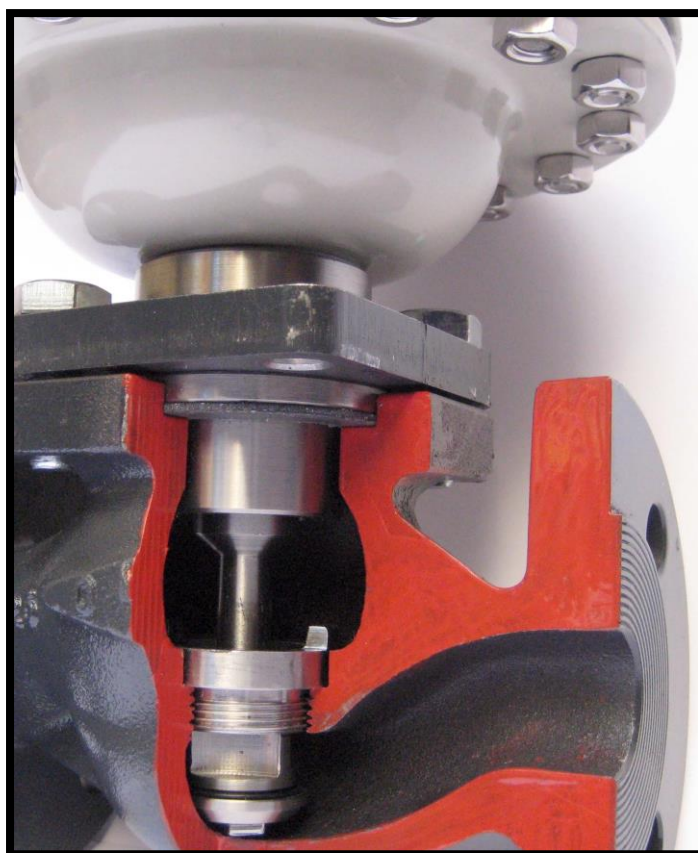




VALFONTA



INSTRUCTIONS: OPERATION AND INSTALLATION

PRESSURE REDUCING VALVE MODEL **M2F**



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1. IDENTIFICATION PLATE LEGEND

a) CE marked is required in accordance with PED 2014/68/UE

b) 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
P.OUT	OUTLET PRESSURE
BODY	BODY MATERIAL
KVS.	KV VALVE

2. MAIN FEATURES

Self-actuating pressure reducing valve balancing by bellow used to provide a constant downstream still there being oscillations in inlet pressure.

Valve closes when outlet pressure increases.

This series of regulators is suitable for steam, compressed air, gases and liquids.

Recommended outlet pressure regulating ranges:

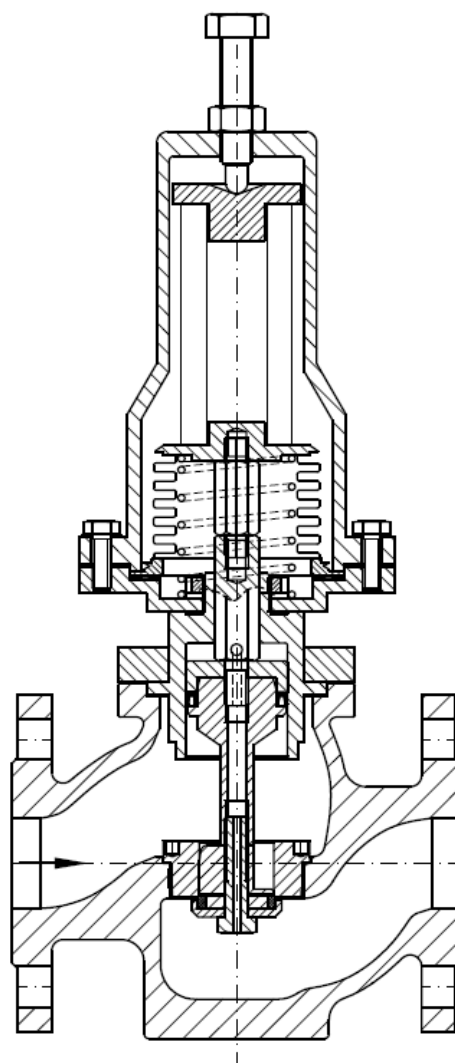
- 1 to 4 barg
- 3 to 10 barg (ask for special ranges)

Condensation tank (pot) is **NOT** necessary.

The pressure reducing valve is not a safety valve, and then if necessary, an overpressure protection must be installed.

Max. permissible upstream pressure	25 barg	
Max. permissible temperature	Up to 150°C (air and nitrogen) Up to 80°C (others gases) Up to 200°C (steam)	
Sizes	DN15 to DN50	
Body material	Nodular Iron GGG40.3	PN25
	Bronze RG10	PN25
	Carbon steel A216 WCB	PN40
	Stainless steel A351 CF3M	PN40
Connections	Flanged DIN PN16-PN40 Flanged ANSI 150 / 300 Threaded BSP / NPT Consult BW and SW	
Trim material	Stainless steel AISI 316L (others on request)	
Seal material	Graphited PTFE/GR (standard) NBR, EPDM, FKM, PEEK, ... (on request)	

Installation position Any mounting position possible



Common uses

Low steam uses, chemical laboratory installations, waters distribution systems, installation of waste water, industrial, compressed air, sprinkler systems, fuel-oil, fire protection, inert gas protection,...

Optionally

External control line.

3. OPERATING

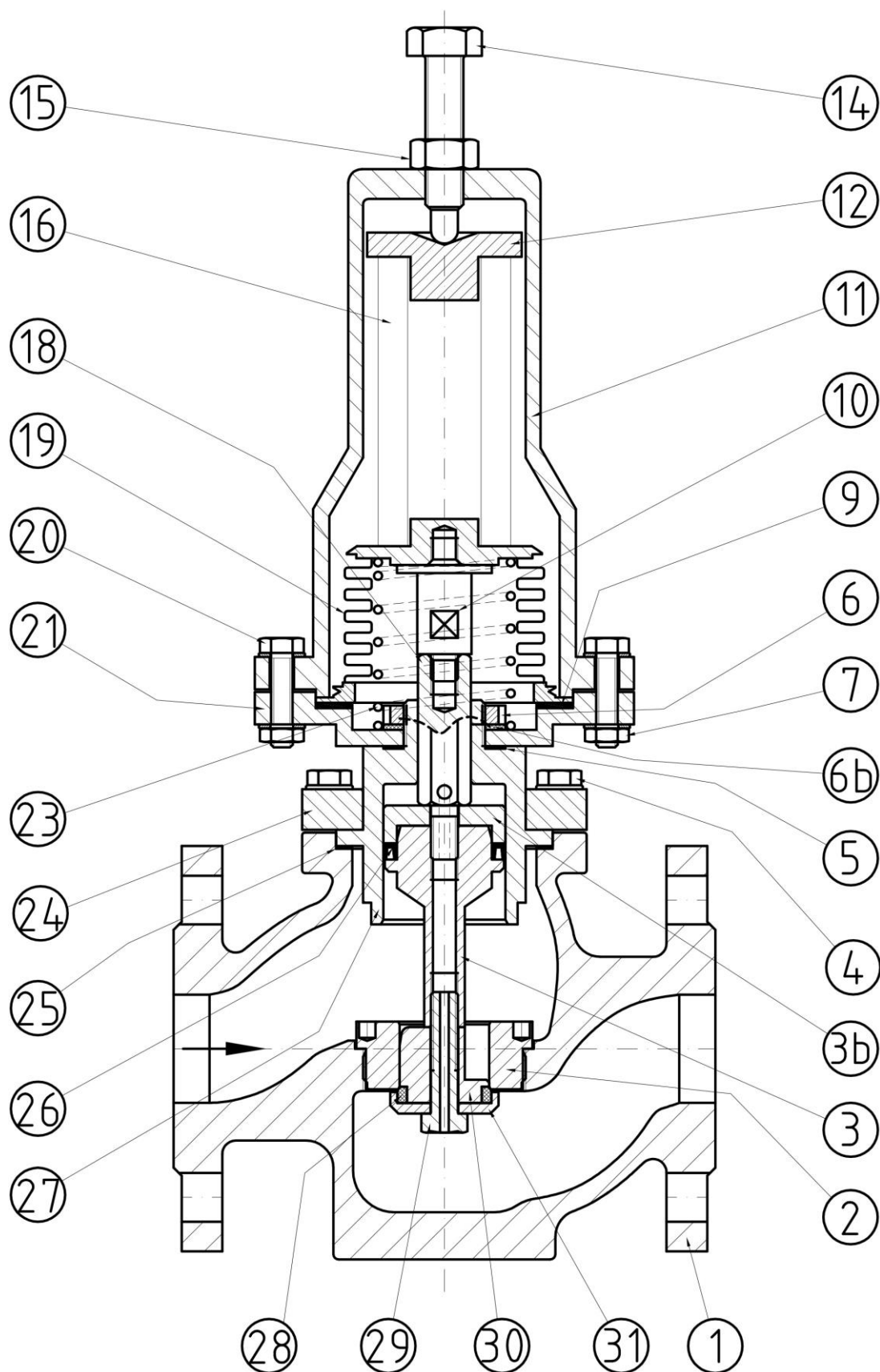
Medium flows through the valve as indicated by the arrow and force stem-piston-gasket (3 – 26 – 3b) to close the valve.

Outlet pressure is controlled rotating the screw (14) in clockwise direction. This causes displacement of the spring (16), which itself acts on the bellow (19) and closing (28, 30 and 31) opening the valve until it reaches the required downstream pressure.

Any variation on the upstream pressure will be absorbed by reducing by balancing gasket (26) and downstream by the bellow (19).



4. SCHEME





	Description	Material		Description	Material
1	Body	Nodular Iron EN-JS1049 (GGG40.3) Bronze RG10 Carbon Steel 1.0619 (A216 WCB) Stainless steel 1.4408 (A351 CF3M)	18	Stem	Stainless steel 1.4404 - SS 316L
2	Seat	Stainless steel 1.4404 - SS 316L	19	Bellow	Stainless Steel AISI 316Ti
3	Stem	Stainless steel 1.4404 - SS 316L	20	M8 Screw	Galvanized Steel 8.8 ** A2-70 Stainless steel
3b	Bushing Guide	Stainless steel 1.4404 - SS 316L	21	Bellow support	1.1191 Carbon Steel epoxy painted ** Stainless steel AISI 316L
4	Screw	Galvanized Steel 8.8 ** A2-70 Stainless steel	23	Support spring	Stainless steel Aisi 302
5	Gasket	PTFE	24	Cover	Galvanized Steel 1.1141 *** Stainless Steel AISI 316L
6	Nut	Stainless Steel AISI 316L	25	Gasket	Graphite
6b	Washer spring	Carbon Steel galvanized ** A2-70 Stainless steel	26	Gasket	Graphited PTFE + Stainless Steel spring *** NBR, EPDM, Viton, ...
7	Nut	A2-70 Stainless steel	27	Guide Stem	Stainless steel 1.4404 - SS 316L
9	Gasket	Graphite	28	Seal	Graphited PTFE *** NBR, EPDM, Viton, ...
10	Pusher	Stainless steel 1.4404 - SS 316L	29	Seal screw	A2-70 Stainless steel
11	Spring cover	1.1192 Carbon Steel epoxy painted *** Stainless steel AISI 316L	30	Guide seal	Stainless steel 1.4404 - SS 316L
12	Spring guide	1.1191 - Carbon Steel galvanized *** Stainless steel AISI 316L	31	Support seal	Stainless steel 1.4404 - SS 316L
14	Regulation screw	8.8 – Galvanized Carbon steel			
15	Regulation nut	8.8 – Galvanized Carbon steel			** Standard when Stainless steel 1.4408 (A351 CF3M) body selection
16	Regulation spring	Spring steel 52SiCrNi5 (epoxy painting 60-100 micras)			*** Option only under request
					Recommended spare parts



5. ASSEMBLY

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

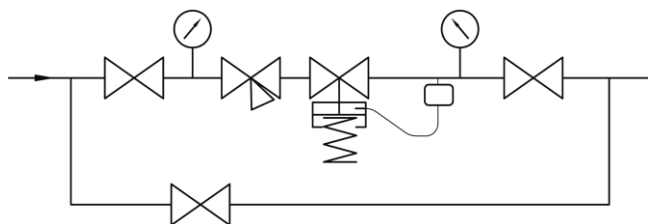
It is also very important to install a strainer in front of the valve in order to protect it.

Reducing valve must be installed in a horizontal pipe (preferably) and the direction of the flow should be in the same direction that shows the valve body.

The supports holding the valve will be done in the pipe and as close as possible to the flanges but never fixed in the valve or the actuator, to eliminate unnecessary tensions.

Installation in bypass

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



Control Line (optionally)

Pressure reducing valves will be supplied with the internal control line so external impulse pipe is not necessary.

However, if customer prefers an external impulse pipe, the control line must be connected to the main pipeline in downstream pressure, at least 1 meter (approx.) from the valve, through a tube (10 x 1 mm).

If after the valve, there is a distributor, the connection of the control line must be connected to the distributor, although there are several meters between them.

If the reducing valve oscillates, it is recommended to install a needle valve in the control line.

Condensating Pot

The Condensating Pot is not necessary

Start-up

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

The delivered regulator does not have a defined set point pressure because set point must be adjusted on starting up the plant. Adjust the set pressure (downstream pressure), turn the regulating screw. Compressing the spring (clockwise) increases the outlet pressure and decompressing the spring, decreases.



6. INSTALLATION DRAWINGS AND DIMENSIONS

DN	15	20	25	32	40	50	
Kv value	3,5	5	9	13,5	22	32	m ³ /h
A (EN PN40)	130	150	160	180	200	230	mm
A (ANSI 150 LB)	○	○	7,25	-	8,75	10	In.
A (ANSI 300 LB)	○	○	7,76	-	9,25	10,5	In.
H	340	340	350	350	365	365	mm
D	140						mm
Approx. Weight	11	12	14	15	18	22	kg

M2F valve should be installed in horizontal pipe and respecting the fluid flow direction must match the arrow on the valve body.

The strainer (item 2) must be installed upstream of the regulator to protect the valve parts and avoid excessive maintenance. Remember to leave enough space to remove and clean it.

As option, the valve could be delivered with external control line (item 8), so the distance between connection control line and valve would be, at least, 6xDN

- 1-Check Valve
- 2-Strainer
- 3-Pressure gauge P₁
- 4-Pressure gauge P₂
- 5-Pressure reducing valve M2F
- 6-Safety valve
- 8-External sensing line (OPTIONAL UNDER REQUEST)

Technical data

Nominal pressure	PN25 - PN40 or CLASS 150 - CLASS 300	
Nominal size	DN15 to DN25	DN40 to DN50
Max. permissible differential pressure Δp	25 bar	16 bar
Max. permissible temperature: body	Refer to technical sheet HT-101	
Max. permissible temperature: plug	PTFE+GR: 200°C PEEK: 200°C EPDM, FPM: 150°C NBR: 80°C	PTFE+GR: 200°C PEEK: 200°C EPDM, FPM: 150°C NBR: 80°C
Max. permissible temperature: actuator	Stainless steel bellow 200°C	



7. DISMANTLING AND ASSEMBLING THE VALVE

- a. Unscrew completely the adjusting screw (14) to loosen the spring.
- b. Ensure that there is no pressure in the pipe line and the temperature of valve and pipe is ambient.
- c. Unscrew bolts (20) and nuts (7).
- d. Remove upper actuator (11) and regulation spring (16). If necessary, replace bellow (19) and their gasket (9).
- e. Unscrew pusher (10) and remove the support spring (23).
- f. Unscrew and replace nut (6) with special tool to prevent the damage and lift the actuator (21).
- g. Unscrew cover bolts (5) and we lift the cover (24) and the guide (27).
- h. Lift and replace, if necessary, cover-body gasket (25).
- i. With a special tool (request to VALFONTA a drawing) unscrew seal (2) and remove rest of valve parts.
- j. In a workbench replace seat (28) and compensating gasket (26) if necessary.
- k. Check the seal to assure is not damaged.
- l. Clean and reassembly.

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



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.



9. ATEX marked required according to DIRECTIVE 94/9/EC

PENDING TO INCLUDE

 VALFONTA E 08915 – Badalona (ESPAÑA)	
TYPE: PRESSURE REDUCING 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)

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

$$T(x) \leq 5 \text{ mm } MIT_{layer} - 75 \text{ K}$$

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 it is degree is "Close", the devices will be completely shut out.

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