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PNEUMATIC PRESSURE CONTROL SYSTEM for DYNAMELT M-SERIES ADHESIVE SUPPLY UNITS OPERATIONS AND SERVICE MANUAL

PN 817809 Two-Output
PN 817397 Four-Output
PN 817535 Six-Output

IMPORTANT ! - READ ALL INSTRUCTIONS BEFORE OPERATING THIS EQUIPMENT

It is the customer's responsibility to have all operators and service personnel read and understand this information. Contact your ITW Dynatec customer service representative for additional copies.

NOTICE! Please be sure to include the serial number of your application system each time you order replacement parts and/or supplies. This will enable us to send you the correct items that you need.

ITW Dynatec Service Parts Direct Dial: 1-800-538-9540
ITW Dynatec Technical Service Direct Dial: 1-800-654-6711

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Chapter 1
DESCRIPTION AND SPECIFICATIONS

Description

The Dynamelt M-Series Pneumatic Pressure Control System enables the customer to reduce or eliminate the excess adhesive application that can occur during parent machine ramp-down. It may also be used to reduce the adhesive surge that can occur when an applicator is first energized during ramp-up after a parent machine stop.

The Pressure Control System works in conjunction with the M-Series ASU's (adhesive supply unit's) pneumatic pressure relief valve (PRV). The Pressure Control System is available in 2, 4, 6 and 8 output configurations. Each output works with a PRV to control one pump stream.

The enclosure is designed to be mounted on the side or rear face of a standard Dynamelt M-series control enclosure.

Description of Operation

During parent machine ramp-down, occasionally the desired adhesive application rate is less than the volume being supplied by the adhesive system, even with automatic pump speed control. Several factors can influence this:

- The speed at which the parent machine ramps down vs. the speed at which the pump/motor ramps down
- The size of the pump
- The adhesive hose length and the resulting volume accumulation during normal run speed
- The adhesive system pressure during normal run speed
- The add-on rate and intermittent length of the adhesive on the product

When this occurs, the adhesive application volume on the product can be too high, resulting in undesirable product. Likewise, if sufficient adhesive pressure remains in the system at line stop, the desired adhesive application rate during ramp-up may be too high, also resulting in undesirable product.

To solve this problem, the Pneumatic Control System switches the PRV between two pressure settings: a low bypass setting (used during ramp and at machine stop) and a higher pressure application setting (used during normal run conditions). During ramp down, a customer-supplied 24VDC signal de-energizes a solenoid which switches the PRV to the low pressure input. During ramp-up, the solenoid is energized, allowing full volume to be delivered to the applicator (up to the maximum pressure relief setting).

A pressure relief valve PN 116486 is available with a ratio of 14:1.

cont.

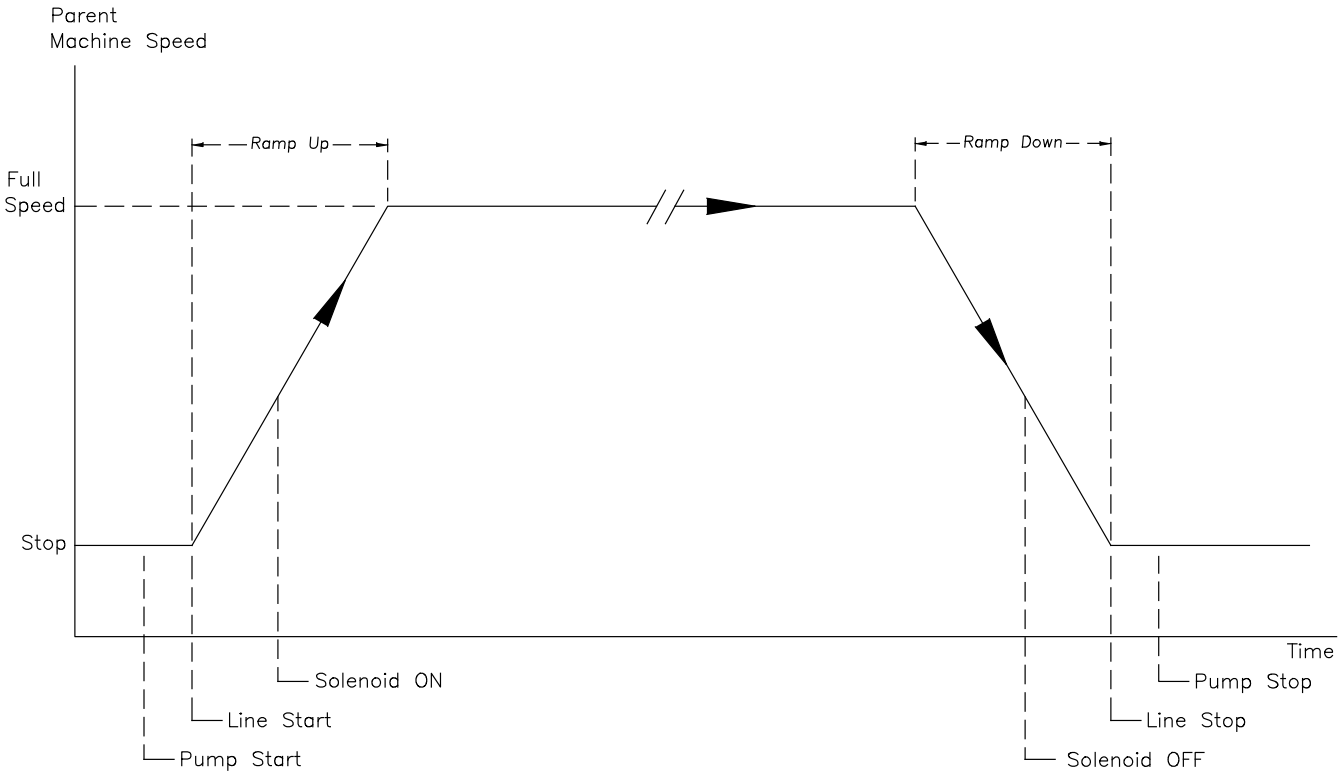
For PN 116486: the adhesive-to-air pressure ratio of the PRV is 14:1; every 10 psi (0.68 bar) of air pressure will increase the adhesive pressure relief setting by approximately 140 psi (9.5 bar).

The maximum adhesive relief pressure is approximately 1000 psi (68 bar) .

The recommended setting for the high-pressure regulator is 75 psi (5.1 bar). The low pressure regulator adjustment range is 0-30 psi (0-2.0 bar), and may be adjusted as required for best performance. This corresponds to a pressure range of 0-420 psi (0-28.6 bar) for the 14:1 valve.

Because there are many factors that influence the application rate during ramp-up and ramp-down, the exact on/off timing of the 24VDC signal must be determined after system installation. In addition to the solenoid timing, the minimum pump speed may also need to be adjusted for best performance. Instructions for pump speed settings can be found in the system manual for the adhesive supply unit being used.

If the parent machine will be down for an extended time, it is recommended that the adhesive pumps be turned off to avoid adhesive degradation.



M-Series Pressure Control System
Graphic Description of Operation

Specifications

Environmental

Operating temperature . . . . . 0°-50°C (32°-122°F)
Storage temperature . . . . . -30°-70°C (-22°-158°F)
Enclosure rating . . . . . NEMA 4/IP65

Physical

Dimensions . . . . . see layout on page 1-4
Weight . . . . . 6.2 kg (13.7 lb)

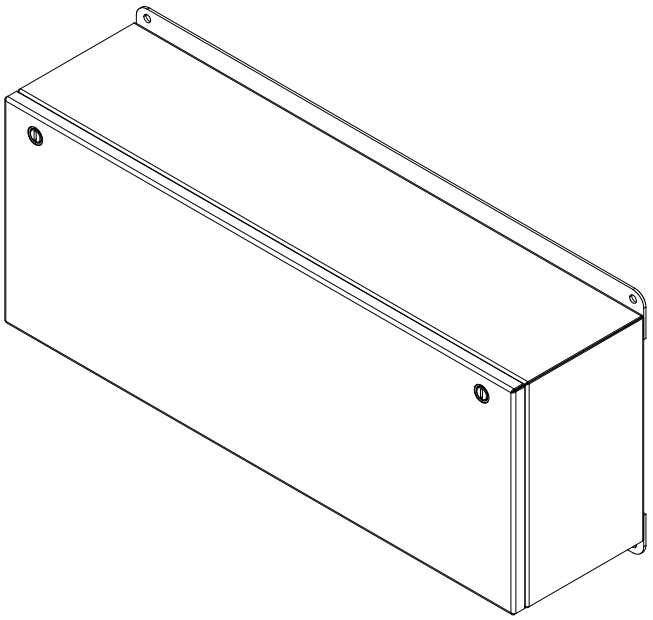
Electrical

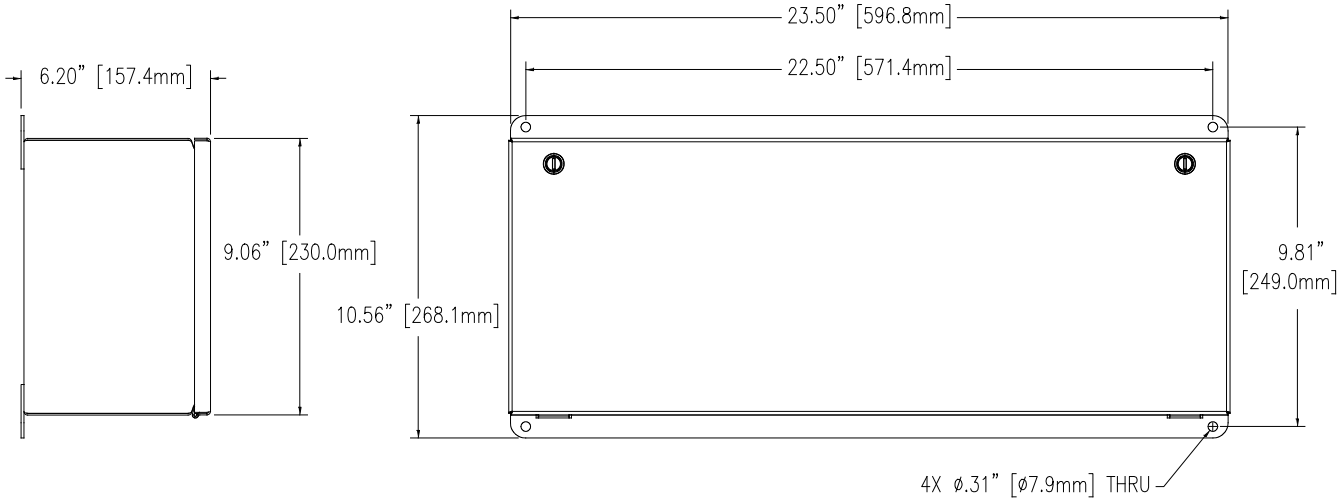
Input signal power 24VDC

Pneumatic

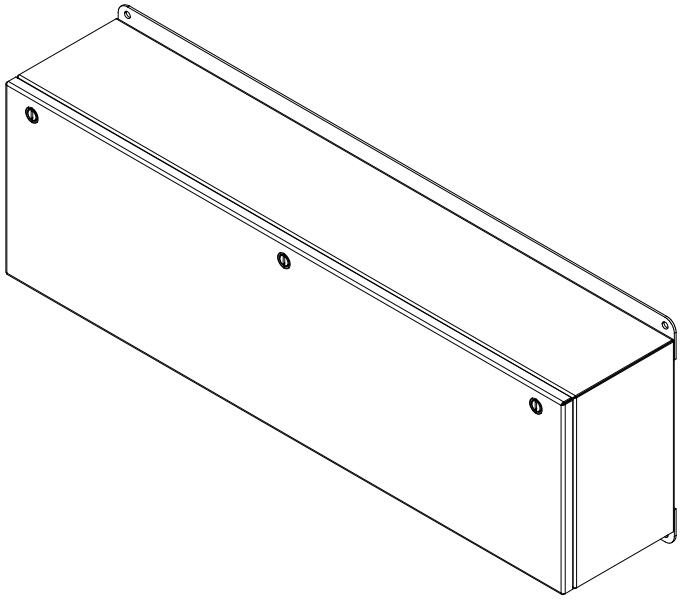
Supply pressure . . . . . 75 psi (5.1 bar) minimum
Air consumption, maximum . . . . . varies with parent machine conditions
Output pressure . . . . . 0-75 psi (0-5.17 bar), variable

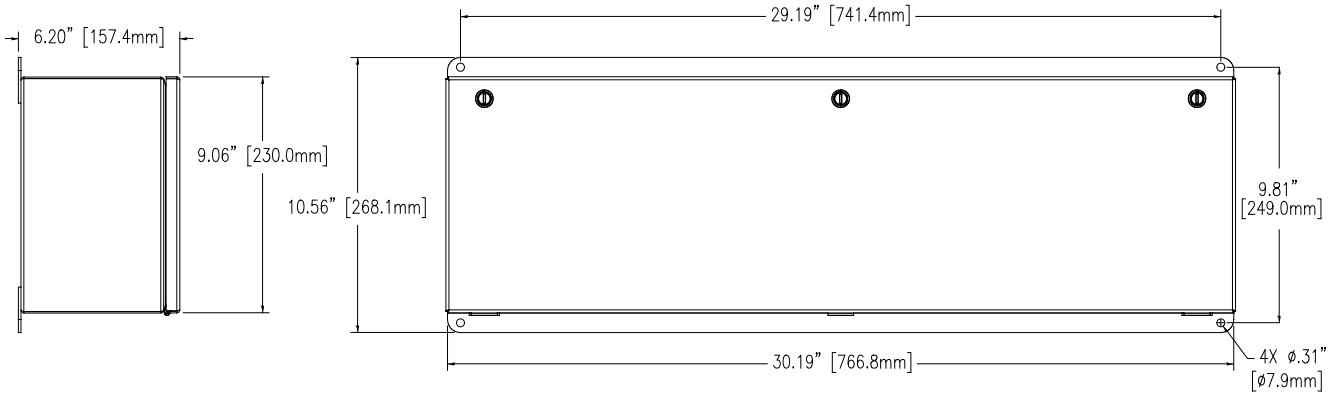
Installation Dimensions





Installation Dimensions





Chapter 2
INSTALLATION & OPERATION

Installation

The M-Series Pressure Control System is easy to setup and operate. It is highly recommended, however, that the entire contents of this manual be read before installation to become familiar with the features of this equipment and to avoid potential safety hazards.

The unit should be located in an area not normally subject to excessive moisture or vibration. For best operation, the controller should be located as close to the adhesive supply unit (ASU) as possible. The length of the air line between the control system and the ASU should not exceed 12 feet.

Mount the unit to a flat surface through the slots and/or holes provided in the mounting flanges. A dimensional layout is shown in Chapter 1. Allow sufficient space around the controller to make electrical and air connections. Make sure that the door can be opened through its entire arc.

The required connections to the controller are:

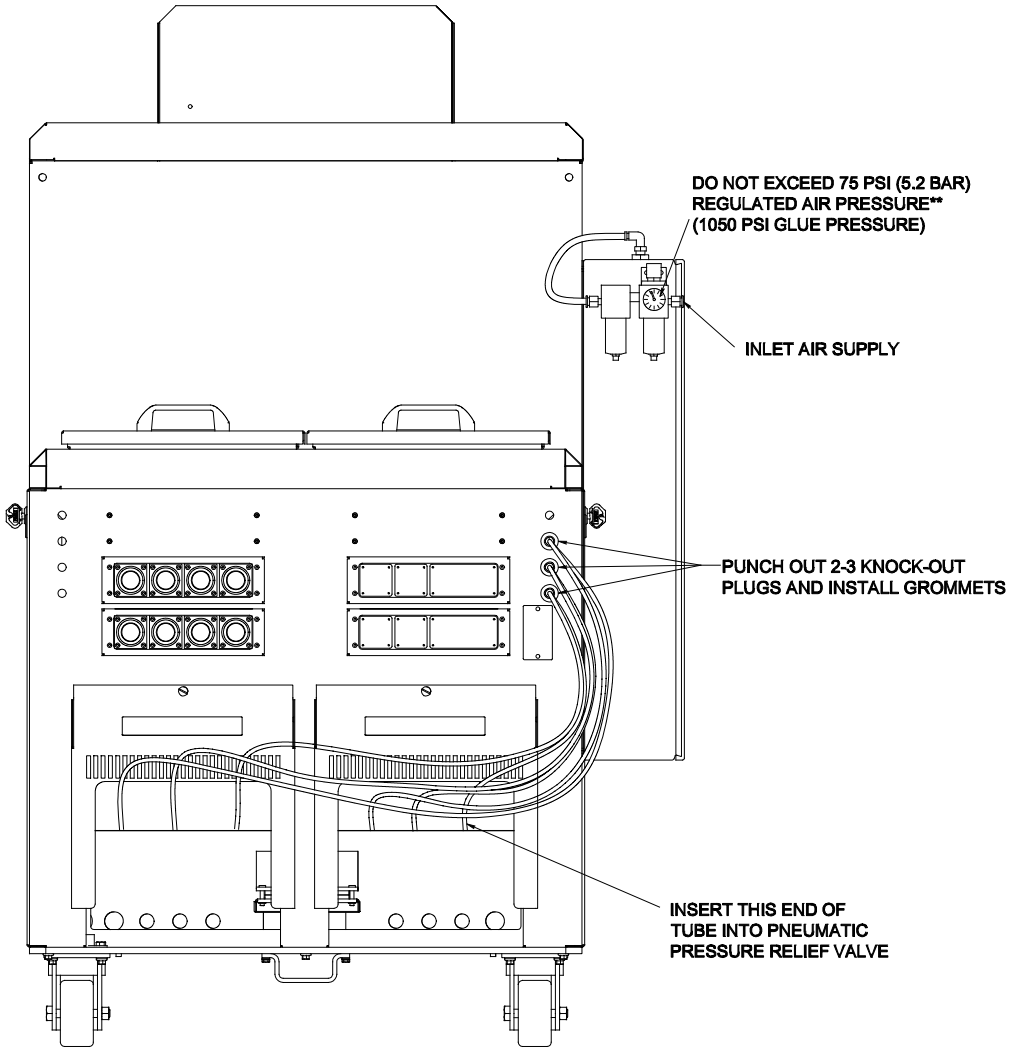
1. Parent Machine Reference: The unit will accept a 24VDC switched reference signal. The reference input is not polarity sensitive. Refer to the schematics in this manual or the labels on the PC board for proper connection.

The 24VDC solenoid control signal must be configured so that the solenoids are de-energized during ramp down, and remain de-energized at line stop. The solenoids should be energized during ramp-up.

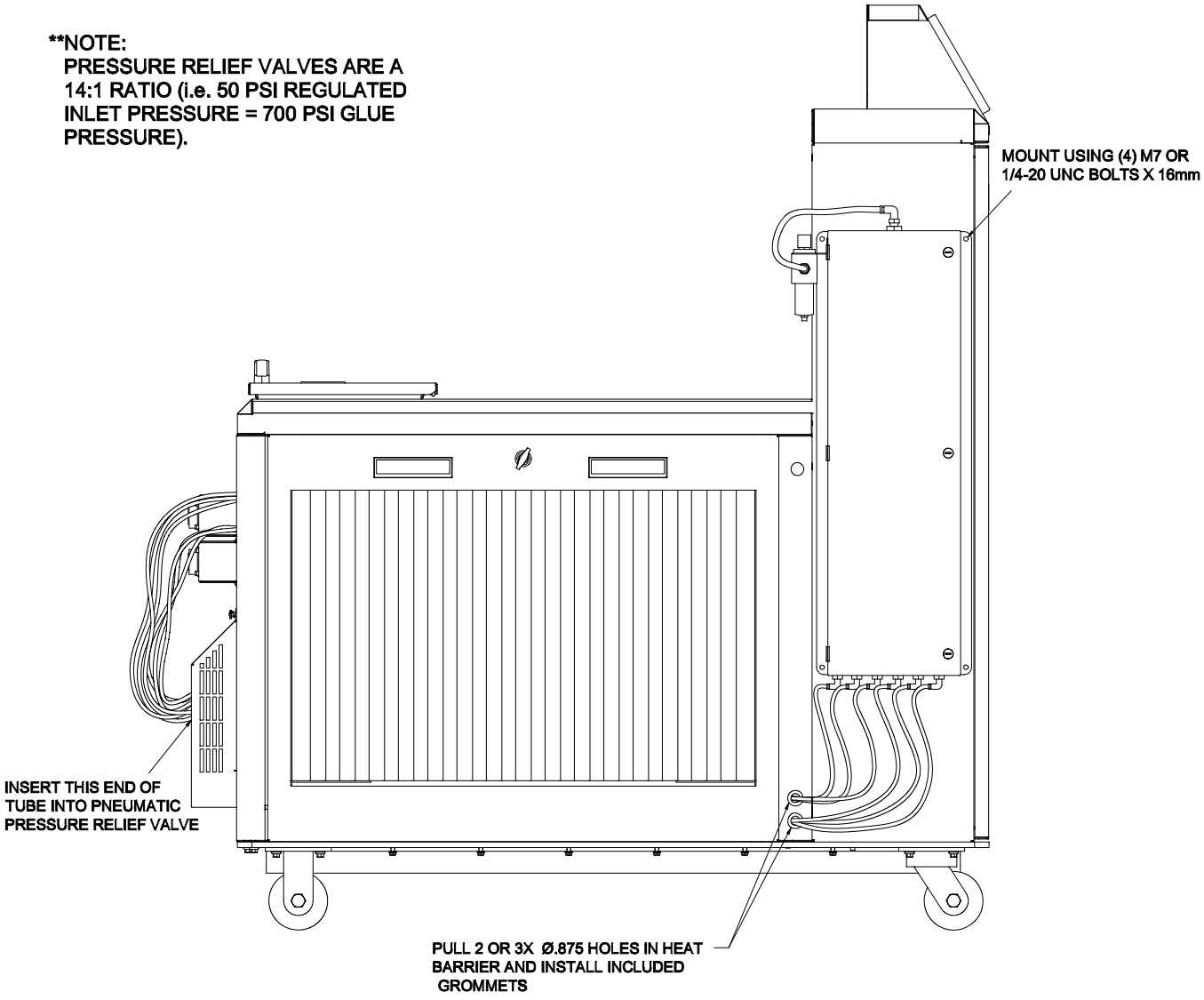
2. Supply Air: The unit requires a compressed air source of at least 75 psi (5.1 bar) for full-range operation. External air connections are 1/4 NPT.

3. Output Air Supply to ASU: PTFE tubing and quick-connect tube fittings are supplied with the unit for easy connection to the pneumatic pressure relief valve in the ASU. Straight and 90 degree fittings are supplied. The tubing length should not exceed 12 feet per valve.

Refer to drawings on following pages for further instructions.



Installation Drawing, Six Position



Installation Drawing, Six Position

Chapter 3
COMPONENT ILLUSTRATIONS & SCHEMATICS

WARNING

All parts must be periodically inspected and replaced if worn or broken. Failure to do this can affect equipment's operation and can result in personal injury.

Chapter Format

This chapter contains the component illustration (exploded-view drawing) and schematics for the M-Series Pressure Control System. These drawings are useful for finding part numbers as well as for use when maintaining or repairing the unit.

Note: most common nuts, bolts and fasteners can be obtained locally at your hardware store. Specialty fasteners are available by contacting Dynatec's Customer Service.

Bills of Material & Component Illustration

PRESSURE CONTROL ASU, 2-OUTPUT, PN 817809
SELECT PARTS LIST

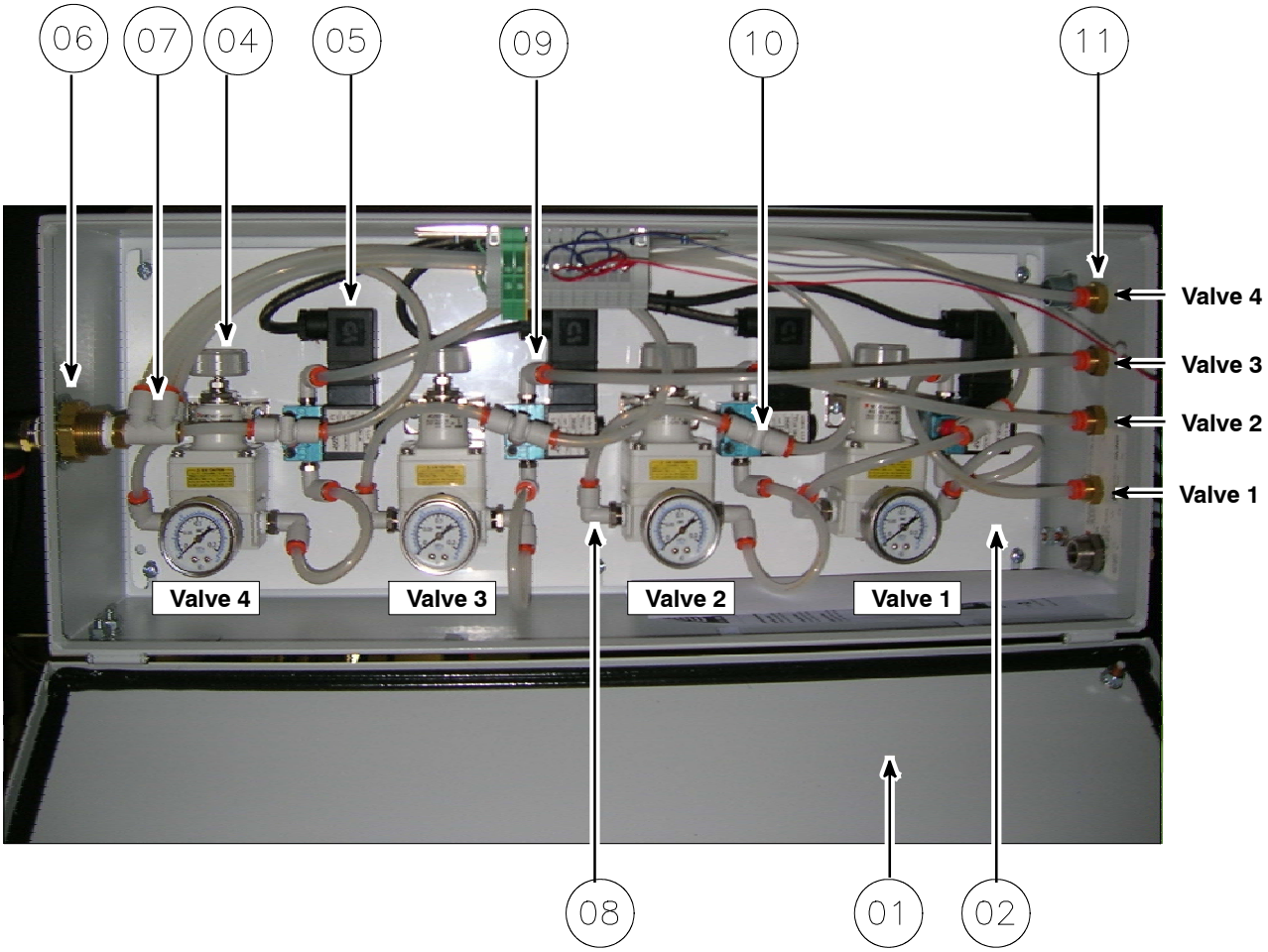
Item No.	Part Number	Qty.		Description
11	814667	2	EA	FTG, BULKHEAD EL, 1/4 TUBE
10	817444	2	EA	FTG, BRANCH TEE, 1/4 TUBE
09	N06436	4	EA	FTG, EL, 1/8NPT X 1/4 TUBE
08	N06412	4	EA	FTG, EL, 1/4NPT X 1/4 TUBE
07	817808	1	EA	FTG, BRANCH EL, ¼ TUBX1/4MPT
06	116389	1	EA	FTG, BULKHEAD CPLG, 1/4NPT
05	030A049	2	EA	VALVE, SOLENOID, 3-WAY, 24VDC
04	107804	2	EA	REG ASY, LOW-PRESSURE
03	100380	1	EA	FLTR/REG ASY, HIGH-PRESSURE
02	817806	1	EA	INSERT, PANEL, 2-OUTPUT
01	817807	1	EA	ENCLOSURE, MACHINED, 2-OUTPUT

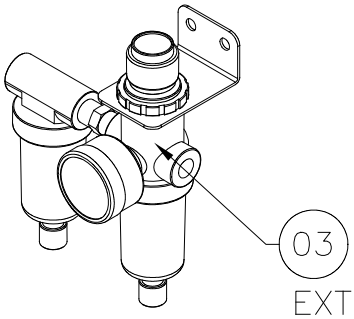
PRESSURE CONTROL ASY, 4-OUTPUT, PN 817397
SELECT PARTS LIST

Item No.	Part Number	Qty.		Description
11	814667	4	EA	FTG, BULKHEAD EL, 1/4 TUBE
10	817444	4	EA	FTG, BRANCH TEE, 1/4 TUBE
09	N06436	8	EA	FTG, EL, 1/8NPT X 1/4 TUBE
08	N06412	8	EA	FTG, EL, 1/4NPT X 1/4 TUBE
07	817694	1	EA	FTG, DBL BRANCH EL, 1/4NPT
06	116389	1	EA	FTG, BULKHEAD CPLG, 1/4NPT
05	030A049	4	EA	VALVE, SOLENOID, 3-WAY, 24VDC
04	107804	4	EA	REG ASY, LOW-PRESSURE
03	100380	1	EA	FLTR/REG ASY, HIGH-PRESSURE
02	817395	1	EA	INSERT, PANEL, 4-OUTPUT
01	817396	1	EA	ENCLOSURE, MACHINED, 4-OUTPUT

PRESSURE CONTROL ASY, 6-OUTPUT, PN 817535
SELECT PARTS LIST

Item No.	Part Number	Qty.		Description
11	814667	6	EA	FTG, BULKHEAD EL, 1/4 TUBE
10	817444	6	EA	FTG, BRCH TEE, 1/4TUB X 1/8NPT
09	N06436	12	EA	FTG, EL, 1/8NPT X 1/4 TUBE
08	N06412	12	EA	FTG, EL, 1/4NPT X 1/4 TUBE
07	817443	1	EA	FTG, TRIPLE BRANCH EL, 1/4NPT
06	116389	1	EA	FTG, BULKHEAD CPLG, 1/4NPT
05	030A049	6	EA	VALVE, SOLENOID, 3-WAY, 24VDC
04	107804	6	EA	REG ASY, LOW-PRESSURE
03	100380	1	EA	FLTR/REG ASY, HIGH-PRESSURE
02	817537	1	EA	INSERT, PANEL, 6-OUTPUT
01	817536	1	EA	ENCLOSURE, MACHINED, 6-OUTPUT





EXTERNALLY MOUNTED
ON ENCLOSURE

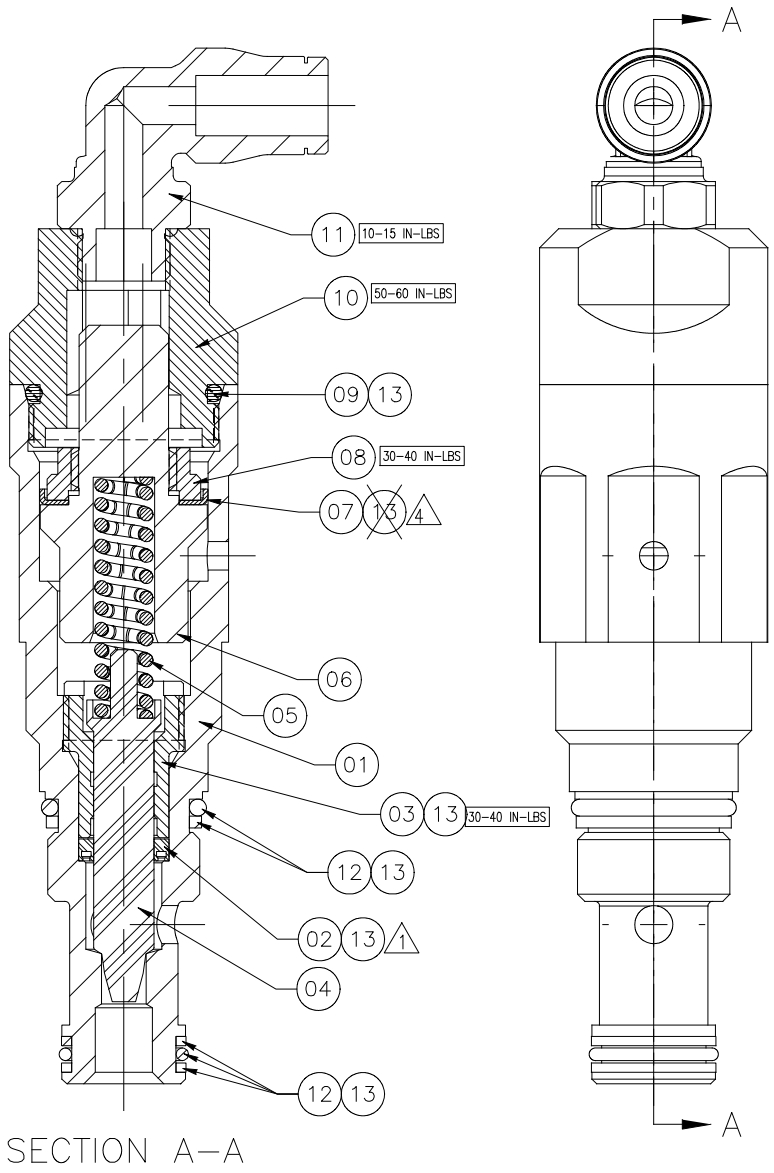
PRESSURE CONTROL ASY, TYPICAL
SELECT COMPONENT ILLUSTRATION

PN 116486 Pneumatic Pressure Relief Valve Assembly, 14:1

Item No.	Part Number	Qty.		Description
13	001V078	A/R	EA	LUBE, TFE, KRYTOX GPL-206
12	116733	1	EA	SEAL KIT, VITON, T-162A CAVITY
11	118326	1	EA	FTG, 90°, G1/8 X 1/4" TUBE
10	115538	1	EA	CAP, VALVE BODY
09	N00184	1	EA	O-RING, -017, VITON
08	115536	1	EA	RETAINER, PISTON SEAL
07	115537	1	EA	PISTON SEAL
06	116485	1	EA	PISTON, LOWER
05	115539	1	EA	SPRING, COMPRESSION
04	115533	1	EA	STEM, VALVE
03	115534	1	EA	SEAL RETAINER
02	115437	1	EA	SEAL, STEM
01	116484	1	EA	VALVE BODY

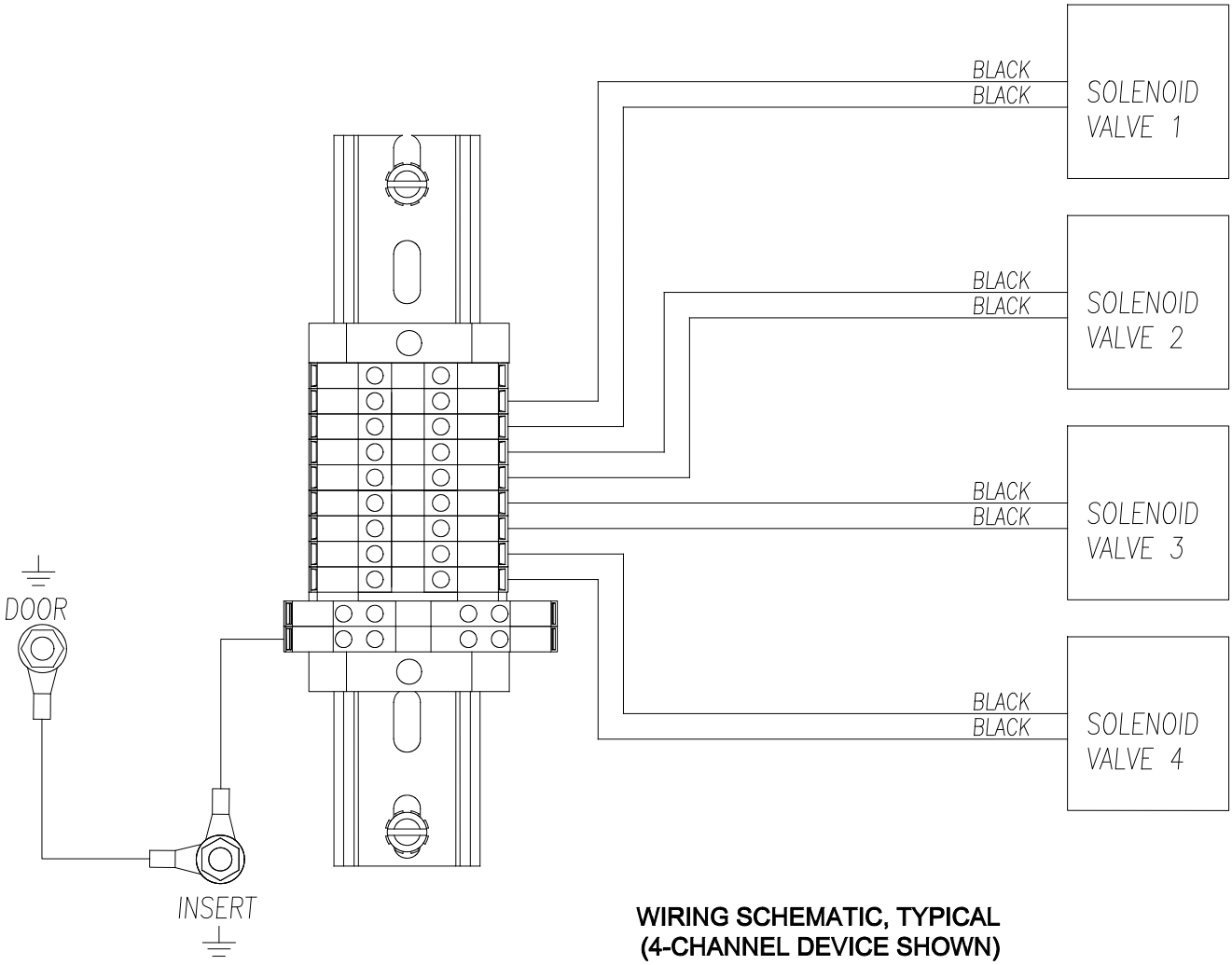
NOTES

1. LUBRICATE STEM SEAL AND PRESS INTO PLACE USING TOOL 115482. THE SEAL SPRING MUST FACE THE SMALL END OF VALVE BODY AS SHOWN.
2. LUBRICATE ID OF SEAL RETAINER AND INSTALL USING TOOL 116325.
3. PRESS VALVE STEM INTO PLACE AND INSTALL SPRING.
4. ASSEMBLE PISTON, PISTON SEAL AND PISTON SEAL RETAINER. PRESS PISTON INTO PLACE OVER SPRING. DO NOT LUBRICATE PISTON SEAL.
5. INSTALL O-RING ONTO VALVE BODY CAP. LUBRICATE O-RING AND INSTALL CAP.
6. ATTACH FITTING TO CAP.
7. LUBRICATE AND INSTALL EXTERNAL O-RINGS AND BACKUP RINGS.
8. IF COMPLETED VALVE ASSEMBLY WILL NOT BE USED IMMEDIATELY, PLACE IN A BAG FOR PROTECTION.
9. PREPACKAGED TFE LUBE PN 108700 MAY BE SUBSTITUTED FOR THE BULK LUBE 001V078.



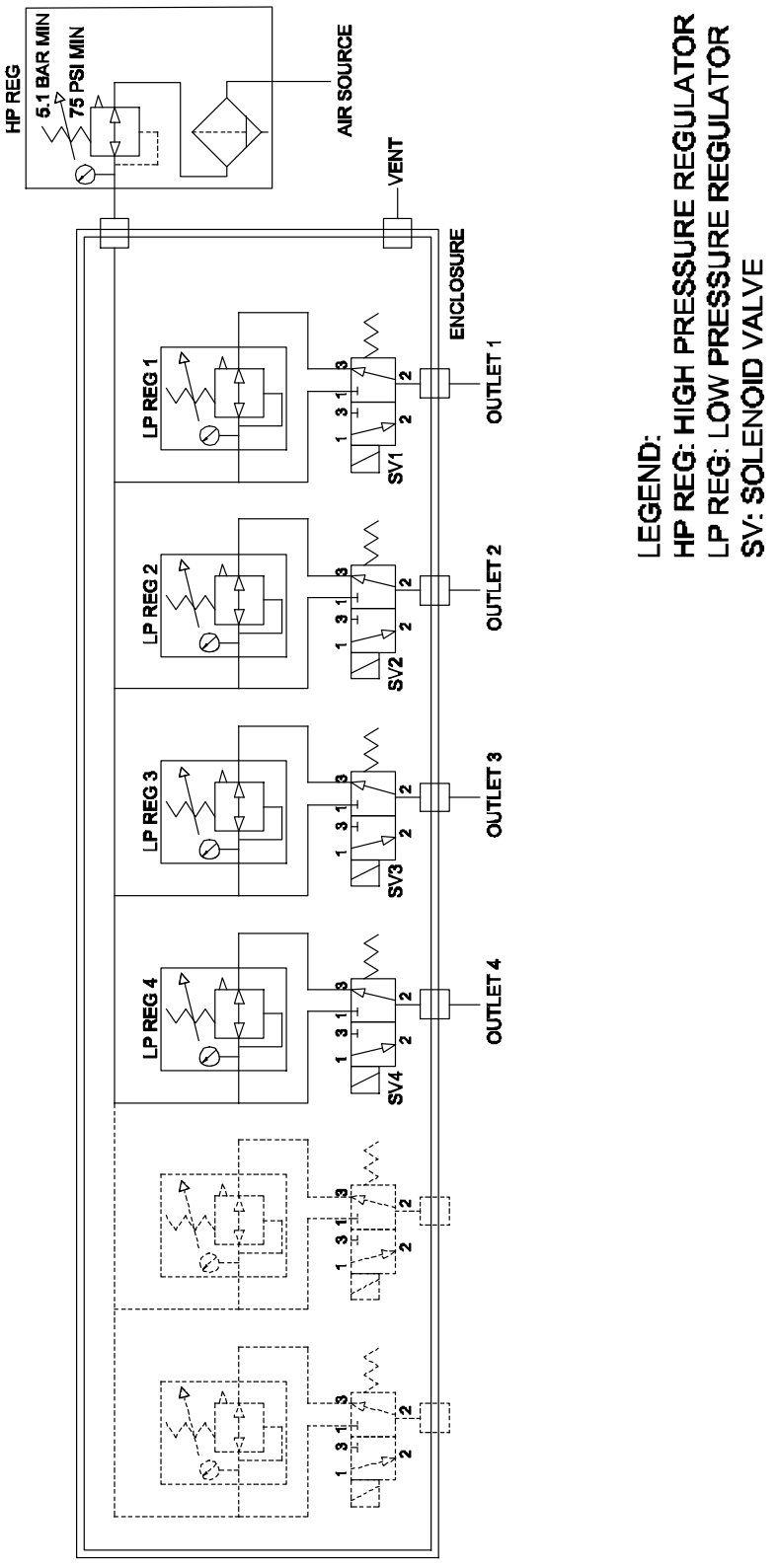
PN 116486 Pneumatic PRV Assembly, 14:1

Schematics



WIRING SCHEMATIC, TYPICAL
(4-CHANNEL DEVICE SHOWN)

Typical Wiring Schematic (4-Channel Device shown)



Typical Pneumatic Schematic (4-Channel Device shown)