protecfire
German Engineering

HIGH QUALITY
GERMAN ENGINEERING

Wind Turbines | Electrical Cabinets | Transformers | Server Rooms | Electronics | Others

Revolutionary
Fire Suppression Systems

detexline electric | detexAr | RAPTOR nova | RAPTOR micro-nova

Liquid Agent | **Argon Gas** | **FK-5-1-12** | **FK-5-1-12**



Safety & Environmental Protection is Our Priority

Efficiency & Robustness

TiboRex ABSOLUTE

The power of liquid extinguishing agent

A large amount of fine droplets of liquid agent is sprayed through the special patented nozzles forming a huge cooling reaction surface. Thus, the fire will be quickly deprived of thermal energy, leading to a rapid temperature drop. The cooling effect breaks the reaction necessary to support combustion.

In addition, after the entire extinguisher has been dispensed, nitrogen propellant gas will be discharged from the patented container, resulting in a hybrid suppression system, also ensuring fire suffocation.

Sector by Sector Protection

100% Stainless Steel

No plastics in the core system

FLUORINE FREE

LIQUID FIRES
Fuel, lubricant and hydraulic fluids

SOLID FIRES
Plastic, rubber, wood, sawdust, wires, cables

ELECTRICAL FIRES
Electrical cabinets, substations, transformers and other equipment



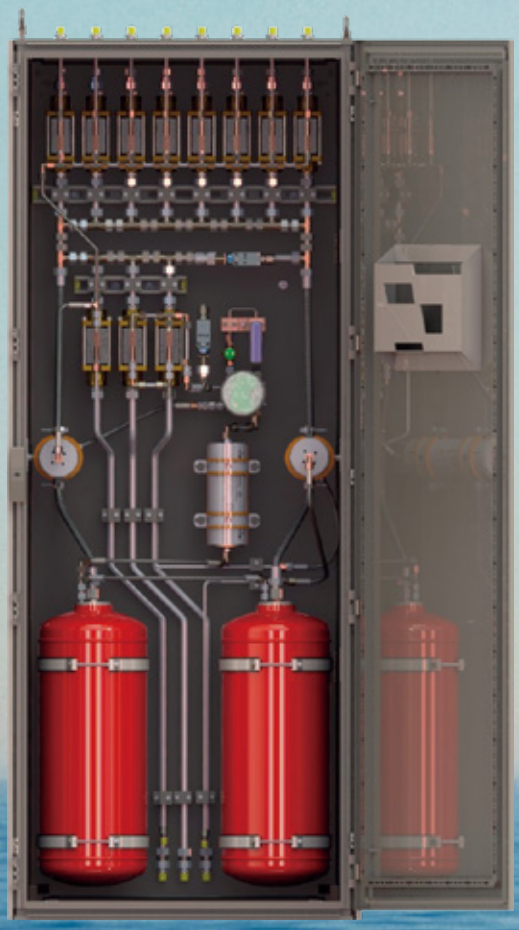
Fully Pneumatic

self-contained / no corrosion

Perfect for Off-shore wind turbines

Thanks to maintenance-free and stainless steel components.





Multiple configurations with one system

Effective on:

Open doors / Ventilated cabinets

Watch the video

Single-line system (det-ex)
Detection and extinguishing in a single pipe line.

No Pressure
The extinguishing agent container is made of stainless steel and is pressure-free in the operating state. The tubing is also pressureless.

No Electricity
No electricity needed in the system.

10 Years - No parts change
Long savings - durable and resistant parts.

Ultra-fast detection
Response speed: Ultra Fast Response RTI 12.
False alarm proof. Based on "temperature" parameter for pneumatic activation.

Operation temperature range: -50ºc to 80ºC
Prepared for extreme climates, whether in the desert or in the mountains.

Capable of working in extreme conditions
Shock and vibration resistant.

Stainless steel
Precision manufacturing - highly durable stainless steel.

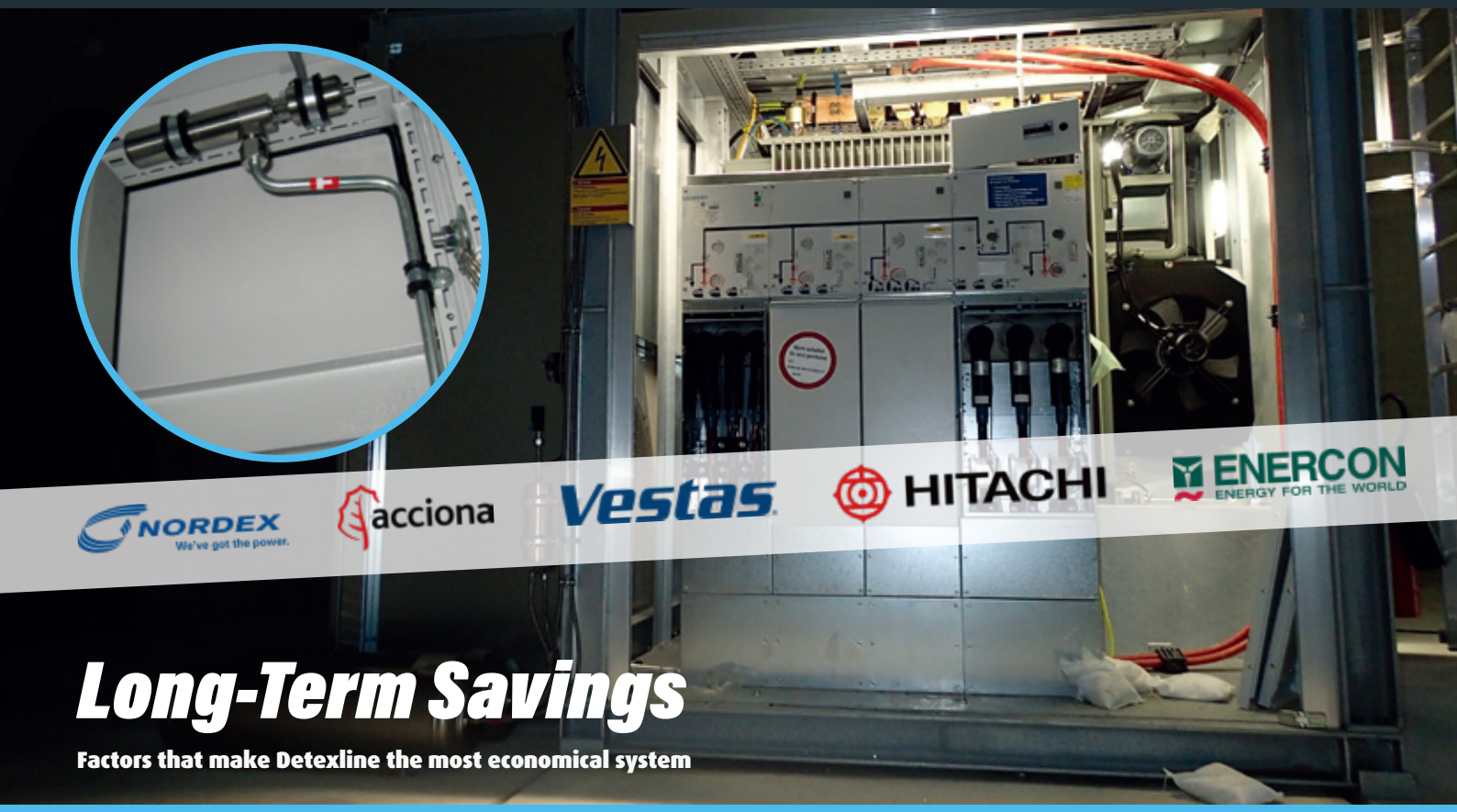
Minimal Maintenance
Due to the absence of pressure and simplicity, maintenance routines are practically only visual.

Fully Mechanical / Pneumatic
The entire system is self-contained. It does not require manual operations and does not depend on external controls, such as control panels or electrical detectors.

Possibility of multiple temperature ranges in a single system.
57 ºC | 68 ºC | 79 ºC | 93 ºC | 110 ºC | 141 ºC | 182 ºC | 230 ºC | 260 ºC

Operates in highly ventilated places and in open spaces





Long-Term Savings

Factors that make Detexline the most economical system

Almost maintenance-free for up to 10 years:
No need for the usual annual maintenance as it is not pressurized!

No false alarms:
Patented, accurate and reliable detection system.

Make your own maintenance:
Your own staff - no need for external companies.

It can be reinstalled in different equipments:
Easy and fast installation.

How it Works

The detexline tank and piping network are not pressurized.
The SPY detectors will be activated by thermal detection, thus releasing the pressure in the pipeline and cylinder control valve, which in turn will trigger the release of the extinguishing agent.
Fine spray nozzles will disperse the TiboRex Absolute providing the cooling effect and effectively extinguishing fires within the first few seconds.
It can be manually activated remotely.
An alarm and test button can be installed.

Name	detexline Electric
Temperature Range	-50°c / -30°c to 80°c
Detection Technology	Rise of Pressure
Detection and External Line	One integrated line
System Pressure	No pressure
Detection Technology	SPY detection element - Stainless steel
Trigger Temperature	Glass ampoule, 9 independent temperatures
Life of Detectors	10 years
Nozzle Type	S1
Extinguishing Agent	TiboRex Absolute
Extinguishing Agent Volume	4, 7, 14, 24L
Extinguishing Technology	Fine spray technology
Extinguishing Container (pressure)	Pressureless (Sealed Cartridge)
Product Material	Stainless steel
Alarm Signal Switch	Yes
Maintenance Inspection	Annually
Parts Replacement Duration	10 years

Certifications for protecfire various systems:

System Components

SPY thermo-pneumatic detector



- Unique patented detector
- No electricity required
- High-finish stainless steel
- Response speed: Ultra Fast Response RTI 12
- Available detection temperatures:
57°C | 68°C | 79°C | 93°C | 110°C | 141°C | 182°C | 230°C | 260°C



Directional Control Valve

Ability to redirect the extinguishing agent only to the place that activated the detector. In this way, the extinguishing agent will be directed more accurately and without waste.



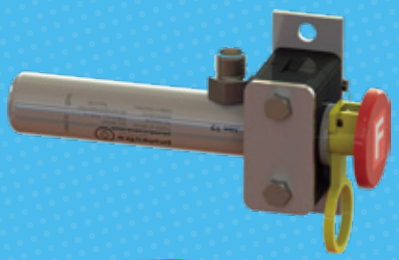
Compact

Fast to Install



Fine-Spray Nozzles

- Unique patented nozzle solution
- Quick and easy to install - Reduces installation time by ~70%.
- Very small - Virtually fits anywhere
- Stainless steel
- S1 factor 0.5 - Fine spray technology
- Up to 90° spray pattern
- High quality, heavy-duty nozzle caps



Pneumatic Manual Actuator

- Unique patented pneumatic activation system
- Stainless steel
- Safety locking system
- Argon gas activation



Extinguishing Agent Tank

- Patented - Unique Pneumatic Release System
- Can be placed in any position!
- Stainless steel with electrostatic paint finish Ral3000
- Patented - Stainless steel actuation system

Liquid Agent: TiboRex Absolute - exclusive protecfire agent
Effective against liquid, solid and grease fires.

Watch the video

TiboRex ABSOLUTE

NEW AND ABSOLUTE PREDATOR

ultra fast extinguishing





Extinguishing Agents Comparison

	TiboRex Absolute	Water	Foam	Powder	Gas
Fast Temperature Reduction	+	-	-	-	-
Surface Blanketing	+	-	+	-	-
Quenching Effect	+	-	+	-	+
Fine-Spray Technology	+	+	-	-	-
Fluorine Free	+	+	-	-	+
Temperature Range -50°c to +80°c	+	-	-	+	-
Danger to Persons	+	+	-	-	-

Ultrafast extinguishing

Only small amounts of extinguishing agent required.
Tiborex rapidly delivers a huge cooling power.
The object to be protected remains almost undamaged.

Ultrafast cooling

Enormous reduction of surface temperature.
Avoidance of re-ignition.
Reduced effect of fire.
Quick interruption of combustion process.

Quenching effect

Rapid removal of thermal energy therefore removing heat, hence no combustion or fire in hidden cavities.

Blanketing fat and oil fires

When mineral, animal or vegetable fats and oils burn, TiboRex Absolute uses chemical reactions to form a closed, gas-proof protective layer quenching the fire and protecting the hot fat or oil from re-ignition by cooling them down very quickly.

Residue monitoring and guaranteed quality

Residues of the extinguishing agent on the object can be identified with the help of ultraviolet light.
A chemical analysis (DNA) can verify and confirm that the original TiboRex Absolute was used.

Environmental friendliness

Ecological and 100% fluorine-free extinguishing agent.
Biodegradable.
Non toxic to humans and animals.

The cooling effect

The enormous cooling effect of TiboRex Absolute is mainly based on **two physical properties**:

Cooling effect due to water evaporation: The fine-spray nozzles developed specially for TiboRex Absolute produce very fine droplets, smaller than100µm, when discharging the extinguishing agent. As a result, ultra-fast evaporation of the liquid share in the extinguishing agent is achieved. Due to the required enthalpy of evaporation of 2.26 MJ/kg (equivalent to 1 litre of water) energy is extracted from the burning object in a minimum of time and it cools down substantially.

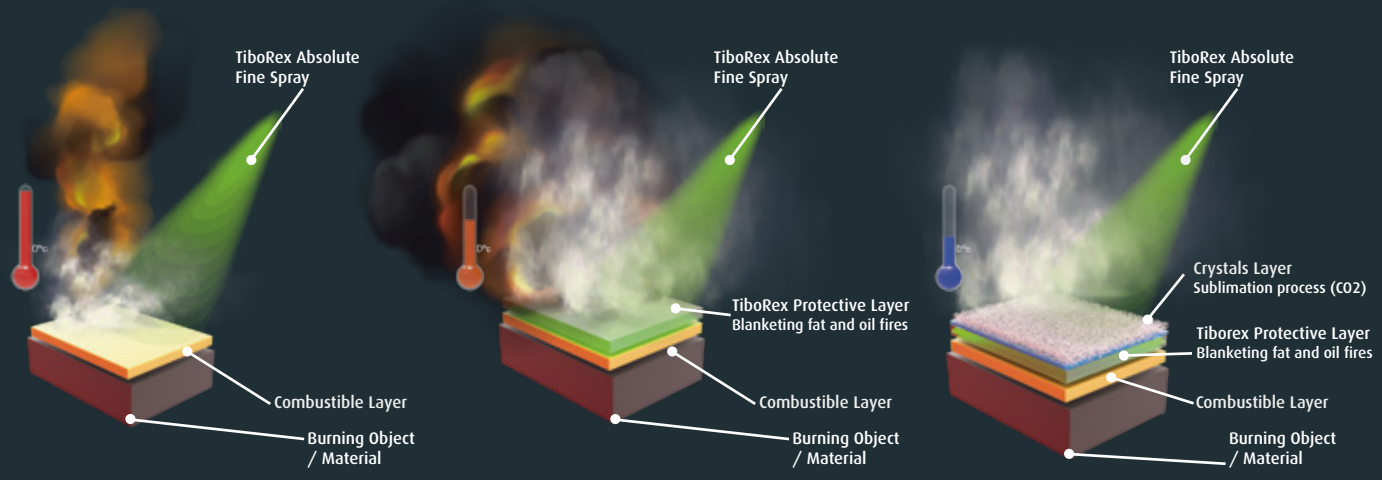
Cooling effect due to sublimation: During the evaporation of the aqueous phase some of TiboRex Absolute's main components form crystalline structures. With the still existing combustion temperature, these solid structures change from the crystalline phase to a gaseous phase. The enormous enthalpy of evaporation (heat) required for this amounts to 7.23 MJ/kg.

3 stages fire suppression

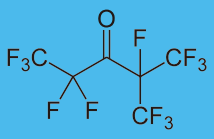
1 Cooling Effect
Fine Spray Droplets that penetrate fire

2 Oxygen Suffocation
by evaporation

3 Ultra Cooling through Sublimation
Layering with solid crystals that convert to gas



FK-5-1-12



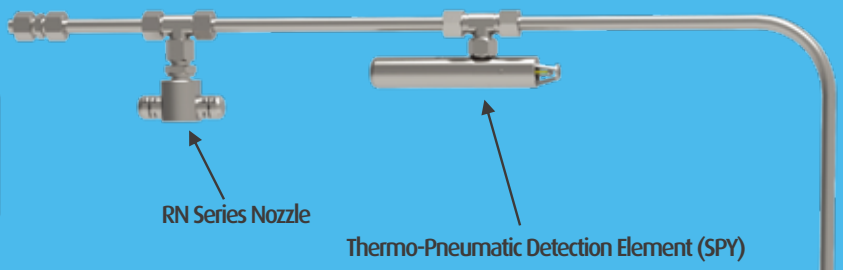
HIGH QUALITY
GERMAN ENGINEERING

Non-electrical Conducting & Eco-friendly



Available on :
3L (3.5m³) \ 4L (4.6m³) \ 6L (7m³)
10L (11.5m³) \ 20L (23m³)

System Components



Protect 3.5m³ to 23m³ Electrical Cabinets.

Features

No electricity
No electrical power in the system is needed

No pressure
No pressure in all pipeline

Maintenance free
Almost maintenance free, no parts need to be replaced for up to 10 years

Simple & Easy to install
Both for new system or retrofit and in a limited and confined space.

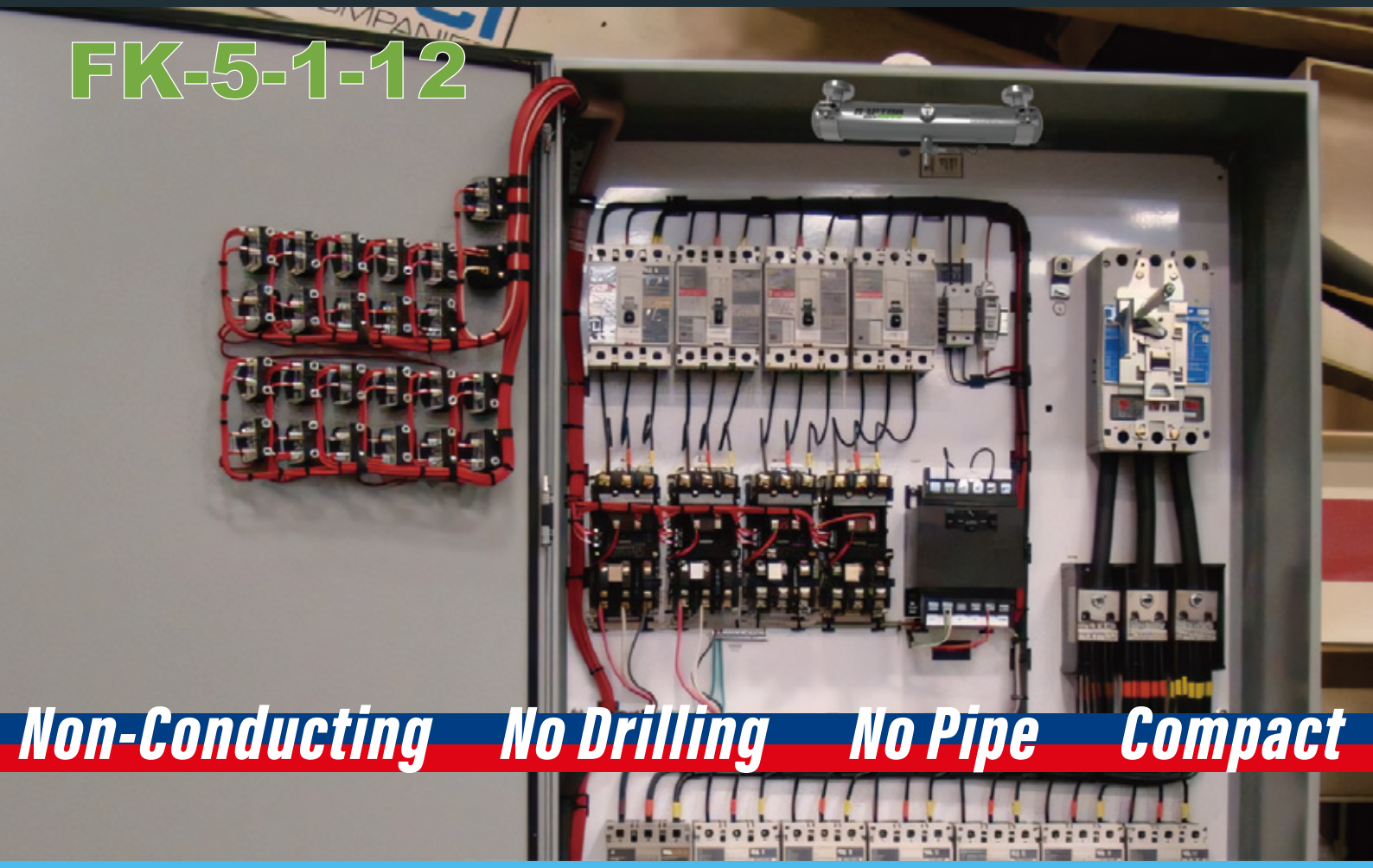
Suppression agent: FK-5-1-12
Able to work for Electrical Cabinet Fire

Temperature: -30°C to 80°C
Able to work in extreme adverse conditions



protecfire German Engineering

FK-5-1-12



Non-Conducting No Drilling No Pipe Compact



micro-nova P3.00



micro-nova P2.00



micro-nova P1.00

Parameters	FK-5-1-12 Volume	Gross Weight	Outer Diameter (mm)	Length (mm)
micro-nova P1.00	280ml	1.6kg	φ45mm	315mm
micro-nova P2.00	600ml	2.3kg	φ57mm	350mm
micro-nova P3.00	1100ml	3.8kg	φ70mm	420mm

Parameters	Protected Volume	Argon Pressure	Operation Temperature	Shelf Life
micro-nova P1.00	1.0m³ (Fully Enclosed Space)	25bar at 20°C	-30°C to 70°C	Ten years
micro-nova P2.00	2.0m³ (Fully Enclosed Space)	25bar at 20°C	-30°C to 70°C	Ten years
micro-nova P3.00	4.0m³ (Fully Enclosed Space)	25bar at 20°C	-30°C to 70°C	Ten years

*Subject to specified operating conditions, periodic inspection and maintenance requirements.



INERT GASES ARE UNDOUBTEDLY

THE FUTURE

OF GASEOUS EXTINGUISHING AGENTS

ENVIRONMENTALLY FRIENDLY

detexAr

SAFE USE IN AREAS WHERE PEOPLE ARE PRESENT

NON TOXIC

ARE NOT TOXIC, HOWEVER, THE OXYGEN CONCENTRATIONS IN RELATION TO THE AMBIENT AIR ARE SIGNIFICANTLY REDUCED (15%), SO THE PEOPLE PRESENT SHOULD BE ENCOURAGED BY OPTICAL AND/OR AUDIBLE ALARMS TO LEAVE THE EXTINGUISHING AREA BEFORE AND AFTER EXTINGUISHING.

Argon and Nitrogen as natural components of the ambient air are non-toxic and non-electrically conductive.

This **excellent environmental balance** has no other gaseous extinguishing media. Both gases are therefore not only practically safe, but also easily and quickly available almost everywhere.

detexAr

Argon Gas Fire Suppression System

With one single pipeline!

18
Ar
Argon
39,95

Multiple Areas Protection
Automatic Sectioned Protection by the Directional Control Valve

System only activates where the detection is triggered.
- Argon just goes where it is needed.
- More quantity is poured where the fire is.
- Less cylinders are required.





Available Capacity:
10L
20L
50L

detexAr

Argon Cylinders System

SMART SELECTIVE FIRE PROTECTION

detex Ar inert gas fire protection systems fight fires through the supply of **argon** to reduce the oxygen content to below 15% in the space to be protected.

They are especially suitable for the **protection of compartments, small enclosures and electrical facilities**, with sensitive and high quality installations, where residue-free extinguishing is required without the use of chemical gases, water, foam or powder as extinguishing agent.

Inert gases have a first-class extinguishing effect for fires of class A (solids), B (flammable liquids) and C (flammable gases).
Argon is also suitable as the only fire extinguishing gas also for class D (metal fires).

Detexline Release Valve (UNIQUE)
System works with only one pipeline
for detection and extinguishing.
Stainless-Steel





Directional Control Valve (UNIQUE)
In multiple cabinets, for example, it leads the extinguishing only where it has been detected.
Stainless-Steel
Unique system in the world

Spy Detector (UNIQUE)
Thermo-pneumatic detection
Stainless-Steel
Possibility of multiple temperatures in one system

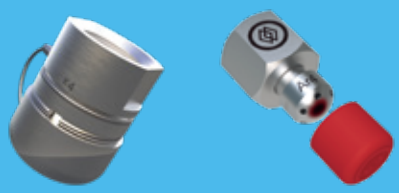
Silent Gas Nozzle (UNIQUE)
Smallest in the market
Reduces inert gas discharge noise drastically
Stainless-Steel

System Components



1 single pipeline for: detection & extinguishing

protecfire's unique technology allows a single pipeline installation for both detection and extinguishing.
This avoids installation time, costs and equipment.
Small spaces also benefit from this type of pipeline, as they do not need more extra parts.
At the time of an inspection, it is much more fast and easy to proceed.
Its assembly and disassembly is simple and fast.
Patented



Silent Gas Nozzle

Reduces inert gas discharge noise below the danger level.
Excellent discharge efficiency
The smallest, most robust and quietest of its kind.
100% stainless steel



Directional Control Valve

Ability to redirect the extinguishing agent only to the location that triggered the detector. In this way the extinguishing agent will be directed more accurately and without waste.



Thermo-pneumatic detection

Unique patented detector
No electricity required
High-finish stainless steel
Response speed: Ultra Fast Response RTI 12
Available detection temperatures:
-57ºC -68ºC -79ºC -93ºC -110ºC -141ºC -182ºC -230ºC 260ºC

Ideal for protecting valuable assets and sensitive equipment.

- Excellent extinguishing effect in hazardous areas with high fire load or hidden fire.

- Avoid long downtime and costly service interruptions.

- Particularly suitable for use in areas with people in transit.

Certifications by protecfire products:

Economical to purchase

Due to very low maintenance over a long period of time
Easy to project and interpret

Flexible and robust

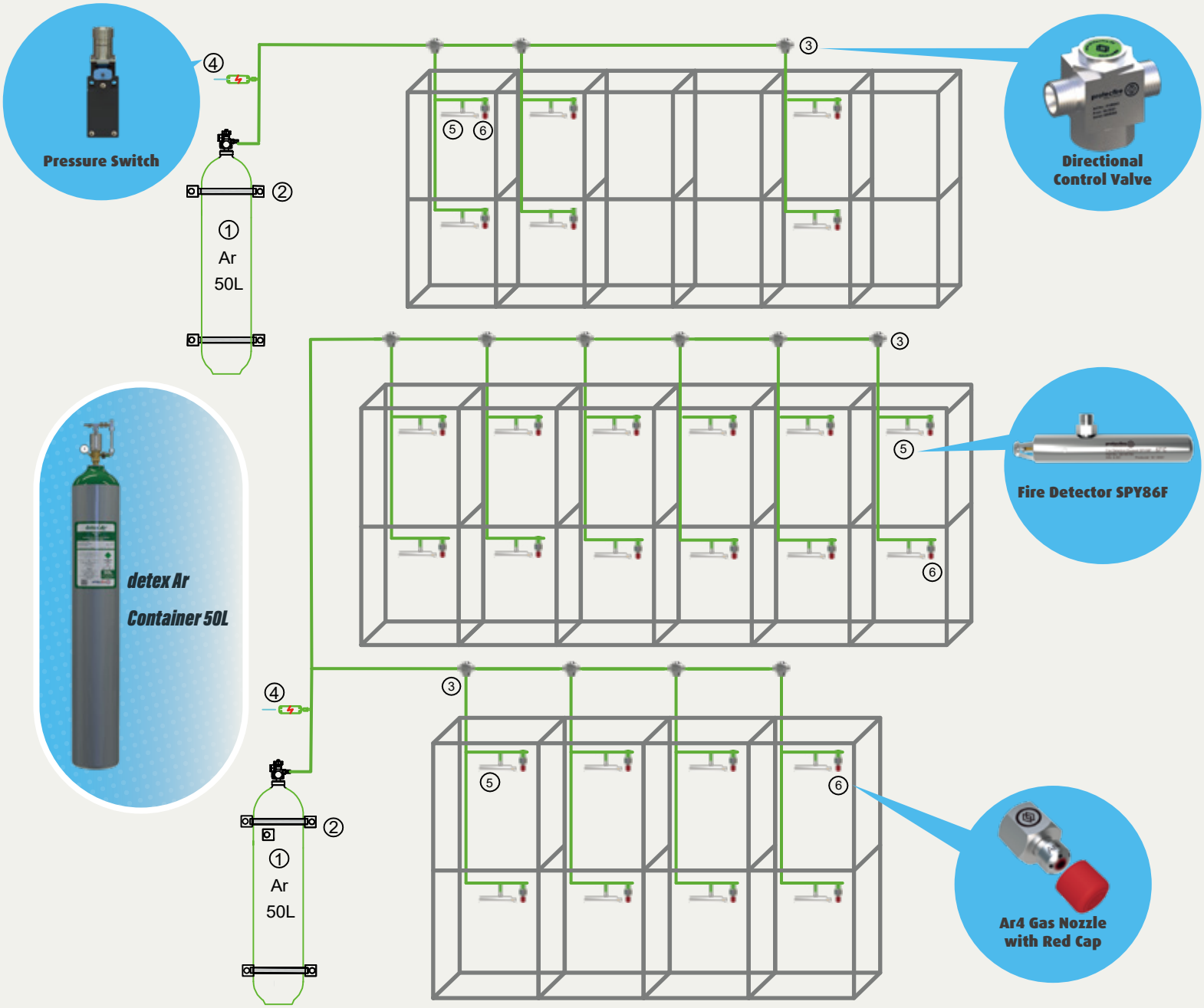
Making it ideal for extreme conditions of use, e.g. in underground mining.

Easy installation

Patented technology: protecfire's detexline (only one pipeline for detection and extinguishing).
The whole assembly requires very little tooling, as the components share measurements and typology.

Application

Electrical Cabinet Room - detex Ar Automatic Fire Suppression System

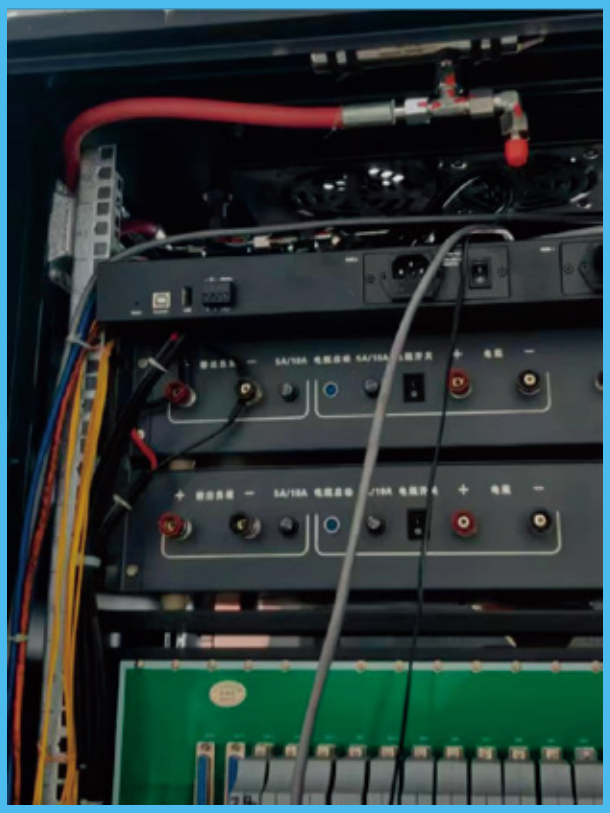


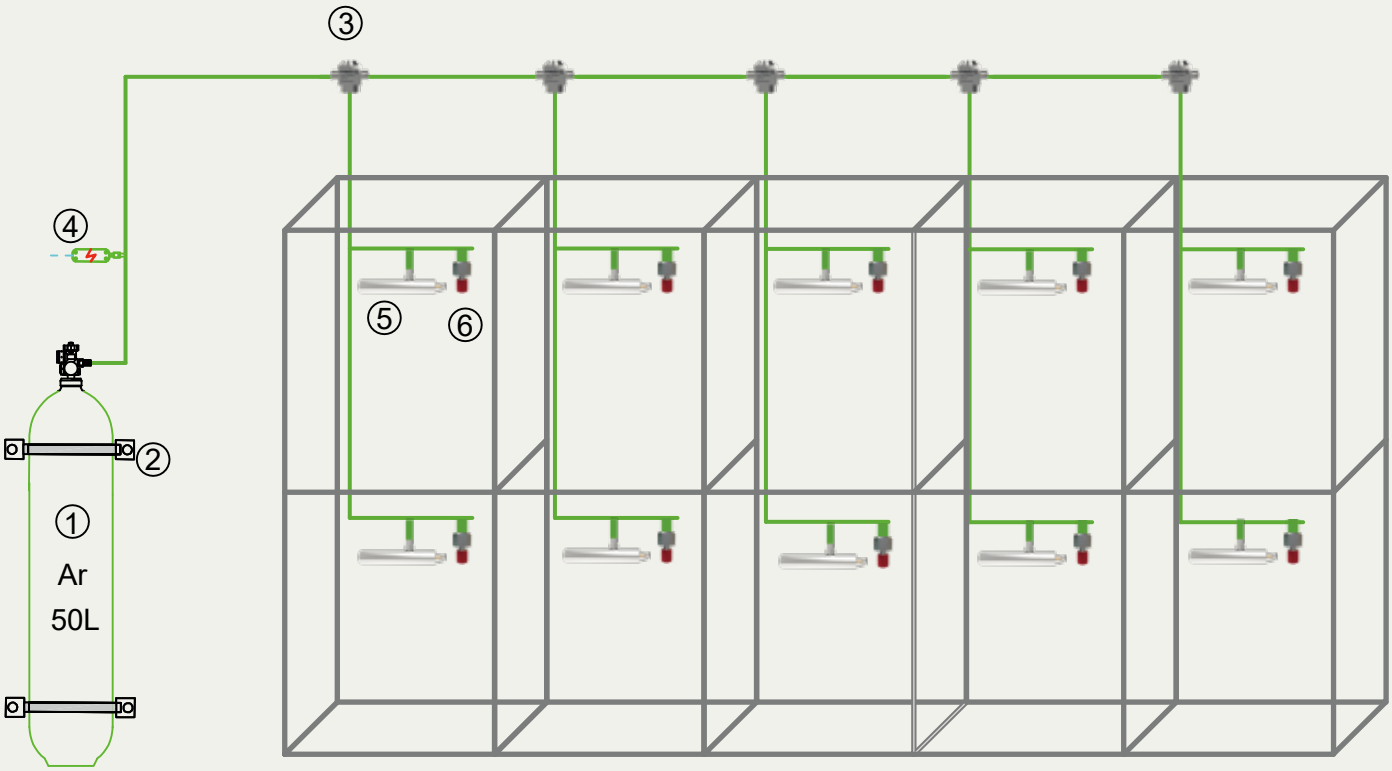
1. Two pieces Ar-gas Containers 50L
2. Two sets of Band Clamps for 50L Containers detex Ar
3. Thirteen pieces BV-12 detex Directional Control Valves
4. Two pieces Pressure Switches
5. Twenty-six pieces Fire Detectors SPY86F
6. Twenty-six pieces Ar4 Gas Nozzles with Red Caps

protecfire German Engineering









1. One piece Ar-gas Container 50L
2. One set of Band Clamp for 50L Container detex Ar
3. Five pieces BV-12 detex Directional Control Valves
4. One piece Pressure Switch
5. Ten pieces Fire Detectors SPY86F
6. Ten pieces Ar4 Gas Nozzles with Red Caps

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detexline electric | RAPTOR nova | RAPTOR micro-nova | detexAr

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