



Earthing

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Earthing Introduction

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Furse earthing components are manufactured to meet exacting British, European and International standards to ensure robust, long lasting performance in even the harshest soil conditions.

All components are designed to withstand mechanical damage and the thermal and electromechanical stresses from the earth fault and leakage currents expected within an installation.

These components, combined together, form the earth termination system - the vital system for dispersing those dangerous lightning and fault currents safely and effectively into the ground.

Following National & International standards, we recommend a single integrated earth termination system for a structure, combining lightning protection earthing with power and telecommunication system earthing.

This integrated approach ensures all systems are appropriately cross-bonded and earthed, to fully safeguard against the risk of voltage differences which might otherwise give rise to flashover or electric shock.

Furse earthing and equipotential bonding products offer the surest solution to this problem.

From pipe clamps and metalwork bonds to connect to accessible metal parts, to low resistance copper conductor and high quality earth rods for the earthing arrangement - Furse products are designed to perform.

And where our standard range doesn't quite fit your requirements, with full design and manufacturing capability we can design a special component to suit.

Special component design and manufacture

Our standard range is designed to meet the vast majority of earthing applications. However, on occasion, you may have the need for a non-standard part, for example where connecting large copper cable or tape to a rod, or to metalwork.

Where this is the case, our technical engineering team can design a special component to your needs, which on approval can be manufactured in the quantity specified for the project.



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Earthing

Product selection guide

Product selection guide - Earthing

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Earthing

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An effective earthing system is a fundamental requirement of any modern structure or system for operational and/or safety reasons. Without such a system, the safety of a structure, the equipment contained within it and its occupants are compromised.

Earthing systems typically fall into (but are not limited to) one of the following categories:

- Power generation, transmission and distribution
- Lightning protection
- Control of undesirable static electricity
- Telecommunications

The following schematic illustrates the key elements of an effective earthing system.

Conductors and earth electrodes

As with lightning protection, the first choice faced by the designer of an earthing system is the type of conductor to be used. The correct choice of conductor is extremely important, whether it be a simple below ground electrode or a complex computer room signal reference grid.



1. Conductors

We offer three types of conductor:

- Flat tape
- Solid circular
- Stranded cable

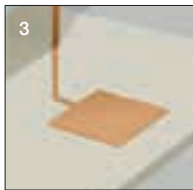
It is important that earthing conductors should be correctly sized for their application, as they may be required to carry a considerable current for several seconds. A range of conductor materials is available. Above ground, copper, aluminium and steel may be used. Below ground, copper is the most common choice due to its high resistance to corrosion.

In addition to the conductors, earth rods and plates or any combination thereof can be used to achieve an effective earth depending on the site conditions.



2. Earth rods

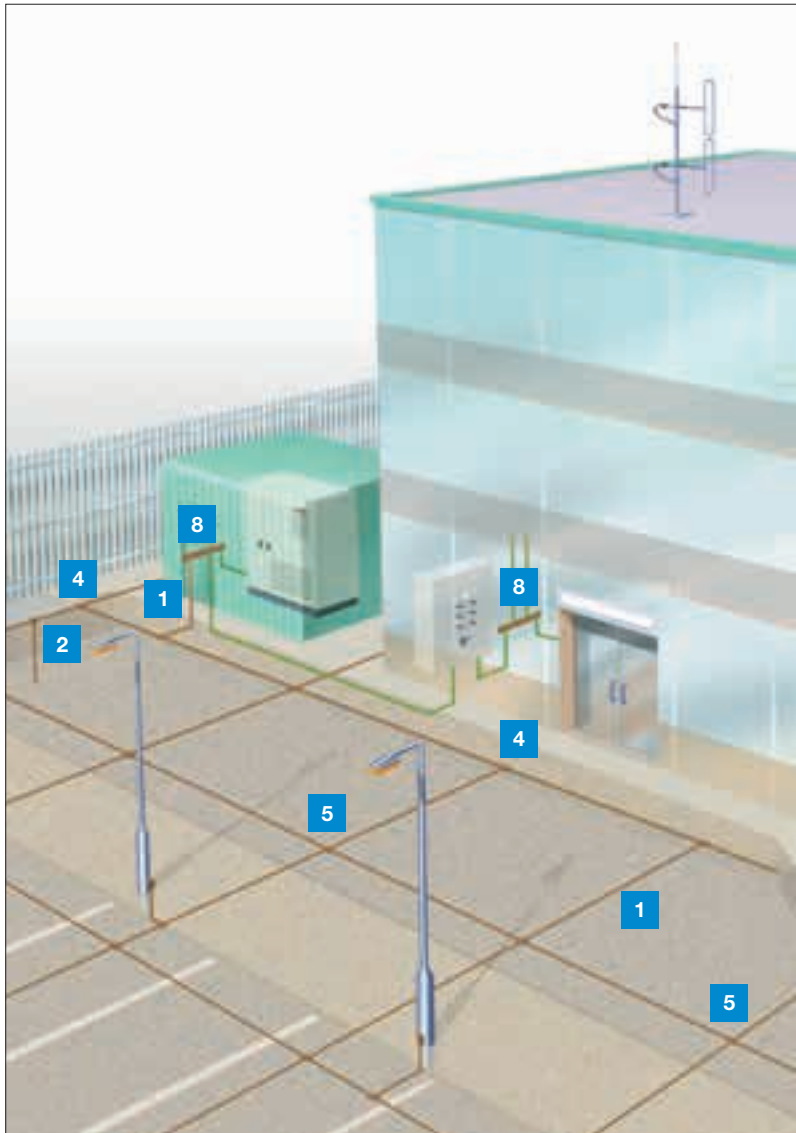
Earth rods take advantage of lower resistivity soils at greater depths than normal excavation will allow.



3. Earth plates

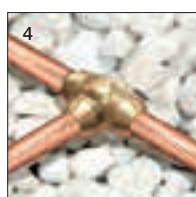
Earth plates are used to attain an effective earth in shallow soils with underlying rocks or in locations with large amounts of buried services. They can also provide protection at potentially dangerous places e.g. HV switching positions.

Main aspects and individual components of an earthing system



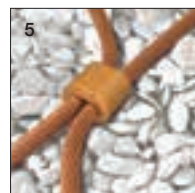
Connectors and terminations

An effective earthing system relies on joints and connections to have good electrical conductivity with high mechanical strength. Poorly chosen or badly installed joints and connectors can compromise the safe operation of an earthing system. We offer a range of connectors and termination methods to suit a wide range of applications:



4. FurseWELD exothermic welding

A simple, self-contained method of forming high quality electrical connections which requires no external power or heat source. Connections are made using the high temperature reaction of powdered copper oxide and aluminium.



5. Compression connectors

For applications where exothermic welding is not appropriate for creating permanent connections, compression connectors may be used.

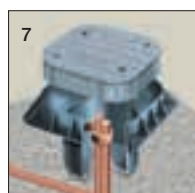
Compression connectors produce very robust joints which can be buried in the ground or in concrete.



6. Mechanical clamps

Where permanent connections are not appropriate, mechanical clamps offer the ideal solution. These are typically used on smaller scale installations where periodic disconnection for testing is required.

All Furse mechanical clamps are manufactured from high copper content alloy. They have high mechanical strength, excellent corrosion resistance and conductivity.



7. Earth inspection pits

Regular inspection and testing of the earthing system is essential. Inspection pits allow easy access to earth electrodes and conductors to facilitate this procedure.



8. Earth bars

Earth bars are an efficient and convenient way of providing a common earth point. Integral disconnecting links mean the earth bars can be isolated for testing purposes.



9. Earth electrode backfills

Earth electrode backfills are to be used in areas where required resistance levels are difficult to achieve. These products effectively act to increase the electrode's surface area thus lowering its resistance to earth.





Earth electrodes

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Earth electrodes

Introduction

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Three types of Furse earth rod are available, but the copperbonded steel cored rod is by far the most popular, due to its combination of strength, corrosion resistance and comparatively low cost.

Quality earth rods are commonly made from either solid copper, stainless steel or copperbonded steel.

Solid copper and stainless steel rods offer a very high level of corrosion resistance at the expense of lower strength and higher cost.

Copperbond rod

Furse copperbond earth rods probably offer to the installer the best and most economical earth rods available. They are made by molecularly bonding 99.9% pure electrolytic copper on to a low carbon steel core. **Furse rods are not of the sheathed type.** They are highly resistant to corrosion, and because the steel used has a very high tensile strength, they can be driven by power hammers to great depths.

The counter-bored couplings are made from high copper content alloy, **commercial brass is not used.** This again ensures excellent corrosion resistance and high strength.

Solid copper rod

Furse solid copper earth rods offer greater resistance to corrosion. They are ideally used in applications where soil conditions are very aggressive, such as soils with high salt content.

Stainless steel rod

Stainless steel rods are used to overcome many of the problems caused by galvanic corrosion which can take place between dissimilar metals buried in close proximity. Furse stainless steel earth rods are highly resistant to corrosion.

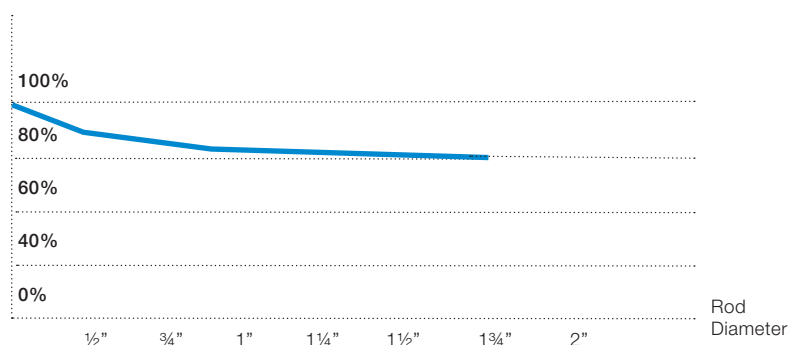


Diameter of rod

One common misconception is that the diameter of the rod has a drastic effect on lowering earth resistance. This is not true! As the graph shows, you only lower the resistance value by 9.5% by doubling the diameter of the rod (which means increasing the weight and the cost of the rod by approximately 400%).

Thus the rationale is: Use the most economical rod that soil conditions will allow you to drive. This is one of the ways to ensure that you don't waste money on over-dimensioned rods.

Effect of electrode diameter on resistance

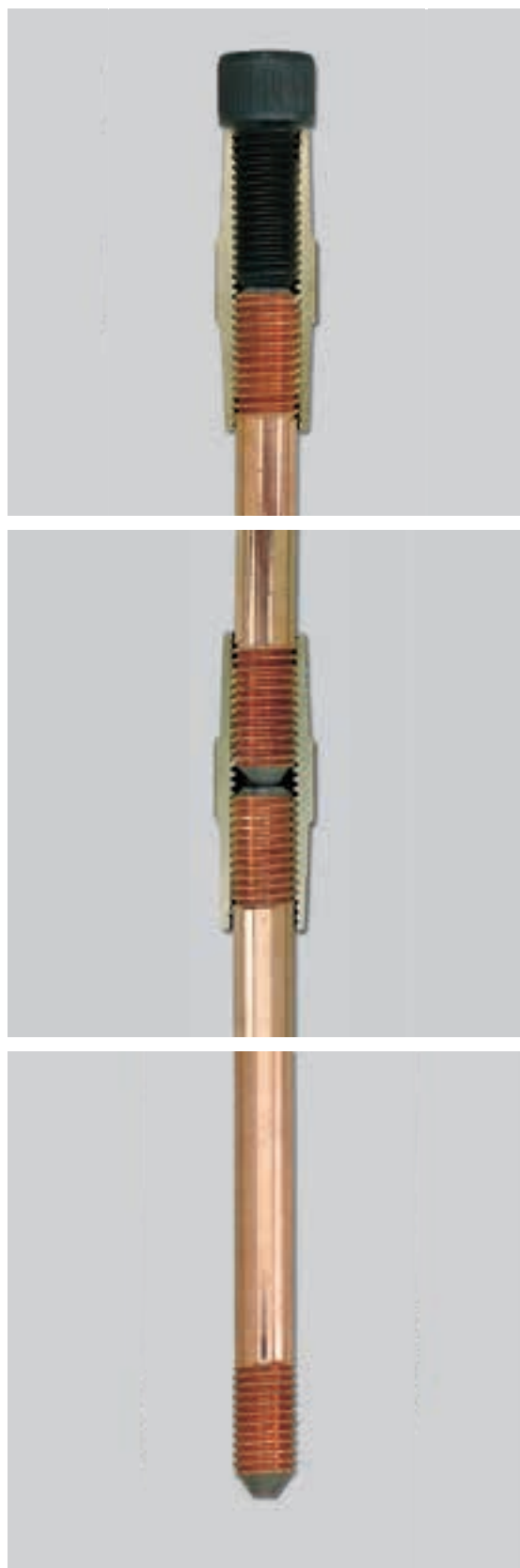
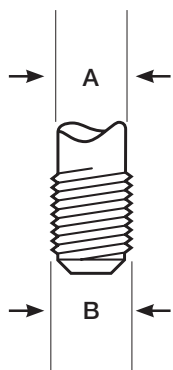


Thread and shank diameters

Confusion often arises between thread and shank diameters for threaded rods.

The thread rolling process, used by quality rod manufacturers, raises the surface of the rod so that thread diameter (B) is greater than shank diameter (A) (see drawing).

All threads are Unified National Coarse (UNC-2A).



Earth electrodes

Earth rods



Threaded copperbond earth rod

Part no.	Nominal diameter (")	Length (mm)	Thread 'B' UNC (")	Shank 'A' (mm)	Weight each (kg)
RB105	Ø½	1,200	⅝ ₁₆	12.7	1.18
RB110	Ø½	1,500	⅝ ₁₆	12.7	1.55
RB115	Ø½	1,800	⅝ ₁₆	12.7	1.76
RB125	Ø½	2,400	⅝ ₁₆	12.7	2.36
RB205-FU	Ø⅝	1,200	⅝ ₈	14.2	1.53
RB210	Ø⅝	1,500	⅝ ₈	14.2	1.88
RB215	Ø⅝	1,800	⅝ ₈	14.2	2.29
RB220-FU	Ø⅝	2,100	⅝ ₈	14.2	2.51
RB225	Ø⅝	2,400	⅝ ₈	14.2	3.00
RB235	Ø⅝	3,000	⅝ ₈	14.2	3.79
RB305	Ø¾	1,200	¾ ₈	17.2	2.19
RB310	Ø¾	1,500	¾ ₈	17.2	2.73
RB315	Ø¾	1,800	¾ ₈	17.2	3.27
RB320-FU	Ø¾	2,100	¾ ₈	17.2	3.83
RB325	Ø¾	2,400	¾ ₈	17.2	4.35
RB335	Ø¾	3,000	¾ ₈	17.2	5.44

– High tensile low carbon steel core with minimum 250 microns of copper

Fittings

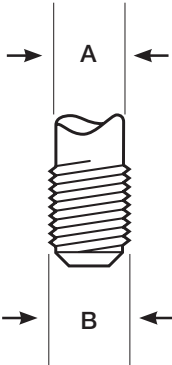
Part no.	Type (")	Weight (kg)
CG170	½ Coupling	0.09
CG270	⅝ Coupling	0.08
CG370	¾ Coupling	0.13
ST100	½ Driving stud	0.05
ST200	⅝ Driving stud	0.08
ST300	¾ Driving stud	0.12

Standards

IEC/BS EN 62561-2
BS 7430

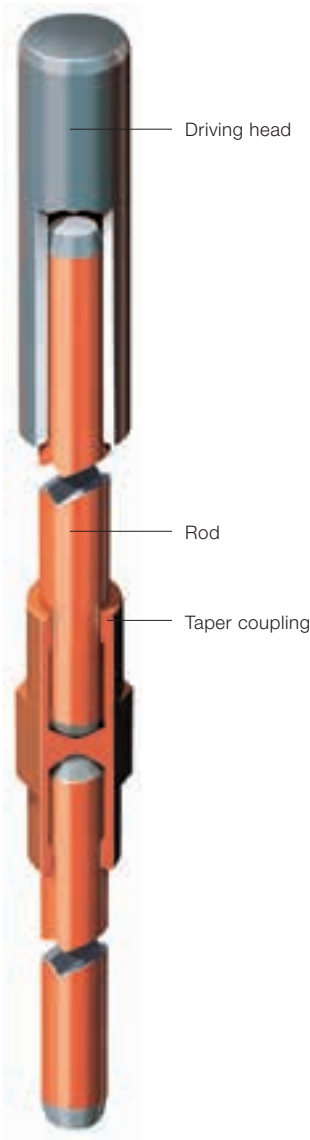


UL467 (RB125, RB225,
RB235, RB325, RB335,
CG270, CG370)



Earth electrodes

Earth rods



Unthreaded copperbond earth rod

Part no.	Diameter (mm)	Length (mm)	Weight each (kg)
RB005	Ø 9.0 mm	1200 mm	0.62
RB103	Ø 12.7 mm	1200 mm	1.18
RB107	Ø 12.7 mm	1500 mm	1.55
RB116	Ø 12.7 mm	1800 mm	1.76
RB126	Ø 12.7 mm	2400 mm	2.36
RB203	Ø 14.2 mm	1200 mm	1.53
RB213	Ø 14.2 mm	1500 mm	1.88
RB216	Ø 14.2 mm	1800 mm	2.29
RB217	Ø 14.2 mm	2000 mm	2.51
RB223	Ø 14.2 mm	2100 mm	2.68
RB226	Ø 14.2 mm	2400 mm	3.00
RB236	Ø 14.2 mm	3000 mm	3.79
RB306	Ø 17.2 mm	1200 mm	2.19
RB313	Ø 17.2 mm	1500 mm	2.73
RB316	Ø 17.2 mm	1800 mm	3.27
RB317	Ø 17.2 mm	2000 mm	3.64
RB323	Ø 17.2 mm	2100 mm	3.83
RB326	Ø 17.2 mm	2400 mm	4.35
RB336	Ø 17.2 mm	3000 mm	5.44

– High tensile low carbon steel core with minimum 250 microns of copper

Fittings

Part no.	Type	Weight each (kg)
CG177	12.7 mm Coupling	0.09
CG277	14.2 mm Coupling	0.08
CG377	17.2 mm Coupling	0.13
ST107	12.7 mm Driving head	0.25
ST207	14.2 mm Driving head	0.22
ST307	17.2 mm Driving head	0.27

Standards

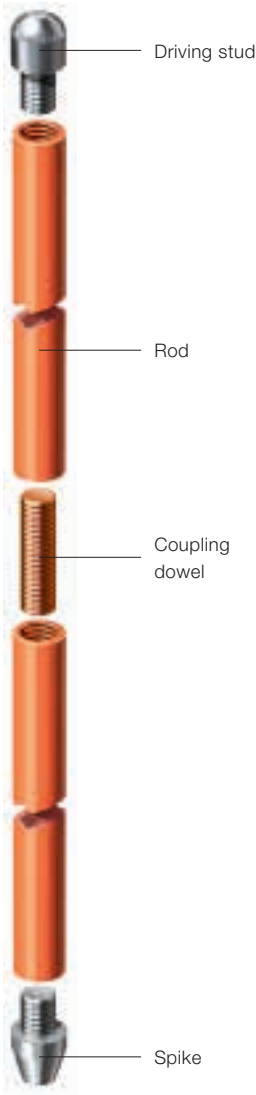
BS 7430

UL467 (RB126, RB226, RB236, RB326, RB336)



Earth electrodes

Earth rods



Solid copper and stainless steel earth rod

Part no.	Diameter (mm)	Length (mm)	Weight each (kg)
Solid copper rod			
RC010	Ø 15	1200	1.88
RC011	Ø 15	1500	2.35
RC012	Ø 15	3000	4.70
RC015	Ø 20	1200	3.34
RC016	Ø 20	1500	4.18
RC017	Ø 20	3000	8.36
Solid copper rod kit			
RC010-KIT	Ø 15	8 ft (2440 mm)	3.82
RC015-KIT	Ø 20	8 ft (2440 mm)	6.79
Stainless steel rod			
RS005	Ø 16	1200	1.87
RS011	Ø 16	1500	2.34
RS012	Ø 16	3000	4.68
RS016	Ø 20	1500	3.65
RS017	Ø 20	3000	7.30
Stainless steel rod kit			
RS005-KIT	Ø 16 mm	8 ft (2440 mm)	3.80 kg

Fittings

Part no.	Type	Weight each (kg)
ST010	15 mm hardened steel driving stud for copper/stainless steel rod	0.02
ST015	20 mm hardened steel driving stud for copper/stainless steel rod	0.05
CG013	Coupling dowel for 15 mm & 20 mm copper rod	0.02
CG005	Coupling dowel for 16 mm & 20 mm stainless steel rod	0.02
SP010	15 mm hardened steel spike for copper/stainless steel rod	0.02
SP015	20 mm hardened steel spike for copper/stainless steel rod	0.04

Standards

BS EN 50164-2
BS 7430

UL467 (RC010-KIT,
RC015-KIT,
RS005-KIT)



Earth electrodes

Earth rod seal



Standards

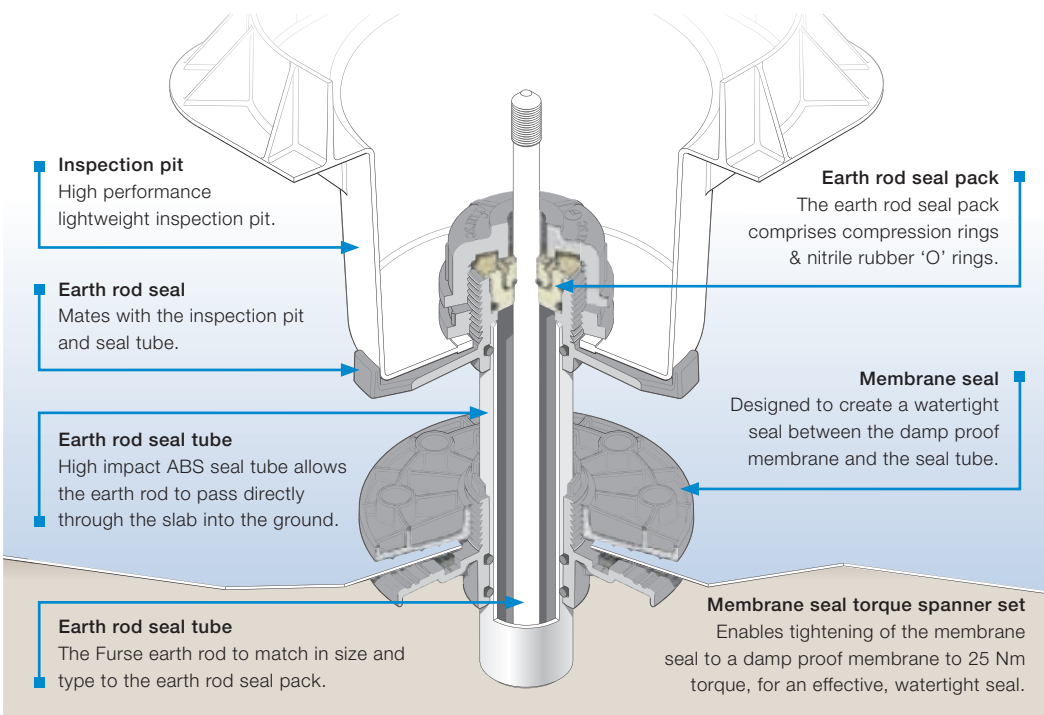
IEC/BS EN 62561-5



Earth rod seal

Part no.	Description	Weight each (kg)
Earth rod seal assembly		
ES300	Earth rod seal and membrane seal	0.75
Earth rod seal pack		
ES300-12	Seal pack for 1/2" (ø 12.7 mm) Copperbond rod	0.06
ES300-58	Seal pack for 5/8" (ø 14.2 mm) Copperbond rod	0.06
ES300-34	Seal pack for 3/4" (ø 17.2 mm) Copperbond rod	0.06
ES300-15	Seal pack for ø 15 mm solid copper rod	0.06
ES300-16	Seal pack for ø 16 mm solid copper rod	0.06
ES300-20	Seal pack for ø 20 mm solid copper rod	0.06
Earth rod seal tube		
ES310-03	Seal tube, 300 mm length	0.16
ES310-05	Seal tube, 500 mm length	0.27
ES310-10	Seal tube, 1,000 mm length	0.54
ES310-15	Seal tube, 1,500 mm length	0.81
ES310-20	Seal tube, 2,000 mm length	1.08
ES310-30	Seal tube, 3,000 mm length	1.62
Accessory spanner set		
ES320	Membrane seal torque spanner set	0.45

- When specifying a Furse earth rod seal, ensure that all relevant components are ordered - earth rod assembly, seal pack, seal tube, accessory spanner set and lightweight inspection pit. The accessory spanner set may be used for multiple earth rod seal installations
 - Please specify the correct size of earth rod seal pack for the earth rod, and the correct length of protective seal tube when ordering
- Note: earth rod seal designed for use with clean, smooth Type 'A' damp proof membranes as defined by BS EN 13967, without the need for adhesive, sealant or mastic. For uneven, textured or tanking damp proof membranes, if installed, or where hydrostatic conditions exist, adhesive, sealant or mastic should be applied



Earth electrodes

Earth hammer & rig



Earth rod hammer

Part no.	Description	Weight each (kg)
HM005	Atlas Copco Cobra TT petrol driven hammer	24.00
HM010	Earth rod adapter (Suitable for 5/8" earth rods)	3.00

– For projects where hand driving is uneconomical owing to a large quantity of rods or unfavourable ground conditions, the earth rod hammer can drastically cut installation times

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Hammer rig

Part no.	Description	Weight each (kg)
HM105	Hammer rig	196.35

– By mounting a hammer onto a rig, longer lengths of earth rods can be driven. For projects where large quantities of rods are required cost savings can be achieved, for example, by using single 8 ft rods rather than 2 x 4 ft rods which would need couplers etc.

– Installation time is also considerably reduced. Please specify length of rod to be driven and type of hammer to be used when ordering.

Earth electrodes

Inspection pits



Standards

IEC/BS EN 62561-5

Lightweight inspection pit

Part no.	Description	Load rating (kg)	Weight each (kg)
PT205	Lightweight inspection pit with grey polymer lid	5000	1.80
PT309-FU	Lightweight inspection pit with black (unbranded) polymer lid	5000	1.80
PT110*	Lightweight inspection pit with concrete lid	1200	7.50

Earth bar for lightweight inspection pit

PT004	5 hole earth bar		0.40
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Accessories for polymer lid

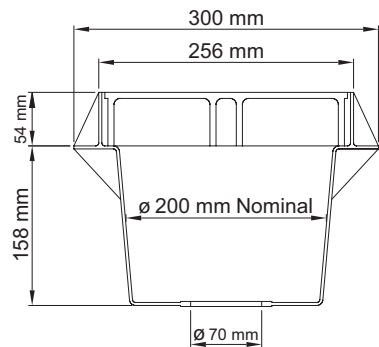
AK005	6 mm Allen key		0.03
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Accessories for concrete lid

JH100	M8 x 100 mm long mild steel 'J' bolt lifting hook		0.04
AS100	M8 x 60 stainless steel Allen caphead screw (2 per lid)		0.03

- Manufactured from high-performance, UV stable and chemically resistant polymer with either polymer or concrete lid to suit the application
- The lightweight inspection pit with polymer lid is load rated to 5,000 kg and is suitable for general to heavy duty use. It has a lockable lid and improved working area compared to the concrete inspection pit. The lightweight inspection pit with concrete lid is load rated to 1,200 kg and is designed for use in pedestrianized and light vehicular areas. The lid can be locked in place, if required order 2 x AS100 Allen caphead screws

*Not illustrated (drawing available on request)



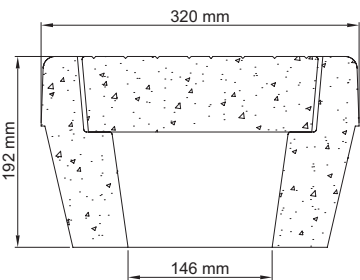
Concrete inspection pit

Part no.	Description	Weight each (kg)
PT005	Concrete inspection pit	30.00

Earth bars for concrete inspection pit

PT006	5 hole earth bar	0.40
PT007	7 hole earth bar	0.58

- The concrete inspection pit is load rated to 3,500 kg and is suitable for most types of earthing and lightning protection installations
- It is not suitable for use in areas where high load, small wheel vehicles are used. The lightweight inspection pit (PT205) is recommended for this type of application



Standards

BS EN 62561-5

Earth electrodes

Earth plate & lattice



Earth plate (solid copper)

Part no.	Dimensions (mm)	Total surface area (m²)	Weight each (kg)
PE005	600 x 600 x 1.5	0.72	5.00
PE015	900 x 900 x 1.5	1.63	11.21
PE010	600 x 600 x 3	0.73	9.74
PE020	900 x 900 x 3	1.63	21.74

Standards

BS EN 12163



– Solid copper earth plates offer a simple alternative style of earth electrode where high resistivity soil or rock conditions prohibit the driving of earth rods

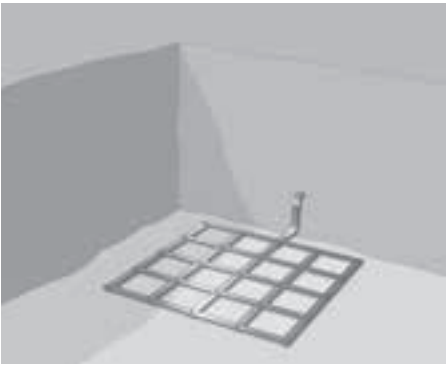


Earth mat (lattice copper)

Part no.	Dimensions (mm)	Total surface area (m²)	Weight each (kg)
PE110	600 x 600 x 3	0.31	3.98
PE120	900 x 900 x 3	0.65	7.20

Standards

BS EN 13601



– Manufactured from high conductivity copper tape, lattice earth mats are designed to minimize the danger of exposure to high step and touch voltages to operators in situations such as High Voltage switching

Earth electrodes

Backfill materials



Standards

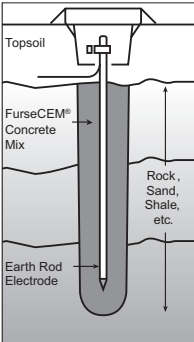
BS EN 50164-7

FurseCEM® conductive aggregate

Part no.	Description	Weight each (kg)
CM025	FurseCEM®	25.00
CM030	FurseCEM® (supplied with cement)	25.00

- Certain ground conditions make it difficult to obtain a reliable earth resistance, whilst particular installations may require a very low resistance. In such cases, FurseCEM® provides a convenient and permanent solution. By adding FurseCEM® in place of sand and aggregate, to cement, a conductive concrete is formed. This electrically conductive medium has many applications in the electrical/ construction industry, including RF and microwave screening, static control and, of course, earthing, for which it was specifically developed
- When used as a backfill for earth electrodes, FurseCEM® impregnated concrete greatly increases the electrode's surface area thus lowering its resistance to earth

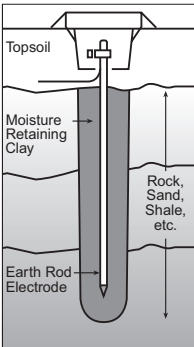
For further information on FurseCEM®, please contact the Furse sales office. A separate datasheet available on request.



Bentonite moisture retaining clay

Part no.	Description	Weight each (kg)
CM015	Bentonite powder	25.00
CM020	Bentonite granules	25.00

- Used as an earth-electrode backfill to reduce soil resistivity by retaining moisture. The clay is a sodium activated montmorillonite, which when mixed with water swells to many times its dry volume. It has the ability to hold its moisture content for a considerable period of time and to absorb moisture from the surrounding soil (e.g. from rainfall)
- CoSHH datasheet available on request



Earth electrodes

Earth resistance test equipment



Clamp-on earth resistance tester

Part no.	Description	Weight each (kg)
DET14C	Clamp-on earth resistance tester	0.75
– Measures earth/ground resistance and current flow by the clamp-on method – Capable of taking ground resistance readings from 0.05 Ω to 1500 Ω – Capable of measuring ground leakage current from 0.5 mA to 35 A – Extra large 39 mm jaws		



Digital earth resistance tester

Part no.	Description	Weight each (kg)
DET3TC	Digital earth resistance tester	1.0
DET4TD2	Digital earth resistance tester	1.0
– DET3TC three-terminal digital model includes Attached Rod Technique (ART) capability – DET3TC measures ground resistance from 0.01 Ω to 2000 Ω and earth voltages up to 100 V – With optional clamp, the DET3TC can read ground current from 0.5 mA to 19.9 A – DET4TD2 capable of 2 pole, 3 pole and 4 pole testing – DET4TD2 measures ground resistance from 0.01 Ω to 20,000 Ω and includes a voltmeter to measure ground voltages up to 100 V		



Digital earth resistance tester

Part no.	Description	Weight each (kg)
DET2/2	Digital earth resistance tester	5.0
– Four-terminal digital model for large, critical ground systems – Includes an extra digit of resolution (to 0.001) on readings, together with an interference filter, test current control and, most importantly, adjustable test current frequency (105-160 Hz) – Can be used to make earth resistivity measurements		



Earthing

Earth bonds & clamps

Mechanical clamps

Rod to tape clamp (type A)	8/2
Rod to cable clamp (type G)	8/2
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'U' bolt rod clamp (type GUV)	8/3
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Rebar clamp	8/4
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Earth points

Single hole earth point	8/6
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Earth bosses

Earth boss	8/9
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Bonds & clamps

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Watermain bond	8/12

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Flexible flat copper braid bond	8/14
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Static earth clamps

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Earth bars

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Cable lug

Tinned copper cable lug	8/25
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Compression connector dies

'C' shape connector die	8/26
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Compression tools

Hydraulic crimping tool	8/27
Hydraulic crimping head and pump	8/27
Battery powered hydraulic crimping tool	8/28
Battery powered hydraulic cutting tool	8/28

Earth bonds & clamps

Mechanical clamps



Rod to tape clamp (type A)

Part no.	Nominal rod diameter (") (mm)		Max. conductor (mm)	Weight each (kg)
CR105	Ø ½	Ø 12.7	26 x 12	0.15
CR105	Ø ¾	Ø 16	26 x 12	0.15
CR105	Ø ¾	Ø 20	26 x 10	0.15
CR108	Ø ¾	Ø 16	30 x 2	0.16
CR108	Ø ¾	Ø 20	30 x 2	0.16
CR110	Ø ¾	Ø 16	40 x 12	0.24
CR115	Ø ¾	Ø 16	51 x 8	0.30
CR125	Ø ¾	Ø 20	51 x 12	0.30
CR130	Ø ½	Ø 12.7	26 x 20	0.23
CR130	Ø ¾	Ø 16	26 x 18	0.23
CR130	Ø ¾	Ø 20	26 x 10	0.23
CR130	Ø 1	Ø 25	26 x 10	0.23

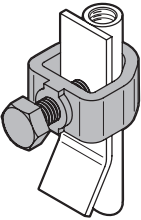
Standards

IEC/BS EN 62561-1 Class H
BS 7430

UL467 (CR105)



- Designed for connection of flat tape conductor to an earth rod. Corrosion resistance, conductivity and mechanical strength are essential considerations in clamp design to ensure an earthing system remains operative for many years. All Furse earth rod clamps have high strength copper alloy bodies and screws e.g. aluminium bronze, phosphor bronze etc., commercial brass is not used
- Tightening torque 15 Nm



Rod to cable clamp (type G)

Part no.	Nominal rod diameter (") (mm)		Max. conductor (mm²)	Weight each (kg)
CR505	Ø ¾	Ø 9.5	6-35	0.03
CR510-FU*	Ø ½	Ø 12.7	16-50	0.05
G5	Ø ¾	Ø 16	5.2-33.6	0.06
CR515*	Ø ¾	Ø 16	16-70	0.06
G6	Ø ¾	Ø 20	5.2-33.6	0.06
CR520*	Ø ¾	Ø 20	35-95	0.06
CR525	Ø 1	Ø 25	70-150	0.14

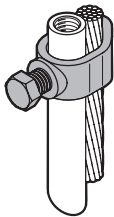
Standards

BS EN 62561-1 Class H
BS 7430

UL 467 (G5 & G6)



- High strength copper alloy clamp designed to provide a high quality, low resistance connection between solid circular or stranded conductor and an earth rod
- Tightening torque 12 Nm
- *Suitable for use with Ø 8 mm solid circular copper conductor



Earth bonds & clamps

Mechanical clamps



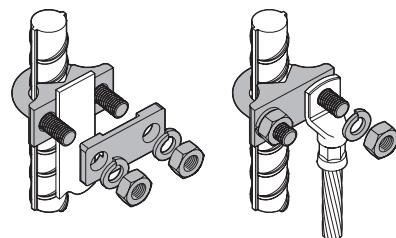
'U' bolt rod clamp (type E)

Part no.	Nominal rod/ rebar diameter (")	Nominal rod/ rebar diameter (mm)	Hole centres (mm)	Tape width (mm)	Weight each (kg)
CR305	Ø 5/8	Ø 16	37	—	0.20
CR310	Ø 3/4	Ø 20	37	—	0.20
CR315	Ø 1	Ø 25	37	—	0.20
CR320*	Ø 5/8	Ø 16	37	25	0.26
CR325	Ø 1 1/2	Ø 38	54	—	0.37
CR330	Ø 2	Ø 50	64	—	0.44
CR326	Ø 1 1/2	Ø 38	54	25	0.43

Standards

IEC/BS EN 62561-1 Class H
BS 7430

UL 467 (CR305)



- High strength copper alloy 'U' bolt clamp designed to provide a high quality, low resistance connection between flat tape or stranded conductor and earth rod or rebar. 'U' Bolt threaded M10
- *CR320 includes additional plate to allow tape to be clamped without drilling



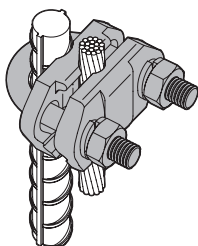
'U' bolt rod clamp (type GUV)

Part no.	Nominal rod/ rebar diameter (")	Nominal rod/ rebar diameter (mm)	Conductor range (mm²)	Weight each (kg)
CR700*	Ø 5/8	Ø 16	16-95	0.39
CR700*	Ø 3/4	Ø 20	16-70	0.39
CR705	Ø 5/8	Ø 16	70-185	0.39
CR705	Ø 3/4	Ø 20	70-150	0.39
CR730	Ø 5/8	Ø 16	150-300	0.62
CR730	Ø 3/4	Ø 20	150-300	0.62
CR710	Ø 1	Ø 25	16-70	0.39
CR740	Ø 1	Ø 25	70-150	0.39
CR750	Ø 1	Ø 25	150-300	0.62

Standards

IEC/BS EN 62561-1 Class H
BS 7430

UL 467 (CR700,
CR705, CR730)



- High strength copper alloy 'U' bolt clamp designed to provide a high quality, low resistance connection between solid circular or stranded conductor and an earth rod or rebar
- Tightening torque 12 Nm
- * Suitable for use with Ø 8 mm solid circular copper conductor

Earth bonds & clamps

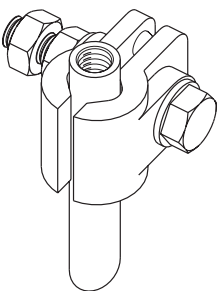
Mechanical clamps



Rod to cable clamp (type B)

Part no.	Nominal rod diameter (")	(mm)	Rod type	Bolt size	Weight each (kg)
CR205	Ø ¾	Ø 9.5	Copperbond	M8	0.09
CR215	Ø ¾	Ø 16	Copperbond	M10	0.30
CR220	Ø ¾	Ø 15	Solid copper	M10	0.30
CR225	Ø ¾	Ø 20	Copperbond	M10	0.30
CR230	Ø ¾	Ø 20	Solid copper	M10	0.30

– High strength copper alloy cable lug clamp designed to provide a high quality, low resistance connection between stranded conductor and earth rod



Standards

IEC/BS EN 62561-1 Class H
BS 7430

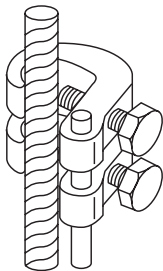
8



Rebar clamp

Part no.	Conductor size (mm)	Rebar diameter (mm)	Conductor material	Weight each (kg)
BN150	Ø 8	Ø 8-18	Copper	0.32
BN155	Ø 8	Ø 18-38	Copper	0.75

– High strength copper alloy rebar clamp for bonding to reinforcing bars, steam pipes, handrails etc.
– Tightening torque 15 Nm (BN155 - M10); 5 Nm (BN155 - M6)



Standards

BS 7430

Earth bonds & clamps

Mechanical clamps



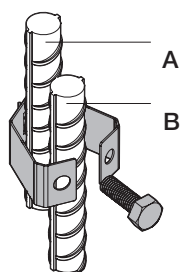
Rebar to rebar connecting clip

Part no.	Maximum rebar diameter (A) (mm)	Maximum rebar diameter (B) (mm)	Weight each (kg)
RR812	Ø 8	Ø 12	0.05
RR1616	Ø 16	Ø 16	0.05
RR2121	Ø 20	Ø 20	0.06
RR2626	Ø 25	Ø 25	0.07
RR3232	Ø 32	Ø 32	0.07
RR3838	Ø 40	Ø 40	0.08

Standards

IEC/BS EN 62561-1 Class H
BS 7430

- Manufactured from high quality stainless steel for excellent corrosion resistance. Simple to install, providing a secure connection between internal reinforcing bars
- Tightening torque 12 Nm



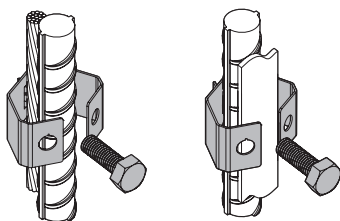
Rebar to conductor connecting clip

Part no.	Rebar diameter (mm)	Conductor size	Weight each (kg)
Rebar to flat tape			
RC25-087095	Ø 25	25 x 3 mm	0.07
Rebar to stranded/solid circular conductor			
RC812-0850	Ø 12	50 mm ² or Ø 8 mm	0.05
RC16-087095	Ø 16	Ø 8 mm dia., 50-70-95 mm ²	0.06
RC20-087095	Ø 20	Ø 8 mm dia., 50-70-95 mm ²	0.07
RC25-087095	Ø 25	Ø 8 mm dia., 50-70-95 mm ²	0.07
RC32-087095	Ø 32	Ø 8 mm dia., 50-70-95 mm ²	0.07
RC40-087095	Ø 40	Ø 8 mm dia., 50-70-95 mm ²	0.08

Standards

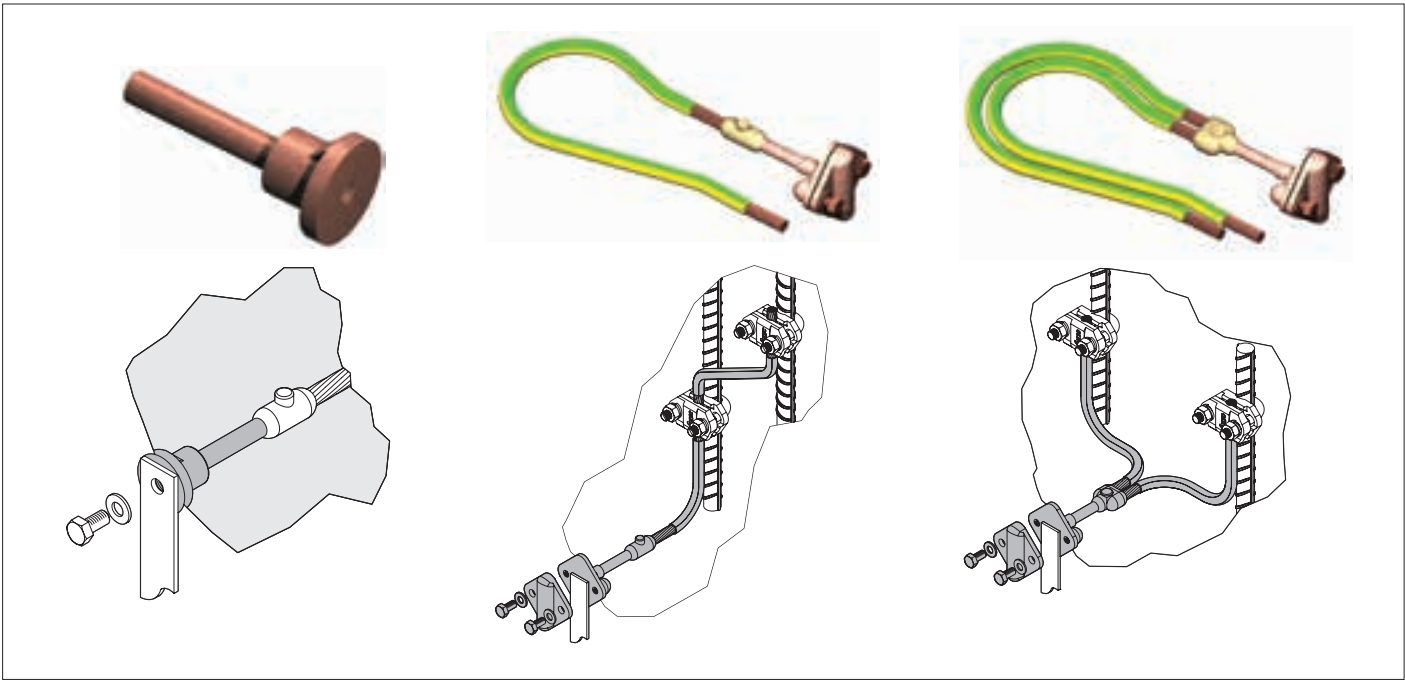
BS EN 62561-1 Class H
BS 7430

- Manufactured from high quality stainless steel for excellent corrosion resistance. Simple to install, providing a secure connection between internal reinforcing bars and flat tape, solid circular or stranded conductor
- Tightening torque 12 Nm



Earth bonds & clamps

Earth points



8

Earth points

Furse earth points are available for direct connection to conductors, or with additional pre-welded tail (single or double 70 mm² PVC insulated cable) to enable connection to internal rebar arrangements via mechanical clamps (see product tables for individual product availability).



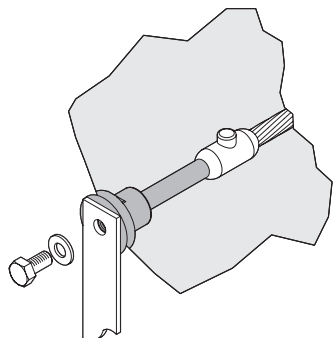
Single hole earth point

Part no.	Hole size (mm)	Length (mm)	Weight each (kg)
PC100-FU	M8 x 15	80	0.14
PC101	M10 x 15	80	0.14
PC102	M12 x 15	80	0.14
PC103	M16 x 15	80	0.14

Standards

BS EN 50164-1 Class H
BS 7430

UL96 (PC105, PC106,
PC107, PC108)

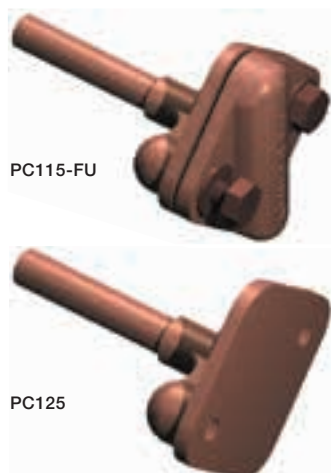


Part no.	Description	Weight each (kg)
Single hole earth point with single pre-welded tail		
PC105	PC100-FU earth point with pre-welded 500 earth cable	0.56
PC106	PC101 earth point with pre-welded 500 earth cable	0.56
PC107	PC102 earth point with pre-welded 500 earth cable	0.56
PC108	PC103 earth point with pre-welded 500 earth cable	0.56

- Stem diameter = 10.7 mm (70 mm²)
- Tightening torque 8 Nm

Earth bonds & clamps

Earth points



Two hole earth point

Part no.	Description	Hole size (mm)	Length (mm)	Weight each (kg)
PC115-FU	Supplied c/w front plate for connection of 25 mm x 3 mm copper tape or 70 mm ² stranded copper cable	M8 x 12	80	0.44
PC120	Supplied c/w front plate for connection of 25 mm x 3 mm copper tape or 8 mm Ø solid circular copper	M8 x 12	80	0.44
PC125	Supplied without front plate	M8 x 12	80	0.28

Two hole earth point with single pre-welded tail

PC116	PC115-FU earth point with pre-welded 500 mm earth cable			0.84
PC121	PC120 earth point with pre-welded 500 mm earth cable			0.84
PC126-FU	PC125 earth point with pre-welded 500 mm earth cable			0.84

Two hole earth point with double pre-welded tail

PC216	PC115-FU earth point with pre-welded 2 x 500 mm earth cable			1.26
PC221	PC120 earth point with pre-welded 2 x 500 mm earth cable			1.26

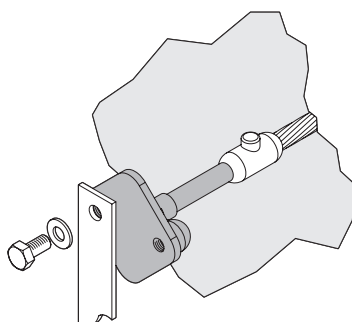
– Stem Ø = 10.7 mm (70 mm²)

– Tightening torque 8 Nm

Standards

IEC/BS EN 62561-1 Class H
BS 7430

UL96 (PC116, PC121,
PC126-FU, PC216)



Four hole earth point

Part no.	Description	Hole size (mm)	Length (mm)	Weight each (kg)
PC110	Earth point only	M8 x 14	75	0.41

Four hole earth point with single pre-welded tail

PC111	PC110 earth point with pre-welded 500 mm earth cable			1.14
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Four hole earth point with double pre-welded tail

PC211*	PC110 earth point with pre-welded 2 x 500 mm earth cable			1.23
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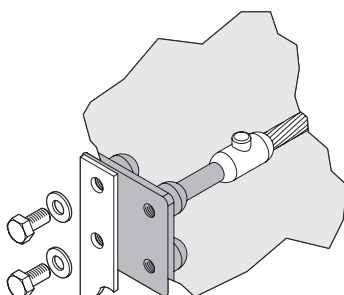
– Stem Ø = 10.7 mm (70 mm²)

– Tightening torque 12 Nm

Standards

BS EN 50164-1 Class H
BS 7430

UL96 (PC111, PC211)



Earth bonds & clamps

Splitbolt connector



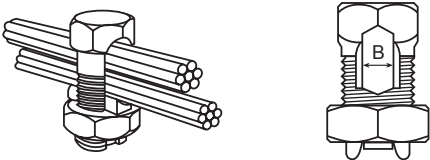
Type H high strength splitbolt connector

Part no.	Conductor range				Dimension (B) (mm)	Weight each (kg)
	Main min (mm²)	Main max (mm²)	Tap min (mm²)	Tap max (mm²)		
8H-FU	4	10	2.5	10	4.1	0.02
4H-FU	10	16	2.5	16	5.5	0.03
2H-FU	16	25	4	25	6.9	0.04
1H-FU	25	35	4	35	8.4	0.06
10H-FU	35	50	4	50	9.7	0.09
20H-FU	35	70	4	70	11.2	0.14
30H-FU	50	95	4	95	13.6	0.17
40H-FU	50	120	6	120	14.7	0.18
350M-FU	95	185	6	185	18.2	0.35

Standards

BS 7430

– For copper to copper connections. No special tools required. Tinned copper splitbolt connectors available on request



Earth bonds & clamps

Earth bosses



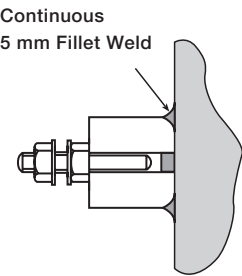
Standards

BS 7430

Earth boss

Part no.	Length (mm)	Diameter (mm)	Thread size	Material	Weight each (kg)
EB0000	25	Ø 25	M8	Mild steel	0.11
EB1000	25	Ø 25	M8	Stainless steel	0.11
EB0110	30	Ø 30	M8	Mild steel	0.18
EB1110	30	Ø 30	M8	Stainless steel	0.18
EB0111	30	Ø 30	M10	Mild steel	0.20
EB1111	30	Ø 30	M10	Stainless steel	0.20
EB0120	30	Ø 40	M8	Mild steel	0.24
EB1120	30	Ø 40	M8	Stainless steel	0.24
EB0121	30	Ø 40	M10	Mild steel	0.26
EB1121	30	Ø 40	M10	Stainless steel	0.26
EB0130	30	Ø 50	M8	Mild steel	0.29
EB1130	30	Ø 50	M8	Stainless steel	0.29
EB0131	30	Ø 50	M10	Mild steel	0.31
EB1131	30	Ø 50	M10	Stainless steel	0.31
EB0211	40	Ø 30	M10	Mild steel	0.33
EB1211	40	Ø 30	M10	Stainless steel	0.33
EB0212	40	Ø 30	M12	Mild steel	0.36
EB1212	40	Ø 30	M12	Stainless steel	0.36
EB0221	40	Ø 40	M10	Mild steel	0.43
EB1221	40	Ø 40	M10	Stainless steel	0.43
EB0222	40	Ø 40	M12	Mild steel	0.45
EB1222	40	Ø 40	M12	Stainless steel	0.45
EB0231	40	Ø 50	M10	Mild steel	0.53
EB1231	40	Ø 50	M10	Stainless steel	0.53
EB0232	40	Ø 50	M12	Mild steel	0.55
EB1232	40	Ø 50	M12	Stainless steel	0.55
EB0311	50	Ø 30	M10	Mild steel	0.50
EB1311	50	Ø 30	M10	Stainless steel	0.50
EB0312	50	Ø 30	M12	Mild steel	0.52
EB1312	50	Ø 30	M12	Stainless steel	0.52
EB0321	50	Ø 40	M10	Mild steel	0.65
EB1321	50	Ø 40	M10	Stainless steel	0.65
EB0322	50	Ø 40	M12	Mild steel	0.67
EB1322	50	Ø 40	M12	Stainless steel	0.67
EB001	50	Ø 50	M10	Mild steel	0.80
EB1331	50	Ø 50	M10	Stainless steel	0.80
EB0332	50	Ø 50	M12	Mild steel	0.80
EB1332	50	Ø 50	M12	Stainless steel	0.80

– Earth boss manufactured from mild steel (to 970 230M07 grade EN1A) or stainless steel (grade 316L) complete with stainless steel studs, nuts and washers - grade 316. For welding to steel vessels, tanks, structures etc. Wrap connections with Denso tape



Earth bonds & clamps

Bonds & clamps



Tower earth clamp

Part no.	Conductor range (mm ²)	Channel thickness (mm)	Bolt size	Conductor material	Weight each (kg)
BN125*	16-70	10	M10	Copper	0.13
BN130	70-120	10	M12	Copper	0.22
BN300-FU*	25-50	10	M10	Copper	0.08
BN305*	25-50	10	M10	Aluminium	0.05
BN320	120-185	10	M12	Copper	0.30
BN325	185-240	10	M12	Copper	0.40

- For bonding copper cable or wire to steel structures
- Tightening torque 12 Nm
- * Suitable for use with Ø 8 mm solid circular conductor

Standards

BS EN 62561-1 Class H
BS 7430

8



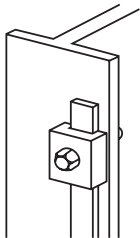
B bond

Part no.	Maximum tape width (mm)	Bolt size	Conductor material	Weight each (kg)
BN105	26	M10	Copper	0.12
BN005	26	M10	Aluminium	0.06
BN113	31	M10	Copper	0.15
BN114	40	M10	Copper	0.18
BN117	50	M10	Copper	0.20

- For bonding tape to steel structures
- Tightening torque 17 Nm

Standards

IEC/BS EN 62561-1 Class H
BS 7430



Earth bonds & clamps

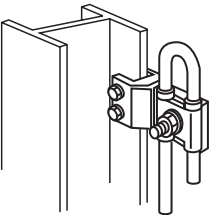
Bonds & clamps



Metalwork bond

Part no.	Conductor size (mm)	Conductor material	Weight each (kg)
CS350	Ø 8	Copper	0.37
CS355	Ø 8	Aluminium	0.17

- For connecting to all types of metal structures up to 13 mm thickness
- Tightening torque - M8 bolt: 10 Nm, M10 bolt: 12 Nm



Standards

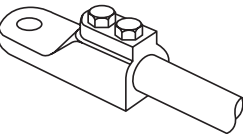
BS EN 62561-1 Class H
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Straight setscrew cable socket

Part no.	Conductor size (mm)	Palm hole diameter (mm)	Conductor material	Weight each (kg)
SX450	Ø 8	12	Copper	0.11
SX455	Ø 8	12	Aluminium	0.05

- For bonding copper and aluminium conductors to steelwork
- Tightening torque 3 Nm



Standards

BS EN 62561-1 Class H

Earth bonds & clamps

Bonds & clamps



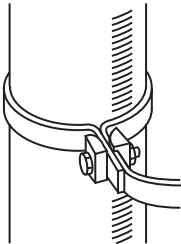
RWP bond

Part no.	Maximum tape width (mm)	Bolt size	Conductor material	Weight each (kg)
BN115	26	M10	Copper	0.12
BN010	26	M10	Aluminium	0.07

– For bonding tape to rainwater pipes, handrails etc.

Standards

BS 7430



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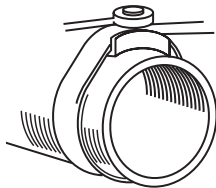
Watermain bond

Part no.	Maximum tape width (mm)	Conductor material	Weight each (kg)
BN120	26	Copper	0.26

– For bonding tape to large diameter pipes

Standards

BS 7430



Earth bonds & clamps

Pipe bonds & clamps



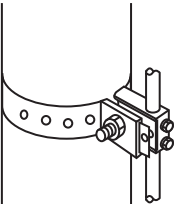
Pipe bond

Part no.	Conductor size (mm)	Pipe diameter (mm)	Conductor material	Weight each (kg)
BN175	Ø 8	Ø 50-200	Copper	0.46
BN176	Ø 8	Ø 50-200	Aluminium	0.25

- For bonding to ducts and large diameter pipeworks. Additional lengths available to order
- Tightening torque - M6 bolt: 6 Nm, M10 bolt: 12 Nm

Standards

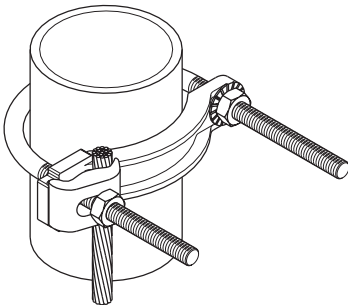
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BS 7430



Pipe clamp

Part no.	Pipe diameter (")	Pipe diameter (mm)	Conductor range (mm²)	Weight each (kg)
3902	Ø ½-1	Ø 13-25	25-95	0.3
3903	Ø 1¼-2	Ø 32-50	25-95	0.4
3904	Ø 2½-3½	Ø 65-90	25-95	0.5
3905-TB	Ø 4-5	Ø 100-125	25-95	0.6
3906-TB	Ø 6	Ø 150	25-95	0.8
3907	Ø 8	Ø 200	25-95	1.0
3908	Ø 10	Ø 250	25-95	1.1
3909-TB	Ø 12	Ø 300	25-95	1.5

- Copper alloy clamp with zinc plated U-bolt



Standards

BS 7430

Earth bonds & clamps

Flexible braid bonds



Flexible flat copper braid bond

Part no.	Overall braid dimensions (mm)	Length (mm)	Hole diameter (A) (mm)	Cross-sectional area (mm ²)	Weight each (kg)
Copper braid					
FBB-6-200-7	12 x 1	200	Ø 7	6	0.01
FBB-6-400-7	12 x 1	400	Ø 7	6	0.02
FBB-10-200-7	15 x 1.5	200	Ø 7	10	0.02
FBB-10-400-7	15 x 1.5	400	Ø 7	10	0.04
FBB-16-200-9	19 x 2.5	200	Ø 9	16	0.03
FBB-16-400-9	19 x 2.5	400	Ø 9	16	0.06
FBB-25-200-11	25 x 3	200	Ø 11	25	0.05
FBB-25-400-11	25 x 3	400	Ø 11	25	0.10
BN505	25 x 3.5	200	Ø 11	35	0.09
BN510	25 x 3.5	400	Ø 11	35	0.15
FBB-50-200-11	30 x 5	200	Ø 11	50	0.10
FBB-50-400-11	30 x 5	400	Ø 11	50	0.20
FBB-70-200-13	32 x 6	200	Ø 13	70	0.13
FBB-70-400-13	32 x 6	400	Ø 13	70	0.25
FBB-95-200-13	37 x 6	200	Ø 13	95	0.19
FBB-95-400-13	37 x 6	400	Ø 13	95	0.37
FBB-120-200-17	45 x 6	200	Ø 17	120	0.23
FBB-120-400-17	45 x 6	400	Ø 17	120	0.46
FBB-150-200-17	50 x 8	200	Ø 17	150	0.30
FBB-150-400-17	50 x 8	400	Ø 17	150	0.60
Tinned copper braid					
FBB-6-200-7-T	12 x 1	200	Ø 7	6	0.01
FBB-6-400-7-T	12 x 1	400	Ø 7	6	0.02
FBB-10-200-7-T	15 x 1.5	200	Ø 7	10	0.02
FBB-10-400-7-T	15 x 1.5	400	Ø 7	10	0.04
FBB-16-200-9-T	19 x 2.5	200	Ø 9	16	0.03
FBB-16-400-9-T	19 x 2.5	400	Ø 9	16	0.06
FBB-25-200-11-T	25 x 3	200	Ø 11	25	0.05
FBB-25-400-11-T	25 x 3	400	Ø 11	25	0.10
BN505-T	25 x 3.5	200	Ø 11	35	0.09
BN510-T	25 x 3.5	400	Ø 11	35	0.15
FBB-50-200-11-T	30 x 5	200	Ø 11	50	0.10
FBB-50-400-11-T	30 x 5	400	Ø 11	50	0.20
FBB-70-200-13-T	32 x 6	200	Ø 13	70	0.13
FBB-70-400-13-T	32 x 6	400	Ø 13	70	0.25
FBB-95-200-13-T	37 x 6	200	Ø 13	95	0.19
FBB-95-400-13-T	37 x 6	400	Ø 13	95	0.37
FBB-120-200-17-T	45 x 6	200	Ø 17	120	0.23
FBB-120-400-17-T	45 x 6	400	Ø 17	120	0.46
FBB-150-200-17-T	50 x 8	200	Ø 17	150	0.30
FBB-150-400-17-T	50 x 8	400	Ø 17	150	0.60

- Flexible copper or flexible tinned copper braid terminated with pressed ferrule connector at each end, suitable for bonding gates, doors, fences etc. Pressed ferrule connection ensures maximum electrical contact with minimum earth resistance
- Standard braid sizes are shown. Braids are available in other sizes, lengths, materials or terminations to special order



Earth bonds & clamps

Flexible braid bonds



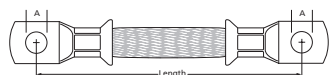
Standards

BS EN 13602
BS 7430

Flexible circular copper braid bond

Part no.	Overall braid dimensions (mm)	Length (mm)	Hole diameter (A) (mm)	Cross-sectional area (mm ²)	Weight each (kg)
Copper braid					
CBB-6-200-7	4.2	200	Ø 7	6	0.01
CBB-6-400-7	4.2	400	Ø 7	6	0.02
CBB-10-200-7	5.4	200	Ø 7	10	0.02
CBB-10-400-7	5.4	400	Ø 7	10	0.04
CBB-16-200-9	7	200	Ø 9	16	0.03
CBB-16-400-9	7	400	Ø 9	16	0.06
CBB-25-200-11	8.5	200	Ø 11	25	0.05
CBB-25-400-11	8.5	400	Ø 11	25	0.10
CBB-50-200-11	11.5	200	Ø 11	50	0.10
CBB-50-400-11	11.5	400	Ø 11	50	0.20
CBB-70-200-13	14.5	200	Ø 13	70	0.13
CBB-70-400-13	14.5	400	Ø 13	70	0.25
CBB-95-200-13	16	200	Ø 13	95	0.19
CBB-95-400-13	16	400	Ø 13	95	0.37
Tinned copper braid					
CBB-6-200-7-T	4.2	200	Ø 7	6	0.01
CBB-6-400-7-T	4.2	400	Ø 7	6	0.02
CBB-10-200-7-T	5.4	200	Ø 7	10	0.02
CBB-10-400-7-T	5.4	400	Ø 7	10	0.04
CBB-16-200-9-T	7	200	Ø 9	16	0.03
CBB-16-400-9-T	7	400	Ø 9	16	0.06
CBB-25-200-11-T	8.5	200	Ø 11	25	0.05
CBB-25-400-11-T	8.5	400	Ø 11	25	0.10
CBB-50-200-11-T	11.5	200	Ø 11	50	0.10
CBB-50-400-11-T	11.5	400	Ø 11	50	0.20
CBB-70-200-13-T	14.5	200	Ø 13	70	0.13
CBB-70-400-13-T	14.5	400	Ø 13	70	0.25
CBB-95-200-13-T	16	200	Ø 13	95	0.19
CBB-95-400-13-T	16	400	Ø 13	95	0.37

- Flexible copper or flexible tinned copper braid terminated with pressed terminal lug at each end, suitable for bonding gates, doors, fences etc. Pressed terminal lug connection ensures maximum electrical contact with minimum earth resistance
- Standard braid sizes are shown. Braids are available in other sizes, lengths, materials or terminations to special order



Earth bonds & clamps

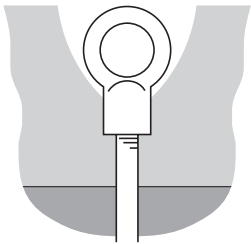
Static earth connection points



Eyebolt

Part no.	Nominal copperbond rod diameter (")	Weight each (kg)
BT150	5/8	0.52
BT160	3/4	0.52

– Screws direct onto a copperbond earth rod, offering an earth point for boats, trucks etc.



Standards

BS 7430

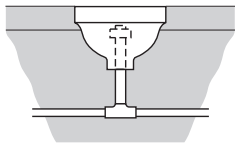
8



Static earth receptacle

Part no.	Conductor material	Weight each (kg)
RX005	Copper	0.64

– For setting into roadways or runways. Provides a static discharge point for aircraft, fuel tankers, etc.



Standards

BS 7430

Earth bonds & clamps

Static earth clamps



Stainless steel earthing clamp

Part no.	Description	Jaw opening (mm)	Cable length (max) (m)	Weight each (kg)
SK010	Medium duty earthing clamp	15	3	0.56
SK020	Heavy duty earthing clamp	35	5	1.09

Clamp Certification II 2 GD T6. Heavy duty earthing clamp Approved

- Medium duty stainless earthing clamp for earthing buckets, small drums, containers and plant equipment etc.
- Heavy duty stainless earthing clamp for earthing 205 litre drums, IBCs, production vessels and road tankers etc.
- Clamp features twin tungsten carbide teeth for effective penetration of paint and contamination
- Supplied complete with chemically resistant Cen-Stat Spiral Cable and 10 mm ring terminal

Standards



Stainless steel earthing clamp & reel

Part no.	Description	Jaw opening (mm)	Cable length (max) (m)	Weight each (kg)
SK030	Medium duty earthing clamp & reel	15	6.1	3
SK040	Heavy duty earthing clamp & reel	35	15.2	6

Clamp Certification II 2 GD T6. Reel Certification II 2 GD T6. Heavy duty earthing clamp Approved

- Medium duty stainless earthing clamp for earthing buckets, small drums, containers and plant equipment etc.
- Heavy duty stainless earthing clamp for earthing 205 litre drums, IBC's, production vessels and road tankers
- Clamp features twin tungsten carbide teeth for effective penetration of paint and contamination
- Supplied complete with retracting cable reel

Standards



Earth bonds & clamps

Earth bars



Copper Earth Bar



Tinned copper Earth Bar

Furse earth bars are an efficient and convenient way of providing a common earth point, and integral disconnecting links allow easy isolation for testing purposes.

- Swan-Neck accessory, to facilitate the main earth bar connection
- Available as bare copper or tinned copper hard drawn bar

8

Standard Furse earth bars are available in a variety of lengths, but all consist of a 50 mm wide by 6 mm thick copper bar with M10 termination screws - standard product codes are provided.

Standard features and benefits

- The plastic channel base is entirely corrosion proof, made from high impact uPVC unlike the traditional galvanized steel channel
- Lighter and easier to handle, the use of a modern polymer channel has reduced the weight of the products, making them easier to handle
- Pre-drilled fixing holes for ease of installation
- A range of three designs to meet most installation requirements

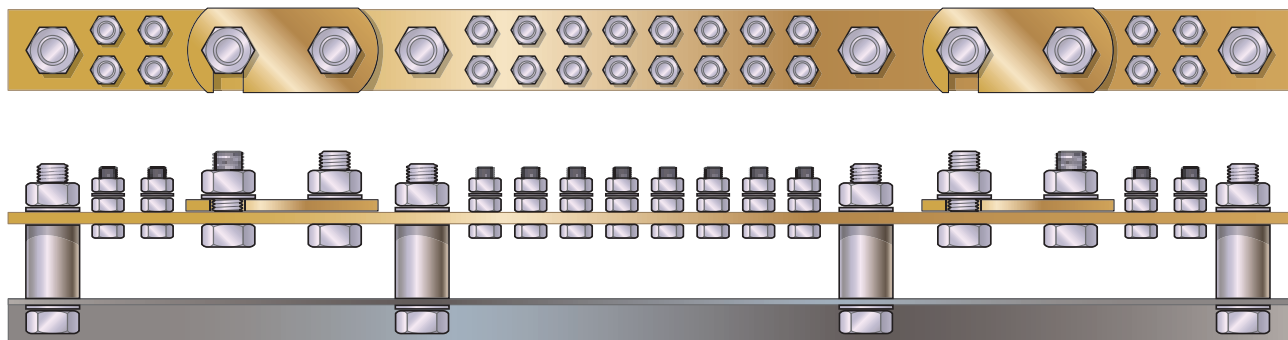
Special earth bar requirements

Standard earth bars meet the majority of applications, however where a customer has a specific requirement, we can design and manufacture special earth bars and disconnecting links as appropriate. Special earth bar designs are provided for customer review and approval as required before manufacture.

Special earth bar design variables include:

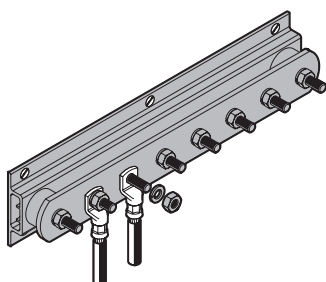
- Size and type of bolt, hex nut and washer
- Length, width and thickness of earth bar
- Number of disconnecting links, and their position
- Number of insulators
- Supplied with mounting base or without

An example of a customer special earth bar comprising M10 and M6 studs and disconnecting links



Earth bonds & clamps

Earth bars



Standards

BS 7430

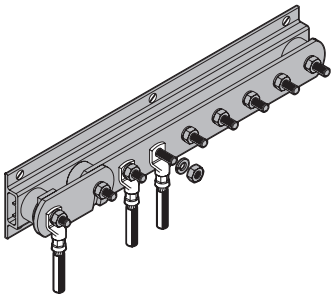
Earth bar

Part no.	Description	Length (mm)	Weight each (kg)
Copper earth bar			
LK245-6	6 way	400	1.80
LK245-8	8 way	500	2.20
LK245-10	10 way	650	2.80
LK245-12	12 way	750	3.20
LK245-14	14 way	850	3.60
LK245-16	16 way	950	4.00
LK245-18	18 way	1050	4.40
LK245-20	20 way	1200	5.00
LK245-22	22 way	1300	5.40
LK245-24	24 way	1400	5.80
LK245-26	26 way	1500	6.20
LK245-28	28 way	1650	6.90
LK245-30	30 way	1750	7.30
Tinned copper earth bar			
LK245-6-T	6 way	400	1.80
LK245-8-T	8 way	500	2.20
LK245-10-T	10 way	650	2.80
LK245-12-T	12 way	750	3.20
LK245-14-T	14 way	850	3.60
LK245-16-T	16 way	950	4.00
LK245-18-T	18 way	1050	4.40
LK245-20-T	20 way	1200	5.00
LK245-22-T	22 way	1300	5.40
LK245-24-T	24 way	1400	5.80
LK245-26-T	26 way	1500	6.20
LK245-28-T	28 way	1650	6.90
LK245-30-T	30 way	1750	7.30

- Fix using countersunk wood screws 1½" No. 12 (Part no. SW110) and wall plugs (Part no. PS310)
- Standard width x height: 90 mm x 77 mm

Earth bonds & clamps

Earth bars



Standards

BS 7430

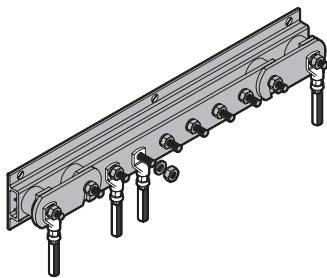
Earth bar with single disconnecting link

Part no.	Description	Length (mm)	Weight each (kg)
Copper earth bar			
LK243-6	6 way	475	2.30
LK243-8	8 way	575	2.70
LK243-10	10 way	725	3.30
LK243-12	12 way	825	3.70
LK243-14	14 way	925	4.10
LK243-16	16 way	1025	4.50
LK243-18	18 way	1125	4.90
LK243-20	20 way	1275	5.50
LK243-22	22 way	1375	5.90
LK243-24	24 way	1475	6.30
LK243-26	26 way	1575	6.70
LK243-28	28 way	1725	7.40
LK243-30	30 way	1825	7.80
Tinned copper earth bar			
LK243-6-T	6 way	475	2.30
LK243-8-T	8 way	575	2.70
LK243-10-T	10 way	725	3.30
LK243-12-T	12 way	825	3.70
LK243-14-T	14 way	925	4.10
LK243-16-T	16 way	1025	4.50
LK243-18-T	18 way	1125	4.90
LK243-20-T	20 way	1275	5.50
LK243-22-T	22 way	1375	5.90
LK243-24-T	24 way	1475	6.30
LK243-26-T	26 way	1575	6.70
LK243-28-T	28 way	1725	7.40
LK243-30-T	30 way	1825	7.80

- Fix using countersunk wood screws 1½" No. 12 (Part no. SW110) and wall plugs (Part no. PS310)
- Standard width x height: 90 mm x 77 mm

Earth bonds & clamps

Earth bars



Earth bar with twin disconnecting link

Part no.	Description	Length (mm)	Weight each (kg)
Copper earth bar			
LK207-6	6 way	550	2.80
LK207-8	8 way	650	3.20
LK207-10	10 way	800	3.80
LK207-12	12 way	900	4.20
LK207-14	14 way	1000	4.60
LK207-16	16 way	1100	5.00
LK207-18	18 way	1200	5.40
LK207-20	20 way	1350	6.00
LK207-22	22 way	1450	6.40
LK207-24	24 way	1550	6.80
LK207-26	26 way	1650	7.20
LK207-28	28 way	1800	7.90
LK207-30	30 way	1900	8.30
Tinned copper earth bar			
LK207-6-T	6 way	550	2.80
LK207-8-T	8 way	650	3.20
LK207-10-T	10 way	800	3.80
LK207-12-T	12 way	900	4.20
LK207-14-T	14 way	1000	4.60
LK207-16-T	16 way	1100	5.00
LK207-18-T	18 way	1200	5.40
LK207-20-T	20 way	1350	6.00
LK207-22-T	22 way	1450	6.40
LK207-24-T	24 way	1550	6.80
LK207-26-T	26 way	1650	7.20
LK207-28-T	28 way	1800	7.90
LK207-30-T	30 way	1900	8.30

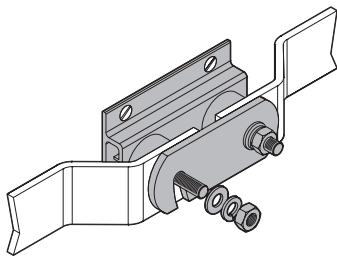
- Fix using countersunk wood screws 1½" No. 12 (Part no. SW110) and wall plugs (Part no. PS310)
- Standard width x height: 90 mm x 77 mm

Standards

BS 7430

Earth bonds & clamps

Accessories



Standards

BS 7430

Earth bar accessories

Part no.	Description	Length (mm)	Width (mm)	Height (mm)	Weight each (kg)
Copper earth bar					
LK004	Swan-neck link	400	50	36	0.42
LK205	Disconnecting link	125	90	77	0.59
Tinned copper earth bar					
LK004-T	Swan-neck link	400	50	36	0.42
LK205-T	Disconnecting link	125	90	77	0.59

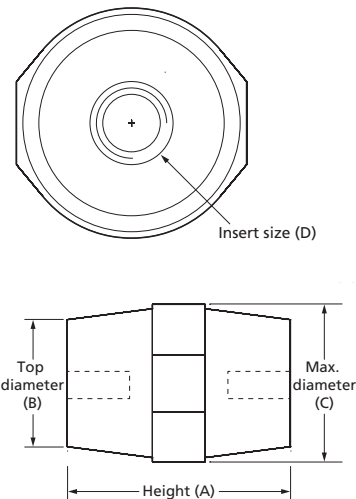
– Fix using countersunk wood screws 1½" No. 12 (Part no. SW110) and wall plugs (Part no. PS310) fixings only apply to disconnecting link



Insulator

Part no.	Height (A) (mm)	Top diameter (B) (mm)	Max diameter (C) (mm)	Insert size	For copper bar size (mm)
Insulator					
IN020	20	Ø 14	Ø 18	M6	25 x 3
IN030	30	Ø 25	Ø 33	M6	25 x 6
IN040	40	Ø 31	Ø 39	M8	38 x 6
IN013	50	Ø 27	Ø 35	M10	50 x 6
IN060	60	Ø 38	Ø 52	M10	75 x 6
IN070	70	Ø 51	Ø 55	M12	100 x 6
Insulator with 2 studs and 3 nuts					
IN005	50	Ø 27	Ø 35	M10	50 x 6

– Insulator manufactured from grey GRP material with brass insert



Earth bonds & clamps

Compression connectors



‘C’ shape connector

Part no.	Conductor range (main) (mm²)	Conductor range (tap) (mm²)	Box quantity	Weight each (kg)
Copper ‘C’ shape connector				
CN1010	10	1.5-10	100	0.01
CN1616	16	1.5-16	100	0.02
CN2510	16-25	1.5-10	50	0.02
CN2525	25	16-25	50	0.02
CN3516	35	1.5-16	25	0.04
CN3535	35	25-35	25	0.04
CN5025	50	4-25	25	0.09
CN5050	50	35-50	25	0.09
CN7025	70	1.5-25	25	0.04
CN7035	50-70	4-35	25	0.10
CN7070	50-70	35-70	25	0.09
CN9535	95	4-35	25	0.15
CN9570	95	35-70	25	0.15
CN9595	95	70-95	25	0.14
CN120120	120	25-120	25	0.17
CN150120	150	25-120	25	0.16
CN150150	150	70-150	25	0.12
CN18595	185	16-95	25	0.13
CN185185	120-185	120-185	15	0.23
CN240120	150-240	95-120	15	0.24
CN240150	240-150	240-150	10	0.25
CN240185	240-185	240-185	10	0.25
CN240240	240-240	240-240	10	0.27
CN300120	300-120	300-120	10	0.30
CN300300	300-300	300-300	10	0.28

- Manufactured from pure copper
- Ensure all underground connections are sealed/waterproofed using Denso Tape
- Additional sizes available on request



Earth bonds & clamps

Compression connectors



‘C’ shape connector

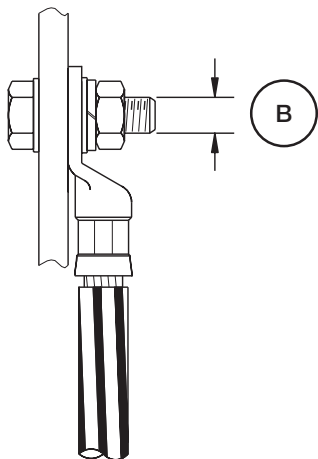
Part no.	Conductor range (main) (mm²)	Conductor range (tap) (mm²)	Box quantity	Weight each (kg)
Tinned copper ‘C’ shape connector				
CN1010-T	10	1.5-10	100	0.01
CN1616-T	16	1.5-16	100	0.02
CN2510-T	16-25	1.5-10	50	0.02
CN2525-T	25	16-25	50	0.02
CN3516-T	35	1.5-16	25	0.04
CN3535-T	35	25-35	25	0.04
CN5025-T	50	4-25	25	0.09
CN5050-T	50	35-50	25	0.09
CN7025-T	70	1.5-25	25	0.04
CN7035-T	50-70	4-35	25	0.10
CN7070-T	50-70	35-70	25	0.09
CN9535-T	95	4-35	25	0.15
CN9570-T	95	35-70	25	0.15
CN9595-T	95	70-95	25	0.14
CN120120-T	120	25-120	25	0.17
CN150120-T	150	25-120	25	0.16
CN150150-T	150	70-150	25	0.12
CN18595-T	185	16-95	25	0.13
CN185185-T	120-185	120-185	15	0.23
CN240120-T	150-240	95-120	15	0.24
CN240150-T	240-150	240-150	10	0.25
CN240185-T	240-185	240-185	10	0.25
CN240240-T	240-240	240-240	10	0.27
CN300120-T	300-120	300-120	10	0.30
CN300300-T	300-300	300-300	10	0.28

- Manufactured from electroplated tinned pure copper
- Ensure all underground connections are sealed/waterproofed using Denso Tape
- Additional sizes available on request



Earth bonds & clamps

Tinned copper cable lugs



Standards

BS EN 12449
BS EN 1872
BS EN 4579

Tinned copper cable lug

Part no.	Conductor size (mm ²)	Screw size (B) (mm)	Weight each (kg)
FCT166	16	6	0.01
FCT168	16	8	0.01
FCT1610	16	10	0.01
FCT1612	16	12	0.01
FCT256	25	6	0.01
FCT258	25	8	0.01
FCT2510	25	10	0.01
FCT2512	25	12	0.01
FCT356	35	6	0.01
FCT358	35	8	0.01
FCT3510	35	10	0.01
FCT3512	35	12	0.01
FCT506	50	6	0.02
FCT508	50	8	0.02
FCT5010	50	10	0.02
FCT5012	50	12	0.02
FCT708	70	8	0.04
FCT7010	70	10	0.04
FCT7012	70	12	0.04
FCT7014	70	14	0.04
FCT7016	70	16	0.04
FCT958	95	8	0.06
FCT9510	95	10	0.06
FCT9512	95	12	0.06
FCT9514	95	14	0.06
FCT9516	95	16	0.06
FCT12010	120	10	0.06
FCT12012	120	12	0.06
FCT12014	120	14	0.06
FCT12016	120	16	0.06
FCT15010	150	10	0.09
FCT15012	150	12	0.09
FCT15014	150	14	0.09
FCT15016	150	16	0.09
FCT18512	185	12	0.11
FCT18514	185	14	0.11
FCT18516	185	16	0.11
FCT24012	240	12	0.14
FCT24014	240	14	0.14
FCT24016	240	16	0.14
FCT30012	300	12	0.17
FCT30014	300	14	0.17
FCT30016	300	16	0.17
FCT40012	400	12	0.21
FCT40014	400	14	0.21
FCT40016	400	16	0.21

– Use with tool HT010

Earth bonds & clamps

Compression connector dies



‘C’ shape connector die

Part no.	Conductor range (main) (mm²)	Conductor range (tap) (mm²)	Weight each (kg)
HT010 and HT040 tooling			
HD100	10	1.5-10	0.26
HD200	16	1.5-16	0.26
HD200	16-25	1.5-10	0.26
HD200	25	16-25	0.26
HD300	35	1.5-16	0.28
HD300	35	25-35	0.28
HD300	70	1.5-25	0.28
HD400	50	4-25	0.27
HD400	50	35-50	0.27
HD400	50-70	4-35	0.27
HD400	50-70	35-70	0.27
HD500	95	4-35	0.27
HD500	95	35-70	0.27
HD500	95	70-95	0.27
HD600	120	25-120	0.27
HD600	150	25-120	0.27
HD600	150	70-150	0.27
HD600	185	16-95	0.27
HD800	240	95-120	0.28
HT020 and HT030 tooling			
HD700	120-185	120-185	0.22
HD700	150-240	95-120	0.22

– Manufactured from high quality stainless steel

Earth bonds & clamps

Compression tools



Hydraulic crimping tool

Part no.	Description	Weight each (kg)
HT010	Hand operated 13 ton tool with carrying case	8
<ul style="list-style-type: none">– Self-contained hydraulic crimping tool used for jointing and terminating copper, aluminium and ACSR conductors– Crimping force 130 kN– Two stage 'rapid-ram' advance mechanism for fast installation– Short fibreglass handle for combined work spaces– Accepts most U-Type dies of equivalent tonnage– 180° head rotation– Includes carrying case– Dies are not included		



Hydraulic crimping head and pump

Part no.	Description	Weight each (kg)
HT020	15 ton hydraulic tool with carrying case	5.5
HT030	Foot operated hydraulic pump with carrying case	16.5
<ul style="list-style-type: none">– Self-contained hydraulic crimping tool used for jointing and terminating copper, aluminium and ACSR conductors– Crimping force 230 kN, maximum operating pressure 700 Bar– Hydraulic head complete with quick automatic coupler for connection to pump– Accepts most U-Type dies of equivalent tonnage– Pump supplied with 3 m long high pressure flexible hose– Each supplied with carrying case– Dies are not included		

Earth bonds & clamps

Compression tools



Battery powered hydraulic crimping tool

Part no.	Description	Weight each (kg)
HT040	Battery powered, open head 14 ton tool	10.6
<ul style="list-style-type: none">– This self-contained, compact, cordless hydraulic tool makes crimping easy with its lightweight single handed design– Crimping force 130 kN– Two stage 'rapid-ram' advance mechanism for fast installation– Accepts most U-Type dies of equivalent tonnage– 180° head rotation– Dies are not included– The tool is supplied with:<ul style="list-style-type: none">Basic tool complete with batteryShoulder strapSpare battery (14.4 V 3.0 Ah)Battery chargerCarrying case suitable for storing up to 14 sets of dies		

8



Battery powered hydraulic cutting tool

Part no.	Description	Weight each (kg)
HT050	Battery powered 6 ton cutting tool	6.5
<ul style="list-style-type: none">– This self-contained, compact, cordless hydraulic tool makes cutting copper, aluminium, ACSR and steel earth rods easy with its lightweight single handed design– Two stage 'rapid-ram' advance mechanism for fast installation– Maximum cutting diameter of 25 mm– Blades manufactured from high strength special steel, heat treated to ensure a long service life– 180° head rotation– The tool is supplied with:<ul style="list-style-type: none">Basic tool complete with batteryBattery wrist strap and shoulder strapSpare battery (14.4 V 3.0 Ah)Battery chargerCarrying case suitable for storing tool and accessories		



FurseWELD

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Connection selection guide	9/6

Bar to bar

Bar to bar BB1	9/8
Bar to bar BB3	9/9
Bar to bar BB7	9/10
Bar to bar BB14	9/11
Bar to bar BB41	9/12

Bar to steel surface

Bar to steel surface BS1	9/13
Bar to steel surface BS2	9/14
Bar to steel surface BS3	9/15

Bar to earth rod

Bar to earth rod BR1	9/16
Bar to earth rod BR2	9/18
Bar to earth rod BR7	9/20

Cable to bar

Cable to bar CB1	9/22
Cable to bar CB4	9/23
Cable to bar CB5	9/24

Bar to cable

Cable to cable CC1	9/25
Cable to cable CC2	9/26
Cable to cable CC4	9/27
Cable to cable CC6	9/28
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