


Clesse Industries based in France, headquarters and factory are located in Cournon d'Auvergne, has subsidiaries in UK, Italy (Novacommet) and Brazil, and the company designs, manufactures and supplies worldwide, products mainly dedicated to LPG and Natural Gas.

Novacommet, due to its development of new regulators and industrial activities, manufacturing knowhow, becomes a well known brand in the world of LPG.

With more than 60 years of experience, and at the forefront of innovation and development, Clesse is widely recognised as the reference for quality and reliability to the professionals in the gas industry.

Our key products lines focus around gas regulators, valves, fittings and safety accessories, to be installed on gas networks distribution, storage tanks, cylinders and pipes.

<p>1850</p> <p>Mr Georges CLESSE opens a workshop for the cold stamping of metal sheets, for making bridal baskets, plates for bicycles and cars</p>	<p>1989</p> <p>The LEGRIS INDUSTRIES group buys CLESSE-MANDET and NOVACOMET (Italy). Integrated in the COMAP group, CLESSE is expanding and becoming No. 1 in Europe for the manufacture of regulators for LPG</p> 
<p>1899</p> <p>PINGEOT and BARDIN is established in Clermont-Ferrand under a subcontract for the supply of pumps, valves and metal accessories for MICHELIN.</p> 	<p>1993</p> <p>Creation of a factory in Cournon d'Auvergne: birth of the CLESSE INDUSTRIES group</p> 
<p>1932</p> <p>Arrival of butane gas in France. Launch of the first production of bottle valves and regulators.</p>	<p>1997</p> <p>Creation of a subsidiary CLESSE in Brazil to meet the specific needs of the country</p>
<p>1967</p> <p>CLESSE, still in the process of expansion, acquires MANDET Company</p> 	<p>2002</p> <p>Creation of CLESSE INDUSTRIES SAS, current structure with 4 companies (France, Italy, Brazil and UK).</p>
<p>1950</p> <p>The company CLESSE is modernizing. The first domestic installations with Butane and Propane are developing. Clesse becomes the leader in this market.</p>	<p>2005</p> <p>Creation of the subsidiary CLESSE in the United Kingdom.</p>
<p>1986</p> <p>CLESSE acquires the activities "natural gas equipment", "equipment for butane and propane" and "equipment for the sanitary" (hydropneumatic flush "La Tombe") to the company PINGEOT-BARDIN ...</p> 	<p>2006</p> <p>CLESSE INDUSTRIES is part of the Dutch group AALBERTS INDUSTRIES, through its headquarter COMAP.</p>
<p>1987</p> <p>CLESSE-MANDET, which became No. 1 in France of the regulator industry for butane and propane (LPG) and natural gas (GN), is listed on the Paris stock exchange.</p>	<p>2008</p> <p>Establishment of a production plant in china to supply the manufacturers of gas barbecues, mainly made in this area.</p> <p>2015</p> <p>Acquisition of CLESSE INDUSTRIES by ANDLINGER & COMPANY</p>




CLESSE



Clesse Industries designs, manufactures and supplies across the globe products for LP Gas (Butane-Propane), Natural Gas, Biomethane and Synthetic Natural Gas installations. Our key product lines focus around gas regulators, valves, fittings and safety accessories, to be installed on gas networks distribution, storage tanks, cylinders and pipes.

Headquarters and factory are located in Cournon d’Auvergne, (France). The company also has within its organisation Italian manufacturing company Novacommet and Clesse Brazil, further adding to the range of products and development required from a modern provider of gas design solutions. Strengthening the business also are local subsidiary divisions dedicated to distribution, technical service and assembly in UK, France, Italy and Brazil, and together with our international distribution partners Clesse provides unique direct connectivity to customers, ensuring that the company remains at the forefront of the global gas business.

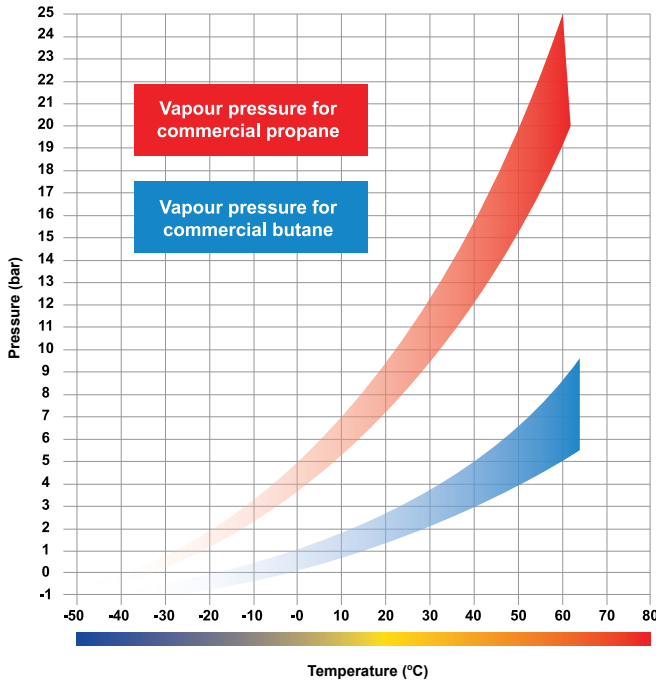




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Gas types, vaporisation cylinder off-take rates and conversion tables



Type of gas in the cylinders

LPG (liquefied petroleum gas) contained in the cylinders is supplied either as Butane or Propane or a mix of both. Commercial Butane contains approximately 80-90% of Butane, whilst Commercial Propane contains approximately 90% Propane.

Large quantities of flammable vapour can be produced from relatively small amounts of liquid LPG stored in cylinders and gas tanks. This makes LPG an ideal portable fuel. Cylinders must always remain upright to ensure only vapour exits the cylinder valve before it enters the regulators.

At atmospheric pressure BUTANE boils at -2°C and PROPANE boils at -45°C

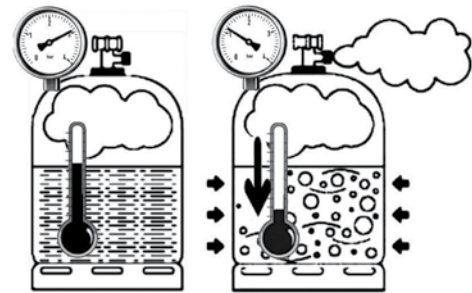
Contained in cylinders or bulk tank, LPG remains a liquid under pressure and this pressure depends on the type of LPG and the ambient or cylinder temperature surrounding the cylinder. The chart shows the vapour pressure within a gas cylinder at various ambient temperatures.

Vaporisation in the cylinder

In a cylinder LPG is liquid at the bottom and vapour under pressure at the top. When there is an off-take of gas, the gas volume is regenerated by boiling off the liquid part. This vaporisation cools down the liquid. The heat required to allow the LPG to continue to boil is the surrounding air or ambient temperature in contact with the cylinder.

Propane delivers high pressure at colder temperatures and is vaporised faster so is used and stored outside. Butane is used mainly for indoor or summer use.

During off-take, the temperature decreases, then the pressure decreases. When only a small amount of liquid remains in the cylinder, the pressure is lower than when the cylinder was full. Likewise the larger the cylinder the greater the surface area and so more vapour can be produced. This is the vaporisation rate.



Typical vaporisation rates on cylinders

The maximum flow rate depends on:

- the type of gas
- the level in the cylinder
- the ambient temperature
- the duration of use
- the dimension and material of the cylinder
- the number of cylinders

Cylinders can only supply a certain rate of vapour and must be sized so as to meet the heat input of the appliances. Often an overlooked part of a LPG installation the correct sizing and quantity of cylinders will ensure that the cylinder regulator delivers the correct delivery pressure or automatic changeover using the full contents of a cylinder before eventually selecting the reserve cylinder contents.

The capacity we declare is normally "worst case scenario" to ensure the regulator or ACO (Automatic Changeover) operate in both very cold or hot climatic conditions and low cylinder contents. This means in most cases our regulators are "understated".

Off-take rates for cylinders are typically as indicated below and based on a continuous off-take rate, some installations will require more than one cylinder and so automatic changeovers are used.

Recommended maximum off-take rates for LPG cylinders

	Cylinder size (kg)	Offtake rate (kg/h)	Offtake rate kW (kilowatt)
Butane	15	0.70	9.70
Propane	13	1.05	14.60
	19	1.32	18.35
	47	2.37	32.94

Example

When supplying Cooker 12kW, CH boiler 28kW and fire 14kW total load is 54kW. Therefore 2x47kg cylinder combined will need to be used. An ACO will need to be used with 4 cylinders (2 per side) Compact 800 -5kg/h supplying 69kW at 37mb outlet pressure would be ideal.

Note: 1kg/h Gas Flow rate = 13.8kW = 47,500BTU/h



Behaviour

LPG exists as a gas at normal atmospheric pressure & temperatures, but may be liquefied by the application of moderate pressure. If the pressure is released the liquid will revert back to vapour.

Colour

LPG as a liquid is colourless and as a vapour, can not be seen.

Smell

Pure LPG has no distinctive smell so for safety reasons a stenching agent is added during production to give a pungent, unpleasant smell and so as to aid detection.

Toxicity

LPG is non-toxic but at very high concentrations in air. LPG vapour acts as an anaesthetic and subsequently an asphyxiate by diluting or decreasing the available oxygen.

Flammability

When LPG is mixed with air, a highly flammable mixture is produced. The flammability range is between 2% to 10% by volume of gas to air. Outside this range any mixture is either too weak or rich to potentially ignite.

Vaporisation

One volume of liquid will produce approximately 250 volume of gas vapour. "A little goes a long way, treat LPG with respect".

Vapour density

LPG vapour is heavier than air. Any escapes will find its way to the lowest level where it can remain and form a flammable mixture. Therefore LPG vessels must be sited away from drains and appliances must not be sited in basements or cellars. Cylinders in boats and ships must be stored in purpose built sealed gas lockers.

Liquid density

LPG is lighter than water and therefore floats on top of it in a similar way to oil and petrol. Therefore LPG vessels must be sited away from drains and gullies.

Vapour pressure

The pressure LPG exerts on a vessel varies with ambient temperature. The higher the temperature of the liquid the higher the vapour pressure, conversely the lower the temperature the lower the pressure. This means LPG must be protected from heat sources and protective safety distances imposed on the siting and storage of LPG.

Commercial Propane has a vapour pressure of approximately 7bar (100psi) at 15°C (similar to the pressure found in a lorry tyre).

Commercial Butane has a vapour pressure of approximately 1.5bar (22psi at 15°C (similar to the pressure found in a car tyre).

Because of these characteristics, Commercial Butane can be used indoors and Commercial Propane must only be used outdoors.

Expansion

When LPG is heated it expands very rapidly. In order to allow for expansion LPG cylinders and tanks are only filled by volume to a maximum of 87% of the total volume of the retaining vessel.

Boiling point

The boiling point is the temperature below which LPG will not vaporise to form a gas vapour.

Boiling point of Commercial Propane is approximately – 42°C.

Boiling point of Commercial Butane is approximately – 2°C.

Commercial Butane can be affected by cold weather resulting in poor pressure and should not be used outdoors in winter months. Commercial Propane is not adversely affected by cold weather and is an ideal fuel source for heating, cooking and industrial applications. However care must be taken for skin not to come in contact with liquid LPG as cold burns may occur.

Searching

LPG in both its liquefied and gaseous state has a very low viscosity and will flow very easily like water, petrol etc. This means it will flow with ease and penetrate any breaks or weakness in the installation. Therefore, special jointing compounds must be used for LPG installations and certified for use with the service conditions – such as Clessetite.

Chemical reaction

LPG is aggressive to certain non-metallic materials like natural rubber and many plastics; therefore equipment and hoses must be suitable for LPG. Clesse uses only the best rubber hoses from certified European manufacturers.

Calorific value

The Calorific Value of a fuel is described as "The amount of heat released when a known quantity of fuel is burned".

Commercial Propane = 95 MJ / m³

Commercial Butane = 121 MJ / m³

Natural Gas = 38 MJ / m³

Because LPG appliances release more heat than Natural Gas, it is important that any gas appliances fuelled by LPG are designed and manufactured for that purpose i.e. they will often require special conversion by qualified persons.

Fuel / Air mix

Commercial Propane = 23:1

Commercial Butane = 30:1

Natural Gas = 9.6:1

Therefore, it is important that appliances fuelled by LPG are provided with adequate ventilation and serviced regularly to ensure that they burn efficiently.

Technical Typical Properties of Commercial LPG Grades	Commercial Propane	Commercial Butane
Gas: Air ratio for combustion	1:23	1:30
Flame temperature in air max. °C	1930	1900
Flame Speed cm/sec	44	44
Relative Density of liquid at 15.6 °C (Water at 0 °C = 1.0)	0.51	0.58
Litre/tonne at 15.6 °C	1975	1742
Relative Density of gas at 15.6 °C (Air at 15.6 °C = 1.0)	1.52	2.01
Volumes of gas (litres) per kg of liquid at 15.6 °C	537	411
Ratio gas: liquid volume at 15.6 °C	279	238
Boiling Point at 1 atm. °C	-45	-2
Vapour Pressure-typical bar g at 0 °C / 15.6 °C	3.8 / 6.4	0.5 / 1.6
Limits of flammability (percentage of gas by vol. In gas-air mixture)Upper / Lower	10 / 2	9 / 1.8



Terminology, Advice and Warnings

Regulation stages

In an LPG installation, there can be one, two or three pressure regulation stages. Depending on the number of stages and on the relative position, the regulator or the automatic changeover function is called:

- Single stage: the regulator or the automatic changeover reduces the pressure from the vessel pressure directly down to the appliance pressure.
- First stage: the regulator or the automatic changeover reduces the pressure from the vessel pressure down to an intermediate pressure.
- Second stage: the regulator reduces the pressure from the intermediate pressure down to the appliance pressure or to a second intermediate pressure.
- Third stage: the regulator reduces the pressure from the second intermediate pressure down to the appliance pressure.

High or low pressure regulator, governors

For LPG installations the regulators families are generally defined as follows:

- High pressure regulators: regulators delivering an outlet pressure (fixed or variable) higher than 500mbar. They are defined as single or first stage regulators.
- Low pressure regulators: regulators delivering an outlet pressure (fixed, adjustable or variable) lower than 500mbar. They are defined as single, second or third stage regulators.
- Governors: special type of regulators installed close to or in a gas appliance. Supplied with a low pressure (less than 500mbar) they deliver a very stable pressure to the gas appliance. They are normally defined as third stage regulators.

Automatic changeover devices

- Automatic changeover devices are used mainly with 2 LPG cylinders or 2 LPG cylinder batteries. Large capacity models can also be used with 2 LPG tanks.
- The first cylinder (or cylinder battery) is called "service" the second is called "reserve". The automatic changeover firstly takes the gas from the "service" cylinder. When the "service" cylinder is empty or when its vaporising capacity is not sufficient (high flow rate during a long time, use of butane-propane mixture, low temperature, low level in the cylinder, ...) it automatically changes to and takes the main flow from the reserve cylinder. An indicator (on the device or installed on the gas line) shows that the "service" cylinder is empty.
- This provides the following benefits:
 - continuous flow of gas, no more risk to run out of gas
 - use of 100% of the gas in the cylinder
 - high capacity with the minimum number of cylinders.
- The automatic changeover device also provides a first stage regulation function.

Some automatic changeover devices are equipped with an integral second stage regulator providing a single stage function.

Pressure limitors / monitor regulators

The pressure limitor is a high pressure regulator mounted in series with the normal high pressure regulator (or the high pressure automatic changeover device) for safety purpose. Its outlet pressure is set to a pressure which is slightly above that of the latter.

It allows continuous running of the installation even if the normal high pressure regulator (or automatic changeover device) is faulty.

When the installation includes a limitor, the guaranteed flow rate of the assembly (regulator + limitor) is reduced (-35% approx.).

Inlet (Upstream) pressure (Pu)

The inlet pressure (Pu) can be expressed in minimum and maximum values. When supplied with whatever pressure within the declared range (Pu.min / Pu.max) of inlet pressure, the regulator is able to deliver a stable outlet pressure with the specified type of gas and with whatever flow rate less than the declared one.

In some cases, the inlet pressure may be indicated as indicated in the following Example: "(0.3) 0.5-2.1". The recommended inlet pressure range for guaranteed performances is between 0.5 and 2.1bar, but in certain circumstances inlet pressure can be between 0.3 and 0.5bar. In this case the corresponding flow rate is mentioned in the same way "(xx)".

For regulators provided with a variable outlet pressure, the minimum inlet pressure is indicated in order to allow the declared flow rate whatever is the outlet pressure. For lower inlet pressure than the minimum indicated, the nominal features will not be guaranteed.

Inlet pressure is expressed in bar (or mbar).

Type of Nominal Outlet (Downstream) Pressure Setting (Pd)

The nominal outlet pressure (Pd) can be:

- "Fixed": outlet pressure is factory preset, with no possibility of readjustment.
Example: 37mbar
- "Adjustable regulated pressure may only be modified by a competent person at the time of installation or during maintenance; it is then fixed.
Example: 30 (25-35)mbar means preset at 30mbar, adjustable between 25 and 35mbar.

According to EN16129, the range of an adjustable regulating device shall remain within a tolerance of $\pm 15\%$ of the nominal regulated pressure.

To adjust the regulator, it's necessary to disassemble the cap, which can be:

- hand screwed, non-sealable
- hand screwed, sealable
- dismountable only with a special spanner
- "Variable": regulated pressure may be modified by the user with simple manipulation thanks to an external mean between two fixed limits.
Example:
 - 20-300mbar means: minimum setting 20mbar, maximum setting 300mbar

External mean can be:

- A multi-turn screw with hexagonal head
Recommended when no frequent setting is requested. A manometer is recommended.
- A multi-turn screw with hand wheel
Recommended when frequent setting is requested. A manometer is recommended.
- A one-turn hand wheel with positioning figures
Recommended when frequent setting is requested. A manometer is not necessary.

WARNING

Setting shall not be used to shut-off the gas flow.

Setting component must not be replaced.

Outlet pressure - "European" flow rate declaration

For whatever inlet pressure (Pu) within the declared range, for whatever flow rate less than the declared guaranteed flow rate (Mg) and with the declared gas, the outlet pressure (Pd) is stabilised between the following limits:

PMg: minimum outlet pressure (for guaranteed capacity)
PMP: maximum outlet pressure (for pilot capacity)
Po: lock-up pressure

Connections

The inlet or outlet connections are described by:

- A code, from our own codification system.
- A condensed description.

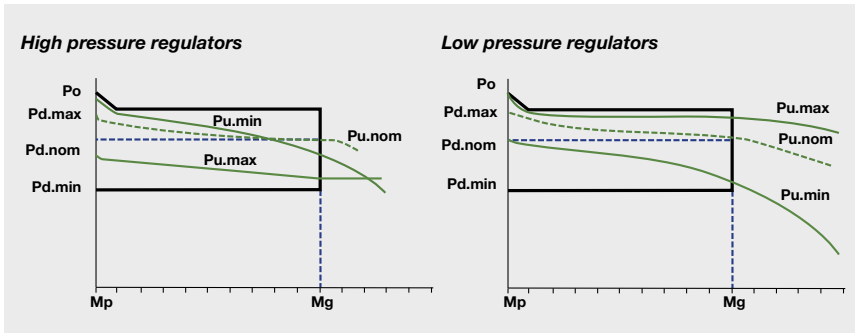
A complete description (type, dimensions, European Standard codes, gaskets ...) of the connection is given in chapter "connections guide".

WARNING

There are so many types of connections that we recommend carefully checking the full description, using the connection code and the table.



Typical curves:



For low pressure LPG regulators supplying directly to gas appliances complying with EN437, limits are:

Gas	Regulator outlet pressure (mbar)				Max pressure loss (1) (mbar)	Appliance Categories
	Pd	PMg	PMp	Po		
Butane	29 (28-30)	22	35	40	2	3B and 3+
Butane	50	47,5	57,5	62,5	5	3+
Butane	112	65	140	145	5	3+
LPG	29 (28-30)	27	35	40	2	3B/P
LPG	50	47,5	57,5	62,5	5	3B/P
Propane	37	27	45	50	2	3P AND 3+
Propane	50	47,5	57,5	62,5	5	3P
Propane	67	55	80	85	5	3+
Propane	148	105	180	185	5	3+

(1) Maximum pressure loss between the regulator and the appliance

For intermediate LPG outlet pressures limits are:

$$PMg = Pd \times 0.7 \quad PMp = Pd \times 1.2 \quad Po = Pd \times 1.3$$

PMg: minimum outlet pressure (for guaranteed capacity)
 PMp: maximum outlet pressure (for pilot capacity)
 Po: lock-up pressure

For integral two stage automatic changeover, the value of the nominal regulated pressure of the changeover function, is mentioned as Pdi.

Outlet pressure - "U.S." flow rate declaration

The rules differ from European flow rate declaration ones.

For instance for first stage LPG "variable" pressure regulator the rule is generally:

- Set pressure declared and established with $Pu=100\text{psig}$ and $Q=500\text{kBTU/hr}$.
- Capacity measured when Pd dropped 20% under set pressure, with $Pu = Pd \text{ set} + 20\text{psig}$.

Guaranteed flow rate – type of gas

This is the maximum flow rate for which a stable outlet pressure is guaranteed for whatever inlet pressure in the declared range. Flow rate is expressed in:

- kg/h and kW for regulators mainly intended to be used for LPG,
- (n)m³/h and kW for regulators mainly intended to be used for Natural Gas,
- kg/h, (n)m³/h and kW for regulators intended to be used for LPG or Natural Gas.

Capacity conversion: to get the "used gas" capacity, multiply the "declared gas" capacity by the coefficient.

Capacity conversion		Used gas						
To get the "used gas" capacity, multiply the "declared gas" capacity by the coefficient		Butane	Propane	Natural gas-H	Natural gas -L	SNG -Air propane	Air	Nitrogen
		kg/h	kg/h	(n)m ³ /h	(n)m ³ /h	(n)m ³ /h	(n)m ³ /h	(n)m ³ /h
Declared gas	Natural gas-H (n) m ³ /h	1.42	1.25	1.00	0.98	0.69	0.78	0.80
	Propane kg/h	1.15	1.00	0.80	0.78	0.55	0.62	0.63

(n)m³/h: capacity in the normal conditions (0°C and atmospheric pressure 1013mbar)

(S)m³/h: capacity in the standard conditions (15°C and atmospheric pressure 1013mbar)

kW: corresponding heating power to the declared capacity based on the high calorific value of the gas (LPG:13,8kW/kg and Natural Gas: 11,2kW/(n)m³).

Rubber material – gas quality

All the regulators are built to withstand the use of LPG (liquefied petroleum gas) in vapour phase, NG (Natural Gas), air, nitrogen.

In order to ensure correct operation and a long life expectancy, the gases employed should be sufficiently pure, and should contain non-aggressive components (sulphurous compounds, phthalic compounds, etc.).

In the case of suspicious presence of aggressive components, regulators using FPM rubber components (membrane, valve pad ...) are proposed or can be provided.

Pad material - diaphragm material

When different materials are used on products of the same family, they are indicated:

"NBR": nitril rubber, "NBR-R": reinforced nitril rubber "FPM": fluoropolymer elastomer, "FPM-R": reinforced fluoropolymer elastomer.

Temperature

Regulators equipped with membranes and valve pads made in NBR are suitable for temperatures (ambient or gas) between -20°C (-4°F) and +60°C (+140°F).

Note: the maximum temperature declaration is often limited at 50°C, for compliance with the maximum temperature written in the European standards, but all our regulators withstand 60°C.

Regulators equipped with membranes and valve pads made in FPM are suitable for temperatures (ambient or gas) between -10°C (-4°F) and +80°C (+175°F).

Warning: gas close downstream to an LPG vaporiser can reach high temperatures.

Pressure relief valve (PRV)

It is a safety device for the relief of excess pressure.

Excess pressure can result from:

- a - thermal expansion of trapped gas
- b - creeping lock-up pressure due to dirt between seat and pad
- c - breakage of regulator components

There are two types of relief valves:

- Limited relief valve ("LRV") which relieves a low flow (less than 10% of nominal regulator flow rate) and answers to excess pressures a & b.
- Full relief valve ("FRV") which relieves a high flow (100% of the nominal regulator flow rate), keeping the outlet pressure generally below 140mbar for low pressure regulators. It answers to excess pressures a, b & c.

Full relief valves are designed in accordance with US standards (UL-ANSI).

Construction can be:

- Internal ("Int"): relief through the vent.
- External ("Ext"): special device fitted on the regulator.

Vent

Vent position

When necessary, the position of the regulator vent is defined by a clock position looking from the top and starting from the outlet connection.

0h = over the outlet connection, 6h = opposite to the outlet connection

Vent connection

On certain regulators the vent can be connected to a pipe. The connection of a pipe is recommended (or mandatory, depending on local regulations) when the regulator is installed indoors, in order to convey any possible gas leakage outside.



OPSO safety device



The OPSO (Over Pressure Shut-Off) safety device, cuts off the gas flow in the event of abnormal over pressure that can be caused, for example, by an operating fault in a regulator (impurities on the valve seat or deterioration of a part) or by a defect in installation.

OPSO safety devices can apply either on high or low pressure regulators.

The triggering pressure of OPSO safety devices is adjustable.

- “yy” is the OPSO setting value when the regulator is equipped with an Over Pressure Shut-Off safety device
- “Y/U” (OPSO valve upstream) or “Y/D” (OPSO valve downstream) is indicated for stand-alone OPSO intended to be assembly with other regulators.

Note: In the event that the installation is pressurised but without any gas flow for a certain time, the temperature of the gas trapped in the tubes and regulators may rise, thus leading to an over pressure level that can trigger the OPSO safety valve.

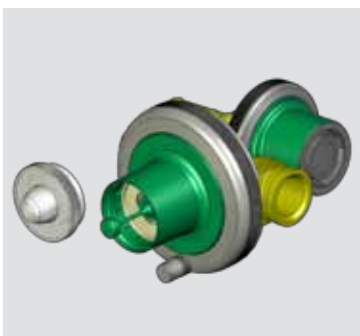
To avoid this problem, and provided that the solution is authorised, we recommend the use of a relief valve (separate or integrated in the regulator), especially for low pressure levels.

Consumer Safety Reset (CSR) Over Pressure Shut Off (OPSO[®]) system. New LPG safety system developed by Clesse enables the consumer to reset the regulator should the gas pressure exceed recommended limits, protecting appliances and property. Clear visible indication and resetting is performed by a “Push to reset” system, similar to electrical consumer RCD protection.

Consumer Safety Reset ‘The LPG circuit breaker’



UPS0 safety device



The UPS0 (Under Pressure Shut-Off) function, cuts off the gas flow in the event of an abnormal fall in pressure that can be caused, for example, by:

- flow rate exceeding the capacity of the gas installation (tank, piping, regulator...)
- a leak into the open air, rupture of the pipe downstream,
- a lack of pressure upstream.

The UPS0 safety device applies on low pressure regulators.

The UPS0 triggering pressure is not adjustable (except on BP2402F, 1492, 1495).

On regulators provided with an adjustable outlet pressure, the triggering pressure is automatically adapted to the pressure setting.

“xx” is the UPS0 setting value when the regulator is equipped with an Under Pressure Shut-Off safety device.

WARNING

The UPS0 safety device does not provide protection from all the risks stemming from leaks or ruptures in the installation downstream from the pressure regulator.

EFV safety device

The EFV (Excess Flow Valve) is a safety device integrated in the regulator or is an auxiliary safety device. It causes the shut off of the gas flow for values of flow rate greater than the guaranteed flow rate for example when the downstream hose or pipe is disconnected. The restoration of the gas flow may be manual (MEFV) or automatic intervention (AEFV), when the conditions which caused the safety device to operate have been rectified.

Filter

“Y” (yes) written when the regulator is equipped with a filter on the inlet.

Manometer / inlet or outlet (connection-type)

- “Mano”: the regulator is equipped with a manometer. The manometer type can be: “Dry” or “Oil” (filled with oil).
- “Plug”: the regulator is equipped with a plug which allows further mounting of a manometer. The type of plug or manometer connection is written at the end, for example: “G1/4”.
- “STD”: the regulator is equipped with a standard testing point
- “Schrader”: the regulator is equipped with a Schrader type testing point,
- “Peterson”: the regulator is equipped with a Peterson type testing point.

Installation

- Piping must be correctly sized in order to keep the pressure losses within acceptable limits.
- The inlet pressure of a regulator must be kept within the declared limits taking into account:
 - the vaporising capacity of LPG vessels or of the vaporiser,
 - the pressure loss of the pipes
 - the pressure loss of the other gas equipment (meter, filter, valve ...).
- Welding / soldering on pipes must not be carried out when the regulator is installed.
- The full gas piping must be carefully cleaned before the regulator is installed
- It is recommended to install a filter upstream from the regulators. The dimension of the filter must be such to induce acceptable pressure loss. The filter must be cleaned periodically.
- The regulator vent shall always be kept clear and protected from rain. Take the necessary precautions to prevent it from being obstructed by external elements such as ice, snow, etc.

WARNING

LPG or Natural Gas leaks can cause death from fires or explosions. Install the regulators in a risk-free location.

All installation, adjustment and maintenance work must be carried out by persons who have acquired the necessary skills in relation to the type of gas and the function provided.

The installation must be fitted, adjusted, used and maintained in conformity with the regulations in force in the country concerned.

Conformity with standards and regulations

- European pressure equipment directive - 97/23/CE (PED) replaced by PED 2014/68/UE in June 2015

All the regulators and accessories used with pressures higher than 0,5bar are manufactured in conformity with this directive.

In accordance with this directive, only regulators with at least one connection with a dimension larger than DN25 (or 1”) are marked

- European gas appliance directives – 2009/142/EC (GAD)
Regulators and governors intended to be installed in a gas appliance, are manufactured in conformity with this directive.

Maintenance and durability

Normally the regulators do not require any maintenance. Functionality of the product and of the gas installation must be checked periodically.

We recommend replacing the regulator after 10 years of use.

The contents of this notice are provided for guidance purposes only and, although we have taken every precaution to ensure its accuracy, it should not be interpreted as representing any explicit or implicit guarantee covering the products or services described, or their use or applicability. We reserve the right to modify or improve the designs or the specifications of the products at any time and without notice.

**Code**

From our own codification system.

Drawing

Cross section of the connection for positioning the dimensions.

EN inlet code and EN outlet code

Codes of connections described in the European Standards: EN12864, EN16129, EN13785, EN13786 and EN15202. Not all the world-wide connections are described in these standards.

Designation

Condensed description of the connection.

Type

Complementary information about the connection.

D-H-S-C-L

Dimensions of the sketches.

Gasket

Describes, when appropriate, the material of the gasket:

. NBR: nitrile rubber

. SALPA: non elastomeric compound.

Code	Connection	Drawing	Type	EN Inlet code	EN Outlet code	D (mm)	H (mm)	S (mm)	C (mm)	L (mm)	Gasket
B1F B1J B1K B1L B1N B1P B1Q	FIXED-FLANGE-PN16-DN25 FIXED-FLANGE-PN16-DN32 FIXED-FLANGE-PN16-DN40 FIXED-FLANGE-PN16-DN50 FIXED-FLANGE-PN16-DN65 FIXED-FLANGE-PN16-DN80 FIXED-FLANGE-PN16-DN100		EN 1092	-	-	115 140 150 165 185 200 220	-	-	4xØ14 on bolt circle 85 4xØ18 on bolt circle 100 4xØ18 on bolt circle 110 4xØ18 on bolt circle 125 4xØ18 on bolt circle 145 8xØ18 on bolt circle 160 8xØ18 on bolt circle 180	-	-
B2F B2J B2K B2L B2N B2P B2Q	FIXED-FLANGE-PN40-DN25 FIXED-FLANGE-PN40-DN32 FIXED-FLANGE-PN40-DN40 FIXED-FLANGE-PN40-DN50 FIXED-FLANGE-PN40-DN65 FIXED-FLANGE-PN40-DN80 FIXED-FLANGE-PN40-DN100		EN 1092	-	-	115 140 150 165 185 200 235	-	-	4xØ14 on bolt circle 85 4xØ18 on bolt circle 100 4xØ18 on bolt circle 110 4xØ18 on bolt circle 125 8xØ18 on bolt circle 145 8xØ18 on bolt circle 160 8xØ22 on bolt circle 190	-	-
B4F B4L	FIXED-FLANGE-ANSI300-DN25 FIXED-FLANGE-ANSI300-DN50		ANSI 300	-	-	124 165	-	-	4xØ19 on bolt circle 88,9 8xØ19 on bolt circle 127	-	-
B6F B6J B6K B6L B6N B6P B6Q	ROT-FLANGE-PN40-DN25 ROT-FLANGE-PN40-DN32 ROT-FLANGE-PN40-DN40 ROT-FLANGE-PN40-DN50 ROT-FLANGE-PN40-DN65 ROT-FLANGE-PN40-DN80 ROT-FLANGE-PN40-DN100		EN 1092	-	-	115 140 150 165 185 200 235	-	-	4xØ14 on bolt circle 85 4xØ18 on bolt circle 100 4xØ18 on bolt circle 110 4xØ18 on bolt circle 125 8xØ18 on bolt circle 145 8xØ18 on bolt circle 160 8xØ22 on bolt circle 190	-	-
C1A C1C C1D	CLIP-20 CLIP-21 CLIP-22		For Clip cylinder valve	G.52 G.53 G.54	-	Ø20 Ø21 Ø22	-	-	-	-	-
C1K	CLIP-27		For Clip cylinder valve	G.59	-	Ø27	-	-	-	-	-
EAF EAJ EAL	MAL-G1-JPC-CAL20 MAL-G1.1/4-JPC-CAL32 MAL-G2-JPC-CAL50		NF E29-532 (JPC)	-	Connector H14 Connector H15 -	DN20 DN32 DN50	-	-	-	-	-
E1A E1B E1C E1D E1E E1F E1J E1K E1L E1N E1M	MAL-G1/8RH MAL-G1/4RH MAL-G3/8RH MAL-G1/2RH MAL-G3/4RH MAL-G1RH MAL-G1.1/4RH MAL-G1.1/2RH MAL-G2RH MAL-G7/8RH MAL.G2.1/4RH		ISO 228 NF E29-532 (JPG)	G.34 (MAL G3/4 RH)	H.18 (MAL G3/4 RH)	G1/8RH-ISO228 G1/4RH-ISO228 G3/8RH-ISO228 G1/2RH-ISO228 G3/4RH-ISO228 G1RH-ISO228 G1 1/4RH-ISO228 G1 1/2RH-ISO228 G2RH-ISO228 G7/8RH-ISO228 G2 1/4RH-ISO228	-	-	-	-	-
E1P	MAL-G3/4RH-NF-TANK		ISO 228	Connector G17	-	G3/4RH-ISO228	-	-	-	-	-



Code	Connection	Drawing	Type	EN Inlet code	EN Outlet code	D (mm)	H (mm)	S (mm)	C (mm)	L (mm)	Gasket
E2A E2B E2C E2D E2E E2F E2J E2K E2L	MAL-R1/8 MAL-R1/4 MAL-R3/8 MAL-R1/2 MAL-R3/4 MAL-R1 MAL-R1.1/4 MAL-R1.1/2 MAL-R2		BSP-ISO7 (conical)	-	-	R1/8-ISO7 R1/4-ISO7 R3/8-ISO7 R1/2-ISO7 R3/4-ISO7 R1-ISO7 R1 1/4-ISO7 R1 1/2-ISO7 R2-ISO7	-	-	-	-	-
E5A E5B E5D E5E E5F E5J E5L	MAL-1/8NPT MAL-1/4NPT MAL-1/2NPT MAL-3/4NPT MAL-1NPT MAL-1.1/4NPT MAL-2NPT		NPT ANSI/ASME B 1.20.1	-	-	1/8 NPT 1/4 NPT 1/2 NPT 3/4 NPT 1 NPT 1 1/4 NPT 2 NPT	-	-	-	-	-
E6A	MAL-M10X1RH		Manometer	-	-	M10X1RH	-	-	-	-	-
E6B	MAL-M20x1,5RH		French type	G.13	H.1	M20x1,5RH	-	-	-	-	-
E6D E6E E6M E6N E6Q	MAL-M26x1,5RH MAL-M18x1,5RH MAL-M36x2RH MAL-M45x2RH MAL-M30x2RH		Metric type	-	-	M26x1,5RH M18x1,5RH M36x1,5RH M45x1,5RH M30x1,5RH	-	-	-	-	-
E7A E7B E7C	MAL-1/4LH-DIN MAL-3/8LH-DIN MAL-1/2LH-DIN		German type	G.20 G.11 G.24	H.4 H.6 H.5	1/4LH-DIN 3/8LH-DIN 1/2LH-DIN	-	-	-	-	-
E8E E8J	MAL-G3/4-JSC-CONE-DN16 MAL-G1.1/4-JSC-CONE-DN25		NF E29-536 (JSC)	Connector G.26 Connector G.27	-	G3/4RH-ISO228 G1 1/4RH-ISO228	-	-	-	-	-
F1B F1D F1E F1F F1J	FEM-G1/4RH FEM-G1/2RH FEM-G3/1RH FEM-G1RH FEM-G1.1/4RH		ISO 228	G.37	H.22	G1/4RH-ISO228 G1/2RH-ISO228 G3/2RH-ISO228 G1RH-ISO228 G1.1/4RH-ISO228	-	-	-	-	-
F2A F2B F2C F2D F2E F2F F2J F2K F2L	FEM-Rp1/8 FEM-Rp1/4 FEM-Rp3/8 FEM-Rp1/2 FEM-Rp3/4 FEM-Rp1 FEM-Rp1.1/4 FEM-Rp1.1/2 FEM-Rp2		BSP-ISO7- Cylindrical	G.14	H.7	Rp1/8-ISO7 Rp1/4-ISO7 Rp3/8-ISO7 Rp1/2-ISO7 Rp3/4-ISO7 Rp1-ISO7 Rp1.1/4-ISO7 Rp1.1/2-ISO7 Rp2-ISO7	-	-	-	-	-
F3B F3C F3D F3E F3F F3J F3K F3L	FEM-Rc1/4 FEM-Rc3/8 FEM-Rc1/2 FEM-Rc3/4 FEM-Rc1 FEM-Rc1.1/4 FEM-Rc1.1/2 FEM-Rc2		BSP-ISO7- Conical	G.23	H.19	Rc1/4-ISO7 Rc3/8-ISO7 Rc1/2-ISO7 Rc3/4-ISO7 Rc1-ISO7 Rc1 1/4-ISO7 Rc1 1/2-ISO7 Rc2-ISO7	-	-	-	-	-
F5A F5B F5C F5D F5E F5F F5J F5K F5L	FEM-1/8NPT FEM-1/4NPT FEM-3/8NPT FEM-1/2NPT FEM-3/4NPT FEM-1NPT FEM-1.1/4NPT FEM-1.1/2NPT FEM-2NPT		NPT	G.18	H.11	1/8NPT 1/4NPT 3/8NPT 1/2NPT 3/4NPT 1NPT 1.1/4NPT 1.1/2NPT 2NPT	-	-	-	-	-



Code	Connection	Drawing	Type	EN Inlet code	EN Outlet code	D (mm)	H (mm)	S (mm)	C (mm)	L (mm)	Gasket
F6D	FEM-M14x1,5RH		Small cylinder valve	-	-	M14x1,5	-	-	-	-	-
F6J	FEM-M20x1,5RH		French type	-	-	M20x1,5RH	-	-	-	-	-
F6L F6Q	FEM-M24X1,5RH FEM-M30X2RH		Special	-	-	M24x1,5RH M30x2RH	-	-	-	-	-
K1D K1F	PIPE-10-RC PIPE-14-RC		Flare	-	-	Ø10 Ø14	-	-	-	-	-
K2B	PIPE-1/4-INV. FLARE		Inverted Flare	-	-	1/4"	-	-	-	-	-
K3E K3F K3G K3J K3K K3L K3M K3R K3N K3S	PIPE-12-CTS PIPE-14-CTS PIPE-15-CTS PIPE-16-CTS PIPE-18-CTS PIPE-22-CTS PIPE-28-CTS PIPE-32-CTS PIPE-35-CTS PIPE-42-CTS		Copper Tube	-	-	12 14 15 16 18 22 28 32 35 42	-	-	-	-	-
K4B K4C K4D	PIPE-6-OG PIPE-8-OG PIPE10-OG		Biconical compression fitting	-	H.9	Ø6 Ø8 Ø10	-	-	-	-	-
K5A K5B K5C K5D K5E K5F	PIPE-21.3-STEEL-SPW PIPE-26.9-STEEL-SPW PIPE-33.7-STEEL-SPW PIPE-42.4-STEEL-SPW PIPE-48.3-STEEL-SPW PIPE-60.3-STEEL-SPW		Steel tube	-	-	21,3 29,9 33,7 42,4 48,3 60,3	-	-	-	-	-
K7A K7B K7C K7D	FEM-20-PEHD FEM-32-PEHD FEM-40-PEHD FEM-63-PEHD		HDPE connector	-	-	20 32 40 63	-	-	-	-	-
L1A L2A	MAL-W20LH-UNI MAL-NF21,7LH		For cylinder valve Italian type	G.1 G.2	- H.17	W20LH-UNI NF21,7LH	-	-	-	-	-
NAE NAJ	NUT-G3/4-JSC-SPHERE-DN16 NUT-G1.1/4-JSC-SPHERE-DN25		NF E29-536 (JSC)	G.26 G.27	-	G3/4RH-ISO228 G1 1/4RH-ISO228	-	-	-	-	-
N1A	NUT-W20LH-25-UNI		For cylinder valve Italian type	G.1	-	W20x1/14"L.H.	16	25	-	-	-



Code	Connection	Drawing	Type	EN Inlet code	EN Outlet code	D (mm)	H (mm)	S (mm)	C (mm)	L (mm)	Gasket
N1B	NUT-W20LH-25x13,5		For cylinder valve Italian type	-	-	W20x1/14"L.H.	13,5	25	-	-	-
N1C N1D	NUT-W20LH-25x13,5-G/G NUT-W20LH-25x13,5-G/S		For cylinder valve Italian type	-	-	W20x1/14"L.H.	13,5 13,5	25 25	-	-	NBR SALPA
N1E	NUT-W20LH-UNI-G/G		For cylinder valve Italian type	G.1	-	W20x1/14"L.H.	16	25	-	-	NBR
N2A	NUT-NF21,8LH-27x14-G/G		For cylinder valve French type	-	-	NF21,8x1/14"L.H.	14	27	-	-	NBR
N2C	NUT-NF21,8LH-R5NF		For cylinder valve French type	G.2	-	NF21,8x1/14"L.H.	13	-	32,5	-	NBR
N3A	NUT-M21,8LH-30,5BS		For cylinder valve UK Butane type	G.8	-	M21,8x1/14"L.H.	17	30,5	-	-	NBR
N4B	NUT-W21,8LH-R5DIN/KLF		For cylinder valve German type KLF	G.12	-	W21,8x1/14"L.H.	18	-	32	-	NBR
N4D	NUT-W21,8LH-30x21KBI		For cylinder valve German Kombi type	G.5	-	W21,8x1/14"L.H.	21	30	-	-	NBR
N4J N4K	NUT-W21,8LH-28x16,5CH NUT-W21,8LH-27x17MSZ		For cylinder valve Swiss type For cylinder valve Hungarian type	-	-	W21,8x1/14"L.H.	16,5 17	28 27	-	-	NBR
N5D	NUT-G1/2RH-NF		ISO 228	-	-	G1/2 RH-ISO228	14	24	-	-	-
N5E	NUT-G3/4RH-NF-TANK		ISO 228	G.17	-	G3/4 RH-ISO228	18	32	-	-	NBR



Code	Connection	Drawing	Type	EN Inlet code	EN Outlet code	D (mm)	H (mm)	S (mm)	C (mm)	L (mm)	Gasket
N5N	NUT-G3/4RH-NF-LINE		ISO 228	G.28	-	G3/4 RH-ISO228	17	32	-	-	NBR
N5J	NUT-G1.1/4RH-NF		NF E29-532 (JPG)	-	H.12	G1 1/4RH-ISO228	20	45.5	-	-	-
N6A	NUT-M20x1,5RH		French type	G.36	H.20	M20x1,5RH	14,5	23	-	-	NBR
N7C	NUT-G3/4LH-DIN		German type	-	-	G3/8LH-DIN	16	19	-	-	-
N8F N8J N8L	NUT-G1-JPC-CAL20 NUT-G1.1/4-JPC-CAL32 NUT-G2-JPC-CAL50		NF E29-532 (JPC)	-	H14 H15 -	DN20 DN32 DN50	-	-	-	-	-
P1A P2A P2F	POLM-5/8LH-BS-HN POLM-USA-25x23,5-HN POLM-USA-28x28,5-HN		POL UK hard nose POL USA hard nose POL USA hard nose	G.7 G.9 G.9	-	G5/8LH-ISO228 0,880"-14NG0-L.H 0,880"-14NG0-L.H	-	30 25 28	-	28,5 23,5 28,5	-
P1C P2D	POLM-5/8LH-SA-R6-BN POLM-USA-R6-SN		POL UK soft nose POL USA soft nose	- G.10	-	G5/8LH-ISO228 0,880"-14NG0-L.H	-	-	47	27	NBR
P1D P2C	POLM-5/8LH-R2-SN POLM-USA-R2-SN		POL UK soft nose POL USA soft nose	- G.10	-	G5/8LH-ISO228 0,880"-14NG0-L.H	-	-	47	28	NBR
P5C	MAL-M14x1,5RH		For small cylinder type	-	-	M14x1,5RH	-	-	-	11	NBR
P5D	MAL-M16x1,5RH		For small cylinder type	G.3	-	M16x1,5RH	-	-	-	13,5	NBR



Code	Connection	Drawing	Type	EN Inlet code	EN Outlet code	D (mm)	H (mm)	S (mm)	C (mm)	L (mm)	Gasket
P7B	POLM-DIN-24X28,5-HN		POL Germany hard nose	-	-	0,880"-14NGO-L.H	-	24	-	28,5	-
Q2A	FEM-0,880-14NGO-POL		Female POL USA hard nose	Connector G.9	-	0,880"-14NGO-L.H	-	-	-	25,4	-
Q9A	Q9A FEM-5/8-18 UNF		Conical pipe fitting	-	-	5/8-18 UNF	17,5	19	-	-	-
T1L	MAL-ACME 1.3/4		ACME trapezoidal. 6 threads / inch	G.31	-	1"3/4	-	-	-	13	-
Z1D	HNZ-10-EN		Hose nozzle. France-UK type	-	H.50	Ø10	-	-	-	23,5	-
Z1E	HNZ-10-UNI		Hose nozzle UNI	-	H.53	Ø10	-	-	-	29	-
Z2A	HNZ-13,5-DS		Conical hose nozzle	-	H.51	Ø13,5	-	-	-	23	-
Z4A Z4B Z4C	HNZ-6.8-BS-HP HNZ-8.3-BS-HP HNZ-10-BS-HP		High pressure hose nozzle. UK type	-	-	Ø6.8 Ø8.3 Ø10	-	-	-	20,3 20,3 25,4	-
Z5A	HNZ-10,6-PL		Hose nozzle Polish type	-	-	Ø10,6	-	-	-	24	-
Z9A	HNZ-11,7-MSZ		Hose nozzle Hungary type	-	-	Ø11,7	-	-	-	28,5	-

High Pressure Cylinder Regulators - Fixed Model

APR85 – 333 – 6333C



APR85
002032B



333
0333000



6333C
004743AB



Application

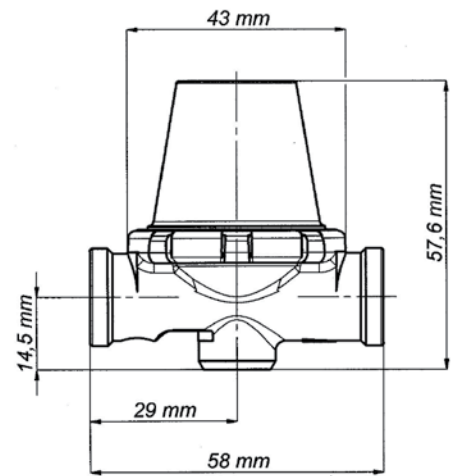
- These fixed pressure regulators are mainly used in small LPG cylinder installations.
- They can also be used in small LPG tank installation.
- They can be used in specific installations, with Natural Gas, air, nitrogen and other non-aggressive gases.
- The maximum capacity is 8kg/h (110kW) of LPG.
- They can supply directly gas appliances such as: special cookers, blow torches, roofing torches, warm air generators and special technical burners.
- They can also be used as a first stage regulator in a small 2 stages installation.

Features

- Compact and robust design
- Numerous possible types of inlet and outlet connections upon request.
- Possible nominal outlet pressures from 0.3 to 4bar (4 to 59psig) upon request
- A filter on the inlet connections for cylinders
- The 6333C is equipped with EFV.

Construction

- Body and cover: die cast zinc alloy
- Diaphragm: NBR-R (FPM upon request)
- Valve pad: NBR (FPM upon request)



APR85-002007XX

Code	Inlet code	Inlet connection	Outlet code	Outlet connection	Inlet pressure (Pu)	Outlet pressure (Pd)	Flow rate (LPG)		Filter	Feature
					bar	bar	kg/h	kW		
APR85										
002007XX	F2B	FEM-Rp1/4	F2B	FEM-Rp1/4	1,7-16	1.5	7	96	-	-
002032B	P1A	POLM-5/8LH-BS-HN	E1B	MAL-G1/4RH	2-16	1.5	8	110	Y	-
002045D	N4D	NUT-W21,8LH-30x21KBI	E7B	MAL-3/8LH-DIN	1,7-16	1.5	7	96	Y	-
002048BA	N2C	NUT-NF21,8LH-R5NF	E7B	MAL-3/8LH-DIN	1,2-16	1	5	70	y	-
002048S	N4D	NUT-W21,8LH-30x21KBI	E7B	MAL-3/8LH-DIN	2,2-16	2	8	110	Y	-
002011AX	P1A	POLM-5/8LH-BS-HN	Z1D	HNZ-10-EN	1,9-16	1,4	8	110	Y	-
002032C	P1A	POLM-5/8LH-BS-HN	E1B	MAL-G1/4RH	2,5-16	2	8	110	Y	Male G1/4RH removable if desired to leave Female Rp1/4
333										
0333000	N2C	NUT-NF21,8LH-R5NF	Z1D	HNZ-10-EN	2-16	1,5	8	110	Y	-
0333004	N2C	NUT-NF21,8LH-R5NF	E6B	MAL-M20x1,5RH	2-16	1,5	8	110	Y	Membrana FPM-R
033300R	F5B	FEM-1/4NPT	F5B	FEM-1/4NPT	2-16	1,5	8	110	Y	
6333C										
004743AB	N2C	NUT-NF21,8LH-R5NF	E6B	MAL-M20x1,5RH	2-16	1,5	7	96	Y	EFV



APR85R
002010XZ



1333
1333705



Application

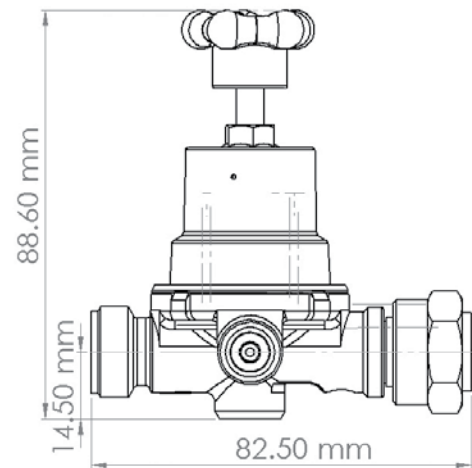
- These variable, multi-turn, pressure regulators are mainly used in small LPG cylinder installations. They can also be used in small LPG tank installations.
- They can be used in specific installations, with Natural Gas, air, nitrogen and other non-aggressive gases.
- The maximum capacity is 10kg/h (138kW) of LPG
- They can supply directly gas appliances such as: special cookers, blow torches, roofing torches, warm air generators, poultry heating systems, and special technical burners.
- They can also be used as a first stage regulator in a small 2 stage installation.

Features

- Precise pressure multi-turn adjustment
- The setting can be blocked with the locking nut
- Compact and robust design
- Numerous possible types of inlet and outlet connections upon request.
- A filter on the inlet connections for cylinders
- Certain models are equipped with a manometer or with a plug for possible mounting of manometer.

Construction

- Body and cover: die cast zinc alloy
- Diaphragm: NBR-R (FPM upon request)
- Valve pad: NBR (FPM upon request)



1333-1333505

Code	Inlet code	Inlet connection	Outlet code	Outlet connection	Inlet pressure (Pu)		Outlet pressure (Pd)		Flow rate (LPG)		Manometer	Feature
					bar	bar	bar	bar	kg/h	KW		
APR85R												
002000XZ	F2B	FEM-Rp1/4	F2B	FEM-Rp1/4	3,2-16	1-3	5-10	69-138	-	-	-	-
002005	F2B	FEM-Rp1/4	F2B	FEM-Rp1/4	3,2-16	1-3	5-10	69-138	MANO-DRY G1/8	-	-	-
002005N	F5B	FEM-1/4NPT	F5B	FEM-1/4NPT	2,2-16	0,5-2	3-8	41-110	MANO-DRY G1/8	-	-	-
002010XZ	N1C	NUT-W20LH-25x13,5-G/G	Z1D	HNZ-10-EN	3,2-16	1-3	5-10	69-138	-	-	Filter	-
002012AA	N2C	NUT-NF21,8LH-R5NF	Z1D	HNZ-10-EN	3,2-16	1-3	5-10	69-138	-	-	Filter	-
002020BA	N2C	NUT-NF21,8LH-R5NF	Z1D	HNZ-10-EN	3,2-16	1-3	5-10	69-138	MANO-DRY G1/8	-	Filter	-
002150AX	F5B	FEM-1/4NPT	F5B	FEM-1/4NPT	3,2-16	1-3	5-10	69-138	PLUG 1/8NPT	-	-	-
002150BX	F5B	FEM-1/4NPT	F5B	FEM-1/4NPT	1,7-16	0,5-1,5	3-8	41-110	PLUG 1/8NPT	-	-	-
1333												
1333000	N2C	NUT-NF21,8LH-R5NF	Z1D	HNZ-10-EN	3,2-16	1-3	5-10	69-138	MANO-DRY G1/8	-	Filter	-
1333002	E6B	MAL-M20x1,5RH	E6B	MAL-M20x1,5RH	1,7-16	0,5-1,5	3-8	41-110	PLUG G1/8	-	-	-
1333005	N2C	NUT-NF21,8LH-R5NF	E6B	MAL-M20x1,5RH	3,2-16	1-3	5-10	69-138	MANO-DRY G1/8	-	Filter - Diaphragm FPM-R	-
1333012	E6B	MAL-M20x1,5RH	E6B	MAL-M20x1,5RH	3,2-16	1-3	5-10	69-138	MANO-DRY G1/8	-	Diaphragm FPM-R	-
1333105	N2C	NUT-NF21,8LH-R5NF	E6B	MAL-M20x1,5RH	1,7-16	0,5-1,5	3-8	41-110	MANO-DRY G1/8	-	Filter	-
1333505	N2C	NUT-NF21,8LH-R5NF	E6B	MAL-M20x1,5RH	3,2-16	1-3	5-10	69-138	PLUG G1/8	-	Filter	-

High Pressure Cylinder Regulators - Variable 10 Positions

APR8510



APR8510
002050CX



APR8510
002064AA



APR8510
002056XZ



Application

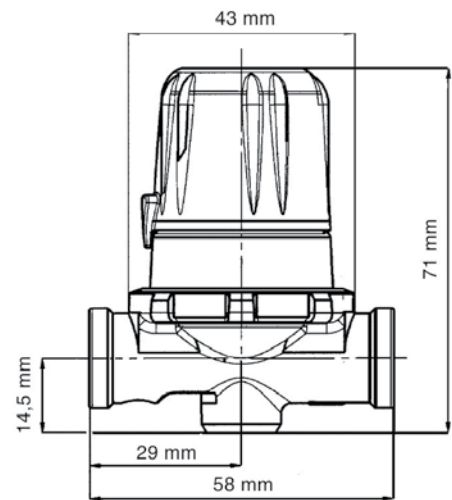
- These variable, single turn, pressure regulators are mainly used in small LPG cylinder installations.
- They can be used in specific installations, with Natural Gas, air, nitrogen and other non-aggressive gases.
- The maximum capacity is 8kg/h (110kW) of LPG.
- They can supply directly gas appliances such as: special cookers, blow torches, roofing torches, warm air generators, poultry heating systems, and special technical burners.

Features

- Indexed position of the adjustment
- Compact and robust design
- Numerous possible types of inlet and outlet connections upon request
- A filter equips the inlet connections for cylinders.
- The 6343C is equipped with an excess flow valve and provides an efficient safety against excess flow which can be generated if hose is cut.

Construction

- Body and cover: die cast zinc alloy
- Diaphragm: NBR-R (FPM upon request)
- Valve pad: NBR (FPM upon request)



APR8510-002050CX

Code	Inlet code	Inlet connection	Outlet code	Outlet connection	Inlet pressure (Pu)		Outlet pressure (Pd)		Flow rate (LPG)		Filter
					bar	bar	kg/h	kW			
APR85R10											
002050CX	F5B	FEM-1/4NPT	F5B	FEM-1/4NPT	4,2-16	0,5-4	3-8	41-110	-		
002050XX	F2B	FEM-Rp1/4	F2B	FEM-Rp1/4	4,5-16	0,5-4	3-8	41-110	-		
002055XZ	P1A	POLM-5/8LH-BS-HN	F2B	FEM-Rp1/4	2,5-16	0,35-2	2-8	28-110	Y		
002056XZ	P1A	POLM-5/8LH-BS-HN	F2B	FEM-Rp1/4	4,5-16	0,5-4	3-8	41-110	Y		
002064AA	N2C	NUT-NF21,8LH-R5NF	Z1D	HNZ-10-EN	4,5-16	0,5-4	3-8	41-110	Y		
002070CX	F5B	FEM-1/4NPT	F5B	FEM-1/4NPT	1,7-16	0,4-1,5	2-7	28-97	-		
002070XX	F2B	FEM-Rp1/4	F2B	FEM-Rp1/4	1,7-16	0,4-1,5	2-7	28-97	-		
002077AA	P1A	POLM-5/8LH-BS-HN	F2B	FEM-Rp1/4	1,5-16	0,35-1	2-6	28-83	Y		
002086B	F2B	FEM-Rp1/4	E7B	MAL-3/8LH-DIN	2,5-16	0,5-2	3-8	41-110	-		
002086HA	N2C	NUT-NF21,8LH-R5NF	E7B	MAL-3/8LH-DIN	2,2-16	0,5-2	3-8	41-110	Y		



APO
002100XZ



APO
002110XZ



Application

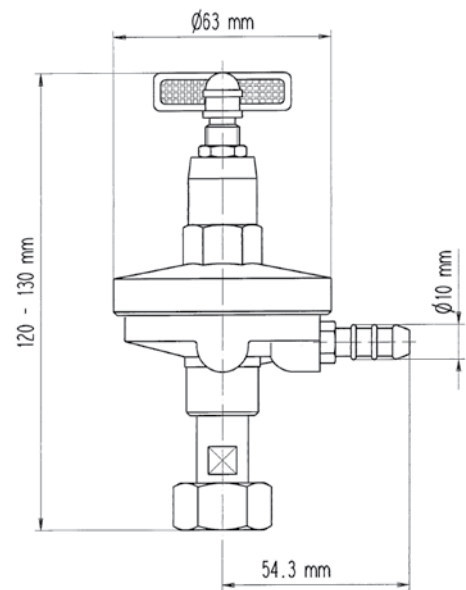
- These variable, multi-turn, pressure regulators are mainly used in small LPG cylinder installations and can operate in harsh conditions (road works, agriculture ...).
- They can be used in specific installations, with Natural Gas, air, nitrogen and other non-aggressive gases.
- The maximum capacity is 10kg/h (138kW) of LPG.
- They can supply directly gas appliances such as: special cookers, blow torches, roofing torches, warm air generators, poultry heating systems, and special technical burners.

Features

- Heavy duty design
- Vertical inlet connection equipped with a filter
- Certain models are equipped with a manometer other with a plug for possible mounting of manometer.

Construction

- Body and cover: hot stamped brass
- Diaphragm: NBR-R
- Valve pad: NBR



APO-002100XZ

Code	Inlet code	Inlet connection	Outlet code	Outlet connection	Inlet pressure (Pu) bar	Outlet pressure (Pd) bar	Flow rate (LPG)		Manometer on outlet
							kg/h	kW	
APO									
002100XZ	N1D	NUT-W20LH-25x13,5-G/S	Z1D	HNZ-10-EN	4-16	(0)1-3	6-10	83-138	PLUG G1/8
002110XZ	N1D	NUT-W20LH-25x13,5-G/S	Z1D	HNZ-10-EN	4-16	(0)1-3	6-10	83-138	MANO-DRY G1/8

First Stage Regulators - Up to 18kg/h

APZ120 - LPZ120 - APZE - APZ120R



APZ120
002285



APZE
002211



APZ120R
002230



Application

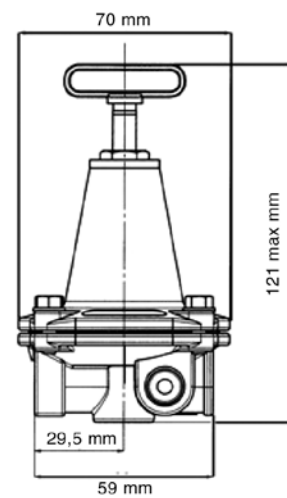
- These first stage regulators are mainly used in small domestic or commercial LPG installations supplying specialist gas appliances and technical burner equipment on multi cylinders or tanks.
- They can be used in specific installations with Natural Gas, air, nitrogen and other non-aggressive gases.

Features

- APZ120R models are equipped with a manometer or with a plug for manometer.
- APZE and APZ120R models have precise multi turn pressure adjustment thanks to a calibrated seat.
- The setting can be fixed with locking nut.

Construction:

- Body and cover: die cast zinc alloy
- Diaphragm: MBR-R or FPM
- Valve pad: NBR or FPM



APZ120R-002201

Code	Inlet code	Inlet connection	Outlet code	Outlet connection	Inlet pressure (Pu)		Outlet pressure (Pd)		Flow rate (LPG)		PRV Type	Manometer on outlet	Pad Material	Diaphragm Material
					bar	bar	bar	bar	kg/h	KW				
APZ120														
002281MX	F5B	FEM-1/4NPT	F5B	FEM-1/4NPT	1,5-16	0,5	8,5	117	-	PLUG G1/4	FPM	FPM-R		
002283MX	F5B	FEM-1/4NPT	F5B	FEM-1/4NPT	2,5-16	1,5	12	166	-	PLUG G1/4	FPM	FPM-R		
002285	F3B	FEM-Rc1/4	F3B	FEM-Rc1/4	2,5-16	1,5	12	166	-	PLUG G1/4	NBR	NBR-R		
LPZ120														
002207	F3B	FEM-Rc1/4	F3B	FEM-Rc1/4	2,5-16	1,7	12	166	-	PLUG G1/4	NBR	NBR-R		
002207MX	F5B	FEM-1/4NPT	F5B	FEM-1/4NPT	2,5-16	1,7	12	166	-	PLUG G1/4	FPM	FPM-R		
002288	N6A	NUT-M20x1,5RH	E6B	MAL-M20x1,5RH	2,5-16	1,7	12	166	-	PLUG G1/4	NBR	NBR-R		
APZE														
002211	N1C	NUT-W20LH-25x13,5-G/G	Z1D	HNZ-10-EN	Pd+1-16	1-3	12-18	166-248	-	-	NBR	NBR-R		
APZ120R														
002200	F3B	FEM-Rc1/4	F3B	FEM-Rc1/4	Pd+1-16	1-3	12-18	166-248	-	PLUG G1/4	NBR	NBR-R		
002201	F3B	FEM-Rc1/4	F3B	FEM-Rc1/4	Pd+1,5-16	0,5-2	12-18	166-248	-	PLUG G1/4	NBR	NBR-R		
002205	F3B	FEM-Rc1/4	F3B	FEM-Rc1/4	Pd+1-16	1-3	12-18	166-248	-	MANO-DRY G1/4	NBR	NBR-R		
002209	F3B	FEM-Rc1/4	F2C	FEM-Rp3/8	Pd+1-16	1-3	12-18	166-248	-	MANO-DRY G1/4	NBR	NBR-R		
002210	N1C	NUT-W20LH-25x13,5-G/G	Z1D	HNZ-10-EN	Pd+1-16	1-3	12-18	166-248	-	PLUG G1/4	NBR	NBR-R		
002216AT	F3B	FEM-Rc1/4	F3B	FEM-Rc1/4	Pd+1,5-16	0,5-1,4	12-18	166-248	-	PLUG G1/4	NBR	NBR-R		
002217AA	F5B	FEM-1/4NPT	F5B	FEM-1/4NPT	Pd+1-16	1-3	12-18	166-248	-	MANO-DRY G1/4	NBR	NBR-R		
002217AE	F5B	FEM-1/4NPT	F5B	FEM-1/4NPT	Pa+1-16	1-3	12-18	166-248	-	PLUG G1/4	NBR	NBR-R		
002217AX	F5B	FEM-1/4NPT	F5B	FEM-1/4NPT	Pd+1,5-16	0,5-2	12-18	166-248	-	PLUG G1/4	NBR	NBR-R		
002217BX	F5B	FEM-1/4NPT	F5B	FEM-1/4NPT	Pd+1-16	(1,4) 1-3	(24) 12-18	(331) 166-248	-	PLUG G1/4	NBR	NBR-R		
002220MX	F5B	FEM-1/4NPT	F5B	FEM-1/4NPT	Pd+1-16	1-3	12-18	166-248	-	MANO-DRY G1/4	FPM	FPM-R		
002221MX	F5B	FEM-1/4NPT	F5B	FEM-1/4NPT	Pd+1-16	1-3	12-18	166-248	-	PLUG G1/4	FPM	FPM-R		
002222	F3B	FEM-Rc1/4	F2C	FEM-Rp3/8	Pd+1,5-16	0,5-2	12-18	166-248	LRV	MANO-DRY G1/4	NBR	NBR-R		
002223	N1B	NUT-W20LH-25x13,5	F2C	FEM-Rp3/8	Pd+1,5-16	0,5-2	12-18	166-248	LRV	MANO-DRY G1/4	NBR	NBR-R		
002230	N1B	NUT-W20LH-25x13,5	F3B	FEM-Rc1/4	Pd+1-16	1-3	12-18	166-248	-	MANO-DRY G1/4	NBR	NBR-R		
002230VT	N1C	NUT-W20LH-25x13,5-G/G	F3B	FEM-Rc1/4	Pd+1-16	1-3	12-18	166-248	-	MANO-DRY G1/4	FPM	FPM-R		
002293RX	N6A	NUT-M20x1,5RH	E6B	MAL-M20x1,5RH	Pd+1-16	1-3	12-18	166-248	-	MANO-DRY G1/4	NBR	NBR-R		

First Stage Regulators - Up to 50kg/h

APZ250 – LPZ250 – APZ250R



APZ250
002307AB



APZ250R
002300AA



APZ250R
002311AD



Application

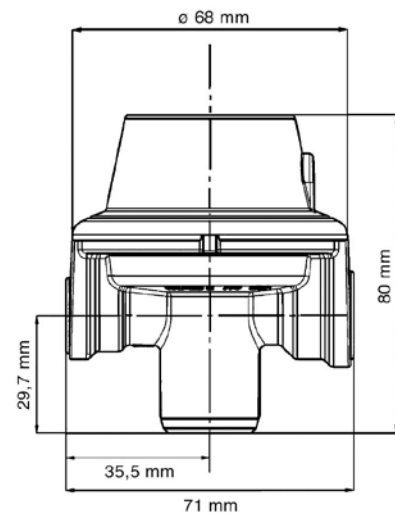
- These fixed or variable regulators are mainly used in domestic or commercial LPG tank or multi-cylinders installations.
- They generally provide the first stage regulation function and are directly fitted onto the tank valve.
- They are also used in other LPG installations (industrial, agriculture, process control ...) and in SNG or Natural Gas installations.
- LPG capacities are between 25kg/h and 50kg/h (345kW and 690kW)
- They can be used in specific installation with air, nitrogen and other non-aggressive gases.

Features

- Compact and robust design
- Numerous possible types of inlet and outlet connections - upon request.
- The APR250R regulated pressure setting can be blocked with the locking nut.
- Certain models are equipped with a limited flow safety relief valve (LRV).
- Certain models are equipped with a dry manometer or with a plug for manometer.

Construction

- Body and cover: die cast zinc alloy
- Diaphragm: NBR-R (FPM upon request)
- Valve pad: NBR (FPM upon request)

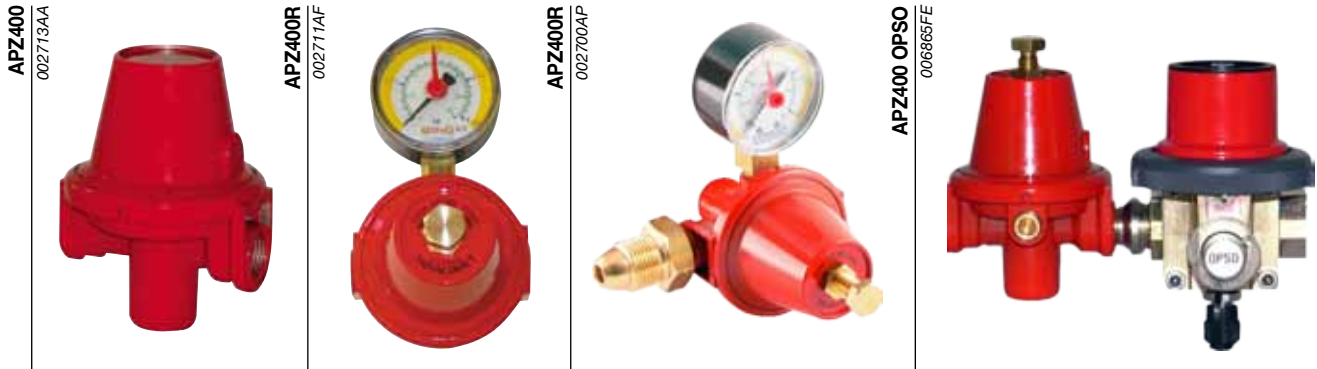


APZ250-002307AB

Code	Inlet code	Inlet connection	Outlet code	Outlet connection	Inlet pressure (Pu) bar	Outlet pressure (Pd) bar	Flow rate (LPG)		PRV Type	Manometer on outlet	Pad Material	Diaphragm Material
							kg/h	kW				
APZ250												
002307AB	F2B	FEM-Rp1/4	F2C	FEM-Rp3/8	2-16	1,5	30	414	LRV	PLUG G1/4	NBR	NBR-R
002307AC	N1C	NUT-W20LH-UNI-G/G	F2C	FEM-Rp3/8	2-16	1,5	30	414	LRV	MANO-DRY G1/4	NBR	NBR-R
002307AD	N1C	NUT-W20LH-UNI-G/G	F2C	FEM-Rp3/8	2-16	1,5	30	414	LRV	PLUG G1/4	NBR	NBR-R
LPZ250												
002313AE	F2B	FEM-Rp1/4	F2C	FEM-Rp3/8	2,25 - 16	1,75	30	414	-	PLUG G1/4	FPM	FPM-R
002313AF	N6A	NUT-M20x1,5RH	E6B	MAL-M20x1,5RH	2,25 - 16	1,75	30	414	-	PLUG G1/4	NBR	NBR-R
APZ250R												
002300AA	N1C	NUT-W20LH-UNI-G/G	F2C	FEM-Rp3/8	3,5-16	1-3	30-50	414-690	-	PLUG G1/4	NBR	NBR-R
002300AB	N1C	NUT-W20LH-UNI-G/G	F2C	FEM-Rp3/8	3,5-16	1-3	30-50	414-690	-	MANO-DRY G1/4	NBR	NBR-R
002300AE	F2B	FEM-Rp1/4	F2C	FEM-Rp3/8	3,5-16	1-3	30-50	414-690	-	MANO-DRY G1/4	NBR	NBR-R
002300AH	F2B	FEM-Rp1/4	F2C	FEM-Rp3/8	3,5-16	1-3	30-50	414-690	-	MANO-DRY G1/4	FPM	FPM-R
002300AM	N6A	NUT-M20x1,5RH	E6B	MAL-M20x1,5RH	3,5-16	1-3	30-50	414-690	-	MANO-DRY G1/4	NBR	NBR-R
002300AP	P2F	POLM-USA-28x28,5-HN	F2C	FEM-Rp3/8	3,5-16	1-3	30-50	414-690	-	MANO-DRY G1/4	NBR	NBR-R
002311AA	F2B	FEM-Rp1/4	F2C	FEM-Rp3/8	3,5-16	1-3	30-50	414-690	-	PLUG G1/4	NBR	NBR-R
002311AD	F2B	FEM-Rp1/4	F2C	FEM-Rp3/8	2,5-16	0,5-2	25-40	345-552	LRV	MANO-DRY G1/4	NBR	NBR-R
002311AE	N1C	NUT-W20LH-UNI-G/G	F2C	FEM-Rp3/8	2,5-16	0,5-2	25-40	345-552	LRV	MANO-DRY G1/4	NBR	NBR-R
002311AF	F2B	FEM-Rp1/4	F2C	FEM-Rp3/8	1,9-16	0-1,4	25-40	345-552	-	PLUG G1/4	NBR	NBR-R

First Stage Regulators - Up to 80kg/h

APZ400 – APZ400V – APZ400R – APZ400 OPSO

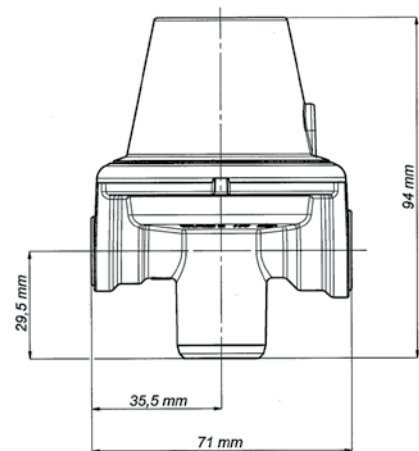


Application

- These fixed or variable regulators are mainly used in domestic or commercial LPG tank or multi-cylinders installations.
- They generally provide the first stage regulation function and are directly fitted onto the tank valve.
- They are also used in other LPG installations (industrial, agriculture, process control ...) and in SNG or Natural Gas installations.
- LPG capacities are between 30kg/h and 80kg/h (414kW and 1104kW).
- They can be used in specific installation with air, nitrogen and other non-aggressive gases.

Features

- Certain models are equipped with a limited flow safety relief valve (LRV).
- All models have either a dry manometer, Schrader test point, or plug for inserting manometer.
- APZ400V regulators are equipped with a vertical inlet connection for assembly on vertical tank valves.
- APZ400 OPSO regulators are equipped with an over pressure shut-off valve located either upstream (Y/U) or downstream (Y/D) of the regulator mostly containing pressure test points.



APZ400-002713AC

Construction

- Body and cover: die cast zinc alloy
- Diaphragm: NBR-R (FPM upon request)
- Valve pad: NBR (FPM upon request)

Code	Inlet code	Inlet connection	Outlet code	Outlet connection	Inlet pressure (Pu)		Outlet pressure (Pd)		Flow rate (LPG)		PRV Type	OPSO bar	Manometer on outlet	Feature
					bar	bar	kg/h	kW						
APZ400														
002707AC	N1E	NUT-W20LH-UNI-G/G	F2C	FEM-Rp3/8	1,5-16	0,5	30	414	LRV	-	-	PLUG G1/4	-	
002707AD	N1E	NUT-W20LH-UNI-G/G	F2C	FEM-Rp3/8	2-16	1,5	40	552	LRV	-	-	MANO-DRY G1/4	Giro	
002707AG	N1E	NUT-W20LH-UNI-G/G	F2C	FEM-Rp3/8	1,5-16	0,5	30	414	LRV	-	-	MANO-DRY G1/4	Giro	
002707AJ	P2F	POLM-USA-28x28,5-HN	F2C	FEM-Rp3/8	2-16	1,5	40	552	LRV	-	-	MANO-DRY G1/4	-	
002713AA	F5B	FEM-1/4NPT	F5C	FEM-3/8NPT	1,5-16	1	40	552	-	-	-	PLUG G1/4	-	
002713AD	P2F	POLM-USA-28x28,5-HN	F2C	FEM-Rp3/8	1,5-16	1	40	552	-	-	-	PLUG G1/4	-	
002713AE	P2F	POLM-USA-28x28,5-HN	F2C	FEM-Rp3/8	1,25-16	0,75	40	552	-	-	-	PLUG G1/4	-	
002713AH	N1E	NUT-W20LH-UNI-G/G	F2C	FEM-Rp3/8	1,25-16	0,75	30	414	-	-	-	PLUG G1/4	-	
002713AK	F2B	FEM-Rp1/4	F2C	FEM-Rp3/8	1,25-16	0,75	40	552	-	-	-	PLUG G1/4	-	
002714AA	N1E	NUT-W20LH-UNI-G/G	F2C	FEM-Rp3/8	1,25-16	0,75	30	414	-	-	-	MANO-DRY G1/4	-	
APZ400V														
002714AV	N5E	NUT-G3/4RH-NF-TANK	F2C	FEM-Rp3/8	2-16	0,75	30	414	-	-	-	MANO-DRY G1/4	-	
002730AB	N5E	NUT-G3/4RH-NF-TANK	F2C	FEM-Rp3/8	2-16	1,5	40	552	LRV	-	-	MANO-DRY G1/4	Giro	
002732AA	N5E	NUT-G3/4RH-NF-TANK	F2C	FEM-Rp3/8	2,5-16	0,5-2	30-60	414-828	LRV	-	-	MANO-DRY G1/4	Giro	
APZ400R														
002700AB	F2B	FEM-Rp1/4	F2C	FEM-Rp3/8	2,5-16	0,5-2	30-60	414-828	-	-	-	PLUG G1/4	-	
002700AD	F2B	FEM-Rp1/4	F2C	FEM-Rp3/8	3,5-16	1-3	40-80	552-1104	-	-	-	PLUG G1/4	-	
002700AE	F5B	FEM-1/4NPT	F5C	FEM-3/8NPT	3,5-16	1-3	40-80	552-1104	-	-	-	PLUG G1/4	Preset 2,4 bar	
002700AF	F5B	FEM-1/4NPT	F5C	FEM-3/8NPT	2,5-16	0,5-2	30-60	414-828	-	-	-	PLUG G1/4	-	
002700AH	F5B	FEM-1/4NPT	F5C	FEM-3/8NPT	3,5-16	1-3	40-80	552-1104	-	-	-	PLUG G1/4	-	
002700AM	F2D	FEM-Rp1/2	F2D	FEM-Rp1/2	3,5-16	1-3	40-80	552-1104	-	-	-	PLUG G1/4	-	
002700AP	P2F	POLM-USA-28x28,5-HN	F2C	FEM-Rp3/8	2,5-16	0,5-2	30-60	414-828	-	-	-	MANO-DRY G1/4	-	
002700AQ	F2B	FEM-Rp1/4	F2C	FEM-Rp3/8	2,5-16	0,5-2	30-60	414-828	-	-	-	Schrader valve	-	
002711AE	N1E	NUT-W20LH-UNI-G/G	F2C	FEM-Rp3/8	2,5-16	0,5-2	30-60	414-828	LRV	-	-	MANO-DRY G1/4	Giro	
002711AF	F2B	FEM-Rp1/4	F2C	FEM-Rp3/8	2,5-16	0,5-2	30-60	414-828	LRV	-	-	MANO-DRY G1/4	Giro	
002711AJ	P2F	POLM-USA-28x28,5-HN	F2C	FEM-Rp3/8	2,5-16	0,5-2	30-60	414-828	LRV	-	-	MANO-DRY G1/4	Giro	
APZ400/OPSO														
006861FA	F3D	FEM-Rc1/2	F2C	FEM-Rp3/8	1,25-16	0,5-2	40	552	-	-	U/2,5	PLUG G1/4	-	
006865FE	F2B	FEM-Rp1/4	F3E	FEM-Rc3/4	1,25-16	0,5-2	40	552	-	-	D/2,5	PLUG G1/4	-	

First Stage Regulators - Up to 70kg/h - Aluminium

AP40 – AP40V – LP40 – AP40R – AP40 OPSO



AP40
002802AA



AP40R
002800AA



AP40 OPSO
00681AM



Application

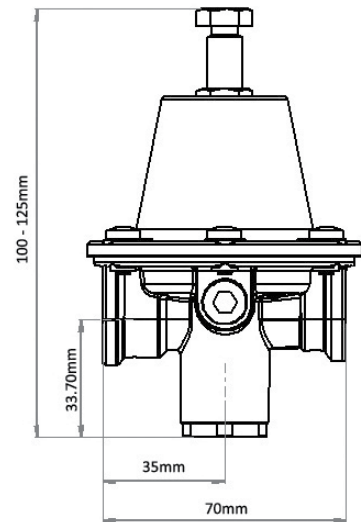
- These fixed or variable regulators are mainly used in domestic and commercial LPG tank or multi-cylinders installations.
- They generally provide the first stage regulation function and are directly fitted onto the tank valve.
- They are also used in other LPG installations (industrial, agriculture, process control ...) and in SNG or Natural Gas installations.
- LPG capacities are between 25kg/h and 60kg/h (345kW and 828kW).
- They can be used in specific installation with air, nitrogen and other non-aggressive gases.

Features

- Certain models are equipped with a limited flow safety relief valve (LRV).
- All models have either a dry manometer or plug for inserting manometer.
- AP40V regulators are equipped with a vertical inlet connection for assembly on vertical tank valves.
- AP40 OPSO regulators are equipped with an over pressure shut-off valve located either upstream (Y/U) or downstream (Y/D) of the regulator mostly containing pressure test points.

Construction

- Body and cover: die cast aluminium alloy
- Diaphragm: NBR-R (FPM upon request)
- Valve pad: NBR (FPM upon request)



AP40R-002810AC

Code	Inlet code	Inlet connection	Outlet code	Outlet connection	Inlet pressure (Pu)		Outlet pressure (Pd)		Flow rate (LPG)		PRV Type	OPSO bar	Manometer on outlet
					bar	bar	kg/h	kW					
AP40													
002821AA	N1E	NUT-W20LH-UNI-G/G	F2C	FEM-Rp3/8	2-16	1,5	50	690	LRV	-	-	MANO-DRY G1/4	
002842AA	N6A	NUT-M20x1,5RH	E6B	MAL-M20x1,5RH	1,3-16	0,8	25	345	-	-	-	PLUG G1/4	
AP40V													
002855MA	N5E	NUT-G3/4RH-NF-TANK	F3D	FEM-Rc1/2	2-16	1,5	50	690	LRV	-	-	MANO-DRY G1/4	
LP40													
002805AA	F2B	FEM-Rp1/4	F2C	FEM-Rp3/8	1,05-16	1,8	30	414	-	-	-	PLUG G1/4	
002841AA	N6A	NUT-M20x1,5RH	E6B	MAL-M20x1,5RH	1,05-16	1,8	30	414	-	-	-	PLUG G1/4	
AP40R													
002800AA	F2B	FEM-Rp1/4	F2C	FEM-Rp3/8	3,5-16	1-3	40-60	552-828	-	-	-	PLUG G1/4	
002801AA	F2B	FEM-Rp1/4	F2C	FEM-Rp3/8	2,5-16	0,5-2	20-40	276-552	LRV	-	-	PLUG G1/4	
002810AC	F2B	FEM-Rp1/4	F2C	FEM-Rp3/8	3,5-16	1-3	40-60	552-828	-	-	-	MANO-DRY G1/4	
002811AA	F2B	FEM-Rp1/4	F2C	FEM-Rp3/8	2,5-16	0,5-2	20-40	276-552	LRV	-	-	MANO-DRY G1/4	
002834AA	N1E	NUT-W20LH-UNI-G/G	F2C	FEM-Rp3/8	2,5-16	0,5-2	20-40	276-552	LRV	-	-	MANO-DRY G1/4	
002836AA	N1E	NUT-W20LH-UNI-G/G	F2C	FEM-Rp3/8	3,5-16	1-3	40-60	552-828	-	-	-	MANO-DRY G1/4	
002843AA	N6A	NUT-M20x1,5RH	E6B	MAL-M20x1,5RH	3,5-16	1-3	40-60	552-828	-	-	-	MANO-DRY G1/4	
002860AB	F5D	FEM-1/2NPT	F5D	FEM-1/2NPT	2,8-18	0,3-2	40-70	552-966	-	-	-	PLUG G1/4	
002860AF	F5D	FEM-1/2NPT	F5D	FEM-1/2NPT	0,6-17,2	5 psi=0,35 (0,3-0,6)	60	828	-	-	-	PLUG G1/4	
002862AB	F3D	FEM-Rc1/2	F3D	FEM-Rc1/2	2,5-12	0,75 (0,5-2)	60	828	-	-	-	PLUG G1/4	
AP40 OPSO													
006861AM	N1E	NUT-W20LH-UNI-G/G	F2C	FEM-Rp3/8	1-16	0,5	20	276	-	-	U/1,3	MANO-DRY G1/4	
006861FB	F3D	FEM-Rc1/2	F3D	FEM-Rc1/2	1,25-16	0,75 (0,5-2)	60	828	-	-	U/2,5	-	
006861FD	F3D	FEM-Rc1/2	F3D	FEM-Rc1/2	2,5-12 (16)	0,5 (0,5-2)	60	828	-	-	U/2,5	-	
006864BA	F2B	FEM-Rp1/4	F3D	FEM-Rc1/2	1,25-16	0,75	25	345	-	-	D/1,3	-	
006864BB	F2B	FEM-Rp1/4	F3D	FEM-Rc1/2	3,5-16	1-3	25	345	-	-	D/4,0	MANO-DRY G1/4	

First Stage Regulators - Up to 40kg/h

325 – 325V – 1325 – 1325V – 4325

325
002742AC1325
002743AA325V
002745AH

Application

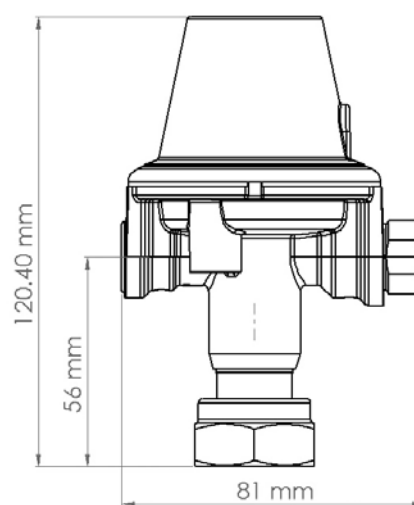
- These fixed or variable regulators are mainly used in domestic or commercial LPG tank or multi-cylinders installations.
- They generally provide the first stage regulation function and are directly fitted onto the tank valve.
- They are also used in other LPG installations (industrial, agriculture, process control ...) and in SNG or Natural Gas installations.
- LPG capacity is 40kg/h (552kW) for the complete range.

Construction

- Body and cover: die cast zinc alloy
- Diaphragm: NBR-R (FPM upon request)
- Valve pad: NBR (FPM upon request)
- NF certified

Features

- The 325, 325V, 1325, 1325V, 4325 regulators are equipped with the JIM seals (bounded seals) which ensures better performances to the gas installation, such as:
 - better resistance to bending forces and over torques,
 - better position holding,
 - better installation features,
 - seal warranty for any temperature (without tightening),
 - corrosion resistance.
- Each regulator is equipped with a dry manometer or with a plug for manometer.
- The 325V and 1325V regulators are equipped with a vertical inlet connection for assembly on vertical tank valve.
- The 325V and 1325V regulators are equipped with a special inlet connection for back up supply in case of maintenance of the tank. This connection is designed for temporary LPG supply using cylinders.
- The 4325 limitors are installed after the first stage regulator (325, 325V, 1325, 1325V) to protect the downstream line and appliances from any increase of regulated pressure over a defined value.



325V-002745AH

Code	Inlet code	Inlet connection	Outlet code	Outlet connection	Inlet pressure (Pu) bar	Outlet pressure (Pd) bar	Flow rate (LPG)		Manometer on outlet
							kg/h	kW	
325									
002742AC*	N6A	NUT-M20x1,5RH	E6B	MAL-M20x1,5RH	2-16	1,5	40	552	PLUG G1/4
1325									
002743AB	N6A	NUT-M20x1,5RH	E6B	MAL-M20x1,5RH	3,5-16	1-3	40	552	MANO-DRY G1/4
002743AC	N6A	NUT-M20x1,5RH	E6B	MAL-M20x1,5RH	2,5-16	0,5-2	40	552	MANO-DRY G1/4
002743AA	E1E	MAL-G3/4RH	E1E	MAL-G3/4RH	3,5-16	1-3	40	552	MANO-DRY G1/4
325V / 1325V									
002745AH*	N5E	NUT-G3/4RH-NF-TANK	E6B	MAL-M20x1,5RH	2-16	1,5	40	552	PLUG G1/4
002746AA	N5E	NUT-G3/4RH-NF-TANK	E6B	MAL-M20x1,5RH	3,5-16	1-3	40	552	MANO-DRY G1/4
4325									
002741AA*	N6A	NUT-M20x1,5RH	E6B	MAL-M20x1,5RH	2,3-16	1,8	40	552	Schrader valve
002741AC	N6A	NUT-M20x1,5RH	E6B	MAL-M20x1,5RH	4,5-16	4	40	552	PLUG G1/4
002741AE*	N6A	NUT-M20x1,5RH	E6B	MAL-M20x1,5RH	2,3-16	1,8	40	552	PLUG G1/4

*NF certified

High Capacity First Stage Regulators - Up to 150kg/h

346 – 346V – 1346 – 1346V – 4346



346
002570AD



1346
002571AB



1346V
002573VA



Application

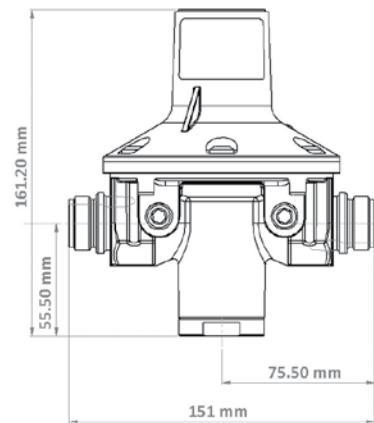
- These fixed or variable regulators are mainly used in commercial, agricultural and industrial applications for LPG tank, multi-cylinders or network installations.
- They generally provide the first stage regulation function and are directly fitted onto LPG tank or the upstream line.
- They are also used in other LPG installations (industrial, agriculture, process control ...) and in SNG or Natural Gas installations.
- LPG capacity is at least 150kg/h for the complete range in severe conditions ($P_u = P_d + 0,5\text{bar}$) and may reach 250kg/h thanks to an innovative design with a special balanced seat.

Construction

- Body and cover: die cast aluminum
- Diaphragm: NBR-R (FPM upon request)
- Valve pad: NBR (FPM upon request)
- Connection: brass

Features

- The 346, 346V, 1346, 1346V, 4346 regulators are equipped with the JIM seals (bounded seals) which ensures better performances to the gas installation, such as:
 - better resistance to bending forces and over torques,
 - better position holding,
 - better installation features,
 - seal warranty for any temperature (without tightening),
 - corrosion resistance.
- All in-line regulators are equipped with a stainless steel integral filter (200 μm mesh) easily accessible for on-site replacement or maintenance (ref. 004455AA).
- Each regulator is equipped with a manometer or with a plug for manometer on both inlet and outlet.
- The 346V and 1346V regulators are equipped with a vertical inlet connection for assembly on vertical tank valve.
- The 346V and 1346V regulators are equipped with a special inlet connection for back up supply in case of maintenance of the tank. This connection is designed for temporary LPG supply using cylinders.
- The 4346 limitors are installed after the first stage regulator (346, 346V, 1346, 1346V) to protect the downstream line and appliances from any increase of regulated pressure over a defined value.



346-002570AB

Code	Inlet code	Inlet connection	Outlet code	Outlet connection	Inlet pressure (Pu)	Outlet pressure (Pd)	Flow rate (LPG)		Manometer on outlet
					bar	bar	kg/h	kW	
346									
002570AA	E1E	MAL-G3/4RH	E1E	MAL-G3/4RH	2-16	1,5	150	2070	PLUG G1/4
002570AD	N5N	NUT-G3/4RH-NF-LINE	E1E	MAL-G3/4RH	2-16	1,5	150	2070	PLUG G1/4
002570AB	E1E	MAL-G3/4RH	E1E	MAL-G3/4RH	3,5-16	3	150	2070	PLUG G1/4
002570AE	N5N	NUT-G3/4RH-NF-LINE	E1E	MAL-G3/4RH	3,5-16	3	150	2070	PLUG G1/4
1346									
002571AB	E1E	MAL-G3/4RH	E1E	MAL-G3/4RH	3,5-16	1-3	150	2070	MANO-DRY G1/4
002571AD	N5N	NUT-G3/4RH-NF-LINE	E1E	MAL-G3/4RH	3,5-16	1-3	150	2070	MANO-DRY G1/4
002571AC	E1E	MAL-G3/4RH	E1E	MAL-G3/4RH	6,5-16	2-6	150	2070	MANO-DRY G1/4
002571AE	N5N	NUT-G3/4RH-NF-LINE	E1E	MAL-G3/4RH	6,5-16	2-6	150	2070	MANO-DRY G1/4
346V / 1346V									
002570VA	N5E	NUT-G3/4RH-NF-TANK	E1E	MAL-G3/4RH	2-16	1,5	150	2070	PLUG G1/4
002573VA	N5E	NUT-G3/4RH-NF-TANK	E1E	MAL-G3/4RH	3,5-16	1-3	150	2070	MANO-DRY G1/4
4346									
002574AA	N5N	NUT-G3/4RH-NF-LINE	E1E	MAL-G3/4RH	2-16	1,8	150	2070	PLUG G1/4
002574AE	N5N	NUT-G3/4RH-NF-LINE	E1E	MAL-G3/4RH	4,5-16	4	150	2070	PLUG G1/4

High Capacity First Stage Regulators - Up to 250kg/h

APS2000 – LPS2000



APS2000
002519BA



APS2000
002540AA



LPS2000
002505AA



Application

- These fixed, adjustable or variable regulators are ideal in tough conditions such as directly supplying crop dryers and large industrial heavy duty burners, in industrial, agriculture, commercial and networked supply LPG installation.
- Now fitted with compensation and safety devices the regulator and PRS Module are most suited to application in LPG domestic networks and local distribution first stage pressure reduction.
- They can also be used in Natural Gas, air, nitrogen, biomethane, SNG and other non-aggressive gases installations.
- Maximum declared capacities:
 - LPG 250kg/h (3450kW) following US rules*,
 - LPG 150kg/h (2070kW) following EU rules*,
 - Natural Gas 120 (n)m³/h.

Features

- **Excellent pressure control**
Thanks to an exclusive dynamic compensation design, the regulated pressure does not suffer from changes to inlet pressure variations. In many instances, periodical or seasonal pressure adjustments are not required.
- **Heavy duty and robust construction**
Oversized strong connections, excellent weather protection, durable surface treatments ensure reliable operation in the most aggressive operating conditions.
- **Connectable vent**
The vent design allows to drain condensate humidity. For underground or enclosed installations, the vent can also be connected to a pipe (G1/4" thread).
- **Extended range of pressure adjustment**
Outlet pressure range is normally 0,2 to 3bar (3 to 45PSI). Regulated pressure can be fixed, internally adjustable or externally variable by a T-bar.
- **Adapted connections**
Female: 1" BSP-ISO7 or 1" NPT or rotating flanges DB25

• Pressure limiter

The **LPS2000** models are specially designed to be installed downstream a first stage regulator in order to limit the regulated pressure, in case of failure of the first stage, to 1,2 times the nominal set pressure.

• Integral filter (option)

Stainless steel integral filter (200 µm mesh) may be mounted upon request or delivered as maintenance kit (004455AA).

• Accessories

Gauges or pressure test points for both inlet and outlet ports, are fitted depending on models or upon request.

Construction

- Comply with the European Pressure Equipment Directive 2014/68/EU
- Comply with European Standard EN16129
- Body and cover: die cast aluminium alloy
- Cover/body screws: stainless steel
- Diaphragm: NBR-R according to EN549 (FPM upon request)
- Valve pad: NBR according to EN549 (FPM upon request)
- Brass fittings according to EN12164

Code	Inlet code	Inlet connection	Outlet code	Outlet connection	Inlet pressure (Pu) bar	Outlet pressure (Pd)		Flow rate (LPG)			Flow rate (NG)		Manometer on inlet	Manometer on outlet
						bar	type	kg/h	kW	Rule*	(n)m ³ /h	kW		
APS2000														
002560BL	F3F	FEM-Rc1	F3F	FEM-Rc1	1 - 16	0,5	Fix	150	2070	EU	120	1340	MANO-DRY G1/4	MANO-DRY G1/4
002560BK	F3E	FEM-Rc3/4	F3E	FEM-Rc3/4	1,25 - 16	0,75		100	1380	EU	80	890	MANO-DRY G1/4	MANO-DRY G1/4
002560CA	F3F	FEM-Rc1	F3F	FEM-Rc1	2,5 - 16	0,75	150	2070	EU	120	1340	PLUG G1/4	PLUG G1/4	
002510AB	F3E	FEM-Rc3/4	F3E	FEM-Rc3/4	2,5 - 16	1,5 (0,5-2)	Adjustable	150	2070	EU	120	1340	PLUG G1/4	MANO-DRY G1/4
002514AA	B6F	FLG-PN40-DN25	B6F	FLG-PN40-DN25	2,5 - 16	0,75 (0,5-2)		150	2070	EU	120	1340	PLUG G1/4	PLUG G1/4
002560BC	F3F	FEM-Rc1	F3F	FEM-Rc1	2,5 - 16	0,75 (0,5-2)	Adjustable	150	2070	EU	120	1340	PLUG G1/4	PLUG G1/4
002560BD	F3E	FEM-Rc3/4	F3E	FEM-Rc3/4	2,5 - 16	0,75 (0,5-2)		150	2070	EU	120	1340	PLUG G1/4	PLUG G1/4
002561AC	F5F	FEM-1NPT	F5F	FEM-1NPT	max 17,2	5 psi = 0,35 bar (0,27-0,4)	250	3450	US-20	-	-	PLUG G1/4	PLUG G1/4	
002560BE	F3E	FEM-Rc3/4	F3E	FEM-Rc3/4	2,5 - 16	0,5-2	Adjustable	150	2070	EU	120	1340	PLUG G1/4	MANO-DRY G1/4
002560BF	F3E	FEM-Rc3/4	F3E	FEM-Rc3/4	2,5 - 16	0,5-2		150	2070	EU	120	1340	PLUG G1/4	PLUG G1/4
002560BG	F3E	FEM-Rc3/4	F3E	FEM-Rc3/4	2,5 - 16	0,5-2	Adjustable	150	2070	EU	120	1340	MANO-DRY G1/4	MANO-DRY G1/4
002560BH	F3E	FEM-Rc3/4	F3E	FEM-Rc3/4	2,5 - 16	0,5-2		150	2070	EU	120	1340	MANO-OIL G1/4	MANO-OIL G1/4
002540AC	F3F	FEM-Rc1	F3F	FEM-Rc1	2,5 - 16	0,5-2	Adjustable	150	2070	EU	120	1340	MANO-OIL G1/4	MANO-OIL G1/4
002510AA	F3E	FEM-Rc3/4	F3E	FEM-Rc3/4	3,5 - 16	1-3		150	2070	EU	120	1340	PLUG G1/4	MANO-DRY G1/4
002530AA	F3E	FEM-Rc3/4	F3E	FEM-Rc3/4	3,5 - 16	1-3	Variable	150	2070	EU	120	1340	MANO-DRY G1/4	MANO-DRY G1/4
002540AA	F3E	FEM-Rc3/4	F3E	FEM-Rc3/4	3,5 - 16	1-3		150	2070	EU	120	1340	MANO-OIL G1/4	MANO-OIL G1/4
002560BB	F3E	FEM-Rc3/4	F3E	FEM-Rc3/4	3,5 - 16	1-3	Variable	150	2070	EU	120	1340	PLUG G1/4	PLUG G1/4
002540AB	F3F	FEM-Rc1	F3F	FEM-Rc1	3,5 - 16	1-3		150	2070	EU	120	1340	MANO-OIL G1/4	MANO-OIL G1/4
002560BJ	F3F	FEM-Rc1	F3F	FEM-Rc1	3,5 - 16	1-3	Variable	150	2070	EU	120	1340	PLUG G1/4	PLUG G1/4
002513BA	F5E	FEM-3/4NPT	F5E	FEM-3/4NPT	max 17,2	1-3		250	3450	US-30	-	-	PLUG G1/4	PLUG G1/4
002513BB	F5F	FEM-1NPT	F5F	FEM-1NPT	max 17,2	1-3	250	3450	US-30	-	-	PLUG G1/4	PLUG G1/4	
002560BA	F5E	FEM-3/4NPT	F5E	FEM-3/4NPT	max 17,2	0,2-2	230	3175	US-20	-	-	PLUG G1/4	PLUG G1/4	
002561AB	F5F	FEM-1NPT	F5F	FEM-1NPT	max 17,2	0,2-2	250	3450	US-20	-	-	PLUG G1/4	PLUG G1/4	
LPS2000														
002505AA	F3E	FEM-Rc3/4	F3E	FEM-Rc3/4	2-16	1,8	Fix	150	2070	EU	-	-	PLUG G1/4	PLUG G1/4

*- US-Rule: The outlet pressure is set at 20 or 30 psig, with 100 psig inlet pressure and 500kBTU/hr flow rate. The capacity is measured for an outlet pressure 20% less than the set pressure and with the inlet pressure 20 psig higher than set outlet pressure. - EU-Rule: Maximum flow rate for which the outlet pressure remains within -30% (+30% for lock-up) and +20% of the set pressure, for whatever inlet pressure in the declared range.

High Capacity First Stage Regulators - Up to 250kg/h

APS2 – APS2M



APS2
006880EA



APS2
006880CC



APS2M
006880MA



Application

- These regulators are ideal in medium to large capacity LPG and Natural Gas installations requiring stable regulated pressure irrespective of changes in ambient temperature and upstream pressure. So the perfect solution for:
 - Pressure Reduction Stations (PRS) networked and high integrity installations- Industrial or Agriculture (poultry) non-stop processes
- APS2M model is combined with monitor regulator, providing a high level of over-pressure protection and supply continuity without affecting the OPSO device.
- Maximum declared capacities:
 - LPG 150kg/h (2070kW) following and European Standards and more than 250kg/h using US standards
 - Natural Gas 120 (n)m³/h

Features

- Excellent pressure control**
Thanks to an exclusive dynamic compensation design, the regulated pressure does not suffer from changes to inlet pressure variations. In many instances, periodical or seasonal pressure adjustments are not required.
 - Heavy duty and robust construction**
Oversized strong connections, excellent weather protection, durable surface treatments ensure reliable operation in the most aggressive operating conditions.
 - Efficient pressure safety valve (OPSO-UPSO)**
Over Pressure Shut-Off device can also be combined with an Under Pressure Shut-Off. Resetting system is provided with indicator and assisted reset function which is sealable against tampering.
 - Monitor with indicator and TR (Telemetry Ready)**
The monitor unit when used with the Active regulator provides a unique indicator with additional benefits:
 - “easy check” routine inspection and maintenance,
 - enhanced protection from nuisance OPSO tripping ensuring continuity of gas supply,
 - provides possibility for remote telemetry indication*,
 - increased overall installation safety level and reliability for both single and twin-stream PRS installations.
- * Telemetry monitoring is supplied optional, upgradable from new or as retrofit with switch and cable kit.*
- Suitable for most telemetry systems this system provides:
- remote operation state of monitor
 - early warning for further investigation

Connectable vent

The vent design allows to drain condensate humidity. For underground or enclosed installations, the vent can also be connected to a pipe.

Adapted connections

Female: 1" BSP-ISO7 or 1" NPT or Flange

Extended range of pressure adjustment

Outlet pressure range is normally 0.2 to 3bar (3 to 45PSI) with 6bar models available. Regulated pressure can be fixed, adjustable internally or externally by a T-bar.

Integral filter

Stainless steel integral filter (200 µm mesh), for easy maintenance, ensures the regulator is protected from installation debris.

Accessories

Gauges or pressure test points for both inlet and outlet ports, are fitted depending on models or upon request.

Construction

- Comply with European Standards
 - EN16129, EN334, EN14382
 - Comply with the European Pressure Equipment
- Directive PED - 2014/68/UE
 - Body: die cast zinc alloy
 - Cover: die cast aluminium alloy
 - Cover/body screws: stainless steel
 - Diaphragm: NBR-R (FPM upon request)
 - Valve pad: NBR (FPM upon request)

Code	Inlet code	Inlet connection	Outlet code	Outlet connection	Inlet pressure (Pu) bar	Outlet pressure (Pd)		Flow rate (LPG)		Flow rate (NG) (n)m ³ /h	Flow rate (NG) kW	OPSO bar	Manometer on inlet	Manometer on outlet
						bar	type	kg/h	kW					
APS2														
006880EB	F3F	FEM-Rc1	F3F	FEM-Rc1	3 - 8	0,3	-	-	200	2240	0,6	PLUG G1/4	PLUG G1/4	
006880EC	F3F	FEM-Rc1	F3F	FEM-Rc1	3 - 16	1,0	-	-	200	2240	2,0	PLUG G1/4	PLUG G1/4	
006880AA	F3F	FEM-Rc1	F3F	FEM-Rc1	2 - 16	1,5	150	2070	120	1340	2,5 (2-4)	PLUG G1/4	PLUG G1/4	
006880AB	F3F	FEM-Rc1	F3F	FEM-Rc1	2 - 16	1,5	150	2070	120	1340	2,5 (2-4)	PLUG G1/4	Schrader Valve	
006880AC	F3F	FEM-Rc1	F3F	FEM-Rc1	1 - 16	0,5	150	2070	120	1340	2,5 (2-4)	PLUG G1/4	MANO-OIL G1/4	
006880AD	F3F	FEM-Rc1	F3F	FEM-Rc1	1 - 16	0,5	150	2070	120	1340	2,5 (2-4)	MANO-DRY G1/4	MANO-DRY G1/4	
006880CA	F3F	FEM-Rc1	F3F	FEM-Rc1	2,5 - 16	0,75 (0,5÷2)	150	2070	120	1340	2,5 (2-4)	PLUG G1/4	Schrader Valve	
006880CB	F3F	FEM-Rc1	F3F	FEM-Rc1	2,5 - 16	0,5 ÷ 2	150	2070	120	1340	2,5 (2-4)	PLUG G1/4	PLUG G1/4	
006880CC	F3F	FEM-Rc1	F3F	FEM-Rc1	2,5 - 16	0,5 ÷ 2	150	2070	120	1340	2,5 (2-4)	MANO-OIL G1/4	MANO-OIL G1/4	
006880BA	F3F	FEM-Rc1	F3F	FEM-Rc1	3,5 - 16	1 ÷ 3	150	2070	120	1340	4,0 (2 - 4)	MANO-OIL G1/4	MANO-OIL G1/4	
006880CD	F1F	FEM-G1RH	F1F	FEM-G1RH	2,5 - 16	0,5 ÷ 2	150	2070	120	1340	2,5 (2-4)	MANO-OIL G1/4	MANO-OIL G1/4	
006880TA	F3F	FEM-Rc1	F3F	FEM-Rc1	4	1	250	3450	200	2240	2	PLUG G1/4	MANO-OIL G1/4	
006880TB	F3F	FEM-Rc1	F3F	FEM-Rc1	4	0,3	250	3450	200	2240	0,6	PLUG G1/4	PLUG G1/4	
006880TC	F3F	FEM-Rc1	F3F	FEM-Rc1	4	1	250	3450	200	2240	2	PLUG G1/4	PLUG G1/4	

Code	Inlet code	Inlet connection	Outlet code	Outlet connection	Inlet pressure (Pu) bar	Monitored pressure (Pd) bar	OPSO bar	Outlet pressure (Pd)		Flow rate (LPG)		Manometer on inlet	Manometer on intermediate	Manometer on outlet
								bar	type	kg/h	kW			
APS2M (OPSO ACTIVE MONITOR + REGULATOR)														
006880MA	F3F	FEM-Rc1	F3F	FEM-Rc1	2,5 - 16	1,75	2,5 (2÷4)	0,75 (0,5÷1,5)	Adjustable	150	2085	Schrader Valve	Schrader Valve	Schrader Valve (on OPSO)
006880MD	F3F	FEM-Rc1	F3F	FEM-Rc1	2,5 - 16	1,75	2,5 (2÷4)	0,75 (0,5÷1,5)	Adjustable	150	2085	Schrader Valve	Schrader Valve	Schrader Valve (on OPSO)
006880ME*	F3F	FEM-Rc1	F3F	FEM-Rc1	2,5 - 16	1	2,5 (2÷4)	0,5 (0,3÷1,5)	Adjustable	150	2085	Schrader Valve	Schrader Valve	Schrader Valve (on OPSO)
006880MF	F2F	FEM-Rp1	F2F	FEM-Rp1	2,5 - 16	1	2,5 (2÷4)	0,5	Fix	150	2085	Schrader Valve	Mano dry 25 bar	-

* with additional inlet connector FEM-1 NPT / MAL-R1

Single and Second Stage Regulators – Up to 10kg/h

BP2205 – BP2205G – 456GN – 456P – 465



BP2205
000860



BP2205
000860AE



BP2205G
000860ZX



456GN
000892AA



Application

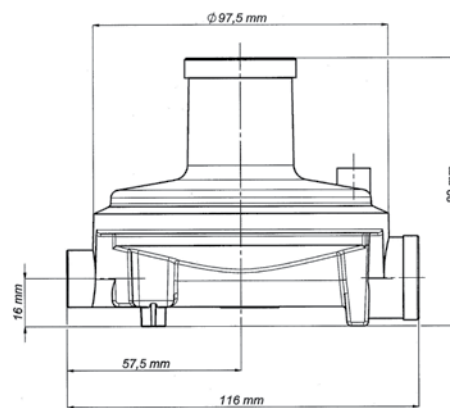
- These products are mainly used in small LPG installations (domestic or commercial) as second stage regulators.
- Maximum capacity 10kg/h (138kW)
- BP2205G regulators are provided with a rotating special device called "GIRO" which protects 4 vent holes and allows the regulator to be installed in all positions.
- BP2205 and BP2205G regulators are equipped with a limited capacity relief valve (LRV).
- 456P and 456 GN models are purposely designed for radiant heater installations, and form part of a complete product offering for this specific application (valves, filters, flexible hoses ...)
- 465 model are single stage regulators, without relief valve and equipped with a filter on inlet.

Features

- "GIRO" system provides:
 - the best protection against water entering through the vent holes,
 - the perfect drainage of moisture condensation which may occur above the diaphragm.

Construction

- Body and cover: die cast zinc alloy
- Diaphragm: NBR
- Valve pad: NBR or FPM
- NF certified



BP2205-000860

Code	Inlet code	Inlet connection	Outlet code	Outlet connection	Inlet pressure (Pu) bar	Outlet pressure (Pd) mbar	Flow rate		Type of gas	Filter	LRV mbar	Pad material	Replaced Code
							kg/h	kW					
BP2205													
000866	F3B	FEM-Rc1/4	F2D	FEM-Rp1/2	1-7.5	30 (25-45)	10	138	LPG	-	75	NBR	
000860	F3B	FEM-Rc1/4	F2D	FEM-Rp1/2	0.5-4	30 (25-45)	10	138	LPG	-	75	NBR	000900
000861	F2D	FEM-Rp1/2	F2D	FEM-Rp1/2	0.5-4	30 (25-45)	10	138	LPG	-	75	NBR	
000869AA	F2D	FEM-Rp1/2	F2D	FEM-Rp1/2	0.5-7.5	30 (25-45)	10	138	LPG	-	75	NBR	000950
000872AA	F5D	FEM-1/2NPT	F5D	FEM-1/2NPT	0.5-7	30 (25-45)	10	138	LPG	-	75	NBR	
000869AB	F5B	FEM-1/4NPT	F5D	FEM-1/2NPT	0.5-7.5	30 (25-45)	10	138	LPG	-	75	NBR	000978AX
000876AX	F5B	FEM-1/4NPT	F5D	FEM-1/2NPT	0.5-4	30 (25-45)	10	138	LPG	-	75	NBR	
000865	N1A	NUT-W20LH-25-UNI	F2D	FEM-Rp1/2	0.5-4	30 (25-45)	10	138	LPG	-	75	NBR	000930
000862	F3B	FEM-Rc1/4	F2D	FEM-Rp1/2	0.5-4	37 (33-45)	10	138	Propane	-	75	NBR	
000867AD	F3B	FEM-Rc1/4	F2D	FEM-Rp1/2	0.5-7.5	37 (33-45)	7	97	LPG	-	85	NBR	000821
000868AA	F2D	FEM-Rp1/2	F2D	FEM-Rp1/2	0.7-4	37 (33-45)	10	138	Propane	-	75	NBR	
000869AD	F5B	FEM-1/4NPT	F5D	FEM-1/2NPT	0.5-11	37 (33-45)	10	138	LPG	-	85	FPM	000918MX
000869AE	F5B	FEM-1/4NPT	F5D	FEM-1/2NPT	0.5-11	50 (47-57)	10	138	LPG	-	95	FPM	000919MX
000869AC	F5B	FEM-1/4NPT	F5D	FEM-1/2NPT	0.5-11	67 (50-80)	10	138	LPG	-	115	FPM	000917MX
000869AF	N6A	NUT-M20x1.5RH	E6B	MAL-M20x1.5RH	0.5-4	37 (33-45)	10	138	LPG	Y	85	FPM	000974
000869AG	N6A	NUT-M20x1.5RH	E6B	MAL-M20x1.5RH	0.5-4	50 (47.5-57.5)	10	138	LPG	Y	95	FPM	000975
BP2205G													
000860ZX	F3B	FEM-Rc1/4	F2D	FEM-Rp1/2	0.5-4	30 (25-45)	10	138	LPG	-	75	NBR	
000867GA	F3B	FEM-Rc1/4	F2D	FEM-Rp1/2	0.5-4	30 (25-45)	7	97	LPG	-	75	NBR	
000867GC	F3B	FEM-Rc1/4	F2D	FEM-Rp1/2	0.5-7.5	30 (25-45)	7	97	LPG	-	75	NBR	
000861ZX	F2D	FEM-Rp1/2	F2D	FEM-Rp1/2	0.5-4	30 (25-45)	10	138	LPG	-	75	NBR	
000865ZX	N1E	NUT-W20LH-UNI-G/G	F2D	FEM-Rp1/2	0.5-4	30 (25-45)	10	138	LPG	-	75	NBR	
000867GB	N1E	NUT-W20LH-UNI-G/G	F2D	FEM-Rp1/2	0.5-7.5	30 (25-45)	7	97	LPG	-	75	NBR	
000865AA	N1E	NUT-W20LH-UNI-G/G	F2D	FEM-Rp1/2	0.5-2	37 (33-45)	10	138	Propane	-	75	NBR	
000860AA	F5B	FEM-1/4NPT	F5D	FEM-1/2NPT	0.5-4	37 (33-45)	10	138	Propane	-	75	FPM	
000860AJ	F2D	FEM-Rp1/2	F2D	FEM-Rp1/2	0.7-4	37 (33-45)	10	138	Propane	-	75	NBR	
000860AH	F2D	FEM-Rp1/2	F2D	FEM-Rp1/2	0.7-4	50 (47.5-57.5)	10	138	Propane	-	90	NBR	
456P													
000892AK*	N5D	NUT-G1/2RH-NF	F1D	FEM-G1/2RH	0.5-2.1	37	10	138	Propane	Y	-	NBR	
000892AB*	E1E	MAL-G3/4RH	E1E	MAL-G3/4RH	0.5-2.1	37	10	138	Propane	-	-	NBR	
000892AE	E1E	MAL-G3/4RH	E1E	MAL-G3/4RH	0.5-2.1	50	10	138	Propane	-	-	NBR	
000892AF	E1E	MAL-G3/4RH	E1E	MAL-G3/4RH	0.5-2.1	67	10	138	Propane	-	-	NBR	
456GN													
000892AH*	N5D	NUT-G1/2RH-NF	F1D	FEM-G1/2RH	0.24-0.36	20	5.6	63		Y	-	NBR	
000892AA*	E1E	MAL-G3/4RH	E1E	MAL-G3/4RH	0.24-0.36	20	5.6	63		-	-	NBR	
000892AD	E1E	MAL-G3/4RH	E1E	MAL-G3/4RH	(0.3) 1-5	20	(5.6) 9	(63) 101		-	-	NBR	
465													
000890*	N2C	NUT-NF21.8LH-R5NF	E6B	MAL-M20x1.5RH	0.3-7.5	28	2.6	36	Butane	Y	-	NBR	
000890AX	N2C	NUT-NF21.8LH-R5NF	E6B	MAL-M20x1.5RH	0.3-7.5	112	2.6	36	Butane	Y	-	NBR	

* NF certified

Single & Second Stage Regulators OPSO / UPSO - Up to 12kg/h

BP2203 – BP2233 – Group APZ400 + BP2203



BP2203
006827AA



BP2203
006827BC



APZ400 + BP2203
006881AA



Application

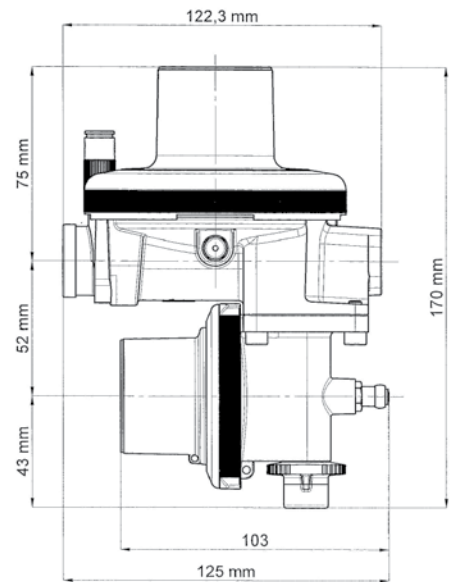
- These products mainly used in domestic or commercial LPGs installations where they provide the second stage regulation function. They can also be used with: Natural Gas, SNG, air, nitrogen and other non-aggressive gases...
- They can be integrated in a complete double stage unit.
- Special models can be used as single or third stage regulator.

Construction

- Bodies and covers: die cast zinc alloy
- Diaphragm: NBR or NBR-R
- Valve pad: NBR (FPM upon request)

Features

- **OPSO** Over Pressure Shut-Off safety: visual indicator displays the open-close state. Easy resetting: cap rotation allows pressure balancing before complete resetting. Sealing wire (optional). Test point.
- **UPSO** Under Pressure Shut-Off safety (optional): easy resetting, independent from OPSO resetting. Visual indicator.
- **PRV** Pressure relief valve (on certain models): a limited capacity pressure relief valve (LRV) discharges thermal expansion over pressures to avoid any unnecessary OPSO triggering.
- **Vent** "Giro" ring (multi-position) or classical piped vent (positioned towards earth) provides:
 - the best protection against water penetration,
 - the perfect drainage of humidity condensation.
- Accessories: wall bracket.



BP2203-006827BA

Code	Inlet code	Inlet connection	Outlet code	Outlet connection	Inlet pressure (Pu) bar	Outlet pressure (Pd) mbar	Flow rate		Type of gas	PRV mbar	OPSO mbar	Vent Type	UPSO mbar	Wall bracket	Diaphragm Material	Pressure Test point Type
							kg/h	KW								
BP2203																
006827AA	F3D	FEM-Rc1/2	F3E	FEM-Rc3/4	0,45-2	37	10,5	145	Propane	75	100	GIRO-tube Ø6	29	-	NBR-R	STD test point
006827AB	F3D	FEM-Rc1/2	F3E	FEM-Rc3/4	0,45-2	37	10,5	145	Propane	75	100	GIRO-tube Ø6	29	Y	NBR-R	STD test point
006827AC	F3D	FEM-Rc1/2	F3E	FEM-Rc3/4	0,45-2	37	10,5	145	Propane	75	100	G1/8-tube Ø6-3h	29	-	NBR-R	STD test point
006827AD	F3D	FEM-Rc1/2	F3E	FEM-Rc3/4	0,6-2	75	12	166	LPG	110	140	GIRO-tube Ø6	-	-	NBR-R	STD test point
006827BA	F3D	FEM-Rc1/2	F3D	FEM-Rc1/2	0,5-2	29	10,5	145	LPG	75	135	GIRO-tube Ø6	-	-	NBR	STD test point
006827BB	F3D	FEM-Rc1/2	F3D	FEM-Rc1/2	0,5-4	20	10,5	145	LPG	65	135	GIRO-tube Ø6	-	-	NBR	STD test point
006827BC	F3D	FEM-Rc1/2	F3D	FEM-Rc1/2	0,5-2	29	10,5	145	LPG	75	135	GIRO-tube Ø6	22	-	NBR	STD test point
006827BF	N1A	NUT-W20LH-25-UNI	F3D	FEM-Rc1/2	0,25-2	37	10,5	145	Propane	75	125	GIRO-tube Ø6	-	-	NBR	-
006827BG	F2B	FEM-Rp1/4	F3D	FEM-Rc1/2	0,25-2	37	10,5	145	Propane	75	125	GIRO-tube Ø6	-	-	NBR	-
006827BH	F3D	FEM-Rc1/2	F3D	FEM-Rc1/2	0,25-2	37	10,5	145	Propane	75	125	GIRO-tube Ø6	-	-	NBR	-
006827BJ	F5D	FEM-1/2NPT	F5D	FEM-1/2NPT	0,5-4	29	13,2	182	LPG	75	125	GIRO-tube Ø6	22	-	NBR	STD test point
006827CD	F5D	FEM-1/2NPT	F5D	FEM-1/2NPT	0,6-1,2	30	10,5	145	LPG	-	70	GIRO-tube Ø6	22	-	NBR	STD test point
006827CE	F5D	FEM-1/2NPT	F5D	FEM-1/2NPT	0,6-6	105	10,5	145	LPG	-	260	GIRO-tube Ø6	-	-	NBR-R	STD test point
BP2233																
006828AA	F2B	FEM-Rp1/4	F3D	FEM-Rc1/2	1-16	37	7,5	104	Propane	75	125	Hole Ø2-11h	-	-	NBR	STD test point
006828AB	F2B	FEM-Rp1/4	F3D	FEM-Rc1/2	0,3-16	29	4	55	LPG	75	125	Hole Ø2-5h	-	-	NBR	STD test point
006828AE	N1E	NUT-W20LH-UNI-G/G	F3D	FEM-Rc1/2	1-16	37	4	13	Propane	75	125	Hole Ø2-11h	-	Y	NBR	-
006828BA*	E6B	MAL-M20x1,5RH (x2)	F3D	FEM-Rc1/2	1-16	37	7,5	104	Propane	75	125	Hole Ø2-11h	-	Y	NBR	STD test point
006828CA**	F2B	FEM-Rp1/4	F3E	FEM-Rc3/4	0,3-16	29	4	55	LPG	75	125	Hole Ø2-5h	-	Y	NBR	-
Group APZ400 + BP2203																
006881AA	F2B	FEM-Rp1/4	F3E	FEM-Rc3/4	1,5-16	37	10,5	145	Propane	75	100	GIRO-tube Ø6	29	-	NBR-R	STD test point
006881AC	F2B	FEM-Rp1/4	F3E	FEM-Rc3/4	1,5-16	75	12,5	173	Propane	115	140	GIRO-tube Ø6	-	-	NBR-R	STD test point
006881BA	N5E	NUT-G3/4RH-T	F3E	FEM-Rc3/4	2-16	29	10,5	145	LPG	75	135	GIRO-tube Ø6	-	-	NBR-R	STD test point

* supplied with ball valve outlet connection FEM-Rp1/2 + Multicylinders manual changeover inlet

** supplied with a cylinder manifold twin inlet connection MAL-W20LH-UNI

Second Stage Regulators OPSO / UPSO - Up to 30kg/h

BP2303 – BP 2303 UPSO – BP2303R – BP2303 OPSO



BP2303
001051AB



BP2303R
001070AD



BP2303 OPSO
006830BA

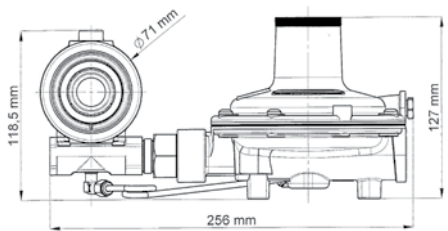


Application

- These products are mainly used in medium power LPG installations (domestic, commercial or industrial) as final stage or intermediate stage, regulators.
- They can also be used with Natural Gas, SNG, air, nitrogen and other non-aggressive gases.
- Maximum capacity: 30kg/h (414kW)
- BP2303R models are commonly used in industrial applications which require a fine pressure adjustment.

Features

- Accurate pressure control
- Connectable vent: the vent design allows to drain condensate humidity. For underground or enclosed installations, the vent can also be connected to a pipe (G1/4" thread).
- OPSO with visual indicator and test point (optional). Easily resettable. Possible sealing means.
- Certain models are equipped with UPSO safety device.
- Certain BP2303R models are equipped with a double spring which ensures a stable minimum regulated pressure in all conditions.
- Low capacity pressure relief valve on certain models
- Certain models are available with extra low pressure adjustment for thermal control (heating and poultry applications).



BP2303 OPSO-006830BA

Construction

- Body and cover: die cast aluminium alloy
- Diaphragm: NBR-R
- Valve pad: NBR or FPM

Code	Inlet code	Inlet connection	Outlet code	Outlet connection	Inlet pressure (Pu) bar	Outlet pressure (Pd) mbar	Flow rate (LPG)		PRV mbar	OPSO mbar	Vent Type - Position	USPO mbar	Pad material	Diaphragm material
							kg/h	kW						
BP2303														
001050AA	F2D	FEM-Rp1/2	F3E	FEM-Rc3/4	0,5-4	30 (27-36)	30	414	75 (60-90)	-	G1/4-0h	-	NBR	NBR-R
001050BA	F2D	FEM-Rp1/2	F3E	FEM-Rc3/4	0,5-7,5	30 (25-45)	20	276	75 (60-90)	-	G1/4-0h	-	NBR	NBR-R
001051AA	F2D	FEM-Rp1/2	F3E	FEM-Rc3/4	0,5-4	37 (33-45)	30	414	75 (60-90)	-	G1/4-0h	-	NBR	NBR-R
001051AB	F2D	FEM-Rp1/2	F3E	FEM-Rc3/4	0,5-4	37 (33-45)	30	414	75 (60-90)	-	G1/4-4h	-	NBR	NBR-R
001052AB	F2D	FEM-Rp1/2	F3E	FEM-Rc3/4	0,5-4	50 (45-60)	30	414	100	-	G1/4-4h	-	NBR	NBR-R
001053AA	F5D	FEM-1/2NPT	F5E	FEM-3/4NPT	0,5-4	30 (27-36)	30	414	75 (60-90)	-	G1/4-0h	-	FPM	NBR-R
001053AB	F5D	FEM-1/2NPT	F5E	FEM-3/4NPT	1,4-4	500 (350-500)	30	414	750	-	G1/4-0h	-	FPM	NBR-R
BP2303 UPSO														
001060AA	F2D	FEM-Rp1/2	F3E	FEM-Rc3/4	0,5-4	30 (27-36)	25	345	75 (60-90)	-	G1/4-0h	20	NBR	NBR-R
001060AB	F5D	FEM-1/2NPT	F5E	FEM-3/4NPT	0,5-4	30 (27-36)	25	345	75 (60-90)	-	G1/4-0h	20	NBR	NBR-R
001060BA***	F3E	FEM-Rc3/4	F3E	FEM-Rc3/4	60-90	37	8	110	75 (60-90)	-	G1/4-6h	29	NBR	NBR-R
BP2303R														
001070AA	F2D	FEM-Rp1/2	F3E	FEM-Rc3/4	0,7-4	10-200	30	414	LRV (+60)	-	G1/4-0h	-	NBR	NBR-R
001070AB	F2D	FEM-Rp1/2	F3E	FEM-Rc3/4	0,8-4	20-300	30	414	LRV (+60)	-	G1/4-0h	-	NBR	NBR-R
001070AC	F2D	FEM-Rp1/2	F3E	FEM-Rc3/4	0,8-4	20-300	30	414	-	-	G1/4-0h	-	NBR	NBR-R
001070AD*	F2D	FEM-Rp1/2	F3E	FEM-Rc3/4	0,7-3	(=0) 10-200**	6,5-30	90-414	-	-	G1/4-0h	-	NBR	NBR-R
001070AE*	F2D	FEM-Rp1/2	F3E	FEM-Rc3/4	0,8-3	(=0) 10-300**	6,5-30	90-414	-	-	G1/4-0h	-	NBR	NBR-R
001070AF*	F5D	FEM-1/2NPT	F5E	FEM-3/4NPT	0,8-3	(=0) 10-300**	6,5-30	90-414	-	-	G1/4-0h	-	NBR	NBR-R
001070BA	F2D	FEM-Rp1/2	F3E	FEM-Rc3/4	1,2-7,5	20-200	20	276	LRV (+60)	-	G1/4-0h	-	NBR	NBR-R
001071AA	F5D	FEM-1/2NPT	F5E	FEM-3/4NPT	0,8-4	20-300	30	414	LRV (+60)	-	G1/4-0h	-	FPM	NBR-R
BP2303 OPSO														
006830AD	F5D	FEM-1/2NPT	F5E	FEM-3/4NPT	0,7-3	500	25	345	750	1300	G1/4-0h	-	NBR	NBR-R
006830BA	F3D	FEM-Rc1/2	F3E	FEM-Rc3/4	0,5-4	29 (27-36)	30	414	75	135	G1/4-0h	-	NBR	NBR-R
006830BB	F3D	FEM-Rc1/2	F3E	FEM-Rc3/4	1-4	37 (33-45)	30	414	75	135	G1/4-0h	-	NBR	NBR-R
006835BA	F3D	FEM-Rc1/2	F3E	FEM-Rc3/4	0,5-4	29 (27-36)	25	345	75	135	G1/4-0h	16	NBR	NBR-R
006835BB	F5D	FEM-1/2NPT	F5E	FEM-3/4NPT	0,5-4	29 (27-36)	25	345	75	135	G1/4-0h	16	NBR	NBR-R
006836BA	F2D	FEM-Rp1/2	F3E	FEM-Rc3/4	0,5-7,5	29 (27-36)	18	248	75	135	G1/4-0h	16	NBR	NBR-R
006836RB	F3E	FEM-Rc3/4	F3E	FEM-Rc3/4	0,6-2	37	30	414	75	100	G1/4-6h	29	NBR	NBR-R
006837AA	F5D	FEM-1/2NPT	F5E	FEM-3/4NPT	0,8-2	350	50	690	-	500	G1/4-6h	270	NBR	NBR-R

* special design with extra low pressure for thermal control

** (=0) outlet pressure may be adjusted at a value very close to zero, but always greater than zero allowing a small pilot flow

*** Third stage - Outlet testing point dia.8mm - Color green

Second Stage Regulator OPSO / UPSO - Up to 70kg/h

BP2403-BP2403R-BP2403 OPSO - BP2403 UPSO - BP2403 OPSO/USPO



BP2403
001105CA



BP2403R
001110CA



BP2403 OPSO
006840CA



Application

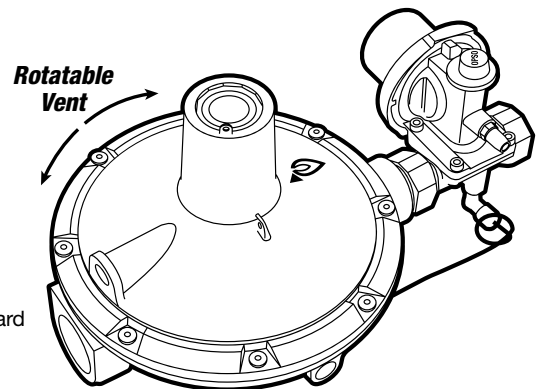
- High capacity flow rates at both low and high inlet pressure ranges
- Mainly used in medium and large power installations (domestic metered networks, commercial, agricultural or industrial) as final stage or intermediate stage pressure reduction
- Suitable for all types of LPG, natural gas, synthetic natural gas (SNG) or non aggressive other gases (air, nitrogen, biomethane)

Features

- Easy installation
- Safety devices and adjustment options
- Large range of regulators
- Capacity up to 70kg/h (970kW)
- Rotatable Vent
- Inlet pressure from 0.05 to 6 bar

Construction

- Design tested according to EN 16129 standard
- Compliance with the PED 2014/68/CE
- ISO 9001 quality management standard
- Body and cover of regulators: die cast zinc alloy
- Body and cover of OPSO safety: die cast zinc alloy
- Inlet connections: brass (EN 12165)
- Diaphragm: NBR-R reinforced EN 549
- Valve pad: HNBR (EN 549)



PREVIOUS BP2402 code	BP2403 Code	Inlet code	Inlet connection	Outlet code	Outlet connection	Inlet pressure (Pu) bar	Outlet pressure (Pd) mbar	Declared gas	Flow rate		PRV mbar	OPSO mbar	USPO mbar	Original vent orientation*	Performances rule
									kg/h of propane or LPG ((S)m ³ /h of NG)	kW					
BP2403															
001107AB	001107CB	F3E	FEM-Rc3/4	F3F	FEM-Rc1	0,24 - 0,5	21 (18 - 24)	NG	25	280	-	-	-	0	EN 334 **
	001107CE	E1E	MAL G3/4RH	E1E	MAL G3/4RH	0,24 - 0,36	20 (18 - 24)	NG	25	280	-	-	-	0	CCH 96-01 **
001100XX	001100CA	F3E	FEM-Rc3/4	F3F	FEM-Rc1	(0,3) 0,5 - 2	30 (24 - 41)	LPG	50 (40)	690 (552)	75	-	-	0	EN 16129
001130PX	001130CA	F5E	FEM-3/4NPT	F5F	FEM-1 NPT	(0,3) 0,5 - 2	30 (24 - 41)	LPG	50 (40)	690 (552)	75	-	-	0	EN 16129
	001105CA	F3E	FEM-Rc3/4	F3F	FEM-Rc1	(0,3) 0,5 - 2	37 (32 - 46)	Propane	50 (40)	690 (552)	75	-	-	4	EN 16129 (ΔP5)
001107AA	001107CA					(0,3) 0,5 - 2	37 (32 - 46)	Propane	50 (40)	690 (552)	-	-	-	0	EN 16129 (ΔP5)
001107AC	001107CC					0,7 - 5	148 (65 - 155)	Propane	70 (NG 55)	966 (NG 616)	-	-	-	7	EN 16129
001107AD	001107CD					0,8 - 5	300 (200 - 350)	Propane	70 (NG 55)	966 (NG 616)	-	-	-	0	EN 16129
001117	001117CA					0,5 - 2	37 (32 - 46)	Propane	40	552	75	-	-	5	EN 16129 (ΔP5)
001118	001118CA	N6A	NUT-M20X1,5RH			0,5 - 2	50 (35 - 75)	LPG	40	552	115	-	-	5	EN 16129
BP2403 UPSO															
001120	001120CB	F3E	FEM-Rc3/4	F3F	FEM-Rc1	0,5 - 2	30 (24 - 41)	LPG	40	552	75	-	22	0	EN 16129
001120BA	001120CA					50 - 500 mbar	37 (32 - 42)	Propane	12	166	75	-	28	7	BS 6891 **
BP2403R															
001111AX	001111CC	F5E	FEM-3/4NPT	F5F	FEM-1NPT	0,5 - 4	20 - 300	LPG	20 - 50	276 - 690	+75	-	-	0	EN 16129
001110	001110CA					0,5 - 4	10 - 200	LPG	10 - 40	138 - 552	+75	-	-	0	EN 16129
001111XX	001111CD	F3E	FEM-Rc3/4	F3F	FEM-Rc1	0,5 - 4	20 - 300	LPG	20 - 50	276 - 690	+75	-	-	0	EN 16129
00112AA	00112CA					0,5 - 4	100 - 300	LPG	30 - 50	414 - 690	-	-	-	0	EN 16129
BP2403 OPSO															
006840BA	006840CA	F3E	FEM-Rc3/4	F3F	FEM-Rc1	0,5 - 2	30 (24 - 41)	LPG	50	690	75	140	-	0	EN 16129
006840BB	006840CB					0,5 - 2	37 (32 - 46)	Propane	50	690	75	140	-	0	EN 16129 (ΔP5)
006842RB	006842CB					0,5 - 2	75 (60 - 95)	Propane	40 (60@1 bar)	552 (828)	115	140	-	7	BS 6891 **
006842BA	006842CA					0,7 - 5	148 (65 - 155)	Propane	50 (NG 40)	690 (NG 448)	-	300	-	7	EN 16129
006842BC	006842CC					0,8 - 5	300 (200 - 350)	Propane	60 (NG 50)	828 (NG 560)	-	500	-	7	EN 16129
BP2403 OPSO / UPSO															
006845BB	006845CB	F3E	FEM-Rc3/4	F3F	FEM-Rc1	0,24 - 0,5	21 (19 - 23)	NG	20	224	50	70	12	7	EN 16129
006845BA	006845CA					0,5 - 2	30 (24 - 41)	LPG	40 (60@1 bar)	552 (828)	75	100	22	0	EN 16129
006846RB	006846CB					0,5 - 2	37 (32 - 46)	Propane	40 (60@1 bar)	552 (828)	75	100	28	7	BS 6891 **
006846RC	006846CC					0,6 - 2	100 (65 - 155)	Propane	50	690	175	300	80	7	EN 16129

* Orientation rule: Position of the vent to be read like a watch face, seen from above with the input direction = 6 hours and the output direction = 12 hours.

** Designed, manufactured and tested according to EN 16129 standard

High Capacity low pressure regulator (up to 150kg/h)*

BP24F - BP24F OPSO UPSO - BP24FR - BP24S - BP24S OPSO UPSO

BP24F
001200CA



BP24FR
001210CA



BP24S OPSO UPSO
006847CB



Application

- These products are mainly used in large power LPG, Natural Gas or SNG installations (domestic networks, commercial, agriculture or industrial) as final stage or intermediate stage, regulators. They can also be used with air, nitrogen and other non-aggressive gases.
- Capacity up to 150kg/h (2070kW)

Features

- Internal sensing (no special sensing pipe connection required)
- Accurate pressure control
- Certain models are equipped with UPSO safety device.
- Low capacity pressure relief valve (LRV) on certain models
- CE marked following PED 2014/68/UE European directive
- The regulator vent can be connected to a pipe.

Construction

- Valve body: die cast aluminium alloy
- Regulating units (body and cover): die cast aluminium alloy
- Diaphragm: NBR-R
- Valve pad: NBR



BP24S
001300CA

Previous BP2402L Code	New BP24 Code	Inlet code	Inlet connexion	Outlet code	Outlet connexion	Inlet pressure (Pu) bar	Outlet pressure (Pd) mbar	Declared gas	Flow rate		OPSO mbar	PRV mbar	USPO mbar	Upstream pressure testing point	Downstream pressure testing point	Original vent orientation*	Performances rule				
									kg/h of propane or LPG (Sim3/h of NG)	kW											
BP24F (1" - 1"1/4)																					
001206AA	001206CA	F3F	FEM. Rc1"	F3J	FEM. Rc1"1/4	0,24 - 0,5	21 (19 - 23)	NG	40	448	-	-	-	Schrader	8 mm	3	EN 334 (AC10 SG20) **				
001200	001200CA					(0,3)	30 (25 - 43)	LPG	70 (60)	966 (828)	-	75	-						3	EN 16129	
001230PX	001230CX	F5F	FEM. 1"NPT	F5J	FEM. 1"1/4 NPT	0,5 - 2						-	75				-			3	EN 16129 (EN 437 ΔP5)
001205	001205CA	F3F	FEM. Rc1"	F3J	FEM. Rc1"1/4	(0,3)	37 (32 - 48)	Propane	100 (NG 85)	1380 (NG 952)	-	75	-						6		
001212AA	001212CA					0,5 - 2						-	-				-			6	
001211AB	001211CB	F5F	FEM. 1"NPT	F5J	FEM. 1"1/4 NPT	0,5 - 5	75 (50 - 100)	Propane					-				120	-			3
001211AC	001211CC					0,6 - 5	125 (80 - 180)							-	200	-			3	EN 16129	
001215AA	001215CA	F3F	FEM. Rc1"	F3J	FEM. Rc1"1/4	0,65 - 5	150 (80 - 180)				-	-	-			6					
001216AA	001216CA					0,8 - 5	300 (200 - 350)				-	-	-			3					
BP24F OPSO (1" - 1"1/4)																					
001240AC	001240CC	F3F	FEM. Rc1"	F3J	FEM. Rc1"1/4	60 - 90 (150) mbar	37 (32 - 48)	Propane	25 (50)	345 (690)	-	75	28	Schrader	8 mm	6	BS 6891 **				
BP24FR (1" - 1"1/4)																					
001210XX	001210CA	F3F	FEM. Rc1"	F3J	FEM. Rc1"1/4	0,5 - 5	20 - 300	LPG	15 - 80	207 - 1104	-	Pd + 60	-	Schrader	8 mm	3	EN 16129				
001210AX	001210CX	F5F	FEM. 1"NPT	F5J	FEM. 1"1/4 NPT							Pd + 60									
BP24S (1" - 1")																					
-	001300CA	F3F	FEM. Rc1"	F3F	FEM. Rc1"	(0,3)	30 (25 - 43)	LPG	60 (50)	828 (690)	-	75	-	Tap G.1/8"	Tap G.1/4"	6	EN 16129				
-	001300CB					(0,3)	37 (32 - 48)										Propane				
-	001300CC					0,5 - 5	75 (50 - 100)		70 (60 NG)	966 (672 NG)	-	115	-							6	EN 16129
-	001300CD					0,65 - 5	150 (80 - 180)		80 (70 NG)	1104 (784 NG)	-	225	-						6		
-	001300CE					0,8 - 5	300 (200 - 350)				-	420	-						6		
BP24S OPSO (1" - 1")																					
-	006847CA	F3F	FEM. Rc1"	F3F	FEM. Rc1"	(0,3)	30 (25 - 43)	LPG	60 (50)	828 (690)	130	75	22	Tap G.1/8"	Tap G.1/4"	6	EN 16129				
-	006847CB					(0,3)	37 (32 - 48)										Propane				
-	006847CC					0,5 - 5	75 (50 - 100)		70 (60 NG)	966 (672 NG)	140	115	-							6	EN 16129
-	006847CD					0,65 - 5	150 (80 - 180)		80 (70 NG)	1104 (784 NG)	300	225	-						6		
-	006847CE					0,8 - 5	300 (200 - 350)				475	420	-						6		

* Orientation rule: Position of the vent to be read like a watch face, seen from above with the input direction = 6 hours and the output direction = 12 hours.

** Designed, manufactured and tested according to EN 16129 standard

Second Stage Regulator OPSO / UPSO - Up to 150kg/h

BP2402L – BP2402FC – BP2402FC OPSO – BP2402M



BP2402L
001206AA



BP2402FC OPSO
006895FH



BP2402M
006896FM



Application

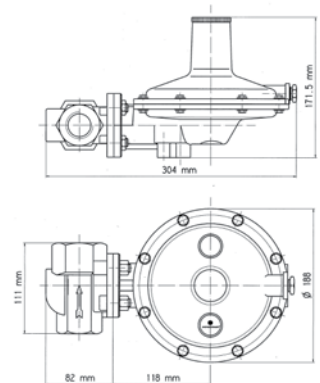
- These products are mainly used in large power LPG, Natural Gas or SNG installations (domestic networks, commercial, agriculture or industrial) as final stage or intermediate stage, regulators. They can also be used with air, nitrogen and other non-aggressive gases.
- Capacity up to 150kg/h (2070kW)

Features

- Internal sensing (no special sensing pipe connection required)
- Accurate pressure control
- Certain models are equipped with UPSO safety device.
- Low capacity pressure relief valve (LRV) on certain models
- CE marked following PED 2014/68/UE European directive
- The regulator vent can be connected to a pipe.

Construction

- Valve body: spheroidal cast iron GS400 (BP2402FC) or die cast aluminium alloy (BP2402L)
- Regulating units (body and cover): die cast aluminium alloy
- Diaphragm: NBR-R
- Valve pad: NBR or FPM

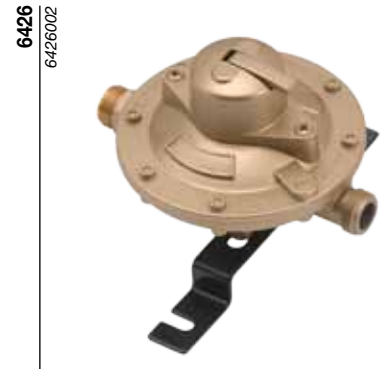
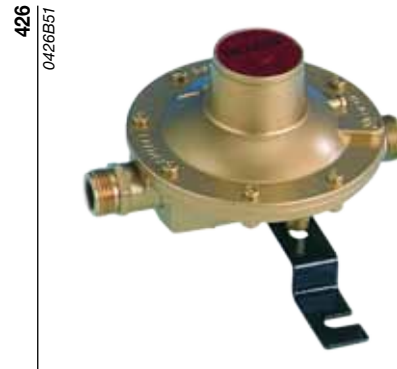


BP2402L-001200

Code	Inlet code	Inlet connection	Outlet code	Outlet connection	Inlet pressure (Pu) bar	Outlet pressure (Pd) mbar	Flow rate (LPG)		Flow rate (NG)		Pressure Monitor	PRV mbar	OPSO mbar	UPSO	Pad Material	Vent orientation
							kg/h	kW	(n)m³/h	kW						
BP2402L																
001200	F3F	FEM-Rc1	F3J	FEM-Rc1.1/4	0,5-4	30 (25-45)	60	828	-	-	-	75	-	-	NBR	3
001205	F3F	FEM-Rc1	F3J	FEM-Rc1.1/4	0,5-4	37 (25-45)	60	828	-	-	-	75	-	-	NBR	7
001206AA	F3F	FEM-Rc1	F3J	FEM-Rc1.1/4	0,24-0,5	21 (19-23)	-	-	40	448	-	-	-	-	NBR	6
001210AX	F5F	FEM-1NPT	F5J	FEM-1.1/4NPT	0,8-4	20-300	60	828	-	-	-	+60	-	-	FPM	3
001210XX	F3F	FEM-Rc1	F3J	FEM-Rc1.1/4	0,8-4	20-300	60	828	-	-	-	+60	-	-	NBR	3
001211AA	F5F	FEM-1NPT	F5J	FEM-1.1/4NPT	1-5	50 (38-55)	150	2070	120	1344	-	100	-	-	FPM	3
001211AB	F5F	FEM-1NPT	F5J	FEM-1.1/4NPT	1-5	75 (50-100)	150	2070	120	1344	-	120	-	-	FPM	3
001211AC	F5F	FEM-1NPT	F5J	FEM-1.1/4NPT	1-5	125 (80-180)	150	2070	120	1344	-	200	-	-	FPM	3
001212AA	F3F	FEM-Rc1	F3J	FEM-Rc1.1/4	(0,3) 0,5-2,1	37 (28-39)	(50) 65	(690) 897	-	-	-	-	-	-	NBR	6
001215AA	F3F	FEM-Rc1	F3J	FEM-Rc1.1/4	0,7-2,1	148 (130-180)	65	897	50	560	-	-	-	-	NBR	6
001216AA	F3F	FEM-Rc1	F3J	FEM-Rc1.1/4	0,8-4	300 (280-400)	70	966	55	616	-	-	-	-	NBR	6
001230PX	F5F	FEM-1NPT	F5J	FEM-1.1/4NPT	0,5-4	30 (25-45)	60	828	-	-	-	75	-	-	FPM	3
001240AA	F3F	FEM-Rc1	F3J	FEM-Rc1.1/4	0,24-0,5	21 (19-23)	-	-	30	336	-	-	-	Y	NBR	6
001240AB	F3F	FEM-Rc1	F3J	FEM-Rc1.1/4	(0,3) 0,5-2,1	37 (28-39)	(35) 55	(483) 759	-	-	-	-	-	Y	NBR	6
001240AC	F3F	FEM-Rc1	F3J	FEM-Rc1.1/4	60-90mbar	37	25	345	-	-	-	75	-	Y	NBR	6
BP2402FC																
001250FA	F2F	FEM-Rp1	F3J	FEM-Rc1.1/4	0,5-4	30 (25-40)	120	1656	-	-	-	75	-	-	NBR	3
001250FB	F5F	FEM-1NPT	F5J	FEM-1.1/4NPT	0,5-4	30 (25-40)	120	1656	-	-	-	75	-	-	NBR	3
001250FC	F2F	FEM-Rp1	F3J	FEM-Rc1.1/4	0,8-4	20-300	120	1656	-	-	-	+100	-	-	NBR	3
001250FD	F5F	FEM-1NPT	F5J	FEM-1.1/4NPT	0,8-4	20-300	120	1656	-	-	-	+100	-	-	NBR	3
001250FE	F2F	FEM-Rp1	F3J	FEM-Rc1.1/4	0,3-4	37 (25-40)	100	1380	-	-	-	-	-	-	NBR	0
001250FF	F2F	FEM-Rp1	F3J	FEM-Rc1.1/4	0,8-4	300 (250-350)	160	2208	-	-	-	-	-	-	NBR	0
001250FG	F2F	FEM-Rp1	F2J	FEM-Rp1.1/4	(0,3) 0,5-5	21 (19-23)	-	-	(65) 100	(728) 1120	-	-	-	-	NBR	6
001250FH	F2F	FEM-Rp1	F2J	FEM-Rp1.1/4	0,7-5	150 (130-180)	130	1794	110	1232	-	-	-	-	NBR	6
001250FJ	F2F	FEM-Rp1	F2J	FEM-Rp1.1/4	(0,3) 0,5-2,1	37 (28-39)	(80) 120	(1104) 1656	-	-	-	-	-	-	NBR	6
001250FK	F2F	FEM-Rp1	F2J	FEM-Rp1.1/4	0,8-5	300 (280-400)	150	2070	120	1344	-	-	-	-	NBR	6
BP2402FC OPSO																
006895FC	F2F	FEM-Rp1	F2J	FEM-Rp1.1/4	0,6-2	37 (28-39)	120	1656	-	-	-	75	100	Y	NBR	6
006895FE	F5F	FEM-1NPT	F5J	FEM-1.1/4NPT	0,7-2	345 (250-350)	250 @1,5bar	3450	-	-	-	450	525	Y	NBR	3
006895FG	F2F	FEM-Rp1	F2J	FEM-Rp1.1/4	(0,3) 0,5-5	21 (19-23)	-	-	(65) 100	(728) - 1120	-	50	70	Y	NBR	6
006895FH	F2F	FEM-Rp1	F2J	FEM-Rp1.1/4	0,7-5	150 (130-180)	130	1794	110	1232	-	-	300	Y	NBR	6
006895FJ	F2F	FEM-Rp1	F2J	FEM-Rp1.1/4	0,8-5	300 (280-400)	150	2070	120	1344	-	-	475	-	NBR	6
006895FK	F2F	FEM-Rp1	F2J	FEM-Rp1.1/4	(0,3) 0,5-2,1	37 (28-39)	(80) 120	(1104) 1656	-	-	-	75	100	Y	NBR	6
BP2402M																
006896FM	F2F	FEM-Rp1	E2L	MAL-R2	(0,75) 0,6-2	75 (40-85)	(150) 120	(2070) 1656	-	-	90	120	140	-	NBR	4

Second Stage Specialist Application Regulators - Up to 10kg/h

426 – 6426 – 1426B



Application

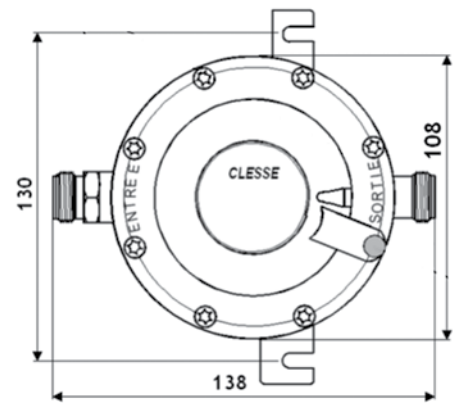
- These products are mainly used as second stage regulators in LPG installations up to 10kg/h (138kW). They can also be used with Natural Gas, SNG, air, nitrogen and other non-aggressive gases.
- 426 and 6426 models are mainly used in commercial installations to supply large gas appliances.
- 1426 models are suitable for use in industrial applications which require a fine pressure adjustment

Features

- Strong and reliable design
- Wall-mounting bracket on certain models
- Filter in the inlet connection
- Easy UPSO reset by lever on 6426 models
- Precise manometers fitted on 1426 models

Construction

- Body and cover: die cast zinc alloy
- Diaphragm: NBR
- Valve pad: NBR



426-0426B02

Code	Inlet code	Inlet connection	Outlet code	Outlet connection	Inlet pressure (Pu) bar	Outlet pressure (Pd) mbar	Flow rate (LPG)		Type of LPG	Filter	UPSO mbar	Diaphragm material
							kg/h	kW				
426												
0426B51	E6B	MAL-M20x1,5RH	E6B	MAL-M20x1,5RH	0,3-4	28	6	83	Butane	Y	-	NBR
0426B02	E6B	MAL-M20x1,5RH	E6B	MAL-M20x1,5RH	0,5-4	37	8	110	Propane	Y	-	NBR
0426B53	E6B	MAL-M20x1,5RH	E6B	MAL-M20x1,5RH	0,5-4	50	8	110	Propane	Y	-	NBR
0426B54	E6B	MAL-M20x1,5RH	E6B	MAL-M20x1,5RH	0,5-4	148	8	110	Propane	Y	-	NBR-R
6426												
6426700	E6B	MAL-M20x1,5RH	E6B	MAL-M20x1,5RH	0,3-1,75	28	6	83	Butane	Y	20	NBR
6426708	E6B	MAL-M20x1,5RH	E6B	MAL-M20x1,5RH	0,3-1,75	112	6	83	Butane	Y	76	NBR
6426002	E6B	MAL-M20x1,5RH	E6B	MAL-M20x1,5RH	0,5-1,75	37	8	110	Propane	Y	25	NBR
6426202	E6B	MAL-M20x1,5RH	E6B	MAL-M20x1,5RH	0,5-1,75	50	8	110	Propane	Y	34	NBR
6426102	E6B	MAL-M20x1,5RH	E6B	MAL-M20x1,5RH	0,5-1,75	148	8	110	Propane	Y	100	NBR-R
1426B												
1426B03	E6B	MAL-M20x1,5RH	E6B	MAL-M20x1,5RH	Pa+0,5-4	20-60	8	110	LPG	Y	-	NBR
1426B04	E6B	MAL-M20x1,5RH	E6B	MAL-M20x1,5RH	Pa+0,5-4	50-150	8	110	LPG	Y	-	NBR-R
1426B02	E6B	MAL-M20x1,5RH	E6B	MAL-M20x1,5RH	Pa+0,5-4	100-300	8	110	LPG	Y	-	NBR-R
1426B22	E6B	MAL-M20x1,5RH	E6B	MAL-M20x1,5RH	Pa+0,5-4	160-500	8	110	LPG	Y	-	NBR-R



Single and Second Stage Regulators - Up to 25kg/h

437 – 3427 – 1437 – 437P – 437GN – BP2A – BP2B – BP2C

437P
001075AB



1437
001071BA



3437
001077AB



BP2
1438150



437 – 3427 – 1437 – 437P – 437GN

Application

- These products are mainly used as second stage regulators in LPG installations up to 25kg/h (359kW). They can also be used with Natural Gas, SNG, air, nitrogen and other non-aggressive gases.
- 437 and 3437 models are mainly used in commercial and industrial installations to supply large gas appliances.
- 1437 models are currently used in industrial applications which require a fine pressure adjustment.
- 437P and 437GN models are purposely designed for radiant heater installations, and form part of a complete product offering for this specific application (valves, filters, flexible hoses ...).

Features

- Strong and reliable design
- Wall-mounting bracket for 3437 models
- Easy pull reset UPSO on 3437 models
- Precise manometers fitted on 1437 models

Construction

- Body and cover: die cast zinc alloy
- Diaphragm: NBR
- Valve pad: NBR
- NF certified

BP2A – BP2B – BP2C

Application

- These products are mainly used to control high power industrial processes using LPG, Natural Gas, SNG, air, nitrogen or other non-aggressive gases.
- Each regulator is manufactured following precise specifications (range of inlet and outlet pressure, type of gas, flow rate) to be given when ordering.

Features

- Heavy duty application
- Precise pressure adjustment
- Manometer

Construction

- Body and cover: die cast aluminium alloy
- Connections: brass
- Diaphragm: NBR or NBR-R
- Valve pad: NBR

VISIT: www.clesse.eu/fr/produits-clesse and see page 73 of the French catalogue: BP2

Code	Inlet code	Inlet connection	Outlet code	Outlet connection	Inlet pressure (Pu) bar	Outlet pressure (Pd) mbar	Flow rate (LPG)		Flow rate (GN)		UPSO mbar	Pad material	Diaphragm material
							kg/h	KW	m³/h	KW			
437													
001076AA	E1E	MAL-G3/4RH	E1E	MAL-G3/4RH	0,5-4	37	20	276	-	-	-	NBR	NBR-R
001076AB	E1E	MAL-G3/4RH	E1E	MAL-G3/4RH	0,65-4	148	20	276	-	-	-	NBR	NBR-R
001076AC	E1E	MAL-G3/4RH	E1E	MAL-G3/4RH	0,9-4	400	20	276	-	-	-	NBR	NBR-R
3437													
001077AA	E1E	MAL-G3/4RH	E1E	MAL-G3/4RH	0,125 - 0,625	29	15	207	-	-	20	NBR	NBR-R
001077AB	E1E	MAL-G3/4RH	E1E	MAL-G3/4RH	0,5 - 2	37	25	345	-	-	25	NBR	NBR-R
001077AC	E1E	MAL-G3/4RH	E1E	MAL-G3/4RH	0,5 - 2	148	25	345	-	-	100	NBR	NBR-R
1437													
001071BA	E1E	MAL-G3/4RH	E1E	MAL-G3/4RH	0,6-4	20-70	15	207	-	-	-	NBR	NBR-R
001071BB	E1E	MAL-G3/4RH	E1E	MAL-G3/4RH	0,7-4	60-150	15	207	-	-	-	NBR	NBR-R
001071BC	E1E	MAL-G3/4RH	E1E	MAL-G3/4RH	0,8-4	120-300	15	207	-	-	-	NBR	NBR-R
001071BD	E1E	MAL-G3/4RH	E1E	MAL-G3/4RH	1-4	200-500	15	207	-	-	-	NBR	NBR-R
437P													
001075AB*	E1E	MAL-G3/4RH	E1E	MAL-G3/4RH	0,5-2,1	37	25	359	-	-	-	NBR	NBR-R
437GN													
001075AA*	E1E	MAL-G3/4RH	E1E	MAL-G3/4RH	0,24-0,36	20	-	-	10	112	-	NBR	NBR-R
001075AD*	E1E	MAL-G3/4RH	E1E	MAL-G3/4RH	(0,3) 0,8-4	20	-	-	(10) 18	(112) 202	-	NBR	NBR-R

* NF certified

Type	Code	Inlet code	Inlet connection	Outlet code	Outlet connection	Inlet pressure (Pu) bar	Outlet pressure* (Pd) mbar	Flow rate (LPG)		Manometer on outlet
								kg/h	KW	
BP2A	1438150	E1E	MAL-G3/4RH	E1E	MAL-G3/4RH	max 1,75	4-1000*	3-110*	41-1518	MANO-DRY M10
BP2B						max 4		3-151*	41-2084	
BP2C						max 6		3-185*	41-2553	

* see capacity table



Application

These regulators and their associated safety devices are used in industrial and network installations with a high flow rate.

They can be used with LPG (butane and propane), Natural Gas, SNG and with other non-aggressive gases (air, nitrogen ...)

Depending on the model, their performances are as follows:

- 1st stage regulation (regulator, limiter, monitor*) on LPG tanks (propane or butane)
- Intermediate regulation (150 to 300mbar) after the first stage LPG regulation or from medium pressure (MPB) of Natural Gas or SNG in networks
- Low pressure regulation starting from the pressure after 1st stage regulation of LPG tanks, after intermediate medium pressure regulation of LPG or after medium pressure in network installations.

(* Monitor models – Please consult us.

Impulse pipe

The impulse pipe is the device enabling the regulator or the safety device to measure the outlet pressure to ensure the regulation or the trigger of the safety device.

For high flow rates and mainly for low pressure the impulse pipe must be done downstream on the network.

In this case, the regulators are marked “external impulse”.

For the 1492B and the 1492MF, kits are available accomplishing this function of pressure measuring.

Limiter or Monitor

If in a gas installation a continuity of regulation is necessary even with the failure of the principal regulator, then the regulator must be installed in series with:

- a limiter placed downstream
- or a monitor placed upstream

In case of failure, this device will enable a regulation with a value which is approximately 10% higher than the regulator.

A limiter is a normal regulator tared to a performance 10% higher than the nominal regulation.

A monitor is a special regulator: please consult us.

The maximum flowrate of an ensemble regulator + limiter (monitor) is approximately 30% below the flowrate of the stand alone regulator.

Important

No valve must be installed:

- between the outlet of the regulator and the pressure measuring on the network.
- on the impulse pipe.

Compliance with regulations

This product range is designed in accordance with the European Pressure Equipment Directive (PED 2014/68/UE).

According to this directive only the regulators with at least one connection bigger than DN25 (or 1”) are CE marked.

Regulation of outlet pressure of the regulators and the trigger point of safety devices

These pressures are set in the factory. But if necessary they can be adjusted by a qualified expert.

If the adjustment is possible, the pressure can be noted as follows:

“1,5 (1,4-1,9)bar” whereby:

1,5bar is the set factory pressure

1,4-1,9bar is the range of adjustment

Flow Rate

The maximum flow rate of these regulators depends on the inlet pressure. The maximum flow rates are indicated for an inlet minimum-maximum pressure range. In case the regulator is used with an inlet pressure below this range the equivalent flow rate is also declared.

Example:

- Inlet pressure: 0,5-2,1 (0,3)bar, flow rate for propane: 60 (40)kg/h
= the guaranteed flow rate is 60kg/h of propane for an inlet pressure between 0,5 and 2,1bar and 40kg/h of propane for an inlet pressure of 0,3bar

For capacity conversions please refer to page 8.

Safety devices

Many product models are equipped with an OPSO, UPSO or PRV safety device. For further information please refer to page 9.

High Pressure Industrial Regulators - Up to 500kg/h

1391 – 1391 OPSO – 1392 – 1392 OPSO



1391HF
051001AA



1392HF OPSO
051082AA



1392HB
051002MB



1392HE
051002ME



Application

- These high capacity, high pressure regulators and their associated safety devices are used in industrial and network applications.
- They are used in LPG, SNG or Natural Gas installations. They can also be used with other non-aggressive gases (air, nitrogen,..).
- In LPG installations they are often used as first stage regulators.
- Maximum capacity in LPG: 500kg/h
- Special active monitor models can be provided upon request.

Features

- Female threaded or flange connections
- Internal impulse (no external impulse line)
- Heavy duty design
- Comply with PED 2014/68/UE European directive
- An OPSO valve 659H can be retrofitted on models without OPSO (except for 1392HE).
- Certain models are equipped with a manometer on outlet.

Construction

- Valve body: spheroidal cast iron GS400
- Regulating units (body and cover): die cast aluminium alloy
- Diaphragm: NBR-R (FPM upon request)
- Valve pad: NBR (FPM upon request)

Code	Inlet code	Inlet connection	Outlet code	Outlet connection	Inlet pressure (Pu) bar	Outlet pressure (Pd) bar	Flow rate (LPG)		Flow rate (NG)		Impulse type	OPSO bar
							kg/h	kW	(n)m ³ /h	kW		
1391HF												
051001AC	F2F	FEM-Rp1	F2F	FEM-Rp1	2,5-16	0,5 (0,38-0,6)	300	4140	240	2688	Internal	Connection 051008AB possible
051001AD	F2F	FEM-Rp1	F2F	FEM-Rp1	2,5-16	1 (0,8-1,3)	300	4140	240	2688	Internal	Connection 051008AB possible
051001AA	F2F	FEM-Rp1	F2F	FEM-Rp1	2,5-16	1,5 (1,0-2,1)	300	4140	240	2688	Internal	Connection 051008AB possible
1391HF OPSO												
051081AB	F2F	FEM-Rp1	F2F	FEM-Rp1	2,5-16	1,5 (1,0-2,1)	300	4140	240	2688	Internal	2 (1-3)
1392HF												
051002AR	F2F	FEM-Rp1	F2F	FEM-Rp1.1/2	2,5-16	0,5 (0,38-0,6)	400	5520	320	3584	Internal	Connection 051008AB possible
051002AS	F2F	FEM-Rp1	F2F	FEM-Rp1.1/2	2,5-16	1 (0,8-1,3)	400	5520	320	3584	Internal	Connection 051008AB possible
051002AA	F2F	FEM-Rp1	F2K	FEM-Rp1.1/2	2,5-16	1,5 (1,0-2,1)	400	5520	320	3584	Internal	Connection 051008AB possible
051002BA	F5F	FEM-1NPT	F5K	FEM-1.1/2NPT	2,5-16	1,5 (1,0-2,1)	400	5520	320	3584	Internal	Connection 051008AB possible
051002AC	F2F	FEM-Rp1	F2K	FEM-Rp1.1/2	4-16	3 (2,2-3,9)	500	6900	400	4480	Internal	Connection 051008AL possible
1392HF OPSO												
051082AA	F2F	FEM-Rp1	F2K	FEM-Rp1.1/2	2,5-16	1,5 (1,0-2,1)	400	5520	320	3584	Internal	2 (1-3)
051082AC	F2F	FEM-Rp1	F2K	FEM-Rp1.1/2	4-16	3 (2,2-3,9)	500	6900	400	4480	Internal	4 (2,5-4,0)
1392HB												
051002MB	B6L	RFLG PN40-DN50	B6L	RFLG PN40-DN50	2,5-16	1,5 (1,0-2,1)	400	5520	320	3584	Internal	Connection 051008AB possible
051002MM	B6L	RFLG PN40-DN50	B6L	RFLG PN40-DN50	4-16	3 (2,2-3,9)	500	6900	400	4480	Internal	Connection 051008AL possible
1392HB OPSO												
051082MB	B6L	RFLG PN40-DN50	B6L	RFLG PN40-DN50	2,5-16	1,5 (1,0-2,1)	400	5520	320	3584	Internal	2 (1-3)
051082MM	B6L	RFLG PN40-DN50	B6L	RFLG PN40-DN50	4-16	3 (2,2-3,9)	500	6900	400	4480	Internal	4 (2,5-4,0)
1392HE												
051002ME	B6L	RFLG PN40-DN50	B6L	RFLG PN40-DN50	2,5-16	1,5 (1,0-2,1)	400	5520	320	3584	Internal	-
051002ML	B6L	RFLG PN40-DN50	B6L	RFLG PN40-DN50	4-16	3 (2,2-3,9)	500	6900	400	4480	Internal	-
051002MN	B4L	FFLG ANSI 300-DN50	B4L	FFLG ANSI 300-DN50	2,5-16	1,5 (1,0-2,1)	400	5520	320	3584	Internal	-
051002MP	B4L	FFLG ANSI 300-DN50	B4L	FFLG ANSI 300-DN50	4-16	3 (2,2-3,9)	500	6900	400	4480	Internal	-

High Pressure Industrial Regulators - Up to 1500kg/h

1394 - 1394 OPSO - 1395 - 1395 OPSO



1394 OPSO
0510084AB



1395HB
0510054B



1395HB OPSO
0510854A



Application

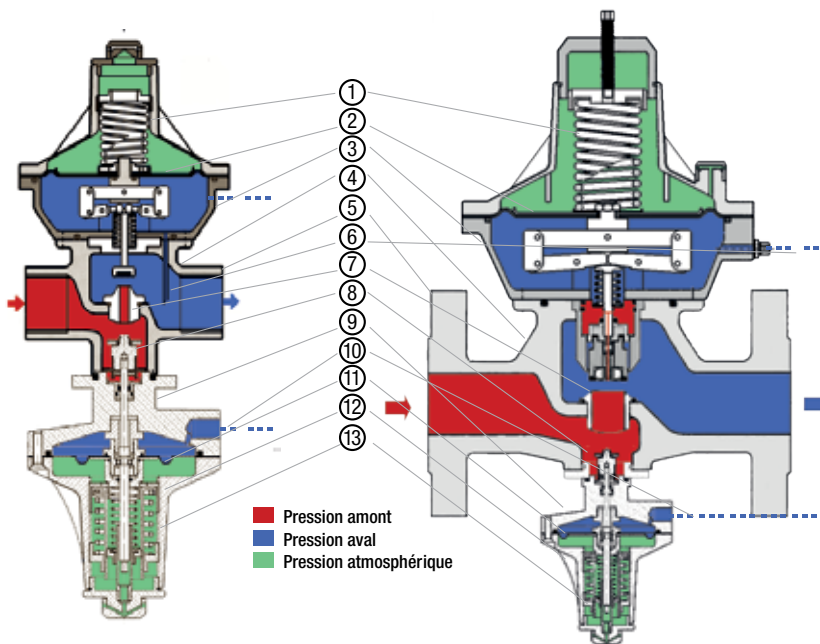
- These very high capacity, high pressure regulators and their associated safety devices are used in industrial and networks applications.
- They are used in LPG, SNG or Natural Gas installations. They can also be used with other non aggressive gases (air, nitrogen ...).
- In LPG installation they are often used as first stage regulators.
- Maximum capacity in LPG: 1500kg/h
- Special active monitor models can be provided upon request

Features

- Heavy duty design
- External impulse connection
- CE marked following PED 2014/68/UE European directive
- OPSO valve preassembled
- On models without OPSO, OPSO valve 6595H can be fitted.

Construction

- Valve body: spheroidal cast iron GS400
- Regulating units (body and cover): die cast aluminium alloy
- Diaphragm: NBR-R (FPM upon request)
- Valve pad: NBR (FPM upon request)



- 1 Pilot spring
- 2 Pilot diaphragm and disc
- 3 Pilot body and cover
- 4 Regulator body
- 5 Threaded connection or flange
- 6 Pilot impulse
- 7 Regulation (and OPSO) seat
- 8 OPSO valve pad
- 9 OPSO safety body
- 10 OPSO impulse
- 11 OPSO diaphragm and disc
- 12 OPSO safety cover
- 13 OPSO spring

red: upstream pressure
blue: downstream pressure
green: atmospheric pressure

Code	Inlet code	Inlet connection	Outlet code	Outlet connection	Inlet pressure (Pu) bar	Outlet pressure (Pd) bar	Flow rate (LPG)		Flow rate (NG)		Impulse type	OPSO bar
							kg/h	kW	(n)m ³ /h	kW		
1394HB												
051004AB	B2K	FFLG PN40-DN40	B2K	FFLG PN40-DN40	2,5-16	1,5 (1,1-2,0)	610	8418	490	5488	External	Connection 051008AD possible
1394HB-OPSO												
051084AB	B2K	FFLG PN40-DN40	B2K	FFLG PN40-DN40	2,5-16	1,5 (1,1-2,0)	610	8418	490	5488	External	2 (1-3)
1395HB												
051005AH	B2L	FFLG PN40-DN50	B2L	FFLG PN40-DN50	2,5-16	0,5 (0,3-0,75)	1200	16560	1000	11200	External	Connection 051008AD possible
051005AJ	B2L	FFLG PN40-DN50	B2L	FFLG PN40-DN50	2,5-16	1 (0,85-1,25)	1200	16560	1000	11200	External	Connection 051008AD possible
051005AA	B2L	FFLG PN40-DN50	B2L	FFLG PN40-DN50	2,5-16	1,5 (1,1-2,0)	1200	16560	1000	11200	External	Connection 051008AD possible
051005AB	B2L	FFLG PN40-DN50	B2L	FFLG PN40-DN50	4-16	3 (1,85-4,0)	1520	20976	1225	13720	External	Connection 051008AH possible
1395HB OPSO												
051085AA	B2L	FFLG PN40-DN50	B2L	FFLG PN40-DN50	2,5-16	1,5 (1,1-2,0)	1200	16560	1000	11200	External	2 (1-3)
051085AB	B2L	FFLG PN40-DN50	B2L	FFLG PN40-DN50	4-16	3 (1,85-4,0)	1520	20976	1225	13720	External	4 (2,5-4,0)

Medium Pressure Industrial Regulators - Up to 800kg/h

1492 -1492 OPSO- 1494 - 1494 OPSO - 1495 - 1495 OPSO



1492MF
051002AJ



1494MB-OPSO
051084BA



1495MB
051005DG



Industrial Regulators

Application

- These very high capacity, medium and low pressure regulators and their associated safety devices are used in industrial and networks applications.
- They are used in LPG, SNG or Natural Gas installations. They can also be used with other non-aggressive gases (air, nitrogen,..).
- Maximum capacity in LPG: 800kg/h (11,040kW), in Natural Gas: 640(n)m³/h (7168kW)
- Special active monitor models can be provided upon request.

Features

- Balanced seat design and external impulse connection provide an accurate pressure control.
- Integral limited capacity relief valve (LRV) on certain 1492 models
- CE marked following PED 2014/68/UE European directive
- OPSO valve preassembled
- OPSO valve can integrate an UPSO function (certain models).

Construction

- Valve body: spheroidal cast iron GS400
- Regulating units (body and cover): die cast aluminium alloy
- Diaphragm: NBR-R
- Valve pad: NBR

Code	Inlet code	Inlet connection	Outlet code	Outlet connection	Inlet pressure (Pu) bar	Outlet pressure (Pd) bar	Flow rate (LPG)		Flow rate (NG)		Impulse type	OPSO mbar	UPSO mbar	LRV
							kg/h	KW	(n) m ³ /h	KW				
1492MF														
051002AJ	F2F	FEM-Rp1	F2K	FEM-Rp1.1/2	1-5	150 (130-220)	250	3450	200	2240	External	Connection 051008AE possible	-	-
												Connection 051008AG possible		
051002AG	F2F	FEM-Rp1	F2K	FEM-Rp1.1/2	1-5	300 (260-450)	250	3450	200	2240	External	Connection 051008AE possible	-	-
												Connection 051008AG possible		
1492MF OPSO														
051082DJ	F2F	FEM-Rp1	F2K	FEM-Rp1.1/2	1-5	150 (100-180)	250	3450	200	2240	External	450 (250-650)	-	-
051082DK	F2F	FEM-Rp1	F2K	FEM-Rp1.1/2	1-5	300 (250-400)	250	3450	200	2240	External	450 (250-650)	-	-
051082DM	F2F	FEM-Rp1	F2K	FEM-Rp1.1/2	1-5	300 (250-400)	250	3450	200	2240	External	450 (250-650)	220 (90-550)	-
1494MB														
051004BA	B2K	FFLG PN40-DN40	B2K	FFLG PN40-DN40	1-5	300 (110-400)	375	5175	300	3360	External	Connection 051008AE possible	-	-
												Connection 051008AG possible		
1494MB OPSO														
051084BA	B2K	FFLG PN40-DN40	B2K	FFLG PN40-DN40	42125	300 (110-400)	375	5175	300	3360	External	450 (250-650)	-	-
1495MB														
051005DG	B2L	FFLG PN40-DN50	B2L	FFLG PN40-DN50	1-5	150 (110-400)	800	11040	640	7168	External	Connection 051008AF possible	-	-
												Connection 051008BA possible		
051005AC	B2L	FFLG PN40-DN50	B2L	FFLG PN40-DN50	1-5	300 (110-400)	800	11040	640	7168	External	Connection 051008AF possible	-	-
												Connection 051008BA possible		
1495MB OPSO														
051085DK	B2L	FFLG PN40-DN50	B2L	FFLG PN40-DN50	1-5	150 (110-400)	800	11040	640	7168	External	450 (250-650)		
051085DL	B2L	FFLG PN40-DN50	B2L	FFLG PN40-DN50	1-5	300 (110-400)	800	11040	640	7168	External	450 (250-650)		
051085DN	B2L	FFLG PN40-DN50	B2L	FFLG PN40-DN50	1-5	300 (110-400)	800	11040	640	7168	External	450 (250-650)	220 (90-550)	-

Low Pressure Industrial Regulators - Up to 600kg/h

1492 -1492 OPSO- 1494 - 1494 OPSO - 1495 - 1495 OPSO



1492BF OPSO
051082DA



11494BB-OPSO
051004AA



1495BB OPSO
051085DA



Application

- These very high capacity, medium and low pressure regulators and their associated safety devices are used in industrial and networks applications.
- They are used in LPG, SNG or Natural Gas installations. They can also be used with other non-aggressive gases (air, nitrogen,..).
- Maximum capacity in LPG: 800kg/h (11,040kW), in Natural Gas: 640(n)m³/h (7168kW)
- Special active monitor models can be provided upon request.

Features

- Balanced seat design and external impulse connection provide an accurate pressure control.
- Integral limited capacity relief valve (LRV) on certain 1492 models
- CE marked following PED 2014/68/UE European directive
- OPSO valve preassembled
- OPSO valve can integrate an UPSO function (certain models).

Construction

- Valve body: spheroidal cast iron GS400
- Regulating units (body and cover): die cast aluminium alloy
- Diaphragm: NBR-R
- Valve pad: NBR

Code	Inlet code	Inlet connection	Outlet code	Outlet connection	Inlet pressure (Pu) bar	Outlet pressure (Pd) bar	Flow rate (LPG)		Flow rate (NG)		Impulse type	OPSO mbar	UPSO mbar	LRV mbar
							kg/h	kW	(n)m3/h	kW				
1492BF														
051002DA	F2F	FEM-Rp1	F2K	FEM-Rp1.1/2	(0,3) 0,5-5	21(16-26)	-	-	(80) 120	(896) 1344	External	Connection 051008AA possible	-	50
051002AH	F2F	FEM-Rp1	F2K	FEM-Rp1.1/2	(0,3) 0,5-5	30 (22-32)	180	2484	140	1568	External	Connection 051008AA possible	-	75
051002DC	F2F	FEM-Rp1	F2K	FEM-Rp1.1/2	(0,3) 0,5-5	37 (30-43)	(100) 150	(1380) 2070	-	-	External	Connection 051008AR possible	-	75
051002AK	F2F	FEM-Rp1	F2K	FEM-Rp1.1/2	(0,3) 0,5-5	50 (42-72)	180	2484	140	1568	External	Connection 051008AR possible	-	95
1492BF OPSO														
051082DA	F2F	FEM-Rp1	F2K	FEM-Rp1.1/2	(0,3) 0,5-5	21(16-26)	-	-	(80) 120	(896) 1344	External	70 (40-90)	15 (10-90)	50
051082BC	F5F	FEM-1NPT	F5K	FEM-1.1/2NPT	(0,3) 0,5-5	30 (22-32)	400 @2bar	5520	320 @2bar	3584	External	50 (40-90)	-	-
051082BB	F2F	FEM-Rp1	F2K	FEM-Rp1.1/2	(0,3) 0,5-5	37 (30-43)	(100) 150	(1380) 2070	-	-	External	100 (60-160)	28 (10-90)	75
1494BB														
051004AA	B2K	FFLG PN40-DN40	B2K	FFLG PN40-DN40	(0,3) 0,5-5	25(23-30)	-	-	(165) 184	(1848) 2060	External	Connection 051008BB possible	-	-
1494BB OPSO														
051084AA	B2K	FFLG PN40-DN40	B2K	FFLG PN40-DN40	(0,3) 0,5-5	25(23-30)	-	-	(165) 184	(1848/ 2060)	External	70 (40-90)	15 (10-90)	-
1495BB														
051005AE	B2L	FFLG PN40-DN50	B2L	FFLG PN40-DN50	(0,3) 0,5-5	21(18-26)	-	-	400	4480	External	Connection 051008BB possible	-	-
051005DF	B2L	FFLG PN40-DN50	B2L	FFLG PN40-DN50	(0,3) 0,5-5	37(28-42)	(320) 500	(4416) 6210	-	-	External	Connection 051008BC possible	-	-
1495BB OPSO														
051085DA	B2L	FFLG PN40-DN50	B2L	FFLG PN40-DN50	(0,3) 0,5-5	21(18-26)	-	-	400	4480	External	70 (40-90)	15 (10-90)	-
051085DH	B2L	FFLG PN40-DN50	B2L	FFLG PN40-DN50	(0,3) 0,5-5	37(28-42)	(320) 450	(4416) 6210	-	-	External	100 (60-160)	28 (10-90)	-
051085YA	B2L	FFLG PN40-DN50	B2L	FFLG PN40-DN50	0,5-5	75 (45-90)	600	8280	500	5600	External	140 (60-160)	-	-
051085YD	B2L	FFLG PN40-DN50	B2L	FFLG PN40-DN50	0,7-5	100 (75-120)	600	8280	500	5600	External	200 (160-300)	-	-



Filter
051042AA



Impulse Kit
051091AA



Expansion Vessel
051043AC



Filters and Cartridges

Application and Features

- The installation of a filter upstream to the regulator is recommended in order to prevent any dirt entering the regulator causing damage.
- Used with LPG, Natural Gas, nitrogen and air.
- Their robust construction allows the products to withstand pressures above 20bar (290psig). Test pressure 50bar.
- Certain models are equipped with a magnet which traps metallic swarfs.
- The cartridges are delivered with an O-ring.

Construction

- Body: hot stamped brass
- Cartridge: sintered brass

Expansion Vessel

Application and Features

- This device is recommended to be installed after the regulator acting like a filter in order to catch any impurities and to avoid them entering the downstream piping
- Connected to the piping with flanges in a variety of sizes (DN25, DN40, DN50)
- Complete with safety accessories (pressure guage, relief valve, bleed valve)

Filter

Code Filter	Inlet code	Inlet connection	Outlet code	Outlet connection	Service pressure (bar)	Comments
051042AA	B2L	FFLG PN40-DN50	B2L	FFLG PN40-DN50	16	Stainless steel cartridge 200 µm CE marked Flow for 5% lost of charge: - service pressure 2bar : 1200kg/h propane - service pressure 0,3bar : 300kg/h propane

Impulse Kit

Code	Inlet code	Inlet connection	Outlet code	Outlet connection	Compatibles regulators	Comments
051091AA	E1K	MAL-G1.1/2RH	F2L	MAL-G2RH	1392HF 1492MF 1492BF	For easy connection of external regulator impulse. Bleed and gauge valves (G1/4") integrated

Expansion Vessel

Code	Inlet code	Inlet connection	Outlet code	Outlet connection	Dimensions	Accessoires
051043AA	B2F	FFLG PN40-DN25	B2F	FFLG PN40-DN25	Diameter: 100mm Height: 300mm Volume: 2 liters	* Oil manometer + gauge integrated * Relief valve * Bleed valve
051042AC	B2K	FFLG PN40-DN40	B2K	FFLG PN40-DN40	Diameter: 125mm Height: 300mm Volume: 3,5 liters	
051043AC	B2L	FFLG PN40-DN50	B2L	FFLG PN40-DN50	Diameter: 150mm Height: 300mm Volume: 5 liters	

Rotary Flanges

Code	Inlet code	Inlet connection	Outlet code	Outlet connexion	Corresponding seal	Corresponding bolts and screws
051044BA	E1F	MAL-G1	B6F	RFLG PN40-DN25	051045AA	-
051044AA			B6L	RFLG PN40-DN50	051045AB	051046AA
051044AC	E1J	MAL-G1.1/4	B6L	RFLG PN40-DN50	051045AB	051046AA
051044AB	E1K	MAL-G1.1/2	B6L	RFLG PN40-DN50	051045AB	051046AA

REPLACEMENT KITS AND SPRINGS ARE AVAILABLE FOR THE HIGH CAPACITY INDUSTRIAL REGULATORS UPON REQUEST. PLEASE REFER TO DOCUMENTS TCO 595 AND TCO 596 FOR MORE DETAILS. PLEASE CONSULT US.



6595H
051008AD



Pressure Relief Valve
051101BA



Large Capacity Valves

Application

- These OPSO (Over Pressure Shut-Off) valves can be mounted on industrial regulators 1391-1392-1395-1492-1495 and BP2402FC in order to protect the installation from overpressure generated by a malfunctioning of the regulator (debris on the seat, ice blocking ...) or a re-liquefaction of LPG in the pipes.
- The OPSO valve will cut the flow of gas when the outlet pressure of the regulator is above the nominal set pressure of the OPSO valve.
- The UPSO (Under Pressure Shut-Off) function available on some models will cut the flow of gas when there is a lack of upstream pressure. This intervention occurs when the outlet pressure of the regulator is below the nominal set pressure of the UPSO valve.

Features

- 6592BM and 6595BM can also provide an UPSO safety (Under Pressure Shut-Off) for the low and medium pressure regulators.
- Impulse connection: pipe 6mm
- Easy mounting
- CE marked following PED 2014/68/UE European directive

Construction

- Body and cover: die cast aluminum alloy
- Diaphragm: NBR
- Valve pad: NBR

Pressure Relief Valves

Application

- These low pressure relief valves are mainly used in high capacity LPG, Natural Gas or SNG installations when this function is not provided by the regulator (1495BB for instance).
- They are designed to discharge any overpressure caused by thermal expansion, and so to avoid the OPSO valve triggering unnecessarily.

Construction

- Body and cover: die cast aluminium alloy
- Diaphragm: NBR
- Seat pad: NBR

Code	OPSO mbar	UPSO mbar	Compatible regulators
6592H			
051008AB	2(1-3)bar	-	1391HF, 1392HF, 1392HB
051008AL	3(2,5-4)bar	-	1391HF, 1392HF, 1392HB
6595H			
051008AD	2(1-3)bar	-	1395HB
051008AH	3(2,5-4)bar	-	1395HB
6592M-6592B			
051008AA	70(40-90)mbar	15(10-90)	BP2402FC - 1492BF
051008AR	100(60-160)mbar	28(10-90)	BP2402FC - 1492BF
051008AE	450(250-650)mbar	-	BP2402FC - 1492BF
051008AG	450(250-650)mbar	220(90-550)	BP2402FC - 1492BF
6595M-6595B			
051008BB	70(40-90)mbar	15(10-90)	1495BF
051008BC	100(60-160)mbar	28(10-90)	1495BF
051008AF	450(250-650)mbar	-	1495MB
051008BA	450(250-650)mbar	220(90-550)	1495MB

Pressure Relief Valve

Code	Inlet code	Inlet connection	Outlet code	Outlet connection	PRV Opening pressure (mbar)
051101BA	F2F	FEM-Rp1	F2F	FEM-Rp1	50(26-63)
051101BB	F2F	FEM-Rp1	F2F	FEM-Rp1	70(60-130)
051102AA	F2F	FEM-Rp1	F2F	FEM-Rp1	200 (160-300)
051101BE	F2F	FEM-Rp1	F2F	FEM-Rp1	400 (250-500)
051101BF	F2F	FEM-Rp1	F2F	FEM-Rp1	1,5 (1-3)bar



82402
8240200



BP2402FC OP SO
006895FH



Applications

- The Regulator Box is designed to manage the flow of gas (NG, LPG, SNG) in a safe and secure manner to the downstream application.

Conception

- The Regulator Box is assembled and tested at the factory. It integrates all of the vital components from the inlet valve connection through to the outlet valve connection. This assembly is comprised of the following elements:
 - Reinforced fibre glass box S300, ivory colour RAL1015, with opening by female rectangular lock system
 - Reinforced fibre glass support frame (optional, part code 461015), ivory colour RAL1015, with opening by 2 triangular headed screws
 - Ball Valve ¼ turn on Inlet, with auto lock safety system, MOP 5bar, 1"1/4 Male sphero-conical
 - Pressure gauge 0-6bar (Dry type)
 - Copper cross
 - CLESSE regulator model BP2402FC + OP SO + Pressure Gauge 0-500mbar (dry type)
 - Ball Valve ¼ turn on outlet, G1"1/4BSP – MOP 0.5bar

Clesse regulator model BP2402FC

- Inlet Pressure (see table)
- Outlet Pressure (see table)
- Flow Rate (see table)
- Safety devices (different options available, see table)
- Internal pressure impulse, no need for any specific connector

Functional Characteristics

- The Regulator Box is designed to regulate the pressure of the gas from a Medium Pressure network (0.5 to 5bar), or an LPG line operating at 1.5bar, down to a service pressure of between 21mbar and 300mbar, with a flow rate of up to 320 (n)m³/h of Natural Gas, or 400Kg/hr of LPG.

- The regulator can be equipped with the following safety devices: Limited Relief Valve, UPSO (Under Pressure Shut-Off), OP SO (Over Pressure Shut-Off).
- Regulator Box S300 dimensions: H524 x W536 x D207mm
- Support Frame (optional) dimensions: H524 x W536 x D207mm
- Inlet connection: Male G1"1/4 sphero-conical
- Outlet connection: Male G1"1/4 BSP
- The Inlet valve is equipped with an auto lock safety device, which means that the valve will lock automatically when closed. A special key (model P532) is required to unlock the device in order to operate the valve in Open position.

Operational Design

- Operating temperature from -20°C to + 50°C
- Compact design for easy installation
- Box is delivered fully assembled, leak tested and ready for use (plug & play), with unique test certificate and traceability
- Several safety devices available: Limited Relief Valve, Over Pressure Shut-Off (OPSO), Under Pressure Shut-Off (UPSO)
- The pressure settings of the regulators and some of the safety devices are adjustable and can be made (by a professional installer) on site, and within the pressure range of the spring (as indicated in the table).
- Different Inlet and Outlet fittings are available (see table)
- Possibility to mount the box on a support frame to allow for a better on site installation

Markings Documents And Packaging

- Traceability labels:
 - Part Code - Date - Batch N°
 - Model Name - Connection type and size

Certificate of Conformity to the different leak and performance tests
This product is packaged in a carton box

Code	Inlet code	Inlet connection	Outlet code	Outlet connection	Inlet pressure (Pu) bar	Outlet pressure (Pd) mbar	Flow rate (LPG)		Flow rate (NG)		OPSO mbar	PRV mbar	UPSO mbar
							kg/h	kW	(n)m ³ /h	kW			
BP2402													
8240200	E8J	MAL-G1.1/4-JSC-CONE-DN25	E1J	MAL-G1 1/4RH	0,3-5	21 (19-23)	-	-	65-300	728-3360	70 (40-90)	50	14
8240201	E8J	MAL-G1.1/4-JSC-CONE-DN25	E1J	MAL-G1 1/4RH	0,3-2,1	37 (28-39)	80-175	1104-2415	-	-	100 (90-160)	75	28
8240202	E8J	MAL-G1.1/4-JSC-CONE-DN25	E1J	MAL-G1 1/4RH	0,7-5	148 (130-180)	130-400	1794-5520	104-320	1165-3584	300 (250-650)	-	90 (50-250)
8240203	E8J	MAL-G1.1/4-JSC-CONE-DN25	E1J	MAL-G1 1/4RH	0,8-5	300 (280-400)	150-400	2070-5520	120-320	1416-3584	475 (250-650)	-	-

Inlet connectors

Code	Inlet code	Inlet connexion	Outlet code	Outlet connexion
CD02018	K3M	PIPE-28-CTS	NAJ	NUT-G1.1/4-JSC-SPHERE-DN25
CD02028	K5C	PIPE-33,7-STEEL-SPW	NAJ	NUT-G1.1/4-JSC-SPHERE-DN25
CD02065	K7A	FEM-20-PEHD	NAJ	NUT-G1.1/4-JSC-SPHERE-DN25
CD02062	K7B	FEM-32-PEHD	NAJ	NUT-G1.1/4-JSC-SPHERE-DN25
CD02066	K7C	FEM-40-PEHD	NAJ	NUT-G1.1/4-JSC-SPHERE-DN25

Outlet connectors

Code	Inlet code	Inlet connexion	Outlet code	Outlet connexion
CD02012	N5J	NUT-G1.1/4RH-NF	K3M	PIPE-28-CTS
CD02186	N5J	NUT-G1.1/4RH-NF	K3R	PIPE-32-CTS
CD02023	N5J	NUT-G1.1/4RH-NF	K5C	PIPE-33,7-STEEL-SPW

Single Stage Cylinder Regulators

ZP10 – 405 – Clip – 415 – 425



Small Capacity Low & Medium Pressure Regulators

ZP10
001520AB



405
001577BC



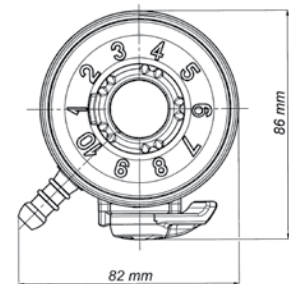
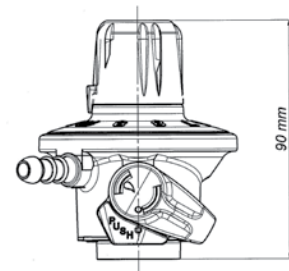
CLIP
001575CB



425
001950CS



415
001975BR



ZP10-001520AB

Application

- ZP10, CLIP and 405 regulators are connected directly onto an automatic valve of a LPG cylinder.
- 415 and 425 regulators are connected onto a hand wheel valve of LPG cylinder.
- The ZP10 regulators are used mainly in agricultural (poultry heating), industrial or craft applications.
- They have a fixed outlet pressure and are designed to supply low pressure domestic appliances such as stoves, cookers, cabinet heaters, BBQ, patio heaters.

Construction

- Body and cover: die cast zinc alloy
- Diaphragm: NBR or NBR-R
- Valve pad: NBR
- Nut: Brass

Features

- A complete range of inlet and outlet connections available to suit most types of valves according to European and many international standards.
- The outlet pressure of ZP10 regulators is adjustable on full rotation of the hand wheel which is indexed for a better control.
- Filter (on certain models) in the inlet connection.
- Excess flow safety (EFV), with manual or automatic reset, is available on certain models. This safety device stops the gas flow when the appliance hose is accidentally disconnected or damaged.
- Double shut-off (ZP10, CLIP and 405 models): when turning off the lever, both the cylinder valve and a complementary internal valve stop the gas flow.
- Disconnection safety (ZP10, CLIP and 405 models): disconnection only possible when the lever is turned on off-position.
- Thermal safety device (on some CLIP models): the cylinder valve is closed in case of abnormal temperature rise (fire ...).

The configuration possibilities are presented in the following table

Type of gas	Setting type	Outlet pressure (mbar)	Inlet code	Inlet connection	Outlet code	Outlet connexion	Safeties	
LPG	Fixed	Others...	P2D	Others...	Z2A	Others...	Thermal AEFV MEFV PRV	
Butane		50	P1A / P1C / P1D	POLS-USA-R6-SN	Z1E	HNZ-13,5-DS		
Propane		37	N4J / N4K	POLM-5/8LH...	Z1D	HNZ-10-UNI		
		30	N4D	NUT-W21,8LH...	E7A	HNZ-10-EN		
		29	N4B	NUT-W21,8LH-30x21KBI	E6B	MAL-1/4LH-DIN		
28	N4A	NUT-W21,8LH-R5DIN/KLF						
Variable	Setting type	50 - 190	N2A / N2C	NUT-M21,8LH-30,5BS				
		50 - 150	N1D / N1E	NUT-NF21,8LH...				
		20 - 70	C1K	NUT-W20LH...				
		5 - 200	C1D	C1K	CLIP-27			
		5 - 200	C1C	C1D	CLIP-22			
		5 - 200	C1A	C1A	CLIP-20			

Single & Second Stage Compact Regulators - Up to 5kg/h

BP1803 – BP1903VT – BP1803FV



BP1803
001821AN



BP1803
001821AV



BP1803FV
001877BA



Application

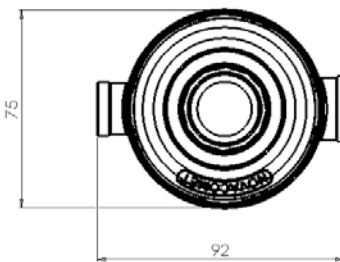
- These products are mainly used in small LPG installations (domestic or commercial) as single or second stage regulators.
- All these regulators can be used in specific installations, with Natural Gas, SNG, air, nitrogen and other non-aggressive gases
- Maximum capacity 5kg/h (69kW).
- BP1803FV models are equipped with a full relief valve which ensures that the outlet pressure cannot exceed a defined value (generally 140mbar - 2psig) in the event of malfunctions or breakage in the regulator.

Features

- Simple and efficient
- Possible pressure adjustment on certain models
- Numerous possible types of inlet and outlet connections - upon request-
- Filter in the inlet connections intended to be fitted onto a cylinder valve.

Construction

- Body and cover: die cast zinc alloy
- Diaphragm: NBR, NBR-R or FPM
- Valve pad: NBR or FPM



BP1803-001820AC

Code	Inlet code	Inlet connection	Outlet code	Outlet connection	Inlet pressure (Pu) bar	Outlet pressure (Pd) mbar	Flow rate (LPG)		Single stage	Second stage	Filter	Pad material	Diaphragm material
							kg/h	KW					
BP1803													
001820AA	F5B	FEM-1/4NPT	F5C	FEM-3/8NPT	0,5-16	30	4	55	✓		-	NBR	NBR
001820AC	F2B	FEM-Rp1/4	F2C	FEM-Rp3/8	0,5-16	30	4	55	✓		-	NBR	NBR
001820AE	N2A	NUT-NF21,8LH-27x14-G/G	Z1D	HNZ-10-EN	0,5-16	30	4	55	✓		Y	NBR	NBR
001820AG	N1B	NUT-W20LH-25x13,5	F2C	FEM-Rp3/8	0,5-16	30	4	55	✓		Y	NBR	NBR
001820AH	N1B	NUT-W20LH-25x13,5	Z1D	HNZ-10-EN	0,5-16	30 (25-38)	4	55	✓		Y	NBR	NBR
001820AU	F5D	FEM-1/2NPT	F5D	FEM-1/2NPT	0,2-4	20 (20-70)	3 (4@0,5)	41 (55@0,5)		✓	-	NBR	NBR
001820AM	F5D	FEM-1/2NPT	F5D	FEM-1/2NPT	0,5-4	30 (26-46)	5	69		✓	-	NBR	NBR
001820AR	F5D	FEM-1/2NPT	F5D	FEM-1/2NPT	0,5-4	30 (20-70)	5	69		✓	-	NBR	NBR
001820AS*	F2B	FEM-Rp1/4	F2C	FEM-Rp3/8	0,8-7	28	4	55	✓		-	NBR	NBR
001821AA	F5B	FEM-1/4NPT	F5B	FEM-1/4NPT	0,5-4	37	5	69		✓	-	FPM	FPM
001821AB	F5B	FEM-1/4NPT	F5B	FEM-1/4NPT	0,5-4	67 (50-80)	5	69		✓	-	FPM	FPM
001821AC	F5B	FEM-1/4NPT	F5B	FEM-1/4NPT	0,5-4	100 (70-120)	5	69		✓	-	NBR	NBR-R
001821AD	F5B	FEM-1/4NPT	F5B	FEM-1/4NPT	0,5-4	150 (105-180)	5	69		✓	-	NBR	NBR-R
001821AE	F5B	FEM-1/4NPT	F5B	FEM-1/4NPT	0,5-4	200 (140-240)	5	69		✓	-	NBR	NBR-R
001821AF	F5B	FEM-1/4NPT	F5B	FEM-1/4NPT	0,5-4	300 (210-360)	5	69		✓	-	NBR	NBR-R
001821AL	N6A	NUT-M20x1,5RH	E6B	MAL-M20x1,5RH	0,5-4	37 (27-45)	5	69		✓	-	NBR	NBR
001821AG	F2B	FEM-Rp1/4	F2C	FEM-Rp3/8	1-16	37	4	55	✓		-	NBR	NBR
001821AN	P1A	POLM-5/8LH-BS-HN	F2C	FEM-Rp3/8	1-16	37	4	55	✓		Y	NBR	NBR
001821AM	N6A	NUT-M20x1,5RH	E6B	MAL-M20x1,5RH	0,9-4	400	4	55		✓	Y	NBR	NBR-R
001821AP	N6A	NUT-M20x1,5RH	E6B	MAL-M20x1,5RH	1,3-4	800	4	55		✓	Y	NBR	NBR-R
001823AA	F5B	FEM-1/4NPT	F5B	FEM-1/4NPT	0,5-4	50	4	55		✓	-	FPM	FPM
001823AC	F2B	FEM-Rp1/4	F2C	FEM-Rp3/8	1-16	50 (45-65)	4	55	✓		-	NBR	NBR
001823AD	N6A	NUT-M20x1,5RH	E6B	MAL-M20x1,5RH	0,5-4	50 (47,5 - 57,5)	4	55		✓	Y	NBR	NBR
BP1903VT													
001830AA	F2B	FEM-Rp1/4	F2C	FEM-Rp3/8	0,5-16	30	4	55	✓		-	FPM	FPM
001830AB	N1B	NUT-W20LH-25x13,5	F2C	FEM-Rp3/8	0,5-7,5	30	4	55	✓		Y	FPM	FPM
BP1803FV													
001877BA	F5B	FEM-1/4NPT	F5D	FEM-1/2NPT	0,5-8	30 (25-38)	4	55	✓		-	NBR	NBR
001877BB	F5B	FEM-1/4NPT	F5D	FEM-1/2NPT	0,5-8	100	4	55	✓		-	NBR	NBR

* supplied with wall bracket

Single and Second Stage Compact Specialist Regulators - Up to 6kg/h

455C – 475P – 475GN -1455



475P
001855AC



475GN
001855AA



1455
001850AB



Application

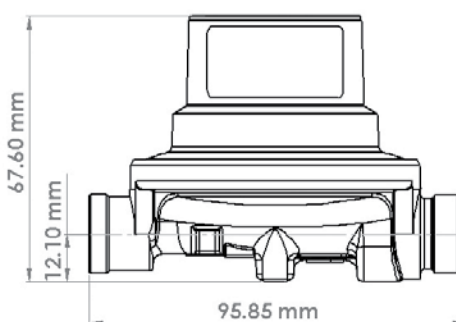
- These products are mainly used as second stage regulators in LPG installations up to 6.5kg/h (90kW). They can also be used Natural Gas, SNG, air, nitrogen and other non-aggressive gases.
- 455C model are single stage regulators with a variety of pressure settings available used mainly for light commercial and craft applications.
- 475P and 475GN models are purposely designed for radiant heater installations, and form part of a complete product offering for this specific application (valves, filters, flexible hoses ...).
- 1455 model is an adjustable regulator specifically designed for applications which require a very large regulated pressure range (for instance poultry equipment).

Features

- Strong and reliable design
- 1455 model is equipped with a manometer and a manual knob for pressure adjustment.

Construction

- Body and cover: die cast zinc alloy
- Diaphragm: NBR
- Valve pad: NBR



455C-001854AK

Code	Inlet code	Inlet connection	Outlet code	Outlet connection	Inlet pressure (Pi) bar	Outlet pressure (Pd) mbar	Flow rate (LPG)		Flow rate (NG)		Filter	Pad material	Diaphragm material
							kg/h	kW	m³/h	kW			
455C													
001854AA	F5B	FEM-1/4NPT	E6B	MAL-M20x1,5RH	1-16	37 (27-45)	6	83	-	-		FPM	FPM
001854AJ	F5B	FEM-1/4NPT	E6B	MAL-M20x1,5RH	1-16	50 (35-60)	6	83	-	-		FPM	FPM
001854AB	F5B	FEM-1/4NPT	E6B	MAL-M20x1,5RH	1-16	67 (47-70)	6	83	-	-		FPM	FPM
001854AC	F5B	FEM-1/4NPT	E6B	MAL-M20x1,5RH	1-16	100 (70-120)	6	83	-	-	-	FPM	NBR-R
001854AD	F5B	FEM-1/4NPT	E6B	MAL-M20x1,5RH	1-16	148 (105-180)	6	83	-	-	-	FPM	NBR-R
001854AK	F2B	FEM-Rp1/4	E6B	MAL-M20x1,5RH	1-16	300 (210-360)	6	83	-	-	-	FPM	NBR-R
001854AL	P1A	POLM-5/8LH-BS-HN	E6B	MAL-M20x1,5RH	1-16	300 (210-360)	6	83	-	-	Y	NBR	NBR-R
475P													
001855AC	N5D	NUT-G1/2RH-NF	E1D	MAL-G1/2RH	0,5-2,1	37	6,5	90	-	-	Y	NBR	NBR
001855AF	N5D	NUT-G1/2RH-NF	E1D	MAL-G1/2RH	(0,3) 1-5	50	(3) 6	(41) 83	-	-	Y	NBR	NBR
001855AG	N5D	NUT-G1/2RH-NF	E1D	MAL-G1/2RH	(0,3) 1-5	67	(3) 6	(41) 83	-	-	Y	NBR	NBR
475GN													
001855AA	N5D	NUT-G1/2RH-NF	E1D	MAL-G1/2RH	0,24 - 0,36	20	-	-	3,9	44	Y	NBR	NBR
001855AD	N5D	NUT-G1/2RH-NF	E1D	MAL-G1/2RH	(0,3) 1-5	20	-	-	(3) 6	(34) 67	Y	NBR	NBR
1455													
001850AB	E6B	MAL-M20x1,5RH	E6B	MAL-M20x1,5RH	2 - 4	20-1400	10	138	-	-	Y	NBR	NBR-R

Single and Second Stage Regulators – Variable 10 Positions

BP1813



BP1813
000780AP



BP1813
000780AS



Application

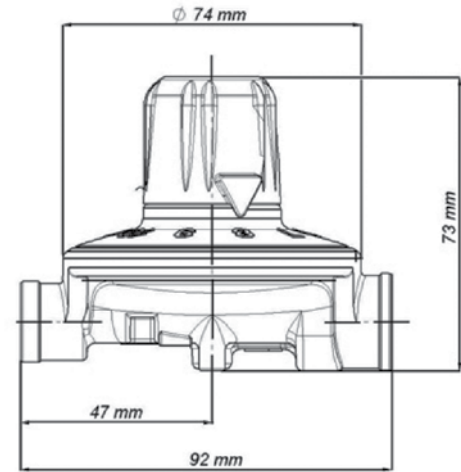
- These products with variable pressure are mainly used as single or second stage LPG regulators for agricultural (poultry heating), industrial or craft (radiant panels, air heaters ...) uses.
- All these regulators can be used in specific installations, with Natural Gas, SNG, air, nitrogen and other non-aggressive gases.
- Maximum capacity 4kg/h (55kW)

Features

- Indexed position of the hand-wheel for a better set control
- Numerous possible types of inlet and outlet connections (upon request)
- Filter in the inlet connections intended to be fitted onto a cylinder valve

Construction

- Body and cover: die cast zinc alloy
- Diaphragm: NBR or NBR-R (FPM upon request)
- Valve pad: NBR (FPM upon request)



BP1813-00780AC

Code	Inlet code	Inlet connection	Outlet code	Outlet connection	Inlet pressure (Pu) bar	Outlet pressure (Pd) mbar	Flow rate (Propane)		Filter	Pad material	Diaphragm material
							kg/h	kW			
BP1813											
000780AA	F5B	FEM-1/4NPT	F5C	FEM-3/8NPT	1-16	50-150	4	55	-	NBR	NBR
000780AB	F5B	FEM-1/4NPT	F5C	FEM-3/8NPT	1-16	20-300	4	55	-	NBR	NBR-R
000780AC	F2B	FEM-Rp1/4	F2C	FEM-Rp3/8	1-16	20-90	4	55	-	NBR	NBR
000780AD	F2B	FEM-Rp1/4	F2C	FEM-Rp3/8	1-16	5-200	4	55	-	NBR	NBR
000780AE	F2B	FEM-Rp1/4	F2C	FEM-Rp3/8	1-16	50-150	4	55	-	NBR	NBR
000780AG	F2B	FEM-Rp1/4	F2C	FEM-Rp3/8	1-16	20-300	4	55	-	NBR	NBR-R
000780AH	F2B	FEM-Rp1/4	F2C	FEM-Rp3/8	1-16	5-300	4	55	-	NBR	NBR-R
000780AL	N6A	NUT-M20x1,5RH	E6B	MAL-M20x1,5RH	1-16	5-200	4	55	Y	NBR	NBR
000780AM	N6A	NUT-M20x1,5RH	E6B	MAL-M20x1,5RH	1-16	50-150	4	55	Y	NBR	NBR
000780AP	N2C	NUT-NF21,8LH-R5NF	E6B	MAL-M20x1,5RH	1-16	50-150	4	55	Y	NBR	NBR
000780AR	P1A	POLM-5/8LH-BS-HN	Z1D	HNZ-10-EN	1-16	20-300	4	55	Y	NBR	NBR-R
000780AS	P1A	POLM-5/8LH-BS-HN	Z1D	HNZ-10-EN	1-16	50-150	4	55	Y	NBR	NBR
000780AT	P2F	POLM-USA-28x28,5-HN	F2C	FEM-Rp3/8	1-16	50-150	4	55	Y	NBR	NBR



CSR 485
485101



CSR 485
0485175



CSR 485
UUCSR485MCO



CSR 485
UUCSR485DCS



Application

- These safety regulators are recommended for domestic gas installations where over pressure shut-off safety is required or recommended.
- They can be fitted directly to a cylinder or wall-mounted supplying one or more cylinders as Manual Changeovers. Some wall-mounted models are designed to be associated with a first stage regulator in some applications. Please check the inlet pressure range in the specification table.
- These regulators may be used with LPG, Natural Gas, SNG or other non-aggressive gases (air, nitrogen, bio methane).

Features

Over Pressure Shut-Off (OPSO) system, Consumer Safety Reset (CSR), stops the gas flow when the regulated pressure is greater than a defined value. Sealing wire is provided to prevent from any undesired manual reset.

Pressure relief valve

CSR 485 regulators are usually equipped with a Limited Pressure Relief Valve which can discharge thermal expansion and avoid unnecessary OPSO triggering.

Vent

The vent design allows to drain condensate humidity according to recommended installed positions.

Supply pressure

The regulator is able to withstand inlet pressures up to 16bar (230psig). When used as second stage regulator in an LPG installation, inlet pressure is conventionally lower than 4bar (58psig).

Excellent pressure control, thanks to a specific and reliable design of the pressure sensing and regulation subassemblies.

High resistance casing

The shock resistant and anti-UV treated casing gives the CSR 485 a high level of resistance in use. Furthermore it confers a weather proof protection equivalent of IP55 for adverse weather and ingress of water.

Easy fixation

Models are suitable for a variety of installations such as:

- cylinder fitted,
- wall-mounted thanks to a metallic back plate designed with interchangeable dimensions,
- manual changeover,
- automatic changeover.

Construction

- Designed according to European Standard EN16129
- Complies with European Pressure Equipment Directive PED (2014/68/UE), article 3.3.
- Body: zinc plated die cast zinc alloy (EN1774)
- Cover: grey painted die cast zinc alloy (EN1774)
- Diaphragm: NBR or NBR reinforced
- Valve pad: NBR / FPM (upon request)
- Springs: zinc plated steel
- "Push to Reset" button: polycarbonate resin
- Protection casing: polyamide 6.6 resin UV resistant

Code	Inlet code	Inlet connection	Outlet code	Outlet connection	Inlet pressure (Pi) bar	Outlet pressure (Pd) mbar	Flow rate (LPG)		Type of gas	PRV (mbar)	OPSO (mbar)	Cylinder fitted	Wall mounted
							kg/h	kW					
485CSR													
0485101	P1A	POLM-5/8LH-BS-HN	F3D	FEM-Rc1/2	1÷16	37	4	55	Propane	75	125	✓	
0485102	N1B	NUT-W20LH-25-UNI	Z1D	HNZ-10-EN	0,3÷16	29	1	14	LPG	-	125	✓	
0485107	F2B	FEM-Rp1/4	F3D	FEM-Rc1/2	1÷16	37	4	55	Propane	75	125	✓	
0485109	N4B	NUT-21,8LH-R5DINKLF	F3D	FEM-Rc1/2	1÷16	37	4	55	Propane	75	125	✓	
0485111	N3A (?)	NUT-M21,8LH-30,5BS	F3D	FEM-Rc1/2	1÷16	37	4	55	Propane	75	125	✓	
0485112	N4B	NUT-21,8LH-R5DINKLF	F3D	FEM-Rc1/2	1÷16	50	4	55	Propane	95	130	✓	
0485106	F2B	FEM-Rp1/4	F3D	FEM-Rc1/2	1÷16	37	4	55	Propane	75	125		✓
0485120	N1A	NUT-W20LH-25-UNI	F3D	FEM-Rc1/2	1÷16	37	4	55	Propane	75	125	✓	
UUCSR485SCK	E6B	MALE-M20x1,5RH ELBOW	F3D	FEM-Rc1/2 TEST POINT	1÷16	37	4	55	Propane	75	125		✓
UUCSR485MCO	E6B	M20x1,5RH MANUAL CHANGEOVER	F3D	BALL VALVE + TEST POINT FEM-Rc1/2	1÷16	37	4	55	Propane	75	125		✓
UUCSR485DCS	E6B	M20x1,5RH DUAL CYLINDER	F3D	BALL VALVE + TEST POINT FEM-Rc1/2	1÷16	37	4	55	Propane	75	125		✓
0485108	N3A	NUT-M21,8LH-30,5BS	F3D	FEM-Rc1/2	0,3÷7,5	29	2,6	36	Butane	75	125	✓	
0485201	F3B	FEM-Rc1/4	F3C	FEM-Rc3/8	0,3÷2	29	5	70	LPG	75	125		✓

Low Pressure Integral Two Stage Automatic Changeovers OPSO

Compact 800 – HIFLO



C800
5185C01



HIFLO
006829MR



Application

- These double stage low pressure medium or high flow automatic changeovers are used with 2 LPG cylinders, or 2 LPG batteries of cylinders (see functioning and benefits in the “user guide”).
- They combine a first stage automatic changeover and a second stage regulator, with OPSO (Over Pressure Shut-Off) safety device. They are recommended for gas installations (domestic, leisure or commercial) where over pressure shut-off safety is required or recommended, up to 12kg/hr (165kW).
- The Over Pressure Shut-Off safety stops the gas flow in event of the regulated pressure being greater than a defined value.

Features

- Excellent “change-over performances”. The low changeover pressure (Pdi) and the large pressure gap between “Service” and “Reserve” (more than 15% of nominal regulated pressure) ensures full use of the LP Gas from the “Service” cylinder.
- New “OPSO” Push To Set Consumer Safety System, with indication (C800 model) is an LPG safety system as “LPG circuit breaker”. It enables consumers to easily reset the regulator should the gas exceed recommended limits, protecting appliances and property.
- Clear visible indication (open-close state) and resetting is performed by the tamper proof “Push to Reset” system, similar to electrical consumer RCD protection.
- The HIFLO automatic changeover is equipped with a similar Pull to Set Consumer Safety System.
- Sealing wire is provided to prevent from any undesired manual reset.
- Protection and wall mounted casing (C800 model) with engraved instructions
- Wall mounting bracket (HIFLO model)
- Non Return Valves and filters on inlet connections to prevent leakage when changing the cylinders
- Reserve Indicator built in the knob
- Equipped with a limited safety relief valve (LRV)
- Engineer adjustable pressure regulation (C800 model)
- Fully compliant to EN16129 standard

CSR LP Gas Safety Pressure Regulators

From Clesse Industries

Controlling Energy Safely



Construction

- Body and cover: die cast zinc alloy
- Diaphragm: NBR-R
- Valve pads: NBR
- Casing: ABS (C800)



Consumer Safety Reset ‘The LPG circuit breaker’

Code	Inlet code	Inlet connection	Outlet code	Outlet connection	Inlet pressure (Pu) bar	Pdi bar	Outlet pressure (Pd) mbar	Flow rate (LPG)		Type of gas	Limited PRV mbar	OPSO mbar	Accessories
								kg/h	kW				
C800													
5185C01	E6B	MAL-M20x1,5RH	E6B	MAL-M20x1,5RH	1-16	0,8	37	5	70	Propane	75	100	BALL VALVE NUT-M20x1,5-FEM-G1/2"
5185C06	L1A	MAL-W20LH-UNI	F3D	FEM-Rc1/2	1-16	0,8	29	5	70	LPG	75	125	
5185C03	E6B	MAL-M20x1,5RH	F3D	FEM-Rc1/2	1-16	0,8	37	5	70	Propane	75	100	BALL VALVE MAL-Rc1/2"-FEM-G1/2"
HIFLO													
006829FR	E6B	MAL-M20x1,5RH	F3E	FEM-Rc3/4	1,5-16	1	37	12	165	Propane	75	125	BALL VALVE MAL-R3/4"-FEM-Rp3/4"
006829MR	L1A	MAL-W20LH-UNI	F3E	FEM-Rc3/4	1,2-16	1	30	12	165	LPG	75	135	
006829MS	F1B	FEM-G1/4RH	F3E	FEM-Rc3/4	1,2-16	1	29	12	165	LPG	75	135	
006829MF	Q2A	FEM-0,880-14NG0-POL	F3E	FEM-Rc3/4	1,2-16	1	100	12	165	LPG	200	250	

Low Pressure Integral Two Stage Automatic Changeovers

5175B – 5175C – C100



5175B
5175B02



5175C
5175C04



Application

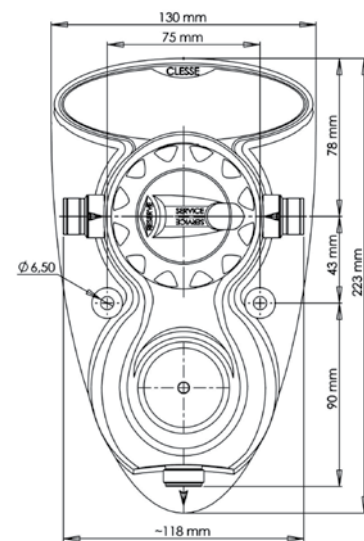
- 5175B, 5175C and C100 conform to EN 13786 standard
- These double stage low pressure automatic changeovers are used with 2 LPG cylinders, or 2 LPG batteries of cylinders (see functioning and benefits in the “users guide”).
- They combine a first stage automatic changeover and a second stage regulator.
- They are used in domestic, leisure or commercial applications up to 5kg/hr (70kW).

Construction

- Body and cover: die cast zinc alloy
- Diaphragm: NBR-R
- Valve pads: NBR
- Casing: ABS

Features

- Excellent “change-over performances”. The low change-over pressure (Pdi) and the large pressure gap between “service” and “reserve” (more than 15% of nominal regulated pressure) ensure full use of the LPG from the “service” cylinder.
- Protection and wall mounting casing with engraved instructions.
- Non-return valves to prevent any leakage when changing the cylinders.
- Filters in both inlet connections
- Reserve indicator built in the knob
- C100 is equipped with a limited flow safety relief valve (LRV)



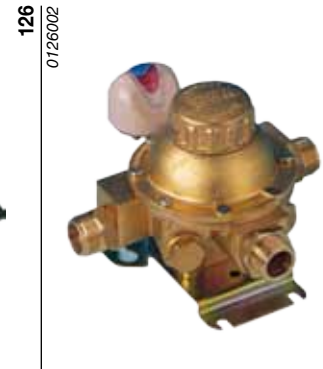
5175B-5175BS1

Multi Cylinder Upgrade kit available. See page 54

Code	Inlet code	Inlet connection	Outlet code	Outlet connection	Inlet pressure (Pu) bar	Pdi bar	Outlet pressure (Pd) mbar	Flow rate (LPG)		Type of gas	Limited PRV	Accessories
								kg/h	kW			
5175B												
5175BS1	E6B	MAL-M20x1,5RH	E6B	MAL-M20x1,5RH	1-16	0.5	29	4	55	Butane	-	
5175B02	E6B	MAL-M20x1,5RH	E6B	MAL-M20x1,5RH	0,7-7,5	0.5	29	2.6	36		-	
5175B20	E6B	MAL-M20x1,5RH	F3D	FEM-RC1/2	0,7-7,5	0.5	29	2.6	36		75 mbar	
5175C												
5175C01	E6B	MAL-M20x1,5RH	F3D	FEM-RC1/2	1-16	0.8	37	4	55	Propane	-	
5175C02	E6B	MAL-M20x1,5RH	F1D	FEM-G1/2RH	1-16	0.8	50	4	55		-	
5175C04	Q2A	FEM-0,880-14NGO-POL	F2D	FEM-RP1/2	1-16	0,8	30	4	55	LPG	-	
5175C10	L1A	MAL-W20LH-UNI	F5D	FEM-1/2NPT	1-16	0,8	37	4	55	Propane	-	
C100												
5175C07	E6B	MAL-M20x1,5RH	E6B	MAL-M20x1,5RH	1-16	0.8	37 (32-42)	5	70	Propane	75 mbar	BALL VALVE NUT-M20x1,5 - FEM-G1/2"
5175C08	F3B	FEM-RC1/4	F3D	FEM-RC1/2	1,7-16	1,5	29	8	110	LPG	80 mbar	

High Pressure Automatic Changeovers

175B – 175C – AC2600 – 126



Application

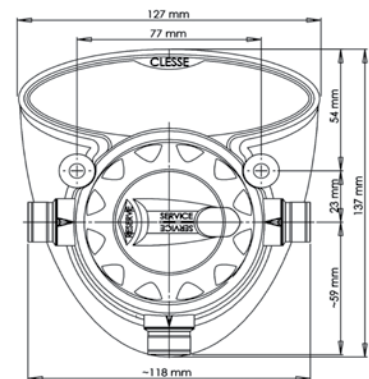
- These first stage automatic changeovers are used with 2 LPG cylinders or 2 batteries of LPG cylinders. They provide the first stage regulation function of the installation.
- They are used in domestic, commercial or agriculture applications up to 50kg/h (690kW).

Construction

- Body and cover: die cast zinc alloy (175B, 175C, AC2600) hot stamped brass (126)
- Diaphragm: NBR-R
- Valve pads: NBR
- Casing (175B, 75C): ABS

Features

- 175B, 175C and AC2600 conform to EN 13786 standard
- Excellent “change-over performances”. The large pressure gap between “service” and “reserve” (more than 15% of nominal regulated pressure) ensures full use of the LPG from the “service” cylinder.
- Non-return valves to prevent any leakage when changing the cylinders
- Filters in both inlet connections
- Reserve indicator built in the knob for 175B, 175C and AC2600 models
- Certain models are provided with a complementary indicator “Magiscope P95” to be installed on the downstream piping. 126 high pressure automatic changeover are equipped with “Magiscope P96” or with a manometer.
- Certain models are delivered with fittings for copper brazing.
- 175 models are provided with a protecting and wall-mounting casing which include instruction display.
- AC2600 and 126 models are provided with a metallic bracket.



175B-0175B00

Multi Cylinder Systems

Code	Inlet code	Inlet connection	Outlet code	Outlet connection	Inlet pressure (Pu) bar	Outlet pressure (Pd) bar	Flow rate (LPG)		Magiscope	Accessories		
							kg/h	kW				
175B												
0175B00	E6B	MAL-M20x1,5RH	E6B	MAL-M20x1,5RH	0,7-7,5	0.5	2.6	36	-	1x12mm Braz Fit		
0175BS2	E6B	MAL-M20x1,5RH	E6B	MAL-M20x1,5RH	(0,7) 1,5-12,5	0.5	(6) 10	(83) 138	-	-		
175C												
0175C01	F5B	FEM-1/4NPT	F5D	FEM-1/2NPT	1,7-20	1.2	10	138	-	-		
0175C12	F1B	FEM-G1/4RH	F1B	FEM-G1/4RH			10	138	-	-		
0175C00	E6B	MAL-M20x1,5RH	E6B	MAL-M20x1,5RH	2-16	1.5	12.5	172	P95	1x12mm Braz Fit		
0175C02	E6B	MAL-M20x1,5RH	E6B	MAL-M20x1,5RH			12.5	172	P95	-		
0175C90	E6B	MAL-M20x1,5RH	E6B	MAL-M20x1,5RH			12.5	172	-	1x12mm Braz Fit		
0175C20	E6B	MAL-M20x1,5RH	E6B	MAL-M20x1,5RH			12.5	172	-	-		
0175C22	L1A	MAL-W20LH-UNI	F5D	FEM-1/2NPT	3,5-16	3	12.5	172	-	-		
0175C20	E6B	MAL-M20x1,5RH	E6B	MAL-M20x1,5RH			12.5	172	-	-		
0175C21	E6B	MAL-M20x1,5RH	E6B	MAL-M20x1,5RH			20	276	-	-		
0175CS1	E6B	MAL-M20x1,5RH	E6B	MAL-M20x1,5RH			20	276	-	-		
0175CS4	F5B	FEM-1/4NPT	F5D	FEM-1/2NPT			20	276	-	-		
0175CS5	F1B	FEM-G1/4RH	F1D	FEM-G1/2RH			20	276	-	-		
0175CS7	L1A	MAL-W20LH-UNI	F5D	FEM-1/2NPT			20	276	-	-		
0175CS6	K2B	PIPE-1/4-INV.FLARE	F5D	FEM-1/2NPT			20	276	-	-		
AC2600												
002635AD	F5B	FEM-1/4NPT	F5B	FEM-1/4NPT			1,7-20	1.2	10	138	-	-
002635AF	F5D	FEM-1/2NPT	F5D	FEM-1/2NPT	10	138			-	-		
002635AA	L1A	MAL-W20LH-UNI	L1A	MAL-W20LH-UNI	2-16	1.5	12	165	-	-		
002635AE	E6B	MAL-M20x1,5RH	E6B	MAL-M20x1,5RH			12	165	-	-		
126												
0126003	E1E	MAL-G3/4RH	E1E	MAL-G3/4RH	1,7-20	1.2	50	690	-	Manometer		
0126002	E1E	MAL-G3/4RH	E1E	MAL-G3/4RH	2-16	1.5	50	690	P96	-		



Telemetry for ACO (Automatic Changeovers)

Our telemetry range has a fully integrated design with no wires, and is available across the range of high and low pressure ACO from 5kg/hr to 12kg/hr (70kW – 170kW). Our new product offering enables gas companies and distributors to improve and optimise the management of both domestic and commercial cylinders.

The ACO is purchased Telemetry Ready (TR) and the additional electronic hardware is easily installed whenever required – before or after installation or moved into any other telemetry ready Clesse ACO product.

Communications hardware

Contains robust encapsulated electronics for GSM cellular network communications, using external SIM slot or imbedded MIM network card, aerial and LED indication for install check and diagnosis. The interchangeable moulded battery pack is also housed within the ACO and contains a pack of AA sized lithium batteries, allowing up to 10years life, depending on communications and reporting configuration selected.

For clustered installations such as holiday parks, chalets, and high density sites and RF 869MHz version is also available where the information is collected and re-transmitted using one GSM unit (normally at a ratio 1:20 GSM collector to ACO)

Unique design with no external mechanical moving parts

The monitoring of the ACO reserve indication is achieved with no external moving parts, a magnetic pressure switch is built within the changeover head, and in turn this is monitored by embedded sensor within the universal communicator back plate. This makes the system totally independent of the red reserve flag indicator, and is protected from weather, impact damage and user interference.



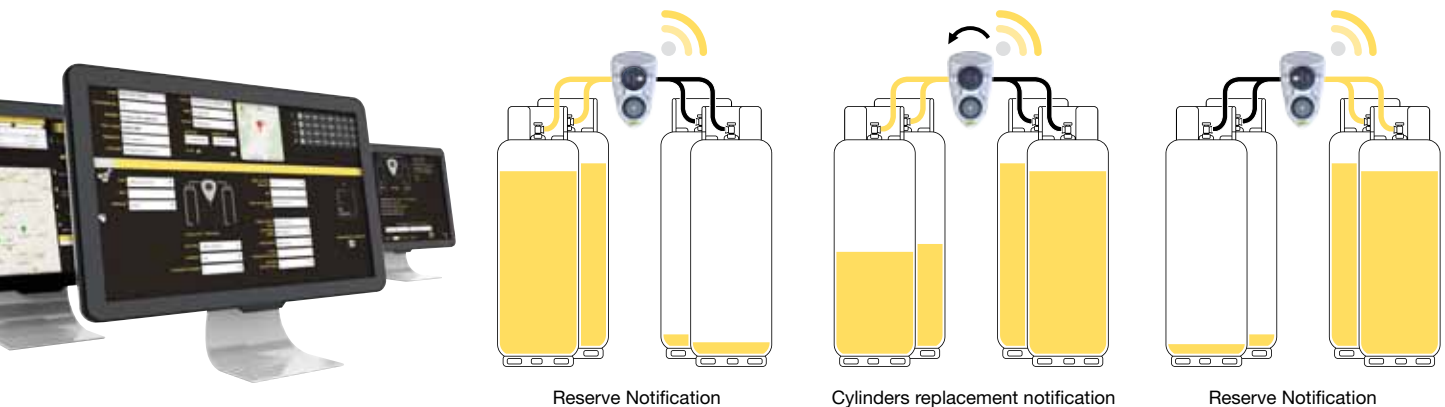
Efficient logistical delivery planning and customer service Clesse Prodigy software is a web based user portal developed allowing operators to determine the exact condition of the ACO when the reserve cylinders start being used through to logistical planning and report generation enabling planned efficient distribution and replacement of cylinders.

Development collaboration is with Aiut world leaders in telemetry solutions for LP gas and natural gas. Both Clesse and Aiut offer global solutions to enable ACO business operator's packages to suit their local requirements.

www.smartgasmetering.com

aiut

Multi Cylinder Systems

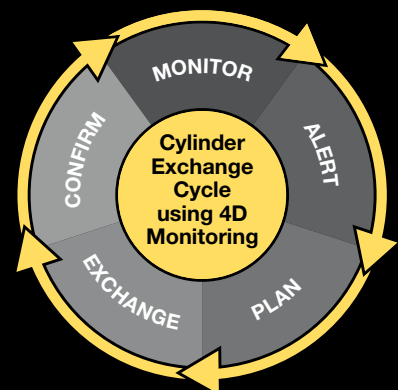


Receive daily status and warning from an empty service cylinder condition from remote locations using GSM or RF communications

Simple install COMPACTM GSM and RF bidirectional communication on all Clesse ACO TR models (Telemetry Ready) low and high pressure

Optimise cylinder exchange logistics, back office operations and customer services using 4D monitoring COMPACTPRODIGY software

TM (Telemetry Module) GSM and RF are ATEX zone 0 rated, encapsulated electronics with on-board battery pack





5185TR
5185T03



HIFLOTR
006829TB



Application

- Smart automatic changeover Telemetry Ready is a cost effective solution that lets distributors of LP Gas to monitor the cylinders reserve level. The solution enhances the replacement procedure at consumers' sites and the cylinders stock efficiency.
- The automatic changeover enables to pre-plan the efficient deliveries instead of costly reaction to gas shortage. The telemetry unit automatically sends the notification of low cylinders level and a demand for replacement directly to LP Gas distributor.
- These Smart Automatic changeovers are used in the same conditions than conventional automatic changeovers with which they are completely interchangeable (gas regulation, connection, wall fixation).
- They combine a first stage automatic changeover and a second stage regulator, with OPSO (Over Pressure Shut-Off) safety device. They are recommended for gas installations (domestic, leisure or commercial) where over-pressure shut-off safety is required or recommended, up to 12kg/hr (165kW). The Over Pressure Shut-Off safety stops the gas flow in event the regulated pressure is greater than a defined value.
- The smart telemetry is integrally embedded and does not interfere with the conventional gas regulation functions.

Communication And User Interface Features

- GPRS/SMS communication (User replaceable micro SIM card)
- GSM Modem Telit GL865 Dual Band (Quad Band on request)
- Opto Port for easy diagnostics
- Remote firmware upgrade and access to archive data
- Optional external antenna
- APULSE C373: optional RF version for mobile home parks
- Battery life 5-10 years depending on configuration
- User replaceable 6 x 3,6VDC 2,7Ah lithium batteries
- OKO C503 is easy to set up in ACO casing. No cables and screws needed
- Diagnostic LED permits for GSM reception verification
- Device can be activated by a magnet placed on the top of the cover

Gas Regulation Features

- Excellent "change-over performances". The low changeover pressure (Pdi) and the large pressure gap between "Service" and "Reserve" (more than 15% of nominal regulated pressure) ensures full use of the LP Gas from the "Service" cylinder.
- New "OPSO" Push To Set Consumer Safety System, with indication (C800 model) is an LPG safety system as "LPG circuit breaker". It enables consumers to easily reset the regulator should the gas exceed recommended limits, protecting appliances and property.

- Clear visible indication (open-close state) and resetting is performed by the tamper proof "Push to Reset" system, similar to electrical consumer RCD protection.
- The HIFLO automatic changeover is equipped with a similar Pull to Set Consumer Safety System.
- Sealing wire is provided to prevent from any undesired manual reset.
- Protection and wall mounted casing (model) with engraved instructions.
- Wall mounting bracket (HIFLO model).
- Non Return Valves and filters on inlet connections to prevent leakage when changing the cylinders.
- Reserve Indicator built in the knob.
- Equipped with a limited safety relief valve (LRV).
- Engineer adjustable pressure regulation (5185TR model).

Construction

- 175TR, 5185TR, HIFLOTR fully conform to EN 16129 standard
- Body and cover: die cast zinc alloy
- Diaphragm: NBR-R
- Valve pads: NBR
- Casing: ABS

Code	Inlet code	Inlet connection	Outlet code	Outlet connection	Inlet pressure (Pu) bar	Pdi bar	Outlet pressure (Pd) mbar	Flow rate (LPG)		Type of gas	Limited PRV mbar	OPSO mbar	Accessories
								kg/h	kW				
175TR													
0175T02	E6B	MAL-M20x1,5RH	E6B	MAL-M20x1,5RH	2-16	1,5	-	12,5	170	Propane	-	-	EN marking
0175T05	E6B	MAL-M20x1,5RH	E6B	MAL-M20x1,5RH	2-16	1,5	-	12,5	170	Propane	-	-	FR marking
5185TR													
5185T01	E6B	MAL-M20x1,5RH	E6B	MAL-M20x1,5RH	1-16	0,8	37	5	70	Propane	75	100	
5185T03	E6B	MAL-M20x1,5RH	F3D	FEM-RC1/2	1-16	0,8	37	5	70	Propane	75	100	
HIFLOTR													
006829TA	E6B	MAL-M20x1,5RH	F3E	FEM-RC3/4	1,5-16	1	29	12	165	LPG	75	125	
006829TB	E6B	MAL-M20x1,5RH	F3E	FEM-RC3/4	1,5-16	1	37	12	165	Propane	75	125	BALL VALVE MAL-R3/4"-FEM-Rp3/4"



CTR6650
006650AA



MCH4100
004161



P1507
P015720



Application

- Multi-cylinder systems are used for domestic and commercial LPG installations when it's necessary to connect together several LPG cylinders.
- CTR6650 allows the end user to increase the gas vaporisation capacity by increasing the number of connected cylinders.
- MCH4100 is used for coupling two cylinders or bank of multiple cylinders. It allows the user to manually switch from the service bank to the reserve bank and ensures that the gas is drawn only from the service side.
- P157 are used for adding multiple cylinders to an installation where systems can be upgraded for more vaporisation capacity as featured in the "Multi Cylinder Upgrade Kit"

Features

- CTR6650 and P157 are equipped with an internal non return valve to avoid any leakage whilst cylinders are changed. Can be used up to service pressures of 20bar.
- CTR6650 may be equipped with:
 - safety valve (setting 18bar)
 - manometer (range 25bar)
 - gas regulation line (single or double stage).
- Excellent corrosion protection thanks to electrolytic deposition of epoxy material.
- New compact design with wall bracket for fixation allowing for optimal accessibility.
- Possibility to assemble two or more manifold combinations together in order to increase the number of connected cylinders.

Construction

CTR6650

- Complies with European Pressure Equipment Directive PED (2014/68/UE), art. 3.3 + UNI 7131 standard
- Body and fixation: protected steel with electrolytic deposition of black epoxy material
- Valve: complies with EN ISO 15995
- Valve adjustment handle: brass
- Valve pad: PA6.6

MCH4100

- Body: brass
- Handle: PA6.6
- Pad: NBR

P157

- Body: brass

CTR6650							
Code	Inlet code	Inlet connection	Outlet code	Outlet connection	N° of Cylinders	Safety Valve	Manometer
006650DA	L1A	MAL W20LH-UNI	N6A	NUT M20x1,5 RH	1 - Right side	18bar	0-25bar
006650DB	L1A	MAL W20LH-UNI	N6A	NUT M20x1,5 RH	1 - Left side	18bar	0-25bar
006650AA	L1A	MAL W20LH-UNI	L1A	MAL W20LH-UNI	2	18bar	0-25bar
006650AB	L1A	MAL W20LH-UNI	L1A	MAL W20LH-UNI	2	-	-
006650BA	L1A	MAL W20LH-UNI	L1A	MAL W20LH-UNI	3	18bar	0-25bar
006650BB	L1A	MAL W20LH-UNI	L1A	MAL W20LH-UNI	3	-	-
006650CA	L1A	MAL W20LH-UNI	L1A	MAL W20LH-UNI	4	18bar	0-25bar
006650CB	L1A	MAL W20LH-UNI	L1A	MAL W20LH-UNI	4	-	-

MCH4100				
Code	Inlet code	Inlet connections	Outlet code	Outlet connection
004160	L1A	MAL-W20LH-UNI	L1A	MAL-W20LH-UNI
004161	E6B	MAL-M20x1,5RH	E6B	MAL-M20x1,5RH
004162	E6B	MAL-M20x1,5RH	E2B	MAL-R1/4

P157						
Code	Inlet Code	Inlet connection	Outlet code 1	Outlet connection 1	Outlet code 2	Outlet connection 2
P015720	N6A	NUT-M20x1,5RH	E6B	MAL-M20x1,5RH*	E6B	MAL-M20x1,5RH*

*Contains Non Return Valve (NRV)

Assembly Kits													
CTR6650							Accessories						
Code	Inlet code	Connections	N° of Cylinders	Safety Valve	Manometer	Regulator stage	Outlet pressure mbar	Capacity LPG kg/h	PRV mbar	OPSO mbar	Inlet code	Outlet connection	
006650KA	L1A	MAL W20LH-UNI	2	18bar	0-25bar	Single	29	3	75	-	L1A	FEM-Rc1/2	
006650KB	L1A	MAL W20LH-UNI	2	18bar	0-25bar	Single	29	3	75	125	L1A	FEM-Rc1/2	
006650KC	L1A	MAL W20LH-UNI	3	18bar	0-25bar	Double	29	5	75	-	L1A	FEM-Rc1/2	
006650KD	L1A	MAL W20LH-UNI	3	18bar	0-25bar	Double	29	5	75	125	L1A	FEM-Rc1/2	



Multi Cylinder Upgrade Kits									
Code	HP Hose Inlet Code	HP Hose Inlet connection	HP Inlet Hose length	NRV Outlet code 1	NRV Outlet connection 1	NRV Outlet code 2	NRV Outlet connection 2		
8436011P1A	P1A*	2 x POLM-5/8LH-BS-HN	838mm	2 x E6B	2 x MAL-M20x1,5RH	2 x E6B	2 x MAL-M20x1,5RH		
8436011N1B	N1B	2 x NUT-W20LH-25x13,5	700mm	2 x E6B	2 x MAL-M20x1,5RH	2 x E6B	2 x MAL-M20x1,5RH		
8436011N2C	N2C	2 x NUT-NF21,8LH-R5NF	700mm	2 x E6B	2 x MAL-M20x1,5RH	2 x E6B	2 x MAL-M20x1,5RH		
8436011N3A	N3A*	2 x NUT-M21,8LH-30,5BS	838mm	2 x E6B	2 x MAL-M20x1,5RH	2 x E6B	2 x MAL-M20x1,5RH		
8436011N6A	N6A	2 x NUT-M20x1,5RH	700mm	2 x E6B	2 x MAL-M20x1,5RH	2 x E6B	2 x MAL-M20x1,5RH		

All Multi Cylinder Upgrade kits are provided with 2 x High Pressure Hoses and 2 x Non Return Valve (NRV) European approved Tee pieces

*Contains Excess Flow Valve on Cylinder connection

Second and Third Stage Safety Regulators

TA – SA – T – S – S5 – RPBS



SA
6445200



T
6445005



S
6445000



RPBS
6445600

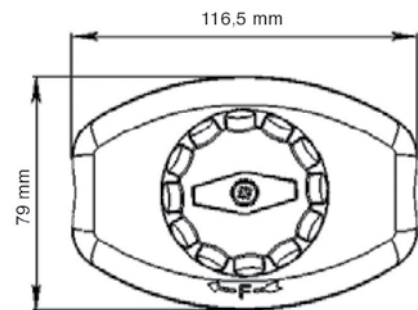


Application

- Installed close to the gas appliance, these regulators combine the final regulation stage, the manual shut-off valve and the UPSO (Under Pressure Shut-Off) safety.
- The TA and T regulators provide also an excess flow safety which stops the gas flow in case of rupture or disconnection of the downstream hose.
- These regulators are generally used as second stage regulator in LPG installations to supply gas appliances up to 5kg/h (55kW).
- TA and SA regulators are dedicated to butane installations.
- T, S and S5 regulators are intended to be used on propane and LPG installations.
- RPBS regulators are used as third stage regulators in canalised installations and can be adapted either to LPG (37mbar) or to Natural Gas – SNG (22mbar).

Features

- Compact and pleasant design
- Wall-mounting bracket
- Filter in the inlet connection
- Certain models are delivered with fittings for copper brazing.
- Combine 3 or 4 functions (regulation, manual valve, UPSO, Excess flow safety)
- RPBS: Unique adaptable (LPG-NG-SNG) regulator



RPBS-6445600

Construction

- Body and cover: die cast zinc alloy
- Diaphragm: NBR
- Valve pads: NBR
- Casing: ABS
- NF certified

Code	Inlet code	Inlet connection	Outlet code	Outlet connection	Inlet pressure (Pu) bar	Outlet pressure (Pd) mbar	Flow rate (LPG)		Type of gas	UPSO mbar	Accessories
							kg/h	kW			
TA											
6445205*	E6B	MAL-M20x1,5RH	E6B	MAL-M20x1,5RH	0,1-0,6	28	1,3	18	Butane	20	
SA											
6455200*	E6B	MAL-M20x1,5RH	E6B	MAL-M20x1,5RH	0,1-0,6	28	2,6	36	Butane	20	1x12mm Braz Fit
6455203*	E6B	MAL-M20x1,5RH	E6B	MAL-M20x1,5RH	0,1-0,6	28	2,6	36	Butane	20	
T											
6445005*	E6B	MAL-M20x1,5RH	E6B	MAL-M20x1,5RH	0,5-1,75	37	1,3	18	Propane	25	
6445056	E6B	MAL-M20x1,5RH	E6B	MAL-M20x1,5RH	0,5-1,75	50	1,3	18	Propane	34	
S											
6455153	E6B	MAL-M20x1,5RH	E6B	MAL-M20x1,5RH	0,5-1,75	30	4	55	Propane	20	
6455000*	E6B	MAL-M20x1,5RH	E6B	MAL-M20x1,5RH	0,5-1,75	37	4	55	Propane	25	1x12mm Braz Fit
6455003*	E6B	MAL-M20x1,5RH	E6B	MAL-M20x1,5RH	0,5-1,75	37	4	55	Propane	25	
6455053	E6B	MAL-M20x1,5RH	E6B	MAL-M20x1,5RH	0,5-1,75	50	4	55	Propane	34	
S5											
6455300*	E6B	MAL-M20x1,5RH	E6B	MAL-M20x1,5RH	0,5-1,75	37	5	69	Propane	25	1x12mm Braz Fit
6455303*	E6B	MAL-M20x1,5RH	E6B	MAL-M20x1,5RH	0,5-1,75	37	5	69	Propane	25	
6455453	E6B	MAL-M20x1,5RH	E6B	MAL-M20x1,5RH	0,5-1,75	50	5	69	Propane	34	
S8											
6455803	E6B	MAL-M20x1,5RH	E6B	MAL-M20x1,5RH	0,5-1,75	37	8	110	Propane	25	
RPBS											
6455600	E6B	MAL-M20x1,5RH	E6B	MAL-M20x1,5RH	(0,075) 0,08-0,2	Propane:37 Natural Gas:22	(3) 4 kg/h (3) 4 m³/h	Propane: 55 Natural Gas: 45	Propane Natural Gas	Propane:25 Natural Gas:10	

* NF certified



STB27L
052320AA



STB27L
052322AA



STB27R
052321AB



Application

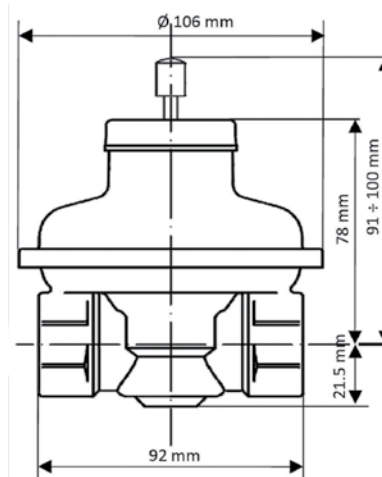
- These service governors regulate the gas pressure from a 400mbar maximum supply pressure to the appliance service pressure (in the range 9 to 50mbar).
- They are mainly used in residential and commercial gas installations and are commonly located upstream to a gas meter.
- They are suitable for Natural Gas, LPG and SNG. For special applications they can also be used with other non-aggressive gases (air, nitrogen, bio methane ...)
- Working temperature: -20 / +60°C (-4 / +140°F)

Features

- Connection options are geometry adapted to the installation, available in line (L models) or at right angle (R models).
- Excellent pressure control with fully balanced seat design providing a stable pressure control in all conditions of inlet pressures and flow rates within the range with full lock-up capability
- High capacity depending on inlet pressure range and requested accuracy of regulated pressure
- Models can deliver up to 6.5 (n)m³/h for natural gas and 7.2kg/h for LPG.
- Filters are available on certain models mounted in the inlet connection.
- Both L and R models can be provided with either:
 - No UPSO
 - UPSO with manual reset (pull to reset)
 - UPSO with automatic reset: an interconnection hole allows a limited resetting flow

Construction

- Body: die cast aluminum
- Cover: steel
- Protection: high resistance cataphoresis coating
- Diaphragm and valve pads: NBR
- Springs: Galvanised steel
- Filter: Stainless steel
- Made in EU
- Compliance to standards
- Certain models are AENOR certified in accordance with UNE 60402-1 (2008)
- LPG models fully comply with EN13785
- Note that these products are not in the scope of Pressure Equipment Directive (PED 2014/68/UE) because the maximum pressure is less than 0.5bar



STB27L-052320AB

Code	Inlet Code	Inlet Connection	Outlet code	Outlet Connection	Inlet pressure (Pu) mbar	Outlet pressure (Pd) mbar	Flow rate LPG (kg/h)	Flow rate NG (m ³ /h)	Capacity kW	UPSO		Filter
										Type	Setting (mbar)	
STB27L												
052320AA	F2E	FEM-Rp3/4	F2E	FEM-Rp3/4	60-90 (150)	37	7.2	-	99	Manual	27.5	Yes
052320AB	F2E	FEM-Rp3/4	F2E	FEM-Rp3/4	25-200 (400)	21	-	6.5	66	Manual	12.5	Yes
052320AC	F2E	FEM-Rp3/4	F2E	FEM-Rp3/4	35-200 (400)	28	6	-	83	Manual	18	Yes
052320AD	F2E	FEM-Rp3/4	F2E	FEM-Rp3/4	60-200 (400)	50	-	6.5	66	Manual	40.5	Yes
052322AA	F2E	FEM-Rp3/4	F2E	FEM-Rp3/4	45-200 (400)	37	7.2	-	99	Auto	27.5	Yes
052322AB	F2E	FEM-Rp3/4	F2E	FEM-Rp3/4	25-200 (400)	21	-	6	61	Auto	12.5	Yes
052324AA	F2E	FEM-Rp3/4	F2E	FEM-Rp3/4	45-200 (400)	37	7.2	-	99	No	-	Yes
052324AB	F2E	FEM-Rp3/4	F2E	FEM-Rp3/4	25-200 (400)	21	-	6	61	No	-	Yes
STB27R												
052321AA	F2E	FEM-Rp3/4	F2E	FEM-Rp3/4	45-200 (400)	37	7.2	-	99	Manual	27.5	Yes
052321AB	F2E	FEM-Rp3/4	F2E	FEM-Rp3/4	25-200 (400)	21	-	6.5	66	Manual	12.5	Yes
052323AA	F2E	FEM-Rp3/4	F2E	FEM-Rp3/4	45-200 (400)	37	7.2	-	99	Auto	27.5	Yes
052323AB	F2E	FEM-Rp3/4	F2E	FEM-Rp3/4	25-200 (400)	21	-	6	61	Auto	12.5	Yes
052325AA	F2E	FEM-Rp3/4	F2E	FEM-Rp3/4	45-200 (400)	37	7.2	-	99	No	-	Yes
052325AB	F2E	FEM-Rp3/4	F2E	FEM-Rp3/4	25-200 (400)	21	-	6	61	No	-	Yes



BP2284
006829FC



BP2284
006829SD



Application

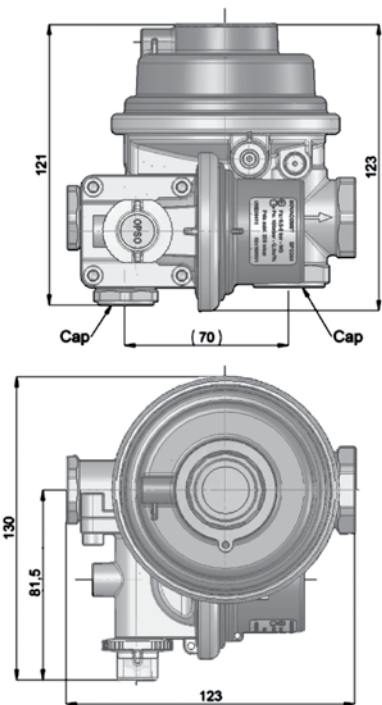
- These low pressure regulators with OPSO safety valve are mainly used in meter box installations. Thanks to their dual inlet and outlet connections they can be used in all types of installation geometry (in-line or at right angle).
- They are designed for both LPG in second stage applications and for NG in a 1 to 5bar network.
- They can be used with most types of gases including: Natural Gas, LPG, SNG and also other non-aggressive gases (air, nitrogen ...)

Construction

- Body and cover: die cast zinc alloy
- Diaphragm: NBR
- Valve pad: NBR

Features

- Compact design
- Dual inlet and outlet connections. The plugs which are factory fitted on one of these inlets and outlets can be unscrewed and moved so as to achieve the desired position.
- **OPSO:** Over Pressure Shut-Off safety device:
 - Visual indicator displays the open-close state.
 - Easy resetting: cap rotation allows pressure balancing before complete resetting.
 - Sealing wire (optional).
- **UPSO:** Under Pressure Shut-Off safety (optional)
- Push button easy resetting, independent from OPSO resetting.
- **PRV:** Pressure relief valve (optional)
- A limited capacity pressure relief valve (LRV) discharges thermal expansion over pressures and avoids any unnecessary OPSO triggering.
- Vent: the vent can be connected to a pipe (to be used when the regulator is installed in a not ventilated or safe area).
- Test point (optional): a “hose” type test point allows controlling the regulated pressure.
- Compliance to standards: This range is made according to EN16129 standards. Certain models are UNE60411 certified.



BP2284-006829SP

Code	Inlet code	Inlet Connection	Outlet code	Outlet Connection	Inlet pressure bar	Outlet pressure mbar	Flow rate Propane (kg/h)	Flow rate NG (m³/h)	Flow rate kW	PRV mbar	OPSO mbar	UPSO mbar	UPSO Reset type	Test Point Type	Lay Out	Cover	Vent Type - Position	Diaphragm Material
BP2284																		
006829BS	F3D	FEM-Rc1/2	F3E	FEM-Rc3/4	0,5-7	20 (16-25)	-	6	67	40	50	14	Push	-	In Line	STD-Green	G1/8-tube Ø6-6h	NBR
006829BZ	F3D	FEM-Rc1/2	F3E	FEM-Rc3/4	1-7	25 (23-27)	-	10	112	50	75	-	-	-	In Line	STD-Green	G1/8-tube Ø6-6h	NBR
006829DR*	F1D	FEM-G1/2RH	F1E	FEM-G3/4RH	1-5	55	-	10	112	80	125	-	-	-	Ang. ⊥	MB-Green	G1/8-tube Ø6-6h	NBR-R
006829DS*	F1D	FEM-G1/2RH	F1E	FEM-G3/4RH	1-5	100	-	10	112	200	250	-	-	-	Ang. ⊥	MB-Green	G1/8-tube Ø6-6h	NBR-R
006829DT*	F1D	FEM-G1/2RH	F1E	FEM-G3/4RH	1-5	150	-	10	112	250	300	-	-	-	Ang. ⊥	MB-Green	G1/8-tube Ø6-6h	NBR-R
006829ER*	F1D	FEM-G1/2RH	F1E	FEM-G3/4RH	1-5	55	-	6	67	80	125	-	-	Peterson valve	Ang. ⊥	MB-Green	G1/8-tube Ø6-6h	NBR-R
006829ES*	F1D	FEM-G1/2RH	F1E	FEM-G3/4RH	1-5	100	-	6	67	200	250	-	-	Peterson valve	Ang. ⊥	MB-Green	G1/8-tube Ø6-6h	NBR-R
006829ET*	F1D	FEM-G1/2RH	F1E	FEM-G3/4RH	1-5	150	-	6	67	250	300	-	-	Peterson valve	Ang. ⊥	MB-Green	G1/8-tube Ø6-6h	NBR-R
006829FC	F3D	FEM-Rc1/2	F3E	FEM-Rc3/4	0,45-2	37	10,5	-	145	75	100	29	Push	STD test point	In Line	STD-Green	G1/8-tube Ø6-6h	NBR
006829FD	F3D	FEM-Rc1/2	F3E	FEM-Rc3/4	0,45-2	37	10,5	-	145	75	100	29	Pull	STD test point	In Line	STD-Green	G1/8-tube Ø6-6h	NBR
006829LG	NAE	NUT-G3/4-JSC-SPHERE-DN16	N5J	NUT-G1.1/4RH-NF	0,3-2	37	10	-	138	75	135	29	Push	STD test point	Ang. ⊥	STD-Red	G1/8-tube Ø6-0h	NBR
006829MC	NAE	NUT-G3/4-JSC-SPHERE-DN16	N5J	NUT-G1.1/4RH-NF	0,5-2	30	10	-	138	75	135	29	Push	STD test point	In Line	STD-Red	G1/8-tube Ø6-0h	NBR
006829MT	F3D	FEM-Rc1/2	F3E	FEM-Rc3/4	0,3-2	37	10	-	138	75	135	-	-	STD test point	In Line	STD-Red	Giro	NBR
006829MV	F3D	FEM-Rc1/2	F3E	FEM-Rc3/4	0,3-2	37	10	-	138	75	135	29	Push	STD test point	In Line	STD-Red	Giro	NBR
006829SD*	F1D	FEM-G1/2RH	F1E	FEM-G3/4RH	1-5	21	-	10	112	45	70	-	-	-	Ang. ⊥	MB-Green	G1/8-tube Ø6-6h	NBR
006829SP*	F2D	FEM-G1/2RH	F1E	FEM-G3/4RH	1-5	21	-	6	67	45	70	-	-	Peterson valve	Ang. ⊥	MB-Green	G1/8-tube Ø6-6h	NBR

* UNE 60411 certified



BP4203
006850BZ



BP4203
006850MV



BP4203
006850SP

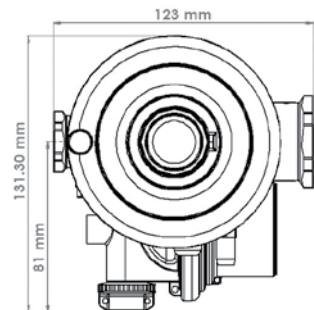
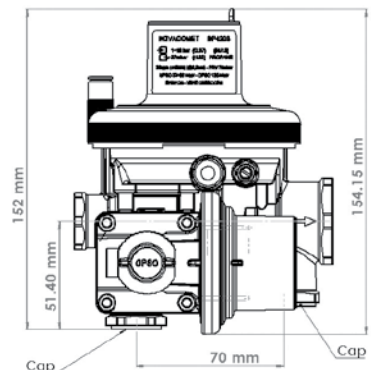


Application

- These double stage low to medium pressure regulators are ideal for both Natural Gas and LPG in domestic and commercial installations.
- They are designed to reduce a wide range of network distribution pressures to the final appliance pressure requirement. Very well suited for assembly in a meter box or on the line in a piped installation.
- Customisable design to meet local standards, gas types and different environments.
- Maximum declared capacities:
 - 25Nm³/h of Natural Gas up to AC5 according to EN88-2
 - 30kg/h of LPG according to EN16129

Features

- Excellent pressure control: dynamic compensation design ensuring that the outlet pressure remains very stable
- Heavy duty and robust construction
- Safeties: Over Pressure Shut-Off (OPSO), Under Pressure Shut-Off (UPSO), Excess Flow Valve, PRV (Pressure Relief Valve)
- Versatile cover configurations available: vent connections for pipe away, special meter box version, GIRO version to facilitate the orientation of the vent
- Versatile assembly features: different configurations possible ; in-line, right angle, U version
- A range of accessories available, including test points on inlet and outlet, cover cap with sealing facility to prevent tampering, complete set of connections including loose nuts



BP4203-006850MA

Construction

- Body and cover: die cast zinc alloy
- Main diaphragm: NBR (reinforced upon request)
- 1st stage and OPSO diaphragm: NBR
- Valve pads: NBR
- Complies with the European Pressure Equipment Directive (PED 2014/68/UE) and EN16129 (LPG models)

Code	Inlet code	Inlet Connection	Outlet code	Outlet Connection	Inlet pressure (Pu) bar	Outlet pressure (Pd) mbar	Flow rate Propane (kg/h)	Flow rate NG (m ³ /h)	Flow rate kW	PRV mbar	OPSO mbar	UPSO mbar	Test point	Lay Out	Cover	Vent Position
BP4203																
006850AA*	F1D	FEM-G1/2RH	F1F	FEM-G1	1 - 5	21	-	25	280	45	70	-	Y	In line	MB	G1/8-tube 06-6h
006850AB*	F1D	FEM-G1/2RH	F1F	FEM-G1	1 - 5	21	-	25	280	45	70	12	Y	In line	MB	G1/8-tube 06-6h
006850AC*	F1D	FEM-G1/2RH	F1F	FEM-G1	1 - 5	55	-	25	280	80	125	-	Y	In line	MB	G1/8-tube 06-6h
006850AD*	F1D	FEM-G1/2RH	F1F	FEM-G1	1 - 5	100	-	25	280	200	250	-	Y	In line	MB	G1/8-tube 06-6h
006850AE*	F1D	FEM-G1/2RH	F1F	FEM-G1	1 - 5	150	-	25	280	250	300	-	Y	In line	MB	G1/8-tube 06-6h
006850BZ	F1D	FEM-G1/2RH	F1F	FEM-G1	1 - 7	22 (20 ÷ 24)	-	25	280	50	75	-	-	In line	STD	G1/8-tube 06-6h
006850CZ	F1D	FEM-G1/2RH	F1F	FEM-G1	1 - 7	22 (20 ÷ 24)	-	25	280	50	75	14	-	In line	STD	G1/8-tube 06-6h
006850KA	F1D	FEM-G1/2RH	F1E	FEM-G3/4	0,5 - 5	21	-	25	280	35	50	-	Y	Ang. ∟	STD	G1/8-tube 06-6h
006850MA	F1D	FEM-G1/2RH	F1F	FEM-G1	1 - 16	37	30	-	414	75	135	34	Y	In line	STD	GIRO
006850MB	NAE	NUT-G3/4-JSC-SPHERE-DN16	N5J	NUT-G1.1/4RH-NF	0,5 - 1,5	37	30	-	414	75	135	34	Y	Ang. ∟	STD	GIRO
006850MV	F1D	FEM-G1/2RH	F1F	FEM-G1	0,5 - 1,5	37	30	-	414	75	135	34	Y	In line	STD	GIRO
006850SA*	E1E	MAL-G3/4RH	N5J	NUT-G1.1/4RH-NF	1 - 5	55	-	25	280	80	125	-	Y	Ang. ∟	MB	G1/8-TUBE 06-6h
006850SB*	E1E	MAL-G3/4RH	N5J	NUT-G1.1/4RH-NF	1 - 5	100	-	25	280	200	250	-	Y	Ang. ∟	MB	G1/8-TUBE 06-6h
006850SC*	E1E	MAL-G3/4RH	N5J	NUT-G1.1/4RH-NF	1 - 5	150	-	25	280	250	300	-	Y	Ang. ∟	MB	G1/8-TUBE 06-6h
006850SD	E1E	MAL-G3/4RH	N5J	NUT-G1.1/4RH-NF	1 - 5	300	-	25	280	420	500	-	Y	Ang. ∟	MB	G1/8-TUBE 06-6h
006850SP*	E1E	MAL-G3/4RH	N5J	NUT-G1.1/4RH-NF	1 - 5	21	-	25	280	45	70	12	Y	Ang. ∟	MB	G1/8-tube 06-6h
006850TA	F1D	FEM-G1/2RH	F1E	FEM-G3/4	0,5 - 5	21	-	25	280	35	50	-	-	Ang. ∟	STD	G1/8-tube 06-6h

* UNE60411 certified



CARABOX



CARABOXCI



SEMISUBLP



SURFACEMP



UURECESSMP



Application

- Meterboxes are designed for use with both 2 stage (750mbar) and 3 stage (75mbar) distribution systems. All comply fully to BS6400-3 requirements for gas meter boxes and regulators are manufactured to EN13785 and meters are to BS EN1359.
- Green caravan boxes are a light weight, impact, UV and flame resistant (BS 476-7:1997, Class 2) design made from Trovidur™ PVC. Ideal for post mounting adjacent to the home and come with emergency control valve that doubles as a disconnection isolation valve that eliminates the need for a separate valve connection kit.

Features

- The BP2204 regulator is purpose designed for Meter Box applications.
- Meters use the standard BS746 meter connections.
- All medium pressure regulators are vented externally to atmosphere.
- Medium pressure regulators come complete with OPSO/UPSO and limited Relief Valve.
- Low pressure regulators have UPSO.
- OPSO/UPSO safety devices are clearly marked and have a visible indicator.

New Central inlet Box and Inlet Fitting kit available

For more information visit: www.clesse.co.uk

Code	Inlet Connection	Outlet Connection	Inlet Pressure bar	Outlet Pressure mbar	Flow Rate (LPG)		LRV (Y/N)	OPSO (Y/N)	UPSO (Y/N)	Pressure Test Point (Y/N)
					kg/h	kW				
CARABOX	25mm PE	3/4" BSPT Female	0.6bar – 2bar	37mbar	10.5	145	Y	Y	Y	Y
CARABOXLP	25mm PE	3/4" BSPT Female	75mbar	37mbar	10.5	145	N	N	Y	Y
CARABOXCI	3/4" Swivel Female Centralised	3/4" BSPT Female	0.6bar – 2bar	37mbar	10.5	145	Y	Y	Y	Y
CARABOXCLP	3/4" Swivel Female Centralised	3/4" BSPT Female	75mbar	37mbar	10.5	145	N	N	Y	Y
The Carabox is a compact, ergonomic designed gas control box for metering caravan sites. The unique hinged front design ensures that the lid doesn't blow away in times of high winds										
SEMISUBMP	25mm PE Wask or Pushfit	3/4" BSPT Female	0.6bar – 2bar	37mbar	10.5	145	Y	Y	Y	Y
SEMISUBLP	25mm PE Wask or Pushfit	3/4" BSPT Female	75mbar	37mbar	10.5	145	N	N	Y	Y
Designed to be installed semi buried to give a discrete installation where surface mounted meter boxes aren't acceptable										
SURFACEMP	25mm PE	3/4" BSPT Female	0.6bar – 2bar	37mbar	10.5	145	Y	Y	Y	Y
SURFACECLP	25mm PE	3/4" BSPT Female	75mbar	37mbar	10.5	145	N	N	Y	Y
Designed for 'Bricks and Mortar' installations where a standard wall mounted box is acceptable										
UURECESSMP	25mm PE	3/4" BSPT Female	0.6bar – 2bar	37mbar	10.5	145	Y	Y	Y	Y
UURECESSLP	25mm PE	3/4" BSPT Female	75mbar	37mbar	10.5	145	N	N	Y	Y
Designed for the 'New Build Bricks and Mortar' houses where a recess is purposely built into the house for the meter box										



ECGC
ECGC01



ECGC
ECGC07



PCSB
PCSA593



PCSB
PCSB283



PCSB
PCSB302



ECGC

Application

- These double check filler valves are designed for the filling in liquid phase of horizontal or vertical LPG tanks. They are equipped with a protection cap.
- These valves are available in a variety of sizes and configurations to suit most LPG tanks (800-1000-1200 liters), both horizontal and vertical types.
- The double check function allows for safe and easy repair or maintenance, without removing the product from the tank. When the upper back check is removed, the lower back check valve is partially sealed, allowing for the upper body part to be replaced.

Features

- An extension unit is provided on some models designed especially for tanks which are buried underground or with difficult access when filling.
- Certain models are equipped with an overfilling prevention device, which will shut the valve when the tank reaches a pre-determined level (80%, 85%, 90%)
- The filling capacity is greater than 8m³/h of water under 4bar of differential pressure.
- Service temperature: -20°C to +65°C
- Service pressure: up to 25bar

Construction

- Double check valve
- According to EN13175, PED 2014/68/UE or TPED 2010-35-UE.
 - Body and main parts: brass according to EN1264 and EN12165
 - Sealing: NBR according to EN549
 - Float: foamed NBR

PCSB

Application

- These tank level gauges are designed to indicate the level (% value) of LPG in the reservoir.
- All models are compatible with the special extension unit, suitable for tanks buried underground allowing for more easy access to view the level reading on the dial.
- These level gauges are available in a variety of sizes and configurations to suit most LPG tanks (800-1000-1200 liters), both horizontal and vertical types.

Features

- The dial of the gauge can easily be removed allowing for maintenance, replacement or for the installation of the extension unit, without having to dismount and remove the gauge itself.
- Service temperature -20°C to +65°C
- Service pressure: up to 25bar

Construction

According to EN13799 and PED, art. 3.3

- Head: aluminium
- Gear housing: zinc alloy
- Centershaft, support tube: aluminium
- Gear, cross stud: stainless steel
- Float: foamed NBR

Code	Inlet code	Inlet connection	Outlet code	Outlet connection	Tank size and type	Extended body	OPD
ECGC							
ECGC01	E5J	MAL-1.1/4NPT	T1L	MAL-ACME 1.3/4	All H and V	-	-
ECGC01L	E5J	MAL-1.1/4NPT	T1L	MAL-ACME 1.3/4	All H and V	Y	-
ECGC07	E5J	MAL-1.1/4NPT	T1L	MAL-ACME 1.3/4	Φ 800 H	-	85%
ECGC07L	E5J	MAL-1.1/4NPT	T1L	MAL-ACME 1.3/4	Φ 800 H	Y	85%
ECGC08	E5J	MAL-1.1/4NPT	T1L	MAL-ACME 1.3/4	Φ 1000 H	-	85%
ECGC08L	E5J	MAL-1.1/4NPT	T1L	MAL-ACME 1.3/4	Φ 1000 H	Y	85%
ECGC09	E5J	MAL-1.1/4NPT	T1L	MAL-ACME 1.3/4	Φ 1200 H	-	85%
ECGC09L	E5J	MAL-1.1/4NPT	T1L	MAL-ACME 1.3/4	Φ 1200 H	Y	85%
ECGC30	E5J	MAL-1.1/4NPT	T1L	MAL-ACME 1.3/4	Φ 1000 H	-	90%
ECGC30L	E5J	MAL-1.1/4NPT	T1L	MAL-ACME 1.3/4	Φ 1000 H	Y	90%
ECGC31	E5J	MAL-1.1/4NPT	T1L	MAL-ACME 1.3/4	Φ 1200 H	-	90%
ECGC31L	E5J	MAL-1.1/4NPT	T1L	MAL-ACME 1.3/4	Φ 1200 H	Y	90%
ECGC14	E5J	MAL-1.1/4NPT	T1L	MAL-ACME 1.3/4	Φ 800 V	-	80%
ECGC14L	E5J	MAL-1.1/4NPT	T1L	MAL-ACME 1.3/4	Φ 800 V	Y	80%
ECGC15	E5J	MAL-1.1/4NPT	T1L	MAL-ACME 1.3/4	Φ 1000 V	-	80%
ECGC15L	E5J	MAL-1.1/4NPT	T1L	MAL-ACME 1.3/4	Φ 1000 V	Y	80%
ECGC37*	E5J	MAL-1.1/4NPT	T1L	MAL-ACME 1.3/4	Φ 1000 V	-	85%
ECGC16	E5J	MAL-1.1/4NPT	T1L	MAL-ACME 1.3/4	Φ 1200 V	-	80%
ECGC16L	E5J	MAL-1.1/4NPT	T1L	MAL-ACME 1.3/4	Φ 1200 V	Y	80%

* I1 marked according to TPED

Code	Tank size and type	Observation
PCSB (GAUGE)		
PCSB282	Φ 800 H	Fixation: 4 screws M6/25mm on 51.6mm bolt circle
PCSB283	Φ 1000 H	
PCSB284	Φ 1200 H	
PCSB295	Φ 1000 V	
PCSB (GAUGE) EXTENSION		
PCSB293	Suitable for all gauges	17 cm without reading dial
PCSB302		17 cm with reading dial
PCSA593		Reading dial



ECG Relief Valve
ECGE14



ECG Relief Valve
ECGS17



ECG Kit
ECGG024



Lower Check Valve
ECGD24



HP Relief Valve
004307



Relief Valves

Application

CLESSE ECG relief valves are designed to protect the above ground LPG tanks by releasing any over pressure (above the pre-determined factory setting) into the atmosphere, and ensuring that the pressure within the vessel remains within its limits.

Available with a wide variety of pre-set pressure settings and connection types to suit most tanks. Depending on the model, they may be fitted directly on the tank (conical threaded) or on a lower check valve (conical and parallel threaded).

CLESSE HP relief valves are mainly used on the piping in LPG installations. They are generally fitted on a pipe where gas or liquid LPG can be trapped between 2 valves (e.g. multicylinder manifold). They can also be used, downstream a high pressure regulator, to discharge overpressures due to debris on the seat, reliquefaction or icing.

Features

- ECG relief valves are CE marked.
- Equipped with a small hole to evacuate water deposits that can build up in the valve area, to avoid distortion in the pressure.

Construction

- Body: brass
- Seat pad: Brass + NBR
- Spring: stainless steel

Lower check valves

Application

- These lower check valves are designed to allow the replacement or dismantling of the safety relief valve without interrupting the gas supply in the LPG tank.

Features

- A complete range of valves available with a variety of connections, fully compatible and adapted to the range of safety relief valves

Construction

- Body: Brass
- Seat pad: Brass + Stainless steel

ECG Relief Valves

Code	Inlet code	Inlet connection	Setting (Pn) (bar)	Capacity with lower check valve (n)m ³ /min	Lower check valve corresponding	Certification
ECGE						
ECGE14	E6E	MAL-M18X1,5RH	14	9,6 @ 120% Pn	ECGE10	CE
ECGE15	E6E	MAL-M18X1,5RH	19,3	12,6 @ 120% Pn	ECGE10	
ECGG						
ECGG01	E5E	MAL-3/4NPT	19,3	53,4 @ 110% Pn	ECGD15	CE
ECGG04	E5E	MAL-3/4NPT	18	49,8 @ 110% Pn	ECGD15	
ECGG05	E5E	MAL-3/4NPT	17	46,2 @ 110% Pn	ECGD15	
ECGF						
ECGF04	E5F	MAL-1NPT	16	73,8 @ 110% Pn	ECGD17	CE
ECGF06	E5F	MAL-1NPT	17	78,6 @ 110% Pn	ECGD17	
ECGF27	E5F	MAL-1NPT	20	102 @ 120% Pn	ECGD17	
ECGF10	E6M	MAL-M36X2RH	17	78,3 @ 110% Pn	ECGD24	CE + NF
ECGF11	E6M	MAL-M36X2RH	18	82,9 @ 110% Pn	ECGD24	
ECGF13	E6M	MAL-M36X2RH	16	74,8 @ 110% Pn	ECGD24	CE
ECGF28	E6M	MAL-M36X2RH	20	100 @ 110% Pn	ECGD24	
ECGS						
ECGS03	E5J	MAL-1.1/4NPT	16	101,4 @ 110% Pn	-	CE
ECGS05	E5J	MAL-1.1/4NPT	17	107,4 @ 110% Pn	-	
ECGS11	E6N	MAL-M45X2RH	16	101,3 @ 110% Pn	ECGD25	CE + NF
ECGS12	E6N	MAL-M45X2RH	17	107,9 @ 110% Pn	ECGD25	
ECGS16	E6N	MAL-M45X2RH	8	75 @ 110% Pn	ECGD25	CE

ECG Kits

Code	Pressure relief valve code	Sealing code	Lower check valve code	Certification
ECGQ				
ECGQ022	ECGF13	PCSB213	ECGD24	CE + NF
ECGQ023	ECGF10	PCSB213	ECGD24	
ECGQ024	ECGF11	PCSB213	ECGD24	
ECGR200	ECGS11	PCSB214	ECGD25	
ECGR210	ECGS12	PCSB214	ECGD25	CE
ECGR220	ECGS16	PCSB214	ECGD25	

HP relief Valves for Piping

Code	Inlet code	Inlet connection	Setting (Pn) (bar)
HP RELIEF VALVE			
004300	E2D	MAL-R1/2	3
004301	E2C	MAL-R3/8	3
004302	E2D	MAL-R1/2	18
004303	E2C	MAL-R3/8	18
004304AA	E5B	MAL-1/4NPT	17

Lower Check Valves

Code	Inlet code	Inlet connection	Outlet code	Outlet connection	Certification
ECGE					
ECGE10	E5D	MAL-1/2NPT	F6E	FEM-M18X1,5RH	-
ECGD					
ECGD15	E5J	MAL-1.1/4NPT	F5E	FEM-3/4NPT	-
ECGD17	E5J	MAL-1.1/4NPT	F5F	FEM-1NPT	-
ECGD24	E5J	MAL-1.1/4NPT	F6M	FEM-M36X2RH	CE + NF
ECGD25	E5L	MAL-2NPT	F6R	FEM-M45X2RH	

Service Valves – Liquid Withdrawal Valves

ECGX – ECGJ



SERVICE VALVE
ECGX49



LIQUID WITHDRAWAL VALVE
ECGJ015



LIQUID TRANSFER ANGLE VALVE
ECGK10



Service Valves

Application

- These service valves are designed for the withdrawal of gas in vapour phase, and allow for the opening and closing of the valve by a hand wheel. All of the valves are equipped with an excess flow device, which will stop the gas flow in case of leakage in the piping downstream.
- These valves are available in a variety of sizes and configurations to suit most LPG tanks with 3/4" NPT or 1" 1/4 NPT connections, both horizontal and vertical types, and provide suitable connection to the first stage tank regulators.
- Certain models are equipped with a built-in safety relief valve, which is enabled to discharge LPG in liquid phase at 14bar. This is mainly useful for underground tanks not subjected to be fire involved contrary to traditional over ground tanks where a high capacity pressure relief valve is required.
- These valves integrate an excess flow which shut-off the flow over 40kg/h of LPG in vapor phase (between 42 and 54kg/h) or around 80kg/h (between 75 and 85kg/h), depending on the model.
- Service pressure: 25bar
- Service temperature: -20°C to +65°C

Features

- Certain models provide the following features:
 - built-in safety relief valve designed to evacuate excess liquid in case of volume expansion caused by overfill (protected by a plastic cap),
 - level gauge to control the level of the tank when being filled (suitable if not pre-equipped with an Overfilling prevention device),
 - gauge connection (with plug to cover when not in use) to allow for a pressure gauge to be easily connected (1/4" NPT).

Construction

- Body: brass according to EN 12165
- Handle: aluminum
- Seals: NBR according to EN549

Liquid Withdrawal Valves

Application

- These valves are designed to withdraw any LPG in liquid phase which remains at the bottom of the tank. Used primarily when the tank must be fully emptied prior to being removed. All models are equipped with an excess flow device.
- They are equipped with a brass cap to protect the thread and prevent any dust to enter the valve. This cap has to be removed before connecting the liquid withdrawal angle valve before tank emptying operation.

Features

- Service pressure: 25bar
- Service temperature: -20°C to +65°C
- Flow rate 3m³/h or 5m³/h of liquid at 1bar

Construction

- Body: brass according to EN12165
- Handle: aluminum
- Seals: NBR according to EN549

Liquid Transfer Angle Valves

Application

- These specially designed angle valves with manual open-close handle, are connected to the outlet of the liquid withdrawal valve, transferring LPG in liquid phase from the tank to another vessel.
- They are designed to:
 - Firstly, operate the mechanical connection with gas tight between the two liquid withdrawal valves
 - Secondly, open the liquid LPG low manually unscrewing the handle.

Features

- Service pressure: 25bar
- Service temperature: -20°C to +65°C
- Certain models include excess flow valve (intervention flow rate over 3 or 5m³/h of liquid at 1bar).
- On certain models, a ball valve is mounted on the outlet, allowing to easily open or close the liquid flow during the operation.

Construction

- Body: brass according to EN12165
- Handle: aluminum
- Seals: NBR according to EN549

Code	Inlet code	Inlet connection	Outlet code	Outlet connection	EFV setting (m ³ /h)	Relief Valve	Level control	Gauge connection	Outlet ball valve
Service Valve									
ECGH17*	E5E	MAL-3/4NPT	E6B	MAL-M20X1,5RH	40	-	Y	Y	-
ECGX45	E5E	MAL-3/4NPT	E1P	MAL-G3/4RH-NF-TANK	40	-	Y	-	-
ECGX451*	E5E	MAL-3/4NPT	E1P	MAL-G3/4RH-NF-TANK	40	-	Y	Y	-
ECGX57*	E5E	MAL-3/4NPT	E1P	MAL-G3/4RH-NF-TANK	40	-	Y	-	-
ECGX44	E5J	MAL-1.1/4NPT	E1P	MAL-G3/4RH-NF-TANK	40	-	Y	-	-
ECGX441	E5J	MAL-1.1/4NPT	E1P	MAL-G3/4RH-NF-TANK	80	-	Y	Y	-
ECGX49	E5J	MAL-1.1/4NPT	E1P	MAL-G3/4RH-NF-TANK	40	Y	Y	-	-
ECGX50	E5J	MAL-1.1/4NPT	E1P	MAL-G3/4RH-NF-TANK	40	Y	-	-	-
ECGX56	E5J	MAL-1.1/4NPT	E1P	MAL-G3/4RH-NF-TANK	80	Y	-	-	-
Liquid Withdrawal Valves									
ECGJ15	E5E	MAL-3/4NPT	F9F	FEM-26×1,814 M	3	-	-	-	-
ECGJ09	E5J	MAL-1.1/4NPT	F9F	FEM-26×1,814 M	5	-	-	-	-
Liquid Transfer Angle Valves									
ECGK02	E1N	MAL-G7/8RH	T1L	MAL-ACME 1.3/4	5	-	-	-	-
ECGK08	E6D	MAL-M26X1,5RH	T1L	MAL-ACME 1.3/4	5	-	-	-	-
ECGK10	E6D	MAL-M26X1,5RH	T1L	MAL-ACME 1.3/4	-	-	-	-	Y
ECGK20	E5E	MAL-3/4NPT	T1L	MAL-ACME 1.3/4	-	-	-	-	Y

* P marked according to TPED



8325
8325102



8346
8346111



Application

- These tank coupling stations are designed to manage multi tank installations to control and optimise the supply of LPG to the final installation or through a piped network.

Functional Conception

- The tank coupling stations are assembled and tested at our factory.
- They integrate all of the vital components from the inlet manifold connections through to the outlet valve connection.
- A double line (or stream) can be installed as a “By-Pass”. This is to facilitate the maintenance operation without interrupting the gas supply. Furthermore, this will provide additional safety and will protect the system in case of a malfunction or lack of supply from the main service line. It can also provide additional flow capacity if required by the installation.

Design

Manifold reservoir inlet valves opposite to outlet will prevent impurities (liquid, dirt, oil ...) from entering the system and potentially damaging the regulators. This design allows also for an optimal vaporisation of the LPG in low temperature conditions.

Precise control and accuracy of the outlet pressure at all range of inlet pressure (guaranteed up to 16bar).

Upstream and downstream manometers facilitate operating and control of the system.

8325 model is a mini tank coupling station with a 40kg/h flow capacity. It is assembled inside a reinforced fiber glass box S300.

8346 model, is assembled inside a protected metallic cabinet, offers a 150kg/h flow capacity.

Other configurations are available upon request with monitored gas regulation line and OPSO solutions.

Quality Commitment

The station is delivered with a protective filming and carton and secured on a wooden pallet, ready to be installed (Plug&Play).

An individual test certificate is provided with identification for total traceability.

Traceability labels:

- Part Code
- Date
- Batch N°
- Model Name
- Connection type and size

Certificate of Conformity to the different leak and performance tests.

Code	Inlet connexion	Inlet connection	Outlet connexion
Inlet Connectors for 8325			
PP04520	N6A	NUT-M20x1,5RH	For copper brazing dia.14mm
Outlet Connectors for 8325			
CD02016	NAE	NUT-G3/4-JSC-SPHERE-DN16	For copper brazing dia.18mm
CD02027			For steel welding dia.21,3
CD02061			For HDPE dia.20x3
CD02064			For HDPE dia.32x3
Inlet Connectors for 8346			
PP15811	N5D	NUT-G1/2RH-NF	For copper brazing dia.14mm
PP15815			For copper brazing dia.15mm
PP037400			For copper brazing dia.16mm
CD02004			For copper brazing dia.18mm
CD02021			For steel welding dia.21.3
Outlet Connectors for 8346			
CD02018	NAJ	NUT-G1.1/4-JSC-SPHERE-DN25	For copper brazing dia.28mm
CD02028			For steel welding dia.33.7
CD02065			For HDPE dia.20x3
CD02062			For HDPE dia.32x3
CD02066			For HDPE dia.40x3.7
P47730233			For HDPE dia.63x5.8

Code	Inlet code	Inlet connection	Outlet code	Outlet connection	Inlet pressure (Pu) bar	Outlet pressure (Pd) bar	Flow rate (LPG)		Pressure limiter bar	Type mbar
							kg/h	kW		
8346										
8346101	E1D	MAL-G1/2RH	E8J	MAL-G1.1/4-JSC-CONE-DN25	2-16	1,5	150	2070	1,8	Single line
8346102					2-16	1,5	150	2070	1,8	Double line
8346111					3,5-16	1-3	150	2070	4	Single line
8346112					3,5-16	1-3	150	2070	4	Double line
8325										
8325101	E6B	MAL-M20x1,5RH	E8E	MAL-G3/4-JSC-CONE-DN16	2-16	1,5	40	552	1,8	Single line
8325102					2-16	1,5	40	552	1,8	Double line
8325111					3,5-16	1-3	40	552	4	Single line
8325112					3,5-16	1-3	40	552	4	Double line



Low & Medium Pressure Diaphragm Meters
P038000



Medium Pressure Diaphragm Meters
P038007



High Pressure Diaphragm Meter
P038131 + PULSE EMETTOR BF38121



High Pressure Diaphragm Meter
P038131



Application

- These gas meters can be used with LPG in vapour phase, Natural Gas or SNG.
 - They measure volume of gas (Vm) in m³/h.
 - Low and medium pressure diaphragm gas meters may be used up to 1,5bar, depending on the model.
 - Rotary gas meters may be used up to 16bar.
 - The conversion to volume in "normal" conditions (0°C – 1013mbar) is:
 $V_n = V_m \times 273 \times (\text{Pabs}) / (1013 \times (273 + T_m))$
 - The conversion to volume in "standard" conditions (15°C – 1013mbar) is:
 $V_s = V_m \times 288 \times (\text{Pabs}) / (1013 \times (273 + T_m))$
- where:
- Vm is the measured volume
 - Pabs is the absolute pressure (ambient pressure + relative pressure) in mbar.
 - Tm is the temperature of the gas in °C.

For example, in the following table, the most common conversion factors are indicated:

	30-37mbar / 15°C	500mbar / 15°C	1,5bar / 15°C
From operating conditions to normal conditions $V_n = V_m \times \dots$	0,98	1,42	2,35
From operating conditions to standard conditions $V_s = V_m \times \dots$	1,03	1,49	2,48

Pulsar
BFG4G6



Connector For Gas Meter
IIRGC4227



Features

- A complete range of meter fittings are available.
- Certain models are pre-equipped with a low frequency pulser for remote reading applications.
- G4 and G6 models can be retro fitted with low frequency pulser (can be ordered separately).

Code	Type	Connection code	Connection	Service pressure (bar)	Start-up flow rate (n)m3/h	Minimum flow rate (n) m3/h	Maximum flow rate (n)m3/h	Equivalent maximum flow rate kg/h of LPG @30-37 mbar / 15°C	Equivalent maximum flow rate kg/h of LPG @500 mbar / 15°C	Equivalent maximum flow rate kg/h of LPG @1,5 bar / 15°C	Connection distance (mm)	Pulse value (m3)	Weight (kg)	Puler
LOW AND MEDIUM PRESSURE DIAPHRAGM METERS														
P038211	G1,6 BP	E6Q	MAL-M30X2RH	0.1	-	0.016	2.5	6	-	-	110	0.01	1.7	-
P038001	G2,5 BP/MP	EAF	MAL-G1-JPC-CAL20	0.5	-	0.025	4	9	13	-	110	0.01	1.7	BFG4G6 optional (simple low)
P038000	G4 BP/MP	EAF	MAL-G1-JPC-CAL20	0.5	-	0.04	6	13	19	-	110	0.01	1.7	BFG4G6 optional (simple low)
P038002	G6 BP/MP	EAJ	MAL-G1.1/4-JPC-CAL32	0.5	-	0.06	10	22	32	-	250	0.01	3.3	BFG4G6 optional (simple low)
P0380001	G4 BP/MP	EAF	MAL-G1-JPC-CAL20	0.5	-	0.04	6	13	19	-	110	0.01	1.7	BFG4I optional (simple low frequency)
P0380021	G6 BP/MP	EAJ	MAL-G1.1/4-JPC-CAL32	0.5	-	0.06	10	22	32	-	250	0.01	3.3	BFG6I optional (simple low frequency)
P038003	G10 BP/MP	EAJ	MAL-G1.1/4-JPC-CAL32	0.5	-	0.1	16	35	51	-	250	0.1	4.9	IN-Z64 pre-installed (simple low frequency)
P038004	G16 BP	EAL	MAL-G2-JPC-CAL50	0.2	-	0.16	25	55	-	-	280	0.1	5.8	
P038005	G16 MP	B1L	FFLG PN16-DN50	0.5	-	0.16	25	55	80	-	280	0.1	8.6	
P038006	G25 BP	EAL	MAL-G2-JPC-CAL50	0.2	-	0.25	40	88	-	-	335	0.1	8.7	
P038007	G25 MP	B1L	FFLG PN16-DN50	0.5	-	0.25	40	88	128	-	335	0.1	14.5	
P038009	G40 BP/MP	B1P	FFLG PN16-DN80	0.5	-	0.4	65	143	208	-	430	0.1	30	
P038010	G65 BP/MP	B1P	FFLG PN16-DN80	0.2	-	0.65	100	220	-	-	500	0.1	31	
P038011	G100 BP/MP	B1Q	FFLG PN16-DN100	0.5	-	1	160	352	512	-	675	1	105	
HIGH PRESSURE DIAPHRAGM METERS														
P038131	G2,5HP	E1J	MAL-G1.1/4-RH	2	0.006	0.016	4	8	12	19	110	0.01	1.9	BF38121 optional
P038130	G4HP	E1J	MAL-G1.1/4-RH	2	0.006	0.016	6	12	18	28	110	0.01	1.9	BF38121 optional

Code	Inlet code	Inlet connection	Outlet code	Outlet connexion	Type
BRASS FITTINGS FOR GAS METER					
IIRGC4227	N8J	NUT-G1.1/4-JPC-CAL32	E1E	MAL-G3/4RH	Linear



Brass Fittings for Copper Brazing
CD02035



Brass Fittings for Copper Brazing
CD02040



Brass Fittings for Copper Brazing
CD02044



Brass Fittings for Copper Brazing
CD02046



Brass Fittings for Copper Brazing
CD03115



Brass Fittings for Steel Welding
CD02048



Brass Fittings for Steel Welding
CD03127



Flange
743716



Application

- The metering accessories are designed to connect gas meters with gas installations.

Code	Inlet code	Inlet connection	Outlet code	Outlet connexion	Type
Brass Fittings					
Z060001	F6Q	FEM-M30X2RH	E5D	MAL-1/2NPT	Linear
CD03103	N8F	NUT-G1-JPC-CAL20	EAF	MAL-G1-JPC-CAL20	Elbow
Brass Fittings for Copper Brazing					
CD02035	N8F	NUT-G1-JPC-CAL20	K3L	PIPE-22-CTS	Linear
CD02036	N8F	NUT-G1-JPC-CAL20	K3M	PIPE-28-CTS	Linear
CD02037	N8J	NUT-G1.1/4-JPC-CAL32	K3M	PIPE-28-CTS	Linear
CD02038	N8J	NUT-G1.1/4-JPC-CAL32	K3N	PIPE-35-CTS	Linear
CD02039	N8L	NUT-G2-JPC-CAL50	K3T	PIPE-54-CTS	Linear
CD02040	N8F	NUT-G1-JPC-CAL20	K3L	PIPE-22-CTS	Elbow
CD02041	N8F	NUT-G1-JPC-CAL20	K3M	PIPE-28-CTS	Elbow
CD02042	N8J	NUT-G1.1/4-JPC-CAL32	K3M	PIPE-28-CTS	Elbow
CD02043	N8J	NUT-G1.1/4-JPC-CAL32	K3N	PIPE-35-CTS	Elbow
CD02044	N8F	NUT-G1-JPC-CAL20	K3L	PIPE-22-CTS	Linear + Fixing lug
CD02045	N8F	NUT-G1-JPC-CAL20	K3M	PIPE-28-CTS	Linear + Fixing lug
CD02046	N8F	NUT-G1-JPC-CAL20	K3L	PIPE-22-CTS	Elbow + Fixing lug
CD02047	N8F	NUT-G1-JPC-CAL20	K3M	PIPE-28-CTS	Elbow + Fixing lug
CD03115	E2K	MAL-R1.1/2	K3S	PIPE-42-CTS	Linear with nut integrated for assembly
Brass Fittings for Steel Welding					
CD02048	N8F	NUT-G1-JPC-CAL20	K5B	PIPE-26,9-STEEL-SPW	Linear
CD02049	N8F	NUT-G1-JPC-CAL20	K5C	PIPE-33,7-STEEL-SPW	Linear
CD02050	N8J	NUT-G1.1/4-JPC-CAL32	K5C	PIPE-33,7-STEEL-SPW	Linear
CD02051	N8J	NUT-G1.1/4-JPC-CAL32	K5D	PIPE-42,4-STEEL-SPW	Linear
CD02052	N8L	NUT-G2-JPC-CAL50	K5F	PIPE-60,3-STEEL-SPW	Linear
CD03127	E2K	MAL-R1.1/2	K5E	PIPE-48,3-STEEL-SPW	Linear

Code	Inlet code	Inlet connection	EXT. DIAMETER (mm)	FIXING HOLES (Size x Nbr / Distance mm)	Thickness (mm)	Bolts + Screws
Flanges Type EN1092-1 (11.B)						
743716	B1L	FIXED-FLANGE-PN16-DN50	165	M16 x 4 / 125	18	M16 x 130
743720	B1N	FIXED-FLANGE-PN16-DN65	185	M16 x 4 / 145	18	M16 x 130
743724	B1P	FIXED-FLANGE-PN16-DN80	200	M16 x 8 / 160	20	M16 x 140
743732	B1Q	FIXED-FLANGE-PN16-DN100	220	M16 x 8 / 180	20	M16 x 140



Thermostatic Head
803710



Thermostatic Head
VPD00C29



Control Valve
VBG95B01



Application

- These products are mainly used in poultry, pig and green-house farming to control the room temperature generated by LPG or Natural Gas heaters.
- They can be used in other similar temperature control applications. For basic installations a thermostatic head without capillary tube and sensor, is proposed.
- The sensing element is integrated in the thermostatic head.
- For regulators used typically in poultry application, please refer to pages 20, 31, 46 and 47.

Features

- Very simple and reliable system
- No electricity required
- Accurate control of the temperature
- Temperature range: 15 to 38°C marked on the head

Functioning

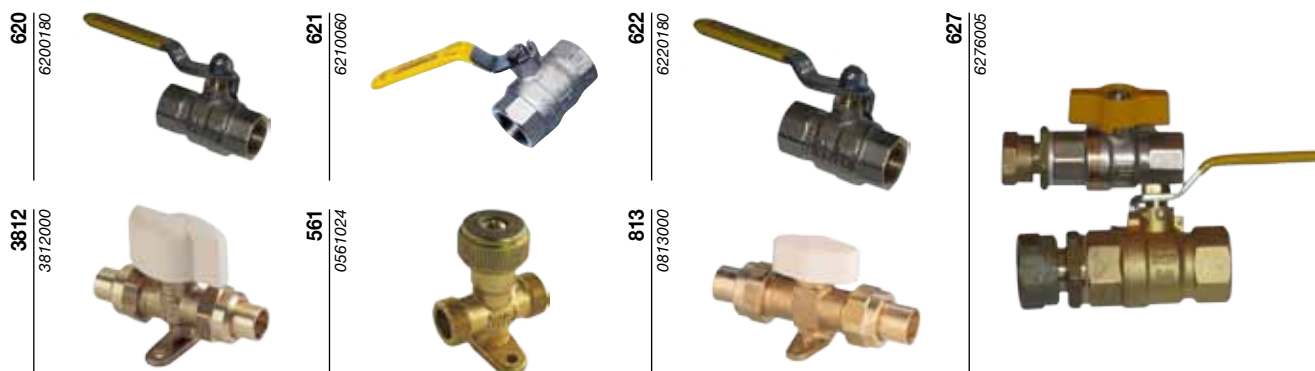
- The liquid in the sensor expands proportionally to the room temperature.
- The liquid expansion is transmitted to the thermostatic head via a capillary tube.
- The thermostatic head pushes on the control valve, proportionally to the difference between the set temperature and the room temperature. Then, the gas flow rate is regulated proportionally to this difference of temperature.
- In order to maintain the burners lighted, a pilot flow rate is given either by a pilot regulator or by a calibrated hole drilled in the control valve.

Code	Head connexion	Description	Observation
Thermostatic Head And Sensor			
803710	NUT M28	Thermostatic head with integrated liquid sensor	Graduation from 15 to 38°C NUT M28
VPD00C29		Thermostatic head with remote liquid sensor 1,25 meters	
VPD00C30		Thermostatic head with remote liquid sensor 8 meters	
VPD00C33		Thermostatic head with remote liquid sensor 20 meters	

Code	Head connexion	Inlet code	Inlet connection	Outlet code	Outlet connection	Description
Control Valve						
808653	MALE M28	F1C	FEM-G3/8RH	F1C	FEM-G3/8RH	Control valve, 90° elbow
VBG95B01						Control valve, straight
VPD00C59		Control valve, straight with 12mm copper adaptor				
VPD00C94		Control valve, straight with 12mm copper adaptor - 25/100° by-pass				
VPDBWA31		Control valve, straight with 12mm copper adaptor - 49/100° by-pass				

Ball and Pad Valves

620 – 621 – 622 – 627 – 812 – 3812 – 813



Ball Valves

Application

- Ball valves are ideal in both Natural Gas and LPG domestic and commercial installations (1st, 2nd and 3rd families according to EN437). They can also be used in any non-aggressive gas installations (SNG, nitrogen, air, bio methane ...)

Construction

- Body and ball: brass
- Ball seat: PTFE
- O-ring: NBR
- Handle: zinc plated steel with yellow elastomer protection

Pad Valves

Application

- Used mainly for LPG, can also be used with Natural Gas and SNG.
- Pressure: 20mbar (8"wc) to 20bar (290psig)
- 3812 valve is provided with a "child" safety. The hand wheel must be pushed before rotation.
- These valves have a robust brass bracket for wall fixation.

Construction

- Body: brass
- Pad: NBR
- Handle: reinforced plastic resin
- NF certified

Code	Connection code	Connection type	Service pressure (bar)	Observation
620				
6200120	F2B	FEM-Rp1/4	80	Comply to EN 331 standard and Regulation (EU) No 305/2011 - Construction Products Service temperature: -20°C/+60°C
6200130	F2C	FEM-Rp3/8	80	
6200140	F2D	FEM-Rp1/2	50	
6200160	F2E	FEM-Rp3/4	50	
6200180	F2F	FEM-Rp1	50	
6200200	F2J	FEM-Rp1.1/4	50	
6200220	F2K	FEM-Rp1.1/2	50	
6200260	F2L	FEM-Rp2	40	
621				
6210020	F5B	FEM-1/4NPT	17,2 (250 psi)	Comply to UL 125 standard. UL listed 61 WL Service temperature: -20°C/+55°C
6210030	F5C	FEM-3/8NPT	17,2 (250 psi)	
6210040	F5D	FEM-1/2NPT	17,2 (250 psi)	
6210060	F5E	FEM-3/4NPT	17,2 (250 psi)	
6210080	F5F	FEM-1NPT	17,2 (250 psi)	
6210100	F5J	FEM-1.1/4NPT	17,2 (250 psi)	
6210120	F5K	FEM-1.1/2NPT	17,2 (250 psi)	
6210160	F5L	FEM-2NPT	17,2 (250 psi)	
622				
6220120	F3B	FEM-RC1/4	80	Comply to EN 331 standard and Regulation (EU) No 305/2011 - Construction Products Service temperature: -20°C/+60°C
6220130	F3C	FEM-RC3/8	80	
6220140	F3D	FEM-RC1/2	50	
6220160	F3E	FEM-RC3/4	50	
6220180	F3F	FEM-RC1	50	
6220200	F3J	FEM-RC1.1/4	50	
6220220	F3K	FEM-RC1.1/2	50	
6220260	F3L	FEM-RC2	40	

Code	Inlet code	Inlet Connection	Outlet code	Outlet Connection	Service pressure (bar)	Handle	Observation
627							
6276004	N5D	NUT-G1/2RH-NF	F1D	FEM-G1/2RH	20	Butterfly	Comply to EN 331 standard and Regulation (EU) No 305/2011 - Construction Products Service temperature: -20°C/+60°C
6200192	N6A	NUT-M20x1,5RH	F1D	FEM-G1/2RH	20	Butterfly	
6276005	N5N	NUT-G3/4RH-NF-LINE	F1E	FEM-G3/4RH	20	Lever	

Code	Connection code	Connection type	Butane flow capacity @ 28mbar (kg/h)	Butane flow capacity @ 112mbar (kg/h)	Propane flow capacity @ 37mbar (kg/h)	Propane flow capacity @ 148mbar (kg/h)	Propane flow capacity @ 1,5bar (kg/h)	Propane flow capacity @ 3bar (kg/h)	Service pressure (bar)	Accessories	Observation
812											
0812000*	E6B	MAL-M20x1,5RH	1.5	4	1.5	4	20	40	20	2x12mm Braz Fit	Comply to NF M88-771 standard
0812023*	E6B	MAL-M20x1,5RH								-	
3812											
3812000*	E6B	MAL-M20x1,5RH	1.5	4	1.5	4	20	40	20	2x12mm Braz Fit	Comply to NF M88-771 standard
3812023*	E6B	MAL-M20x1,5RH								-	
813											
0813000*	E1E	MAL-G3/4RH	4	8	4	8	40	70	20	2x18mm Braz Fit	Comply to NF M88-771 standard
0813002*	E1E	MAL-G3/4RH								-	
561											
0561024	E6B	MAL-M20x1,5RH	1	2	1	2	12	20	20	-	

* NF certified

Solenoid Valves and Gas Leak Detectors

4844HP – 4853BP – LD73 – KT73



4844HP
484400



4853BP
4853002



LD73
GPLS7305B



Solenoid Valves

Application

These solenoid valves are generally connected to gas leak detectors or to a kitchen extractor fan and are designed to automatically cut-off the gas supply when for instance:

- gas has been detected, due to leakage, or forgetting to close a valve
- ventilation system is down
- failure in the electrical supply

Construction

- 4844HP: brass body
- 4853BP: aluminium body

Features

- These are normally closed (closed in case of absence of an electrical current).
- 2 types of solenoid valves are available:
 - high pressure with automatic reset
 - low pressure with manual or automatic reset
- 4853BP solenoid valves are conform to CE Directives (GAS APPLIANCE DIRECTIVE 2009/142/EC and PRESSURE EQUIPMENT DIRECTIVE 2014/68/UE) and are classified ATEX II 3G and II 3G.
- Service temperature: -20°C/+60°C (4853BP) and -10°C/+55°C (4844HP).
- Protection Index: IP65
- 220V – 50 Hz
- A range of sizes to cover small and large flow rates
- Different connection options available
- Replacement coils can be supplied separately

Gas Leak Detectors

Application

- These products are installed indoor to prevent against gas leakages.
- Gas detector installation can be done with a "single" detector or by a "master" and several "slave" detectors.

Features

- These products comply with the most severe standards and use the last generation sensor technology.
- They can be semi-flush mounted, using the optional support GSPE7390B.
- Certain models can provide:
 - 3 levels of gas concentration indication by buzzer and LED
 - an alarm memory
 - an appliance replacement warning
 - a fault indicator
 - a relay for Normally Open or Normally Closed solenoid valves
 - a Normally Open solenoid valve Rp1/2 or Rp3/4

Technical Characteristics

- Supply voltage: 230V (50 or 60 Hz)
- Relay contact capacity (if any): 8 (2) A / 250V 6 (2) A/250V when semi-flush mounted
- Protection category: IP42
- IP40 when semi-flush mounted
- Insulation: Double insulation (Class 2)
- Operating temperature: -10°C to +40°C
- Operation humidity: 90% RH max
- Alarm level: 10% LEL (Lower Explosive Limit)
- Sensor warm-up time: 1 minute
- Sensor life time: 5 years
- Buzzer sound level: 85dB at 1m
- Maximum BUS connections (if any): 1 master unit, 14 slave units
- Maximum BUS connection length: 1km with 2 wires of 1.5mm² section
- Reference standards for CE marking: LVD EN50194, EMC EN 50270, CEI 216-8 (semi-flush mounted)
- Maximum BUS connection length: 1km with 2 wires of 1.5mm² section

Code	Type of gas	Single-Master-Slave	Bus	Relay	Solenoid	Concentration Levels	Replacement Warning	Fault Indication	Alarm Memory
LD73									
GPLS7305B	LPG or SNG	Single-Slave	YES	NO	NO	3	YES	YES	YES
GPLR7306B	LPG or SNG	Single-Master	YES	YES	NO	3	YES	YES	YES
GPLR7307B	LPG or SNG	Single	NO	YES	NO	1	NO	YES	NO
GNS7305B	Natural Gas	Single-Slave	YES	NO	NO	3	YES	YES	YES
GNR7306B	Natural Gas	Single-Master	YES	YES	NO	3	YES	YES	YES
GNR7307B	Natural Gas	Single	NO	YES	NO	1	NO	YES	NO
KT73 (LD73 + SOLENOID VALVE)									
GPL7306K34	LPG or SNG	Single	NO	YES	Rp 3/4-500 mbar	1	NO	YES	NO
GPL7306K12	LPG or SNG	Single	NO	YES	Rp1/2-500 mbar	1	NO	YES	NO

Code	Inlet/Outlet code	Inlet/Outlet connection	Capacity LPG (kg/h) for 5% loss of charge @ 1 bar	Electrical connection	Observation	Accessories	Solenoid + connectors for maintenance
4844HP - 10 KG/H							
4844000	E6B	MAL-M20x1,5RH	10	220 V - 50 hertz	MOP 2,1 bar Normally closed Automatic reset	2x14 mm Braz Fit	4844120 (220V)
4844001				24 V - 50 hertz			4844124 (24V)
4844015				220 V - 50 hertz			2x15 mm Braz Fit
4844010	F1D	FEM-G1/2RH				-	
4844HP - 40 KG/H							
4844100	E6B	MAL-M20x1,5RH	40	220 V - 50 hertz	MOP 2,1 bar Normally closed Automatic reset	2x14 mm Braz Fit	4844120 (220V)
4844101				24 V - 50 hertz			4844124 (24V)
4844115				220 V - 50 hertz			2x15 mm Braz Fit

Code	Inlet code	Inlet Connection	Capacity LPG (kg/h) for 30 mbar loss of charge	Electrical connection	Observation	Solenoid + connectors for maintenance
4853BP - MANUAL RESET						
4853001	F2D	FEM-Rp1/2	6	220 V - 50 hertz	MOP 500 mbar Manual reset	4853220 (220V)
4853002	F2E	FEM-Rp3/4	18			
4853003	F2J	FEM-Rp1.1/4	54			
4853004	F2L	FEM-Rp2	86			
4853BP - AUTOMATIC RESET						
4853101	F2D	FEM-Rp1/2	6	220 V - 50 hertz	MOP 360 mbar Pressure test point Automatic reset	4853221 (220V)
4853102	F2E	FEM-Rp3/4	18			
4853103	F2J	FEM-Rp1.1/4	54			
4853104	F2L	FEM-Rp2	86			
						4853222(220V)



ROAI
3820101



3814
3814010



492L
0043944B



ROAI Valve

Application

The Integrated Automatic Excess Flow Valve (ROAI) is used mainly in centralised gas installations (LPG, SNG, NG) inside buildings and installed before each cooking or kitchen appliance (stoves, ovens ...), and is designed to cut off the flow of gas if the flexible hose downstream is accidentally disconnected or damaged. The valve can also be closed manually.

Features

- Designed and manufactured according NF EN29-140
- Working temperature -5°C to +60°C
- Maximum working pressure: 0.2bar
- Excess Flow valve is activated at a flow of between 1m³/h and 2.5m³/h.
- Equipped with a wall mounting bracket, easy to fix with sealing caps for screws

Construction

- Body: brass according to EN 12165
- Handle and Fixing support: reinforced plastic resin
- O-rings: NBR according to EN549

3814 UPSO Valves

Application

- This UPSO safety valve is mainly used to protect one single gas appliance, supplied by Natural Gas, LPG or SNG. It provides 2 key functions:
 - manually operated shut-off valve,
 - manually resettable shut-off valve which stops the flow of gas when:
 - the upstream gas flow is too low (lack of gas supply, clogged filter ...)
 - an excess of flow occurs (rupture of downstream pipe or hoses, oversized appliance ...)

Features

- Filter in the inlet connection
- Simple manual reset by turning the knob
- Possible lock-sealing of the knob in closed position

* designed according to NF E29-134

Construction

- Body and cover: die cast zinc alloy
- Diaphragm: NBR according to EN549
- Seat Pad: NBR according to EN549
- NF certified according to NF E29-134

492 Medium Capacity OPSO Valves

Application

- These OPSO valves are used in LPG, Natural Gas or SNG installations. They can also be used with other non-aggressive gases (air, nitrogen ...).
- They protect the installation from over pressures generated by the malfunctioning of the regulator (debris on the seat, ice blocking ...) or a re-liquefaction of LPG in the pipes.
- Low pressure models (492L) are generally installed upstream from the regulator and a sensing pipe is connected to the downstream pressure (external sensing).
- High pressure models (492H) are installed either upstream from the regulator (external sensing) or downstream from the regulator (internal sensing).
- These valves can handle flow rate capacity of up to 100kg/h of LPG at 2bar supply pressure, and 50kg/h at 0.75bar

Features

- Operation indicator
- Easy reset system, sealable
- Test point (optional)
- Vent protection

Construction

- Body and cover: die cast zinc alloy
- Diaphragm: NBR according to EN549
- Valve pad: NBR according to EN549

Code	Inlet code	Inlet connection	Outlet code	Outlet connection	Inlet pressure (Pu) mbar	Flow rate (LPG)		Flow rate (NG)		UPSO mbar	Observation
						kg/h	kW	m ³ /h	kW		
3814											
3814004	F2C	FEM-Rp3/8	F2C	FEM-Rp3/8	19-50	1,25	17	1	11	8-14	none
3814002*	E1D	MAL-G1/2RH	E1D	MAL-G1/2RH	20-25	1,25	17	1	11	8-14	Supplied with a pin sealing
3814010	E1D	MAL-G1/2RH	E1D	MAL-G1/2RH	19-50	1,25	17	1	11	8-14	none

* NF certified

Code	Inlet code	Inlet connection	Outlet code	Outlet connection	Service pressure mbar	EFV			Observation
						m ³ /h	kW (LPG)	kW (NG)	
ROAI									
3820001*	E1D	MAL-G1/2RH	E1D	MAL-G1/2RH	20-25-37	1,0 - 2,5	14-35	11-28	Without cap
3820101*	E1D	MAL-G1/2RH	E1D	MAL-G1/2RH	20-25-37	1,0 - 2,5	14-35	11-28	With cap
3820201*	E1D	MAL-G1/2RH	E1D	MAL-G1/2RH	20-25-37	1,0 - 2,5	14-35	11-28	Nickel plated

* NF certified

Code	Inlet code	Inlet connection	Outlet code	Outlet connection	Service pressure bar	Impulse	Impulse connection	OPSO mbar or bar	
492H									
004393AA	F3D	FEM-Rc1/2	F3D	FEM-Rc1/2	16	Internal	-	2,5 (2-4) bar	
004393AB	F3E	FEM-Rc3/4	F3E	FEM-Rc3/4			-	2,5 (2-4) bar	
004393AC	F5D	FEM-1/2NPT	F5D	FEM-1/2NPT			-	2,5 (2-4) bar	
004393AD	F5E	FEM-3/4NPT	F5E	FEM-3/4NPT			-	2,5 (2-4) bar	
004393AH	F3E	FEM-Rc3/4	F3E	FEM-Rc3/4			-	0,9 (0,53-0,95) bar	
004393CA	F3D	FEM-Rc1/2	F3D	FEM-Rc1/2			-	1,2 (0,4-2) bar	
004393BA	F3D	FEM-Rc1/2	F3D	FEM-Rc1/2		External	PLUG G1/8	1,4 (0,4-2) bar	
004393AE	F5E	FEM-3/4NPT	F5E	FEM-3/4NPT				2,5 (2-4) bar	
004393AF	F5E	FEM-3/4NPT	F5E	FEM-3/4NPT				1,0 (0,4-2) bar	
004393AG	F3E	FEM-Rc3/4	F3E	FEM-Rc3/4				0,9 (0,53-0,95) bar	
492L									
004394AA	F3D	FEM-Rc1/2	F3D	FEM-Rc1/2		16	External	PLUG G1/8	100 (80-140) mbar
004394AB	F3E	FEM-Rc3/4	F3E	FEM-Rc3/4	100 (80-140) mbar				
004394AC	F5D	FEM-1/2NPT	F5D	FEM-1/2NPT	100 (80-140) mbar				
004394AD	F5E	FEM-3/4NPT	F5E	FEM-3/4NPT	100 (80-140) mbar				
004394BA	F3D	FEM-Rc1/2	F3D	FEM-Rc1/2	38 (35-80) mbar				

Caravan Regulators and Automatic Changeovers

466CV – 5175CV – 175FC



466CV
000893AS



175FC
0175FC2



175FC + 466CV
mounted



RC-BCN
P910108



RC-BCN
P910109



RC-INT-FR
P032200



RC-FR-INT
P071100



Application & Features

- We provide a comprehensive range of equipment for caravans and camping cars to meet the EN1949 standard. According to this standard:
- Regulators and automatic changeovers are designed to operate with all types of gas (**Butane, Propane, LPG**)
- The maximum flow rate is 1.5kg/hr.
- The nominal outlet pressure must be 30mbar
- Both regulators and automatic changeovers must be equipped with a system to limit over pressure to 150mbar
- Regulators must be fixed to the wall, inside the cylinder cabinet or directly on the cylinder itself.
- The automatic changeovers should be wall mounted.

Code	Inlet code	Inlet connection	Outlet code	Outlet connection	Inlet pressure (Pu) bar	Outlet pressure (Pd) mbar	Pdi bar	Flow rate (LPG)		Filter	Limited Relief Valve mbar	Test Point
								kg/h	kW			
466CV												
000893AL	E6B	MAL-M20x1,5RH	K4C	PIPE-8-OG-COPPER	0,3-16	30	-	1,5	21	Y	150	Y
000893AH	E6B	MAL-M20x1,5RH	K4D	PIPE-10-OG-COPPER	0,3-16	30	-	1,5	21	Y	150	Y
000893AF	F2B	FEM-Rp1/4	K4D	PIPE-10-OG-COPPER	0,3-16	30	-	1,5	21	-	150	Y
000893AS	E6B	MAL-M20x1,5RH (ELBOW)	K4D	PIPE-10-OG-COPPER	0,3-16	30	-	1,5	21	Y	150	Y
000893AT	E6B	MAL-M20x1,5RH	F2D	FEM-Rp1/2	0,3-16	30	-	1,5	21	Y	150	Y
000880AH	E6B	MAL-M20x1,5RH	F3D	FEM-Rc1/2	0,4-1,04	30	-	8	110	Y	-	-
5175CV												
5175CV5	E6B	MAL-M20x1,5RH	K4C	PIPE-8-OG-COPPER	0,3-16	30	0,5	1,5	21	Y	90	-
5175CV6	E6B	MAL-M20x1,5RH	K4D	PIPE-10-OG-COPPER	0,3-16	30	0,5	1,5	21	Y	90	-
175FC												
0175FC2	E6B	MAL-M20x1,5RH	N6A	NUT-M20x1,5RH	1-16	800	-	1,5	21	Y	-	-
0175F01	Q2A	FEM-0,880-14NGO-POL	N6A	NUT-M20x1,5RH	1-16	800	-	8	110	-	-	-

Code	Inlet code	Inlet connection	Outlet code	Outlet connection
RC-BCN				
P910108	N6A	NUT-M20x1,5RH	K4C	PIPE-8-OG-COPPER
P910109	F2D	FEM-G1/2RH	K4D	PIPE-10-OG-COPPER
RC-INT-FR				
P032200	N1E	NUT-W20LH-UNI-G/G	L2A	MAL-NF21,7LH
	N4B	NUT-W21,8LH-R5DINKLF		
	P1D	POLM-5/8LH-R2-SN		
P032700	P2D	POLS-USA-R6-SN	L2A	MAL-NF21,7LH
RC-FR-INT				
P071100	N2C	NUT-NF21,8LH-R5NF	L1A	MAL-W20LH-UNI
P071200			L4B	MAL-W21,8LH-DIN/KL
P071300			Q1A	FEM-G5/8LH-POL-BS



Hose Nozzle
005451



Hose Nozzle
005425



Hose Nozzle
005600



Hose Connectors
005461



Hose Connector
004020



Hose Connectors
005720



Hose Connectors
005700



Hose Connector
005730



Hose Nozzle
P592008



Hose Connectors
005402XZ



Hose Clips and Clamps
HOC5/8-MOOCCLIP



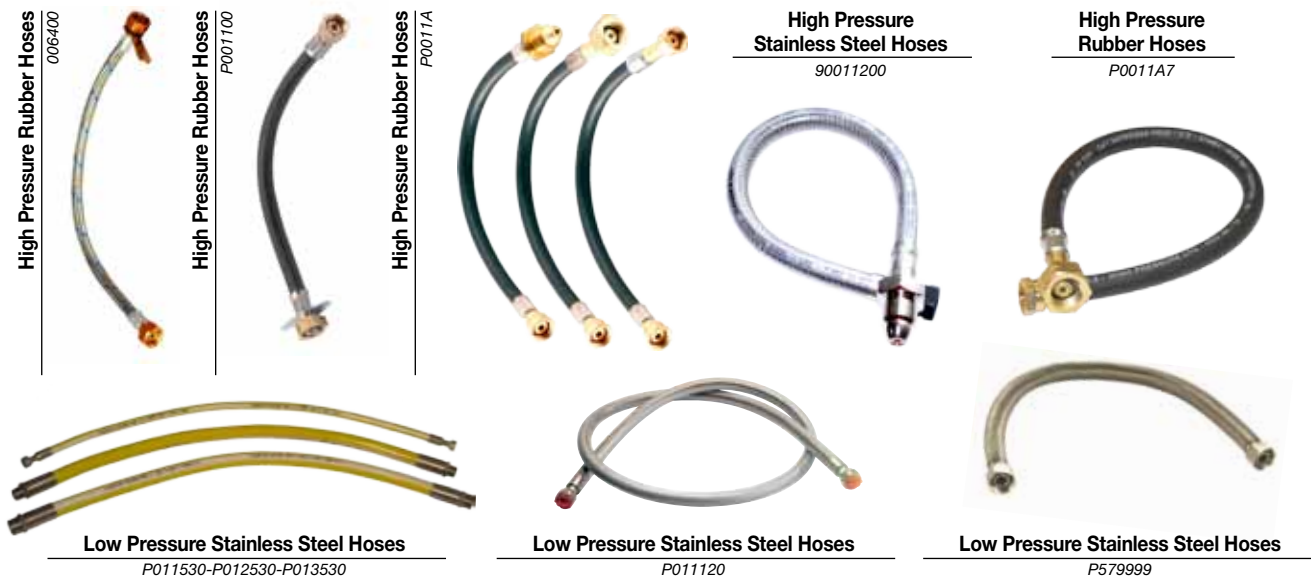
Application

- RPGT6400 are high pressure hoses (pigtailes) used to connect LPG cylinders to manifolds, automatic changeovers or multicylinder systems.
- P032 is a low pressure tube used to connect low pressure regulators to gas appliances.

Connectors

Code	Inlet code	Inlet connection	Outlet code	Outlet connexion	Observation
Hose Nozzle					
P202002	E1B	MAL-G1/4RH	Z1D	HNZ-10-EN	-
005402XZ	E2B	MAL-R1/4	Z1D	HNZ-10-EN	-
005403XZ	F1B	FEM-G1/4RH	Z1D	HNZ-10-EN	-
005420XZ	E1C	MAL-G3/8RH	Z1D	HNZ-10-EN	-
005451	F1C	FEM-G3/8RH	Z1D	HNZ-10-EN	-
P602001	E6B	MAL-M20x1,5RH	Z1D	HNZ-10-EN	-
005425	E2D	MAL-R1/2	Z1D	HNZ-10-EN	-
005502	F1D	FEM-G1/2RH	Z1D	HNZ-10-EN	-
005600	N1B	NUT-W20LH-25x13,5	Z1D	HNZ-10-EN	-
005602	N7C	NUT-G3/8LH-DIN	Z1D	HNZ-10-EN	-
PP04500	N6A	NUT-M20x1,5RH	Z1D	HNZ-10-EN	With rubber sealing
005303	K4D	PIPE-10-OG-COPPER	Z4C	HNZ-10-BS-HP	-
005462	E2B	MAL-R1/4	Z4A	HNZ-6,8-BS-HP	-
005461	E2B	MAL-R1/4	Z4B	HNZ-8,3-BS-HP	-
005460	E2C	MAL-R3/8	Z4C	HNZ-10-BS-HP	-
P592008	K3C	PIPE-8-CTS	Z1D	HNZ-10-EN	-
P592010	K3D	PIPE-10-CTS	Z1D	HNZ-10-EN	-
P592012	K3E	PIPE-12-CTS	Z1D	HNZ-10-EN	-
P592014	K3F	PIPE-14-CTS	Z1D	HNZ-10-EN	-
Hose Connector					
005700	Z1D	HNZ-10-EN	Z1D	HNZ-10-EN	Y
005720	Z1D	HNZ-10-EN	Z1D	HNZ-10-EN	T
005730	Z1D	HNZ-10-EN	Z1D	HNZ-10-EN	X
004020	Z1D	HNZ-10-EN	Z1D	HNZ-10-EN	T with flow control adjustment

Code	Description
Hose Clips and Clamps	
HOC9/16	Double ear Clip to suit Hose 4.8-6.3mm ID
HOC5/8	Double ear Clip to suit Hose 8-10.5mm ID
0990013	Wormdrive Clamp to suit P032 tubing (Nbr = 2)
MOOCCLIP	Wormdrive Clamp (Jubilee) to suit Hose 4.8-10.5mm ID



Rubber Hoses

Code	Inlet code	Inlet connection	Outlet code	Outlet connection	Service Pressure (bar)	Length (m)	Observation
RGT6400-High Pressure Hoses							
006400			N1B	NUT-W20LH-25x13.5		0.5	
006401			E2B	MAL-R1/4		0.5	
006425						0.6	
006402						0.7	
006426						0.9	
006404			N1B	NUT-W20LH-25x13.5	16	1	UNI-7140
006415						1.2	
006405						1.5	
006406						2	
P0011-High Pressure Hoses							
P0011A0	P1A	POLM-5/8LH-BS-HN	N6A	NUT-M20X1,5RH		0,508 (20")	BS 3212 type 2 Service life up to 5 years
P0011A1			P1A	POLM-5/8LH-BS-HN		0,838 (33")	
P0011A5						0,508 (20")	
P0011A7						0,508 (20")	
P0011A8	N3A	NUT-M21,8LH-30,5BS	N6A	NUT-M20X1,5RH		0,838 (33")	Non return / excess flow valve inlet side
GPT002	P1A	POLM-5/8LH-BS-HN	N6A	NUT-M20X1,5RH	17.5	0,508 (20")	BS 3212 type 2 Service life up to 5 years Straight through
GPT003						0,838 (33")	
GPT020	N6A	NUT-M20X1,5RH				0,508 (20")	
GPT022						0,838 (33")	
GPT025	P1A	POLM-5/8LH-BS-HN	P1A	POLM-5/8LH-BS-HN		0,838 (33")	
GPT030						0,508 (20")	
GPT080	P1C	POLM-5/8LH-SA-R6-BN	N6A	NUT-M20X1,5RH		0,508 (20")	
GPT081			P1C	POLM-5/8LH-SA-R6-BN		0,508 (20")	
P11-P14-P30-C30-High Pressure Hoses							
P001100*						0.35	NF M88-768 Service life up to 5 years
P001400*						0.45	
P003000*						0.70	
P003024						1.5	
P003023						2.0	
P003050						2.5	
P001103						0.35	
P003042						0.7	
P003046						1.5	
P003045						5	
P003035						10	
P003036						25	

* NF certified

Stainless Steel Hoses

Code	Inlet code	Inlet connection	Outlet code	Outlet connection	Service Pressure (bar)	Length (m)	Observation
CLESSINOX-High Pressure Hoses							
P011100*						0.35	NF M88-780 Unlimited Service life
P011400*	N2C	NUT-NF21,8LH-R5NF	N6A	NUT-M20X1,5RH	20	0.45	
P013000*						0.70	
P011120	N6A	NUT-M20X1,5RH	G6B	MALE-M20x1,5		0.45	
P8426076	N6A	NUT-M20X1,5RH	N5D	NUT-G1/2RH-NF		2.5	
RCRT-High Pressure Stainless Steel Hoses							
UU90013200						0.45	EN 14800 Unlimited Service life Non return / excess flow valve inlet side
UU90011200						0.5	
UU90012200	P1A	POLM-5/8LH-BS-HN	N6A	NUT-M20X1,5RH	20	0.75	EN 14800 Unlimited service life Straight through
UU90011400			P1C	POLM-5/8LH-SA-R6-BN		0.5	
UU90012400						0.75	
Low Pressure Hoses							
P011510*	N5D	NUT-G1/2RH-NF	N5D	NUT-G1/2RH-NF		0.5	NF D36-123 Unlimited Service life PVC protection
P011520*						0.75	
P011530*						1.0	
P011550*	N5D	NUT-G1/2RH-NF	N5D	NUT-G1/2RH-NF	2	1.5	
P011560*						2.0	
P012530*						1.0	
P012550*	E2E	MAL-R3/4	E2E	MAL-R3/4		1.5	
P012560*						2.0	
P013530						1.0	
P013550	E2F	MAL-R1	E2F	MAL-R1		1.5	
P013560						2.0	
P579999	N5D	NUT-G1/2RH-NF	N5D	NUT-G1/2RH-NF	0.5	0.5	
P580001						0.75	
P580033	N5N	N5N - NUT-G3/4RH-NF-LINE	N5N	N5N - NUT-G3/4RH-NF-LINE	0.5	0.5	
P580035						0.75	

Low Pressure Tubing

P032100



Rubber Tubing

Code	Dimension	Service Pressure	Length (m)	Observation
RCRT-High Pressure Tubing				
RCRT4.8HPT	ø int. 4.8	17.5bar	50	BS 3212 type 2 High pressure Orange
RCRT6HPS	ø int. 6.3			
RCRT8HPS	ø int. 8.0			
P032-Low Pressure Tubing				
P030201*	ø int. 6 - ø ext. 12 for HNZ 10 connection	200mbar	1	XP D36-110 Supplied with 2 clamps
P030203*	ø int. 6 - ø ext. 12 for HNZ 10 connection		1.5	
P043805*	ø int. 6 - ø ext. 12 for HNZ 10 connection		2	
P032100	ø int. 6 - ø ext. 12 for HNZ 10 connection		25	
RH-Low Pressure Tubing				
RH40/08	ø int. 8.0	50mbar	50	BS 3212 type 1 Low pressure Black
RH40/09	ø int. 9.0			
RH40/10.5	ø int. 10.5			

* NF certified

Hoses and Fittings

LPG Brass Fittings



Male-Male Adaptors
P490110



Cylinder Connection
005902



Male-Female Adaptors
P920101



Male-Male Adaptors
005952



Back Check Valve
005659



Code	Inlet code	Inlet connection	Outlet code	Outlet connexion	Service pressure (bar)	Observation
Cylinder Connection						
005900	N1B	NUT-W20LH-25x13,5	E2B	MAL-R1/4	16	
005902	N1A	NUT-W20LH-25-UNI	E2B	MAL-R1/4		
005905	N2A	NUT-21,8LH-27x14-G/G	E2B	MAL-R1/4		
P402000	P1A	POLM-5/8LH-BS-HN	E2B	MAL-R1/4		with filter
P402001	N2C	NUT-NF21,8LH-R5NF	E2B	MAL-R1/4		with rubber seal + filter
P130000	N6A	NUT-M20x1,5RH	E2B	MAL-R1/4		with filter
P130001	N6A	NUT-M20x1,5RH	E2B	MAL-R1/4		with rubber seal + filter
005910G	P2C	POLS-USA-R2-SN	E2B	MAL-R1/4		

Code	Inlet code	Inlet connection	Outlet code	Outlet connexion	Service pressure (bar)
Male-Male Adaptors					
005950	E2B	MAL-R1/4	L1A	MAL-W20LH-UNI	16
005951	E2C	MAL-R3/8	L1A	MAL-W20LH-UNI	
005952	E2D	MAL-R1/2	L1A	MAL-W20LH-UNI	
P356132	E1C	MAL-G3/8RH	E6B	MAL-M20x1,5RH	
P480101	E6B	MAL-M20x1,5RH	E6B	MAL-M20x1,5RH	
P490110	E6B	MAL-M20x1,5RH	L2A	MAL-NF21,7LH	
P530102	E6B	MAL-M20x1,5RH	E1B	MAL-G1/4RH	
P100814	E6B	MAL-M20x1,5RH	E1D	MAL-G1/2RH	
P100914	E1D	MAL-G1/2RH	E1D	MAL-G1/2RH	
P100410	E1D	MAL-G1/2RH	L2A	MAL-NF21,7LH	
P810406	E1D	MAL-G1/2RH	E1E	MAL-G3/4RH	
P820606	E1E	MAL-G3/4RH	E1E	MAL-G3/4RH	
90352000	E1F	MAL-G1"RH	E1E	MAL-G3/4RH	
1317100	E5F	MAL-1"NPT	E1F	MAL-G1"RH	

Code	Inlet code	Inlet connection	Outlet code	Outlet connexion	Service pressure (bar)	Feature
Male-Female Adaptors						
P920101	E6B	MAL-M20x1,5RH	F6J	FEM-M20x1,5RH	20	with rubber seal
P002800	L2A	MAL-NF21,7LH	F6J	FEM-M20x1,5RH		
P117041	E1D	MAL-G1/2RH	N6A	NUT-M20x1,5RH		
P117042	E1D	MAL-G1/2RH	N5D	NUT-G1/2RH-NF		
P255011	E6B	MAL-M20x1,5RH	F9D	FEM-NF21,8LH		
P131061	E1E	MAL-G3/4RH	F6J	FEM-M20x1,5RH		
P453000	E1E	MAL-G3/4RH	N5N	NUT-G3/4RH-NF-LINE		
P477302	E1D	MAL-G1/2RH	N5N	NUT-G3/4RH-NF-LINE		
P477301	E2E	MAL-R3/4	N5N	NUT-G3/4RH-NF-LINE		
3820222	E6B	MAL-M20x1,5RH	F1D	FEM-G1/2RH		
005659	F3B	FEM-Rc1/4	E2B	MAL-R1/4	7	Back check valve

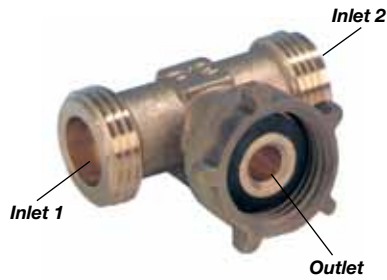
Code	Inlet code	Inlet connection	Outlet code	Outlet connexion	Service pressure (bar)
Compression Fitting for Copper					
005000	E2C	MAL-R3/8	K1D	PIPE-10-37FLARE-COLL	16
005002	E2C	MAL-R3/8	K1F	PIPE-14-37FLARE-COLL	
005010	E2D	MAL-R1/2	K1E	PIPE-12-37FLARE-COLL	
005011	E2D	MAL-R1/2	K1F	PIPE-14-37FLARE-COLL	
005033	E2B	MAL-R1/4	K1F	PIPE-14-37FLARE-COLL	



Sealings for Connections
P400000



T Threaded Connectors
P001201



Female-Female Adaptors
P900101



Nuts
P450100



Threaded Taps
P340100



Compression Fitting FORX
005000



Thread sealant
041671



Leak Detector
7302004



Threaded Taps
P450200



Sealings For Connections
P320000

Code	Description
Thread Sealant	
041671	50 ml bottle
041671AC	250 ml bottle
Leak Detector Fluid	
7302004	150 ml spray
7302008	400 ml spray

Code	Suitable for:		Material / color	Service pressure (bar)
	Inlet code	Inlet connection		
Sealings for Connections				
P100000	N6A	NUT-M20x1,5RH	rubber / orange	20
P200000	N2A N2C	NUT-NF21,8LH-27x14-G/G NUT-NF21,8LH-R5NF	rubber / black	
P400000	N5N	NUT-G3/4RH-NF-LINE	rubber / orange	
P241000	N5E	NUT-G3/4RH-TANK	rubber / black	
006105	N1E	NUT-W20LH-25-UNI-G/G	rubber / black	
006107	N4D	NUT-W21,8LH-30x21KBI	rubber / black	
006117	F1B F2B	FEM-G1/4RH FEM-RP1/4	rubber / black	
P310000	N5D	NUT-G1/2RH-NF	fiber resin / blu	1,75
P320000	N5N	NUT-G3/4RH-NF-LINE	fiber resin / blu	

Code	Inlet code	Inlet connection	Outlet code	Outlet connection	Service pressure (bar)	Observation
Female-Female Adaptors						
P900101	N6A	NUT-M20x1,5RH	N6A	NUT-M20x1,5RH	20	With rubber seals
P900102	N5D	NUT-G1/2RH-NF	N5D	NUT-G1/2RH-NF		
P500110	N6A	NUT-M20x1,5RH	L2A	MAL-NF21,7LH		
P008800	F1D	FEM-G1/2RH	N5N	NUT-G3/4RH-NF-LINE		
P008900	F1E	FEM-G3/4RH	N5N	NUT-G3/4RH-NF-LINE		

Code	Code corresponding connection	Connection
Nuts		
P450100	N6A	NUT-M20x1,5RH
P240000	N2C	NUT-NF21,8LH-R5NF
P158040	N5D	NUT-G1/2RH-NF
040702	N1A	NUT-W20LH-25-UNI
P830600	N5N	NUT-G3/4RH-NF-LINE

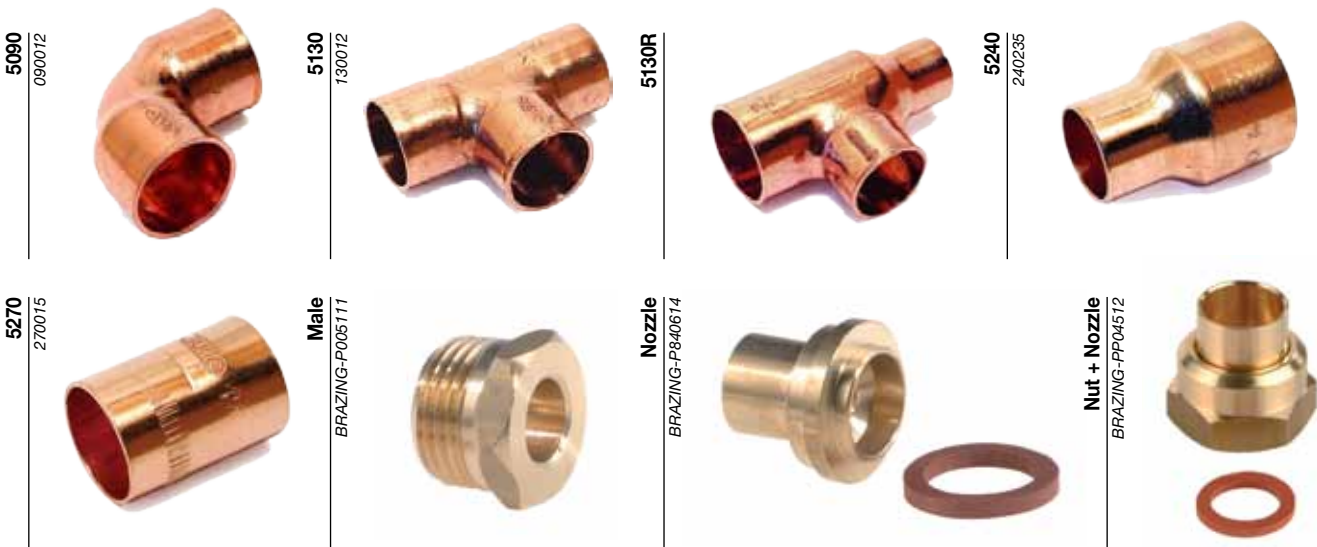
Code	Code corresponding connection	Inlet connection	Service pressure (bar)	Observation
Threaded Taps				
P340100	N6A	NUT-M20x1,5RH	20	with rubber seal
P450200	N6A	NUT-M20x1,5RH		with rubber seal + strap
P690100	E6B	MAL-M20x1,5RH		with rubber seal
ECGB96	N5N	NUT-G3/4RH-NF-LINE	1,75	with fiber seal

Code	Inlet 1		Inlet 2		Outlet		Service pressure (bar)
	Inlet code	Inlet connection	Inlet code	Inlet connection	Outlet code	Outlet connection	
T Threaded Connectors							
P001201	L2A	MAL-NF21,7LH	E6B	MAL-M20x1,5RH	N2C	NUT-NF21,8LH-R5NF	20
P001300	N6A	NUT-M20x1,5RH	E6B	MAL-M20x1,5RH	-	FEM-M10x1,5RH	
P560112	K3E	PIPE-12-CTS	K3E	PIPE-12-CTS	E6B	MAL-M20x1,5RH	
P015700	E6B	MAL-M20x1,5RH	E6B	MAL-M20x1,5RH	N6A	NUT-M20x1,5RH	
P015720*	E6B*	MAL-M20x1,5RH	E6B*	MAL-M20x1,5RH	N6A	NUT-M20x1,5RH	

* with non return valve integrated

Hoses and Fittings

Copper and Brass Fittings for Brazing



Copper Brazing Fittings

- Copper fittings can be used for LPG, NG, SNG, biomethane and other non-aggressive gas (nitrogen, air...) installations and also for potable water, heating and cooling installations.



- European quality copper
- Logo
- Diameter marking for better identification

Service pressure up to 25bar depending on brazing material used.
Large range: from 6mm to 108mm
In conformity with EN1254-1

Brass Brazing Fittings

- Brass fittings can be used for LPG, NG, SNG, biomethane and other non-aggressive gas (nitrogen, air ...)
- In conformity with EN12164 and 12165 standards.
- For all available dimensions please contact us.

Code	Inlet code	Inlet connection	Outlet code	Outlet connection	Service pressure (bar)	Observation
NUT + NOZZLE for BRAZING						
PP04508	N6A	NUT-M20x1,5RH	K3C	PIPE-8-CTS	20	with rubber seal
PP04510			K3D	PIPE-10-CTS		
PP04512			K3E	PIPE-12-CTS		
PP04515			K3G	PIPE-15-CTS		
PP04520			K3F	PIPE-14-CTS		
PP08312	N5N	NUT-G3/4RH-NF-LINE	K3E	PIPE-12-CTS		
PP08314			K3F	PIPE-14-CTS		
PP08316			K3J	PIPE-16-CTS		
PP08318			K3K	PIPE-18-CTS		
PP83022			K3L	PIPE-22-CTS		
PP15811	N5D	NUT-G1/2RH-NF	K3F	PIPE-14-CTS	1.75	with fiber / resin seal
PP15815			K3G	PIPE-15-CTS		
P037400			K3J	PIPE-16-CTS		
PP38901			K3L	PIPE-22-CTS		
PP38902			K3M	PIPE-28-CTS		
PP18408	-	NUT-G1"RH-NF-LINE	K3M	PIPE-28-CTS		

Code	Suitable for:		Outlet code	Outlet connection	Service pressure (bar)	Observation
	Inlet code	Inlet connection				
NOZZLE for BRAZING						
P410108	N6A	NUT-M20x1,5RH	K3C	PIPE-8-CTS	20	With rubber seal
P410110			K3D	PIPE-10-CTS		
P410112			K3E	PIPE-12-CTS		
P410114			K3F	PIPE-14-CTS		
P840614			K3F	PIPE-14-CTS		
P840615	N5N	NUT-G3/4RH-NF-LINE	K3G	PIPE-15-CTS		
P840616			K3J	PIPE-16-CTS		
P840618			K3K	PIPE-18-CTS		

Code	Inlet code	Inlet connection	Outlet code	Outlet connection	Service pressure (bar)
MALE for BRAZING					
P005107	E6B	MAL-M20x1,5RH	K3C	PIPE-8-CTS	20
P005111			K3D	PIPE-10-CTS	
P005113			K3E	PIPE-12-CTS	
P005115			K3F	PIPE-14-CTS	
P004211	L2A	MAL-NF21,7LH	K3E	PIPE-12-CTS	
P004215			K3F	PIPE-14-CTS	

Code	Internal diameter
Copper brazing 90° elbow Female Female - 5090	
090012	12
090014	14
090015	15
090016	16
090018	18
090022	22
090028	28
090032	32
Copper brazing equal tee Female Female Female - 5130	
130012	12
130014	14
130015	15
130016	16
130018	18
130022	22
130028	28
130032	32

Other sizes available upon request

Code	Internal diameter
Copper brazing reduction tee Female Female Female - 5130R	
131535	15-12-15
131837	18-12-18
132259	22-15-22
132900	28-22-28
133302	32-28-32
Copper brazing reduction Female Female - 5240	
240162	15-12
240192	18-12
240195	18-15
240235	22-15
240298	28-18
240302	28-22
240348	32-28
Copper brazing sleeve Female Female - 5270	
270012	12
270015	15
270018	18
270022	22
270028	28
270032	32

Filters and Cartridges

F44 – SD-MP – Screen Connectors



F44
004405



F44
004470



SD-MP
0644072



Screen Connectors
040970



FC44
004451AA



FC44
004450



Application

- Used with LPG, Natural Gas, nitrogen, biomethane and air.
- F44 filters are intended to be installed upstream to the regulator in order to protect them from dirt entering.
- SD-MD filters are designed for low and medium pressure installations, usually installed before the last stage of regulation or before the gas appliance to prevent dust and dirt entering the device.

Screen Connectors

- These connectors, supplied with in-site built screen, are designed to be installed upstream the regulator installation to prevent any kind of small parts can damage the regulators flowing through it.
- Piping, especially metallic, are not totally free of rust, dust and dirt than can move inside following the flow of gas. It is well known that when these parts stick on the valve pad this does not allow the complete lock up of the regulator generating excessive and potentially dangerous pressure in the piping downstream the regulator to the appliances.

Features

F44

- Their robust construction allows the products to withstand pressures above 20bar (290psig). Test pressure 50bar.
- Filtration threshold: between 80 µm
- The cartridges are delivered with an O-ring.
- Large type of threaded connections available.

SD-MP

- Service pressure: 6bar
- High filtering surface generating allowing a high capacity of gas.
- Filtration threshold: 50 µm (filter easily cleaned)
- Connection type: Female according EN10226-1 (ISO 7.1)

Screen Connectors

- Very robust design
- Suitable for pressure up to 20bar
- Active filtering surface of 250mm²
- Opening of 250 µm
- Conical R (male) and Rc (female) threads according to EN 10226-2 to have the best tightening guarantee of the jointing.

Construction

F44

- Body: hot stamped brass
- Cartridge: stainless steel

SD-MP

- Body: aluminium
- Cartridge: synthetic fiber

Screen Connectors

- Connection in steel with zinc plating protection
- Screen in Stainless Steel

Code	Inlet code	Inlet connection	Outlet code	Outlet connection	Filtration threshold µm	Flow rate (NG) @ 20mbar*		Flow rate (LPG) @ 37mbar*		Flow rate (NG) @ 300mbar*		Flow rate (LPG) @ 300mbar*		Flow rate (LPG) @ 1bar*		Flow rate (LPG) @ 1,5bar*	
						(n)m ³ /h	kW	kg/h	kW	(n)m ³ /h	kW	kg/h	kW	kg/h	kW	kg/h	kW
F44-16																	
004400	F2B	FEM-RP1/4	E2B	MAL-R1/4	80	2	22	2,5	35	6,6	74	8	110	10	138	25	345
004400NP	F5B	FEM-1/4NPT	E5B	MAL-1/4NPT	80												
004405	E6B	MAL-M20x1,5RH	E6B	MAL-M20x1,5RH	80												
004405AB	N6A	NUT-M20x1,5RH	E6B	MAL-M20x1,5RH	50												
004405AD	E1D	MAL-G1/2RH	E1D	MAL-G1/2RH	80												
F44-34																	
004401	F2D	FEM-Rp1/2	E2D	MAL-R1/2	80	6,2	69	7,5	104	20	224	24	331	32	442	75	1035
004401NP	F5D	FEM-1/2NPT	E5D	MAL-1/2NPT	80												
004405AC	E1D	MAL-G1/2RH	E1D	MAL-G1/2RH	80												
004405AE	E1E	MAL-G3/4RH	E1E	MAL-G3/4RH	80												
F44-41																	
004410	F2F	FEM-RP1	F2F	FEM-RP1	80	9,5	106	11,5	159	30	336	36	497	46	635	115	1587
004410NP	F5F	FEM-1NPT	F5F	FEM-1NPT	80												

* Flow rate indicated for 10% loss of charge

Code	Inlet code	Inlet connection	Outlet code	Outlet connection	Connection distance mm	Filtration threshold µm	Flow rate (NG) @ 20mbar*		Flow rate (LPG) @ 37mbar*		Flow rate (NG) @ 300mbar*		Flow rate (LPG) @ 300mbar*		Flow rate (LPG) @ 1,5bar*	
							(n)m ³ /h	kW	kg/h	kW	(n)m ³ /h	kW	kg/h	kW	kg/h	kW
SD-MP																
0644002	F2E	FEM-RP3/4	F2E	FEM-RP3/4	63	80	5	56	7	97	13	146	16	221	31	428
0644011	F2D	FEM-RP1/2	F2D	FEM-RP1/2			12	134	20	276	53	594	64	883	156	2153
0644012	F2E	FEM-RP3/4	F2E	FEM-RP3/4	120		20	224	34	469	82	918	98	1352	252	3478
0644013	F2F	FEM-RP1	F2F	FEM-RP1			28	314	47	649	110	1232	132	1822	360	4968
0644014	F2J	FEM-RP1.1/4	F2J	FEM-RP1.1/4	160		46	515	78	1076	200	2240	240	3312	624	8611
0644015	F2K	FEM-RP1.1/2	F2K	FEM-RP1.1/2			58	650	98	1352	230	2576	276	3809	744	10267
0644016	F2L	FEM-RP2	F2L	FEM-RP2		80	896	132	1822	340	3808	408	5630	1080	14904	

* Flow rate indicated for 10% loss of charge

Code	Filtration threshold µm	To be used with	Material
FC44			
004450	80	F44-16	Stainless steel
004451AA		F44-34	
004452AA		F44-41	

Code	Inlet code	Inlet connection	Outlet code	Outlet connection
SCREEN CONNECTOR				
040910AA	F3D	FEM-RC1/2	E2D	MAL-R1/2
040910AB	F3E	FEM-RC3/4	E2D	MAL-R1/2
040910AC	F3E	FEM-RC3/4	E2E	MAL-R3/4

Specific dimensions available upon request



Pressure Gauge
P160440



Magiscope P95
P009502



Magiscope P96
P009600



RM1
051064AA



Application

- The gauges (manometers) can be installed on a regulator or on piping in LPG, Natural Gas, SNG, biomethane or air installations.
- They have a multi-scale display (bar – psig for high pressure models and mbar – "wc for low pressure models).
- For a better reliability, certain models have the housing filled with oil.
- Various types of connections are available.

Changeover Indicators

- A magiscope is installed on the piping, between the high-pressure automatic changeover and the second stage (low-pressure) regulator.
- These indicators allow a remote observation of the empty "service" cylinder.

Gauge Valve

- This gauge valve, when closed, allows depressurising of the gauge.

RM1 Gauge Valve

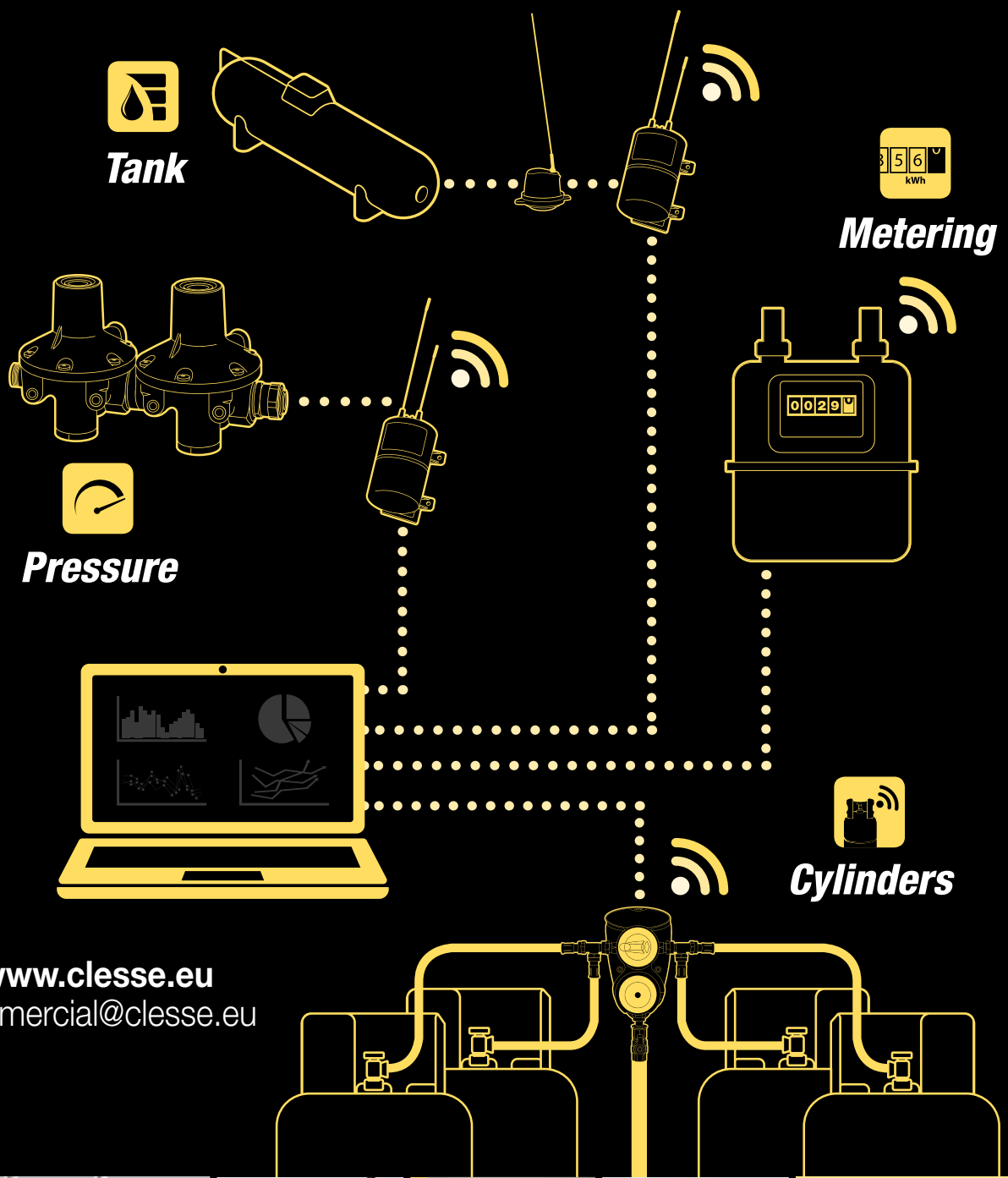
Application and Features

- This gauge valve, when closed, allows depressurising of the gauge.
- Connection: 1/4" Rc, Pressure PN40

Code	Connexion code	Connection type	Pressure		Type	Dial		
			Range	Unit		Diameter (mm)	Casing	Window
Connection M10x1,0								
P162800	E6A	MAL-M10X1RH	0 - 100	mbar	Dry	63	Metalic	Plastic
P161800			0 - 250					
P161900			0 - 400					
P162000			0 - 1	bar		50		
P162100			0 - 2,5					
P164100			0 - 6					
P162300			0 - 10					
Connection G1/4RH								
P160440	E1B	MAL-G1/4RH (Nipple 5mm)	0 - 60	mbar	Dry	63	Metalic	Plastic
006904			0 - 100					
006903			0 - 250					
006903AC			0 - 400	bar		50		
006903AA			0 - 1					
006903AB			0 - 2,5					
006901AP			0 - 4					
006902AB	E2B	MAL-R1/4	0 - 25			40		
Connection G1/8RH								
006900	E1A	MAL-G1/8RH (Nipple 4mm)	0 - 4	bar	Dry + red pointer	40	Metalic	Plastic
Connection R1/4								
006959BX			0 - 1,6	bar	Oil bath	50	Stainless steel	Glass
006956BX			0 - 4	bar				
006957BX			0 - 10	bar				
006855BX			0 - 25	bar				
Connection 1/4NPT								
006956XX	E5B	MAL-1/4NPT	0 - 4	bar	Oil bath	63	Stainless steel	Glass
006960XX			0 - 16	bar				
II.6954SZ		MAL-1/4NPT (Coaxial)	0 - 25	bar				
II.6955SZ		MAL-1/4NPT	0 - 25	bar				

Code	Inlet code	Inlet connection	Outlet code	Outlet connection	Service Pressure (bar)	Reserve Pressure (bar)
Magiscope P95						
P009502	E6B	MAL-M20x1,5RH	E6B	MAL-M20x1,5RH	1,5	0,8
Magiscope P96						
P009600	E6A	MAL-M10X1RH	-	-	1,5	0,8
RM1 Gauge Valve						
Code	Inlet code	Inlet connection	Outlet code	Outlet connection	Lengh (mm)	
051064AA	E1B	MAL-G1/4RH	F2B	FEM-RP1/4	43	

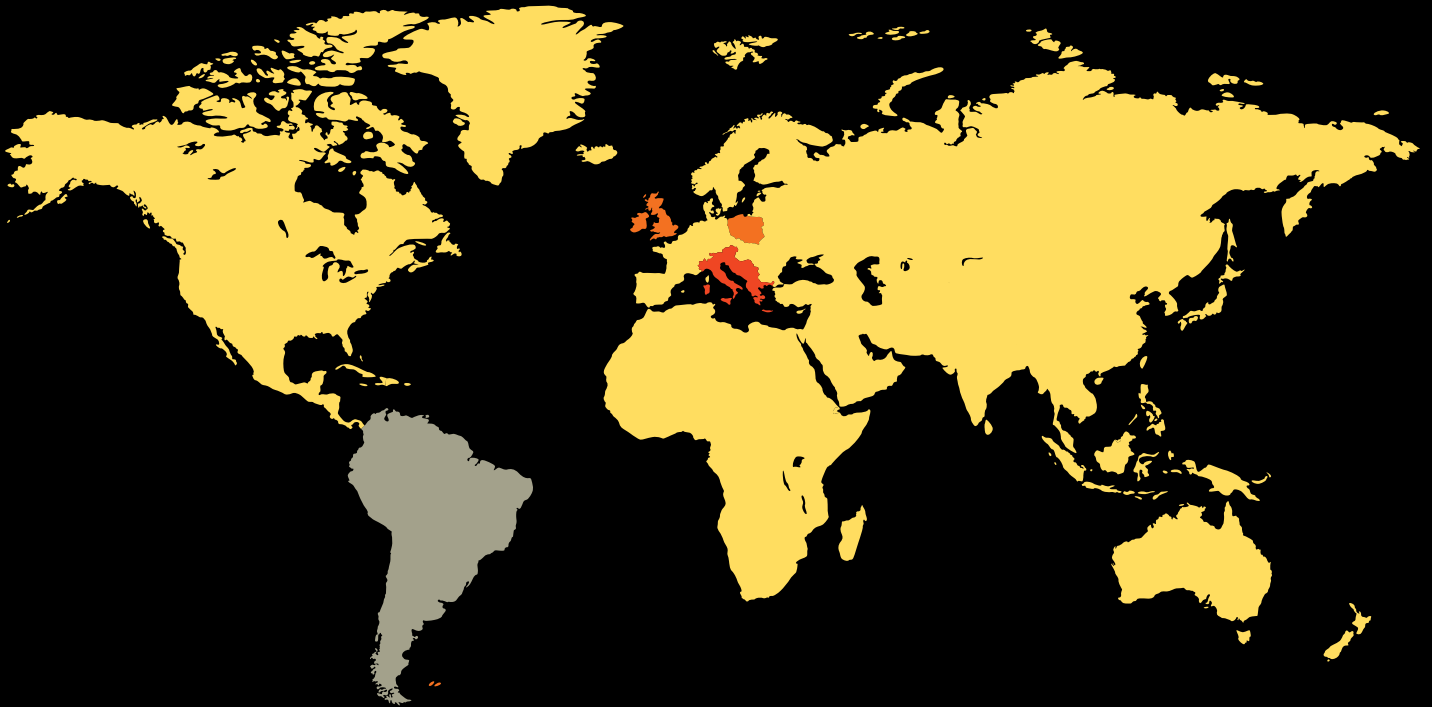
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World Locations



Clesse Industries

**Clesse Industries
Headquarters
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Z.I. le Bois Joli
CS 80118
63808 Cournon D'Auvergne
France

Tel: +33 (0)4 63 66 30 03
Fax: +33 (0)4 63 66 30 02
Email: commercial@clesse.eu
Web: www.clesse.eu

Clesse (UK) Ltd

Drakes Broughton Business Park
Drakes Broughton
Pershore
Worcestershire, WR10 2AG
United Kingdom

Tel: +44 (0)1905 842020
Fax: +44 (0)1905 842021
Email: sales@clesse.co.uk
Web: www.clesse.co.uk

NOVA COMET S.r.l.

Vai E. Mattei
28
25046 Cazzago San Martino (BS)
Italy

Tel: +39 030 2159111
Fax: +39 030 2650717
Email: info@novacomet.it
Web: www.novacomet.it

Clesse Brazil

Clesse do Brasil Ltda.
Av. Rudolf Dafferner
601-Bloco C1, Alto de Boa Vista
Sorocaba / SP, CEP 18085-005
Brazil

Tel: +55 15 32 18 12 22
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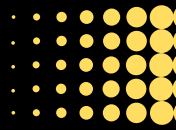
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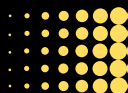


Domestic and Commercial Vessel

Regulation BP2203 BP4203 10-30kg/h



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Clesse Industries, Z.I. Le Bois Joli, CS 80118, 63808 Cournon d'Auvergne
Phone: +33 (0)4 63 66 30 03 Fax: +33 (0)4 63 66 30 02 E-mail: commercial@clesse.eu

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