

AKRONEX[®]

INTERNATIONAL



AKRONEX IG-541

Inert Fire Suppression Systems

Worldwide Solutions



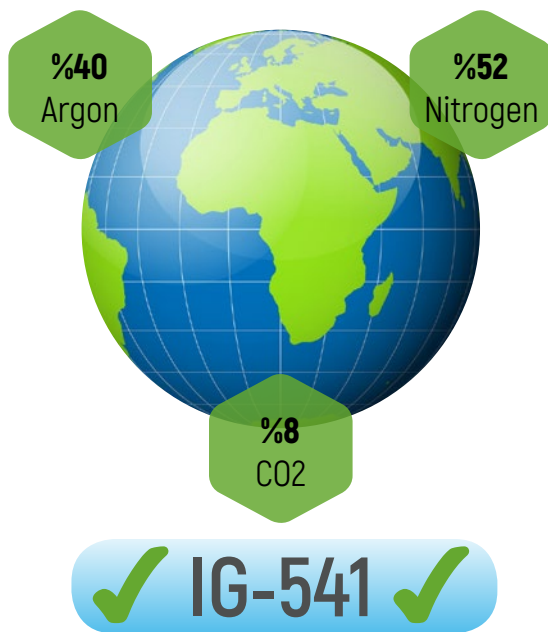
www.akronex.com

AKRONEX IG-541

Inert Fire Suppression Systems



How IG-541 Works



AKRONEX IG541 consists of gases, occurring naturally in the earth atmosphere (nitrogen 52%, argon 40% and carbon dioxide 8%). This means that there is no impact on the environment when a system is activated. No chemicals are used here. The greenhouse effects are zero and there is no impact on the ozone layer.

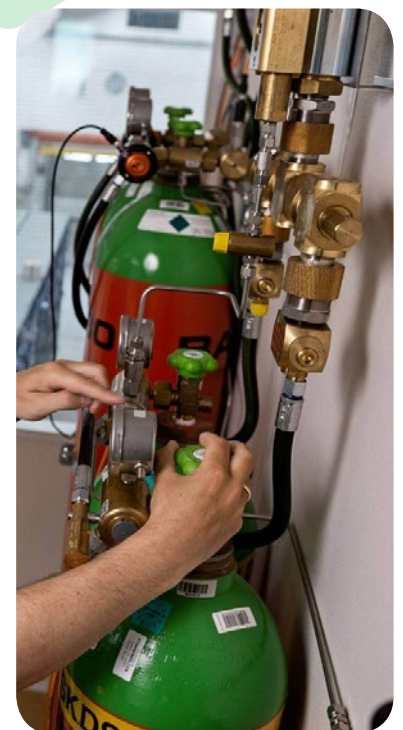
If a fire occurs, the AKRONEX IG-541 is activated automatically and typically extinguishes the fire within 40 seconds and at the same time prevents re-ignition. The fire is extinguished by Inert lowering the oxygen level in the protected area from 20.9% to between 12-15%. The low oxygen level suffocates the fire before it develops. This means that you will avoid consequential damage to the building, interior, warehouse, data and process equipment, etc. It is totally unique.

It is completely harmless for humans to remain in a room where an AKRONEX IG-541 system is activated. You may find that you breathe a little deeper than you usually do. This is because your brain wants the same amount of oxygen as before the system was activated and the oxygen level is lowered. It happens automatically.

Installation & Use of AKRONEX IG-541

The system distributes AKRONEX IG-541 Inert Gas via pipework to nozzles located in the protected area. Pipes / nozzles can be installed in the ceiling or under raised floors or concealed in walls. Ceiling and floor installation ensures that the AKRONEX IG-541 is evenly distributed throughout the protected area. This also applies in hard-to-reach areas such as closed cabinets and under tables. In practice, this means that the IG-541 cylinders do not necessarily have to be placed in the same room as the room you want to fireproof.

The system, which can provide full protection to all kinds of environments with its optional installation selections, provides a high level of user comfort. AKRONEX IG-541, which is planned with high technology and capability, provides high protection and confidence to the customer.





5 Good Reasons to Choose AKRONEX IG-541 Fire Extinguishing Solutions

1. No damage to equipment

The AKRONEX IG-541 extinguishes fire by lowering oxygen levels in the protected area from 20.9% to between 12-15%. The low oxygen level suffocates the fire before it develops. This means that you avoid consequential damage to building, interior, stock, data and process equipment, etc. It's unique.



2. No harm for people

It is completely harmless for humans to remain in a room where an AKRONEX IG-541 system has been activated. You may find that you breathe a little deeper than you usually do. This is because your brain wants the same amount of oxygen as before the system was activated and the oxygen level lowered. It happens completely automatically, and most people don't even notice that it is happening.



3. Sustainable solution – harmless to the environment

AKRONEX IG-541 consists of natural gases (nitrogen 52%, argon 40% and CO2 8%). This means that there is no impact on the environment when a system is activated. No chemicals are used here. This makes the greenhouse effect neutral without any kind of impact on the ozone layer. This is a sustainable solution.



4. No loss of turnover

If a fire occurs, the AKRONEX IG-541 system is activated automatically and typically extinguishes the fire within 40 seconds and at the same time prevents re-ignition. We recommend that you ventilate the room in question afterwards – and when this is done, you can continue as if nothing had happened.



5. The world's safest solution

An IG-541 system from AKRONEX is tested in all moving parts after installation. Specially developed measuring equipment also makes it possible to routinely test the function of the components, and documents the reliability of the system. It is your security for a fire extinguishing solution – that works every time.



Smart, Safe, Sustainable

When you specify a system for fire protection, your choices can determine whether a person, a valuable asset, or an entire business can survive from a fire. The AKRONEX IG-541 indicates that you are making a wise choice. Its unique properties help you protect everything you want.



AKRONEX IG-541

Inert Fire Suppression Systems

The relief damper quantity and dimensions to be used in the application are determined according to the results of hydraulic calculation depending on the material properties of the structural elements such as walls, doors and similar in the places where the AKRONEX INERT fire suppression system is applied.

Physical Effects of Inert Gas Agents

Based on Physiological effects in humans in hypoxic atmospheres. These values are the functional equivalentsof NOAEL and LOAEL values and correspond to 12 percent minimum oxygen for the no effect level and 10 percent minimum oxygen for the low effect level. You may find that you breathe a little deeper than you usually do. This is because your brain wants the same amount of oxygen as before the system was activated and the oxygen level lowered. It happens completely automatically, and most people don't even notice that.

Agent	No Effect Level* (%)	Low Effect Level* (%)
IG-01	43	52
IG-100	43	52
IG-55	43	52
IG-541	43	52

Agent	GWP (IPCC 2013)	ODP
FIC-1311	≤1	0*
FK-5-1-12	<1	0
HCFC Blend A	1500	0.048
HFC Blend B	1400	0
HCFC-124	527	0.022
HFC-125	3170	0
HFC-227ae	2250	0
HFC-23	12,400	0
HFC-236fa	8060	0
IG-01	0	0
IG-100	0	0
IG-541	0	0
IG-55	0	0



Not: GWP is reported over a 100-year integrated time horizon. Agent might have a non-zero ODP if released at altitudes high above ground level.

Activity Areas

- Data, Telecommunication, Information Centers
- Energy Sector and Auxiliary Industries
- Museums, Libraries, Schools, University Campus
- Wind Power, Hydro Power, Solar Power Plants
- Manufacturing Sector, Logistic Centers
- Oil, Gas and Hydrocarbon Industry
- Hospitals, Health Industries
- Public Institutions
- CCTV Rooms, Electrical Rooms
- Geothermal Power Plants



Ci Main Components

Components	Specs
Cylinders:	2 - 140 liter, 200 & 300 Bar
Hand wheel valve:	W24.32 - M25x1.5 200 & 300
Discharge valve:	Ci IV8
Manoswitch:	Ci Manoswitch
Activation system:	Ci IS8, Ci IM8, Ci PA8 (Ci IW8)
Hoses:	Dn10-400 500 - 4000mm Dn6-400
Manifold system:	Ci MTx (1-10), Orifice
Pipe system:	Galvanized 7.6 MPa
Nozzles:	Mono-orifice



Cylinder Capacities

200 Bar System

- 140 Liters
- 80 Liters
- 50 Liters
- 20 Liters
- 10 Liters
- 5 Liters

300 Bar System

- 140 Liters
- 80 Liters
- 50 Liters
- 30 Liters

Cylinder options in different capacities offer more configuration and solution options for the user. At the same time, the system, which can be prepared as 200 and 300 bars, is determined according to the user's request.



AKRONEX IG-541

Stand Alone and Multi Zone Systems



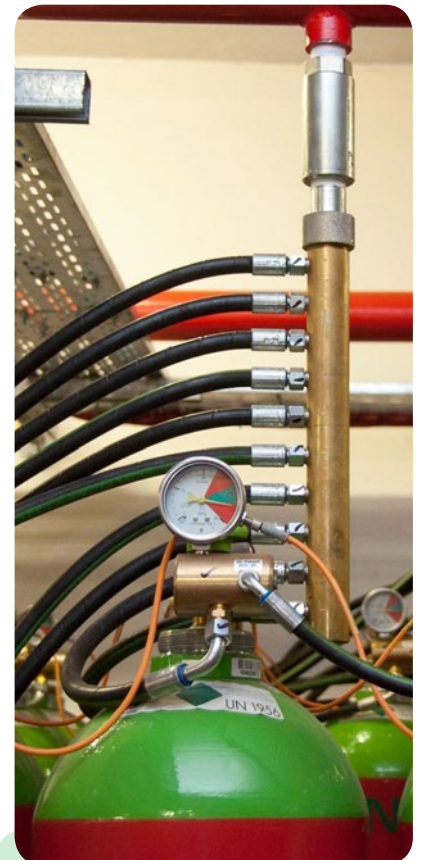
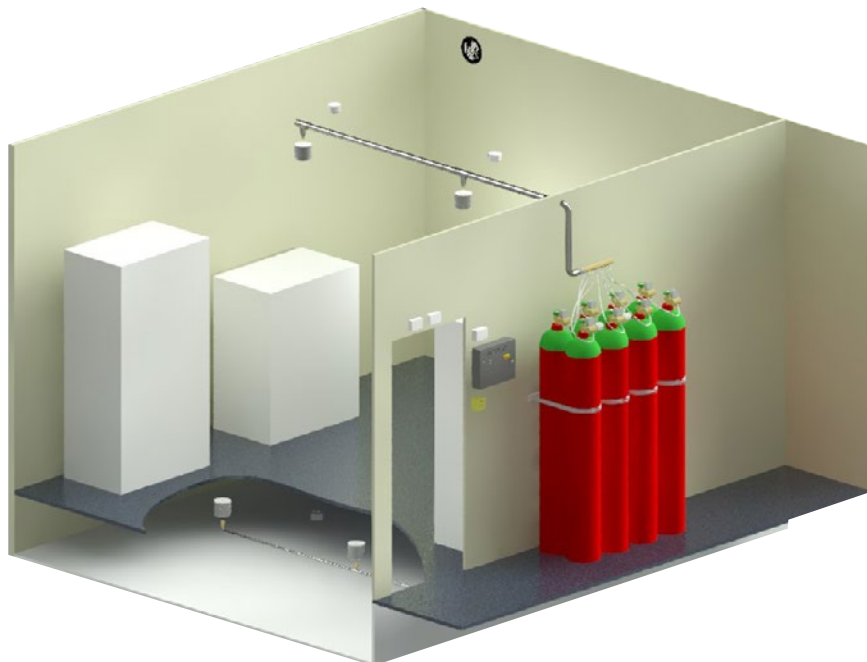
Stand Alone System

What is Stand Alone?

A Stand Alone IG-541 system (a single system) is a fire protection solution with AKRONEX IG-541 that protects one zone / room with a cylinder battery.

Select Stand Alone for fire protection of one zone

You must choose a Stand Alone solution when you need to fireproof one zone or if you want an individual system for each zone. If you have a Stand Alone solution, and a fire occurs in 2 zones at the same time, you can use the Stand Alone solution to protect both zones individually, each with its own Stand Alone system.



Multi Zone System

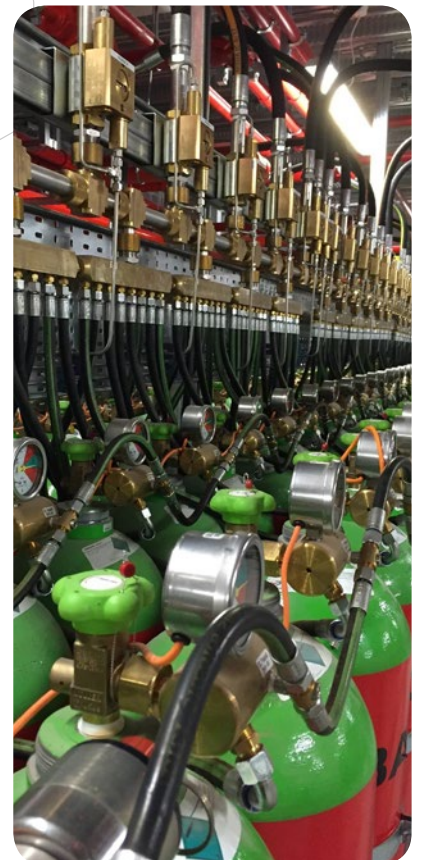
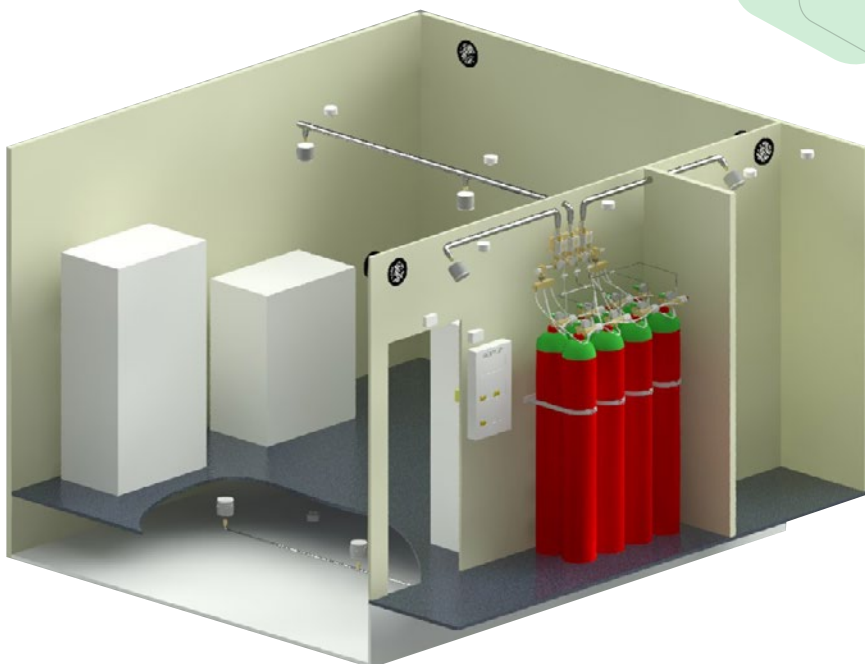
What is SV22 System?

AkKRONEX IG-541 SV22 Inert system – also called a multi-zone system – is a fire protection solution that with the same cylinder battery protects for several zones / spaces.

Select SV22 for multi-zone fire protection

In an SV22 system, the number of bottles needed to fireproof the largest zone is dimensioned. This means that if you have e.g. a desire to fireproof 3 zones, where the largest is of 30 cylinders, the next of 20 cylinders and the last of 10 cylinders, then we put together as a system of 30 cylinders that can protect one of the 3 zones in case of fire. You can not protect all 3 zones at once.

The advantage of an SV22 system is that in the mentioned case you save 30 cylinders compared to if you had chosen a Stand Alone solution. It makes this solution more economical.



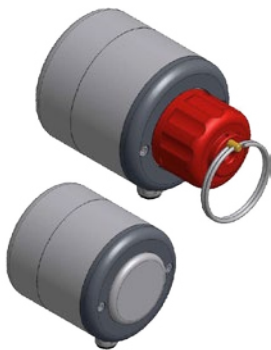
SYSTEM MAIN PARTS



Ci IV8-300 Manosw-plug

Discharge valve for use in AKRONEX IG-541 fire extinguishing systems. The valve has its own built-in pneumatic activation for inter-system activation, back pressure activation and mechanical activation interface.

The discharge outlet is connected internally to the Pneumatic Actuator (PA) via a check valve, this allows for the discharge port to be used as activation port also (back pressure), hence eliminating the need for PA circuitry between valves connected to the same manifold.



Ci IS8B Solenoid Actuator

The Solenoid actuator is part of the Control Inert (Ci) series and is designed to activate the Ci IV8 valves, either directly or with the use of either Ci PA8 or SV CiV adapter. The Ci IS8B has superior performance with regards to shock, vibration and reliability, as it utilizes neodymium magnets, hence reducing the number of moving parts to a minimum.

The Ci IS8B is available either as a standard solenoid or as a solenoid with built-in manual activator. It features a built-in End Of Line resistor allowing monitoring of the complete activation circuit.



Ci MTx Manifold

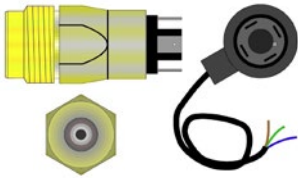
The manifold is as standard supplied with connectors for 1 to 10 cylinders. Each connection features a check valve which is automatically opened when the hose is connected.



Ci MT Orifice kit ISO 1 Calib

The Ci MT orifice kit contains the orifice which must be calibrated in accordance with the IMT calculation to ensure the correct pipe pressure.

Pipe connection is with taper thread and the manifold connection is with O-ring seal (O-ring is supplied with the manifold).



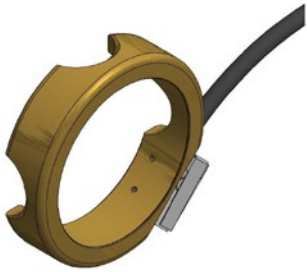
Ci MT Pressure Switch kit

The Ci MT pressure switch kit is used when a signal for pressurized manifold is needed. The switch can be used for Ci MT2- MT10 and on SV22 System.



Hose Dn10-400 1,5 Ci Disc Elb

The DN10 pressure hose is used for connection between the discharge valve and the manifold, and qualifies as a type 1 connector in accordance with EN12094-8. The hose is used in the Control Inert system and SV systems.



Ci IS8 NFPA switch

The Ci IS8 NFPA switch is for monitoring of the assembly of the Ci IS8B (solenoid actuator) and the Ci IV8 valve. It is possible to see electrically via the switch if the two units are disassembled or assembled.

The cable from the switch can be connected to a control panel, which indicates if the two units are disassembled.



PDS II-C 80MS Pilot

The PDS II-C 80MS Pilot is used for remote activation of AKRONEX IG-541 inert systems.

It supplies pressure to activate SV22 selector valves and discharge valves either directly or via the PDS II Control Pull Unit.

Activation of the valves is done by gas pressure from the PDS bottles to the valves via stainless steel pipes. The PDS systems can be placed inside the PDS Cabinet.



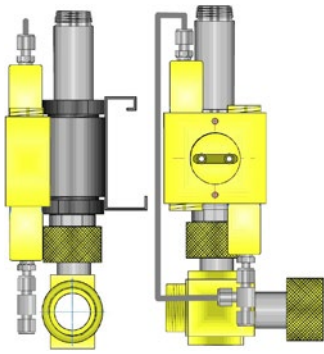
IN-20 ISO Nozzle calibrated

The nozzle is designed to control the flow using a single orifice with dimensions from $\varnothing 1\text{mm}$ to $\varnothing 36\text{mm}$. The nozzle is designed to disperse the flow laterally (360°) and slightly away from the mounting surface (ceiling/wall). The nozzle orifice must be calculated specifically for each installation. Each nozzle must be calibrated and marked individually and permanently with the orifice diameter. An uncalibrated nozzle is delivered with a 3 mm orifice.



IN-1/2" Silencer T2

The IN Nozzle silencer is designed as an add-on to AKRONEX IG-541 nozzles to protect equipment sensitive to acoustic noise, eg. hard discs and similar equipment. The improved performance of the FSN (Flow System Nozzle) is achieved by letting the gas pass through the sound absorbing mesh in two stages. The flow through the nozzle is not affected by the silencer, the calculation software IMT (which is UL listed and FM approved) is based on choked flow across the nozzle. Adding the silencer to the nozzle does not change the choked flow, neither changes the pressure upstream of the nozzle orifice.



SV22 zonekit ISO" calibr CiV

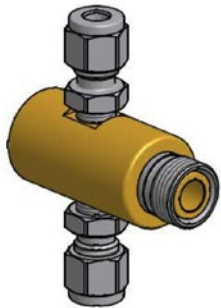
A kit containing components for distribution of AKRONEX IG-541 to one zone in the SV22 system. The zone kit is designed to be controlled by using the SV CiV Start kit.

If "-8" is added to the item number a calibrated orifice will be supplied. Non-calibrated orifices are supplied with an orifice of $\varnothing 8.7\text{mm}$.



SV CiV Start kit

Kit containing components for the installation of one SV CiV control valve on a Ci IV8 discharge valve. The SV CiV is always installed with an appropriate Ci actuator (Ci IS8, Ci PA8 or Ci IM8) connected to it. The SV CiV is used to activate a Ci IV8 discharge valve and the selector valve connected to it, when the actuator (Ci IS8, Ci PA8 or Ci IM8) is activated. If the Ci IV8 valve is actuated using back pressure (from the manifold) or the built-in PA system, the SV CiV will not open. The SV CiV control valve inlet is connected internally to the Ci IV8 valve, therefore it requires no external gas pressure supply.



SV Test port kit

Test port to be fitted between a control valve and a selector valve for testing the opening pressure of the selector valve and the leak tightness of the control line.

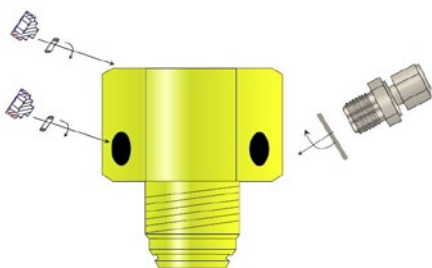
The kit features a check valve that is only open when the test equipment is fitted, hence eliminating potential human errors.



SV22 End plug kit

A kit containing components for blinding off openings which must be closed in the SV22 installation.

The end plug features a built-in burst disc to prevent over pressurisation of the distribution manifold in case of extreme heating applied to the manifold with closed selector valves.



SV22 Pipe pressure switch kit

This kit is used when a signal for pressurization of the pipe system is required.

The adapter is fitted directly into the SV22 outlet between the selector valve and the pipe adapter.

The adapter features 3 outlets and the pressure switch may be placed in any of these to achieve proper positioning. The unused outlets must be blinded off by the supplied blinding plugs.



People who benefit more from nature and world blessings by the development of technology have also caused to occur pollution at the same time.

AKRONEX IG-541 fire protection systems are a responsible choice to protect nature.

AKRONEX
INTERNATIONAL



Worldwide Solutions

In Automatic Fire Suppression Systems

- Albania
- Armenia
- Azerbaijan
- Bangladesh
- Cyprus
- Ethiopia
- France
- Georgia
- Germany
- India
- U.A.E.
- Iraq
- Italy
- Kuwait
- Libya
- Maldives
- Moldova
- Oman
- Pakistan
- Qatar
- Russia
- Saudi Arabia
- Senegal
- Serbia
- Spain
- Tanzania
- Tunisia
- Turkmenistan



AKRONEX INTERNATIONAL FIRE ENGINEERING INC.
Istasyon Mah. 1495 Sok. No:13 41400 Gebze, Kocaeli, Turkey
Phone: +90 262 655 46 46 | Fax: +90 262 655 46 41 | E-mail: info@akronex.com

www.akronex.com

