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INSTRUCTIONS: OPERATION AND INSTALLATION
EXCESS PRESSURE VALVE MODEL **PRV53**

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1. IDENTIFICATION PLATE LEGEND

CE marked is NOT required in accordance with PED 2014/68/UE

SERIAL N.	VALVE IDENTIFICATION NUMBER. VALFONTA WILL NEEDS THIS NUMBER FOR SPARE PARTS OR COMMENTS RESPECT OF THIS VALVE.
MOD.	VALVE MODEL
DN	VALVE NOMINAL DIAMETER
PN	VALVE NOMINAL PRESSURE
MEDIUM	FLUID
P.IN	INLET PRESSURE (barg)
P.OUT	OUTLET PRESSURE (barg)
BODY	BODY MATERIAL

ATEX marked required according to DIRECTIVE 94/9/EC

PENDING TO INCLUDE

VALFONTA E 08915 € Badalona (ESPA•A)	
TYPE:	EXCESS PRESSURE VALVES SELF- ACTUATED
MANUFACTURING YEAR: 2014	MANUFACTURING NUMBER:
II 2 G D	c IIC Tx c IIIC Tx,C
TECHNICAL FILE IN CUSTODY : LOM	CERTIFICATION NUMBER: LOM 14.034 U

Reference	Denomination
II 2	ATEX category, zones 1 & 21
G	Class I application (flammable liquids and gases)
D	Class II application (combustible dust)
c IIC	Safety construction protection mode for substances IIC
C IIIC	Safety construction protection mode for substances IIIC
Tx / Tx€C	Thermal class according fluid temp. used
LOM	Number of certification from ExNB (LOM)

Special ATEX instructions

- No limitation of use due to the ATEX substance.
- Limitations due to thermal class:

Class I (flammable liquids and gases)

TEMPERATURE CLASS	MAX. SURFACE TEMPERATURE	APPROPRIATE FOR SUBSTANCES WITH IGNITION TEMPERATURE
T1	450€C	Ti >450€C
T2	300€C	Ti > 300€C
T3	200€C	Ti >200€C
T4	135€C	Ti >135€C
T5	100€C	Ti >100€C
T6	85€C	Ti >85€C

- Class II (combustible dust)

$$T(x) \cdot 2/3 MIT_{cloud}$$

$$T(x) \cdot 5 mm MIT_{layer}, 75 K$$

SELF-OPERATED PRESSURE REGULATORS EXCESS PRESSURE VALVE MODEL PRV54

INSTRUCTIONS: OPERATION AND INSTALLATION

2. MAIN FEATURES

PRV54 model is a self-operated pressure excess valve.

Used to maintain a stable pressure in main line, the PRV54 relieves the excess of pressure.

When upstream pressure rises above adjusted set point, the valve opens proportionally.

Easy to adjust and doesn't need any maintenance. It is possible to install the valve in any position.

Maximum inlet pressure 10 bar (ask for other ranges).

Pressure range 0,5 a 3 | 1 , 6 | 3 , 10 bar

Temperature range: NBR -20 to 80 °C
EPDM -30 to 125 °C
Viton -10 to 150 °C

Fluids

Fluid group 1 and 2.

Liquids, compressed air, fuel-oil, water, nitrogen, neutral gases, „

Body material 316L Stainless steel Aisi 316L

Trim material 316L Stainless steel Aisi 316L

Cover material 316L Stainless steel Aisi 316L

Connections 1/2" Threaded BSP or NPT
1/2" Flanges DIN or ANSI
1/2" BW or SW (*)

(*) consult

More common applications

Chemical laboratory installations, sanitary plants, compressed air, sprinkler systems, fuel-oil, steam, heat exchangers, steam plants, stills, chemical laboratories, cylinders and vulcanized, dry cleaner's, laundries,...

Under request:

- Reduced Kv to: 0,2 / 0,6 / 1 m³/h
- Bronze / Super duplex materials
- Connection Socket weld or butt welding
- Connection clamp
- Degreased valve for oxygen services

3. OPERATING

The excess pressure valves PRV54 model work under direct action principle. Upstream pressure reaches the valve and moves the piston and obturator assembly, opening the valve. This pressure is fully balanced by the piston and in the pressure less state the valve is closed by the force of the regulating spring (10).

When upstream pressure arrives to the piston through the stem (internal sensing line), and rises above the adjusted set point, valve opens proportionally.

It is recommended to leave between 0,5 and 1 meter until isolation valve for a better compensation.

To increase inlet set pressure, the regulating screw (9) has to be turned anti clockwise.

The regulator fulfils the requirements of the European Equipment Directive 2014/68/UE

4. SCHEME

Description		Material	Description		Material
1	Body	Stainless steel A351 CF3M	12	O-ring	NBR (EPDM,FKM)
2	Seal screw	Stainless steel A2	13	Gasket	NBR (EPDM,FKM)
3	Obturator	NBR (EPDM,PTFE+GR,FKM)	14	Screw (x4)	Stainless steel A2
5	Seat	Stainless steel Aisi 316L	15	O-ring	(= item 12)
6	Gasket	PTFE	16	O-ring	NBR (EPDM,FKM)
7	Spring cover	Stainless steel A351 CF3M	17	Obturator support	1.4404 SS 316L
8	Washer spring	Galvanized steel A2	18	Obturator guide	1.4404 SS 316L
9	Regulation screw	Stainless steel A2	20	Guide	1.4404 SS 316L
10	Regulation spring	Spring steel 52SiCrNi5 (epox painting 6000 micras)	21	Lower Cover	1.4404 SS 316L
11	Piston	1.4404 SS 316L	22	Gasket	NBR (EPDM,FKM)
SOFT PARTS		Special gaskets for special fluid on demand			

5. RECOMMENDED SPARE PARTS

Reference	Description	Design temperature	Item
PRV53.SP1	NBR gasket Kit	80°C	3+6+12+13+15+16+22
PRV53.SP2	EPDM gasket Kit	125°C	3+6+12+13+15+16+22
PRV53.SP3	FKM gasket Kit	150°C	3+6+12+13+15+16+22
PRV53.SP5	Spring	-	10

The pressure regulator is maintenance free, but it is subject to natural wear.

To replace any part:

1. Fully relieve the set point spring (10) by turning the set regulation screw (9) in clockwise direction.
2. Unscrew the screws (14) evenly. Note: be careful because the regulation spring is still slightly pretensioned.
3. Remove the spring cover (7), spring (10) and regulation screw and washer (8-9).
4. Remove all parts group (item 2-3-6-11-12-13-15-16-17-18-20).
5. Remove and replace damaged parts.
6. For assembly, proceed in reverse order.

This device must be installed by specialized personnel with knowledge and experience. They must know about the current regulations in order to judge the risks that may involve this work.

Important: Be sure that the valve never exceeds the service temperature for which has been designed.

6. ASSEMBLY

The pipe must be cleaned carefully before installing the valve, to prevent that any small element or impurity may affect the regulating valve work.

It is also very important to install a strainer in front of the valve in order to protect it.

Assembly Position

Excess pressure valve must be installed in a pipe and the direction of the flow should be in the same direction that shows the valve body.

The valve can be installed in any position.

Installation in bypass

If you install a valve in bypass, which is highly recommended, it must be spliced back to the main pipe after the control line, and with their check valves, according to the scheme:

- 1, 1a y 1b ∅ Check valves
- 2 ∅ Filter
- 3 ∅ Inlet pressure Manometer
- 4 ∅ Pressure reducing valve PRV
- 6 ∅ Outlet pressure Manometer

Start -up

Open the check valves slowly (to prevent water hammer).

To adjust the set point pressure (inlet pressure), turn the regulating screw with an allen tool (8 mm).

Compressing the spring (anticlockwise) increases the pressure set point.

Decompressing the spring (clockwise) decreases the pressure set point.

PENDING TO INCLUDE

ATEX requirements

- **IMPORTANT!** The respective national regulations as well as general engineering rules governing the installation and operation of equipment in explosive atmospheres must be observed.
- The valves are ATEX category "II 2 GD" according to 100a ATEX Directive (94/9/EC).
- **IMPORTANT!** The device can only be used in potentially explosive locations Class I (gases, vapors or liquids) Zones 1 and 2 and Class II (combustible dusts) areas 21 and 22, according to the specifications in the Directive 1999/92/EC, as well as the Electro technical Regulations.

Electrostatic discharges

Under certain conditions, electrostatic discharges that are capable of ignite explosive atmospheres, can be produced. The most important measure of protection is equipotential bonding of all conductive parts and earthing.

In order to avoid electrostatics discharges, the installation of devices and control elements must be earthing.

- **IMPORTANT!** Connecting the valves to process: it should be ensured electrical continuity of $<10^6\Omega$.
- **IMPORTANT!** National regulations on maintenance, service, inspection and repair of apparatus and equipment for explosive atmospheres, as well as general engineering rules must be observed.

COMMISSIONING

IMPORTANT! User is the only responsible for a safe use of the devices.

In use, parts that affect the explosion protection of the valves must be checked and act accordingly, f.e.:

- Fixing Elements -screws, nuts, shafts, etc.- see technical documentation of the product supplied. It must be ensure its tightening, proper operation and / or change when necessary. After 2.500h of working or 6 natural months (whichever comes first).
- The seals will be replaced by original spare parts: every 25,000 hours or when periodic inspections result said (the lower range).
- Any other action arising from inspection and maintenance plan, set by the user
- **IMPORTANT!** If repainting the valves and / or spare parts, ensure there is no paint on moving parts, mounting flange and closure sealing.

INSPECTIONS

- **IMPORTANT!** National Regulations must be observed. It is user's responsibility to establish an inspection and maintenance plan for these devices in order to ensure their proper use.
- Inspections must be performed by "qualified staff, because of the kind of equipment and / or installation.
- Purposes can be used to guide the requirements of the UNE-EN 60079-17, in order to establish the inspection plan.
- **IMPORTANT!** When inspections are "Detailed" or its degree is f_{Close} , the devices will be completely shut out.

MAINTENANCE

Spare parts are subject to normal wear. They must be inspected and replaced when necessary.

The frequency of the inspections and maintenance depends on the severity of the service conditions. This section provides instructions about replacement, packing, stem, plug and seat.

All maintenance operations can be performed with the valve body installed.

Before any maintenance, ensure the valve is depressurised and clear of media, and isolate it both upstream and downstream. Be sure the temperature isn't dangerous.

IMPORTANT! Use only genuine parts or recommended by VALFONTA, SL

7. DIMENSIONS

DN	f,,	...,,	1,,	15	20	25	15	20	25
Connection	Threaded			Flanged EN PN16			Flanged ANSI CL150		
Kv value	2	2.5	3.5	2	2.5	3.5	2	2.5	3.5
A	108	108	108	-	-	-	-	-	-
AA	-	-	-	150	150	160	184	184	184
H1	135			135			135		
H2	185			185			185		
D1	-	-	-	95	105	115	89	98	108
D2	-	-	-	65	75	85	60.5	70	79.5
D3	-	-	-	45	58	68	35	43	51
B	-	-	-	16	16	16	12	12	12
C	-	-	-	2	2	2	2	2	2
N, holes	-	-	-	4	4	4	4	4	4
† hole	-	-	-	14	14	14	16	16	16
Weight (Kg)	2.5	2.5	2.5	5	5	5	5	5	5

All sizes in millimeters. In red color, sizes out of standards

8. RECEIPT ON SITE

ATTENTION! Transport and storage of these devices should be in their original packaging.

RECEIPT ONSITE

When receiving the equipment on site, it should be unpacked to check that they agree with the request and delivery notes. At least, verification shall be performed:

- Visual,
- Mechanical

After these checks, if it will not be installed immediately, it will keep in dry and protected atmosphere.

Visual Inspection

Check that during transport, unloading and installation, the devices have not been damaged.

Mechanical Verification

Check all moving parts of the apparatus, as well as screws and other elements fulfill their mission.

IMPORTANT! If is observed abnormality during these guidelines reception, contact urgently VALFONTA to clarify responsibilities and put the devices in correct status.

The contents of that document are subject to change without notice.