydraulic pressure, and disconnect air pressure before servicing or working near guns, valves, and other triggered devices. OTHERWISE, DEATH OR PERSONAL INJURY COULD OCCUR.

Shut Down Safety Information

Valco Melton hot melt units, cold glue units, controllers, inspection systems and all related accessories have the following universal safety precautions (this is not intended to be an exhaustive list; follow all instructions and safety precautions for the specific type of equipment involved):

WARNING! Purge the fluid pressure and the air pressure from the system before disconnecting/disabling any part of the system. OTHERWISE, DEATH OR PERSONAL INJURY COULD OCCUR.

WARNING! Disconnect and lock out all power before maintenance or other need to open the equipment. Only qualified personnel should open and service the control. OTHERWISE, DEATH OR PERSONAL INJURY COULD OCCUR.

WARNING! Equipment may still be energized even if unplugged! When making adjustments or performing checkout procedures, stay clear of any moving mechanical parts and do not touch exposed electrical equipment or electrical connectors. OTHERWISE, DEATH OR PERSONAL INJURY COULD OCCUR.

WARNING! Disconnect/disable all mechanical and/or electrical devices that send activation signals to the gun(s), valve(s), melter pump(s), etc. This includes pattern controls, timers, input/output signals, etc. Only qualified personnel should open and service the control. OTHERWISE, DEATH OR PERSONAL INJURY COULD OCCUR.

WARNING! Disable all triggering devices, relieve all residual pressure (hydraulic and air) and allow adhesive to cool before attempting to disconnect guns, hoses, valves, etc. Only qualified personnel should open and service the control. OTHERWISE, DEATH OR PERSONAL INJURY COULD OCCUR.

WARNING! Never point an adhesive dispensing gun, valve, hose, air hose, or anything else at yourself or another person. OTHERWISE, DEATH OR PERSONAL INJURY COULD OCCUR.

Hot-Melt-Specific, General Safety Information

Valco Melton hot melt units have the following universal safety precautions in addition to all other universal precautions previously mentioned (this is not intended to be an exhaustive list; follow all instructions and safety precautions for the specific type of equipment involved):

WARNING! **Never** process any polyurethane reactive (PUR) hot melt or solvent-based material in a Valco Melton unit unless you are certain that the unit is compatible and is marked “PUR”! Read all instructions and MSDS sheets carefully, following manufacturer’s instructions, especially regarding heat levels. If you have any question as to the compatibility of a Valco Melton unit for PUR hot melt, call your Valco Melton Representative before attempting to use the unit for PUR or solvent-based materials. OTHERWISE, HAZARDOUS FUMES, EXPLOSION, DEATH, OR PERSONAL INJURY COULD OCCUR.

WARNING! Keep pump cover and electrical enclosures closed except during setup, service, and checkout procedures. OTHERWISE, DEATH OR PERSONAL INJURY COULD OCCUR.

WARNING! People with respiratory problems (e.g., asthma, bronchitis, etc.) should not work in the vicinity of molten adhesive. RESPIRATORY PROBLEMS MAY BE AGGRAVATED BY THE FUMES. Do not wear a face mask when working around molten adhesive. THE MASK MAY TRAP THE FUMES AND DEATH OR PERSONAL INJURY COULD OCCUR.

WARNING! Keep hot melt hoses away from walkways and the moving parts of hot melt systems. OTHERWISE, PERSONAL INJURY OR EQUIPMENT DAMAGE COULD OCCUR.

WARNING! Hot surfaces! Do not touch! Use extreme caution when refilling the unit by hand. OTHERWISE, PERSONAL INJURY COULD OCCUR.

WARNING! Wear protective gloves and goggles at all times around all machinery, especially hot melt. OTHERWISE, SERIOUS PERSONAL INJURY COULD OCCUR.

WARNING! Never use an open flame to heat hot melt components or adhesive. OTHERWISE, DEATH, PERSONAL INJURY, OR DAMAGE TO EQUIPMENT COULD OCCUR.

What to Do if Contact with Hot Adhesive Occurs

If hot adhesive comes in contact with the skin, do the following:

WARNING! Do not attempt to remove heated hot melt adhesive from the skin. OTHERWISE, SEVERE PERSONAL INJURY AND DEATH COULD OCCUR.

1. Immediately immerse the contacted area in clean, cold water.

   It is strongly recommended that a source of clean, cold water be provided near the hot melt work area.

2. Cover the affected area with a clean, wet compress and call the emergency medical response system (such as 911) immediately.
3. Watch for and treat the subject for signs of shock while waiting for professional help to arrive.

What to Do if Inhalation of Adhesive Fumes Occurs

If adhesive fumes are inhaled, immediately follow these steps:

1. Take the victim away from the immediate work area.
2. Provide victim with fresh air.
3. Call the emergency medical response system (such as 911) immediately.

What to Do if Adhesive-Related Fire or Explosion Occurs

During the heating and melting process, the surface of the adhesive will be exposed to air. The mixture of polymer fumes and air can catch fire if the hot melt is overheated.

WARNING! 

Poor ventilation, smoking, and open flames can cause overheated hot melt to ignite. Adequate ventilation must be provided. Smoking should be prohibited in the immediate vicinity of the molten adhesive. Open flames must be kept away from the area around molten adhesive. OTHERWISE, DEATH, PERSONAL INJURY, OR DAMAGE TO EQUIPMENT COULD OCCUR.

WARNING! 

Exposed arcing may ignite the fume/air mixture. Shield all electrical equipment from melt fumes to avoid exposed arcing. OTHERWISE, PERSONAL INJURY OR EQUIPMENT DAMAGE COULD OCCUR.

WARNING! 

Do not use a water extinguisher to extinguish the fire! OTHERWISE, PERSONAL INJURY OR EQUIPMENT DAMAGE COULD OCCUR.

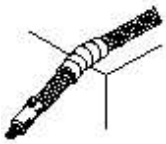
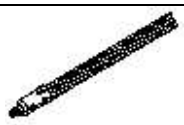
If the hot melt adhesive ignites, promptly perform the following steps:

1. Sound a fire alarm.
2. Evacuate the immediate area.
3. Turn off all local electrical equipment at the source.
4. Leave the area immediately if conditions are unsafe.

If you feel you can fight the fire **safely**, do ***one*** of the following:

- Smother the fire with a fire blanket.
- Aim a CO_2 fire extinguisher at the base of the flames.
- Aim a dry-powder fire extinguisher at the base of the flames.

Hose Safety Information

DO NOT		DO	
Do not use bindings, wire ties, or unapproved fasteners around the hoses.		**Do** use approved wrapping (P/N 775xx827), making sure the wrapping is slightly snug but not tight.	
Do not place hoses close together.		**Do** allow at least 2 inches (5.1 cm) between hoses for proper ventilation.	
Do not bend hoses sharply. **Do not** allow kinks or indentations in the hoses.		**Do** use a minimum bend radius of 10 inches for a 20-inch diameter coil hose.	
Do not use unapproved hooks to hang hoses. **Do not** wrap hoses over or around objects.		**Do** use a hose hanging kit (P/N 781xx827).	
Do not use the “one handed/one wrench” technique to attach or remove hoses. **Do not** wrench on any surface other than the large hexagon swivel nuts.		**Do** use two hands and two wrenches to tighten or loosen connections on hoses. **Do** wrench only on large hexagon swivel nuts.	
Do not allow hoses to rub against objects or to come into contact with sharp edges or points.		**Do** wrap the hoses in approved padding (P/N 795xx549) if the hoses must be installed where they will come into contact with objects.	
Do not use worn, damaged, or bent hoses.		**Do** inspect all hoses regularly for damage and/or wear and replace damaged or worn hoses immediately.	

Section 3 - General Wiring Guidelines

Routing Low-Voltage Leads

When routing low-voltage leads, follow these guidelines:

- Do not route low-voltage leads in the same conduit as wires carrying a high-current load.
- Do not route low-voltage leads adjacent to, or across wires carrying a high-current load. If low-voltage leads must cross or run parallel to wires carrying high current, keep the leads at least 6" (152 mm) from high-current wires.
- Do not splice or solder leads.
- Trim leads to the required length. Leads should be only as long as necessary for installation.
- All wiring should be in conduits or wireways.

Connecting the Electrical Power Supply

WARNING! Electrical connections should be made only by experienced service personnel! OTHERWISE, DEATH, PERSONAL INJURY, OR EQUIPMENT DAMAGE COULD OCCUR.

When connecting the electrical power supply, follow these guidelines:

- Connect the control to a “clean” supply of electrical power. Use a dedicated circuit if possible.

> If a dedicated circuit is not available, do not connect the control to a circuit that supplies high-amperage equipment—use another circuit such as a lighting circuit. Otherwise, equipment may not function properly.

Section 4 - Basic Features

Valco EPP9 Piston Pump Assembly

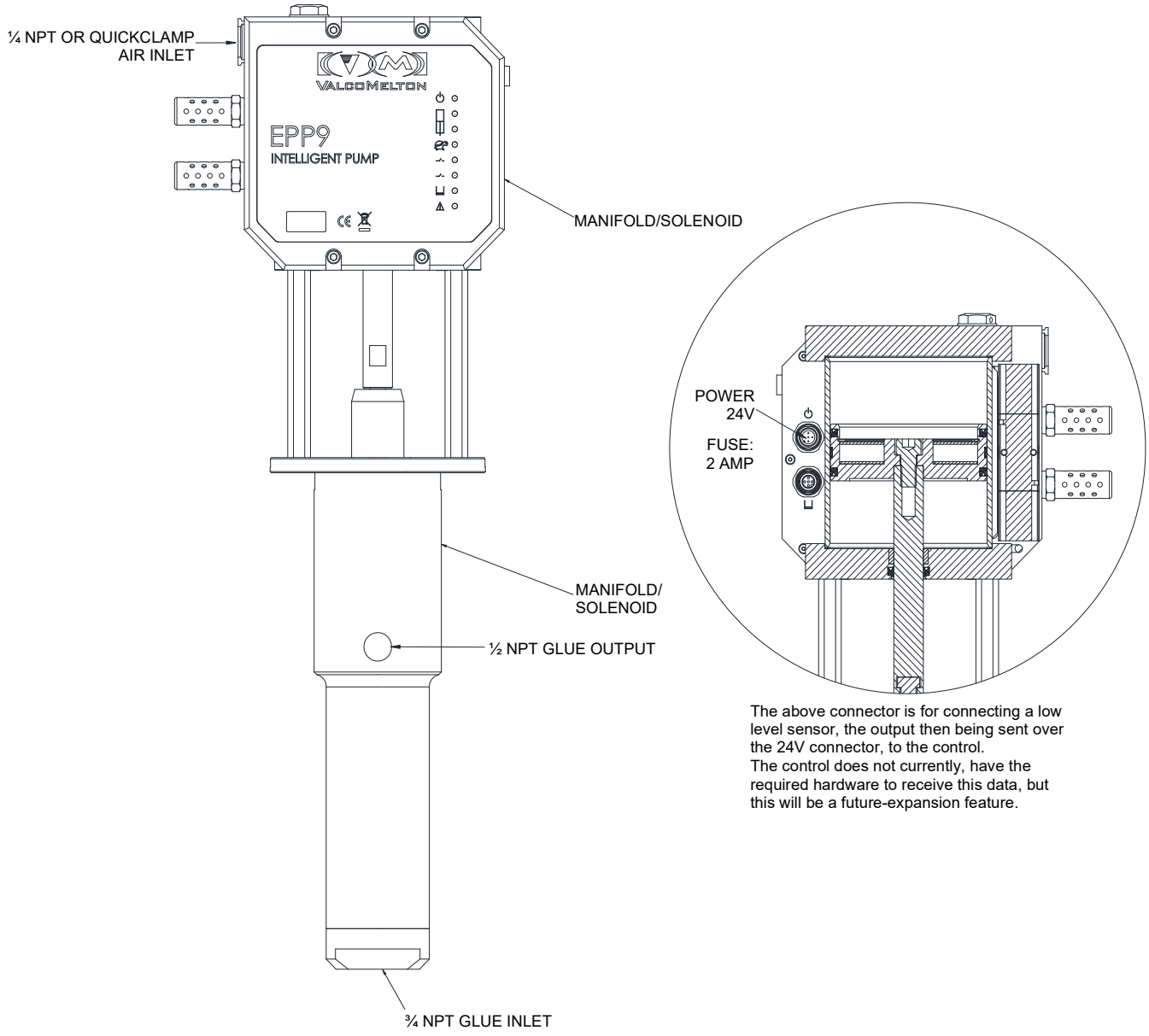


Figure 4-1. Valco EPP9 Piston Pump Assembly

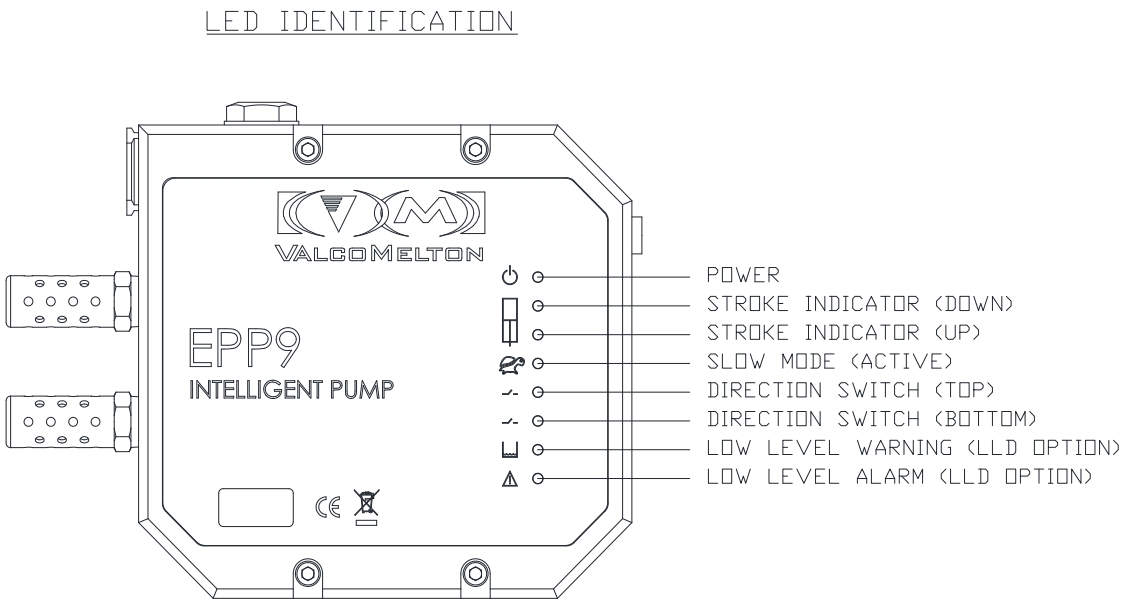


Figure 4-2. EPP9 LED Identification

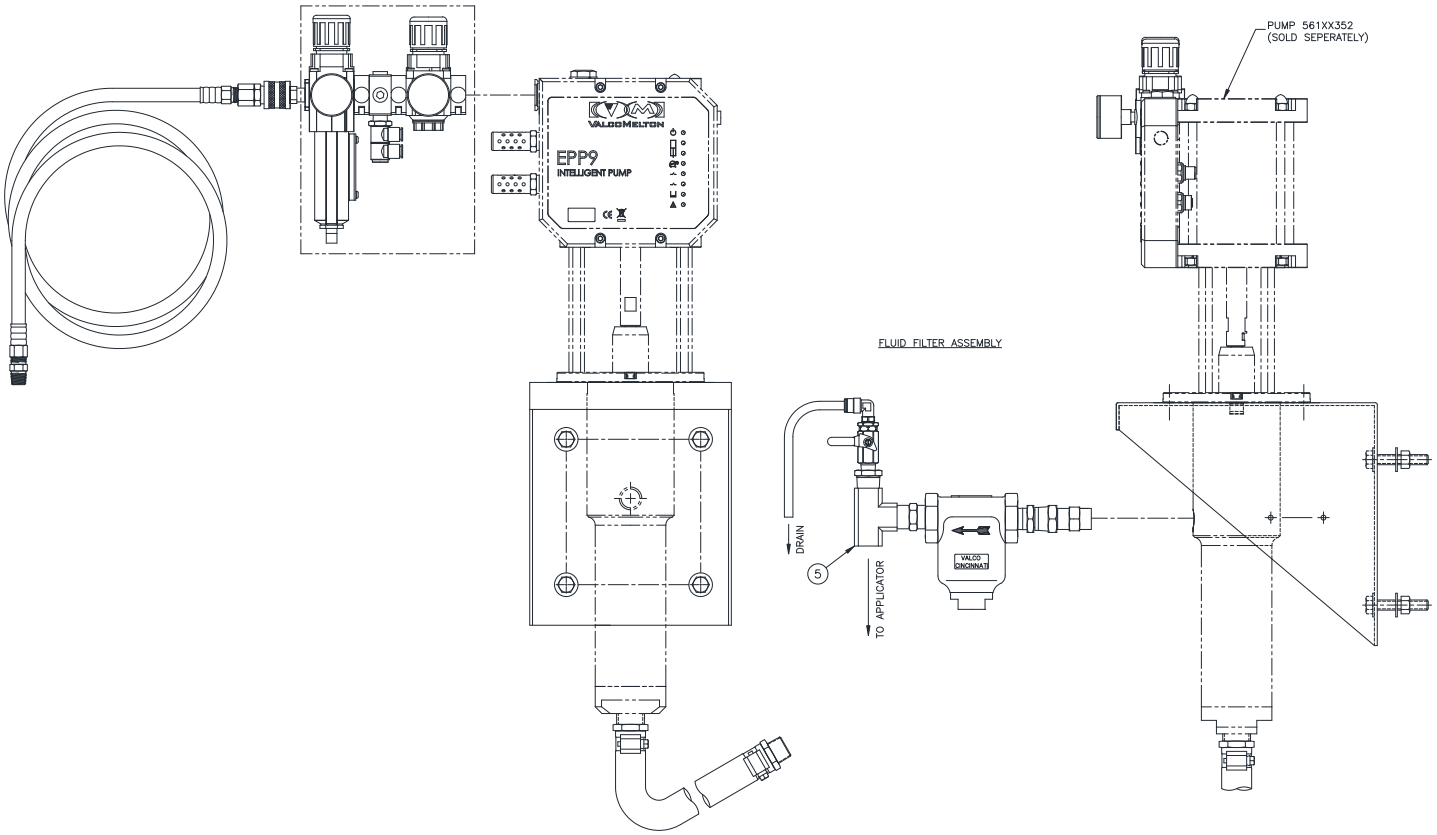


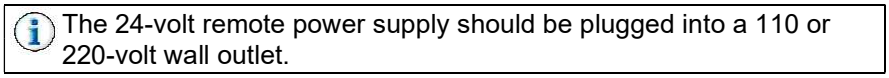
Figure 4-3. Valco EPP9 Wall Mount

Section 5 - Installation

Power Connections

The Valco EPP9 can be powered through either a 24-volt AC or DC remote power supply, or through any of the following Valco controls:

- Flexoseal 350
- VC450
- VC850
- VC9100
- VC350A
- VC350AG
- VC3500
- VC3700
- MCP-25
- MCP-42
- MCP-25/MS
- MCS System control
- MCP4
- MCP8



Air Requirements

The pump requires filtered and regulated shop air; 20 psi minimum, 100 psi (6 bar) maximum.

Installing the Pump

Specific installation procedures for the Valco EPP9 Piston Pump depend on the fluid you use and your particular application requirements. Basic Valco EPP9 Pump installation and setup involves the following steps:

1. Mount and fasten the pump to the wall mounting bracket (580xx410).

> Wall mounting brackets are available from Valco Cincinnati.

2. Install plant air supply to the air motor.

> If pump is equipped with a Valco Cincinnati air filter/regulator (594xx207), plant air is connected to a quick-disconnect fitting in the input port of the regulator. A 10-foot air-supply hose with disconnect is available from Valco.

3. Install a second pump as a back-up if desired.

> A pump/back-up pump installation is recommended when fluid is supplied in vats. With the availability of two pumps, vat replacement, pump service, and purging can be accomplished without system shutdown.

4. Connect the suction hose.
5. Discharge the hose, air line, and power cable.
6. Turn on the power and open the air regulator until the pump starts.
7. Cycle the pump slowly until all the air is purged from the pump and hoses.

> If the pump cycles three consecutive strokes in two seconds or less, the pump will engage in Slow Mode (indicated by an LED on the front of the pump, next to a 'turtle' icon).
> Fast cycling typically occurs when the pump loses pressure (empty pail, start up).
> Slow Mode limits the pump to 30 cycles per minute, to protect the seals and internal components from excessive wear that could lead to early failure.
> When Slow Mode is active, the LED by the 'turtle' icon illuminates.

8. As long as the pump and lines are primed and adequate air pressure is supplied, the EPP9 pump will start and stop as the valve is opened and closed.

Section 6 - Operation

Operating the Pump

CAUTION!

Do not use filled adhesives! Fillers are usually clay, which will damage the pump shaft and seals severely.

To operate the Valco EPP9 Piston Pump, follow these steps:

1. Ensure that the air regulator pressure setting is zero (0) psi.
2. Connect the electrical power.
3. Turn on the air supply and power to the pump.
4. Adjust the air regulator to slowly increase the air pressure to the desired flow rate (see *Slow Mode*, below).

> For efficient operation, air pressure should be adjusted to the lowest cycling rate that does not decrease flow rate. This may be the maximum flow rate for your particular conditions.
>
> During operation of the pump, you may notice that one solenoid becomes warm. This is a normal condition.
>
> If the pump speeds up noticeably without a proportionate increase in flow as air pressure is increased, the pump may be starting to cavitate. This can be caused by excessive restriction in suction lines, or the suction line diameter may need to be increased. If suction line checks out for size and tightness, cavitation can be stopped by adjusting the air regulator to reduce air pressure.

Slow Mode

On *power-on*, the Slow Mode solenoid will activate for 10 seconds while the pump fills and builds pressure.

After the first 10 seconds, the Slow Mode solenoid will deactivate, and the pump will run normally.

The pump will monitor the stroke time while running. If it detects three consecutive strokes that are too fast (two seconds or less), the Slow Mode solenoid will reactivate for 60 seconds.

While in Slow Mode, the pump will be restricted to 30 cycles/minute.

After 60 seconds, the Slow Mode solenoid will deactivate, and the pump will attempt to run normally.

> The pump can continually re-enter Slow Mode indefinitely, until the problem is fixed.

The pump will transmit to the control when:

- Slow Mode begins and ends,
- The stroke changes direction and,
- A low level warning and/or alarm is detected*

> *This applies if the LLD option is installed, and if a stroke count, various usage calculations, and level messages can be displayed. This feature will be on the MCP-8 and NEW MCP-4 ONLY (not yet supported),

Section 7 - Maintenance

Cleaning the Exterior of the Pump

CAUTION!

Never hose or steam-clean the unit. If the surrounding area is cleaned in this manner, protect the unit by covering it with plastic or other waterproof material. OTHERWISE, EQUIPMENT DAMAGE COULD OCCUR.
When cleaning the pump, keep the electrical control box enclosure closed. OTHERWISE, EQUIPMENT DAMAGE COULD OCCUR.

To clean the exterior of the Valco EPP9 Piston Pump, follow these steps:

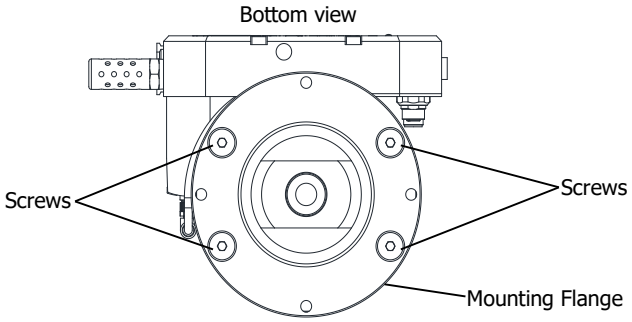
1. Turn off the main power.
2. Use a damp cloth and clean the pump and air motor with a mild soap-and-water solution.

Maintenance Tips

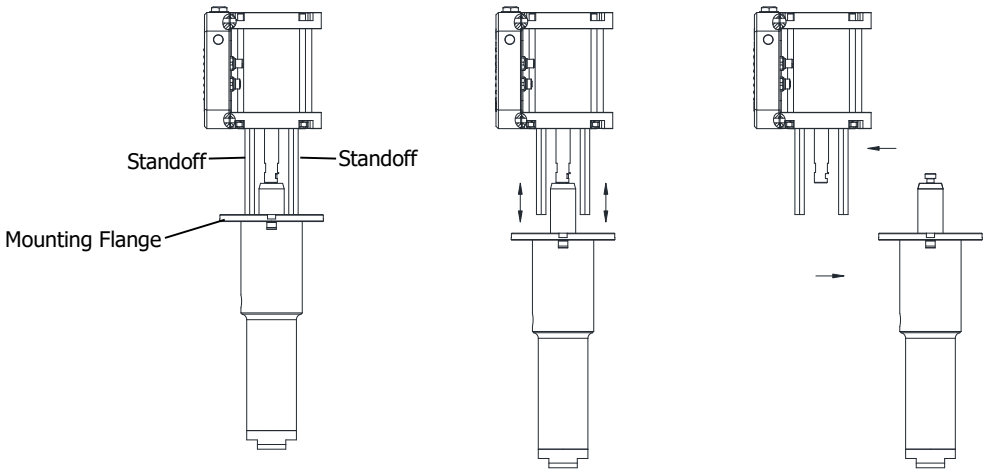
- Never allow the pump to run dry. A dry pump will quickly accelerate to a high speed and possibly damage itself. A Slow Mode feature, built into the pump, limits this action. The LED next to the turtle on the front of the pump will illuminate to indicate the pump is in slow mode. If the pump accelerates quickly or is running too fast, stop it immediately and check the fluid supply. If the supply container is empty and air has been pumped into the lines, refill the container and prime the pump and lines with fluid. Be sure to eliminate all air from the fluid system.
- For an overnight shutdown, turn off the power and relieve the pressure.
- During startup, the shaft seal may leak a small amount of glue. This glue will dry and ball up around the shaft. When this happens, turn off the power to the pump and remove the dried glue. If the leak does not stop and a significant amount of wet glue leaks past the seal without drying up, it is time to replace the seal cartridge.

Separating the Air Motor and the Pump

1. Remove the screws securing the air motor standoffs to the mounting flange.

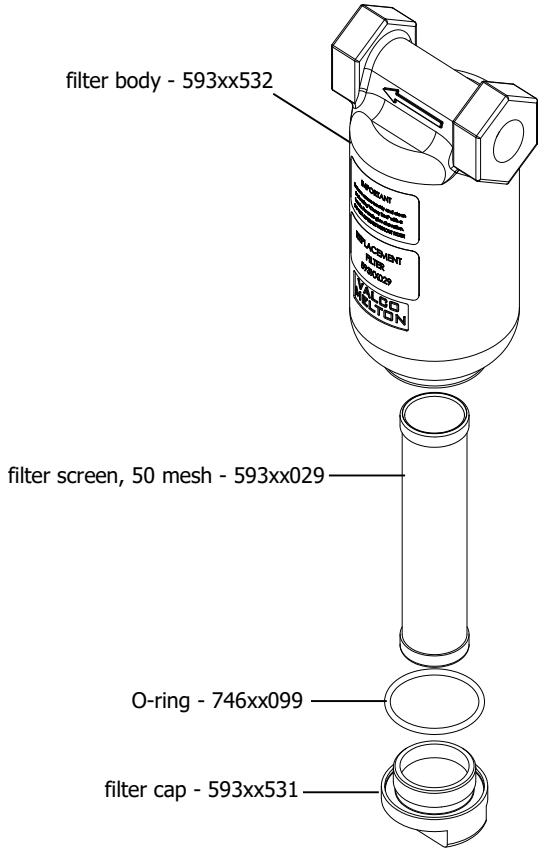


2. Slide the pump down, and then sideways, to disengage it from the air motor.

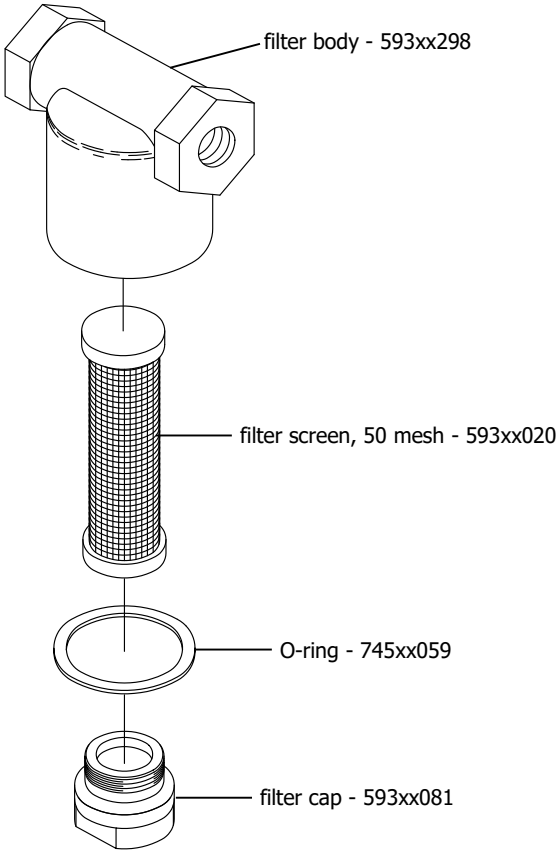


Cleaning the Fluid Filter

Large Fluid Filter Assembly (593xx535)



Small Fluid Filter Assembly (593xx299)*



*Used on older systems.

The fluid filter should be cleaned regularly. To clean the filter, follow these steps:

1. Remove the filter cap.
2. Remove the filter screen.
3. Clean the filter screen with either a mild vinegar-and-water solution or a propane torch.

Section 8 - Troubleshooting

This section contains troubleshooting procedures for the Valco EPP9 Piston Pump.

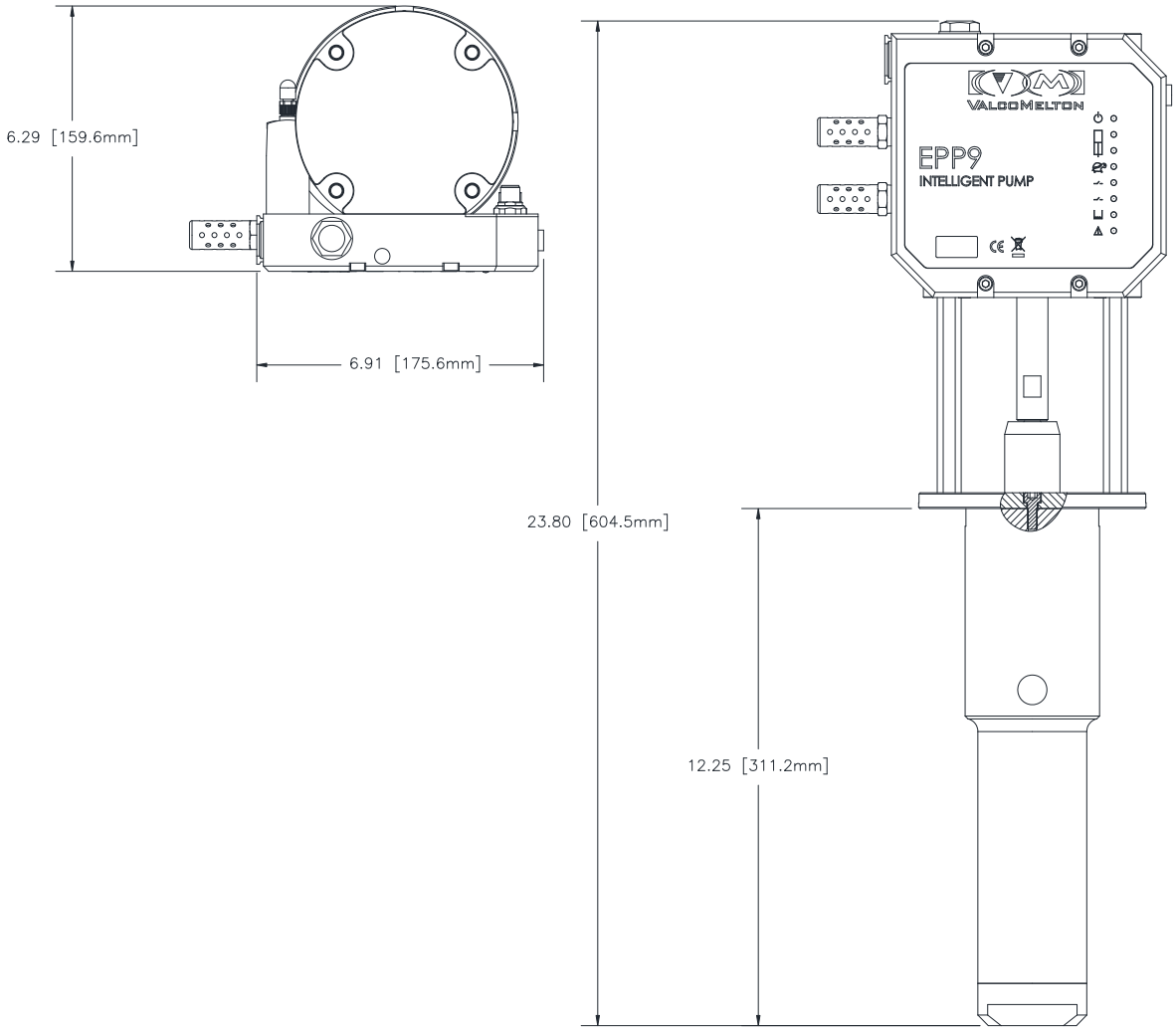
Problem	Possible Cause	Possible Solution
1. Pump will not start	1a. Electrical:	
	-Power input LED out	Check line fuse. Check plant power supply. Replace PC board/transformer assembly.
	-No electrical service	Check plant power supply.
	-Service cable faulty	Repair or replace service cable.
	-Line fuses out	Replace line fuses.
	-Faulty 4-way solenoid	Replace solenoid.
	-Faulty Hall effects	Test switches with magnet.
	1b. Pneumatic:	
	-Regulator pressure gauge at zero	Check plant air supply. Open master air valve. Turn regulator adjusting knob clockwise.
	-Regulator pressure gauge not at zero; solenoid valves not operating	Check air lines to valves.
	1c. Mechanical:	
	-Pumped solidified fluid	Check strainers and filters. Service the suction and discharge lines. Service the check valves. Service the pump.
2. Fluid flow is not steady.	2a. Suction leakage	2a. Test and repair suction components.
	2b. One or more check valves not seating correctly	2b. Shut pump down and service the check valves.
	2c. Clogged valve nozzle	2c. Clean valve nozzle.

Problem	Possible Cause	Possible Solution
3. Pump runs without flow.	3a. Suction leakage 3b. Blocked suction line 3c. One or more check valves not seating properly. Down Stroke = Lower check Up Stroke = Piston check 3d. Pump is sucking in air	3a. Test and repair suction components. 3b. Check and clean suction strainer if used. Check installation. 3c. Shut pump down and service the check valves. 3d. Check all fittings. Use pipe sealant to seal fittings.
4. Pump speeds up noticeably without a proportionate increase in flow as air pressure is increased.	4a. The pump may be beginning to cavitate due to excessive restriction in suction lines or insufficient suction-line diameter.	4a. If suction line checks out for size and tightness, cavitation can be stopped by turning the regulator knob counterclockwise to reduce air pressure.

Section 9 - Specifications

This section contains specifications for the Valco EPP9 Piston pump.

Height:	23.8 inches (605 mm)
Width:	6.9 inches (176 mm)
Depth:	6.3 inches (160 mm)
Weight:	30 lbs. (13.6 kg)
Air Inlet:	1/4 inch NPT or Quick Clamp
Inlet:	One 3/4-inch NPT
Outlet:	One 1/2-inch NPT
Power Requirements:	24 volts AC or DC
Air Requirements:	Filtered and regulated shop air; 20 psi minimum, 100 psi maximum



Section 10 - Part Number List

How to Order Parts

To order parts, please contact your closest Valco office by mail, phone, or Email:

USA

Valco Cincinnati, Inc.
497 Circle Freeway Drive
Suite 490
Cincinnati, OH 45246
Tel: (513) 874-6550
Fax: (513) 874-3612
Email: sales@valcomelton.com
Web: http://www.valcocincinnatiinc.com

England

Valco Cincinnati Limited
Hortonwood 32
Telford, TFI 7YN, England
Tel: (+44) 1952-677911
Fax: (+44) 1952-677945
Email: sales@valco.co.uk
Web: http://www.valco.co.uk

Germany

Valco Cincinnati GmbH
Bonnerstrasse 349
40589 Dusseldorf-Benrath, Germany
Tel: +49 211 984 798-0
Fax: +49 211 984 798-20

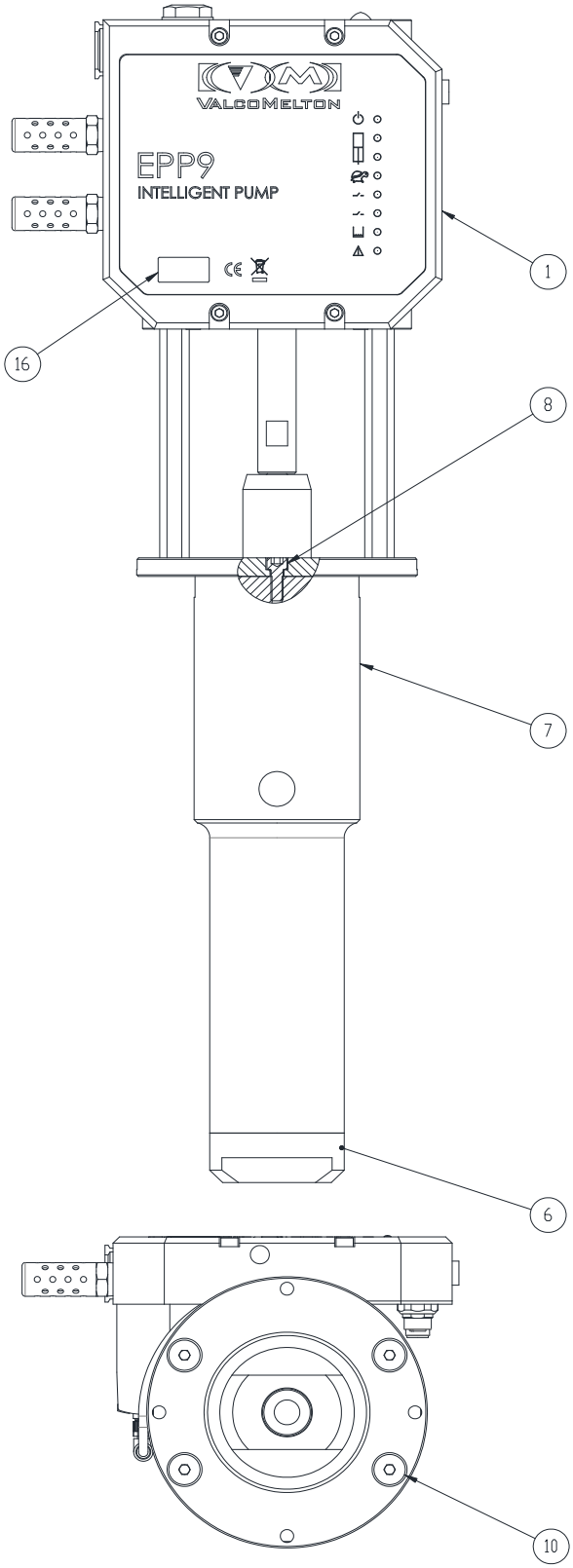
Spain

Melton S.L.U.
Pol. Industrial Agustinos
calle G, n. 34
31160 Orcoyen, Navarra, Spain
Tel: (34) 948-321-580
Fax: (34) 948-326-584

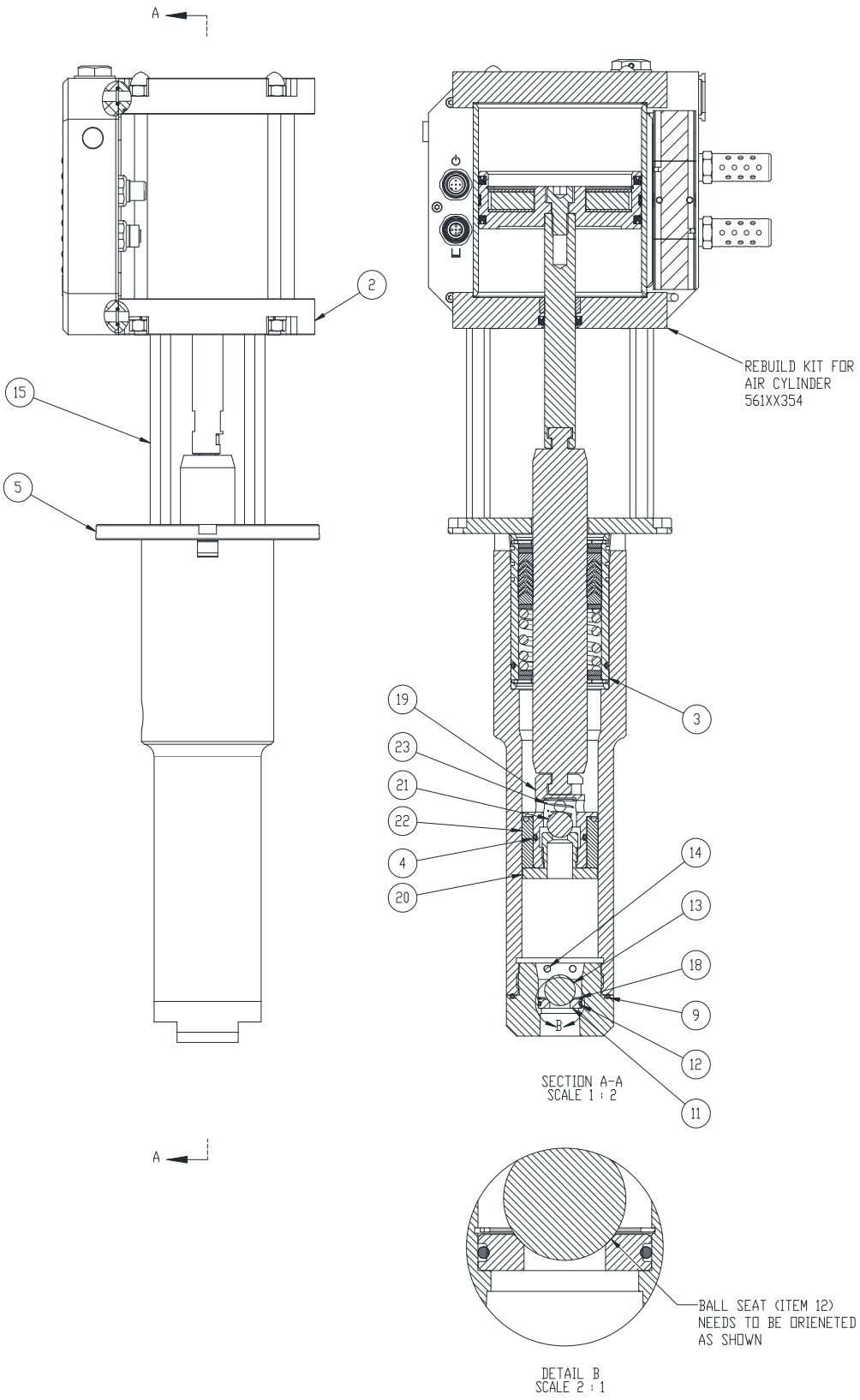
France

Valco Melton France
Technoparc des Hautes Faventines
32 Rue Jean Bertin
26000 Valence
Tel: +33 (0)4 75 78 13 73
Fax: +33 (0)4 75 55 74 20

EPP9 Piston Pump Assembly (561xx352)



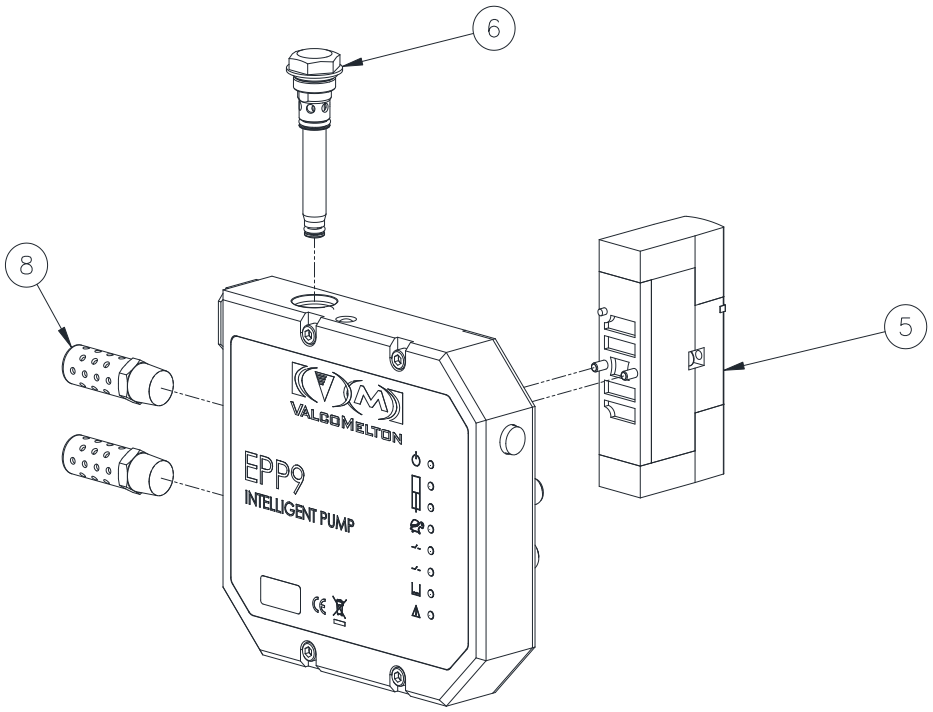
EPP9 Piston Pump Assembly (561xx352) - Continued



EPP9 Piston Pump Assembly (561xx352) - Continued

Item	Description	Part Number	Qty
1	MANIFOLD/PCB/SOLENOID SUB-ASSY	561XX351	1
2	CYLINDER, AIR	782XX653	1
3	ASSEMBLY, SEAL CARTRIDGE	561XX350	1
4	O-RING	745XX005	1
5	FLANGE, MOUNTING	561XX344	1
6	CHECK, LOWER	561XX336	1
7	BODY, EPP9	561XX342	1
8	SCREW	784XX091	6
9	O-RING	746XX159	1
10	SCREW	884XX339	4
11	SEAT-CHECK, DD-1 PUMP	561XX165	1
12	O-RING	746XX124	1
13	BALL, CERAMIC	561XX307	1
14	PIN, DOWEL	091XX757	2
15	STAND-OFF AIR MOTOR	561XX239	4
16	LABEL	782XX636	1
17	GREASE SILICONE W/PTFE	782XX557	0
18	RING, SNAP	783XX413	1
19	PISTON BODY, UPPER	561XX337	1
20	PISTON BODY, LOWER	561XX338	1
21	BALL, CERAMIC	561XX247	1
22	SEAL, PISTON	746XX271	1
23	SPRING	783XX385	1

Manifold/Solenoid Sub-assembly (561xx351)



Item	Description	Part Number	Qty
5	SOLENOID	411XX931	1
6	ASSEMBLY, AIR RESTRICTOR	561XX349	1
8	MUFFLER	411XX661	2

Only replaceable components are shown.

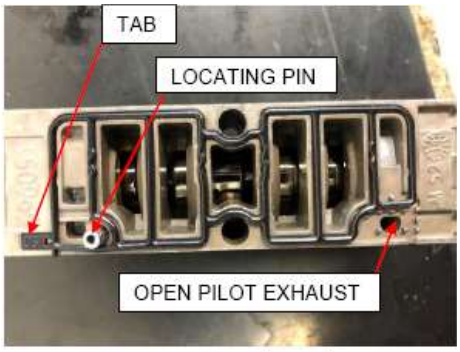
CAUTION!

When removing the valve for maintenance or troubleshooting, make sure the EPP-9 solenoid gasket is oriented correctly. See *"EPP-9 Solenoid Gasket Orientation"* below.

EPP-9 Solenoid Gasket Orientation

The EPP-9 pump solenoid (411XX931) is supplied with a gasket.

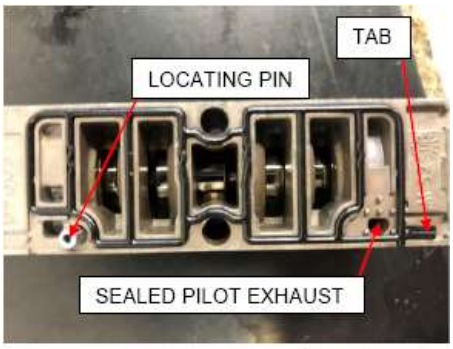
If the valve needs to be removed in the field (i.e. for replacement or troubleshooting), the gasket needs to be oriented correctly (see below).



Correct Orientation: gasket tab is on same end as locating pin

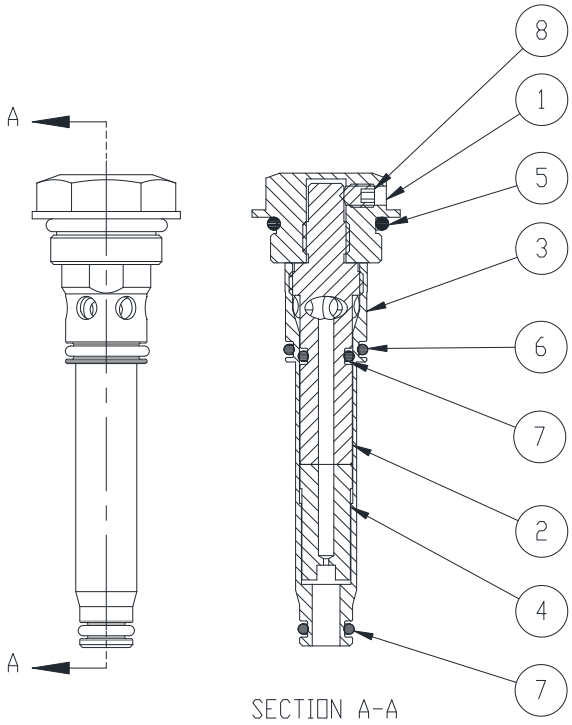
If the gasket is oriented incorrectly (see below), the gasket seals the pilot air exhaust. Sealing the pilot exhaust will build pressure and eventually prevent the valve from shifting, causing the pump to stop stroking. On start-up, the pump will cycle normally but then slow down and stall after a few strokes. Pressing the manual activation buttons on the solenoid will not shift the pump. All LED indicators will function properly.

Because this issue prevents the pump from starting up properly, it should not affect any new pumps, being caught by the standard plant testing process (every EPP-9 is cycled during production). The only concern is if the solenoid is removed and reinstalled in the field.



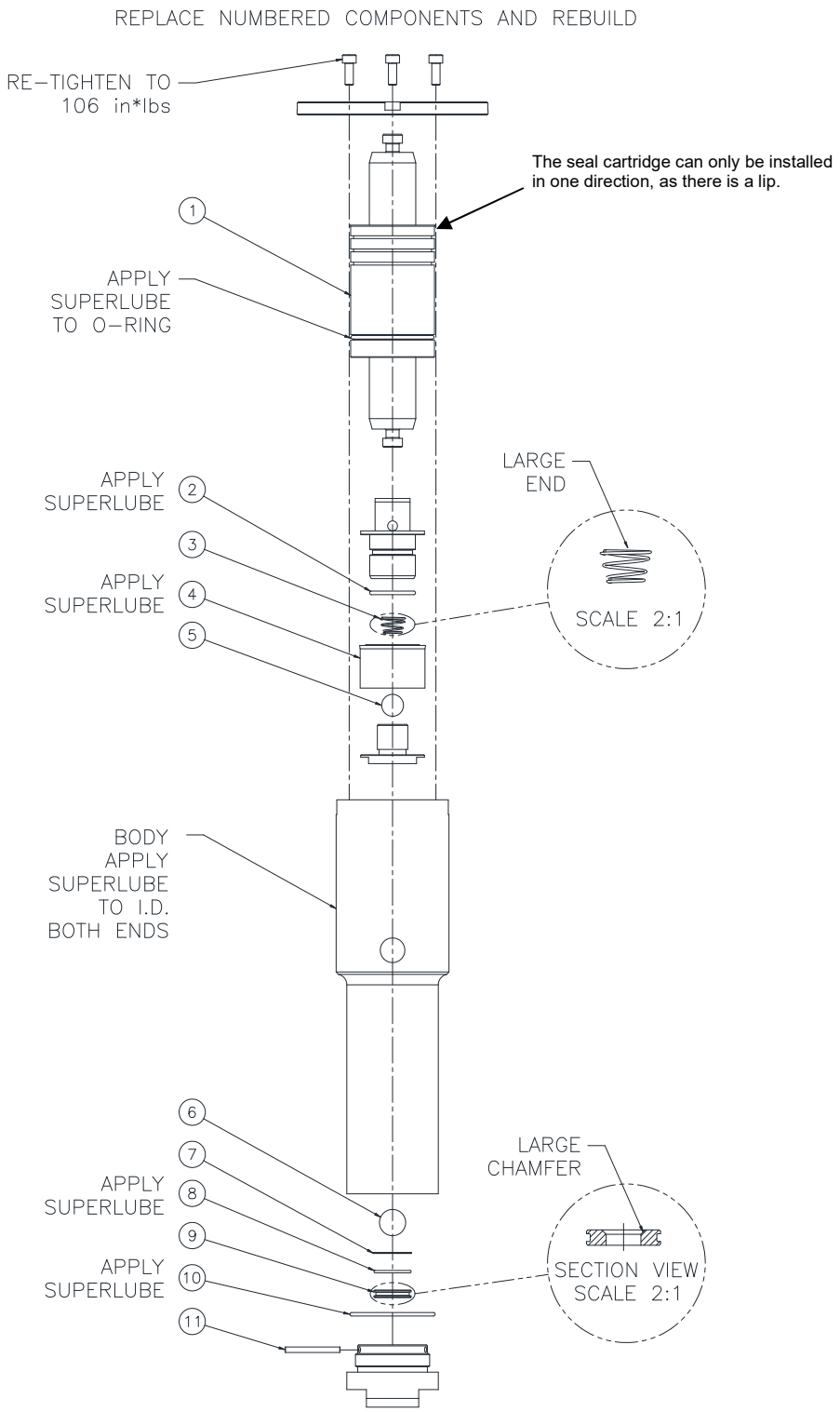
Incorrect Orientation: gasket tab is on opposite end of locating pin

Air Restrictor Assembly (561xx349)



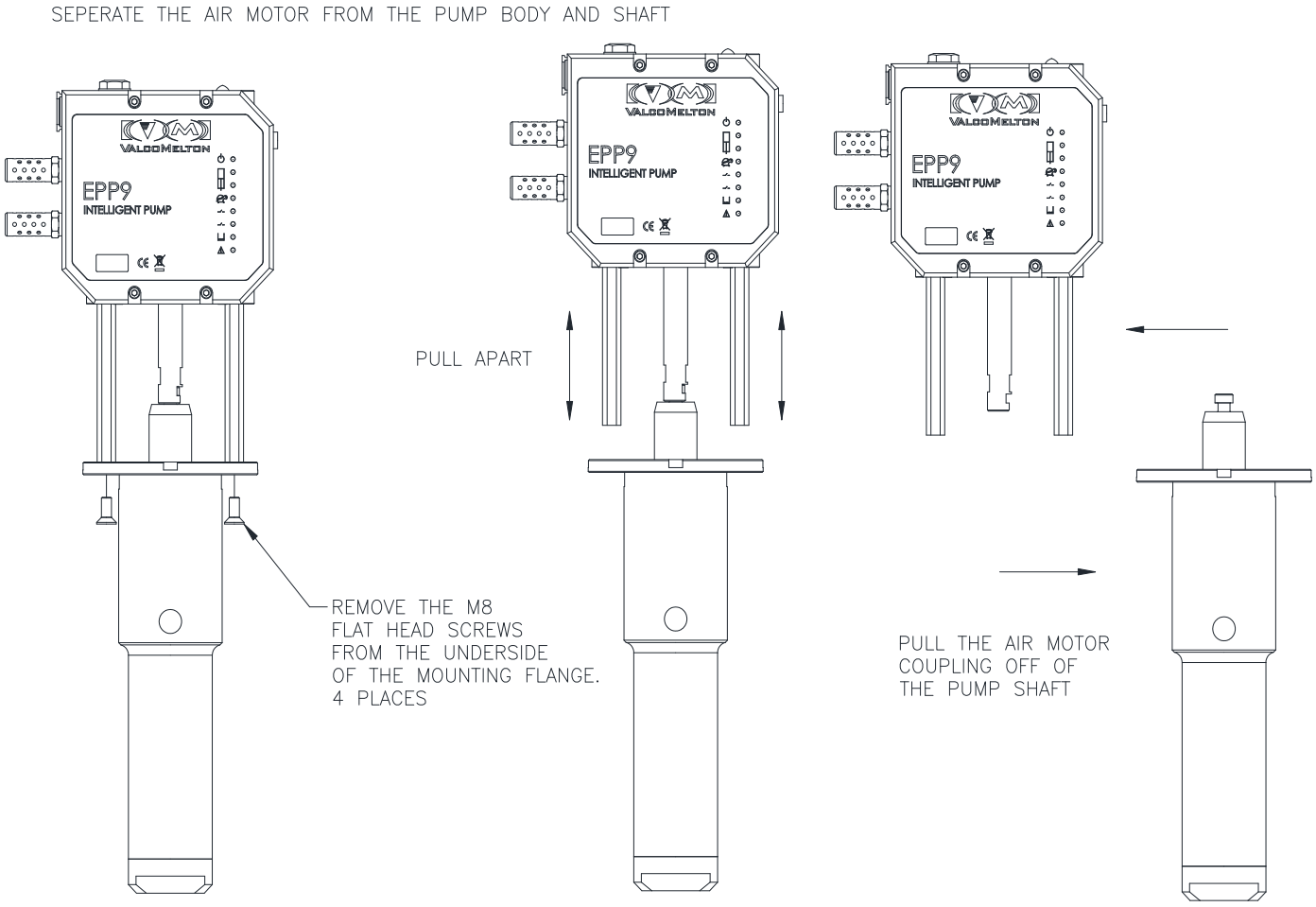
Item	Description	Part Number	Qty
1	CAP, BACKSTOP	561XX335	1
2	BACKSTOP, AIR RESTRICTOR	561XX332	1
3	TUBE, AIR RESTRICTOR	561XX333	1
4	PLUNGER, AIR RESTRICTOR	561XX334	1
5	O-RING	745XX007	1
6	O-RING	745XX089	1
7	O-RING	745XX028	2
8	SCREW	884XX485	1

EPP9 Rebuild Kit (561xx355)



EPP9 Rebuild Kit (561xx355) - Continued

Item	Description	Part Number	Qty
1	ASSEMBLY, SEAL CARTRIDGE	561XX350	1
2	O-RING	745XX005	1
3	SPRING	783XX385	1
4	SEAL, PISTON	746XX271	1
5	BALL, CERAMIC	561XX247	1
6	BALL, CERAMIC	561XX307	1
7	RING, SNAP	783XX413	1
8	O-RING	746XX124	1
9	SEAT-CHECK,DD-1 PUMP	561XX165	1
10	O-RING	746XX159	1
11	PIN DOWEL	091XX757	2
12	GREASE SILICONE W/PTFE	782XX557	1
13	ILLUSTRATION DRAWING	999XD561-37	1



Air Cylinder Rebuild Kit (561xx354)

SEAL KIT 561XX353		
ITEM	*QTY.*	*DESCRIPTION*
1	2	GASKET
2	2	U–CUP SEAL
3	2	GLIDE RING
4	1	BUSHING
5	1	ROD SEAL
6	1	SUPERLUBE
7	1	THREADLOCKER
8	1	ILLUSTRATION DRAWING

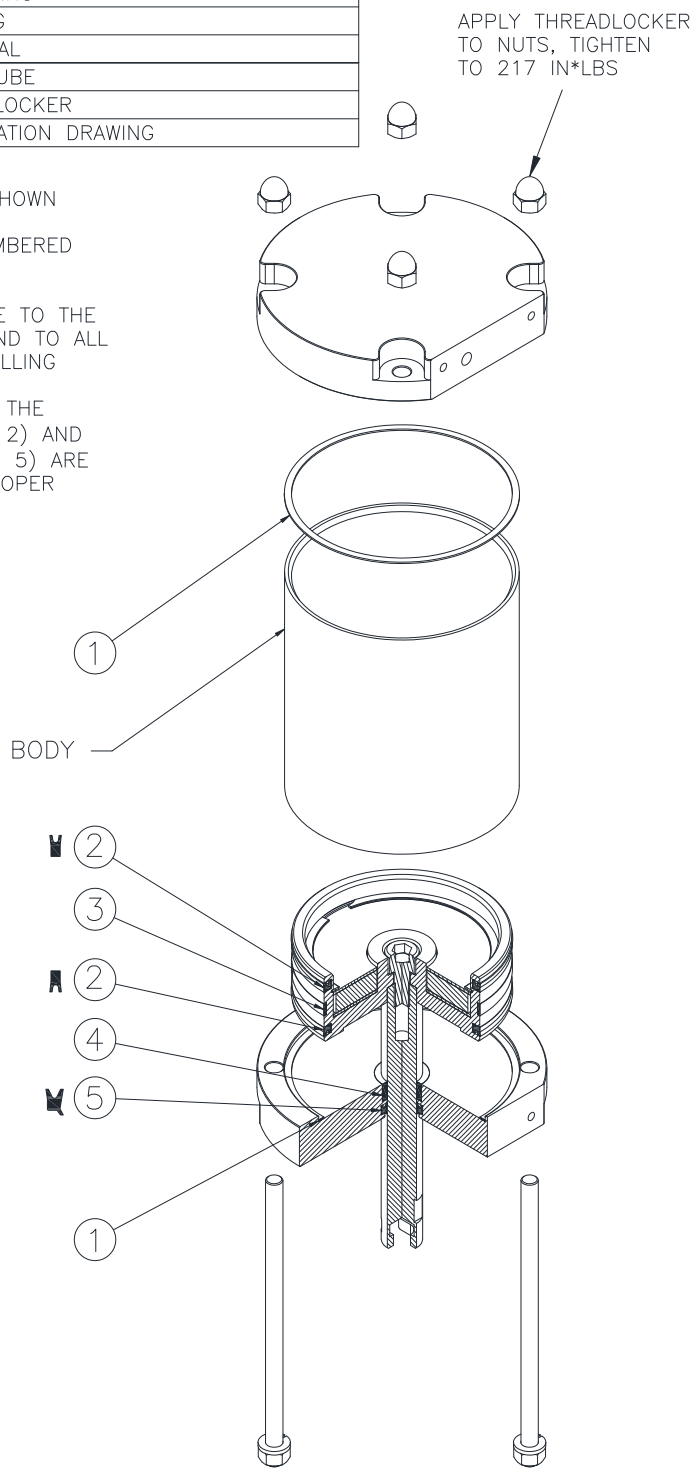
1. DISASSMBLE AS SHOWN

2. REPLACE ALL NUMBERED COMPONENTS

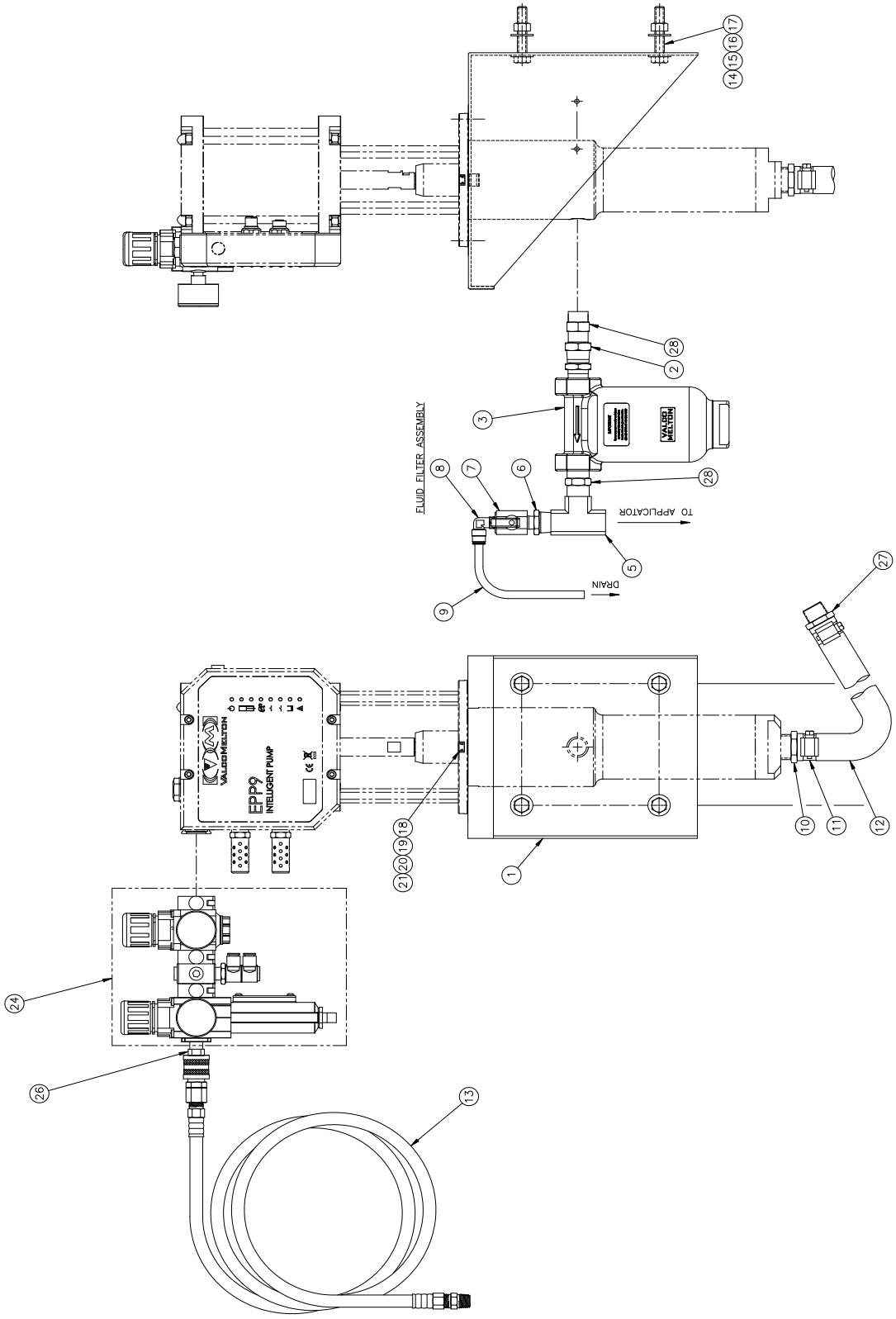
3. APPLY SUPERLUBE TO THE I.D. OF THE BODY AND TO ALL SEALS BEFORE INSTALLING

4. MAKE SURE THAT THE U–CUP SEALS (ITEM 2) AND THE ROD SEAL (ITEM 5) ARE ORIENTED IN THE PROPER DIRECTION

5. RE–ASSEMBLE



Pump Wall Mount Assembly (561xx109)
without pop safety (requires high pressure hose)

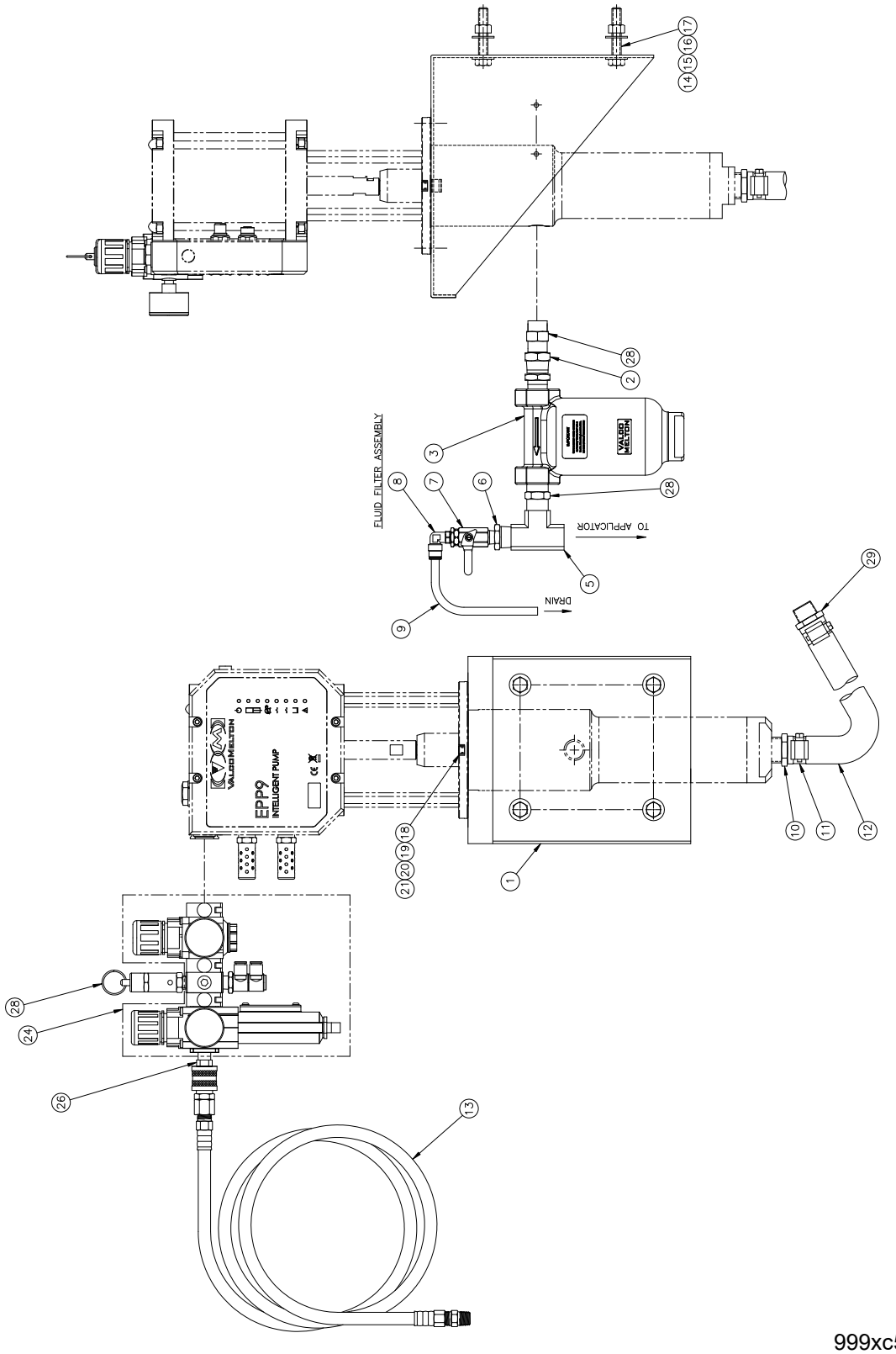


Pump Wall Mount Assembly (561xx109) - Continued

Item	Description	Part No.	Qty
1	WALL MOUNTING BRACKET	580XX410	1
2	ADAPTER-PIPE; SWIVEL	792XX347	1
3	FLUID FILTER ASSY LRG 50 MESH	593XX535	1
5	PIPE TEE,96718023	792XX006	1
6	BUSHING REDUCER 1/2 X 1/4NPTSS	792XX035	1
7	BALL VALVE 1/4 NPT	792XX473	1
8	3/8I X 1/4MPT ELBOW	797XX854	1
9	TUBING POLYETHYLENE 3/8 X 10FT	755XX753	1
10	FITTING,BARB,3/4,S.S.	792XX295	1
11	CLAMP	795XX883	2
12	TUBING; PVC, .75"ID	755XX522	120
13	INPUT AIR HOSE 080R	755XX012	1
14	HHCS 3/8-16 X 2 ZINC	798XX646	4
15	FLAT WASHER 3/8 ZINC	798XX762	4
16	LOCK WASHER 3/8 ZINC	798XX740	4
17	NUT,HEX 3/8-16 ZINC	798XX691	4
18	SHCS M6 X 20 SS	798XX158	2
19	FLAT WASHER M6 ZINC	798XX302	2
20	SLW M6 ZINC	798XX593	2
21	HEX NUT M6 ZINC	798XX301	2
22	LONG NIPPLE 1/4 X 2 LG	797XX089	1
24	AIR PREP ASSEMBLY	594XX207	1
26	MALE QUICK DISCONNECT	752XX004	1
27	FITTING,BARB,3/4 X 1/2,S.S.	792XX296	1
28	NIPPLE; HEX	792XX348	2

Pump Wall Mount Assembly (561xx152)

with pop safety (150 psi max, no pressure hose required)



999xc561-04.dwg

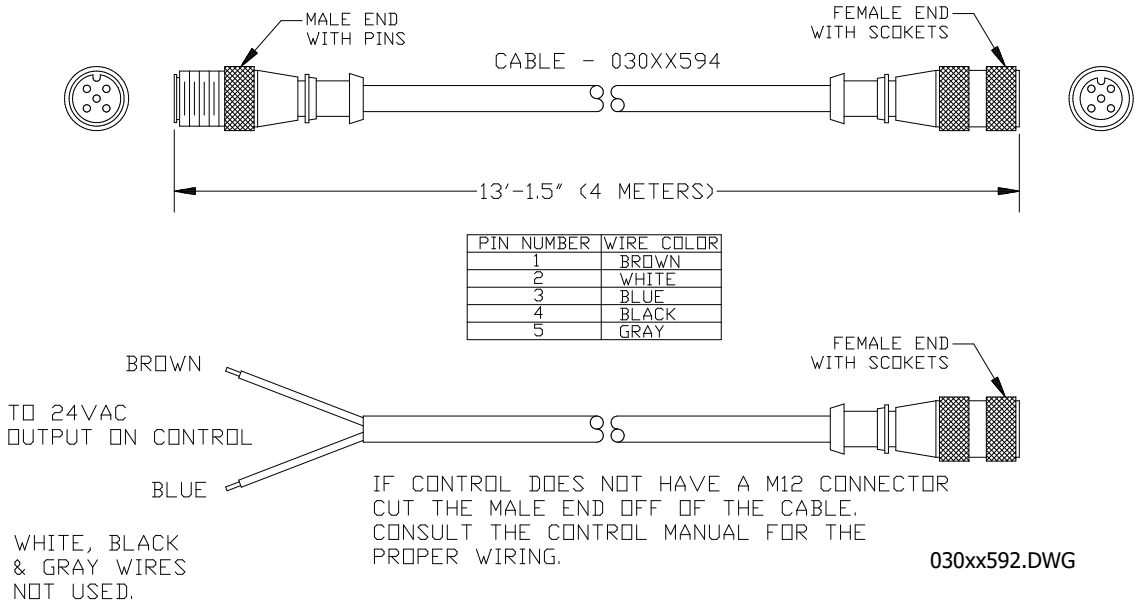
Pump Wall Mount Assembly (561xx152) - Continued

Item	Description	Part No.	Qty
1	WALL MOUNTING BRACKET	580XX410	1
2	ADAPTER-PIPE; SWIVEL	792XX347	1
3	FLUID FILTER ASSY LRG 50 MESH	593XX535	1
5	PIPE TEE,96718023	792XX006	1
6	BUSHING REDUCER 1/2 X 1/4NPTSS	792XX035	1
7	BALL VALVE 1/4 NPT	792XX473	1
8	3/8I X 1/4MPT ELBOW	797XX854	1
9	TUBING POLYETHYLENE 3/8 X 10FT	755XX753	1
10	FITTING,BARB,3/4,S.S.	792XX295	1
11	CLAMP	795XX883	2
12	TUBING; PVC, .75"ID	755XX522	120
13	INPUT AIR HOSE 080R	755XX012	1
14	HHCS 3/8-16 X 2 ZINC	798XX646	4
15	FLAT WASHER 3/8 ZINC	798XX762	4
16	LOCK WASHER 3/8 ZINC	798XX740	4
17	NUT,HEX 3/8-16 ZINC	798XX691	4
18	SHCS M6 X 20 SS	798XX158	2
19	FLAT WASHER M6 ZINC	798XX302	2
20	SLW M6 ZINC	798XX593	2
21	HEX NUT M6 ZINC	798XX301	2
22	HEX NIPPLE M-M 1/4	797XX080	1
23	STREET ELBOW-90 F-M 1/4 X 1/4	797XX007	1
24	AIR PREP ASSEMBLY	594XX207	1
26	MALE QUICK DISCONNECT	752XX004	1
28	POP SAFETY RELIEF VALVE	703XX041	1
29	FITTING,BARB,3/4 X 1/2,S.S.	792XX296	1
30	DWG,ILLUST,WALL MNT,PUMP	999XC561-04	1
31	NIPPLE; HEX	792XX348	2

Miscellaneous

Power Supply Cables

Part No.	Description
030xx594	13-foot (4.0 m) connector cable, M12 5-pin connector both ends
030xx604	20-foot (6.0 m) (field-wireable)
030xx604	20-foot (6.0 m) connector cable (field-wireable)
030xx596	33-foot (10.0 m) connector cable (field-wireable)
030xx738	33-foot (10.0 m) connector cable M12 5-pin connector both ends—**STANDARD CABLE**
030xx739	50-foot (15.0 m) connector cable M12 5-pin connector both ends
030xx740	66-foot (120.0 m) connector cable M12 5-pin connector both ends



Section 11 - Warranty

Warranty Information

Valco Cincinnati, Inc. warrants its equipment worldwide against defects in material and workmanship as outlined in this section.

Liability of the company is limited to repair of the product, or replacement of any part shown to be defective, and does not extend to defects caused by accidents, misuse, abuse, neglect, tampering or deterioration by corrosion. This warranty does not cover those items determined by Valco Cincinnati, Inc. to be normal wear items such as seals, O-rings, diaphragms, springs, etc.

Reconditioned equipment, unless specified otherwise at the time of purchase, will be warranted as described above for a period of ninety (90) days from the date of shipment by Valco Cincinnati.

Components purchased by Valco Cincinnati, Inc. from others for inclusion in its products are warranted only to the extent of the original manufacturer's warranty. In no event shall Valco Cincinnati, Inc. be liable for indirect or consequential damages arising out of the use of Valco Cincinnati products.

This warranty is conditioned upon the prepaid return of the equipment claimed to be defective to Valco Cincinnati, Inc. for examination and verification. If claimed defect is verified, repairs or replacements will be made F.O.B. Cincinnati, Ohio, U.S.A. or ex-works Telford, U.K. If the inspection of the equipment does not disclose any defect of workmanship or material, any necessary repairs will be made at a reasonable charge and return transportation will be charged.

This is the only authorized Valco Cincinnati, Inc. warranty and is in lieu of all other expressed or implied warranties, representations or any other obligations on the part of Valco Cincinnati, Inc.

Cold Glue Equipment and Electronic Controls

The warranty for cold glue equipment and electronic controls for a period of one (1) year from the date of shipment by Valco Cincinnati, Inc.

Hot Melt Units, Hoses, Valves, Guns, and Related Equipment

All hot melt components except cast-in heating elements are warranted for a period of six (6) months from the date of shipment by Valco Cincinnati. Cast-in heaters carry an additional, pro-rated warranty not to exceed three (3) years from the date of shipment by ValcoMelton, a Valco Cincinnati, Inc. company.

Section 12 - Service

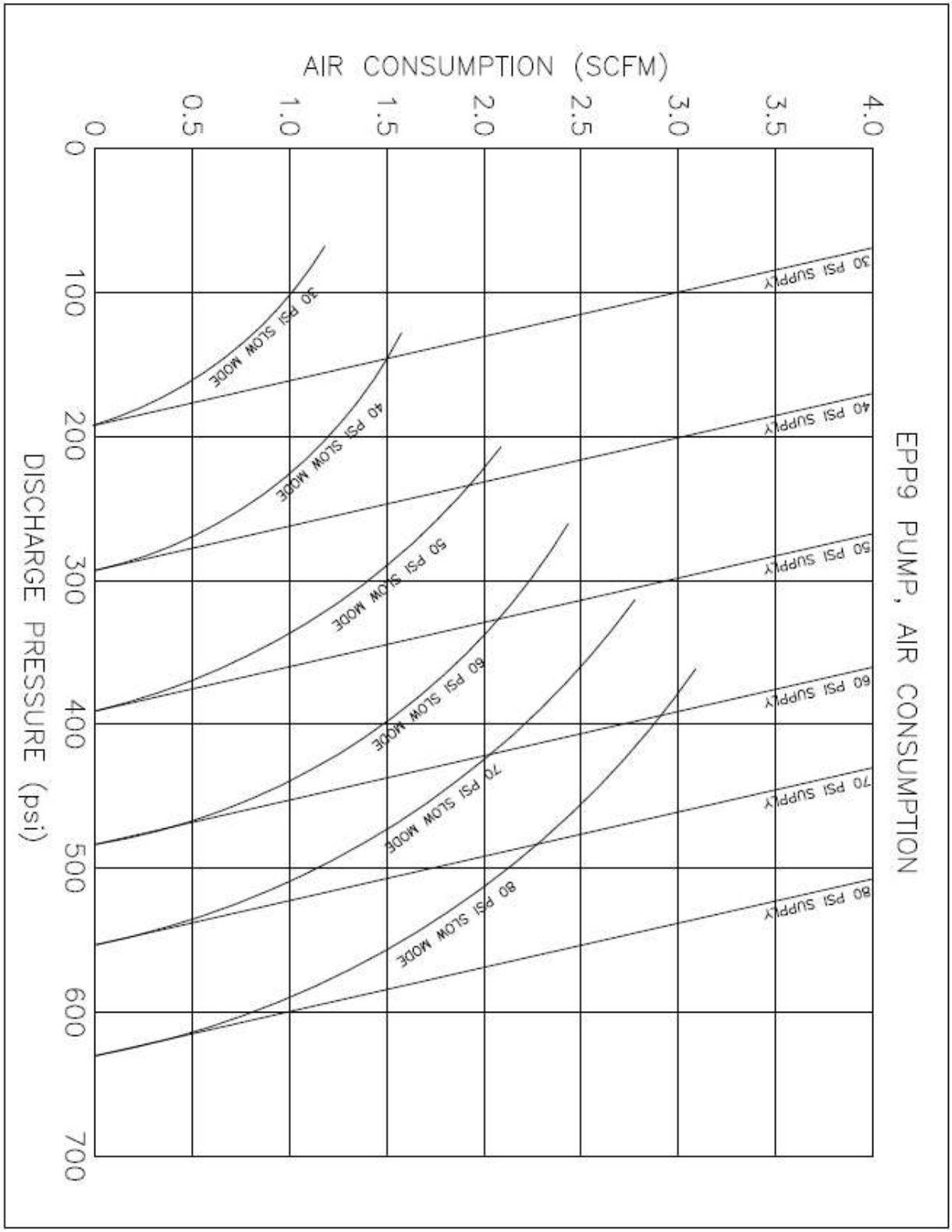
If a problem with your system persists, contact a ValcoMelton Technical Support representative. If your need is urgent, we encourage you to contact our corporate office in Cincinnati, Ohio, U.S.A. at (513) 874-6550. If the problem cannot be resolved, Valco Cincinnati, Inc. will promptly arrange to have a technical representative visit your facility. Any charges for a service call will be quoted at that time. Any part that fails during the warranty period shall be returned prepaid to Valco Cincinnati, Inc. by the customer for disposition.

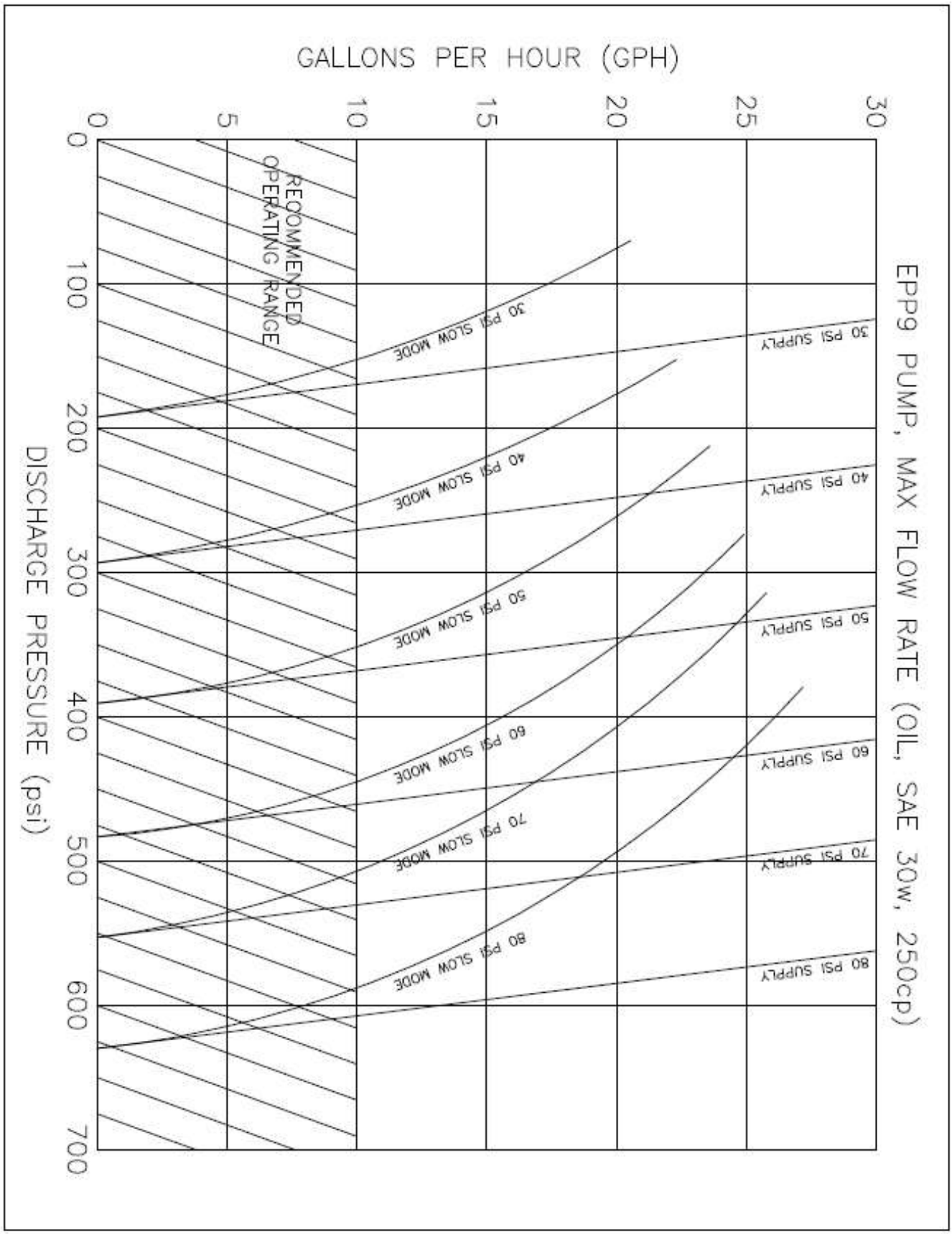
Upon request, ValcoMelton personnel are available to repair or replace such parts at the customer's facility. Charges for this service include travel time and expenses.

If an equipment problem is the result of customer abuse, improper installation or operation, all travel time, labor, parts, and expenses will be charged to the customer.

If the responsibility for a problem cannot be absolutely determined, the customer will be charged for travel time and expenses only. No charge will be made for parts and labor.

Appendix A - Charts




EPP9 PUMP, MAX FLOW RATE (OIL, SAE 30w, 250cp)
GALLONS PER HOUR (GPH)
0
5
10
15
20
25
30
DISCHARGE PRESSURE (psi)
0
100
200
300
400
500
600
700
RECOMMENDED OPERATING RANGE
30 PSI SLOW MODE
40 PSI SLOW MODE
50 PSI SLOW MODE
60 PSI SLOW MODE
70 PSI SLOW MODE
80 PSI SLOW MODE
30 PSI SUPPLY
40 PSI SUPPLY
50 PSI SUPPLY
60 PSI SUPPLY
70 PSI SUPPLY
80 PSI SUPPLY

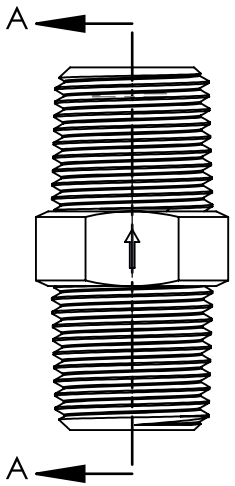
ITEM	PART NUMBER	QTY.	DESCRIPTION
1	593XX537	1	SEAT
2	783XX425	1	RETAINING RING
3	746XX300	1	O-RING
4	593XX053	1	3/8" CERAMIC BALL
5	561XX380	1	BODY
6	561XX381	1	BALL SUPPORT
7	884XX590	1	WASHER
8	783XX444	1	SPRING

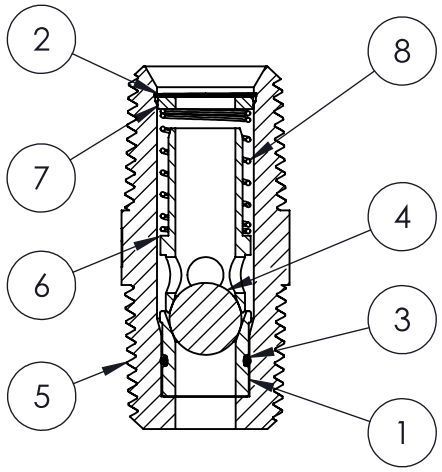
NOTES:

A 1. ASSEMBLE USING FIXTURES FA1028 & FA1029

2. CLEAN SEAT (ITEM #1) SEALING SURFACE AND CERAMIC BALL (ITEM #4) WITH ISOPROPYL ALCOHOL BEFORE ASSEMBLY

3. PRESS IN BALL AND SEAT WITH 8MM PLUG (799XX596)





SECTION A-A

USED ON: -

MTL: SEE PARTS LIST

FINISH: -

REV.: A UPDATED FIXTURE #'S WAS PDM5363/64 18MAY22 CZD 14JUN22 AFC

- - - -

- - - -

- - - -

- - - -

THREAD LENGTH DIMENSIONS ARE FULL THREAD HOLES TO BE CHAMFERED ONE THREAD DEPTH MAX UNLESS OTHERWISE SPECIFIED

BREAK ALL SHARP EDGES & CORNERS (DEBURR) UNLESS OTHERWISE SPECIFIED (.015 MAX)

DRAWN BY PDM

CHECKED AFC

APPROVED AFC

VALCO CINCINNATI

TOLERANCES - EXCEPT AS NOTED

MACHINED SURFACES 125

ANGULAR +/- 1/2 DEG.

INCHES		MILLIMETERS	
DECIMAL .X	+/- .030	DECIMAL [X,]	+/- 0,76
DECIMAL .XX	+/- .010	DECIMAL [X,X]	+/- 0,25
DECIMAL .XXX	+/- .005	DECIMAL [X,XX]	+/- 0,13

TITLE

ASSY - CHECK VALVE
1/2 HEX NIPPLE
-

S

DATE 14AUG20

SCALE 1=1

SHEET 1 OF 1

DRAWING NUMBER 561XX382-01

SUPERSEDES PDM5234 A

SUPERSEDED BY -

EPP-9 - SINGLE ACTING 561xx384

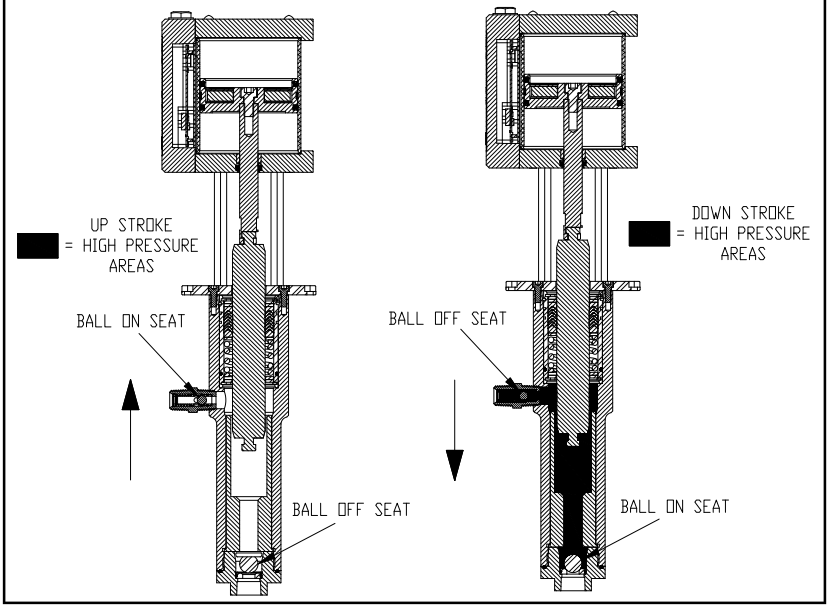
24V Power Supply 036xx175
or connect to valco pattern control module

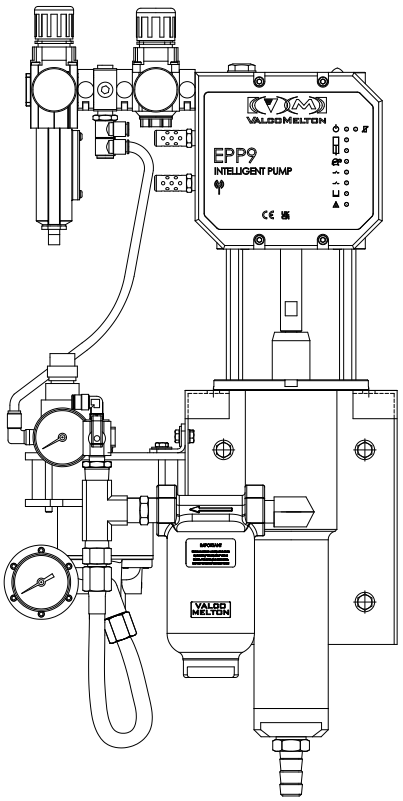
Wall Mount Pump Support Equipment 561xx109

SEAL KITS & REPAIR KITS
Air Motor Repair Kit 561xx353
Seal Kit - EP PDM5405
Seal Kit - Viton PDM5404

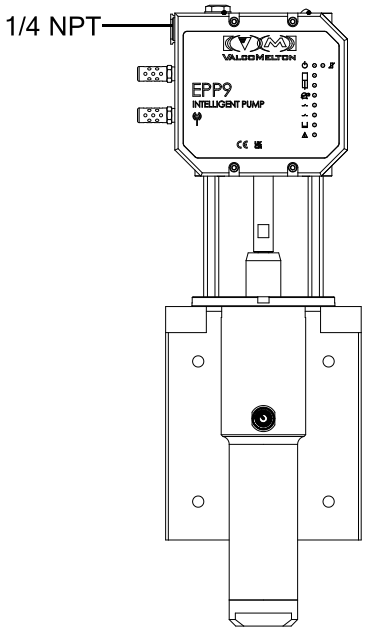
PUMP, FILTER & REGULATOR ASSEMBLIES
EPP9 Pump, Filter, 6:1 Balancing Regulator PDM5340

NOTE:
The Single Acting Pump only displaces fluid on the down stroke.
The pump is recommended for use with a 561XX079 suction tube.

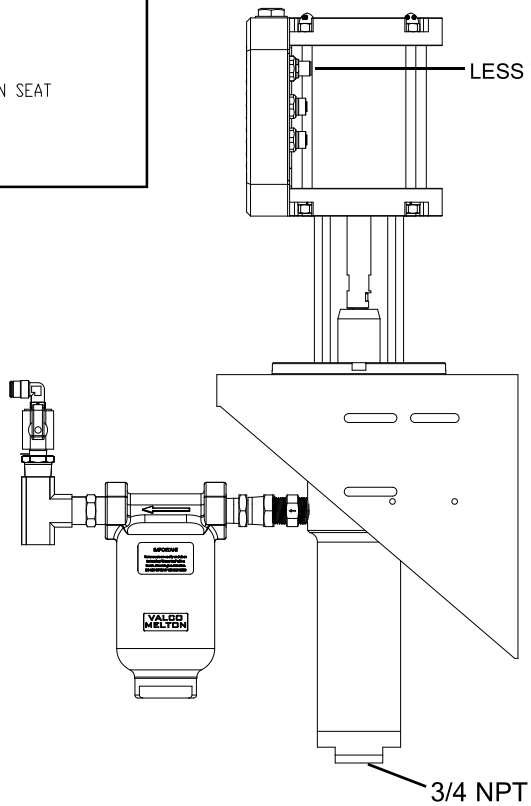




PUMP, FILTER &
REGULATOR ASSEMBLY



562xx384 EPP9 PUMP



PUMP & FILTER ASSEMBLY

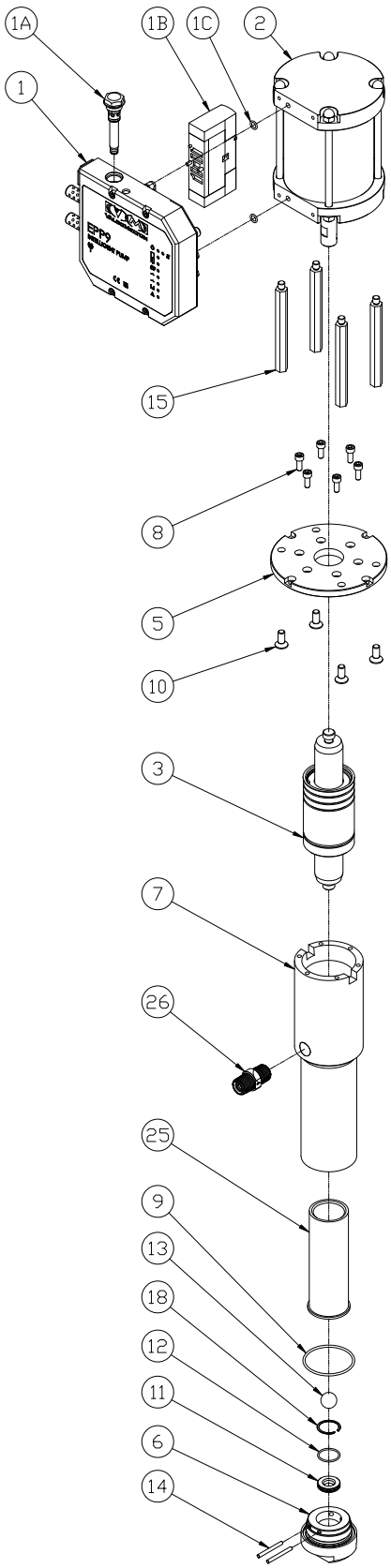
Single Acting EPP9 Pump

VALCO MELTON

DS122

PARTS LIST

ITEM	DESCRIPTION	PART NO.	QTY.
1	MANIFOLD/PCB/SOLENOID SUB-ASSY	561XX351	1
2	CYLINDER, AIR 4" DIAMETER	782XX653	1
3	ASSEMBLY, SEAL CARTRIDGE	561XX350	1
5	FLANGE, MOUNTING	561XX344	1
6	CHECK, LOWER	561XX336	1
7	BODY, EPP9	561XX342	1
8	SHCS M6 X 16 SS	784XX091	6
9	O-RING	746XX159	1
10	FHSS M8 X 20 SS	884XX339	4
11	SEAT-CHECK;SS,DD-1 PUMP	561XX165	1
12	O-RING	746XX124	1
13	BALL CERAMIC 3/4" GRADE 28	561XX307	1
14	PIN DOWEL M4 X 40	091XX757	2
15	STAND-OFF AIR MOTOR	561XX239	4
17	GREASE SILICONE W/PTFE	782XX557	0
18	RING SNAP 1.062" BORE	783XX413	1
24	DATA SHEET, EPP9 PUMP	DS122	1
25	SLEEVE	561XX384	1
26	CHECK VALVE	561XX382	1
27	“DO NOT REMOVE” TAG	782XX830	1



SEAL KIT FOR THE EPP9 PUMP (EP- PDM5405; Viton - PDM5404)

ITEM	DESCRIPTION	PART NO.	QTY.
3	ASSY EPP9 SEAL CARTRIDGE	561XX366*	1
		561XX350**	
9	O-RING	746XX294*	1
		746XX159**	
11	SEAT-CHECK,SS,DD-1 PUMP	561XX165	1
12	O-RING	746XX293*	1
		746XX124**	
13	BALL CERAMIC 3/4" GRADE 28	561XX307	1
14	PIN DOWEL M4 X 40	091XX757	2
17	GREASE SILICONE W/PTFE	782XX557	1
18	RING SNAP 1.062" BORE	783XX413	1
26	CHECK VALVE	PDM5406*	1
		561XX382**	
27	“DO NOT REMOVE” TAG	782XX830	1
-	ILLUSTRATION DRAWING	PDM5403	1

*EPDM
** VITON

Valco Cincinnati Incorporated
411 Circle Freeway Drive
Cincinnati, Ohio 45246, USA
TEL: (1) 513-874-6550
FAX: (1) 513-874-3612

Melton S.L.U.
Pol. Industrial Agustinos
calle G, n. 34
31160 Orcoyen, Navarra, Spain
TEL: (34) 948-321-580
FAX: (34) 948-326-584

Valco Cincinnati, Ltd.
Unit 7-8
Hortonwood 32
Telford TF1 7YN England
TEL: (44) 1952-677911
FAX: (44) 1952-677945

Valco Cincinnati GmbH
Bonnerstrasse 349
40589 Dusseldorf-Benrath,
Germany
Tel: +49 211 984 798-0
Fax: +49 211 984 798-20

Valco Melton France
Technoparc des Hautes Faventines
32 Rue Jean Bertin
26000 Valence
Tel: +33 (0)4 75 78 13 73
Fax: +33 (0)4 75 55 74 20