Pietro Fiorentini

Dival 500

Pressure Regulators

Classification and Range of use

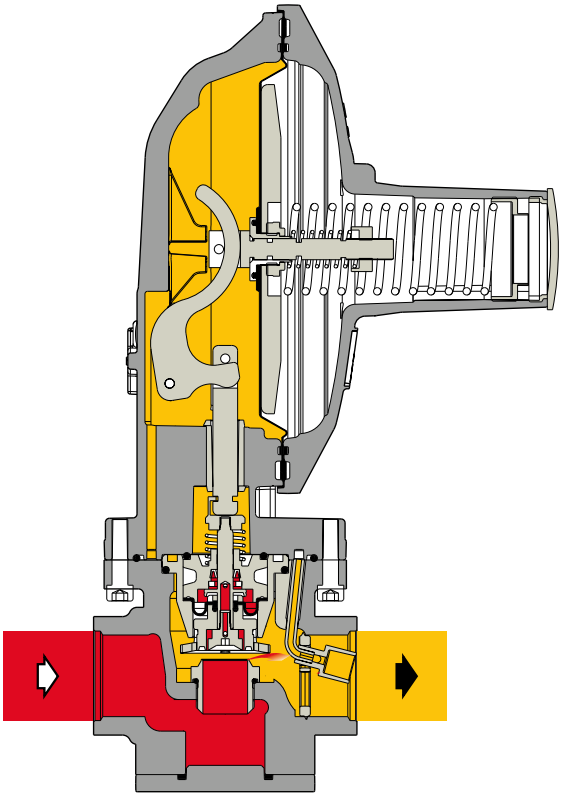
The **DIVAL 500** is a downstream direct-acting pressure regulator with balanced valve for low, medium and high pressures.

It is used with filtered, gases, non-corrosive liquids; thanks to the concept of a balanced valve, you can achieve a high flow rate coefficient, highly accurate (even at maximum flow rates), a lock up zone and relatively low lock up pressure, with bubble tight lock up at zero flow rate and reduced response times.

The constancy of the regulated pressure and its accuracy, even with significant changes in the upstream pressure and/or flow rate, make the **DIVAL 500** regulator especially suitable for power distribution networks in commercial and industrial applications.

It is built with a **TOP ENTRY** which gives the regulator important control advantages among which, for example, the ability to carry out full maintenance on it without removing it from the connection pipework.

The basic version of the **DIVAL 500** regulator is classified as a **Fail to Open** regulator.



DIVAL - Basic version

FEATURES

Operating Features

Maximum inlet pressure:	145 PSIG for BP version 290 PSIG for MP and TR versions 145 PSIG for Ductile Iron body 290 PSIG for Aluminum body
Downstream pressure regulation range:	BP - 4.8” W.C. - 1.45 PSIG MP - 1.45 PSIG - 4.35 PSIG TR - 4.35 PSIG - 36.26 PSIG
AC accuracy class:	up to 5%
SG lock up over pressure:	up to 10%
Minimum ambient temperature:	Operation up to -40°F (to be specified in the request).
Maximum ambient temperature:	+140°F
Inlet flowing gas temperature:	Must be higher than -4°F to 140°F maximum

Construction Features:

Body sizes available:	1” X 1" and 1" X 1”1/2
Connections:	See connections available on configurator 1" to 2" NPT and 2" ANSI 150 Sliding Flanges

Materials: *

Body:	Cast Iron GJS 400–18 UNI EN 1563 Aluminium EN AC 43300 UNI EN
Covers:	Aluminium EN AC 43500 UNI EN 1706
Diaphragm:	Fabric Finish Rubber (pre-formed using hot moulding process)
Seat:	Brass / Stainless steel
O-rings:	Nitrile rubber

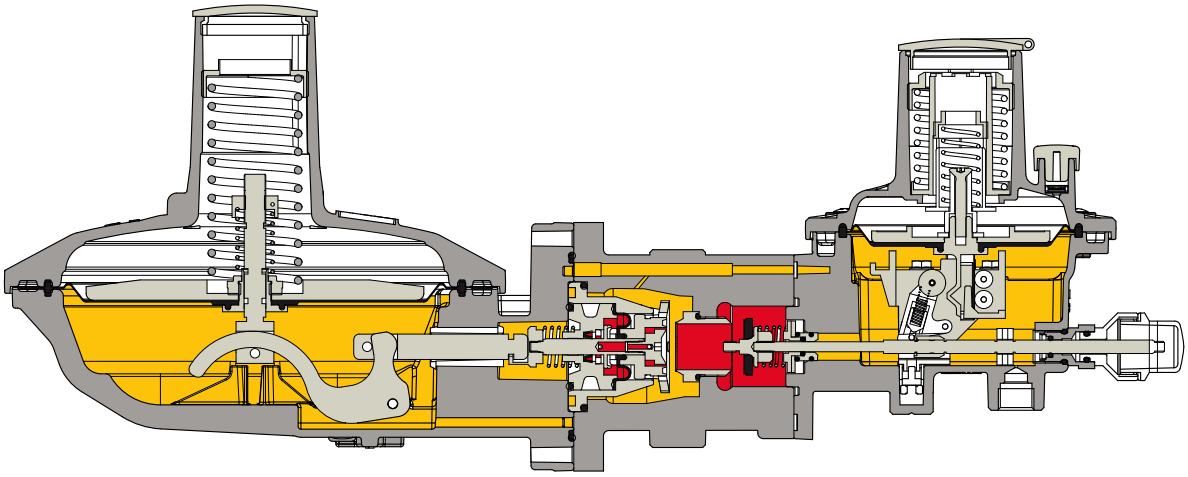
NOTE: * The above materials refer to standard operations.
Different materials can be provided for specific needs.

MODULARITY AND ACCESSORIES

The **DIVAL 500** has been designed with a high degree of modularity for incorporating alternative devices and acces-sories in the basic version.

SHUT-OFF DEVICE model LA/...

This is a **Safety Accessory** that shuts off the gas flow when there are abnormal pressure conditions compared to the set point of the pressure switch device.
The set point can be changed, according to the operating requirements, within the ranges on the table below, and depending on the pressure switch model provided.
For safety reasons the shut-off device can only be reset manually and inside the slam-shut there is a by-pass device that facilitates resetting.
The Accuracy class of the shut-off device is up to **AG 1%**.



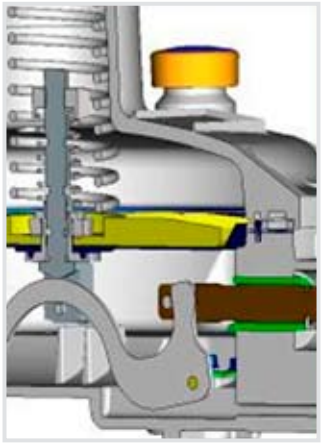
The shut-off device can be set for pressure increase, **Over Pressure Shut-Off (OPSO)** and/or for pressure decrease, **Under Pressure Shut-Off (UPSO)**.
The two modes can be set independently by individual springs: one spring for the maximum pressure intervention and the second spring for the minimum pressure intervention.

INCORPORATED RELIEF VALVE

The **Dival 500** series can be equipped with an incorporated token relief valve that discharges the gas into the atmosphere when the regulator outlet pressure exceeds the set value. The token relief can be either activated or deactiveated. The events that can lead to the valve opening are:

- pressure peaks caused by the downstream valve rapidly closing (in the event of small volumes)
- thermal expansion of the downstream gas in the absence of flow.

When the outlet pressure returns to below the set value, the relief valve closes again.

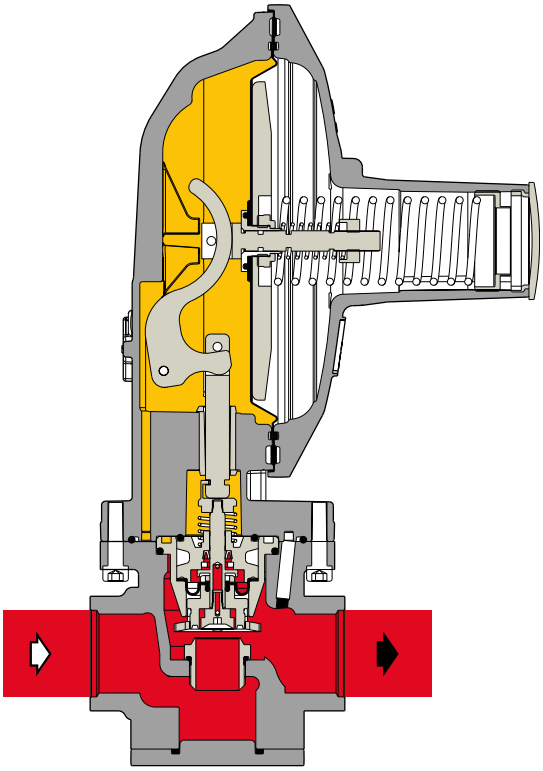


OPERATION AS A MONITOR

The **MONITOR** is a safety accessory that performs the functions of the service regulator when the main regulator fails.

This is a regulator valve that is usually fully open during normal operation of the service regulator. The **MONITOR** is an emergency pressure regulator that is usually upstream, in the direction of the gas flow, of another pressure regulator that performs the function of a **SERVICE** regulator.

So that a **DIVAL 500** regulator can perform the **MONITOR** function,you need to block the internal pressure sensing and use the external pressure tap on the lower diaphragm case.



Control heads

The pressure ranges are determined by the control heads. The table below summarizes the heads available and the obtainable regulated pressure ranges in " W.C. and PSIG.

Regulator

Head	
BP	6” W.C. - 1.45 PSIG
MP	1.45 PSIG - 4.35 PSIG
TR	4.35 PSIG - 36.26 PSIG

Shut-off device

Pressure switches	LA
Set point range for pressure increase (OPSO)	12" W.C. - 79 PSIG
Set point range for pressure decrease (UPSO)	2.2" W.C.- 50.76 PSIG

The obtainable pressure ranges are in "W.C. and PSIG.

Sizing the Pressure regulator

The regulator is usually chosen on the basis of the flow rate calculation determined through use of the flow rate coefficients (Cg or KG), as indicated by Standard EN 334.

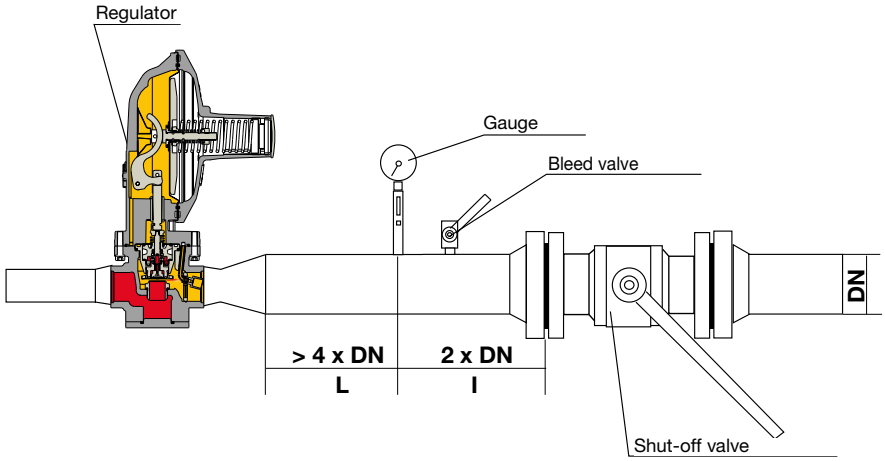
However, the analytical calculation method does not correctly size the regulator as the obtainable theoretical flow rate should not be considered, but only a percentage of it, which is variable in every situation, based on the required accuracy class and the available pressure difference.

Please contact the sales office for correct sizing or use our sizing program.

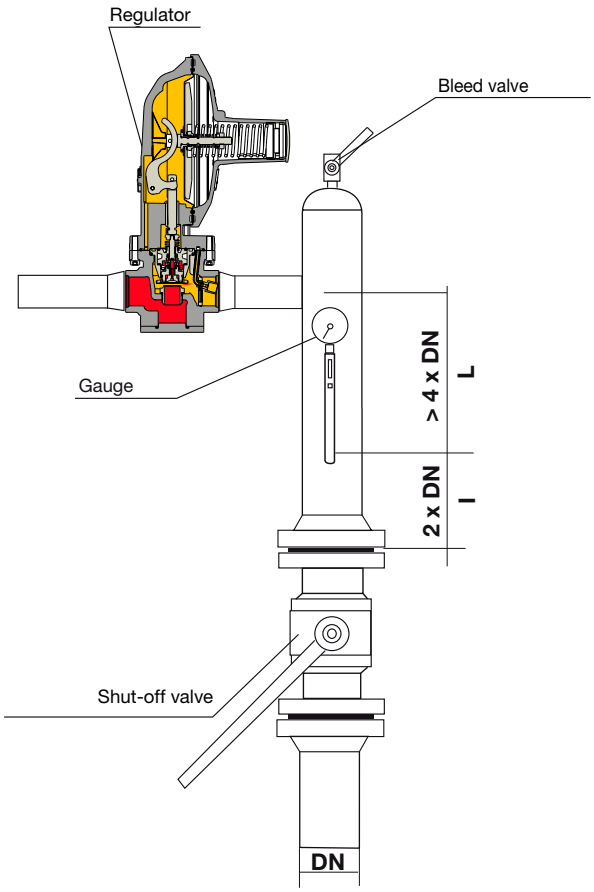
TYPICAL CONNECTION DIAGRAMS

The following examples are provided as a recommendation to get the best performance from the **DIVAL 500** regulator.

IN-LINE INSTALLATION



ANGLE INSTALLATION



Inlet pressure

Outlet pressure

RECOMMENDED INSTALLATIONS

DIVAL 500 1" WITH INTERNAL SENSING LINE

Pd: 6" w.c. -1.45 PSIG BP Flow rate scf/h G.N.				Pd: 1.45-4.35 PSIG MP Flow rate scf/h G.N.				Pd: 4.35-14.50 PSIG MP Flow rate scf/h G.N.				Pd: 14.50-43.51 PSIG BP Flow rate scf/h G.N.			
Pu PSIG	AC5	AC10	AC20	Pu PSIG	AC5	AC10	AC20	Pu PSIG	AC5	AC10	AC20	Pu PSIG	AC5	AC10	AC20
Pd +7.25	1,766	3,355	3,708	Pd +7.25	3,844	4,590	4,943	Pd +7.25	1,766	2,825	3,531	Pd +7.25	3,531	5,650	7,063
Pd +14	1,766	4,414	4,943	Pd +14.5	5,296	6,355	7,240	Pd +14.5	2,825	4,591	5,297	Pd +14.5	5,297	9,535	10,594
Pd +36.25	3,531	4,414	4,943	Pd + 36.25	8,827	10,593	10,593	Pd +36.25	4,238	7,063	8,829	Pd +36.25	10,594	16,951	17,667
Pd +72.5	3,178	4,943	5,650	Pd +72.5	10,593	10,593	10,593	Pd +72.5	4,591	12,360	12,360	Pd +72.5	12,360	12,360	12,360

DIVAL 500 1" WITH EXTERNAL SENSING LINE

Pd: 6" w.c. -1.45 PSIG BP Flow rate scf/h G.N.				Pd: 4.35-14.50 PSIG MP Flow rate scf/h G.N.				Pd: 14.50-43.51 PSIG BP Flow rate scf/h G.N.			
Pu PSIG	AC5	AC10	AC20	Pu PSIG	AC5	AC10	AC20	Pu PSIG	AC5	AC10	AC20
Pd +7.25	1,766	2,825	3,531	Pd +7.25	1,766	2,825	3,531	Pd +7.25	3,531	5,650	7,063
Pd + 14.5	2,825	4,944	5,297	Pd +14.5	2,649	4,591	5,297	Pd +14.5	5,297	9,535	10,594
Pd +36.25	4,238	7,240	8,476	Pd +36.25	4,238	7,063	8,829	Pd +36.25	10,594	16,591	17,657
Pd +72.5	4,944	8,829	10,594	Pd +72.5	4,591	12,360	12,360	Pd +72.5	12,360	12,360	12,360

DIVAL 500 1 1/2" WITH INTERNAL SENSING LINE

Pd: 6" w.c. -1.45 PSIG BP Flow rate scf/h G.N.				Pd: 1.45-4.35 PSIG MP Flow rate scf/h G.N.				Pd: 4.35-14.50 PSIG MP Flow rate scf/h G.N. Pu				Pd: 14.50-43.51 PSIG BP Flow rate scf/h G.N.			
Pu PSI	AC5	AC10	AC20	Pu PSI	AC5	AC10	AC20	Pu PSI	AC5	AC10	AC20	Pu PSI	AC5	AC10	AC20
Pd +7.25	2,649	3,531	3,885	Pd +7.25	4,238	5,297	6,003	Pd +7.25	2,199	3,178	3,885	Pd +7.25	3,885	5,650	7,063
Pd +14.5	5,650	6,357	7,063	Pd + 14.5	6,003	8,829	9,888	Pd +14.5	2,649	4,944	5,650	Pd +14.5	6,357	12,360	14,126
Pd +36.25	4,944	7,063	7,063	Pd +36.25	8,829	13,419	14,126	Pd +36.25	5,650	8,829	9,888	Pd +36.25	11,300	17,657	17,657
Pd +72.5	4,591	5,650	6,357	Pd +72.5	10,594	14,126	15,892	Pd +72.5	12,360	15,892	17,657	Pd +72.5	12,360	17,657	17,657

DIVAL 500 1 1/2" WITH EXTERNAL SENSING LINE

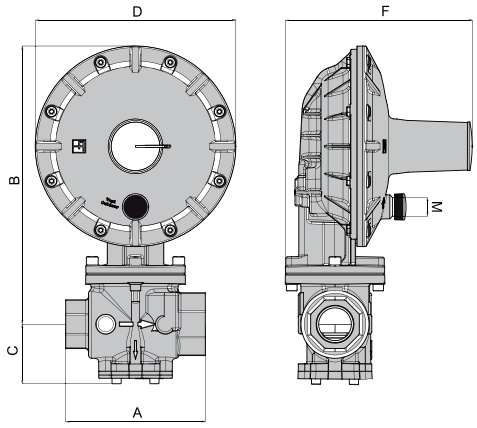
Pd: 6" w.c.-1.45 PSIG BP Flow rate scf/h G.N.				Pd: 1.45-4.35 PSIG MP Flow rate scf/h G.N.				Pd: 4.35-14.50 PSIG MP Flow rate scf/h G.N.				Pd: 14.50-43.51 PSIG BP Flow rate scf/h G.N.			
Pu PSI	AC5	AC10	AC20	Pu PSI	AC5	AC10	AC20	Pu PSIG	AC5	AC10	AC20	Pu PSIG	AC5	AC10	AC20
Pd +7.25	2,649	3,885	4,061	Pd +7.25	3,531	5,650	6,357	Pd +7.25	2,199	3,178	3,885	Pd +7.25	3,885	5,650	7,063
Pd +14.5	5,650	6,003	5,297	Pd +14.5	5,650	8,475	9,888	Pd +14.5	2,649	4,944	5,650	Pd +14.5	6,357	14,126	14,126
Pd +36.25	10,594	14,126	14,126	Pd +36.25	17,657	17,657	17,657	Pd +36.25	5,650	8,829	9,888	Pd +36.25	11,300	17,657	17,657
Pd +72.5	7,063	8,829	10,594	Pd +72.5	17,657	17,657	17,657	Pd +72.5	12,360	15,892	17,657	Pd +72.5	12,360	17,657	17,657

LPG flow rate:
- multiply the value in the table x .63

Air flow rate:
- multiply the value in the table x 0.789

LEGEND:
- Pd: Outlet pressure
- Pu: Inlet pressure
- Ac: Accuracy

DIVAL 500 DIMENSIONS



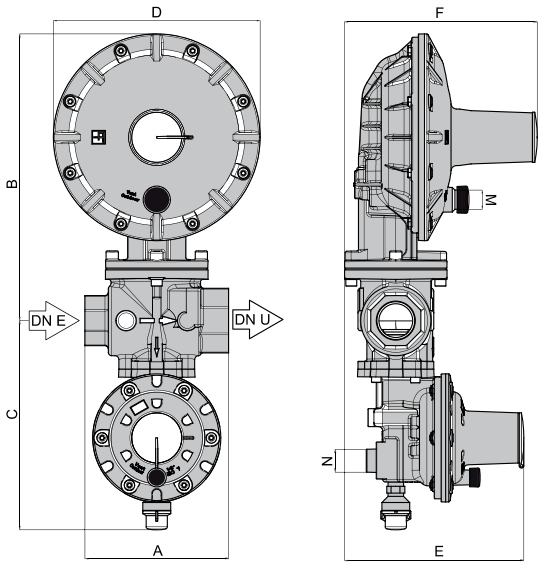
Overall dimensions in inches

Dival 500		
	Dival 500 1”x1”	**Dival 500 1”x1”1/2**
A	6.25	7.5
B	10.0	10.1
C	1.7	2.0
D	7.25	7.25
F	6.81	6.81
DnE	1” NPT	1” NPT
DnU	1” NPT	1”1/2 NPT

Weights in Lb.s

	25	**40**
Inches	1”	1”1/2
Dival 500	8.0	8.3

DIVAL 500 DIMENSIONS + LA



Overall dimensions in inches

Dival 500 + LA		
	Dival 500 + LA 1”x1”	**Dival 500 + LA 1”x1”1/2**
A	6.25	7.5
B	11.8	12.1
C	7.2	7.4
D	7.25	7.25
E	6.4	6.4
F	6.81	6.81
N	1/4”	1/4”
M	1/4”	1/4”
DnE	1” NPT	1” NPT
DnU	1” NPT	1”1/2 NPT

Weights in Lbs

	25	**40**
Inches	1”	1”1/2
Dival 500 + LA	9.3	9.7

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The data are not binding. We reserve the right to make changes without prior notice.