

# Dival 500

Medium - Low Pressure Gas Regulator



**TECHNICAL BROCHURE**

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# Who we are

We are a global organization that specializes in designing and manufacturing technologically advanced solutions for natural gas treatment, transmission and distribution systems.

We are the ideal partner for operators in the Oil & Gas sector, with a business solutions that span the whole natural gas chain.

We are constantly evolving to meet our customers' highest expectations in terms of quality and reliability.

Our aim is to be a step ahead of the competition, with customized technologies and an after-sale service program undertaken with the highest level of professionalism.



## Pietro Fiorentini advantages



Localized technical support

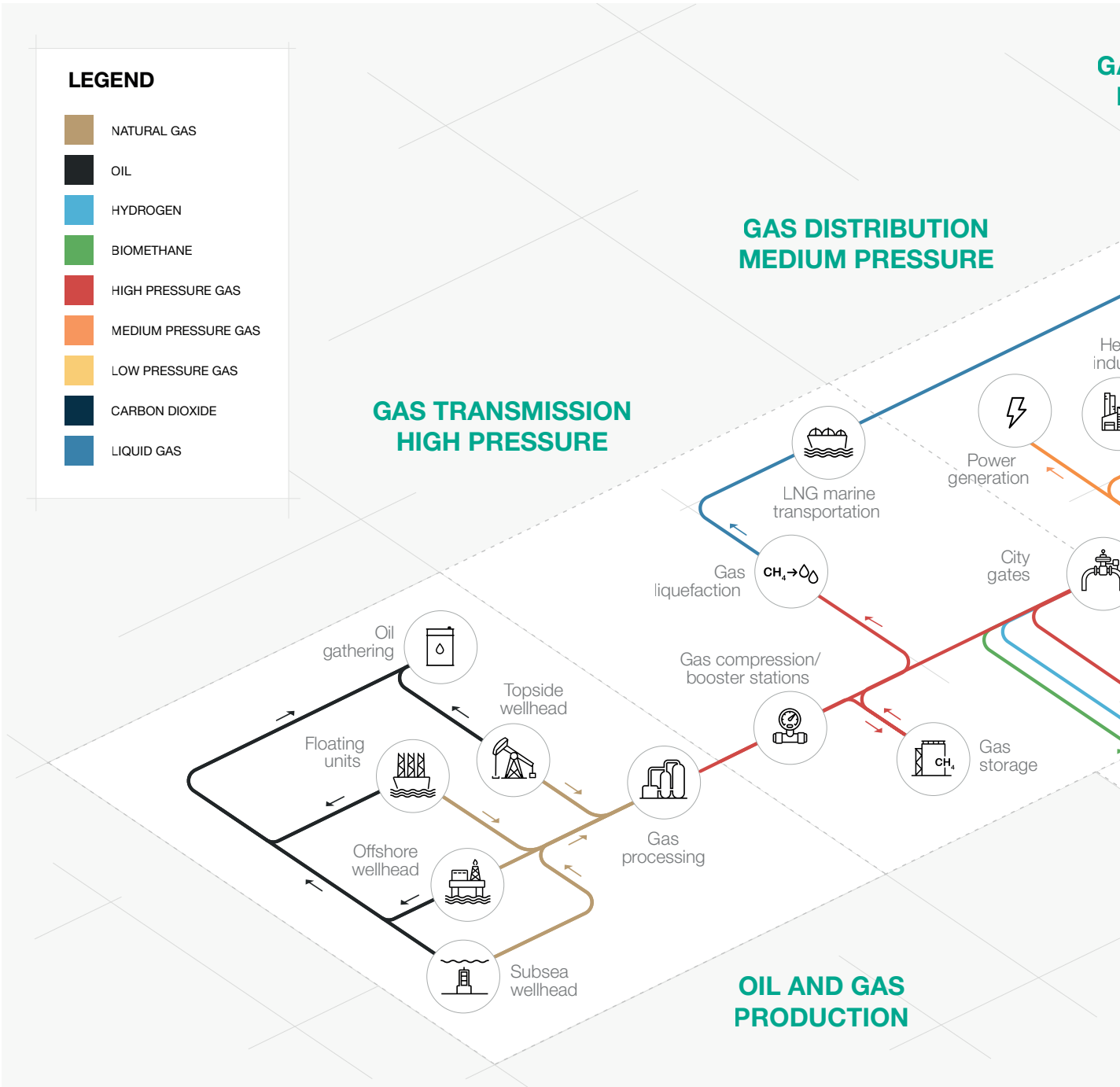


Experience since 1940



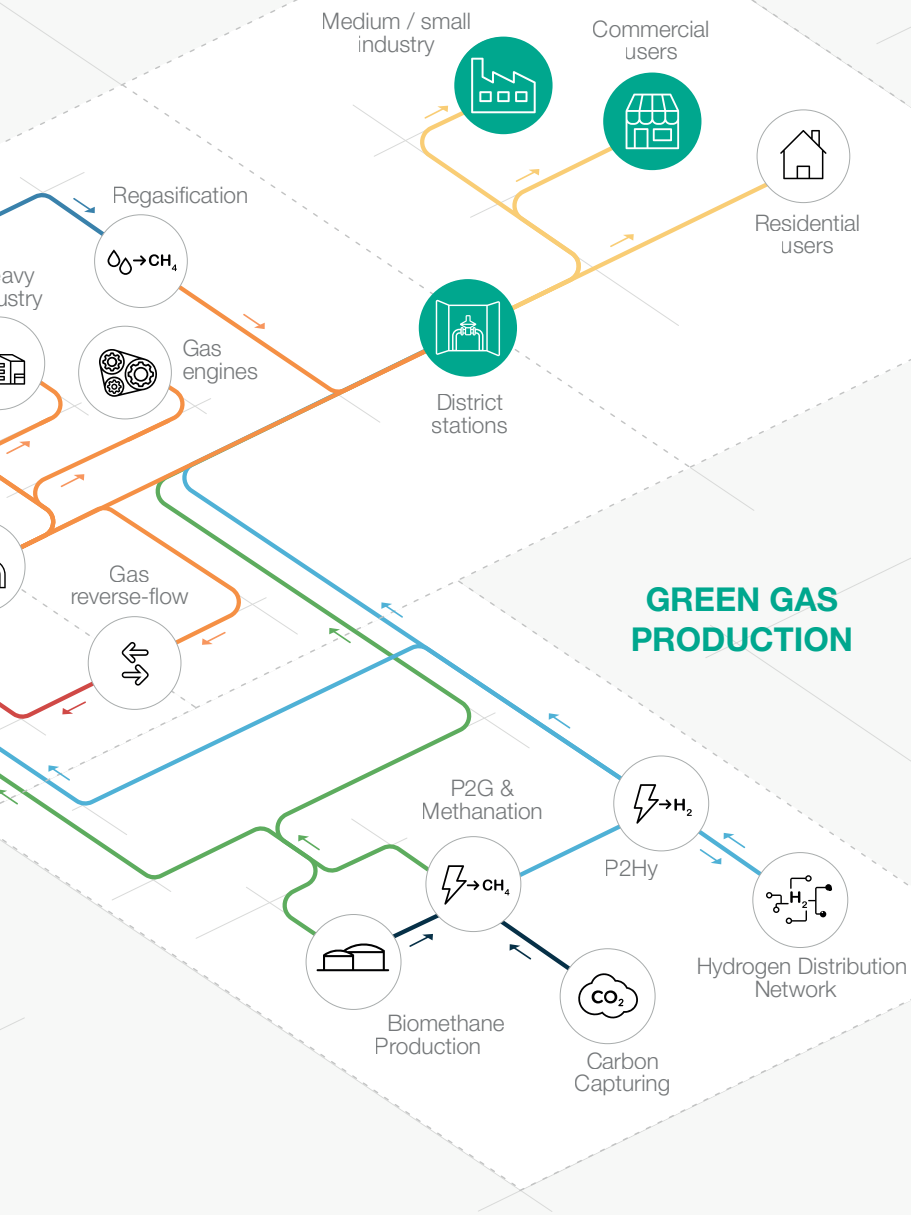
Operating in over 100 countries

# Area of Application



Green icon indicates the application where this product is suitable for

## AS DISTRIBUTION LOW PRESSURE



# Introduction

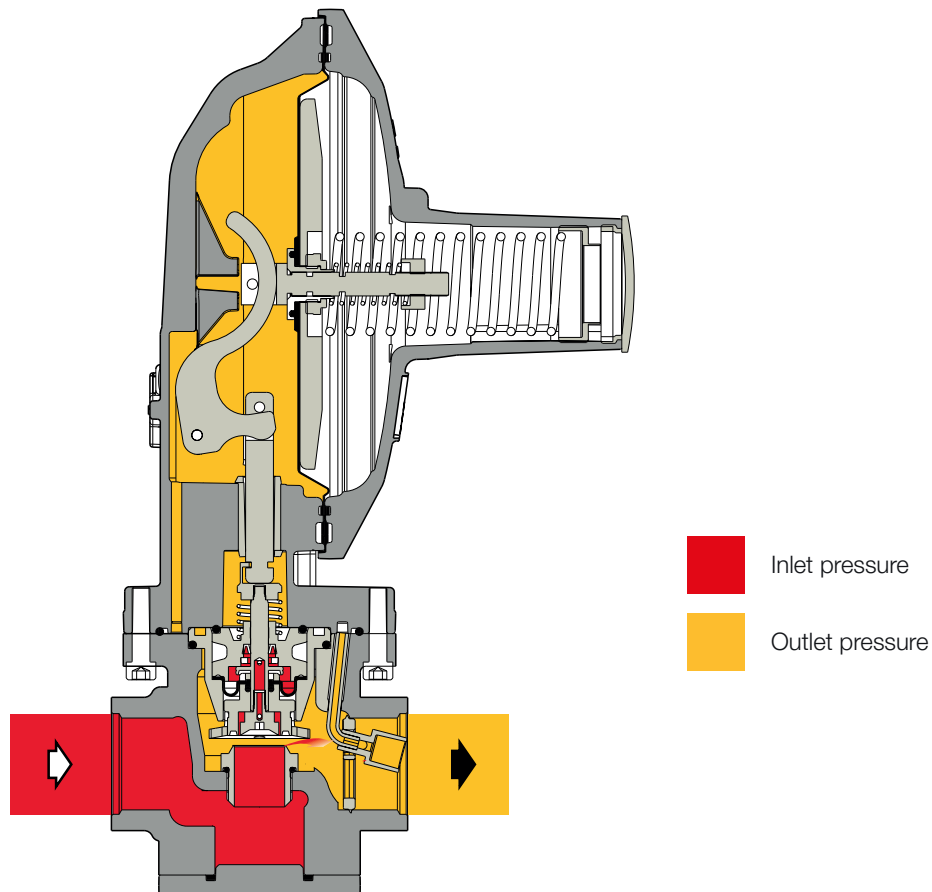
The **Dival 500** by Pietro Fiorentini is a **lever-operated** gas pressure regulator controlled by a diaphragm and contrasting regulated spring action.

Mainly used for medium and low pressure natural gas distribution networks, as well as commercial and industrial applications.

It should to be used with previously filtered non-corrosive gases.

According to the European Standard EN 334, it is classified as **Fail Open**.

The Dival 500 is **Hydrogen Ready** for NG-H2 blending.



**Figure 1** Dival 500

# Features and Calibration ranges

The **Dival 500** is a **lever-operated** device for medium and low pressure with a unique **dynamic balancing system** which ensures an **outstanding turndown ratio** combined with an extremely **accurate outlet pressure control**.

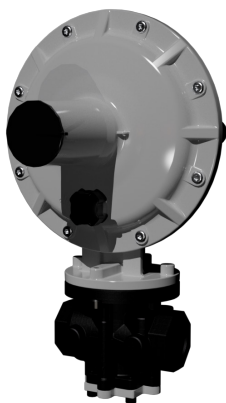
A balanced pressure regulator it is a pressure regulator where delivery pressure accuracy is not affected by the fluctuation of the inlet pressure and flow during its operation. Therefore, a balanced pressure regulator can have a single orifice for all pressure and flow operating conditions.

This regulator is suitable for use with previously filtered, non-corrosive gases and distribution networks as well as high load industrial applications.

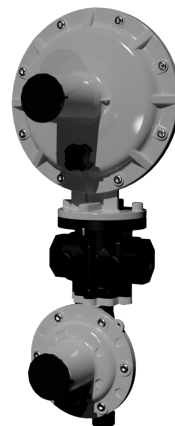
It is a **truly top entry design** which allows an **easy maintenance** of parts directly in the field **without removing the body from the pipework**.

Set point adjustment of the regulator is operated via a spring located in the top chamber.

The modular design of the Dival 500 pressure regulators allows to install built-in slam shut valve LA.



**Figure 2** Dival 500



**Figure 3** Dival 500 with LA

## Dival 500 competitive advantages



Balanced type



Operates with low differential pressure



High accuracy



Fail Open plug and seat regulator



Token IRV



Internal sensing line



Top Entry



Easy maintenance



Built-in accessories



Biomethane compatible and 20% Hydrogen blending compatible. Higher blending available on request

## Features

| Features  | Values   |
|---|--|
| Design pressure* (PS <sup>1</sup> / DP <sup>2</sup> )                     | up to 1 MPa for BP, up to 2 MPa for MP and TR<br>up to 145 psig for BP, up to 290 psig for MP and TR   |
| Ambient temperature* (TS <sup>1</sup> )**                                 | from -20 °C to +60 °C<br>from -4 °F to +140 °F   |
| Inlet gas temperature* ,***   | from -20 °C to +60 °C<br>from -4 °F to +140 °F   |
| Inlet pressure (MAOP / p <sub>umax</sub> <sup>1</sup> )                   | <ul style="list-style-type: none"> <li>from (Pd + 0.01) MPa to 1 MPa from BP</li> <li>from (Pd + 0.01) MPa to 2 MPa for MP and TR</li> <li>from (Pd + 1.45) psig to 145 psig from BP</li> <li>from (Pd + 1.45) psig to 290 psig for MP and TR</li> </ul> |
| Range of downstream pressure (Wd <sup>1</sup> )                           | <ul style="list-style-type: none"> <li>from 1.3 to 10 kPa for BP, from 10 to 30 kPa for MP, from 30 to 250 kPa for TR</li> <li>from 5 to 40 "w.c. for BP, from 1.45 to 4.3 psig for MP, from 4.3 to 36 psig for TR</li> </ul>                            |
| Available accessories   | LA slam shut, relief valve, monitor version  |
| Minimum operating differential pressure (Δp <sub>min</sub> <sup>1</sup> ) | 0.01 MPa   1.45 psig   |
| Accuracy class (AC <sup>1</sup> )   | up to 10   up to 1% absolute (depending on working conditions)   |
| Lock-up pressure class (SG <sup>1</sup> )                                 | up to 20 (depending on version and set point)  |
| Nominal size (DN <sup>1,2</sup> )   | DN 1"x1"; DN 1"x1" 1/2   |
| Connections   | Threaded Rp EN 10226-1, NPT ASME B1.20.1   |

<sup>(1)</sup> according to EN334 standard

<sup>(2)</sup> according to ISO 23555-1 standard

<sup>(\*)</sup> NOTE: Different functional features and/or extended temperature ranges may be available on request. Stated inlet gas temperature range is the maximum for which the equipment's full performance, including accuracy is guaranteed. Product may have a different pressure or temperature ranges according to the version and/or installed accessories.

<sup>(\*\*)</sup> NOTE: Stated temperature range is the operating range for which the equipment's mechanical resistance and leakage rate are guaranteed. Some body materials, if multiple choices are available, may not be suitable for all the available versions shown.

<sup>(\*\*\*)</sup> NOTE: Stated temperature range is the range for which the equipment's full performance, including accuracy and lock-up are guaranteed. Some body materials, if multiple choices are available, may not be suitable for all the available versions shown.

**Table 1** Features



# Materials and Approvals

| Part      | Material  |
|-----------|---|
| Body      | Cast iron GS 400–18 UNI EN 1083<br>Aluminum EN AC 43300 UNI EN 1706 |
| Cover     | Aluminum  |
| Seat      | Brass   |
| Diaphragm | Fabric finish rubber  |
| O-ring    | Nitrile rubber  |

**NOTE:** The materials indicated above refer to the standard models. Different materials can be provided according to specific needs.

**Table 2** Materials

## Construction Standards and Approvals

The **Dival 500** regulator is designed according to the European standard EN 334. The regulator reacts in opening (Fail Open) according to EN 334.

The product is certified according to European Directive 2014/68/EU (PED). Leakage class: bubble tight, better than class VIII according to ANSI/FCI 70-3.



EN 334



PED-CE



# Maximum allowable operating pressure

| Design pressure ( $p_s$ according to EN334) |      |      |           |      |
|---|------|------|-----------|------|
| Version                                     | Body |      | Slam shut |      |
|   | MPa  | psig | MPa       | psig |
| Cast Iron Body 1"x1" and 1" x 1-1/2"        | 2.00 | 290  | 2.00      | 290  |
| Aluminum Body 1"x1" and 1" x 1-1/2"         | 2.00 | 290  | 2.00      | 290  |

**Table 3** Design pressure of body and slam shut

| Design pressure ( $p_s$ according to EN334) |              |      |      |      |      |       |
|---|--------------|------|------|------|------|-------|
| Parts                                       | Control head |      |      |      |      |       |
|   | BP           |      | MP   |      | TR   |       |
|   | MPa          | psig | MPa  | psig | MPa  | psig  |
| Cover                                       | 2.00         | 290  | 2.00 | 290  | 2.00 | 290   |
| Diaphragm                                   | 0.03         | 4.35 | 0.06 | 8.70 | 0.50 | 72.52 |
| Max Diaphragm $\Delta p$                    | 0.02         | 2.90 | 0.03 | 4.35 | 0.33 | 47.86 |

**Table 4** Design pressure of control heads

| MAOP Maximum Allowable Operating Pressure ( $p_{urmax}$ according to EN334) |  |              |      |      |      |      |      |
|---|--|--------------|------|------|------|------|------|
| Version   |  | Control head |      |      |      |      |      |
|   |  | BP           |      | MP   |      | TR   |      |
|   |  | MPa          | psig | MPa  | psig | MPa  | psig |
| WITH / WITHOUT CE MARKING   | All version (all body materials)       | 1.00         | 145  | 2.00 | 290  | 2.00 | 290  |
|   | All version (all body materials) + SSV | 1.00         | 145  | 2.00 | 290  | 2.00 | 290  |

**Table 5** MAOP Maximum Allowable Operating Pressure with/without CE marking

# Springs ranges and control heads

| Control heads pressure ranges |                                       |                                 |                                   |                          |
|-------------------------------|---------------------------------------|---------------------------------|-----------------------------------|--------------------------|
|                               | Control head BP                       | Control head MP                 | Control head TR                   | Spring Table web link    |
| Model                         |                                       |                                 |                                   |                          |
| Dival 500                     | 1.3 ÷ 10 kPa<br>5.2" w.c. ÷ 1.45 psig | 10 ÷ 30 kPa<br>1.45 ÷ 4.35 psig | 30 ÷ 250 kPa<br>4.35 ÷ 36.26 psig | <a href="#">TT_00280</a> |

**Table 6** Control heads calibration range

General link to the calibration tables: [PRESS HERE](#) or use the QR code:



## Medium - Low Pressure Gas Regulator



### DIVAL 500 BP

| Spring part number | Spring color | d   | Lo  | De | Spring range ("w.c.) |      |
|--------------------|--------------|-----|-----|----|----------------------|------|
|                    |              |     |     |    | Min.                 | Max. |
| US64470137RO       | Red          | 1.8 | 115 | 34 | 5.2                  | 6.8  |
| US64470068GI       | Yellow       | 2   | 110 | 34 | 6.8                  | 10.0 |
| US64470139NE       | Black        | 2.2 | 115 | 34 | 10.0                 | 13.7 |
| US64470140MA       | Brown        | 2.7 | 106 | 34 | 13.7                 | 25.7 |
| US64470071GR       | Grey         | 2.8 | 115 | 34 | 25.7                 | 40.2 |

**d** = Wire Diameter (mm)   **Lo** = Spring Length (mm)   **De** = External Diameter (mm)

**Table 7** TT 00280 - DIVAL 500 BP setting springs

### DIVAL 500 MP

| Spring part number | Spring color | d   | Lo  | De | Spring range (psig) |      |
|--------------------|--------------|-----|-----|----|---------------------|------|
|                    |              |     |     |    | Min.                | Max. |
| US64470141VE       | Green        | 3.2 | 120 | 34 | 1.4                 | 2.4  |
| US64470329AZ       | Light blue   | 3.8 | 111 | 34 | 2.4                 | 4.3  |

**d** = Wire Diameter (mm)   **Lo** = Spring Length (mm)   **De** = External Diameter (mm)

**Table 8** TT 00280 - DIVAL 500 MP setting springs

### DIVAL 500 TR

| Spring part number | Spring color | d   | Lo  | De   | Spring range (psig) |      |
|--------------------|--------------|-----|-----|------|---------------------|------|
|                    |              |     |     |      | Min.                | Max. |
| US64470143BI       | White        | 4.5 | 97  | 34   | 4.3                 | 5.8  |
| US64470143BI       | White        | 4.5 | 97  | 34   | 5.8                 | 8.7  |
| US64470144VI       | Purple       | 5   | 100 | 34   | 8.7                 | 14.5 |
| US64470145AR       | Orange       | 5.5 | 100 | 34   | 14.5                | 17.4 |
| US64470145AR       | Orange       | 5.5 | 100 | 34   | 17.4                | 26.1 |
| US64470151BL       | Blue         | 6.5 | 100 | 34.5 | 26.1                | 36.2 |

**d** = Wire Diameter (mm)   **Lo** = Spring Length (mm)   **De** = External Diameter (mm)

**Table 9** TT 00280 - DIVAL 500 TR setting springs

# Recommended installations

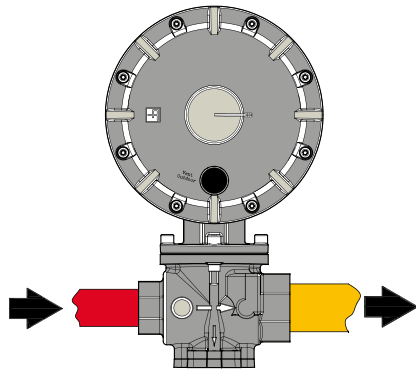


Figure 4 Dival 500 basic position

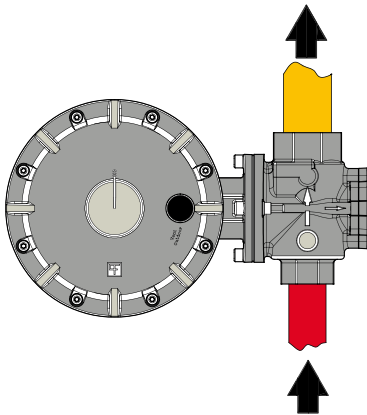


Figure 5 Dival 500 vertical installation 1

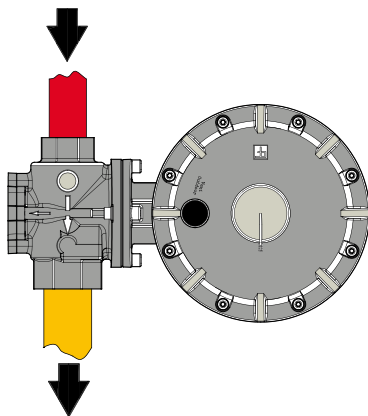


Figure 6 Dival 500 vertical installation 2

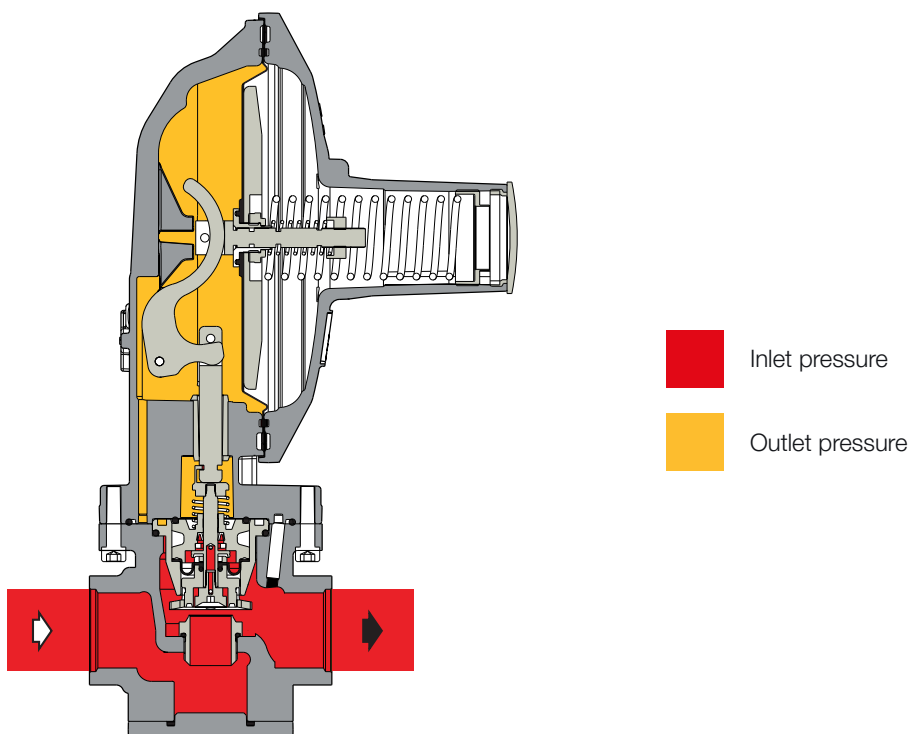
# Accessories

## For the pressure regulators:

- Slam shut valve
- Relief valve

## Monitor configuration

The in-line monitor is generally installed upstream of the active regulator. Although the function of the monitor regulator is different, the two regulators are virtually identical from the point of view of their mechanical components. The only difference is that monitor is set at a higher pressure than active regulator. The Cg coefficients of the worker regulator with an in-line monitor is the same, but during worker regulator sizing it shall be considered the differential pressure drop generated by the fully open in-line monitor. As a practice, to incorporate this effect a Cg reduction of 20% of the worker regulator can be applied.



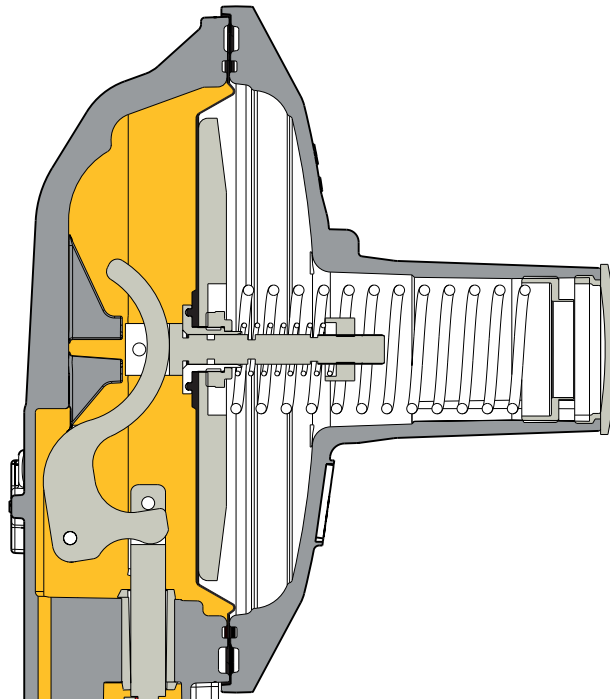
**Figure 7** Dival 500 in-line monitor

## Relief valve

The Dival 500 series can be equipped with an incorporated internal relief valve (IRV) that discharges a limited amount of gas into the atmosphere when the regulator outlet pressure exceeds the set value. The typical triggering events are:

- Thermal expansion of the downstream gas at zero flow condition (during lock-up).
- Pressure peaks caused by sudden closing of downstream appliances or in the event of small downstream buffer volume.

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



**Figure 8** Dival 500 relief valve

## Slam Shut LA

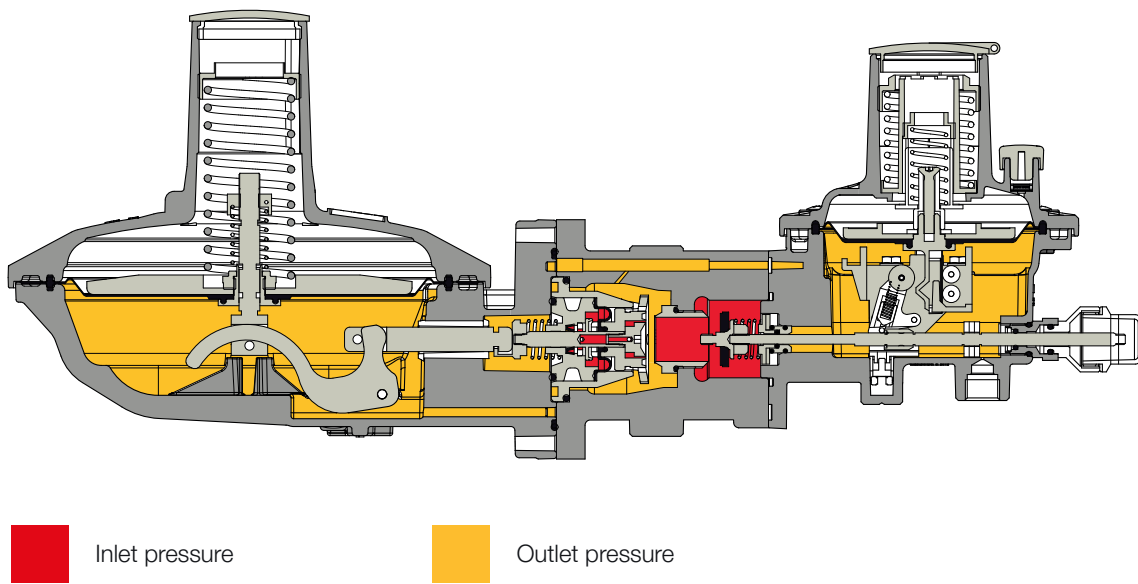
The Dival 500 pressure regulator offers the possibility of installing an **incorporated LA slam shut valve**, depending on the regulator size, and this can be done either during the manufacturing process or be retrofitted in the field.

LA is available for all sizes.

**Retrofitting the LA can be done without modifying** the pressure regulator assembly. With the built-in slam shut, the Cg valve coefficients is 5% lower than the corresponding version without.

The main characteristics of this device are:

- OPSO Overpressure Shut-Off
- UPSO Underpressure Shut-Off
- Internal by-pass
- Push button for tripping test (optional)
- Compact dimensions
- Easy maintenance
- Remote tripping option
- Limit switch option



**Figure 9** Dival 500 with LA



| Pressure switch types and ranges |      |           |          |              |                          |
|----------------------------------|------|-----------|----------|--------------|--------------------------|
| SSV model                        | Type | Operation | Range Wh |              | Spring Table web link    |
|                                  |      |           | kPa      | psig         |                          |
| LA                               | BP   | OPSO      | 3 - 18   | 0.43 - 2.61  | <a href="#">TT 00214</a> |
|                                  |      | UPSO      | 0.6 - 6  | 0.087 - 0.87 |                          |
| LA                               | MP   | OPSO      | 14 - 45  | 2.03 - 6.52  | <a href="#">TT 00214</a> |
|                                  |      | UPSO      | 1 - 24   | 0.14 - 3.48  |                          |
| LA                               | TR   | OPSO      | 25 - 550 | 3.62 - 79.77 | <a href="#">TT 00214</a> |
|                                  |      | UPSO      | 10 - 350 | 1.45 - 50.76 |                          |

**Table 10** Settings table

| Shut-off device model LA performance |                             |
|--------------------------------------|-----------------------------|
| Worker set point                     | Minimum suggested set-point |
| 1.7 kPa<br>7" w.c.                   | 3.7 kPa<br>15" w.c.         |
| 13.7 kPa<br>2 psig                   | 20.6 kPa<br>3 psig          |
| 34.4 kPa<br>5 psig                   | 48.2 kPa<br>7 psig          |
| 68.9 kPa<br>10 psig                  | 89.6 kPa<br>13 psig         |

Please see PF monitor and accessory setting sheet for precise settings.

**Table 11** Recommended slam shut settings

## Medium - Low Pressure Gas Regulator



| LA/BP "OPSO"       |              |     |    |    |                      |      |  |
|--------------------|--------------|-----|----|----|----------------------|------|--|
| Spring part number | Spring color | d   | Lo | De | Spring range ("w.c.) |      |  |
|                    |              |     |    |    | Min.                 | Max. |  |
| US64470112RO       | Red          | 2.2 | 44 | 34 | 11.9                 | 19.9 |  |
| US64470115GR       | Grey         | 2.8 | 42 | 34 | 19.9                 | 72.3 |  |

**d** = Wire Diameter (mm)   **Lo** = Spring Length (mm)   **De** = External Diameter (mm)

**Table 12** TT 002014 - LA/BP "OPSO" setting springs

| LA/BP "UPSO"       |              |     |    |    |                      |      |  |
|--------------------|--------------|-----|----|----|----------------------|------|--|
| Spring part number | Spring color | d   | Lo | De | Spring range ("w.c.) |      |  |
|                    |              |     |    |    | Min.                 | Max. |  |
| US64470024BI       | White        | 1.3 | 45 | 15 | 2.2                  | 24.1 |  |

**d** = Wire Diameter (mm)   **Lo** = Spring Length (mm)   **De** = External Diameter (mm)

**Table 13** TT 002014 - LA/BP "UPSO" setting springs

| LA/MP "OPSO"       |              |     |    |    |                     |      |  |
|--------------------|--------------|-----|----|----|---------------------|------|--|
| Spring part number | Spring color | d   | Lo | De | Spring range (psig) |      |  |
|                    |              |     |    |    | Min.                | Max. |  |
| US64470115GR       | Grey         | 2.8 | 42 | 34 | 2.0                 | 2.6  |  |
| US64470116GI       | Yellow       | 3.2 | 40 | 34 | 2.6                 | 4.0  |  |
| US64470051BI       | White        | 3.2 | 50 | 34 | 4.0                 | 6.5  |  |

**d** = Wire Diameter (mm)   **Lo** = Spring Length (mm)   **De** = External Diameter (mm)

**Table 14** TT 002014 - LA/MP "OPSO" setting springs

| LA/MP "UPSO"       |              |     |    |    |                      |      |  |
|--------------------|--------------|-----|----|----|----------------------|------|--|
| Spring part number | Spring color | d   | Lo | De | Spring range ("w.c.) |      |  |
|                    |              |     |    |    | Min.                 | Max. |  |
| US64470024BI       | White        | 1.3 | 45 | 15 | 3.9                  | 24.0 |  |
| US64470038GI       | Yellow       | 2   | 40 | 15 | 24.0                 | 96.4 |  |

**d** = Wire Diameter (mm)   **Lo** = Spring Length (mm)   **De** = External Diameter (mm)

**Table 15** TT 002014 - LA/MP "UPSO" setting springs

| LA/TR "OPSO"       |              |     |    |    |                     |      |  |
|--------------------|--------------|-----|----|----|---------------------|------|--|
| Spring part number | Spring color | d   | Lo | De | Spring range (psig) |      |  |
|                    |              |     |    |    | Min.                | Max. |  |
| US64470116GI       | Yellow       | 3.2 | 40 | 34 | 3.6                 | 7.9  |  |
| US64470051BI       | White        | 3.2 | 50 | 34 | 7.9                 | 12.3 |  |
| US64470057BL       | Blue         | 3.5 | 50 | 34 | 12.3                | 20.3 |  |
| US64470058AR       | Orange       | 4   | 50 | 34 | 20.3                | 36.2 |  |
| US64470059AZ       | Light blue   | 4.5 | 50 | 34 | 36.2                | 58.0 |  |
| US64470060NE       | Black        | 5   | 48 | 34 | 58.0                | 79.7 |  |

**d** = Wire Diameter (mm)   **Lo** = Spring Length (mm)   **De** = External Diameter (mm)

**Table 16** TT 002014 - LA/TR "OPSO" setting springs

| LA/TR "UPSO"       |              |     |    |      |                     |      |  |
|--------------------|--------------|-----|----|------|---------------------|------|--|
| Spring part number | Spring color | d   | Lo | De   | Spring range (psig) |      |  |
|                    |              |     |    |      | Min.                | Max. |  |
| US64470038GI       | Yellow       | 2   | 40 | 15   | 1.4                 | 7.2  |  |
| US64470045MA       | Brown        | 2.4 | 41 | 15.3 | 7.2                 | 14.5 |  |
| US64470046BL       | Blue         | 3   | 40 | 15   | 14.5                | 29.0 |  |
| US64470149NE       | Black        | 3.2 | 43 | 15   | 29.0                | 50.7 |  |

**d** = Wire Diameter (mm)   **Lo** = Spring Length (mm)   **De** = External Diameter (mm)

**Table 17** TT 002014 - LA/TR "UPSO"

General link to the calibration tables: [PRESS HERE](#) or use the QR code:





# Weights and Dimensions

## Dival 500

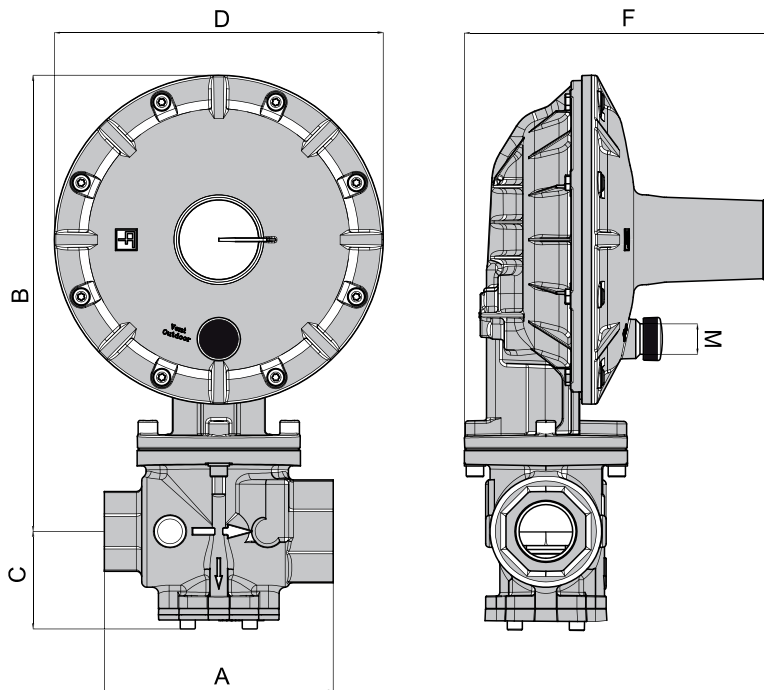
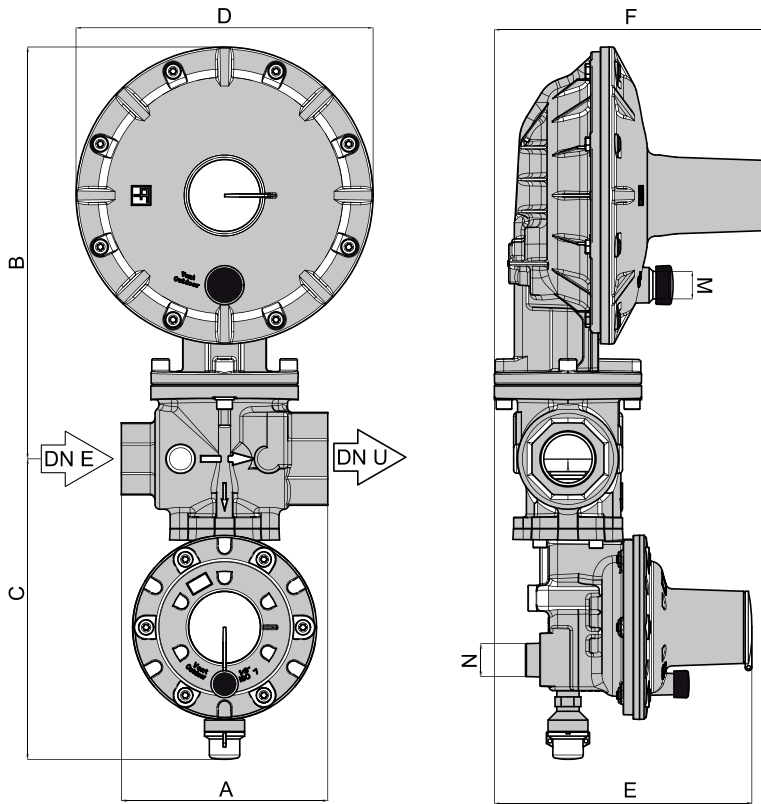


Figure 10 Dival 500 dimensions

| Weights and Dimensions (for other connections please contact your closest Pietro Fiorentini representative) |   |        |                |        |
|---|---|--------|----------------|--------|
| Size (DN) - [mm]  | 25  |        | 40             |        |
|   | 1" x 1"                                   |        | 1" x 1-1/2"    |        |
| Size (DN) - inches  | [mm]                                      | inches | [mm]           | inches |
| A   | 100                                       | 3.9"   | 129            | 5.1"   |
| B   | 255                                       | 10.0"  | 257            | 10.1"  |
| C   | 44  | 1.7"   | 55             | 2.2"   |
| D   | 185.5                                     | 7.3"   | 185.5          | 7.3"   |
| F   | 173                                       | 6.8"   | 173            | 6.8"   |
| DNE   | 1" ISO 7/1                                |        | 1" ISO 7/1     |        |
| DNU   | 1" ISO 7/1                                |        | 1-1/2" ISO 7/1 |        |
| Tubing Connections  | Øe 10 x Øi 8 (on request imperial sizing) |        |                |        |
| Weight  | Kg  | lbs    | Kg             | lbs    |
|   | 3.6                                       | 7.9    | 3.8            | 8.4    |

Table 18 Weights and dimensions

# Dival 500 + LA



**Figure 11** Dival 500 + LA dimensions

| Weights and Dimensions (for other connections please contact your closest Pietro Fiorentini representative) |   |        |                   |        |
|---|---|--------|-------------------|--------|
| Size (DN) - [mm]<br>Size (DN) - inches  | 25<br>1" x 1"                             |        | 40<br>1" x 1-1/2" |        |
|   | [mm]                                      | inches | [mm]              | inches |
| A   | 100                                       | 3.9"   | 129               | 5.1"   |
| B   | 255                                       | 10.0"  | 257               | 10.1"  |
| C   | 182                                       | 7.2"   | 182               | 7.2"   |
| D   | 185.5                                     | 7.3"   | 185.5             | 7.3"   |
| E   | 161                                       | 6.3"   | 161               | 6.3"   |
| F   | 173                                       | 6.8"   | 173               | 6.8"   |
| G   | 1/4"                                      |        | 1/4"              |        |
| H   | 1/4"                                      |        | 1/4"              |        |
| DNE   | 1" ISO 7/1                                |        | 1" ISO 7/1        |        |
| DNU   | 1" ISO 7/1                                |        | 1-1/2" ISO 7/1    |        |
| Tubing Connections  | Øe 10 x Øi 8 (on request imperial sizing) |        |                   |        |
| Weight  | Kg  | lbs    | Kg                | lbs    |
|   | 4.2                                       | 9.3    | 4.4               | 9.7    |

**Table 19** Weights and dimensions



# Sizing and Cg

In general, the choice of a regulator is made based on the calculation of the flow rate determined by the use of formulae using the flow rate coefficients (Cg) and the form factor (K1) as indicated by the EN 334 standard. Sizing is available through the on-line Pietro Fiorentini sizing program.

| Flow rate coefficient |     |        |
|-----------------------|-----|--------|
| Nominal size          | 25  | 40     |
| Inches                | 1"  | 1-1/2" |
| Cg                    | 195 | 245    |
| K1                    | 97  | 96     |

**REMARK:** For safety relief valve sizing it is required to use the Cg values of this table regardless the accessories installed on the regulator. As per EN334 Cg value acceptance criteria these values may vary up to 10% which we recommend considering during the sizing process.

**Table 20** Flow rate coefficient

For sizing [PRESS HERE](#) or use the QR code:



**Note:** In case you do not have the proper credentials to access, feel free to contact your closest Pietro Fiorentini representative.

In general the on-line sizing considers multiple variables as the regulator is installed in a system, enabling a better and multiperspective approach to the sizing.

For different gases, and for natural gas with a different relative density other than 0.61 (compared to air), the correction coefficients from the following formula shall be applied.

$$F_c = \sqrt{\frac{175.8}{S \times (273.16 + T)}}$$

S = relative density (refer to Table 21)  
T = gas temperature ( °C )

$$F_c = \sqrt{\frac{316.44}{S \times (459.67 + T)}}$$

S = relative density (refer to Table 21)  
T = gas temperature ( °F )

| Correction Factor Fc |                    |                      |
|----------------------|--------------------|----------------------|
| Gas Type             | Relative Density S | Correction Factor Fc |
| Air                  | 1.00               | 0.78                 |
| Propane              | 1.53               | 0.63                 |
| Butane               | 2.00               | 0.55                 |
| Nitrogen             | 0.97               | 0.79                 |
| Oxygen               | 1.14               | 0.73                 |
| Carbon Dioxide       | 1.52               | 0.63                 |

Note: the table shows the Fc correction factors valid for Gas, calculated at a temperature of 15°C and at the declared relative density.

**Table 21** Correction Factor Fc

| Flow rate conversion                               |
|--|
| Stm <sup>3</sup> /h x 0.94795 = Nm <sup>3</sup> /h |

Nm<sup>3</sup>/h reference conditions:  
 T= 0 °C; P= 1 bar | T= 32 °F; P= 14.5 psig  
 Stm<sup>3</sup>/h reference conditions:  
 T= 15 °C; P= 1 bar | T= 59 °F; P= 14.5 psig

**Table 22** Flow rate conversion

**CAUTION:**

In order to get optimal performance, to avoid premature wear on the regulators components, and to limit noise emissions, it is recommended to check the gas speed and its compliance with local practice and regulations. The gas speed at the outlet flange of the regulator which may be calculated by the following formula:

$$V = 345.92 \times \frac{Q}{DN^2} \times \frac{1 - 0.002 \times Pd}{1 + Pd}$$

$$V = 0.0498 \times \frac{Q}{DN^2} \times \frac{14.504 - 0.002 \times Pd}{14.504 + Pd}$$

V = gas speed in m/s  
 Q = gas flow rate in Stm<sup>3</sup>/h  
 DN = nominal size of regular in mm  
 Pd = outlet pressure in barg

V = gas speed in ft/s  
 Q = gas flow rate in Scfh  
 DN = nominal size of regular in inches  
 Pd = outlet pressure in psi



# Flow capacity tables

## Dival 500 BP - DN 1"

From 1.5 kPa [6"w.c.] to 7 kPa [28"w.c.]

Dival 500 BP - (accuracy 10% ; AC10 according to EN334)

| Inlet pressure |      | Outlet pressure     |      |                     |      |                     |      |                     |      |                     |      |
|----------------|------|---------------------|------|---------------------|------|---------------------|------|---------------------|------|---------------------|------|
|                |      | 1.5 kPa   6" w.c.   |      | 1.7 kPa   7" w.c.   |      | 2 kPa   8" w.c.     |      | 3.5 kPa   14" w.c.  |      | 7 kPa   28" w.c.    |      |
| kPa            | psig | Stm <sup>3</sup> /h | Scfh | Stm <sup>3</sup> /h | Scfh | Stm <sup>3</sup> /h | Scfh | Stm <sup>3</sup> /h | Scfh | Stm <sup>3</sup> /h | Scfh |
| 14             | 2    | 20                  | 800  | 25                  | 900  | -                   | -    | -                   | -    | -                   | -    |
| 34             | 5    | 30                  | 1100 | 35                  | 1300 | 40                  | 1500 | 60                  | 2200 | 60                  | 2200 |
| 103            | 15   | 50                  | 1800 | 50                  | 1800 | 55                  | 2000 | 105                 | 3800 | 120                 | 4300 |
| 207            | 30   | 60                  | 2200 | 60                  | 2200 | 65                  | 2300 | 120                 | 4300 | 160                 | 5700 |
| 414            | 60   | 60                  | 2200 | 60                  | 2200 | 60                  | 2200 | 120                 | 4300 | 175                 | 6200 |
| 689            | 100  | 60                  | 2200 | 60                  | 2200 | 60                  | 2200 | 120                 | 4300 | 160                 | 5700 |
| 862            | 125  | 60                  | 2200 | 55                  | 2000 | 60                  | 2200 | 120                 | 4300 | 160                 | 5700 |

Cg = 195 K1 = 97

**Table 23** Dival 500 BP flow rate with outlet pressure from 1.5 kPa | 6"w.c. up to 7 kPa | 28"w.c.

## Dival 500 BP - DN 1"x1-1/2"

Dival 500 BP - (accuracy 10% ; AC10 according to EN334)

| Inlet pressure |      | Outlet pressure     |      |                     |      |                     |       |                     |       |                     |       |
|----------------|------|---------------------|------|---------------------|------|---------------------|-------|---------------------|-------|---------------------|-------|
|                |      | 1.5 kPa   6" w.c.   |      | 1.7 kPa   7" w.c.   |      | 2 kPa   8" w.c.     |       | 3.5 kPa   14" w.c.  |       | 7 kPa   28" w.c.    |       |
| kPa            | psig | Stm <sup>3</sup> /h | Scfh | Stm <sup>3</sup> /h | Scfh | Stm <sup>3</sup> /h | Scfh  | Stm <sup>3</sup> /h | Scfh  | Stm <sup>3</sup> /h | Scfh  |
| 14             | 2    | 45                  | 1600 | 50                  | 1800 | -                   | -     | -                   | -     | -                   | -     |
| 34             | 5    | 80                  | 2900 | 85                  | 3100 | 95                  | 3400  | 95                  | 3400  | 95                  | 3400  |
| 103            | 15   | 190                 | 6800 | 190                 | 6800 | 195                 | 6900  | 195                 | 6900  | 195                 | 6900  |
| 207            | 30   | 270                 | 9600 | 280                 | 9900 | 295                 | 10500 | 320                 | 11400 | 340                 | 12100 |
| 414            | 60   | 155                 | 5500 | 155                 | 5500 | 160                 | 5700  | 400                 | 14200 | 400                 | 14200 |
| 689            | 100  | 150                 | 5300 | 150                 | 5300 | 160                 | 5700  | 400                 | 14200 | 400                 | 14200 |
| 862            | 125  | 150                 | 5300 | 150                 | 5300 | 160                 | 5700  | 400                 | 14200 | 400                 | 14200 |

Cg = 245 K1 = 96

**Table 24** Dival 500 BP flow rate with outlet pressure from 1.5 kPa | 6"w.c. up to 7 kPa | 28"w.c.

**Note:** Recommended max flow rate are considering multiple factors such as: extend the regulator's life, mitigate the erosion/vibrations for high velocity and to minimize the noise emission.

**Remark:** all capacity stated are considering a stand alone regulator. In case of incorporated accessories a reduction of flow shall be considered.



## Dival 500 MP - DN 1”

From 10.3 kPa [1.5 psig] to 27.6 kPa [4 psig]

Dival 500 MP - (accuracy 10% ; AC10 according to EN334)

| Inlet pressure |      | Outlet pressure     |      |                     |      |                     |      |                     |      |                     |       |
|----------------|------|---------------------|------|---------------------|------|---------------------|------|---------------------|------|---------------------|-------|
|                |      | 10.3 kPa   1.5 psig |      | 13.8 kPa   2 psig   |      | 17.2 kPa   2.5 psig |      | 20.7 kPa   3 psig   |      | 27.6 kPa   4 psig   |       |
| kPa            | psig | Stm <sup>3</sup> /h | Scfh | Stm <sup>3</sup> /h | Scfh | Stm <sup>3</sup> /h | Scfh | Stm <sup>3</sup> /h | Scfh | Stm <sup>3</sup> /h | Scfh  |
| 14             | 2    | -                   | -    | -                   | -    | -                   | -    | -                   | -    | -                   | -     |
| 34             | 5    | 60                  | 2200 | 60                  | 2200 | 60                  | 2200 | -                   | -    | -                   | -     |
| 103            | 15   | 110                 | 3900 | 115                 | 4100 | 120                 | 4300 | 120                 | 4300 | 130                 | 4600  |
| 207            | 30   | 150                 | 5300 | 175                 | 6200 | 165                 | 5900 | 170                 | 6100 | 210                 | 7500  |
| 414            | 60   | 200                 | 7100 | 210                 | 7500 | 205                 | 7300 | 215                 | 7600 | 275                 | 9800  |
| 862            | 125  | 210                 | 7500 | 220                 | 7800 | 215                 | 7600 | 225                 | 8000 | 295                 | 10500 |
| 1724           | 250  | 210                 | 7500 | 220                 | 7800 | 215                 | 7600 | 225                 | 8000 | 290                 | 10300 |

Cg = 195 K1= 97

**Table 25** Dival 500 MP flow rate with outlet pressure from 10.3 kPa | 1.5 psig up to 27.6 kPa | 4 psig

## Dival 500 MP - DN 1”x1-1/2”

Dival 500 MP - (accuracy 10% ; AC10 according to EN334)

| Inlet pressure |      | Outlet pressure     |       |                     |       |                     |       |                     |       |                     |       |
|----------------|------|---------------------|-------|---------------------|-------|---------------------|-------|---------------------|-------|---------------------|-------|
|                |      | 10.3 kPa   1.5 psig |       | 13.8 kPa   2 psig   |       | 17.2 kPa   2.5 psig |       | 20.7 kPa   3 psig   |       | 27.6 kPa   4 psig   |       |
| kPa            | psig | Stm <sup>3</sup> /h | Scfh  | Stm <sup>3</sup> /h | Scfh  | Stm <sup>3</sup> /h | Scfh  | Stm <sup>3</sup> /h | Scfh  | Stm <sup>3</sup> /h | Scfh  |
| 14             | 2    | -                   | -     | -                   | -     | -                   | -     | -                   | -     | -                   | -     |
| 34             | 5    | 90                  | 3200  | 90                  | 3200  | 75                  | 2700  | -                   | -     | -                   | -     |
| 103            | 15   | 190                 | 6800  | 190                 | 6800  | 170                 | 6100  | 165                 | 5900  | 160                 | 5700  |
| 207            | 30   | 310                 | 11000 | 310                 | 11000 | 290                 | 10300 | 300                 | 10600 | 300                 | 10600 |
| 414            | 60   | 450                 | 15900 | 450                 | 15900 | 450                 | 15900 | 450                 | 15900 | 450                 | 15900 |
| 862            | 125  | 450                 | 15900 | 450                 | 15900 | 450                 | 15900 | 450                 | 15900 | 450                 | 15900 |
| 1724           | 250  | 445                 | 15800 | 445                 | 15800 | 445                 | 15800 | 445                 | 15800 | 445                 | 15800 |

Cg = 245 K1= 96

**Table 26** Dival 500 MP flow rate with outlet pressure from 10.3 kPa | 1.5 psig up to 27.6 kPa | 4 psig

**Note:** Recommended max flow rate are considering multiple factors such as: extend the regulator's life, mitigate the erosion/vibrations for high velocity and to minimize the noise emission.

**Remark:** all capacity stated are considering a stand alone regulator. In case of incorporated accessories a reduction of flow shall be considered.



## Dival 500 TR - DN 1"

From 34.5 kPa [5 psig] to 241.3 kPa [35 psig]

| Dival 500 TR - (accuracy 10% ; AC10 according to EN334) |      |                     |       |                     |       |                     |       |                     |       |                     |       |
|---|------|---------------------|-------|---------------------|-------|---------------------|-------|---------------------|-------|---------------------|-------|
| Inlet pressure  |      | Outlet pressure     |       |                     |       |                     |       |                     |       |                     |       |
|   |      | 34.5 kPa   5 psig   |       | 68.9 kPa   10 psig  |       | 103.4 kPa   15 psig |       | 137.9 kPa   20 psig |       | 241.3 kPa   35 psig |       |
| kPa   | psig | Stm <sup>3</sup> /h | Scfh  | Stm <sup>3</sup> /h | Scfh  | Stm <sup>3</sup> /h | Scfh  | Stm <sup>3</sup> /h | Scfh  | Stm <sup>3</sup> /h | Scfh  |
| 14  | 2    | -                   | -     | -                   | -     | -                   | -     | -                   | -     | -                   | -     |
| 34  | 5    | -                   | -     | -                   | -     | -                   | -     | -                   | -     | -                   | -     |
| 103   | 15   | 110                 | 3900  | 100                 | 3600  | -                   | -     | -                   | -     | -                   | -     |
| 207   | 30   | 175                 | 6200  | 190                 | 6800  | 165                 | 5900  | 155                 | 5500  | -                   | -     |
| 414   | 60   | 260                 | 9200  | 325                 | 11500 | 310                 | 11000 | 310                 | 11000 | 305                 | 10800 |
| 862   | 125  | 320                 | 11400 | 395                 | 14000 | 400                 | 14200 | 400                 | 14200 | 400                 | 14200 |
| 1724  | 250  | 320                 | 11400 | 390                 | 13800 | 395                 | 14000 | 395                 | 14000 | 395                 | 14000 |

Cg = 195   K1= 97

**Table 27** Dival 500 TR flow rate with outlet pressure from 34.5 kPa | 5 psig up to 241.3 kPa | 35 psig

## Dival 500 TR - DN 1"x1-1/2"

| Dival 500 TR - (accuracy 10% ; AC10 according to EN334) |      |                     |       |                     |       |                     |       |                     |       |                     |       |
|---|------|---------------------|-------|---------------------|-------|---------------------|-------|---------------------|-------|---------------------|-------|
| Inlet pressure  |      | Outlet pressure     |       |                     |       |                     |       |                     |       |                     |       |
|   |      | 34.5 kPa   5 psig   |       | 68.9 kPa   10 psig  |       | 103.4 kPa   15 psig |       | 137.9 kPa   20 psig |       | 241.3 kPa   35 psig |       |
| kPa   | psig | Stm <sup>3</sup> /h | Scfh  | Stm <sup>3</sup> /h | Scfh  | Stm <sup>3</sup> /h | Scfh  | Stm <sup>3</sup> /h | Scfh  | Stm <sup>3</sup> /h | Scfh  |
| 14  | 2    | -                   | -     | -                   | -     | -                   | -     | -                   | -     | -                   | -     |
| 34  | 5    | -                   | -     | -                   | -     | -                   | -     | -                   | -     | -                   | -     |
| 103   | 15   | 130                 | 4600  | 120                 | 4300  | -                   | -     | -                   | -     | -                   | -     |
| 207   | 30   | 225                 | 8000  | 235                 | 8300  | 210                 | 7500  | 220                 | 7800  | -                   | -     |
| 414   | 60   | 410                 | 14500 | 420                 | 14900 | 415                 | 14700 | 435                 | 15400 | 370                 | 13100 |
| 862   | 125  | 475                 | 16800 | 500                 | 17700 | 500                 | 17700 | 500                 | 17700 | 500                 | 17700 |
| 1724  | 250  | 475                 | 16800 | 495                 | 17500 | 495                 | 17500 | 495                 | 17500 | 495                 | 17500 |

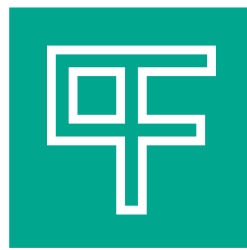
Cg = 245   K1= 96

**Table 28** Dival 500 TR flow rate with outlet pressure from 34.5 kPa | 5 psig up to 241.3 kPa | 35 psig

**Note:** Recommended max flow rate are considering multiple factors such as: extend the regulator's life, mitigate the erosion/vibrations for high velocity and to minimize the noise emission.

**Remark:** all capacity stated are considering a stand alone regulator. In case of incorporated accessories a reduction of flow shall be considered.





# Pietro Fiorentini

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