



IG-55: Inert Gas Fire Suppression System

Argon **æx**
IG-55



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What is IG-55



IG-55 is a gas made up of a mix of equal parts: 50% argon (IG-01) and 50% nitrogen (IG-100).

Its components are found naturally in the environment, so there is no global warming effect and it does not destroy the ozone layer. Its density is similar to that of air and both argon and nitrogen are clean, non-corrosive, colourless and insipid gases, so they offer great flexibility in adapting to all actuation systems, since they can be used at normal temperatures with materials such as nickel, steel, stainless steel, copper, bronze, tin, etc.

IG-55 is stored like a compressed gas in high-pressure cylinders, which is why the space required for its storage will depend on its pressure and capacity.

Our IG-55 system is designed for a pressure of 300 bar, which enables us to achieve great space economies.

How is it actuated?

The extinguishing principle of inert gases focuses on reducing oxygen concentration in the affected zone.

When a fire starts, IG-55 rapidly penetrates the area and reduces the oxygen level percentage from the usual level of 21% to a limit that fluctuates between 13% and 11%, the amount sufficient for combustion to stop and to be safe for the people in the room. Thanks to the stratification of the gases (due to their density, argon rises and nitrogen falls) protection is achieved throughout the space, regardless of how high the ceiling is.

During its discharge, there is excellent visibility and, since it leaves no residue, there are no destructive effects to the equipment, which will continue functioning normally and, of course, there will be nothing to clean up.

Physical properties

Chemical name:	Nitrogen / Argon
Chemical formula:	N ₂ /Ar
N ₂	50% volume
Ar	50% volume
Molecular weight:	33.98
Boiling Point at 1.013 bar:	-196°C
Critical temperature	-
Critical pressure	-
Maximum fill pressure:	300 bar
NOAEL	43%
LOAEL	52%
Power to destroy ozone:	0
Potential global warming effect:	0
Toxicity:	NO
Vision difficulties due to discharge:	NO
Maximum discharge time for class A:	120 seconds
Maximum discharge time for class B:	60 seconds

Application system

Total flooding

Storage is a cylinder or cylinders rack of the required extinguishing agent in order to, by discharging into the space, achieve the extinguishing concentration required for this kind of fire. The cylinder or cylinders rack is connected to a network of distribution pipes and to a series of discharge and gasification diffusers that distribute the extinguishing agent inside the space to be protected.

Ordinary Class A: Solid fuel fires, such as wood, plastic, etc.
The electric current is cut after detection.

Class A+: Solid fuel fires with an electrical risk.
The current is not cut after detection.

Ordinary Class B: Superficial fires that are caused in flammable liquid fuels.

Storage

300 BAR PRESSURISED CYLINDERS

IG-55	LOAD DENSITY
CLASS A	0,73 Kg
CLASS A+	0,85 Kg
CLASS B	0,91 Kg

CYLINDER CAPACITY	Kg	m ³
80 L	32,1	22,77
120 L	48,2	34,15
140 L	56,2	39,84

Regulations

- EN 15004-9: Extinguishing systems using gaseous agents: physical properties and design systems using IG-55.
- EN 15004-1: Extinguishing systems using gaseous agents: design, installation and maintenance.
- NFPA 2001: Fire extinguishing systems using clean agents.

EXTINGUISHING CONCENTRATION		
CLASS A	CLASS A+	CLASS B
40,3%	45,2%	47,60%

SAFETY MARGIN	
NEL NOAEL	12% 43%
LEL LOAEL	10% 52%

Table of exposure times in accordance with EN 15004-1 and NFPA 2001:

Concentration of oxygen designed for inert gases	12%	from 10 to 12%	from 8 to 10%	under 8%
Occupation of normal areas	PERMITTED	PERMITTED	NOT PERMITTED	NOT PERMITTED
Exposure time limit	5 minutes	3 minutes	30 seconds	0

Valve with regulated output pressure

The valve permits constant regulation of pressure, so the gas is discharged in a controlled manner and at a maximum of 60 bar.

The pneumatic discharge control permits rational use, in accordance with the needs of the facility, maintaining a constant release of the agent with minimum overpressure.

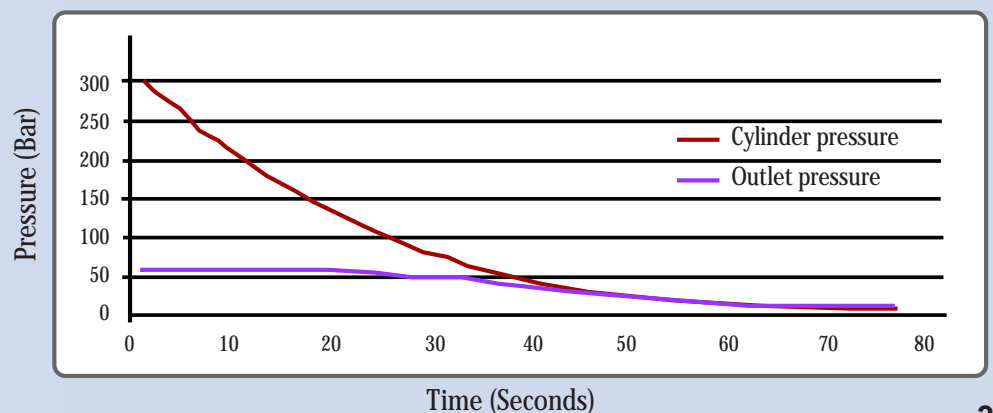
Maximum inlet pressure: 370 bar.

Maximum outlet pressure: 60 bar.

Section Ø 12mm.

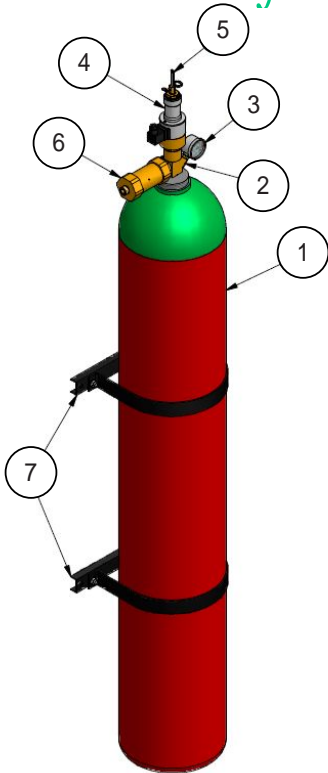


CONSTANT PRESSURE REGULATION



Inert fire suppression

Autonomous Cylinders



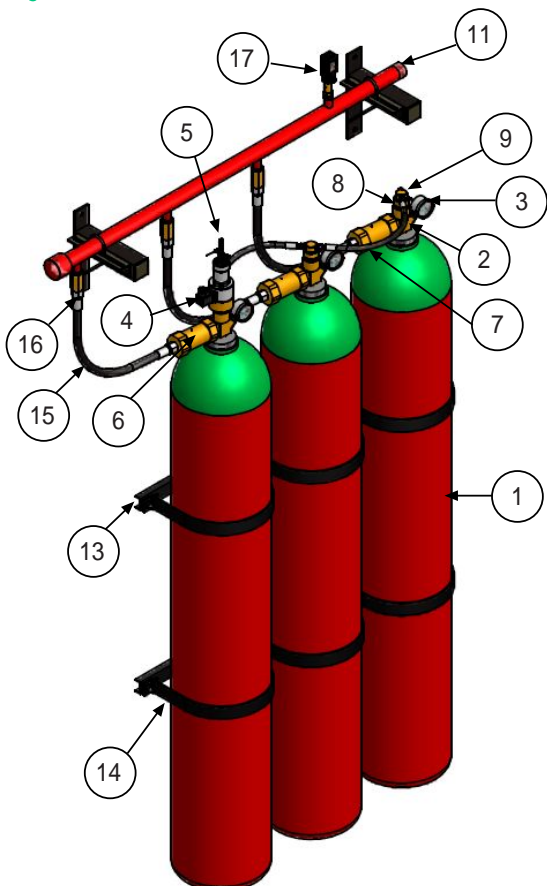
High-pressure autonomous cylinders manufactured in seamless thermally treated alloy steel, in accordance with instruction MIE AP7 for pressurised machines and European Directive 84/525/CEE.

Available in three sizes: 80, 120 and 140L.

Components:

1. Cylinder
2. Valve for inerts
3. Pressure gauge with presostat 300 bar
4. Electric actuator
5. Manual actuator
6. Pressure regulator
7. Fittings

Cylinders Rack



High-pressure 80, 120 and 140L cylinders rack manufactured in seamless thermally treated alloy steel, in accordance with instruction MIE AP7 for pressurised machines and European Directive 84/525/CEE.

The racks comprise slave cylinders and a pilot cylinder, except in the case of systems with directional valves, where all the cylinders will be slaves and are equipped with a separate small pilot cylinder of nitrogen.

The cylinders racks can be grouped into:

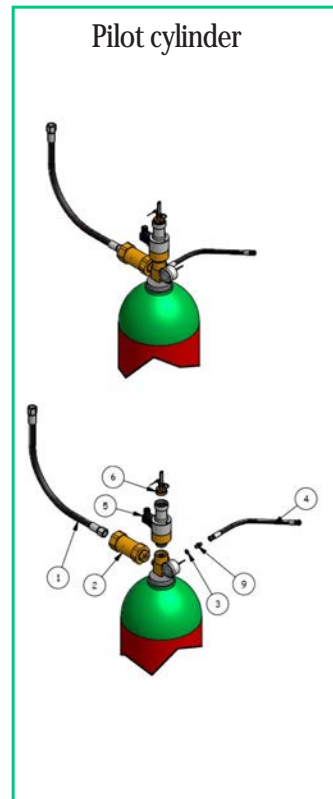
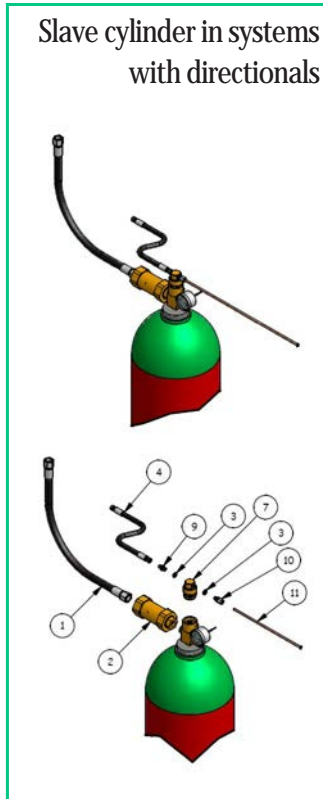
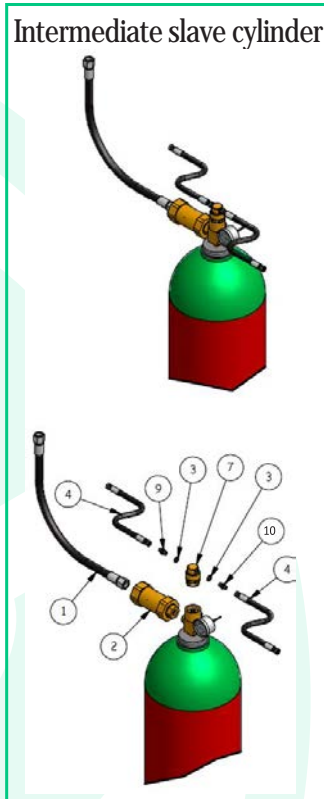
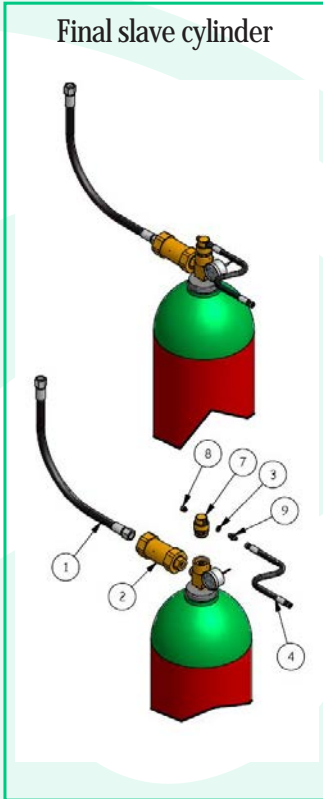
- Single row
- Double row
- Triple row

Components:

- | | |
|--|-----------------------------|
| 1. Cylinder | 10. Inert collector support |
| 2. DN12 valve for inerts | 11. Collector |
| 3. Pressure gauge with presostat 300 bar | 12. U-bolt |
| 4. Inert valve electric actuator | 13. Rear cross-bar |
| 5. Manual actuator | 14. Cylinder arc fitting |
| 6. Pressure regulator | 15. Discharge user chord |
| 7. Trip user chord | 16. Non-return valve |
| 8. Pneumatic actuator | 17. Contactor |
| 9. Relief valve | |

at a glance

Types of Cylinders



Components:

- 1. 3/4" discharge user chord
- 2. Pressure regulator
- 3. 1/8" joint
- 4. 1/8" trip user chord
- 5. Electric actuator

- 6. Manual actuator
- 7. Pneumatic actuator
- 8. Relief valve
- 9. 1/8" sleeve
- 10. 1/8" male adaptor to 6 bicone

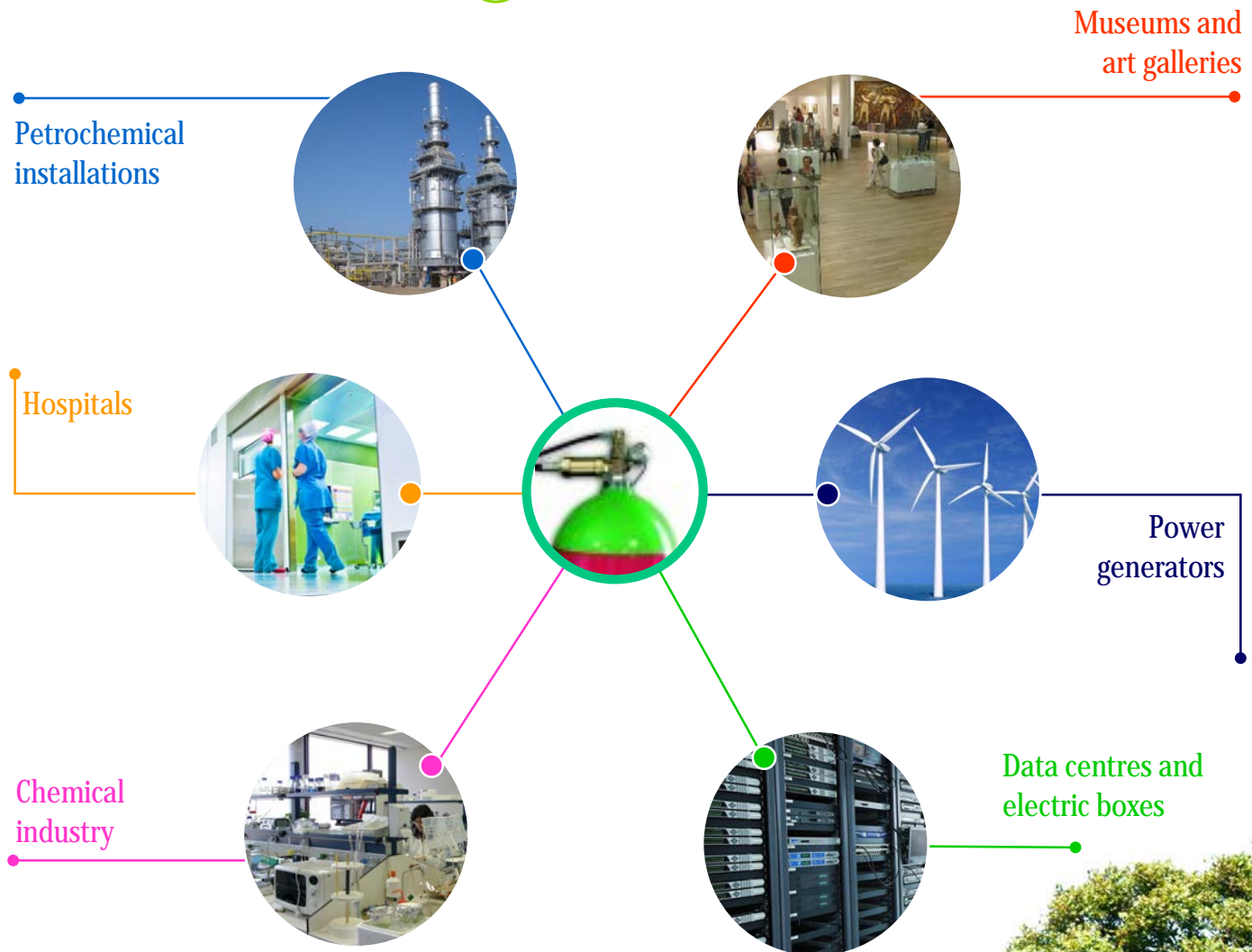
- 11. 6x1 copper piping
- 12. 1/4" female adaptor to 6 bicone
- 13. 3/4" male reducer adaptor 1/4" male
- 14. 3/4" female adaptor 3/4" female



Small pilot cylinder components:

- 1. Copper piping
- 2. Valve for inerts
- 3. Cylinder
- 4. Electric actuator
- 5. Manual actuator
- 6. Pressure gauge with presostat
- 7. Small pilot cylinder adaptor
- 8. Metal joint
- 9. 1/8" adaptor
- 10. 1/8" tubing joint to 6 bicone

Applications Argon^{æx}_{IG-55}



Advantages Argon^{æx}_{IG-55}

- 1. Clean extinguishing. Leaves NO residue.
- 2. Suitable for occupied areas.
- 3. Does not affect global warming.
- 4. Non-contaminating.
- 5. Zero impact on the ozone layer.

Qualities Argonæx^{IG-55}

ZERO ODP and ZERO GWP

ARGONAEX (IG-55) has zero Ozone Depletion Potential (ODP) and zero Global Warming Potential (GWP), since it is made up of nitrogen and argon, inert gases naturally present in our atmosphere.

NON-TOXIC

ARGONAEX (IG-55) contains no carbon dioxide (CO₂) or halocarbons. There is no chance of toxic decomposition gases being produced, even in contact with heat or a flame.

LOW REFILL COST

ARGONAEX (IG-55) is made up of a mix of 50% nitrogen and argon, easily available for industrial use.

VALVE WITH REGULATED PRESSURE CONTROL

The valve and cylinder set are provided with a patented constant pressure regulation system. The ARGONAEX (IG-55) extinguishing system stored at 300 bar or 200 bar in the cylinder, discharges in a controlled manner at a maximum of 60 bar. This enables the use of lower pressure piping systems.

CLEAR VISION

The discharge of ARGONAEX (IG-55) causes no visibility problems for occupants to proceed to evacuate the space, produces no condensation in the air as a result of the discharge of the agent.

CLEAN AGENT

ARGONAEX (IG-55) can be used to protect spaces with precision components, works of art, items of value and electronic equipment, since it leaves no residue after being discharged.

CENTRALISED EXTINGUISHING SYSTEMS

ARGONAEX (IG-55) systems can be designed to protect several zones through the installation of directional valves.

Our commitment: services and guarantees



Projects

Grupo Aguilera offers its assistance to engineers when it comes to projects for the detection, control and extinction of fires, providing advice regarding systems and coverage for each built space. The projects department carries out system design and sizing, hydraulic calculations, the calibration of diffusers and the facility's isometrics, advising on the effectiveness of the equipment in each at-risk space and suggesting operations for installation.



Training

Aware that we all want to know about and take responsibility for what we do, independently of the technical support that we provide for facilities carried out with our products, Grupo Aguilera gives training courses regarding the operation of our equipment, its installation and programming.



Customer service

For Grupo Aguilera, each customer is important. We are aware that not everyone has the same needs, and so our team of professionals provides personal attention that is suitable for your requirements.



Maintenance

Grupo Aguilera promises to guarantee the following services: repair, reprogramming and the supply of spare parts, after the guarantee period.



Technical support

With the aim of guaranteeing the smooth running of facilities, the Grupo Aguilera technical department carries out operating and commissioning tests on the equipment. Furthermore, it works with the installer throughout the installation process. Once the system is in place, with appropriate water and electricity supplies, and with the hydraulic test having been carried out, Grupo Aguilera's technical staff carry out the operating and commissioning tests on the equipment.



Equipment guarantee

Grupo Aguilera guarantees sound operation of its equipment for 2 years starting from the delivery date; we take responsibility for the replacement or repair of any equipment in which manufacturing anomalies or faults are detected, and which is delivered to our factory in Madrid.



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