

# ST 9010

## Residential & Light Commercial Regulator

### Applications

The ST 9010 series provides a range of service and appliance regulators suitable for residential and commercial applications.

These regulators can be used for installations supplying blocks of apartments, small industries, medium-sized heating systems, ovens, or for any applications requiring fast flow variations or accurate regulation.

### Description

The ST 9010 is a direct-acting, spring-loaded regulator.

The balanced compensation system ensures constant outlet pressure when the upstream pressure varies.

The internal gas channels have been carefully designed to obtain high efficiency and ensure maximum flow with minimal pressure loss.

EN 88-1 compliant

### Technical Features

|                   |  |
|-------------------|--|
| Inlet pressure    | Pu: 20 mbar – 500 mbar   |
| Outlet pressure   | Pd: 11 mbar – 105 mbar   |
| Accuracy class    | AC5/SG10   |
| Temperature range | -20°C to +60°C   |
| Acceptable gases  | Natural gas, town gas, propane, butane, air, nitrogen or any non-corrosive gas |
| Installation      | Horizontal or vertical   |

### Sizes & Connections

|       |   |
|-------|---|
| Sizes | 3/4", 1", 1 1/4", 1 1/2", 2"  |
| Type  | Gas female threaded according to ISO 228/1 or ISO 7/1 or flanged ISO PN16 for 1 1/2" and 2" |

### Materials

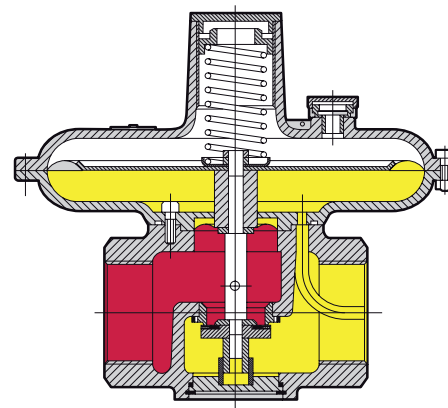
|                |                                      |
|----------------|--------------------------------------|
| Body           | Aluminium UNI 5076-74                |
| Head           | Aluminium UNI 5076                   |
| Internal parts | Aluminium and brass                  |
| Seals          | Nitrile rubber                       |
| Diaphragm      | Polyester fabric coated with nitrile |

### Type Designation and Options

To define the version of the ST 9010 series to be ordered, select the relevant option from the table below.

| ST 9010 | Threaded | Flanged | Options         |
|---------|----------|---------|-----------------|
|         | 3/4"     | -       | Orifice (20 mm) |
|         | 1"       | -       | Orifice (25 mm) |
|         | 1 1/4"   | -       | Orifice (25 mm) |
|         | 1 1/2"   | 1 1/2"  | Orifice (40 mm) |
|         | 2"       | 2"      | Orifice (50 mm) |

### Operational Diagram



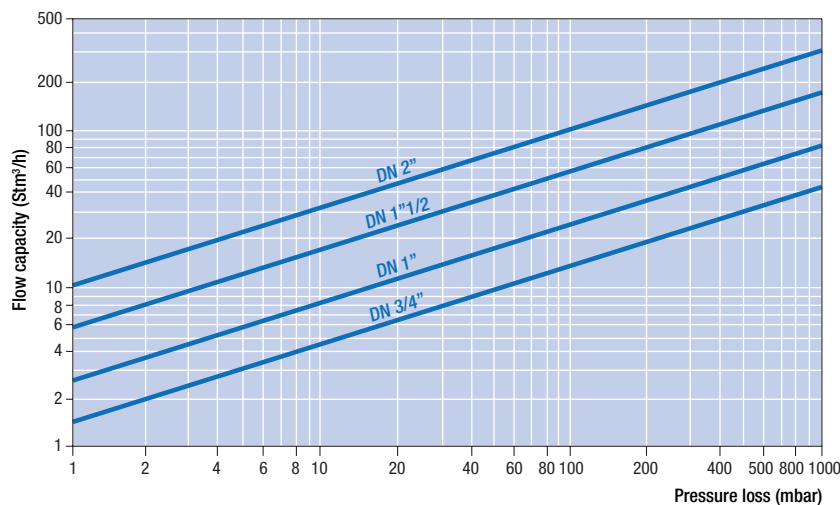
■ Inlet Pressure  
■ Outlet Pressure



### Benefits

- > Accurate regulation
- > Adapted for rapid flow variations
- > Easy maintenance
- > Reduced overall dimensions

## Flow Capacity



### Spring characteristics:

- d : wire diameter
- De: external diameter
- Lo : height
- Lt : no. of spires

### Correction factor for non-natural gas applications:

The flow rates are indicated for a 0.6 specific gravity gas.

To determine the volumetric flow rate for gases other than natural gas, multiply or calculate the values in the capacity tables using the sizing equations with a correction factor.

The table below lists correction factors for some common gases:

| Gas type              | Specific gravity | Correction factor |
|-----------------------|------------------|-------------------|
| Air                   | 1.00             | 0.77              |
| Butane                | 2.01             | 0.55              |
| Carbon dioxide (dry)  | 1.52             | 0.63              |
| Carbon monoxide (dry) | 0.97             | 0.79              |
| Natural gas           | 0.60             | 1.00              |
| Nitrogen              | 0.97             | 0.79              |
| Propane               | 1.53             | 0.63              |
| Propane-Air mix       | 1.20             | 0.71              |

Specific gravity or relative density (air = 1, non-dimensional value)

Use the following formula to calculate the correction factor for gases not listed above. In the formula, d is the specific gravity of the gas.

$$\text{Correction factor} = \sqrt{\frac{0.6}{d}}$$

## Regulator Spring Selection Table

### ST 9010 – 3/4"

| Spring Code | Spring Characteristic |         |         |     | wds          |
|-------------|-----------------------|---------|---------|-----|--------------|
|             | d (mm)                | De (mm) | Lo (mm) | Lt  |              |
| 20563325    | 1.3                   | 25      | 55      | 9.5 | 14 ÷ 25 mbar |
| 20563025    | 1.5                   | 25      | 50      | 9.5 | 22 ÷ 60 mbar |
| 20563026    | 1.7                   | 25      | 50      | 9.5 | 35 ÷ 85 mbar |

### ST 9010 – 1", 1 1/4"

| Spring Code | Spring Characteristic |         |         |     | wds          |
|-------------|-----------------------|---------|---------|-----|--------------|
|             | d (mm)                | De (mm) | Lo (mm) | Lt  |              |
| 20563325    | 1.3                   | 25      | 55      | 9.5 | 14 ÷ 25 mbar |
| 20563025    | 1.5                   | 25      | 50      | 9.5 | 15 ÷ 60 mbar |
| 20563026    | 1.7                   | 25      | 50      | 9.5 | 26 ÷ 85 mbar |

### ST 9010 – 1 1/2"

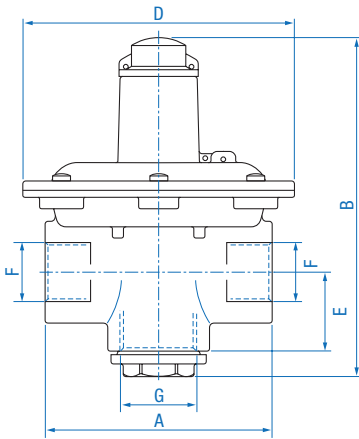
| Spring Code | Spring Characteristic |         |         |     | wds           |
|-------------|-----------------------|---------|---------|-----|---------------|
|             | d (mm)                | De (mm) | Lo (mm) | Lt  |               |
| 20564050    | 1.8                   | 30      | 100     | 7.5 | 15 ÷ 29 mbar  |
| 20564044    | 2.2                   | 30      | 80      | 8.5 | 20 ÷ 52 mbar  |
| 20564042    | 2.5                   | 30      | 80      | 10  | 38 ÷ 105 mbar |

### ST 9010 – 2"

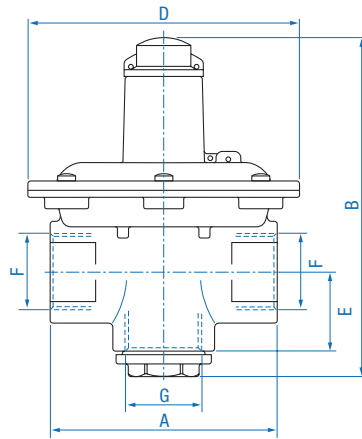
| Spring Code | Spring Characteristic |         |         |      | wds          |
|-------------|-----------------------|---------|---------|------|--------------|
|             | d (mm)                | De (mm) | Lo (mm) | Lt   |              |
| 20565167    | 2                     | 35      | 155     | 11.5 | 10 ÷ 16 mbar |
| 20565168    | 2.2                   | 35      | 155     | 9    | 16 ÷ 27 mbar |
| 20565155    | 2.7                   | 35      | 120     | 11   | 17 ÷ 55 mbar |
| 20565156    | 3                     | 35      | 120     | 11.5 | 27 ÷ 80 mbar |

## Overall Dimensions

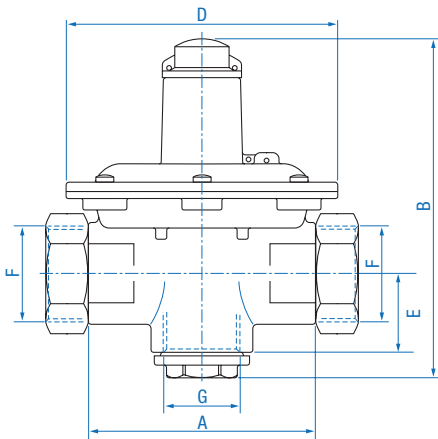
|        | A<br>(mm) | B<br>(mm) | D<br>(mm) | E<br>(mm) | F          | G      | Weight<br>(kg) |
|--------|-----------|-----------|-----------|-----------|------------|--------|----------------|
| 3/4"   | 100       | 150       | 120       | 35        | 3/4" gas   | 1" gas | 0.75           |
| 1"     | 100       | 150       | 120       | 35        | 1" gas     | 1" gas | 0.7            |
| 1 1/4" | 138       | 150       | 120       | 35        | 1 1/4" gas | 1" gas | 0.95           |
| 1 1/2" | 130       | 188       | 180       | 42        | 1 1/2" gas | -      | 1.8            |
| 2"     | 150       | 240       | 250       | 53        | 2" gas     | -      | 3.65           |



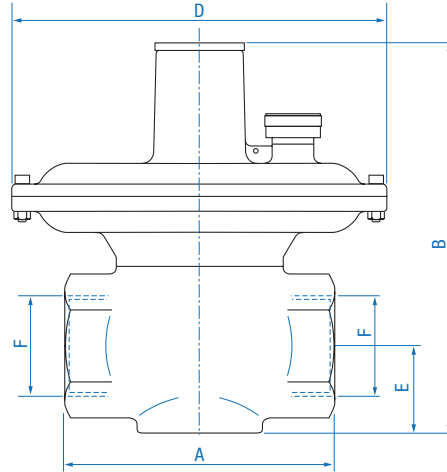
> DN 3/4"



> DN 1"



> DN 1 1/4"



> DN 1 1/2 - 2"

### Information to be specified when ordering:

- Model
- Minimum and maximum inlet pressure
- Minimum and maximum outlet pressure
- Calibration pressure
- Maximum flow rate
- Kind of gas
- Quantity required

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