

# Accessories

**Detonating cords** are high velocity flexible cords, filled with PETN which detonates at 7000 m per second. This product is waterproof with a continuous covering of orange, blue, yellow or red plastic. The colour depicts the different strength available.



**Pentolite primers** are plastic cylinders filled with a very energetic explosive comprising of a mixture of PETN and TNT. The primers incorporate circular detonator channels for easy insertion of a detonator or detonating cord. The detonator channel is stepped to prevent the detonator from protruding from the primer and to ensure its proper location.



A purpose manufactured **detonating cord cutter** designed to be employed for the safe cutting of detonating cords. The device has an internal blade that reduces the risk of operator self-injury.



The **Mantis** is a specifically designed device to which AEL detonators are clipped. The main objective is to centralize the detonator at the toe. This is to ensure maximum immersion of the detonator into the emulsion.



The **Hot-Hole monitor** is used as a safety device which monitors temperature changes in hot/reactive blast-holes at the measurement point. This can reduce the risk of being in a life-threatening situation as it audibly indicates when pre-determined temperature tolerances have been reached within the blast-hole. This early warning safety device will give the end-user sufficient warning to evacuate a bench is undergoing a potentially dangerous increase in temperature.



# General Specifications

## Detonating Cords and Pentolite Primers

TECHNICAL PROPERTIES	DETONATING CORDS	PENTOLITE PRIMERS
Velocity of Detonation	> 6000 m/s	> 7500 m/s
Water Resistance	Good	Good
Sleep Time	2 weeks	2 weeks

SPECIAL PRECAUTIONS	
Detonating Cords	Pentolite Primers
<ul style="list-style-type: none"> <li>- Handle with care-damage to the product could lead to misfires</li> <li>- Keep away from all sources of ignition</li> <li>- Avoid all forms of shock</li> <li>- Never connect the blast until all charging operations are completed</li> <li>- Keep free ends short to avoid excessive noise, shrapnel and cut-offs</li> </ul>	<ul style="list-style-type: none"> <li>- Handle with care-damage to the product may lead to misfires</li> <li>- Avoid sources of ignition such as friction, impact, static electricity and heat</li> <li>- Temperatures in excess of 90 °C may result in spontaneous explosion</li> <li>- Avoid all possible sources of heat</li> <li>- Never connect the blast until all charging operations have been completed</li> </ul>

STORAGE AND EXPIRY	
Detonating Cords	Pentolite Primers
<ul style="list-style-type: none"> <li>- 5 years from date of manufacture</li> </ul>	<ul style="list-style-type: none"> <li>- 5 years from date of manufacture</li> </ul>

# Detonating Cords

## POWERCORD®

Powercord® detonating cords are flexible cords of high tensile strength which detonate with a VOD  $\geq 6000$  m/sec. The core consists of continuous column of Pentaerythritol tetranitrate (PETN), containing one or two centre yarns or cottons enclosed in a carrier tape bound by two layers of yarns. The cord is finally coated with a continuous covering of orange, blue, yellow or red PVC to protect the PETN core against water ingress. The PETN core loads vary from 6.0 g/m, 8 g/m and 10.0 g/m respectively per cord type.



### APPEARANCE

Powercord® detonating cords shall have a bright uniform PVC sheathing with blue, orange, red or yellow in colour. The cord is coiled with length of 30 m without reels and on reels with a length of 350 m or 500 m.

### APPLICATION

Detonating cords are used to detonate explosive charges, including dogbone relays, in various blasting and mining applications.

Powercord® 8 Premium is suitable for use in wet conditions as it has enhanced waterproof properties.

### FEATURES

- VOD:  $\geq 6\ 000$  m/s
- Highly visible colours
- Reliably initiated with a 0,6 g PETN detonator

### SPECIAL PRECAUTIONS

- Handle with care. Damage to the product could lead to misfires
- Keep away from all sources of ignition
- Temperatures over 90 °C may result in spontaneous explosion
- Use sharp smooth blade for cutting detonating cord.
- Never connect the detonator to detonating cord until all lacing and the charging operations have been completed

### BENEFITS

- Relatively insensitive to detonation by heat, electrostatic discharge or other forms of electricity
- Excellent resistance to side penetration by oil or water
- Flexible
- Uniform core load
- High tensile strength
- Easy to handle and tie knots

### SAFETY BENEFITS

- Relatively insensitive to detonation by friction, heat, electrostatic discharge or other forms of electricity
- High tensile strength

### INITIATION

- Detonating cords are initiated by detonating cords or detonators

### STORAGE

- The shelf life of the product is 60 months from the date of manufacture
- Store in a segregated, approved, cool, well ventilated, dry and labelled area
- Abide by the legal storage requirements for the region
- Keep packaging tightly closed and sealed until ready for use
- Always rotate stock (first in, first out)

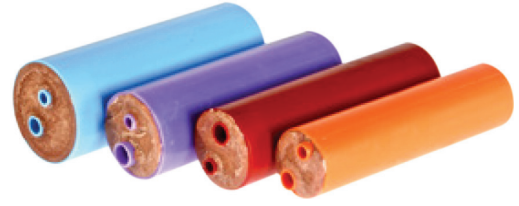
PACKAGING		
PRODUCT	LENGTH PER CASE (m)	BOX DIMENSIONS (mm)
Powercord® 6	2x500	500x260x235
Powercord® 8	2x350	500x260x235
Powercord® 8 Premium	2x350	500x260x235
Powercord® 10	2x350	500x260x235

DETONATING CORD PRODUCT				
PRODUCT	PETN CORE LOAD (g/m)	COLOUR	TENSILE STRENGTH (kg)	CORD OUTSIDE DIAMETER (mm)
Powercord® 6	6	Orange	> 80	3.4-3.9
Powercord® 8	8	Blue	> 80	3.4-5.0
Powercord® 8 Premium	8	Red and Black stripe	> 80	3.4-5.0
Powercord® 10	10	Yellow	> 80	3.5-5.0

**Transport (UN Classification)**

Class 1.1D, UN no. 0065, CORD, DETONATING flexible

# Pentolite PRIMERS



The AEL Intelligent Blasting Primers series is a very high energy explosive used to initiate all explosives that are not cap sensitive. The design generally consists of plastic cylinders filled with pentolite; a solid explosive which is a mixture of Pentaerythritol tetranitrate (PETN) and Trinitrotoluene (TNT). Primers typically have circular detonator channels running through the explosive filling for easy insertion of a detonator and detonating cord. In the AEL design the channel intended for the detonator is stepped to prevent the detonator from protruding from the primers thus ensuring its proper location inside the primer.

### APPEARANCE

The cast explosive shall be free from cracks, large cavities and visible defects or impurities. The plastic shell should be filled to within 2 mm of the open end with Pentolite explosive.

### APPLICATION

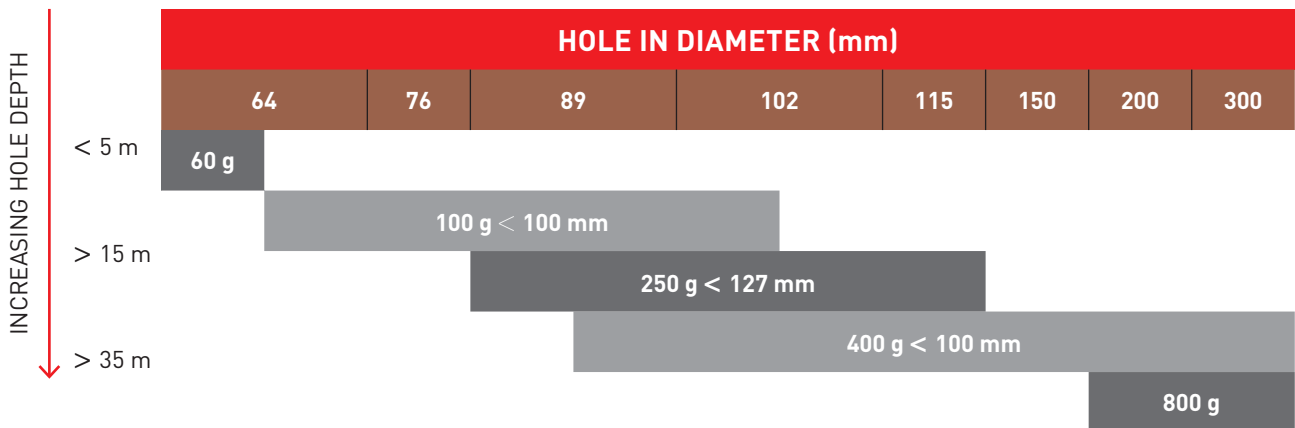
A Pentolite primers are used to initiate non-cap sensitive explosives in packaged or bulk forms in all applications.

**Note:** It is good practice to always use the largest size primer than can safely and easily be used in the blast hole. The following table serves as a guideline.

### FEATURES

- VOD:  $\geq 7\,500$  m/s
- 1,68 g/cc density
- Detonation pressure of  $> 21$  Gpa
- Virgin grade TNT used
- Highly visible colours
- Excellent shelf life

### RECOMMENDED PRIMER SIZES



### BENEFITS

- Optimum diameter to length ratio for effective loading and initiation of explosives
- Completely waterproof
- Cylindrical shape ensures easy loading with no bridging of bulk explosives in the hole
- Readily initiated by detonating cords  $\geq 8$  g/m or electronic-, electric-, shock tube- and capped fuse detonators

- Easy to use
- High density helps to resist floating in emulsion explosives and keeps the primer located in the toe of a vertically loaded blast hole

### SAFETY BENEFITS

- Relatively insensitive to detonation by impact, friction, heat and electrostatic discharge
- Detonator fully protected

## INITIATION

- Pentolite primers are initiated by detonating cords or detonators and amplifies the detonation output from these to reliable fire a variety of explosives

## SPECIAL PRECAUTIONS

- Handle with care; Damage to the product could lead to misfires
- Keep away from all sources of ignition
- Temperatures over 80 °C will lead to the pentolite formulation melting. Prolonged exposure to temperatures above 90 °C can lead to a premature detonation

## STORAGE

- The shelf life of the product is 60 months from the date of manufacture
- Store in a segregated, approved, cool, well-ventilated, dry and labelled area
- Keep packaging tightly closed and sealed until ready for use
- Abide by the legal storage requirements for the region in which you operate
- Always rotate stock (first in, first out)

## PACKAGING

PENTOLITE MASS (g)	UNITS PER CASE	BOX DIMENSIONS (mm)	GROSS WEIGHT (kg)
60 g Pentolite Primer	240	435x360x295	23
150 g Pentolite Primer	120	420x235x325	26
250 g Pentolite Primer	80	430x235x235	26
400 g Pentolite Primer	60	348x277x334	26
400 g Pentolite Primer (½ pack)	45	490x290x195	20
800 g Pentolite Primer	30	460x310x270	25

## PENTOLITE PRIMERS PRODUCT

PRODUCT	COLOUR	OD OF PRIMER (mm)	STRAIGHT CHANNEL DIAMETER ± 0.2 mm	STEPPED CHANNEL DIAMETER ± 0.2 mm
60 g Pentolite Primer	Orange	35	8.4	7.9- >6.2
150 g Pentolite Primer	Red	42	9.4	9.4- >6.2
250 g Pentolite Primer	Purple	46	8.4	7.8- >6.2
400 g Pentolite Primer	Blue	53	8.4	7.8- >6.2
800 g Pentolite Primer	Orange	Special Order		

### Transport (UN Classification)

Class 1.1D, UN no. 0042, BOOSTERS without detonator

# Detonating CORD CUTTER

A purpose manufactured detonating cord cutter designed to be employed for the safe cutting of detonating cords.

Safety is the main reason for the development of this item. The device has an internal blade that reduces the risk of operator self-injury. The cutter is also approved by the South African Chief Inspector of Explosives.

## APPEARANCE

A red plastic safety cutting device containing a non-removable blade, designed to safely cut detonating cord to the required lengths



## APPLICATION

- All detonating cord applications

## FEATURES

- Ergonomic design
- Easy to use
- Detonating Cord can be cut easily and with minimum effort
- Attachment ring provided to help prevent loss of device
- The head of the cutter is in a chisel point, which can be used to open packaging

## BENEFITS

- Prevents the use of unauthorised cutters such as scissors, side cutters and improvised blades that may cause accidental detonation of the detonating cord when cut
- Safety benefit, as no exposed blades carried by blasters
- Due to the captured blade, the potential for cut injuries is significantly reduced
- No need to replace the blade which lowers cut injuries
- Low cost and disposable

## SAFETY BENEFITS

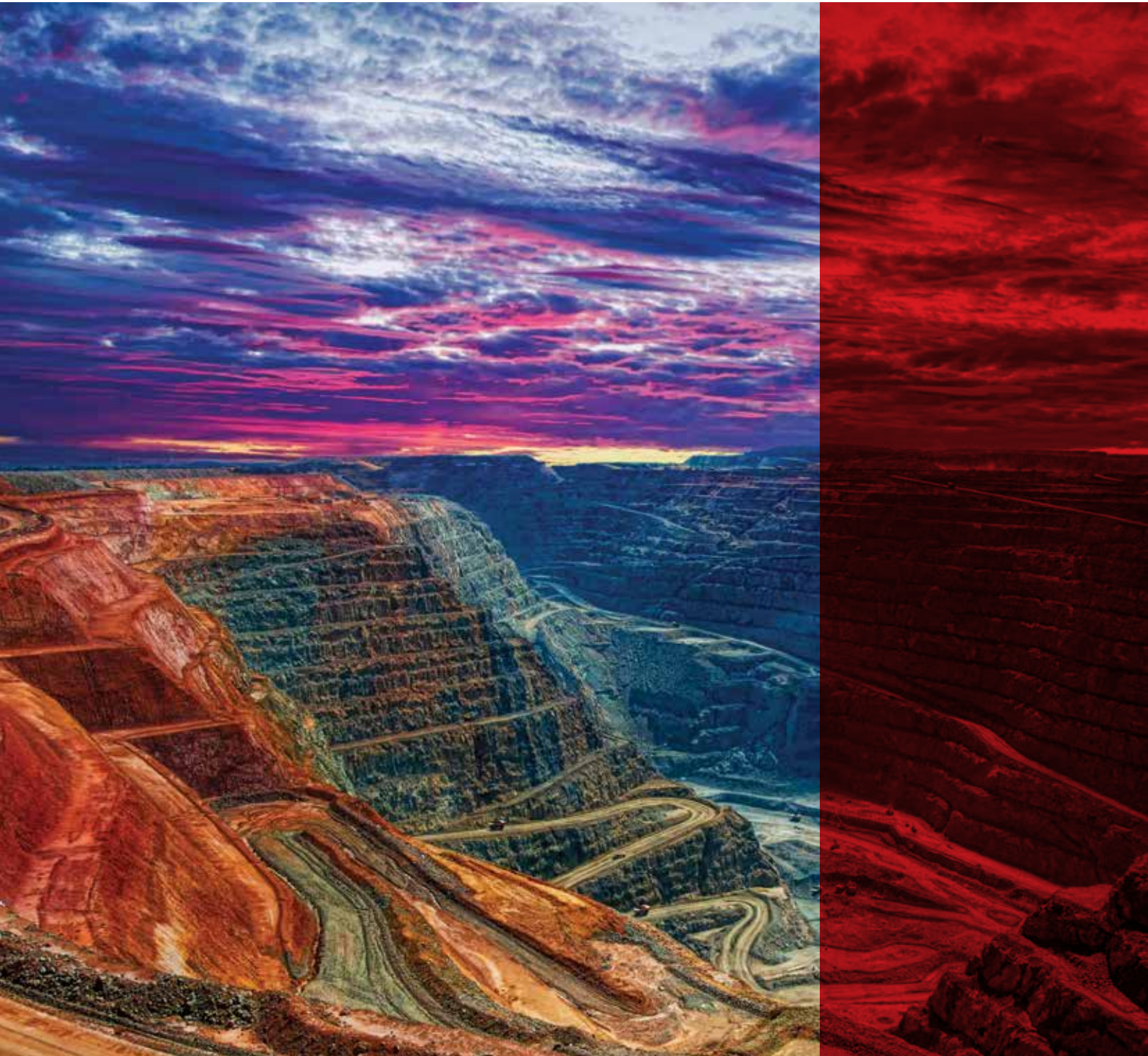
- Always cut away from your body
- Although the blade is captured it remains a sharp cutting instrument, handle with care
- Do not use the cutter to cut anything other than detonating cord
- When cutting of detonating cord becomes difficult, the blade is blunt and the cutter should be replaced

## STORAGE

- Product is non-explosive and can be stored in any storage location
- Infinite shelf-life
- Keep dry to prevent rusting of blade

# Compatibility Matrix

## INITIATING SYSTEMS





DONOR

	AEL Shock Tube									AEL Detonating Cord			
	Shock Tube Uni-Delay LP	Shock Tube Splitter	Shock Tube Multi LPD	Shock Tube Multi SPD	Shock Tube Uni-Delay SP	Shock Tube Trunk line	Shock Tube Cluster	Shock Tube Lead-In	Shock Tube Extender	AEL Detonating Cord–Power cord® 6	AEL Detonating Cord–Power cord® 8	AEL Detonating Cord–Power cord® 10	AEL Primers
<b>AEL Shock Tube</b>													
Shock Tube Uni-Delay LP	x	x	x			x		x		-	-	-	-
Shock Tube Splitter	x	x	x			x							
Shock Tube Multi LPD			x										x
Shock Tube Multi SPD													x
Shock Tube Uni-Delay SP					x	x		x					-
Shock Tube Trunk line	x	x	x	x	x	x		x					
Shock Tube Cluster			x	x			x			x	x	x	
Shock Tube Lead-In	x	x	x	x	x	x	x	x		x	x	x	
Shock Tube Extender			x			x	x	x	x				
<b>AEL Electronic Detonators</b>													
Electronic Delay Detonators–DigiShot®	•	•	•	•	•	•	•	•	•	•	•	•	x
Electronic Delay Detonators–DigiShot® Plus	•	•	•	•	•	•	•	•	•	•	•	•	x
<b>AEL Electric Initiators</b>													
Instantaneous Electric Detonator (IED)	•	•	•	•	•	•	•	•	•	•	•	•	x
Electric Initiators–Fusehead Assembly													
<b>AEL Electronic Initiators</b>													
AEL Electronic Initiators–NetShock™	•	•	•	•	•	•	•	•	•				
<b>AEL Detonating Cord</b>													
AEL Detonating Cord–Power cord® 6	x	x	x	x	x	x	x	x	x	x	x	x	x
AEL Detonating Cord–Power cord® 8	x	x	x	x	x	x	x	x	x	x	x	x	x
AEL Detonating Cord–Power cord® 10	x	x	x	x	x	x	x	x	x	x	x	x	x
<b>AEL Primers</b>													

- Tape-Plastic connector provided
- Recommended
- In hole det only
- x Use joiner only to extend ST
- x Compatible

# Mantis

The Mantis is a specifically designed device to which AEL detonators are clipped. After clipping the detonator into the device, it is inserted into the end of the lance/blowpipe for emulsions and ANFEX® respectively. The lance/hose is gently pushed to the bottom of the blast-hole, where the detonator is now centralised at the toe. The hole is then filled with emulsion/ANFEX® in the normal fashion.

## APPEARANCE

- A plastic device for mounting a detonator

## APPLICATION

For use in blast holes up to 45 mm in diameters in stopping and development in conjunction with emulsion. The device can be used in inclined holes up to 20 degrees

## FEATURES

- Detonator mounted to ensure full coupling with the explosive
- Soft plastic body for ease of use
- Clip to securely fasten the detonator
- Symmetrical, preventing error in installation

## BENEFITS

- Ease of use
- Centralises a detonator in the blast hole
- Ensures retention of the detonator at the toe of the blast hole
- Prevents the detonator from jamming in the hole
- Easily removable if hole misfires
- Replaces an explosive cartridge as a primer when used in conjunction with UG100 within a pre-determined hole diameter



## STORAGE

- Product is non-explosive and can be stored in any storage location
- Infinite shelf-life

## PACKAGING

- Packed in plastic bags
- 200 units per bag
- 5 bags per 1000 unit outer bag

# Hot-Hole Monitor



The Hot-Hole Monitor is a device that continuously monitors the temperature at the thermocouple position within the charged blast column. The unit ensures continuous monitoring of loaded blast-holes and provides early warning of localised erratic temperature changes, which assists the blasting crew during operations to make informed safety related decisions. This will ensure that the blasting crew is aware of the thermal conditions being experienced at the thermocouple location within each blast-hole containing a Hot-Hole monitor during the charging and tying of the blast.

## APPEARANCE

- The red plastic tubular device contains 30m of wire with a thermo couple on the end of the wire

## APPLICATION

The Hot-Hole Monitor starts to sound an intermittent alarm when the temperature reaches 55 °C and a continuous alarm when the temperature exceeds 80 °C, indicating that the hole is no longer safe and that the blasting crew should evacuate the bench. The Hot-Hole Monitor is suitable for use in:

- Hot-holes
- Reactive ground conditions

## FEATURES

- Monitors blast-hole temperatures to warn blasting crew of temperature changes within the blast-hole
- Alerts operators with a sounding alarm of increasing temperatures and the risk of possible premature detonation of a charged blast-hole when the temperature starts to exceed 80 °C
- Early warning safety device to improve on-bench safety when performing blasting in hot-holes
- Easy to use wire-deployment-system

## BENEFITS

- Early warning system that can guide operators on safety conditions of operation in real time
- Device is temperature programmable to suit the needs of the end-user
- Two-tone alarm system for ease of use:
  - Early warning tone (intermittent)
  - Evacuation tone (continuous)

## SPECIAL PRECAUTIONS

- Ensure plastic strip is intact and secured before use to ensure that the battery is charged
- Single use only as the battery life cannot be guaranteed after the first use

## STORAGE

- Storage Conditions Product is non-explosive and can be stored in any storage location
- Product Shelf Life Dependant of battery life and storage temperature (12-18 months)

### HOT-HOLE MONITOR

Water Resistance	Excellent
Temperature Range	55 °C - 80 °C
Measurement Point	Generally booster position
Cable Length	30 m

### PACKAGING (10 kg GROSS)

DIAMETER (mm)	LENGTH (mm)	UNIT COUNT PER CASE
51	250	30

#### Transport (UN Classification)

Not applicable-Non-Hazardous Device