Language: **EN**

CLESSE
NOVACOMET

INTERNATIONAL PRODUCT CATALOGUE

2023-2024

CLESSE NOVACOMET

A subsidiary of Clesse Industries

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

Novacomet, 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.

1850

Mr Georges CLESSE opens a workshop for the cold stamping of metal sheets, for making bridal baskets, plates for bicycles and cars

1899

PINGEOT and BARDIN is established in Clermont-Ferrand under a subcontract for the supply of pumps, valves and metal accessories for MICHELIN.

PINGEOT-BARDIN

1932

Arrival of butane gas in France. Launch of the first production of bottle valves and regulators.

1967

CLESSE, still in the process of expansion, acquires MANDET Company

CLESSE MANDET

1950

The company CLESSE is modernizing. The first domestic installations with Butane and Propane are developing. Clesse becomes the leader in this market.

1986

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 ...

CLESSE PINGEOT

1987

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.

1989

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

NOVACOMET

1993

Creation of a factory in Cournon d'Auvergne: birth of the CLESSE INDUSTRIES group

CLESSE

1997

Creation of a subsidiary CLESSE in Brazil to meet the specific needs of the country

2002

Creation of CLESSE INDUSTRIES SAS, current structure with 4 companies (France, Italy, Brazil and UK).

2005

Creation of the subsidiary CLESSE in the United Kingdom.

2006

CLESSE INDUSTRIES is part of the Dutch group AALBERTS INDUSTRIES, through its headquarter COMAP.

2008

Establishment of a production plant in china to supply the manufacturers of gas barbecues, mainly made in this area.

2015

Acquisition of CLESSE INDUSTRIES by ANDLINGER & COMPANY

CLESSE industries

Technical User guide and LPG information 4

Cylinder Installations 15

- Leisure
- Residential
- Technical
- Multi cylinder

Tank Installations 33

- Tank regulation - 1st stage
- Tank regulation - 2nd Stage
- Tank equipment

Metering Solutions 63

- Gas Meters
- Metering regulation
- Evolution Meterbox

Pipes & Fittings 73

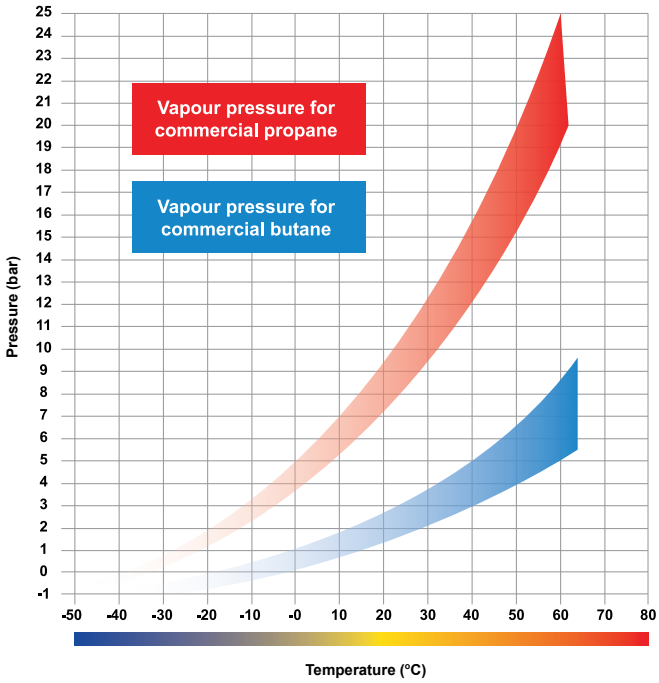
Poultry Solutions 85

BUTANE PROPANE

LPG flow rate	installation capacity in kW	typical use	Single stage	First stage	First and second stage			
0 ÷ 1,5 kg/h	0 ÷ 20 kW							
1,5 ÷ 4 kg/h	20 ÷ 55 kW							
4 ÷ 8 kg/h	55 ÷ 110 kW							
8 ÷ 20 kg/h	110 ÷ 280 kW							
20 ÷ 40 kg/h	280 ÷ 560 kW							
40 ÷ 150 kg/h	560 ÷ 2220 kW							
> 150 kg/h	> 2220 kW							

Gas Characteristics

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

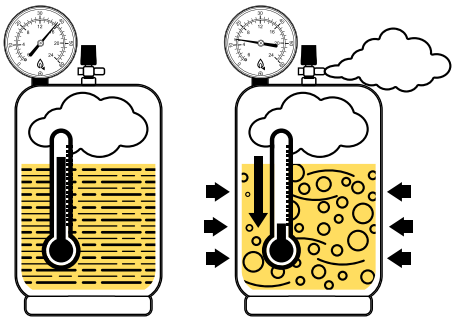
Contained in cylinders or bulk tank, LPG remains a liquid under pressure and this pressure depends on the type of LPG and the ambient or cylinder temperature surrounding the cylinder. The chart shows the vapour pressure within a gas cylinder at various ambient temperatures.

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 componds 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 / m^3

Commercial Butane = 121 MJ / m^3

Natural Gas = 38 MJ / m^3

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

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 ± 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.

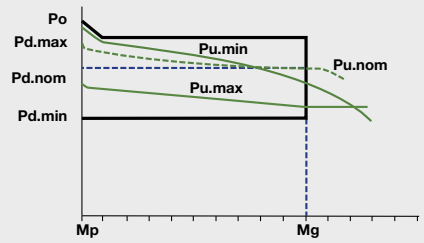
A complete description (type, dimensions, European Standard codes, gaskets ...) of the connection is given in chapter “connections guide”.

WARNING

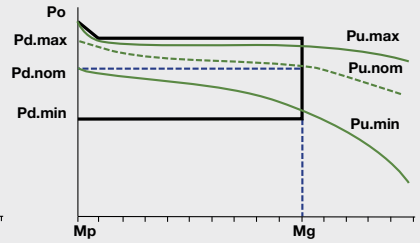
There are so many types of connections that we recommend carefully checking the full description, using the connection code and the table.

Typical curves:

High pressure regulators



Low pressure regulators



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 x 0.7 PMp = Pd x 1.2 Po = Pd x 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, in 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=100psig and Q=500kBTU/hr.
- Capacity measured when Pd dropped 20% under set pressure, with Pu= Pd set+20psig.

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)m³/h	(n)m³/h	(n)m³/h	(n)m³/h	(n)m³/h
Declared gas	Natural gas-H (n) m³/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, phtalic 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": nytril rubber, "NBR-R": reinforced nytril 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.

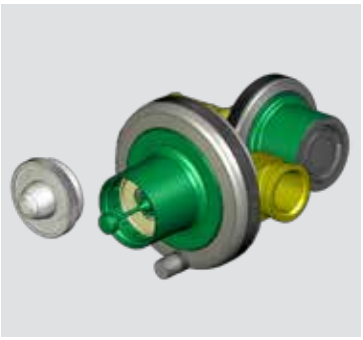
Note: In the event that the installation is pressurised but without any gas flow for a certain time, the temperature of the gas trapped in the tubes and regulators may rise, thus leading to an over pressure level that can trigger the OPSO safety valve.

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'

UPSO safety device



The UPSO (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 UPSO safety device applies on low pressure regulators.

The UPSO 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 UPSO setting value when the regulator is equipped with an Under Pressure Shut-Off safety device.

WARNING

The UPSO 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.

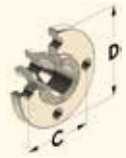
EN inlet code and EN outlet code
Codes of connections described in the European Standards: EN12864, EN16129, EN13785, EN13786 and EN15202. Not all the world-wide connections are described in these standards.

Designation
Condensed description of the connection.

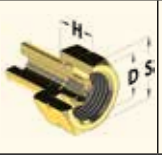
Type
Complementary information about the connection.

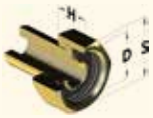
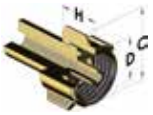
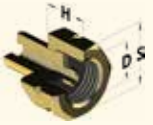
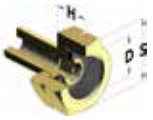
D-H-S-C-L
Dimensions of the sketches.

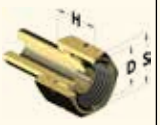
Gasket
Describes, when appropriate, the material of the gasket:
. NBR: nitrile rubber
. SALPA: non elastomeric compound.

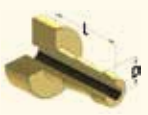
Code	Connection	Drawing	Type	EN Inlet code	EN Outlet code	D (mm)	H (mm)	S (mm)	C (mm)	L (mm)	Gasket
B1F B1J B1K B1L B1N B1P B1Q	FIXED-FLANGE-PN16-DN25 FIXED-FLANGE-PN16-DN32 FIXED-FLANGE-PN16-DN40 FIXED-FLANGE-PN16-DN50 FIXED-FLANGE-PN16-DN65 FIXED-FLANGE-PN16-DN80 FIXED-FLANGE-PN16-DN100		EN 1092	-	-	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-G3/4RH 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	-	-	-	-	-

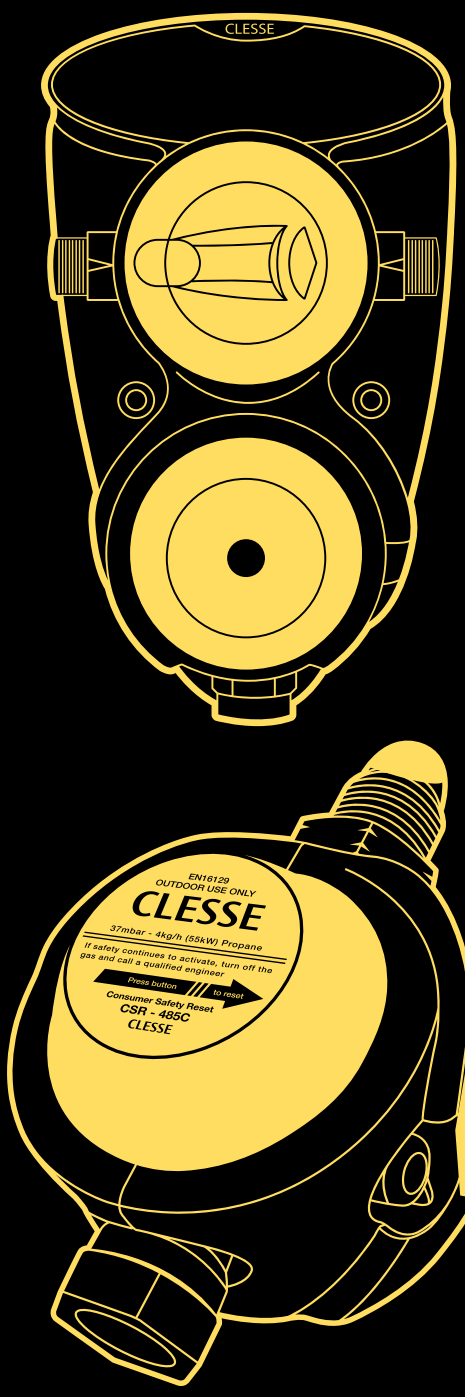
Code	Connection	Drawing	Type	EN Inlet code	EN Outlet code	D (mm)	H (mm)	S (mm)	C (mm)	L (mm)	Gasket
F6D	FEM-M14x1,5RH		Small cylinder valve	-	-	M14x1,5	-	-	-	-	-
F6J	FEM-M20x1,5RH		French type	-	-	M20x1,5RH	-	-	-	-	-
F6L F6Q	FEM-M24X1,5RH FEM-M30X2RH		Special	-	-	M24x1,5RH M30x2RH	-	-	-	-	-
K1D K1F	PIPE-10-RC 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"-14NGO-L.H 0,880"-14NGO-L.H	-	30 25 28	-	28,5 23,5 28,5	-
P1C P2D	POLM-5/8LH-SA-R6-BN POLS-USA-R6-SN		POL UK soft nose POL USA soft nose	- G.10	-	G5/8LH-ISO228 0,880"-14NGO-L.H	-	-	47	27	NBR
P1D P2C	POLM-5/8LH-R2-SN POLS-USA-R2-SN		POL UK soft nose POL USA soft nose	- G.10	-	G5/8LH-ISO228 0,880"-14NGO-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	-

CYLINDER INSTALLATIONS



CLESSE

Application

- 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.
- 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.
- 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 accidently disconnected or damaged.
- Double shut-off (CLIP and 405 models): when turning off the lever, both the cylinder valve and a complementary internal valve stop the gas flow.
- Disconnection safety (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 …).

Screw Regulators

Code	Inlet code	Inlet connection	Outlet code	Outlet connection	Inlet pressure (Pu)	Outlet pressure (Pd)	Flow rate		Type of gas	Color	EFV	Packaging
					bar	mbar	kg/h	kW			Reset type	
425												
001950BS*	N2C	NUT-NF21,8LH-R5NF	E6B	MAL-M20X1,5RH	0,3-7,5	29	1.3	18	Butane	Green	Y - Manual	Plastic bag
0425MSV*												Master cardboard
001950BT*			Z1D	HNZ-10-EN								Plastic bag
0425MSTEG							1.8	25		Blue		Plastic bag
001950CS*			E6B	MAL-M20X1,5RH	1-16	37	1.5	21	Propane	Red		Plastic bag
0425CMSV*												Master cardboard
415												
001602DL	N2C	NUT-NF21,8LH-R5NF	Z1D	HNZ-10-EN	0,3-7,5	29	1.8	25	Butane	Red	-	Plastic bag
001601DL	N3A	NUT-M21,8LH-30,5BS	Z1D	HNZ-10-EN	1-16	37	1.5	21	Propane			
001975HB	N1A	NUT-W20LH-25-UN	Z1E	HNZ-10-UNI	0,3-7,5	29	1	14	LPG			
001975AR	P1A	POLM-5/8LH-BS-HN	Z1D	HNZ-10-EN	1-16	37	1.5	21	Propane			

* NF certified according to EN16129

Clip Regulators

Code	Inlet code	Inlet connection	Outlet code	Outlet connection	Inlet pressure (Pu)	Outlet pressure (Pd)	Flow rate		Type of gas	Color	EFV	PIN	Packaging
					bar	mbar	kg/h	kW			Reset type	Type	
405													
001577BC*	C1A	CLIP-20	E6B	MAL-M20X1,5RH	0,3-7,5	29	1.3	18	Butane	Green	Y - Manual	Thermal pin	Plastic bag
0405MSV*													Master cardboard
001577BCT*			Z1D	HNZ-10-EN									Plastic bag
0405MSTEG							1.8	25		Blu			Plastic bag
001577PC*			E6B	MAL-M20X1,5RH	1-16	37	1.5	21	Propane	Red			Plastic bag
0405CMSV*													Master cardboard
CLIP													
001575SB	C1D	CLIP-22	Z1D	HNZ-10-EN	0,3-7,5	29	1.5	21	Butane	Green	-	Brass pin	Plastic bag

* NF certified according to EN16129

Adaptors

Code	Inlet code	Inlet connection	Outlet code	Outlet connection	Inlet pressure (Pu)	Outlet pressure (Pd)	Flow rate (Propane/LPG)		Filter	Comments
					bar	bar	kg/h	kW		
ADCH										
003250AE	C1A	CLIP-20	L2A	MAL-NF21,7LH	0,3-16	0,3-16	1,5	25	-	Thermal pin Non return valve
003250AG	C1C	CLIP-21	E6B	MAL-M20x1,5RH						
003250AJ	C1C	CLIP-21	L1A	MAL-W20LH-UNI						
003257AB	C1K	CLIP-27	E6B	MAL-M20x1,5RH						

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 6 kg/h (83 kW).
- 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

Code	Inlet code	Inlet connection	Outlet code	Outlet connection	Inlet pressure (Pu)	Outlet pressure (Pd)	Flow rate (LPG)		Pad	Diaphragm	Comments
					bar	mbar	kg/h	kW	material	material	
BP1803											
001820AA	F5B	FEM-1/4NPT	F5C	FEM-3/8NPT	0,5-16	30 (25-38)	4	55	NBR	NBR	-
001820AG	N1B	NUT-W20LH-25x13,5	F2C	FEM-Rp3/8	0,5-16	30 (25-38)	4	55	NBR	NBR	Filter
001820AH	N1B	NUT-W20LH-25x13,5	Z1D	HNZ-10-EN	0,5-16	30 (25-38)	4	55	NBR	NBR	Filter
001820AC	F2B	FEM-Rp1/4	F2C	FEM-Rp3/8	0,5-16	30 (25-38)	4	55	NBR	NBR	-
001821RS	P2F	POLM-USA-28x28,5-HN	F2C	FEM-Rp3/8	1-16	37 (27-45)	4	55	NBR	NBR	Filter
001821AG	F2B	FEM-Rp1/4	F2C	FEM-Rp3/8	1-16	37 (27-45)	4	55	NBR	NBR	-
001823AC	F2B	FEM-Rp1/4	F2C	FEM-Rp3/8	1-16	50 (45-65)	4	55	NBR	NBR	-
BP1903VT											
001830AA	F2B	FEM-Rp1/4	F2C	FEM-Rp3/8	0,5-16	30 (25-38)	4	55	FPM	FPM	-
001830AB	N1B	NUT-W20LH-25x13,5	F2C	FEM-Rp3/8	0,5-7,5	30 (25-38)	4	55	FPM	FPM	Filter
BP1803RV											
001825AG	F2B	FEM-Rp1/4	F2C	FEM-Rp3/8	1-16	37 (27-45)	4	55	NBR	NBR	RV 75 mbar
001825AN	P1A	POLM-5/8LH-BS-HN	F2C	FEM-Rp3/8	1-16	37 (27-45)	4	55	NBR	NBR	Filter - RV 75 mbar
001825AS	N1B	POLM-5/8LH-BS-HN	F3D	FEM-Rc1/2	1-16	37 (24-45)	4	55	NBR	NBR	Filter - RV 75 mbar
455C											
001854AA	F5B	FEM-1/4NPT	E6B	MAL-M20x1,5RH	1-16	37 (27-45)	6	83	FPM	FPM	-
001854AB	F5B	FEM-1/4NPT	E6B	MAL-M20x1,5RH	1-16	67 (50-80)	6	83	FPM	FPM	-
001854AK	F2B	FEM-Rp1/4	E6B	MAL-M20x1,5RH	1-16	300 (210-360)	6	83	FPM	NBR-R	-
001854AE	N2C	NUT-NF21,8LH-R5NF	E6B	MAL-M20x1,5RH	1-16	37 (27-45)	6	83	FPM	FPM	Filter
001854AF	N2C	NUT-NF21,8LH-R5NF	E6B	MAL-M20x1,5RH	1-16	50 (45-65)	6	83	FPM	FPM	Filter
001854AG	N2C	NUT-NF21,8LH-R5NF	E6B	MAL-M20x1,5RH	1-16	148 (70-150)	6	83	FPM	NBR-R	Filter
001854AL	P1A	POLM-5/8LH-BS-HN	E6B	MAL-M20x1,5RH	1-16	300 (210-360)	6	83	NBR	NBR-R	Filter
1455											
001850AD	N2C	NUT-NF21,8LH-R5NF	E6B	MAL-M20x1,5RH	1-16	20-70	4-6	55-83	NBR	NBR-R	Filter - Manometer
001850AE	N2C	NUT-NF21,8LH-R5NF	E6B	MAL-M20x1,5RH	1-16	50-150	4-6	55-83	NBR	NBR-R	Filter - Manometer
001850AF	N2C	NUT-NF21,8LH-R5NF	E6B	MAL-M20x1,5RH	1-16	100-300	4-6	55-83	NBR	NBR-R	Filter - Manometer
001850AG	N2C	NUT-NF21,8LH-R5NF	E6B	MAL-M20x1,5RH	1-16	165-500	4-6	55-83	NBR	NBR-R	Filter - Manometer


475P
001855AC


BP1803FV
001877BA


BP1803
001820AR


BP1803
001821AM

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

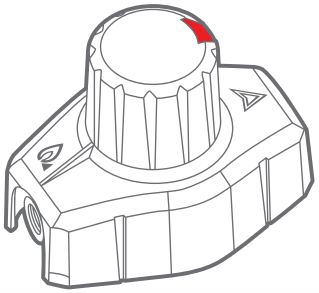
Code	Inlet code	Inlet connection	Outlet code	Outlet connection	Inlet pressure (Pu)	Outlet pressure (Pd)	Flow rate (LPG)		Pad	Diaphragm	Comments
					bar	mbar	kg/h	kW	material	material	
BP1803											
001820AU	F5D	FEM-1/2NPT	F5D	FEM-1/2NPT	0,2-4	20 (20-70)	3 (4@0,5)	41 (55@0,5)	NBR	NBR	-
001820AM	F5D	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	-
001821AA	F5B	FEM-1/4NPT	F5B	FEM-1/4NPT	0,5-4	37 (27-45)	5	69	FPM	FPM	-
001821AB	F5B	FEM-1/4NPT	F5B	FEM-1/4NPT	0,5-4	67 (50-80)	5	69	FPM	FPM	-
001823AA	F5B	FEM-1/4NPT	F5B	FEM-1/4NPT	0,5-4	50 (47,5 -57,5)	4	55	FPM	FPM	-
001821AC	F5B	FEM-1/4NPT	F5B	FEM-1/4NPT	0,5-4	50 (47,5 -57,5)	5	69	FPM	NBR-R	-
001821AD	F5B	FEM-1/4NPT	F5B	FEM-1/4NPT	0,5-4	150 (105-180)	5	69	FPM	NBR-R	-
001821AE	F5B	FEM-1/4NPT	F5B	FEM-1/4NPT	0,5-4	200 (140-240)	5	69	FPM	NBR-R	-
001821AF	F5B	FEM-1/4NPT	F5B	FEM-1/4NPT	0,5-4	300 (210-360)	5	69	FPM	NBR-R	-
001821AL	N6A	NUT-M20x1,5RH	E6B	MAL-M20x1,5RH	0,5-4	37 (27-45)	5	69	NBR	NBR	
001823AD	N6A	NUT-M20x1,5RH	E6B	MAL-M20x1,5RH	0,5-4	50 (47,5 -57,5)	4	55	NBR	NBR	Filter
001821AM	N6A	NUT-M20x1,5RH	E6B	MAL-M20x1,5RH	0,9-4	400	4	55	NBR	NBR-R	Filter
001821AP	N6A	NUT-M20x1,5RH	E6B	MAL-M20x1,5RH	1,3-4	800	4	55	NBR	NBR-R	Filter
455C											
001852AA	N6A	NUT-M20x1,5RH	E6B	MAL-M20x1,5RH	0,5-4	37	6	83	FPM	FPM	Filter
001853AB	N6A	NUT-M20x1,5RH	E6B	MAL-M20x1,5RH	0,5-4	50	4	55	FPM	FPM	Filter
001853AA	N6A	NUT-M20x1,5RH	E6B	MAL-M20x1,5RH	0,5-4	148	4	55	FPM	NBR-R	Filter
BP1803FV											
001877BA	F5B	FEM-1/4NPT	F5D	FEM-1/2NPT	0,5-8	30	4	55	NBR	NBR	RV 75 mbar
001877BB	F5B	FEM-1/4NPT	F5D	FEM-1/2NPT	0,5-8	100	4	55	NBR	NBR	RV 250 mbar

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.

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)



Construction

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

NF GAZ

Code	Inlet code	Inlet connection	Outlet code	Outlet connection	Inlet pressure (Pu)	Outlet pressure (Pd)	Flow rate (LPG)		Type of gas	UPSO	Accessories
					bar	mbar	kg/h	kW		mbar	
TA											
6475100*	E6B	MAL-M20x1,5RH	E6B	MAL-M20x1,5RH	0,125-0,65	28	1,3	18	Butane	20	
SA											
6475200*	E6B	MAL-M20x1,5RH	E6B	MAL-M20x1,5RH	0,125-0,65	28	2,6	36	Butane	20	
6475201*	E6B	MAL-M20x1,5RH	E6B	MAL-M20x1,5RH	0,125-0,65	28	2,6	36	Butane	20	1x12mm Braz Fit
T											
6475300*	E6B	MAL-M20x1,5RH	E6B	MAL-M20x1,5RH	0,525-1,95	37	1,3	18	Propane	25	
S											
6475400*	E6B	MAL-M20x1,5RH	E6B	MAL-M20x1,5RH	0,525-1,95	37	4	55	Propane	25	
6475401*	E6B	MAL-M20x1,5RH	E6B	MAL-M20x1,5RH	0,525-1,95	37	4	55	Propane	25	1x12mm Braz Fit
S5											
6475500*	E6B	MAL-M20x1,5RH	E6B	MAL-M20x1,5RH	0,525-1,95	37	5	70	Propane	25	
6475501*	E6B	MAL-M20x1,5RH	E6B	MAL-M20x1,5RH	0,525-1,95	37	5	70	Propane	25	1x12mm Braz Fit
6475505	E6B	MAL-M20x1,5RH	E6B	MAL-M20x1,5RH	0,525-1,95	50	5	70	Propane	34	
S8											
6475800	E6B	MAL-M20x1,5RH	E6B	MAL-M20x1,5RH	0,525-1,95	37	8	110	Propane	25	

* NF certified

0485101

UUCSR485MCO

UUCSR485DCS

UUCSR485SCK

CSR485 Cylinder Regulators

These regulators feature the CSR Style Over Pressure Shut Off (OPSO) safety system for LPG enabling the consumer to reset the regulator should the gas pressure exceed recommended limits.

With clear visible indication and an easy push to reset button, the CSR OPSO will protect appliances and property, similar to electrical consumer RCD protection.

The 'LP Gas circuit breaker'

The Low Pressure cylinder regulator fitted with the latest consumer safety protection system required by the UK standards to cover all fixed pipework installations.

Ideal for all types of LPG cylinder applications Domestic, Commercial, Holiday and Park Homes

Features

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

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

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.

Multiple installation options. Models are suitable for a variety of installations

- Directly screwed into a Single Cylinder
- Wall mounted with backplate and pigtail for single cylinders
- Wall mounted Manual Changeover with pigtails
- Wall mounted Dual Cylinder with pigtails for maximising regulator capacity

Code	Inlet code	Inlet connection	Outlet code	Outlet connection	Inlet pressure (Pu)	Outlet pressure (Pd)	Flow rate (LPG)		Type of gas	PRV (mbar)	OPSO (mbar)	Cylinder fitted	Wall mounted
					bar	mbar	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	✓	
0485108	N3A	NUT-M21,8LH-30,5BS	F3D	FEM-Rc1/2	0,3÷7,5	29	2.6	36	Butane	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	wF3D	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	✓	
0485120	N1A	NUT-W20LH-25-UNI	F3D	FEM-Rc1/2	1÷16	37	4	55	Propane	75	125	✓	
0485103	F2B	FEM-Rp1/4	F3D	FEM-Rc1/2	0,3÷16	29	3	52	LPG	75	125		✓
0485104	F2B	FEM-Rp1/4	F3D	FEM-Rc1/2	0,3÷16	29	3	52	LPG	75	125		
0485106	F2B	FEM-Rp1/4	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	FEM-Rc1/2 BALL VALVE + TEST POINT	1÷16	37	4	55	Propane	75	125		✓
UUCSR485DCS	E6B	M20x1,5RH DUAL CYLINDER	F3D	FEM-Rc1/2 BALL VALVE + TEST POINT	1÷16	37	4	55	Propane	75	125		✓

Code	Inlet code	Inlet connection	Outlet code	Outlet connection	Inlet pressure (Pu)	Outlet pressure (Pd)	Flow rate (LPG)		Type of gas	PRV (mbar)	OPSO (mbar)	Cylinder fitted	Wall mounted
					bar	mbar	kg/h	kW					
485CSR													
UUCSR485MCO	E6B	M20x1,5RH MANUAL CHANGEOVER	F3D	FEM-Rc1/2 BALL VALVE + TEST POINT	1÷16	37	4	55	Propane	75	125		✓
UUCSR485DCS	E6B	M20x1,5RH DUAL CYLINDER	F3D	FEM-Rc1/2 BALL VALVE + TEST POINT	1÷16	37	4	55	Propane	75	125		✓

COP32 & BS6891 COMPLIANT

CSR Style OPSO

Regulation equipment incorporating “Push to Set” over pressure safety system with indication.

Whether single cylinder, two, four or more cylinders, the CSR OPSO range of regulation equipment ensures reliable pressure delivery and consumer safety with the new over pressure protection system. With no need to remove caps or pull resets, this system is a clear “Push to Set” device to cancel the red trip indicator. This latest development of innovative OPSO regulators for LPG cylinders is patent designed and manufactured by Clesse Industries in France.

The design team re-evaluated the way consumers interact with LP gas, redefining the suitability for modern appliances of today and the expectations of the consumers towards safety.

Consumer Safety Reset “CSR”

This allows the homeowner or consumer to quickly “reset and go” the gas installation, should the OPSO shut down the supply due to events such as accidental impact when changing cylinders, overwintering, and non hazardous nuisance trips etc. while still protecting the consumer and property against potential excessive high pressure incidents that can occur.

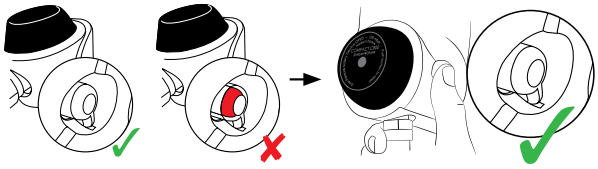
This design ensures the device cannot be tampered with or adjusted, so if continued OPSO trips occur it clearly indicates that a potential hazardous situation is being prevented and a qualified engineer is required to inspect the gas installation. Therefore the CSR safety device is considered suitable for consumers to reset themselves in much the same way as an electrical RCD fuse board.

This fresh approach provides the user with a visual safe resettable system, less headache for the park owner, gas supplier and engineer.

CSR OPSO satisfies EN16129 standards manufactured in Europe by Clesse Industries in France who are is independently audited by BSI ISO 9001:2008

Home owners, park operators and installers can be assured that the Clesse CSR OPSO regulation equipment fitted today meets the standards of tomorrow.

Consumer Safety Reset



This LPG cylinder pressure regulator is fitted with a CSR safety device. It prevents excessive pressure from entering the downstream pipework protecting, pipework and appliances.

If the CSR activates no gas will pass this regulator. It will show red inside the clear indicator (fig.1) when viewed to the side.

To reset the gas supply please observe the following:

- Ensure all the gas appliances are turned off.
- With the regulator connected correctly slowly turn on the cylinder valve.
- Push the reset button firmly to reset the OPSO, until the red indicator is fully depressed and NOT visible when viewed as shown in the diagram (fig 1).

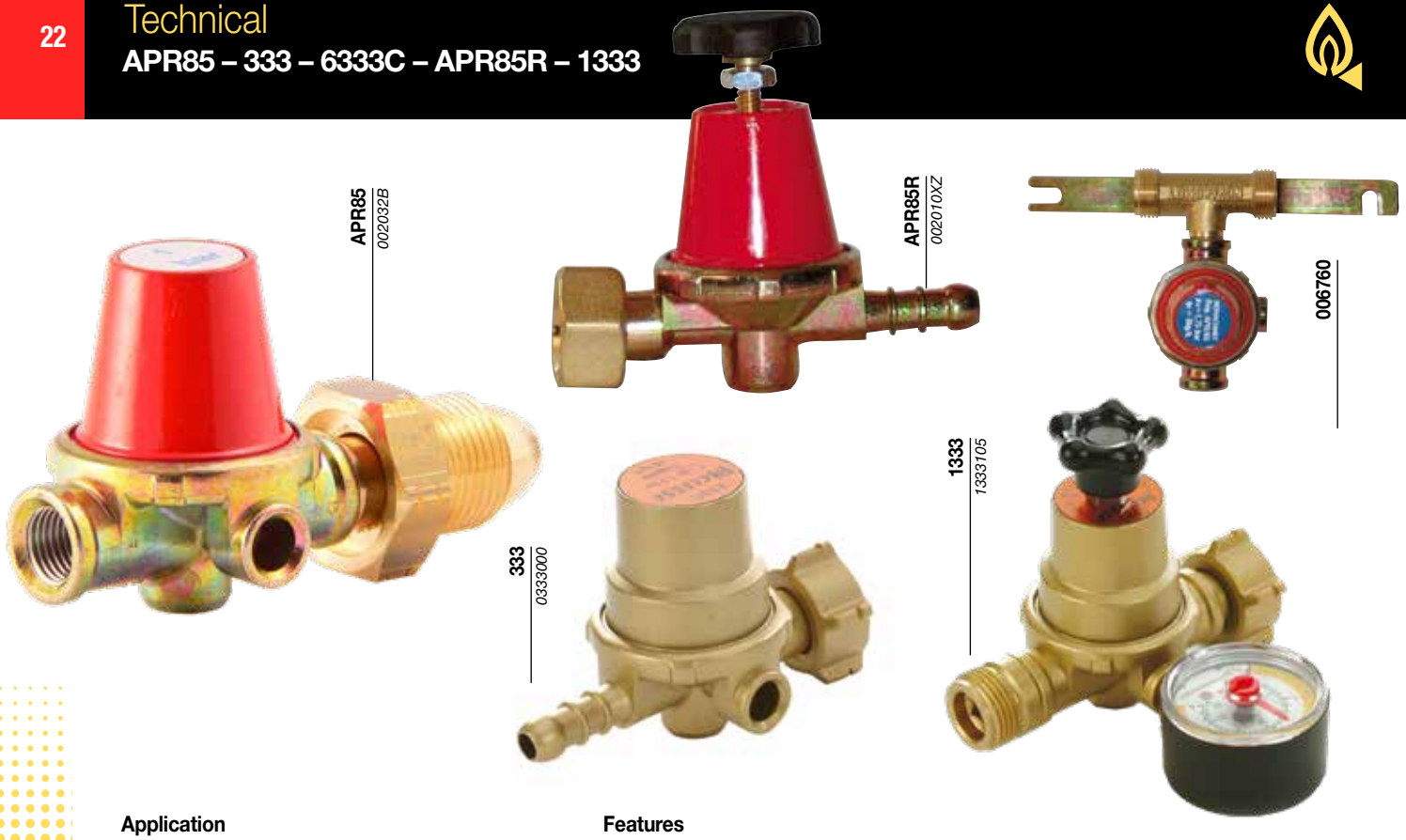
If the CSR repeatably trips, do not continue to use. Contact a qualified LPG to investigate the installation for faults or replace the product.

For more instruction visit:
www.clesse.co.uk/CSR
or scan the QRcode

Code	Inlet code	Inlet connection	Outlet code	Outlet connection	Inlet pressure (Pu)	Outlet pressure (Pd)	Flow rate (LPG)		Type of gas	PRV (mbar)	OPSO (mbar)	Cylinder fitted	Wall mounted
					bar	mbar	kg/h	kW					
0485___	F5D	FEM-1/2NPT	F5D	FEM-1/2NPT	0,5÷1	30	7	97	Propane	-	125		
0485118	N6A	NUT-M20x1,5RH	E6B	MAL-M20x1,5RH	1÷5	150	4	55	Propane	-	300		

Technical

APR85 – 333 – 6333C – APR85R – 1333



Application

- These fixed, variable and multi-turn 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

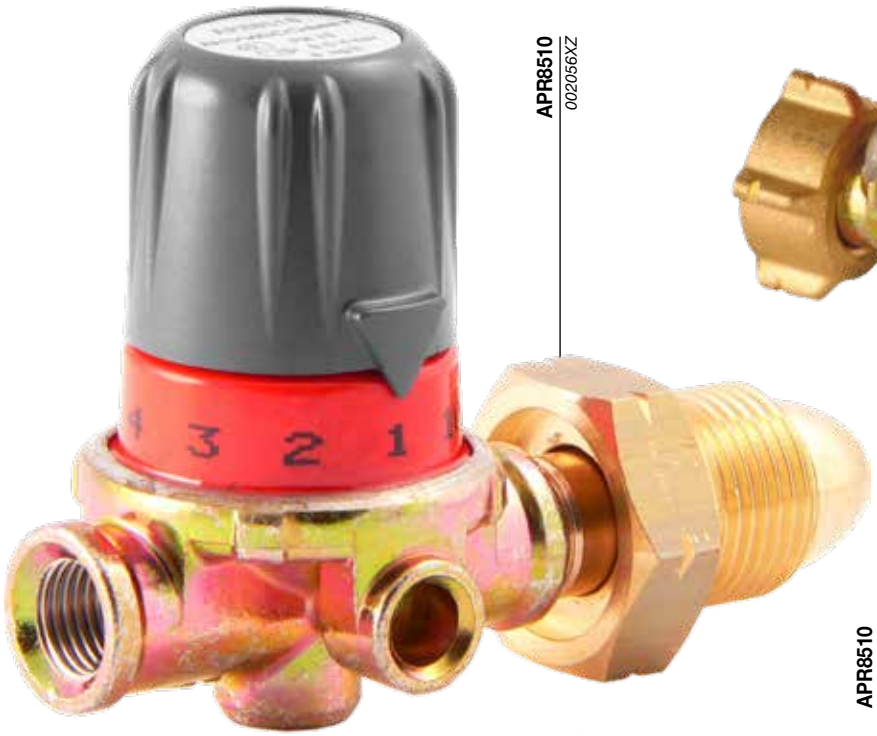
- Compact and robust design
- Numerous possible types of inlet and outlet connections upon request.
- Precise pressure multi-turn adjustment
- The setting can be blocked with the locking nut
- Possible nominal outlet pressures from 0.3 to 4bar (4 to 59psig) upon request
- A filter on the inlet connections 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)

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										
002007AD	F2B	FEM-Rp1/4	F2B	FEM-Rp1/4	1,05-16	0,85	4	56	-	-
002007XX	F2B	FEM-Rp1/4	F2B	FEM-Rp1/4	1,7-16	1.5	7	96	-	-
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
006760	E6B	MAL- M20x1,5RH	E6B	MAL- M20x1,5RH	1,95-16	1.75	8	110	-	T connection for cylinder coupling with non return seat when one cylinder disconnected
333										
033300R	F5B	FEM-1/4NPT	F5B	FEM-1/4NPT	2-16	1,5	8	110	-	Diaphragm FPM-R
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	Diaphragm FPM-R
0233000	N2C	NUT-NF21,8LH-R5NF	E6B	MAL- M20x1,5RH	2,3-16	1,8	10	110	Y	-

Code	Inlet code	Inlet connection	Outlet code	Outlet connection	Inlet pressure (Pu)	Outlet pressure (Pd)	Flow rate (LPG)		Manometer	Feature
					bar	bar	kg/h	kW		
APR85R										
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
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
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



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.

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)		Filter	Manometer
					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	-

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.
- APO regulators can operate in harsh conditions (road works, agriculture,... The maximum capacity is 10kg/h (138kW) of LPG.

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.
- APO regulator has a vertical inlet connection equipped with a filter.
- Certain models are equipped with a manometer.

Construction:

- Body and cover: die cast zinc alloy and hot stamped brass for APO
- Diaphragm: MBR-R or FPM
- Valve pad: NBR or FPM

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	Diaphgram Material
					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
002201B	P1A	POLM-5/8LH-BS-HN	E7B	MAL-3/8LH-DIN	Pd+1-16	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
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
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	NBR	NBR-R

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

Construction

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

CSR LP Gas Safety Pressure Regulators
From Clesse Industries
Controlling Energy Safely

***Consumer Safety Reset** ‘The LPG circuit breaker’*

Code	Inlet code	Inlet connection	Outlet code	Outlet connection	Inlet pressure (Pu)	Pdi	Outlet pressure (Pd)	Flow rate (LPG)		Limited PRV	OPSO	Accessories
					bar	bar	mbar	kg/h	kW	mbar	mbar	
C800												
5185C01	E6B	MAL-M20x1,5RH	E6B	MAL-M20x1,5RH	1-16	0.8	37	5	70	75	100	BALL VALVE NUT-M20x1,5-FEM-G1/2”
5185C02	L1A	MAL-W20LH-UNI	F3D	FEM-RC1/2	1-16		29	5	70	75	125	Marquage italien
5185C03	E6B	MAL-M20x1,5RH	F3D	FEM-RC1/2	1-16	0.8	37	5	70	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	75	125	BALL VALVE MAL-R3/4”-FEM-Rp3/4”
006829MF	Q2A	FEM-0,880-14NGO-POL	F3E	FEM-Rc3/4	1,2-16	1	100	12	165	200	250	
006829MR	L1A	MAL-W20LH-UNI	F3E	FEM-Rc3/4	1,2-16	1	29	12	165	75	135	
006829MS	F1B	FEM-G1/4RH	F3E	FEM-Rc3/4	1,2-16	1	29	12	165	75	135	

Multi Cylinder
5175B – 5175C – C100

5175B
5175B02

5175C
5175C04

C100
5175C20

Application

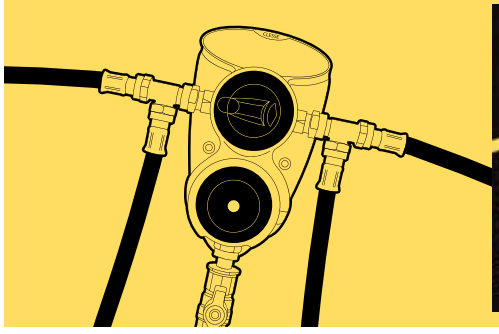
- 5175B, 5175C and C100 conform to EN 16129 standard
- These double stage low pressure automatic changeovers are used with 2 LPG cylinders, or 2 LPG batteries of cylinders (see functioning and benefits in the “users guide”).
- They combine a first stage automatic changeover and a second stage regulator.
- They are used in domestic, leisure or commercial applications up to 5kg/hr (70kW).

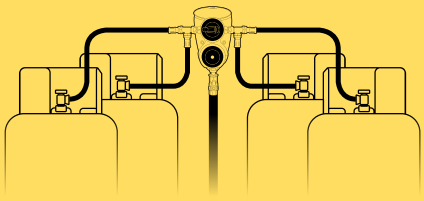
Construction

- 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)





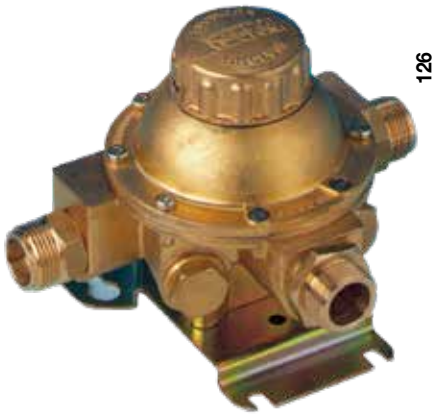
Multi Cylinder Upgrade kit available.

Code	Inlet code	Inlet connection	Outlet code	Outlet connection	Inlet pressure (Pu)	Pdi	Outlet pressure (Pd)	Flow rate (LPG)		Type of gas	Limited PRV	Accessories
					bar	bar	mbar	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		-	
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	-	
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”


175B 0175B00


175C 0175C20


AC2600 002635AA


126 0126002


Magiscope P95 P009502EX

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, 2175C and AC2600 conform to EN 16129 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 delivered with fittings for copper brazing.
- 175 models are provided with a protecting and wall-mounting casing wich include instruction display.
- AC2600 and 126 models are provided with a metallic bracket.

Code	Inlet code	Inlet connection	Outlet code	Outlet connection	Inlet pressure (Pu)	Outlet pressure (Pd)	Flow rate (LPG)		Accessories
					bar	bar	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	0,8-12,5	0.5	6	83	-
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	-
0175C14	K2B	PIPE-1/4 INV FLARE	E5D	MAL-1/2NPT	2-17	1	10	138	No casing
0175C90	E6B	MAL-M20x1,5RH	E6B	MAL-M20x1,5RH	2-16	1.5	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			12.5	172	-
0175C21	E6B	MAL-M20x1,5RH	E6B	MAL-M20x1,5RH			20	276	-
0175CS1	E6B	MAL-M20x1,5RH	E6B	MAL-M20x1,5RH	3,5-16	3	20	276	-
0175CS4	F5B	FEM-1/4NPT	F5D	FEM-1/2NPT			20	276	-
0175CS5	F1B	FEM-G1/4RH	F1D	FEM-G1/2RH			20	276	-
0175CS6	K2B	PIPE-1/4-INV.FLARE	F5D	FEM-1/2NPT	3,5-20		20	276	-
2175C									
2175C05	E6B	MAL-M20x1,5RH	E6B	MAL-M20x1,5RH	2-16	1.5	10	138	Pressure limitor 1,8 bar integrated
AC2600									
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	Indicator 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 cylilnders.

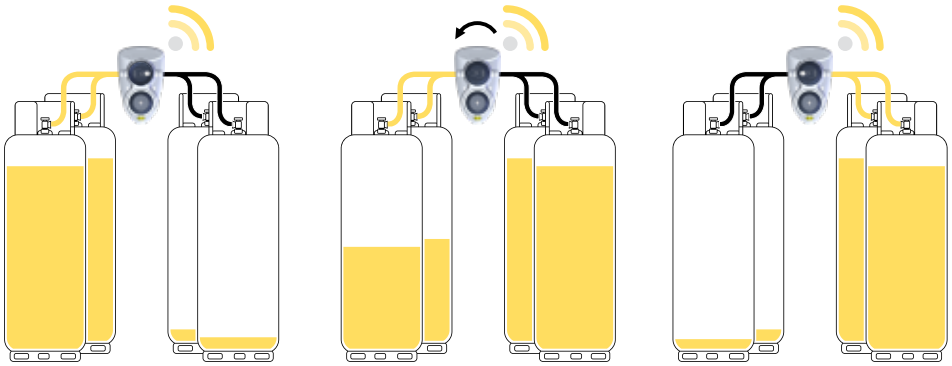
The ACO is purchased Telemetry Ready (TR) and the additional electronic hardware is easily installed whenever required – before or after installation or moved into any other telemetry ready Clesse ACO product.

Communications hardware
Contains robust encapsulated electronics for GSM cellular and IoT 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.

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.

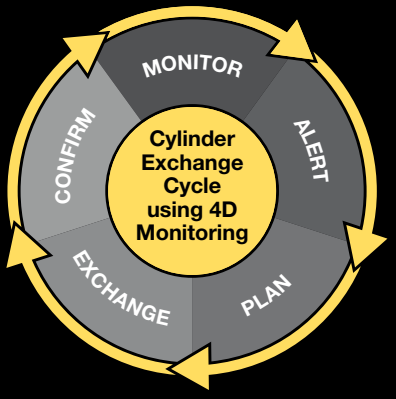
Efficient logistical delivery planning and customer service Clesse Prodigy software is a web based user portal developed allowing operators to determine the exact condition of the ACO when the reserve cylinders start being used through to logistical planning and report generation enabling planned efficient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

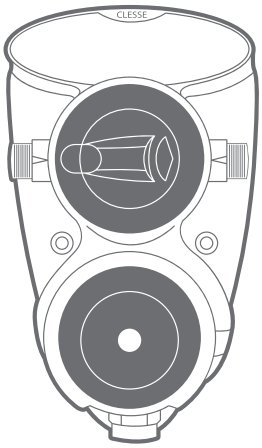
Development collaboration is with Aiut world leaders in telemetry solutions for LP gas and natural gas. Both Clesse and Aiut offer global solutions to enable ACO business operator's packages to suit their local requirements.



Reserve Notification | Cylinders replacement notification | Reserve Notification

- 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 with daily reporting to your business
- Tm (Telemetry Module) GSM and RF are ATEX zone 0 rated, encapsulated electronics with on-board battery pack





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.
- Use with the CompacTi app to remotely manage cylinders, order gas and confirmation of exchange

Communication And User Interface Features

- GSM or IoT communications options with Bluetooth as standard
- Compacti App free to use and packed with features to use, manage cylinders and personalise
- Bluetooth beacon broadcast status and alerts when cylinders need replacing
- Enhances standard mechanical regulator with intelligent optimisation
- Optional external antenna
- APULSE C373: optional RF version for mobile home parks
- Long life user replaceable Lithium battery pack - up to 10 years of use
- Integrated design with no external cables connecting telemetry
- 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)	Pdi	Outlet pressure (Pd)	Flow rate (LPG)		Type og gas	Limited PRV	OPSO	Accessories
					bar	bar	mbar	kg/h	kW		mbar	mbar	
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
0175T09	K2B	PIPE-1/4 INV FLARE	F5D	FEM-1/2NPT	2-16	1,5	-	10	138	Propane	-	-	EN 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''

CLESSE

CompacTi

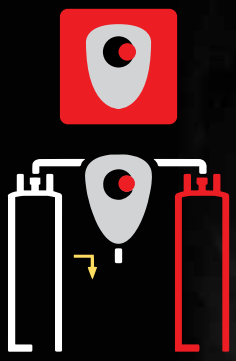
The future of LPGas / Electronic Cylinder Regulation

Transform standard Clesse CompacTR auto-changeover regulator (ACOTR) into an electronic hybrid

The electronic device slots into the back of the regulator offering improved gas cylinder efficiency, remote monitoring possibilities, and placing gas orders from the comfort of home

Build customer confidence

CompacTi – unique patented technology enables the device to delay the cylinder exchange notification based on usage and environmental conditions - Allows your customer to be confident that they have used all of their gas and gives you time to plan deliveries after app notification has been sent



The app programs the device with installation characteristics, and provides advanced information showing what's happening and when to change

Electronic gas regulator optimisation

Real time measurements of cylinder pressure, temperature, and time are processed using CII intelligence to optimise existing CompacTR ACO regulator

Compatible with Clesse ACOTR regulators, and is setup within 10 minutes, customers view the cylinder status on the app within bluetooth range as standard with no monthly cost

Subscribe to Standard Plus and enter the customer account details to smoothly transfer data using the in app function "ORDER GAS" and start receiving gas order requests direct to your email inbox.

Monitor **Alert** **Confirm**

www.clesse.co.uk/CompacTi

- With Standard Plus, CompacTi device is linked to your company displaying name and logo whenever Order Gas is selected
- Its an easy and low cost way to integrate new technology into your business to save time and improve efficiency whilst offering customers a great new level of service

What can the CompacTi device do for me?

S Standard

Free to use in CompacTi app

- **Download CompacTi free to use** application from the app store to set up your device, and monitor using Bluetooth connection within range
- **CompacTi app shows the status of your ACO** using Clesse Integrated Intelligence to ensure efficient consuming of all usable gas in the cylinder with or without having to set up an account
- **Installing more than one CompacTi device** - on a single account is no problem, start using straight away at no extra cost to monitor clustered installations such as holiday parks or condominiums
- **"Site Scan" – go and find the cylinders to exchange.** Walk or drive by and improve efficiency, using advanced filtering of harvested readings for quick and easy on app logistic management

SP Standard Plus

- **Save time and improve operations** by receiving mail requests straight to your email inbox
- **Plan deliveries** efficiently to save costs
- **Manage holiday or park home sites** using drive by site scan facility
- **Customer service and retention** - the device is linked to your company displaying name and logo in Order Gas function
- **Customers receive** email reminders to log in and check the cylinder status
- **Simple to use** easy to implement in any business

Why will my Gas Cylinder business benefit from CompacTi

- **Removes customer need** for physically checking cylinders and unnecessarily turning knob position
- **Perfect for elderly or disabled** users to view at a distance
- **No more last minute calls** from distressed customers
- **Retain non contract customers** by offering this service

P Premium

- **No need to drive**, walk by, or physically make regular cylinder checks
- **Late night calls eliminated** from remote customers with no gas, offer customers a complete managed cylinder replenishment service as a bulk tank replacement
- **Receive daily e-mail** spreadsheet with comprehensive details of cylinders to exchange
- **Access to web portal** option for additional analysis supported locally by Clesse. Great if managing large or multiple sites centrally
- **Streamline the cylinder operation** and further improve back office efficiency, scheduling maintenance teams, and cylinder deliveries

Ideal for:

- **Bulk tank replacement** – uneconomic bulk tanks or new business to maintain contractual services
- **Oil to Gas** – convenient replacement solutions based on cylinders
- **SMA aerial connection** – House all 4 cylinders in an aesthetic cabinet
- **Optimise logistics** and operations – integration into existing reporting systems
- **Add metering** to change your customer offer

The complete remote monitoring solution for contract customers using an installed private network, GSM or IoT communications providing consolidated information remotely

Multi Cylinder
CTR6650 - MCH4100

CTR6650 006650AA

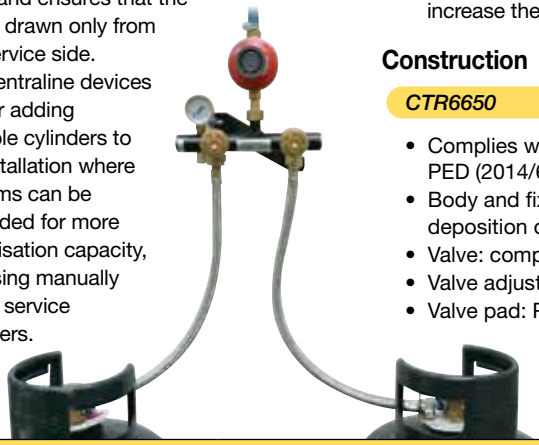
MCH4100 004161

006725AA-

006828CA

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.
- Minicentraline devices are for adding multiple cylinders to an installation where systems can be upgraded for more vaporisation capacity, choosing manually 1 or 2 service cylinders.



Features

- CTR6650 is 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

CENTRALINE CTR6650

Code	Inlet code	Inlet connection	Outlet code	Outlet connection	N° of Cylinders	Safety Valve	Manometer
006650AA	L1A	MAL W20LH-UNI	L1A	MAL W20LH-UNI	2	18 bar	0-25 bar
006650AB	L1A	MAL W20LH-UNI	L1A	MAL W20LH-UNI	2	-	-
006650BA	L1A	MAL W20LH-UNI	L1A	MAL W20LH-UNI	3	18 bar	0-25 bar
006650BB	L1A	MAL W20LH-UNI	L1A	MAL W20LH-UNI	3	-	-
006650CA	L1A	MAL W20LH-UNI	L1A	MAL W20LH-UNI	4	18 bar	0-25 bar
006650CB	L1A	MAL W20LH-UNI	L1A	MAL W20LH-UNI	4	-	-

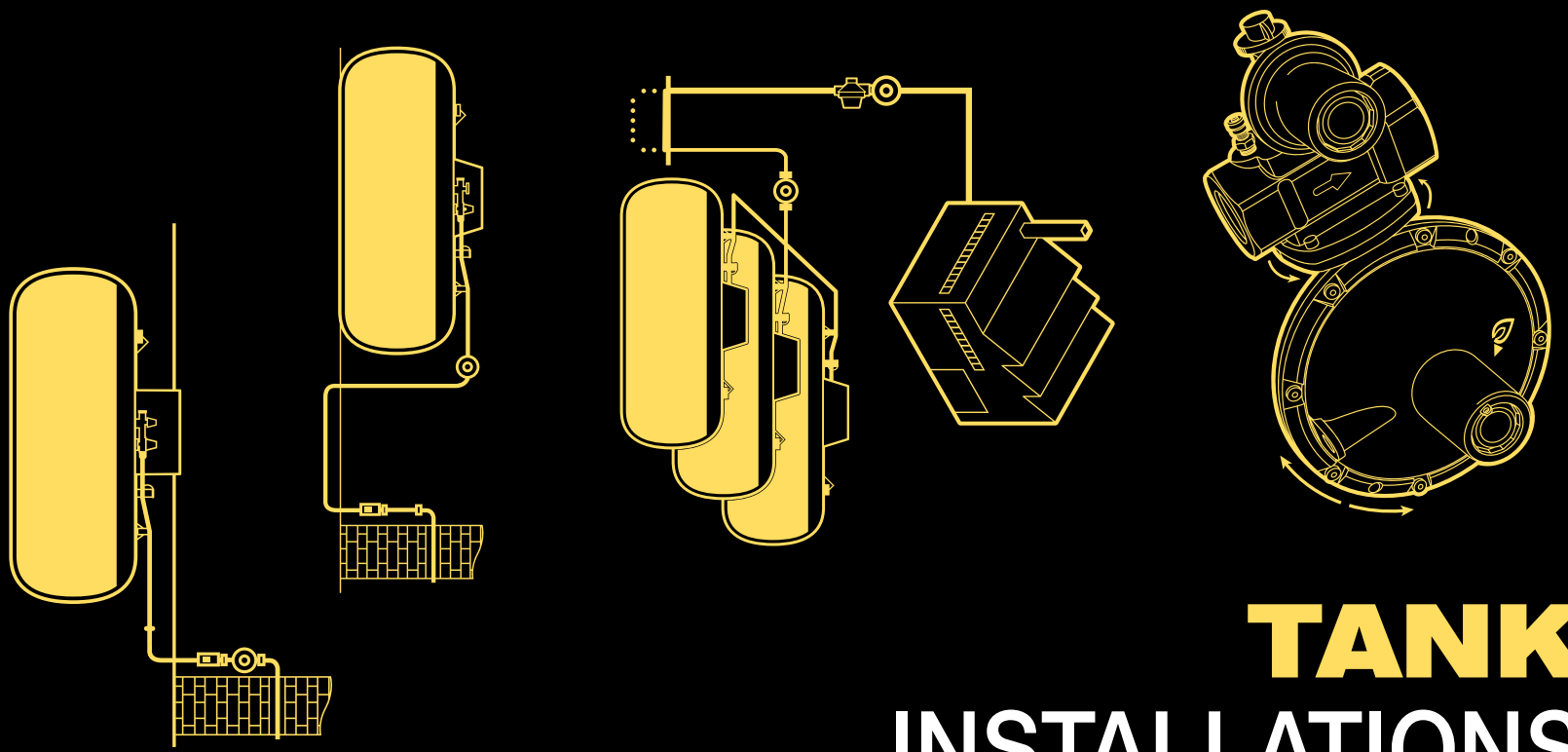
MANUAL CHANGEOVER MCH4100

Code	Inlet code	Inlet connection	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

MINICENTRALINE - MCTR6700

Code	Inlet code	Connections	Outlet code	Connections	Inlet pressure	Regulator	Outlet pressure	Capacity LPG		Relief Valve	Pad & Diaphragm material
					bar	stage	mbar	kg/h	kW	mbar	
006708	L1A	Dual cylinder - MAL W20LH-UNI	F2C	FEM-Rp3/8	0,3-16	Single	30	4	55	-	NBR
006715AA	L1A	Dual cylinder - MAL W20LH-UNI	F2C	FEM-Rp3/8	0,3-16	Single	30	4	55	-	FPM
006725AA	L1A	Dual cylinder - MAL W20LH-UNI	F2D	FEM-Rp1/2	0,3-16	Single	30	7	97	-	NBR
006726	L1A	Dual cylinder - MAL W20LH-UNI	F2D	FEM-Rp1/2	1-7,5	Single	29	10	75	75	NBR
006728AB	L1A	Dual cylinder - MAL W20LH-UNI	F2C	FEM-Rp3/8	0,3-16	Double	29	4	55	-	NBR
006828CA	L1A	Dual cylinder - MAL W20LH-UNI	F3D	FEM-Rc1/2	0,3-16	Single	29	4	55	75 + OPSO 125	NBR

CLESSE



TANK
INSTALLATIONS

Tank Regulation - 1st Stage

APZ250 – LPZ250 – APZ400 – Fixed Models

APZ250 002307AB

APZ400 002713AA

APZ400 002713AD

Application

- These fixed 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 30 kg/h and 40 kg/h (414kW and 552kW)
- They can be used in specific installation with air, nitrogen and other non-aggressive gases.

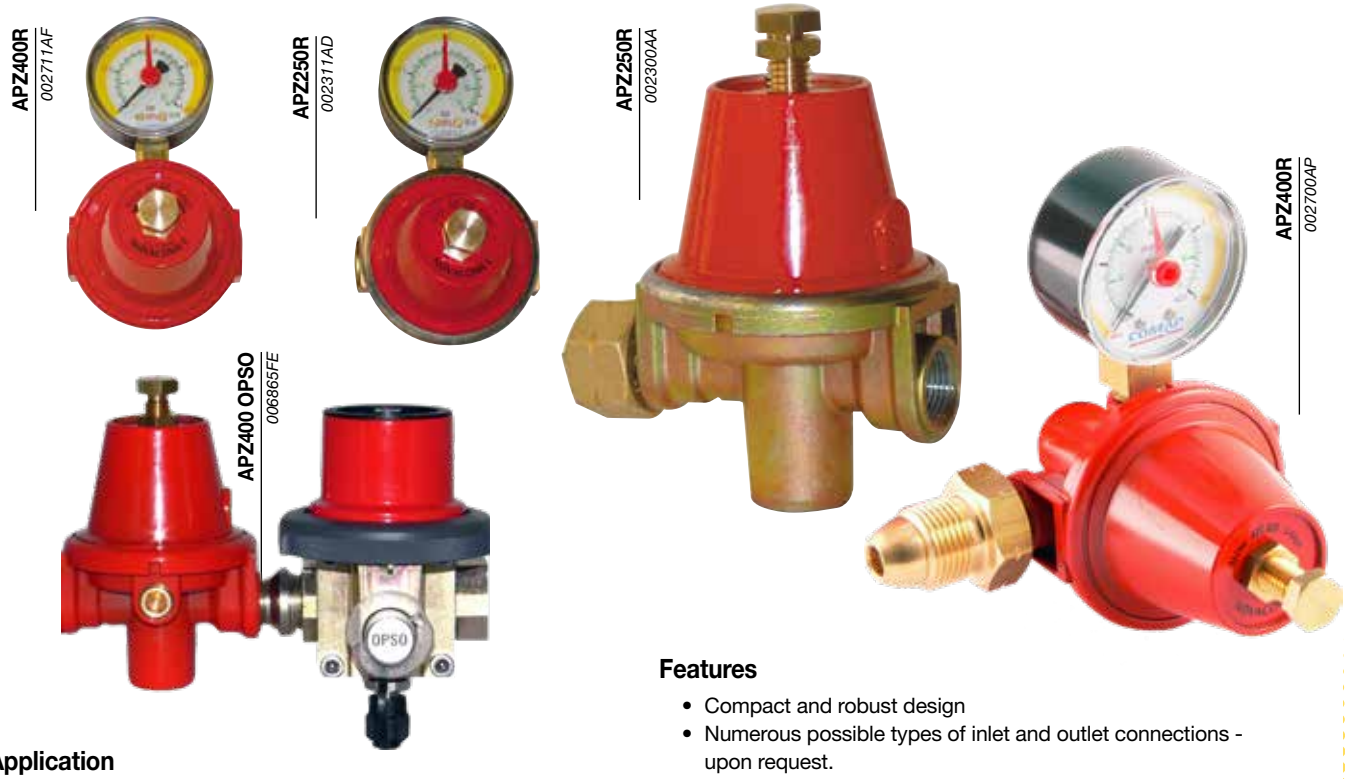
Features

- 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 (U) or downstream (D) of the regulator mostly containing pressure test points.

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	Manometer on outlet	Feature
					bar	bar	kg/h	kW		bar		
APZ250												
002307AC	N1A	NUT-W20LH-25-UNI	F2C	FEM-Rp3/8	2-16	1,5	30	414	LRV	-	MANO-DRY G1/4	-
LPZ250												
002313AF	N6A	NUT-M20x1,5RH	E6B	MAL-M20x1,5RH	1,25-16	1,75	30	414	-	-	PLUG G1/4	-
APZ400												
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	-
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	-
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
APZ400/OPSO												
006861CB	N1E	NUT-W20LH-UNI-G/G	F3D	FEM-Rc1/2	1,25-16	0,75	30	414	-	D/2,5	MANO-DRY G1/4	-



Application

- These 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

- Compact and robust design
- Numerous possible types of inlet and outlet connections - upon request.
- The APR250R and APZ400R 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)

Code	Inlet code	Inlet connection	Outlet code	Outlet connection	Inlet pressure (Pu)	Outlet pressure (Pd)	Flow rate (LPG)		PRV Type	OPSO	Manometer on outlet	Feature
					bar	bar	kg/h	kW		bar		
APZ250R												
002300AA	N1A	NUT-W20LH-25-UNI	F2C	FEM-Rp3/8	3,5-16	1-3	30-50	414-690	-	-	PLUG G1/4	-
002300AB	N1A	NUT-W20LH-25-UNI	F2C	FEM-Rp3/8	3,5-16	1-3	30-50	414-690	-	-	MANO-DRY G1/4	-
002300AE	F2B	FEM-Rp1/4	F2C	FEM-Rp3/8	3,5-16	1-3	30-50	414-690	-	-	MANO-DRY G1/4	-
002300AM	N6A	NUT-M20x1,5RH	E6B	MAL-M20x1,5RH	3,5-16	1-3	30-50	414-690	-	-	MANO-DRY G1/4	-
002311AA	F2B	FEM-Rp1/4	F2C	FEM-Rp3/8	3,5-16	1-3	30-50	414-690	-	-	PLUG G1/4	-
002311AD	F2B	FEM-Rp1/4	F2C	FEM-Rp3/8	2,5-16	0,5-2	25-40	345-552	LRV	-	MANO-DRY G1/4	-
002311AE	N1A	NUT-W20LH-25-UNI	F2C	FEM-Rp3/8	2,5-16	0,5-2	25-40	345-552	LRV	-	MANO-DRY G1/4	-
002311AF	F2B	FEM-Rp1/4	F2C	FEM-Rp3/8	1,9-16	0,5-1,4	25-40	345-552	-	-	PLUG G1/4	-
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	(0,75) 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
APZ400V												
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
APZ400/OPSO												
006861FA	F3D	FEM-Rc1/2	F2C	FEM-Rp3/8	1,25-16	0,5-2	40	552	-	U/2,5	SCHRADER VALVE	-
006865FE	F2B	FEM-Rp1/4	F3E	FEM-Rc3/4	1,25-16	0,5-2	40	552	-	D/2,5	SCHRADER VALVE	-

Tank Regulation - 1st Stage

AP40 – AP40V – LP40 – AP40R – AP40 OPSO

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 20kg/h and 70kg/h (276kW and 966kW).
- 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 (U) or downstream (D) of the regulator mostly containing pressure test points.
- Better resistance with a body in aluminium

Construction

- 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)	Outlet pressure (Pd)	Flow rate (LPG)		PRV Type	OPSO	Manometer on outlet
					bar	bar	kg/h	kW		bar	
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
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	SCHRADER VALVE
006861FD	F3D	FEM-Rc1/2	F3D	FEM-Rc1/2	2,5-12 (16)	0,5 (0,5-2)	60	828	-	U/2,5	SCHRADER VALVE
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

APS2000 002513BA

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 limitor**
  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/UE
- 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)	Outlet pressure (Pd)		Flow rate (LPG)			Flow rate (NG)		Manometer on intlet	Manometer on outlet
					bar	bar	type	kg/h	kW	Rule*	(n)m3/h	kW		
APS2000														
002560BK	F3E	FEM-Rc3/4	F3E	FEM-Rc3/4	1,25 - 16	0,75	Fix	100	1380	EU	80	890	MANO-DRY G1/4	MANO-DRY 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)							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	Variable	150	2070	EU	120	1340	PLUG G1/4	MANO-DRY G1/4
002560BF	F3E	FEM-Rc3/4	F3E	FEM-Rc3/4									PLUG G1/4	PLUG G1/4
002560BG	F3E	FEM-Rc3/4	F3E	FEM-Rc3/4									MANO-DRY G1/4	MANO-DRY G1/4
002560BH	F3E	FEM-Rc3/4	F3E	FEM-Rc3/4									MANO-OIL G1/4	MANO-OIL G1/4
002540AC	F3F	FEM-Rc1	F3F	FEM-Rc1									MANO-OIL G1/4	MANO-OIL G1/4
002560CA	F1F	FEM-G1	F1F	FEM-G1									MANO-OIL G1/4	MANO-OIL G1/4
002510AA	F3E	FEM-Rc3/4	F3E	FEM-Rc3/4	3,5 - 16	1-3							PLUG G1/4	MANO-DRY G1/4
002530AA	F3E	FEM-Rc3/4	F3E	FEM-Rc3/4									MANO-DRY G1/4	MANO-DRY G1/4
002540AA	F3E	FEM-Rc3/4	F3E	FEM-Rc3/4									MANO-OIL G1/4	MANO-OIL G1/4
002560BB	F3E	FEM-Rc3/4	F3E	FEM-Rc3/4									PLUG G1/4	PLUG G1/4
002540AB	F3F	FEM-Rc1	F3F	FEM-Rc1									MANO-OIL G1/4	MANO-OIL G1/4
002560BJ	F3F	FEM-Rc1	F3F	FEM-Rc1									PLUG G1/4	PLUG G1/4
002513BA	F5E	FEM-3/4NPT	F5E	FEM-3/4NPT	max 17,2			250	3450	US-30	-	-	PLUG G1/4	PLUG G1/4
002513BB	F5F	FEM-1NPT	F5F	FEM-1NPT	max 17,2						-	-	PLUG G1/4	PLUG G1/4
002560BA	F5E	FEM-3/4NPT	F5E	FEM-3/4NPT	max 17,2	0,2-2					-	-	PLUG G1/4	PLUG G1/4
002561AB	F5F	FEM-1NPT	F5F	FEM-1NPT	max 17,2	0,2-2					-	-	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 500 kBTU/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.

Tank Regulation - 1st Stage

325 – 325V – 1325 – 1325V – 4325

NF GAZ

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
- Valve pad: NBR
- 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.

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	
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	1,05-16	1,8	40	552	Schrader valve
002741AC	N6A	NUT-M20x1,5RH	E6B	MAL-M20x1,5RH	2,1-16	4	40	552	PLUG G1/4
002741AE	N6A	NUT-M20x1,5RH	E6B	MAL-M20x1,5RH	1,05-16	1,8	40	552	PLUG G1/4
002741AB	N6A	NUT-M20x1,5RH	E6B	MAL-M20x1,5RH 1x14mm Braz Fit	1,05-16	1,8	40	552	PLUG G1/4

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 (Pu=Pd+0,5bar) 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
- Valve pad: NBR
- 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.

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	E1E	MAL-G3/4RH	3,5-16	3	150	2070	PLUG G1/4
1346									
002571AB	E1E	MAL-G3/4RH	E1E	MAL-G3/4RH	Pd+0,5 - 16	1-3	150	2070	MANO-DRY G1/4
002571AD	N5N	NUT-G3/4RH-NF-LINE	E1E	MAL-G3/4RH	Pd+0,5 - 16	1-3	150	2070	MANO-DRY G1/4
002571AE	N5N	NUT-G3/4RH-NF-LINE	E1E	MAL-G3/4RH	Pd+0,5 - 16	2-6	150	2070	MANO-OIL 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	Pd+0,5 - 16	1-3	150	2070	MANO-DRY G1/4
4346									
002574AA	N5N	NUT-G3/4RH-NF-LINE	E1E	MAL-G3/4RH	1,05-16	1,8	150	2070	PLUG G1/4
002574AE	N5N	NUT-G3/4RH-NF-LINE	E1E	MAL-G3/4RH	2,1-16	4	150	2070	PLUG G1/4
8346									
006869LA	N5N	NUT-G3/4RH-NF-LINE	E1E	MAL-G3/4RH	2-16	1,5	150	2070	PLUG G1/4
006869LB	N5N	NUT-G3/4RH-NF-LINE	E1E	MAL-G3/4RH	Pd+0,5 - 16	1-3	150	2070	MANO-OIL G1/4

Tank Regulation - 1st Stage

APS2 – APS2M

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)		OPSO	Manometer on intlet	Manometer on outlet
						bar	type	kg/h	kW	(n)m3/h	kW	bar		
APS2														
006880AC	F3F	FEM-Rc1	F3F	FEM-Rc1	1 - 16	0.5	Fix	150	2070	120	1340	2,5 (2-4)	PLUG G1/4	MANO-OIL 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
006880FC	B6F	FLG-PN40-DN25	B6F	FLG-PN40-DN25	2 - 16	1.5		150	2070	120	1340	2,5 (2-4)	PLUG G1/4	Schrader Valve
006880CA	F3F	FEM-Rc1	F3F	FEM-Rc1	2,5 - 16	0,75 (0,5 - 2)	Adjustable	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	Variable	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
006880TB	F3F	FEM-Rc1	F3F	FEM-Rc1	4	0.3		250	3450	200	2240	0.6	PLUG G1/4	PLUG G1/4
006880TA	F3F	FEM-Rc1	F3F	FEM-Rc1	4	1	Fix	250	3450	200	2240	2	PLUG G1/4	MANO-OIL G1/4
006880TC	F3F	FEM-Rc1	F3F	FEM-Rc1	4	1		250	3450	200	2240	2	PLUG G1/4	PLUG G1/4
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)

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

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
- Valve pad: NBR

Code	Inlet code	Inlet connection	Outlet code	Outlet connection	Inlet pressure (Pu)	Outlet pressure (Pd)	Flow rate (LPG)		Flow rate (NG)		Impulse	OPSO
					bar	bar	kg/h	kW	(n)m3/h	kW	type	bar
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
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												
051081AA	F2F	FEM-Rp1	F2F	FEM-Rp1	2,0-16	0,7 (0,5-0,9)	300	4140	240	2688	Internal	2 (1-3)
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
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
1392HF OPSO												
051082BK	F2F	FEM-Rp1	F2K	FEM-Rp1.1/2	2,5-16	0,3 (0,25-0,4)	150	2070	200	2240	Internal	0,45 (0,25-0,6)
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	42461	3(2-3,2)	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	-
1392HB Active Monitor												
051102AB	B4L	FFLG ANSI 300-DN50	B6L	RFLG PN40-DN50	2,5-16	1,5 (1,0-2,1)	180	2484	145	1624	Internal	Pressure limiter 1,8 bar
051102AG	B4L	FFLG ANSI 300-DN50	B6L	RFLG PN40-DN50	4-16	1,5 (1,0-2,1)	280	3864	225	2520	Internal	Monitor regulator 2,5 bar

Tank Regulation - 1st Stage

1394 - 1394 OPSO - 1395 - 1395 OPSO

1394 OPSO *0510084AB*

1395HB *051005AB*

1395HB OPSO *051085AA*

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
- Valve pad: NBR

Code	Inlet code	Inlet connection	Outlet code	Outlet connection	Inlet pressure (Pu)	Outlet pressure (Pd)	Flow rate (LPG)		Flow rate (NG)		Impulse	OPSO
					bar	bar	kg/h	kW	(n)m3/h	kW	type	bar
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
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)

Springs

For 1392, 1394 and 1395 range regulators, it's possible to set the outlet pressure in a wider range than the nominal range. To do this, the setting spring must be replaced by one of the springs as indicated in the tables

Code	Type of compatible regulators	Pressure range bar	Spring color	
051012AE	**1392HF / 1392HB / 1392HE**	0,38 - 0,6		White
051012AF	**1392HF / 1392HB / 1392HE**	0,56 - 0,88		Green
051012AG	**1392HF / 1392HB / 1392HE**	0,8 - 1,3		Black
051012AH	**1392HF / 1392HB / 1392HE**	1,0 - 2,1		Grey
051012AN	**1392HF / 1392HB / 1392HE**	2,2 - 3,9		Grey
051015AG	**1395HB**	0,58 - 0,9		Green
051015AH	**1395HB**	0,85 - 1,25		Black
051015AJ	**1395HB**	1,1 -2,0		Grey
051015AK	**1395HB**	1,85 - 4,0		Purple

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

Code	Inlet code	Inlet connection	Outlet code	Outlet connection	Inlet pressure (Pu)	Outlet pressure (Pd)	Flow rate		Type of gas	Filter	LRV	Pad material
					bar	mbar	kg/h	kW			mbar	
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
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
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
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
000867AD	F3B	FEM-Rc1/4	F2D	FEM-Rp1/2	0,5-7,5	37 (33-45)	7	97	LPG	-	85	NBR
000869AD	F5B	FEM-1/4NPT	F5D	FEM-1/2NPT	0,5-11	37 (33-45)	10	138	Propane	-	85	FPM
000869AE	F5B	FEM-1/4NPT	F5D	FEM-1/2NPT	0,5-11	50 (47-57)	10	138	LPG	-	95	FPM
000869AC	F5B	FEM-1/4NPT	F5D	FEM-1/2NPT	0,5-11	67 (50-80)	10	138	LPG	-	115	FPM
000869AF	N6A	NUT-M20x1,5RH	E6B	MAL-M20x1,5RH	0,5-4	37 (33-45)	10	138	LPG	Y	85	FPM
000869AG	N6A	NUT-M20x1,5RH	E6B	MAL-M20x1,5RH	0,5-4	50 (47-57)	10	138	LPG	Y	95	FPM
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
000860AA	F5B	FEM-1/4NPT	F5D	FEM-1/2NPT	0,5-4	37 (33-45)	10	138	Propane	-	75	FPM
000860AH	F2D	FEM-Rp1/2	F2D	FEM-Rp1/2	0,7-4	37 (33-45)	10	138	Propane	-	75	NBR
000860AJ	F2D	FEM-Rp1/2	F2D	FEM-Rp1/2	0,7-4	50 (47,5-57,5)	10	138	Propane	-	90	NBR
456P												
000892AB*	E1E	MAL-G3/4RH	E1E	MAL-G3/4RH	0,5-2,1	37	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

* NF certified

Code	Inlet code	Inlet connection	Outlet code	Outlet connection	Inlet pressure (Pu)	Outlet pressure (Pd)	Flow rate		Type of gas	FV	Vent orientation	Color
					bar	mbar	kg/h	kW		mbar		
BP2202FV												
000815BD	F5D	FEM-1/2NPT	F5D	FEM-1/2NPT	0,5-2	30	12	166	LPG	75	4 hours	Green

Tank Regulation - 2nd stage

BP2203 – BP2233 – Group APZ400 + BP2203

BP2203 006827AA

BP2203 006827BC

APZ400 + BP2203 006881AA

Application

- These products mainly used in domestic or commercial LPGas 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.

Code	Inlet code	Inlet connection	Outlet code	Outlet connection	Inlet pressure (Pu) bar	Outlet pressure (Pd) mbar	Flow rate		Type of gas	PRV	OPSO	Vent	UPSO	Wall bracket	Diaphragm Material	Test Point Type
							kg/h	kW		mbar	mbar	Type	mbar			
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	8 mm
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	8 mm
006827AD	F3D	FEM-Rc1/2	F3E	FEM-Rc3/4	0,6-2	75	12,5	174	LPG	115	140	GIRO-tube Ø6	-	-	NBR-R	8 mm
006827BA	F3D	FEM-Rc1/2	F3D	FEM-Rc1/2	0,5-2	29	10,5	145	LPG	75	135	GIRO-tube Ø6	-	-	NBR	8 mm
006827BB	F3D	FEM-Rc1/2	F3D	FEM-Rc1/2	0,5-4	20	10,5	145	LPG	65	135	GIRO-tube Ø6	-	-	NBR	8 mm
006827BC	F3D	FEM-Rc1/2	F3D	FEM-Rc1/2	0,5-2	29	10,5	145	LPG	75	135	GIRO-tube Ø6	22	-	NBR	8 mm
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	-
BP2233																
006828AB	F2B	FEM-Rp1/4	F3D	FEM-Rc1/2	0,3-16	29	4	55	LPG	75	125	Hole Ø2-5h	-	-	NBR	8 mm
006828AE	N1E	NUT-W20LH-UNI-G/G	F3D	FEM-Rc1/2	0,3-16	37	3	13	LPG	75	125	Hole Ø2-11h		Y	NBR	-
GROUP: APZ400+BP2203 OPSO																
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	8 mm
006881AC	F2B	FEM-Rp1/4	F3E	FEM-Rc3/4	1,5-16	75	12,5	173	Propane	115	140	GIRO-tube Ø6	-	-	NBR-R	8 mm
006881BA	N5E	NUT-G3/4RH-T	F3E	FEM-Rc3/4	2-16	29	10,5	145	LPG	75	135	GIRO-tube Ø6	-	-	NBR-R	8 mm

BP2284 006829FC

BP2284 006829SD

BP2284 006829MT

DESIGNED FOR OUTDOOR USE

Compact Regulators also compatible for LPG metering

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 5 bar 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

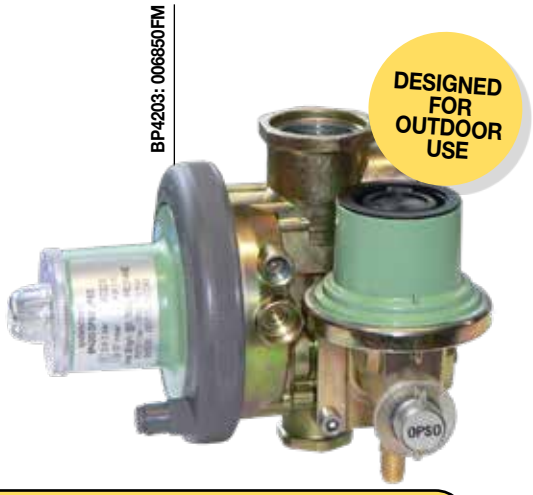
- Compact design
- Dual inlet and outlet connections. The plugs which are factory fitted on one of these inlets and outlets can be unscrewed and moved so as to achieve the desired position.
- **OPSO:** Over Pressure Shut-Off safety device:
  - Visual indicator displays the open-close state.
  - Easy 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.

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	PRV	OPSO	UPSO	Test Point Type	Lay Out	Cover	Vent	Diaphragm
									kW	mbar	mbar	mbar				Type - Position	Material
BP2284																	
006829DR*	F1D	FEM-G1/2RH	F1E	FEM-G3/4RH	1-5	55	-	10	112	80	125	-	-	Ang. ⌐┐	Reduced-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. ⌐┐	Reduced-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. ⌐┐	Reduced-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. ⌐┐	Reduced-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. ⌐┐	Reduced-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. ⌐┐	Reduced-Green	G1/8-tube Ø6-6h	NBR-R
006829EV	F1D	FEM-G1/2RH	F1E	FEM-G3/4RH	1-5	75	10	8	140 (LPG)-90 (NG)	115	140	50	8 mm	Ang. ⌐┐	STD-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	8 mm	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	8 mm	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	-	8 mm	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	-	8 mm	In Line	Giro-Red	Giro	NBR
006829MV	F3D	FEM-Rc1/2	F3E	FEM-Rc3/4	0,3-2	37	10	-	138	75	135	29	8 mm	In Line	Giro-Red	Giro	NBR
006829SD*	F1D	FEM-G1/2RH	F1E	FEM-G3/4RH	1-5	21	-	10	112	45	70	-	-	Ang. ⌐┐	Reduced-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. ⌐┐	Reduced-Green	G1/8-tube Ø6-6h	NBR

* UNE 60411

Tank Regulation - 2nd stage

BP4203



Compact Regulators also compatible for LPG metering

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

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 (m3/h)	Flow rate kW	PRV mbar	OPSO mbar	UPSO mbar	Test point	Lay Out	Cover	Vent Position
BP4203																
006850MA	F1D	FEM-G1/2RH	F1F	FEM-G1RH	1 - 16	37	30@0,75 bar	-	414	75	135	25	Y	In line	Giro-Red	Giro
006850MB	NAE	NUT-G3/4-JSC-SPHERE-DN16	N5J	NUT-G1.1/4RH-NF	0,5 - 1,5	37	30@0,75 bar	-	414	75	135	25	Y	Ang. ¬┐	Giro-Red	Giro
006850MV	F1D	FEM-G1/2RH	F1F	FEM-G1RH	0,5 - 1,5	37	30@0,75 bar	-	414	75	135	25	Y	In line	Giro-Red	Giro
006850AF	F1D	FEM-G1/2RH	F1F	FEM-G1RH	0,25 - 2	37	17 30@0,75 bar	-	235 (414)	75	135	-	-	In line	Giro-Red	Giro
006850FM	F1D	FEM-G1/2RH	F1F	FEM-G1RH	0,6 - 2	37	30@0,75 bar	-	414	75	110	25	-	In line	Giro-Green	Giro
006850TA	F1D	FEM-G1/2RH	F1E	FEM-G3/4RH	0,5 - 5	21	-	25	280	35	50	-	-	Ang. ¬┐	STD-Green	G1/8-tube Ø6-6h
006850AA*	F1D	FEM-G1/2RH	F1F	FEM-G1RH	1 - 5	21	-	25	280	45	70	-	Y	In line	Reduced-Green	G1/8-tube Ø6-6h
006850AB*	F1D	FEM-G1/2RH	F1F	FEM-G1RH	1 - 5	21	-	25	280	45	70	12	Y	In line	Reduced-Green	G1/8-tube Ø6-6h
006850AC*	F1D	FEM-G1/2RH	F1F	FEM-G1RH	1 - 5	55	-	25	280	80	125	-	Y	In line	Reduced-Green	G1/8-tube Ø6-6h
006850SP*	E1E	MAL-G3/4RH	N5J	NUT-G1.1/4RH-NF	1 - 5	21	-	25	280	45	70	12	Y	Ang. ┌─	Reduced-Green	G1/8-tube Ø6-6h
006850SA*	E1E	MAL-G3/4RH	N5J	NUT-G1.1/4RH-NF	1 - 5	55	-	25	280	80	125	-	Y	Ang. ┌─	Reduced-Green	G1/8-tube Ø6-6h
006850SB*	E1E	MAL-G3/4RH	N5J	NUT-G1.1/4RH-NF	1 - 5	100	-	25	280	200	250	-	Y	Ang. ┌─	Reduced-Green	G1/8-tube Ø6-6h
006850SC*	E1E	MAL-G3/4RH	N5J	NUT-G1.1/4RH-NF	1 - 5	150	-	25	280	250	300	-	Y	Ang. ┌─	Reduced-Green	G1/8-tube Ø6-6h
006850SD	E1E	MAL-G3/4RH	N5J	NUT-G1.1/4RH-NF	1 - 5	300	-	25	280	420	500	-	Y	Ang. ┌─	Reduced-Green	G1/8-tube Ø6-6h

* UNE60411

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).

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)	Outlet pressure (Pd)	Flow rate (LPG)		PRV	OPSO	Vent	UPSO	Pad	Diaphragm
					bar	mbar	kg/h	kW	mbar	mbar	Type - Position	mbar	material	material
BP2303														
001050AA	F2D	FEM-Rp1/2	F3E	FEM-Rc3/4	0,5-4	30 (27-36)	30	414	75 (60-90)	-	G1/4-tube Ø8-0h	-	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-tube Ø8-0h	-	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-tube Ø8-0h	-	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-tube Ø8-4h	-	NBR	NBR-R
001052AB	F2D	FEM-Rp1/2	F3E	FEM-Rc3/4	0,5-4	50 (45-60)	30	414	100	-	G1/4-tube Ø8-4h	-	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-tube Ø8-0h	-	FPM	NBR-R
001053AB	F5D	FEM-1/2NPT	F5E	FEM-3/4NPT	1,0-4	500 (350-500)	30	414	750	-	G1/4-tube Ø8-0h	-	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-tube Ø8-0h	20	NBR	NBR-R
001060BA***	M3E	MAL-Rc3/4	F3E	FEM-Rc3/4	60-90	37	8	110	75 (60-90)	-	G1/4-tube Ø8-6h	29	NBR	NBR-R
BP2303R														
001070AA	F2D	FEM-Rp1/2	F3E	FEM-Rc3/4	0,5-4	10-200	30	414	LRV (+60)	-	G1/4-tube Ø8-0h	-	NBR	NBR-R
001070AB	F2D	FEM-Rp1/2	F3E	FEM-Rc3/4	0,5-4	20-300	30	414	LRV (+60)	-	G1/4-tube Ø8-0h	-	NBR	NBR-R
001070AC	F2D	FEM-Rp1/2	F3E	FEM-Rc3/4	0,5-4	20-300	30	414	-	-	G1/4-tube Ø8-0h	-	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-tube Ø8-0h	-	NBR	NBR-R
001070BA	F2D	FEM-Rp1/2	F3E	FEM-Rc3/4	1,2-7,5	20-200	20	276	LRV (+60)	-	G1/4-tube Ø8-0h	-	NBR	NBR-R
001071AA	F5D	FEM-1/2NPT	F5E	FEM-3/4NPT	0,8-4	20-300	30	414	LRV (+60)	-	G1/4-tube Ø8-0h	-	FPM	NBR-R
BP2303 OPSO														
006830AD	F5D	FEM-1/2NPT	F5E	FEM-3/4NPT	0,7-3	500	25	345	750	1300	G1/4-tube Ø8-0h	-	NBR	NBR-R
006830BA	F3D	FEM-Rc1/2	F3E	FEM-Rc3/4	0,5-4	29 (27-36)	30	414	75	135	G1/4-tube Ø8-0h	-	NBR	NBR-R
006830BB	F3D	FEM-Rc1/2	F3E	FEM-Rc3/4	1-4	37 (33-45)	30	414	75	135	G1/4-tube Ø8-0h	-	NBR	NBR-R
006835BA	F3D	FEM-Rc1/2	F3E	FEM-Rc3/4	0,5-4	29 (27-36)	25	345	75	135	G1/4-tube Ø8-0h	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-tube Ø8-0h	16	NBR	NBR-R
006836RB	F3E	FEM-Rc3/4	F3E	FEM-Rc3/4	0,6-2	37	30	414	75	110	G1/4-tube Ø8-6h	29	NBR	NBR-R
006837AA	F5D	FEM-1/2NPT	F5E	FEM-3/4NPT	0,8-2	350	50	690	-	500	G1/4-tube Ø8-6h	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

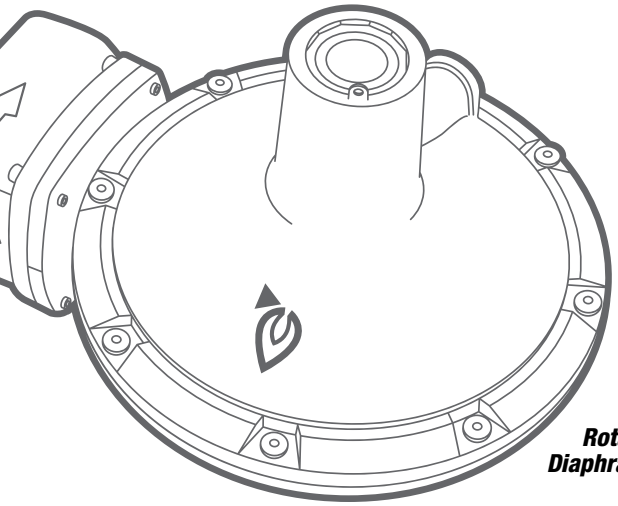
Tank Regulation - 2nd Stage

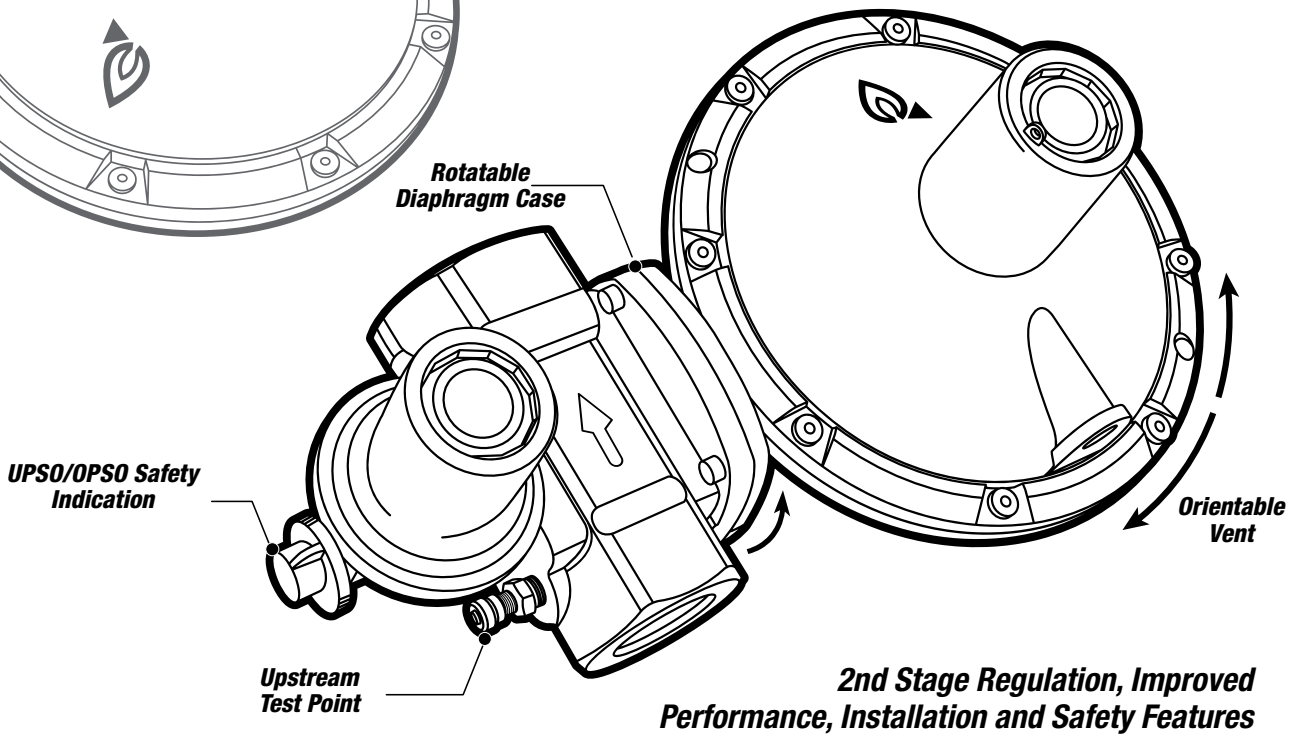
BP2403 - BP24 Range

Features

Capacity up to 350 kg/h (4800 kW)
Rotatable Vent
Inlet pressure from 0.05 to 6 bar
Rotatable diaphragm case

Installer and customer friendly:
Easy installation / Safety devices and adjustment options





2nd Stage Regulation, Improved Performance, Installation and Safety Features

• OPSO safety and UPSO safety indication *

- ✓ BP24F regulators may be fitted with a safety OPSO valve which interrupts the flow of gas upstream in case of over pressure. The intervention OPSO value is factory pre-set.
- ✓ UPSO may be generated by interruption of upstream gas supply, excessive gas consumption, gas supply pipe obstruction. The intervention UPSO value is factory pre-set.
- ✓ OPSO / UPSO has a visual indicator.
- ✓ Easily resettable.
- ✓ Possible sealing means to prevent from any improper reset.
- ✓ Certain models of BP24F may additionally equipped with an UPSO safety function which interrupts the flow of gas in case of low pressure. In this case, UPSO function is integrated in the OPSO device.

• Orientable vent - New "Rotatable Vent"

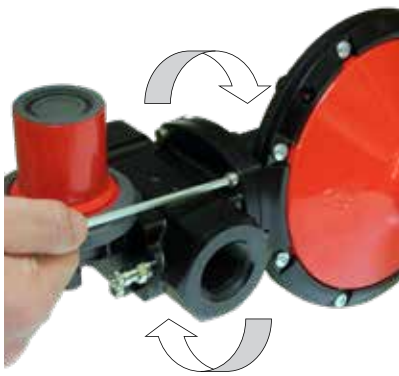
Breather vent orientation, made easy by the new design of Rotatable Vent cover to ensure water is prevented from entering and/or accumulating in the regulator, either by rain, humidity or condensation. The operation can be carried out on site by a qualified engineer.

• Connectable vent

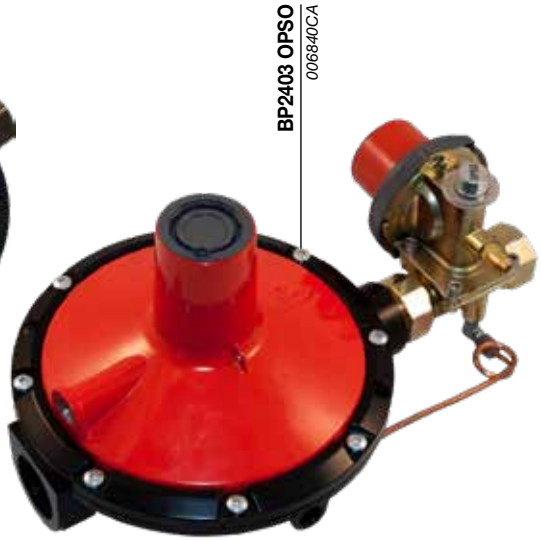
- ✓ The vent may be connected to a pipe, which allows to unload in a safe area, the pressurised gas released by the PRV,
- ✓ Vent device is pre-equipped with an internal filter preventing intrusion from undesirable element (spider, dust…),
- ✓ Connection type: Female G1/4" RH.

• New Rotatable Diaphragm Case

After installation into the pipework, it's easy to rotate the diaphragm casing to fit into confined spaces or to position the vent downward as requested previously. Please proceed as follows:



*** OPSO = Over Pressure Shut Off UPSO = Under Pressure Shutt Off**



Application

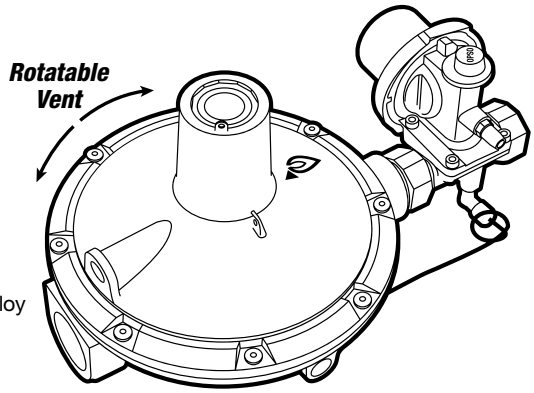
- High capacity flow rates at both low and high inlet pressure ranges
- Mainly used in medium and large power installations(domestic metered networks, commercial, agricultural or industrial) as final stage or intermediate stage pressure reduction
- Suitables for all types of LPG, natural gas, synthetic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

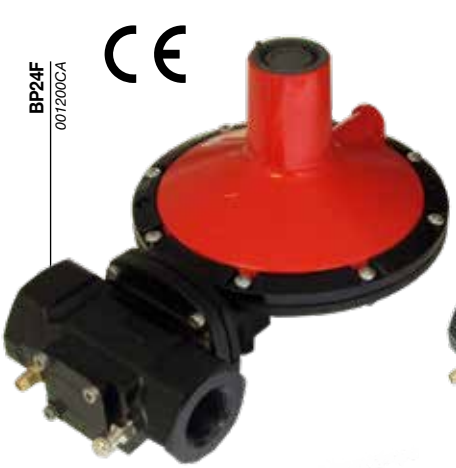


Code	Inlet code	Inlet connection	Outlet code	Outlet connection	Inlet pressure (Pu) bar	Outlet pressure (Pd) mbar	Declared gas	Flow rate		PRV	OPSO	UPSO	Original vent orientation*	Performances rule
								kg/h of propane or LPG ((S)m3/h of NG)	kW	mbar	mbar	mbar		
BP2403														
001107CB	F3E	FEM-Rc3/4	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 **
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
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)
001107CA					(0,3) 0,5 - 2	37 (32 - 46)	Propane	50 (40)	690 (552)	-	-	-	0	EN 16129 (ΔP5)
001107CC					0,7 - 5	148 (65 - 155)	Propane	45 (NG 35)	621 (NG 392)	-	-	-	7	EN 16129
001107CD					0,8 - 5	300 (200 - 350)	Propane	70 (NG 55)	966 (NG 616)	-	-	-	0	EN 16129
001117CA	N6A	NUT-M20X1,5RH			0,5 - 2	37 (32 - 46)	Propane	40	552	75	-	-	5	EN 16129 (ΔP5)
001118CA					0,5 - 2	50 (35 - 75)	LPG	40	552	115		-	5	EN 16129
BP2403 UPSO														
001120CB	F3E	FEM-Rc3/4	F3F	FEM-Rc1	0,5 - 2	30 (24 - 41)	LPG	40	552	75	-	22	0	EN 16129
001120CA					50 - 500 mbar	37 (32 - 42)	Propane	12	166	75	-	28	7	BS 6891 **
BP2403R														
001111CC	F5E	FEM-3/4NPT	F5F	FEM-1NPT	0,5 - 4	20 - 300	LPG	20 - 50	276 - 690	+75	-	-	0	EN 16129
001110CA	F3E	FEM-Rc3/4	F3F	FEM-Rc1	0,4 - 4	10 - 200	LPG	10 - 40	138 - 552	+75	-	-	0	EN 16129
001111CD					0,5 - 4	20 - 300	LPG	20 - 50	276 - 690	+75	-	-	0	EN 16129
001112CA					0,5 - 4	100 - 300	LPG	30 - 50	414 - 690	-	-	-	0	EN 16129
BP2403 OPSO														
006840CA	F3E	FEM-Rc3/4	F3F	FEM-Rc1	0,5 - 2	30 (24 - 41)	LPG	50	690	75	140	-	0	EN 16129
006840CB					0,5 - 2	37 (32 - 46)	Propane	50	690	75	140		0	EN 16129 (ΔP5)
006842CB					0,5 - 2	75 (60 - 95)	Propane	40 (60@1 bar)	552 (828)	115	140	-	7	BS 6891 **
006842CA					0,7 - 5	148 (65 - 155)	Propane	40 (NG 30)	552 (NG 336)	-	300	-	7	EN 16129
006842CC					0,8 - 5	300 (200 - 350)	Propane	60 (NG 50)	828 (NG 560)	-	500	-	7	EN 16129
BP2403 OPSO / UPSO														
006845CB	F3E	FEM-Rc3/4	F3F	FEM-Rc1	0,24 - 0,5	21 (19 - 23)	NG	-	-	50	70	12	7	EN 16129
006845CA					0,5 - 2	30 (24 - 41)	LPG	40 (60@1 bar)	552 (828)	75	100	22	0	EN 16129
006846CB					0,5 - 2	37 (32 - 46)	Propane	40 (60@1 bar)	552 (828)	75	100	28	7	BS 6891 **
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 connection = 6 hours and the output direction = 12 hours
** Designed, manufactured and tested according to EN 16129 standard

Tank Regulation - 2nd Stage

BP24F - BP24F UPSO - BP24FR - BP24S - BP24S UPSO



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 for BP24F range
- The regulator vent can be connected to a pipe.

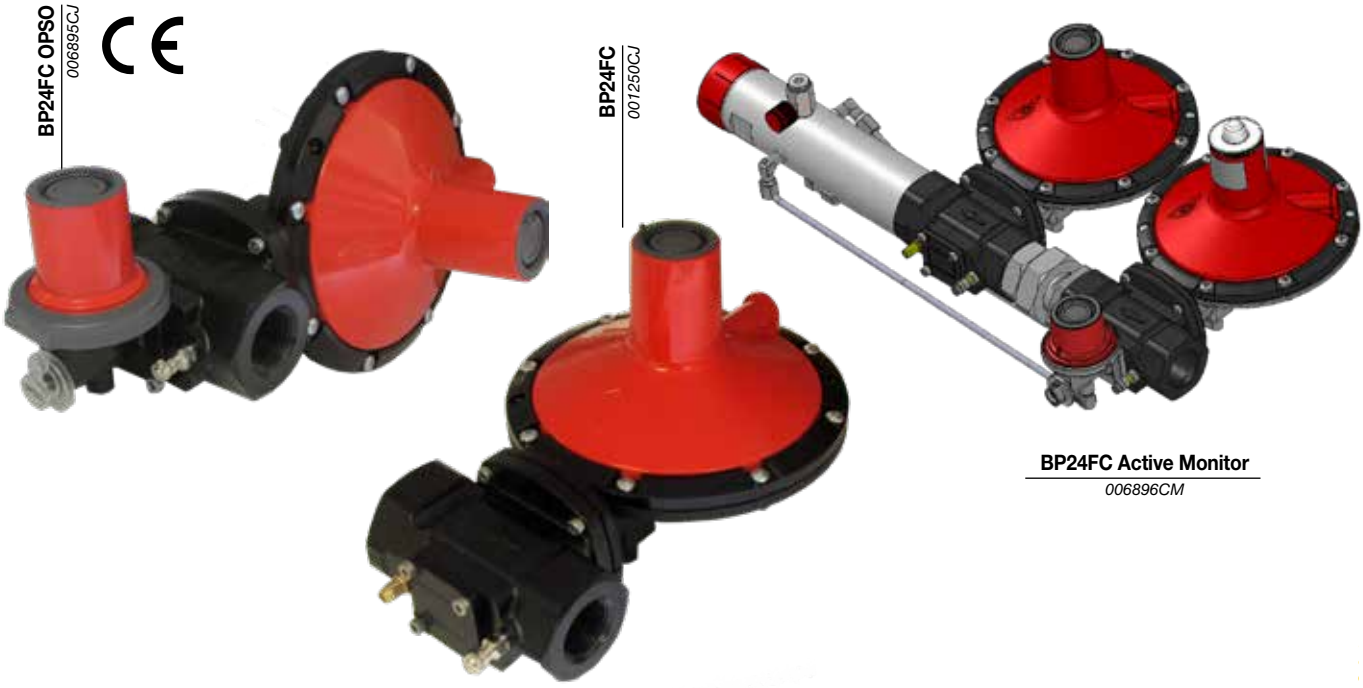
Construction

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

BP24S
001300CA

Code	Inlet code	Inlet connexion	Outet code	Outet connexion	Inlet pressure (Pu) bar	Outlet pressure (Pd) mbar	Declared gas	Flow rate		OPSO	PRV	UPSO	Upstream pressure testing point	Downstream pressure testing point	Original vent orientation*	Performances rule
								kg/h of propane or LPG (S)m3/h of NG	kW	mbar	mbar	mbar				
BP24F																
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) **
001200CA					(0,3) 0,5 - 2	30 (25 - 43)	LPG	70 (60)	966 (828)	-	75	-			3	EN 16129
001230CX	F5F	FEM. 1 NPT	F5J	FEM. 1 1/4 NPT						-	75	-			3	
001205CA	F3F	FEM. Rc1	F3J	FEM. Rc1 1/4	(0,3) 0,5 - 2	37 (32 - 48)	Propane			-	75	-			6	EN 16129 (EN 437 DP5)
001212CA										-	-	-			6	
001211CB	F5F	FEM. 1 NPT	F5J	FEM. 1 1/4 NPT	0,5 - 5	75 (50 - 100)	Propane	100 (NG 85)	1380 (NG 952)	-	120	-			3	EN 16129
001211CC					0,6 - 5	125 (80 - 180)				-	200	-			3	
001215CA	F3F	FEM. Rc1	F3J	FEM. Rc1 1/4	0,65 - 5	150 (80 - 180)				-	-	-			6	
001216CA					0,8 - 5	300 (200 - 350)				-	-	-			3	
BP24F UPSO																
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																
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
001210CX	F5F	FEM. 1 NPT	F5J	FEM. 1 1/4 NPT						-	Pd + 60	-			3	
BP24S																
001300CA	F3F	FEM. Rc1	F3F	FEM. Rc1	(0,3) 0,5 - 2	30 (25 - 43)	LPG	60 (50)	828 (690)	-	75	-	Tap G.1/8"	Tap G.1/4"	6	EN 16129
001300CB					(0,3) 0,5 - 2	37 (32 - 48)	Propane			-	75	-			6	EN 16129 (EN 437 DP5)
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																
006847CA	F3F	FEM. Rc1	F3F	FEM. Rc1	(0,3) 0,5 - 2	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) 0,5 - 2	37 (32 - 48)	Propane			130	75	28			6	EN 16129 (EN 437 DP5)
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 connection = 6 hours and the output direction = 12 hours
** Designed, manufactured and tested according to EN 16129 standard



BP24FC Active Monitor
006896CM

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 180 kg/h (2480 kW)

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

Code	Inlet code	Inlet connection	Outlet code	Outlet connection	Inlet pressure (Pu) bar	Outlet pressure (Pd) mbar	Flow rate		OPSO	PRV	UPSO	Upstream pressure testing point	Downstream pressure testing point
							kg/h of Propane / LPG (S)m3/h of NG	kW	mbar	mbar	mbar		
BP24FC													
001250CG	F3F	FEM. Rc1	F3J	FEM. Rc 1/4	(0,24) 0,5 - 4	21 (20,5-28)	(60) 100 (80) 110	(672) 1120 (896) 1232	-	-	-	Schrader	8 mm
001250CA					(0,3) 0,5 - 4	30 (27 - 43)	(110) 150	(1518) 2070	-	75 (60-90)	-		
001250CB	F5F	FEM. 1 NPT	F5J	FEM. 1/4 NPT					-	75 (60-90)	-		
001250CJ	F3F	FEM. Rc1	F3J	FEM. Rc1 1/4		37 (31 - 50)	(100) 140	(1380) 1932	-	-	-		
001250CH					(0,5) 0,65 - 4	148 (65 - 180)	(140) 150	(1932) 2070	-	-	-		Schrader
001250CK					(0,5) 0,8 - 4	300 (230 - 410)	(120) 180	(1656) 2484	-	-	-		
BP24FCR													
001250CC	F3F	FEM. Rc1	F3J	FEM. Rc1 1/4	(0,5) 0,8 - 4	20 - 300	(40-100) 50-150	(552-1380) 690-2070	-	Pd +100 (Pd +70 / Pd +130)	-	Schrader	Schrader
001250CD	F5F	FEM. 1 NPT	F5J	FEM. 1 1/4 NPT					-		-		
BP24FC OPSO													
006895CB	F3F	FEM. Rc1	F3J	FEM. Rc 1/4	0,6 - 4	75 (67 - 110)	130	1807	140 (120-140)	115 (105-125)	-	Schrader	8 mm
006895CJ					(0,5) 0,8 - 4	300 (230 - 410)	(120) 180	(1656) 2484	475 (450-500)	420 (380-450)	-		Schrader
BP24FC UPSO/OPSO													
006896CG	F3F	FEM. Rc1	F3J	FEM. Rc1 1/4	(0,24) 0,5 - 4	21 (20,5-28)	(60) 100 (80) 110	(672) 1120 (896) 1232	70 (62-80)	50 (40-60)	14 (12-16)	Schrader	8 mm
006896CC					(0,3) 0,5 - 4	37 (31 - 50)	(100) 140	(1380) 1932	130 (120-140)	75 (60-90)	28 (26-30)		
006896CH					(0,5) 0,65 - 4	148 (65 - 180)	(140) 150	(1932) 2070	300 (250-400)	225 (195-245)	90 (75-105)		Schrader
006896CF					(0,5) 0,8 - 4	300 (230 - 410)	(120) 180	(1656) 2484	475 (450-500)	420 (380-450)	200 (150-250)		
006896CE	F5F	FEM. 1 NPT	F5J	FEM. 1 1/4 NPT	(0,5) 0,8 - 4	345 (230 - 410)	(120) 180	(1656) 2484	525 (500-550)	470 (450-490)	225 (200-250)		
BP24FC UPSO/OPSO Active Monitor													
006896CM*	F1F	FEM. G1RH	E1L	MAL. G2RH	0,6 - 4	75 (67 - 110)	130 -150@0,75 bar)	1807	140 (120-140)	120 (105-125)	-	Schrader	8 mm

* Active monitor 90 mbar with PRV 200 mbar

Tank Regulation - 2nd stage

426 – 6426 – 1426B – Specific Regulators

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

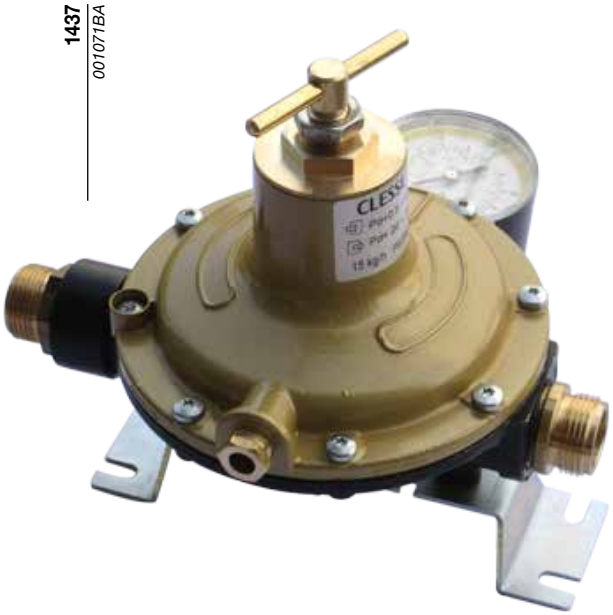
- Body and cover: die cast zinc alloy
- Diaphragm: NBR
- Valve pad: NBR

Code	Inlet code	Inlet connection	Outlet code	Outlet connection	Inlet pressure (Pu)	Outlet pressure (Pd)	Flow rate (LPG)		Type of LPG	Filter	UPSO	Diaphragm	Manometer
					bar	mbar	kg/h	kW			mbar	material	
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	Pd+0,5-4	20-60	8	110	Propane	Y	-	NBR	MANO-DRY M10x1,0
1426B04	E6B	MAL-M20x1,5RH	E6B	MAL-M20x1,5RH	Pd+0,5-4	50-150	8	110	Propane	Y	-	NBR-R	MANO-DRY M10x1,0
1426B02	E6B	MAL-M20x1,5RH	E6B	MAL-M20x1,5RH	Pd+0,5-4	100-300	8	110	Propane	Y	-	NBR-R	MANO-DRY M10x1,0
1426B22	E6B	MAL-M20x1,5RH	E6B	MAL-M20x1,5RH	Pd+0,5-4	160-500	8	110	Propane	Y	-	NBR-R	MANO-DRY M10x1,0

437P
001075AB

3437
001077AB

1437
001071BA



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.

Features

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

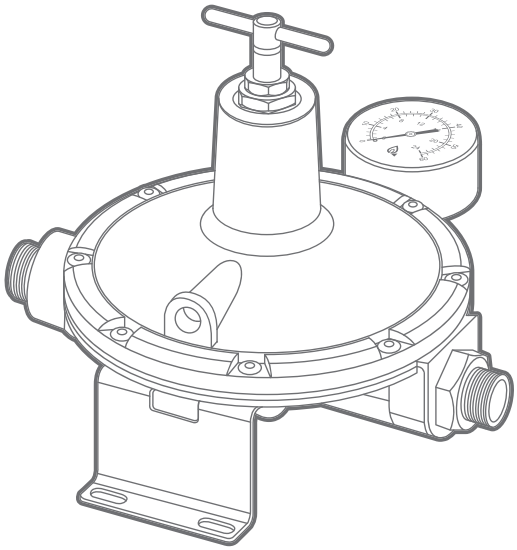
Construction

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

Code	Inlet code	Inlet connection	Outlet code	Outlet connection	Inlet pressure (Pu)	Outlet pressure (Pd)	Flow rate		Type of gas	UPSO	Diaphragm	Manometer
					bar	mbar	kg/h	kW		mbar	material	
437												
001076AA	E1E	MAL-G3/4RH	E1E	MAL-G3/4RH	0,5-4	37	20	276	Propane	-	NBR-R	-
001076AB	E1E	MAL-G3/4RH	E1E	MAL-G3/4RH	0,65-4	148	20	276	Propane	-	NBR-R	-
001076AC	E1E	MAL-G3/4RH	E1E	MAL-G3/4RH	0,9-4	400	20	276	Propane	-	NBR-R	-
3437												
001077AA	E1E	MAL-G3/4RH	E1E	MAL-G3/4RH	0,125 - 0,625	29	15	207	Butane	20	NBR-R	-
001077AB	E1E	MAL-G3/4RH	E1E	MAL-G3/4RH	0,5 - 2	37	25	345	Propane	25	NBR-R	-
001077AC	E1E	MAL-G3/4RH	E1E	MAL-G3/4RH	0,5 - 2	148	25	345	Propane	100	NBR-R	-
1437												
001071BA	E1E	MAL-G3/4RH	E1E	MAL-G3/4RH	0,6-4	20-70	15	207	Propane	-	NBR-R	MANO-DRY G1/4
001071BB	E1E	MAL-G3/4RH	E1E	MAL-G3/4RH	0,7-4	60-150	15	207	Propane	-	NBR-R	MANO-DRY G1/4
001071BC	E1E	MAL-G3/4RH	E1E	MAL-G3/4RH	0,8-4	120-300	15	207	Propane	-	NBR-R	MANO-DRY G1/4
001071BD	E1E	MAL-G3/4RH	E1E	MAL-G3/4RH	1-4	200-500	15	207	Propane	-	NBR-R	MANO-DRY G1/4

Tank Regulation - 2nd stage

BP3 - Specific Regulators



NEW

Appplication

- BP3 regulators are particularly suitable forcontrol of industrial processes with high flow ratesand operating with LPG (butane, propane and their mixtures)natural gas and biomethane.They can be used with other non-aggressive gases such as compressed air, nitrogen, dry carbon dioxide, argonkrypton, neon, xenon.
- BP3 regulators offer the possibility to precisely adjust thethe regulated pressure within a wide range.
- They are particularly recommended for applications where applications requiring high accuracy of the regulated pressure pressure or for very low pressure applications (laboratory pressure applications (laboratory, gas mixing, etc.).

Features

- Inlet pressure up to 6 bar
- Interchangeable with BP2
- Precise pressure regulation
- High performance
- Easy to install
- Rotatable event
- Pressure gauge

Construction

- Conforms to the construction and performance standard EN 16129,
- Complies with the Pressure Equipment Directive PED 2014/68/EC and CE marked when Pd ≥ 500 mbar.
- Body and cover: cast aluminium.
- Connections: brass according to EN 12164.
- Diaphragm: reinforced NBR, according to EN 549.
- Valve: HNBR according to EN 549.
- Body/cover nuts: stainless steel.
- Pressure gauge: according to EN 837-1 and EN 837-3.

Outlet pressure Pdmin - Pdmax	Inlet pressure - Pu (bar)						
	0.3	0.5	0.8	1	1.5	4	6
001235AA							
Pd Min - Pd Max (mbar)	7 - 19	7 - 19	8 - 19	8 - 19	8 - 20	11 - 23	14 - 25
Capacité de débit (kg/h de Propane)	15 - 20	20 - 25	22 - 30	25 - 35	30 - 40	35 - 45	40 - 50
Capacité de débit ((n)m3/h de GN)	12 - 16	16 - 20	18 - 24	20 - 28	24 - 32	28 - 36	32 - 40
001235AB							
Pd Min - Pd Max (mbar)	5 - 70	5 - 75	5 - 80	5 - 80	5 - 85	7 - 87	10 - 90
Capacité de débit (kg/h de Propane)	15 - 25	25 - 35	35 - 50	40 - 55	45 - 60	45 - 100	45 - 125
Capacité de débit ((n)m3/h de GN)	12 - 20	20 - 28	28 - 40	32 - 44	36 - 46	36 - 80	36 - 100
001235AC							
Pd Min - Pd Max (mbar)	5 - 250	5 - 330	6 - 330	6 - 350	8 - 360	13 - 360	20 - 370
Capacité de débit (kg/h de Propane)	25 - 35	30 - 45	33 - 55	35 - 60	40 - 100	50 - 175	50 - 200
Capacité de débit ((n)m3/h de GN)	20 - 28	24 - 36	26 - 44	28 - 48	32 - 80	40 - 140	40 - 160
001235AD							
Pd Min - Pd Max (mbar)	-	190 - 400	200 - 540	200 - 550	200 - 550	210 - 580	220 - 600
Capacité de débit (kg/h de Propane)	-	40 - 60	60 - 80	70 - 90	85 - 125	130 - 210	160 - 275
Capacité de débit ((n)m3/h de GN)	-	32 - 48	48 - 64	56 - 72	68 - 100	104 - 168	128 - 220
001235AE							
Pu (bar)		0.5	0.8	1.2	1.5	4	6
Pd Min - Pd Max (mbar)	-	150 - 250	150 - 650	150 - 900	160 - 950	170 - 990	180 - 1000
Capacité de débit (kg/h de Propane)	-	20 - 40	25 - 50	30 - 75	40 - 110	70 - 190	80 - 300
Capacité de débit ((n)m3/h de GN)	-	16 - 32	20 - 40	24 - 60	32 - 88	56 - 152	64 - 240

The maximum possible flow rate capapcity is based on a 20% drop of outlet pressure from the nominal pressure.
For example, for regulator 001235AC, in position Pd Max supplied at 1 bar, the nominal outlet pressure is 350 mbar and the maximum possible flow capacity is indicated for an outlet pressure of 280 mbar, i.e. 60 kg/h of propane or 48 (n)m3/h of natural gas.

1492MB *OPSO*

1494MB-OPSO *051084BA*

1492MB *051082BD-*

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)	Outlet pressure (Pd)	Flow rate (LPG)		Flow rate (NG)		Impulse	OPSO	UPSO	LRV
					bar	bar	kg/h	kW	(n)m3/h	kW	type	mbar	mbar	mbar
1492MF														
051002AJ	F2F	FEM-Rp1	F2K	FEM-Rp1.1/2	1-5	150 (130-220)	250	3450	200	2240	External	Option: 051008AE	-	-
051002AG	F2F	FEM-Rp1	F2K	FEM-Rp1.1/2	1-5	300 (260-450)	250	3450	200	2240	External	Option: 051008AE	-	-
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)	-
051082BD	B6L	RFLG PN40-DN50	B6L	RFLG PN40-DN50	1-5	300 (250-400)	250	3450	200	2240	External	450 (250-650)	-	-
1494MB OPSO														
051084BA	B2K	FFLG PN40-DN40	B2K	FFLG PN40-DN40	1-5	300 (110-400)	375	5175	300	3360	External	450 (250-650)	-	-
1495MB														
051005AC	B2L	FFLG PN40-DN50	B2L	FFLG PN40-DN50	1-5	300 (110-400)	800	11040	640	7168	External	Option: 051008AF	-	-
1495MB OPSO														
051085DL	B2L	FFLG PN40-DN50	B2L	FFLG PN40-DN50	1-5	300 (110-400)	800	11040	640	7168	External	450 (250-650)	-	-

Tank Regulation - 2nd Stage

1492 -1492 0PSO- 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)m^3/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	OPSO	UPSO	LRV
							kg/h	kW	(n)m3/h	kW	type	mbar	mbar	mbar
1492BF														
051002DA	F2F	FEM-Rp1	F2K	FEM-Rp1.1/2	(0,3) 0,5-5	21(16-26)	-	-	(80) 120	(896) 1344	External	Option: 051008AA		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	Option: 051008AR		75
051002AK	F2F	FEM-Rp1	F2K	FEM-Rp1.1/2	(0,3) 0,5-5	50 (42-72)	180	2484	140	1568	External	Option: 051008AR		95
1492BF 0PSO														
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)	150 (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 0PSO														
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	Option: 051008BB		-
051005DF	B2L	FFLG PN40-DN50	B2L	FFLG PN40-DN50	(0,3) 0,5-5	37(28-42)	(320) 500	(4416) 6210	-	-	External	Option: 051008BC		-
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)	-	-

Springs

Impulse Kit *051091AA*

Flange Bolt Nut *051044AA*

Springs

- For 1492, 1494 and 1495 range regulators, it's possible to set the outlet pressure in a wider range than the nominal range. To do this, the setting spring must be replaced by one of the springs as indicated in the tables.

Impulse Kit

Application and Features

- The impulse pressure can be obtained between the regulator and the upstream piping using a rigid piece of tubing (copper or steel tube) and connected using a brass compression fitting made according to EN8434-1 L Series, 10mm in diameter.

Flanges Seals and Bolts & Nuts

Application and Features

- The 1391 / 1392 / 1492 high capacity regulators from our Industrial range are supplied with threaded connections. In order to install these regulators on the gas line in between flanges, we provide a complete kit comprised of Flanges, O-rings, Nuts and Bolts.
- Quick and easy installation
- PN40 DN50 steel flanges according to EN1092-1
- Springs : 1492 and 1495 regulators range allows the pressure to be set over a wider range than the value of pressure given in the nominal range. To do this, it is necessary to replace the fitted spring with one of those shown in the table below.

Rotary flanges

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

Springs

Code	Type of compatible regulators	Pressure range mbar	Spring color
051012AC	1492MF	130 - 220	Orange
051012AD	1492MF	200 - 300	Brown
051012AM	1492MF	260 - 450	Purple
051015AF	1495MB	110 - 400	White

Code	Type of compatible regulators	Pressure range mbar	Spring color
051012AJ	1492BF	16 - 26	Yellow
051012AK	1492BF	22 - 32	Light Blue
051012AL	1492BF	30 - 43	Red
051012AA	1492BF	42 - 72	Yellow
051012AB	1492BF	70 - 110	Navy Blue
051015AA	1495BF	18 - 26	Yellow
051015AE	1495BF	23 - 30	Navy Blue
051015AB	1495BF	28 - 42	Orange
051015AC	1495BF	45 - 90	Light Blue
051015AD	1495BF	75 - 120	Brown

Flange seals

Code	Outlet code	Outlet connexion
051045AA	B6F	RFLG PN40-DN25
051045AC	B6K	RFLG PN40-DN40
051045AB	B6L	RFLG PN40-DN50

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

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	UPSO	Compatible regulators
		mbar	
6592H			
051008AB	2 (1-3) bar	-	1391HF - 1392HF - 1392HB
6595H			
051008AD	2 (1-3) bar	-	1395HB
6592M-6592B			
051008AA	70 (40-90) mbar	15 (10-90)	BP2402FC - 1492BF
051008AE	450 (250-650)mbar	-	BP2402FC - 1492BF
6595M-6595B			
051008BB	70 (40-90) mbar	15 (10-90)	1495BF
051008AF	450 (250-650)mbar	-	1495MB

Code	Inlet code	Inlet connection	Outlet code	Outlet connection	PRV	Application
					Opening pressure (mbar)	
051101BA	F2F	FEM-Rp1	F2F	FEM-Rp1	50 (26-63)	Dowstream low pressure regulators
051101BE	F2F	FEM-Rp1	F2F	FEM-Rp1	400 (250-500)	Dowstream medium pressure regulators
051101BF	F2F	FEM-Rp1	F2F	FEM-Rp1	1,5 (1-3) bar	Dowstream high pressure regulators

492L
004394AB

OPS24

Application

- These OPSO valves are used in LPG, Natural Gas or SNG installations. They can also be used with other nonaggressive 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) and OPS24LP are generally installed upstream from the regulator and a sensing pipe is connected to the downstream pressure (external sensing).
- High pressure models (492H) and OPS24HP are installed either upstream from the regulator (external sensing) or downstream from the regulator (internal sensing).
- Valves type 492 can handle flow rate capacity of up to 100 kg/h of LPG at 2 bar supply pressure, and 50 kg/h at 0.75 bar

Features

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

Construction

- Body and cover: die cast zinc alloy for 492, and die cast aluminium alloy for OPS24 flange
- Diaphragm: NBR according to EN54

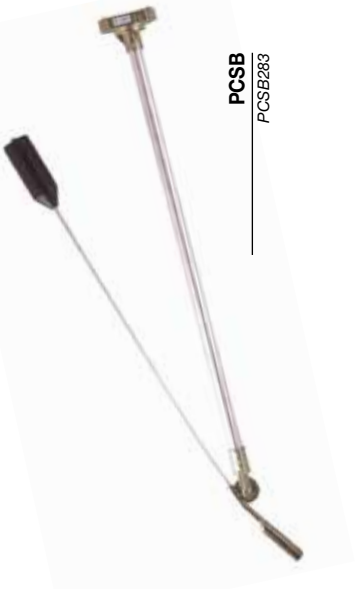
Code	Inlet code	Inlet connection	Outlet code	Outlet connection	Service pressure bar	Impulse	Pressure testing point	Impulse connection	OPSO mbar or bar
OPSO 492H									
004393AA	F3D	FEM-Rc1/2	F3D	FEM-Rc1/2	16	Internal		-	2,5 (2-4) bar
004393AB	F3E	FEM-Rc3/4	F3E	FEM-Rc3/4				-	2,5 (2-4) bar
004393AC	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
OPSO - 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

Code	Inlet code	Inlet connection	Outlet code	Outlet connection	OPSO Set Pressure	Pressure range *	Sensing point	UPSO Set Pressure*	PS (faultly conditions)
OPS24 LP									
007400AE	F3F	FEM-Rc1	F3F	FEM-Rc1	75 mbar	50- 150 mbar	Internal	-	20 bar
007400AF	F5F	FEM-1"NPT	F5F	FEM-1"NPT			External	-	
007400AU	F3F	FEM-Rc1	F3F	FEM-Rc1			Internal	25 mbar	
OPS24 MP									
007400BE	F3F	FEM-Rc1	F3F	FEM-Rc1	300 mbar	150 – 400 mbar	Internal	-	20 bar
007400BF	F5F	FEM-1"NPT	F5F	FEM-1"NPT			External	-	
007400BU	F3F	FEM-Rc1	F3F	FEM-Rc1			Internal	180 (150-210) mbar	
OPS24 HP									
007400CE	F3F	FEM-Rc1	F3F	FEM-Rc1	2,5 bar	2÷4 bar	Internal	-	20 bar
007400CF	F5F	FEM-1"NPT	F5F	FEM-1"NPT			External	-	
007400CU	F3F	FEM-Rc1	F3F	FEM-Rc1			Internal	0,75 (0,5-1,0) bar	

ECGC *ECGC01*

ECGC *ECGC07*

PCSB *PCSB283*



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

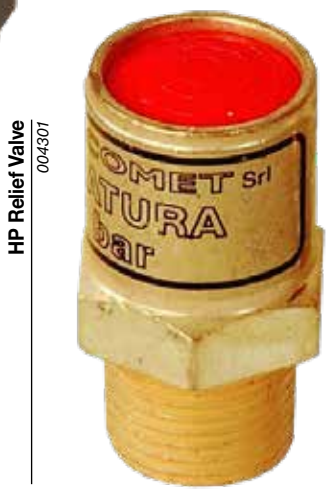
According to EN13799 and PED, art. 3.3

- 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%
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%
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%
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%
ECGC15	E5J	MAL-1.1/4NPT	T1L	MAL-ACME 1.3/4	Φ 1000 V	-	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%

* ⚶ marked according to TPED

Code	Tank size and type	Observation
PCSB (GAUGE)		
PCSB282	Φ 800 H	Fixation: 4 screws M6/25 mm on 51.6 mm bolt circle
PCSB283	Φ 1000 H	
PCSB284	Φ 1200 H	



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 dismounting 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

Code	Inlet code	Inlet connection	Setting (Pn) (bar)	Capacity with lower check valve (n)m3/min	Lower check valve corresponding	Certification
ECGE						
ECGE14	E6E	MAL-M18X1,5RH	14	9,6 @ 120% Pn	ECGE10	CE
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	
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	
ECGF28	E6M	MAL-M36X2RH	20	100 @ 110% Pn	ECGD24	CE
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

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	
ECGR220	ECGS16	PCSB214	ECGD25	CE

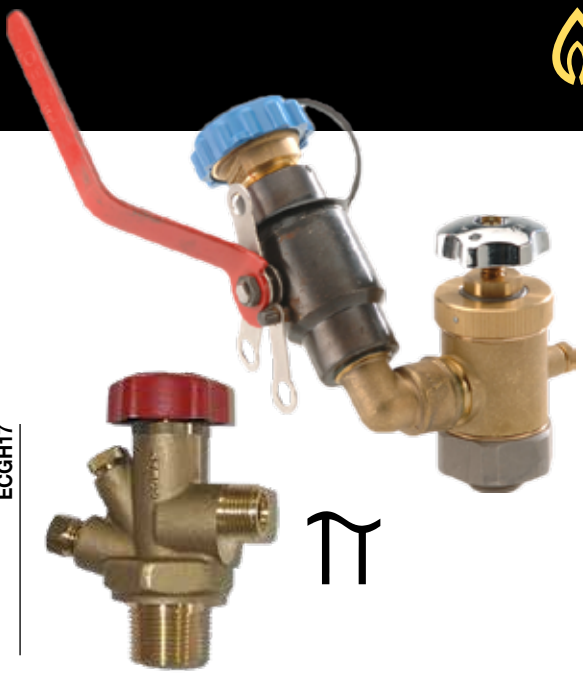
Code	Inlet code	Inlet connection	Setting (Pn) (bar)
HP RELIEF VALVE			
004300	E2D	MAL-R1/2	3
004301	E2C	MAL-R3/8	3
004302	E2D	MAL-R1/2	18
004303	E2C	MAL-R3/8	18
004304AA	E5B	MAL-1/4NPT	17

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

SERVICE VALVE *ECGX49*

LIQUID WITHDRAWAL VALVE *ECGJ015*

ECGH17



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 manly 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.

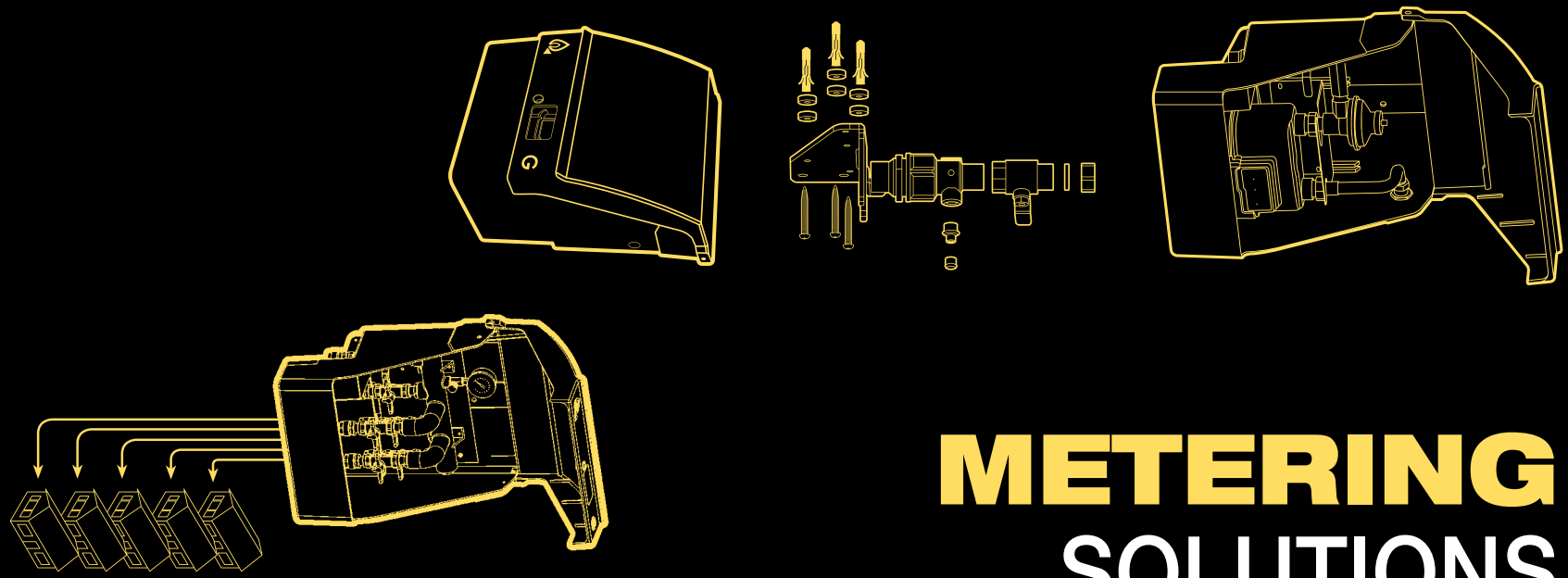
Construction

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

	Code	Inlet code	Inlet connection	Outlet code	Outlet connection	EFV setting (m3/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	-
	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	-	-	-	-
	ECGK10	E6D	MAL-M26X1,5RH	T1L	MAL-ACME 1.3/4	-	-	-	-	Y
	ECGK20	E5E	MAL-3/4NPT	T1L	MAL-ACME 1.3/4	-	-	-	-	Y

* ⚚ marked according to TPED

CLESSE



METERING
SOLUTIONS

Low & Medium Pressure Diaphragm Meters
P038000

Medium Pressure Diaphragm Meters
P038007

High Pressure Diaphragm Meter
P038131 + PULSE EMETTOR BF38121

High Pressure Diaphragm Meter
P038131

Pulser
BFG4G6

Connector For Gas Meter
IIRGC4227

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:
  Vn= Vm x 273 x (Pabs) / (1013 x (273+Tm))
- The conversion to volume in “standard” conditions (15°C – 1013mbar) is:
  Vs= Vm x 288 x (Pabs) / (1013 x (273+Tm))
  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.

Conversion factors	30-37mbar / 15°C	500mbar / 15°C	1,5bar / 15°C
Vn=Vm x -->	0,98	1,42	2,35
Vs=Vm x -->	1,03	1,49	2,48

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	Min flow rate (n) m3/h	Max 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	-
IIG25LA	G2,5 BP/MP	E1J	MAL-G1.1/4-RH	0.5	0.005	0.025	4	8	12	-	110	0.01	1.7	BF38121 optionnal
IIG4LA	G4 BP/MP	E1J	MAL-G1.1/4-RH	0.5	0.005	0.04	6	12	18	-	110	0.01	1.7	
P038000	G4 BP/MP	EAF	MAL-G1-JPC-CAL20	0.5	-	0.04	6	13	19	-	110	0.01	1.7	BFG4G6 optionnal (simple low frequency)
P038002	G6 BP/MP	EAJ	MAL-G1.1/4-JPC-CAL32	0.5	-	0.06	10	22	32	-	250	0.01	3.3	
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 (double 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	
HIGH PRESSURE DIAPHRAGM METERS														
IIG25AL	G2,5HP	E1J	MAL-G1.1/4-RH	2	0.006	0.025	4	8	12	19	110	0.01	1.9	BF38121 optionnal
IIG4AL	G4HP	E1J	MAL-G1.1/4-RH	2	0.006	0.04	6	12	18	28	110	0.01	1.9	

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

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)m^3/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

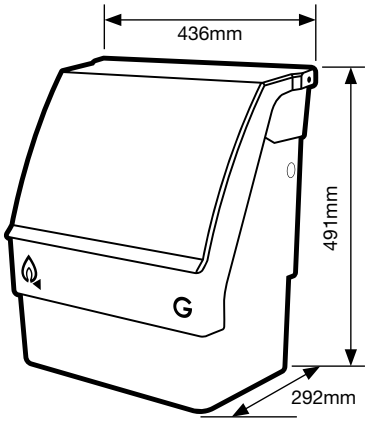
Code	Inlet	Inlet	Outlet	Outlet	Inlet pressure (Pu)	Outlet pressure (Pd)	Flow rate	Flow rate	Capacity	UPSO		Filter
	Code	Connection	code	Connection	mbar	mbar	LPG (kg/h)	NG (m3/h)	kW	Type	Setting (mbar)	
STB27L												
052320AA	F2E	FEM-Rp3/4	F2E	FEM-Rp3/4	45-200 (400)	37	7.2	-	99	Manual	27.5	Yes
052320AB	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
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

THE EVOLUTION® STARTS HERE

Specifically designed for LPG and to reduce the whole life costs of ownership.

Created using computerised 3D design technology, together with the experience of Clesse the new meter housing represents a step forward in functionality, precision and ease of installation in metering solutions.

From new build to existing housing stock and holiday to residential park home sectors, the unique design permits different mounting options and colours for whatever the choice of location.



NEW Evolution Meterbox® meets all your requirements

Registered Design 15/06/2018
No 005313392-0001

EUIPO

www.clesse.co.uk/**evolution**

SEMI SUBMERGED - WALL - POST - EDGE
ONE SOLUTION MANY WAYS TO INSTALL

Components used in the assembly are sourced from some of UK and EU's most respected manufacturers to ensure long reliable service, accurate metering and resistance to adverse weather conditions.

As with all Clesse meter boxes, they use our own pressure regulators specifically designed for LPG duty in either medium or low pressure distribution.

Features

- Unique robust GRP design made by Clesse in UK.
- Easy installation, saving time and expense.
- Adverse weather resistant - wind tunnel tested .
- Colour options are Green, Brown or White.
- Mounting options for posts, base, skirt, wall and floatation kits.
- Hinged lid with stay bar - option of meter reading window.
- Easily replaceable parts such as lid and body shell.
- Optimised for Telemetry solutions (also available).
- "First fix" allows groundworks and siting to be completed before fitting the meter box.

Supplied in an outer cardboard box to protect until needed.

Connections and Gas

- Above ground gas connection even when semi submerged.
- Suitable for Low Pressure 75mb (50-400mb) and Medium Pressure 0.75bar (0.35 - 2 bar) distribution networks.
- LPG 37mb 4m3h (100kW) and Natural Gas available.
- Choice of multiple outlet positions for fixed and hose.
- Compatible for BS6891 and EN1949 domestic gas installations.
- 25mm inlet PE connection inc. as standard.

EVOLUTION®

EXAMPLE PRODUCT SELECTION

Step 1

Choose the mounting kit required for installation

☐ Wall Mounted

☐ Semi Sub-Merged

☐ Post Mounted

☐ Edge of Base

Example of product selection process using opposite page product numbers

Temperature compensated meters available on request

Step 2

Colour

Green ☐

Brown ☐

White ☐

Window  ☐ Y ☐ N

Step 3

Outlet Style

Bulkhead Outlet ☐

22mm Compression ☐

Rear outlet ☐

Step 4

Low or Medium Pressure

MP BP2284 ☐

LP STB27 ☐

PRODUCT SELECTION

EVOLUTION®

Mounting bracket & Inlet kits			
Code	**Description**	**Contents**	
UUMBBASEMOKIT-2	Edge of Base Flush Mounting kit	• Edge of Base Bracket inc. Raw plugs & screws • PE Transition Bracket & Bolts set	• PE Transition fitting with security C clip • Emergency control Valve with Blanking cap
UUMBBASEMOKIT-3	Edge of Base Extended (150mm) Mounting kit ***Multi Height positional***	• Edge of Base Extended Multi Height Bracket • PE Transition Bracket & Bolts set PE • Transition fitting with security C clip • Emergency control Valve with Blanking cap	***Bracket is multi height positional*** • Semi submerged or Ground level • ½" Above ground level • 2" above ground level
UUMBPOSTMOKIT	Post Mounting kit	• Post mount Bracket inc. 1.5mtr post & fixings • PE Transition Bracket & Bolts set	• PE Transition fitting with security C clip • Emergency control Valve with Blanking cap
UUMBWALMOKIT	Wall or Semi Submerged Mounting kit	• Mounting Bracket with PE transition slot • Raw plugs and Screws set	• PE Transition fitting with security C clip • Emergency control Valve with Blanking cap

Medium Pressure Inlet Evolution Meterboxes										
Code	**Colour**	**Inlet Pressure**	**Outlet Pressure**	**Flow Rate (LPG)**	**PRV**	**OPSO**	**UPSO**	**Test Point**	**Window**	**Outlet Connection**
UUMBGRW-MP-BH	Green	0.3 – 2bar	37mb	9kg/h (125kW/h)	75mbar	100mb	25mb	Y	Y	Right hand side Bulkhead ½" Plugged
UUMBGRW-MP-ROH	Green	0.3 – 2bar	37mb	9kg/h (125kW/h)	75mbar	100mb	25mb	Y	Y	Rear Outlet 1.2mtr 70kW/h Clessinox hose terminating in 22mm Compression
UUMBGRW-MP-22MM	Green	0.3 – 2bar	37mb	9kg/h (125kW/h)	75mbar	100mb	25mb	Y	Y	Terminates inside the box with 22mm Capped Compression
UUMBGR0-MP-BH UUMBBR0-MP-BH UUMBWH0-MP-BH	Green Brown White	0.3 – 2bar	37mb	9kg/h (125kW/h)	75mbar	100mb	25mb	Y	N	Right hand side Bulkhead ½" Plugged
UUMBGR0-MP-ROH UUMBBR0-MP-ROH UUMBWH0-MP-ROH	Green Brown White	0.3 – 2bar	37mb	9kg/h (125kW/h)	75mbar	100mb	25mb	Y	N	Rear Outlet 1.2mtr 70kW/h Clessinox hose terminating in 22mm Compression
UUMBGR0-MP-22MM UUMBBR0-MP-22MM UUMBWH0-MP-22MM	Green Brown White	0.3 – 2bar	37mb	9kg/h (125kW/h)	75mbar	100mb	25mb	Y	N	Terminates inside the box with 22mm Capped Compression

Low Pressure Inlet Evolution Meterboxes										
Code	**Colour**	**Inlet Pressure**	**Outlet Pressure**	**Flow Rate (LPG)**	**PRV**	**OPSO**	**UPSO**	**Test Point**	**Window**	**Outlet Connection**
UUMBGRW-LP-BH	Green	45-200mb (Max 400)	37mb	7.2kg/h (100kW/h)	No	No	27.5mb	Y	Y	Right hand side Bulkhead ½" Plugged
UUMBGRW-LP-ROH	Green	45-200mb (Max 400)	37mb	7.2kg/h (100kW/h)	No	No	27.5mb	Y	Y	Rear Outlet 1.2mtr 70kW/h Clessinox hose terminating in 22mm Compression
UUMBGRW-LP-22MM	Green	45-200mb (Max 400)	37mb	7.2kg/h (100kW/h)	No	No	27.5mb	Y	Y	Terminates inside the box with 22mm Capped Compression
UUMBGR0-LP-BH UUMBBR0-LP-BH UUMBWH0-LP-BH	Green Brown White	45-200mb (Max 400)	37mb	7.2kg/h (100kW/h)	No	No	27.5mb	Y	N	Right hand side Bulkhead ½" Plugged
UUMBGR0-LP-ROH UUMBBR0-LP-ROH UUMBWH0-LP-ROH	Green Brown White	45-200mb (Max 400)	37mb	7.2kg/h (100kW/h)	No	No	27.5mb	Y	N	Rear Outlet 1.2mtr 70kW/h Clessinox hose terminating in 22mm Compression
UUMBGR0-LP-22MM UUMBBR0-LP-22MM UUMBWH0-LP-22MM	Green Brown White	45-200mb (Max 400)	37mb	7.2kg/h (100kW/h)	No	No	27.5mb	Y	N	Terminates inside the box with 22mm Capped Compression

Spare Parts

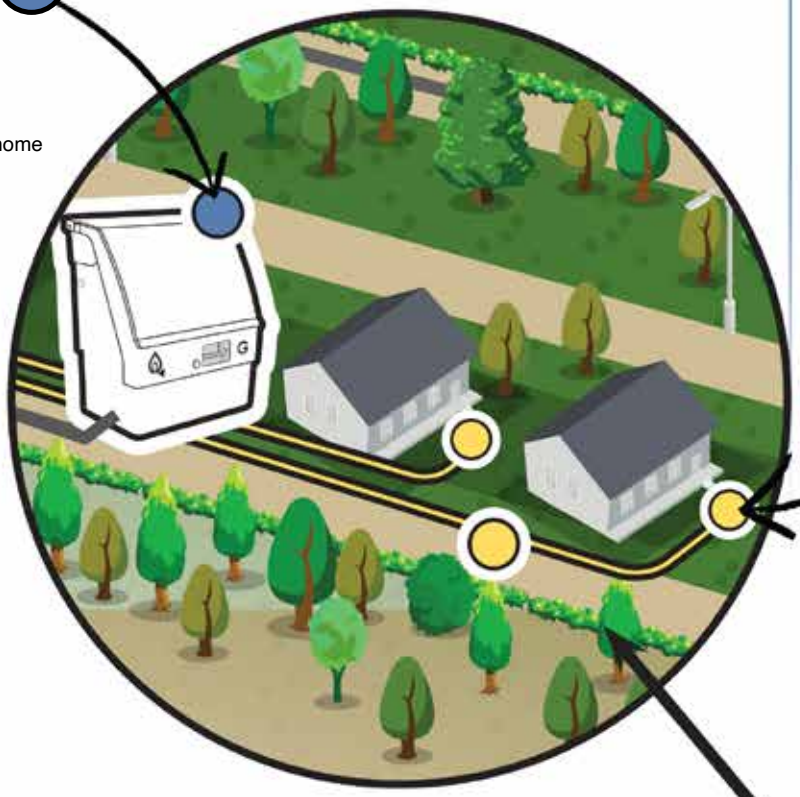
Please see spare part for the Meter box.
For internal spares please contact: sales@clesse.co.uk
Please advise colour and version when placing your order.

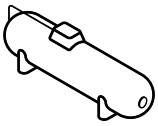
solution A

DISTRIBUTION BOX

1 x entrance
5 x departures
independent mobile home

- Easy Installation : mechanical connection of inputs and outputs
- Safety Maximum : sub-networks independent and verifiable
- Certified cabinet factory sealed



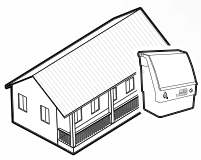


START
GAS TANK

MAIN NETWORK

A **DISTRIBUTION BOX**

B **LINK B : FLEXIKIT OR HDPE**



Start

1RST STAGE AND

CLESSE

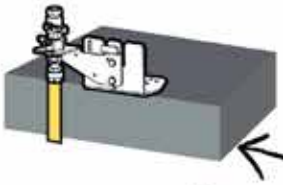
Solution B

LINK B :
FLEXIKIT
OR HDPE

- Designed to easily connect the distribution box to the mobile home connection kit
- Factory-assembled kit with fittings, sealed and ready to use (sealed certificate)
- Available in 7, 15 or 30 ml

CONNECTION KIT
TO THE MOBIL-HOME

- Independent and modular
- Up to 5 bar pressure
- Certified kit: factory sealed, robust, with an isolation valve and pressure point



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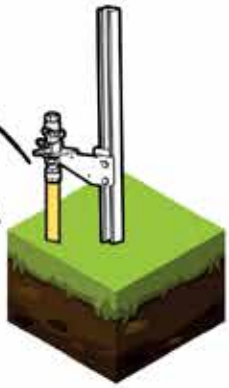
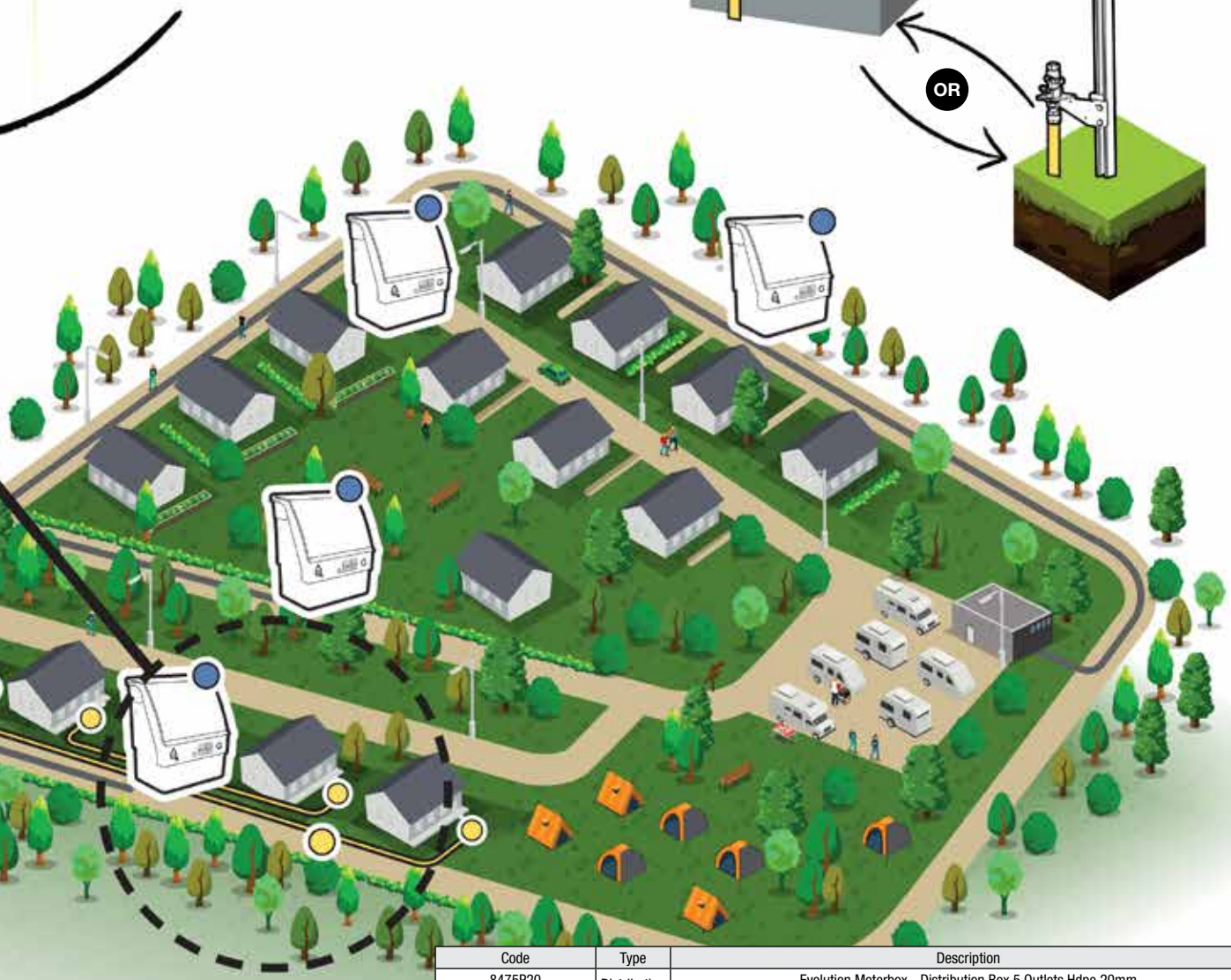




Gas Tank

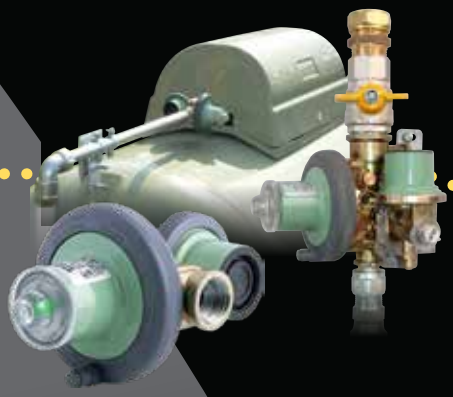
COUPLING CABINET

Code	Type	Description
8475P20	Distribution Box	Evolution Meterbox - Distribution Box 5 Outlets Hdpe 20mm
8475P32		Evolution Meterbox - Distribution Box 5 Outlets Hdpe 32mm
8475210	Fixation Kits	Evolution Meterbox - Fixation Kit Wall Mounted - Hdpe 32 - 37mb - Gas Meter - Green
8475310		Evolution Meterbox - Fixation Kit Wall Mounted - Hdpe 32 - 37mb - Gas Meter - Green
8475320		Evolution Meterbox - Fixation Kit Wall Mounted - Hdpe 32 - 37mb - Gas Meter - Green
84750020W	Regulation & Metering cabinets	Evolution Meterbox - Fixation Kit Wall Mounted - Hdpe 32 - 37mb - Gas Meter - Green
84750021W		Evolution Meterbox - Fixation Kit Wall Mounted - Hdpe 32 - 37mb - Gas Meter - Green
84753120W		Evolution Meterbox - Fixation Kit Wall Mounted - Hdpe 32 - 37mb - Gas Meter - Green
84753121W		Evolution Meterbox - Fixation Kit Wall Mounted - Hdpe 32 - 37mb - Gas Meter - Green
84753221G		Evolution Meterbox - Fixation Kit Wall Mounted - Hdpe 32 - 37mb - Gas Meter - Green

Non-contractual pictures

BP2203
BP4203

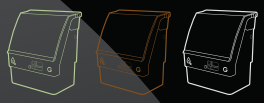
10-30KGH



BP24 SERIES

50-150KGH

METER BOX



PRESSURE REDUCTION

STATIONS & VAPORISERS

30-2000KGH

BESPOKE PROJECT MANAGEMENT

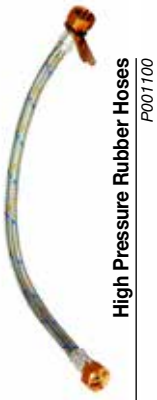
DESIGN COMMISSION AND INSTALL

UK & Ireland's most popular LPG regulator solutions

CLESSE

CLESSE

PIPES
& FITTINGS



High Pressure Rubber Hoses 006400

High Pressure Rubber Hoses P001100

High Pressure Clessinox Hoses
P011100

High Pressure Stainless Steel Hoses
P012690

Low Pressure Stainless Steel Hoses
P011530-P012530

Low Pressure Stainless Steel Hoses
P579999

Rubber hoses

Code	Inlet code	Inlet connection	Outlet code	Outlet connection	Service Pressure (bar)	Lengh (m)	Observation
RGT6400-HIGH PRESSURE RUBBER HOSES							
006400	N1B	NUT-W20LH-25x13,5	N1B	NUT-W20LH-25x13,5	16	0.5	UNI-7140
006401			E2B	MAL-R1/4		0.5	
006425			N1B	NUT-W20LH-25x13,5		0.6	
006402						0.7	
006426						0.9	
006404						1	
006415						1.2	
006405						1.5	
006406						2	
P11-P14-P30-C30-HIGH PRESSURE RUBBER HOSES							
P001100*	N2C	NUT-NF21,8LH-R5NF	N6A	NUT-M20X1,5RH	20	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	N6A	NUT-M20X1,5RH	N6A	NUT-M20X1,5RH		0.35	
P003042						0.7	
P003046						1.5	

Stainless steel hoses

Code	Inlet code	Inlet connection	Outlet code	Outlet connection	Service Pressure (bar)	Lengh (m)	Observation
CLESSINOX-HIGH PRESSURE STAINLESS STEEL HOSES							
P011100*	N2C	NUT-NF21,8LH-R5NF	N6A	NUT-M20X1,5RH	20	0.35	NF M88-780 20 years Service life
P011400*						0.45	
P013000*						0.70	
P011120	N6A	NUT-M20X1,5RH	G6B	MAL-M20X1,5RH		0.45	Unlimited Service life
P012650			N6A	NUT-M20X1,5RH		1.5	
P012690						2.5	
LOW PRESSURE STAINLESS STEEL HOSES							
P011510*	N5D	NUT-G1/2RH-NF	N5D	NUT-G1/2RH-NF	2	0.5	NF D36-123 Unlimited Service life PVC protection
P011520*						0.75	
P011530*						1.0	
P011550*						1.5	
P011560*						2.0	
P012530*	E2E	MAL-R3/4	E2E	MAL-R3/4		1.0	
P012550*						1.5	
P012560*						2.0	
P579999	N5D	NUT-G1/2RH-NF	N5D	NUT-G1/2RH-NF	0.5	0.5	-
P580001						0.75	
P580033	N5N	NUT-G3/4RH-NF-LINE	N5N	N5N - NUT-G3/4RH-NF-LINE		0.5	
P580035						0.75	

* NF certified

Code	Dimension	Service Pressure	Lengh (m)	Observation
P032-LOW PRESSURE TUBING				
P030211*	ø int. 6 - ø ext. 12 for HNZ 10 connection	200 mbar	1	XP D36-110 Supplied with 2 jubilee clamps
P030213*	ø int. 6 - ø ext. 12 for HNZ 10 connection		1.5	
P032101	ø int. 6 - ø ext. 12 for HNZ 10 connection		25	NF D36-101
0990013	ø int. 6 - ø ext. 12 for HNZ 10 connection		width 8 mm	NF D36-110

* NF certified

Low Pressure Tubing

Application

- RPGT6400 are high pressure hoses (pigtails) 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.

Code	Inlet code	Inlet connection	Outlet code	Outlet connexion	Observation
HOSE NOZZLE					
005303	K4D	PIPE-10-OG-COPPER	Z4C	HNZ-10-BS-HP	-
005460	E2C	MAL-R3/8	Z4C	HNZ-10-BS-HP	-
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	-
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	-
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	-
P602001	E6B	MAL-M20x1,5RH	Z1D	HNZ-10-EN	-
PP04500	N6A	NUT-M20x1,5RH	Z1D	HNZ-10-EN	With rubber sealing
P362001	-	For NUT M20x1,5RH	Z1D	HNZ-10-EN	With rubber sealing

Code	Inlet code	Inlet connection	Outlet code	Outlet connexion	Observation
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	Code corresponding connection	Connection
NUTS		
040702	N1A	NUT-W20LH-25-UNI
040725	P2F	POLM-USA-R2-28x28,5-HN
040728	P2C	POLM-USA-R2-SN
P158040	N5D	NUT-G1/2RH-NF
P450100	N6A	NUT-M20x1,5RH
P830600	N5N	NUT-G3/4RH-NF-LINE

Code	Inlet code	Inlet connection	Outlet code	Outlet connexion	Service pressure (bar)	Observation
CYLINDER CONNECTION						
005902	N1A	NUT-W20LH-25-UNI	E2B	MAL-R1/4		-
005910G	P2C	POLM-USA-R2-SN	E2B	MAL-R1/4		soft POL
P402000	P1A	POLM-5/8LH-BS-HN	E2B	MAL-R1/4	16	hard POL with filter
P130001	N6A	NUT-M20x1,5RH	E2B	MAL-R1/4		with rubber seal + filter
P402001	N2C	NUT-NF21,8LH-R5NF	E2B	MAL-R1/4		with rubber seal + filter

CLESSINOX
STAINLESS STEEL

DN12 - 35kW | **DN16 - 70kW**

Clessinox Flexible Stainless Steel hose is the modern alternative to rubber and meets the requirements of installation standard BS6891:2015. It is optimized to give low pressure loss, and conforms to manufacturing standard BS EN ISO 10380.

- **LPG Installation standard BS6891:**2015 – The specification for installation and maintenance of low pressure pipework requires the outlet hose to be armour protected from rodent attack.
- **Supplied in 2 diameters** DN12 to satisfy installations up to 35kW. DN16 to satisfy installation up to 70kW. Both sizes of hose are declared with a 1mb pressure loss per metre.
- **Rubber hose without armoured** protection no longer meets the requirements of BS6891:2015.

- Rodent resistant
- Ultraset – new improved excess flow system
- UV stabilised outer cover
- Improved durability over rubber
- Wide bore design with reduced pressure loss
- Exceeds standard pull test requirements
- Highly flexible
- Traceable manufacturing
- No internal rubber components
- Plasticiser free
- Cost effective
- Fully recyclable & environmentally friendly

Clessinox is a stainless steel convoluted walled hose covered with a protective UV stabilised PVC outer sleeve, providing a durable, flexible solution in gas installations and an alternative to rubber and rubber armoured hose. Specifically designed for use with LPG and Natural Gas in accordance to BS 6891:2015, BS 5482 and Liquid Gas UK COP.

Markings on Hose

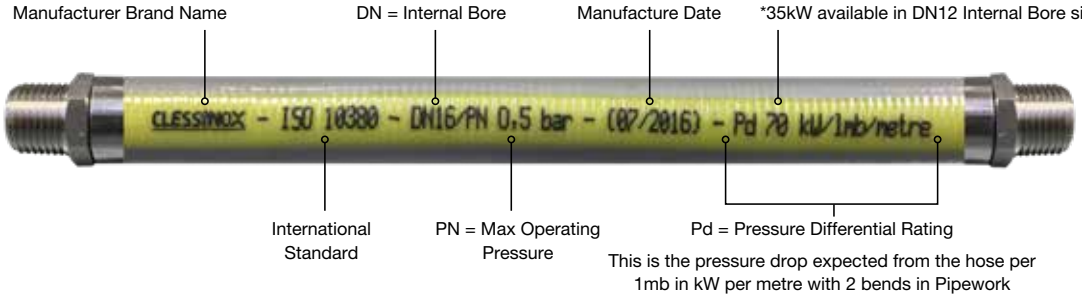
DN -	Nominal inside bore diameter
PN -	Maximum Operating Pressure in bar (0.5bar is 500mb)
MM/20XX -	Date of Manufacture, Month / Year
Pd -	Pressure differential rating - pressure drop expected from the hose per 1mb in kW per metre (2 bends in pipework)

Clessinox is marked with the expected pressure drop and aids the installer to ensure the installation meets the 2mb pipework maximum permissible pressure drop requirements of BS6891. i.e. a 1.2m hose using Clessinox DN16 at 70kw/metre/1mb will have a Pd of 1.2mb. Using the same hose at a reduced 50kW, pressure drop is calculated as 1.2 x (50/70) = 0.85mb.

Service life - Normally 10 years depending on installation and use conditions. Visit the Clesse website for further installation recommendations - all hoses should be checked regularly and replaced if damaged or leaking.

Should you have any questions regarding the new standards, hoses & other products please contact the Clesse technical support centre.

Clearly printed hose with Identification markings



DN12 VARIANTS Ideal for installations of 1 Cylinder Regulators and 2 Cylinder Changeover Systems	
Code	Description
UUSS12WB120	Clessinox 35kW/h Stainless Steel Hose Assembly 1.2MTR 1/2"M x M
UUSS35KWX15	Clessinox 35kW/h Stainless Steel Hose Assembly 1.2MTR 1/2"M x 15mm Compression
UUSS35KWX22	Clessinox 35kW/h Stainless Steel Hose Assembly 1.2MTR 1/2"M x 22mm Compression
UUSS35KWTPX15	Clessinox 35kW/h Stainless Steel Hose Assembly 1.2MTR 1/2"MALE WITH Testpoint x 15mm Compression
UUSS35KWTPX22	Clessinox 35kW/h Stainless Steel Hose Assembly 1.2MTR 1/2"MALE WITH Testpoint x 22mm Compression
UUSS35KWTP15&22	Clessinox 35kW/h Stainless Steel Complete Outlet Hose Assembly Kit 1.2MTR 1/2" Male With Testpoint Including 15&22mm Compression Fittings

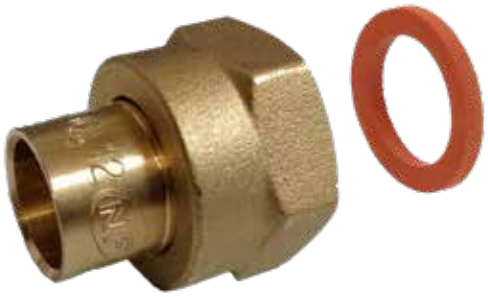
DN16 VARIANTS Ideal for larger capacity installations of more than 2 Cylinders, 2nd Stage Regulators & Meterboxes	
Code	Description
UUSS16WB120	Clessinox 70kW/h Stainless Steel Hose Assembly 1.2MTR 1/2"M x M
UUSS70KWX15	Clessinox 70kW/h Stainless Steel Hose Assembly 1.2MTR 1/2"M x 15mm Compression
UUSS70KWX22	Clessinox 70kW/h Stainless Steel Hose Assembly 1.2MTR 1/2"M x 22mm Compression
UUSS70KWTPX15	Clessinox 70kW/h Stainless Steel Hose Assembly 1.2MTR 1/2" MALE WITH TESTPOINT x 15mm Compression
UUSS70KWTPX22	Clessinox 70kW/h Stainless Steel Hose Assembly 1.2MTR 1/2" Male With Testpoint x 22mm Compression
UUSS70KWTP15&22	Clessinox 70kW/h Stainless Steel Complete Outlet Hose Assembly Kit 1.2MTR 1/2" Male With Testpoint Including 15&22mm Compression Fittings

Installation - Do not exceed minimum bend radius of the hose: **DN12 - 50mm** | **DN16 - 70mm**

When installing, visually use the yellow line to ensure hoses are not twisted or subjected to torsional forces. Torque can occur upon installation or when the hose is in use, never support weight from the hose - **inspect regularly**.

Should you have any questions regarding the new standards, hoses & other products please contact the Clesse technical support centre.

NUT+NOZZLE for BRAZING



MALE for BRAZING
005113

Leak Detector
7302004

Thread sealant
041671

Threaded Taps
P340100

Sealings for Connections
P100000

Threaded Taps
P450200

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 available dimensions, please contact us.

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	
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	

Code	Code corresponding	Inlet connection	Service pressure (bar)	Observation
THREADED TAPS				
P340100	F6A	FEM-M20x1,5RH	20	with rubber seal
P450200	F6A	FEM-M20x1,5RH		with rubber seal + strap
P690100*	E6B	MAL-M20x1,5RH		with rubber seal
ECGB96	F1E	FEM-G3/4RH	1,75	with fiber seal

Code	Description
THREAD SEALANT	
041671	50 ml bottle
041671AC	250 ml bottle

Code	Description
LEAK DETECTOR FLUID	
7302004	150 ml spary
7302008	400 ml spary

* NF certified

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		

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

Male-Male Adaptors P490110

Female-Female Adaptors P900101

Male-Female Adaptors P920101

Male-Femelle adaptors P453000

T Threaded Connectors P001201

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	
005960	E2B	MAL-R1/4	E7B	MAL-3/8LH-DIN	
005967	E2D	MAL-R1/2	E2C	MAL-R3/8	
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	
P477304	E5F	MAL-1"NPT	E1E	MAL-G3/4RH	

* NF certified

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		
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		
3820222	E6B	MAL-M20x1,5RH	F1D	FEM-G1/2RH	1.75	with fiber/resin seal

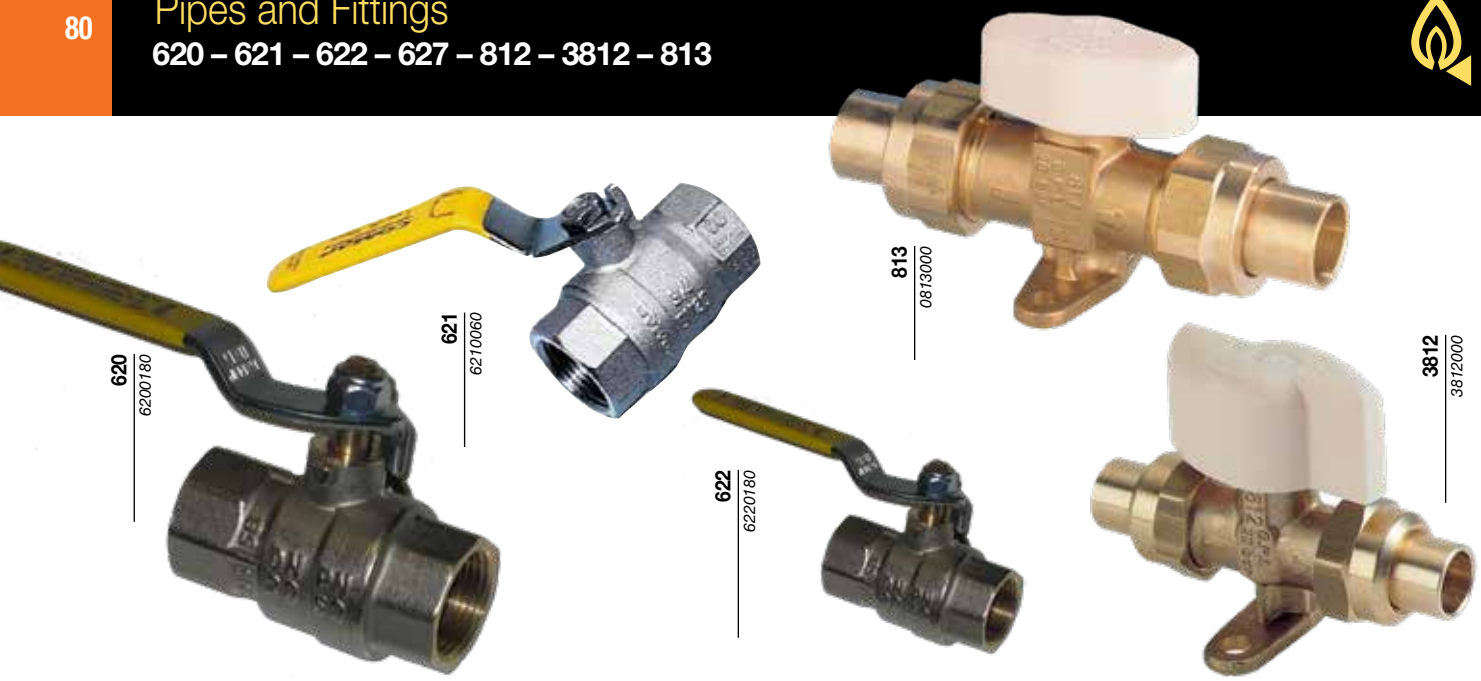
Code	Inlet code	Inlet connection	Outlet code	Outlet connection	Service pressure (bar)	Observation
FEMALE-FEMALE ADAPTORS						
P900101	N6A	NUT-M20x1,5RH	N6A	NUT-M20x1,5RH	20	With rubber seals
P900102	N5D	NUT-G1/2RH-NF	N5D	NUT-G1/2RH-NF		
P500110	N6A	NUT-M20x1,5RH	L2A	MAL-NF21,7LH		
P008800	F1D	FEM-G1/2RH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

Code	Inlet 1		Inlet 2		Outlet		Service pressure (bar)
	Inlet code	Inlet connection	Inlet code	Inlet connection	Inlet code	Inlet 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 vale integrated

Pipes and Fittings

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		Connection type	Butane flow capacity @ 28 mbar (kg/h)	Butane flow capacity @ 112 mbar (kg/h)	Propane flow capacity @ 37 mbar (kg/h)	Propane flow capacity @ 148 mbar (kg/h)	Propane flow capacity @ 1,5 bar (kg/h)	Propane flow capacity @ 3 bar (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								-	

* NF Certified

ROAI
3820101

3814
3814010

ROAI Valve EFV

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 accidently 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

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	m³/h	kW		
3814 - UPSO											
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

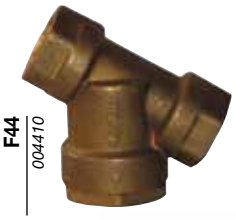
** NF certified*

Code	Inlet code	Inlet connection	Outlet code	Outlet connection	Service pressure mbar	EFV			Observation
						m³/h	kW (LPG)	kW (NG)	
ROAI EFV									
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

** NF certified*

F44 004405

F44 004410



Back Check Lock 005659

F44 004400

SD-MP 0644012

Screen Connectors 040910

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: synthetical 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	Flow rate (NG) @ 20 mbar*		Flow rate (LPG) @ 37 mbar*		Flow rate (NG) @ 300 mbar*		Flow rate (LPG) @ 300 mbar*		Flow rate (LPG) @ 1 bar*		Flow rate (LPG) @ 1,5 bar*	
					µm	(n)m3/h	kW	kg/h	kW	(n)m3/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
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	75	6,2	69	7,5	104	20	224	24	331	32	442	75	1035
004401NP	F5D	FEM-1/2NPT	E5D	MAL-1/2NPT	75												
004405AC	E1D	MAL-G1/2RH	E1D	MAL-G1/2RH	75												
004405AE	E1E	MAL-G3/4RH	E1E	MAL-G3/4RH	75												
F44-41																	
004410	F2F	FEM-RP1	F2F	FEM-RP1	75	9,5	106	11,5	159	30	336	36	497	46	635	115	1587
004410NP	F5F	FEM-1NPT	F5F	FEM-1NPT	75												

Code	Inlet code	Inlet connection	Outlet code	Outlet connection	Connection distance	Filtration threshold	Flow rate (NG) @ 20 mbar*		Flow rate (LPG) @ 37 mbar*		Flow rate (NG) @ 300 mbar*		Flow rate (LPG) @ 300 mbar*		Flow rate (LPG) @ 1,5 bar*	
					mm	µm	(n)m3/h	kW	kg/h	kW	(n)m3/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	120		12	134	20	276	53	594	64	883	156	2153
0644012	F2E	FEM-RP3/4	F2E	FEM-RP3/4			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	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

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 connexion	Service pressure (bar)	Feature
BACK CHECK LOCK						
005659	F3B	FEM-Rc1/4	E2B	MAL-R1/4	7	Back check valve

Specific dimensions available upon request

4844HP *484400*

4853BP *4853002*

LD73 *GPLS7305B*

KT73 *GPL7306K12*

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 APLIANCE 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 Normaly Open or Normally Closed solenoid valves
  - a Normaly Open solenoid valve Rp1/2 or Rp3/4

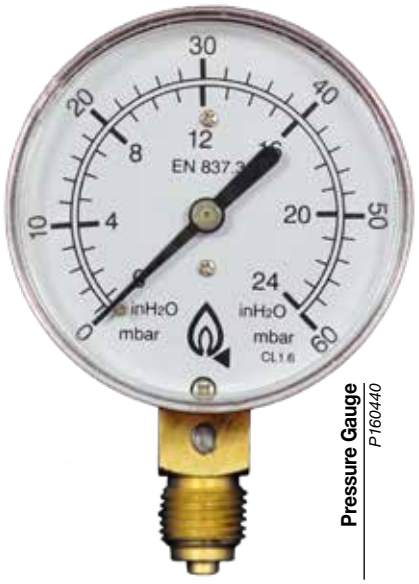
Technical Characteristics

- 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	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
4844015						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)
4844115						2x15 mm Braz Fit	

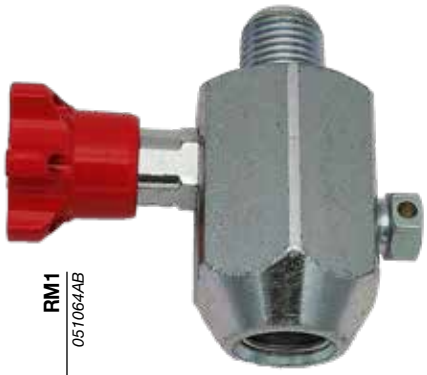
Code	Inlet code	Inlet Connection	Capacity LPG (kg/h) for 30 mbar loss of charge	Electrical connection	Observation	Solenoid + connectors for maintenance
4853BP - Manual reset						
4853001	F2D	FEM-Rp1/2	6	220 V - 50 hertz	MOP 500 mbar Manual reset	4853220 (220V)
4853002	F2E	FEM-Rp3/4	18			
4853003	F2J	FEM-Rp1.1/4	54			
4853004	F2L	FEM-Rp2	86			
4853BP - Automatic reset						
4853111	F2D	FEM-Rp1/2	6	220 V - 50 hertz	MOP 360 mbar Pressure test point Automatic reset	4853231 (220V)
4853112	F2E	FEM-Rp3/4	18			
4853103	F2J	FEM-Rp1.1/4	54			4853222(220V)
4853104	F2L	FEM-Rp2	86			

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
GNS7305B	Natural Gas	Single-Slave	YES	NO	NO	3	YES	YES	YES
GNR7306B	Natural Gas	Single-Master	YES	YES	NO	3	YES	YES	YES
KT73 (LD73 + solenoid valve)									
GPL7306K12	LPG or SNG	Single-Master	YES	YES	Rp 1/2	3	YES	YES	YES



Pressure Gauge *P160440*

RM1 *051064AA*



RM1 *051064AB*

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.

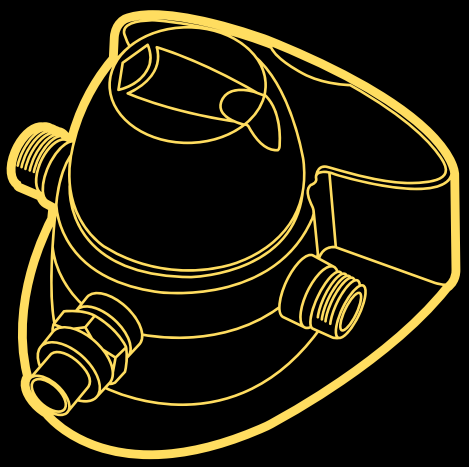
Changeover Indicators

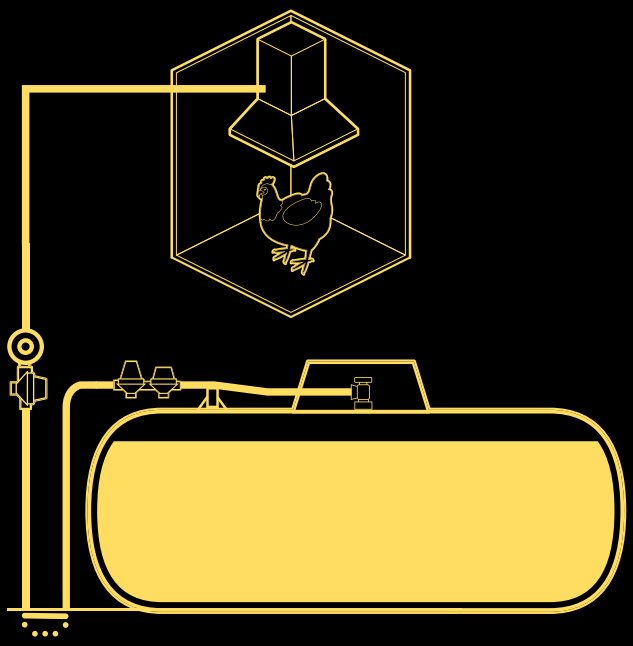
- A magiscope is installed on the piping, between the high-pressure automatic changeover and the second stage (low-pressure) regulator.
- These indicators allow a remote observation of the empty "service" cylinder.

Code	Connexion code	Connection type	Pressure		Dial			
			Range	Unit	Type	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) To assemble with seal 006117	0 - 60	mbar	Dry	63	Metalic	Plastic
006904			0 - 100					
006903			0 - 250					
006903AC			0 - 400					
006903AA			0 - 1	bar		50		
006903AB			0 - 2,5					
006901AP			0 - 4			40		
006902AB	E2B	MAL-R1/4	0 - 25					
CONNECTION G1/8RH								
006900	E1A	MAL-G1/8RH (Nipple 4mm)	0 - 4	bar	Dry + red pointer	40	Metalic	Plastic
CONNECTION R1/4								
006959BX	E2B	MAL-R1/4-Coaxial	0 - 1,6	bar	Oil bath	50	Stainless steel	Glass
006956BX		MAL-R1/4-Radial	0 - 4	bar				
006957BX			0 - 10	bar				
006955BX			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	Body lengh (mm)	Accessories
051064AA	E1B	MAL-G1/4RH	F2B	FEM-RP1/4	30	-
051064AB	E1B	MAL-G1/4RH	F2B	FEM-RP1/4	40	With a purge to depressurize the gauge

POULTRY SOLUTIONS





CLESSE

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)

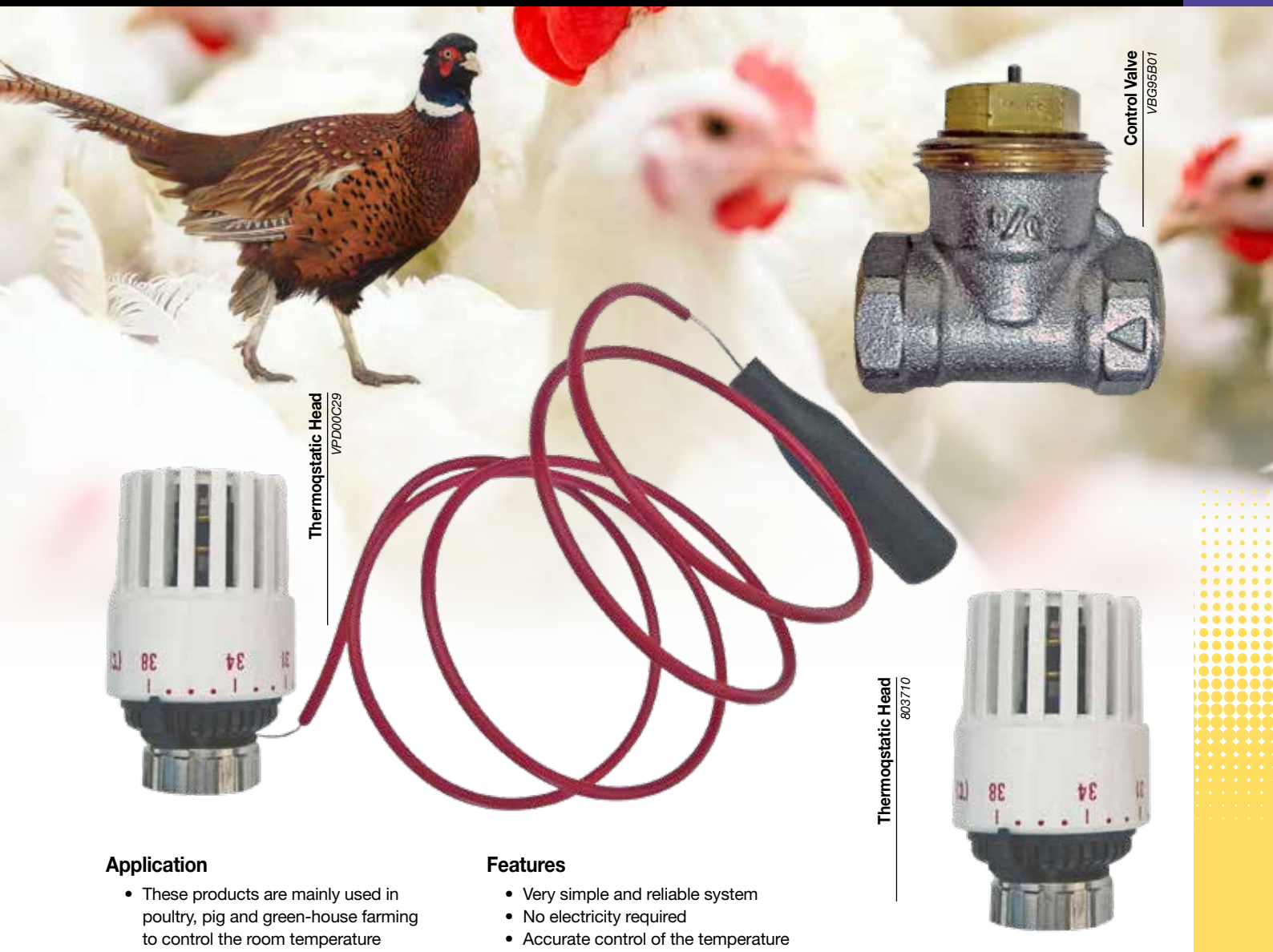
Features

- 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)

Code	Inlet code	Inlet connection	Outlet code	Outlet connection	Inlet pressure (Pu)	Outlet pressure (Pd)	Flow rate (Propane/LPG)		Filter	Comments
					bar	mbar	kg/h	kW		
SREW REGULATORS - BP1813										
000780AA	F5B	FEM-1/4NPT	F5C	FEM-3/8NPT	1-16	50-150	4	55	-	
000780AC	F2B	FEM-Rp1/4	F2C	FEM-Rp3/8		20-90			-	
000780AD	F2B	FEM-Rp1/4	F2C	FEM-Rp3/8		5-200			-	
000780AE	F2B	FEM-Rp1/4	F2C	FEM-Rp3/8		50-150			-	
000780BC	F2B	FEM-Rp1/4	F2C	FEM-Rp3/8		20-90			-	
000780BD	F2B	FEM-Rp1/4	F2C	FEM-Rp3/8		5-200			-	
000780AL	N6A	NUT-M20x1,5RH	E6B	MAL-M20x1,5RH		5-200			Y	
000780AM	N6A	NUT-M20x1,5RH	E6B	MAL-M20x1,5RH		50-150			Y	
000780AP	N2A	NUT-NF21,8LH-27x14-G/G	E6B	MAL-M20x1,5RH		50-150			Y	
000780AS	P1A	POLM-5/8LH-BS-HN	Z1D	HNZ-10-EN		50-150			Y	
000780AR	P1A	POLM-5/8LH-BS-HN	Z1D	HNZ-10-EN		20-300			Y	
000780BP	N6A	NUT-M20x1,5RH	E6B	MAL-M20x1,5RH		20-90			Y	
000780AB	F5B	FEM-1/4NPT	F5C	FEM-3/8NPT		20-300			-	Diapgragm material NBR-R
000780AG	F2B	FEM-Rp1/4	F2C	FEM-Rp3/8		20-300			-	
000780AH	F2B	FEM-Rp1/4	F2C	FEM-Rp3/8		5-300			-	
CLIP REGULATORS - ZP10										
001520AE	C1A	CLIP-20	Z1D	HNZ-10-EN	1-16	50-190	2	28	-	
001520AG						5-310				
1455										
001850AB	E6B	MAL-M20x1,5RH	E6B	MAL-M20x1,5RH	2 - 4	20-1400	10	138	Y	Diapgragm material NBR-R



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.

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.

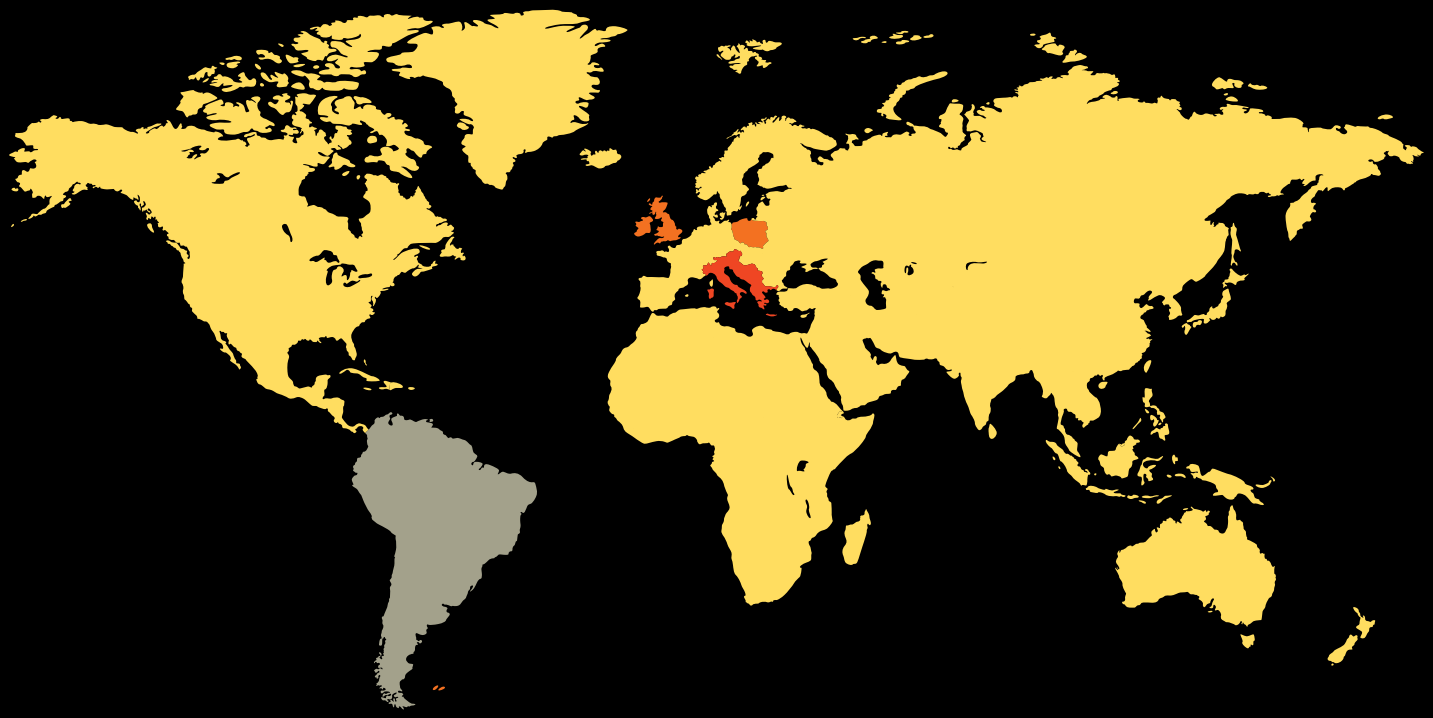
Code	Head connexion	Description	Obversation
Thermostatic Head And Sensor			
803710	NUT M28	Thermostatic head with integrated liquid sensor	Graduation from 15 to 38°C NUT M28
VPD00C29		Thermostatic head with remote liquid sensor 1,25 meters	
VPD00C30		Thermostatic head with remote liquid sensor 8 meters	
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		-	FEM-G5/8RH + 12mm adaptor for brazing			Control valve, straight with 12mm copper adpator
VPD00C94						Control valve, straight with 12mm copper adpator - 25/100° by-pass
VPDBWA31						Control valve, straight with 12mm copper adpator - 49/100° by-pass

Notes

Notes

World Locations



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