



Gas Solutions



## Pressure Regulators for Natural Gas



A Cavagna Group Company



2018-2019

# Divisions



**LPG  
REGULATORS**



**LPG VALVES AND  
TANK EQUIPMENT**



**COMPRESSED GAS  
EQUIPMENT**



**NATURAL GAS  
AND METERING**



**ALTERNATIVE  
FUEL SYSTEMS**



**ENGINEERING  
AND SERVICES**

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**omeca**  
ITALY



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**cavimatic**  
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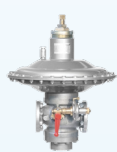
**Kosangas**  
PORTUGAL



**cavagna group asia**  
THAILAND



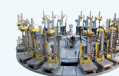
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**reca**  
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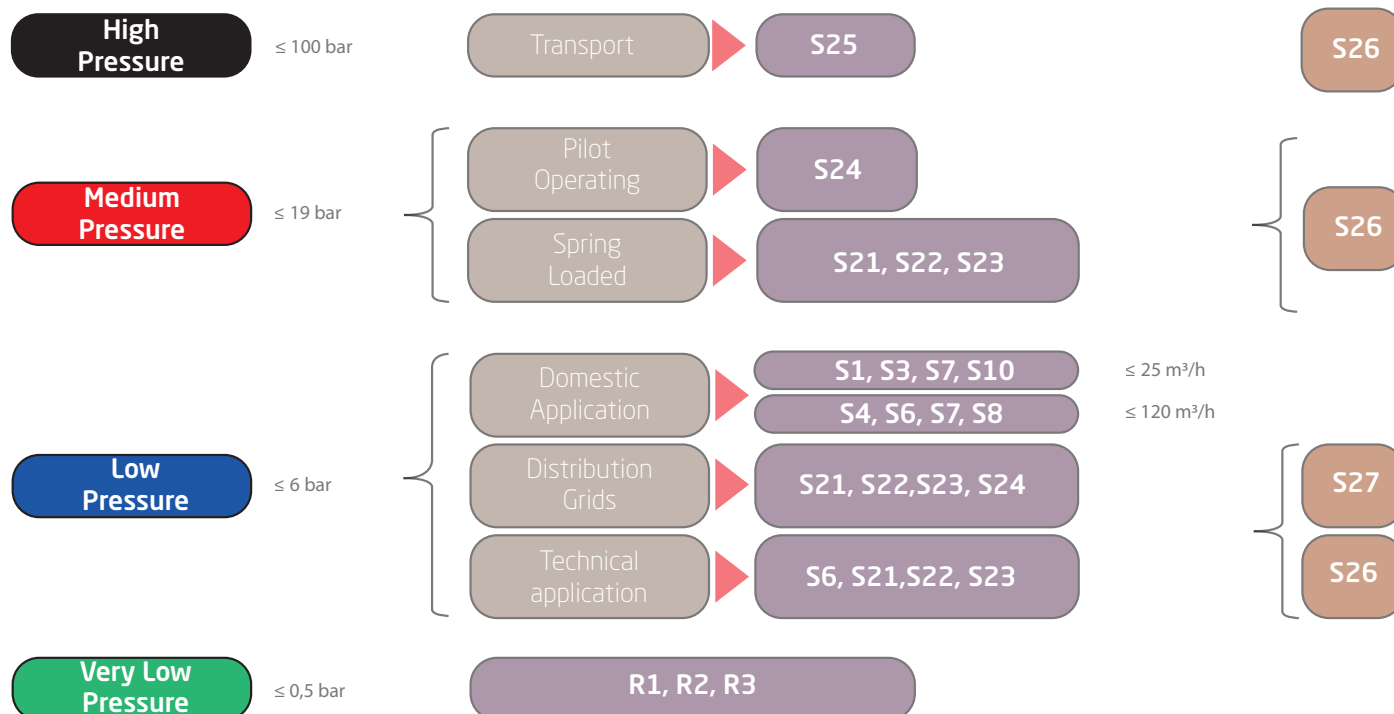
**MESURA Nimal**  
Gas Controls INDIA



**cemco kosangas**  
CHILE



## Products



Regulation Safety

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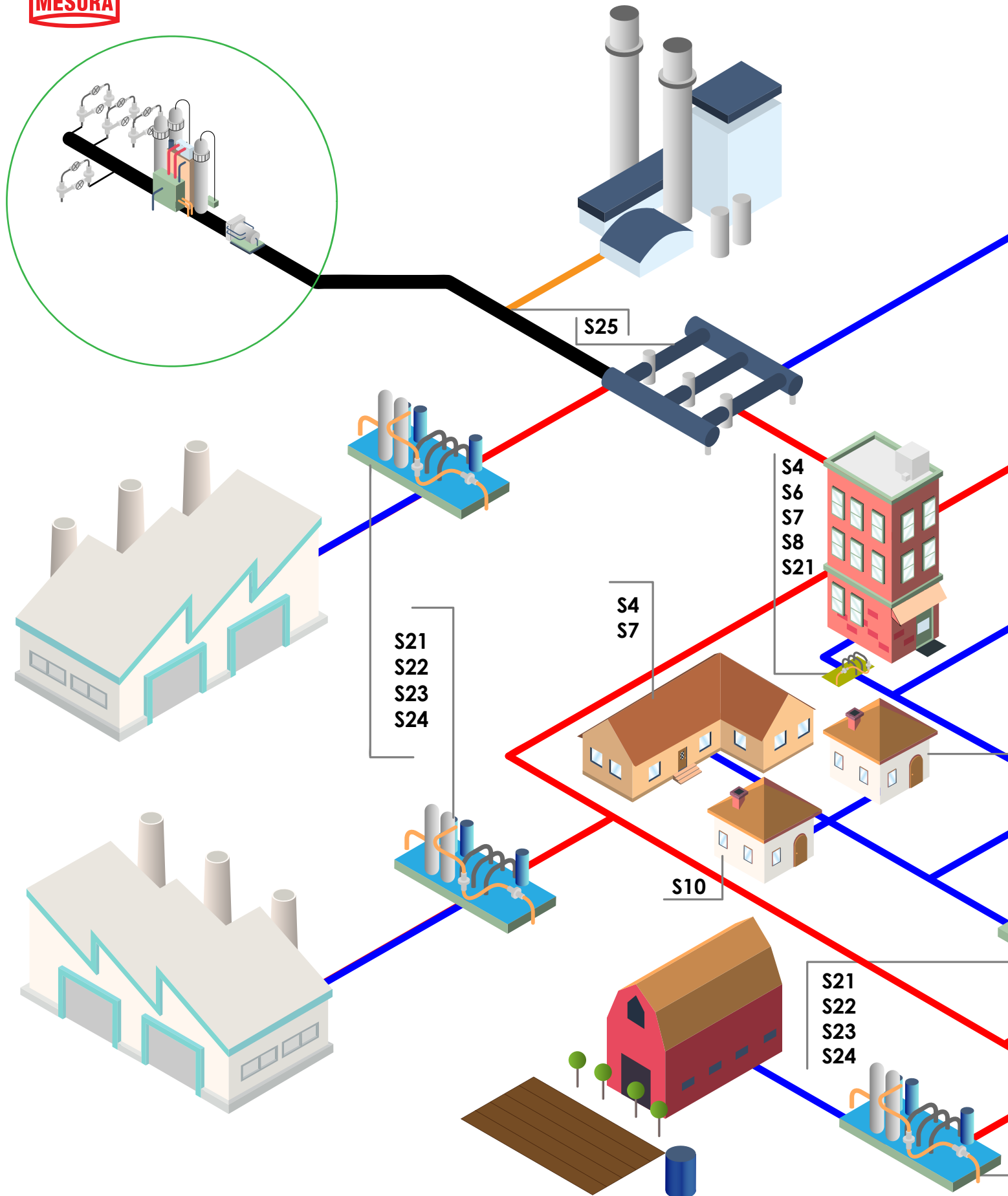
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### About Mesura

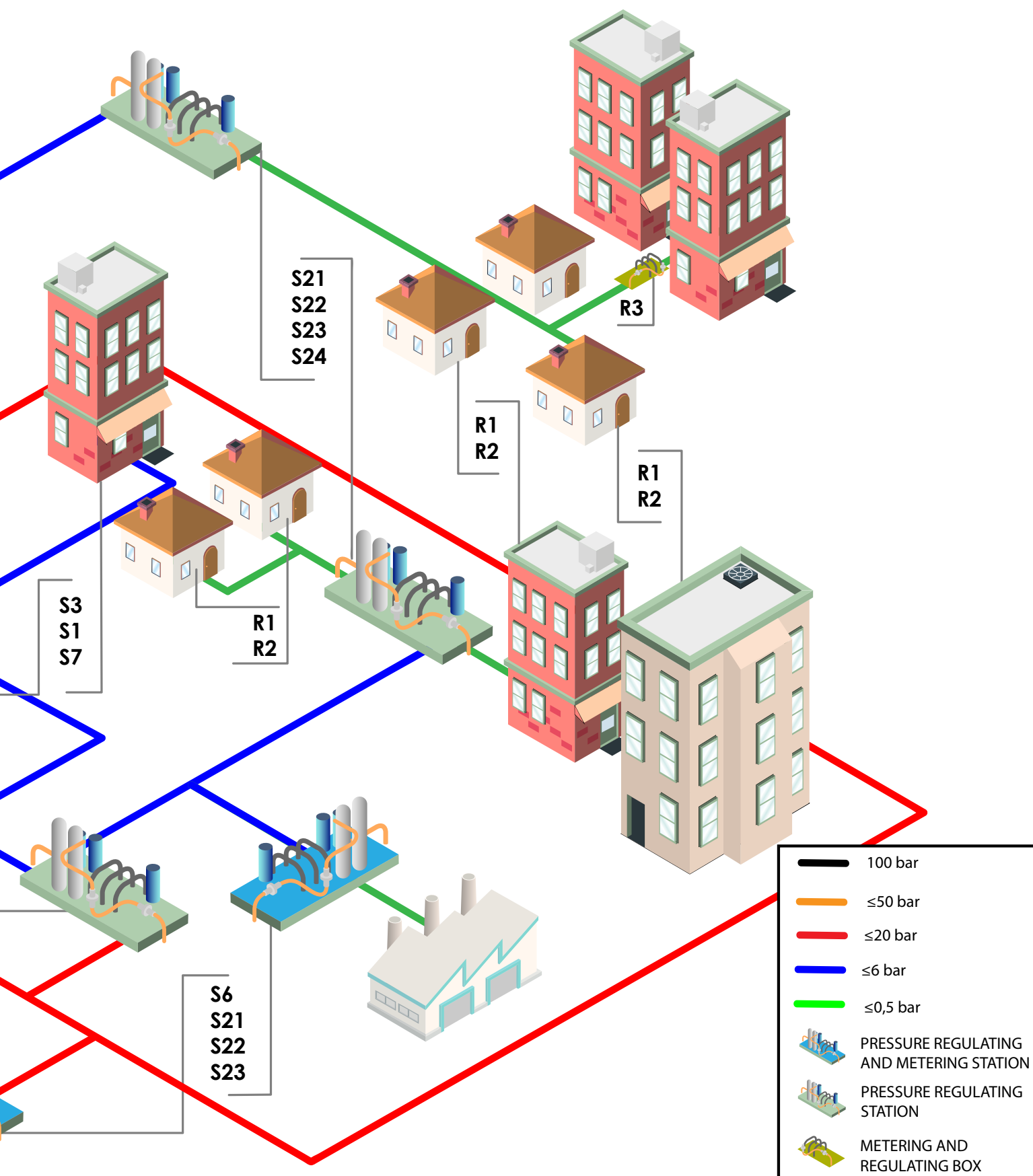
Mesura SAS was founded in 1949 with headquarters in Forbach in east France. It is the head of a group of companies that design, manufacture and sell components, systems and services for regulating and measuring Natural Gas. Today Mesura SAS has production plants in France, Tunisia, India and Italy. In 2012, Mesura SAS joined the Cavagna Group, one of the top manufacturers of equipment and components for compressed gas control (gases for energy, alternative fuel gases, medical gases, industrial gases, cryogenic gases and special gases).

### About Cavagna Group

Since 1949, the Cavagna Group has been supplying industries and consumers worldwide, to become today's leading manufacturer of Equipment and fittings for compressed gases, gas storage and Control. With nine vertically integrated production units in Italy, nine others spread on five continents and a distribution network covering over 145 countries throughout the world, Cavagna Group offers only the best, most reliable and dynamic services to the customers.



# Natural Gas Applications





## R1-R2

### 1 SCOPE

The **R1** and **R2** series regulators are a line of direct action type pressure governors, normally used for domestic applications, generally installed directly to the meter or in installations in gas grids for natural and manufactured gas, lpg, or other non-corrosive preliminarily treated stable gas.



### 2 FEATURES

- Body in alluminium die-cast
- Available as type A (regulator)
- Available as type F (regulator + UPSO)
- UPSO device with automatic or manual re-arming
- Fixed setting
- Sealable
- Anti-Tampering construction
- Built-in filter (upon request)
- Suitable for outdoor installation
- Painting on request

### 3 TECHNICAL DATA

	Layout	inlet Pressure	Outlet Pressure	Nominal Capacity (m <sup>3</sup> /h)	Regulating class (AC)	Closing pressure class (SG)	Working temp. (°C)	Connections
		bar	mbar					
<b>R1</b>	<b>N</b>	0,4	12 ÷ 55	6 - 12,5	10	20 (P=0,2) 30 (P=0,4)	-20 ÷ 60	3/4" 7/8" 1"
	<b>M</b>							
<b>R2</b>	<b>N</b>	0,2	12 ÷ 37	6		20		
	<b>M</b>							
	<b>H</b>							

Available layout:

- **M: Straight connection**
- **N: Angle connection**
- **H: Angle Horizontal connection**

## S1

### 1 SCOPE

The **S1** series regulators are a line of direct action type pressure regulators, double stage, normally used for domestic applications, if directly assembled to the meter or in decompression installations in gas grids and industrial uses for natural and manufactured gas, lpg, or other non-corrosive preliminarily treated stable gas.

### S1



### 2 FEATURES

- Body in zamak (ZA4G)
- Available as type B (excess flow)
- Available as type C (OPSO and excess flow)
- Available as type D (OPSO and UPSO)
- Built-in pressure relief valve
- UPSO device available with manual or automatic re-arming
- Pressure test nipple
- Adjustable settings or fixed set-point
- Painting on request
- Arctic version: working temperature  $-40 \div 60^{\circ}\text{C}$

### 3 TECHNICAL DATA

	Layout	Inlet Pressure	Outlet Pressure	Nominal Capacity (m <sup>3</sup> /h)	Regulating class (AC)	Closing pressure class (SG)	Working temp. (°C)	Connections
		bar	mbar					
<b>S1</b>	<b>N</b>	0,5 ÷ 5	11 ÷ 100	6	up to 10	up to 20	-20 ÷ 60	See table
	<b>M</b>			10				
	<b>U</b>			25				
<b>S1 BCH</b>	<b>N</b>	1 ÷ 5	100 ÷ 300	6				
	<b>M</b>			10				
	<b>U</b>			25				

Available layout:

- **N: Angle connection**
- **M: Straight connection**
- **U: Bottom entry**

## S3

### 1 SCOPE

The **S3** series regulators are a line of direct action type pressure regulators, double stage, normally used for domestic applications, if directly assembled to the meter or in decompression installations in gas grids and industrial uses for natural and manufactured gas, lpg, or other non-corrosive preliminarily treated stable gas.

### S3



### 2 FEATURES

- Body in zamak (ZA4G)
- Safety: Fixed UPSO and excess of flow
- Built-in pressure relief valve
- UPSO device available with manual re-arming
- Fixed setting point or adjustable setting
- Anti-Tampering construction
- In accordance to NF E29-190-2 (05/11) + NF404

### 3 TECHNICAL DATA

	Layout	inlet Pressure	Outlet Pressure	Nominal Capacity (m <sup>3</sup> /h)	Regulating class (AC)	Closing pressure class (SG)	Working temp. (°C)	Connections
		bar	mbar					
<b>S3</b>	<b>N</b>	0,5 ÷ 5	11 ÷ 37 11 ÷ 100 (adjustable version)	6	up to 10	up to 20	-20 ÷ 60	See table
				10				

Available layout:

- **N: Angle connection**



## S4

### 1 SCOPE

The **S4** series regulators are a line of direct action type pressure regulators, double stage, normally used for domestic applications, if directly assembled to the meter or in decompression installations in gas grids and industrial uses for natural and manufactured gas, lpg, or other non-corrosive preliminarily treated stable gas.

### S4



### 2 FEATURES

- Body in zamak (ZA4G)
- Available as type B (equipped with excess flow)
- Available as type C (equipped with excess flow and OPSO)
- Available as type D (UPSO and OPSO)
- Built-in pressure relief valve
- UPSO device with manual and/or automatic re-arming
- Available with fixed setup or adjustable setting
- Pressure test nipple
- Painting on request
- Arctic version: working temperature  $-40 \div 60^{\circ}\text{C}$

### 3 TECHNICAL DATA

	Layout	inlet Pressure	Outlet Pressure	Nominal Capacity (m³/h)	Regulating class (AC)	Closing pressure class (SG)	Working temp. (°C)	Connections	
		bar	mbar					inlet	Outlet
S4	N	0,5 ÷ 5	11 ÷ 100	40	up to 5	up to 10	-20 ÷ 60	3/4"	1"
				50					
				60					
	M			70					
				80					
				100					
S4 BCH	N	1 ÷ 5	100 ÷ 300	30			1"1/4	1"	
	M			40					
				50					

Available layout:

- **M: Straight connection**
- **N: Angle connection**

### 1 SCOPE

The **S7** series regulators are a line of direct action type pressure regulators, double stage, normally used for domestic applications, if directly assembled to the meter or in decompression installations in gas grids and industrial uses for natural and manufactured gas, lpg, or other non-corrosive preliminarily treated stable gas.

### S7



### 2 FEATURES

- Body in aluminium die-cast
- Diaphragms in rubber (with cloth enforcement for MP version)
- Available with or without OPSO - UPSO and excess of flow
- Adjustable OPSO and UPSO
- Built-in pressure relief valve
- Built-in filter
- Pressure test nipple
- Manual re-arming with anti-reset device
- Fully maintainable
- Adjustable settings
- Painting on request
- For Reference User Guide 50

### 3 TECHNICAL DATA

	Variants	Inlet Pressure	Outlet Pressure	Nominal Capacity (m <sup>3</sup> /h)	Regulating class (AC)	Closing pressure class (SG)	Working temp. (°C)	Connections
		bar	mbar					
<b>S7</b>	BP	0,5 ÷ 6	14 ÷ 150	6	up to 5	up to 10	-30 ÷ 60	See table
				10				
	MP	1 ÷ 6	150 ÷ 450	25				

Available layout:

- **L: Straight connection**
- **S: Angle connection**
- **U: Bottom entry**

## S10

### 1 SCOPE

The **S10** series regulators are a line of direct action type pressure governors, normally used for domestic applications, generally installed directly to the meter or in installations in gas grids for natural and manufactured gas, lpg, or other non-corrosive preliminarily treated stable gas.

### S10



### 2 FEATURES

- Body in alluminium die-cast
- Shut-off in case of excess of flow
- Available as type A (regulator)
- Available as type F (regulator + UPSO)
- UPSO device with automatic or manual re-arming
- Full discharge or partial relief valve
- Adjustable setting
- Built-in filter
- Suitable for outdoor installation
- Painting on request

### 3 TECHNICAL DATA

	Layout	inlet Pressure	Outlet Pressure	Nominal Capacity (m³/h)	Regulating class (AC)	Closing pressure class (SG)	Working temp. (°C)	Connections				
		bar	mbar									
S10	H	0,2 ÷ 1 1 ÷ 5	12 ÷ 150	4	up to 10	up to 20	-20 ÷ 60	1/2" 3/4"				
				6								
	M			10								
S10	H	1 ÷ 5	150 ÷ 400	15								
	M											

Available Layout:

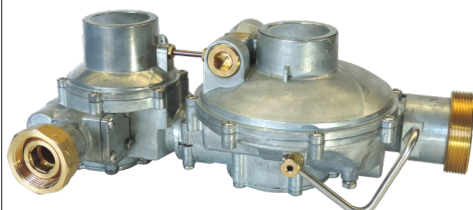
- **H: Angle Horizontal connection**
- **M: Straight connection**

## S8

### 1 SCOPE

The **S8** series regulators are a line of direct action type pressure regulators, double stage, normally used for domestic applications, if directly assembled to the meter or in decompression installations in gas grids and industrial uses for natural and manufactured gas, lpg, or other non-corrosive preliminarily treated stable gas.

### S8



### 2 FEATURES

- Body in zamak (ZA4G)
- Available as type B (excess flow)
- Available as type C (excess flow and OPSO)
- Available as type D (UPSO and OPSO)
- Built-in pressure relief valve
- Built-in filter
- UPSO device with manual re-arming
- Fixed settings
- Pressure test nipple

### 3 TECHNICAL DATA

	Inlet Pressure	Outlet Pressure	Nominal Capacity (m <sup>3</sup> /h)	Regulating class (AC)	Closing pressure class (SG)	Working temp. (°C)	Connections	
	bar	mbar					Inlet	Outlet
<b>S8</b>	0,5 ÷ 5	11 ÷ 100	100	up to 5	up to 10	-20 ÷ 60	3/4" 1"	1"1/2 2"
<b>S8 BCH</b>	0,8	300	125					

Available layout:

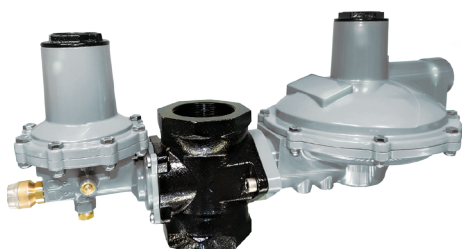
- **N:** Angle connection
- **U:** Bottom entry

## S5-S6

### 1 SCOPE

The **S5** and **S6** regulator due to their operating specifications are mainly used in those system where sudden capacity variations are required, or else, where the cut-off of the gas distribution is controlled by solenoid valve. They can be used with natural gas, air, propane and other gases, as long as they do not contain a high percentage of benzole.

### S5-S6



### 2 FEATURES

- Body in cast iron
- Covers in aluminium die-cast
- Diaphragms in rubber with cloth enforcement
- Safety device with manual re-arming
- Adjustable setting
- Full discharge or partial relief valve
- Thraded connections in accordance to BSP and NPT (ISO)
- Flange in accordance to
- Gas loss protection (optional)
- In accordance to 2014/68/EU - EN334

### 3 TECHNICAL DATA

	Versions	inlet Pressure	Outlet Pressure	Regulating class (AC)	Closing pressure class (SG)	Working temp. (°C)	CG (valve coefficient)	Connections
		bar	mbar					
<b>S5</b>	<b>A</b>	0,5 ÷ 8	9 ÷ 400	up to 5	up to 10	-20 ÷ 60	105	1" x 1" 1" x 1"1/4
<b>S6</b>	<b>L</b>							1 x 1"1/2 1"1/4 x 1"1/4
<b>S6</b>	<b>H</b>						209	1"1/2 x 1"1/2 2" x 2"
<b>S6</b>	<b>I</b>							

Available versions:

- **A: unbalanced**
- **L: balanced**
- **H: balanced + OPSO shut-off valve**
- **I: balanced + OPSO/UPSO shut-off valve**

## S21

### 1 SCOPE

The **S21** regulators are a new line of pressure regulators – direct operating type – designed to guarantee a high regulation accuracy and a utmost easiness in use. These devices are usually used in distribution and industrial systems and are designed to be installed in regulation units in gas grids of natural, manufactured and lpg gas or other non corrosive gases, filtered at first.

### S21



### 2 FEATURES

- Body in cast iron or steel
- Covers in aluminium die-cast
- Diaphragms in rubber with cloth enforcement
- Seats in stainless steel
- Springs in stainless steel
- Counterbalanced
- Anti-pumping device
- Diaphragm shock adsorber or relief valve
- Top entry
- In accordance to 97/23 EC (PED) - EN334
- For reference see User Guide 100

### 3 TECHNICAL DATA

	Inlet Pressure			Outlet Pressure				Regulating class (AC)	Closing pressure class (SG)	Working temp. (°C)	CG (valve coefficient)	Con-nections
	BP, MP, AP	APS	APA	BP	MP	AP, APS	AP, APA					
	bar			mbar								
S21	5 or 6	19		14 ÷ 150	150 ÷ 500	500 ÷ 4000		up to 5	up to 10	-20(-30) ÷ 60	160	1" x 1"
S21	5 or 6		19				500 ÷ 4000				1"x1"1/2	
S21	5 or 6		19				500 ÷ 4000				1"x1"1/2	

#### Available versions:

- **B:** with OPSO/UPSO shut-off valve



## S22

### 1 SCOPE

The **S22** are a new line of pressure regulator – spring loaded – suitable for use in canalized nets of low and medium pressure with non-corrosive gas filtered at first.

The feature peculiar to IPR regulators is the trivalent operating, i.e. in a single body is united the following operations: main regulator, monitor, shut-off valve.

Special use of a single body allows to reduce overall dimensions of regulation units and solve problems of replacement or conversion of existing units out of standard.

### S22



### 2 FEATURES

- Body in cast iron or steel
- Covers in aluminium die-cast
- Diaphragms in rubber with cloth enforcement
- Seats in stainless steel
- Springs in stainless steel
- Counterbalanced
- Anti-pumping device
- Diaphragm shock adsorber
- Top entry
- In accordance to 97/23 EC (PED) - EN334
- For reference see User Guide 100

### 3 TECHNICAL DATA

	Variants	inlet Pressure		Outlet Pressure			Regulating class (AC)	Closing pressure class (SG)	Working temp. (°C)	CG (valve coefficient)	Connections
		BP, MP, AP	APA	BP	MP	AP, APA					
		bar		mbar							
S22	B	5 or 6	19	14 ÷ 150	150 ÷ 500	500 ÷ 4000	up to 5	up to 10	-20(-30) ÷ 60	574	DN40
	X										
	XB										
S22	B	5 or 6	19	14 ÷ 150	150 ÷ 500	500 ÷ 4000	up to 5	up to 10	-20(-30) ÷ 60	1160	DN50
	X										
	XB										

#### Available versions:

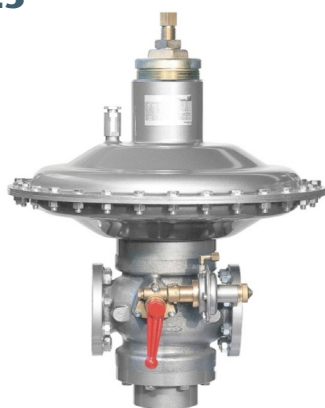
- **X:** With built-in emergency regulator and shut-off valve
- **XB:** With built-in double shut-off valve

## S23

### 1 SCOPE

The **S23** Regulators are a new line of pressure regulators – direct operating type – designed to guarantee a high regulation accuracy and a utmost easiness in use. These devices are usually used in distribution and industrial systems and are designed to be installed in regulation units in gas grids of natural, manufactured and lpg gas or other non corrosive gases, filtered at first.

### S23



### 2 FEATURES

- Body in cast iron or steel
- Covers in pressed steel
- Diaphragms in rubber with cloth enforcement
- Seats in stainless steel
- Springs in stainless steel
- Counterbalanced
- Anti-pumping device
- Diaphragm shock adsorber
- Top entry
- In accordance to 97/23 EC (PED) - EN334
- For reference see User Guide 200

### 3 TECHNICAL DATA

	Inlet Pressure		Outlet Pressure				Regulating class (AC)	Closing pressure class (SG)	Working temp. (°C)	CG (valve coefficient)	Connections
	BP, MP, AP	APA	BP	MP	AP	APA					
	bar		mbar								
S23	5 or 6	19	14 ÷ 80	75 ÷ 500	470 ÷ 2000	2000 ÷ 4000	up to 5	up to 10	-20 ÷ 60 °C		DN50
S23	5 or 6									3380	DN80

#### Available versions:

- **B:** with built-in OPSO/UPSO shut-off valve
- **M:** with built-in Monitor
- **MB:** with Monitor and shut-off valve

## S24

### 1 SCOPE

**S24** are a new line of pressure regulator – pilot-controlled – suitable for use in canalized nets of low and medium pressure with non-corrosive gas filtered at first.

The feature peculiar to TPR regulators is the trivalent operating, i.e. in a single body is united the following operations: main regulator, monitor, shut-off valve.

Special use of a single body allows to reduce overall dimensions of regulation units and solve problems of replacement or conversion of existing units out of standard.

### S24



### 2 FEATURES

- Body in cast iron or steel
- Covers in steel
- Diaphragms in rubber with cloth enforcement
- Seats in stainless steel
- Springs in stainless steel
- Counterbalanced
- Anti-pumping device
- Diaphragm shock adsorber
- Top entry
- In accordance to 97/23 EC (PED) - EN334
- For reference see User Guide 400

### 3 TECHNICAL DATA

	Variants	Inlet Pressure (bar)	Outlet Pressure (mbar)	Regulating class (AC)	Closing pressure class (SG)	Working temp. (°C)	CG (valve coefficient)	Connections
S24	B	20	10 ÷ 12000	up to 1	up to 5	-20 ÷ 60	574	DN25
	X							
S24	B						2250	DN50
	X							
S24	B						4950	DN80
	X							

Available versions:

- **M:** With built-in emergency regulator
- **B:** With built-in OPSO/UPSO shut-off valve
- **X:** With monitor and shut-off valve

## S25

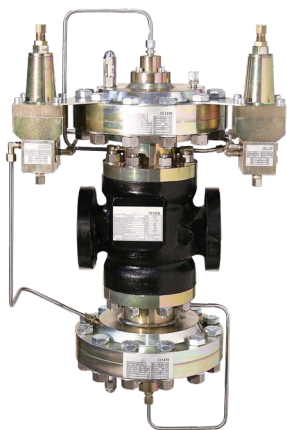
### 1 SCOPE

**S25** are a new line of pressure regulator – pilot-controlled – suitable for use in high pressure gas network with non-corrosive gas filtered at first.

The feature peculiar to APR regulators is the trivalent operating, i.e. in a single body is united the following operations: main regulator, monitor, shut-off valve.

Special use of a single body allows to reduce overall dimensions of regulation units and solve problems of replacement or conversion of existing units out of standard.

### S25



### 2 FEATURES

- Body in steel
- Covers in steel
- Diaphragms in rubber with cloth enforcement
- Seats in stainless steel
- Springs in stainless steel
- Counterbalanced
- Anti-pumping device
- Diaphragm shock adsorber
- Top entry
- In accordance to 97/23 EC (PED) - EN334
- For reference see User Guide 300

### 3 TECHNICAL DATA

	Variants	Inlet Pressure (bar)	Outlet Pressure (bar)	Regulating class (AC)	Closing pressure class (SG)	Working temp. (°C)	CG (valve coefficient)	Connections
S25	B	100	0,5 ÷ 40	up to 1	up to 5	-20 ÷ 60	574	DN25
	X							
S25	B						2250	DN50
	X							
S25	B						4950	DN80
	X							

Available versions:

- **M:** With built-in emergency regulator
- **B:** With built-in OPSO/UPSO shut-off valve
- **X:** With monitor and shut-off valve

## S26

### 1 SCOPE

**S26** safety valves are a new line of products – direct operating type – designed to guarantee a utmost easiness in use. These devices are usually used in distribution and industrial systems and are designed to be installed in regulation units in gas grids of natural, manufactured and lpg gas or other non corrosive gases, filtered at first.

### S26



### 2 FEATURES

- Body in cast iron or steel
- Diaphragms in rubber with cloth enforcement
- Seats in stainless steel
- Springs in stainless steel
- In accordance to 97/23 EC (PED) - EN334
- For reference see User Guide 500

### 3 TECHNICAL DATA

	Inlet Pressure (bar)	Outlet Pressure (mbar)	Working temp. (°C)	CG (valve coefficient)	Connections
<b>S26</b>	5 or 6 or 20	10 ÷ 4000	-20 (-30) ÷ 60	160	1" x 1"
<b>S26</b>				281	1" x 1 1/2"
<b>S26</b>				410	1" x 1 1/2"
<b>S26</b>	5 or 6 or 20	10 ÷ 4000	-20 (-30) ÷ 60	574	DN40
<b>S26</b>				1160	DN50
<b>S26</b>				3380	DN80

## S27

**1 SCOPE**

The Relief valves **S27** are devices which function is to maintain the pressure in the system or in pressure vessels within the limit set for the intervention.

These devices intervene following short-term events, providing to discharge externally a certain quantity of gas when the grid pressure exceeds the calibration pressure, thus avoiding or postponing the intervention of the slam shut devices.

**S27****2 FEATURES**

- Body in aluminium die-cast or steel
- Diaphragms in rubber with cloth enforcement
- Seats in brass
- Springs in stainless steel

**3 TECHNICAL DATA**

	Design Pressure (bar)	Pressure ranges (bar)				Seat diameter (mm)	Working temp. (°C)
		BP	MP	AP	APtr		
<b>S27</b>	6	0 ÷ 0,15	0,15 ÷ 0,7	0,5 ÷ 1,3	1 ÷ 2,8	20	-20 ÷ 60
<b>S27</b>	10			2 ÷ 7			



## SS/BE/20140209 - Version 1

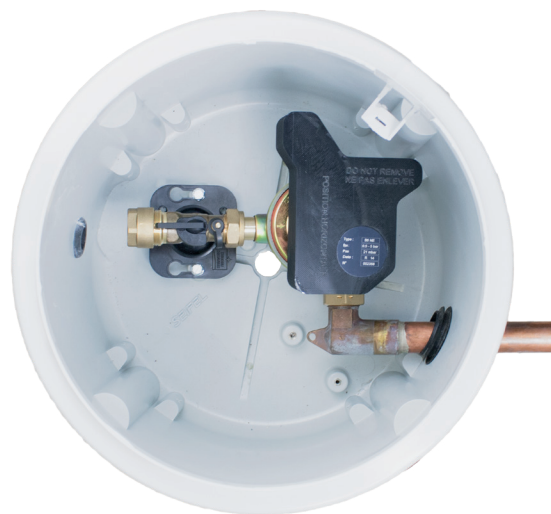
We have conceived an anti-flood system, covering a surface of 10600 mm<sup>2</sup>, to be fitted to the whole range of the regulators designed for residential applications, buried version (regulator with capacity equal to or below 50m<sup>3</sup>/h). The "anti-flooding hood" system described above is therefore adaptable to all our models for series S1, S3 and S4.

Thanks to this system, the gas-regulator can be easily reset or put into service and the connections can be disassembled without any need of system dismantling. An identification plate, identical to that of the regulator, can be positioned into the anti-flooding hood. Some materials composing the regulator and in contact with the surrounding atmosphere shall be submitted to surface treatment in order to increase the product longevity in a very humid environment or subject to flood.

The parts in contact with the atmosphere made of: - Zamak will be covered with an electrolytic protective layer (dichromated zinc coating 18μ); - Aluminium shall undergo a chemical reaction (anodizing). The springs in contact with the atmosphere must be in stainless steel. (resetting lever, first and second stage pressure regulating spring).

The designs of these regulators foresee that all vents will be protected by this system.

### B6M - S1



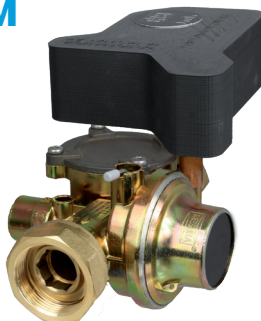
### C25N - S4



### B25N S1



### B6M S1



### B6N S3



### C10N S1



### C25N S4



# Conversion Table

## CONVERSION FACTORS

Multiply	By	To Obtain
<b>LENGTH &amp; AREA</b>		
Millimeters	0.0394	Inches
Meters	3.2808	Feet
Sq. Centimeters	0.155	Sq. Inches
Sq. Meters	10.764	Sq. Feet
<b>VOLUME &amp; MASS</b>		
Cubic Meters	35.315	Cubic Feet
Liters	0.0353	Cubic Feet
Gallons	0.1337	Cubic Feet
Cubic cm.	0.061	Cubic Inches
Liters	2.114	Pints (US)
Liters	0.2642	Gallons (US)
Kilograms	2.2046	Pounds
Tonnes	1.1024	Tons (US)
<b>PRESSURE &amp; FLOW RATE</b>		
Millibars	0.4018	Inches w.c.
Ounces/sq. in.	1.733	Inches w.c.
Inches w.c.	0.0361	Pounds/sq. in.
Bars	14.50	Pounds/sq. in.
Kilopascals	0.1450	Pounds/sq. in.
Kilograms/sq. cm.	14.222	Pounds/sq. in.
Pounds/sq. in.	0.068	Atmospheres
Liters/hr.	0.0353	Cubic Feet/hr.
Cubic Meters/hr.	4.403	Gallons/min.
<b>MISCELLANEOUS</b>		
Kilojoules	0.9478	BTU
Calories, kg	3.968	BTU
Watts	3.414	BTU/HR
BTU	0.00001	Therms
Megajoules	0.00948	Therms

## CONVERSION FACTORS

Multiply	By	To Obtain
<b>LENGTH &amp; AREA</b>		
Inches	25.4	Millimeters
Feet	0.3048	Meters
Sq. Inches	6.4516	Sq. Centimeters
Sq. Feet	0.0929	Sq. Meters
<b>VOLUME &amp; MASS</b>		
Cubic Feet	0.0283	Cubic Meters
Cubic Feet	28.316	Liters
Cubic Feet	7.481	Gallons
Cubic Inches	16.387	Cubic cm.
Pints (US)	0.473	Liters
Gallons (US)	3.785	Liters
Pounds	0.4535	Kilograms
Tons (US)	0.9071	Tonnes
<b>PRESSURE &amp; FLOW RATE</b>		
Inches w.c.	2.488	Millibars
Inches w.c.	0.577	Ounces/sq. in.
Pounds/sq. in.	27.71	Inches w.c.
Pounds/sq. in.	0.0689	Bars
Pounds/sq. in.	6.895	Kilopascals
Pounds/sq. in.	0.0703	Kilograms/sq. cm.
Atmospheres	14.696	Pounds/sq. in.
Cubic Feet/hr.	28.316	Liters/hr.
Gallons/min.	0.2271	Cubic Meters/hr.
<b>MISCELLANEOUS</b>		
BTU	1.055	Kilojoules
BTU	0.252	Calories, kg
BTU/HR	0.293	Watts
Therms	100,000	BTU
Therms	105.5	Megajoules

## FLOW EQUIVALENTS

To convert flow capacities of one kind of gas to flow capacities of a different kind of gas.

		MULTIPLY BY:
If you have a flow capacity (CFH, etc.) in NATURAL GAS and want to know equivalent flow capacity of—	Propane:	0.63
	Butane:	0.55
	Air:	0.77
If you have BUTANE and want to know equivalent flow capacity of—	Propane:	1.15
	Butane:	1.83
	Air:	1.42
If you have AIR and want to know equivalent flow capacity of—	Propane:	0.81
	Butane:	0.71
	Air:	1.29
If you have PROPANE and want to know equivalent flow capacity of—	Propane:	0.87
	Butane:	1.59
	Air:	1.23

## FLOW EQUIVALENTS

		MULTIPLY BY:
If you have 1Kg of LPG(*) and want to know equivalent flow capacity of—	m³ Natural Gas:	1.333
	litre of LPG(*):	1.770
If you have 1 m³ of Natural Gas and want to know equivalent flow capacity of—	kg of LPG(*):	0.750
	litre of LPG(*):	0.692
If you have 1litre of LPG(*) and want to know equivalent flow capacity of—	m³ Natural Gas:	1.446
	kg of LPG(*):	0.565

(\*) LPG is a commercial mixture of Propane and Butane in different percentages so, the correction factor may vary according to specific composition.

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