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Type V/31-2 Booster Valve

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Figure 1. Type V/31-2 Booster Valve

INTRODUCTION

Scope of Manual

This manual provides installation, startup, maintenance, troubleshooting, and spare parts for the booster valve Type V/31-2.

Product Description

In monitor-regulator systems the booster valve V/31-2 is installed on the motorization pressure circuit, in order to obtain a more rapid action in monitor closing.

This product has been designed to be used with fuel gases of 1st and 2nd family according to EN 437, and with other non aggressive and non fuel gases. For any other gases, other than natural gas, please contact your local sales agent.

Tightness cover version V/31-2-D available on request.

The booster valve Type V/31-2 can be installed in the following pressure regulators:

- FL Series
- Cronos Series

CHARACTERISTICS

Table 1. Technical Features

MODEL	ALLOWABLE PRESSURE PS (bar)	SET RANGE W_d (bar)	BODY AND COVERS MATERIAL
V/31-2	19	0.015 - 0.55	Aluminum

1/4-inch NPT female threaded connections.

Type V/31-2

LABELLING



 BOLOGNA ITALY TARTARINI		 Notified body XXXX	APPARECCHIO TIPO / DEVICE TYPE Note 1
MATRICOLA		DN1	
SERIAL Nr.		DN2	
ANNO	Note 2	Wa	bar
YEAR		Wao	bar
NORME ARMONIZ.	EN	Wau	bar
HARMONIZED STD.		Cg	bar
CLASSE DI PERDITA		pmax	bar
LEAKAGE CLASS		pao	bar
CLASSE FUNZIONALE		PS	bar
FUNCTIONAL CLASS	1	body	Note 4
FLUIDO GRUPPO		covers	- bar
FLUID GROUP		PT=	1.5 x PS bar
TS	Note 3	°C	

Figure 2. Label for V/31-2 Booster Valve

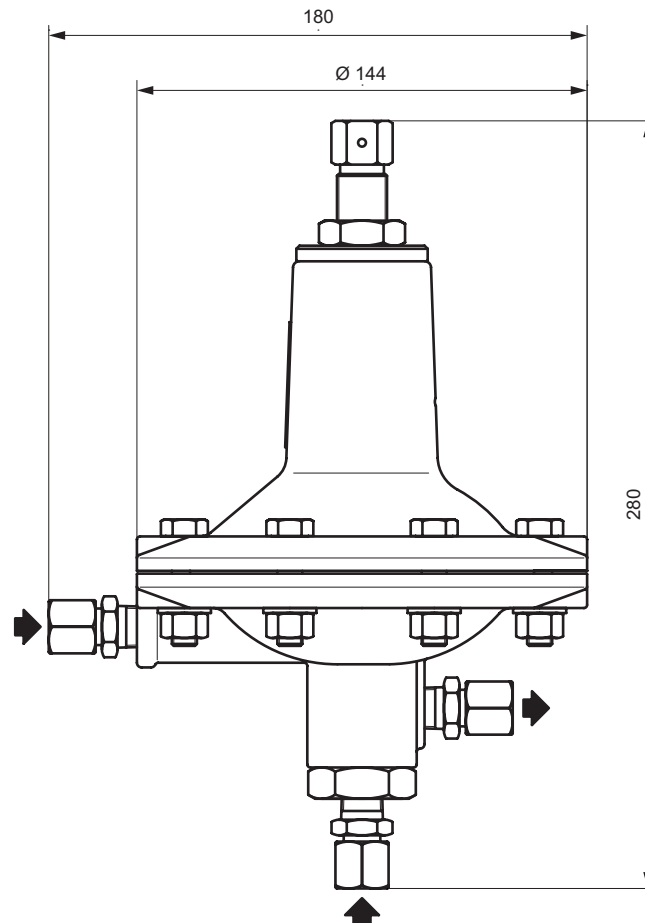
Note 1: See “Characteristics”

Note 2: Year of Manufacture

Note 3: Class 1: -10° to 60°C
Class 2: -20° to 60°C

Note 4: See “Characteristics”

DIMENSIONS AND WEIGHT



TYPE V/31-2 WEIGHT: 2.5 kg

Figure 3. Dimensions (mm) Type V/31-2 Booster Valve



CAUTION

The management of surveillance activities should be carried out by qualified, skilled personnel only.

For further information, please contact our Technical Support Representatives or our authorized dealers.

INSTALLATION

- Check that data on the pilot's plate are compatible with actual working conditions.
- Install in accordance with regulator instruction manual.

STARTUP

See the set-up and pilot adjustment instructions applying to the equipment where the booster valve is fitted.

SEP STATEMENT

Emerson declares this product conforms to Pressure Equipment Directive PED 2014/68/UE.

Article 4 section 3 and was designed and manufactured in accordance with sound engineering practice (SEP).

Per Article 4 section 3, this "SEP" product must not bear the CE marking.

FIELD INSPECTION AND MAINTENANCE

The valve parts are subject to normal wear and must be inspected periodically and replaced if necessary.

The frequency of inspection/checks and replacement depends upon the severity of service conditions and according to applicable National or Industry codes, standards and regulations/recommendations.

In accordance with applicable National or Industry codes, standards and regulations/recommendations, all hazards covered by specific tests after final assembling before applying the CE marking, shall be covered also after every subsequent reassembly at installation site, in order to ensure that the equipment will be functional throughout its intended life.

Before proceeding with any maintenance work, shutoff the gas upstream and downstream from the regulator, also ensure that there is no gas pressure inside the body by loosening the upstream and downstream connections.

Upon completion, check for leaks using an appropriate leak detection solution.

Replacing Seal Pad

- Disconnect all fittings, remove valve from the line and unscrew nuts (key 13) then remove cover (key 4), spring holder (key 5) and spring (key 6).
- Hold stem (key 19) using a wrench inserted into the notch.
- Unscrew seat (key 16).
- Using a tube wrench disassemble pad holder (key 18) and replace pad (key 17).

General Maintenance

- Disconnect all fittings, remove valve from the line and unscrew nuts (key 13) then remove cover (key 4), spring holder (key 5) and spring (key 6).
- Replace gasket (key 26).
- Hold stem (key 19) using a wrench inserted into the notch and unscrew nut (key 7).
- Disassemble parts and replace diaphragm (key 10) and O-ring (key 22).
- Unscrew seat (key 16) and replace O-ring (key 15).
- Using a tube wrench disassemble pad holder (key 18) and replace pad (key 17).
- Remove stem unit (key 19), unscrew stem guide (key 20), replace O-ring (key 15) and lip seals (key 21).

Reassembly

Lubricate static O-rings and lip seals with a grease thin layer, be very careful not to damage it when reassembling. No other valve parts are to be lubricated. Reassemble parts by reversing the above steps.

As you proceed, make sure that parts move freely and without friction.



CAUTION

Keep particular attention to the tightening of the nut (key 7) to not cause stress on the diaphragm (key 10).

Also, be careful to the insertion of stem (key 19) into stem guide (key 20) so as not to pinch lip seal (key 21).

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TROUBLESHOOTING

Table 2. Troubleshooting for Type V/31-2 Booster Valve

SYMPTOMS	CAUSE	ACTIONS
Desired setpoint is not reached	Calibration spring (key 6) is too weak	Check the springs catalogue and replace it with a stronger one
	Lack of gas from valve connections	Check valve connections
Slow monitor response	Pad (key 17) is swollen preventing proper relief flow	Replace pad
The booster valve does not work	Valve diaphragm is broken (Key 10)	Replace diaphragm
Gas continually escaping from relief (B)	Defective seal of pad (key 17)	Check and eventually replace pad

PARTS LIST

Type V/31-2 Booster Valve (See Figure 4)

Item Description

- 1 Adjusting screw
- 2 Nut
- 3 Cap
- 4 Cover
- 5 Spring holder
- 6 Spring
- 7 Nut
- 8 Washer
- 9 Plate
- 10* Diaphragm
- 11 Screw
- 12 Washer
- 13 Nut
- 14 Fitting
- 15* O-ring
- 16 Seat
- 17* Pad
- 18 Pad holder

Item Description

- 19 Stem
- 20 Stem guide
- 21* Lip seal
- 22* O-ring
- 23 Plate
- 24 Body
- 25 Screw
- 26* Gasket
- 27 Label
- 28* O-ring
- 29* O-ring
- 30 Elastic ring
- 31 Fitting

Rubber parts marked with (*) are supplied in the “spare parts kit”, recommended as stock.

To order the kit it is necessary to communicate to us the valve serial number.

SCHEMATIC ASSEMBLIES

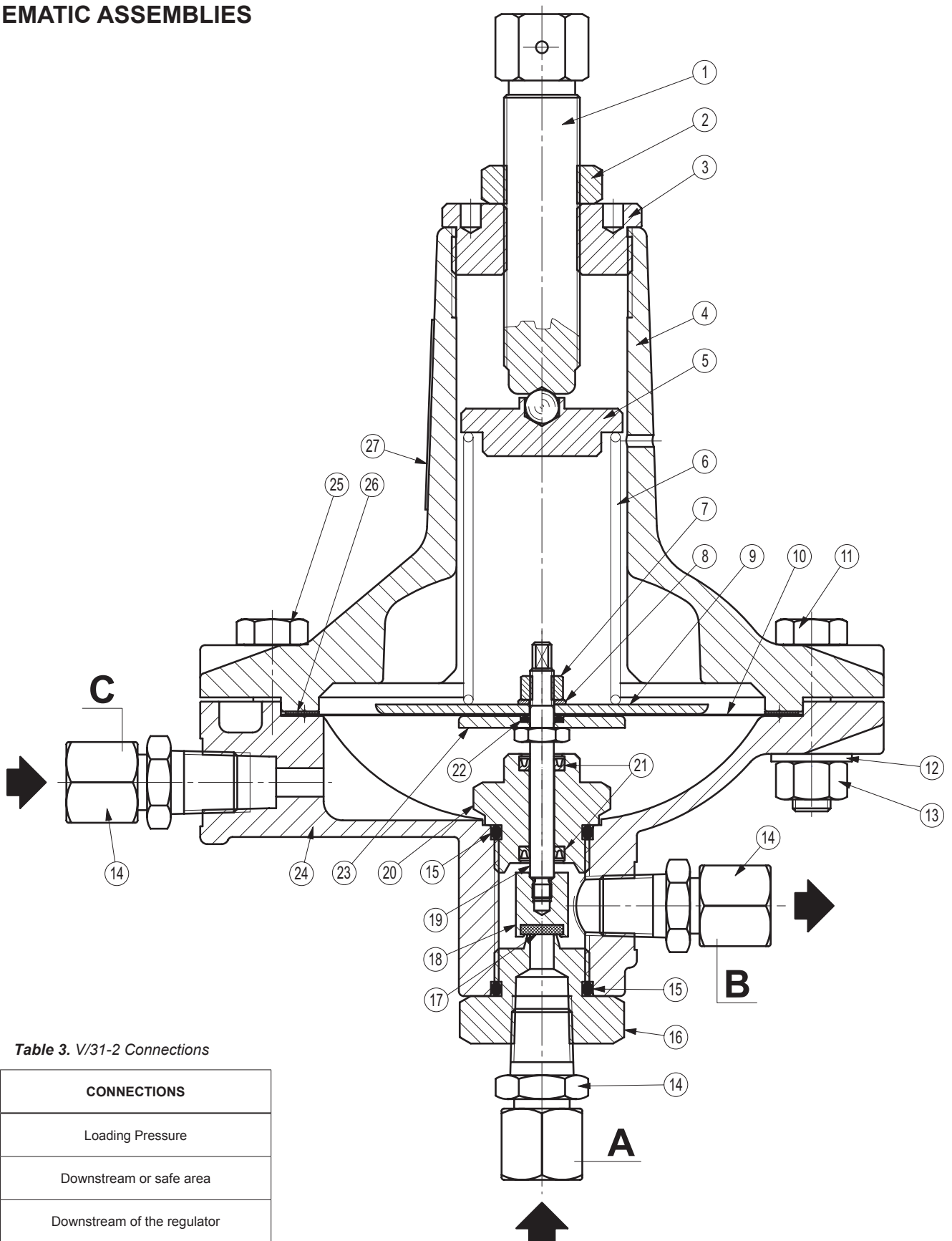


Table 3. V/31-2 Connections

ITEM	CONNECTIONS
A	Loading Pressure
B	Downstream or safe area
C	Downstream of the regulator

Figure 4. Type V/31-2 Booster Valve

Type V/31-2

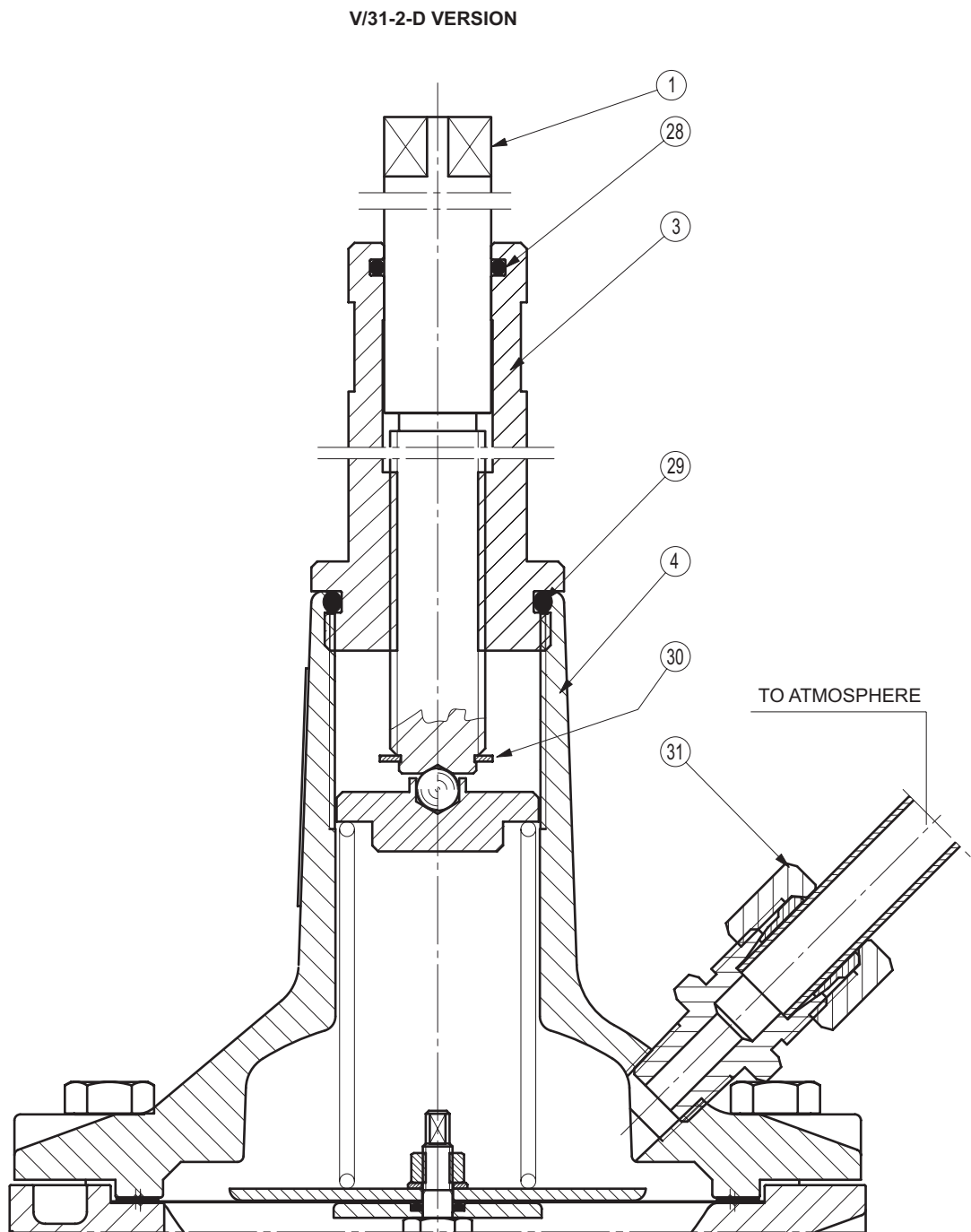


Figure 4. Type V/31-2 Booster Valve (continued)

Type V/31-2

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