

## FurseWELD Exothermic Welding Product Catalogue

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**Thomas & Betts**



**Furse is a world leader in the design, manufacture and supply of earthing and lightning protection systems. Combining over 100 years' technical expertise with an enviable reputation for innovation, quality and service, Furse is uniquely placed to provide a 'Total Solution' to all your earthing, lightning and transient overvoltage protection needs.**

Since 1998, the Furse brand has been included in the product portfolio of the Thomas & Betts Corporation. Thomas & Betts was founded in New York in 1898. The corporate headquarters now reside in Memphis, Tennessee with the company being listed on the New York stock exchange. Thomas & Betts has now over 100 years of experience of successfully supplying quality products to the market by using innovative design and manufacturing techniques. A truly global player having a presence in Europe, North & Central America, Australia and the Far & Middle East. Worldwide 13,000 employees are dedicated to ensuring that Thomas & Betts is fast, flexible and customer focused.

Whilst one of our core markets remains in electrical products, Thomas & Betts also has leading brands along with significant market share in emergency lighting and fire detection, steel structures, communications, electronic systems protection, earthing and lightning protection. In recent years, Thomas & Betts has developed a formidable safety products division. This division serves as a key knowledge platform, focusing on continued product innovation and delivery of competitive solutions to our customers. Furse, being one of the leading brands within this division, benefits from economies of scale in product development and production, facilitating the further efficient development of earthing, lightning protection and electronic surge protection systems.



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Not only do we supply lightning protection and earthing materials, we will also design the system you need

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# Company background

## A world of experience

Since 1893, when William Joseph Furse bought a small steeplejacking company, Furse has been proud of our commitment to innovation and quality.



Throughout the decades of vast technological change, Furse has adapted and expanded accordingly, providing world leading structural lightning protection, earthing and transient overvoltage protection. With offices and strong distribution networks throughout the Far East, Furse is uniquely placed to provide total lightning protection solutions.

Furthermore, by working on projects in over 120 countries, many as prestigious as the Petronas Towers in Kuala Lumpur, and Disneyland Hong Kong, Furse has developed the experience and expertise that will ensure we continue to lead the field throughout the 21st century.

## Thomas & Betts

In 1998, Furse became part of the Thomas & Betts Corporation, who, like ourselves, has over 100 years of electrical engineering experience.

As one of the world's leading manufacturers of electrical and electronic components, Thomas & Betts is renowned for their interconnection and cable management products.

With many of its well known brands available worldwide, and its continued focus on product development and innovation, Thomas & Betts remains the assured choice for competitive solutions within the Far East market.



## Expertise and know how

At Furse, our wealth of knowledge in structural lightning protection, earthing and transient overvoltage protection gives our engineers the ability to offer leading edge product development and unparalleled technical support.

From dedicated teams of design engineers developing new products to meet the ever-changing demands of the marketplace, to accredited engineers that can design lightning protection and earth electrode systems to the relevant British Standard (BS) or any other recognised national or international standard, Furse technical expertise is focused on the customer.

Our expertise has also been confirmed by our continuing contributions to British, European and international standards for lightning and transient overvoltage protection (BSI, CENELEC and IEC) and earthing (BSI).



## Commitment to quality

For us, our ISO 9001 Registration is only the start of our commitment to quality.

A commitment that applies equally to all areas of Furse – from design and development to manufacturing and customer services.

## The support you need

At Furse we believe in sharing our knowledge with you, so you can make a properly informed decision – whether it's on the phone, through a presentation, or with our comprehensive technical literature.

Whatever your query, technical support is readily available either from our teams of engineers, or from our offices throughout the Far East and further afield, all supported by an international network of distributors.

Additionally, to help you identify what protection you do (and don't) need, in many countries, free of charge site surveys are available.



## The best products, the best guidance... for total lightning protection

Furse offers the very best in terms of product development, service and support for all parties involved in lightning, earthing and transient overvoltage protection.

Our services and products cover the entire scope of lightning protection, from air terminals and conductors for structural protection, earth rods, plates, bonds and clamps etc, together with exothermic welding for effective earthing, through to enhanced surge protection devices for equipotential bonding and for protecting essential electronic systems within structures.

In short, Furse offers the Total Solution to lightning protection.

We provide a comprehensive range of product literature to support our customers with product selection or technical information as required when preparing lightning protection systems. Details of our range of publications is provided below. Contact your local office today for further information and to request your copy.



### Earthing & Lightning Protection Product Catalogue

Our full range of copper and aluminium lightning protection products, essential for protecting external structures, including:

- Air terminals, bases and clamps
- Conductors
- Earthing materials, rods, fixings, clamps, earth bars and inspection pits
- Earth resistance testing equipment, compression tools and connectors



### Electronic Systems Protection Product Catalogue

Our full range of Surge Protection Devices (SPDs), essential for protecting against transient overvoltages caused by lightning and electrical switching events, including:

- Service entrance and equipotential bonding SPDs
- Protectors for mains power supplies
- Protectors for data communication and signal lines
- Protectors for telephone lines and computer networks



### FurseWELD Exothermic Welding Product Catalogue

Comprehensive information on the FurseWELD exothermic welding system – our fast, easy and portable way of creating high quality, fault tolerant joints without any external power or heat source. Covering both FurseWELD and SureSHOT methods for forming permanent electrical connections.

# What our customers say about us

At Furse, we are fully committed to providing the best value solutions to our customers' earthing, lightning and transient overvoltage protection needs. Below is a sample of our customers' comments regarding our service.

*"We know we can rely on the quality of Furse products and are ensured of excellent technical support whenever required. They have an extensive range to cover our requirements as an installer of Lightning Protection, Earthing and Surge Protection, that is why they are our #1 supplier"*

Colin C Clinkard, Director, BEST Services, Britain

*"Furse lightning protection units have been used on Vodafone base stations for over 10 years. These units have proved to be very reliable and complement the technical support and after sales service Vodafone have received from Furse."*

Stephen Williams, Senior Engineer  
Vodafone, Newbury, Britain

*"Jointing Technologies stock and distribute Furse products as we believe that they are the right manufacturer to provide a range of products to suit the ever-changing earthing & lightning protection marketplace. We have worked closely with Furse for over 12 years now on many contracts including Heathrow T5, Channel Tunnel rail link, London Underground upgrade etc. Regular communication with their sales engineers ensures not only stock products are available when and where required but also customized products are available if needed to keep our projects running on time and within budget."*

Nigel Ridgway, Operations Manager, Jointing Technologies, Britain

*"I hadn't been involved with transient protection before, but every time I contacted Furse there was an engineer on hand. He was knowledgeable, helpful and friendly and gave good quality customer service."*

Richard Mynott, Property Services Engineer  
Castrol, Reading, Britain

*"We are very satisfied with the performance of Furse ESP protectors, as are our customers. Previously we had used other products, but these didn't give as effective protection as Furse ESP. Although it increases the overall cost of the system, it is a justifiable expense. Because of the confidence we have in Furse we recommend use of Furse ESP to our customers."*

Peter Chin Hon Ming, Sales Manager  
Lucent Technologies, Kuala Lumpur, Malaysia

*"As electrical consultants we have for many years realised the importance of protecting electronic equipment from lightning. It is one of the first things we specify and we specify Furse ESP for the quality of the product and the technical support we receive."*

K L Ng, Director  
Jentrik, Malaysia



**Burj Dubai**

Already the world’s tallest building and still under construction, the Burj Dubai will represent a formidable achievement as part of the development of downtown Dubai. On completion, this prestigious structure will provide hotels, residential suites, offices and leisure facilities for many Dubai residents.

Protection of tall structures is an exacting science, considering the need not only to protect the top but also the sides of the building from lightning damage. Innovative architecture presents many challenges in lightning protection scheme design.

Furse has substantial experience of providing protection for tall structures, having provided lightning protection schemes for many developments in the Middle and Far East, including the Burj Al Arab 7 star hotel in Dubai and Petronas Towers in Malaysia.

**Graha Energi Building, Jakarta**

The Graha Energi building is a new office development sited at the junction of Jakarta’s premier commercial district, Sudirman Central. Within its 43 storeys, the Graha Energy building provides high quality office suites, restaurants and parking to Jakarta’s national and international business community.

Lightning protection may seem a small part of such a considerable development, however it remains a vital, integral component. A lightning protection scheme is essential to protect the structure, the personnel working within and the high technology electronic systems used for everyday commerce from harm.

Furse was appointed to provide both structural lightning protection and FurseWELD exothermic welding solutions to the Graha Energi development.



**Singapore Mass Rapid Transit System – Circle Line**

Currently under construction, the Circle Line is the latest development as part of Singapore’s Mass Rapid Transit (MRT) system which forms the backbone of the city’s railway system, serving more than a quarter of Singapore’s population with a network spanning the entire city-state.

Scheduled for completion in 2011 the Circle Line will consist of 29 stations, connecting with all other lines within the network at numerous stations, thus offering to Singapore’s residents a viable and improving alternative to road transport.

With the protection of passengers and vital electronic systems paramount, Furse has been commissioned to provide the essential lightning protection system for this project. Furse has many years experience working on rail specific projects, with products tailored for this market.



## Why is lightning protection so important?

**Lightning is one of nature's most powerful and destructive phenomena. Lightning discharges contain awesome amounts of electrical energy and even though each strike may last only a short duration, typically 200 microseconds, it is a very real cause of damage and destruction.**

The effects of a direct strike are obvious and immediately apparent – fires, structural damage, disruption to services, personal injury and even death. However, the secondary effects of lightning – the short duration, high voltage spikes called transient overvoltages - can, and do, cause equally catastrophic, if less visually obvious, damage to electronic systems within structures.

Lightning can have a significant impact on an organisation. From risk of serious injury to personnel through to loss of critical services such as mains power, and significant damage to servers, PCs or electrical machinery, lightning is clearly a major threat. In the worst case scenario an organisation might go out of business as a result of lightning damage.

Reliable lightning protection needs to be applied to counter these threats. Furthermore, any lightning protection scheme must encompass both structural lightning protection and transient overvoltage protection, since structural lightning protection alone cannot and will not protect the electronic systems within a building from transient overvoltage damage.

At Furse, we are fully aware that all these risks need to be considered and protected against when developing a lightning protection scheme. With over 100 years of experience, our support and expertise has assisted thousands of businesses, both large and small, to achieve effective protection against lightning.



Fires from lightning strikes can cause major damage to structures



Furse has extensive experience of designing and supplying lightning protection systems for tall structures, including Petronas Towers, Malaysia and many new developments in the Far East

## The Furse approach to external lightning protection

A structural lightning protection system is designed to protect the fabric of a structure and the lives of the people inside by channelling the lightning strike in a safe and controlled manner to the earth termination network. Using the Faraday Cage principle of lightning protection, as advocated by the majority of national and international standards, Furse offers a range of air terminals, bases and clamps for the air termination network and an extensive range of down conductors and fixings. Furse only supply high quality materials and fixings, since it only takes a single sub-standard component to compromise the performance of a structural lightning protection – or earthing – system.

## The importance of a high quality earth termination network

The earth termination network is the means through which the current is dissipated to the general mass of earth. Furse offers all the materials and fittings necessary for an effective earthing system, including earth rods and plates, clamps and inspection pits.

Furse also manufactures and supplies the FurseWELD exothermic welding system; a fast, easy and portable way of creating high quality, fault tolerant joints without any external power or heat source.

Please contact Furse for more information about earthing & lightning protection or FurseWELD products, or to request our catalogues.



## The importance of high quality internal lightning (electronic systems) protection

Electronic systems have become central to virtually every aspect of our lives from PCs and building management systems in the office to automated petrol pumps and bar code scanners at the supermarket. The ever-changing pace of technological development, and especially the headlong quest for miniaturisation, has created the scenario where increasingly lightning sensitive systems are placed at the core of our society. Both the threat of damage to vital electronic systems, and the seriousness of the consequences of that damage, are more real than ever before.



Most modern electronic systems are at risk:

- computers
- data communication networks
- building management systems
- PABX telephone exchanges
- CCTV equipment
- fire and burglar alarms
- telecom base stations
- uninterruptible power supplies (UPSs)
- programmable logic controllers (PLCs)
- plant sensors
- telemetry and data acquisition equipment.

Loss of these systems would cripple industrial, commercial and governmental organisations alike.



Transient overvoltage damage to the circuit board, left, is clear to see, but most damage is barely visible, as below.



The main risk to internal systems is through transient overvoltages – large, very brief and potentially destructive increases in voltage within the electrical system.

Transient overvoltages can be caused by:

- the secondary effects of lightning strikes (either between clouds or to ground) from a kilometre or more, away
- the electrical switching of large inductive loads (such as motors, transformers and electrical drives), or capacitive loads (such as power factor correction)

### Devastating effects

Although they last only thousandths or millionths of a second, transient overvoltages can devastate modern electronic systems:

- disrupting system operations, through data loss, data and software corruption and unexplained crashes
- degrading equipment components and circuitry, shortening equipment lifetime and increasing failures
- destroying components, circuit boards and I/O cards
- causing costly and unnecessary system downtime

### Protection benefits

Effective transient overvoltage protection can prevent:

- lost or destroyed data
- equipment damage
- repair work – especially costly for remote or unmanned installations
- the high cost of extended stoppages – sales lost to competitors, lost production, deterioration or spoilage of work in progress
- loss of essential services – fire alarm, security systems, building management systems
- health and safety hazards caused by plant instability, after loss of control
- fire risks and electric shock hazards

Please contact Furse for more information about Electronic Systems Protection products or services, or to request our catalogue.

Since 1893 Furse has built up an enviable reputation for innovation and quality to become a world leader in the provision of earthing and lightning protection systems. Combining over 100 years technical knowledge with our work as active contributors to National and International Standards, Furse is uniquely placed to provide sound practical advice on any aspect of your lightning protection needs.

At Furse, our aim is simple – to save you time and money in the specification, design, planning and procurement of structural lightning protection, transient overvoltage and earthing systems. From straightforward advice on product selection through to complete risk assessment, scheme design and consultancy, Furse is geared to delivering a best-value solution to all our customers.

## Furse technical design

Given the complexity of national and international earthing and lightning protection standards, confusion and misinterpretation can easily lead to budget overruns and costly extra time on site. To counter this, we offer a range of professional services to our customers, including:

- Structural lightning and transient overvoltage protection system design
- Earthing design
- Supply of comprehensive drawings
- Soil resistivity survey
- Full earth modelling analysis
- Earth resistance measuring
- Bespoke in-house and hosted training and seminars

Using the latest computer aided design and draughting software our engineers can produce detailed or budgetary earth electrode and lightning protection system designs, in compliance with any given standard and whatever the complexity of system required.

Where necessary, we can also provide for the installation of earthing and lightning protection systems via our partnerships with specialist installers.



## Structural lightning and transient overvoltage protection

In order for Furse to design a structural and/or transient overvoltage lightning protection system, we need the following information:

- Design standard, e.g. BS EN 62305, NFPA 780, IEC 62305
- A dimensioned roof plan
- External elevations
- Construction details, e.g. steelwork, reinforced concrete, roofing materials, etc
- A single line diagram indicating voltage and current for each electrical system, e.g. power, data, telephones, fire alarms, CCTV
- Details of essential equipment, e.g. network servers, PLC controllers

## Power earthing systems

To design a power earth electrode system, we need the following information:

- Design standard, e.g. BS 7430, BS 7354, Ansi IEEE Std 80, EATS 41-24 etc
- A dimensioned site plan
- Overall electrical single line diagram
- Soil resistivity survey results
- Earth fault current magnitude. (Due consideration should be given to the proportion of current flowing through cable sheaths or the aerial earth wires of overhead transmission lines)
- Earth fault current duration

There are a number of recognised national and international standards governing the provision of earthing systems. Our design experience and technical knowledge allow us to provide designs to any relevant standard, including BS 7430, IEEE Std 80 and EATS 41-24. Given the complexity of many of these standards, using the Furse design service avoids any confusion or misinterpretation that could lead to budget overruns or project delays.



Proper site surveys and analysis complement fully our in-house service. Through collation of all relevant information from site, including soil resistivity measurements and earthing analysis, our engineers can produce bespoke earthing designs complete with drawings, calculations and a detailed report, along with a structural lightning protection system if required.

### Soil resistivity surveys

Inadequate or erroneous soil resistivity readings are likely to result in a flawed design. Furse site surveys take multiple accurate soil resistivity readings at various depths across the proposed site to form the basis of the whole earthing design.

### Full earthing analysis

Full earthing analysis determines the step and touch voltages, earth potential rise and hot/cold site classification of the site generated by the initial design.

### Earth resistance measurement

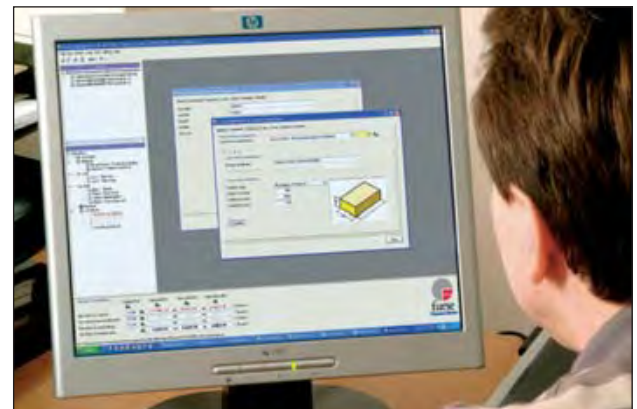
Earth resistance measurement is essential to ensure that the installation meets the anticipated criteria laid out in the initial design. Furse has the technical experience to ensure that the measurements accurately reflect the true resistance of the earthing system.

### Automated risk assessment

The new Standard for lightning protection, BS EN/IEC 62305, promotes risk assessment as central and critical to determining the level of lightning protection system required. This complex risk assessment incorporates trial & error calculations which could take hours to process by hand – not the most profitable use of a consultant’s time!

To assist, Furse technical team provides a risk assessment service using our proprietary risk evaluation software to process the complex calculations required by BS EN/IEC 62305-2.

Please contact Furse for more details about how automated risk assessment can help you plan your lightning protection systems.



### Training and seminars

Not only do our engineers offer technical design services, but also training courses are available to ensure you or your team can acquire a greater understanding of the nature, problems and solutions to earthing and lightning protection requirements.

Courses can be tailored to individual needs and are held at the Furse offices or other convenient locations. Contact Furse for further details.

### The benefits of coming to Furse

There are many benefits of coming to Furse for earthing, lightning protection and electronic systems protection designs, including:

- Specialist advice from a fully qualified technical team, which focuses solely on lightning protection issues and concerns
- Designs that comply with all relevant standards – national and international
- Our responsibility for providing a design that is safe
- Experience and the software to provide an ‘optimum’ design – one that doesn’t use more earthing material than is necessary – saving you money
- Manufacturing experience & expertise – utilising our knowledge of the products available to provide a tailored design that can be installed using the most appropriate and up-to-date products

# Total solution to lightning protection

## Furse, the Total Solution to lightning protection

This catalogue focuses on FurseWELD Exothermic Welding, an integral part of the comprehensive range of products and services available through the Furse Total Solution to lightning protection.

The Furse Total Solution is the industry-leading approach to lightning protection, encompassing structural, earthing and transient overvoltage protection. This approach is fully reinforced by the new standard, BS EN/IEC 62305, which emphasizes that structural lightning protection can no longer be considered in isolation to transient overvoltage protection.

Our Total Solution offers all the relevant components for effective lightning protection, from air terminals and down conductors to protect structures, through to Surge Protection Devices to protect the vital electronic systems within. By providing the highest quality products, supported by practical advice and technical expertise, Furse remains the assured choice to ensure your business is fully protected against lightning strikes and transient overvoltage damage.

Contact Furse today to discuss how our full range of products and services can help protect your business from lightning risk.





# FurseWELD

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FurseWELD products arranged by connection type

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SureSHOT 'single use' exothermic welding system

**Terminal lugs** **53**

Straight, cranked and offset terminal lugs

**Handle clamps and accessories** **54 – 55**

Handle clamps, frames, cleaning brushes, Duxseal, flint gun and flints, mould jackets, packing, scrapers, copper sleeves and toolkits

# FurseWELD – How it works

## The FurseWELD process

FurseWELD exothermic welding is a cost efficient method of making large or small numbers of high quality electrical connections. It is a simple, self-contained system that uses the high temperature reaction of powdered copper oxide and aluminium, within a mould, to form permanent electrical connections.

Typical applications include:

- Earthing for power plants and sub-stations
- Telecommunications
- Transmission and power distribution lines
- Cathodic protection
- Rail connections



## The FurseWELD system:

- requires no external power or heat source
- creates high quality electrical connections
- is completely portable
- can be used safely with minimum training
- is cost effective
- can be used for over 45 standard connection configurations



## The FurseWELD connection

FurseWELD connections have several advantages:

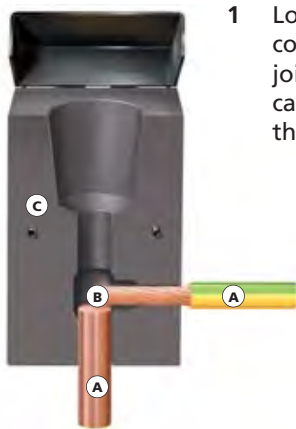
- tolerant to repeated fault currents
- highly conductive
- do not loosen
- excellent corrosion resistance

Most FurseWELD connections have at least twice the cross-sectional area of the conductors being joined, and an equivalent or greater current carrying capacity. Corrosion resistance is exceptional because of the very high copper content (>90%) of the alloy.

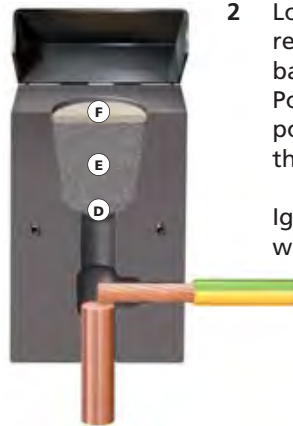




Making a FurseWELD joint is a simple procedure as illustrated below:

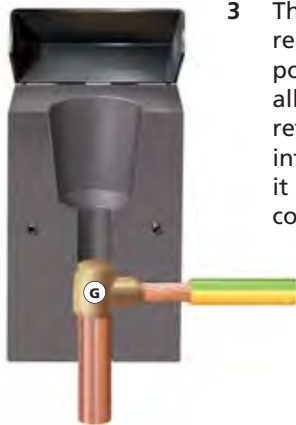


1 Locate the conductors (A) to be joined in the weld cavity (B) and close the mould (C).



2 Locate the steel retaining disc in the base of the crucible (D). Pour in the weld powder (E) followed by the starting powder (F).

Ignite starting powder with a spark gun.



3 The resulting exothermic reaction reduces the weld powder to molten copper alloy which melts the retaining disc and flows into the weld cavity where it partially melts the conductors (G).

4 The molten copper alloy cools to leave a fusion weld of great mechanical and electrical integrity.



## Moulds

The FurseWELD system of exothermic welding uses moulds to contain the exothermic reaction that creates safe and robust connections. Different types of moulds are available, whose use depends on the requirements of the project.

### Graphite Moulds

Market leading FurseWELD graphite moulds are extremely robust and capable of producing over 75 connections each.

### Mini-Moulds

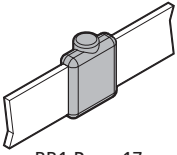
FurseWELD mini-moulds are a cost effective alternative to full-sized moulds, especially where lower numbers of connections are required. They are smaller overall, less robust and therefore lower priced. Care is required in order to achieve similar service lives to full-sized moulds.

### SureSHOT

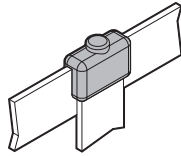
The FurseWELD SureSHOT system is a single-use ceramic mould supplied complete with retaining disc and powders. It has been designed for use in applications where only a few connections are required. Details of the SureSHOT system can be found on pages 51 – 52.

# Connection selector

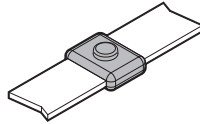
## Bar to bar



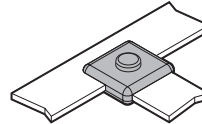
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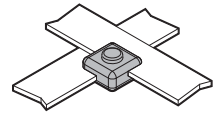
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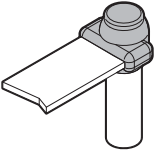


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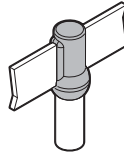


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## Bar to earth rod

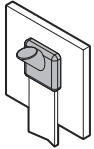


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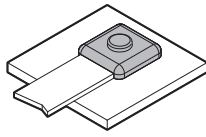


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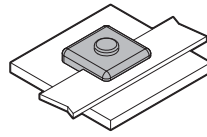
## Bar to steel surface



BS1 Page 24

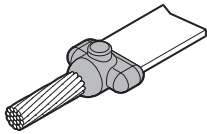


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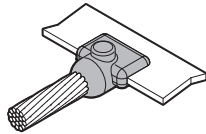


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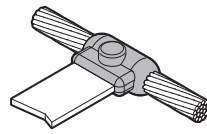
## Cable to bar



CB1 Page 27

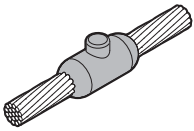


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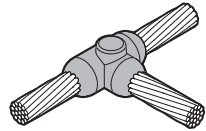


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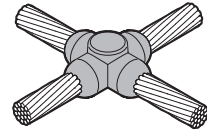
## Cable to cable



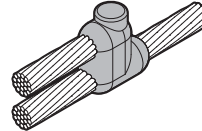
CC1 Page 30



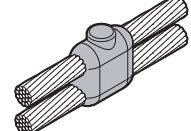
CC2 Page 31



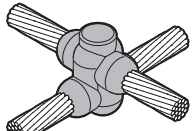
CC4 Page 32



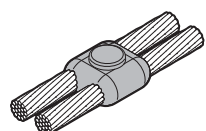
CC6 Page 33



CC7 Page 34

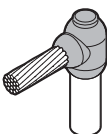


CC11 Page 35

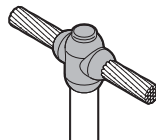


CC14 Page 36

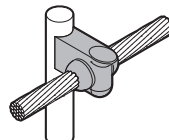
## Cable to earth rod



CR1 Page 37



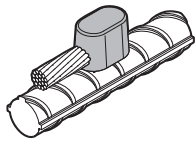
CR2 Page 38



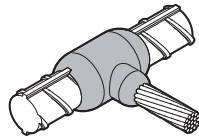
CR3 Page 39



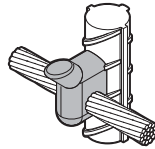
### Cable to reinforcing bar



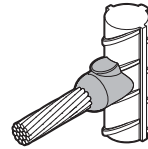
CRE1 Page 40



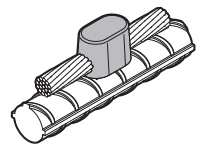
CRE2 Page 40 – 41



CRE3 Page 41

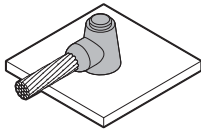


CRE6 Page 42

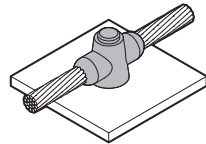


CRE17 Page 42

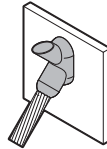
### Cable to steel surface and pipe



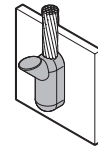
CS1 Page 43



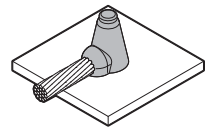
CS2 Page 43



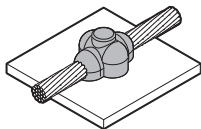
CS3 Page 44



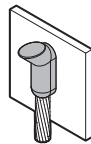
CS7 Page 44



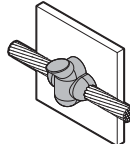
CS8 Page 45



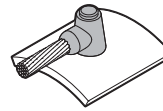
CS9 Page 45



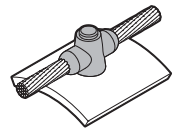
CS25 Page 46



CS27 Page 46

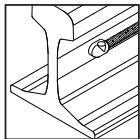


CS32 Page 47

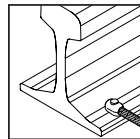


CS34 Page 47

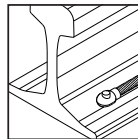
### Cable to rail



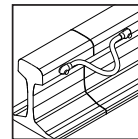
R4 Page 48



R5 Page 48

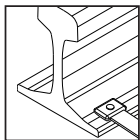


R10 Page 49



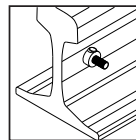
R12 Page 49

### Bar to rail



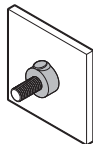
R6 Page 49

### Stud to rail

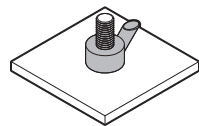


R8 Page 50

### Stud to steel surface

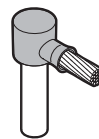


RS1 Page 50

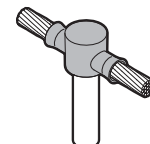


RS2 Page 50

### SureSHOT



SS1 Page 52



SS2 Page 52






Conductors must be in the orientation shown to achieve the correct connection. Furse offers technical support to assist with selection of joint type. If connections shown do not meet your requirements, please contact your local sales office for further assistance.

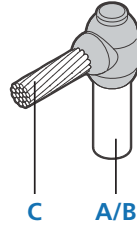
# Product selector – how to use

Use the 'Connection Selector' on pages 14 – 15 to choose your required joint type.

Conductors must be in the orientation shown to achieve the correct connection. Furse offers technical support to assist with selection of joint type. If connections shown do not meet your requirements, please contact your local sales office for further assistance.

**CR1**

A mm ø	B inches ø	C mm <sup>2</sup>					
12.7	½"	16*	65P10	CR1-4-12716	HCPK4	CR1-3-12716	HCPK3
12.7	½"	25	65P10	CR1-4-12725	HCPK4	CR1-3-12725	HCPK3
12.7	½"	35	65P10	CR1-4-12735	HCPK4	CR1-3-12735	HCPK3
12.7	½"	50	65P10	CR1-4-12750	HCPK4	CR1-3-12750	HCPK3
12.7	½"	8mm Ø	65P10	CR1-4-12785C	HCPK4	CR1-3-12785C	HCPK3
12.7	½"	70	90P10	CR1-4-12770	HCPK4	CR1-3-12770	HCPK3
12.7	½"	95	90P10	CR1-4-12795	HCPK4	CR1-3-12795	HCPK3
12.7	½"	120	90P10	CR1-4-127120	HCPK4	CR1-3-127120	HCPK3
14.2	¾"	16*	65P10	CR1-4-14216	HCPK4	CR1-3-14216	HCPK3
14.2	¾"	25	65P10	CR1-4-14225	HCPK4	CR1-3-14225	HCPK3
14.2	¾"	35	65P10	CR1-4-14235	HCPK4	CR1-3-14235	HCPK3



Find the required conductor sizes

A mm ø	B inches ø	C mm <sup>2</sup>
12.7	½"	16*

## FurseWELD products



A powder cartridge is required for each joint to be made



Less robust, more cost effective versions of the mould and handle clamp are available



A single mould is capable of producing on average 75 joints



Sleeves are required when joining conductors smaller than 16mm<sup>2</sup>



Handle clamps for handling the mould, or clamping the halves together



Packing is required when welding to reinforcing bar

## Accessories



Hammer die



Rail bond



Stud

## Conductors



Flat tape conductor








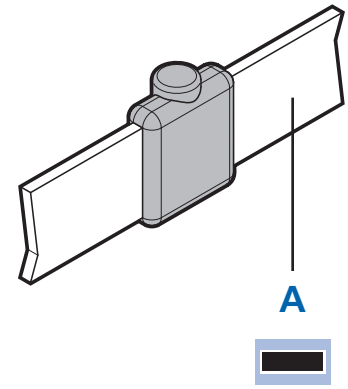
Stranded conductor

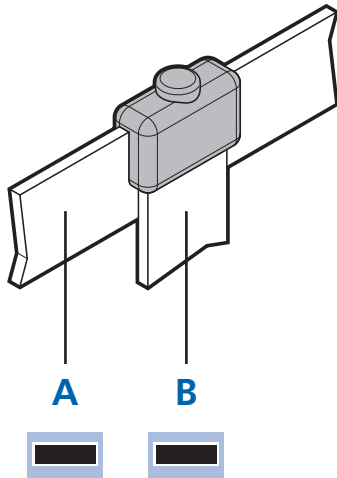


Solid circular conductor






**BB1**

A mm x mm				<b>MINI</b> 	<b>MINI</b> 
20 x 3	45P10	BB1-4-203	HCPK4	BB1-3-203	HCPK3
25 x 3	65P10	BB1-4-253	HCPK4	BB1-3-253	HCPK3
25 x 4	90P10	BB1-4-254	HCPK4	BB1-3-254	HCPK3
25 x 6	150P10	BB1-4-256	HCPK4	-	-
30 x 2	65P10	BB1-4-302	HCPK4	BB1-3-302	HCPK3
30 x 3	90P10	BB1-4-303	HCPK4	BB1-3-303	HCPK3
30 x 4	115P10	BB1-4-304	HCPK4	BB1-3-304	HCPK3
30 x 5	115P10	BB1-4-305	HCPK4	BB1-3-305	HCPK3
31 x 3	90P10	BB1-4-313	HCPK4	BB1-3-313	HCPK3
31 x 6	150P10	BB1-4-316	HCPK4	-	-
38 x 3	115P10	BB1-4-383	HCPK4	-	-
38 x 5	150P10	BB1-4-385	HCPK4	-	-
38 x 6	200P10	BB1-4-386	HCPK4	-	-
40 x 3	115P10	BB1-4-403	HCPK4	-	-
40 x 4	150P10	BB1-4-404	HCPK4	-	-
40 x 5	150P10	BB1-4-405	HCPK4	-	-
40 x 6	200P10	BB1-4-406	HCPK4	-	-
50 x 3	150P10	BB1-4-503	HCPK4	-	-
50 x 4	200P10	BB1-4-504	HCPK4	-	-
50 x 5	200P10	BB1-4-505	HCPK4	-	-
50 x 6	250P10	BB1-4-506	HCPK4	-	-








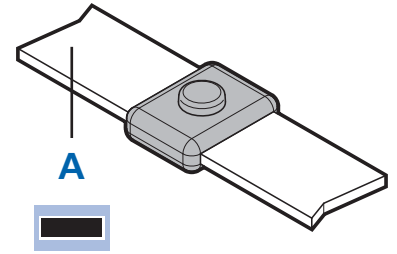


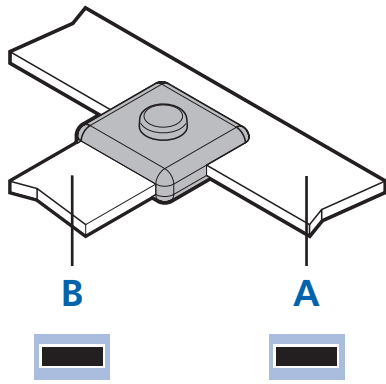
## BB3

A mm x mm	B mm x mm				MINI 	MINI 
20 x 3	20 x 3	65P10	BB3-4-203203	HCPK4	BB3-3-203203	HCPK3
25 x 3	25 x 3	65P10	BB3-4-253253	HCPK4	BB3-3-253253	HCPK3
25 x 4	25 x 4	90P10	BB3-4-254254	HCPK4	BB3-3-254254	HCPK3
25 x 6	25 x 6	150P10	BB3-4-256256	HCPK4	-	-
30 x 2	30 x 2	65P10	BB3-4-302302	HCPK4	BB3-3-302302	HCPK3
30 x 3	30 x 3	90P10	BB3-4-303303	HCPK4	BB3-3-303303	HCPK3
30 x 4	30 x 4	115P10	BB3-4-304304	HCPK4	BB3-3-304304	HCPK3
30 x 5	30 x 5	115P10	BB3-4-305305	HCPK4	BB3-3-305305	HCPK3
31 x 3	31 x 3	115P10	BB3-4-313313	HCPK4	BB3-3-313313	HCPK3
31 x 6	31 x 6	200P10	BB3-4-316316	HCPK4	-	-
38 x 3	38 x 3	115P10	BB3-4-383383	HCPK4	-	-
38 x 5	38 x 5	150P10	BB3-4-385385	HCPK4	-	-
38 x 6	38 x 6	200P10	BB3-4-386386	HCPK4	-	-
40 x 3	40 x 3	115P10	BB3-4-403403	HCPK4	-	-
40 x 4	40 x 4	150P10	BB3-4-404404	HCPK4	-	-
40 x 5	40 x 5	150P10	BB3-4-405405	HCPK4	-	-
40 x 6	40 x 6	200P10	BB3-4-406406	HCPK4	-	-
50 x 3	50 x 3	200P10	BB3-4-503503	HCPK4	-	-
50 x 4	50 x 4	200P10	BB3-4-504504	HCPK4	-	-
50 x 5	50 x 5	200P10	BB3-4-505505	HCPK4	-	-
50 x 6	50 x 6	250P10	BB3-4-506506	HCPK4	-	-






**BB7**

A mm x mm				MINI 	MINI 
20 x 3	45P10	BB7-4-203	HCPK4	BB7-3-203	HCPK3
25 x 3	65P10	BB7-4-253	HCPK4	BB7-3-253	HCPK3
25 x 4	90P10	BB7-4-254	HCPK4	BB7-3-254	HCPK3
25 x 6	115P10	BB7-4-256	HCPK4	BB7-3-256	HCPK3
30 x 2	65P10	BB7-4-302	HCPK4	BB7-3-302	HCPK3
30 x 3	65P10	BB7-4-303	HCPK4	BB7-3-303	HCPK3
30 x 4	90P10	BB7-4-304	HCPK4	BB7-3-304	HCPK3
30 x 5	115P10	BB7-4-305	HCPK4	BB7-3-305	HCPK3
31 x 3	65P10	BB7-4-313	HCPK4	BB7-3-313	HCPK3
31 x 6	150P10	BB7-4-316	HCPK4	-	-
38 x 3	90P10	BB7-4-383	HCPK4	-	-
38 x 5	150P10	BB7-4-385	HCPK4	-	-
38 x 6	200P10	BB7-4-386	HCPK4	-	-
40 x 3	90P10	BB7-4-403	HCPK4	-	-
40 x 4	115P10	BB7-4-404	HCPK4	-	-
40 x 5	150P10	BB7-4-405	HCPK4	-	-
40 x 6	200P10	BB7-4-406	HCPK4	-	-
50 x 3	150P10	BB7-5-503	HCPK5	-	-
50 x 4	200P10	BB7-5-504	HCPK5	-	-
50 x 5	200P10	BB7-5-505	HCPK5	-	-
50 x 6	250P10	BB7-5-506	HCPK5	-	-








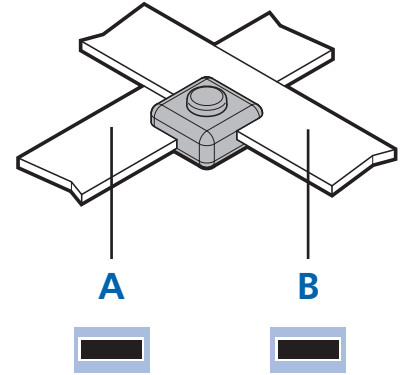


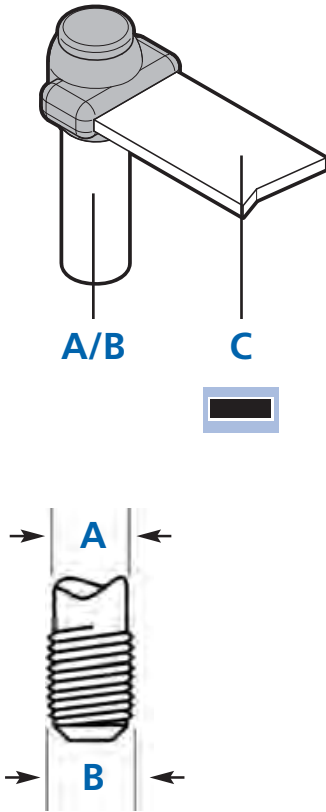
## BB14

A mm x mm	B mm x mm				MINI 	MINI 
20 x 3	20 x 3	45P10	BB14-4-203203	HCPK4	BB14-3-203203	HCPK3
25 x 3	25 x 3	65P10	BB14-4-253253	HCPK4	BB14-3-253253	HCPK3
25 x 4	25 x 4	90P10	BB14-4-254254	HCPK4	BB14-3-254254	HCPK3
25 x 6	25 x 6	115P10	BB14-4-256256	HCPK4	BB14-3-256256	HCPK3
30 x 2	30 x 2	65P10	BB14-4-302302	HCPK4	BB14-3-302302	HCPK3
30 x 3	30 x 3	65P10	BB14-4-303303	HCPK4	BB14-3-303303	HCPK3
30 x 4	30 x 4	90P10	BB14-4-304304	HCPK4	BB14-3-304304	HCPK3
30 x 5	30 x 5	115P10	BB14-4-305305	HCPK4	BB14-3-305305	HCPK3
31 x 3	31 x 3	90P10	BB14-4-313313	HCPK4	BB14-3-313313	HCPK3
31 x 6	31 x 6	150P10	BB14-4-316316	HCPK4	-	-
38 x 3	38 x 3	90P10	BB14-4-383383	HCPK4	-	-
38 x 5	38 x 5	150P10	BB14-4-385385	HCPK4	-	-
38 x 6	38 x 6	200P10	BB14-4-386386	HCPK4	-	-
40 x 3	40 x 3	90P10	BB14-4-403403	HCPK4	-	-
40 x 4	40 x 4	115P10	BB14-4-404404	HCPK4	-	-
40 x 5	40 x 5	150P10	BB14-4-405405	HCPK4	-	-
40 x 6	40 x 6	200P10	BB14-4-406406	HCPK4	-	-
50 x 3	50 x 3	150P10	BB14-5-503503	HCPK5	-	-
50 x 4	50 x 4	200P10	BB14-5-504504	HCPK5	-	-
50 x 5	50 x 5	200P10	BB14-5-505505	HCPK5	-	-
50 x 6	50 x 6	250P10	BB14-5-506506	HCPK5	-	-

**BB41**

<b>A</b> mm x mm	<b>B</b> mm x mm				<b>MINI</b> 	<b>MINI</b> 
20 x 3	20 x 3	65P10	BB41-4-203203	HCPK4	BB41-3-203203	HCPK3
25 x 3	25 x 3	65P10	BB41-4-253253	HCPK4	BB41-3-253253	HCPK3
25 x 4	25 x 4	90P10	BB41-4-254254	HCPK4	BB41-3-254254	HCPK3
25 x 6	25 x 6	115P10	BB41-4-256256	HCPK4	BB41-3-256256	HCPK3
30 x 2	30 x 2	65P10	BB41-4-302302	HCPK4	BB41-3-302302	HCPK3
30 x 3	30 x 3	115P10	BB41-4-303303	HCPK4	BB41-3-303303	HCPK3
30 x 4	30 x 4	115P10	BB41-4-304304	HCPK4	BB41-3-304304	HCPK3
30 x 5	30 x 5	115P10	BB41-4-305305	HCPK4	BB41-3-305305	HCPK3
31 x 3	31 x 3	115P10	BB41-4-313313	HCPK4	BB41-3-313313	HCPK3
31 x 6	31 x 6	115P10	BB41-4-316316	HCPK4	BB41-3-316316	HCPK3
38 x 3	38 x 3	150P10	BB41-4-383383	HCPK4	-	-
38 x 5	38 x 5	150P10	BB41-4-385385	HCPK4	-	-
38 x 6	38 x 6	200P10	BB41-4-386386	HCPK4	-	-
40 x 3	40 x 3	200P10	BB41-4-403403	HCPK4	-	-
40 x 4	40 x 4	200P10	BB41-4-404404	HCPK4	-	-
40 x 5	40 x 5	200P10	BB41-4-405405	HCPK4	-	-
40 x 6	40 x 6	200P10	BB41-4-406406	HCPK4	-	-
50 x 3	50 x 3	200P10	BB41-5-503503	HCPK5	-	-
50 x 4	50 x 4	200P10	BB41-5-504504	HCPK5	-	-
50 x 5	50 x 5	200P10	BB41-5-505505	HCPK5	-	-
50 x 6	50 x 6	200P10	BB41-5-506506	HCPK5	-	-





## BR1

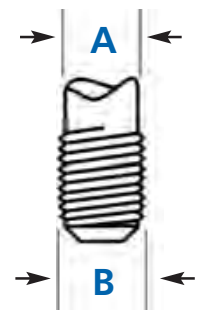
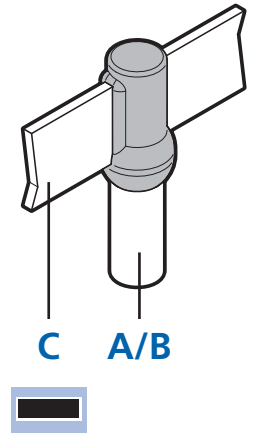
A mm ø	B inches ø	C mm x mm				MINI 	MINI 
12.7	½"	20 x 3	90P10	BR1-4-127203	HCPK4	BR1-3-128203	HCPK3
12.7	½"	25 x 3	90P10	BR1-4-127253	HCPK4	BR1-3-128253	HCPK3
12.7	½"	25 x 4	90P10	BR1-4-127254	HCPK4	BR1-3-128254	HCPK3
12.7	½"	30 x 2	90P10	BR1-4-127302	HCPK4	BR1-3-128302	HCPK3
12.7	½"	30 x 3	90P10	BR1-4-127303	HCPK4	BR1-3-128303	HCPK3
12.7	½"	31 x 3	90P10	BR1-4-127313	HCPK4	BR1-3-128313	HCPK3
12.7	½"	38 x 3	90P10	BR1-4-127383	HCPK4	-	-
12.7	½"	40 x 3	90P10	BR1-4-127403	HCPK4	-	-
12.7	½"	50 x 3	115P10	BR1-4-127503	HCPK4	-	-
12.7	½"	50 x 6	115P10	BR1-4-127506	HCPK4	-	-
14.2	⅝"	20 x 3	90P10	BR1-4-142203	HCPK4	BR1-3-142203	HCPK3
14.2	⅝"	25 x 3	90P10	BR1-4-142253	HCPK4	BR1-3-142253	HCPK3
14.2	⅝"	25 x 4	115P10	BR1-4-142254	HCPK4	BR1-3-142254	HCPK3
14.2	⅝"	25 x 6	115P10	BR1-4-142256	HCPK4	BR1-3-142256	HCPK3
14.2	⅝"	30 x 2	115P10	BR1-4-142302	HCPK4	BR1-3-142302	HCPK3
14.2	⅝"	30 x 3	115P10	BR1-4-142303	HCPK4	BR1-3-142303	HCPK3
14.2	⅝"	30 x 4	150P10	BR1-4-142304	HCPK4	-	-
14.2	⅝"	30 x 5	150P10	BR1-4-142305	HCPK4	-	-
14.2	⅝"	31 x 3	115P10	BR1-4-142313	HCPK4	BR1-3-142313	HCPK3
14.2	⅝"	31 x 6	150P10	BR1-4-142316	HCPK4	-	-
14.2	⅝"	38 x 3	115P10	BR1-4-142383	HCPK4	-	-
14.2	⅝"	38 x 5	150P10	BR1-4-142385	HCPK4	-	-
14.2	⅝"	38 x 6	200P10	BR1-4-142386	HCPK4	-	-
14.2	⅝"	40 x 3	115P10	BR1-4-142403	HCPK4	-	-
14.2	⅝"	40 x 4	150P10	BR1-4-142404	HCPK4	-	-
14.2	⅝"	40 x 5	150P10	BR1-4-142405	HCPK4	-	-
14.2	⅝"	40 x 6	200P10	BR1-4-142406	HCPK4	-	-
14.2	⅝"	50 x 3	150P10	BR1-4-142503	HCPK4	-	-
14.2	⅝"	50 x 4	200P10	BR1-4-142504	HCPK4	-	-
14.2	⅝"	50 x 5	200P10	BR1-4-142505	HCPK4	-	-
14.2	⅝"	50 x 6	200P10	BR1-4-142506	HCPK4	-	-
17.2	¾"	20 x 3	115P10	BR1-4-172203	HCPK4	BR1-3-172203	HCPK3
17.2	¾"	25 x 3	150P10	BR1-4-172253	HCPK4	-	-
17.2	¾"	25 x 4	150P10	BR1-4-172254	HCPK4	-	-
17.2	¾"	25 x 6	200P10	BR1-4-172256	HCPK4	-	-
17.2	¾"	30 x 2	150P10	BR1-4-172302	HCPK4	-	-
17.2	¾"	30 x 3	150P10	BR1-4-172303	HCPK4	-	-
17.2	¾"	30 x 4	250P10	BR1-4-172304	HCPK4	-	-
17.2	¾"	30 x 5	200P10	BR1-4-172305	HCPK4	-	-
17.2	¾"	31 x 3	150P10	BR1-4-172313	HCPK4	-	-
17.2	¾"	31 x 6	250P10	BR1-4-172316	HCPK4	-	-
17.2	¾"	38 x 3	200P10	BR1-4-172383	HCPK4	-	-
17.2	¾"	38 x 5	200P10	BR1-4-172385	HCPK4	-	-
17.2	¾"	38 x 6	2 x 150P10	BR1-5-172386	HCPK5	-	-
17.2	¾"	40 x 3	200P10	BR1-4-172403	HCPK4	-	-
17.2	¾"	40 x 4	200P10	BR1-4-172404	HCPK4	-	-
17.2	¾"	40 x 5	200P10	BR1-4-172405	HCPK4	-	-
17.2	¾"	40 x 6	2 x 150P10	BR1-5-172406	HCPK5	-	-
17.2	¾"	50 x 3	2 x 150P10	BR1-5-172503	HCPK5	-	-
17.2	¾"	50 x 4	2 x 150P10	BR1-5-172504	HCPK5	-	-
17.2	¾"	50 x 5	2 x 150P10	BR1-5-172505	HCPK5	-	-
17.2	¾"	50 x 6	2 x 200P10	BR1-5-172506	HCPK5	-	-

Suitable for connections to copperbond rods – for connections to solid copper and stainless steel rods please contact our sales office.

Threaded portion of copperbond rods must be removed prior to welding.

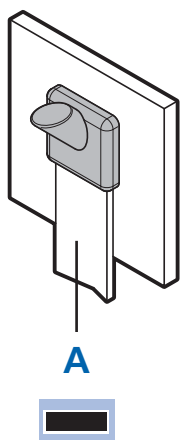
## BR2

A mm ø	B inches ø	C mm x mm				MINI 	MINI 
12.7	½"	20 x 3	90P10	BR2-4-127203	HCPK4	BR2-3-128203	HCPK3
12.7	½"	25 x 3	90P10	BR2-4-127253	HCPK4	BR2-3-128253	HCPK3
12.7	½"	25 x 4	90P10	BR2-4-127254	HCPK4	BR2-3-128254	HCPK3
12.7	½"	30 x 2	90P10	BR2-4-127302	HCPK4	BR2-3-128302	HCPK3
12.7	½"	30 x 3	90P10	BR2-4-127303	HCPK4	BR2-3-128303	HCPK3
12.7	½"	31 x 3	90P10	BR2-4-127313	HCPK4	BR2-3-128313	HCPK3
12.7	½"	38 x 3	90P10	BR2-4-127383	HCPK4	BR2-3-128383	HCPK3
12.7	½"	40 x 3	90P10	BR2-4-127403	HCPK4	BR2-3-128403	HCPK3
12.7	½"	50 x 3	115P10	BR2-4-127503	HCPK4	-	-
14.2	⅝"	20 x 3	90P10	BR2-4-142203	HCPK4	BR2-3-142203	HCPK3
14.2	⅝"	25 x 3	90P10	BR2-4-142253	HCPK4	BR2-3-142253	HCPK3
14.2	⅝"	25 x 4	115P10	BR2-4-142254	HCPK4	BR2-3-142254	HCPK3
14.2	⅝"	25 x 6	150P10	BR2-4-142256	HCPK4	-	-
14.2	⅝"	30 x 2	90P10	BR2-4-142302	HCPK4	BR2-3-142302	HCPK3
14.2	⅝"	30 x 3	115P10	BR2-4-142303	HCPK4	BR2-3-142303	HCPK3
14.2	⅝"	30 x 4	150P10	BR2-4-142304	HCPK4	-	-
14.2	⅝"	30 x 5	150P10	BR2-4-142305	HCPK4	-	-
14.2	⅝"	31 x 3	115P10	BR2-4-142313	HCPK4	BR2-3-142313	HCPK3
14.2	⅝"	31 x 6	150P10	BR2-4-142316	HCPK4	-	-
14.2	⅝"	38 x 3	150P10	BR2-4-142383	HCPK4	-	-
14.2	⅝"	38 x 5	150P10	BR2-4-142385	HCPK4	-	-
14.2	⅝"	38 x 6	200P10	BR2-4-142386	HCPK4	-	-
14.2	⅝"	40 x 3	150P10	BR2-4-142403	HCPK4	-	-
14.2	⅝"	40 x 4	150P10	BR2-4-142404	HCPK4	-	-
14.2	⅝"	40 x 5	150P10	BR2-4-142405	HCPK4	-	-
14.2	⅝"	40 x 6	200P10	BR2-4-142406	HCPK4	-	-
14.2	⅝"	50 x 3	200P10	BR2-4-142503	HCPK4	-	-
14.2	⅝"	50 x 4	200P10	BR2-4-142504	HCPK4	-	-
14.2	⅝"	50 x 5	200P10	BR2-4-142505	HCPK4	-	-
14.2	⅝"	50 x 6	250P10	BR2-4-142506	HCPK4	-	-
17.2	¾"	20 x 3	150P10	BR2-4-172203	HCPK4	-	-
17.2	¾"	25 x 3	150P10	BR2-4-172253	HCPK4	-	-
17.2	¾"	25 x 4	200P10	BR2-4-172254	HCPK4	-	-
17.2	¾"	25 x 6	200P10	BR2-4-172256	HCPK4	-	-
17.2	¾"	30 x 2	150P10	BR2-4-172302	HCPK4	-	-
17.2	¾"	30 x 3	150P10	BR2-4-172303	HCPK4	-	-
17.2	¾"	30 x 4	250P10	BR2-4-172304	HCPK4	-	-
17.2	¾"	30 x 5	200P10	BR2-4-172305	HCPK4	-	-
17.2	¾"	31 x 3	200P10	BR2-4-172313	HCPK4	-	-
17.2	¾"	31 x 6	250P10	BR2-4-172316	HCPK4	-	-
17.2	¾"	38 x 3	200P10	BR2-4-172383	HCPK4	-	-
17.2	¾"	38 x 5	200P10	BR2-4-172385	HCPK4	-	-
17.2	¾"	38 x 6	250P10	BR2-4-172386	HCPK4	-	-
17.2	¾"	40 x 3	200P10	BR2-4-172403	HCPK4	-	-
17.2	¾"	40 x 4	200P10	BR2-4-172404	HCPK4	-	-
17.2	¾"	40 x 5	200P10	BR2-4-172405	HCPK4	-	-
17.2	¾"	40 x 6	250P10	BR2-4-172406	HCPK4	-	-
17.2	¾"	50 x 3	2 x 150P10	BR2-5-172503	HCPK5	-	-
17.2	¾"	50 x 4	2 x 150P10	BR2-5-172504	HCPK5	-	-
17.2	¾"	50 x 5	2 x 150P10	BR2-5-172505	HCPK5	-	-
17.2	¾"	50 x 6	2 x 150P10	BR2-5-172506	HCPK5	-	-



Suitable for connections to copperbond rods – for connections to solid copper and stainless steel rods please contact our sales office.





Threaded portion of copperbond rods must be removed prior to welding.

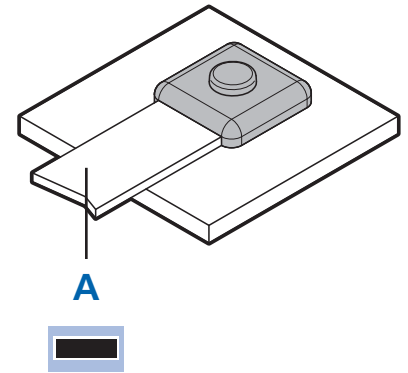


## BS1

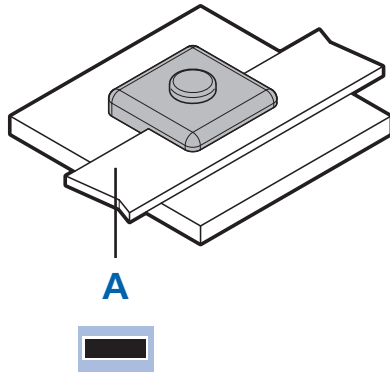
A mm x mm				<b>MINI</b> 	<b>MINI</b> 
20 x 3	65P10	BS1-4-203	HCPK4	BS1-3-203	HCPK3
25 x 3	90P10	BS1-4-253	HCPK4	BS1-3-253	HCPK3
25 x 4	90P10	BS1-4-254	HCPK4	BS1-3-254	HCPK3
25 x 6	150P10	BS1-4-256	HCPK4	-	-
30 x 2	90P10	BS1-4-302	HCPK4	BS1-3-302	HCPK3
30 x 3	90P10	BS1-4-303	HCPK4	BS1-3-303	HCPK3
30 x 4	115P10	BS1-4-304	HCPK4	BS1-3-304	HCPK3
30 x 5	150P10	BS1-4-305	HCPK4	-	-
31 x 3	90P10	BS1-4-313	HCPK4	BS1-3-313	HCPK3
31 x 6	200P10	BS1-4-316	HCPK4	-	-
38 x 3	150P10	BS1-4-383	HCPK4	-	-
38 x 5	200P10	BS1-4-385	HCPK4	-	-
38 x 6	250P10	BS1-4-386	HCPK4	-	-
40 x 3	150P10	BS1-4-403	HCPK4	-	-
40 x 4	200P10	BS1-4-404	HCPK4	-	-
40 x 5	200P10	BS1-4-405	HCPK4	-	-
40 x 6	250P10	BS1-4-406	HCPK4	-	-
50 x 3	200P10	BS1-4-503	HCPK4	-	-
50 x 4	250P10	BS1-4-504	HCPK4	-	-
50 x 5	250P10	BS1-4-505	HCPK4	-	-
50 x 6	2 x 150P10	BS1-5-506	HCPK5	-	-

BS2

A mm x mm				MINI 	MINI 
20 x 3	90P10	BS2-4-203	HCPK4	BS2-3-203	HCPK3
25 x 3	90P10	BS2-4-253	HCPK4	BS2-3-253	HCPK3
25 x 4	90P10	BS2-4-254	HCPK4	BS2-3-254	HCPK3
25 x 6	150P10	BS2-4-256	HCPK4	-	-
30 x 2	115P10	BS2-4-302	HCPK4	BS2-3-302	HCPK3
30 x 3	115P10	BS2-4-303	HCPK4	BS2-3-303	HCPK3
30 x 4	150P10	BS2-4-304	HCPK4	-	-
30 x 5	200P10	BS2-4-305	HCPK4	-	-
31 x 3	115P10	BS2-4-313	HCPK4	BS2-3-313	HCPK3
31 x 6	200P10	BS2-4-316	HCPK4	-	-
38 x 3	150P10	BS2-4-383	HCPK4	-	-
38 x 5	200P10	BS2-4-385	HCPK4	-	-
38 x 6	200P10	BS2-4-386	HCPK4	-	-
40 x 3	115P10	BS2-4-403	HCPK4	-	-
40 x 4	200P10	BS2-4-404	HCPK4	-	-
40 x 5	200P10	BS2-4-405	HCPK4	-	-
40 x 6	250P10	BS2-4-406	HCPK4	-	-
50 x 3	200P10	BS2-4-503	HCPK4	-	-
50 x 4	2 x 150P10	BS2-5-504	HCPK5	-	-
50 x 5	2 x 150P10	BS2-5-505	HCPK5	-	-
50 x 6	2 x 150P10	BS2-5-506	HCPK5	-	-



# Bar to steel surface

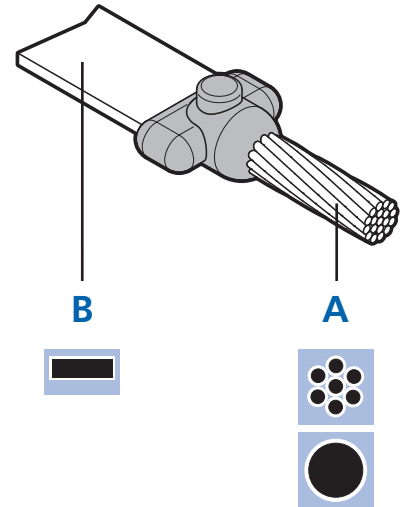


## BS3

A mm x mm				<b>MINI</b> 	<b>MINI</b> 
20 x 3	65P10	BS1-4-203	HCPK4	BS1-3-203	HCPK3
20 x 3	90P10	BS3-4-203	HCPK4	BS3-3-203	HCPK3
25 x 3	115P10	BS3-4-253	HCPK4	BS3-3-253	HCPK3
25 x 4	115P10	BS3-4-254	HCPK4	BS3-3-254	HCPK3
25 x 6	150P10	BS3-4-256	HCPK4	-	-
30 x 2	115P10	BS3-4-302	HCPK4	BS3-3-302	HCPK3
30 x 3	115P10	BS3-4-303	HCPK4	BS3-3-303	HCPK3
30 x 4	150P10	BS3-4-304	HCPK4	-	-
30 x 5	200P10	BS3-4-305	HCPK4	-	-
31 x 3	115P10	BS3-4-313	HCPK4	BS3-3-313	HCPK3
31 x 6	200P10	BS3-4-316	HCPK4	-	-
38 x 3	150P10	BS3-4-383	HCPK4	-	-
38 x 5	200P10	BS3-4-385	HCPK4	-	-
38 x 6	250P10	BS3-4-386	HCPK4	-	-
40 x 3	150P10	BS3-4-403	HCPK4	-	-
40 x 4	200P10	BS3-4-404	HCPK4	-	-
40 x 5	250P10	BS3-4-405	HCPK4	-	-
40 x 6	250P10	BS3-4-406	HCPK4	-	-
50 x 3	250P10	BS3-4-503	HCPK4	-	-
50 x 4	250P10	BS3-4-504	HCPK4	-	-
50 x 5	250P10	BS3-4-505	HCPK4	-	-
50 x 6	250P10	BS3-4-506	HCPK4	-	-

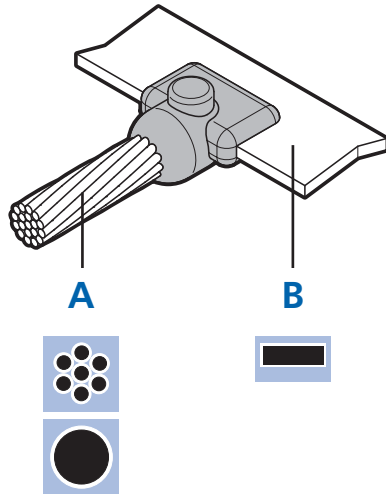
CB1

A mm <sup>2</sup>	B mm x mm				MINI 	MINI 
16*	20 x 3	45P10	CB1-4-16203	HCPK4	CB1-3-16203	HCPK3
16*	25 x 3	45P10	CB1-4-16253	HCPK4	CB1-3-16253	HCPK3
25	20 x 3	32P10	CB1-4-25203	HCPK4	CB1-3-25203	HCPK3
25	25 x 3	45P10	CB1-4-25253	HCPK4	CB1-3-25253	HCPK3
35	20 x 3	45P10	CB1-4-35203	HCPK4	CB1-3-35203	HCPK3
35	25 x 3	45P10	CB1-4-35253	HCPK4	CB1-3-35253	HCPK3
50	20 x 3	45P10	CB1-4-50203	HCPK4	CB1-3-50203	HCPK3
50	25 x 3	65P10	CB1-4-50253	HCPK4	CB1-3-50253	HCPK3
8mm Ø	20 x 3	45P10	CB1-4-85C203	HCPK4	CB1-3-85C203	HCPK3
8mm Ø	25 x 3	65P10	CB1-4-85C253	HCPK4	CB1-3-85C253	HCPK3
70	25 x 3	65P10	CB1-4-70253	HCPK4	CB1-3-70253	HCPK3
70	25 x 4	65P10	CB1-4-70254	HCPK4	CB1-3-70254	HCPK3
70	25 x 6	65P10	CB1-4-70256	HCPK4	CB1-3-70256	HCPK3
10mm Ø	25 x 3	65P10	CB1-4-105C253	HCPK4	CB1-3-105C253	HCPK3
10mm Ø	25 x 4	65P10	CB1-4-105C254	HCPK4	CB1-3-105C254	HCPK3
10mm Ø	25 x 6	65P10	CB1-4-105C256	HCPK4	CB1-3-105C256	HCPK3
95	25 x 4	90P10	CB1-4-95254	HCPK4	CB1-3-95254	HCPK3
95	25 x 6	90P10	CB1-4-95256	HCPK4	CB1-3-95256	HCPK3
120	25 x 6	90P10	CB1-4-120256	HCPK4	CB1-3-120256	HCPK3
120	30 x 5	115P10	CB1-4-120305	HCPK4	CB1-3-120305	HCPK3
150	25 x 6	115P10	CB1-4-150256	HCPK4	CB1-3-150256	HCPK3
150	30 x 5	115P10	CB1-4-150305	HCPK4	CB1-3-150305	HCPK3
150	40 x 5	150P10	CB1-4-150405	HCPK4	-	-
185	31 x 6	150P10	CB1-4-185316	HCPK4	-	-
185	40 x 5	150P10	CB1-4-185405	HCPK4	-	-
185	50 x 5	200P10	CB1-5-185505	HCPK5	-	-
240	50 x 5	200P10	CB1-5-240505	HCPK5	-	-
240	50 x 6	2 x 150P10	CB1-5-240506	HCPK5	-	-
300	50 x 6	2 x 150P10	CB1-5-300506	HCPK5	-	-



Terminal lugs – see page 53

\* 1 x S103








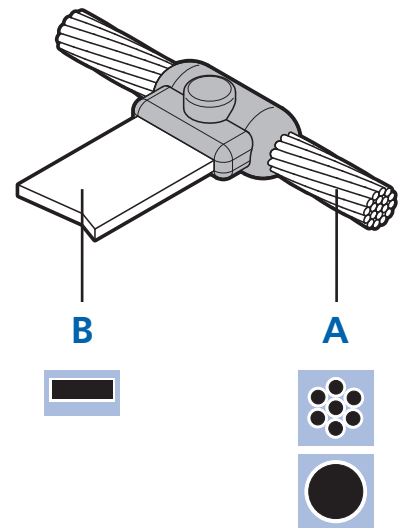
## CB4

A mm <sup>2</sup>	B mm x mm					
16*	20 x 3	45P10	CB4-4-16203	HCPK4	CB4-3-16203	HCPK3
16*	25 x 3	45P10	CB4-4-16253	HCPK4	CB4-3-16253	HCPK3
25	20 x 3	32P10	CB4-4-25203	HCPK4	CB4-3-25203	HCPK3
25	25 x 3	32P10	CB4-4-25253	HCPK4	CB4-3-25253	HCPK3
35	20 x 3	45P10	CB4-4-35203	HCPK4	CB4-3-35203	HCPK3
35	25 x 3	45P10	CB4-4-35253	HCPK4	CB4-3-35253	HCPK3
50	20 x 3	45P10	CB4-4-50203	HCPK4	CB4-3-50203	HCPK3
50	25 x 3	45P10	CB4-4-50253	HCPK4	CB4-3-50253	HCPK3
8mm Ø	20 x 3	45P10	CB4-4-8SC203	HCPK4	CB4-3-8SC203	HCPK3
8mm Ø	25 x 3	45P10	CB4-4-8SC253	HCPK4	CB4-3-8SC253	HCPK3
70	25 x 3	65P10	CB4-4-70253	HCPK4	CB4-3-70253	HCPK3
70	25 x 4	65P10	CB4-4-70254	HCPK4	CB4-3-70254	HCPK3
70	25 x 6	90P10	CB4-4-70256	HCPK4	CB4-3-70256	HCPK3
10mm Ø	25 x 3	65P10	CB4-4-10SC253	HCPK4	CB4-3-10SC253	HCPK3
10mm Ø	25 x 4	65P10	CB4-4-10SC254	HCPK4	CB4-3-10SC254	HCPK3
10mm Ø	25 x 6	90P10	CB4-4-10SC256	HCPK4	CB4-3-10SC256	HCPK3
95	25 x 4	90P10	CB4-4-95254	HCPK4	CB4-3-95254	HCPK3
95	25 x 6	115P10	CB4-4-95256	HCPK4	CB4-3-95256	HCPK3
120	25 x 6	115P10	CB4-4-120256	HCPK4	CB4-3-120256	HCPK3
120	30 x 5	115P10	CB4-4-120305	HCPK4	CB4-3-120305	HCPK3
150	25 x 6	115P10	CB4-4-150256	HCPK4	CB4-3-150256	HCPK3
150	30 x 5	115P10	CB4-4-150305	HCPK4	CB4-3-150305	HCPK3
150	40 x 5	115P10	CB4-4-150405	HCPK4	-	-
185	31 x 6	150P10	CB4-4-185316	HCPK4	-	-
185	40 x 5	150P10	CB4-4-185405	HCPK4	-	-
185	50 x 5	150P10	CB4-4-185505	HCPK4	-	-
240	50 x 5	200P10	CB4-4-240505	HCPK4	-	-
240	50 x 6	250P10	CB4-4-240506	HCPK4	-	-
300	50 x 6	2 x 150P10	CB4-5-300506	HCPK5	-	-

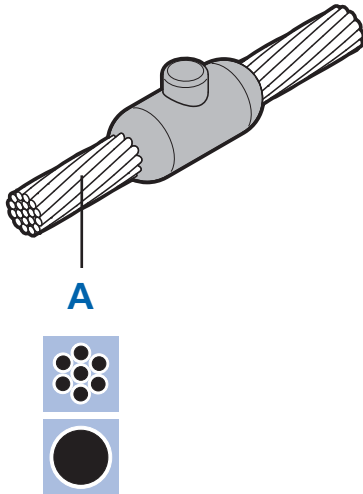
\*  1 x S103

CB5

A mm <sup>2</sup>	B mm x mm				MINI 	MINI 
16*	20 x 3	45P10	CB5-4-16203	HCPK4	CB5-3-16303	HCPK3
16*	25 x 3	65P10	CB5-4-16253	HCPK4	CB5-3-16253	HCPK3
25	20 x 3	45P10	CB5-4-25203	HCPK4	CB5-3-25203	HCPK3
25	25 x 3	65P10	CB5-4-25253	HCPK4	CB5-3-25253	HCPK3
35	20 x 3	45P10	CB5-4-35203	HCPK4	CB5-3-35203	HCPK3
35	25 x 3	65P10	CB5-4-35253	HCPK4	CB5-3-35253	HCPK3
50	20 x 3	65P10	CB5-4-50203	HCPK4	CB5-3-50203	HCPK3
50	25 x 3	65P10	CB5-4-50253	HCPK4	CB5-3-50253	HCPK3
8mm Ø	20 x 3	65P10	CB5-4-85C203	HCPK4	CB5-3-85C203	HCPK3
8mm Ø	25 x 3	65P10	CB5-4-85C253	HCPK4	CB5-3-85C253	HCPK3
70	25 x 3	90P10	CB5-4-70253	HCPK4	CB5-3-70253	HCPK3
70	25 x 4	115P10	CB5-4-70254	HCPK4	CB5-3-70254	HCPK3
70	25 x 6	115P10	CB5-4-70256	HCPK4	CB5-3-70256	HCPK3
10mm Ø	25 x 3	115P10	CB5-4-105C253	HCPK4	CB5-3-105C253	HCPK3
10mm Ø	25 x 4	150P10	CB5-4-105C254	HCPK4	-	-
10mm Ø	25 x 6	150P10	CB5-4-105C256	HCPK4	-	-
95	25 x 4	150P10	CB5-4-95254	HCPK4	-	-
95	25 x 6	150P10	CB5-4-95256	HCPK4	-	-
120	25 x 6	150P10	CB5-4-120256	HCPK4	-	-
120	30 x 5	200P10	CB5-4-120305	HCPK4	-	-
150	25 x 6	200P10	CB5-4-150256	HCPK4	-	-
150	30 x 5	200P10	CB5-4-150305	HCPK4	-	-
150	40 x 5	250P10	CB5-4-150405	HCPK4	-	-
185	31 x 6	250P10	CB5-4-185316	HCPK4	-	-
185	40 x 5	250P10	CB5-4-185405	HCPK4	-	-
185	50 x 5	2 x 150P10	CB5-5-185505	HCPK5	-	-
240	50 x 5	2 x 150P10	CB5-5-240505	HCPK5	-	-
240	50 x 6	2 x 200P10	CB5-5-240506	HCPK5	-	-
300	50 x 6	2 x 250P10	CB5-5-300506	HCPK5	-	-



\*  2 x S103








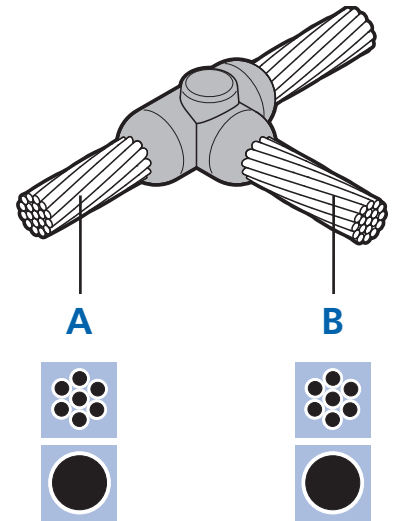
## CC1

A mm <sup>2</sup>				MINI 	MINI 
16*	32P10	CC1-4-16	HCPK4	CC1-3-16	HCPK3
25	32P10	CC1-4-25	HCPK4	CC1-3-25	HCPK3
35	32P10	CC1-4-35	HCPK4	CC1-3-35	HCPK3
50	45P10	CC1-4-50	HCPK4	CC1-3-50	HCPK3
8mm Ø	45P10	CC1-4-8SC	HCPK4	CC1-3-8SC	HCPK3
70	65P10	CC1-4-70	HCPK4	CC1-3-70	HCPK3
10mm Ø	65P10	CC1-4-10SC	HCPK4	CC1-3-10SC	HCPK3
95	90P10	CC1-4-95	HCPK4	CC1-3-95	HCPK3
120	115P10	CC1-4-120	HCPK4	CC1-3-120	HCPK3
150	115P10	CC1-4-150	HCPK4	CC1-3-150	HCPK3
185	150P10	CC1-4-185	HCPK4	-	-
240	200P10	CC1-4-240	HCPK4	-	-
300	250P10	CC1-4-300	HCPK4	-	-
400	2 x 150P10	CC1-5-400	HCPK5	-	-

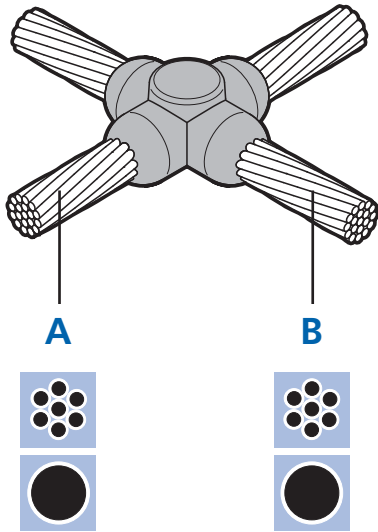
\* 2 x S103

CC2

A mm <sup>2</sup>	B mm <sup>2</sup>				MINI 	MINI 
16*	16*	45P10	CC2-4-1616	HCPK4	CC2-3-1616	HCPK3
25	25	45P10	CC2-4-2525	HCPK4	CC2-3-2525	HCPK3
35	35	45P10	CC2-4-3535	HCPK4	CC2-3-3535	HCPK3
35	25	45P10	CC2-4-3525	HCPK4	CC2-3-3525	HCPK3
8mm Ø	8mm Ø	65P10	CC2-4-88SC	HCPK4	CC2-3-88SC	HCPK3
50	50	90P10	CC2-4-5050	HCPK4	CC2-3-5050	HCPK3
50	35	65P10	CC2-4-5035	HCPK4	CC2-3-5035	HCPK3
50	25	65P10	CC2-4-5025	HCPK4	CC2-3-5025	HCPK3
10mm Ø	10mm Ø	90P10	CC2-4-1010SC	HCPK4	CC2-3-1010SC	HCPK3
70	70	90P10	CC2-4-7070	HCPK4	CC2-3-7070	HCPK3
70	50	90P10	CC2-4-7050	HCPK4	CC2-3-7050	HCPK3
70	35	65P10	CC2-4-7035	HCPK4	CC2-3-7035	HCPK3
70	25	65P10	CC2-4-7025	HCPK4	CC2-3-7025	HCPK3
95	95	115P10	CC2-4-9595	HCPK4	CC2-3-9595	HCPK3
95	70	90P10	CC2-4-9570	HCPK4	CC2-3-9570	HCPK3
95	50	90P10	CC2-4-9550	HCPK4	CC2-3-9550	HCPK3
95	35	90P10	CC2-4-9535	HCPK4	CC2-3-9535	HCPK3
120	120	150P10	CC2-4-120120	HCPK4	-	-
120	95	150P10	CC2-4-12095	HCPK4	-	-
120	70	90P10	CC2-4-12070	HCPK4	CC2-3-12070	HCPK3
120	50	90P10	CC2-4-12050	HCPK4	CC2-3-12050	HCPK3
150	150	200P10	CC2-4-150150	HCPK4	-	-
150	120	150P10	CC2-4-150120	HCPK4	-	-
150	95	150P10	CC2-4-15095	HCPK4	-	-
150	70	90P10	CC2-4-15070	HCPK4	CC2-3-15070	HCPK3
185	185	200P10	CC2-4-185185	HCPK4	-	-
185	150	200P10	CC2-4-185150	HCPK4	-	-
185	120	200P10	CC2-4-185120	HCPK4	-	-
185	95	150P10	CC2-4-18595	HCPK4	-	-
240	240	2 x 150P10	CC2-4-240240	HCPK4	-	-
240	185	200P10	CC2-4-240185	HCPK4	-	-
240	150	200P10	CC2-4-240150	HCPK4	-	-
240	120	200P10	CC2-4-240120	HCPK4	-	-
300	300	2 x 200P10	CC2-5-300300	HCPK5	-	-
300	240	2 x 200P10	CC2-5-300240	HCPK5	-	-
300	185	250P10	CC2-4-300185	HCPK4	-	-



\*  3 x S103








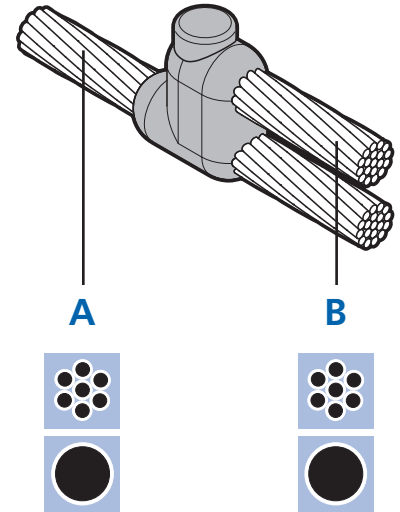
## CC4

A mm <sup>2</sup>	B mm <sup>2</sup>					
16*	16*	65P10	CC4-4-1616	HCPK4	CC4-3-1616	HCPK3
25	25	45P10	CC4-4-2525	HCPK4	CC4-3-2525	HCPK3
35	35	65P10	CC4-4-3535	HCPK4	CC4-3-3535	HCPK3
35	25	65P10	CC4-4-3525	HCPK4	CC4-3-3525	HCPK3
8mm Ø	8mm Ø	90P10	CC4-4-88SC	HCPK4	CC4-3-88SC	HCPK3
50	50	90P10	CC4-4-5050	HCPK4	CC4-3-5050	HCPK3
50	35	90P10	CC4-4-5035	HCPK4	CC4-3-5035	HCPK3
50	25	90P10	CC4-4-5025	HCPK4	CC4-3-5025	HCPK3
10mm Ø	10mm Ø	115P10	CC4-4-1010SC	HCPK4	CC4-3-1010SC	HCPK3
70	70	115P10	CC4-4-7070	HCPK4	CC4-3-7070	HCPK3
70	50	115P10	CC4-4-7050	HCPK4	CC4-3-7050	HCPK3
70	35	115P10	CC4-4-7035	HCPK4	CC4-3-7035	HCPK3
70	25	115P10	CC4-4-7025	HCPK4	CC4-3-7025	HCPK3
95	95	150P10	CC4-4-9595	HCPK4	-	-
95	70	150P10	CC4-4-9570	HCPK4	-	-
95	50	115P10	CC4-4-9550	HCPK4	-	-
95	35	115P10	CC4-4-9535	HCPK4	-	-
120	120	200P10	CC4-4-120120	HCPK4	-	-
120	95	200P10	CC4-4-12095	HCPK4	-	-
120	70	150P10	CC4-4-12070	HCPK4	-	-
120	50	150P10	CC4-4-12050	HCPK4	-	-
150	150	250P10	CC4-4-150150	HCPK4	-	-
150	120	250P10	CC4-4-150120	HCPK4	-	-
150	95	200P10	CC4-4-15095	HCPK4	-	-
150	70	150P10	CC4-4-15070	HCPK4	-	-
185	185	2 x 150P10	CC4-4-185185	HCPK4	-	-
185	150	250P10	CC4-4-185150	HCPK4	-	-
185	120	250P10	CC4-4-185120	HCPK4	-	-
185	95	200P10	CC4-4-18595	HCPK4	-	-
185	70	200P10	CC4-4-18570	HCPK4	-	-
240	240	2 x 250P10	CC4-5-240240	HCPK5	-	-
240	185	2 x 200P10	CC4-5-240185	HCPK5	-	-
240	150	2 x 200P10	CC4-5-240150	HCPK5	-	-
240	120	2 x 150P10	CC4-5-240120	HCPK5	-	-

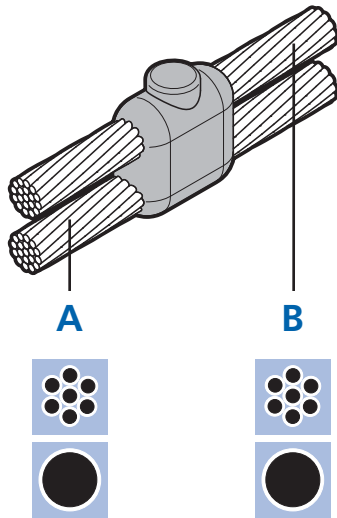
\*  4 x S103

CC6






A mm <sup>2</sup>	B mm <sup>2</sup>				MINI 	MINI 
16*	16*	65P10	CC6-4-1616	HCPK4	CC6-3-1616	HCPK3
25	25	45P10	CC6-4-2525	HCPK4	CC6-3-2525	HCPK3
35	35	65P10	CC6-4-3535	HCPK4	CC6-3-3535	HCPK3
35	25	65P10	CC6-4-3525	HCPK4	CC6-3-3525	HCPK3
50	50	90P10	CC6-4-5050	HCPK4	CC6-3-5050	HCPK3
50	35	65P10	CC6-4-5035	HCPK4	CC6-3-5035	HCPK3
50	25	65P10	CC6-4-5025	HCPK4	CC6-3-5025	HCPK3
70	70	115P10	CC6-4-7070	HCPK4	CC6-3-7070	HCPK3
70	50	115P10	CC6-4-7050	HCPK4	CC6-3-7050	HCPK3
70	35	90P10	CC6-4-7035	HCPK4	CC6-3-7035	HCPK3
70	25	90P10	CC6-4-7025	HCPK4	CC6-3-7025	HCPK3
95	95	150P10	CC6-4-9595	HCPK4	-	-
95	70	115P10	CC6-4-9570	HCPK4	CC6-3-9570	HCPK3
95	50	115P10	CC6-4-9550	HCPK4	CC6-3-9550	HCPK3
95	35	115P10	CC6-4-9535	HCPK4	CC6-3-9535	HCPK3
120	120	200P10	CC6-4-120120	HCPK4	-	-
120	95	200P10	CC6-4-12095	HCPK4	-	-
120	70	150P10	CC6-4-12070	HCPK4	-	-
120	50	115P10	CC6-4-12050	HCPK4	CC6-3-12050	HCPK3



\*  3 x S103






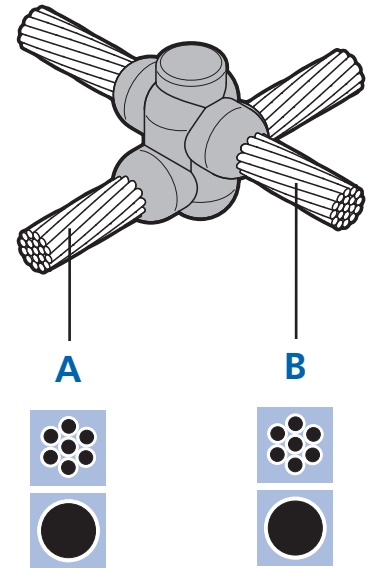
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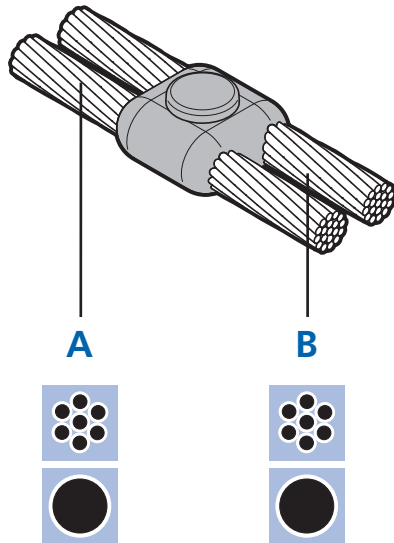
A mm <sup>2</sup>	B mm <sup>2</sup>					
16*	16*	65P10	CC7-4-1616	HCPK4	CC7-3-1616	HCPK3
25	25	45P10	CC7-4-2525	HCPK4	CC7-3-2525	HCPK3
35	35	65P10	CC7-4-3535	HCPK4	CC7-3-3535	HCPK3
35	25	65P10	CC7-4-3525	HCPK4	CC7-3-3525	HCPK3
8mm Ø	8mm Ø	90P10	CC7-4-88SC	HCPK4	CC7-3-88SC	HCPK3
50	50	90P10	CC7-4-5050	HCPK4	CC7-3-5050	HCPK3
50	35	90P10	CC7-4-5035	HCPK4	CC7-3-5035	HCPK3
50	25	65P10	CC7-4-5025	HCPK4	CC7-3-5025	HCPK3
10mm Ø	10mm Ø	115P10	CC7-4-1010SC	HCPK4	CC7-3-1010SC	HCPK3
70	70	115P10	CC7-4-7070	HCPK4	CC7-3-7070	HCPK3
70	50	115P10	CC7-4-7050	HCPK4	CC7-3-7050	HCPK3
70	35	90P10	CC7-4-7035	HCPK4	CC7-3-7035	HCPK3
70	25	90P10	CC7-4-7025	HCPK4	CC7-3-7025	HCPK3
95	95	150P10	CC7-4-9595	HCPK4	-	-
95	70	115P10	CC7-4-9570	HCPK4	CC7-3-9570	HCPK3
95	50	115P10	CC7-4-9550	HCPK4	CC7-3-9550	HCPK3
95	35	115P10	CC7-4-9535	HCPK4	CC7-3-9535	HCPK3
120	120	200P10	CC7-4-120120	HCPK4	-	-
120	95	200P10	CC7-4-12095	HCPK4	-	-
120	70	150P10	CC7-4-12070	HCPK4	-	-
120	50	150P10	CC7-4-12050	HCPK4	-	-
150	150	2 x 150P10	CC7-5-150150	HCPK5	-	-
150	120	250P10	CC7-4-150120	HCPK4	-	-
150	95	200P10	CC7-4-15095	HCPK4	-	-
150	70	150P10	CC7-4-15070	HCPK4	-	-
185	185	2 x 150P10	CC7-5-185185	HCPK5	-	-
185	150	2 x 150P10	CC7-5-185150	HCPK5	-	-
185	120	250P10	CC7-4-185120	HCPK4	-	-
185	95	200P10	CC7-4-18595	HCPK4	-	-
240	240	2 x 200P10	CC7-5-240240	HCPK5	-	-
240	185	2 x 200P10	CC7-5-240185	HCPK5	-	-
240	150	2 x 150P10	CC7-5-240150	HCPK5	-	-
240	120	250P10	CC7-4-240120	HCPK4	-	-
300	300	2 x 250P10	CC7-5-300300	HCPK5	-	-
300	240	2 x 250P10	CC7-5-300240	HCPK5	-	-
300	185	2 x 200P10	CC7-5-300185	HCPK5	-	-
300	150	2 x 150P10	CC7-5-300150	HCPK5	-	-

\*  4 x S103






CC11

A mm <sup>2</sup>	B mm <sup>2</sup>			
50	50	150P10	CC11-7-5050	HCPK7
70	70	200P10	CC11-7-7070	HCPK7
95	95	250P10	CC11-7-9595	HCPK7
120	120	2 x 150P10	CC11-7-120120	HCPK7
150	150	2 x 200P10	CC11-8-150150	HCPK8
185	185	2 x 250P10	CC11-8-185185	HCPK8
240	240	3 x 250P10	CC11-8-240240	HCPK8
8mm Ø	8mm Ø	150P10	CC11-7-8SC8SC	HCPK7
10mm Ø	10mm Ø	150P10	CC11-7-1010SC	HCPK7










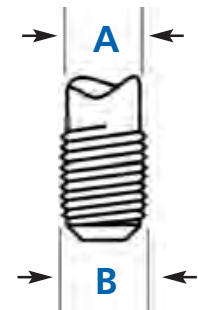
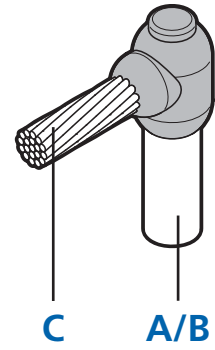
## CC14

A mm <sup>2</sup>	B mm <sup>2</sup>					
16*	16*	65P10	CC14-4-1616	HCPK4	CC14-3-1616	HCPK3
25	25	45P10	CC14-4-2525	HCPK4	CC14-3-2525	HCPK3
35	35	65P10	CC14-4-3535	HCPK4	CC14-3-3535	HCPK3
35	25	65P10	CC14-4-3525	HCPK4	CC14-3-3525	HCPK3
8mm Ø	8mm Ø	90P10	CC14-4-88SC	HCPK4	CC14-3-88SC	HCPK3
50	50	90P10	CC14-4-5050	HCPK4	CC14-3-5050	HCPK3
50	35	90P10	CC14-4-5035	HCPK4	CC14-3-5035	HCPK3
50	25	90P10	CC14-4-5025	HCPK4	CC14-3-5025	HCPK3
10mm Ø	10mm Ø	115P10	CC14-4-1010SC	HCPK4	CC14-3-1010SC	HCPK3
70	70	115P10	CC14-4-7070	HCPK4	CC14-3-7070	HCPK3
70	50	115P10	CC14-4-7050	HCPK4	CC14-3-7050	HCPK3
70	35	90P10	CC14-4-7035	HCPK4	CC14-3-7035	HCPK3
70	25	90P10	CC14-4-7025	HCPK4	CC14-3-7025	HCPK3
95	95	150P10	CC14-4-9595	HCPK4	-	-
95	70	150P10	CC14-4-9570	HCPK4	-	-
95	50	150P10	CC14-4-9550	HCPK4	-	-
95	35	115P10	CC14-4-9535	HCPK4	CC14-3-9535	HCPK3
120	120	200P10	CC14-4-120120	HCPK4	-	-
120	95	200P10	CC14-4-12095	HCPK4	-	-
120	70	200P10	CC14-4-12070	HCPK4	-	-
120	50	150P10	CC14-4-12050	HCPK4	-	-

\*  4 x S103

CR1

A mm ø	B inches ø	C mm <sup>2</sup>				MINI 	MINI 
12.7	½"	16*	65P10	CR1-4-12716	HCPK4	CR1-3-12716	HCPK3
12.7	½"	25	65P10	CR1-4-12725	HCPK4	CR1-3-12725	HCPK3
12.7	½"	35	65P10	CR1-4-12735	HCPK4	CR1-3-12735	HCPK3
12.7	½"	50	65P10	CR1-4-12750	HCPK4	CR1-3-12750	HCPK3
12.7	½"	8mm Ø	65P10	CR1-4-1278SC	HCPK4	CR1-3-1278SC	HCPK3
12.7	½"	70	90P10	CR1-4-12770	HCPK4	CR1-3-12770	HCPK3
12.7	½"	95	90P10	CR1-4-12795	HCPK4	CR1-3-12795	HCPK3
12.7	½"	120	90P10	CR1-4-127120	HCPK4	CR1-3-127120	HCPK3
14.2	⅝"	16*	65P10	CR1-4-14216	HCPK4	CR1-3-14216	HCPK3
14.2	⅝"	25	65P10	CR1-4-14225	HCPK4	CR1-3-14225	HCPK3
14.2	⅝"	35	65P10	CR1-4-14235	HCPK4	CR1-3-14235	HCPK3
14.2	⅝"	50	90P10	CR1-4-14250	HCPK4	CR1-3-14250	HCPK3
14.2	⅝"	8mm Ø	90P10	CR1-4-1428SC	HCPK4	CR1-3-1428SC	HCPK3
14.2	⅝"	70	90P10	CR1-4-14270	HCPK4	CR1-3-14270	HCPK3
14.2	⅝"	95	90P10	CR1-4-14295	HCPK4	CR1-3-14295	HCPK3
14.2	⅝"	120	90P10	CR1-4-142120	HCPK4	CR1-3-142120	HCPK3
14.2	⅝"	150	115P10	CR1-4-142150	HCPK4	CR1-3-142150	HCPK3
14.2	⅝"	185	115P10	CR1-4-142185	HCPK4	CR1-3-142185	HCKP3
14.2	⅝"	240	150P10	CR1-4-142240	HCPK4	-	-
17.2	¾"	16*	65P10	CR1-4-17216	HCPK4	CR1-3-17216	HCPK3
17.2	¾"	25	65P10	CR1-4-17225	HCPK4	CR1-3-17225	HCPK3
17.2	¾"	35	65P10	CR1-4-17235	HCPK4	CR1-3-17235	HCPK3
17.2	¾"	50	90P10	CR1-4-17250	HCPK4	CR1-3-17250	HCPK3
17.2	¾"	8mm Ø	90P10	CR1-4-1728SC	HCPK4	CR1-3-1728SC	HCPK3
17.2	¾"	70	90P10	CR1-4-17270	HCPK4	CR1-3-17270	HCPK3
17.2	¾"	95	90P10	CR1-4-17295	HCPK4	CR1-3-17295	HCPK3
17.2	¾"	120	90P10	CR1-4-172120	HCPK4	CR1-3-172120	HCPK3
17.2	¾"	150	115P10	CR1-4-172150	HCPK4	CR1-3-172150	HCPK3
17.2	¾"	185	115P10	CR1-4-172185	HCPK4	CR1-3-172185	HCPK3
17.2	¾"	240	150P10	CR1-4-172240	HCPK4	-	-
17.2	¾"	300	200P10	CR1-4-172300	HCPK4	-	-

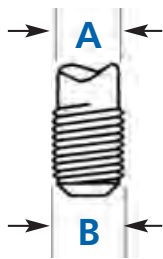
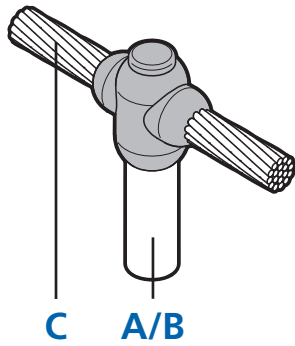


Suitable for connections to copperbond rods –  
for connections to solid copper and stainless steel rods  
please contact our sales office.



Threaded portion of copperbond rods must be removed  
prior to welding.

# Cable to earth rod



## CR2




A mm ø	B inches ø	C mm <sup>2</sup>				MINI 	MINI 
12.7	½"	16*	90P10	CR2-4-12716	HCPK4	CR2-3-12716	HCPK3
12.7	½"	25	90P10	CR2-4-12725	HCPK4	CR2-3-12725	HCPK3
12.7	½"	35	90P10	CR2-4-12735	HCPK4	CR2-3-12735	HCPK3
12.7	½"	50	90P10	CR2-4-12750	HCPK4	CR2-3-12750	HCPK3
12.7	½"	8mm Ø	90P10	CR2-4-1278SC	HCPK4	CR2-3-1278SC	HCPK3
12.7	½"	70	90P10	CR2-4-12770	HCPK4	CR2-3-12770	HCPK3
12.7	½"	95	115P10	CR2-4-12795	HCPK4	CR2-3-12795	HCPK3
12.7	½"	120	150P10	CR2-4-127120	HCPK4	-	-
14.2	⅝"	16*	90P10	CR2-4-14216	HCPK4	CR2-3-14216	HCPK3
14.2	⅝"	25	90P10	CR2-4-14225	HCPK4	CR2-3-14225	HCPK3
14.2	⅝"	35	90P10	CR2-4-14235	HCPK4	CR2-3-14235	HCPK3
14.2	⅝"	50	90P10	CR2-4-14250	HCPK4	CR2-3-14250	HCPK3
14.2	⅝"	8mm Ø	90P10	CR2-4-1428SC	HCPK4	CR2-3-1428SC	HCPK3
14.2	⅝"	70	115P10	CR2-4-14270	HCPK4	CR2-3-14270	HCPK3
14.2	⅝"	95	115P10	CR2-4-14295	HCPK4	CR2-3-14295	HCPK3
14.2	⅝"	120	150P10	CR2-4-142120	HCPK4	-	-
14.2	⅝"	150	200P10	CR2-4-142150	HCPK4	-	-
14.2	⅝"	185	200P10	CR2-4-142185	HCPK4	-	-
14.2	⅝"	240	250P10	CR2-4-142240	HCPK4	-	-
17.2	¾"	16*	90P10	CR2-4-17216	HCPK4	CR2-3-17216	HCPK3
17.2	¾"	25	90P10	CR2-4-17225	HCPK4	CR2-3-17225	HCPK3
17.2	¾"	35	90P10	CR2-4-17235	HCPK4	CR2-3-17235	HCPK3
17.2	¾"	50	115P10	CR2-4-17250	HCPK4	CR2-3-17250	HCPK3
17.2	¾"	8mm Ø	115P10	CR2-4-1728SC	HCPK4	CR2-3-1728SC	HCPK3
17.2	¾"	70	115P10	CR2-4-17270	HCPK4	CR2-3-17270	HCPK3
17.2	¾"	95	115P10	CR2-4-17295	HCPK4	CR2-3-17295	HCPK3
17.2	¾"	120	150P10	CR2-4-172120	HCPK4	-	-
17.2	¾"	150	200P10	CR2-4-172150	HCPK4	-	-
17.2	¾"	185	200P10	CR2-4-172185	HCPK4	-	-
17.2	¾"	240	250P10	CR2-4-172240	HCPK4	-	-
17.2	¾"	300	2 x 150P10	CR2-5-172300	HCPK5	-	-

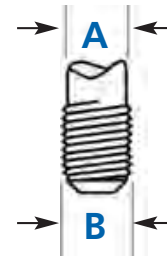
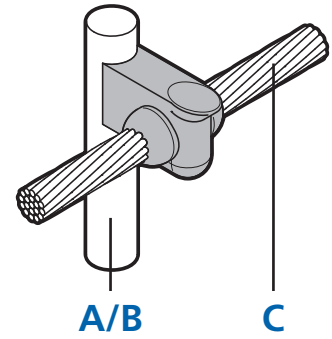
Suitable for connections to copperbond rods –  
for connections to solid copper and stainless steel rods  
please contact our sales office.

\* 2 x S103

Threaded portion of copperbond rods must be removed  
prior to welding.

CR3

A mm ø	B inches ø	C mm <sup>2</sup>			
12.7	½"	16*	90P10	CR3-9-12716	HCPK4
12.7	½"	25	90P10	CR3-9-12725	HCPK4
12.7	½"	35	90P10	CR3-9-12735	HCPK4
12.7	½"	50	115P10	CR3-9-12750	HCPK4
12.7	½"	8mm Ø	115P10	CR3-9-1278SC	HCPK4
12.7	½"	70	115P10	CR3-9-12770	HCPK4
12.7	½"	95	115P10	CR3-9-12795	HCPK4
12.7	½"	120	150P10	CR3-9-127120	HCPK4
14.2	⅝"	16*	90P10	CR3-9-14216	HCPK4
14.2	⅝"	25	90P10	CR3-9-14225	HCPK4
14.2	⅝"	35	90P10	CR3-9-14235	HCPK4
14.2	⅝"	50	115P10	CR3-9-14250	HCPK4
14.2	⅝"	8mm Ø	115P10	CR3-9-1428SC	HCPK4
14.2	⅝"	70	115P10	CR3-9-14270	HCPK4
14.2	⅝"	95	115P10	CR3-9-14295	HCPK4
14.2	⅝"	120	150P10	CR3-9-142120	HCPK4
14.2	⅝"	150	150P10	CR3-9-142150	HCPK4
14.2	⅝"	185	250P10	CR3-9-142185	HCPK4
14.2	⅝"	240	2 x 200P10	CR3-10-142240	HCPK5
17.2	¾"	16*	90P10	CR3-9-17216	HCPK4
17.2	¾"	25	90P10	CR3-9-17225	HCPK4
17.2	¾"	35	90P10	CR3-9-17235	HCPK4
17.2	¾"	50	115P10	CR3-9-17250	HCPK4
17.2	¾"	8mm Ø	115P10	CR3-9-1728SC	HCPK4
17.2	¾"	70	150P10	CR3-9-17270	HCPK4
17.2	¾"	95	150P10	CR3-9-17295	HCPK4
17.2	¾"	120	200P10	CR3-9-172120	HCPK4
17.2	¾"	150	250P10	CR3-9-172150	HCPK4
17.2	¾"	185	2 x 200P10	CR3-10-172185	HCPK5
17.2	¾"	240	2 x 250P10	CR3-10-172240	HCPK5
17.2	¾"	300	3 x 200P10	CR3-10-172300	HCPK5



Suitable for connections to copperbond rods –  
for connections to solid copper and stainless steel rods  
please contact our sales office.



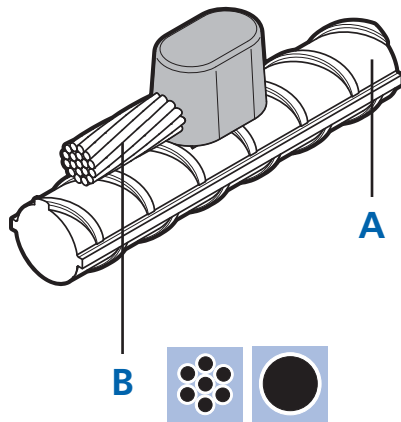
Threaded portion of copperbond rods must be removed  
prior to welding.

Frames





The CR3 joint type utilises a 3 part mould. For this reason, a Frame is required in  
addition to the standard Handle Clamp.

Description	Part No.
Frame for use with Handle Clamp HCPK4	F1-FU
Frame for use with Handle Clamp HCPK5	F2-FU

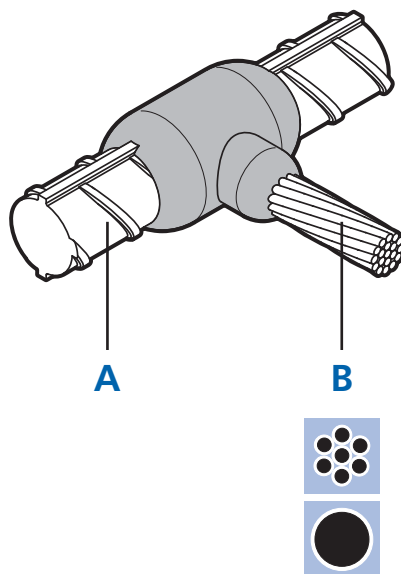
# Cable to reinforcing bar






## CRE1



A mm ø	B mm <sup>2</sup>				
10 – 40	16*	45P10	CRE1-3-16	HCPK3-B	PACK-A
10 – 40	25	45P10	CRE1-3-25	HCPK3-B	PACK-A
10 – 40	35	45P10	CRE1-3-35	HCPK3-B	PACK-A
10 – 40	8mm Ø	90P10	CRE1-3-8SC	HCPK3-B	PACK-A
10 – 40	50	90P10	CRE1-3-50	HCPK3-B	PACK-A
10 – 40	10mm Ø	90P10	CRE1-3-10SC	HCPK3-B	PACK-A
10 – 40	70	90P10	CRE1-3-70	HCPK3-B	PACK-A
10 – 40	95	90P10	CRE1-3-95	HCPK3-B	PACK-A
10 – 40	120	90P10	CRE1-3-120	HCPK3-B	PACK-A

\*  1 x S103






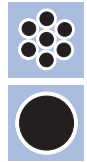
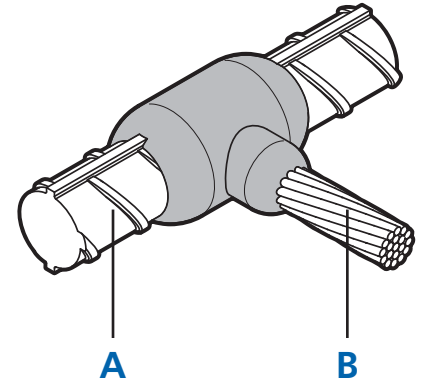
## CRE2

A mm ø	B mm <sup>2</sup>			
16	16*	90P10	CRE2-4-16R16	HCPK4
16	25	90P10	CRE2-4-16R25	HCPK4
16	35	90P10	CRE2-4-16R35	HCPK4
16	8mm Ø	115P10	CRE2-4-16R8SC	HCPK4
16	50	115P10	CRE2-4-16R50	HCPK4
16	10mm Ø	115P10	CRE2-4-16R10SC	HCPK4
16	70	115P10	CRE2-4-16R70	HCPK4
16	95	150P10	CRE2-4-16R95	HCPK4
16	120	150P10	CRE2-4-16R120	HCPK4
16	150	200P10	CRE2-4-16R150	HCPK4
16	185	200P10	CRE2-4-16R185	HCPK4
16	240	250P10	CRE2-4-16R240	HCPK4
16	300	2 x 150P10	CRE2-4-16R300	HCPK4
18	16*	115P10	CRE2-4-18R16	HCPK4
18	25	115P10	CRE2-4-18R25	HCPK4
18	35	115P10	CRE2-4-18R35	HCPK4
18	8mm Ø	150P10	CRE2-4-18R8SC	HCPK4
18	50	150P10	CRE2-4-18R50	HCPK4
18	10mm Ø	150P10	CRE2-4-18R10SC	HCPK4
18	70	150P10	CRE2-4-18R70	HCPK4
18	95	150P10	CRE2-4-18R95	HCPK4
18	120	200P10	CRE2-4-18R120	HCPK4
18	150	200P10	CRE2-4-18R150	HCPK4
18	185	200P10	CRE2-4-18R185	HCPK4
18	240	250P10	CRE2-4-18R240	HCPK4
18	300	2 x 150P10	CRE2-4-18R300	HCPK4
20	16*	115P10	CRE2-4-20R16	HCPK4
20	25	115P10	CRE2-4-20R25	HCPK4
20	35	115P10	CRE2-4-20R35	HCPK4
20	8mm Ø	150P10	CRE2-4-20R8SC	HCPK4
20	50	150P10	CRE2-4-20R50	HCPK4
20	10mm Ø	150P10	CRE2-4-20R10SC	HCPK4
20	70	200P10	CRE2-4-20R70	HCPK4
20	95	200P10	CRE2-4-20R95	HCPK4
20	120	200P10	CRE2-4-20R120	HCPK4
20	150	200P10	CRE2-4-20R150	HCPK4
20	185	250P10	CRE2-4-20R185	HCPK4





  
\*  1 x S103

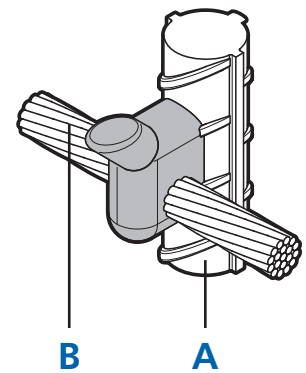
CRE2 continued

A mm ø	B mm <sup>2</sup>			
20	240	2 x 150P10	CRE2-4-20R240	HCPK4
20	300	2 x 200P10	CRE2-5-20R300	HCPK5
25	16*	200P10	CRE2-4-25R16	HCPK4
25	25	200P10	CRE2-4-25R25	HCPK4
25	35	200P10	CRE2-4-25R35	HCPK4
25	8mm ø	200P10	CRE2-4-25R8SC	HCPK4
25	50	200P10	CRE2-4-25R50	HCPK4
25	10mm ø	250P10	CRE2-4-25R10SC	HCPK4
25	70	250P10	CRE2-4-25R70	HCPK4
25	95	250P10	CRE2-4-25R95	HCPK4
25	120	250P10	CRE2-4-25R120	HCPK4
25	150	2 x 150P10	CRE2-4-25R150	HCPK4
25	185	2 x 150P10	CRE2-5-25R185	HCPK5
25	240	2 x 200P10	CRE2-5-25R240	HCPK5
25	300	2 x 200P10	CRE2-5-25R300	HCPK5
30	16*	250P10	CRE2-4-30R16	HCPK4
30	25	250P10	CRE2-4-30R25	HCPK4
30	35	250P10	CRE2-4-30R35	HCPK4
30	8mm ø	2 x 150P10	CRE2-4-30R8SC	HCPK4
30	50	2 x 150P10	CRE2-4-30R50	HCPK4
30	10mm ø	2 x 150P10	CRE2-4-30R10SC	HCPK4
30	70	2 x 150P10	CRE2-4-30R70	HCPK4
30	95	2 x 150P10	CRE2-5-30R95	HCPK5
30	120	2 x 200P10	CRE2-5-30R120	HCPK5
30	150	2 x 200P10	CRE2-5-30R150	HCPK5
30	185	2 x 250P10	CRE2-5-30R185	HCPK5
30	240	3 x 200P10	CRE2-5-30R240	HCPK5
30	300	3 x 200P10	CRE2-5-30R300	HCPK5

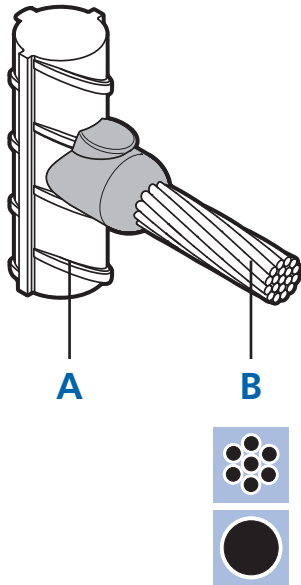


CRE3





A mm ø	B mm <sup>2</sup>				
10 – 40	16*	45P10	CRE3-3-16	HCPK3-A	PACK-A
10 – 40	25	45P10	CRE3-3-25	HCPK3-A	PACK-A
10 – 40	35	45P10	CRE3-3-35	HCPK3-A	PACK-A
10 – 40	8mm ø	90P10	CRE3-3-8SC	HCPK3-A	PACK-A
10 – 40	50	90P10	CRE3-3-50	HCPK3-A	PACK-A
10 – 40	10mm ø	90P10	CRE3-3-10SC	HCPK3-A	PACK-A
10 – 40	70	90P10	CRE3-3-70	HCPK3-A	PACK-A
10 – 40	95	90P10	CRE3-3-95	HCPK3-A	PACK-A
10 – 40	120	90P10	CRE3-3-120	HCPK3-A	PACK-A



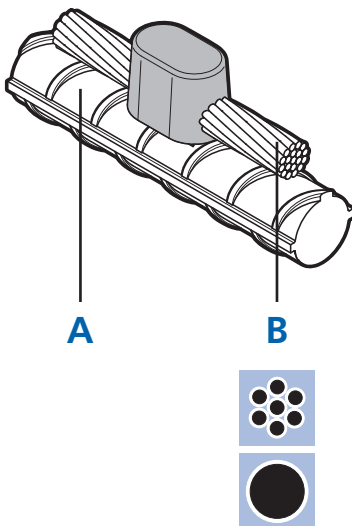
# Cable to reinforcing bar







## CRE6

A mm ø	B mm <sup>2</sup>				
10 – 40	16*	45P10	CRE6-3-16	HCPK3-A	PACK-A
10 – 40	25	45P10	CRE6-3-25	HCPK3-A	PACK-A
10 – 40	35	45P10	CRE6-3-35	HCPK3-A	PACK-A
10 – 40	8mm Ø	65P10	CRE6-3-8SC	HCPK3-A	PACK-A
10 – 40	50	65P10	CRE6-3-50	HCPK3-A	PACK-A
10 – 40	10mm Ø	90P10	CRE6-3-10SC	HCPK3-A	PACK-A
10 – 40	70	90P10	CRE6-3-70	HCPK3-A	PACK-A
10 – 40	95	90P10	CRE6-4-95	HCPK3-A	PACK-A
10 – 40	120	115P10	CRE6-4-120	HCPK3-A	PACK-A

\*  1 x S103






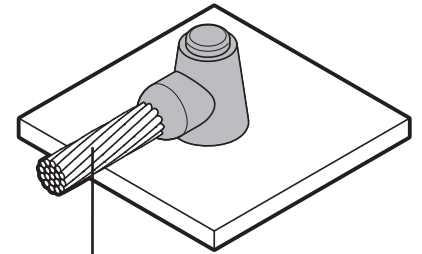
## CRE17

A mm ø	B mm <sup>2</sup>				
10 – 40	16*	45P10	CRE17-3-16	HCPK3-B	PACK-A
10 – 40	25	45P10	CRE17-3-25	HCPK3-B	PACK-A
10 – 40	35	45P10	CRE17-3-35	HCPK3-B	PACK-A
10 – 40	8mm Ø	90P10	CRE17-3-8SC	HCPK3-B	PACK-A
10 – 40	50	90P10	CRE17-3-50	HCPK3-B	PACK-A
10 – 40	10mm Ø	90P10	CRE17-3-10SC	HCPK3-B	PACK-A
10 – 40	70	90P10	CRE17-3-70	HCPK3-B	PACK-A
10 – 40	95	90P10	CRE17-3-95	HCPK3-B	PACK-A
10 – 40	120	90P10	CRE17-3-120	HCPK3-B	PACK-A

\*  2 x S103

CS1




A mm <sup>2</sup>			
16	USE CS8 PAGE 45		
25			
35			
8mm Ø	90P10	CS1-4-8SC	HCPK4
50	90P10	CS1-4-50-FU	HCPK4
10mm Ø	90P10	CS1-4-10SC	HCPK4
70	90P10	CS1-4-70	HCPK4
95	115P10	CS1-4-95	HCPK4
120	115P10	CS1-4-120	HCPK4
150	150P10	CS1-4-150	HCPK4
185	200P10	CS1-4-185	HCPK4
240	200P10	CS1-4-240	HCPK4
300	250P10	CS1-4-300	HCPK4

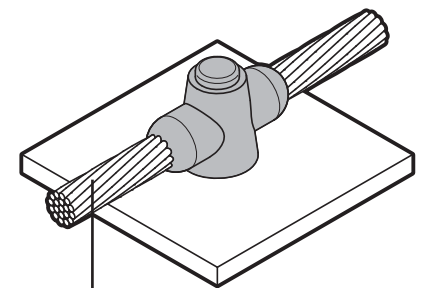


A



CS2

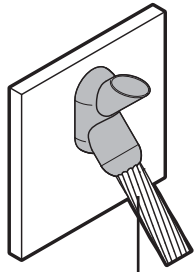
A mm <sup>2</sup>			
16	USE CS9 PAGE 45		
25			
35			
8mm Ø	90P10	CS2-4-8SC	HCPK4
50	90P10	CS2-4-50	HCPK4
10mm Ø	115P10	CS2-4-10SC	HCPK4
70	115P10	CS2-4-70	HCPK4
95	115P10	CS2-4-95	HCPK4
120	150P10	CS2-4-120	HCPK4
150	200P10	CS2-4-150	HCPK4
185	250P10	CS2-4-185	HCPK4
240	2 x 150P10	CS2-5-240	HCPK5
300	2 x 200P10	CS2-5-300	HCPK5



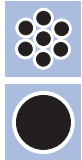
A



# Cable to steel surface and pipe

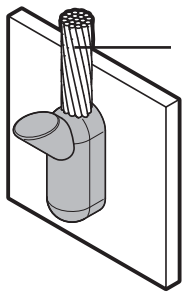


A



## CS3

A mm <sup>2</sup>				MINI 	MINI 
16*	45P10	CS3-4-16	HCPK4	CS3-3-16	HCPK3
25	45P10	CS3-4-25	HCPK4	CS3-3-25	HCPK3
35	45P10	CS3-4-35	HCPK4	CS3-3-35	HCPK3
8mm Ø	65P10	CS3-4-8SC	HCPK4	CS3-3-8SC	HCPK3
50	65P10	CS3-4-50	HCPK4	CS3-3-50	HCPK3
10mm Ø	90P10	CS3-4-10SC	HCPK4	CS3-3-10SC	HCPK3
70	90P10	CS3-4-70	HCPK4	CS3-3-70	HCPK3
95	115P10	CS3-4-95	HCPK4	CS3-3-95	HCPK3
120	115P10	CS3-4-120	HCPK4	CS3-3-120	HCPK3
150	115P10	CS3-4-150	HCPK4	CS3-3-150	HCPK3
185	200P10	CS3-4-185	HCPK4	-	-
240	200P10	CS3-4-240	HCPK4	-	-
300	250P10	CS3-4-300	HCPK4	-	-






A

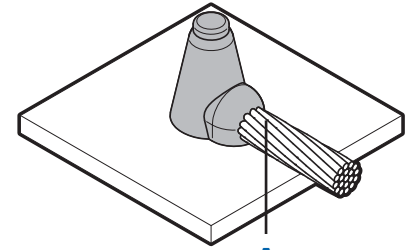


## CS7

A mm <sup>2</sup>				MINI 	MINI 
16*	65P10	CS7-4-16	HCPK4	CS7-3-16	HCPK3
25	65P10	CS7-4-25	HCPK4	CS7-3-25	HCPK3
35	65P10	CS7-4-35	HCPK4	CS7-3-35	HCPK3
8mm Ø	90P10	CS7-4-8SC	HCPK4	CS7-3-8SC	HCPK3
50	90P10	CS7-4-50	HCPK4	CS7-3-50	HCPK3
10mm Ø	150P10	CS7-4-10SC	HCPK4	-	-
70	150P10	CS7-4-70	HCPK4	-	-
95	200P10	CS7-5-95	HCPK4	-	-
120	200P10	CS7-5-120	HCPK4	-	-
150	250P10	CS7-5-150	HCPK4	-	-
185	2 x 150P10	CS7-9-185	HCPK4	-	-
240	2 x 150P10	CS7-9-240	HCPK4	-	-
300	2 x 200P10	CS7-10-300	HCPK5	-	-

CS8

A mm <sup>2</sup>			
16*	45P10	CS8-2-16	HCPK2
25	45P10	CS8-2-25	HCPK2
35	45P10	CS8-2-35	HCPK2
8mm Ø	45P10	CS8-2-8SC	HCPK2
50	45P10	CS8-2-50	HCPK2
10mm Ø	65P10	CS8-2-10SC	HCPK2
70	65P10	CS8-2-70	HCPK2
95	90P10	CS8-2-95	HCPK2
120	115P10	CS8-4-120	HCPK4
150	150P10	CS8-4-150	HCPK4
185	200P10	CS8-4-185	HCPK4
240	200P10	CS8-4-240	HCPK4
300	250P10	CS8-4-300	HCPK4






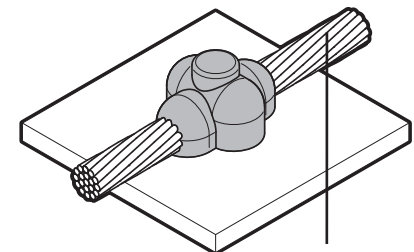
A



\*  1 x S103

CS9

A mm <sup>2</sup>			
16*	45P10	CS9-2-16	HCPK2
25	45P10	CS9-2-25	HCPK2
35	45P10	CS9-2-35	HCPK2
8mm Ø	90P10	CS9-4-8SC	HCPK4
50	90P10	CS9-4-50	HCPK4
10mm Ø	115P10	CS9-4-10SC	HCPK4
70	115P10	CS9-4-70	HCPK4
95	115P10	CS9-4-95	HCPK4
120	150P10	CS9-4-120	HCPK4
150	200P10	CS9-4-150	HCPK4
185	250P10	CS9-4-185	HCPK4
240	2 x 150P10	CS9-5-240	HCPK5

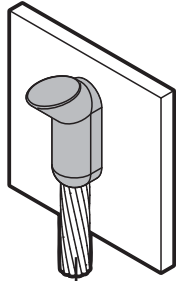


A

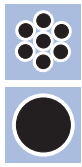


\*  1 x S103

# Cable to steel surface and pipe



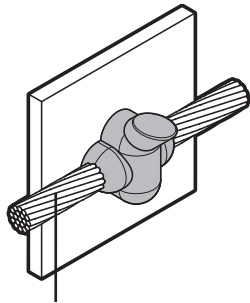
A



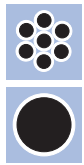
\* 1 x S103

## CS25

A mm <sup>2</sup>				MINI 	MINI 
16*	45P10	CS25-4-16	HCPK4	CS25-3-16	HCPK3
25	45P10	CS25-4-25	HCPK4	CS25-3-25	HCPK3
35	45P10	CS25-4-35	HCPK4	CS25-3-35	HCPK3
8mm Ø	65P10	CS25-4-8SC	HCPK4	CS25-3-8SC	HCPK3
50	65P10	CS25-4-50	HCPK4	CS25-3-50	HCPK3
10mm Ø	90P10	CS25-4-10SC	HCPK4	-	-
70	90P10	CS25-4-70	HCPK4	CS25-3-70	HCPK3
95	115P10	CS25-4-95	HCPK4	-	-
120	115P10	CS25-4-120	HCPK4	-	-
150	150P10	CS25-4-150	HCPK4	-	-
185	200P10	CS25-4-185	HCPK4	-	-
240	200P10	CS25-4-240	HCPK4	-	-
300	250P10	CS25-4-300	HCPK4	-	-



A



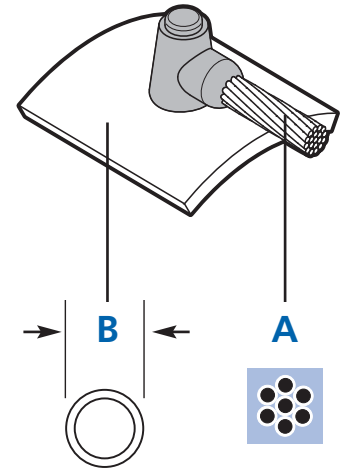
\* 1 x S103

## CS27

A mm <sup>2</sup>			
16*	45P10	CS27-4-16	HCPK4
25	45P10	CS27-4-25	HCPK4
35	45P10	CS27-4-35	HCPK4
8mm Ø	65P10	CS27-4-8SC	HCPK4
50	65P10	CS27-4-50	HCPK4
10mm Ø	115P10	CS27-4-10SC	HCPK4
70	115P10	CS27-4-70	HCPK4
95	150P10	CS27-4-95	HCPK4
120	150P10	CS27-4-120	HCPK4
150	200P10	CS27-5-150	HCPK5
185	250P10	CS27-5-185	HCPK5
240	2 x 150P10	CS27-5-240	HCPK5
300	2 x 200P10	CS27-5-300	HCPK5

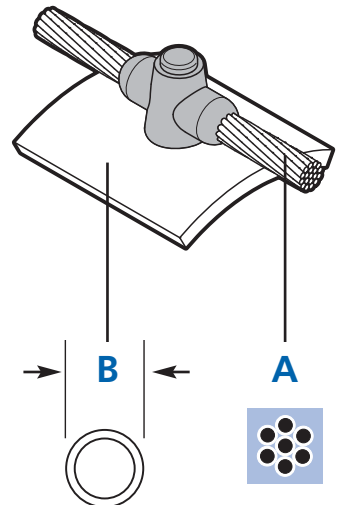
## CS32

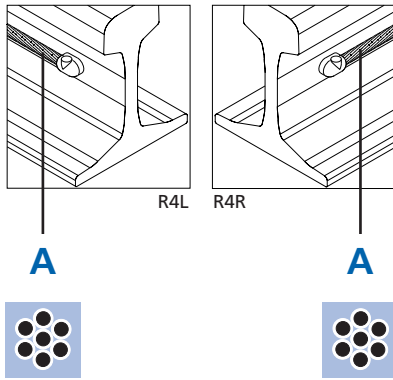
A mm <sup>2</sup>	B mm ø				
2.5	<125	15P10	CS32-1-2.5-A	HCPK1	1 x S105
2.5	>125	15P10	CS32-1-2.5-B	HCPK1	1 x S105
4	<125	15P10	CS32-1-4-A	HCPK1	1 x S105
4	>125	15P10	CS32-1-4-B	HCPK1	1 x S105
6	<125	15P10	CS32-1-6-A	HCPK1	1 x S105
6	>125	15P10	CS32-1-6-B	HCPK1	1 x S105
10	<125	25P10	CS32-1-10-A	HCPK1	1 x S102
10	>125	25P10	CS32-1-10-B	HCPK1	1 x S102
16	<125	45P10	CS32-2-16-A	HCPK2	1 x S103
16	>125	45P10	CS32-2-16-B	HCPK2	1 x S103
25	<70	25P10	CS32-1-25-C	HCPK1	-
25	70 – 165	25P10	CS32-1-25-D	HCPK1	-
25	>165	25P10	CS32-1-25-E	HCPK1	-
35	<70	45P10	CS32-2-35-C	HCPK2	-
35	70 – 165	45P10	CS32-2-35-D	HCPK2	-
35	165 – 250	45P10	CS32-2-35-F	HCPK2	-
35	>250	45P10	CS32-2-35-G	HCPK2	-
50	<70	45P10	CS32-2-50-C	HCPK2	-
50	70 – 165	45P10	CS32-2-50-D	HCPK2	-
50	165 – 250	45P10	CS32-2-50-F	HCPK2	-
50	>250	45P10	CS32-2-50-G	HCPK2	-
70	<70	65P10	CS32-2-70-C	HCPK2	-
70	70 – 165	65P10	CS32-2-70-D	HCPK2	-
70	165 – 250	65P10	CS32-2-70-F	HCPK2	-
70	>250	65P10	CS32-2-70-G	HCPK2	-








## CS34

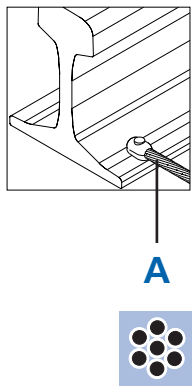
A mm <sup>2</sup>	B mm ø				
2.5	<125	15P10	CS34-2-2.5-A	HCPK2	2 x S105
2.5	>125	15P10	CS34-2-2.5-B	HCPK2	2 x S105
4	<125	15P10	CS34-2-4-A	HCPK2	2 x S105
4	>125	15P10	CS34-2-4-B	HCPK2	2 x S105
6	<125	15P10	CS34-2-6-A	HCPK2	2 x S105
6	>125	15P10	CS34-2-6-B	HCPK2	2 x S105
10	<125	32P10	CS34-2-10-A	HCPK2	2 x S102
10	>125	32P10	CS34-2-10-B	HCPK2	2 x S102
16	<125	45P10	CS34-2-16-A	HCPK2	2 x S103
16	>125	45P10	CS34-2-16-B	HCPK2	2 x S103
25	<70	32P10	CS34-2-25-C	HCPK2	-
25	70 – 165	32P10	CS34-2-25-D	HCPK2	-
25	>165	32P10	CS34-2-25-E	HCPK2	-
35	<70	45P10	CS34-2-35-C	HCPK2	-
35	70 – 165	45P10	CS34-2-35-D	HCPK2	-
35	165 – 250	45P10	CS34-2-35-F	HCPK2	-
35	>250	45P10	CS34-2-35-G	HCPK2	-
50	<70	65P10	CS34-2-50-C	HCPK2	-
50	70 – 165	65P10	CS34-2-50-D	HCPK2	-
50	165 – 250	65P10	CS34-2-50-F	HCPK2	-
50	>250	65P10	CS34-2-50-G	HCPK2	-










## R4






A mm <sup>2</sup>					
16	45P10	R4L-4-16	HCR1	S103	-
16	45P10	R4R-4-16	HCR1	S103	-
25	45P10	R4L-4-25	HCR1	-	-
25	45P10	R4R-4-25	HCR1	-	-
35	45P10	R4L-4-35	HCR1	S106	HD35
35	45P10	R4R-4-35	HCR1	S106	HD35
50	65P10	R4L-4-50	HCR1	S107	HD50
50	65P10	R4R-4-50	HCR1	S107	HD50
70	90P10	R4L-4-70	HCR1	S108A	HD70
70	90P10	R4R-4-70	HCR1	S108A	HD70
95	90P10	R4L-9-95	HCR1	S109A	HD95
95	90P10	R4R-9-95	HCR1	S109A	HD95
120	115P10	R4L-9-120	HCR1	S110A	HD120
120	115P10	R4R-9-120	HCR1	S110A	HD120
150	150P10	R4L-9-150	HCR1	S111A	HD150
150	150P10	R4R-9-150	HCR1	S111A	HD150

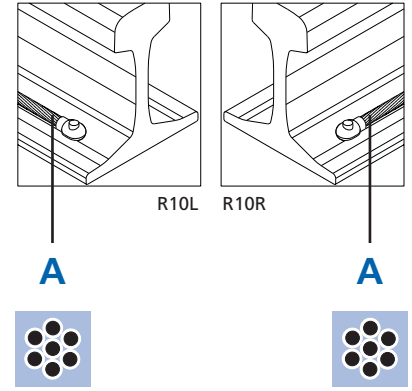


## R5





A mm <sup>2</sup>					
16	25P10	R5-3-16	HCPK2	S103	-
25	25P10	R5-3-25	HCPK2	-	-
35	32P10	R5-3-35	HCPK2	S106	HD35
50	45P10	R5-3-50	HCPK2	S107	HD50
70	65P10	R5-3-70	HCPK2	S108	HD70
95	65P10	R5-3-95	HCPK2	S109	HD95
120	90P10	R5-3-120	HCPK2	S110	HD120
150	115P10	R5-3-150	HCPK2	S111	HD150

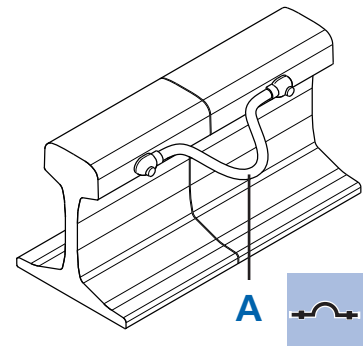
**R10 – Cable to rail**

A mm <sup>2</sup>					
16	25P10	R10L-3-16	HCPK2	S103	-
16	25P10	R10R-3-16	HCPK2	S103	-
25	25P10	R10L-3-25	HCPK2	-	-
25	25P10	R10R-3-25	HCPK2	-	-
35	32P10	R10L-3-35	HCPK2	S106	HD35
35	32P10	R10R-3-35	HCPK2	S106	HD35
50	45P10	R10L-3-50	HCPK2	S107	HD50
50	45P10	R10R-3-50	HCPK2	S107	HD50
70	65P10	R10L-3-70	HCPK2	S108	HD70
70	65P10	R10R-3-70	HCPK2	S108	HD70
95	65P10	R10L-3-95	HCPK2	S109	HD95
95	65P10	R10R-3-95	HCPK2	S109	HD95
120	90P10	R10L-3-120	HCPK2	S110	HD120
120	90P10	R10R-3-120	HCPK2	S110	HD120
150	115P10	R10L-3-150	HCPK2	S111	HD150
150	115P10	R10R-3-150	HCPK2	S111	HD150



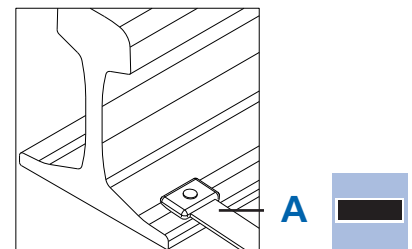
**R12 – Cable to rail**

A mm <sup>2</sup>				
50	45P10	R12-3-50	HCR2	RB50
70	65P10	R12-3-70	HCR2	RB70
95	90P10	R12-3-95	HCR2	RB95

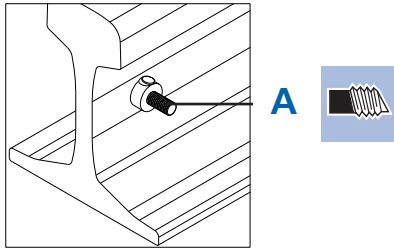


**R6 – Bar to rail**





A mm x mm			
25 x 3	65P10	R6-3-253	HCPK2

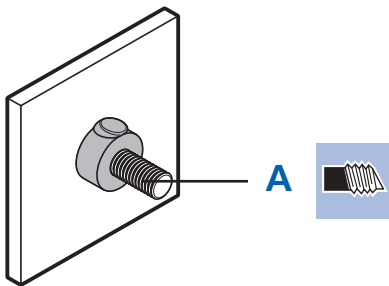


# Stud to rail and stud to steel surface







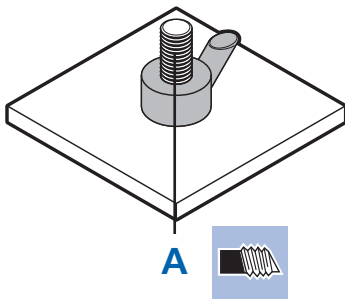
## R8 – Stud to rail

A				
M6	45P10	R8-4-M6	HCPK4	RSSM6
M8	45P10	R8-4-M8	HCPK4	RSSM8
M10	65P10	R8-4-M10	HCPK4	RSSM10
M12	90P10	R8-4-M12	HCPK4	RSSM12
M16	115P10	R8-5-M16	HCPK4	RSSM16







## RS1 – Stud to steel surface

A				
M6	25P10	RS1-4-M6	HCPK4	RSSM6
M8	32P10	RS1-4-M8	HCPK4	RSSM8
M10	45P10	RS1-4-M10	HCPK4	RSSM10
M12	65P10	RS1-4-M12	HCPK4	RSSM12
M16	115P10	RS1-4-M16	HCPK4	RSSM16



## RS2 – Stud to steel surface

A				
M6	25P10	RS2-4-M6	HCPK4	RSSM6
M8	32P10	RS2-4-M8	HCPK4	RSSM8
M10	45P10	RS2-4-M10	HCPK4	RSSM10
M12	65P10	RS2-4-M12	HCPK4	RSSM12
M16	115P10	RS2-5-M16	HCPK5	RSSM16

The FurseWELD SureSHOT system is a cost effective solution for applications requiring only a small number of high quality electrical connections.

Like all FurseWELD products, SureSHOT uses the high temperature reaction between powdered copper oxide and aluminium to create fault tolerant electrical connections without any external power or heat source.

SureSHOT connections have the same benefits as FurseWELD connections:

- tolerant to repeated fault currents
- highly conductive
- do not loosen
- excellent corrosion resistance

Unlike the graphite FurseWELD moulds, the SureSHOT moulds are ceramic and specifically designed to be used only once. They are disposed of or buried in place with the joint once it has been completed.

SureSHOT moulds are supplied complete with powders and retaining disc.



**1** Insert the rod and conductor into the mould, locate the retaining disc and pour in the weld powder.



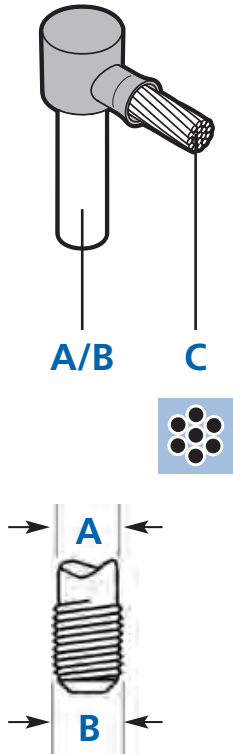
**2** Place the lid on top of the mould, add starting powder and ignite with spark gun.





**3** The resulting exothermic reaction reduces the weld powder to molten copper alloy which melts the retaining disc and flows into the weld cavity where it partially melts the conductors. The molten copper alloy cools to leave a fusion weld of great mechanical and electrical integrity.

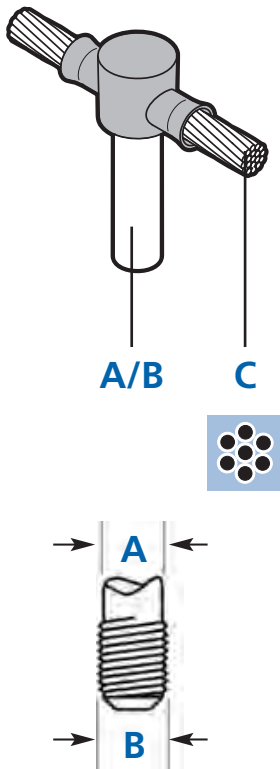


**4** Once the joint is completed, the ceramic mould can either be disposed of or buried in place.





## SS1

A mm ø	B inches ø	C mm <sup>2</sup>		
14.2	5/8"	16	4	SS1-14216
14.2	5/8"	25	4	SS1-14225
14.2	5/8"	35	4	SS1-14235
14.2	5/8"	50	4	SS1-14250
14.2	5/8"	70	4	SS1-14270
14.2	5/8"	95	4	SS1-14295
17.2	3/4"	16	4	SS1-17216
17.2	3/4"	25	4	SS1-17225
17.2	3/4"	35	4	SS1-17235
17.2	3/4"	50	4	SS1-17250
17.2	3/4"	70	4	SS1-17270
17.2	3/4"	95	4	SS1-17295



## SS2

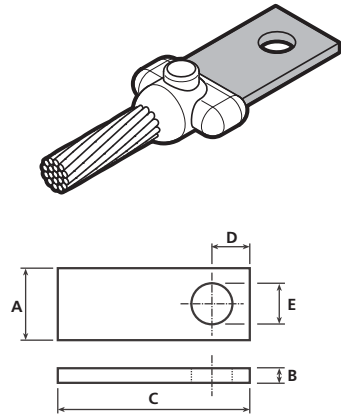
A mm ø	B inches ø	C mm <sup>2</sup>		
14.2	5/8"	16	4	SS2-14216
14.2	5/8"	25	4	SS2-14225
14.2	5/8"	35	4	SS2-14235
14.2	5/8"	50	4	SS2-14250
14.2	5/8"	70	4	SS2-14270
14.2	5/8"	95	4	SS2-14295
17.2	3/4"	16	4	SS2-17216
17.2	3/4"	25	4	SS2-17225
17.2	3/4"	35	4	SS2-17235
17.2	3/4"	50	4	SS2-17250
17.2	3/4"	70	4	SS2-17270
17.2	3/4"	95	4	SS2-17295

Suitable for connections to copperbond rods – for connections to solid copper and stainless steel rods please contact our sales office.

Threaded portion of copperbond rods must be removed prior to welding.

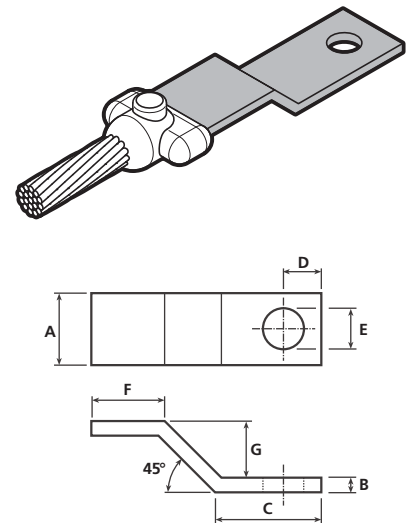
**Straight type lug**

A mm	B mm	C mm	D mm	E mm	Part No.
20	3	45	10	8.5	LS101-FU
25	3	50	12	8.5	LS102-FU
25	3	50	12	10.5	LS103-FU
31	6	75	15	10.5	LS104-FU
31	6	75	15	12.5	LS105-FU
38	5	75	18	10.5	LS106-FU
38	6	75	18	10.5	LS107-FU
38	6	75	20	12.5	LS108-FU
50	6	95	25	10.5	LS109-FU
50	6	95	25	12.5	LS110-FU



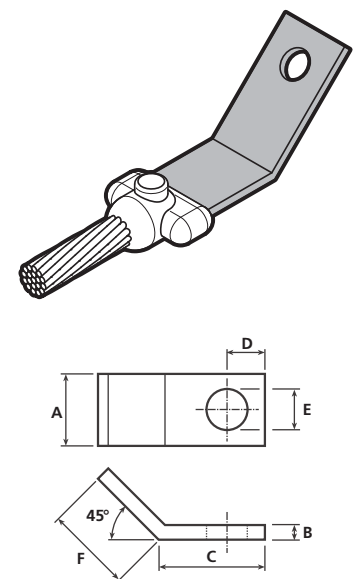
**Cranked type lug**

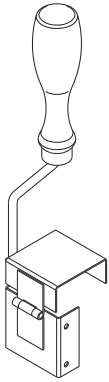
A mm	B mm	C mm	D mm	E mm	F mm	G mm	Part No.
20	3	40	10	8.5	40	10	LC101-FU
25	3	45	12	8.5	40	10	LC102-FU
25	3	45	12	10.5	40	10	LC103-FU
31	6	50	15	10.5	40	15	LC104-FU
31	6	50	16	12.5	40	15	LC105-FU
38	5	55	18	10.5	40	15	LC106-FU
38	6	55	18	10.5	40	15	LC107-FU
38	6	55	20	12.5	40	15	LC108-FU
50	6	75	25	10.5	60	20	LC109-FU
50	6	75	25	12.5	60	20	LC110-FU



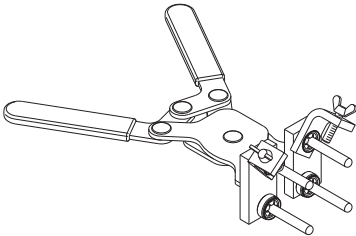
**Offset type lug**

A mm	B mm	C mm	D mm	E mm	F mm	Part No.
20	3	40	10	8.5	40	LO101
25	3	45	12	8.5	40	LO102-FU
25	3	45	12	10.5	40	LO103-FU
31	6	50	15	10.5	40	LO104
31	6	50	16	12.5	40	LO105
38	5	55	18	10.5	40	LO106
38	6	55	18	10.5	40	LO107
38	6	55	20	12.5	40	LO108
50	6	75	25	10.5	60	LO109
50	6	75	25	12.5	60	LO110

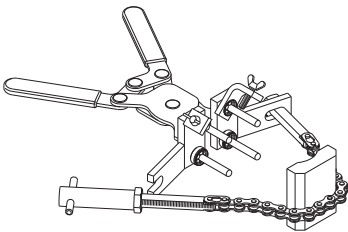




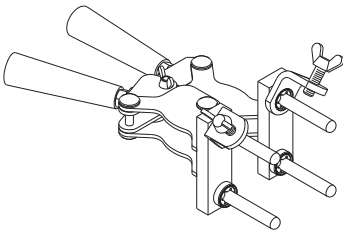
**HCPK2**



**HCPK3**



**HCPK3A**



**HCPK4**

## Handle clamps

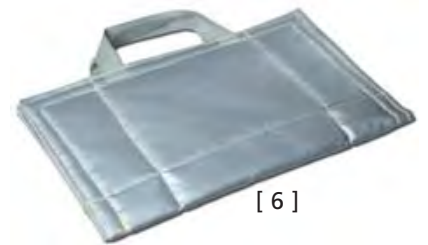
Description	Part No.
Single part moulds (Price Key 1)	HCPK1
Single part moulds (Price Key 2)	HCPK2
Two part moulds (Price Key 3)	HCPK3
With chain grip, two part moulds (Price Key 3)	HCPK3A
Sprung, single part moulds (Price Key 3)	HCPK3B
Two-part moulds (Price Key 4)	HCPK4
With chain grip, multi-part moulds (Price Key 4)	HCPK4A
Multi-part moulds (Price Key 5)	HCPK5
Multi-part moulds (Price Key 7)	HCPK7
Multi-part moulds (Price Key 8)	HCPK8
Single block rail moulds	HCR1
Double block rail moulds	HCR2

## Frames

Description	Part No.
Frame for use with Handle Clamp HCPK4	F1-FU
Frame for use with Handle Clamp HCPK5	F2-FU

Accessories

Description	Part No.
Cable cleaning brush	B135 [ 1 ]
Mould cleaning brush	BCM [ 2 ]
Tape cleaning brush	BFC [ 3 ]
Duxseal sealing compound (1lb)	DUXSEAL [ 4 ]
Flint gun	FGUN [ 5 ]
Replacement flints (pack of 100)	FLINTS
Hammer die	HD35-HD150
Mould jacket	MJ4-MJ5 [ 6 ]
Packing	PACK-A [ 7 ]
Rail bonds	RB25-RB120
Rail head scraper	RCH01
Rail web scraper	RCW01
Rail foot scraper	RCF01
Copper sleeve	S102-S111 [ 8 ]
Copper sleeve	S108A-S111A [ 8 ]
Mould cleaning scraper	STM1-FU [ 9 ]
Welding toolbox	TB100-FU [10]
Standard toolkit for bar to bar joints	TK100
Standard toolkit for cable to cable joints	TK200



## Customer sales/technical advice and service

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Our sales and technical teams are ready to assist with all your lightning protection needs. Please contact us on the numbers below to place orders, request quotations and for technical assistance. Calls may be monitored to assist with sales training and our customer care programme.

**Tel: +65 6720 8828**

**Fax: +65 6720 8780**

**E-mail: [asia.inquiry@tnb.com](mailto:asia.inquiry@tnb.com)**

In addition to credit accounts, we can also accept payments by VISA and Master Card.

## Website

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Visit [www.furse.com](http://www.furse.com) today for the latest Furse news, information and worldwide distributor contact details. Our site also contains searchable technical details for structural lightning protection, earthing materials, transient overvoltage protectors and FurseWELD products. Full product details can be downloaded in PDF format.

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## Technical support/training and seminars

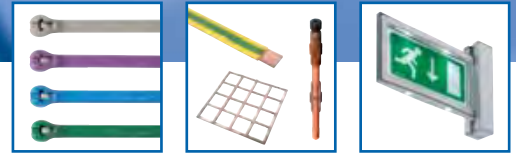
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As industry leader, Furse is ideally placed to provide the latest, most relevant information and support regarding changes to the standards or regulations involving lightning protection.

Furse offers seminars to assist our customers to appreciate important changes to lightning protection standards, the impact these changes have on ongoing business and planning, and how to manage these changes for better implementation of lightning protection systems.

Seminars can be held centrally at key geographical locations, or at customer offices if preferred. Contact Furse for further details.



Home to many well known brands and with over 100 years experience, Thomas & Betts provides a truly world-class level of quality, service and support. The electrical division provides the following key products:

## Electrical products

An impressive range of high quality products to fasten, install, insulate, protect and connect electrical cables, with the confidence to achieve a highly professional result.

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Premium cable ties for the most demanding applications, including the Ty-Rap® cable ties with a steel locking barb and the Ty-Met™ self-locking stainless steel ties.

### **Shrink-Kon®**

A wide variety of multi-purpose heat shrink tubing for use in insulation, protection, identification and strain relief.

### **Shield-Kon® Sta-Kon®**

### **Dragon Tooth® Color-Keyed®**

A broad range of solderless termination systems for a variety of applications, including power cables, shielded cables and magnet wire.

### **Shureseal™ Shureflex™**

A range of liquidtight flexible conduits & fittings for the protection of electrical cables in industrial applications, in metallic and non-metallic versions (including Nylon conduits & fittings).

### **Rezi-Kon™**

A new range of cast resin joints for splicing and branching low voltage cables, in applications like street, leisure and airfield lighting, utility & home connections.

### **E-Klips®**

A range of spring steel fasteners for quick, easy and reliable fixing of services to steelwork.

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With Furse, T&B is leading in the design, manufacture and supply of earthing and lightning protection systems.



Through its range of products, Furse can provide complete and innovative solutions for lightning protection, surge protection and earthing applications.

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DTS specializes in the provision of advanced safety lighting solutions for hazardous and hostile areas to a wide variety of industrial markets, including drilling, marine, oil & gas and pharmaceutical.

## Street and amenity lighting control equipment



Royce Thompson is a leading manufacturer of high quality, reliable and energy efficient photo-electronic lighting control equipment for street and amenity lighting.

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The emergency lighting engineers, providing innovation and the latest technology to the OEM lighting industry.



Kaufel, formerly known as NIFE, is a strong brand in emergency lighting products and safety power supply systems, among which product brands are Sentara, Venter and Twister.



Kaufel supplies a complete range of dedicated emergency lighting luminaires and central battery and testing systems with product brands like Brio, Ellitt and Sesam.



VanLien provides a wide range of emergency lighting solutions, ranging from luminaires to central battery systems with product brands like Optilux, Aqualux and Serenga.



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