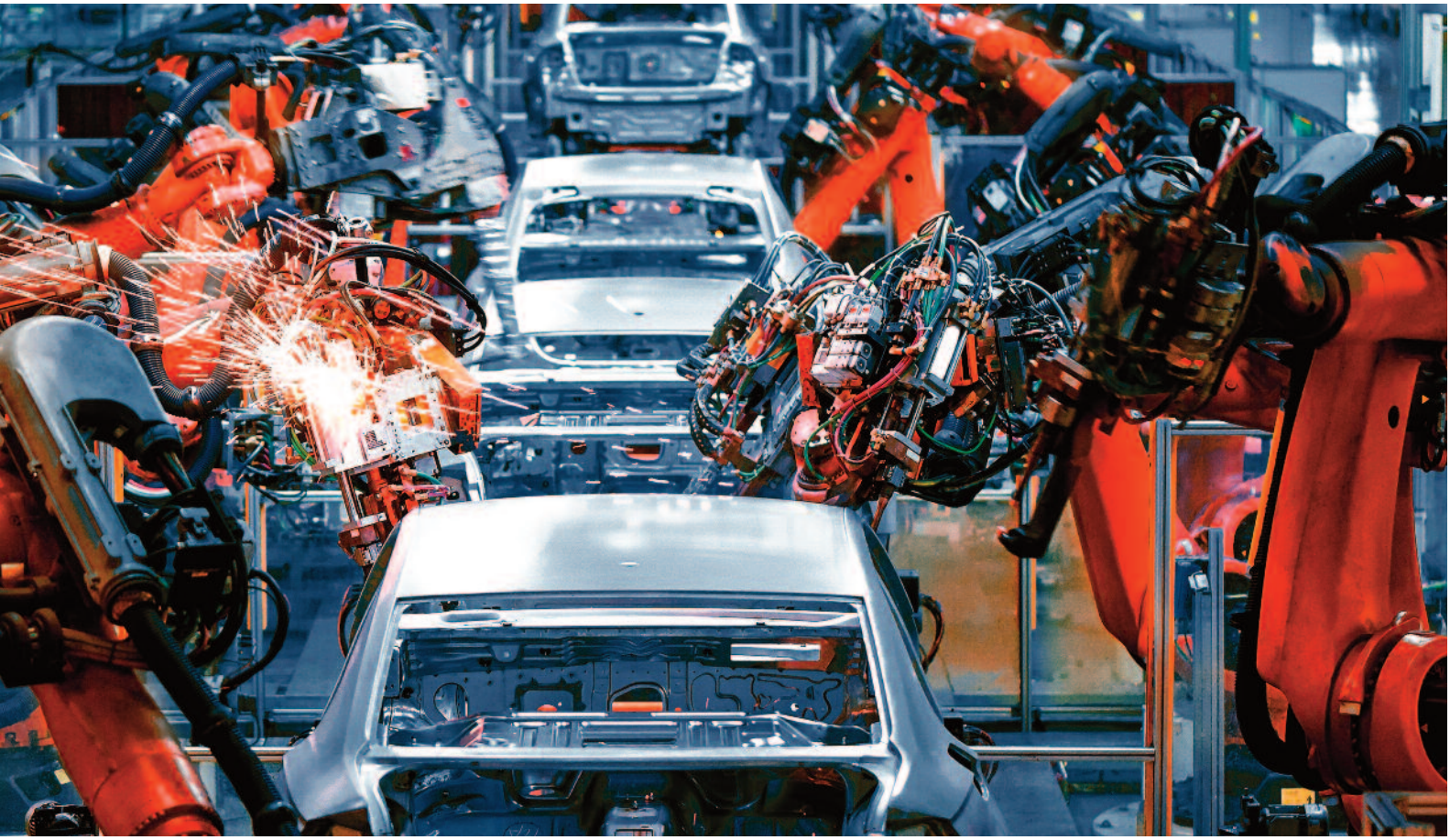
Inergen®
inert gas
firefighting systems

MOZZANICA
WORLDWIDE FIRE FIGHTING SOLUTIONS

Inergen® inert gas firefighting solutions

The Inergen® IG541 inert gas systems provided by Mozzanica are currently the most environmentally friendly fire fighting solutions due to the mixtures of natural, ecological, and zero-impact gases.



The birth of the **Inergen® gas mixture** dates back to 1974 and has been immediately applied as an extinguisher in the fire-fighting sector because it uses **natural gases with no environmental impact**, with GWP (Global Warming Potential – contribution to the greenhouse effect of gas) and ODP (Ozone Depletion Potential – contribution to the degradation to the ozone layer) equal to zero.

Its patent have qualified it as a **clean agent** ensuring this system for human health.

It is an **innovative approach**, certified according to NFPA 2001, ISO 14520, and UNI EN 15004 standards, and is **genuinely considered a safe solution** compared to other gaseous fire protection solutions. The Inergen® gas is based on **making the ambient atmosphere inert to a level where combustion cannot occur**, which eliminates the possibility of igniting fires and at the same time guarantees the **survival of personnel** in the environment to be protected.

Naturally inert atmosphere

Mozzanica is the Italian distributor of **Fire Eater - Inergen® systems**.
Fire Eater, is a Danish company with **considerable know-how**, 100% **dedicated to natural gas extinguishing systems for industrial applications**, and is a world leader in the development of environmentally friendly systems.

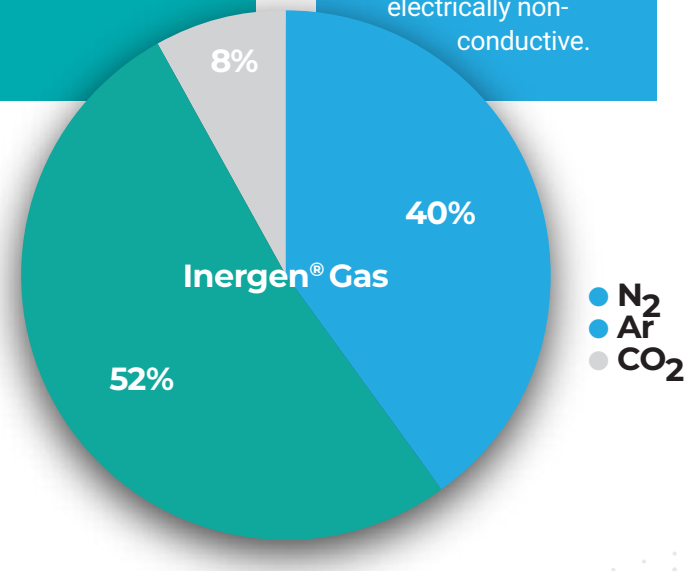
FIRE EATER

N_2

Nitrogen is a gas that makes up 78% of the Earth's atmosphere and it's inert, colorless, odorless, and tasteless.

Ar

Argon is a monatomic noble gas that makes up about 1% of the Earth's atmosphere and it's inert, colorless, odorless, tasteless, and electrically non-conductive.



The Inergen® gas mixture is a **mixture of non-liquefied compressed gases**, made of **nitrogen** (52% N2), **argon** (40% Ar), and a small amount of **carbon dioxide** (8% CO2), which **inhibit combustion in less than 40 seconds** due to the absence of oxygen.

These gases do not lose their extinguishing effectiveness when exposed to high temperatures and **do not produce harmful** and/or corrosive by-products, thus allowing **good visibility** during the discharge phase in their environment, without stratifying or producing thermal shocks.

Inergen® gas is approved by more than 24 international recognized bodies: **RMRS, MCA, DBI, QCD, Svensk Brand & Säkerhetscertifiering AB, PZH, UL, LPCB, EMI, ZÚS, ABS, CNBOP, FM Global, VNIIPO, Siglingastofnun, DNV, CPD, Bureau Veritas, LRS, GL, BCD, DNV/GL, Søfartsstyrelsen, and Intertek.**

Flexibility of the Inergen® system

Inergen® natural gas fire protection systems are a safe technology certified according to the UNI EN 2:2005 standard for firefighting classes A, B and C, which can be used in multiple applications, both on land, marine and Oil & Gas.

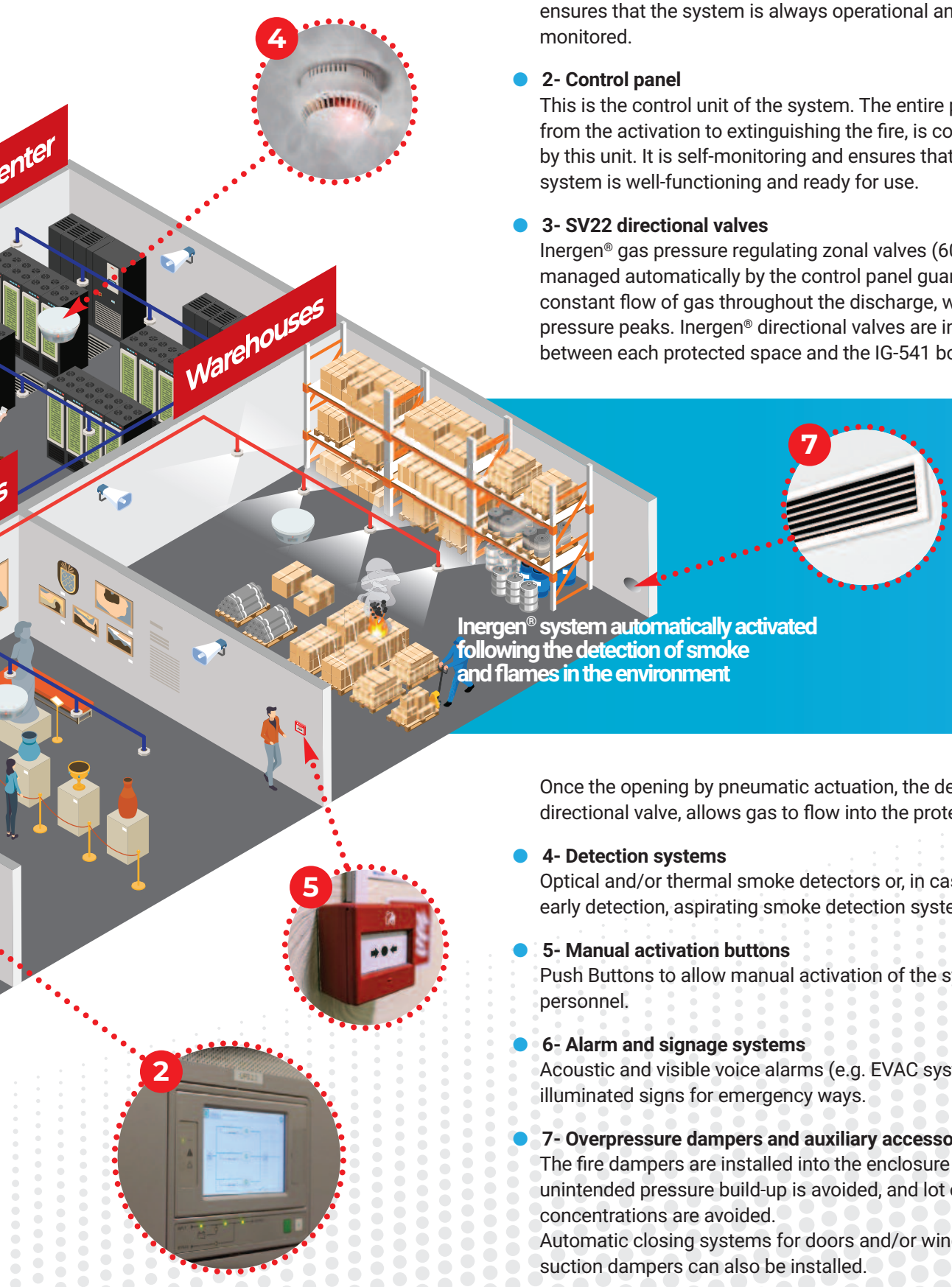
Example of SV22 multi-zone system with directional valves

How the Inergen® gas firefighting system **works**

In the event of an alarm detected by the detection systems, **the ventilation** inside the room **is automatically shut down**, and a **countdown is triggered**, that activates the Inergen® extinguishing system only in the area affected by the fire.

While Inergen® gas is released into the environment, the **oxygen concentration quickly decrease** from 21% **to an optimal value of 12%, which naturally inhibits the spread of fire** and any re-ignitions **and in less than 40 seconds extinguishes any fire outbreak** but allows the personnel in the environment to breathe effortlessly and evacuate in complete safety.

System components



Inergen® system automatically activated following the detection of smoke and flames in the environment

- **1- Inergen® gas cylinders**
  Inergen® gas is stored in gaseous form in pressurized cylinders of various sizes at a pressure of 200 bar and 300 bar, which can be placed inside the protected room or in special technical rooms. If the pressure in a cylinder drops, the control panel automatically displays an alarm. This ensures that the system is always operational and monitored.

- **2- Control panel**
  This is the control unit of the system. The entire process, from the activation to extinguishing the fire, is coordinated by this unit. It is self-monitoring and ensures that the entire system is well-functioning and ready for use.

- **3- SV22 directional valves**
  Inergen® gas pressure regulating zonal valves (60 bar) managed automatically by the control panel guarantee a constant flow of gas throughout the discharge, without pressure peaks. Inergen® directional valves are installed between each protected space and the IG-541 bottles.

Once the opening by pneumatic actuation, the dedicated directional valve, allows gas to flow into the protected space.

- **4- Detection systems**
  Optical and/or thermal smoke detectors or, in case of very early detection, aspirating smoke detection systems.

- **5- Manual activation buttons**
  Push Buttons to allow manual activation of the system by personnel.

- **6- Alarm and signage systems**
  Acoustic and visible voice alarms (e.g. EVAC systems) and illuminated signs for emergency ways.

- **7- Overpressure dampers and auxiliary accessories**
  The fire dampers are installed into the enclosure so that unintended pressure build-up is avoided, and lot oxygen concentrations are avoided.
  Automatic closing systems for doors and/or windows and suction dampers can also be installed.

One gas, **many applications**

The Inergen® gas protection system is characterized by its ability to operate in particularly **high- risk areas** or in **highly complex situations**, where traditional firefighting systems cannot guarantee a sufficiently high level of safety or are not compatible with the quality standards that the environment to protect requires.

Preservation of goods and people

The Inergen® system is particularly suitable where technical, architectural or aesthetic constraints do not allow the installation of conventional fire-fighting systems, or in specific settings where the assets to protect have a **very high economic and/or cultural value**, such as historical archives and/or museum areas, where other fire protection systems would cause significant damage to the property.

In addition, **people are also protected** by this system, as its natural formulation does not inhibit breathing, allowing them to **evacuate the environment safely**.

The advantageous characteristics of Inergen® gas protection systems allow them to be used in a wide variety of product sectors that share the need to **ensure operational continuity**, **maximum intervention speed** and safeguarding of assets.

- WAREHOUSES AND DEPOSITS
- SERVER ROOMS
- TELECOMMUNICATIONS
- MUSEUMS AND GALLERIES
- OFFICES
- OFF-SHORE AND ON-SHORE
- MARINE
- OIL & GAS

Advantages of the Inergen® system

- Zero environmental impact
- Non-corrosive to protected materials
- No need to filter the air in the protected environment
- Excellent visibility during discharge
- Safeguarding people and the assets protected
- Continuous monitoring of the system
- Low cost of extinguisher
- Cylinders can be stored in areas far from the protected environments
- Flexibility of design and installation
- Small gas lines not under pressure

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