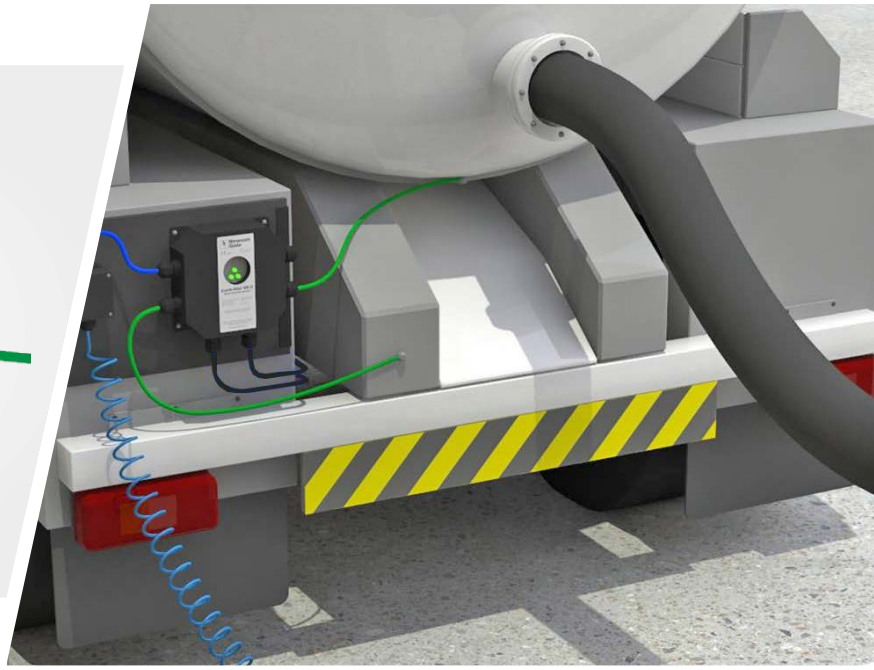
# Earth-Rite® II MGV

## Mobile Grounding Verification System

Online Enquiry >



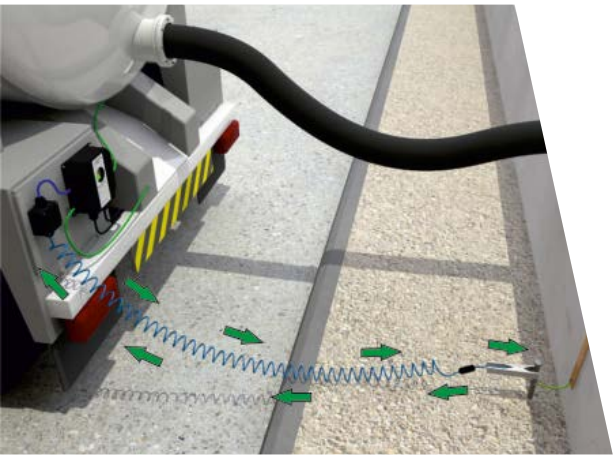
***Earth-Rite II MGV*** *Mobile Grounding Verification System*

The Earth-Rite® II Mobile Ground Verification system (MGV) is a unique, patented technology designed to provide automatic confirmation of a positive electrostatic ground connection for trucks collecting and transferring flammable / combustible products.

Vacuum trucks and bulk chemical road tankers, including their hoses and hose connections, are susceptible to static charge accumulation during the transfer of product into or out of the truck's containment system. This accumulation of static charge is equivalent to a hidden source of ignition and if discharged as a static spark can lead to the ignition of the product or the atmosphere in which the truck and material handling team is operating.

To mitigate the risk of incendive static spark discharges the **API RP 2219: Safe Operation of Vacuum Trucks in Petroleum Service** recommends that vacuum truck operators transferring flammable and combustible product in hazardous locations must fully ground the truck prior to any other task in the transfer operation by connecting the truck to a **"proven ground source"**.

The Earth-Rite II MGV is designed to enable operators to establish safe grounding of their vehicle in accordance with these recommended practices.



*Continuous Ground Loop Monitoring check*

### Typical Grounding Applications:

- Cleaning & material recovery operations for on-site cleaning of storage tanks and chemical spills
- Transporting chemicals to various stages of production on chemical manufacturing sites
- Transporting flammable product to and from external sites where installed grounding systems are not present or have not been verified by the supplier
- Hazmat Recovery operations recovering flammable spillages following transportation and loss of containment incidents

# Earth-Rite® II MGV

The **Earth-Rite II MGV** system performs two system checks which ensures the vehicle can dissipate static charges for the duration of the transfer process.

### 1. Static Ground Verification

The Earth-Rite II MGV system ensures the connection resistance of the object that is identified as the ground source to earth, is low enough to safely dissipate static charges from the truck.

### 2. Continuous Ground Loop Monitoring

When the Static Ground Verification process is confirmed, the Earth-Rite II MGV system continuously monitors the connection resistance of the truck to this verified grounding point for the duration of the transfer process. This connection resistance must be maintained at 10 Ohms (or less) for the duration of the transfer process.

**Two output contacts** located in the control unit of the Earth-Rite II MGV system can interlock with pumps or other control devices to prevent transfer operations should a static ground connection fail to be established or maintained for the transfer process.

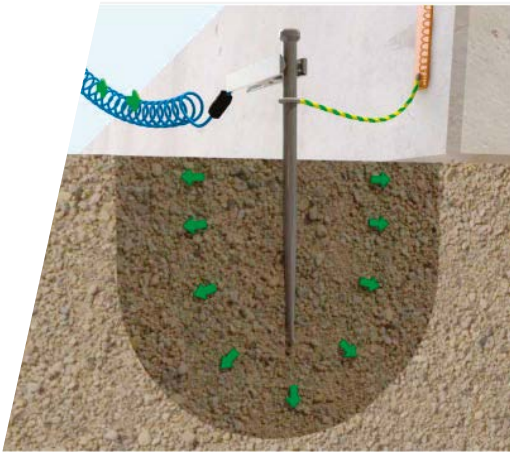
### Easy and Quick Operation

Removing the need for taking manual resistance readings or interacting with complex system interfaces the operator activates the system by simply connecting the system's grounding clamp to a site designated grounding point, buried metal structure (pipes, storage tanks) or temporary points like buried grounding rods.

When the **Static Ground Verification** and **Continuous Ground Loop Monitoring** checks are positive, a cluster of attention grabbing green LEDs pulse continuously informing the operator that the truck is securely grounded.



***Quick release static grounding clamp*** *supplied with the Earth-Rite II MGV attached to buried rod*



*Static Ground Verification check*



***The Earth-Rite II MGV*** *static grounding system can be mounted on vacuum trucks and tank trucks.*

### System Installation

- The Earth-Rite II MGV system is powered by the vehicle's primary 24 V or 12 V battery supply with the control unit mounted on the truck chassis.
- Once the process is complete and any interconnecting pipework has been removed, to avoid damage/injury, the clamp should be carefully removed and placed on the appropriate stowage point.

**Options**

Ex(d)/XP enclosure for trucks parked in Zone 1 / Class I, Div.1

Intrinsically Safe (I.S) Switching PCB

**Certification**

UK CA · SIL 2 · IECEx · ATEX

**Ingress Protection**
IP 66

**Temperature Range**
-40°C to +55°C - ATEX / IECEx
-13°F to +131°F - CSA

**Power Supply**
12 V or 24 V DC

# Earth-Rite® II MGV

## GRP Technical Specification
(Zone 2 Gas / Vapour Installations - Zone 21 & 22 Dust Atmospheres)

### Power Supply & Monitoring Unit

| | |
|---|---|
| ***Power Supply*** | 12 V or 24 V DC |
| ***Power Rating*** | 10 watt |
| ***Ambient Temperature Range*** | -40°C to +55°C |
| ***Ingress Protection*** | IP 66 |
| ***Weight*** | 2 kgs (4.4 lbs) nett |
| ***Construction*** | Carbon-loaded GRP |
| ***Monitoring Circuit*** | Intrinsically safe |
| ***Monitoring Loop Resistance*** | Nominally ≤ 1 x 10 Ω (±10%) |
| ***Output Relay Contact Rating*** | 2 off voltage free change-over switch contacts<br>250 V AC 5 A 500 VA max resistive<br>30 V DC 2 A 60 W max resistive |
| ***Cable Entries*** | 7 x M20 (2 x plugged) |

### Junction Box/Stowage Point

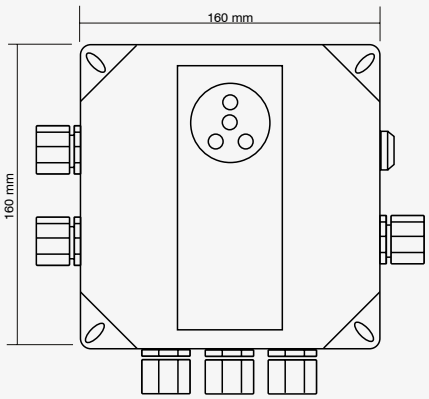
| | |
|---|---|
| ***Enclosure Material*** | GRP with carbon loading |
| ***Terminals*** | 2 x 2.5 mm² conductor capacity |
| ***Stowage Device*** | Insulated universal stowage pin |
| ***Cable Entries*** | 1 x 20 mm |
| ***Clamp Cable Connection*** | Quick Connect |

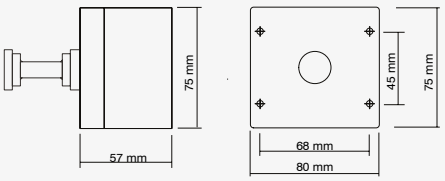
### Grounding Clamp

| | |
|---|---|
| ***Clamp Design*** | 2 pole with tungsten carbide teeth |
| ***Body*** | Stainless steel (SS grade: 304) |
| ***ATEX / FM / IECEx / UKEX Certification:*** | **ATEX**<br>Ⓔx II 1 GD T6<br>(Assessed to EN 13463-1 : 2009)<br>Sira 02ATEX9381<br>ATEX Notified Body: SIRA<br>**FM** Certificate of Compliance number: 3046346<br><br>**IECEx**<br>Ex h IIC T6 Ga<br>Ex h IIIC T85°C Da<br>Ta = -40°C to +60°C<br>IECEx EXV 20.0033<br>IECEx Certified Body: ExVeritas |
| | **UKCA Ex**<br>Ⓔx II 1 G<br>II 1 D<br>Ex h IIC T6 Ga<br>Ex h IIIC T85°C Da<br>Ta = -40°C to +60°C<br>ExVeritas 21UKEX0842<br>UKCA Ex Approved Body: ExVeritas |

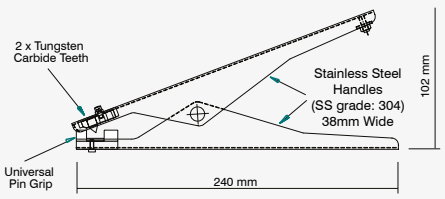
### Spiral Cable

| | |
|---|---|
| ***Cable*** | Blue Cen-Stat Hytrel sheath (Static dissipative, chemical & abrasion resistant) |
| ***Conductors*** | 2 x 1.00 mm² copper |
| ***Length*** | 15 m extended<br>(optional cable reel and additional lengths of Hytrel cable available - please enquire) |




Simple Apparatus
GRP junction box with nylon grounding clamp stowage pin




Static Grounding Clamp

Dual core stainless steel grounding clamp fitted with one pair of tungsten carbide tips

# Earth-Rite® II MGV

## GRP Hazardous Area Certification

| Europe / International: | North America Version Available: |
|---|---|
| ***IECEx***<br>Ex ec nC [ia Ga] IIC T4 Gc<br>Ex tb [ia Da] IIIC T70°C Db<br>Ta = -40°C to +55°C<br>IECEx EXV 19.0059X<br>IECEx Certifying Body: ExVeritas | ***NEC 500 / CEC (Class & Division)***<br>Associated Equipment [Ex ia] for use in<br>Class I, Div. 2, Groups A, B, C, D<br>Class II, Div. 2, Groups E, F, G<br>Class III, Div. 2<br>Providing Intrinsically Safe circuits for<br>Class I, Div. 1, Groups A, B, C, D<br>Class II, Div. 1, Groups E, F, G<br>Class III, Div. 1<br>Temperature Code T4<br>Ta = -13F°F to +131°F<br>OSHA recognised NRTL: CSA |
| ***ATEX***<br>II 3(1)G<br>II 2(1)D<br>Ex ec nC [ia Ga] IIC T4 Gc<br>Ex tb [ia Da] IIIC T70°C Db<br>Ta = -40°C to +55°C<br>ExVeritas 19ATEX0545X<br>ATEX Notified Body: ExVeritas | ***NEC 505 & 506 (Class & Zoning)***<br>Class I, Zone 2, (Zone 0), AEx nA[ia] IIC T4<br>Class II, Zone 21, AEx tD [iaD] 21, T70°C |
| ***UKCA Ex***<br>II 3(1)G<br>II 2(1)D<br>Ex ec nC [ia Ga] IIC T4 Gc<br>Ex tb [ia Da] IIIC T70°C Db<br>Ta = -40°C to +55°C<br>ExVeritas 21UKEX0833X<br>UKCA Ex Approved Body: ExVeritas | ***CEC Section 18 (Class & Zoning)***<br>Class I, Zone 2 (Zone 0) Ex nA[ia] IIC T4<br>DIP A21, IP66, T70°C |
| ***CCC***<br>Ex ec [ia Ga] nC IIC T4 Gc<br>Ex tb [ia Da] IIIC T70°C Db<br>2021312304001041<br>Approved Body: CNEX | |
| **KCS (Gas)**<br>Ex ec nC [ia Ga] IIC T4 Gc(Ga)<br>Ta = -40°C to +55°C<br>22-AV4BO-0321X<br>Approved Body: KOSHA | |
| **KCS (Dust)**<br>Ex tb IIIC T70°C Db<br>Ta = -40°C to +55°C<br>22-AV4BO-0322X<br>Approved Body: KOSHA | |

## Additional Certification

| | |
|---|---|
| ***Safety Integrity Level:*** | SIL 2 (in accordance with IEC/EN 61508) |
| ***EMC Tested:*** | to EN 61000-6-3, EN 61000-6-2<br>FCC - Part 15 (Class B) |

# Earth-Rite® II MGV

## Ex d Technical Specification

### Ex d (Zone 1 Gas / Vapour / Dust Installations)

#### Monitoring Unit

| | |
|---|---|
| ***Power Supply*** | 12 V or 24 V DC |
| ***Power Rating*** | 10 watt |
| ***Ambient Temperature Range*** | -40°C to +55°C |
| ***Ingress Protection*** | IP 66 |
| ***Weight*** | 4.5 kgs (9.9 lbs) nett |
| ***Construction*** | Copper-free cast aluminium |
| ***Monitoring Circuit*** | Intrinsically safe |
| ***Monitoring Loop Resistance*** | Nominally ≤10 Ω (±10%) |
| ***Output Relay Contact Rating*** | 2 off voltage free change-over switch contacts<br>250 V AC 5 A 500 VA max resistive<br>30 V DC 2 A 60 W max resistive |
| ***Cable Entries*** | 7 x M20 (2 x plugged) |

#### Junction Box/Stowage Point

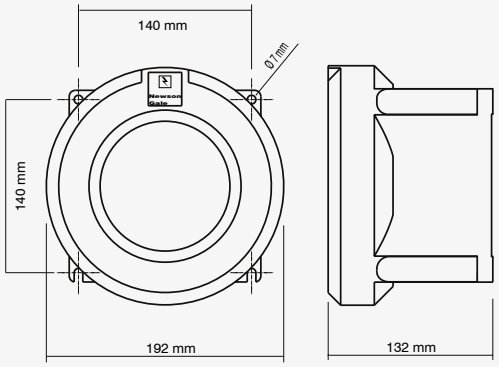
| | |
|---|---|
| ***Enclosure Material*** | GRP with carbon loading |
| ***Terminals*** | 2 x 2.5 mm² conductor capacity |
| ***Stowage Device*** | Insulated universal stowage pin |
| ***Cable Entries*** | 1 x 20 mm |
| ***Clamp Cable Connection*** | Quick Connect |

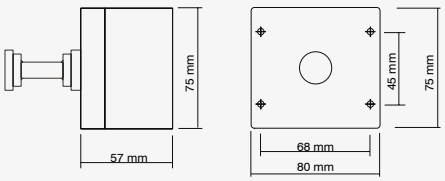
#### Grounding Clamp

| | |
|---|---|
| ***Clamp Design*** | 2 pole with tungsten carbide teeth |
| ***Body*** | Stainless Steel (SS grade: 304) |
| ***ATEX / FM / IECEx / UKEX Certification:*** | **ATEX**<br>II 1 GD T6<br>(Assessed to EN 13463-1 : 2009)<br>Sira 02ATEX9381<br>ATEX Notified Body: SIRA<br>**FM** Certificate of Compliance number: 3046346<br><br>**IECEx**<br>Ex h IIC T6 Ga<br>Ex h IIIC T85°C Da<br>Ta = -40°C to +60°C<br>IECEx EXV 20.0033<br>IECEx Certified Body: ExVeritas |
| **UKCA Ex**<br>II 1 G<br>II 1 D<br>Ex h IIC T6 Ga<br>Ex h IIIC T85°C Da<br>Ta = -40°C to +60°C<br>ExVeritas 21UKEX0842<br>UKCA Ex Approved Body: ExVeritas | |

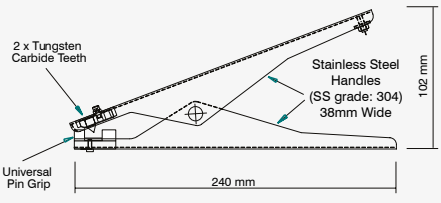
#### Spiral Cable

| | |
|---|---|
| ***Cable*** | Blue Cen-Stat Hytrel sheath (Static dissipative, chemical & abrasion resistant) |
| ***Conductors*** | 2 x 1.00 mm² copper |
| ***Length*** | 15 m extended<br>(optional cable reel and additional lengths of Hytrel cable available - please enquire) |




Simple Apparatus
GRP junction box with nylon grounding clamp stowage pin




Static Grounding Clamp

Dual core stainless steel grounding clamp fitted with one pair of tungsten carbide tips

# Earth-Rite® II MGV

## Ex d Hazardous Area Certification

| Europe / International: | North America Version Available: |
|---|---|
| ***IECEx***<br>Ex db [ia Ga] IIC T6 Gb<br>Ex tb [ia Da] IIIC T80°C Db<br>Ta = -40ºC to +55ºC<br>IECEx EXV 19.0052<br>IECEx Certifying Body: ExVeritas | ***NEC 500 / CEC (Class & Division)***<br>Associated Equipment [Ex ia] for use in<br>Class I, Div. 1, Groups A, B, C, D<br>Class II, Div. 1, Groups E, F, G<br>Class III, Div. 1<br>Providing intrinsically safe circuits for<br>Class I, Div. 1, Groups A, B, C, D<br>Class II, Div. 1, Groups E, F, G<br>Class III, Div. 1<br>Temperature Code T6<br>Ta = -40°F to +122°F<br>OSHA recognised NRTL: CSA. |
| ***ATEX***<br>II 2(1)G<br>II 2(1)D<br>Ex db [ia Ga] IIC T6 Gb<br>Ex tb [ia Da] IIIC T80°C Db<br>Ta = -40ºC to +55ºC<br>ExVeritas 19ATEX0537<br>ATEX Notified Body: ExVeritas | ***NEC 505 & 506 (Class & Zoning)***<br>Class I, Zone 1 [0] AEx d[ia] IIC T6 Gb(Ga)<br>Class II, Zone 21 [20] AEx tD [iaD] 21 T80°C |
| ***UKCA Ex***<br>II 2(1)G<br>II 2(1)D<br>Ex db [ia Ga] IIC T6 Gb<br>Ex tb [ia Da] IIIC T80°C Db<br>Ta = -40ºC to +55ºC<br>ExVeritas 21UKEX0832<br>UKCA Ex Approved Body: ExVeritas | ***CEC Section 18 (Class & Zoning)***<br>Class I, Zone 1[0] Ex d[ia] IIC T6 Gb(Ga)<br>DIP A21, IP66, T80ºC |
| ***CCC***<br>Ex db [ia Ga] IIC T6 Gb<br>Ex tb [ia Da] IIIC T80°C Db<br>2021312304001040<br>Approved Body: CNEX | |
| **KCS (Gas)**<br>Ex d [ia Ga] IIC T6 Gb(Ga)<br>Ta = -40ºC to +55ºC<br>22-AV4BO-0336X<br>Approved Body: KOSHA | |
| **KCS (Dust)**<br>Ex tb IIIC T80°C IP66 Db<br>Ta = -40°C to +55°C<br>22-AV4BO-0337X<br>Approved Body: KOSHA | |

## Additional Certification

| | |
|---|---|
| ***Safety Integrity Level:*** | SIL 2 (in accordance with IEC/EN 61508) |
| ***EMC Tested:*** | to EN 61000-6-3, EN 61000-6-2<br>FCC - Part 15 (Class B) |

## System Options

**Portable Static Grounding Kit**

A quick and easy to use grounding kit which may be swiftly deployed in emergency or combustible material transfer operations where pre-existing designated grounding points are not available or accessible.

The portable grounding kit combines multiple shortened grounding rods (355 mm long) with surface wire grounding techniques to provide acceptably low resistance for static grounding requirements in field operations.

The flexible array of interconnected grounding rods is inserted into the soil at specified intervals to maximize the ability to safely dissipate static electricity from mobile trucks, service vehicles and other equipment.

- Kit includes multiple rods, surface grounding wires, ground tab and driver tool
- Quick and easy to install and retrieve
- Static Grounding Canvas Kit Bag for Portable Grounding Kit and Cen-Stat™ Clamps, Assemblies and Tools




**Retractable Cable Reel**

The retractable cable reel is supplied for grounding system installations where customers want to ensure the grounding clamp and cable are returned to the static grounding system by operators and drivers on completion of the product transfer process. The **Reel** can be used in conjunction with the **Earth-Rite® II MGV**.

- Certified for ATEX Zone 1 and 21 hazardous areas
- Self-retracting with up to 15 m of Hytrel® protected cable
- Silver plated ultra low resistance slip ring contacts
- ATEX - ⟨Ex⟩ II 2 GD T6



## System Options

### Earth-Rite® II MGV Tester




This Tester provides competent electrical personnel with the ability to confirm that the functional characteristics of the Earth-Rite® II MGV static grounding system are working to parameters that will confirm a truck is safely grounded when deployed in the field. The easy to use tester enables the user to “dial in” a number of settings via a pair of rotary switches that indicate the Earth-Rite® II MGV system is fit for use. The Tester should be used during the installation of Earth-Rite® II MGV systems and during scheduled maintenance for trucks on which Earth-Rite® II MGV systems are installed.

Functional Parameter Tests:

- **Static Ground Verification**
  Ensures the Earth-Rite® II MGV only goes permissive on a value of resistance to True Earth that is capable of dissipating static charges safely
- **Continuous Loop Monitoring**
  Ensures the Earth-Rite® II MGV system only goes permissive when the connection resistance between the truck and ground source is 10 Ohms or less
- **Clamp and Cable test**
  Ensures good continuity in the circuit through the grounding clamp teeth, conductors and Quick Connect

### Intrinsically Safe (I.S) Switching PCB



The I.S Switching PCB is an additional circuit board added to Newson Gale system enclosures that enable users to directly interface with, and switch intrinsically safe circuits without the need for additional equipment. The I.S Switching PCB is designed not to affect the I.S signals electrical parameters and is compatible with the **Earth-Rite® II MGV**.

- 30 V DC, 500 mA
- Li = 0H, Ci = 0F
- Suitable for Ex ia, ib, ic rated intrinsically safe circuits only
- NAMUR Compatible

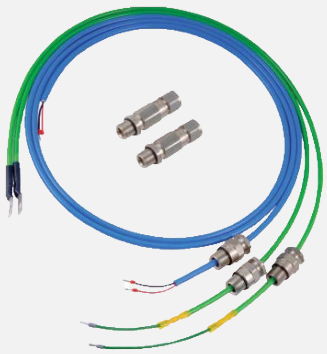
## System Options

**Installer's Kit**

The kits provide installation engineers with the necessary Ex (d) enclosure glands required to complete an **Earth-Rite® II MGV** installation as specified in the system installation manual.

**Kit A**

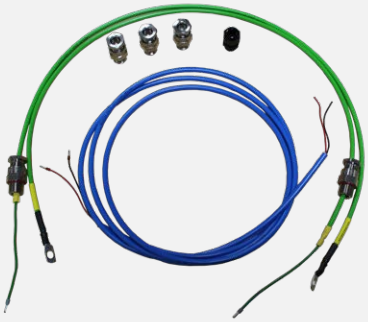
Ex (d) IP68 glands (x2) for armoured cable 9 mm to 13.5 mm Ø*,
Ex (d) IP68 glands (x3) for non-armoured cable 4 mm to 8.4 mm Ø*,
IP68 plastic gland for junction box cable, 3m of 2 core conductor cable (x1) to connect system enclosure to clamp stowage box, 1m of solid green earth loop cable (x2) with PCB connectors and 10 mm bolt eyelets attached.



Kit A - with Ex d glands, for use with armoured cable

**Kit B**

Ex (d) IP68 glands (x5) for non-armoured cable 4 mm to 8.4 mm Ø*,
IP68 plastic gland for junction box cable, 3m of 2 core conductor cable (x1) to connect system enclosure to clamp stowage box, 1m of solid green earth loop cable (x2) with PCB connectors and 10 mm bolt eyelets attached.



Kit B - with Ex d glands, for use with non-armoured cable

**Kit C (GRP/P1)**

Ex (e) IP68 glands (x5) for non-armoured cable 6 mm to 13 mm Ø,
IP68 plastic gland for junction box cable, 3m of 2 core conductor cable (x1) to connect system enclosure to clamp stowage box, 1m of solid green earth loop cable (x2) with PCB connectors and 10 mm bolt eyelets attached.

* For areas not requiring IIC apparatus.



Kit C - with Ex e glands, for use with non-armoured cable

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