

iFlow[®]

The Intelligent Protection.



LPG Técnicas en Extinción de Incendios, S.L.

Mestre Joan Corrales 107-109,

08950 Esplugues de Llobregat (Barcelona) Spain

tel.: 0034 934802925 • fax: 0034 93 4737492

e-mail: lpg@lpg.es • www.lpg.es



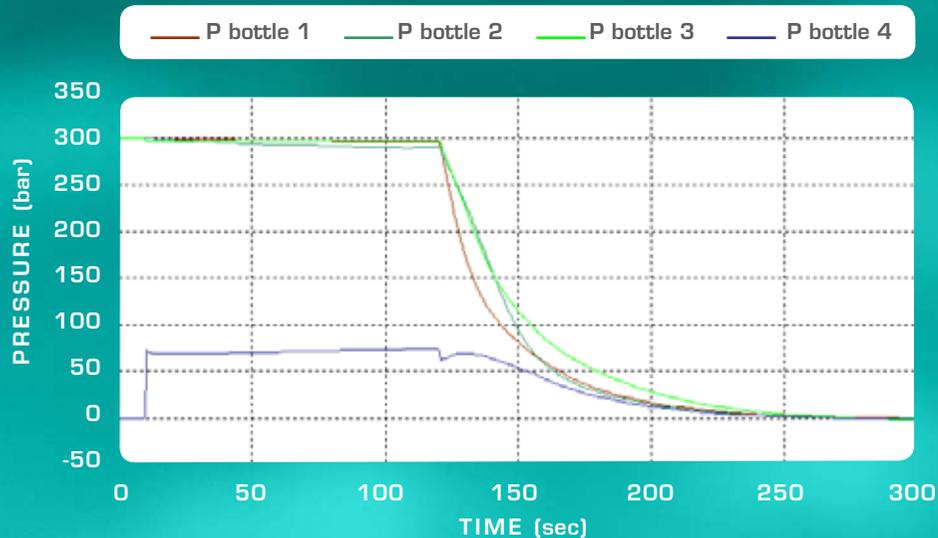


Exclusive *iFlow*[®] Environmental Technology.

The industry around the world -and mainly within the industrialized countries- is increasingly applying green technologies. In the field of fire protection, the trend is to look for more environmentally friendly products that reduce the use and generation of hazardous substances.

The use of inert gases is **the safest and most natural method of extinguishing fire**. That is why *LPG*, thanks to its expertise and engineering development, has launched ***iFlow*[®] exclusive technology for inert gases *LPG Inert*. A 100% ecological technology.**

PRESSURE PROFILE

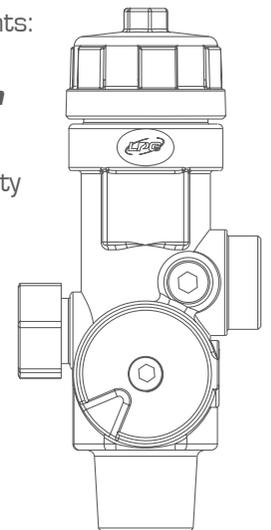


What does *iFlow*[®] Technology consists of?

iFlow[®] systems eliminate the peak pressure point to achieve a more balanced flow along the actual release time. This patented technological innovation is based on three main elements:

- **The *iFlow*[®] valve:** regulates the flow release by eliminating the peak pressure (**patented**).
- **The *iFlow*[®] check valve:** connects elements of the system and ensures a safety role by preventing leakage (**patented**).

- **The *Matrix design concept*:** offers design flexibility and adaptation to complex architectural spaces (**patented**).



iFlow[®] provides the benefits of inert systems with **100% green technology**.



Why using *iFlow*® Technology?

MAIN ADVANTAGES

1. Cost reduction
2. Time reduction

3. Space reduction
4. Maximum flexibility
5. Real-live test checking

6. 100% Eco-friendly
7. Immediate reuse

1. Reduced Installation cost:

- Piping lower pressure
- Minimal venting area
- Less manifolds required
- Less installation time

2. Reduced maintenance cost:

- Minimal assembly and disassembly work
- Less refilling cost

3. Less storage space:

- Matrix Design system adapting better to architectural needs
- **LPG** is the only company able to offer up to 180 l. cylinders
- **LPG** is the only company that has reduced 80 l. cylinders height for smaller spaces

4. Adapts better to any risk:

- 4 types of gas with different air density
- Excellent extinguishing holding time response
- Flexible Matrix design adapting better to architectural needs
- Different type of chassis adapting to customer needs

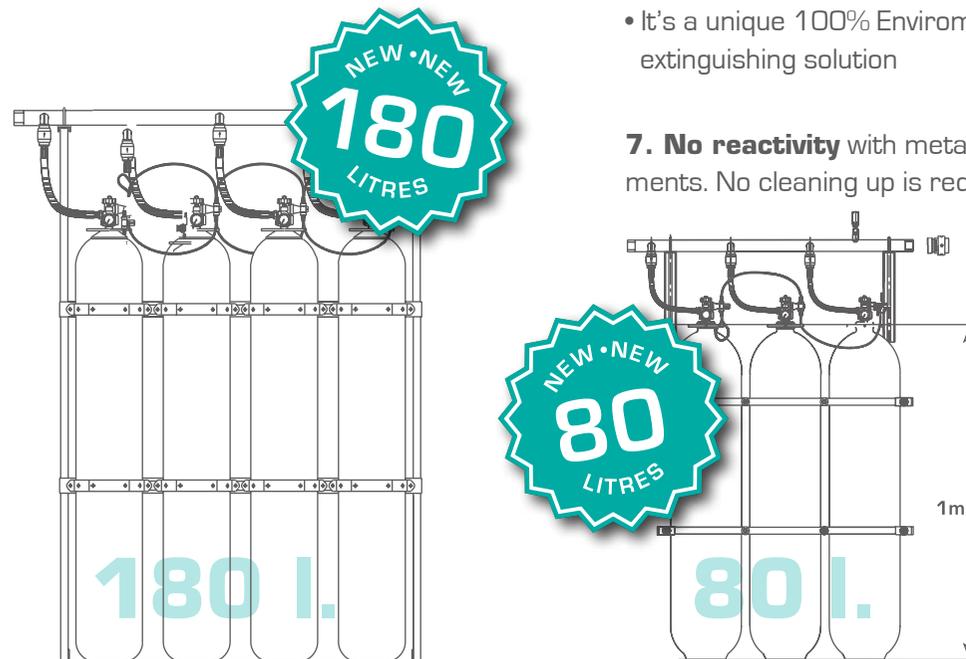
5. Real-live test checking:

- **iFlow**® valve allows for a functional test without discharge
- Inert gas is the less costly refilling gas so it is feasible to perform real-life test at low cost

6. 100% Eco-friendly:

- It's a unique 100% Environmental non-impact extinguishing solution

7. **No reactivity** with metals or other elements. No cleaning up is required after the use





iFlow[®] : *The safest valve in the market*



The *iFlow*[®] valve with the ongoing flow technology monitors the flow release to keep a constant flow and a pressure of 60 bar. In this way, we reduce the amount of combustion products, we extinguish even faster and we prevent fire from growing. Moreover, we comply with the current applicable law based on 95% release of the extinguishing agent in 60 seconds.

We can say that it is the safest valve in the market worldwide thanks to its newly incorporated safe devices:

- **Depressurization screw:** avoids discharge while manipulation. To ease maintenance works with the cylinder under pressure and with the right tools, the valve allows for the extraction of each element of control and discharge (all release devices, manometer/gauge and pressure switch) with no relevant waste of extinguishing agent.
- The manometer has a **screw plug:** prevents from leakage of gas under high pressure in case of breakage of the manometer
- It has a **safety disk** to avoid over temperature pressure.
- In case of leakage it has **special relief devices** that prevents from accidental releases.

Other advantages that make the valve *iFlow*[®] a unique product:

1. It is certified in compliance with **Transportable Pressure Equipment Directive (TPED, with marked ϖ)**.
2. **Know how with valve and patented technology.**
3. Internal stainless steel pieces. They ensure the resistance and can offer maximum reliability as regards openings and closings.
4. **100% Valve drawing.** Guaranteed quality and functionality.
5. **Certified by a prestigious international organization, the VdS in Germany.**

VdS



Unique horizontal non return *iFlow*[®] valve

The cylinders of the *iFlow*[®] systems feature a horizontal check valve [patented] inserted between the release hose and the manifold pipe. These devices prevent the return of gas from the manifold pipe to the cylinders.

The horizontal non return iFlow[®] valves have double function:

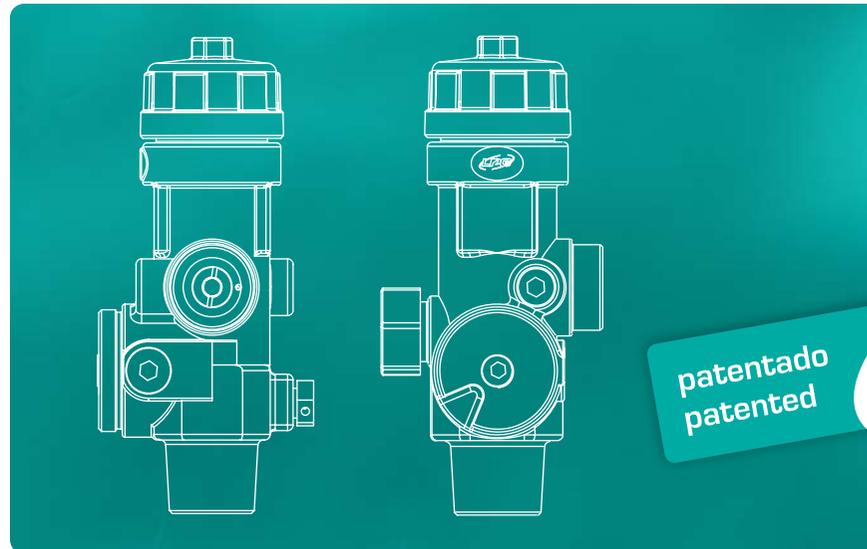
- **As a connection element:**

allows connection with other cylinders and reduce length and manifold's thickness.

- **As a security element:**

avoids gas return from the manifold towards the cylinders, avoids leakage and eases maintenance and installation.

One of the main advantages of the *iFlow*[®] check valve is its variability in position, contrary to the standard valve which can only be placed vertically. Furthermore, not only has it been developed with the latest technology but also it has been made from leading materials, not previously used.



patentado
patented

LPG
TECHNOLOGY

brevet
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iFlow[®] Matrix Design

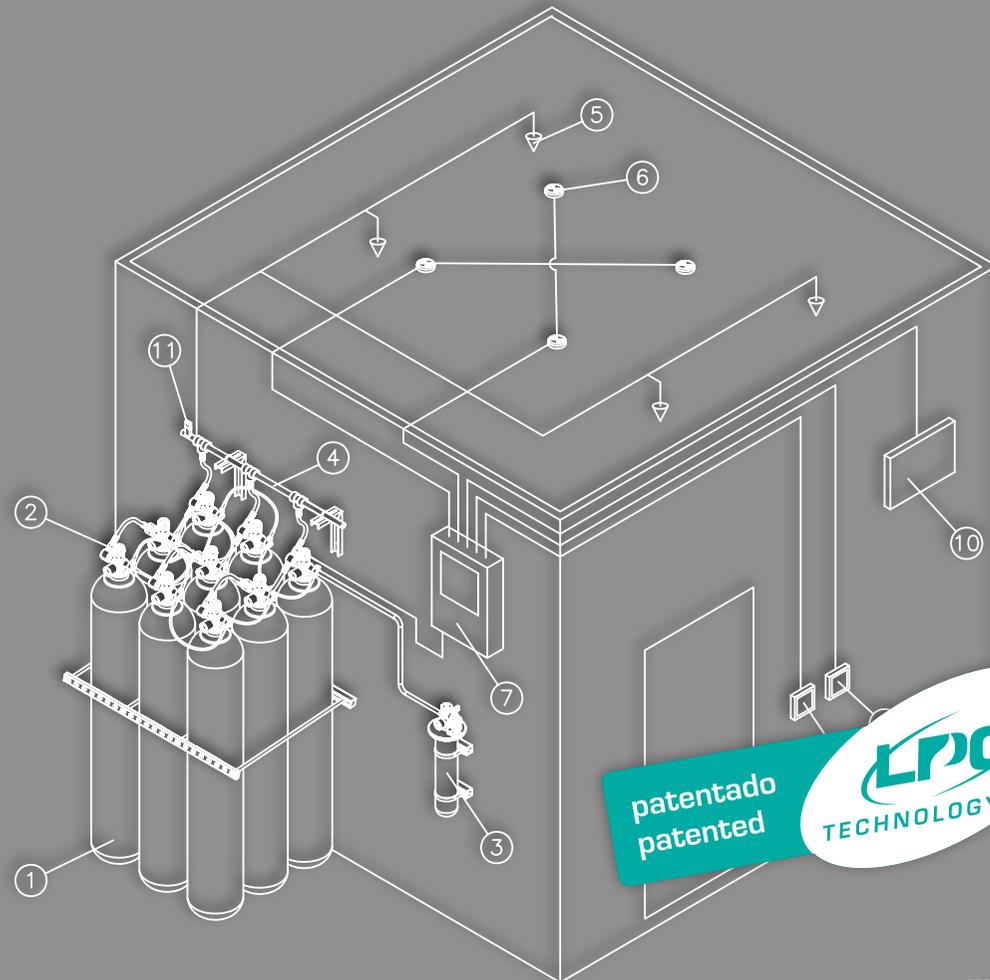
LPG's ability for research and technological development has enabled to arrange the bank of cylinders in an **innovative way** which, in turn, solves space problems so far encounte-

red in projects. It is an exclusive feature of **LPG** and currently in the process of obtaining the patent.

We have defined it as **the Matrix design**. The new design allows new positioning of cylinders in rows and columns joining cylinders with hoses.

iFlow[®]. MATRIX DESIGN MAIN ADVANTAGES:

- We can **minimize the number of manifolds** by offering an ease of maintenance.
- Uses a **unique hose model** with a smaller diameter and more flexible material.
- Design of a **distinctive bracket** adapted to the system that helps disassemble the minimum amount of bottles, in contrast with traditional systems.
- The **horizontal retention valve** allows matrix distribution of systems => exclusive connection among bottles.
- Design system that adapts better to architectural need.
- Flexible design=> more possibilities of distribution.



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iFlow[®] Eco-Technology.

What could be greener than taking air, filtering it, bottling it and release it in a room space?

iFlow[®] technology with **LPG Inert**[®] ensures a **100%** safe and environmentally friendly system.

The latest generation green solution at your disposal.

Why conforming with a vaguely tested low GWP that may lead to future environmental problems?

1. **Green Gas.** It is an inert gas naturally present in air. After release, it returns to its birthplace.
2. **Environmentally friendly.** Inert gases have zero **GWP (Global Warming Potential)** and zero **ODP (Ozone Depletion Power)**.
3. **It is safe for people:** it is ideal for busy areas due to its not harmful effects. When released, an excellent visibility remains.
4. **It does not generate decomposition products:** Argon and Nitrogen do not decompose into toxic or corrosive elements in a fire.
5. **It does not react** with common metals as it is a chemically inert agent and thermally stable. It does not require cleaning after use.
6. **Excellent visibility** while release.

Extinguishing agents and *iFlow*® cylinders

Each gas has a different density. Depending on the area to protect and its layout, the use of an inert gas or another will be more or less suitable in order to optimize the holding extinguishing holding (retention time of extinction). *iFlow*® technology is designed to be applied to the whole range of inert gases available in **LPG**: IG-55, IG-01, IG-100 and IG-541.

As for the cylinders, there is the option of multiple volumes: 80, 140 and 180 l. Depending on the volume chosen, one can get more protection in less space. **LPG** is the only company supplying cylinders of:

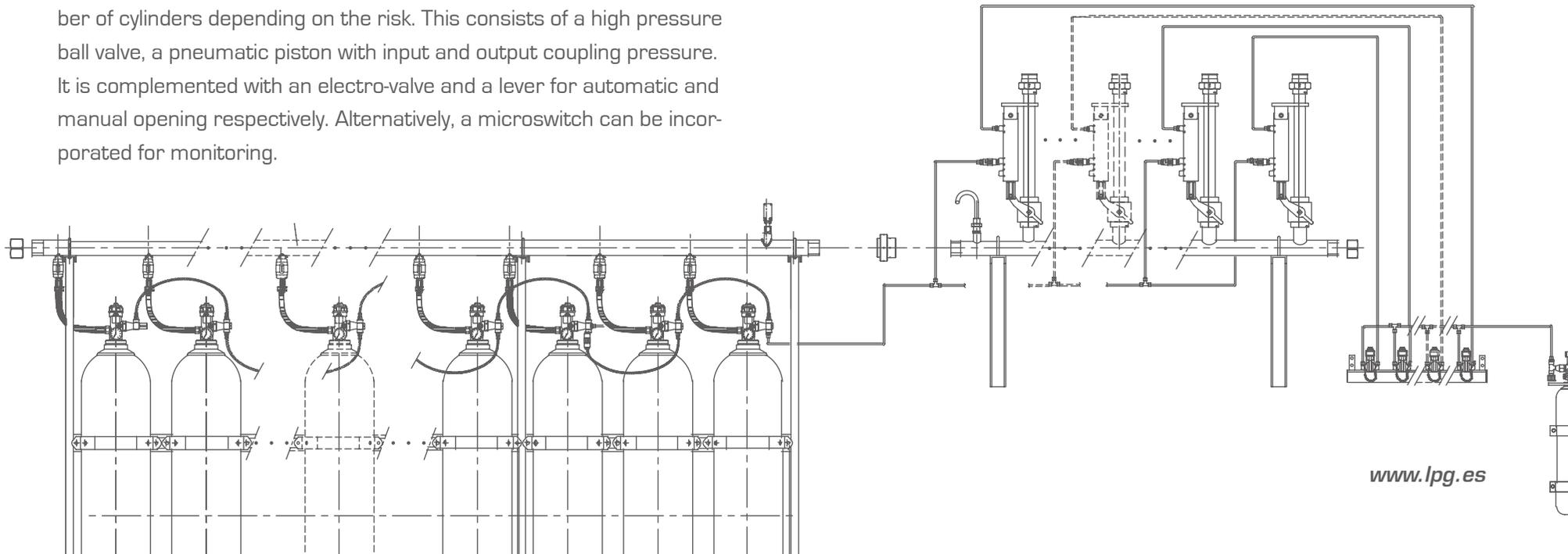
- **80 l.** with a reduced height (1m.) to solve problems in areas with limited space and
- **180 l. 300 bar** reducing the space required for the cylinders, ideal for large installations.

Protection of multiple rooms with a single *iFlow*® system

iFlow® Inert gas systems are designed to **protect multiple areas with a single battery** using directional valves to lead gas to the indicated area.

The systems with directional valves can operate over a different number of cylinders depending on the risk. This consists of a high pressure ball valve, a pneumatic piston with input and output coupling pressure. It is complemented with an electro-valve and a lever for automatic and manual opening respectively. Alternatively, a microswitch can be incorporated for monitoring.

iFlow® systems with **directional valves** bear a lower pressure (60 bar), unlike traditional systems (200 or 300 bar). Thanks to this lower pressure, we can use lower-cost items such as pipes or manifold collectors, resulting into **savings in the installation**.





Applications of iFlow® Systems

The **iFlow®** systems with inert gas are ideal where an **environmentally friendly** agent is required. They are safe for use in **occupied areas** and excellent visibility is kept during discharge. They are effective for the protection of **archives, museums, libraries** and any other hazard including valuable or unique property and goods. Likewise, this kind of systems is suitable for the protection of **computer rooms, telephone exchange equipment** and any other electrical installation with potential for a fire hazard.



Other applications

- Flammable liquid storage
- Transformers
- Laboratories
- Universities
- Mission Critical Control Rooms



**Ideal for
the protection
of high
value goods**



Standards and patents

LPG systems and components for inert gases are certified by the most accredited institutions and independent laboratories, such as VdS in Germany, LPCB in UK, CNPP in France, Russia

VNIPO, APCI in Cuba. With a patented technology **LPG** has become the benchmark for constant flow systems with inert gases.

