ENGINEERED FIRE PROTECTION

ETI FIRE & LUBRICATION
EXCELLENCE - ENGINEERED

PT. ETI FIRE SYSTEMS
ENGINEERED FIRE PROTECTION
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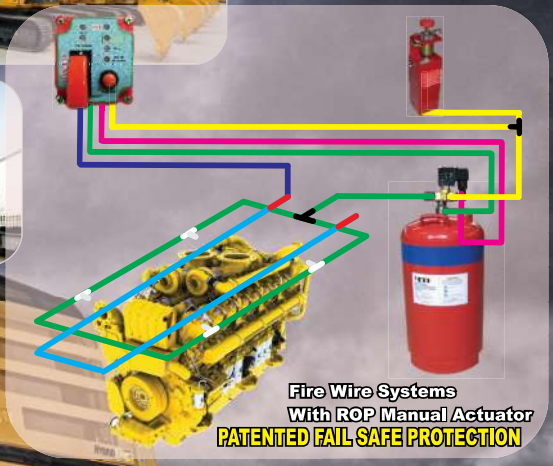
For Mining, Construction & Port Equipment









Fire Wire Systems
With ROP Manual Actuator
PATENTED FAIL SAFE PROTECTION

- Manufactured to the highest quality in Magelang, Central java, Indonesia in strict Compliance to Australian Standard AS5062. World Class Quality - Lowest Prices!
- ETI provide all necessary Design Documentation including Risk Assessment to satisfy the toughest insurer & maintenance requirements all at No Charge!
- Full 1 Year International Warranty on All parts from date of installation.
- ETI backs up "Customer Service" providing highly skilled and trained technical mobile support team - able to mobilise to travel to any International destination to assist anytime!
- ETI Fire Systems - Engineered Fire Protection.

QUALITY ISO 9001: 2008 SAI GLOBAL
KAN COMPLIANCE - INSPECTED To ISO 17020 - To AS 5062
NATA
WorkCover NEW SOUTH WALES

ETI PROFILE

ETI Fire Systems Pty Ltd is an Australian Company with a manufacturing and training centre in Indonesia, PT ETI FIRE SYSTEMS has concentrated on the development and manufacture of mobile fire suppression systems comforming to Australian Standard AS 5062.

ETI products are supported with the best technical package on the market. This includes a comprehensive technical manual, leading Microsoft Windows platform based design software and extensive distributor training and certification. Customers include the Barrick Gold Group, Xstrata Australia, ALCOA, Mount Isa Mines, BHP, Thiess, BUMA, Peabody, Freeport Mc Moran to name just a few high profile customers.

- A fully engineered system designed to ensure correct specification of system requirements
- A range of single acting, LOP & ROP valves along with the patented dual actuation valve to ensure reliability
- Stainless steel detection tube with propellent core – for ROP detection
- Pressurised 6mm thermoplastic sensor tubing – for LOP detection
- Linear electric cable for simplified routing of firewire detection cable and installation
- Optical sensing devices for detection on large difficult areas, particularly the slew area of large excavators/ shovels

- Smaller compact contamination resistant LOP manual remote actuator
- Flexible siphon hoses to allow either vertical or horizontal mounting
- Stainless steel pressure vessel cylinders compliant to AS 2470 incorporating pressure relief valve
- The use of either ceramic or aluminium clamps ensures the system's integrity in the event of a fire
- New design heavy duty mounting brackets
- New design control panel compliant to AS5062 with voltage protection data logging, remote control and IP67 housing
- Designed for ease of installation and ease of maintenance
- ETI systems are fully compliant to AS5062 as a Fully Engineered System

HEAVY EQUIPMENT

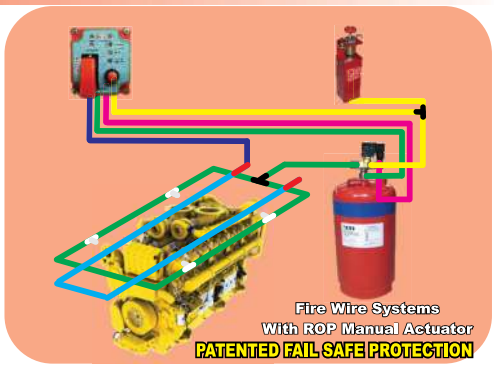
- Surface and underground mining equipment including draglines, haul trucks, dozers and shovels
- Contruction equipment including buldozers, excavators, graders, generators and compressors
- Forestry and agricultural equipment including loggers, loaders, harvesters and tractors
- Ships
- Industrial equipment
- Road transport including prime movers
- Railway equipment and locomotives
- 4WD vehicle for mine sites
- Agricultural equipment
- Turbo charged 4WDs
- Medium commercial vehicles
- Commercial & Public Buses

ENGINEERED PRODUCT LINES

FIRE WIRE DETECTION SYSTEM WITH ROP MANUAL ACTUATOR

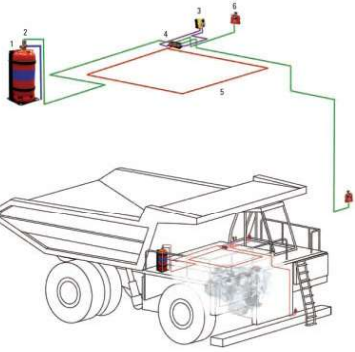
The ETI Linear electrical fire wire is an excellent method of fire event detection. It is unique in the market because it uses a purpose designed and manufactured three core cable. There are two signal cables and an uninsulated copper wire all sheathed into one insulated wire that is connected to the ETI control panel. An end of line (EOL) resistor ensures continuous supervision of the systems. The Fire Wire System provides a fully monitored and supervised fire system.

When combined with ROP manual CO2 actuators, the Fire Wire System offers absolute failsafe protection through the use of the patented ETI Dual Valve Technology.



LOSS OF PRESSURE (LOP) SYSTEM

The ETI LOP system responds very quickly to fire detection when is used in the risk area. It constantly supervises the actuation circuit. One feature of the LOP system is that the actuation and detection system is constantly pressurised by the nitrogen charge in the cylinder. It is displayed on the systems control and indicating panel and this will emit an alarm, indicating loss of pressure and this is why the system is referred to as supervised. This type of detection system is simple to route in the fire risk area due to the flexibility of the thermoplastic tube.

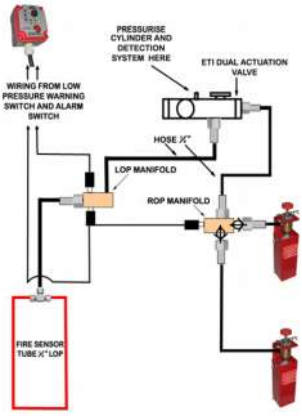


System arrangement :

1. Pressure vessel
2. Cylinder discharge valve
3. Control Panel
4. Discharge piping and nozzles
5. LOP sensing tube
6. LOP manual actuators

RISE & LOSS OF PRESSURE (LOP/ROP) TOGETHER

The patented ETI Dual Valve can be used in a system to obtain the advantages from both ROP and LOP to create the markets best solution. The patented Dual Valve uses the LOP detection in the critical fire risk area for fast detection and constant system supervision, and the positive and realiable pneumatic pulse of ROP from the manual actuator thereby greatly reducing the risk of systems leaks and prohibitive unscheduled downtime.

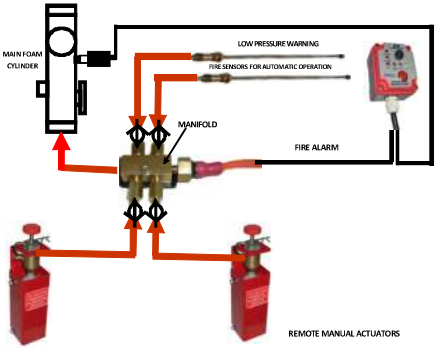


System arrangement :

1. L.O.P Sensor Thermoplastic Tube
2. Manifold
3. Switches
4. R.O.P Manual Actuator
5. Pressure Vessel and the “D” valve
6. Discharge piping and Nozzles
7. Control Panel

RISE OF PRESSURE (ROP) SYSTEMS

The ETI Dual Valve and the ETI designated R.O.P valve can both be used in this most rugged reliable of all systems.
Using the double redundancy theory of two R.O.P detection sensors this systems is still the best in the tough mining environment completely eliminating the bleed down problem associated with L.O.P systems.



System arrangement :

1. R.O.P Detection Sensors
2. Manifold
3. Switches
4. R.O.P Manual Actuator
5. Pressure Vessel and the “D” valve
6. Discharge piping and Nozzles
7. Control Panel

OPTICAL FIRE DETECTION SYSTEM

This system is the fastest and most sensitive fire detection available. It also constantly supervises the actuation circuit. The detector contains three IR sensors and provides unsurpassed detection of flame; from light to heavy hydrocarbon fuels, combined with the highest degree of false alarm detection.

The detector has Division and Zone explosion proof ratings and is suitable for use in indoor and outdoor application with its IP67 rating. A multi-colour LED on the detector faceplate indicates detector status condition. Microprocessor controlled heated optics increase resistance to moisture and ice if cold climate operation is planned.

CYLINDER ASSEMBLY FEATURES

- Cylinders are manufactured in 2 mm 304 grade Stainless Steel and externally powder coated.
- Every Cylinder incorporates a filler plug and safety relief valve and are design compliant to AS2470-2005.
- Cylinder assemblies use flexible pick-up hoses to allow the cylinders to be mounted either vertically or horizontally.
- Heavy duty welded carbon steel cylinders brackets have been designed to integrate with the cylinder to minimise space usage. The robust base plate has been designed for compactness and provides the smallest footprint possible.
- Vibration eliminators are available and recommended for applications where cylinder assemblies are subject to continuous movement or vibration.
- Optional welded mounts are available for ease of installation.
- The Cylinder Sets incorporate the cylinder, pickup hose, Safety Relief Valve, Filler Plug & mounting bracket.

Note: The type of valve required, Vibration Eliminators and the Foam is to be ordered separately.

Part No.	Neck Ring Outlet	Effective Capacity	Water Containt	AFFF 6% Containt	Cylinder Diameter
CYLSETSS15LES	⅜" BSPF	11.5 litres	10.7 litres	0.8 litres	190 mm
CYLSET32SS020	½" BSP	15 litres	14 litres	1 litres	230 mm
CYLSET32SS030	½" BSPF / 1 ¼" BSP	24 litres	22.5 litres	1.5 litres	230 mm
CYLSET32SS045	1 ½" BSPM	32 litres	29.8 litres	2.2 litres	370 mm
CYLSET32SS065	1 ½" BSPM	50 litres	47.0 litres	3.0 litres	370 mm
CYLSET32SS106	1 ½" BSPM	85 litres	79.9 litres	5.1 litres	370 mm

CYLSETSS15LES CYLSET32SS020 CYLSET32SS030 CYLSET32SS045 CYLSET32SS065 CYLSET32SS106

RUGGED CYLINDER BRACKET

ETI cylinder brackets are manufactured from welded carbon steel and painted signal red. They are of advanced design, by being integrated with cylinders to minimise space usage. The base plate is designed to be no wider than the cylinder itself.

Vibration eliminators are also available and are recommended in applications where the cylinder assemblies are subject to continuous movement or vibration. The optional weld mount provides a very convenient method of fixing the brackets. Vibration eliminators complete with weld mounts are attached t the bracket. The bracket is positioned and the mounts tack welded in place. Remove the bracket and fully weld the mount with a 3mm fillet weld. Straps have easy tension adjustment using the adjustment bolts; the straps have rubber strips to prevent abrasion.

FOAM AGENT & FLUORINE FREE FOAM AGENT

Why Use Foam?

Fire Fighting theory proposes that for fire to exist, it must have the fundamental elements of heat, oxygen and fuel. If any one of these elements is reduced adequately or eliminated, then the fire will be extinguished. It follows therefore that the fighting agents are specifically designed to control or eliminate one or more of these key elements.

The ETI Foam Fire Suppression System utilises high grade AFFF at a 6% concentrate. AFFF is a leading agent used to fight large Class B (fuels and oils) flammable liquid fires and is used throughout the world typically in oil refineries, oil tank storage facilities, fuel depots and mobile applications. With a 94% water composition, AFFF is also effective in controlling both Class A (normal combustibles, wood,plastic,paper etc.) and Class B fires. (Fuels,Oils, etc) Foam concentrate material data (MSDS) safety sheets are available on request or can be downloaded at ***www.etifiresystems.com***

Also available Fluorine Free Standard Agent.

SUPERAGENT & FLUORINE FREE SUPERAGENT

Superagent is a new high performance agent that has challenged the "Pre-Engineered" approach of using 'off the shelf' technology that use standard mix AFFF Foams. Under AS5062, these systems only qualify to AS5062 as "Foam Water Spray Systems" as most use 94% water.

Highly recommended for underground mining as less foam agent is needed when using Superagent. Therefore smaller cylinders are used, making Superagent ideal for underground, compact, mining machines.

ETI Superagent is designed by ETI as a dedicated mobile fire system Super Fire Fighter and qualifies under AS5062 an an Engineered Foam Fire System. Its performance is stunning with extinguishment times more than halved under listed testing regimes at the ETI Facility. **It is also rated for temperatures ranging from minus 65° C making it suitable for use in the coldest of climates in the world.**

Also available Fluorine Free Superagent **which is rated for temperatures ranging from minus 50° C.**

CYLINDER VALVE ASSEMBLY FEATURES

- The range of cylinder valves assemblies have been increased to provide more flexibility to enable a standardisation programme to be established with the users.
- The high flow Mark I brass ROP valve with its 1" outlet remains in the range where users require above standard flow rates to the nozzles.
- The patented Dual Actuation Valve (ROP or LOP) range has had upgrades to meet the changing market demands.
- With the relief valve now part of the Cylinder Assembly, the burst disc on the valve is no longer present. With the removal of the Burst Disc it has allowed upgrading of the valve spool assembly. It is now available in both 1 ¼" & 1 ½" BSPF thread sizes.
- All Cylinder Valve assemblies come with Gauges with Stainless Steel bodies

Dual Valve

VALVE32LASSY

CONTROL PANELS

ETI's high current "System Status Indicating Panel" – "Control Panel" has the same functionality as the standard model, with so many additional features, the engine shutdown contacts are rated at 30 Amperes. This allows the option of wiring via the ignition system of the machine, protected through the Control Panel shutdown contacts.

Standard Control Panel

High Current Series

Firewire Control Panel

Optical Control Panel

In effect this mandates that the machine may only operate if the Control Panel does not have a shutdown indication. There is also a second 30 Ampere relay fitted. On actual shutdown, this will provide a voltage at 30 Amps capacity for a timed period of one minute. This has been provided in case there has been any shutdown equipment or functions provided that need to be energised at time of shutdown. Particularly where dump valves are to be considered.

Data Logger Control Panel + Handheld

Control Panel with Data Logger can be used to record system's activities over a period of time. The collected data can be viewed later to evaluate performance.

The Handheld data logger is part of the ETI Data Logger Control Panel System. A useful tool for replacing a PC/Laptop to download Control Panel data in mining sites or any other situation where the collection of data is required.

FIRE PROOF CERAMIC & ALUMINIUM CLAMPS

Under this listing ETI design rules require that ceramic or aluminium fire proof clamps are used in all areas that are part of the defined fire risk areas. Plastic clamps are not permitted as they are not suitable for exposure to a fire's high temperature.

The two part clamp comes in many variations of size 6mm, 12mm, 20mm, 25mm. Both aluminium & ceramic clamps are available with either bolt-on or weld-on base plates.

DESIGN PROGRAMME + RISK ASSESSMENT

Design Programme Series 12.4.2 Release

The approved ETI programme software is provided to authorised users only. Our training and technical support will assist in the use of this programme . This on going technical support forms an integral part of the design technical assistance package.

Producing full documentation for the life and maintenance of the system. The programme enables the designer to take ownership of each design as it adapts to meet the specific detail proven to be required during the risk assessment process. The results produced comply with the listed ETI Technical Manual and the requirements of AS 5062-2006. The programme allows a risk assessment process to be conducted as outlined in chapter 9 and then also allows for the design computations to be undertaken in conformance with chapter 10 there in.

REMOTE CONTROL SYSTEM

Remote control system serves to report on the status of the control panel system fire units attached to a central server in one area. Reports are made through the GSM network. The data reported by the remote control system, is the condition of the fire system, fire detection, pressure of the cylinder and control panel status. Full data logging is provided.

This Remote gives control to the operator to shut down the engine and activate the fire suppression system when required from anywhere in the world.

OPTICAL INFRARED SENSING

OPTINFRA is a new advance alarm and system controller which use the UL listed triple Infra Red Optical Fire Detection system. This type of system is recommended where high pressure oil fires are known to occur, such as large open decked spaces (slew areas) where it is not feasible to use the normal range of fire detectors. The optical detection system allows fast reliable fire detection across a broad area so that equipment shutdown and fire system actuation can readily occur.

Our Fire Systems are manufactured under ISO9001 and are certified by SAI Global to ISO9001-2015. Our products are listed for compliance under the Inspection Services Body (ISB) located at the ETI factory. This body is independent of ETI and operates under ISO17020. It employs four full time people who are constantly involved in inspections that verify compliance to AS5062. This commitment to dedicated resources allows ETI to continually develop products and yet meet the listing requirements for compliance rather than the marketing and selling approach of listing a product once and then just selling it.

ISB is certified by the Indonesian Standards Body, Komite Akreditasi Nasional (KAN). KAN uses an independent NFPA experienced expert, to verify the performance of ISB and the listing and inspection processes implemented. A comprehensive audit team also verify the adherance to QA procedures under ISO17020. The development of ETI's inspection and listing body ISB took four years of work to meet the international certification levels required. ETI was certified by KAN in March 2009 and is audited 3 times every 4 years and once yearly by SAI Global.

Our KAN certification is recognised worldwide through Asia Pacific Laboratory and the International Laboratory Accreditation Cooperations. Contact the web sites below for details of signatory countries.

Our Clients

AFRICAN BARRICK GOLD
bhpbilliton resourcing the future
MOUNT ISA MINES
PT FREEPORT INDONESIA
PETROSEA
MACMAHON
BUMA
O&K
NEWMONT
KOMATSU
CAPITAL DRILLING EXCELLENCE IN DRILLING
MACARTHUR COAL
ALCOA
PT. MADHANI TALATAH NUSANTARA Construction and Mining Contractors
RANDGOLD RESOURCES
FMG Fortescue The New Force in Iron Ore
Peabody
LIEBHERR
RioTinto
PAMA
NEW HOPE COAL AUSTRALIA
xstrata
THIESS
CAT
SLS PARTNER IN YOUR MINING NEEDS

Our Certifications

INSPECTION SERVICES BODY www.inspectionservicesbody.com
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