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2023 MINING PRODUCT CATALOGUE

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This new Deebbar Mining Division Catalogue illustrates a selection from the wide range of Deebbar products manufactured and assembled and sold from our factory in Gauteng, South Africa and via our branches and distributors.

Since 1976, Deebbar have been at the forefront in designing and manufacturing products for the Mining, Power Generation, Motor, Petro-Chemical and Pharmaceutical Industries.

Deebbar, with its own Research and Development department continuously researches and develops products to maintain Deebbar's lead in both the products and industries it services.

As designers, manufacturers and suppliers of electrical/electronic equipment, our commitment to quality and customer service is a priority and this is confirmed by Intertek and our compliance to ISO9001 Quality Management Systems Accreditation.

Deebbar's head office and main factory is in Gauteng and our products are backed by a national network of professional sales and support agents, with branches based in Rustenburg and Klerksdorp.

Deebbar commenced business in 1976 initially manufacturing and supplying Lock and Call Bell Shaft Signalling Systems which formed the core of its business.

The history of Electronic Shaft Signalling in the South African Mining Industry:

Prior to 1975, mine shaft signalling was done by means of manual bell ringers when signalling between Hoist Driver/Onsetter and Driver/Banksman. Products used were the reliable Martco No.70 and Martco S101 type Bell ringers.

In 1976, Anglo American (Labs) designed an Electronic Signalling Card to replace the manual type bell ringing units, primarily to give a clearer and distinct signal to eliminate any misunderstanding of what signal was rung. After Anglo designed the electronic signalling board, the unit required testing under mining conditions.

Martco Electrical, who at that time had been manufacturing manual signalling systems for 25 years, had the necessary experience to assist Anglo Labs with the testing of this new electronic signalling unit by equipping them into Martco enclosures with all the other Martco ancillary equipment and testing them under mining conditions.

Once this was approved, Martco entered into an agreement and negotiated the sole rights to manufacture and sell these units to the mining industry.

In 1976, Deebbar entered the market with their own range of signalling products, and competed with Martco Electrical in this industry. In 1984, Deebbar acquired Martco and merged their entire shaft signalling range of products together with Deebbar's existing range under the brand name Belltronic™.

Since then, Deebbar have been the market leaders in the field of lock and call bell shaft signalling.

Mine shaft signalling has changed drastically over the years with Deebbar having instituted numerous safety features into the originally designed unit by producing a number of versions of signalling units to cater for the ever-changing markets.

Together with Deebbar's extensive range of ancillary products that compliment activities in and around a mine shaft station area, Deebbar remain the market leaders in the field of shaft signalling, monitoring, Scada displays and shaft gate interlocks together with many other products as displayed in this catalogue.



Details of the products mentioned below are available in separate catalogues which are available from any of our sales outlets.

The **Deebar Rail-Veyor Bulk Material Handling System** is another unique product from Deebar that transports bulk material. The system is based on the principle of a rollercoaster where a train consisting of a series of articulated trough-like cars, inter-connected representing a long, open trough moving along the track. The train is propelled by foam-filled tyres pushing against the side drive plates of cars activated by motion sensing energy efficient, dual drive stations, motors and gear reducers.



The design of the Rail-Veyor cars allows for operation in an inverted position by use of a double set of parallel rails. The feature allows controlled, non stop dumping of material by turning through an outside loop.

Fortress Interlocking System: an extensive range of world renowned trapped key safety interlocks which provide the crucial solution to electro-mechanical interlocking to ensure the ultimate in safety. Deebar is the market leader in South Africa in Safety Interlocking Systems.



Benedict GmbH (Telux): Low voltage switchgear built and tested according to International specifications. All devices suit all recognised approvals. The Products are supplied worldwide and the local production of switches is assembled according to ISO 9001:2015 standards. Products include a range of isolators, rotary cam switches, contactors, push buttons, pilot lights etc.



Control and Automation: an extensive range of industrial automation and electronic components, that include Jaguar drives, relays, limit switches, PLC's, proximity switches, timers etc.

Deebar are the sole South African distributors of **Fortress Interlocking and Benedict GmbH (Telux)**.



Reliability

Product reliability is vital and that is why Deebar remains focused on, centered design, manufacture and service. Along with a comprehensive range of products, Deebar guarantees the highest quality in products and services. At Deebar, we are committed to listen to our customers, understand their need and endeavour to deliver results that exceed their expectations. When it comes to products and service we pride ourselves on service and reliability.

Mission Statement

Deebar designs and manufactures highly reliable Signalling, Communication, Monitoring Devices, Safety Equipment and Bulk Material Handling Systems for use in harsh environments within the Mining, Power Generation, Automotive and Process Industries and will continually improve its technologies and service by applying creativity to all aspects of its business.



Vision

Deebar intends to continually develop the latest technology for its core client base in which it operates in and strives for perfection. In doing so it will assist in uplifting and improving the quality of life of all its employees.

Safety

At Deebar, we strive to provide a safe working environment for all our employees and to produce safety enhancing products for all our customers. Safety is a priority to Deebar, this is evident in the wide range of safety related products in our portfolio.



Corporate Social Responsibility

Deebar has been a part of the South African economy for the better part of 47 years, so, our commitment to our communities, children and country is a long lasting Whilst we believe in building a better future, we are aware of the serious challenges which face our country, and as a business, we recognise the responsibility we have, to contribute to the upliftment and care of South Africa and the people who live here. We place huge emphasis on social investment through our commitment to sustainable development, the impact of which will be felt for many years to come. Deebar is proud to partner with a number of Initiatives supporting abused woman and children, recovering addicts, ex-parolees, the unemployed, destitute and physically challenged persons and elderly. For more information on these initiatives, please see our webpage www.deebar.co.za

Quality

Quality means more than providing a product or service, it's a way of doing business and ultimately, a way of ensuring that we satisfy our customers needs. At Deebar we are all truly committed to strive for continuous improvement, delivering high quality products and services to all our customers.





ALL YOUR SHAFT
SIGNALLING
AND SAFETY
REQUIREMENTS

".. safely transporting thousands of mine workers underground for over 45 years."

Deebar's core business has always been Shaft Signalling Systems that the majority of the mines in Southern Africa are using as their standard products. Deebbar designs and manufactures revolutionary shaft signalling and station safety products to satisfy all shaft communication requirements.

DRIVERS CONSOLE



The Winder Engine Driver typically operates from a Drivers Console which is fitted with two Deebbar Drivers Signalling Units, one for signalling between the Driver and the Banksman and the other for signalling between the Driver and the Onsetter.

The drivers console is also equipped with either a Deebbar Sounder or a Deebbar Bell for the identification of signals rung.

Lockbell signalling is used for the interchange of coded signals between the Driver and the Banksman and the Driver and the Onsetter at the various stations. Either the Banksman or the Onsetter being specifically authorised and in possession of a key, which has to be inserted into the lockbell unit known as the Deebbar Belltronic™ Unit before signals can be transmitted.

The Deebbar Relay Panel electrically interlocks the signals rung between the Driver, Banksman and the Onsetters Belltronic™ Units. The Deebbar Bell Event Recorder is situated in the winder house and is designed to record and log all signalling events that take place in the shaft area.

Deebbar offers a comprehensive solution to shaft equipping for surface and underground levels. The Signalling Combination Panel includes a Distribution Box, Belltronic Lockbell, Callbell Unit, Digital Display Unit, Wallcomm, Deecom 101 telephones, Pneumatic and Interlocking Panels for station stopping devices.

SURFACE LEVEL



SIGNALLING COMBINATION PANEL



On the bank and all underground levels, Lock and Clear Lights are fitted to indicate whether the cage is in position and it is safe. The Lock and Clear Lights can be supplied in different units such as D-Lites, Robot Boxes, either incandescent or LED type.

The Belltronic Digital Display Unit will visually show the last signals rung on the LCD display.

UNDERGROUND LEVEL



The Call Bell Unit is an emergency signalling unit as required by the MHSA Reg 16.43.6 and is designed with two buttons both behind a breakable glass. One button to be used for accident to person, the other for an accident to shaft, both signals are followed by a station ID. An option to trip the winder after activating the accident to shaft button can be included.

The Distribution Box is used to terminate and distribute shaft bell cables on the bank and on each level.

The Wallcomm “Biza Khuluma”, is a 2 wire intercom system with a battery backup (10 hour standby time), in the case of a power outage to enable voice communication.

The Deecom 101 is a robust PABX/auto type telephone communication unit manufactured from stainless steel, powder coated and fitted with a neoprene handset.

Deebar, known for its shaft safety products in mining, designed and manufactured the Deebar Slam-It Station Gate Lock which is specifically designed to prevent a double operation and can, in addition, be electrically interlocked to the winder safety circuit via an integrated interlocking magnetic switch.

Deebar has various combinations of Station Stopping Devices with the option to mechanically couple and interlink to a Centre Column which incorporates the Belltronic Signalling Unit and the Deelock Safety Lock to provide safety when moving rolling stock in and around the station area.

This system both electrically and mechanically interlocks the shaft bells to the Deebar Station Stopping Devices and ensures the ultimate in safety.

The interlocking station stopping devices with electronic bell signalling, together with the Slam-It are covered by Deebar patents.

Another option is that Deebar Station Stop Blocks, Huizens Device or the Technopost Stopping Devices can be fitted and operated pneumatically via the Pneumatic Panel and Interlocking Panel this is also interlocked to the shaft bell signalling system.

The Deelock and Interlocking Panel has been designed to ensure that the responsible person (Onsetter or Banksman) follows a set procedure when operating safety devices on the specific station.

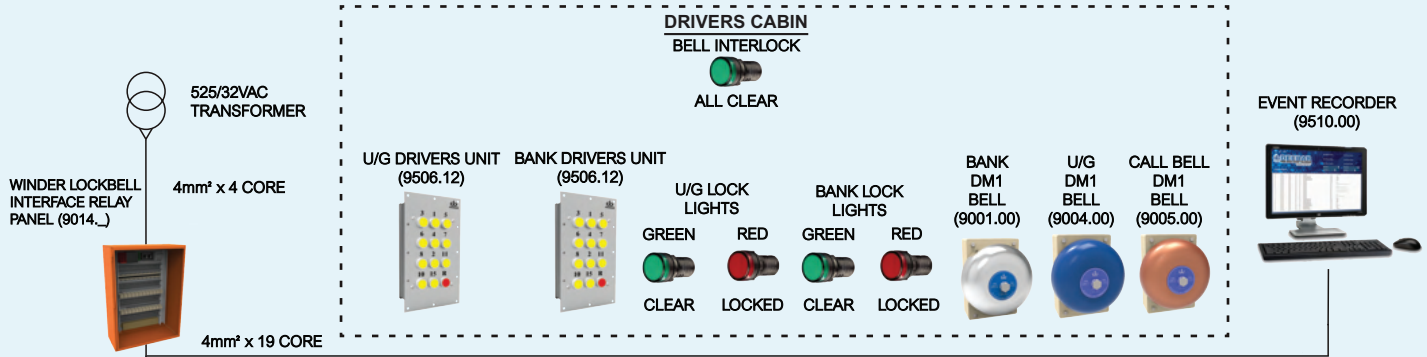
The system also ensures that the responsible person cannot leave the station if the safety devices are not in a safe position.

All Deebar products are manufactured under strict quality controls. Deebar are certified and conform to the ISO 9001 quality management system to guarantee customers reliable products at the highest level of quality.

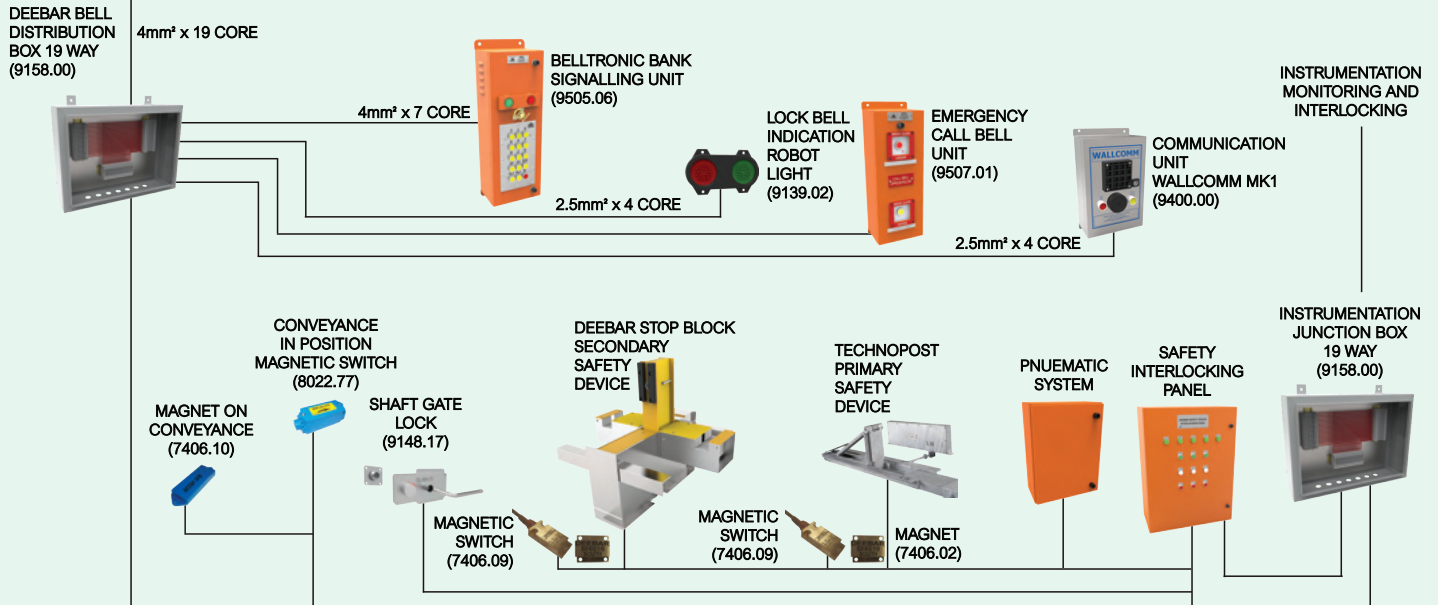
CENTRE COLUMN



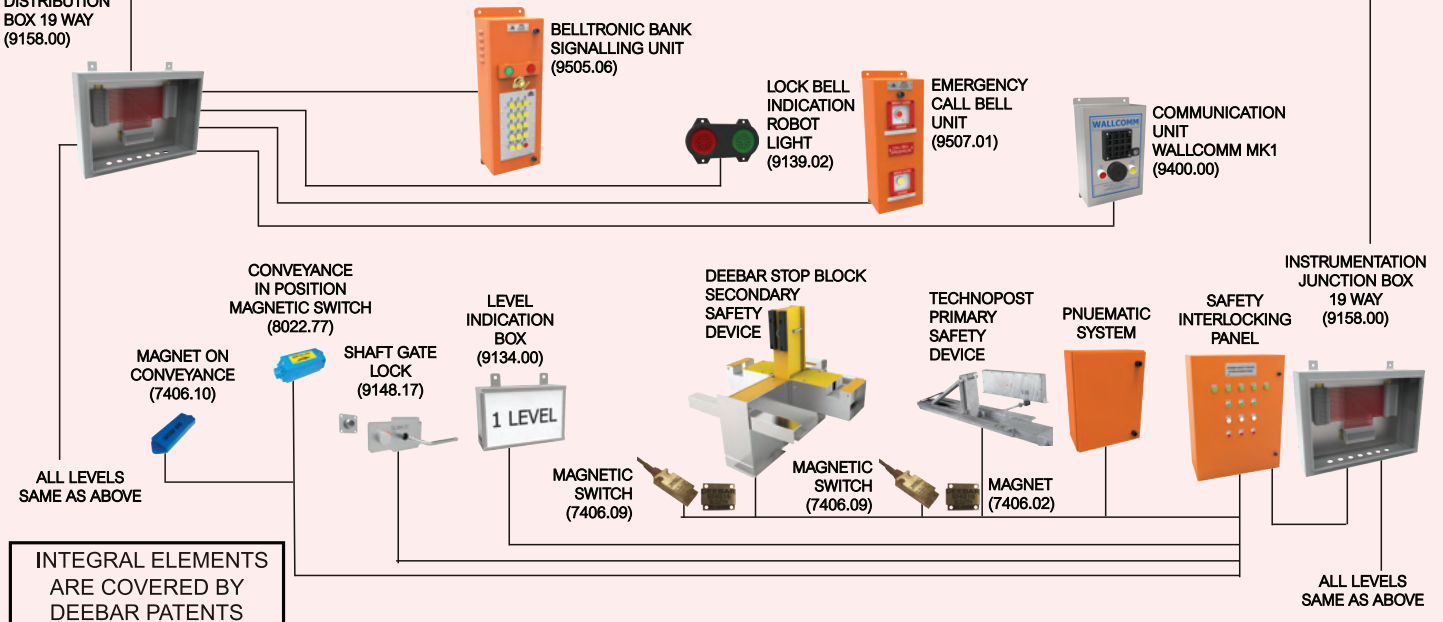
WINDER HOUSE



BANK



TYPICAL UNDERGROUND LEVEL

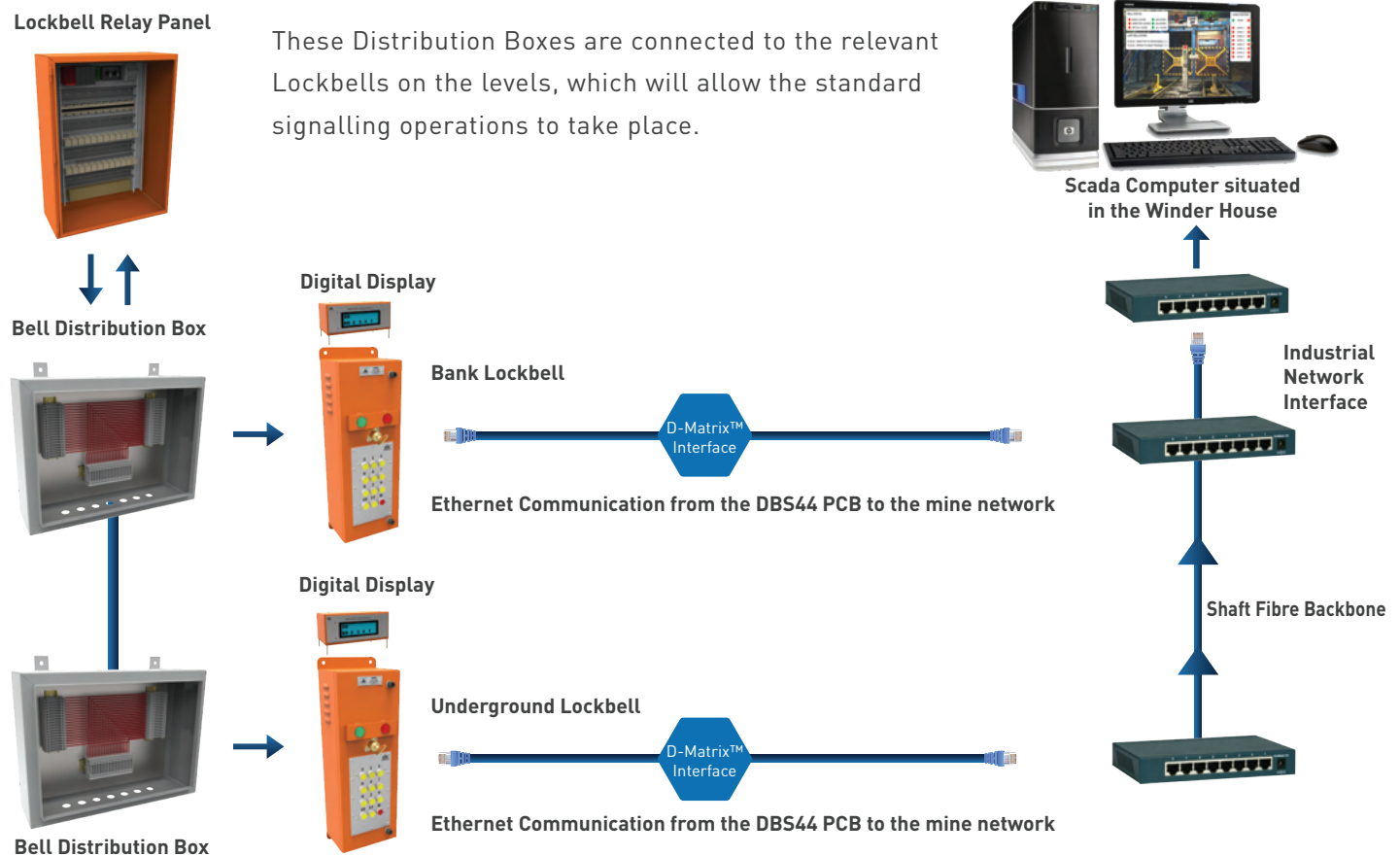


The D-Matrix System, monitors and records events taking place in and around a Mine Shaft Station area and displays these events on a screen on the wider engine drivers desk.

The D-Matrix System consists of:

- Standard Lock bell unit fitted with DBS44 PC Board
- Interface Cards
- Monitoring Devices
- Graphical Display

The D-Matrix System is built on the standard shaft bell signalling system using a Lockbell Interface Relay Panel connected to Bell Distribution Boxes on the bank and various underground levels.



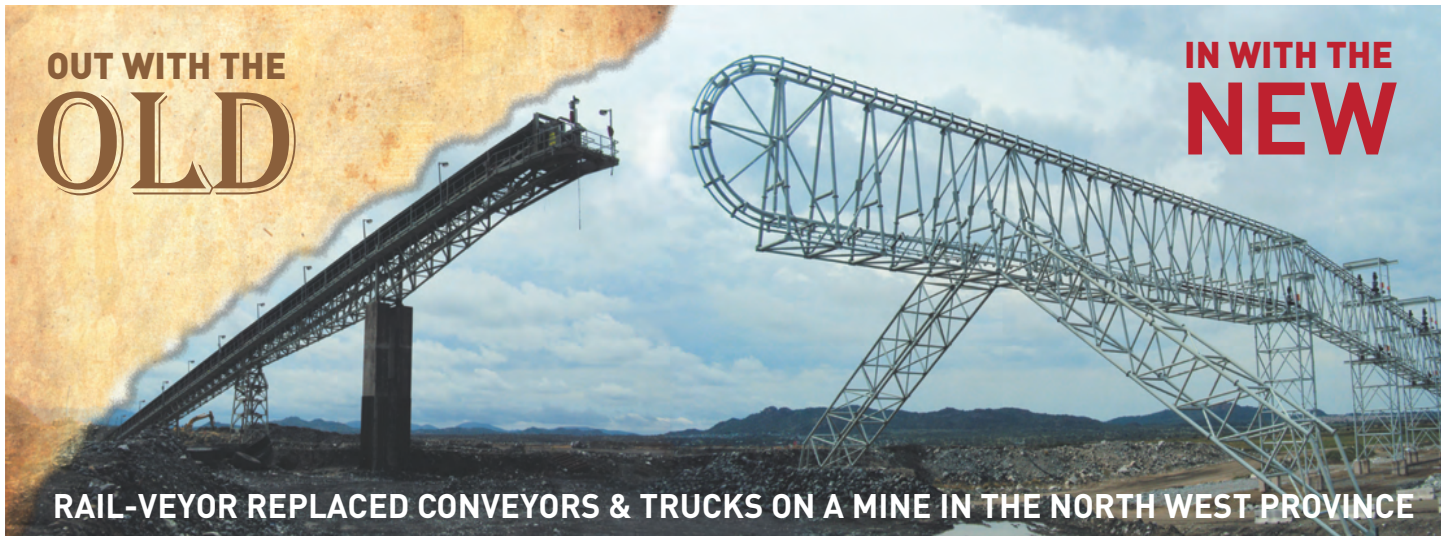
Deebar's latest DBS44 PC Board with intelligent ethernet capabilities is fitted inside the standard Deebars Lockbell unit to allow communication with the mines existing fibre optic backbone.

The shaft fibre backbone data will be transmitted between the levels, bank and D-Matrix unit. The D-Matrix unit as well as the D-Matrix graphical interface (monitoring) computer are typically situated inside the Winder House.

The D-Matrix Monitoring System will display real time graphics of the events taking place in and around the shaft bank and stations.

These events include, monitoring the bell status, the cage position from proximities or magnetic switches on the station, last bells rung, station stopping devices, shaft gates and the various alarm signals.

All of the above mentioned monitoring, recording and displaying of the various events makes up the D-Matrix System to ensure complete shaft monitoring and recording ensuring safety at all times. The D-Matrix monitoring system is client configurable.



Deebar Rail-Veyor® is a unique Bulk Material Transport System that combines the best features of both the standard conveyor belt and rail systems for transporting material. It conveys material as a conveyor with high flexibility at an increased capacity while being able to negotiate curves like a rail system.

The Rail-Veyor® system has numerous advantages, some of which include:

- Low operational cost owing to its low energy use.
- Non-polluting drive system using electricity instead of fume emitting vehicles.
- No material spillage owing to the rubber interconnecting flaps.
- The design allows the train to pass through low tunnels and bridges to avoid obstacles.
- The initial cost of the system is low.
- The system is fully automated from loading to tipping.
- Deebor Rail-Veyor® can negotiate curves of up to 29 degrees.
- Rail-Veyor has been tested up inclines at 20% (11.31)

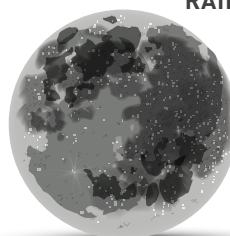


Other benefits the system offers are that no direct operator control is needed as the system runs automatically and allows for multiple-dump passes since the same loop can allow for multiple loading stations and dumps.

Deebar offers a custom-designed Rail-Veyor® system made specifically to suit a given site. By carrying out an assessment of the area; Determining the required tons an hour, material type and bulk density, haul distance, estimated material size, material condition (wet, dry or solid percentage), elevation variation including maximum incline or decline, surface or underground and tipping method - a system can be designed to suit a particular site.



370 300 KM

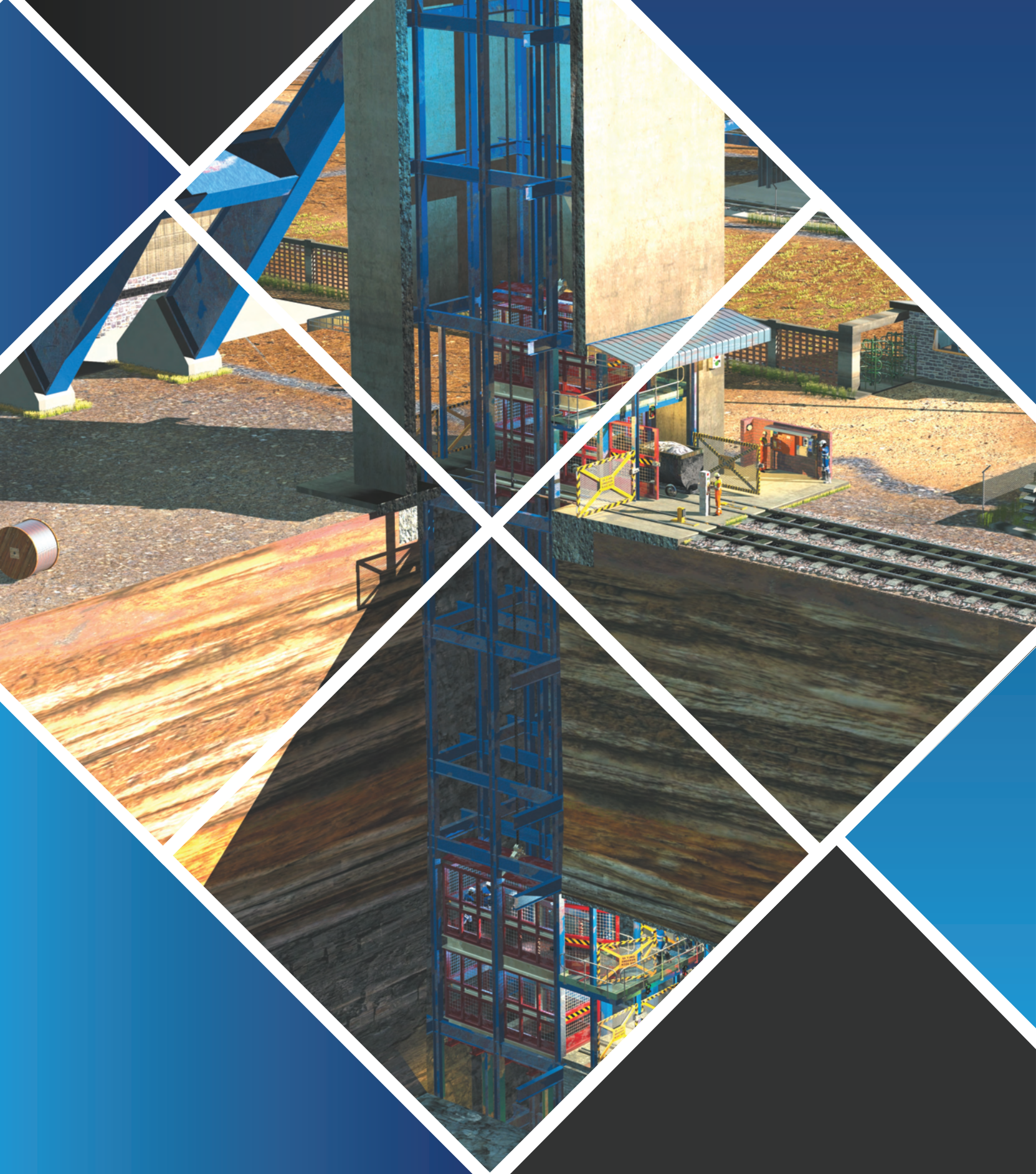


**AT THE END OF 2017, THE OPERATING DEEBAR
RAIL-VEYOR® SYSTEMS HAD COMPLETED OVER**

**1.2 MILLION KM AND MOVED MORE
THAN 9 MILLION TONS OF MATERIAL!**

**THAT IS MORE THAN THE
EQUIVALENT TO TRAVEL TO
THE**

MOON AND BACK!

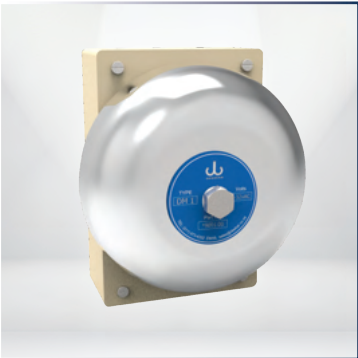


MINING DIVISION

In the early days, prior to 1956 the miners came up with a code of signals in order to haul men and ore up and down the mine shafts safely, the hoister, or man in charge of raising and lowering the buckets and cages, had to be able to communicate with the miners below.

For that purpose, a signal code using knocks and rings was adopted in each mine.

Because the signal system was one of the many mining practices that was developed in South Africa the codes used by the different mines were basically the same. To ensure uniformity, however, each Mine eventually adopted a Code of Signals in its Mining regulations. Products used were the reliable Martco No.70 and Martco S101 type Bell ringers.



DM1 BELL / DB2 BELL

The DM1 bell is fitted with a 150mm gong and is available in various voltages. Suitable for use with alternating current (AC).

The unit can be supplied with either chrome, copper, brass or painted gongs to emit different tones.

The DB2 bell is generally the same as the DM1 but is suitable for use with direct current (DC).

The unit can be supplied with either chrome, copper, brass or painted gongs to emit different tones.

NB: Plug in feature for easy adjustment or replacement.
Sound Output 96 DB

PRODUCT CODE:	DESCRIPTION:
*9001.00	DM1 8-32V AC Chrome Gong
*9002.00	DM1 110V AC Chrome Gong
*9003.00	DM1 220V AC Chrome Gong
*9004.00	DM1 8-32V AC Painted Gong
*9005.00	DM1 8-32V AC Brass Gong
*9006.00	DM1 8-32V AC Copper Gong
*9007.00	DB2 8-32V DC Chrome Gong



DEELEX BELL

The Deelex bell is generally the same as the DM1 but is suitable for use with alternating current AC.

The unit can be supplied with either chrome, copper, brass or painted gongs to emit different tones.

The bell housing is manufactured from aluminium alloy.

Sound Output 100 DB

PRODUCT CODE:	DESCRIPTION:
*9008.00	Type "M" 8-32V AC Chrome Gong
*9009.00	Type "M" 110V AC Chrome Gong
*9010.00	Type "M" 220V AC Chrome Gong



S100 SIDE LEVER BELL RINGER

The S100 type ringer is used for call bell signalling. The unit operates by pulling the lever which closes a set of N/O contact to ring a remote bell.

The housing is manufactured from a dough moulded compound (DMC).

PRODUCT CODE:	DESCRIPTION:
*9044.00	S100 Bell Ringer



S101 SERIES KEY BELL RINGER

The S101 range of ringers is used for lock bell signalling. These units operate by inserting a key into the side of the unit and turning it, thus closing a N/O contact to ring a remote bell.

The unit can be supplied in various key configurations such as : triangle, half moon, square, oblong, hexagon and small triangle.




The housing is manufactured from a dough moulded compound (DMC).

PRODUCT CODE:	DESCRIPTION:
*9045.00	S101 Triangle Bell Ringer
*9046.00	S102 Square Bell Ringer
*9047.00	S103 Small Bell Ringer
*9048.00	S104 Hexagon Bell Ringer
*9049.00	S105 Half Moon Bell Ringer
*9050.00	S108 Oblong Bell Ringer



BELL RINGER KEYS

Keys are used to operate S101 bell ringers and are available in the following configuration:

 S101 Triangle Key	 S103 Small Triangle Key
 S102 Square Key	 S104 Hexagon Key
 S105 Halfmoon Key	 S108 Oblong Key

PRODUCT CODE:	DESCRIPTION:
*9061.00	S101 Triangle Bell Ringer
*9062.00	S102 Square Bell Ringer
*9063.00	S103 Small Bell Ringer
*9064.00	S104 Hexagon Bell Ringer
*9065.00	S105 Half Moon Bell Ringer
*9066.00	S108 Oblong Bell Ringer



NO. 70 BELL PULL

The No. 70 bell pull is suitable for use in a call bell application.

By pulling the handle in a downward motion a wiping contact closes operating a remote audible device. The unit can be supplied with a standard or extended shaft.

This housing is manufactured from a dough moulded compound (DMC) and on special request can be manufactured in a cast iron housing.

PRODUCT CODE:	DESCRIPTION:
*9037.00	No. 70 Bell Pull Standard Shaft
*9038.00	No. 70 Bell Pull 9" Ext Shaft
*9036.00	No. 70 Bell Pull Cast Iron



NO. 72 BELL PULL

No. 72 bell pull is suitable for use in a lock bell application. By inserting a key into the bottom of the unit a mechanism is unlocked. This allows the handle to be pulled in a downward motion, closing a contact that then operates a remote audible device.

The unit can be supplied with a standard or extended shaft and key.

Manufactured from a dough moulded compound (DMC).

 No. 72 Standard Key	 No.72 9" Key
---	--

PRODUCT CODE:	DESCRIPTION:
*9040.00	No. 72 Bell Pull (Lock) c/w Key
*9041.00	No. 72 Bell Pull Ext Shaft c/w Key
*9067.00	No. 72 Standard Key
*9068.00	No. 72 9" Key



180 BELL PULL COMBINATION

The Bell Pull Combination is a robust signalling device that is used mainly when shaft sinking is done. The unit is supplied as a Call Bell unit without a key or a Lock Bell unit with a key.

Call Bell - This unit operates by pulling the handle.
Lock Bell - This unit operates by inserting and turning the key and then pulling the handle.

Both units ring the bell on the level that it is activated on and a "common" wire ensures that all the bells in the system ring.

See schematic diagram for shaft bell systems.

PRODUCT CODE:	DESCRIPTION:
*9101.00	180 Bell Pull Combination (Call) 8-23V
*9103.00	180L Bell Pull Combination (Lock) 8-23V



BELL BOX W1 (NO LIGHTS)

This W1 Bell Box is used when manual signalling is required. The unit can be equipped with various bells and bell ringer configurations.

This unit is generally utilized for Lock Bell applications. The housing is manufactured in 430 stainless steel.

* All the below mentioned DM1 bells are available in 110V

PRODUCT CODE:	DESCRIPTION:
*9820.00	S100 Bell Ringer & DM1 8-32V AC Bell
*9820.01	S101 Bell Ringer & DM1 8-32V AC Bell
*9821.02	S102 Bell Ringer & DM1 8-32V AC Bell
*9822.01	S104 Bell Ringer & DM1 8-32V AC Bell
*9823.01	S105 Bell Ringer & DM1 8-32V AC Bell
*9824.01	S108 Bell Ringer & DM1 8-32V AC Bell
*9826.01	No. 70 Bell Pull & DM1 8-32V AC Bell
*9826.08	No. 72 Bell Pull & DM1 8-32V AC Bell
*9826.02	No. 72 Bell Pull & Deelex Bell 32 V
*9826.04	No. 70 Bell Pull & DB2 32V Bell
*9826.06	No. 72 Bell Pull & DB2 32V Bell



BELL BOX W1 (WITH LIGHTS)

This Bell Box is used when manual signalling is performed.

The unit can be equipped with various bells and bell ringer configurations.

This unit is generally utilized for Lock Bell applications.

The housing is manufactured in 430 stainless steel and fitted with a lock and clear lights (red and green).

* All the below mentioned DM1 bells are available in 110V

PRODUCT CODE:	DESCRIPTION:
*9820.02	S101 Bell Ringer & DM1 8-32V AC Bell
*9821.00	S102 Bell Ringer & DM1 8-32V AC Bell
*9822.00	S104 Bell Ringer & DM1 8-32V AC Bell
*9823.00	S105 Bell Ringer & DM1 8-32V AC Bell
*9824.00	S108 Bell Ringer & DM1 8-32V AC Bell
*9826.00	No. 72 Bell Pull & DM1 8-32V AC Bell
*9826.03	No. 70 Bell Pull & DB2 32V DC Bell
*9826.05	No. 72 Bell Pull & DB2 32V DC Bell



JG/W1 MANUAL CALL BELL UNIT

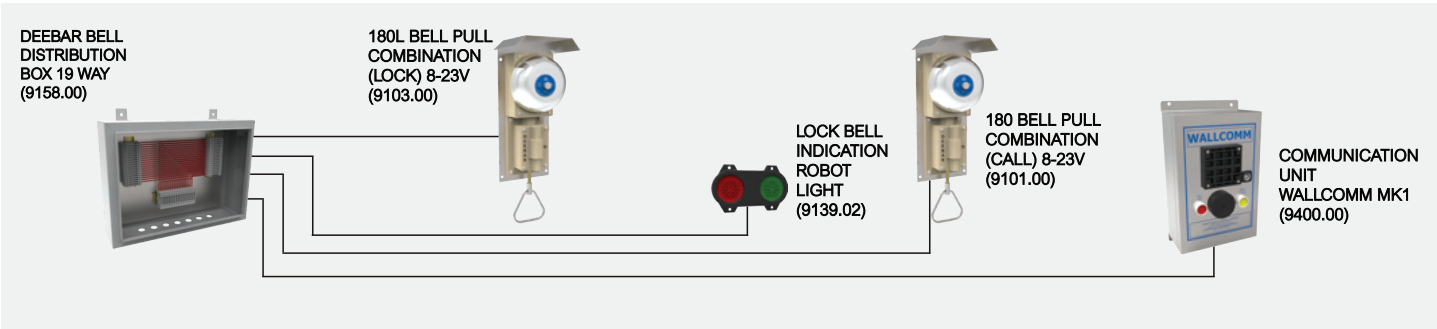
This emergency Call Bell unit is used in the event of an accident in a mine shaft. To activate, break glass and push the emergency button. A signal will be transmitted to the drivers cabin as well as to all levels.

JG/W1 - The unit is equipped with an emergency push button (behind glass) with a DM1 bell or electronic sounder.

The housing is manufactured in 430 stainless steel

PRODUCT CODE:	DESCRIPTION:
*9829.00	JGW1 c/w Sounder
*9829.01	JGW1 c/w Bell

TYPICAL SHAFT LAYOUT



Manual Signalling had serious limitations and risks, thus an electrical solution was implemented with the use of an electric bell and PC Boards to control the sequence of rings. This greatly increased safety on mines.



DRIVERS UNIT - 12 WAY

The Drivers Unit is used to communicate between the driver and banksman and the driver and onsetter.

- The unit is fitted in the drivers console and equipped with:
 - Evolution or D-Tronic PC Board.
 - Robust push buttons mounted on 316 stainless steel engraved fascia.
 - Contact facilities for brake locking / drivers indication.
 - Built-in inhibit circuit and material mode interlocks.
- The unit is available in either 32V / 110V AC or 32V DC.

This Drivers Unit is also available in a smaller, more compact unit called the No.2.

PRODUCT CODE:	DESCRIPTION:
DRIVERS UNIT STANDARD - 12 WAY:	
*9506.12	32V, D-Tronic PCB
*9506.13	110V, D-Tronic PCB
*9506.06	32V, Evolution PCB
*9506.14	110V, Evolution PCB
*9506.63	32V, DBS44 PCB
*9506.64	110V, DBS44 PCB
DRIVERS UNIT NO.2 - 12 WAY:	
*9506.04	32V, D-Tronic PCB
*9506.15	110V, D-Tronic PCB
*9506.16	32V, Evolution PCB
*9506.17	110V, Evolution PCB
*9506.65	32V, DBS44 PCB
*9506.66	110V, DBS44 PCB



SIGNALLING UNIT - 12 WAY

The Signalling Unit is a replacement that fits into the Belltronic Lockbell Bank or Underground Unit.

- 316 Stainless steel engraved fascia plate
- Mild steel back box
- Equipped with various pc boards

This Signalling Unit is also available in a smaller, more compact unit called the No.2.

PRODUCT CODE:	DESCRIPTION:
SIGNALLING UNIT STANDARD - 12 WAY:	
*9506.00	32V, D-Tronic PCB
*9506.01	110V, D-Tronic PCB
*9506.29	32V, Evolution PCB
*9506.30	110V, Evolution PCB
*9506.67	32V, DBS44 PCB
*9506.68	110V, DBS44 PCB
SIGNALLING UNIT NO.2 - 12 WAY:	
*9506.02	32V, D-Tronic PCB
*9506.31	110V, D-Tronic PCB
*9506.32	32V, Evolution PCB
*9506.33	110V, Evolution PCB
*9506.69	32V, DBS44 PCB
*9506.70	110V, DBS44 PCB



SIGNALLING UNIT - 13 WAY

The Signalling Unit is a replacement that fits into the Belltronic Lockbell Bank or Underground Unit.

- 316 Stainless steel engraved fascia plate
- Mild steel back box
- Equipped with various pc boards

This Signalling Unit is also available in a smaller, more compact unit called the No.2.

PRODUCT CODE:	DESCRIPTION:
SIGNALLING UNIT STANDARD - 13 WAY:	
*9506.34	32V, D-Tronic PCB
*9506.35	110V, D-Tronic PCB
*9506.36	32V, Evolution PCB
*9506.37	110V, Evolution PCB
*9506.71	32V, DBS44 PCB
*9506.72	110V, DBS44 PCB
SIGNALLING UNIT NO.2 - 13 WAY:	
*9506.38	32V, D-Tronic PCB
*9506.39	110V, D-Tronic PCB
*9506.40	32V, Evolution PCB
*9506.41	110V, Evolution PCB
*9506.73	32V, DBS44 PCB
*9506.74	110V, DBS44 PCB



SIGNALLING UNIT - 15 WAY

The Signalling Unit is a replacement that fits into the Belltronic Lockbell Bank or Underground Unit.

- 316 Stainless steel engraved fascia plate
- Mild steel back box
- Equipped with various pc boards

This Signalling Unit is also available in a smaller, more compact unit called the No.2.

PRODUCT CODE:	DESCRIPTION:
SIGNALLING UNIT STANDARD - 15 WAY:	
*9506.42	32V, D-Tronic PCB
*9506.43	110V, D-Tronic PCB
*9506.44	32V, Evolution PCB
*9506.45	110V, Evolution PCB
*9506.75	32V, DBS44 PCB
*9506.76	110V, DBS44 PCB
SIGNALLING UNIT NO.2 - 15 WAY:	
*9506.46	32V, D-Tronic PCB
*9506.47	110V, D-Tronic PCB
*9506.48	32V, Evolution PCB
*9506.49	110V, Evolution PCB
*9506.77	32V, DBS44 PCB
*9506.78	110V, DBS44 PCB



MONITORING TYPE SIGNALLING UNIT

This Signalling Unit communicates between the driver and banksman, driver and onsetter and is equipped with 3 additional buttons, namely 4.1, 4.2 and 3.3.3 for ease of signalling.

This unit has been designed to interface with the D-Matrix Station Monitoring System.

PRODUCT CODE:	DESCRIPTION:
*1151.01	15 Way, 32V D-Tronic
*1151.02	15 Way, 110V D-Tronic



BELLTRONIC BANK UNIT

This unit is to communicate between the banksman and the driver. The unit is manufactured in 3CR12 stainless steel and equipped with:

- A push button signalling device to communicate to the driver.
- Evolution DBS44 or D-Tronic PC Board.
- Fitted with either a PP, Castell or Fortress key switch.
- Various audible devices, such as bell, sounder, cybertone, etc.
- The unit is available in either 32V / 110V AC or 32V DC.
- This unit is fitted with a "Telltale" sounder.

Note: The unit has a switch off facility feature and always completes every signal rung.

PRODUCT CODE:	DESCRIPTION:
*9505.00	D-Tronic & Castell
*9505.01	D-Tronic & PP
*9505.06	D-Tronic & Fortress
*9505.08	Evolution & Castell
*9505.24	Evolution & PP
*9505.22	Evolution & Fortress
*9505.98	DBS44 - 32V & Castell
*9505.99	DBS44 - 110V & Castell
*9505.100	DBS44 - 32V & Fortress
*9505.101	DBS44 - 110V & Fortress
*9505.102	DBS44 - 32V & PP
*9505.103	DBS44 - 110V & PP



BELLTRONIC UNDERGROUND UNIT

This unit is to communicate between the onsetter and the driver. The unit is manufactured in 3CR12 stainless steel and equipped with:

- A push button signalling device to communicate to the driver.
- Evolution DBS44 or D-Tronic PC Board.
- Fitted with either a PP, Castell or Fortress key switch.
- Various audible devices, such as bell, sounder, cybertone, etc.
- The unit is available in either 32V / 110V AC or 32V DC.

Note: The unit has a switch off facility feature and always completes every signal rung.

PRODUCT CODE:	DESCRIPTION:
*9504.00	D-Tronic & Castell
*9504.01	D-Tronic & PP
*9504.06	D-Tronic & Fortress
*9504.07	Evolution & Castell
*9504.10	Evolution & PP
*9504.60	Evolution & Fortress
*9504.99	DBS44 - 32V & Castell
*9504.100	DBS44 - 110V & Castell
*9504.101	DBS44 - 32V & Fortress
*9504.102	DBS44 - 110V & Fortress
*9504.103	DBS44 - 32V & PP
*9504.104	DBS44 - 110V & PP



NO.2 BELLTRONIC BANK UNIT

This unit is smaller, more compact and has the same features as that of the Standard Bank Unit. The purpose of this unit is to communicate between the banksman and the driver and is situated on the bank (surface).

- A push button signalling device to communicate to the driver.
- Evolution DBS44 or D-Tronic PC Board.
- Fitted with either a PP, Castell or Fortress key switch.
- Various audible devices, such as bell, sounder, cybertone, etc.
- The unit is available in either 32V / 110V AC or 32V DC.
- This unit is fitted with a "Telltale" sounder.

Note: The unit has a switch off facility feature and always completes every signal rung.

PRODUCT CODE:	DESCRIPTION:
*9505.02	D-Tronic & Castell
*9505.03	D-Tronic & PP
*9505.07	D-Tronic & Fortress
*9505.09	Evolution & Castell
*9505.10	Evolution & PP
*9505.23	Evolution & Fortress
*9505.110	DBS44 - 32V & Castell
*9505.111	DBS44 - 110V & Castell
*9505.112	DBS44 - 32V & Fortress
*9505.113	DBS44 - 110V & Fortress
*9505.114	DBS44 - 32V & PP
*9505.115	DBS44 - 110V & PP

NO.2 BELLTRONIC UNDERGROUND UNIT

This unit is smaller, more compact and has the same features as that of the standard onsetters unit. The purpose of this unit is to communicate between the onsetter and the driver and is situated on all the levels.

The unit is manufactured in 3CR12 stainless steel and equipped with:

- A push button signalling device to communicate to the driver.
- Evolution, DBS44 or D-Tronic PC Board.
- Fitted with either a PP, Castell or Fortress key switch.
- Various audible devices, such as bell, sounder, cybertone, etc.
- The unit is available in either 32V / 110V AC or 32V DC.

Note: The unit has a switch off facility feature and always completes every signal rung.

PRODUCT CODE:	DESCRIPTION:
BELLTRONIC UNDERGROUND UNIT NO.2 - 12 WAY:	
*9504.03	D-Tronic & PP
*9504.02	D-Tronic & Castell
*9504.11	Evolution & Castell
*9504.12	Evolution & PP
*9504.28	D-Tronic & Fortress
*9504.61	Evolution & Fortress
*9504.105	DBS44 - 32V & Castell
*9504.106	DBS44 - 110V & Castell
*9504.107	DBS44 - 32V & Fortress
*9504.108	DBS44 - 110V & Fortress
*9504.109	DBS44 - 32V & PP
*9504.110	DBS44 - 110V & PP
BELLTRONIC UNDERGROUND UNIT NO.2 - 15 WAY:	
*9504.13	D-Tronic & Castell
*9504.41	Evolution & Castell
*9504.42	D-Tronic & PP
*9504.43	Evolution & PP

BELLTRONIC BANK UNIT MEN & MATERIAL UNIT 15 WAY

The Belltronic Bank Men & Material unit is the same as the Standard Bank Unit except that it has an additional safety feature which will only allow 4/1, 4/2, 1, 2 and long ring to be transmitted when the unit on the station is in the material mode. This prevents the station gates from being overridden and the conveyance being rung away at full speed.

The Unit is equipped with:

- A push button signalling device to communicate to the driver.
- Evolution, DBS44 or D-Tronic PC Board.
- Fitted with either a PP, Castell or Fortress key switch.
- Various audible devices, such as bell, sounder, cybertone, etc.
- The unit is available in either 32V / 110V AC or 32V DC.
- This unit is fitted with a "Telltale" sounder.

Note: The unit has a switch off facility feature and always completes every signal rung.

PRODUCT CODE:	DESCRIPTION:
*9504.98	D-Tronic & Castell
*9504.44	D-Tronic & PP
*9504.45	Evolution & Castell
*9504.46	Evolution & PP
*9505.104	DBS44 - 32V & Castell
*9505.105	DBS44 - 110V & Castell
*9505.106	DBS44 - 32V & Fortress
*9505.107	DBS44 - 110V & Fortress
*9505.108	DBS44 - 32V & PP
*9505.109	DBS44 - 110V & PP

BELLTRONIC UNDERGROUND UNIT MEN & MATERIAL UNIT 15 WAY

The Belltronic Underground Men & Material unit is the same as the Standard Underground Unit except that it has an additional safety feature which will only allow 4/1, 4/2, 1, 2 and long ring to be transmitted when the unit on the station is in the material mode. This prevents the station gates from being overridden and the conveyance being rung away at full speed.

The Unit is equipped with:

- A push button signalling device to communicate to the driver.
- Evolution, DBS44 or D-Tronic PC Board.
- Fitted with either a PP, Castell or Fortress key switch.
- Various audible devices, such as bell, sounder, cybertone, etc.
- The unit is available in either 32V / 110V AC or 32V DC.
- This unit is fitted with a "Telltale" sounder

Note: The unit has a switch off facility feature and always completes every signal rung.

PRODUCT CODE:	DESCRIPTION:
*9504.29	D-Tronic & Castell
*9504.47	D-Tronic & PP
*9504.48	Evolution & Castell
*9504.49	Evolution & PP
*9504.111	DBS44 - 32V & Castell
*9504.112	DBS44 - 110V & Castell
*9504.113	DBS44 - 32V & Fortress
*9504.114	DBS44 - 110V & Fortress
*9504.115	DBS44 - 32V & PP
*9504.116	DBS44 - 110V & PP

POLYCARBONATE BANK UNIT

The purpose of this unit is to communicate between the Banksman and the driver and is situated on the bank. The unit is manufactured in polycarbonate and equipped with:

- Push button signalling device to communicate to the driver.
- Evolution, DBS44 or D-Tronic PC Board.
- Fitted with a PP, Castell or Fortress key switch.
- Various audible devices, such as bell, sounder, cybertone, etc.
- Lock & clear lights are fitted behind the lid of the enclosure ensuring its IP65 rating.

The unit is available in either 32V / 110V AC or 32V DC.

Note: The unit has a switch off facility feature and always completes every signal rung.

Various Signalling Units can be manufactured in Polycarbonate as per customer specifications.

PRODUCT CODE:	DESCRIPTION:
*9504.04	c/w Castell K/switch
*9504.05	c/w PP K/switch



POLYCARBONATE UNDERGROUND UNIT

The purpose of this unit is to communicate between the Onsetter and the driver and is situated on every level. The unit is manufactured in polycarbonate and equipped with:

- Push button signalling device to communicate to the driver.
- Evolution DBS44 or D-Tronic PC Board.
- Fitted with a PP, Castell or Fortress key switch.
- Various audible devices, such as bell, sounder, cybertone, etc.
- Lock & clear lights are fitted behind the lid of the enclosure ensuring its IP65 rating.

The unit is available in either 32V / 110V AC or 32V DC.
Note: The unit has a switch off facility feature and always completes every signal rung.

Various Signalling Units can be manufactured in Polycarbonate as per customer specifications.

PRODUCT CODE:	DESCRIPTION:
*9504.04	c/w Castell K/switch
*9504.05	c/w PP K/Switch



ELECTRONIC CALL BELL UNIT (ECB)

This emergency signalling device is situated on every level in a shaft. Fitted with two buttons each behind glass, labelled accident to person and accident to shaft.

Breaking the glass and activating the "Accident to shaft" button will immediately stop the winder. The driver will only be able to proceed with operations once the accident has been investigated and cleared by the shaft engineer.

Operation: The unit transmits the following signals:

- Accident to person = 10 Rings, followed by the station (level) ID and repeated.
- Accident to shaft = a long ring, followed by the station (level) ID and repeated.
- A LED light indicates which unit was activated and must be reset at that particular level.

The unit also has a test facility when doing regular maintenance.

PRODUCT CODE:	DESCRIPTION:
*9507.08	32V, D-Tronic PCB
*9507.05	110V, D-Tronic PCB
*9507.00	32V, Evolution PCB
*9507.01	110V, Evolution PCB
*9507.40	32V, DBS44 PCB
*9507.41	110V, DBS44 PCB



ELECTRONIC CALL BELL UNIT (ESCB)

The ESCB Call Bell Unit is generally the same as the Call Bell (ECB) with an added feature, an additional push button. Once the glass is broken and the button activated, after a 10 second delay a signalling button can be used for signalling the driver. Fitted with two buttons each behind glass, which are labelled accident to person and accident to shaft.

Breaking the glass and activating the "Accident to shaft" button will immediately stop the winder.

The driver will only be able to proceed with operations once the accident has been investigated and cleared by the shaft engineer.

Operation: The unit transmits the following signals:

- Accident to person= 10 Rings, followed by the station (level) ID and repeated.
- Accident to shaft= a long ring, followed by the station (level) ID and repeated.
- A LED light indicates which unit was activated and must be reset at that particular level.

The unit also has a test facility when doing regular maintenance.

PRODUCT CODE:	DESCRIPTION:
CALL BEL UNIT (ESCB) DP2:	
*9507.03	32V, D-Tronic PCB
*9507.23	110V, D-Tronic PCB
*9507.21	32V, Evolution PCB
*9507.22	110V, Evolution PCB
*9507.42	32V, DBS44 PCB
*9507.43	110V, DBS44 PCB
CALL BELL UNIT (ESCB) DP3:	
*9507.06	32V, D-Tronic PCB
*9507.26	110V, D-Tronic PCB
*9507.24	32V, Evolution PCB
*9507.25	110V, Evolution PCB
*9507.44	32V, DBS44 PCB
*9507.45	110V, DBS44 PCB

WITH SPECIAL SIGNALLING BUTTON



NO.2 ELECTRONIC CALL BELL

This unit is smaller, more compact and has the same features as that of the Standard Call Bell Unit.

This emergency signalling device is situated on every level in a shaft. Fitted with two buttons each behind glass, labelled accident to person and accident to shaft. Breaking the glass and activating the "Accident to shaft" button will immediately stop the winder. The driver will only be able to proceed with operations once the accident has been investigated and cleared by the shaft engineer.

Operation: The unit transmits the following signals:

- Accident to person= 10 Rings, followed by the station (level) ID and repeated
- Accident to shaft= a long ring, followed by the station (level) ID and repeated
- A LED light indicates which unit was activated and must be reset at that particular level.

The unit also has a test facility when doing regular maintenance.

PRODUCT CODE:	DESCRIPTION:
*9507.02	32V, D-Tronic PCB
*9507.17	110V, D-Tronic PCB
*9507.09	32V, Evolution PCB
*9507.04	110V, Evolution PCB
*9507.46	32V, DBS44 PCB
*9507.47	110V, DBS44 PCB

SMALLER COMPACT UNIT



REMOTE CALL BELL UNIT

The Remote Call Bell Unit is an extension of a Standard Call Bell Unit (previous page) that is situated at the shaft gate. The unit allows for activation from a position outside of the station area that is behind a traditional shift control gate.

Operation: The unit transmits the following signals:

- Accident to person = 10 Rings, followed by the station (level) ID and repeated.
- Accident to shaft = a long ring, followed by the station (level) ID and repeated.
- A LED light indicates which unit was activated and must be reset at that particular level.
- The unit also has a test facility when doing regular maintenance.

PRODUCT CODE:	DESCRIPTION:
*9508.00	Remote Call Bell Unit

Note:

The Remote Call Bell Unit will only operate if the main Call Bell is equipped for remote facility.



VISUAL BELLTRONIC DISPLAY

The Digital Signalling Display Unit can be retrofitted to any of Deebars's standard Belltronic signalling units.

When a signal is transmitted in addition to the audible sound, the Digital Display Unit will visually show the last signals rung on the LCD display, it also identifies where the signal has come from.

Due to the human element, signals (sounds) can be misinterpreted and often do, causing the operator to inadvertently not act in accordance with the law, which has caused many fatal accidents, this can assist in preventing these.

VISUAL BELLS

PRODUCT CODE:	DESCRIPTION:
*9507.12	Lockbell Display 32V
*9507.15	Lockbell Display 110V
*9507.13	Drivers Display 32V
*9507.16	Drivers Display 110V



MINE SHAFT EVENT RECORDER

The Event Recorder is designed to monitor and record various activities pertaining to Shaft Signalling and Safety Devices on all Shaft Stations and at the Winder.

Every signal and activity is monitored and recorded by the Event Recorder. This information can be graphically displayed, archived and printed out as required, thus providing a full history of all shaft station activities.

The Event Recorder can also be fitted with a Tachograph, e-mail and sms facilities as an optional extra.

PRODUCT CODE:	DESCRIPTION:
*9510.00	1 Winder
*9511.00	2 Winder
*9512.00	3 Winder
*9513.00	4 Winder



ELECTRONIC SHAFT SIGNALLING SPARES

A range of additional spares that is available for the Electronic Shaft Signalling, such as:

- Cybertone.
- D-Tone Sounder.
- Buzzer c/w Box and Bracket.
- Range of Switches.
- Solid State Relay

PRODUCT CODE:	DESCRIPTION:
*9505.33	Buzzer c/w Box & Bracket 32V
*9505.32	Buzzer c/w Box & Bracket 110V
*9517.01	Cybertone 24V DC
*9517.03	Cybertone 32V AC/DC
*9517.02	Cybertone 110V
*3555.00	CR-0202 Switch
*3555.03	CR-0211 Switch
*3555.04	CR-0212 Switch
*3555.05	CR-0213 Switch
*9505.35	D-Tone Sounder 32V
*9505.36	D-Tone Sounder 110V
*9505.38	D-Tone Sounder 220V
*0163.22	Solid State Relay (SSR) 110V



LOCKBELL RELAY PANEL

The Deebars Relay Panel's function is to interface between the Winder and the Bell Communication System.

Available either as a:

- PLC Control Solid State Type
- Heavy Duty Relay Type

Functions:

- The relay drives the Lock and Clear Lights on the Bank and on various Levels
- Brake Interlocking with Bell System
- Winder brake delays are:
 - Men Mode - 15 Sec delay
 - Material Mode - 5 Sec delay
- Relocking of Bells if Driver does not respond - 80 Sec delay
- Adjustable to suit Mine requirements

PRODUCT CODE:	DESCRIPTION:
*9014.____	Lockbell Relay Panel



DBS44 PC BOARD

- The DBS44 PCB is an intelligent signalling card used in Lock and Call Bell units.
 - Increased Ground Plane added to suppress any undesirable noise spikes.
 - Compatibility to existing Deebars PC Boards.
 - Additional external ID available.
 - Robust soldered in CPU, ensures stability.
 - Robust RS485 communication port for programming.
 - Enhanced capacitor value to insure voltage stability during power dips.
 - Bell Type (Lockbell or Callbell) to be selected with jumpers.
- Switch mode power supply to improve efficiency and to accept a broader range of supply voltages.

PRODUCT CODE:	DESCRIPTION:
LOCKBELL / CALL BELL:	
*0163.34	32V PCB
*0163.35	110V PCB



D-TRONIC PC BOARD

- The D-Tronic PCB is an intelligent signalling card used in Lock and Call Bell units.
- The PCB is fitted with an Integrated Circuit (IC) and is factory set to be used either as a Lock or a Call bell card.
- Material mode – a safety feature only allows 4/1, 4/2, 1, 2 and long ring.
- Inhibit Circuit – built in safety feature prevents over-ringing of signals.
- Millisecond Spacing – PCB are factory pre-set to the industry standard.
- Switch off facility – designed to ensure that the signal rung is completed.

PRODUCT CODE:	DESCRIPTION:
LOCKBELL:	
*0163.02	32V PCB
*0163.04	110V PCB
MEN-MATERIAL	
*0163.03	32V PCB
*0163.05	110V PCB
CALL BELL:	
*0163.02	32V PCB
*0163.04	110V PCB



EVOLUTION PC BOARD

- The Evolution PCB, an intelligent signaling device, is microprocessor based and as a result can be changed from a Lock Bell card to a Call Bell PCB by utilising a portable programming device; this can be done on site if necessary.
- Due to its versatility, the Station ID of the Card can also be changed to suit your requirements. In addition, if a different number button is required, the card can be programmed to suit the Key pad.

PRODUCT CODE:	DESCRIPTION:
LOCKBELL / CALLBELL:	
*0163.07	32V PCB
*0163.08	50V PCB
*0163.09	110V PCB



DBS44 PROGRAMMER

- The DBS44 Hand Held Programmer is used to program the DBS44 PC Board to meet the mines specifications for example.
- From Lock Bell to Call Bell.
- Changing a number, i.e 11 to ring 13.

PRODUCT CODE:	DESCRIPTION:
*0163.30	DBS44 Programmer



EVOLUTION PROGRAMMER

- The hand held Programmer is used to program the Evolution Card to meet the mines specifications for example:
- From Lock Bell to Call Bell.
 - Changing a number, i.e. 11 to ring 13.
 - Adding another button will require the PC Board to be re-programmed.

PRODUCT CODE:	DESCRIPTION:
*0163.19	Evolution Programmer



WALLCOMM MK1

Robust IP65 rated, 2 Wire Intercom System with Battery Backup designed for arduous conditions.

- Available in Mild Steel or 430 Stainless Steel
- The PCB and Battery is enclosed in a internal enclosure
- Built in charger with NiCad Batteries, Standby time ±10 Hours
- Transmit and Receive Levels adjustable
- Unlimited number of intercoms on a system
- Tone calling & Paging facility
- Supply Voltage 24V DC, 110V/220V AC
- Suggested Cable: Single or Individually Screened Twisted Pair Cable

PRODUCT CODE:	DESCRIPTION:
*9400.00	MK1 Mild Steel 110/220V
*9401.00	MK1 430 Stainless Steel 110/220V



WALLCOMM MK2 - INTRINSICALLY SAFE

Robust IP65 rated, 2 Wire intrinsically safe Intercom System for gases such as methane, petrol gases, ethylene group gases and hydrogen group gases, Also suited for Class 1 division 1 or 2 and Class 2 division 1 or 2 situations.

- Each unit has a Battery Backup, Standby time ±10 Hours
- Available in Mild Steel or 430 Stainless Steel
- The PCB and Battery is enclosed in a internal enclosure
- Built in charger with NiCad Batteries
- Transmit and Receive Levels adjustable
- Unlimited number of intercoms on a system
- Tone calling & Paging facility
- Supply Voltage 24V DC, 110V/220V AC
- Suggested Cable: Single or Individually Screened Twisted Pair Cable

PRODUCT CODE:	DESCRIPTION:
*9403.00	MK2 Mild Steel Intrinsically Safe
*9404.00	MK2 430 Stainless Steel Intrinsically Safe



WALLCOMM HIGH OUTPUT

High Output, IP65 Intercom Unit is fitted with a Flashing Beacon and an Audible Siren and used mainly in noisy environments where the flashing beacon and siren indicates the call.

- The unit is fitted with Battery Backup, Standby time ±10 Hours
- Available in Mild Steel or 430 Stainless Steel
- The PCB and Battery is enclosed in a internal enclosure
- Built in charger with NiCad Batteries
- Transmit and Receive Levels adjustable
- Unlimited number of intercoms on a system
- Tone calling & Paging facility
- Supply Voltage 24V DC, 110V/220V AC
- Suggested Cable: Single or Individually Screened Twisted Pair Cable

PRODUCT CODE:	DESCRIPTION:
*9425.01	Mild Steel (High Output)
*9425.05	Mild Steel (High Output) c/w Flashing Beacon & Siren
*9425.04	430 Stainless Steel (High Output)
*9425.06	430 Stainless Steel (High Output) c/w Flashing Beacon & Siren



POLYCOMM

A two Wire Intercom System with Battery Backup. Manufactured in a DMC Enclosure which is IP65 Rated.

- The Intercom can also be fitted with a Handset
- Built in charger with NiCad Batteries, Standby time ±10 Hours
- Transmit and Receive Levels adjustable
- Unlimited number of intercoms on a system
- Tone calling & Paging facility
- Supply Voltage 24V DC, 110V/220V AC
- Suggested Cable: Single or Individually Screened Twisted Pair Cable

PRODUCT CODE:	DESCRIPTION:
*9402.01	Polycomm with Handset
*9402.00	Polycomm without Handset



WINCH-COM

A two Wire Intercom System with Battery Backup. Manufactured in a DMC Enclosure which is IP65 Rated and then fitted in a 3CR12 s/steel housing with a canopy.

- Built in charger with NiCad Batteries, Standby time ±10 Hours
- Transmit and Receive Levels adjustable
- Unlimited number of intercoms on a system
- Tone calling & Paging facility
- Supply Voltage 24V DC, 110V/220V AC, 525V AC

PRODUCT CODE:	DESCRIPTION:
*9407.02	Winch-com



DEECOM 104

Robust and Tamperproof Intercom System. A two Wire Intercom System with Battery Backup designed for arduous conditions.

- Manufactured in 3CR12 Stainless Steel and epoxy powder coated.
- Fitted with Neoprene Handset & stainless steel cord
- Built in charger with NiCad Batteries, Standby time ±10 Hours
- Transmit and Receive Levels adjustable
- Unlimited number of intercoms on a system
- Tone calling & Paging facility
- Supply Voltage 24V DC, 110V/220V AC
- Suggested Cable: Single or Individually Screened Twisted Pair Cable

PRODUCT CODE:	DESCRIPTION:
*9407.01	Deecom 104 with handset
*9407.00	Deecom 104 without handset



DEECOM 101

The Deecom 101 is a Robust PABX/Auto type Telephone.

- 3CR12 Stainless Steel powder coated enclosure
- Concealed mounting to eliminate vandalism.
- Fitted with a Neoprene Handset.
- Stainless Steel Robust cord.
- Push Button in place of switch-hook to eliminate the possibility of the instrument being left inoperative.
- Recessed keypad and button to eliminate abuse.

PRODUCT CODE:	DESCRIPTION:
*9414.00	Push Button Telephone c/w Handset

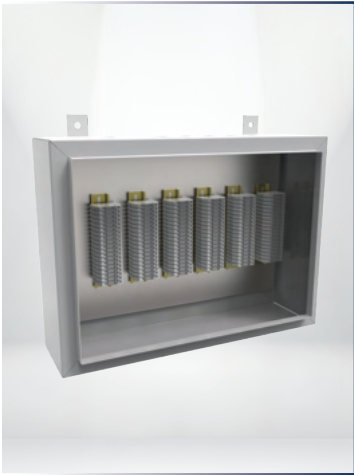


TELEPHONE SPARES

A range of additional spares that is available for the Wallcomm and Deecom range of products, such as:

- PC Boards for the Wallcomm / Polycomm / Deecom104 / Deecom 101
- Speakers 5Watt 8 Ohm
- Transmitter / receiver
- Power Supplies
- Nickel Cadmium Battery
- Microphone / Speaker Grills

PRODUCT CODE:	DESCRIPTION:
*0710.00	PC Board for Wallcomm MK1
*0710.02	PC Board for Wallcomm High Output
*0710.00	PC Board for Deecom 104
*0746.00	PC Board for Deecom 101
*0704.00	Speaker 4" 5W 8 Ohm
*0705.00	Microphone Grill
*0706.00	Speaker Grill
*0711.00	Transmitter / Reciever
*0712.00	Power Supply 110/220V DC
*0728.00	Nickle Cadium Battery



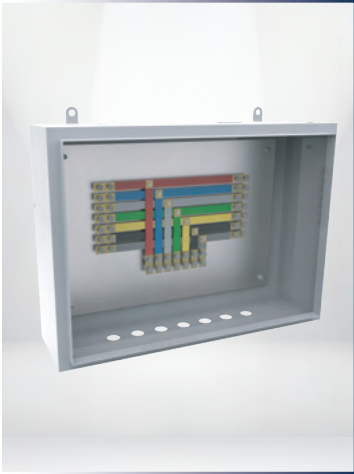
TELEPHONE DISTRIBUTION BOX

Telephone Distribution Boxes with Disconnect Terminals.

- Enclosure manufactured in 430 stainless steel.
- Supplied as 10/20/30/40/50 pair or to suit customer's specification.
- Fitted with Knife action Din Rail Disconnect Terminals or
- Krone terminals

NB Door removed for display purposes

PRODUCT CODE:	DESCRIPTION:
*9163.00	10 Pair c/w Din Rail Terminals
*9162.00	20 Pair c/w Din Rail Terminals
*9164.00	30 Pair c/w Din Rail Terminals
*9165.00	40 Pair c/w Din Rail Terminals
*9167.00	50 Pair c/w Din Rail Terminals



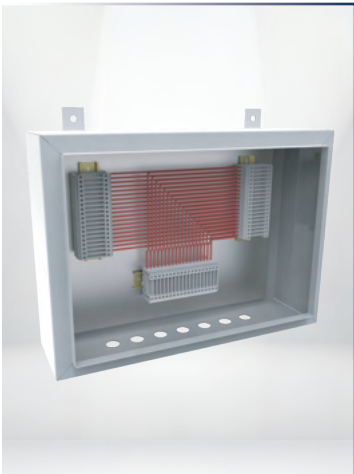
BELL DISTRIBUTION BOX - BUSBAR

Busbar type Used to terminate shaft bell cables on each level in a mine shaft.

- Enclosure manufactured in 430 stainless steel.
- Insulated colour coded Bus bars.
- Brass slide link terminals fitted to disconnect line for testing.
- Supplied in 7/9/12 and 19 way or to customer's specification.

NB Door removed for display purposes

PRODUCT CODE:	DESCRIPTION:
*9152.00	7 Way, c/w Busbars & Slide Links
*9156.00	12 Way, c/w Busbars & Slide Links
*9160.00	19 Way, c/w Busbars & Slide Links



BELL DISTRIBUTION BOX - WIRED

Wired type Used to terminate shaft bell cables on each level in a mine shaft.

- Enclosure manufactured in 430 stainless steel.
- Din Rail mounted terminals fitted to disconnect line for testing.
- Insulated wires. Pre-numbered
- Supplied standard 7/9/12/19/27 and 37 way or to customer's specifications.

NB Door removed for display purposes

PRODUCT CODE:	DESCRIPTION:
*9150.00	7 Way, in-out-local, wired to terminals
*9154.00	12 Way, in-out-local, wired to terminals
*9158.00	19 Way, in-out-local, wired to terminals

Illumination plays a critical role in mining because miners depend on proper illumination to safely perform their work and to see various mine and machinery-related hazards. Deebor offers various forms of mine lighting and indication as required in today's mining environments.



D-LITE SINGLE LENS

This single Lens D-Lite is used for indication, mainly in a mining or harsh environment.

- This energy efficient unit is available in various colours and is IP68 rated and robust in its design, being:
- Waterproof, shockproof and corrosion proof
- Maintenance free.
- Range of Switches.

Other colours available on request.

PRODUCT CODE:	DESCRIPTION:
*9139.11	LED Red 24V / 48V
*9139.14	LED Red 110V - 220V
*9139.12	LED Green 24V / 48V
*9139.15	LED Green 110V - 220V
*9144.03	LED White 24V / 48V
*9139.77	LED White 110V
*9144.04	LED White 220V



ROBOT D-LITES

Used mainly in mines or in harsh environments for Robot Indication. The LED PCB is encapsulated into the Terluran ABS housing with an epoxy resin making the product IP68. This D-Lite is robust, waterproof, shockproof, corrosion proof and energy efficient.

This unit can be supplied in the following format:

- Standard red & green lens - cross & tick (Cross in red and tick in green)
- Stop & Walk (Stop in Red and Walk in Green)

Two units bolted together make up a double aspect (front & back). Both the cross & tick and the stop & walk can be supplied in a vertical format with a protection hood.

PRODUCT CODE:	DESCRIPTION:
*9139.01	Single Aspect (LED) 24V / 48V
*9139.04	Single Aspect (LED) 110V - 220V
*9138.01	Double Aspect (LED) 24V / 48V
*9139.02	Double Aspect (LED) 110V - 220V

Electrical Specification 21mA @ 110V
Current Consumption 25mA @ 220V



LED CLUSTER LIGHTS

This 16 LED cluster is used for illumination on Belltronic Lockbell signalling units in the Deebor Pilot Light

Available in either a B22 bayonet base or E27 screw base.
Available in either red, green or amber LED.

PRODUCT CODE:	DESCRIPTION:
*0106.02	32V Red B22
*0106.03	32V Green B22
*0105.05	110V Red B22
*0105.04	110V Green B22
*0106.06	220V Red B22
*0106.07	220V Green B22



MINI INDICATION LIGHTS

This single Lens indication light is used on Lockbell units for mine signalling.

This energy efficient unit is available in various colours and is IP68 rated and robust in its design, being:

- Waterproof, shockproof and corrosion proof
- Maintenance free.
- Available in 24-48V, 110V, 220V.

PRODUCT CODE:	DESCRIPTION:
*0105.08	MIL Red 24-48V
*0105.09	MIL Green 24-48V
*0105.07	MIL Red 110V
*0105.06	MIL Green 110V
*0105.10	MIL Red 220V
*0105.11	MIL Green 220V



BEACON SCATTER LIGHTS - c/w STUD

Fully encapsulated in a polycarbonate transparent housing, the unit is visible at 360°.

The unit can be supplied in flashing or non-flashing. Fitted with a 16mm stud and lock nut ensures robust mounting.

The LED PCB is encapsulated into the housing with a clear epoxy resin ensuring IP68 status. Available in various colours and voltages.

PRODUCT CODE:	DESCRIPTION:
*9139.32	220V AC Flashing Red (Big)
*9139.34	220V AC Flashing Green (Big)
*9139.72	220V AC Flashing Red (Small)
*9139.38	220V AC Flashing Green (Small)

[Other voltage on request](#)



BEACON SCATTER LIGHTS - ES TYPE

Fully encapsulated in a polycarbonate transparent housing, the unit is visible at 360°.

The unit can be supplied in flashing or non-flashing. Fitted with a E27 screw base. The LED PCB is encapsulated into the housing with a clear epoxy resin ensuring IP68 status.

Available in various colours and voltages.

PRODUCT CODE:	DESCRIPTION:
*9139.81	Scatter Light ES Type



REFUGE BAY LIGHT

The unit consists of an Enclosure with the word REFUGE BAY engraved on an Opaque Perspex. In the case of an emergency, the remote emergency switch which can be situated in the Refuge Bay can be activated, lighting up the Refuge Bay Light, this will also activate the siren and beacon flashing light.

In the event of a power failure, the units automatically lights up with a siren and flashing lights.

The unit will visually and audibly indicate the position of the Refuge Bay to any rescuers.

The unit is fitted with a battery backup of up to 10 hours in the event of a power failure.

PRODUCT CODE:	DESCRIPTION:
*9503.02	110V AC Unit
*9503.00	220V AC Unit



DANGER INDICATION BOX

The Danger Box enclosure is manufactured in 430 stainless steel and fitted with E27 ES porcelain lamp holders wired to a terminal lock to accommodate 3 x ES lamps.

Danger/Gevaar/Ingozi is applied on to an opaque perspex.

PRODUCT CODE:	DESCRIPTION:
*9134.00	Single Aspect
*9135.00	Double Aspect



LEVEL INDICATION BOX

The Level Indication Box enclosure is manufactured in 430 stainless steel and fitted with E27 ES porcelain lamp holders wired to a terminal block to accommodate 3 x ES lamps.

Any inscription to suit customer's specification can be applied on to the opaque perspex

PRODUCT CODE:	DESCRIPTION:
*9134.00	Single Aspect
*9135.00	Double Aspect



ROBOT BOX - LED

Single Aspect

This Robot Box is manufactured in 430 stainless steel and fitted with a red & green lens on either side. Behind each lens the unit has two LED, PC Boards.

Double Aspect

This unit is similar to the above single aspect but has two additional lenses on the opposite side of the enclosure making it visible from both sides.

PRODUCT CODE:	DESCRIPTION:
*9122.00	Double Aspect (LED) 24V / 48V
*9123.01	Double Aspect (LED) 110V
*9123.18	Double Aspect (LED) 220V
*9123.00	Single Aspect (LED) 24V / 48V
*9123.02	Single Aspect (LED) 110V
*9123.03	Single Aspect (LED) 220V



ROBOT BOX - INCANDESCENT

Single Aspect

This Robot Box is manufactured in 430 stainless steel and fitted with a red & green lens on either side. Behind each lens the unit has E27 porcelain holders to accommodate 2 incandescent lamps or energy saving lamps.

Double Aspect

This unit is similar to the above single aspect but has two additional lenses on the opposite side of the enclosure making it visible from both sides.

PRODUCT CODE:	DESCRIPTION:
*9128.00	Single Aspect Incandescent
*9129.00	Double Aspect Incandescent



VML LIGHTING

The VML fittings operate with an Electronic Ballast and suitable for 4 pin 13Watt energy saving compact fluorescent lamps and is available as follows:

- VML-ES for use on Existing Fittings
- VML-NI for use in new installations

PRODUCT CODE:	DESCRIPTION:
*9703.01	VML - ES
*9703.02	VML - NI



RUBBER HAULAGE LIGHTING HOLDER

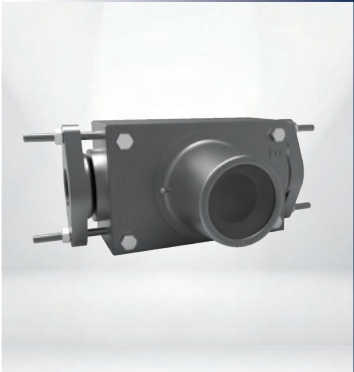
The Haulage Lighting Holder is manufactured from hard moulded, non-toxic and flame proof rubber and can be supplied with either:

- ES Lamp Holder to accommodate an energy saving/ standard lamp or
- 5 Amp or 16 Amp 3 Pin Socket to plug in an alternative fitting

These holders can be fitted to make up lengths of lighting cable with holders fitted at any specified spacing to suit customer's exact specification.

The armouring of cable is not cut which ensures earth continuity and overall mechanical strength throughout the length of the cable.

PRODUCT CODE:	DESCRIPTION:
*9700.11	Holder c/w Edison Screw
*9700.12	Holder c/w 5 Amp Socket
*9700.13	Holder c/w 16 Amp Socket



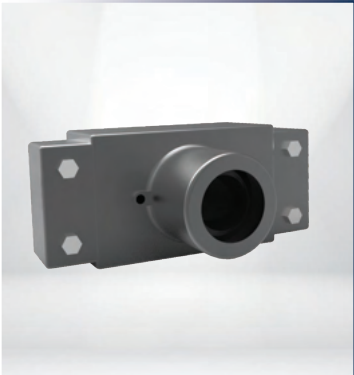
ALUMINIUM HAULAGE LIGHTING BOX

The Haulage Lighting Box is a cast aluminium holder and is fitted with an E.S Lamp Holder to accommodate an energy saving / standard lamp.

The Haulage Lighting Box has a mechanical gland on each end for terminating to cable.

These holders can be fitted to make up lengths of lighting cable with holders fitted at any specified spacing to suit customer's exact specifications.

PRODUCT CODE:	DESCRIPTION:
*9700.00	2 Way
*9701.00	3 Way
*9702.00	4 Way



THRU BOX - HAULAGE LIGHTING BOX

The Haulage Lighting Holder is a cast aluminium holder and is fitted with either:

- E.S Lamp Holder to accommodate an energy saving / standard lamp or
- 16 Amp 3 Pin Socket.

These holders can be fitted to make up lengths of lighting cable with holders fitted at any specified spacing to suit customer's exact specifications.

The armouring of cable is not cut which ensures earth continuity and overall mechanical strength throughout the length of the cable.

PRODUCT CODE:	DESCRIPTION:
*9713.00	Aluminium Thru Box - ES
*9713.01	Aluminium Thru Box - 16 Amp Socket



ALUMINIUM BLASTING BOX

The Blasting Box is used as a connection box when doing blasting underground.

The unit is manufactured in cast aluminium with 2 mechanical glands for cable termination and an insulated lid with "quick connecting" spring loaded brass or stainless steel terminals.

PRODUCT CODE:	DESCRIPTION:
*9711.00	c/w Glands
*9710.00	w/o Glands



CCG BLASTING BOX

This Blasting Box is also used as a connection box when blasting underground.

The unit is manufactured in cast aluminium with 2 mechanical glands for cable termination with the "quick connecting" spring loaded brass or stainless steel terminals fitted through insulated bushes in the side of the unit.

PRODUCT CODE:	DESCRIPTION:
*9711.04	Blasting Box c/w Stainless Steel Terminal

A key switch is a switch that can be activated only by the use of a key. They are usually used in situations where access needs to be restricted to the switch's functions. Deebars offer 3 ranges of standard keyswitches; Castell, Fortress and PP Keyswitches.



CASTELL KEYS

Manufactured in brass making it ideally suited to use in harsh or corrosive environments.

Other Series on Request

PRODUCT CODE:	DESCRIPTION:
*0109.02	L1 Castell Key
*0110.02	L2 Castell Key
*0111.02	L3 Castell Key
*0112.02	L4 Castell Key
*0113.02	L5 Castell Key



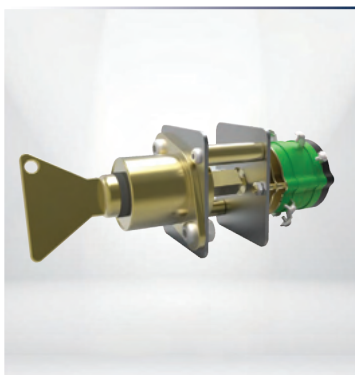
CASTELL LOCK - C/W SWITCH

Suitable for insulating power to equipment or machinery.

Manufactured in brass for use in corrosive areas, this lock can be fitted with a variety of switch configurations. Standard with 1 x NO Contact.

Other Series on Request

PRODUCT CODE:	DESCRIPTION:
*9519.00	L1 Castell Key c/w Switch
*9519.01	L2 Castell Key c/w Switch
*9519.02	L3 Castell Key c/w Switch
*9519.03	L4 Castell Key c/w Switch
*9519.04	L5 Castell Key c/w Switch



CASTELL LOCK - C/W SWITCH & KEY

Suitable for insulating power to equipment or machinery.

Manufactured in brass for use in corrosive areas, this lock can be fitted with a variety of switch configurations. Standard with 1 x NO Contact.

Other Series on Request

PRODUCT CODE:	DESCRIPTION:
*9519.00	L1 Castell Key c/w Switch & Key
*9519.01	L2 Castell Key c/w Switch & Key
*9519.02	L3 Castell Key c/w Switch & Key
*9519.03	L4 Castell Key c/w Switch & Key
*9519.04	L5 Castell Key c/w Switch & Key



PP KEYS

Brass plated keys for use on PP Locks used in Shaft Signalling Units. Key directly drives the Switch Shaft.

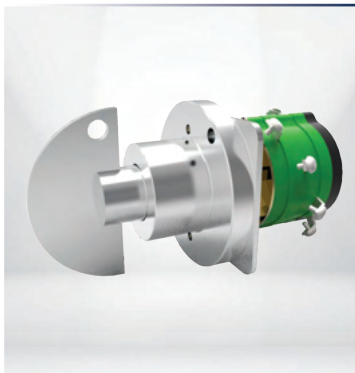
PRODUCT CODE:	DESCRIPTION:
*0193.01	PPA Key
*0193.03	PPB Key
*0193.05	PPC Key
*0193.07	PPD Key
*0193.09	PPE Key
*0193.11	PPF Key
*0193.13	PPG Key
*0193.15	PPH Key



PP LOCKS - C/W SWITCH

The PP Locks are manufactured in brass and are electro plated and is supplied as a standard with a switch with a N/O contact, however the key switch can be supplied with special switch ratings and/or contact arrangement.

PRODUCT CODE:	DESCRIPTION:
*9518.24	PPA Lock c/w Switch
*9518.25	PPB Lock c/w Switch
*9518.26	PPC Lock c/w Switch
*9518.27	PPD Lock c/w Switch
*9518.28	PPE Lock c/w Switch
*9518.29	PPF Lock c/w Switch
*9518.30	PPG Lock c/w Switch
*9518.31	PPH Lock c/w Switch



PP LOCKS - C/W SWITCH & KEY

The PP Locks are manufactured in brass and are electro plated and is supplied as a standard with a switch with a N/O contact, however the key switch can be supplied with special switch ratings and/or contact arrangement.

Due to it's design, the key drives the switch shaft directly.

PRODUCT CODE:	DESCRIPTION:
*9518.16	PPA Lock c/w Switch & Key
*9518.17	PPB Lock c/w Switch & Key
*9518.18	PPC Lock c/w Switch & Key
*9518.19	PPD Lock c/w Switch & Key
*9518.20	PPE Lock c/w Switch & Key
*9518.21	PPF Lock c/w Switch & Key
*9518.22	PPG Lock c/w Switch & Key
*9518.23	PPH Lock c/w Switch & Key



CL FORTRESS KEYS

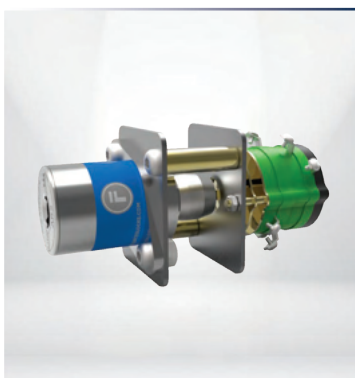
Standard Keys

Fortress Keys are manufactured from 316 Stainless Steel and have over 200 000 different combinations. Each different key combination is allocated with an engraved code onto the lock & key, of up to 30 characters (3 lines of 10 characters). Low profile configuration keys are also available.

Low Profile Keys

Low profile configurations are also available.

PRODUCT CODE:	DESCRIPTION:
STANDARD KEY	
*3600.00	Standard CL Key
LOW PROFILE KEYS	
*3600.05	Low Profile CL Key



CL FORTRESS LOCK - C/W SWITCH

Fortress Key Switch is suitable for Isolation, Switching Current or Isolating power to machinery. Direct Drive Operation – positively opens contacts. Special switching rating and / or contact arrangements available on request.

PRODUCT CODE:	DESCRIPTION:
*3903.08	Key switch 4 Pole 2N/O & 2N/C - CR-0213



CL FORTRESS LOCK - C/W SWITCH & KEY

Fortress Key Switch is suitable for Isolation, Switching Current or Isolating power to machinery. Direct Drive Operation – positively opens contacts. Special switching rating and / or contact arrangements available on request.

PRODUCT CODE:	DESCRIPTION:
*3903.01	Key switch 1 Pole Off/On - CR-0202
*3903.02	Key switch 2 Pole Off/On - CR-0211
*3903.03	Key switch 2 Pole 1N/O & 1N/C - CR-0212
*3903.04	Key switch 4 Pole 2N/O & 2N/C - CR-0213



GATE INTERLOCKS

The Gate Interlock Key Switch is a Castell Lock which operates both clock & anti-clockwise. Fitted with a switch with varying contacts used in Belltronic shaft signalling for Men-Material Switching.

See technical write up on Men-Material Switching.

PRODUCT CODE:	DESCRIPTION:
*9518.13	L11 Gate Interlock c/w Switch & Key
*9518.14	L12 Gate Interlock c/w Switch & Key
*9518.15	L13 Gate Interlock c/w Switch & Key

Deebar have developed a range of Station Stopping Devices as well as shaft gate locks which electrically and mechanically interlock the Shaft Bells to the Safety Devices, this system is covered by Patents and ensures complete safety.



SLAM-IT GATE LOCK (PATENT NO. 2005/07038)

The "Slam-It" Station Gate Lock is designed specifically to prevent a double operation e.g. Once the Onsetter / Banksman has rung the conveyance away he can enter the conveyance and pull the Station Gate closed which then automatically locks the Station Gate.

The Slam-It lock can be interlocked to the Winder Safety Circuit by means of the integrated magnetic switch. Additional contacts on the magnetic switch can be used to monitor the status of the gate i.e. open or closed.

The entire lock is manufactured from 316 stainless steel.

- Avoids unauthorised entry.
- Tamperproof.
- Access from both sides.
- Low Maintenance.

PRODUCT CODE:	DESCRIPTION:
*9148.15	Slam-It Gate Lock w/o Reed Switch
*9148.17	Slam-It Gate Lock c/w Reed Switch
*9148.02	Slam-It Gate Lock Key
*9148.20	Reed Switch for Slam-It

Special key profiles are available on request:

	S101 Triangle Key		S103 Small Triangle Key
	S102 Square Key		S104 Hexagon Key
	S105 Halfmoon Key		S108 Oblong Key



LOCK-IT GATE LOCK

The "Lock-It" is similar to the Slam-It. It has the facility to interlock the station gate with the Belltronic lockbell unit, thus increasing the safety in the shaft area. Additional contacts can be used to monitor the status of the Gate i.e. open or closed.

Various key options available.

- Avoids unauthorised entry.
- Tamperproof.
- Access from both sides.
- Low Maintenance.

PRODUCT CODE:	DESCRIPTION:
9148.07	Lock-It w/o Reed Switch c/w PP
9148.03	Lock-It c/w Reed Switch c/w PP
9148.28	Lock-It w/o Reed Switch c/w Fortress
9148.25	Lock-It c/w Reed Switch c/w Fortress
9148.24	Lock-It w/o Reed Switch c/w Castell
9148.29	Lock-It c/w Reed Switch c/w Castell

The entire lock is manufactured from 100% Stainless Steel

N.B. Lock Manufactured in 304 Stainless Steel



LATCH-IT GATE LOCK

The Latch-It Gate Lock is designed specifically for applications where there are two gates each hinged on a post, without a centre post. Operation: Align the two gates up and "drop" the Latch-It Gate Lock over the two gates which then automatically locks the gates.

The Latch-It Gate Lock can be interlocked to the winder safety circuit by means of an integrated Magnetic Switch.

Additional contacts can be used to monitor the status of the Gate i.e. open or closed

PRODUCT CODE:	DESCRIPTION:
*9148.08	Latch-It Gate Lock



SLIDE-IT GATE LOCK

The "Slide-It" is similar to the Slam-It except that it is used for sliding gates. It has the facility to interlock the station gate with the Belltronic lockbell unit, thus increasing the safety in the shaft area.

Additional contacts can be used to monitor the status of the Gate i.e. open or closed.

Various key options available.

- Avoids unauthorised entry.
- Tamperproof.
- Access from both sides.
- Low Maintenance.

The entire lock is manufactured from 316 stainless steel.

PRODUCT CODE:	DESCRIPTION:
9148.10	Slide-It w/o Reed Switch PP
9148.11	Slide-It w/o Reed Switch Fortress
9148.30	Slide-It w/o Reed Switch Castell



DEELOCK UNIT (PATENT NO. 98/8180)

This Unit interlocks the Bell System with various Station Safety Devices to prevent the unintentional opening and closing of safety devices to the shaft, thus providing safety when moving underground vehicles in the shaft area.

The Deelock Safety System has been designed to ensure that the responsible person (Onsetter/Banksman) follows a set procedure when operating safety devices on the specific Statio. The system also ensures that the responsible person cannot leave the Station if the safety devices are not in a safe position.

When ordering quote 9000... followed by the key number required

PRODUCT CODE:	DESCRIPTION:
*9000.02	Single Unit (N)
*9000.01	Double Unit (N)
*9000.__	Standard (A)



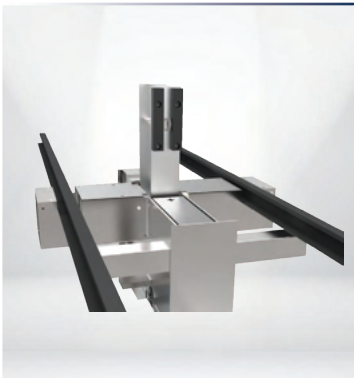
D.A.M GARD FARM GATE LOCK

The new D.AM Gard Farm Gate Lock can be fitted to mining Farm Gates and can be interlocked to the Shaft Signalling Unit and the Interlocking Panel to provide the ultimate in safety.

The lock is a heavy-duty Fortress Amgard lock that has been tested to over 1 million operations and is rated Ip67. The heavy-duty tongue unit has a misalignment tolerance of +/- 12mm and locks into the head with a Retention Force of 10 000 N. The lock is encased in a robust steel housing for added protection.

The key to operate the D.AM Gard Farm Gate lock is the authorised Onsetter's key, which ensures that the gate is operated by the authorised person.

PRODUCT CODE:	DESCRIPTION:
*9000.82	D.AM Gard



DEEBAR STATION STOP BLOCK

Station Stopping Devices can be installed on each underground level & bank providing safety when moving rolling stock in the shaft area.

The unit is extremely robust, manufactured from structural steel; the device can be coupled to a centre column or used independently.

The centre column incorporates Belltronics (shaft bells) which electro mechanically interlocks the Station Stopping Device to the Deelock Safety System for maximum shaft safety.

The Station Stopping Device can be operated manually or pneumatically.

This product is site specific and therefore each enquiry will require a detailed quotation.



INTERLOCKING PANEL

The Stop Blocks are interlocked with the lockbell system, and therefore the conveyance has to be positioned on the bank or underground stations to operate the Stop Bocks. The onsetter / banksman will only be able to operate the Stop Block system 6 once the onsetter's / banksman's key is placed and turned on in the lockbell system.

A push button on the Deebor Interlocking Panel will activate the pneumatic solenoid switch which in turn will activate the direction control valve for up or down movement of the stop blocks.

Additional contacts can be used to monitor the status of the Gate i.e. open or closed.

Various key options available.

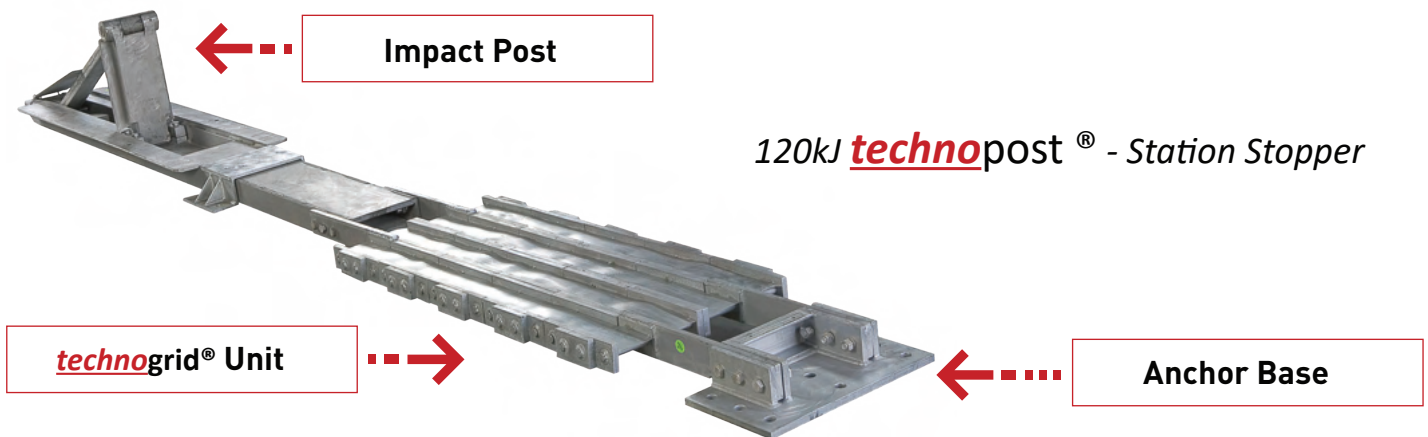


PNEUMATIC PANEL

The Deebor Stop Block shaft safety device is pneumatically operated, interlocked with the lockbell (Belltronics) and provides the ultimate in shaft safety during loading and off-loading operations as well as slinging operations. These operations are all controlled via the Deebor Interlocking Panel that is situated adjacent to the lockbells (Belltronics).

The Interlocking Panel activates the equipment in the Pneumatic Panel which consists of a Solenoid and a FRL (Filter / Regulator / Lubricator).

Deebar is the official Distributor of the Technopost[®] Station Stopping Device.



At the heart of the station stopper device, is the **technogrid[®]** energy absorbing system. Each **technopost[®]** station stopper has one **technogrid[®]**.

The **technogrid[®]** is a strain energy absorption device that will absorb the kinetic energy a moving object (like a Loco or a hopper) by deforming a metal grid of known design and characteristics through a stroke deformation of predicted value.

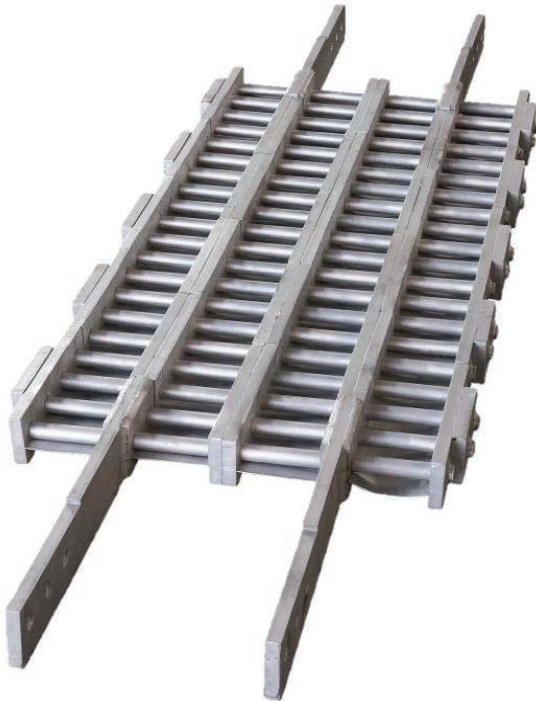
One end of the **technogrid[®]** is anchored to the footwall While the "impact post" is attached to the other end.

The **technogrid[®]** unit is centrally mounted flush between the rails.

FEATURES of the **technopost[®]**

- ✓ Minimal excavations
- ✓ Easy to install
- ✓ The **technopost[®]** is installed between the rails
- ✓ Minimal drainage requirements
- ✓ Controlled deceleration (less than 1g)
- ✓ Low maintenance
- ✓ Can be retrofitted
- ✓ Cost effective
- ✓ Impact energy is safely dissipated
- ✓ Only the **technogrid[®]** itself and the drive shaft need replacing after a full impact
- ✓ Over 200 units have been supplied throughout Africa
- ✓ Most Mining Houses in Southern Africa have approved **technopost[®]**
- ✓ 3 common options available:
 - 60kJ **technopost[®]**
 - 120kJ **technopost[®]**
 - 300kJ **technopost[®]**

120kJ – 650mm Stroke **technogrid**®



The impact post is designed to fold flat between the rails to allow traffic flow. The control of the system can be interlocked into the existing station stopping devices and cage winder interlocking systems.

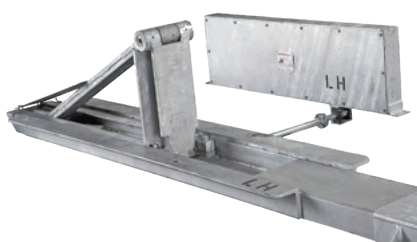
The impact post is always in the up position and has to be lowered by activating a solenoid valve to allow traffic to pass over the device. If the power source is interrupted while the impact post is in the lowered position, the impact post will automatically fail to the safe 'up position'.

During an impact, the drive shaft coupling will 'shear off' and allow the **technogrid**® to 'open up'.

Impact Post Default Position

Impact Post Lowered Position

Control Box

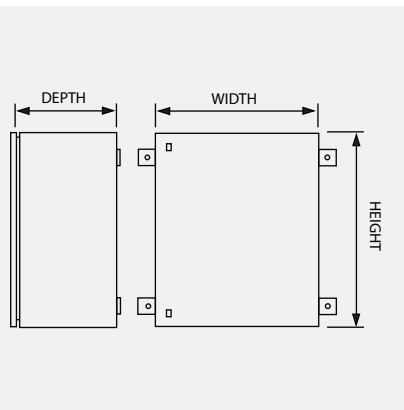


The impact post control can be achieved with pneumatic or hydraulic actuators driving the shaft coupled to the impact post through 90 degrees rotation.

Technopost ® option	Straight track length required for installation	Maximum width of Technopost ®	Stroke length on impact	Installation depth from top to rail
120kJ	6.4m	690mm	500mm	120mm
300kJ	10.5m	540mm	1 500mm	120mm
120kJ short	4.1m	690mm	500mm	220mm



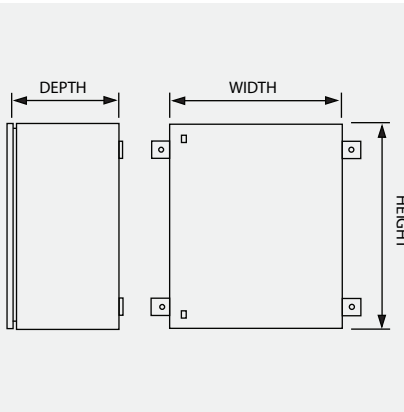
MILD STEEL ENCLOSURES IP65



PART NUMBER	HEIGHT	WIDTH	DEPTH
DEE - V15-2520	250	200	150
DEE - V15-3025	300	250	150
DEE - V20-4030	400	300	200
DEE - V20-5040	500	400	200
DEE - V25-6040	600	400	250
DEE - V25-6050	600	500	250
DEE - V25-7050	700	500	250
DEE - V25-8060	800	600	250
DEE - V30-1008	1000	800	300
DEE - V30-1208	1200	800	300



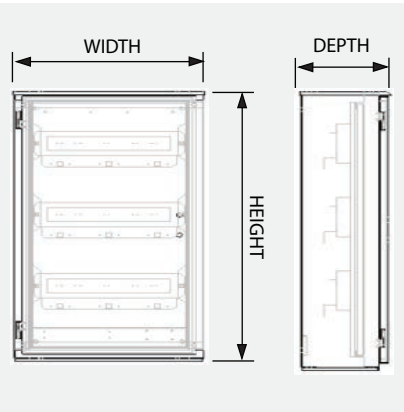
STAINLESS STEEL ENCLOSURES IP65 MATERIAL: POLISHED 304



PART NUMBER	HEIGHT	WIDTH	DEPTH
DEE - BOS-SS0	300	200	115
DEE - BOS-SS1	350	250	145
DEE - BOS-SS2	450	300	195
DEE - BOS-SS3	550	400	195
DEE - BOS-SS4	650	450	245
DEE - BOS-SS5	750	550	245
DEE - BOS-SS6	950	700	245
DEE - BOS-SS7	1150	850	245



DISTRIBUTION BOARDS

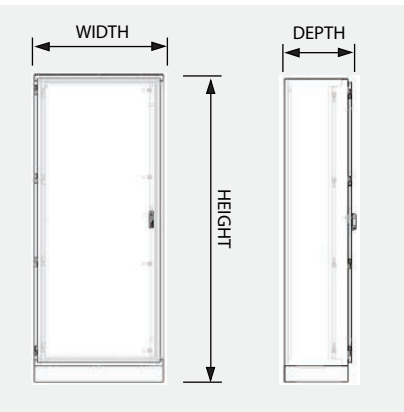


PART NUMBER	5KA HEINEMAN (26MM MODULE)	2.5KA HEINEMAN (13MM MODULE)	DIN RAIL MOUNTED (13MM MODULE)
DEE - VIP 4-9	(27 WAY) 3 X 9	(54 WAY) 3 X 18	(39 WAY) 3 X 13
DEE - VIP 5-9	(36 WAY) 3 X 12	(72 WAY) 3 X 24	(54 WAY) 3 X 18
DEE - VIP 6-9	(45 WAY) 3 X 15	(90 WAY) 3 X 30	(63 WAY) 3 X 21
DEE - VIP 8-9	(69 WAY) 3 X 23	(138 WAY) 3 X 46	(99 WAY) 3 X 33

CODE OUTDOOR	CODE INDOOR	SIZE W x H x D
DEE - VIP 4-9 O	DEE - VIP 4-9 I	400 X 900 X 200
DEE - VIP 5-9 O	DEE - VIP 5-9 I	500 X 900 X 200
DEE - VIP 6-9 O	DEE - VIP 6-9 I	600 X 900 X 200
DEE - VIP 8-9 O	DEE - VIP 8-9 I	800 X 900 X 200



FLOOR STANDING ENCLOSURES



PART NUMBER	HEIGHT	WIDTH	DEPTH
DEE - FW-14-8-4	400	800	1400
DEE - FW-16-6-4	400	600	1600
DEE - FW-18-8-4	400	800	1800
DEE - FW-18-8-6	600	800	1800
DEE - FW-20-10-6	600	1000	2000

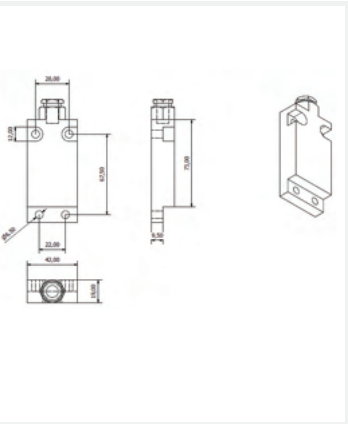
CHASSIS SIZE	
1310 x 710	- 2mm mild steel with 3 fixed sides
1510 x 510	- standard colours: (b26) orange
1710 x 710	- includes 100mm plinth, fixed chassis plate, removable top and bottom glandplate
1710 x 710	- lockable 3 point leverlock system
1910 x 910	- IP54 construction



MAGNETIC SWITCHES



864219 SWITCH Available in Brass (B) and Aluminium (A)



PRODUCT CODE:	CONTACT CONFIGURATION		CODE	COLOUR
8015.53	1 X N/O - N/C (RESET)	ALUMINIUM	864219/01/S/A	BLACK
	1 X N/O - N/C (RESET)	BRASS	864219/01/S/B	BLACK
	1 X N/O - N/C (LATCH)	ALUMINIUM	864219/02/S/A	ORANGE
7406.06	1 X N/O - N/C (LATCH)	BRASS	864219/02/S/B	ORANGE
	2 X N/O (LATCH)	ALUMINIUM	864219/04/S/A	BLUE
7406.09	2 X N/O (LATCH)	BRASS	864219/04/S/B	BLUE
	1 X N/O (LATCH)	ALUMINIUM	864219/05/S/A	RED
	1 X N/O (LATCH)	BRASS	864219/05/S/B	RED
	2 X N/O (RESET)	ALUMINIUM	864219/06/S/A	YELLOW
7406.01	2 X N/O (RESET)	BRASS	864219/06/S/B	YELLOW

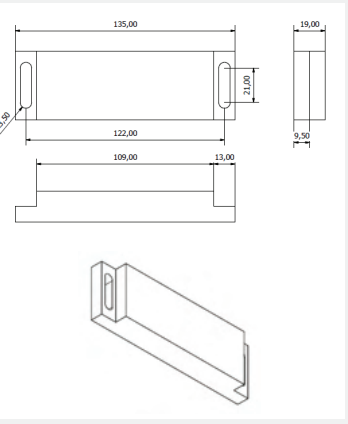
Switching capacity	max.	W/VA	60
Switching voltage	max.	V AC/DC	230
Switching current	max.	A	1
Carrying current	max.	A	3

SWITCHING DISTANCE

25 - 30MM WITH 506019 MAGNET



SIEMENS SWITCH Available in Brass (B) and Aluminium (A)



PRODUCT CODE:	CONTACT CONFIGURATION	CODE	COLOUR
8029.62	1 X N/O - N/C (RESET)	SIEMENS/01/S/A	BLACK
	1 X N/O - N/C (RESET)	SIEMENS/01/S/B	BLACK
	1 X N/O - N/C (LATCH)	SIEMENS/02/S/A	ORANGE
	1 X N/O - N/C (LATCH)	SIEMENS/02/S/B	ORANGE
	2 X N/O - N/C (RESET)	SIEMENS/03/S/A	GREEN
	2 X N/O - N/C (RESET)	SIEMENS/03/S/B	GREEN
	2 X N/O - N/C (LATCH)	SIEMENS/04/S/A	BLUE
	2 X N/O - N/C (LATCH)	SIEMENS/04/S/B	BLUE
8029.58	1 X N/O (LATCH)	SIEMENS/05/S/A	RED
	1 X N/O (LATCH)	SIEMENS/05/S/B	RED
	1 X N/O (RESET)	SIEMENS/06/S/A	YELLOW
	1 X N/O (RESET)	SIEMENS/06/S/B	YELLOW

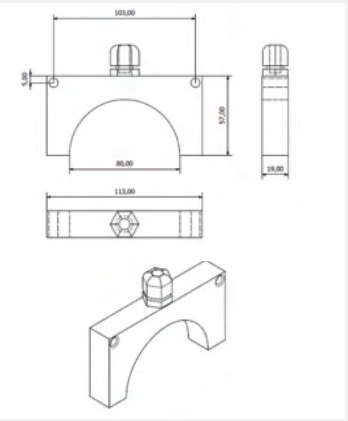
Switching capacity	max.	W/VA	60
Switching voltage	max.	V AC/DC	230
Switching current	max.	A	1
Carrying current	max.	A	3

SWITCHING DISTANCE

35 - 40MM WITH SIEMANS SWITCH



80D SWITCH



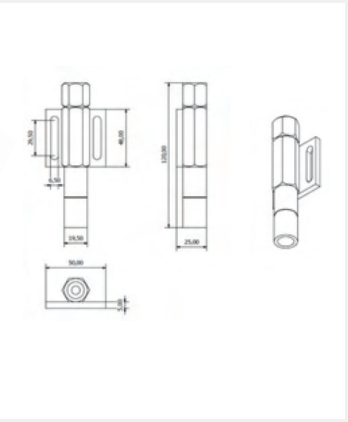
PRODUCT CODE:	CODE
	80D/S

Switching capacity	max.	W/VA	30
Switching voltage	max.	V AC/DC	230
Switching current	max.	A	0.3
Carrying current	max.	A	0.5

THE SWITCH ONLY CONTAINS A 2 X N/O
RESET IN PARALLEL 3 AMP 220 VOLTS



MSM 20 SWITCH

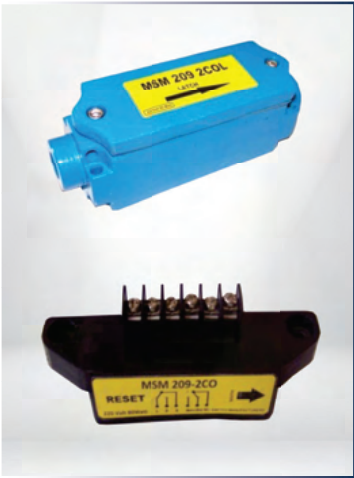


PRODUCT CODE:	CONTACT CONFIGURATION		CODE	COLOUR
	1 X N/O - N/C (RESET)	BRASS	20/01/S	BLACK
	1 X N/O - N/C (LATCH)	BRASS	20/02/S	ORANGE
	1 X N/O (LATCH)	BRASS	20/05/S	RED
8016.98	1 X N/O (RESET)	BRASS	20/06/S	YELLOW

Switching capacity	max.	W/VA	60
Switching voltage	max.	V AC/DC	230
Switching current	max.	A	1
Carrying current	max.	A	3

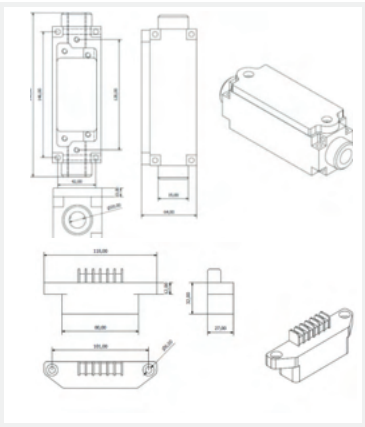
SWITCHING DISTANCE

40-45MM WITH 506019 MAGNET



209 SWITCH & 209 INSERT

Available in Brass (B) and Aluminium (A)



PRODUCT CODE:	CONTACT CONFIGURATION	CODE	COLOUR
BODY COMPLETE WITH INSERT LATCH OR RESET			
	BRASS	MSM209/S/B	
	ALUMINIUM	MSM209/S/A	
INSERTS ONLY			
	1 X N/O - N/C (RESET)	209/01	BLACK
8033.75	1 X N/O - N/C (LATCH)	209/02	ORANGE
8033.76	2 X N/O - N/C (RESET)	209/03	GREEN
8039.96	2 X N/O - N/C (LATCH)	209/04	BLUE
	1 X N/O (LATCH)	209/05	RED
	1 X N/O (RESET)	209/06	YELLOW

Switching capacity	max.	W/VA	60
Switching voltage	max.	V AC/DC	230
Switching current	max.	A	1
Carrying current	max.	A	3

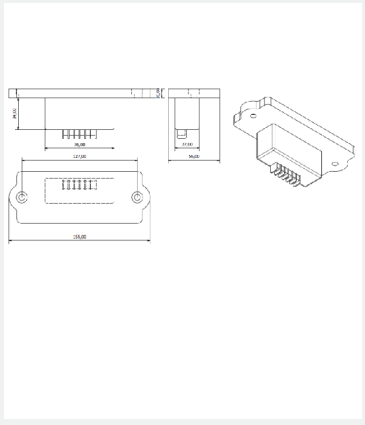
SWITCHING DISTANCE

110MM WITH M9/4 MAGNET AND 120MM WITH M9/6 MAGNET



209 INSERT IN LID

Available in Brass (B) and Aluminium (A)



PRODUCT CODE:	CONTACT CONFIGURATION	CODE	COLOUR
	2 X N/O - N/C (RESET)	ALUMINIUM	MSM209LS/03/A
	2 X N/O - N/C (RESET)	BRASS	MSM209LS/03/B
	2 X N/O - N/C (LATCH)	ALUMINIUM	MSM209LS/04/A
	2 X N/O - N/C (LATCH)	BRASS	MSM209LS/04/B
	1 X N/O (LATCH)	ALUMINIUM	MSM209LS/05/A
	1 X N/O (LATCH)	BRASS	MSM209LS/05/B
	1 X N/O (RESET)	ALUMINIUM	MSM209LS/06/A
	1 X N/O (RESET)	BRASS	MSM209LS/06/B

Switching capacity	max.	W/VA	60
Switching voltage	max.	V AC/DC	230
Switching current	max.	A	1
Carrying current	max.	A	3

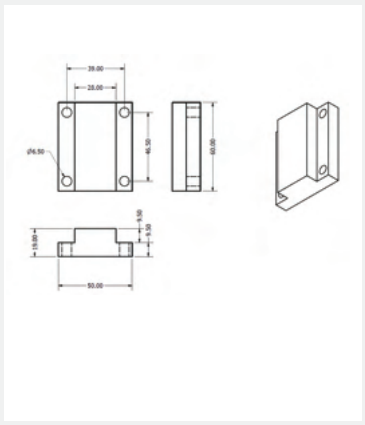
SWITCHING DISTANCE

110MM WITH M9/4 MAGNET AND 120MM WITH M9/6 MAGNET



506019 MAGNET

Available in Brass (B) and Aluminium (A)

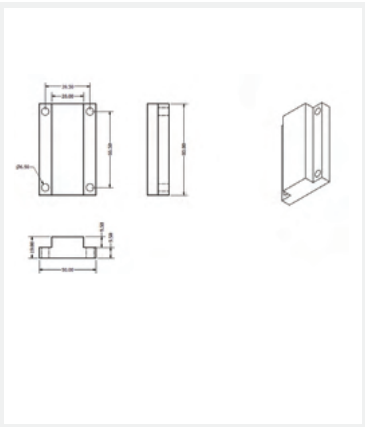


PRODUCT CODE:	CONTACT CONFIGURATION	CODE	COLOUR
8034.84	506019 MAGNET (NORTH/SOUTH)	ALUMINIUM	MAG506019/S/A
7406.02	506019 MAGNET (NORTH/SOUTH)	BRASS	MAG506019/S/B



508019 MAGNET

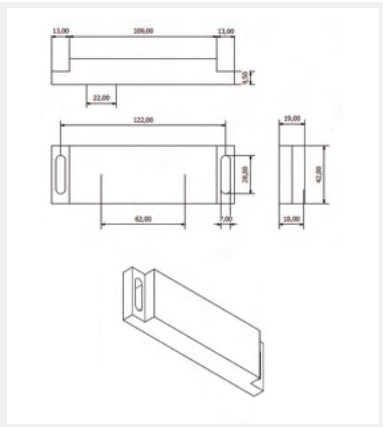
Available in Brass (B) and Aluminium (A)



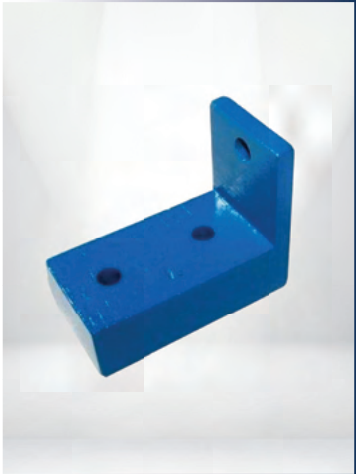
PRODUCT CODE:	CONTACT CONFIGURATION	CODE	COLOUR
	508019 MAGNET (NORTH/SOUTH)	ALUMINIUM	MAG508019/S/A
8043.82	508019 MAGNET (NORTH/SOUTH)	BRASS	MAG508019/S/B



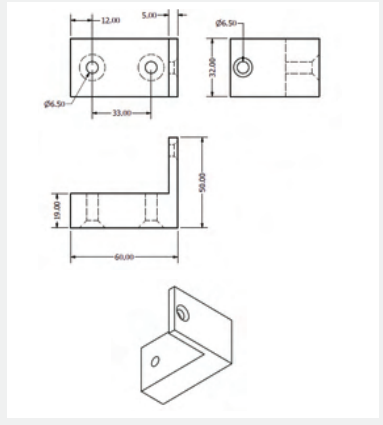
SIEMENS MAGNET Available in Brass [B] and Aluminium [A]



PRODUCT CODE:	CONTACT CONFIGURATION	CODE	COLOUR
	SIEMENS MAGNET (NORTH/SOUTH)	ALUMINIUM	MAGSIEMENS/S/A
8029.59	SIEMENS MAGNET (NORTH/SOUTH)	BRASS	MAGSIEMENS/S/A



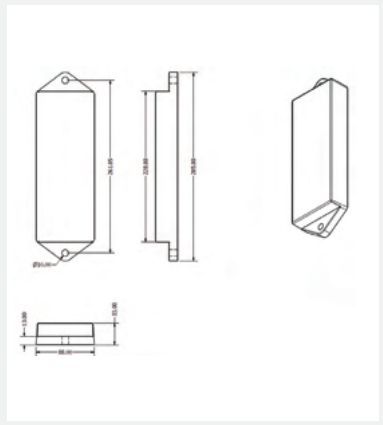
"L" MAGNET Available in Brass [B] and Aluminium [A]



PRODUCT CODE:	CONTACT CONFIGURATION	CODE	COLOUR
8043.79	L MAGNET (SOUTH)	BRASS	MAGL/S



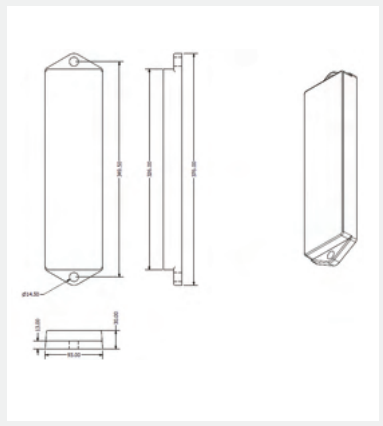
9/4 MAGNET Available in Brass [B] and Aluminium [A]



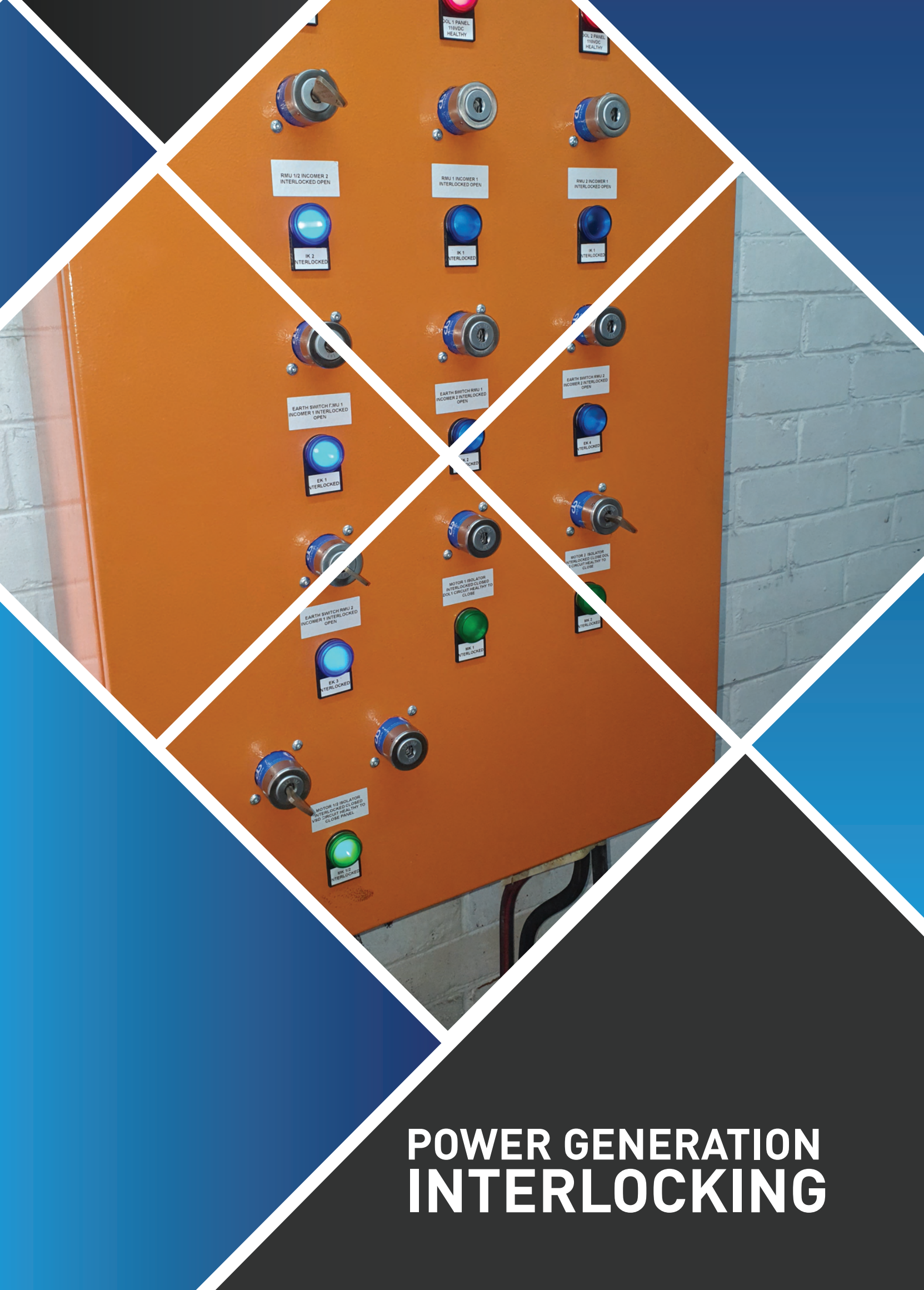
PRODUCT CODE:	CONTACT CONFIGURATION	CODE	COLOUR
	9/4 MAGNET (NORTH/SOUTH)	ALUMINIUM	MAG9/4/N/A
8043.88	9/4 MAGNET (NORTH/SOUTH)	BRASS	MAG9/4/S/B



9/6 MAGNET Available in Brass [B] and Aluminium [A]



PRODUCT CODE:	CONTACT CONFIGURATION	CODE	COLOUR
7406.10	9/6 MAGNET (NORTH/SOUTH)	BRASS	MAG9/6/N/B
	9/6 MAGNET (NORTH/SOUTH)	ALUMINIUM	MAG9/6/N/A



POWER GENERATION INTERLOCKING

Why Interlocks?

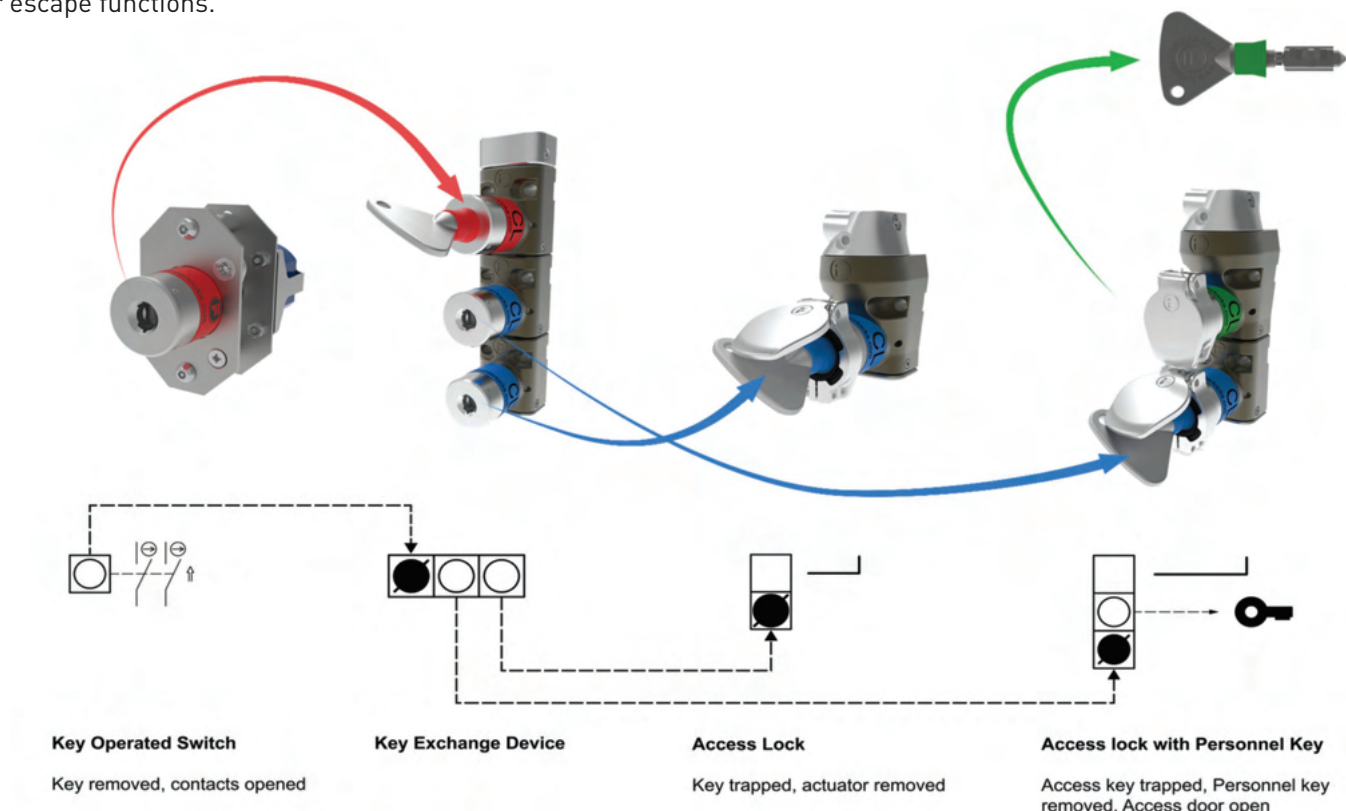
Interlocking is a method of controlling two or more interdependent operations which must take place in a predetermined sequence, if necessary remotely controlled or time delayed. The need for this sequence may be safety to personnel and equipment, or it may be to control processes and productivity.

For Reference-

- ISO 14119 is the interlocking standard that forms part of the machinery directive.
- ISO/TS 19837:2018 is the technical specification relevant to trapped key interlocking.

Why Mechanical?

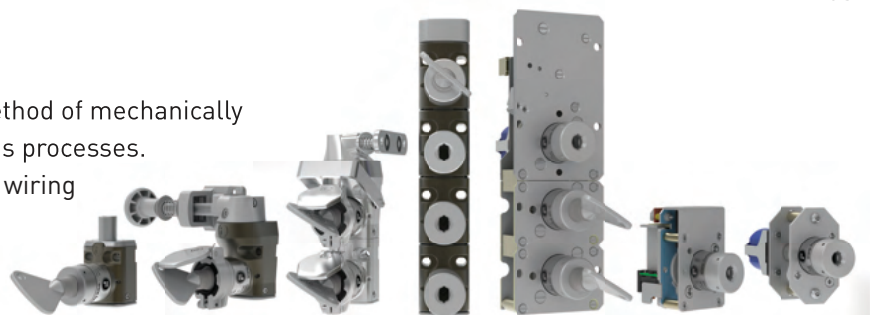
- One power isolator can be used for multiple doors through the use of a key exchange unit.
- This reduces any fault masking risks and wiring installation required.
- In addition mechanical interlocking is the only method of safeguarding solutions for multiple energy sources.
- Personnel keys can be used to prevent unexpected start up of machinery as per ISO 14118, removing the necessity for escape functions.



mGard is the only range of trapped key interlocks 3rd party approved as being capable of meeting PLe and is perfect for heavy duty applications. Fortress' mGard is suitable for use up to SIL3 (EN/IEC 62061), Category 4 and PLe (EN/ISO 13849-1).



Trapped key interlocking is a tried and tested method of mechanically safeguarding dangerous machines and hazardous processes. Mechanical keys eliminate most of the electrical wiring associated with other types of interlocks making it cost effective to install and maintain.



POWER ISOLATION



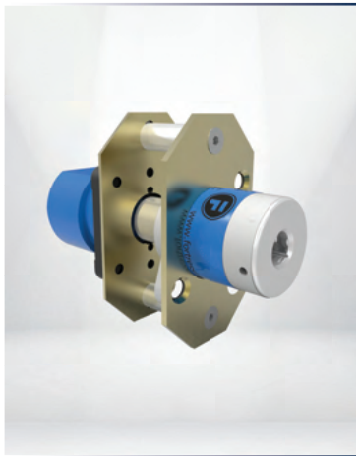
BASIC LOCK

When mounted on the front of the circuit breaker, this lock allows or prevents switching of the breaker.

- Special spindle sizes available on request

Available in Left or Right hand configurations
Standard 22m shaft length

PRODUCT CODE:	PART NO.	DESCRIPTION:
*3902.01	CLIN - RH	Basic Lock - Right Hand
*3902.02	CLIN - LH	Basic Lock - Left Hand



KEY SWITCH

The S(E) unit is suitable for isolation or switching current and may be used to isolate power to machinery.

- Direct drive operation - positively opens contacts
- The standard sequence is: Key trapped (But not locked) - Power on, Key free - Power off (other sequences to be specified)
- Special switch ratings and/or contact arrangements available on request

Available in Left or Right hand configurations

PRODUCT CODE:	PART NO.	DESCRIPTION:
*3903.08	S	Keyswitch c/w CR-0213 Switch



SOLENOID CONTROLLED KEY SWITCH

The SS unit is used where the key(s) need to remain trapped until an electrical signal has been received.

- Direct drive operation - positively opens contacts
- Suitable for machines with a rundown cycle
- The standard sequence is: Solenoid de-energised - Key trapped, Solenoid energised - Key free, (other sequences available)
- Special switch ratings, solenoid voltage and/or contact arrangements available on request
- Solenoid monitoring contacts as standard

PRODUCT CODE:	PART NO.	DESCRIPTION:
*3915.10	SS1	Solenoid Keyswitch 24V
*3915.03	SS1	Solenoid Keyswitch 32V
*3915.00	SS1	Solenoid Keyswitch 110V



KEY SWITCH (IN METAL ENCLOSURE)

The SR unit is suitable for isolation or switching current and may be used to isolate power to machinery.

- Direct drive operation - positively opens contacts.
- The standard sequence is: Key trapped - Power on, Key free - Power off (other sequences can be specified)
- Special switch ratings and/or contact arrangements available on request.
- Robust metal enclosure.
- IP 65/66/67 rated

*The Enclosure might vary from the image displayed.

PRODUCT CODE:	PART NO.	DESCRIPTION:
*3908.05	SE	Keyswitch In Enclosure c/w CR-0213 Switch
*3908.06	SR	Keyswitch In Enclosure c/w CR-0213 Switch

POWER ISOLATION



PAD LOCKABLE PLATE

The PLP is used to allow multiple padlocks to be used when isolating one energy source. Once the key is inserted and turned, isolating the switch, the middle pad lockable plate can be turned allowing lockout.

- Direct drive operation - positively opens contacts
- The standard sequence is: Key trapped (But not locked) - Power on, Key free - Power off (other sequences to be specified)
- Special switch ratings and/or contact arrangements available on request
- 10 x 8mm Ø holes for pad locks

PRODUCT CODE:	PART NO.	DESCRIPTION:
*3902.00	CL PLP	CL Pad Lockable Pad



ABB SLIDE BOLT MECHANISM

The SBM2 is an interlocking unit designed for ABB breakers. Allowing you to safely remove the breaker, isolate it by means of a trapped key. This key is inserted into the SBM2 allowing you to unlock the earth (in the off position). Then the earth is applied (in the on position). This is then locked and the second key removed.

- 16mm diameter bolt with 16mm travel
- Additional modules/keys can be added

PRODUCT CODE:	PART NO.	DESCRIPTION:
*3999.98	SBM2 - RH	Earthing Lock - Right Hand
*3999.94	SBM2 - LH	Earthing Lock - Left Hand



MECHANICAL BOLT INTERLOCK

The BM is used to interlock circuit breakers, valves earth switches ect. It is used where hazards needs to be indirectly interlock.

- No product handling issues
- 16mm diameter bolt with 16mm of travel
- Extended bolt lengths available
- Standard operation: Key free, bolt shot (other sequences available)
- Additional modules/keys can be added

This product must not be used as an access lock.

PRODUCT CODE:	PART NO.	DESCRIPTION:
*3400.21	BM1-OS	Bolt Lock - Key Out, Bolt Shot
*3400.20	BM1-OW	Bolt Lock - Key Out, Bolt Withdrawn



MINI BOLT LOCK

The Mini Bolt Lock is used to interlock circuit breakers, valves, earth switches ect. It is used where hazards needs to be indirectly interlocked.

- 12mm of travel.
- Extended bolt lengths available.
- Standard operation: Key free, bolt shot (other sequences available).

NOT suitable to be used as a door lock

PRODUCT CODE:	PART NO.	DESCRIPTION:
3404.02	MBM-SLC-R	Mini Bolt Lock - Key Out, Bolt Shot
3404.02A	MBM-SLC-S	Mini Bolt Lock - Key Out, Bolt Withdrawn

POWER ISOLATION



MINI OFFSET BASIC LOCK

When mounted on the front of the circuit breaker, this lock allows or prevents switching of the breaker.

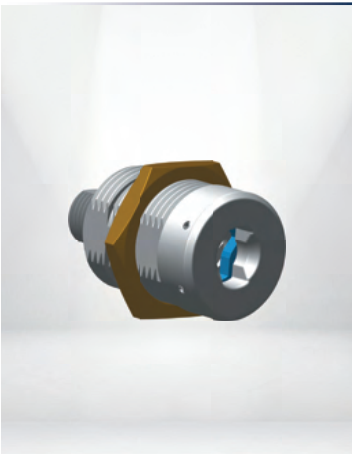
PRODUCT CODE:	PART NO.	DESCRIPTION:
*3403.02	SL-FC17	Mini Offset Basic Lock



MINI EARED BASIC LOCK

When mounted on the front of the circuit breaker, this lock allows or prevents switching of the breaker.

PRODUCT CODE:	PART NO.	DESCRIPTION:
*3403.00	SLIN	Mini Eared Basic Lock



MINI EARLESS BASIC LOCK

When mounted on the front of the circuit breaker, this lock allows or prevents switching of the breaker.

PRODUCT CODE:	PART NO.	DESCRIPTION:
*3403.01	SL-EC11	Mini Earless Basic Lock



MINI KEYSWITCH

The Mini Keyswitch unit is suitable for isolation or switching current and may be used to isolate power to machinery.

PRODUCT CODE:	PART NO.	DESCRIPTION:
*3406.04		Mini Keyswitch c/w M10HEA2 (2020)

- Direct drive operation - positively opens contacts
- The standard sequence is: Key trapped (But not locked)
- Power on, Key free - Power off (other sequences to be specified)
- Special switch ratings and/or contact arrangements available on request

KEY EXCHANGE



MODULAR KEY EXCHANGE UNIT

The XM unit is used to exchange one or more keys for a number of other keys. This device forms the link between isolation devices and access locks.

- No product handling issues
- Extremely varied combination of isolation/access keys possible
- Sequential or Non-sequential key operation
- Simply add modules to existing configurations

PRODUCT CODE:	PART NO.	DESCRIPTION:
3400.17	XM2	Exchange Unit
3400.14	XM3	Exchange Unit
3400.15	XM4	Exchange Unit
3400.16	XM5	Exchange Unit
3400.07	XM6	Exchange Unit
3400.09	XM7	Exchange Unit
3400.10	XM8	Exchange Unit
3400.35	XM9	Exchange Unit
3400.29	XM10	Exchange Unit



EXTENSION MODULE

For adding lock units onto existing BM, BMR, XM, XMR, DM and DMR configurations

PRODUCT CODE:	PART NO.	DESCRIPTION:
3400.22	XMA	Add on Module

DOOR LOCKS



SINGLE DOOR INTERLOCK

- No products handling issues:
- 4 head rotation angles with an adjustment of 360° at 90° increments with +/- 5° fine adjustment
 - Two actuator entry points
 - Tamper resistant head mechanism
 - Choice of actuators

PRODUCT CODE:	PART NO.	DESCRIPTION:
3400.01	DM1	Single Door Lock
3400.58	DM1-H	Single Door Lock c/w Hand Actuator
3400.60	DM1-FC/P	Single Door Lock c/w Fixed Actuator Chain & Plate



MULTIPLE MODULAR DOOR INTERLOCK

- No products handling issues:
- 4 head rotation angles with an adjustment of 360° at 90° increments with +/- 5° fine adjustment
 - Two actuator entry points
 - Extremely varied combination of isolation/access keys possible
 - Sequential or Non-sequential key operation
 - Simply add modules to existing configurations
 - All DM locks have stainless steel heads
 - Tamper resistant head mechanism
 - Choice of actuators

PRODUCT CODE:	PART NO.	DESCRIPTION:
3400.02	DM2	Double Door Lock
3400.03	DM3	Triple Door Lock
3410.10	DM4	Quadruple Door Lock

ACTUATORS



FIXED ACTUATOR

- For use with all DM type locks
- Ideal for most aligned guarding doors
- Compact (fits within DM body's space envelope)
- Version with chain available (DM-F-chain)

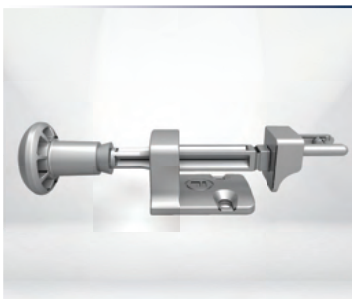
PRODUCT CODE:	PART NO.	DESCRIPTION:
*3400.11	DMF	Fixed Actuator



FIXED ACTUATOR C/W CHAIN

- For use with all DM type locks
- Ideal for most aligned guarding doors
- Compact (fits within DM body's space envelope)
- Fitted with chain for flexible applications
- Also available with plate for mounting

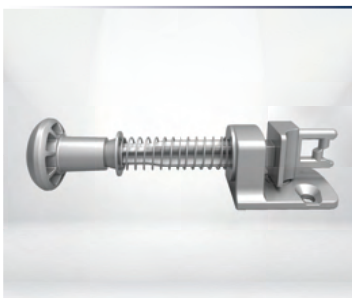
PRODUCT CODE:	PART NO.	DESCRIPTION:
*3401.02	DMF-C	Fixed Actuator c/w Chain



HANDLE OPERATED ACTUATOR

- For use with all DM type locks
- Suitable for use where secondary action is required
- Overcomes misalignment
- Vertical adjustment: +/- 6mm
- Rotational adjustment of bracket, to suit all four DM handling options
- Detent holds actuator in place when the door is open

PRODUCT CODE:	PART NO.	DESCRIPTION:
*3400.48	DMH	Hand Operated Actuator



SPRING LOADED HANDLE OPERATED ACTUATOR

- For use with all DM type locks
- Suitable for use where secondary action is required
- Overcomes misalignment
- Vertical adjustment: +/- 6mm
- Rotational adjustment of bracket, to suit all four DM handling options
- Detent holds actuator in place when the door is open

PRODUCT CODE:	PART NO.	DESCRIPTION:
*3400.48	DMA	Hand Operated Actuator c/w Spring



SELF ALIGNING ACTUATOR

- For use with all DM type locks
- Ideal for small radius hinged doors
- Horizontal adjustment: +/- 7.50mm
- Vertical adjustment: +/- 3.75mm
- Rotational adjustment: any angle in 360°

PRODUCT CODE:	PART NO.	DESCRIPTION:
*3400.12	DMS	Self Aligning Actuator

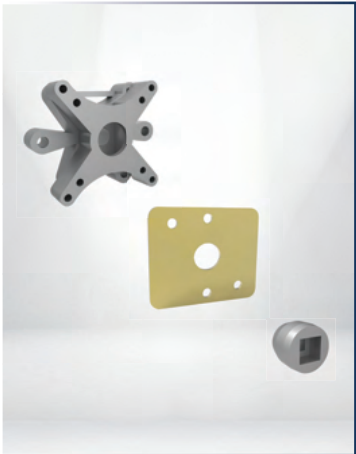


COMPRESSIBLE ACTUATOR

- For use with all DM type locks
- Ideal to absorb vibration on hatches/doors
- Can be used on small radius hinged doors
- Suitable for situations where the door is likely to be slammed

PRODUCT CODE:	PART NO.	DESCRIPTION:
*3400.26	DMC	Compressed Actuator

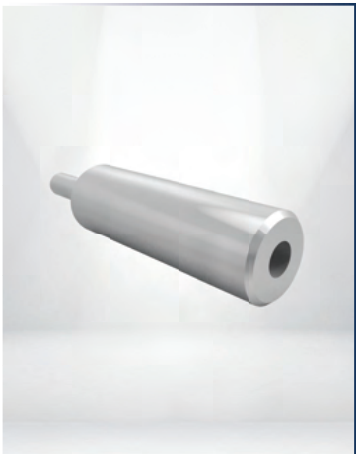
ACCESSORIES



SWITCH ADAPTOR

Switch Adaptor for the BM, DM & XM Range of Products (Including Gasket & Coupler).

PRODUCT CODE:	PART NO.	DESCRIPTION:
*3511.09	SWA	Switch Adaptor



BOLT EXTENTIONS

Extension bolts used on the Bolt Locks. This extension bolt only extends the bolt length & does not extend the travel of the bolt. Custom length and material type is available on request.

PRODUCT CODE:	PART NO.	DESCRIPTION:
*3400.34	EXB-BM 22	22mm Extention Bolt
*3505.03	EXB-BM 50	50mm Extention Bolt
*3400.33	EXB-BM 100	100mm Extention Bolt



BOLT ON BRACKET

To provide back of board mounting possibilities for BM, BMR, XM, XMR, DM and DMR configurations

PRODUCT CODE:	PART NO.	DESCRIPTION:
*3521.05	M-BOB	Bolt On Bracket



LOK LINK - MGARD TO AMGARDPRO ADAPTOR

This module allows mGard components to be linked directly to proLok and proStop units in the amGardpro range, and in doing so adds a directly attached safety switch and direct solenoid control option to the mGard range.

PRODUCT CODE:	PART NO.	DESCRIPTION:
*3999.32	LINK	Lok Link Adaptor

WINDER INTERLOCKS



WINDER INTERLOCK - PANEL MOUNT

The winder interlock locks out the winder allowing artisans to work safely while doing maintenance.

- Direct drive operation - positively opens contacts
- The standard sequence is: Key trapped (But not locked)
- Power on, Key free - Power off (other sequences to be specified)
- Special switch ratings and/or contact arrangements available on request
- Extremely varied combination of isolation/access keys possible
- Simply add modules to existing configurations
- Enclosed version (XMR-E) in Polycarbonate (Ip67)
- Each key/lock can be fitted with a 16A rotary switch (STD)

PRODUCT CODE:	PART NO.	DESCRIPTION:
	XM-WIP	Winder Interlock - Panel Mount



WINDER INTERLOCK - WALL MOUNT

The winder interlock locks out the winder allowing artisans to work safely while doing maintenance.

- Direct drive operation - positively opens contacts
- The standard sequence is: Key trapped (But not locked)
- Power on, Key free - Power off (other sequences to be specified)
- Special switch ratings and/or contact arrangements available on request
- Enclosed version (XMR-E) in Polycarbonate (Ip67)
- Each key/lock can be fitted with a 16A rotary switch (STD)


PRODUCT CODE:	PART NO.	DESCRIPTION:
	XM-WIE	Winder Interlock - Wall Mount

LOCK AND KEY SPECS

Fortress locks have over 200,000 different lock combinations. Besides the standard basic (CL) it is also possible to have a master series (ML) lock. The ML lock which can be operated by a special cut master key (MLK-SUGS) that fits any mastered lock in a specific matered lock series. For ease of use all Fortress locks provide key insertion in two orientations.


Lock and key engravings

Each different key combination is allocated with an engraved code onto the lock and key, of up to maximum 30 characters (3 lines of 10 characters). This engraving code is used to identify locks and keys and is recorded in a database for continous cross reference. Required engraving details are therefore to be provided with each order.



CLIN lock

Standard CL Lock no dustcover



CLK-SUS

Standard key for use on all CL lock types

CLK-LP

Standard low profile key fore use on all CL lock types

Stainless Steel Dustcover



CLDC

Stainless Steel Padlockable Dustcover




PLDC

Rubber Dust Sleeve




CL-RDS



MLIN lock

Standard ML Lock no dustcover



MLK-SUGS


Standard key for use on all ML lock types

MLK-SUGS

Master cut key for use on all ML lock types



Key And Lock engravings



Maximum 30 characters
(3 lines of 10 characters)



Energy environments typically involve multiple power sources which all need to be in a safe condition before access is permitted to enter an area or open a switchboard panel. Through a sequential and uniquely identified trapped key interlocking (TKI) system, the isolation and the earthing conditions take place creating the conditions for a person to safely perform maintenance activities. The system allows for the integration of new and old equipment with interlocking solutions installed and operated by different contractors and personnel. Having a pre-determined sequential release system means you can remove the need to rely on written operation procedures alone.

Typical examples of access control in the energy sector include wind farms, transformers, generator interlocking, data centres and substations.

Benefits of TKI Over Alternative Solutions

Electrical Interlocking

Electrical interlocking allows for the sequential operation of switches. On substations, an electrical interlocking scheme would allow for the operation of disconnectors. However, when maintenance activities are being performed, there is a need for a site controlled mechanical device. The mechanical device allows the site operative to complete the sequence and allows the release of a final authorisation key or permission to access key, which means that the sequence reversal is only controlled by site operatives.

Lock Out / Tag Out (LOTO)

Lock out/tag out (LOTO) is a padlock-based safety procedure used to ensure dangerous machinery is correctly shut off and cannot be restarted prior to the completion of work in a hazardous area. LOTO gives the operator control over the environment they are working in and is an effective form of protection. It operates in conjunction with written operating procedures and signage to visually show the maintenance environment is protected; if the written operation procedures are not followed or signage not obeyed this can cause an unsafe environment on site.



Trapped key reduces the need for written procedures alone to control the site safety system. Because LOTO is a non-sequential system when multiple energy sources are present there may be a need for greater site control.

Implementing trapped key interlocking ensures that a process is followed and cannot be circumvented or short cut. The transfer of a key ensures that wherever personnel find themselves, in either starting or shutting down operations, they can be assured that they are safe.



Conclusion

Access control in energy applications can be far more complicated than other sectors, owing to the fact that it is part of a larger site system with multiple energy sources. The uniquely identified trapped key system provides a full safety system to ensure safe access to a hazardous area.

Castell have operated in the energy sector worldwide since the company's inception in 1922. Castell products have safeguarded thousands of lives and ensured the safe operation of critical equipment allowing substations, wind farms, package subs & data centres to run efficiently and effectively with less down time and higher operational safety. Access control is part of most energy site safety systems and it allows the user to be in control of when the environment is safe to access and only that user can reverse the sequence to allow normal site operations.

Isolation



Key Exchange



Access Control





**INDUSTRIAL
SAFETY SOLUTIONS**

Who is Fortress?

Industry leader innovating automation safety products



Safety specialists active in international standards development



Protecting people in more than 40,000 facilities



Operating in 67 countries

Most robust and customisable solutions



Part of a global FTSE 100 group driving international safety



Halma

Fluid Power Safety

Protect people and productivity with the highest level of safety for hazardous pneumatic and hydraulic energy.

Safe Access Solutions

Our range of mechanical, electromechanical and network connected access solutions can be tailored to suit your exact safety needs.

Machine Control & Permissions

Configurable pre-wired or ethernet connected machine control devices make installation quick and simple. Plus, with RFID access control, ensure the right people are performing the right tasks, at the right time.

Machinery Safety Services

Machinery safety and its associated standards, laws, and regulations can be very complex. We support with tailored training and guidance to help you implement the best and safest solutions.

Machinery Safety Services

Customised safety services to fit your requirements

We have a team of machinery safety experts able to answer questions regarding international, European, and U.S. machinery safety standards. We have an array of free safety standard articles and webinars to help you navigate the complexity of the machinery safety standards.

We can provide tailored safety training related to U.S. and international machinery safety standards as well as standards related to specific applications. Contact us if you want to run company wide standards training or would like us to create tailored training for your applications.

We also offer, to existing customers, site surveys. We have a group of application and technical engineers who can help customers inspect Fortress devices to ensure they are installed and functioning as intended, as well as being maintained correctly.



Become a B11 LMSS™ Licensed Machinery Safety Specialist

The B11 Licensed Machinery Safety Specialist certification is a five-module remote training course that sets out the key aspects of designing and implementing machinery safety solutions. This B11 Standards, Inc. certified course will enhance your ability to protect lives and improve your professional competence portfolio.

Course Modules:

- 1. Risk Assessment**
Intro to U.S. legislation and risk assessment
- 2. Risk Reduction**
Once you have a risk assessment, how do you reduce risk?
- 3. Functional Safety**
The application of safe control systems
- 4. Integrating Machines & Robotics**
Increased automation means more complex systems
- 5. LOTO & Electrical Safety**
Lock-Out Tag-Out and alternative methods to achieve safety

Become a safety specialist



Machine Control & Permissions

Do you wish your machine control could be designed in one simple solution with plug and play cabling?

Fortress offers custom designed control devices with hardwired M12 / M23 connection or PROFINET or EtherNet/IP networked communication. Networked solutions can be configured as safe or non-safe I/O modules for external connections (for example to light curtains, enabling switches, and many more).

- Fully customisable and engravable (with text or symbols) buttons, lamps, and switches
- Easily integrate an emergency stop and external safe I/O
- Self-wired, hard-wired, or network connectable
- Robust, durable design utilising metal componentry for long lasting operation

Explore our access control & permissions solutions



Explore our machine control solutions



How do you manage who performs machinery control & hazardous access?

Permission-based technology can be integrated into your system with FRANK - the Fortress RFID Access Network Key - to ensure only authorised personnel access certain areas, perform hazardous tasks or put machines into certain modes.

- FRANK utilises your existing RFID cards to manage users, permissions, and access
- Data can be captured on this platform to offer productivity gains through identifying inefficiencies
- Can be used alongside trapped key systems, electromechanical interlocks or operator controls

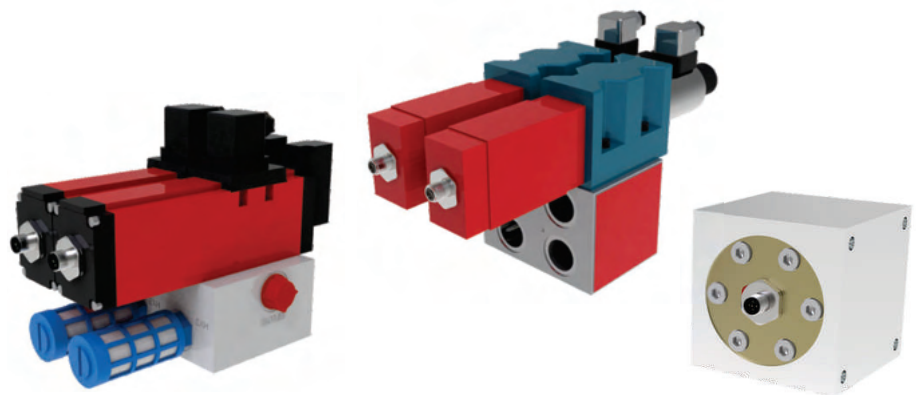
Fluid Power Safety

Pneumatic and hydraulic loads can be just as or even more dangerous than electrical energy. So how do you ensure they have the same level of safety?

Fluid power solutions from Fortress provide redundant means of operation, monitoring, and a unique cross link technology to guarantee no single component failure can affect safe isolation. Available for Category 4 (Cat. 4) and Performance Level e (PLe) applications. For run down times of a fluid system, zero pressure monitors are available to ensure safety is maintained.

- Positively driven dual mechanical contacts for reliable spool position monitoring when compared to alternative technology
- Crossed link exhausts to guarantee a path for pressure isolation
- Easily serviceable for minimal downtime
- Robust design for long lasting operation

Explore our solutions



Safety Redundancy Dual channel safety, dual channel exhaust (pneumatic) and tank outlet (hydraulic) 	Retro-fittable Can be installed with no change to existing circuits and control valves 	Robust & Durable Built for longevity to guarantee a long operational lifetime 	Fully Serviceable Easily serviced by our team to maintain smooth operation 	Leaders in Fluid Power Operating as Fluidsentry for 20 years before joining Fortress
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Safe Access Solutions

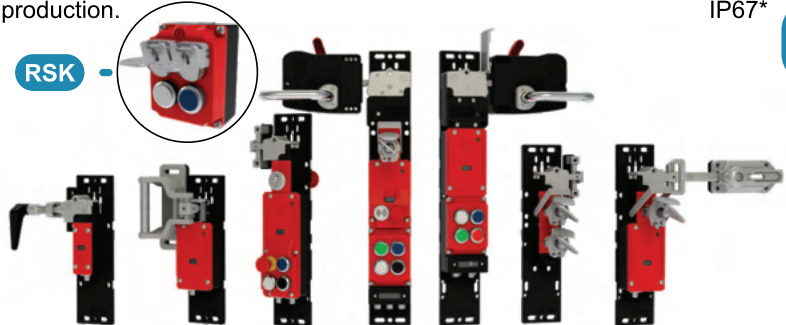
Heavy duty guard locking with PROFIsafe & CIP Safety

amGardpro

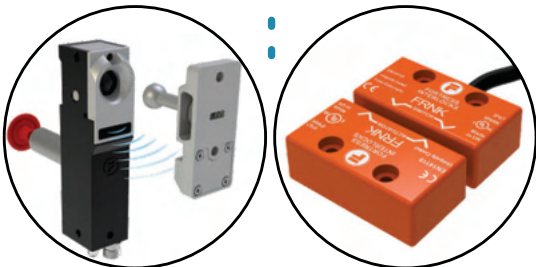
The most robust and configurable solution for applications up to Cat. 4, PLe. Combine ergonomic safe access with button controls, personnel protection, RFID access, and escape release functionality all in one device. RFID Safety Keys (RSK) to reduce the risk of lost keys impacting your production.

- TÜV SÜD approved to meet Cat. 4, PLe (incl. guard locking)
- Restart prevention with personnel (safety) key
- Self-wired, hard-wired, or network connectable for installation ease
- Heavy duty design to protect in environments up to IP65 & IP67*

Our heavy duty options also contains compact products with high coding (Atom & FRNK)



*IP rating is dependent on product configuration.



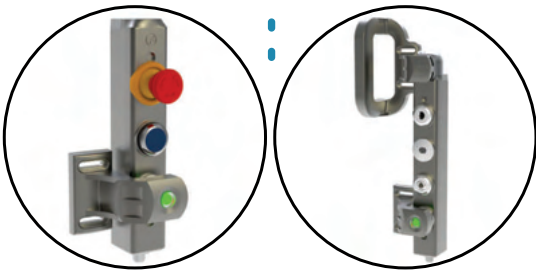
Configurable access & control for machine guarding

tGard

Simple but customisable range available as interlocks with built-in control functionality or standalone prebuilt pushbutton stations. Products are configured to order in a 40mm metal housing for simple mounting in a variety of manufacturing and automation applications.

- TÜV SÜD approved to meet Cat. 3, PLd
- New integrated RFID option to have a high-level coded actuator with more than 1000 variations, giving you guard monitoring up to Cat. 4, PLe
- Quick & easy installation with just two fixings and pre-wired connection

High-Level Coding (HLC)



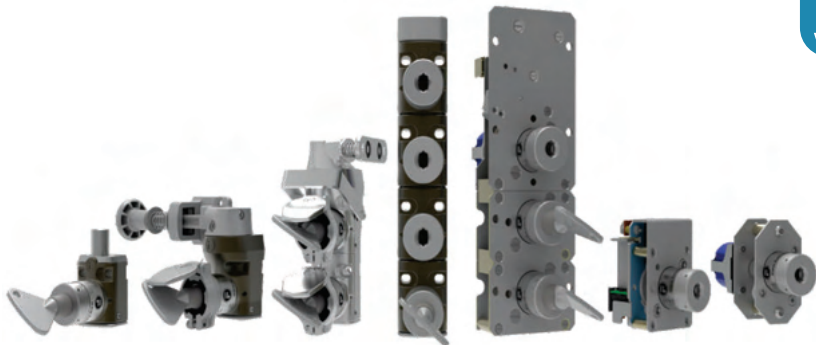
Mechanical trapped key interlocks

mGard

The mechanical range of robust trapped key products can be combined to create simple or complex key sequences to enforce processes at a fraction of the cost to electromechanical alternatives. Isolate all types of energy from a system and use personnel keys to prevent restart.

- TÜV SÜD approved for applications up to Cat. 4, PLe
- Quick & simple installation with no wiring required
- Enforced sequencing protects people and processes

Retrofittable personnel keys can be added to electromechanically systems & light curtains with our interlock blocking solutions (Osborn)



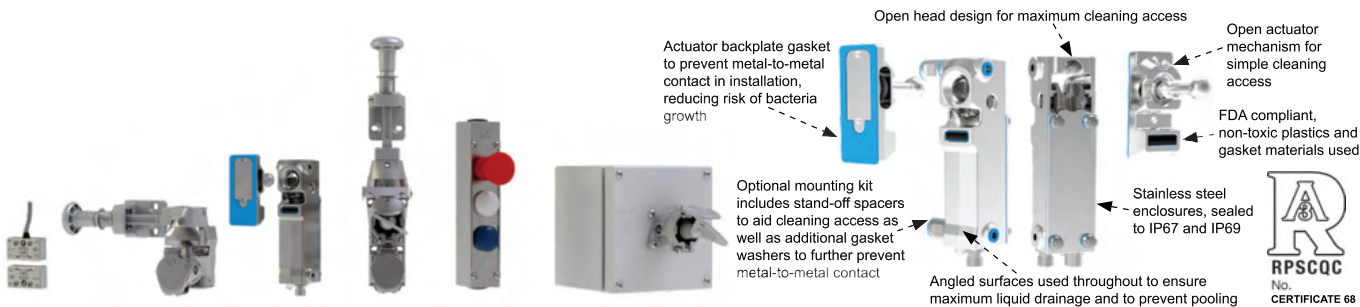
Safe Access Solutions

Hygienic interlocking for washdown environments

Louis

Louis is our range of stainless steel interlocks suitable for clean environments such as food production. Stainless non-contact switches, trapped key products, customisable control stations and the first ever 3-A approved, food safe interlock, the HGL (Hygienic Guard Lock) approved for clean in place procedures.

- All mechanical products work with a large temperature range & highly robust with no electrical parts that can fail
- 3-A approved interlock prevents bacterial growth for interlocking in a non-product food zone
- HGL actuator has high misalignment for easy install & protection against machine wear as well as having over 1000 coding's

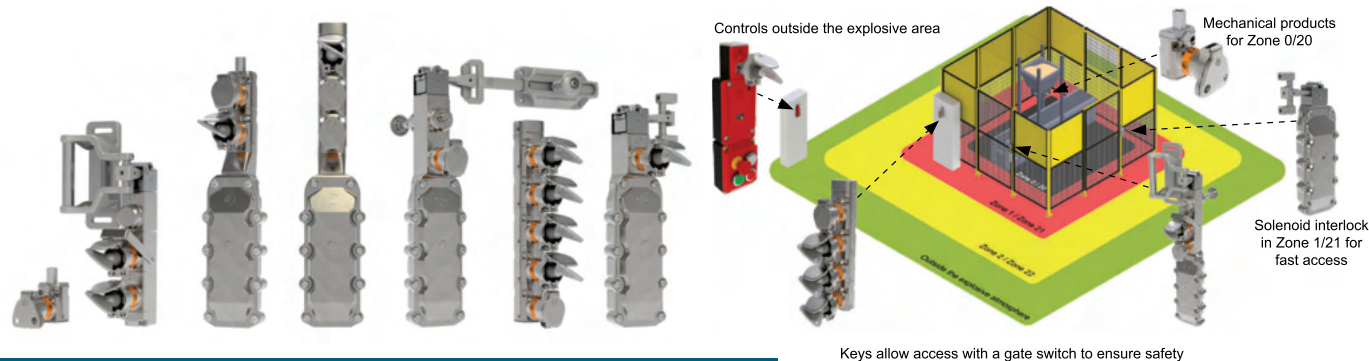


Interlocks for explosive atmospheres and hazardous locations

Alfred

Alfred is a range of robust and customisable interlocking solutions certified for safe use in explosive atmospheres and hazardous locations. The flameproof and IP69 enclosure guarantees the safe use in the harshest safeguarding conditions to protect your people and productivity.

- Integrated restart prevention for up to three operators
- Certified to ATEX, IECEx, CCCEx, & North American standards
- Monitoring & guard locking devices for use in Zone 1/21
- Fully mechanical access devices for use in Zone 0/20



Tailored safety solutions

We are able to accommodate and design tailored safety products to fit your complex requirements. We have a design engineering consultation team happy to help build custom solutions.

- Fast & cost effective engineering team to meet your exact needs
- Achieve your safety requirements & interlocking safety goals
- Using our TÜV SÜD approved mechanisms to build your desired system



Find the right interlock



All our interlocks are designed to be configured to your exact requirements, the QR code will take you to our product wizard to help guide you to which one is your best fit. Contact us directly for tailored safety solutions.

BENEDICT produces Low Voltage Switchgear that distinguish themselves from their competitors through their special features. Decades of experience in Research and Development are the basis for the excellent reliability of the Contactors, Thermal Overload Relays, Motor Starters, Motor Circuit Breakers, Load Disconnectors, Cam Switches, Push Buttons and Pilot Lights.

LOW VOLTAGE SWITCHGEAR

From a single product to a complete application solution, the Benedict range fully addresses the demands of factory automation and control environments. Benedict extensive product range offers everything to meet the needs of today's OEMs, panel builders and end users.

TELUX ROTARY CAM SWITCHES



Telux switches, offer endless possibilities for custom rotary cam switches. From simple on-off switches, to complex custom multi-step switches, we can help build the perfect switch for your application.

An effectively limitless number of configurations including the typical.

Change Over Switches, Star Delta Switches, Isolator Switches, Motor Control Switches, Multi Step Switches and On/Off Switches.

Advantages:

- Drive shaft made of solid aluminium.
- Customized versions promptly available.
- Assembled locally avoiding delays.

PUSH BUTTONS & PILOT LIGHTS

Benedict offers a broad selection of pushbuttons, selector switches and signal lamps in both 22mm and 30mm. Variations include illuminated actuators, emergency stop buttons and monoblock LED's, but the options are endless.



CONTACTORS

Benedict contactors are engineered to operate under the toughest conditions including heat, cold, dust, sand, high humidity and shock. Our compact, IEC style contactors offer maximum performance with a minimal footprint. With UL ratings from 5A to 1215A (covering up to 900 hp) and over 50 coil voltage options.



AC MAIN & DISCONNECT SWITCHES

Where highest safety and current carrying capacity are required, Main Switches and Disconnect Switches by Benedict come into use. Compact designs and box terminals for large cable cross-sections guarantee versatile applications.





TECHNICAL INFO

Pressure Equivalent Table

P.S.I	bar	kPa		
1	0.06	6.89		
5	0.34	34.48	1kPa	= 0.01 bar
10	0.68	68.96	1MPa	= 10.00 bar
20	1.37	137.93	1kg/cm ²	= 1.00 atm
30	2.06	206.89		
50	3.44	344.82	1P.S.I	= 6.895 kPa
75	5.17	517.24	1kPa	= 0.145 P.S.I
100	6.89	689.65	1kg/cm ²	= 14.223 P.S.I
125	8.62	862		
150	10.34	1034		
175	12.06	1206		
200	13.79	1379		
250	17.24	1724		
300	20.68	2068		

Cable Ratings

3 & 4 Core Copper PVC/SWA/PVC 600/100V Cables - SABS 1507/1990

	PROPERTIES						
Cable Size	Current Ratings		Volt Drop	Gland Size			
(mm ²)	Ground A	Ducts A	Air A	(mV/A/m)	3 Core	4 Core	5 Core
1.5	23	18	18	25.080	0	0	0
2.5	30	24	24	15.363	0	0/1	2
4	38	31	32	9.561	1	1	2
6	48	39	40	6.391	1	2	3
10	64	52	54	3.793	2	2	
16	82	67	72	2.390	2	2/3	
25	126	101	113	1.515	3	3	
35	147	120	136	1.097	3	3/4	
50	176	144	167	0.817	4	4	
70	215	175	207	0.576	4	4/5	
95	257	210	253	0.427	4/5	5	
120	292	239	293	0.348	5	5/6	
150	328	369	336	0.294	5	6	
185	369	303	384	0.250	6	6	
240	422	348	447	0.211	6	7	
300	472	397	509	0.189	6/7	7	

Utilization Categories IEC 947-4-1

Category	A.C. Contractors / Relays	Category	A.C. Switches / Isolators
AC-1	Non-inductive or slightly inductive loads, resistance furnaces	AC-20	Connecting and disconnecting under no-load conditions
AC-2	Slip-ring motors: Starting, plugging	AC-21	Switching of resistive loads including moderate overloads
AC-3	Squirrel-cage motors: Starting, switching off motors during running	AC-22	Switching of mixed resistive and inductive loads including moderate overloads
AC-4	Squirrel-cage motors: Starting, plugging, inching	AC-23	Switching of motor loads or other highly inductive loads
AC-11	Electromagnets for contractors, valves, solenoid actuators		

IP Rating for Enclosures

1st Digit	Protection from Solid Objects	2nd Digit	Protection from Moisture
0	No Protection	0	No Protection
1	Protected against Solid objects larger thanØ 50mm	1	Protected against Dripping Water
2	Protected against Solid objects larger thanØ 12mm	2	Protected against Dripping Water when tilted up to 15°
3	Protected against Solid objects larger thanØ 2.5mm	3	Protected against Spraying Water
4	Protected against Solid objects larger thanØ 1mm	4	Protected against Splashing Water
5	Protected against Dust	5	Protected against Water Jets
6	Dust Tight (Total Protection)	6	Protected against Heavy Seas / Powerful Water Jet
EXAMPLE Protection against dust ————— Protection against effects of splashing water <div> <div>IP</div> <div>5</div> <div>4</div> </div>		7	Protected against Temporary Immersion
		8	Protected against Continuous Submersion

Standard F.L.C. Data for 4 Pole Motors

Rated Power		Standard 3-Phase 4 Pole Motors Line Connected				Phase Connected (Star-Delta)*		Single Phase Motors
kW	HP	380V A	400V A	550V A	1000V A	380V A	400V A	230V A
0.37	0.5	1	1	0.72	0.4	-	-	3.4
0.55	0.75	1.6	1.5	1.16	0.64	-	-	4.6
0.75	1	2	1.9	1.4	0.75	-	-	5.8
1.1	1.5	2.6	2.5	1.9	1	-	-	8.4
1.5	2	3.5	3.3	2.5	1.3	-	-	11.2
2.2	3	5	4.7	3.6	1.9	-	-	16.4
3	4	6.6	6.3	4.8	2.5	-	-	21
4	5.5	8.5	8.1	6.2	3.3	4.9	4.7	28
5.5	7.5	11.5	10.9	8.6	4.5	6.7	6.3	37
7.5	10	15.5	14.7	11.5	6	9	8.5	-
10	13.5	20	19	14.3	7.5	11.6	11	-
11	15	22	21	16	8.7	12.8	12	-
15	20	30	28.5	22	12	17.4	16.6	-
18.5	25	37	35	27	14.3	21	20	-
22	30	44	42	32	17	25	24	-
30	40	60	57	43	23	35	33	-
37	50	72.5	69	53	28	42	40	-
45	60	85	81	62	33	49	47	-
55	75	105	100	76	40	64	61	-
75	100	138	131	100	53	79	75	-
90	125	170	161	123	65	99	94	-
110	150	205	195	152	78	119	113	-
132	175	245	233	179	91	142	135	-
160	220	300	285	218	117	174	165	-
200	270	370	351	268	149	215	204	-
220	300	408	388	296	161	237	225	-
250	350	475	451	344	200	275	262	-
315	430	584	555	422	240	339	322	-
355	480	636	604	477	265	369	350	-
375	500	670	636	503	278	389	369	-
425	580	760	722	548	303	441	419	-

*Values of F.L.C. as seen by the overload and main/delta contactors when phase connected within a Star-Delta starter.

Note: Ensure to check the rating plate of the motor prior to commissioning and switching on.



Branches

- Johannesburg
- Rustenburg
- Northwest



Distributors

- Kuruman (Voltex)
- Port Elizabeth (Rubicon)
- Richard's Bay (Magnet)
- Steelpoort / Kathu (Electro Diesel)
- Welkom (Welkom Winder Services)
- Zambia (Botech)

Deebar can also assist you in finding all your favourite brands. Below is just a few of the brands we can supply for you.

SIEMENS	EATON	EBI electric	technopost [®] Energy Absorption System
HellermannTyton	HPH Hydraulic & Pneumatic Hub	MIMIC COMPONENTS	POWERMITE
TRANS ELECTRON	WACO	eurolux Lighting your way	ifm electronic
RL REEFLITE	Magnetic Switch Manufacturers	Schneider Electric	TOCO LIFTING
MITSUBISHI ELECTRIC	LEDWORX	EM ElectroMechanica	ACDC DYNAMICS
AZOLITE	RS Components	Advanced Product Technology Current Thinking	LONSPEARE 54 (PTY) LTD
KAMAROSS Cables, Connectors & Electrical Products	LENBAR	BAND-IT [®]	voltex

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v5

