

PNEUMATIC CONTROL VALVES AND INSTRUMENTS

Code: FTC-VD277S_VD277SA-05_09_ENG

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DIAPHRAGM REGULATING VALVE with BLOCKING design VD277S

The regulating diaphragm valve with blocking **VD277S** EPTA® is a pressure regulator with industrial applications and in distribution networks. Its working principle is based in the pressures difference over the diaphragm which makes the regulation. It counts with an external regulation pilot P67S/2, an external variable restrictor RV2 and a filter F250. It also has a security system composed by a lock with an independent shutter.



VD277S

VD277SA/AR

A	MODELS	VD277S	with manual reset
		VD277SA/MN	with manual pneumatic reset
		VD277SA/AR	with automatic by relay reset

The blocking shooter mechanism in design VD277S is composed by a piston or diaphragm. The manual reposition is made by a wrench. In case of being used as an active valve with blocking, a noise attenuator will be added.

For the VD277SA/MN design, the blocking system can be due to high pressure or due to high and low pressure, and the replacement is manual.

For the VD277SA/AR design, the blocking system and automatic replacement are commanded by two pilots (cut due to high pressure and replacement due to low pressure) which set point values are adjustable.

B	SERVICE DATA	
	NORMAL SERVICES	Gases fluid
	MAXIMUM INLET PRESSURE	For thread NPT and Flange # 150 RF = 19 Kg/cm ² For thread NPT and Flange # 300 RF = 50 Kg/cm ² For thread NPT and Flange # 600 RF = 100 Kg/cm ²
	OUTLET PRESSURE	0,2 to 60 Kg./cm ² , depending on the pilot (ask for higher or lower pressures)
	MINIMUM Δp	1,5 Kg/cm ²
	TEMPERATURE RANGE	From -10°C to 60°C
	CONTROL CHARACTERISTIC	= %
	MINIMUM CONTROL PERCENTAGE	10% of the maximum capacity
	LEAKPROOFNESS	Class VI, according to ANSI B 16.104/76
	FAIL POSITION	Open (Fail to open)

NOTA: INDUSTRIAS EPTA S.R.L. reserves the right of replacing the specified materials and treatments by others with similar or better features, according to technical advances.

C	CONSTRUCTIVE DATA	
	BODIES SIZES	Ø 1" to Ø 8"
	CONNECTIONS TYPES	BOLT: NPT until Ø2", , according to ASME B16.11/96 Flanges: RF or RTJ # 150, # 300 o # 600, , according to ASME B16.5/96
	STANDARD CONSTRUCTION MATERIALS	Body and top: Carbon Steel Pilot: Stainless Steel Diaphragm: Acrile Nitrile
	OPTIONALS	Micro switch for locking indication. Stainless steel noise attenuator.

D	FLOW COEFFICIENT
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Cg formula (approximately):

$$C_g = 1,32 \times Q \times \sqrt{\frac{G}{\Delta p \times P_2}}$$

$C_v = C_1 \times C_g$

Where:

- Q = Flow in Nm³/hour
- G = Specific gravity of the gas, referred to the air
- P1 = Intake pressure in ATA
- P2 = Outtake pressure or Regulated in ATA
- Δp = Differential pressure (P1 - P2)
- For P2 < $\frac{P_1}{2}$; must be taken $\Delta p = P_2 = \frac{P_1}{2}$

DIAMETER	1"	1½"	2"	2½"	3"	4"	6"	8"
Maximum capacity coefficient (Cg x)	531	990	1.710	2.655	3.735	6.390	11.000	19.350
C₁	30							

E	GENERAL DIMENSIONS
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E.1. - MODEL VD277S

Note 1:

- - -: Interconnections to be done by the customer
The accessories assembled over the valves, an interconnected between each other.

Note 2: Necessary distance to the floor to disassemble the blocking system.

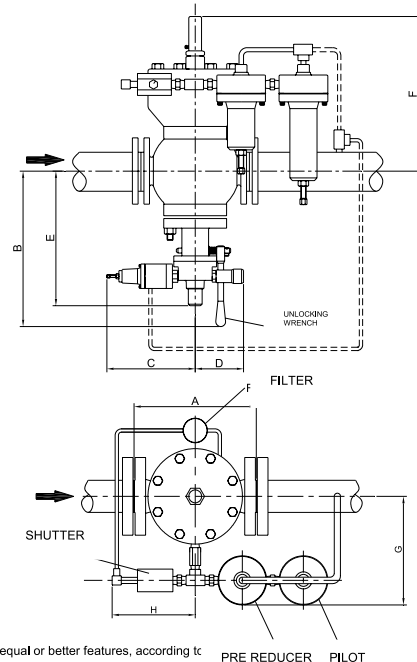


Figure N° 3

Valve size	A (mm)				B (mm)	C (mm)	D (mm)	E (mm)	F (mm)	G (mm)	H (mm)	Ver nota 2
	Threaded	#150 RF	#300 RF	#600 RF								
1"	210	184	197	210	370	275	140	324	305	170	170	120
1 1/2"	251	222	235	251	374	275	140	328	311	171	170	120
2"	286	254	267	286	393	275	140	347	307	186	170	164
2 1/2"	-	276	292	311	442	275	140	396	351	192	170	214
3"	-	298	317	337	337	275	140	399	351	214	170	206
4"	-	353	368	394	475	275	140	429	392	228	170	260
6"	-	451	473	508	478	275	140	432	519	270	170	282
8"	-	543	568,5	609,5	700	310	170	600	627	350	170	450

(Dimensions for RTJ connections, are supplied under requirement)

E.2. - MODEL VD277SA/AR

Note 1:

--: Interconnections must be done by the customer
All the accessories go assembled over the valves, an interconnected between each other.

Note 2: Necessary distance to the floor to disassemble the locking system.

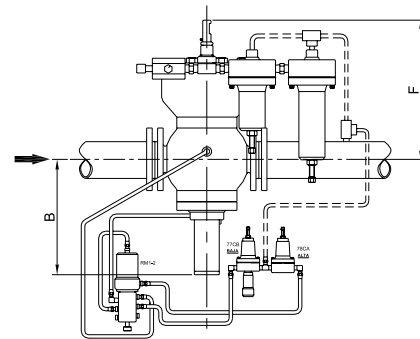
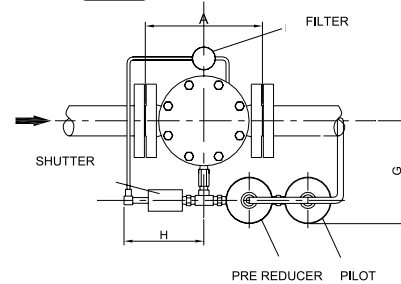


Figure N° 4



Valve size	A (mm)				B (mm)	F (mm)	G (mm)	H (mm)	Ver nota 2
	Threaded	#150 RF	#300 RF	#600 RF					
1"	210	184	197	210	340	305	170	170	120
1 1/2"	251	222	235	251	344	311	171	170	120
2"	286	254	267	286	362	307	186	170	164
2 1/2"	-	276	292	311	411	351	192	170	214
3"	-	298	317	337	414	351	214	170	206
4"	-	353	368	394	445	392	228	170	260
6"	-	451	473	508	497	519	270	170	282
8"	-	543	568.5	609.5	690	627	295	170	300

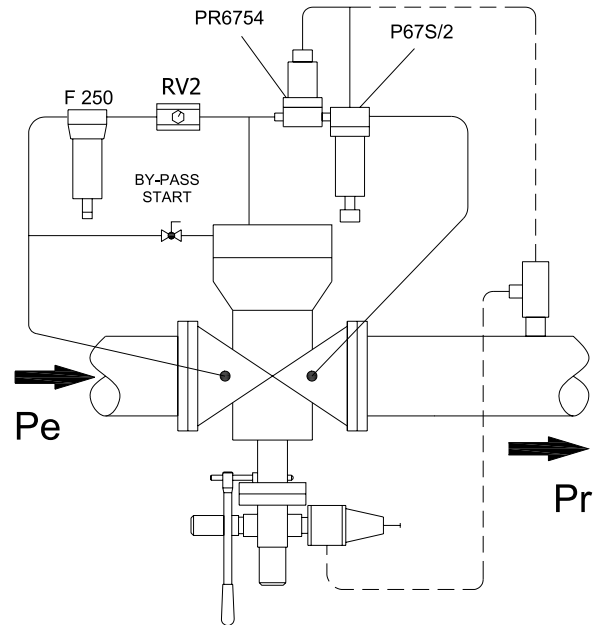
(Dimensions for RTJ connections, are supplied under requirement)

F	INSTALLATION SCHEME
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F.1. - MODEL VD277S

Note 1:

---: Interconnections must be done by the customer
 All the accessories go assembled over the valves, an interconnected between each other.

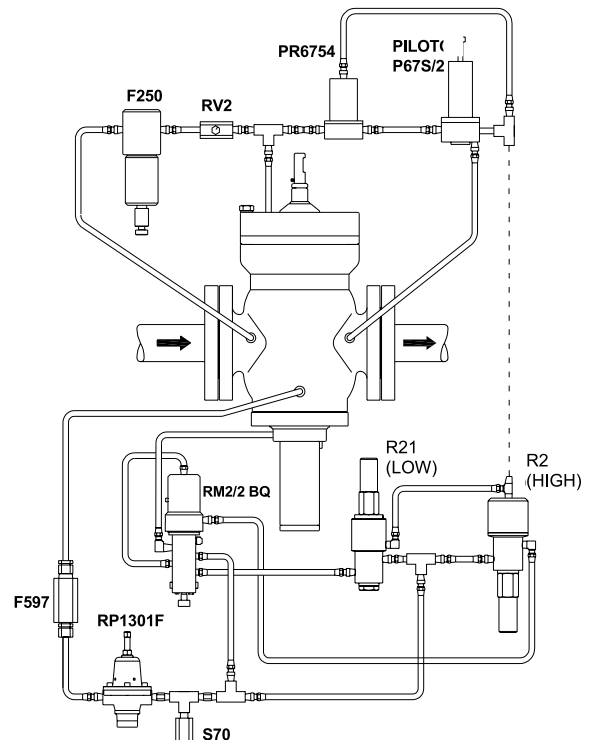


FOR SHUT DOWN PRESSURES > 15bar

F.2. - MODEL VD277SA/AR

Note 1:

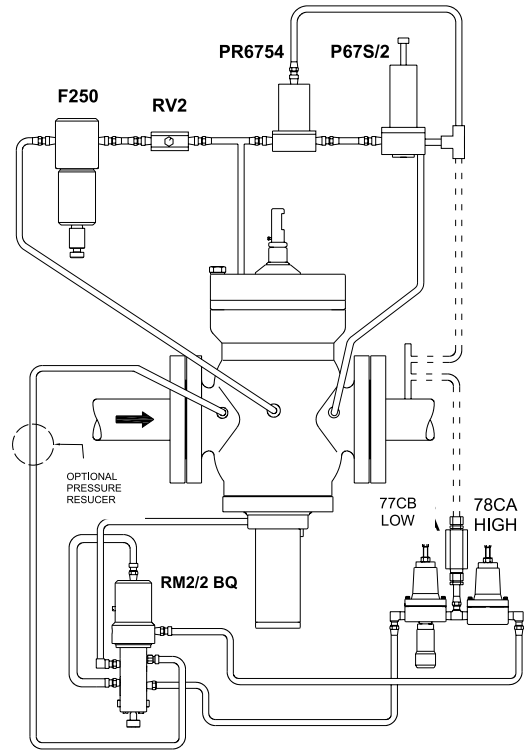
---: Interconnections must be done by the customer
 All the accessories go assembled over the valves, an interconnected between each other.



F.3. - MODEL VD277SA/AR with pre-shutter

FOR SHUT DOWN PRESSURES $\leq 15\text{bar}$ **Note 1:**

-- : Interconnections must be done by the customer
All the accessories go assembled over the valves, an interconnected between each other.



PNEUMATIC CONTROL VALVES AND INSTRUMENTS

Code: FTC-VD277-05_09

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REGULATING DIAPHRAGM VALVE design VD277

The **VD277** design valve EPTA® is a pressure regulator with industrial applications and distribution networks. Its working principle is based on the pressures difference over the diaphragm which makes the regulation. It counts with a pilot with external regulation P67S/2, an external variable restrictor RV2 and a filter F250.



Figure N° 1

A	MODELS	VD277
		VD277 MC-E1 remote signal commanded 4 – 20 mA
		VD277A for relief
		VD277H for high pressure

B	SERVICE DATA	
	NORMAL SERVICES	Gas and eventually liquid fluids
	MAXIMUM INLET PRESSURE	For thread NPT and Flange # 150 RF = 19 Kg/cm ² For thread NPT and Flange # 300 RF = 50 Kg/cm ² For thread NPT and Flange # 600 RF = 100 Kg/cm ² For flange # 900 RF and RTJ = 120 Kg/cm ² (ask for higher pressures)
	OUTLET PRESSURE	0,2 to 60 Kg/cm ² , depending on the pilot (ask for higher or lower pressures)
	MINIMUM Δp	1,5 Kg/cm ²
	TEMPERATURE RANGE	from -10°C to 60°C
	CONTROL CHARACTERISTIC	= %
	MINIMUM CONTROL PERCENTAGE	10% of the maximum capacity
	LEAKPROOFNESS	Class VI, according to ANSI B 16.104/76
	FAIL POSITION	Open (Fail to open)

NOTE INDUSTRIAS EPTA S.R.L. L reserves its right of replacing the specified materials and treatments by others with equal or better features, according to technical advances.

CONSTRUCTIVE DATA	
BODY SIZES	Ø 1" to Ø 10" for VD277, VD277 MC-E1 and VD277A Ø 1" to Ø 6" for VD277H
CONNECTION TYPES	For VD277, VD277 MC-E1 y VD277A : Bolt: NPT hasta Ø2", according to ASME B16.11/96 Flanges: RF or RTJ # 150, # 300# or # 600, according to ASME B16.5/96 For VD277H : Flanges: RF or RTJ # 900, according to ASME B16.5/96
STANDARD CONSTRUCTION MATERIALS	Body and top: Carbon Steel Pilot: Stainless Steel Diaphragm: Acrile Nitrile
OPTIONALS	Stainless steel noise attenuator.

D FLOW COEFFICIENT

Cg formula (approximately):

$$C_g = 1,32 \times Q \times \sqrt{\frac{G}{\Delta p \times P_2}}$$

Where:

- Q = Flow in Nm³/hour
- G = Specific gravity of the gas, referred to the air
- P1 = Intake pressure in ATA
- P2 = Outtake pressure or Regulated in ATA
- Δp = Differential pressure (P1 - P2)
- For P2 < $\frac{P_1}{2}$; must be taken $\Delta p = P_2 = \frac{P_1}{2}$

DIAMETER	1"	1½"	2"	2½"	3"	4"	6"	8"	10"
Maximum capacity coefficient (Cg x)	590	1.100	1.900	2.950	4.150	7.100	12.000	21.500	31.000
C ₁	30								

E GENERAL DIMENTIONS

For the four models:

Note 1:

---: Interconnections to be done by the costumer
All the accessories go assembled over the valves, and interconnected between each other.

Dimensions for RTJ connections, are supplied under requirement

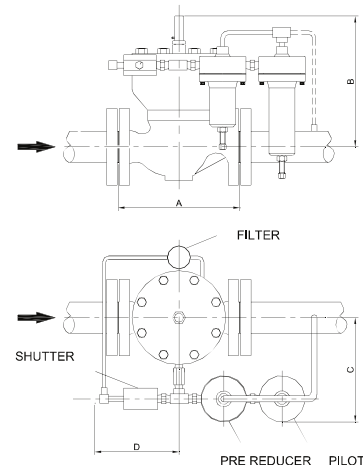
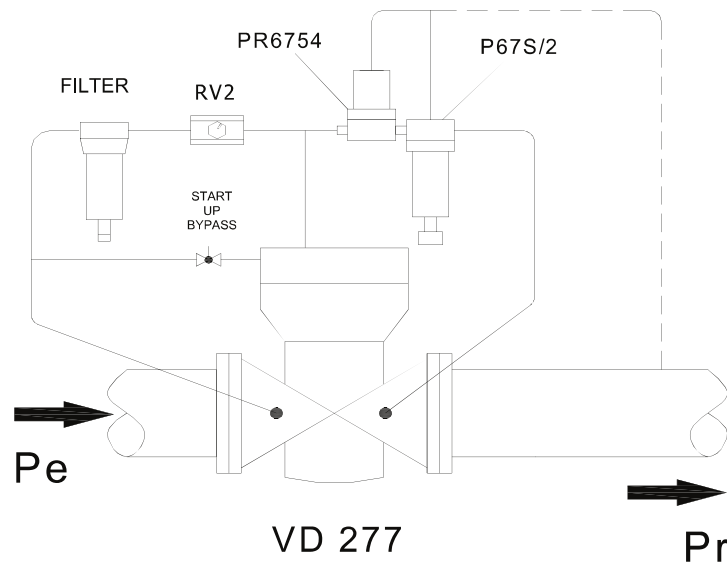


Figure N° 2

Valve size	A (mm)				B (mm)	C (mm)	D (mm)
	Threaded	#150 RF	#300 RF	#600 RF			
1"	210	184	197	210	282	170	170
1 1/2"	251	222	235	251	288	171	170
2"	286	254	267	286	314	186	170
2 1/2"	-	276	292	311	375	192	170
3"	-	298	317	337	358	214	170
4"	-	353	368	394	526	228	170
6"	-	451	473	508	650	270	170
8"	-	543	568,5	609,5	650	350	170
10"	-	673	708	753	700	420	170

(Dimensions for RTJ connections are supplied under requirement)

F SET UP SCHEME



Note : All the accessories go assembled over the valves, an interconnected between each other.

The BY-PASS is used only for valves in valves higher than 4".

- - -: Interconnections must be done by the costumer.

Figure N° 3