



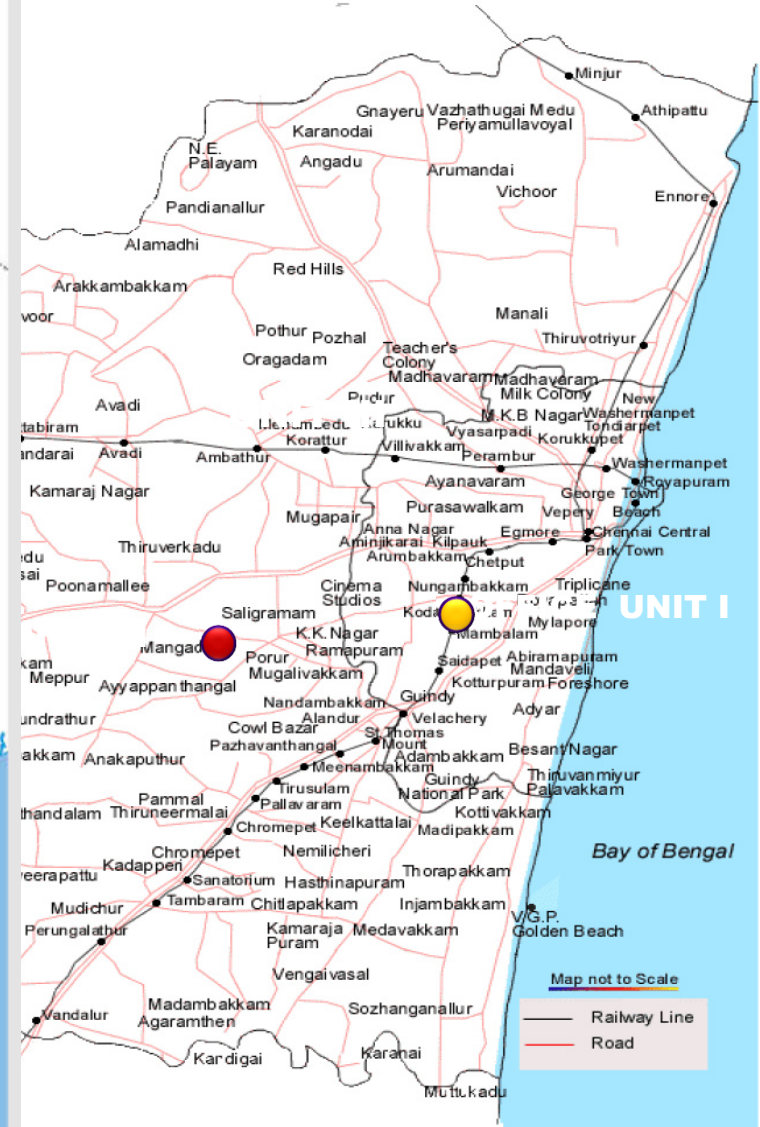
**MANUFACTURER & TURNKEY SOLUTION
PROVIDER
IN
FIRE PROTECTION SYSTEM**

No.1, 6th street, Dr.Subbarayan Nagar, Kodambakkam, Chennai – 600 024
Phone: 044-2481 2420 E-mail – marketing@agniconrols.com

Overview on M/s Agni Controls **bala-wa-541**[®]

- 1985 – M/s. Agni Controls Established as Custom Built Panel Manufacturer
- 1987 – Started to Manufacture Conventional Fire Alarm Panel
- 1988 – Started to provide Gas Based Extinguishing Systems as a specialized Fire Protection Engineering Company
- 1991 – Developed Special Infra Red Technology Spark Detectors for protecting ducts
- 1993 – Developed Special Probe Type Heat Detector for Paint Booths, Kitchen Hood and Battery compartments
- 2003 – Developed **bala-wa-mist**[™] Water Mist System
- 2003 – Developed Gas Weight Monitoring Device suitable for Gas Based Systems
- 2003 – Introduced the brand Name **bala-wa**[™] for the Gas Based Systems & Components
- 2003 – Developed Ultra-Violet & Infra Red type Flame & Ember Detectors
- 2005 – Introduced the brand Name **fladet**[®] Flame/Ember/Spark/Heat Detector SERIES... SERIES... for all Special Application Products – Flame/Ember/ Spark/ Heat Detectors
- 2007 – Introduced Fully Integrated & Tested Cylinder Bank Assembly
- 2011 – Introduced Detection & Extinguishing Kit for Machinery Protections
- 2012 – Introduced unique Cabinet type pre-assembled CO2 Fire protection system
- 2013 – Introduced Quick Response Spark & Flame Detectors
- 2014 – Received CE marking for Ember detectors
- 2015 – Received LPCB approval & CE marking for the flame detectors
- 2016 – Received ATEX & PESO approval for Explosion proof flame detectors
- 2018 – Successfully completed the biggest CO2 system for KIA motor in record time.
- 2019 – Launched Modular type Water mist system for special applications.

COMPANY LOCATION



OVERVIEW ON M/S AGNI CONTROLS



Organisation is supported with Dedicated R&D division, Discharge test facility, Batch-wise Production areas, In-house special design capabilities, advanced testing equipment, Stringent Quality Control Division.

AN ISO 9001:2015 CERTIFIED MANUFACTURING COMPANY



BUREAU VERITAS
Certification

AGNI CONTROLS



HEAD OFFICE & UNIT 1: NO.1, 6TH STREET, DR. SUBBARAYAN NAGAR, KODAMBAKKAM, CHENNAI – 600 024, TAMIL NADU, INDIA.

This is a multi-site certificate, additional site details are listed in the appendix to this certificate

Bureau Veritas Certification Holding SAS – UK Branch certifies that the Management System of the above organization has been audited and found to be in accordance with the requirements of the Management System standard detailed below.

Standard

ISO 9001:2015

Scope of certification

DESIGN, MANUFACTURE, SUPPLY, INSTALLATION AND SERVICING OF FIRE PROTECTION SYSTEMS - GAS BASED FIRE EXTINGUISHING SYSTEMS LIKE CO2, INERT, HFC227EA, OTHER CLEAN AGENT SYSTEM, WATER BASED EXTINGUISHING SYSTEMS INCLUDE WATER MIST SYSTEMS, FIRE DETECTION AND ALARM SYSTEMS

Original cycle start date: **18 August 2006**
 Expiry date of previous cycle: **17 August 2018**
 Recertification Audit date: **21 May 2018**
 Recertification cycle start date: **24 June 2018**

Subject to the continued satisfactory operation of the organization's Management System, this certificate expires on: **17 August 2021**

Certificate No. **IND18.7391U/Q** Version: 1 Revision date: **24 June 2018**



Signed on behalf of BVCH SAS UK Branch
Ramesh KOREGAVE
Director, CERTIFICATION
South Asia Region



0008

Certification body address: 5th Floor, 66 Prescot Street, London, E1 8HG, United Kingdom.
 Local office: Bureau Veritas (India) Private Limited (Certification Business)
72 Business Park, Marol Industrial Area, MIDC Cross Road 'C', Andheri (East), Mumbai – 400 093, India.

Pg 1 of 2

Further clarifications regarding the scope of this certificate and the applicability of the management system requirements may be obtained by consulting the organization. To check this certificate validity please call +91 22 6274 2000.



BUREAU VERITAS
Certification

Appendix to the certification

AGNI CONTROLS



Standard

ISO 9001:2015

SITE	ADDRESS	SCOPE
AGNI CONTROLS (HO & UNIT1)	NO.1, 6 TH STREET, DR.SUBBARAYAN NAGAR, KODAMBAKKAM, CHENNAI – 600 024, TAMIL NADU, INDIA.	MARKETING & SALES, DESIGN & PLANNING, PURCHASE AND HUMAN RESOURCES
AGNI CONTROLS (UNIT2)	2/235, KUNDRATHUR HIGH ROAD, GERUAMBAKKAM, CHENNAI – 600 122, TAMIL NADU, INDIA.	DESIGN, MANUFACTURE, SUPPLY, INSTALLATION AND SERVICING OF FIRE PROTECTION SYSTEMS - GAS BASED FIRE EXTINGUISHING SYSTEMS LIKE CO2, INERT, HFC227EA, OTHER CLEAN AGENT SYSTEM, WATER BASED EXTINGUISHING SYSTEMS INCLUDE WATER MIST SYSTEMS, FIRE DETECTION AND ALARM SYSTEMS

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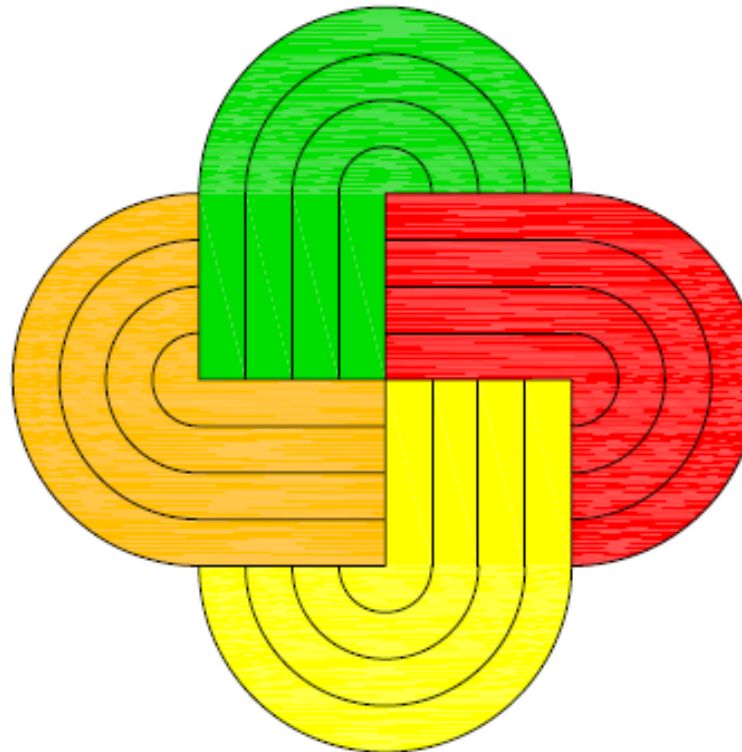
Pg 2 of 2

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**UNCOMPROMISED QUALITY PROCEDURES
IS ENSURED IN ALL STAGES**

**QC GROUP : G-I
DOCUMENTATION & RECORDING**

**QC GROUP : G-IV
FINAL QC**



**QC GROUP : G-II
INWARD QC**

**QC GROUP : G-III
IN-PROCESS QC**

THE MANAGEMENT TEAM



located at Chennai, Southern Part of India, one of the Metropolitan Cities.

Initial business during the 1985 involved in manufacturing Fire Alarm Control Panels & allied products.

Later, **Agni Controls** concentrated on special Fire Protection Systems such as Gas Based Fire Extinguishing Systems, Fire Alarm Systems and water spray and Mist system.

Agni Controls has many reputed customers in India, Europe and Asia Pacific Region.



D. BALACHANDRAN
Proprietor & CEO

D. BALACHANDRAN, CEO & Proprietor, Mechanical graduate Engineer, having 35 years experience in Fire Protection System. Founder president of FSAI, Hon.President of IFE-UK, Southern India Branch, represents BIS – CED 22 and NFPA, US for Codes & Standards



ARUNKUMAR BALACHANDRAN,
DIRECTOR – SALES
Graduate Engineer in Instrumentation, having knowledge specialised Fire protection system over 14 years



SELVAKUMAR BALACHANDRAN,
DIRECTOR – TECHNICAL
Graduate Engineer in Instrumentation & MIFireE(UK) Graduate member in IFE-UK, having knowledge specialised Fire protection system over 9 years

Overview on M/s Agni Controls

SOME IMPORTANT CLIENTS



DULAIJAN



MANALI



IndianOil

BARAUNI



IndianOil

PARADEEP



IndianOil

DIGBOI

Overview on M/s Agni Controls

SOME IMPORTANT CLIENTS

**ROYAL
ENFIELD**

CHENNAI



HYUNDAI

CHENNAI



Hindustan Motors

CHENNAI

RENAULT NISSAN

CHENNAI



Motherson Sumi Systems Limited

BANGALORE



Samvardhana Motherson Reflectec

CHENNAI



Mercedes-Benz

PUNE



Hero

HARIDHWAR



ASHOK LEYLAND

HOSUR

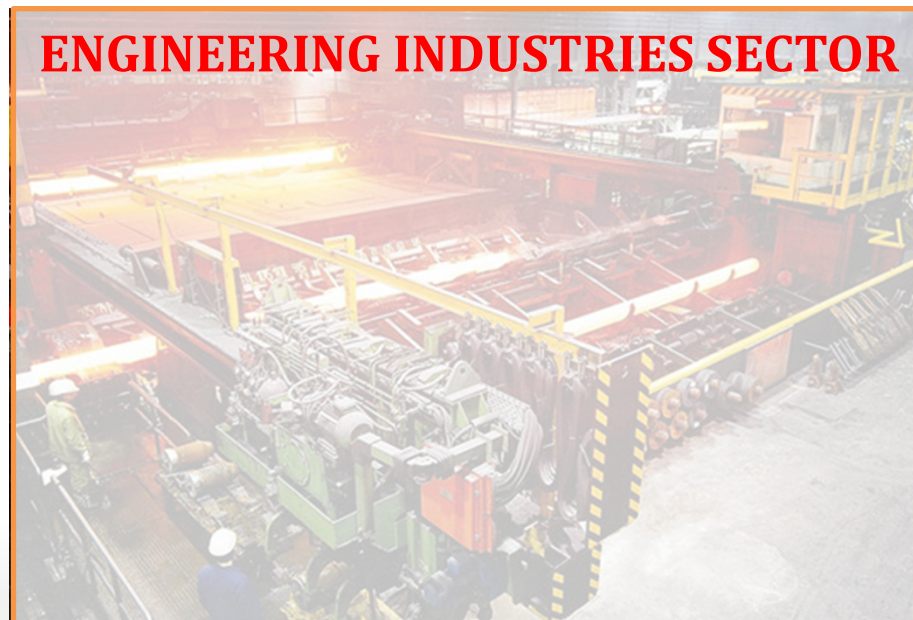
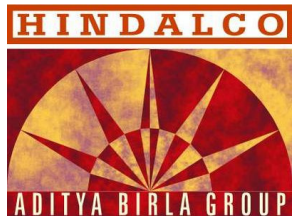
Overview on M/s Agni Controls

SOME IMPORTANT CLIENTS



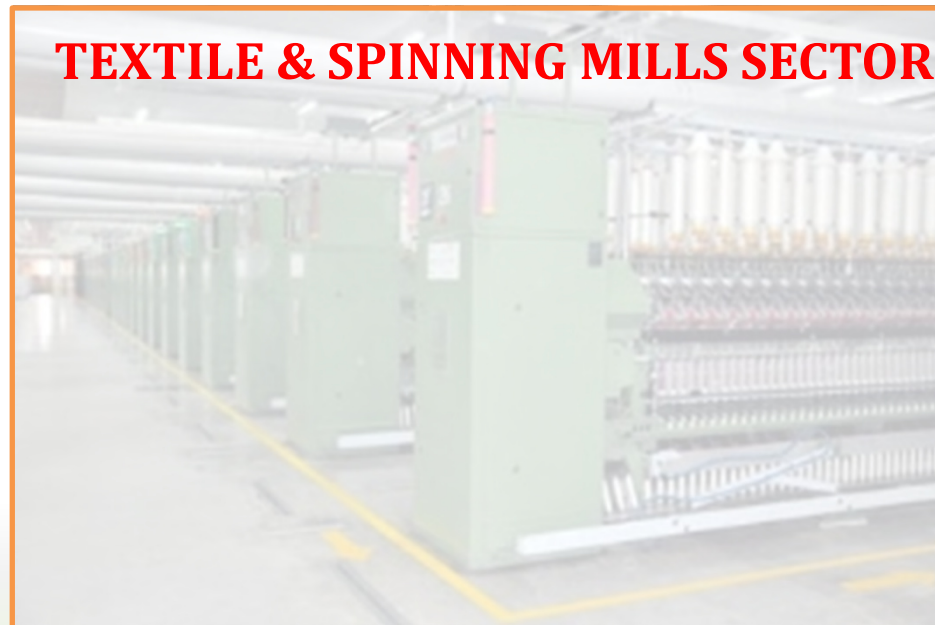
Overview on M/s Agni Controls

SOME IMPORTANT CLIENTS



Overview on M/s Agni Controls

SOME IMPORTANT CLIENTS



PROUD TO BE INDIAN
PRIVILEGED TO BE GLOBAL



Overview on M/s Agni Controls

SOME IMPORTANT CLIENTS

EXPORT & GLOBAL MARKET



UAE



ITALY



UAE



SINGAPORE



MALAYSIA



USA



UAE



UK



THAILAND



ITALY

BRANDS

FULLY INTEGRATED & TESTED CO2 GAS
EXTINGUISHING BANK ASSEMBLY

bala-wa[®]

SPECIAL APPLICATION SPARK/HEAT/ FLAME
DETECTORS

fladet[®] SERIES...

DETECT EXTINGUISH FIRE AT ORIGIN
SYSTEMS

Defao[®] SERIES...

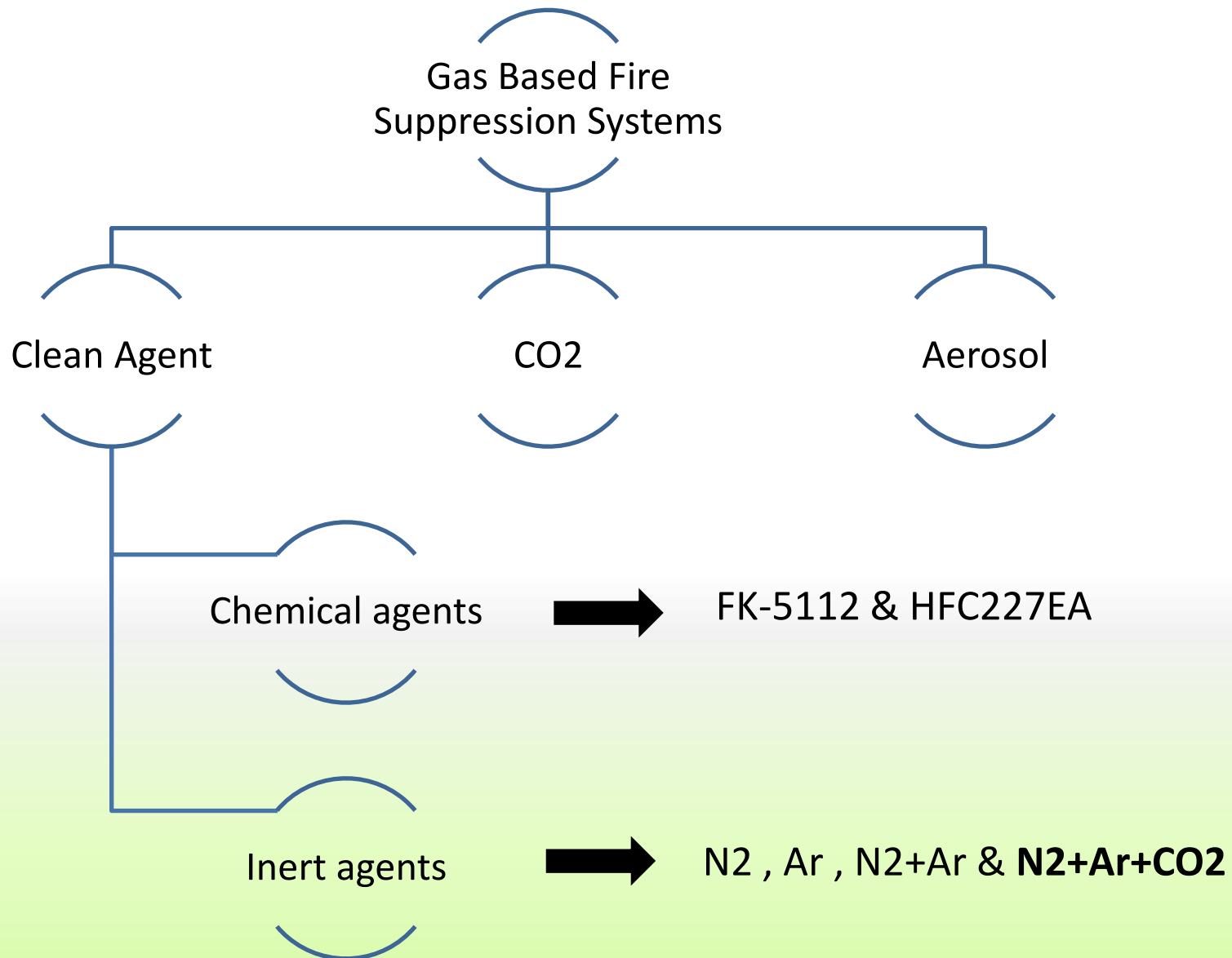
FULLY INTEGRATED & TESTED INERT GAS
EXTINGUISHING BANK ASSEMBLY

bala-wa[®] - 100 / 541

ENGINEERED HIGH PRESSURE WATER MIST FIRE
SUPPRESSION SYSTEM

bala-wa-mist[®]

Overview of Fire Suppression Systems



bala-wa-541[®] INERT GAS FIRE SUPPRESSION SYSTEM



Overview on

IG-541 EXTINGUISHING AGENT

bala-wa-541® INERT GAS FIRE SUPPRESSION SYSTEM

IG 541 – ABOUT THE AGENT



- The agent consists of a naturally occurring gases in the atmosphere. It contains mixture of Nitrogen, Argon & Carbon dioxide in the ratio 5:4:1 (ie., Nitrogen 52% + Argon 40% & Carbon dioxide 8%).
- The agent is inert in nature & does not form any corrosive by-products
- Colourless & Odourless in nature.

bala-wa-541® INERT GAS FIRE SUPPRESSION SYSTEM

IG 541 – FEATURES



- Protection of valuable assets
- Agent is Non-toxic that does not affect personnel
- Good visibility during discharge that facilitates escape
- Does not contribute to ozone layer depletion
- No global warming potential

bala-wa-541® INERT GAS FIRE SUPPRESSION SYSTEM

IG 541 – APPLICATION



- Libraries , archives , speciality storages
- Clean Rooms
- Computer & data processing centres
- Control & Command centres
- Speciality equipment manufacturing facility.
- R&D centres
- Cultural and historical sites
- Server rooms
- Hospital and medical facilities
- Offshore & Marine applications
- Mining
- Museums
- Power generation facilities
- Telecommunication facilities

bala-wa-541® INERT GAS FIRE SUPPRESSION SYSTEM



Overview on

IG541 INERT GAS

FIRE SUPPRESSION SYSTEM

bala-wa-541[®] INERT GAS FIRE SUPPRESSION SYSTEM

The system can be designed as 200 bar & 300 bar systems.



The size of the system is based on the volume & nature of the risk.

The system complies to IS 15501, NFPA 2001, VdS 2380 & ISO 14520-1

Available in various configurations as per design requirements.

bala-wa-541® INERT GAS FIRE SUPPRESSION SYSTEM

Cabinet type IG541 Cylinder Bank

Model : IH701-3S-CT

200bar IG541 system suitable for 3 nos. Of 80 litres water capacity cylinders – fully integrated in cabinet type enclosure assembly



bala-wa-541® INERT GAS FIRE SUPPRESSION SYSTEM

Frame type IG541 Cylinder Bank

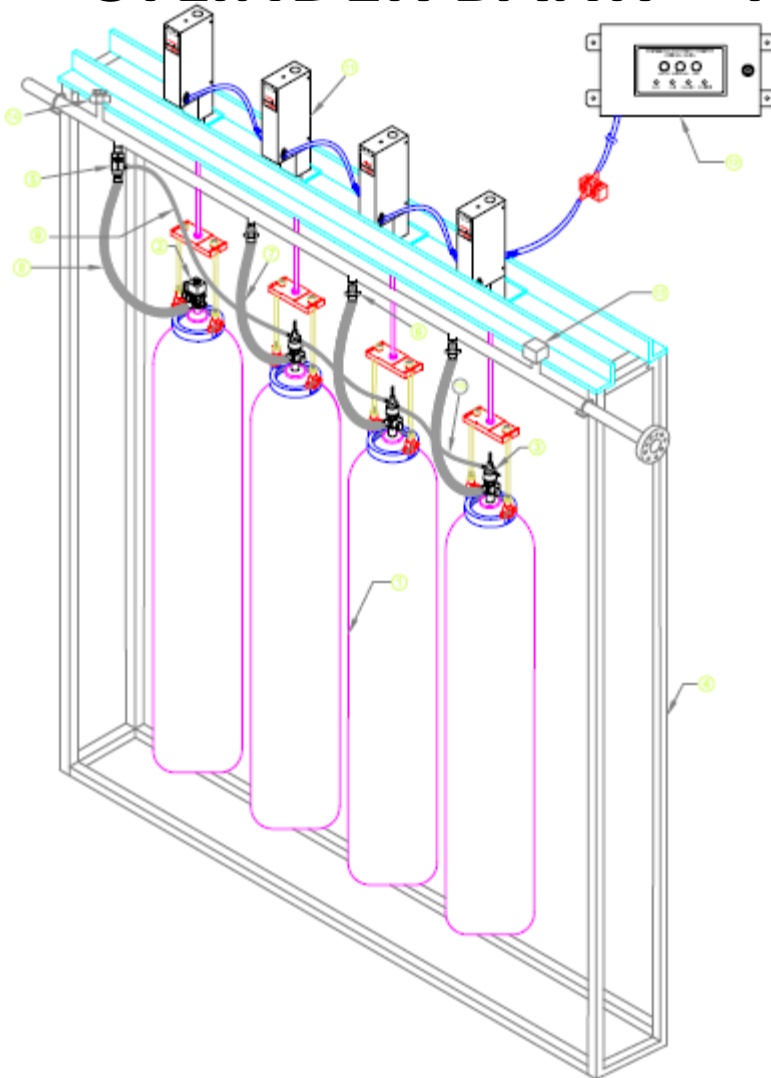
Model : IH701-3S

200bar IG541 system suitable for 3 nos. Of 80 litres water capacity cylinders – modular type frame assembly.



bala-wa-541[®] INERT GAS FIRE SUPPRESSION SYSTEM

CYLINDER BANK – TYPICAL ARRANGEMENT

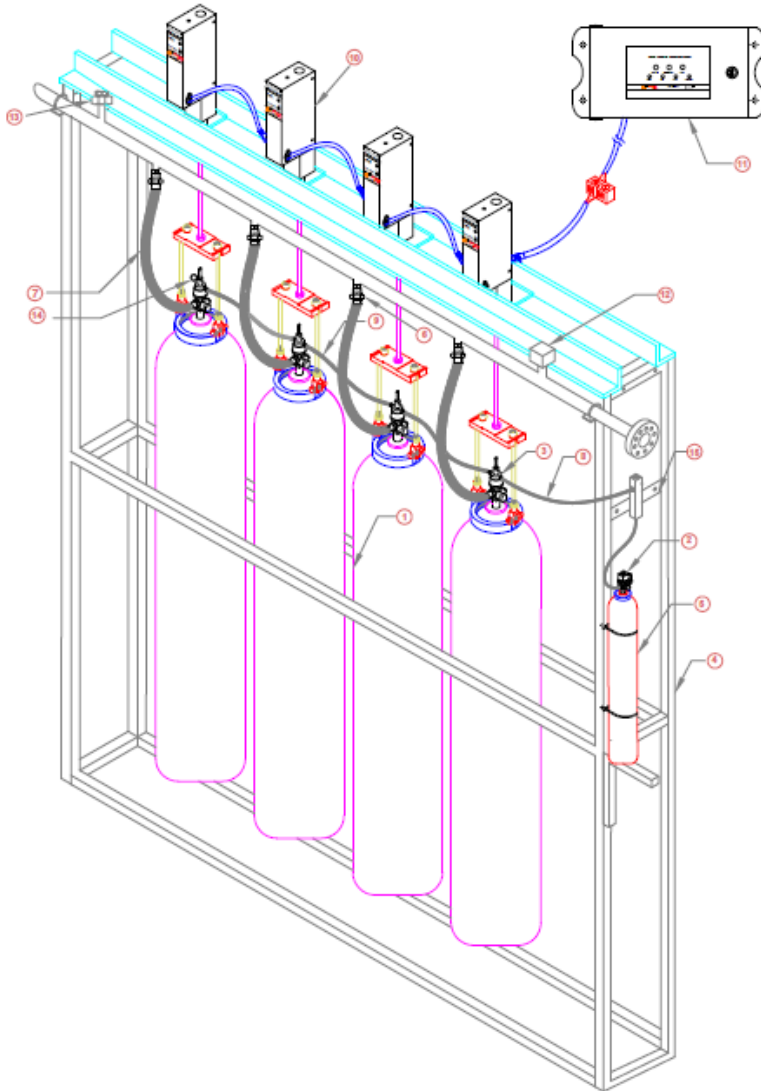


CONFIGURATION – 1

MASTER – SLAVE OPERATION

bala-wa-541[®] INERT GAS FIRE SUPPRESSION SYSTEM

CYLINDER BANK – TYPICAL ARRANGEMENT

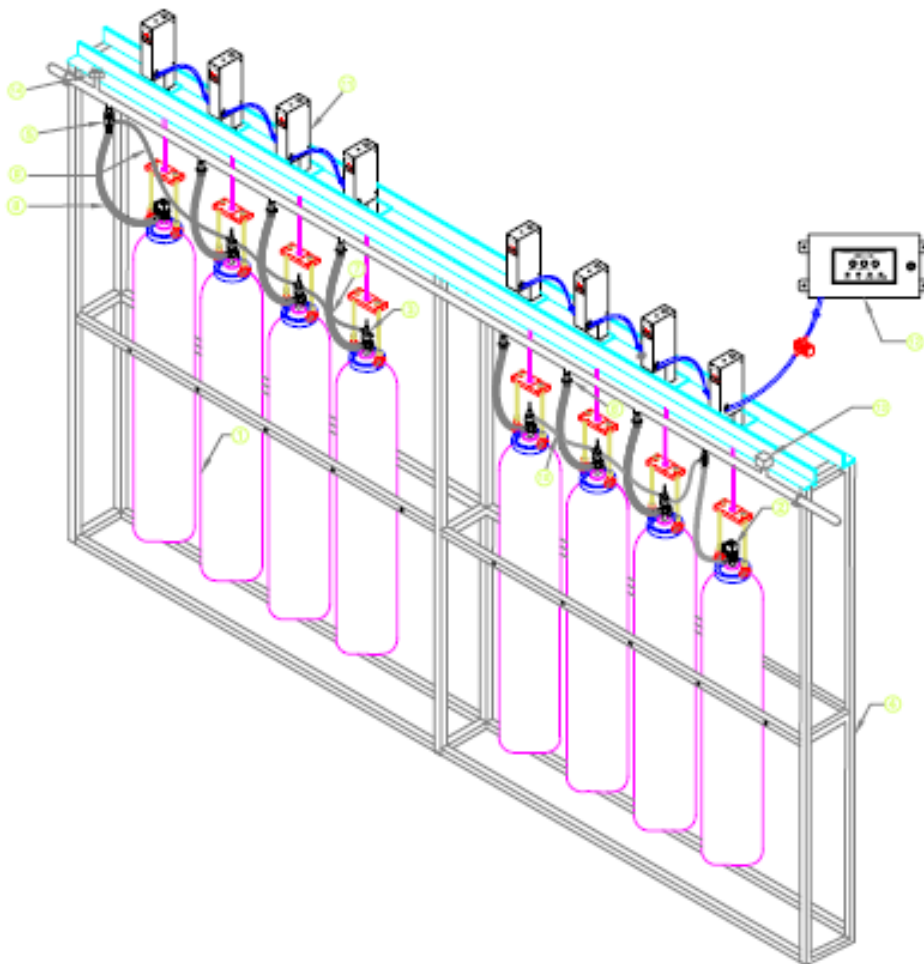


CONFIGURATION – 2

PILOT – SLAVE OPERATION

bala-wa-541[®] INERT GAS FIRE SUPPRESSION SYSTEM

CYLINDER BANK – TYPICAL ARRANGEMENT

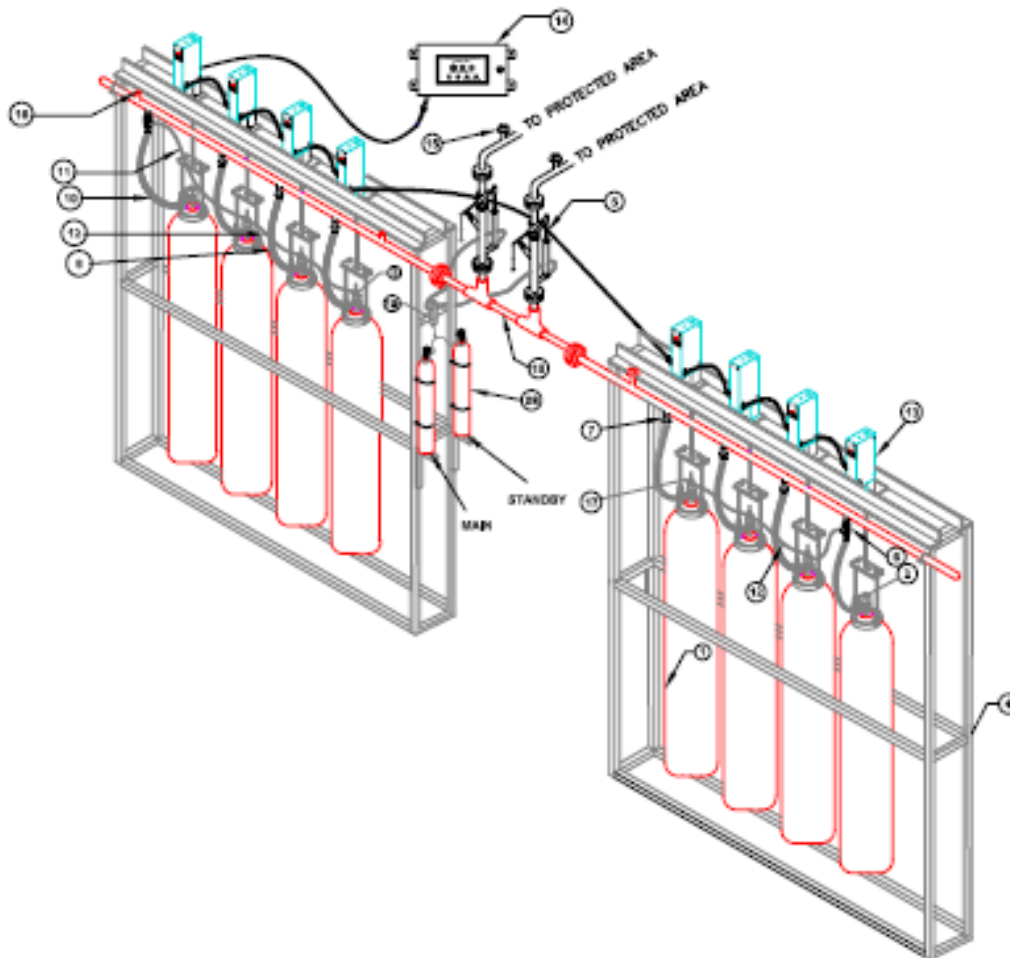


CONFIGURATION – 3

**MASTER – SLAVE OPERATION WITH
100% ONLINE REDUNDANCY**

bala-wa-541[®] INERT GAS FIRE SUPPRESSION SYSTEM

CYLINDER BANK – TYPICAL ARRANGEMENT



CONFIGURATION – 4

MASTER – SLAVE OPERATION WITH
100% ONLINE REDUNDANCY &
DIRECTIONAL VALVES TO PROTECT
MULTIPLE AREAS USING A COMMON
BANK

bala-wa-541[®] INERT GAS FIRE SUPPRESSION SYSTEM

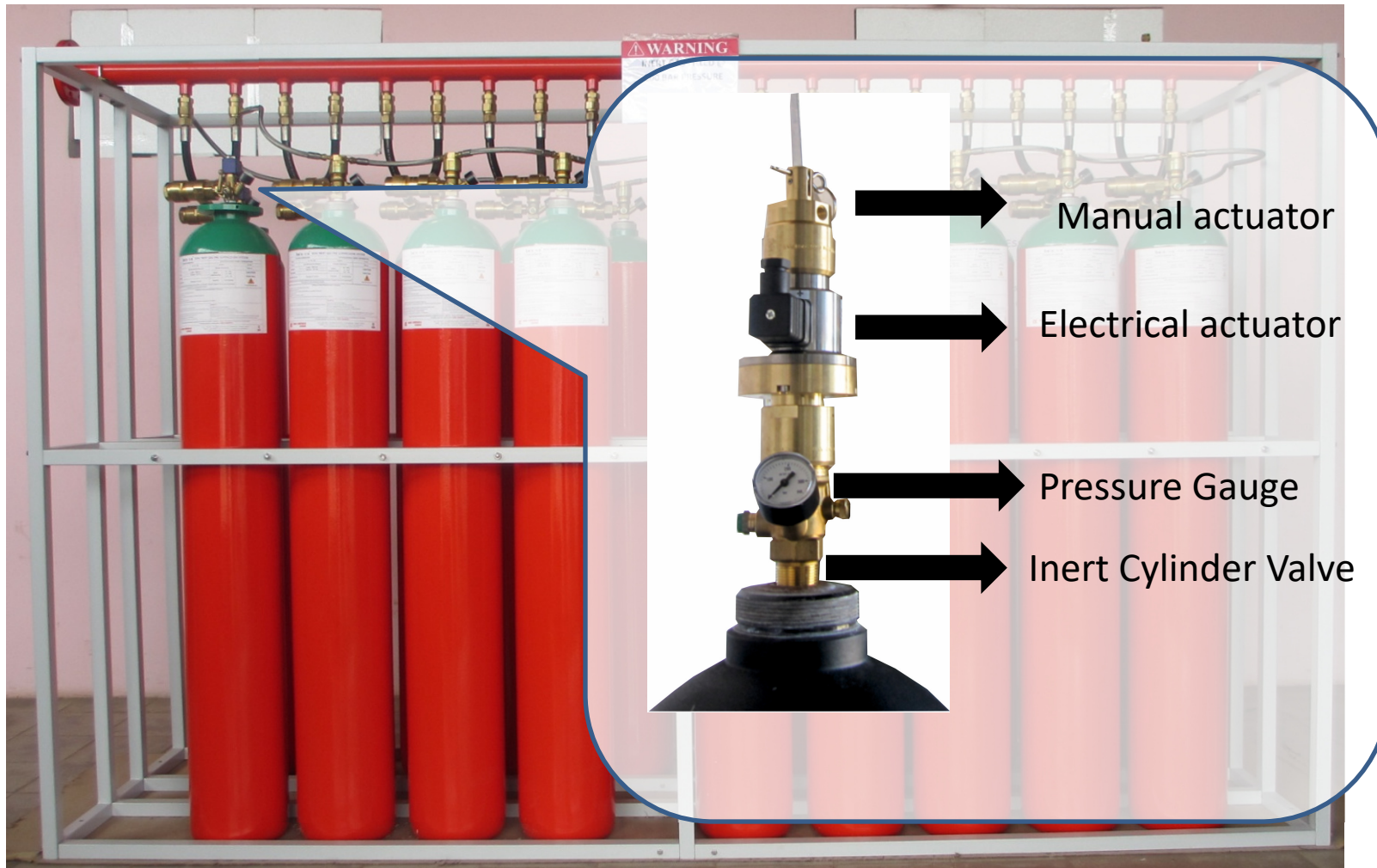
General Arrangement



200 bar IG541 system operating using Master-Slave logic

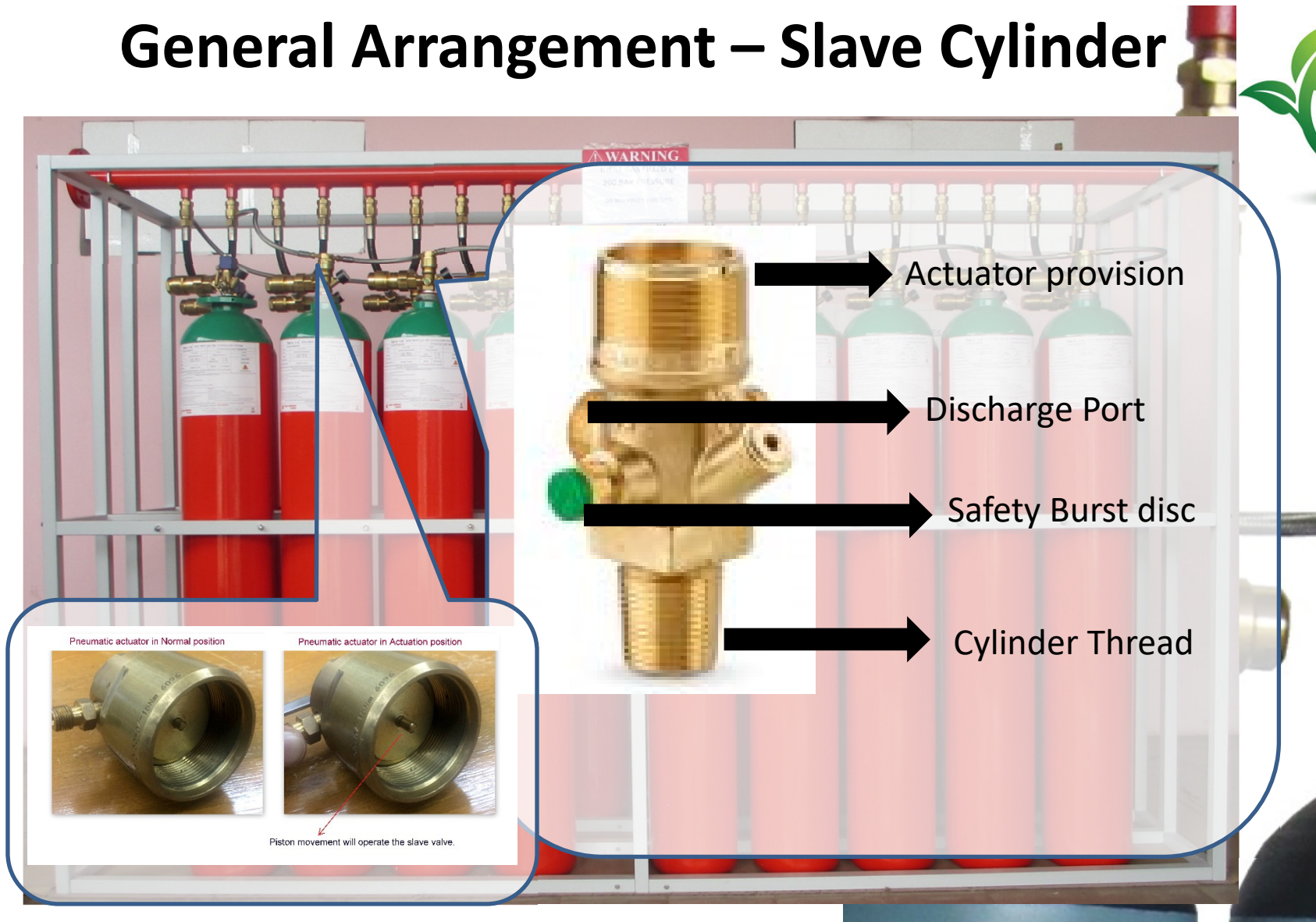
bala-wa-541[®] INERT GAS FIRE SUPPRESSION SYSTEM

General Arrangement – Master Cylinder



bala-wa-541[®] INERT GAS FIRE SUPPRESSION SYSTEM

General Arrangement – Slave Cylinder



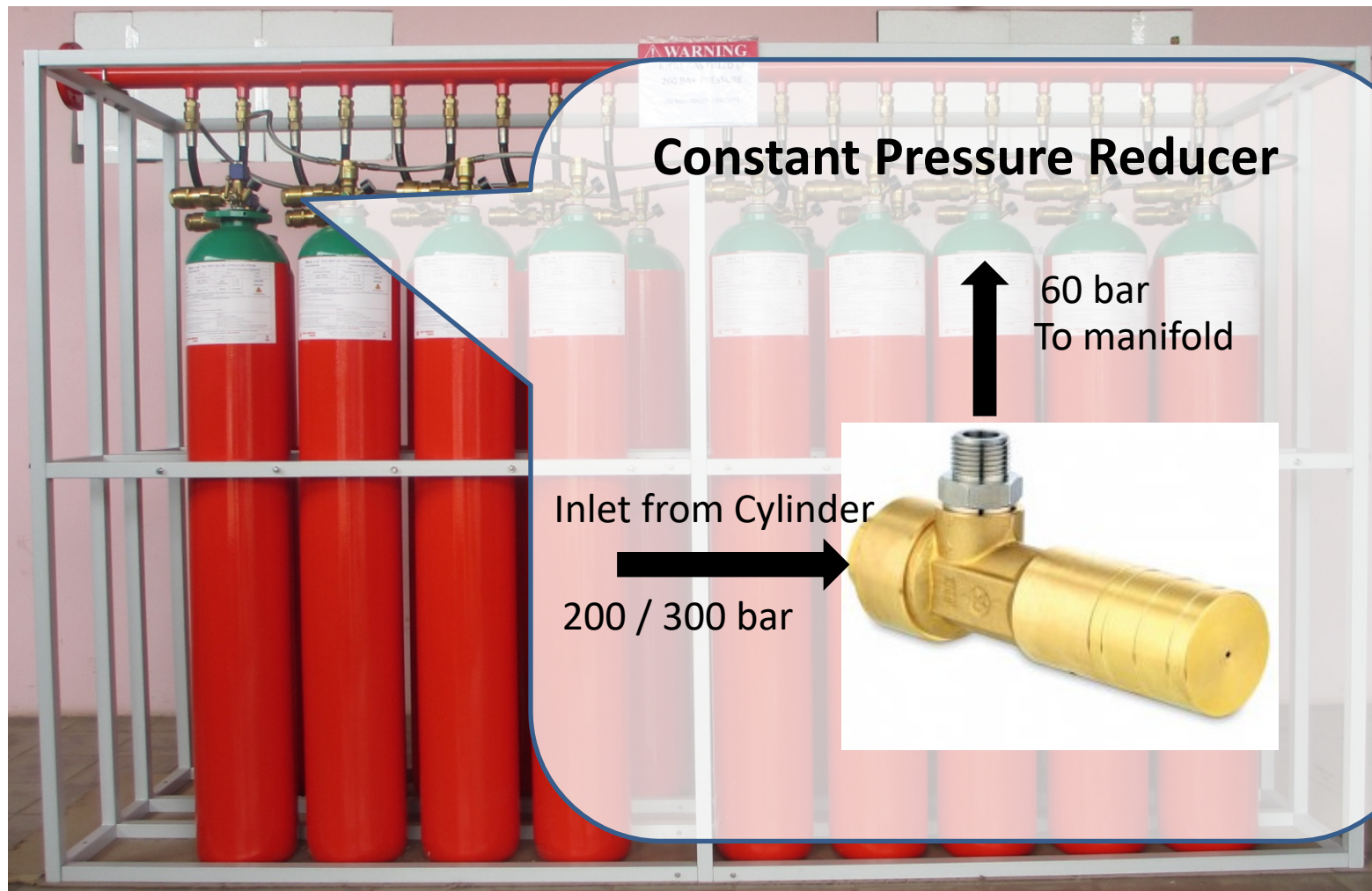
Pneumatic actuator in Normal position

Pneumatic actuator in Actuation position

Piston movement will operate the slave valve.

bala-wa-541[®] INERT GAS FIRE SUPPRESSION SYSTEM

General Arrangement – Slave Cylinder



bala-wa-541[®] INERT GAS FIRE SUPPRESSION SYSTEM

General Arrangement – Components



Non-Return Valve

Actuation Hose

Discharge Hose

Cylinder

Frame Assembly

bala-wa-541[®] INERT GAS FIRE SUPPRESSION SYSTEM

General Arrangement – Components



Non-Return Valve

Prevent Back flow of agent from pipe to cylinder



Manifold Safety Valve

Inside burst disc will rupture at 165-190 bar to prevent pipeline from pressure build-up



Pressure Switch

Gives feedback to panel for **“GAS DISCHARGED”** condition

bala-wa-541® INERT GAS FIRE SUPPRESSION SYSTEM

General Arrangement – Components



Inert Gas Discharge Nozzles

Nozzles fixed to pipeline discharges agent as per design requirement with perfectly calculated orifices

bala-wa-541® INERT GAS FIRE SUPPRESSION SYSTEM

Components – Constant Pressure Reducer



bala-wa 541 INERT GAS FIRE SUPPRESSION SYSTEM uses specially designed Individual **Constant Pressure Reducer** which restricts the high pressure in the pipeline , where as most of other inert systems have a common pressure restrictor in the header .

This unique feature reduces the high pressure in the Discharge Hose , Non-Return Valves , Manifold and the pipeline .

It prevents choked flow of the gas

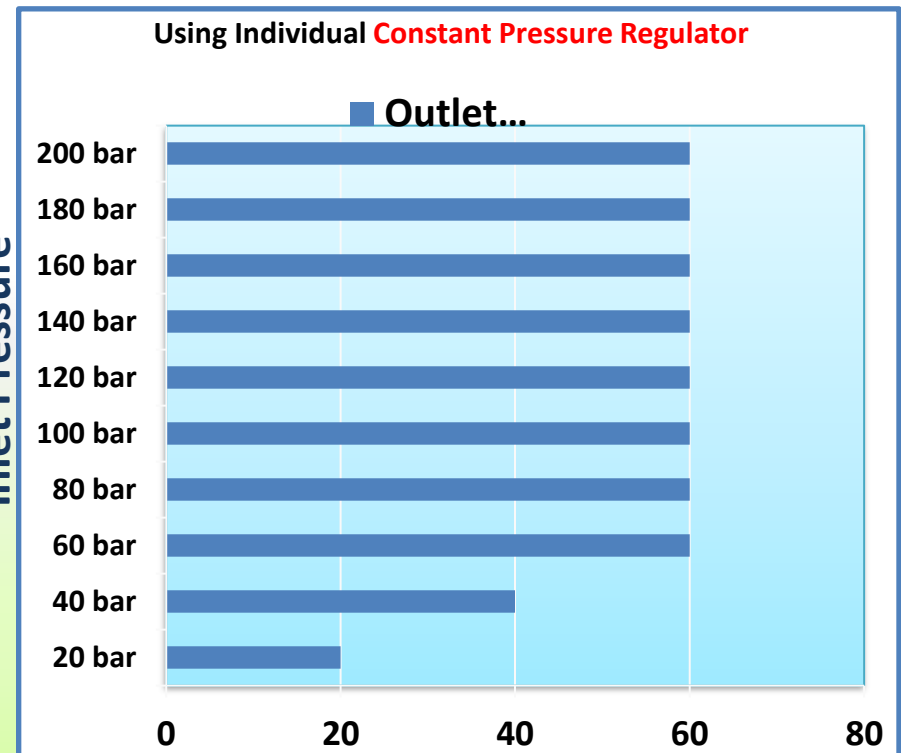
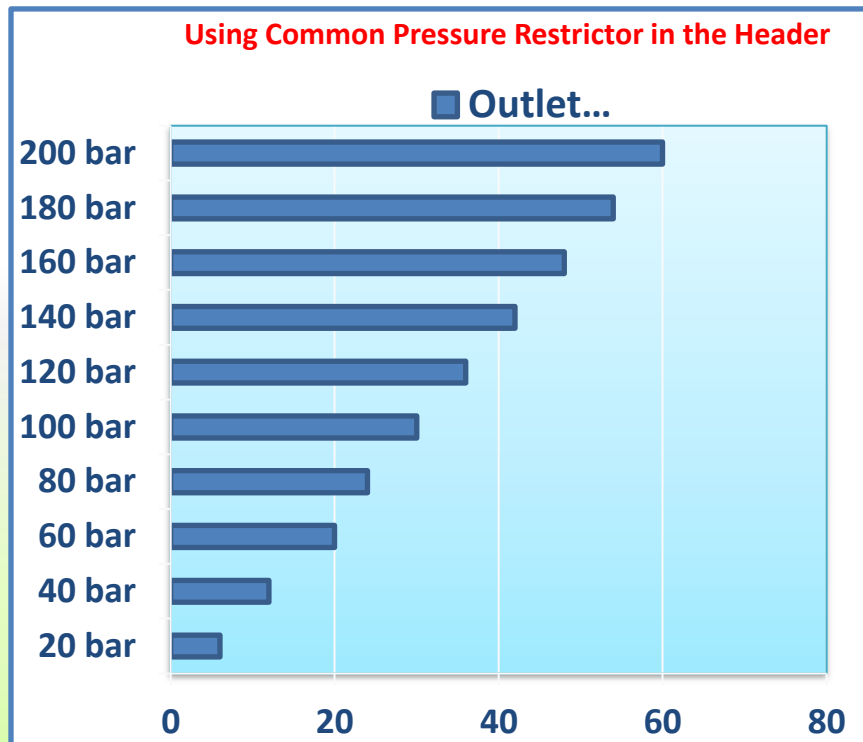
The Pressure Reducer regulates the flow of the gas , thereby increasing the effectiveness while reducing cost

bala-wa-541[®] INERT GAS FIRE SUPPRESSION SYSTEM

Components – Constant Pressure Reducer



Common Pressure Restrictor vs. Individual Pressure Reducer



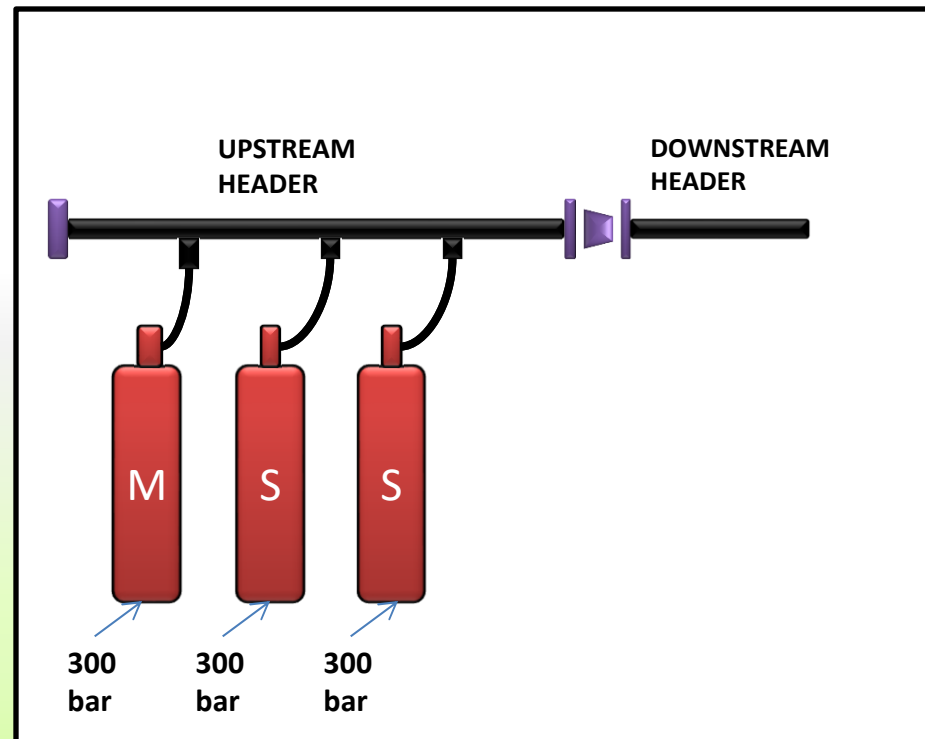
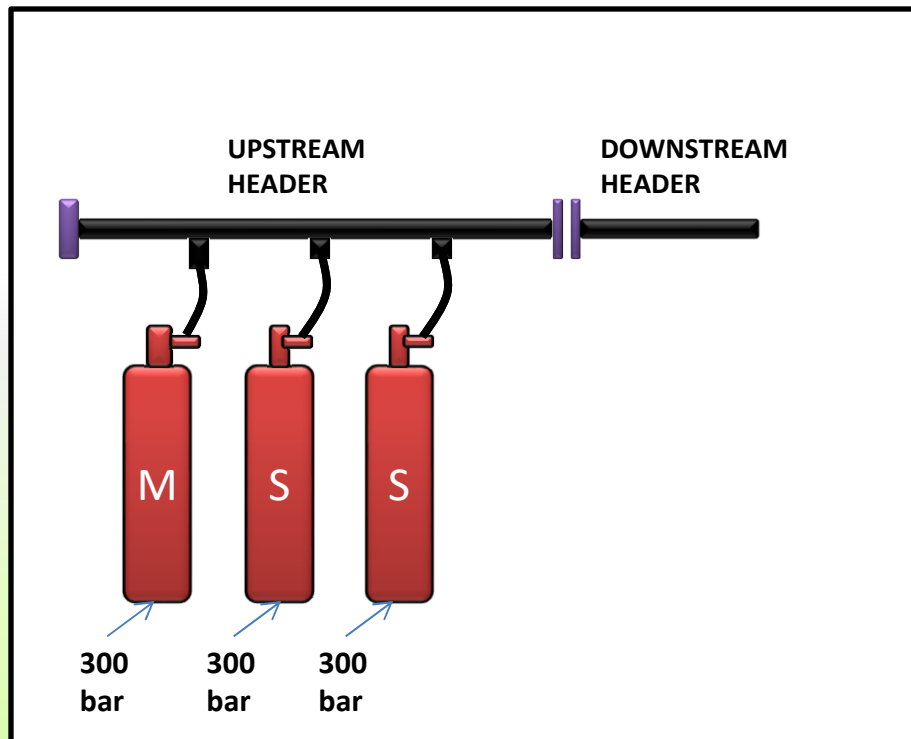
bala-wa-541[®] INERT GAS FIRE SUPPRESSION SYSTEM

Components – Constant Pressure Reducer



300 bar Inert System with
Pressure Regulator
fitted in Cylinder Valve

300 bar Inert System
with **Pressure Reducer**
fitted in Manifold



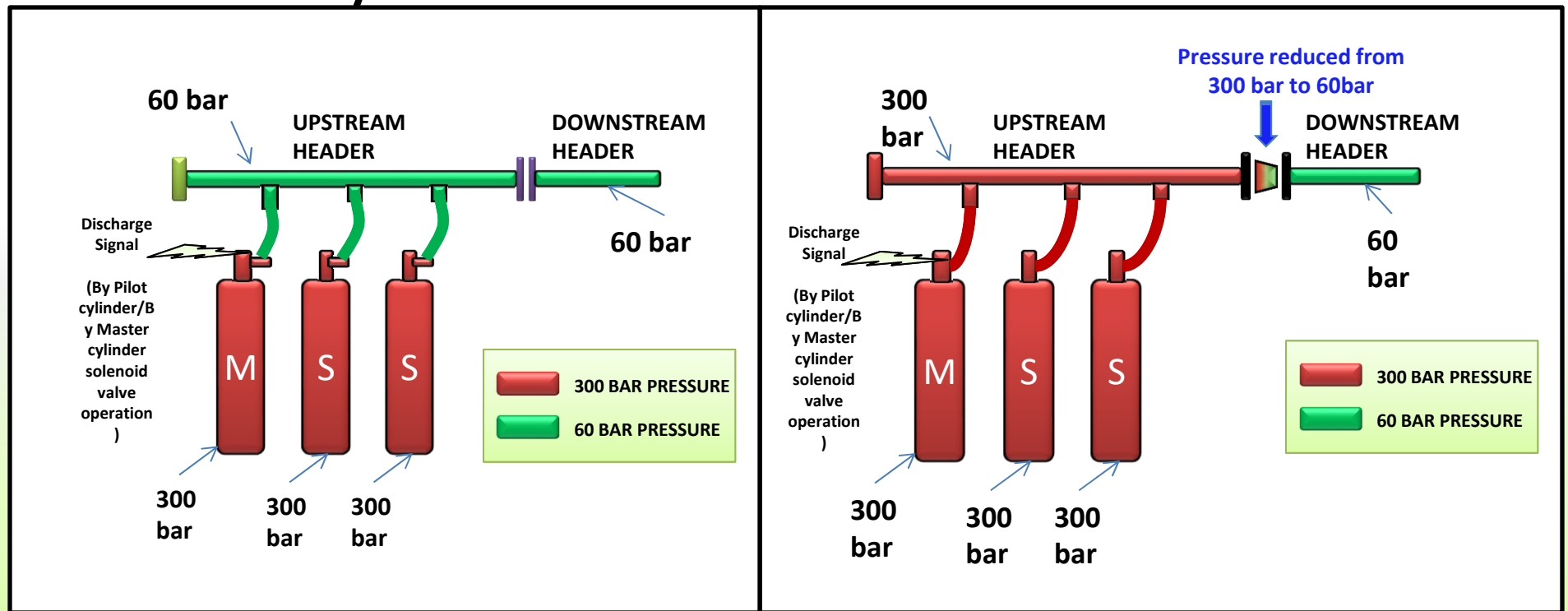
bala-wa-541[®] INERT GAS FIRE SUPPRESSION SYSTEM

Components – Constant Pressure Reducer



300 bar Inert System
with **Pressure Regulator**
fitted in Cylinder Valve

300 bar Inert System
with **Pressure Reducer**
fitted in Manifold



bala-wa-541® INERT GAS FIRE SUPPRESSION SYSTEM



IG541 INERT GAS

FIRE SUPPRESSION SYSTEM

OPERATING PRINCIPLE

bala-wa-541[®] INERT GAS FIRE SUPPRESSION SYSTEM

Fire is basically a series of chain chemical reactions which releases energy in the form of heat.

Fire requires

- Combustible Material
- Oxygen supply
- Heat



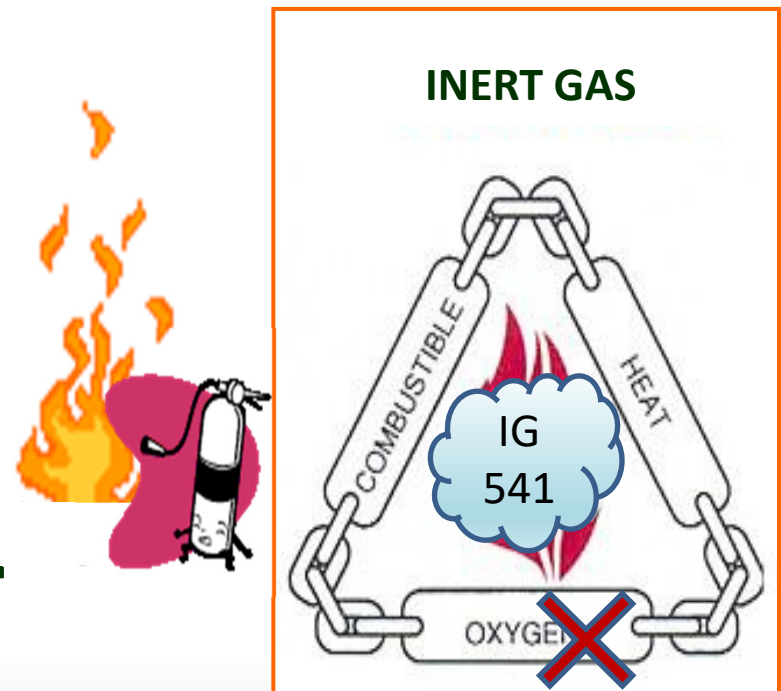
bala-wa-541[®] INERT GAS FIRE SUPPRESSION SYSTEM

Fire is extinguished when one of the basic requirements is cut-off

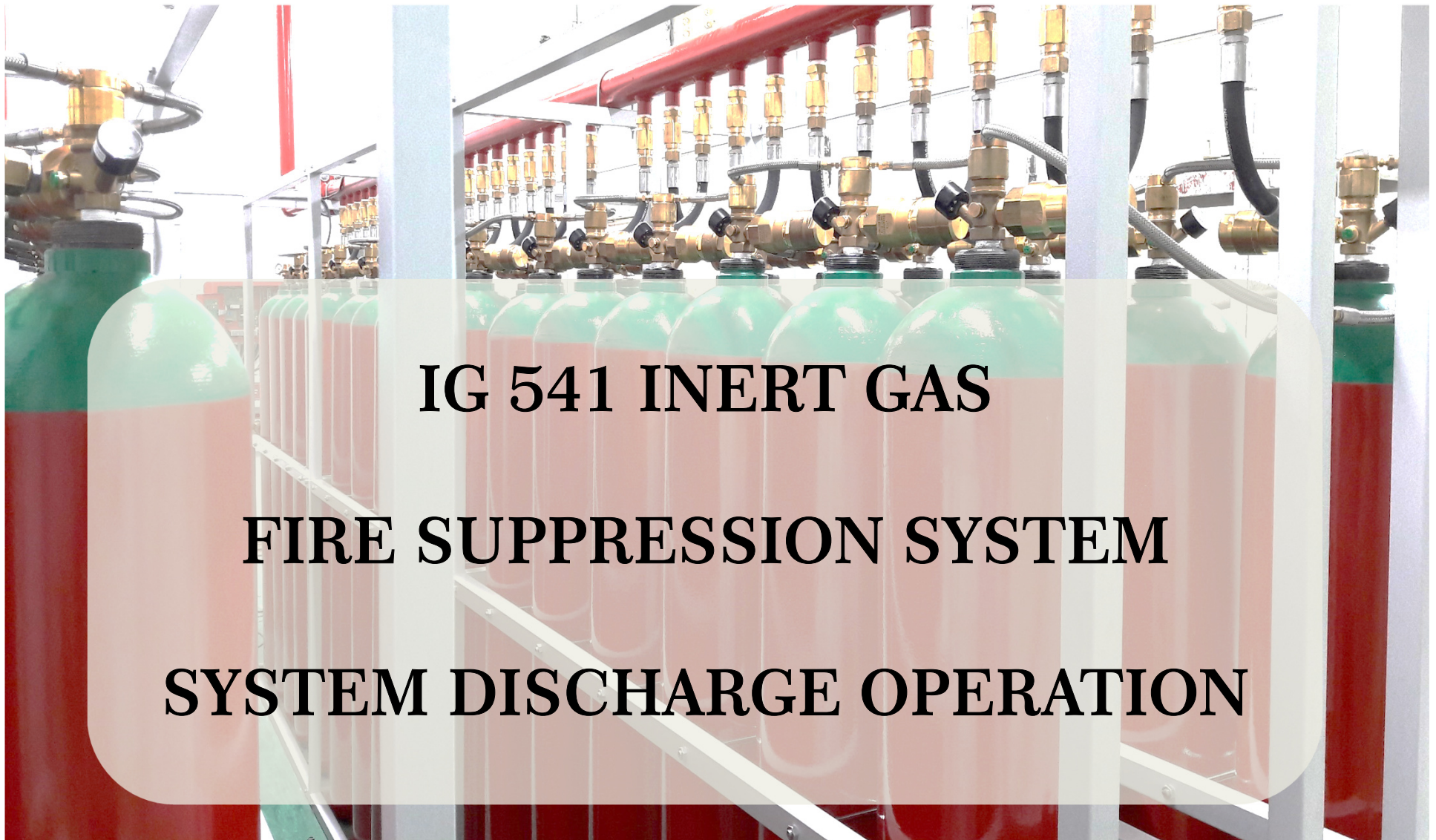
When INERT AGENT is RELEASED, it reduces O₂ from 20.9% in the vicinity to 15%.

This Oxygen depletion prevents the fire from continuing to burn.

The system is designed to lower the O₂ level where it does not support combustion but at the same time provides sufficient O₂ level for personnel to breathe.



bala-wa-541[®] INERT GAS FIRE SUPPRESSION SYSTEM



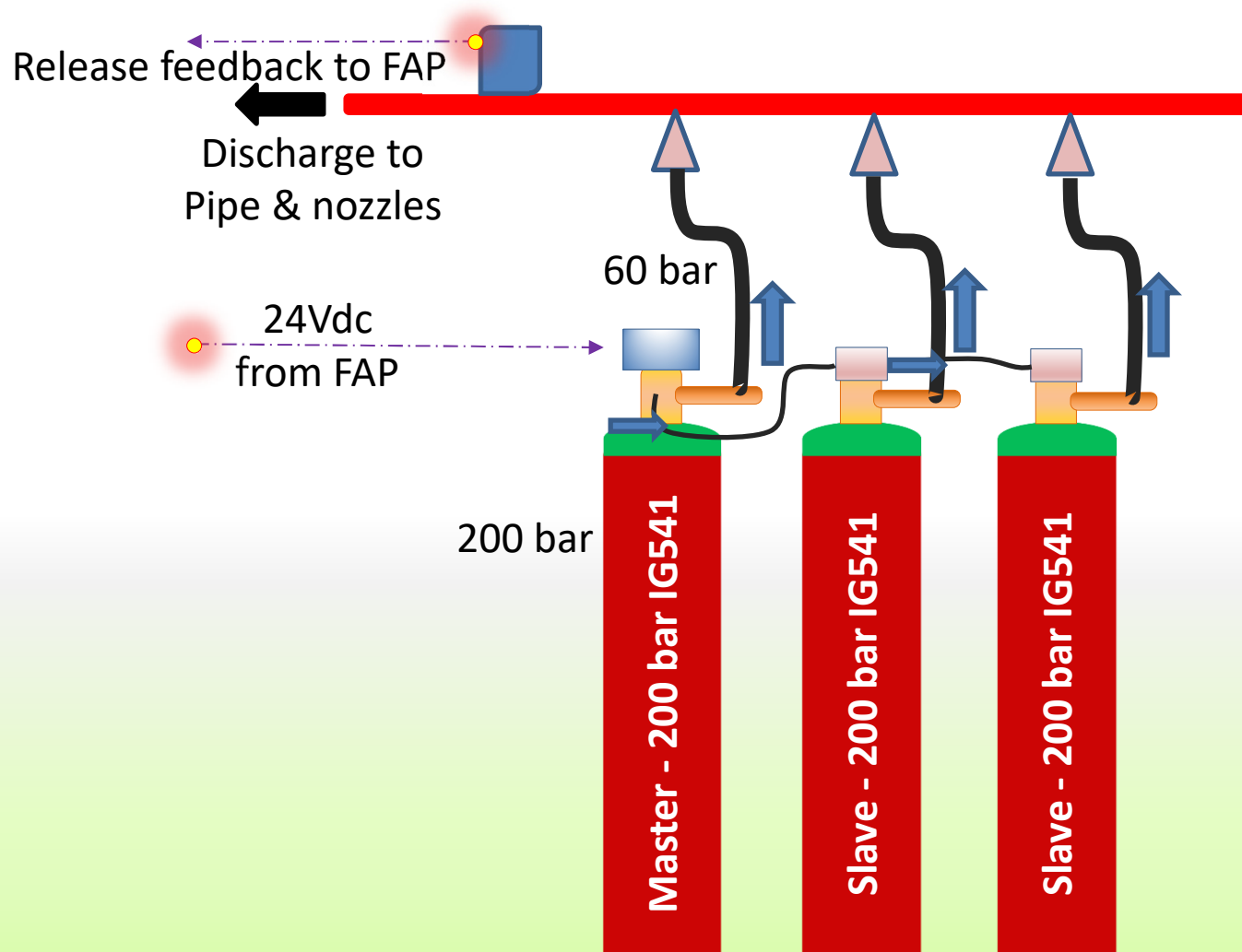
IG 541 INERT GAS

FIRE SUPPRESSION SYSTEM

SYSTEM DISCHARGE OPERATION

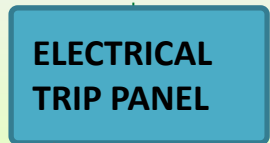
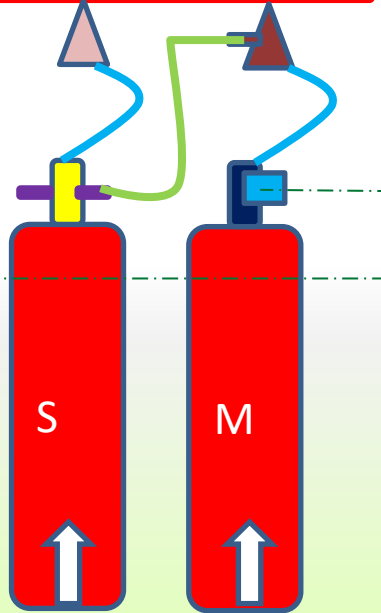
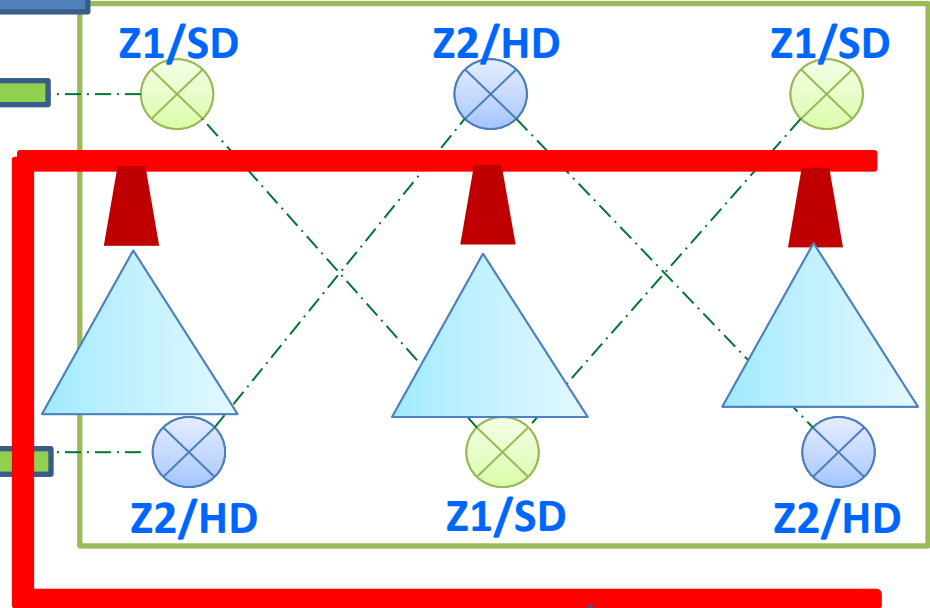
bala-wa-541[®] INERT GAS FIRE SUPPRESSION SYSTEM

AUTOMATIC OPERATION OF SYSTEM



AUTOMATIC OPERATION USING DETECTORS

RISK AREA



PFC changes tripping all connected devices

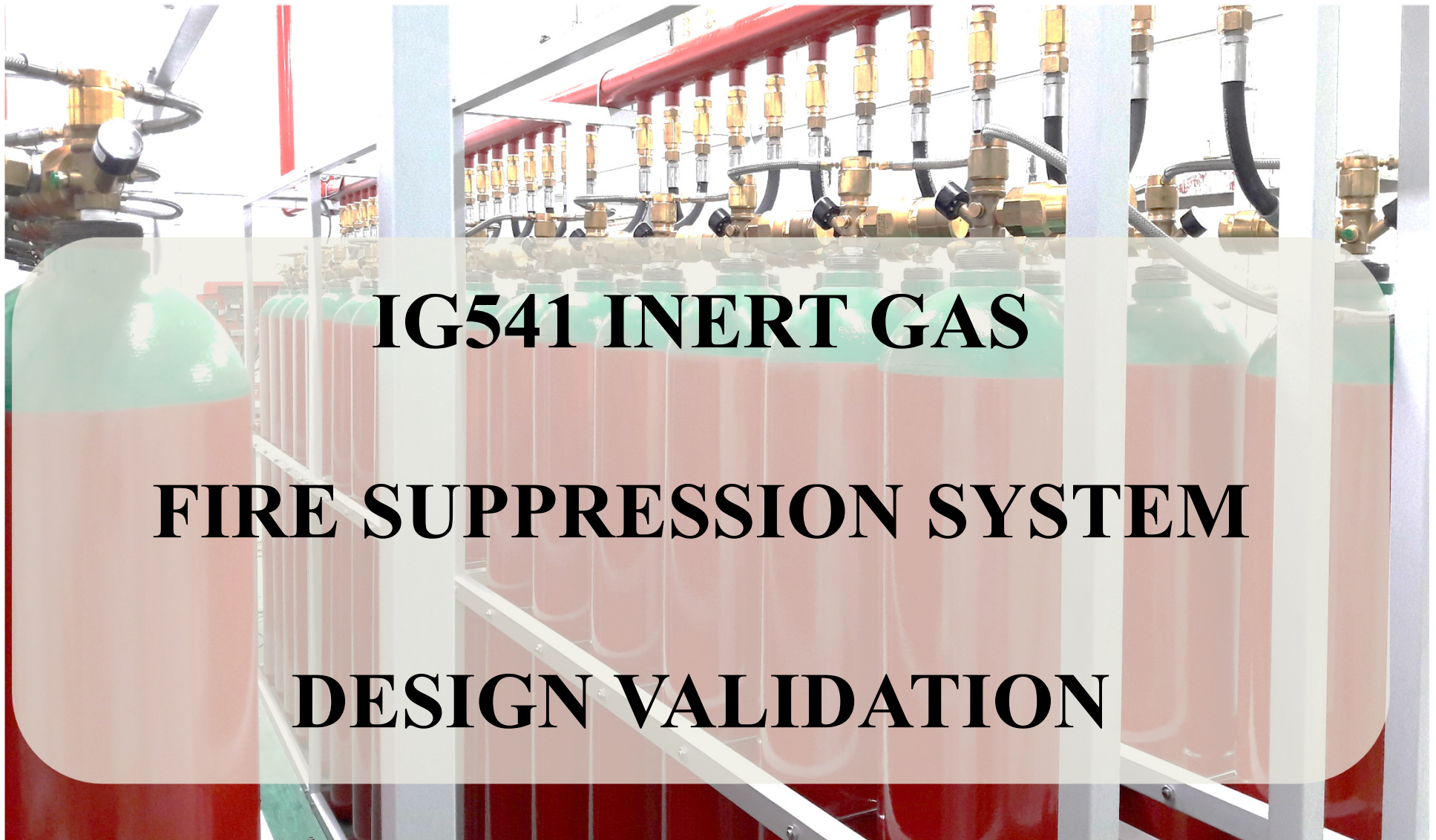


bala-wa-541[®] INERT GAS FIRE SUPPRESSION SYSTEM

The system can be operated by any one of the following method:

- **Automatic Detection & Automatic Extinguishing.**
- **Manual Detection and Manual Discharge with push buttons through control panel.**
- **Mechanical Manual Discharge by operating Manual discharge lever.**

bala-wa-541® INERT GAS FIRE SUPPRESSION SYSTEM



IG541 INERT GAS

FIRE SUPPRESSION SYSTEM

DESIGN VALIDATION

bala-wa-541[®] INERT GAS FIRE SUPPRESSION SYSTEM

DESIGN VALIDATION



The system design is validated by using VdS Software for the Dimensioning of Inert Gas Extinguishing Systems

VdS SCHADENVERHÜTUNG

VdS

Calculation of Inert Gas Extinguishing Systems using the B0840 Pressure Reducer

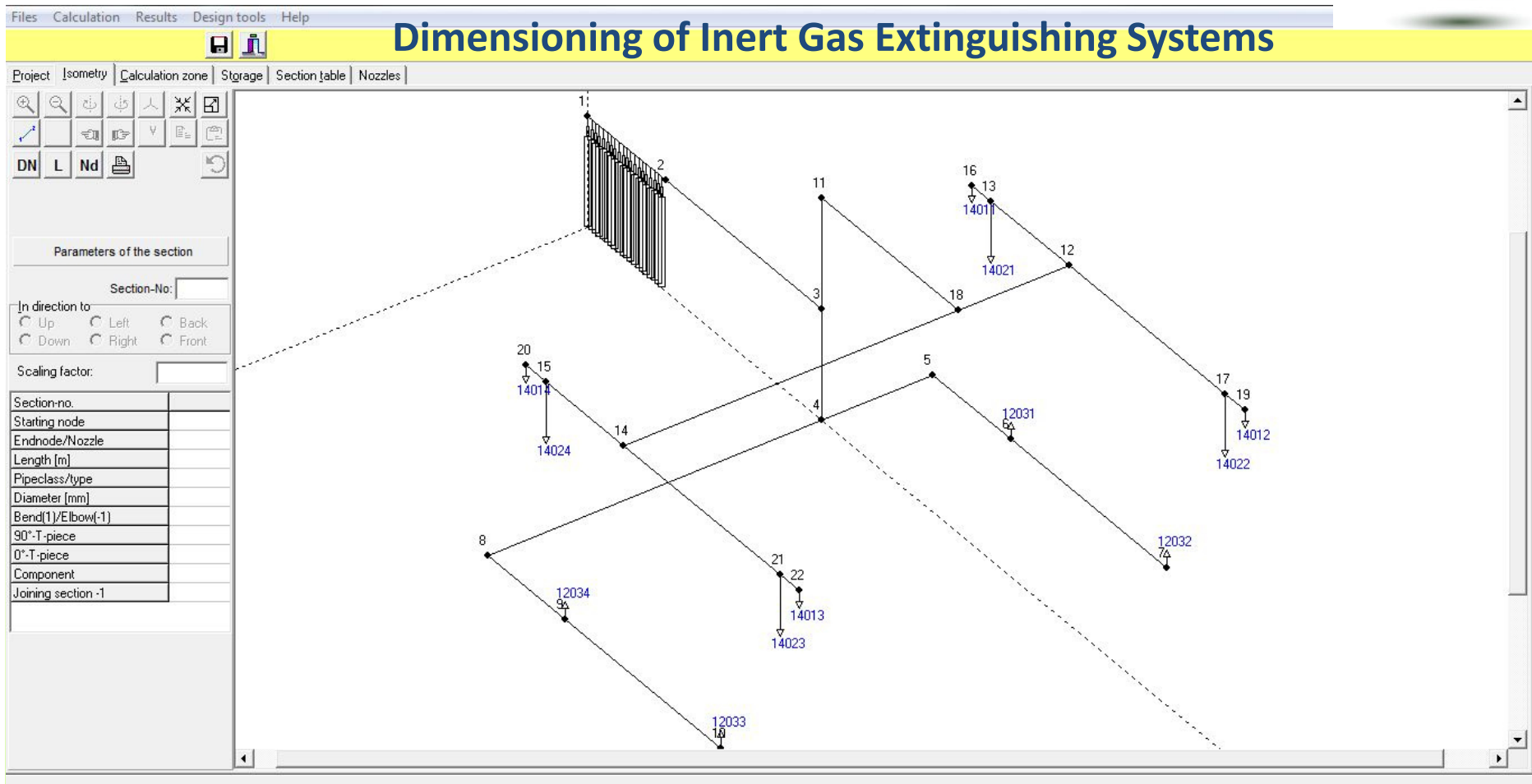
to the design of gas fire extinguishing systems
that are equipped with the pressure reducer adapter B0840 in connection to the gas cylinder valves B0480 1 and B0480 2

Constant pressure during the discharge time

Licensed to : AGNI CONTROLS
Copyright by VdS Schadenverhütung

bala-wa-541® INERT GAS FIRE SUPPRESSION SYSTEM

DESIGN VALIDATION



bala-wa-541[®] INERT GAS FIRE SUPPRESSION SYSTEM

Validation of design by measurement of O2 in risk area using s
equipment



Fleet Manager II
File Help

Devices

- Import
- Logs / Results
- Reports

Database

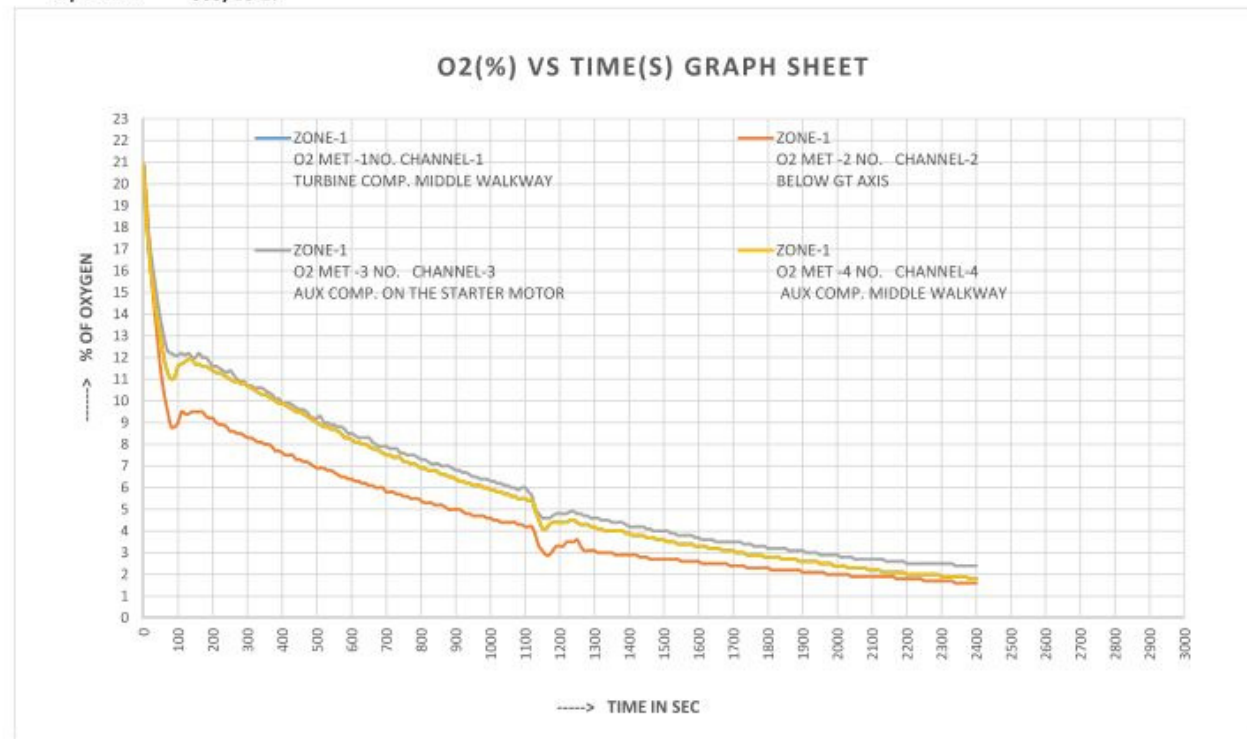
Administration

Logs / Results View

- GasAlertMax XT
 - Event Logs
- Datalogs
 - MA216-000174
 - Archives
 - 2016-08-11
 - MA216-000178
 - MA216-000188
 - MA216-000469
 - Bump/Cal Results
 - All Results
 - Bump/Cal Results

Archive Number of rec

Report No: 005/16-17



bala-wa-541® INERT GAS FIRE SUPPRESSION SYSTEM

Environmental Effects



	Ozone Depleting Potential	Global Warming Potential vs. CO2 (100 yrs.)	Agent Breakdown to Corrosive By-products
Carbon dioxide	zero	1	none
Halon 1301	x 16	3500	HF
FM 200	zero	2900	HF x 7
Inert Gas	zero	zero	none

bala-wa-541® INERT GAS FIRE SUPPRESSION SYSTEM

- Zero Ozone Depletion potential and zero Global Warming Potential
- No toxicity to humans
- Low cost to refill
- The individual pressure regulators allow the **bala-wa inert gas fire suppression systems** to replace existing Halon/CO2 fire suppression systems in many applications without replacing existing pipe lines .
- Clear view to exits
- No damage to properties
- Common cylinder bank for multiple area protection is possible



bala-wa-541[®] INERT GAS FIRE SUPPRESSION SYSTEM

PRECAUTIONS



- Always keep escape route free from materials
- Conduct Simulation tests at least once in every 3 months
- Vacate the room immediately in case of gas release
- Always use cross-zone logic for gas discharge
- Set delay timer for personnel to evacuate during discharge
- Avoid direct contact to discharging agent. May cause Frostbite.
- Discharges at high pressure with high noise levels.
- Pressure Relief Damper shall be provided to avoid excessive pressure build up inside the room.

bala-wa-541® INERT GAS FIRE SUPPRESSION SYSTEM

Always rely on

Factory built , Assembled and Tested

bala-wa-541®

IG 100/541 – INERT GAS FIRE SUPPRESSION SYSTEM

For a greener and safer Environment



For further information

Please Contact :



No:1 , 6th street , Dr.Subbarayan Nagar

Kodambakkam ,

Chennai – 600024 , India

Phone no +91 44 24812420

Website : www.balafire.com

Email : marketing@agnicontrols.com