



MINING | CONSTRUCTION | TUNNEL BORING | FORESTRY | AGRICULTURE | HEAVY EQUIPMENT

Revolutionary Fire Suppression Systems



HEAVY MOBILE EQUIPMENT FIRE PROTECTION

detexline 4MC

firespy
Powder

RAPTOR
detek

RAPTOR
lite

No Electricity

No Pressure

Low Maintenance

Safety & Environmental Protection is Our Priority





Fully Pneumatic - Self Contained

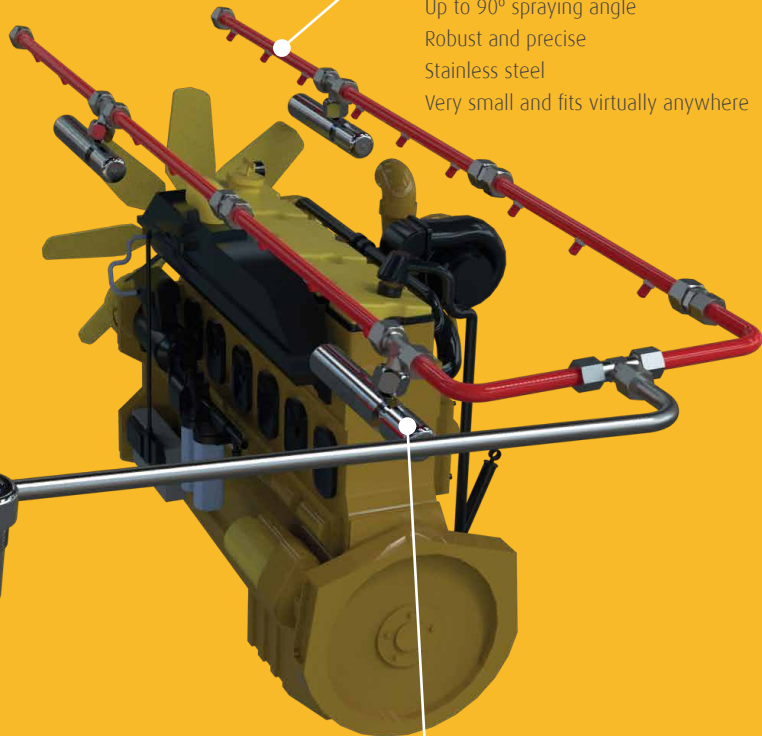
Stainless steel container

Safe and robust
Internal activation system
Maintenance free
Stainless steel



Fine Spray Nozzles

Patented
Up to 90° spraying angle
Robust and precise
Stainless steel
Very small and fits virtually anywhere



Optical and acoustic alarm

Compact control panel
Acoustic signal
Test button

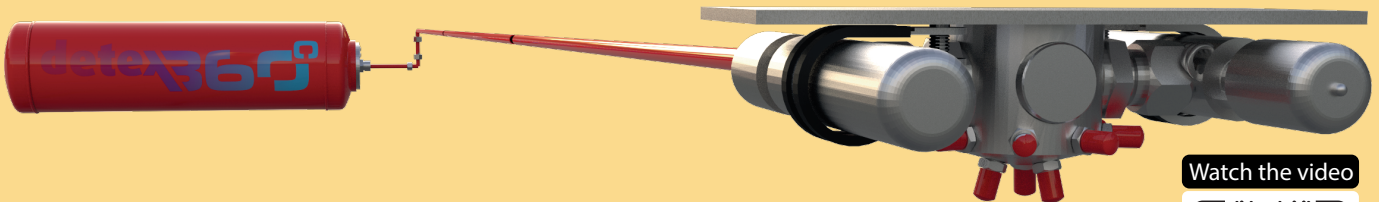


Made in Germany

Spy - Thermo-Pneumatic Detector

Patented
Multiple temperature ranges
Sensitive to hidden fires
Robust and accurate
Stainless steel

detex360 version



360 degrees of fine spray and detectors, all in one piece.

A single small unit system with detection and extinguishing, the fastest to install!
This system allows a homogeneous fine spray dispersion throughout the compartment.
The nozzles cover all directions for effective dispersion.

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.



5 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: -50°C to 80°C

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.



Very low 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 °C, 68 °C, 79 °C, 93 °C, 110 °C, 141 °C, 182 °C, 230 °C, 260 °C

Operates in highly ventilated places and in open spaces



Extinguishing Agent

Liquid - TiBorex Absolute



Can be installed in Any Position/Angle

Watch the video





System components



Watch the video



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

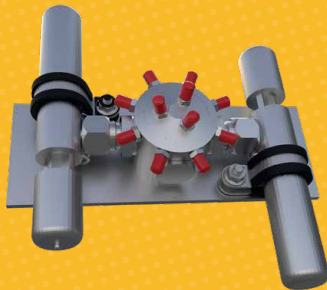


Watch the video



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



Watch the video



detex360

- Multi-directional fine dispersion nozzles and detectors in one piece.
- Very small - Virtually fits anywhere
- Stainless steel
- S1 factor 0.5 - Fine spray technology
- Up to 90° spray pattern on each nozzle - high coverage.
- Unique in the world.

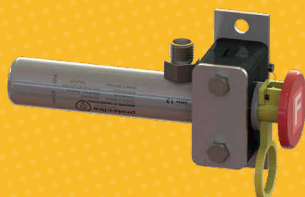


Watch the video



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 protectfire agent
- Effective against liquid, solid and grease fires.



Pneumatic Manual Actuator

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



Alarm/Test Panel

- Easy to install
- One-button operation for testing
- Buzzer for alarm
- Optical LED light for test/alarm

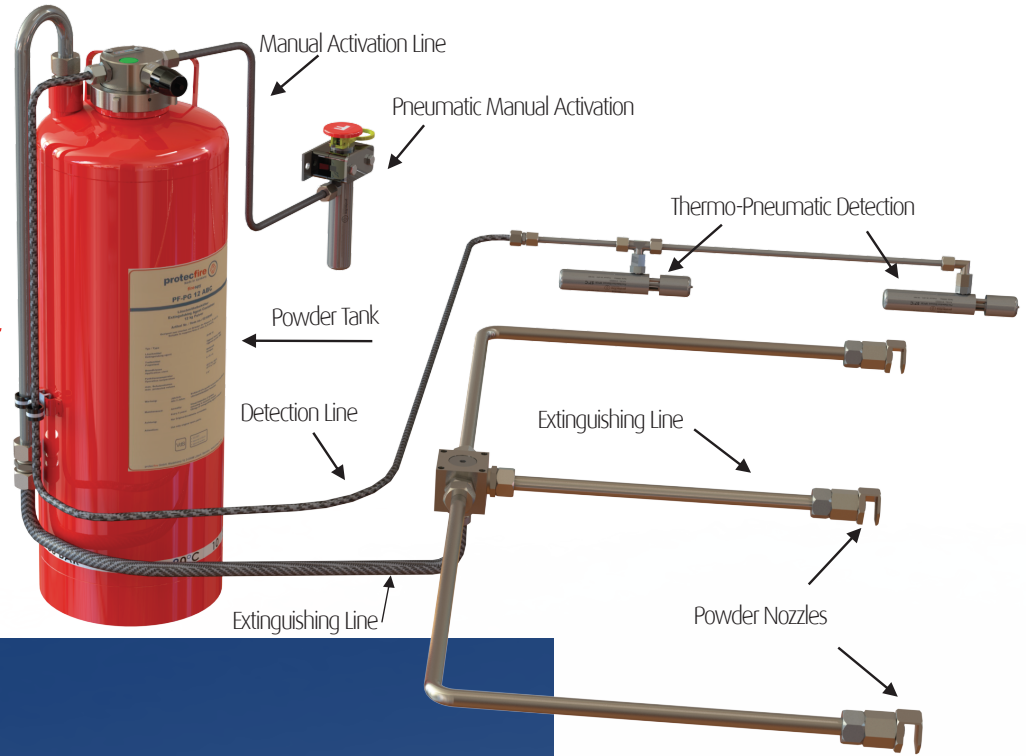


Liquid extinguishing agent

- Ultra-Rapid Extinguishing
- Cooling and Blanketing effect
- Environmentally Friendly (non-toxic | biodegradable)
- Fluorine Free
- Residue control by ultraviolet light



firespy
Powder



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 5 years

Simple & Easy to install

both for new system or retrofit and in a limited and confined space.

Patented technology

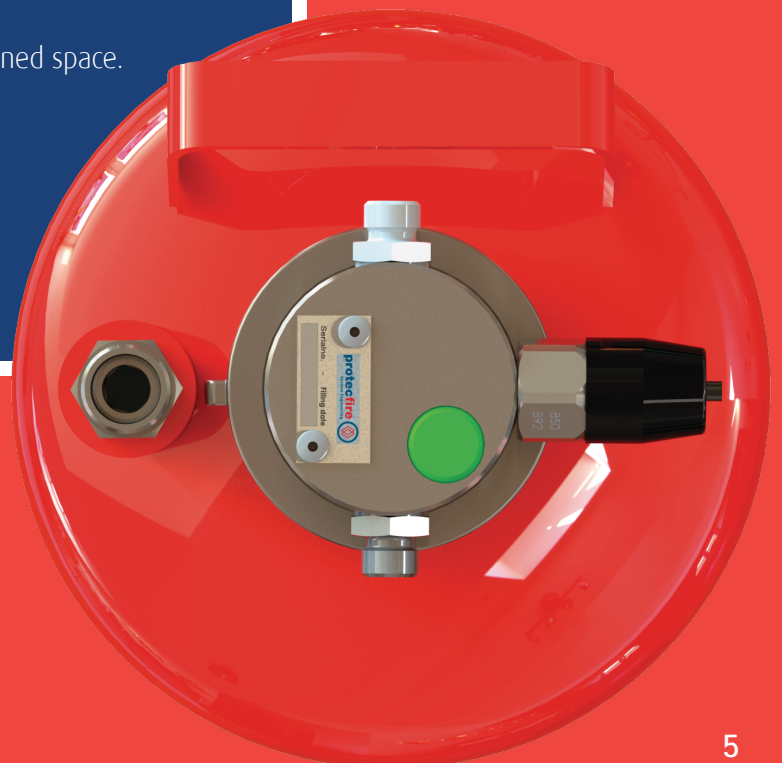
Applicable temperature: -50°C to 80°C

Able to work in extreme adverse conditions

Made in Germany

**2 independent Lines
(Detection / Extinguishing)**

**No Pressure
No Electricity
Stainless Steel**



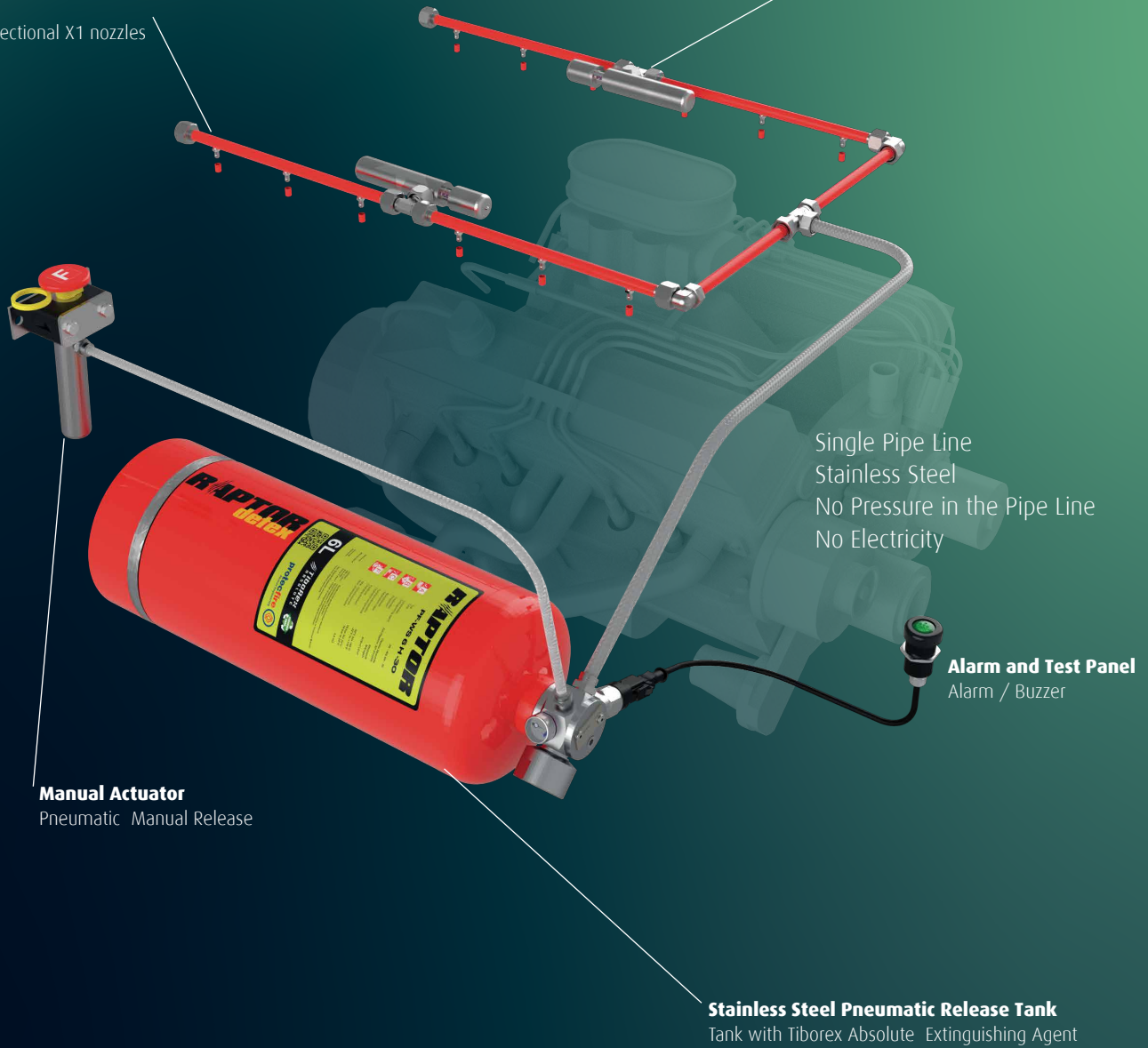
System Components

Fine-Spray Nozzles

Spray bars with 3x S1 nozzles
or
Directional X1 nozzles

SPY86

Thermo-Pneumatic detector



Example of a pre-engineered Raptor Kit

System Components



SPY86 Thermo-Pneumatic Detector

Patented Unique Detector
No Electricity Required
Stainless Steel CNC Machined

Available Detection Temperatures
57°C, 68°C, 79°C, 93°C, 110°C, 141°C, 182°C, 230°C, 260°C



Fine Spray Bars - S1 Nozzles

Fine Spray Nozzle Bars / X1 Nozzles

Patented Unique Nozzle Solution
Easy and fast to install - Reduces installation time by 70%.
Very Small - virtually fits anywhere
Stainless Steel
S1 0.5 Factor - Fine Spray Technology / K1.5 factor on X1 Nozzles
Up to 120° Spray Pattern
High Quality and Resistant Nozzle Caps



X1 Fine Spray Nozzles



Extinguishing Agent Tank

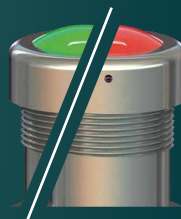
Patented - Unique Pneumatic Release System
Can be placed in any position (vertical or horizontal)
Stainless Steel with Powder Coating Finish Paint Ral3000
Patented - Stainless Steel Valve System

Liquid Agent: Tiborex Absolute - Exclusive protectfire Clean Agent
Effective against Liquid, Solid, and Grease fires



Pneumatic Manual Actuator

Patented Unique Pneumatic Activation System
Stainless-Steel
Safety Lock System
Argon Gas Activation



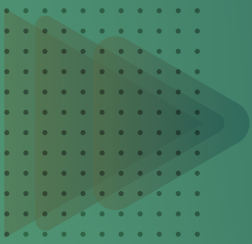
Alarm / Test Panel

Easy to install
One button Operation for testing
Buzzer for Alarm
Optical Led light for Test / Alarm



Liquid Extinguishing Agent

Ultra-Fast Extinguishing
Quenching Effect
Blanketing Effect
Environmental Friendly (non toxic | Biodegradable)
Fluorine Free
Residue Monitoring by Uv Light



Manual Fire Suppression System for Vehicles

Off-Road and On-Road Vehicles | Other Equipments



Manual Fire Protection System Solution

Raptor Lite is designed for smaller, light vehicles used in construction, mining, agriculture underground transportation and other sectors.

Manual Actuator

Pneumatic Manual Release
No Electricity
Stainless Steel
Safety Pin



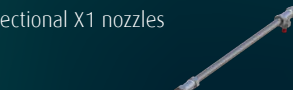
Alarm and Test Panel

Alarm / Buzzer



Fine-Spray Nozzles

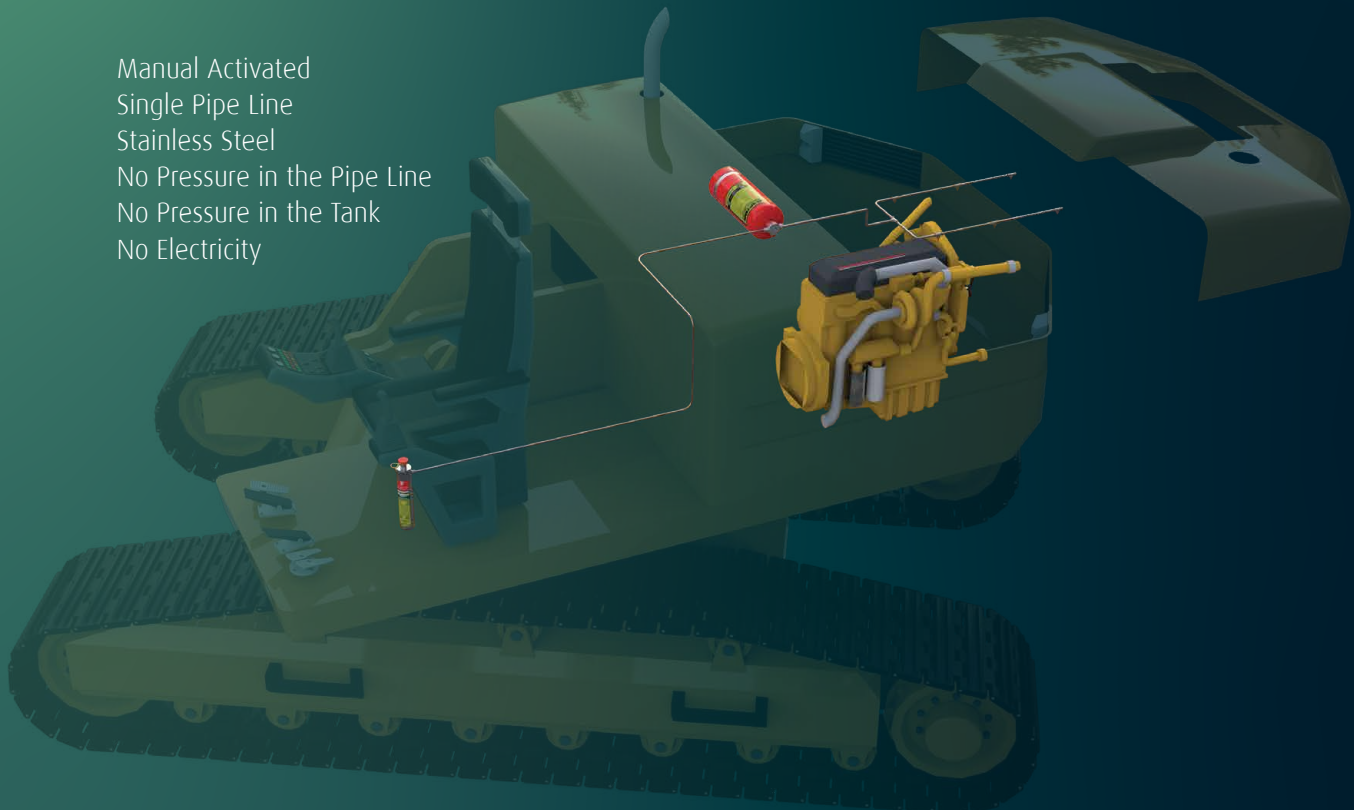
Spray bars with 3x S1 nozzles
or
Directional X1 nozzles

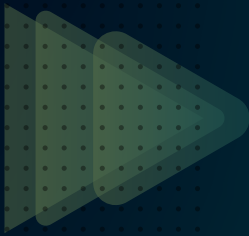


Stainless Steel Tank

No Pressure in operational mode.
No Electricity required
Pneumatic Activation
Tiborex Absolute Extinguishing Agent

Manual Activated
Single Pipe Line
Stainless Steel
No Pressure in the Pipe Line
No Pressure in the Tank
No Electricity





Manual Fire Suppression System for Vehicles

Off-Road and On-Road Vehicles | Other Equipments



System Components



Pneumatic Manual Actuator

- Patented Unique Pneumatic Activation System
- Stainless-Steel
- Safety Lock System
- Argon Gas Activation



X1 Fine Spray Nozzles

- Patented Unique Nozzle Solution
- Easy and fast to install - Reduces installation time by 70%.
- Very Small - virtually fits anywhere
- Stainless Steel
- K1.5 factor on X1 Nozzles
- Up to 120° Spray Pattern
- High Quality and Resistant Nozzle Caps

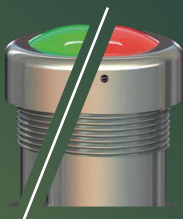


Extinguishing Agent Tank

- Patented - Unique Pneumatic Release System
- Can be placed in any position (vertical or horizontal)
- Stainless Steel with Powder Coating Finish Paint Ral3000
- Patented - Stainless Steel Valve System

Liquid Agent: Tiborex Absolute - Exclusive protectfire Clean Agent
Effective against Liquid, Solid, and Grease fires

Alarm / Test Panel (optional)



- Easy to install
- One button Operation for testing
- Buzzer for Alarm
- Optical Led light for Test / Alarm

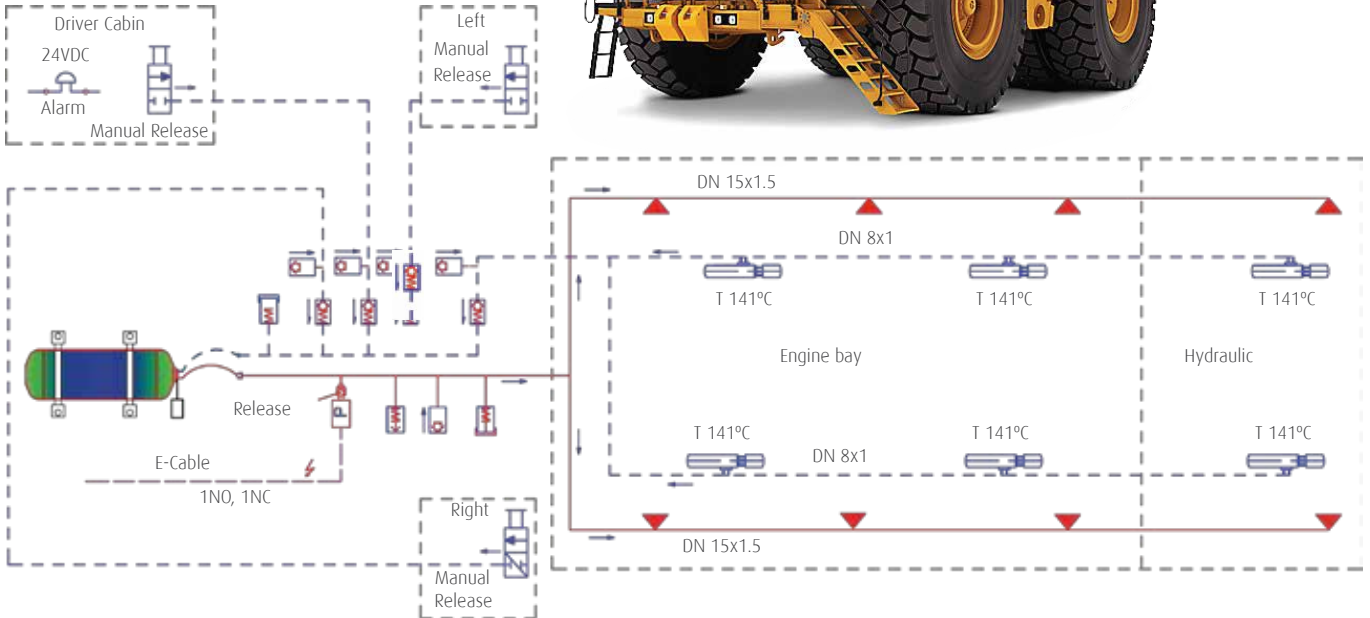
Liquid Extinguishing Agent



- Ultra-Fast Extinguishing
- Quenching Effect
- Blanketing Effect
- Environmental Friendly
- (non toxic and Biodegradable)
- Fluorine Free
- Residue Monitoring by Uv Light

Perfect fit installations

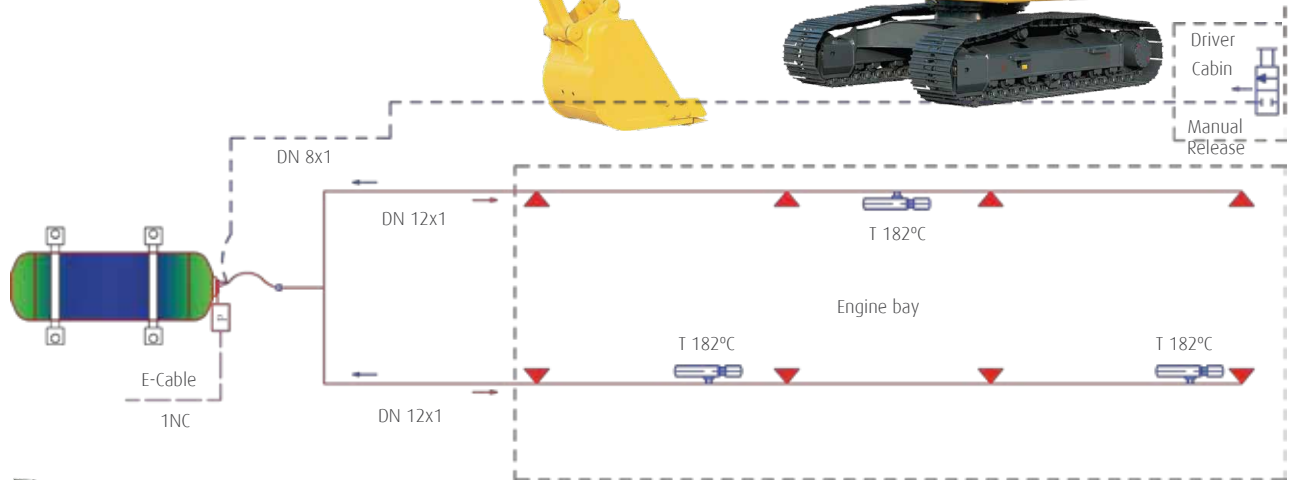
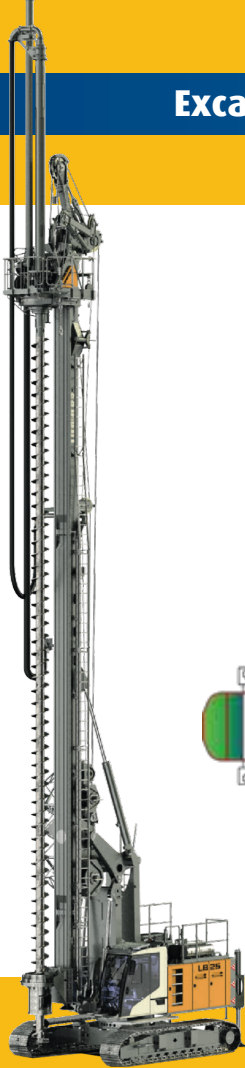
Dump Truck



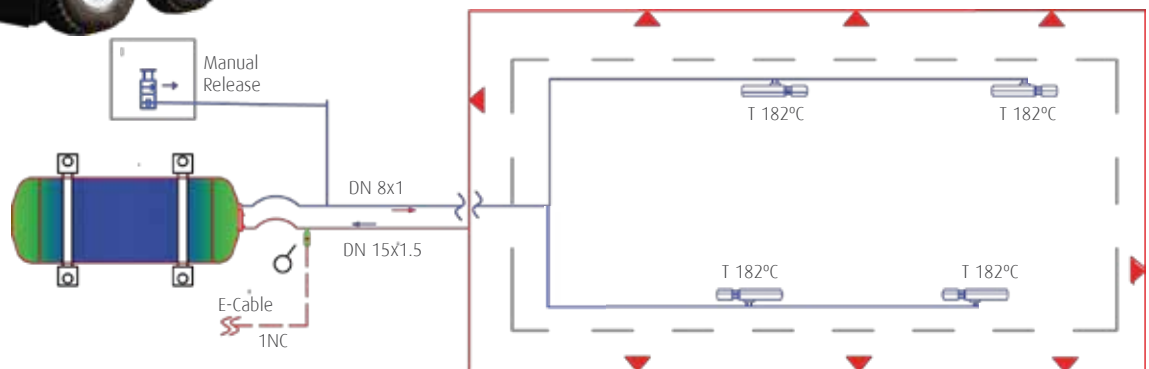
Rubber Belt Conveyor Protection



Excavator / Drilling Machine



Fracking Truck

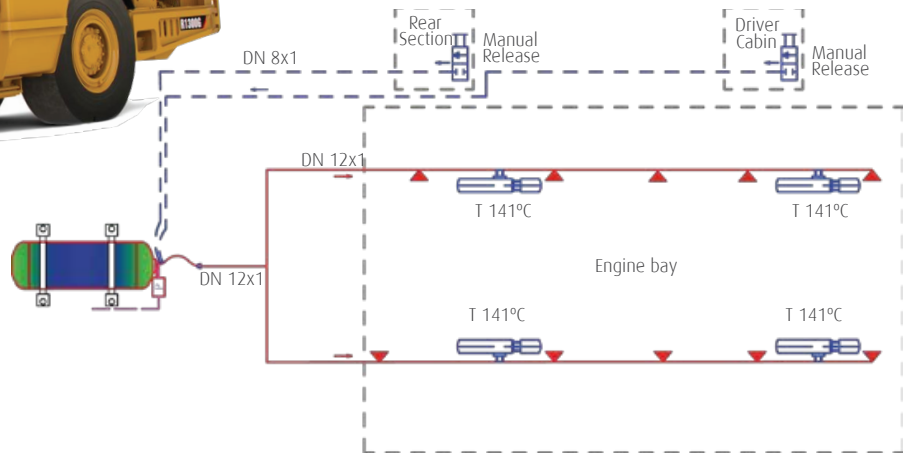


Tailor-fitted Systems

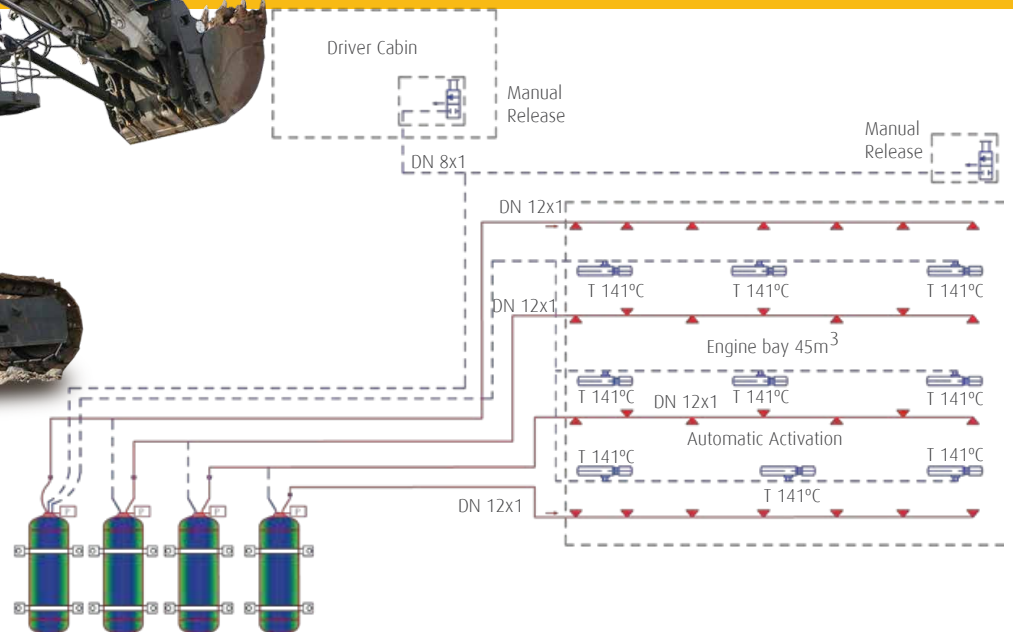
Protecfire develops custom tailored size installs. All projects are studied before installation.



Underground Wheel Loader



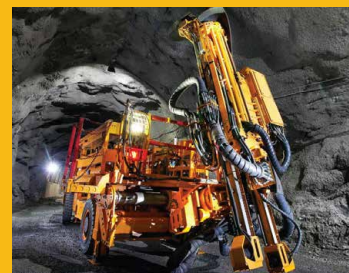
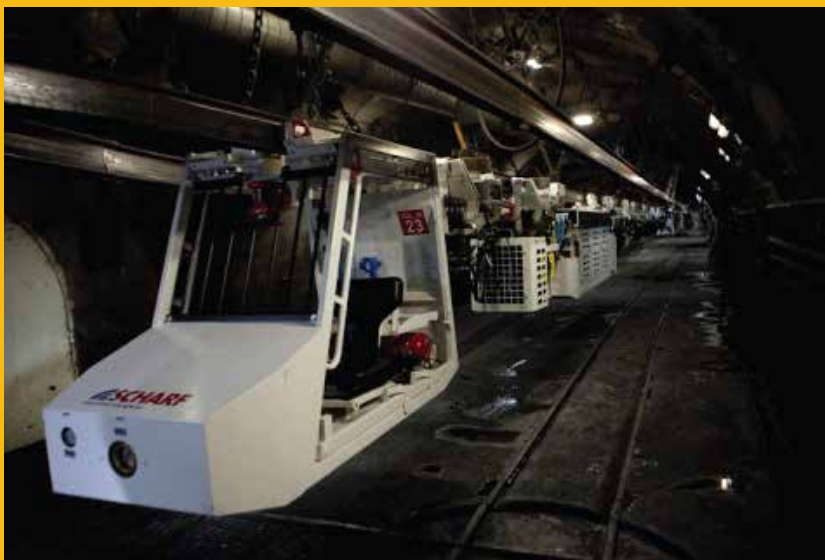
Hydraulic Shovel



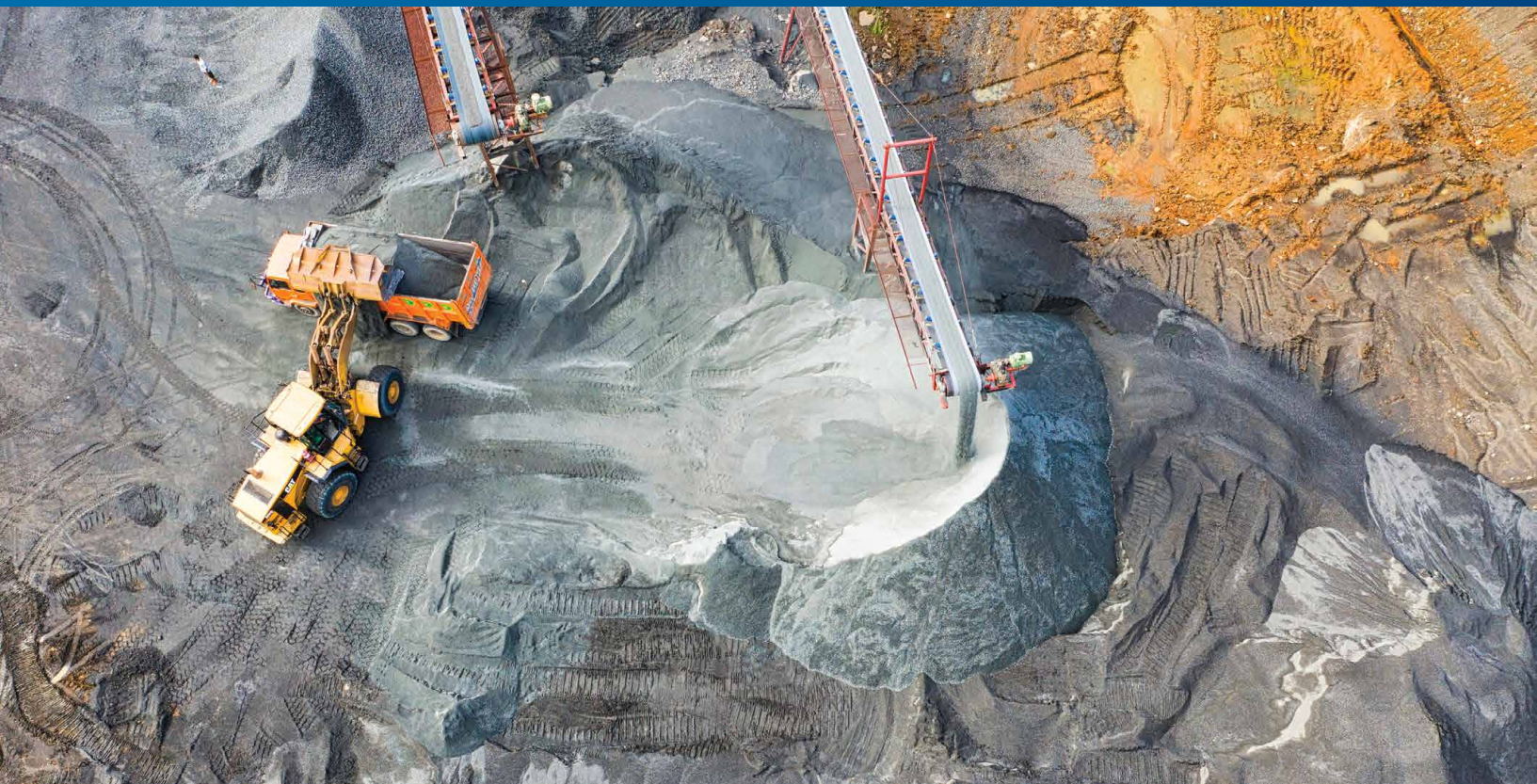
tyre protection



underground mining



above ground mining





HIGH QUALITY
 GERMAN ENGINEERING



Extinguishing Agents Comparison



NEW AND ABSOLUTE PREDATOR

| FIRE EXTINGUISHING AGENTS COMPARISON | Tiborex Absolute | Water | Foam | Wetting Agent | 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
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 cooking 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 than 100µm, 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.



- Headquarters
- Subsidiaries
- Distributors

Protecfire (Asia Pacific) Ltd
Protecfire Engineering Pte Ltd

Asia Pacific Regional HQ
Park Avenue Changi
2 Changi Business Park Avenue 1
Unit 02-00. Singapore 486015
Tel .. +65-68097110
Fax .. +65-68097299
Email: sales@protecfire.asia
www.protecfire.com.sg

Protecfire (Langfang) Fire Systems Technology Co. Ltd

Unit 2, Building 8. Satellite Navigation Industrial Park
Guan Xinxing Industrial Park, Langfang City
Hebei Province 065500.
China
Tel .. +86 316 5929119
Fax .. +86 316 5922569
Email: sales@protecfirechina.cn
www.protecfirechina.cn

Protecfire GmbH

Headquarters & Factory
Weidekamp 10 D-23558. Luebeck. Germany
www.protecfire.de

Authorized Distributor



Brochure Information / Warning!
Off-Road Vehicles Brochure 05012022 - Asia
All information is subject to change
without prior notice.
Information or images may be subject to
errors or to representations only.
All rights reserved.

