

EXTINGUISHING  
USING  
**INERT  
AGENTS**

# IG-100

## NITROGEN

WITH CONSTANT  
PRESSURE VALVES



RG SYSTEMS™ GREEN FLOW – IG-100 (N<sub>2</sub>) at 2900 & 4350 PSI (200 & 300 BAR) –  
CONSTANT & CONTROLLED FLOW TECHNOLOGY – COMBI MANIFOLD SYSTEMS (CMS)

# CLEAN AND ECONOMICAL



The use of nitrogen in the fire-fighting sector has a broad recognition and track record for its benefits, suitability and versatility of use. If it is also used with the latest storage and total discharge control technology, the result is the new and optimised system called RG SYSTEMS™ GREEN FLOW – IG-100 (N<sub>2</sub>) at 2900 & 4350 PSI (200 & 300 BAR) – CONSTANT & CONTROLLED FLOW TECHNOLOGY – COMBI MANIFOLD SYSTEMS (CMS).

The action is quick and safe, not generating by-products at high temperatures, changes in humidity, etc. This is also completely safe for use in areas that usually have high concentrations of occupancy as stipulated by the standards. It doesn't damage delicate components such as electronic, electrical or other devices either.

Furthermore, the growing conscientiousness and need to preserve the planet requires human activity to be more respectful, while at the same time any industry or business has to also ensure its own continuity.

*THE USE OF NITROGEN WITH FLOW CONTROL TECHNOLOGY OFFERS MAXIMUM PROTECTION ADVANTAGES AGAINST FIRES AS REGARDS SECURITY, SAFETY, EFFICACY, INSTALLATION OPTIMISATION AND EASE OF MAINTENANCE.*



## ADVANTAGES OF THE AGENT

+

## CONTROL ADVANTAGES

=

## RG SYSTEMS™ GREEN FLOW IG-100

PROTECTS EQUIPMENT WITHOUT AFFECTING OCCUPANTS. THE APPLICATION IS RELIABLE AND CONTROLLED, WITH EXCELLENT BENEFITS IN TIME AND IN THE FACE OF CHANGES (TEMPERATURE, HUMIDITY, LIGHT, ETC.)

PNEUMATIC  
REGULATION.  
LESS SHOCKS.

BETTER DESIGNED  
FOR SAFE  
EVACUATION

SAFE FOR  
EQUIPMENT AND  
STAFF. UNALTERABLE

CONVENTIONAL,  
LIGHT AND  
MANAGEABLE PIPING

THE INSTALLATION IS OPTIMISED USING PIPES OF SMALLER DIAMETER THAN HALOCARBONS AND LESS RESISTANT THAN INERT PIPES WITH RESTRICTORS. IN SUMMARY: LOWER GLOBAL COST.

AFFORDABLE REFILLS

CHEAPER  
INSTALLATIONS

GAS WITHOUT  
MIXING: ECONOMICAL  
AND ACCESSIBLE

DISPELLED WITH VENTILATION. DOESN'T RESULT IN GLOBAL WARMING OR AFFECT THE OZONE (GWP AND ODP NOT APPLICABLE)

CLEAN AND  
RESIDUE-FREE.  
COMPLETELY  
ECOLOGICAL

IMMEDIATE  
RESUMPTION,  
WITHOUT CLEAN-UP.

POSSIBLE TO CARRY OUT  
REAL DISCHARGES.

SIMPLE  
MANIPULATION AND  
MAINTENANCE.

INTERNATIONALLY  
APPROVED  
AND CERTIFIED

PROVEN AND RELIABLE TECHNOLOGY. THE VARIETY OF SIZES AND PRESSURES FOR STORAGE ALLOWS ITS INSTALLATION AND OVERALL EASY MAINTENANCE THE WORLD.

TOTAL RELIABILITY:  
REAL-WORLD  
TESTS AND ITS OWN  
APPROVED  
SOFTWARE.

WIDE  
PROFESSIONAL  
RECOGNITION

SYSTEM  
SUITABLE FOR  
SUBSTITUTION:  
ALLOWS FOR KEEPING  
CONVENTIONAL PIPE  
NETWORKS.

PNEUMATIC VALVE  
CONFIGURABLE TO  
ANY PRESSURE

THE PROTECTION  
IS POLYVALENT.  
THE SAME APPLICATIONS  
AS EQUIVALENT  
HALOCARBON

AGENTS AND SAFE IN OCCUPIED  
AREAS. COMPLIES WITH CURRENT ENVIRONMENTAL DEMANDS WITH  
MINIMAL SUBSTITUTION AND MAINTENANCE COSTS.



# USES AND APPLICATIONS

The RG SYSTEMS™ GREEN FLOW – IG-100 (N<sub>2</sub>) at 2900 & 4350 PSI (200 & 300 BAR) – CONSTANT & CONTROLLED FLOW TECHNOLOGY – COMBI MANIFOLD SYSTEMS (CMS) is especially appropriate for extinguishing fires from solids, liquid fuels, gas fires and energy fires (with the presence of an electrical current).

This high versatility covers the large majority of common fire sources both in industrial and service sectors: offices, businesses, energy sector, telecommunications, banking, security, health, archives, warehouses, etc.

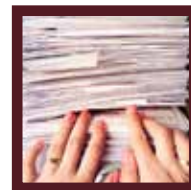
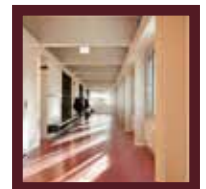
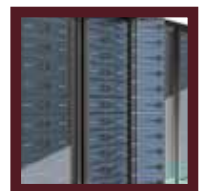
*HOTELS AND HOSPITALS*

*PROPERTY AND DOCUMENT ARCHIVES*

*IT AND TELECOMMUNICATIONS ROOMS*

*CONTROL CENTRES DPC's AND DATA ROOMS*

*OFFICES AND EDUCATIONAL CENTRES*



*ELECTRICAL AND ELECTRONIC EQUIPMENT, CABINETS, PANELS.*

*FALSE FLOORS ART GALLERIES, MUSEUMS.*

*TRANSPORT LABORATORIES, CLEANING ROOMS*

*EQUIPMENT PRESSURISER AGENT*



Because of its natural and ecological origin (distilled from the atmosphere, assuming 79% of the air we breathe), its use is safe in occupied areas, not assuming any risk to the people in common design concentrations.

With RG SYSTEMS™ GREEN FLOW – IG-100 (N<sub>2</sub>) at 2900 & 4350 PSI (200 & 300 BAR) – CONSTANT & CONTROLLED FLOW TECHNOLOGY – COMBI MANIFOLD SYSTEMS (CMS) flow control, a quiet and controlled discharge is obtained, with minimal overpressure and optimum visibility so that evacuation can be orderly and safe.

Clean and residue-free, the nitrogen allows for use in delicate installations or even that need a rapid resumption of activity.

Because fires happen and are potentially devastating, the use of agents that are ecological, stable, easy to acquire and reliably recognized guarantee the operation of an installation including over long periods of non-use or in the face of demanding or adverse environmental conditions.



*Ideal for rooms  
with staff*

*Controlled discharge,  
minimal overpressure*

*Clean and  
reliable technology*

# ADVANTAGES OF USING NITROGEN

# GREEN FLOW

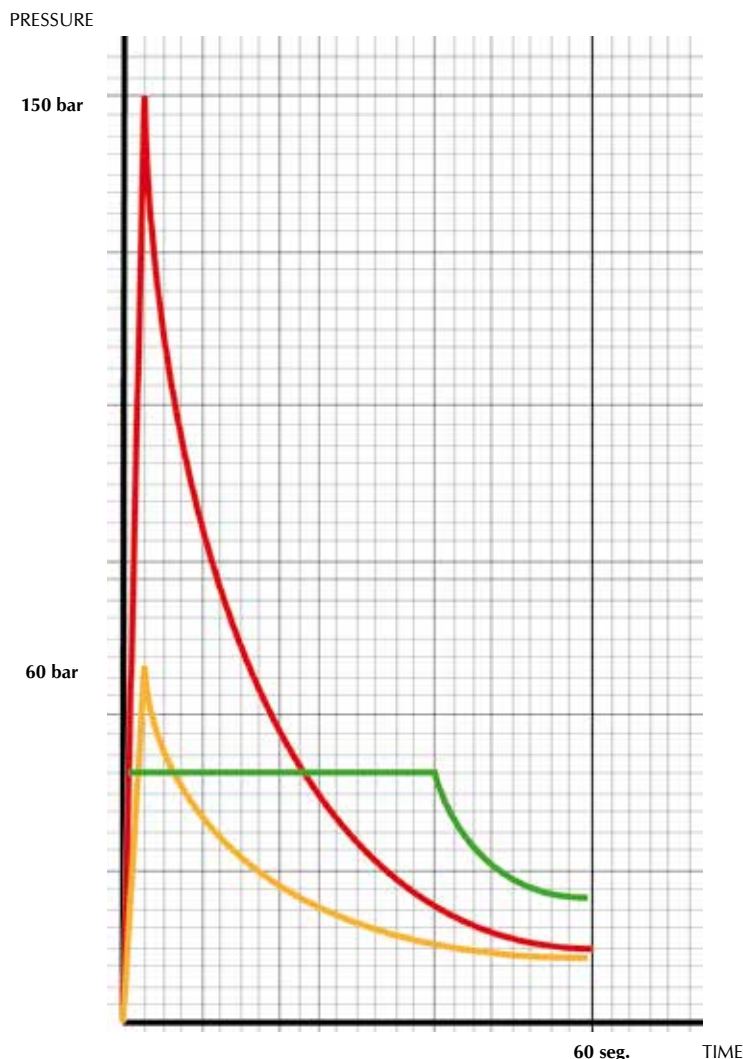
## Constant and safe discharges



Nitrogen is distilled and stored as a compressed gas, pressurised at a high level of purity (100%). Because of its great molecular stability, it is a neutral element that is practically unalterable (manipulation, storage, humidity, light, etc.).

It is very economical, with simple refills and high availability throughout the world. Its use is broad and well known, as a gas pressuriser or as an extinguishing agent.

To increase its offer, RG SYSTEMS™ has approved storage pressures at 150, 200 and 300 bar, with the goal of adapting them to each need and producing more compact systems. In the same sense, the new and innovative RGS-MAM-RD pneumatic control valve for flow and pressure allows for the reduction of up to two diameters in piping, reducing its resistance and making it lighter and more manageable.



## The technical difference in provisions with the use of nitrogen with constant flow and pressure control is ostensible:

On one hand, a free discharge to the storage pressure does not make sense, because of the elevated peaks in pressure, violent discharges and risk of damage.

Free discharge: very violent, large over-pressure, less safe. That doesn't work.

Flow control: flow and pressure are maintained, optimising pipe diameter and resistance by the balance

The restrictors, on their part, limit the maximum pressure to 60 bar, but do not regulate the release of the agent, with which, as the cylinders empty, pressure and flow drop.

Therefore, a costly and resistant installation is sized for some demands that last seconds.

With a calibrated restrictor: after the initial peak, the pressure drops. Piping and accessories are of less diameter than with chemical gases, but at a high pressure.

The RG SYSTEMS™ GREEN FLOW device – IG-100 (N<sub>2</sub>) at 2900 & 4350 PSI (200 & 300 BAR) – CONSTANT & CONTROLLED FLOW TECHNOLOGY – COMBI MANIFOLD SYSTEMS (CMS) optimises the installation, since it reduces the pressure and sustains flow over time, achieving the discharge of the same in the same time with up to two pipe diameter sizes less and a class of inferior resistance.

*The storage can, then, be located far from the protected hazard, if necessary, or overcome architectonic obstacles.*

# COMPONENTS

## VALVE

The approved valve model RGS-MAM-RD regulates the discharge to the desired pressure based on each case. Its pneumatic mechanism guarantees a long useful life, with minimal maintenance and maximum reliability.

It is the safest and most durable on the market, tested specifically to guarantee its proper operation in adverse conditions and over long periods of disuse. It is not based on mechanical springs or procedures that can fall out of adjustment or seize over time, which is why it is completely reliable. It also incorporates different doors for safety and pressure control devices to avoid leaks or unexpected triggers.

It exceeds the use of restrictors or other flow control mechanisms, which are valid but less effective. All the piping and accessories needed are the same type and smaller diameter, making assembly easy.

## CYLINDERS

The wide range of approved pressures allows it to be adapted to installations in any country, (150 to 200 bar) and even more reduced and compact equipment (300 bar) is an option.

Nitrogen for fire extinguishing can be supplied in steel cylinders to seamless carbon from 40, 67, 80 and 140 L capacity. There are other sizes, from 2 to 26 L, as pilot or pressure cylinders attached to other agents.







# LOAD CONTROL:

## PRESSURE SWITCH

Can be incorporated to control internal pressure in a cylinder, being able to be manipulated including when in use. Alerts of changes in pressure, sending a signal to the fire alarm system in the case of an anomaly.

## CONTINUOUS WEIGHING

Installed to continuously control the weight of the cylinders, without direct contact with the agent. Also available for explosive environments, it is an approved mechanism of high reliability and regulable sensitivity.

## PRESSURE GAUGE WITH ELECTRICAL CONTACTS

Monitors interior cylinder pressure at all times, at the same time offering visual control. Regulable sensitivity, and sends an alert to the control panel of changes in pressure (which imply losses of agent, whether due to discharge or leak)

## COMBI MANIFOLD

The new RG-Systems compact accumulator facilitates manageability and simplifies installation, allowing it to be manipulated by one operator. Its advanced design achieves grouping different discharge hoses and anti-return valves in a durable and condensed segment of high resistance piping. This allows for greater flexibility in the location of the units in reduced spaces, while at the same time reducing weight and expediting connection.

**RG-Systems™ also has special devices, for explosive environments, and constant pressure and flow technology with nitrogen is very appropriate for pressurising other agents in a controlled way, such as water mist or chemical powder, for example.**



# COMPARATIVE

## PRACTICAL EXAMPLE: SUBSTITUTION OF CURRENT INSTALLATION

This is a real case of the substitution of an HFC-23 chemical gas installation for a RG SYSTEMS™ GREEN FLOW - IG-100 (N<sub>2</sub>) at 2900 & 4350 PSI (200 & 300 BAR) – CONSTANT & CONTROLLED FLOW TECHNOLOGY – COMBI MANIFOLD SYSTEMS (CMS).

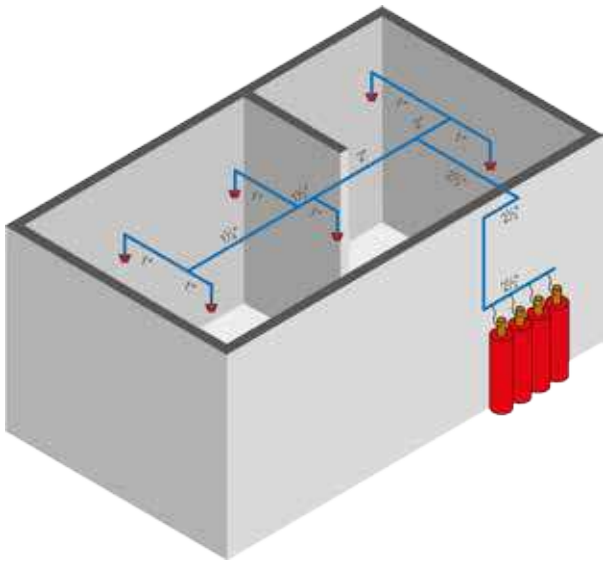
The client is planning two options: recharge the halocarbon gas cylinders or substitute them for a new nitrogen unit.

After preparing both budgets, it is determined that the recharge for this amount of HFC-23 has a higher price and the nitrogen unit does not assume such a large additional cost in comparison.

The measurement and evaluation of the existing pipe network starts, which is perfectly valid in diameter and resistance, and only the nozzles need to be recalibrated.

|  | HFC-23              | RG Green Flow IG-100       |
|--|---------------------|----------------------------|
| Agent demand                               | 162 kg              | 143.60 m <sup>3</sup>      |
| Equipment                                  | 3-cyl. unit of 100L | 4-cyl. unit 140 L, 300 bar |
| Piping type                                | SCH 80              | SCH 80                     |
| Maximum diameter                           | Ø 2 1/2"            | 2"                         |
| Pmax piping network                        | 60 bar              | 45 bar                     |
| Agent cost (recharge)                      | 6.300 €             | 700 €                      |
| Potential raise in atmospheric temperature | 12.000 PCA/kg       | 0 PCA/m <sup>3</sup>       |

Finally the possibility of a future activation and the following new recharge of the system transfers the balance, and the customer opts for the more ecological alternative, at the same time being economical and with the maximum quality guarantees.



AREA: Testing laboratory

HAZARD: Class B liquid and gas fire

DIMENSIONS: 13.0 x 6.0 m. H = 3.0 m.

QUALITY OF PIPING ALREADY INSTALLED: SCH 80

DESIGN CONCENTRATION: 45.2%

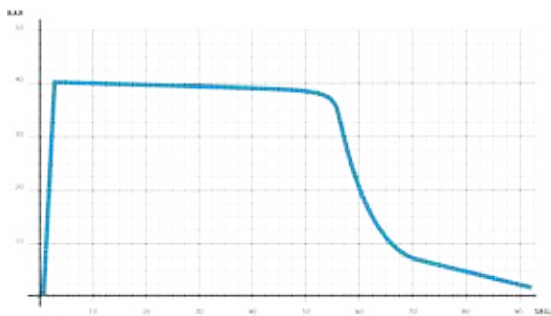
AGENT IG-100: 140.8 m<sup>3</sup>

■ New elements (SUBSTITUTION)

■ Current elements

*RG GREEN SYSTEMS design concentration as per NFPA, according to UL / FM approvals*

**RG SYSTEMS™ GREEN FLOW – IG-100 (N<sub>2</sub>) at 2900 & 4350 PSI (200 & 300 BAR) – CONSTANT & CONTROLLED FLOW TECHNOLOGY – COMBI MANIFOLD SYSTEMS (CMS) is the definitive solution: the economy, efficacy and availability of nitrogen with the safe application.**



Suitable for occupied rooms, delicate equipment, substitutions, heights and fires from solids, liquids, gases and energy sources, in general.

With all the experience, guarantees and know-how of RG Systems, backed by the maximum international certifications and bodes.



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