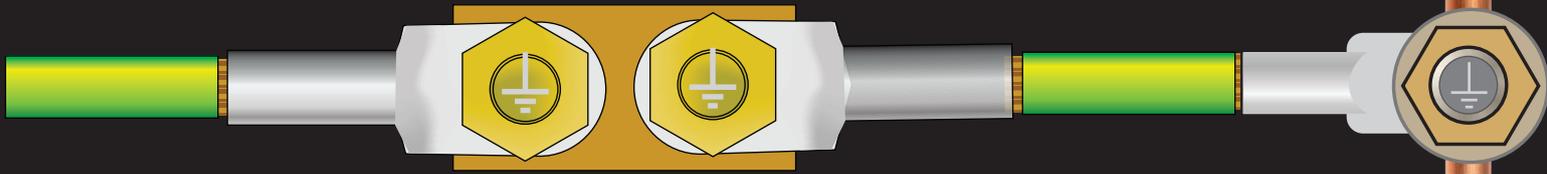


# Earthing



## and Bonding Solutions

An extensive range of high quality earth electrodes, couplings, connectors and exothermic welding systems from ABB furse, a world leader in earthing and lightning protection solutions.

Power and productivity  
for a better world™ **ABB**

[www.goactive.nz](http://www.goactive.nz)

furse 

## Overview

Active Electrical Suppliers (AES) are proud to be associated with ABB Furse in bringing this extensive and innovative range of electrical earthing products to the New Zealand market. (Refer to the back page for the ABB Furse story)

AS/NZS3000 (The Wiring Rules) Section 5 sets out the minimum requirements for both protective and functional earthing for electrical installations. Many large commercial, industrial and high voltage installations will have earthing systems designed to specific requirements or designed under Section 1 of AS/NZS3000 in the form of a “Certified Design”. These designs will specify the installations earthing structure, installation and testing requirements in great detail for the contractor to follow. Our range of ABB furse earthing products ensures electrical contractors can meet these exacting requirements. Furse components are designed to ensure electrically low resistance values, and withstand mechanical damage, thermal and electromechanical stresses resulting from earth fault and leakage currents which can be expected within an installation.

The components featured in this brochure are just part of the earthing and lightning protection products and technical services that are available to AES as part of our relationship with ABB furse. We offer electricians, engineers, estimators and project managers access to a these additional products and services through our twenty nine branches and our technical team.

## ABB Furse Earth Electrodes and Accessories

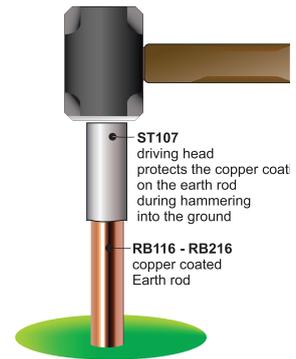
Furse Copperbond earth rods offer electricians the highest quality and most economical earth rods available. They are made by molecularly bonding 99.9% pure electrolytic copper on to a low carbon steel core.

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.

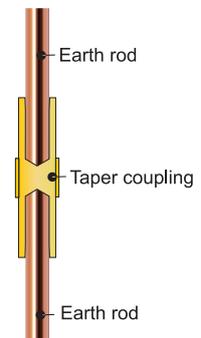
**RB116**  
Earth electrode 12.7mm (1/2")  
12.7mm X 1800mm  
Copperbond coated

**RB216**  
Earth electrode 14.2 (5/8")  
14.2 mm X 1800mm  
Copperbond coated

Note Furse earth electrodes are Copperbond coated to 254 micron which exceeds the requirement under AS/NZS3000 :5.3.6.2 table 5.2

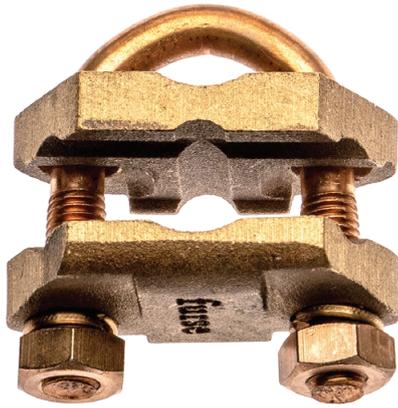


**ST107**  
Steel driving head for 12.7 (1/2") earth rod  
**ST207**  
Steel driving head for 14.2 (5/8") earth rod

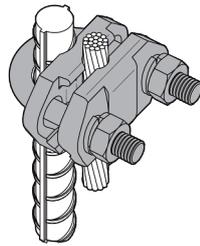


**CG177**  
12.7mm (1/2") taper earth rod coupling  
Used to join two 12.7mm earth rods where extra length is required.  
Brass.

**CG277**  
14.2mm (5/8") taper earth rod coupling  
Used to join two 14.2 mm earth rods where extra length is required.  
Brass.

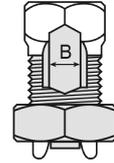
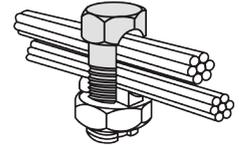


Rebar or earth rod



## CR710

U Bolt Rod Clamp  
25mm rod to 16 - 70mm<sup>2</sup> Conductor  
Brass

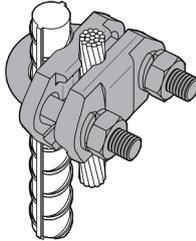


## 20H-FU

High -strength Split Bolt Connector  
35 - 70 mm<sup>2</sup> Conductor 4mm to 70mm tap  
**B** = 11.5 mm  
Brass

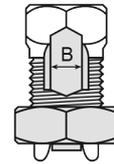


Rebar or earth rod



## CR705

U Bolt Rod Clamp  
12 - 20mm rod to 70 - 150mm<sup>2</sup> Conductor  
Stainless Steel



## 2H-FU

High-strength Split Bolt Connector  
16 - 25 mm<sup>2</sup> Conductor 4mm to 25mm tap  
**B** = 6.9 mm  
Brass



## RC20-087095

Rebar to Conductor Connecting Clamp  
Rebar 8 - 20mm to 70 - 90mm<sup>2</sup> conductor  
High quality stainless steel



## BN510T

25x3mm Flexible Braided Tinned Copper Earth Strap  
hole dia 11mm



## RC812-0850

Rebar to Conductor Connecting Clamp  
Rebar 12mm to 25 - 50 mm<sup>2</sup> conductor  
High quality stainless steel



Example of rebar reinforcing steel using the Furse rebar clamps to copper conductor



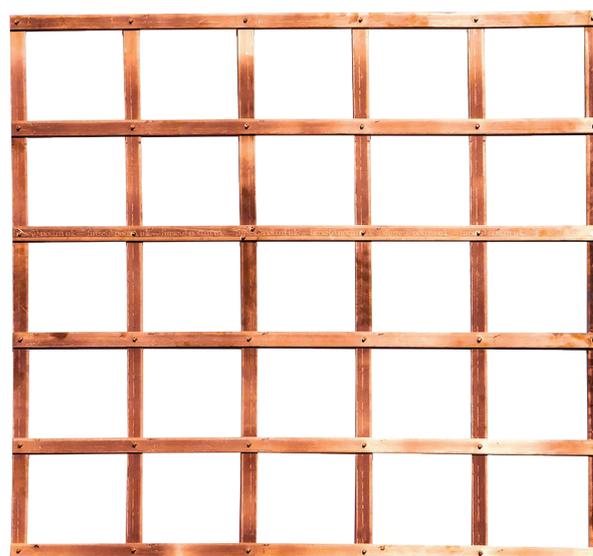
## EB0111-SS

Weld-on Earth Boss

Used for welding on to structural steel parts

Mild steel

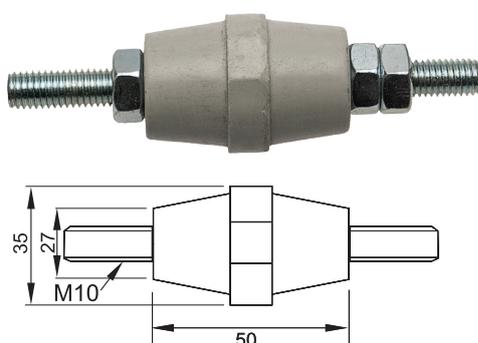
L= 30mm x M10 stud



## PE120

900 x 900 x 3mm Copper Lattice Earth Mat

This special Furse product is specifically designed to minimize the danger of exposure to high step and touch voltage potentials which can pose a high risk to operators in situations such as: High voltage switching, substations, Commercial EV charging stations



## IN005

Insulator 2 studs + 3 nuts

M10 thread



## TC030

25x3mm Bare Copper Tape, 25m coil

## TC230

25x3mm Bare Tinned Copper Tape 50m coil

## TC075

50x4mm Bare Copper Tape, 30m coil



## LK245-6TSS

Furse Earth Bar 50 x 6mm Tinned Copper

6 way 400mm long

Stainless steel fixings

## LK245-12TSS

Furse Earth Bar 50 x 6mm Tinned Copper

12 way 750 mm long

Stainless steel fixings

The plastic channel base is entirely corrosion proof, made from high impact uPVC



## LK004

Swan-neck link

Length 400mm

50x6mm copper



Shown with optional 5 hole copper bar **PT004**

**PT205**

Lightweight Inspection Pit With Grey Polymer Lid  
UV stable and chemical resistant  
Load rated to 5000 kg for heavy load traffic

**PT004**

Optional 5 Hole Copper Bar for PT205



**CM015**

Furse Bentonite Moisture Retaining Clay  
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 from rainfall.  
Available in 25 kg bags



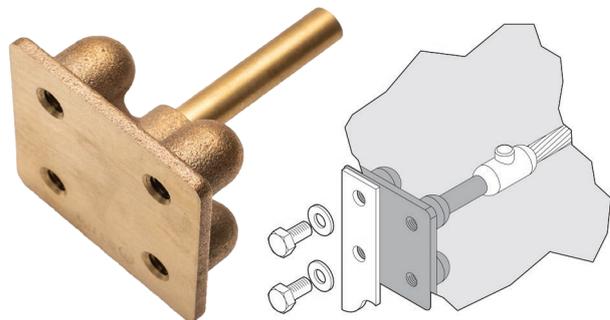
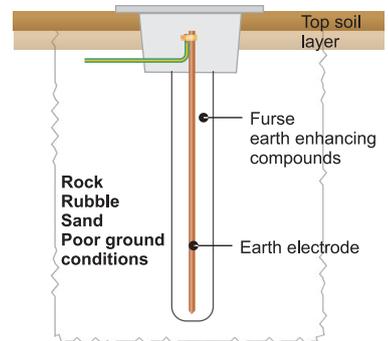
**CM040**

Fursechem Pre-mix Conductive + Cement Fill  
Designed to be used in place of standard sand, aggregate and cement mix, to provide a conductive aggregate which lowers the resistance to earth.

When used as a backfill for earth electrodes, FurseCEM® impregnated concrete greatly increases the electrodes' surface area, ideal for poor ground conditions where low resistances are problematic.  
FurseCEM is a conductive concrete and cannot be washed away when used as a backfill for earth electrodes

Available in 25kg sacks.

Installation detail of earth resistance lowering compounds



**PC110**

Earth Point Four Hole Plate [ M8x4 threaded holes]  
This earth point can be joined to a copper cable with a U-bolt clamp CR710 or Fursewelded to a 35mm copper cable using the FurseWELD mould **CC1-4-35**

The plate can be bolted on to a range of structures to provide an accessible earth or equipotential bonding connection point.

FurseWELD exothermic welding is 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. FurseWELD connections allow conductors to carry higher currents than other types of connections. They will never loosen, are highly conductive and have excellent corrosion resistance.

Exothermic (FurseWELDing) is easy to do. Your local AES branch can provide a copy of the FurseWELD manual or the training video can be found at <https://www.youtube.com/watch?v=PgFdZPD1MxU>



FurseWELD conductor to conductor moulds are available in five common conductor sizes. Other FurseWELD moulds are available for almost any joint applications. Contact your local Active Electrical Suppliers branch for advice and assistance.

Mould Code	Conductor Size to Join	Powder Shot (per box)
		
<b>CC1-4-35</b>	<b>35 mm<sup>2</sup></b>	<b>32P10 (20)</b>
<b>CC1-4-50</b>	<b>50 mm<sup>2</sup></b>	<b>45P10 (20)</b>
<b>CC1-4-70</b>	<b>70 mm<sup>2</sup></b>	<b>65P10 (10)</b>
<b>CC1-4-95</b>	<b>95 mm<sup>2</sup></b>	<b>90P10 (10)</b>
<b>CC1-4-120</b>	<b>120 mm<sup>2</sup></b>	<b>115P10 (10)</b>



FurseWELD powder shots are selected to match the applicable mould. They are supplied in a box of 10 or 20 units and include the fuse disc to separate the powder from the joint, until the fusion of the powder is activated.

## ABB Exothermic Welding Tools



### HCPK4

Two Part Mould Clamp

This clamp is used in conjunction with the FurseWELD moulds **CC1-4-35 - CC1-4-120**

Example of use



### FG100

Flint Gun

### Flints

Spare flints (Pack of 10)



### BFC

Copper Tape Cleaning Brush



### STM1-FU

Mould Cleaning Scraper



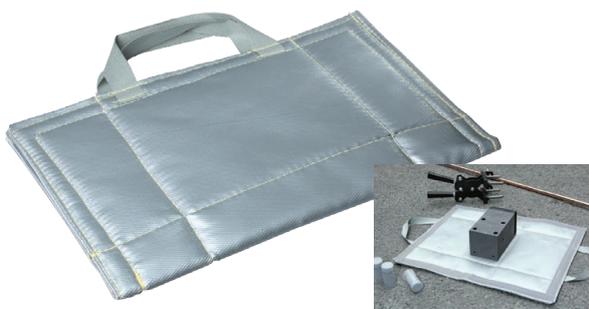
### BCM

Mould Cleaning Brush



### BC135

Cable Cleaning Brush



## MJ-4

Furse Mould Jacket

The Furse mould jacket is designed to permit safe and secure transportation and storage of FurseWELD moulds. Manufactured from woven Kevlar synthetic material with silicate padding and Velcro lined edges, the jacket protects against splashing of hot metal sparks, and prevents moisture ingress and damage to the mould.

## TK100

FurseWELD Standard Toolkit for bar to bar joints. Includes flint gun, tape cleaning brush, mould cleaning brush and scraper



## TK200

FurseWELD Special Toolkit for cable to cable joints. Includes flint gun, tape cleaning brush, mould cleaning brush, cable cleaning brush and scraper



## IU100

FurseWELD Remote Ignition Kit

Includes carry case, ignition unit, fob, cable/block, mains charger.

The **IU100** removes the need to use ignition starter powder with a traditional flint gun, allowing ignition from a safe distance reducing exposure to smoke and fumes.

## DUXSEAL

Used to seal around moulds and cables to fill holes in irregular shaped objects. Duxseal is easily formed by hand and is removable, sealing out duct, moisture and fumes, 1lb - 0.45Kg



## COPPER SLEEVE S105

Conductor size 2.5 / 4 / 6 mm<sup>2</sup> S105

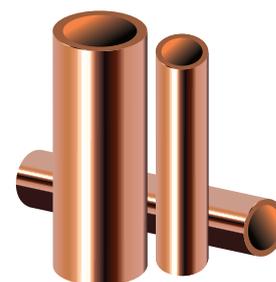
## S102-FU

Conductor size 10mm<sup>2</sup>

## S10E

Conductor size 16mm<sup>2</sup>

Note: Sleeves are required when joining conductors smaller than 16mm<sup>2</sup> to prevent conductor damage on smaller cables.



## IS100

FurseWELD Ignition Strips (5 pcs per pack) Used with remote ignition kit



## SHPK4

FurseWELD Stainless Steel Hood - 80 x 80mm to suit PK4 moulds.

The hood removes the fumes that are released during the exothermic process. Used in areas where these fumes can cause a problem to the user or other persons in the immediate area. It is also often used for Fusewelding in indoor locations.





It started in 1893 when William Joseph Furse acquired the premises and steeplejacking business of Joshua Till on Burton Street in Nottingham. Starting with one employee, Mr Furse improved and expanded the business. Recognizing at an early stage the growing importance of electricity, he diversified into electrical installation, and opened a workshop in Goldsmith Place for the manufacture of switchgear and components.

In 1998, Furse became a part of the Thomas & Betts corporation. Thomas & Betts was acquired by ABB, a leading global engineering company, that energizes the transformation of society and industry to achieve a more productive, sustainable future. With a history of excellence of its own stretching back more than 130 years, ABB's success is driven by 144,000 talented employees in over 100 countries.

Today, the Furse name remains as a tribute to its founder, continuing to be synonymous with innovative electrical engineering and management success.

The Furse Total Solution incorporates customer needs for earthing and lightning protection, including structural lightning protection systems, earthing for lightning protection, power and telecommunications systems, transient over-voltage protection and customer project consultations, technical guidance and system design.

### Lightning Protection Solutions

In conjunction with ABB furse, Active Electrical Suppliers can provide total solution packages for Lightning Protection based on AS/NZS and international design Standards.



**Active Electrical Suppliers Ltd**  
**29 branches nationwide**

**go to: [www.goactive.nz/branches](http://www.goactive.nz/branches) to find your local branch details**



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