AURA WELD

(Formerly known as Amiable Impex)

MANUFACTURER OF EXOTHERMIC WELD POWDER & GRAPHITE MOULDS

About Us !

Our company is a Manufacturer of Exothermic Weld Powder and Graphite Mould having more than 10 years' experience. We are **UL Approved** Manufacturer and our product is also tested as per International Standard i.e **IEEE 837-2014**

Our Firm is also well established organization in India, Dubai and overseas market and Manufactures and Export Exothermic Weld Powder & Graphite Moulds and provides complete solutions in Exothermic Welding. We also provide on-site training and do Job work for Exothermic Welding.

We have earned good reputation amongst our international customers with our Quality Assurance, On time delivery and High Customer Satisfaction. To ensure consistent product quality, we work within a quality system that is approved with **ISO 9001 – 2015**. We manufacture all Products with **CE & ROHS Compliance**. Strict quality checks are carried out at different stages of manufacturing and only that material which passes stringent norms finds its way in the market around the Globe. We are also awarded **GMP** (Goods Manufacturing Practise) which assures that the products which we manufacture are of high quality and do not pose risk to our customer.

Our vision

The four pillars of our vision set out the long term direction for the company where we want to go and how we are going to get there:

- We work to create a better future every day.
- We help our customers feel good, have good and get more out of life with our brands and services that are good for them and good for others.
- Whilst the company has ambitious plans for the future for its product range and its manufacturing abilities, our greatest objective will always be to maintain the highest level of quality assurance & service to the customer.
- We will develop new ways of doing business with the aim of doubling the size of our company while reducing our environmental impact.

We always believe in the power of our brands to improve the quality of people's lives
And in doing the right thing.

Some of our Esteemed Customers

ABB
INDIAN RAILWAYS
LARSEN & TOUBRO
SIEMENS
ANDRITZ
HCC
الشركة السعودية للكهرباء
Saudi Electricity Company
Banaladesh Power Development Board
ELECTRICITY COMPANY GHANA LTD
هيئة كهرباء ومياه دبي
Dubai Electricity & Water Authority

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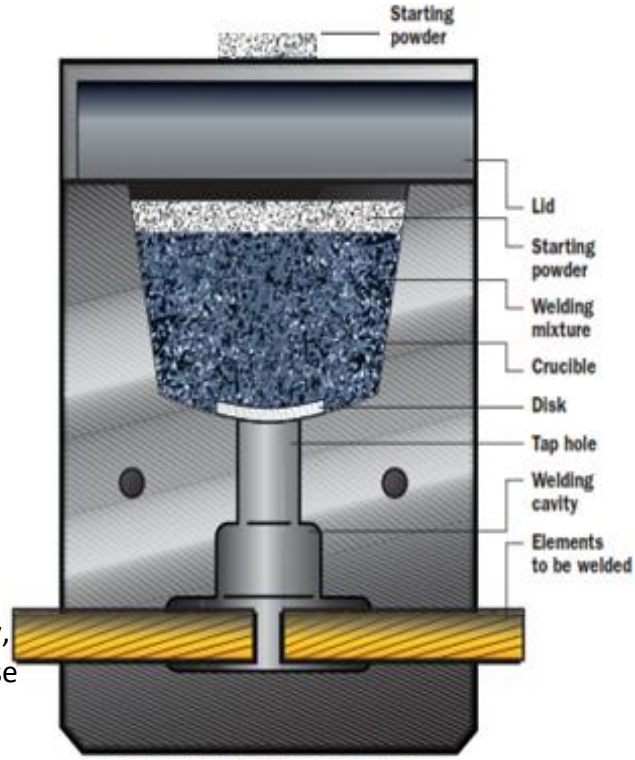
WHAT IS EXOTHERMIC WELDING

Exothermic welding, also known as exothermic bonding and is a welding process for joining two electrical conductors, that employs superheated copper alloy to permanently join the conductors. The process employs an exothermic reaction of a copper thermite composition to heat the copper, and requires no external source of heat or current. The chemical reaction that produces the heat is an aluminothermic reaction between aluminum powder and a metal oxide.

The reaction reaches very high temperatures, depending on the metal oxide used. The reactants are usually supplied in the form of powders, with the reaction triggered using a spark from a flint lighter. The activation energy for this reaction is very high however, and initiation requires either the use of a "booster" material such as powdered magnesium metal or a very hot flame source. The aluminum oxide slag that it produces is discarded.

When welding copper conductors, the process employs a semi-permanent graphite crucible mould, in which the molten copper, produced by the reaction, flows through the mould and over and around the conductors to be welded, forming an electrically conductive weld between them. When the copper cools, the mould is either broken off or left in place. Alternatively, hand-held graphite crucibles can be used. The advantages of these crucibles include portability, lower cost (because they can be reused), and flexibility, especially in field applications.



View of a vertical section of the mould

The weld formed has higher mechanical strength than other forms of weld, and excellent corrosion resistance. It is also highly stable when subject to repeated short-circuit pulses, and does not suffer from increased electrical resistance over the lifetime of the installation. However, the process is costly relative to other welding processes, requires a supply of replaceable mould, suffers from a lack of repeatability, and can be impeded by wet conditions or bad weather (when performed outdoors).

FEATURES

- It has a superior electrical conductivity than the conductors themselves.
- It does not corrode oxide or degrade with time and is resistant to galvanic coupling.
- It is able to withstand repeated electrical discharges.
- It never increases its resistance.
- It has higher mechanical and squeezing resistance than the conductors themselves.
- It offers a permanent welding and a low resistance connection, essential for achieving longwearing and trustworthy results in earthing.
- It guarantees the most common connections not only between copper cables but also for welding tapes and metallic pieces made of brass, stainless steel, and copper coated steel earth rods.

GENERAL & SAFETY INSTRUCTIONS:

A. Only equipment and materials should be used to make connections.
B. Do not connect items except as detailed in instruction sheets. Failure to comply with these instructions may result in improper and unsafe connections, damage to items being welded or even injury to body or property damage.
C. Do not use worn or broken equipment which could cause leakage. Sealing compound should be used in case of fine leakages.
D. When using Weld do not use welding material package if damaged or not fully intact.
E. Make connections in conformance with instructions and all governing codes.
F. Personnel should be properly trained and must wear safety glasses and gloves.
G. Avoid contact with hot materials.
H. Advise nearby personnel to stand at least 7 to 10 Foot away of welding operations site.
I. Remove or protect the inflammable material from the operation site to safeguard against fire hazards.
J. Provide adequate ventilation to the work area.
K. Do not smoke when handling starting material.
L. Avoid direct eye contact with “flash” of light from ignition of starting material.
F. Welding material is an exothermic mixture and reacts to produce hot molten material with temperatures in excess of 1400°C (2500°F) and a localized release of smoke. Ignition temperatures are in excess of 900°C (1650°F) for welding material. ***These materials are not explosive.***
G. Adhering to the welding procedures will minimize risk of burns and fire caused by hot molten material spillage. In case of fire, use of water or CO2 will aid in control of burning containers. Large quantities of water will aid in controlling a fire should the exothermic materials become involved. Water should be applied from a distance.
H. All governing codes and regulations and those required by the job site must be observed. Always use appropriate safety equipment such as eye protection, hard hat, and gloves as appropriate to the application.

WARNING :

1. Products shall be installed and used only as indicated in product instruction sheets.
2. Products must never be used for a purpose other than the purpose for which they were designed or in a manner that exceeds specified load ratings.
3. All instructions must be completely followed to ensure proper and safe installation and performance.
4. Improper installation, misuse, misapplication or other failure to comply with instructions and warnings may cause bad weld joint, property damage or even serious badly injuries.

MAINTENANCE & STORAGE INSTRUCTIONS:

1. Mould is usually good for 50 - 60 connections in field conditions.
2. The equipment is fragile and should be handled carefully while in use.
3. Cleaning of mould should be done using appropriate brush / tool after the mould is reasonably cool after a weld process. Avoid hot mould cleaning.
4. Cavity cleaning should be carefully done to avoid damages / chipping.
5. On completion of task, mould should be well cleaned from inside and from outside using soft cloth. It should be properly wrapped in Bubble Plastic Packing while storing it.
6. The mould and the weld powder should always be stored in cool & dry places.
7. All tools and accessories must be cleaned before storing to safe reuse.

TOOLS REQUIRED FOR EXOTHERMIC WELDING PROCESS

1) Graphite Mould

Graphite mould is made of high quality graphite suitable for high quality welding work and can be used for several times. The exothermic welding reaction takes place in a specially designed, semi-permanent graphite mould. The mould is designed and manufactured with a specific weld cavity and it is in this cavity that the molten metal is allowed to flow to all sections of the required connection creating the permanent connection. The connection mould is designed to last for an average of 30 to 100 connections depending upon the amount of Powder used per Joint (More the Powder Consumption per Joint, less will be the Connection & vice versa) . This will also vary according to the care given to the mould during use. We recommend not using Mould for more than 60 to 70 Connections because the Weld cavity Size increases after every joint, eventually making the Weld Cavity shape improper resulting in improper shape Joint.

2) Mould Handle Clamp (HCC/HCD)

These will fit 90% of all standard exothermic Mould.
Normally we recommend one Handle for every two mould

3) Steel Metal Disk

Steel discs are very important. The disc act as timing device to allow the welding powder to heat to proper temperature, the disc away allowing the molten copper to a point where it would weld metal to enter the weld gravity before ignition. One Metal is must for every shot

4) Exothermic Weld Powder

1.1

1.2

Exothermic Weld Powder is the most reliable and consistently-performing weld metal available with us. Quality validation steps are taken for every lot we produce. Upon final acceptance, our weld metal is specially packaged in moisture-resistant plastic tubes with special closure caps. Then the cartridges and required metal discs are packaged in moisture-resistant boxes. All sizes of weld metal are available.

Standards Size Packing available are – 25 Grams, 45 Grams, 90 Grams 115 Grams, 150 Grams, 200 Grams, 250 Grams, 250 Grams,

Our standard packing for Welding powder is in Tube / Foil Sachet.

P.N – Starting Powder is already provided separately inside the Tube / Foil Sachet

5) Ignite Powder (Starting Powder)

Ignite Powder also known as Starting Powder is required and is must. Pour little Starting Powder on the Mould followed by the Exothermic Weld powder and again pour little on the Top Side of Mould. Then, Ignite starting powder with a spark gun. This resulting exothermic reaction reduces the weld powder to molten copper alloy. The molten copper alloy melts the retaining disc and flows into the weld cavity. Approx 2 to 5 grams is sufficient for this Process.

6) Hand Gloves (HG)

Gloves is required for safety purpose as the Exothermic Weld Powder melts at more than 1400 degree Celsius. One Hand Gloves Good for 250 Joints

7) Flint Gun (FIG)

It is designed with the advantages of safety and convenience. It is used to ignite starting Powder in order to result in exothermic reaction.
We recommend one Flint Gun for every 80 Shots

8) Brush (Soft and Hard) (SHB)

Two Brush Required:
1) Soft Brush – Its used to Clean Mould Weld Cavity because its shape is very sensitive and cavity should not be any damage while using Brush, so we recommend to use Soft Brush to Clean Mould Weld Cavity
2) Hard Brush – Its used to clean other section of Mould
We recommend a Pair of Brush for 50 Connection

9) Slag Removal Tool (SRT)

It is used to remove the metal Scrap and Dust from the Mould.
We recommend one Slag Tool for 250 Connection

10) File Card (FCB)

It is used to clean the objects to be welded to remove rust and dirt
We recommend one Slag Tool for 100 Connection

11) Sealing Compound (SCD)

Sealing Compound is used to fill the gap on the mould where the conductor is passing.
We recommend one Packet of Sealing Compound for 100 Connection

12) Flame Torch (FT)

Sealing Compound is used to fill the gap on the mould where the conductor is passing.
We recommend one Flame Torch for 250 Joints

13) Safety Eye Glasses (SEG)

Safety Eye Glass should be wear to protect eyes.
We recommend one Glasses for 500 Joints

14) Bitumen Paint

It provides an effective corrosion resistant Protective coating. In regard to Copper Joint – it helps to prevent Oxidation and when welded with Iron Joint - the bitumen paint helps to avoid rusting that may be developed from Welding

EXOTHERMIC WELD OPERATION PROCESS

The Exothermic Weld process is a method of making electrical connections of copper-to-copper or copper-to-steel in which no outside source of heat or power is required. In this process, conductors are prepared, placed in a purpose designed graphite mould, and exothermically welded to produce a permanent molecularly bonded electrical connection. The steps outlined below are a general demonstration of a typical welded connection. These basic steps are used for all electrical connections. Be sure to read and follow the instructions included with every Mould before making a connection.

Steps to make an Exothermic Connection

Step 1.
Before making your first connection, be sure to dry the mold and conductors by heating it with a torch.

Step 2.
Clean the dried conductor ends with a wire brush to remove any Dirt, Oil, Paints and Oxides. When welding to a steel surface, use a rasp or grinding wheel to remove any rustproofing paint or oxidation for the area to be welded. Steel surface must be cleaned to bright shiny metal before Welding.

Step 3.
Insert Conductors and position the mold over the conductors with the conductor ends under the centre of the tap hole. Lock mold handles.

Step 4.
Ensure that there is no Gap in the Mold where the Conductors are passing. If there is a gap than use the Sealing Compound to avoid any molten metal leakages from the mold.

Step 5.
Place round metal disk in the bottom of the crucible. Make sure it covers the tap hole properly.

Step 6.
Pour the weld metal powder into the crucible. The starting material is in a separate packet inside the foil pack. Sprinkle the starting material on mold lid as well as over weld metal powder.

Step 7
Close the mold cover. Ignite the starting material by using a Flint Ignitor Gun. Do not use a torch or match sticks.

Step 8
Wait approximately 10-20 minutes. Wear Hand Gloves and open the mold and remove the finished joint connection. Remove any remaining slag with slag tool. Use soft brush to clean weld cavity and hard brush to clean mold crucible.

ATTENTION

- Store the material in dry place.
- Ignite the Starting Powder from Flint Gun on opposite direction where the fumes / smokes come out from the Mold.
- Maintain at least 4 to 6 foot distance before starting welding process.
- Do not use in areas where flammable vapours or dust are present as fire could result.
- Expiry date – 1 Year from date of manufacturing

Scan to see Video for Process Of Welding

Note:

1) In Normal case minimum two mould should be used on site to keep the process continue while one mould is cooled and cleaned after firing, the other should be used. The task should be undertaken very peacefully and one should not hurry.

2) As the Exothermic Welding Connection is made at sight so we recommend to purchase 5% material extra considering the mistake the executor make while welding. Our recommendation is to ensure that the work at sight should not be hampered due to shortage of material.

3) Below is the Standard Calculation of Joints per Mold.

1) Horizontal Joint Upto #150 Powder consumption per Mold – Approx. 45 to 60 joints can be made.
2) Horizontal Joint from #150 to #250 Powder consumption per Mold – Approx 35 to 45 joints can be made.
3) Horizontal Joint from #250 to #500 Powder consumption per Mold – Approx 25 to 35 joints can be made.
4) Horizontal Joint from #500 to #750 Powder consumption per Mold – Approx 20 to 25 joints can be made.
5) Horizontal Joint from #750 to #1000 Powder consumption per Mold – Approx 15 to 20 joint can be made.

This will also vary according to the care given to the mould during use. We recommend not using Mould for more than 60 to 70 Connections because the Weld cavity Size increases after every joint, eventually making the Weld Cavity shape improper resulting in improper shape Joint.

4) Avoid mixing two powder which is supplied in Tube / Foil Sachet. This might not work properly and it may affect the joint qualitys.

5) Exothermic Welding Process Video: (Animated Video)
https://www.youtube.com/watch?v=OstTLvjaJcs
OR

Scan to see Video for Process Of Welding

Mould Selection Chart

Cable to Cable Connections (CC)

CC – 1 	CC – 2 	CC – 3 	CC – 4 	CC – 5 
CC – 6 	CC – 7 	CC – 8 	CC – 11 	CC – 13 
CTC – 14 	CC – 17 	CC – 18 	CC – 19 	CC – 20 
CC – 21 	CC – 22 	CC – 23 	CC – 24 	CC – 25 
CC – 26 	CC – 27 	CC – 28 	CC – 29 	CC – 30 
CC – 33 	CC – 34 	CC – 35 	CC – 36 	CC – 37 
CC – 38 	CCC – 39 	CC – 40 	CC – 41 	

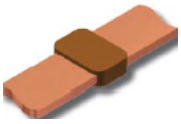
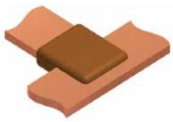
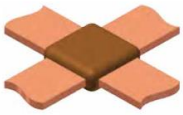
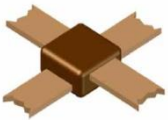
Cable to Ground Rod Connections (CR)

CR – 1 	CR – 2 	CR – 3 	CR – 4 	CR – 5 
CR – 6 	CR – 7 	CR – 8 	CR – 9 	CR – 10 
CR – 11 	CR – 12 	CR – 13 	CR – 15 	CR – 16 
CR – 17 	CR – 18 	CR – 19 	CR – 20 	CR – 21 
CR – 22 	CR – 23 	CR – 24 	CR – 26 	CR – 30 
CR – 33 	CR – 34 	CR – 35 	CR – 36 	CR – 37 
CR – 38 	CR – 39 	CR – 40 	CR – 41 	

Cable to Bar (Copper Tape / Strip) or Cable Lugs Connection (CB)

CB – 1 	CB – 2 	CB – 3 	CB – 4 	CB – 5 
CB – 8 	CB – 9 	CB – 11 	CB – 12 	CB – 13 
CB – 14 	CB – 15 	CB – 16 	CB – 17 	CB – 18 
CB – 19 	CB – 20 	CB – 21 	CB – 22 	CB – 23 
CB – 24 	CB – 25 	CB – 26 	CB – 27 	CB – 28 
CB – 29 	CB – 30 	CB – 31 	CB – 32 	CB – 33 
CB – 34 	CB – 35 	CB – 36 	CB – 37 	CB – 38 

Bar to Bar / Copper Tape to Tape (BB)

BB – 1 	BB – 2 	BB – 3 	BB – 4 	BB -6 
BB – 7 	BB -12 	BB – 14 	BB – 17 	BB -20 
BB – 21 	BB – 22 	BB – 27 	BB – 33 	BB - 40 
BB – 41 	BB – 42 	BB – 43 	BB – 50 	

Re-Bar Connection (CRE)

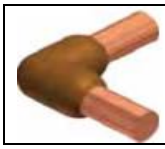
CREC – 1 	CRE – 2 	CRE – 3 	CRE – 4 	CRE – 5 
CRE – 6 	CRE – 19 	CRE – 20 	BRE – 3 	BRE - 8 
BRE – 16 	BRE – 20 	RERE – 3 	RERE – 4 	RERE – 5 

Ground Rod to Bar / Tape Connections (BR)

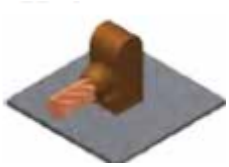
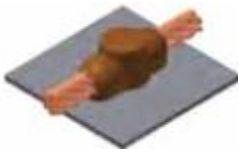
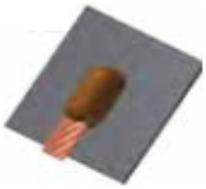
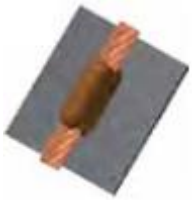
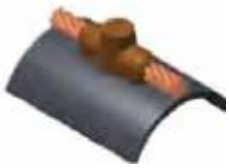
BR – 1 	BR – 2 	BR – 3 	BR – 4 	BR – 5 
BR – 6 	BR – 7 	BR – 8 	BR – 9 	BR – 11 
BR – 12 	BR – 13 	BR – 14 	BR – 15 	BR – 16 
BR – 17 	BR – 18 	BR – 19 	BR – 25 	

Ground Rod to Ground Rod Connections (RR)

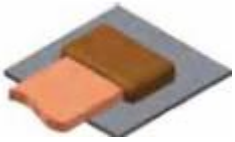
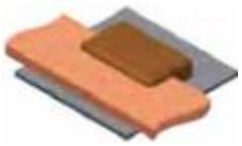
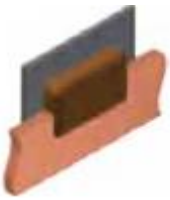
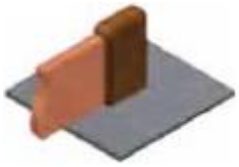
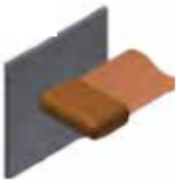
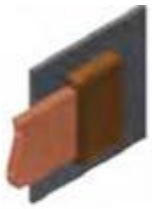
RR – 1 	RR – 2 	RR – 3 	RR – 4 	RR – 5 
RR – 6 	RR – 7 	RR – 13 	RR – 14 	RR – 15 
RR – 16				

Cable to Surface / Cable to Pipe Connections (CS)

CS – 1 	CS – 2 	CS – 3 	CS – 4 	CS – 6 
CS – 7 	CS – 8 	CS – 9 	CS – 12 	CS – 13 
CS – 14 	CS – 15 	CS – 16 	CS – 22 	CS – 23 
CS – 24 	CS – 25 	CS – 26 	CS – 27 	CS – 31 
CS – 32 	CS – 34 	CS – 36 	CS – 38 	CS – 48 
CS – 50 	CS – 52 			

Bar to Surface Connections (BS)

BS – 1 	BS – 2 	BS – 3 	BS – 4 	BS – 5 
BS – 6 	BS – 7 	BS – 8 	BS – 9 	BS – 11 
BS – 12 	BS – 13 	BS – 14 	BS – 18 	BS – 19 

Steel to Rod / Stud Connections (SR)

SR – 1 	SR – 2 	SR – 5 	SR – 6 	SR – 7 
SR – 8 	SR – 9 	SR – 11 	SR – 23 	

P.N – There are more than thousands of Design for Different Size and Different Shape. In case if none of your design is appearing here than please drop an e-mail at info@exothermicweld.com and we will design as per your requirement.

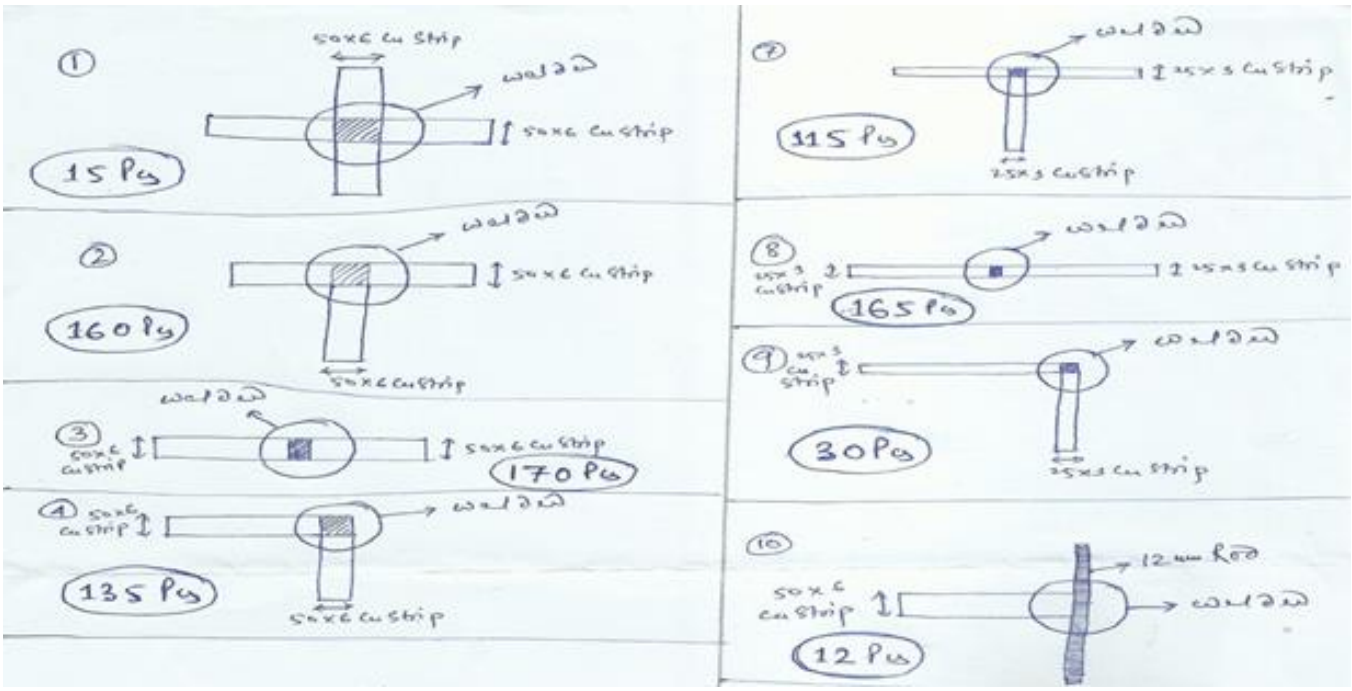
Please refer our website www.exothermicweld.com to find out more different types of Joints

How to Order / Know your Exothermic Welding Joint

The most common exothermic connections are listed in this product catalogue for your easy reference. However, it would not be feasible to place all the possible connections, configurations and sizes of conductor in this catalogue as the amount is simply too vast and is constantly growing.

With a database of more than 20,000 moulds Design we cannot design the Moulds and keep in stock as the design is not common everywhere and the size of Conductor / Strip also change. If you do not see the connection you require, configuration or size of conductor required by you mentioned in this product catalogue then please contact us at info@exothermicweld.com or info@amiableimpex.com with the below relevant information and we will advise you accordingly.

Now, please refer the below Sketch and we recommend our customers to provide the same as below in order to avoid misinterpretation and miscommunication:



Now in order to make the sketch you need to:

1. Know the materials to be welded (Copper Conductor, Copper Strips, Steel Plate, Rod etc.)
2. Determine the weld type using the selector charts given above.

The Common Joints are:

i) Straight Joint, T Joint, Cross Joint (Overlap) & L Joint

So, Find the required weld type and determine the material sizes and types (mm, mm2, stranded, solid etc.)

5. Total Number of Joints required

Once we get the above information / Sketch, we will submit the quotation and will recommend:

i) The Proposed Quantity for Mould

ii) The Propose Quantity of Powder require per Joint (With / Without Provision)

iii) The Propose quantity of Accessories require per Joint (i.e. Mould Handle, Flint Gun, Brushes, Gloves etc.)

Different Types of Handle Clamps used for Graphite Moulds

Our handle clamp make possible the use of many different size and type of graphite moulds.

- Clamp Type "**HCC**" for nominal size mould 3-1/8" x 3-1/8" square and distance between rod 2-5/16"
- Clamp Type "**HCD**" for nominal size mould 4" x 4" square and distance between rod 3"

- Chain support "X"

- Clamp Type "**HCP**" support are used to hold a mould in position on horizontal or vertical pipe

- Clamp Type "**HCR**" for Railway mould

Cable / Conductor Size Chart

Copper Wire Stranded Conductors

Normal Area in Sq.mm	Stranding & Wire Diameter in mm.	Approx. O.D in mm.	Approx.Weight Kgs. Per 100 Mtr.
10	3 x 2.12	4.50	9=800
	7 x 1.40	4.50	9=900
16	7 x 1.70	5.10	15=600
25	7 x 2.24	7.00	24=700
35	7 x 2.50	8.00	32=000
50	19 x 1.80	10.50	48=000
70	19 x 2.24	11.00	71=000
95	19 x 2.50	12.50	89=000
120	37 x 2.06	14.50	118=000
150	37 x 2.24	16.00	143=000
185	37 x 2.50	18.50	170=00
240	61 x 2.24	20.00	235=000
300	315 x 1.10	24.00	290=000

Diameter Tolerance: +/-1mm

Weight Tolerance - +/- 3%

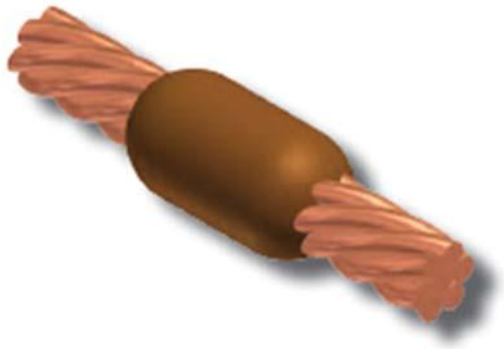
We are also the Manufacturer for Copper Stranded Conductors having Factory in India – Maharashtra.

COMMON CONNECTIONS

1) Cable to Cable Connections (CC)

Weld Type – CC1

Horizontal End to End Cable Joint - Straight Joint



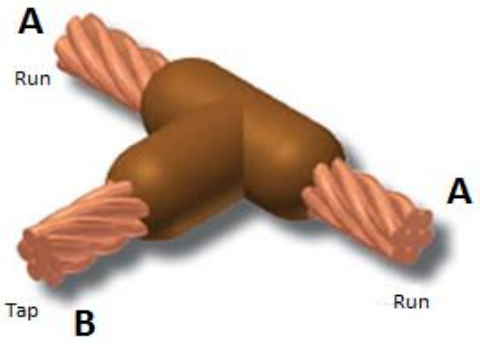
Cable Size mm^2	Powder In Grams	Mould Code	Clamp Type
10	25	CC1-C-10	HCC
16	32	CC1-C-16	HCC
25	32	CC1-C-25	HCC
35	45	CC1-C-35	HCC
50	45	CC1-C-50	HCC
70	65	CC1-C-70	HCC
95	90	CC1-C-95	HCC
120	115	CC1-C-120	HCC
150	150	CC1-C-150	HCC
185	200	CC1-C-185	HCC
240	250	CC1-D-240	HCD
300	150 x 2	CC1-D-300	HCD
400	200 x 2	CC1-D-400	HCD
500	250 x 2	CC1-E-500	HCD

Note: If you do not see the connection, configuration or size of conductor required by you mentioned in this product catalogue then please contact us at info@exothermicweld.com

2) Cable to Cable Connections (CC)

Weld Type – CC2

Horizontal Cable Tap to Horizontal Cable Run – T Joint



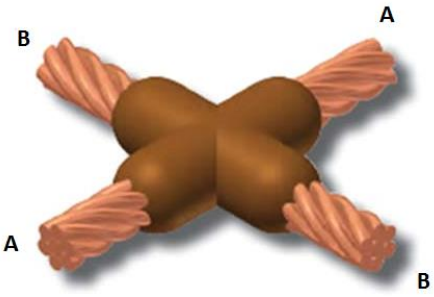
Cable A mm²	Cable B mm²	Powder in Grams	Mould Code	Clamp Type	Cable A mm²	Cable B mm²	Powder in Grams	Mould Code	Clamp Type
10	10	32	CC2-C-1010	HCC	150	25	90	CC2-C-15025	HCC
16	16	45	CC2-C-1616	HCC	185	185	250	CC2-D-185185	HCC
25	25	45	CC2-C-2525	HCC	185	150	200	CC2-D-185150	HCC
35	35	65	CC2-C-3535	HCC	185	120	200	CC2-D-185120	HCC
35	25	65	CC2-C-3525	HCC	185	95	150	CC2-C-18595	HCC
50	50	90	CC2-C-5050	HCC	185	70	150	CC2-C-18570	HCC
50	35	65	CC2-C-5035	HCC	185	50	150	CC2-C-18550	HCC
50	25	45	CC2-C-5025	HCC	185	35	115	CC2-C-18535	HCC
70	70	90	CC2-C-7070	HCC	185	25	115	CC2-C-18525	HCC
70	50	90	CC2-C-7050	HCC	240	240	150X2	CC2-E-240240	HCD
70	35	65	CC2-C-7035	HCC	240	185	150X2	CC2-D-240185	HCD
70	25	65	CC2-C-7025	HCC	240	150	250	CC2-D-240150	HCC
95	95	115	CC2-C-9595	HCC	240	120	250	CC2-D-240120	HCC
95	70	115	CC2-C-9570	HCC	240	95	200	CC2-C-24095	HCC
95	50	90	CC2-C-9550	HCC	240	70	150	CC2-C-24070	HCC
95	35	90	CC2-C-9535	HCC	240	50	150	CC2-C-24050	HCC
95	25	90	CC2-C-9525	HCC	240	35	150	CC2-C-24035	HCC
120	120	150	CC2-C-120120	HCC	240	25	115	CC2-C-24025	HCC
120	95	150	CC2-C-12095	HCC	300	300	200 x 2	CC2-E-300300	HCD
120	70	115	CC2-C-12070	HCC	300	240	200 x 2	CC2-E-300240	HCD
120	50	115	CC2-C-12050	HCC	300	185	150 x 2	CC2-D-300185	HCD
120	35	115	CC2-C-12035	HCC	300	150	150 x 2	CC2-D-300150	HCD
120	25	115	CC2-C-12025	HCC	300	120	250	CC2-D-300120	HCD
150	150	200	CC2-D-150150	HCD	300	95	200	CC2-C-30095	HCC
150	120	200	CC2-C-150120	HCC	300	70	200	CC2-C-30070	HCC
150	95	150	CC2-C-15095	HCC	300	50	150	CC2-C-30050	HCC
150	70	150	CC2-C-15070	HCC	300	50	150	CC2-C-30050	HCC
150	50	150	CC2-C-15050	HCC	300	35	150	CC2-C-30035	HCC
150	35	115	CC2-C-15035	HCC	300	25	150	CC2-C-30025	HCC

Note: If you do not see the connection, configuration or size of conductor required by you mentioned in this product catalogue then please contact us at info@exothermicweld.com

3) Cable to Cable Connections (CC)

Weld Type – CC4

Horizontal Cable to Horizontal Cable Cross – X Joint



Cable A mm²	Cable B mm²	Powder in Grams	Mould Code	Clamp Type	Cable A mm²	Cable B mm²	Powder in Grams	Mould Code	Clamp Type
10	10	32	CC4-C-1010	HCC	150	95	200	CC4-D-15095	HCC
16	16	45	CC4-C-1616	HCC	150	70	200	CC4-C-15070	HCC
25	25	45	CC4-C-2525	HCC	150	50	150	CC4-C-15050	HCC
35	35	65	CC4-C-3535	HCC	150	35	115	CC4-C-15035	HCC
35	25	65	CC4-C-3525	HCC	150	25	115	CC4-C-15025	HCC
50	50	90	CC4-C-5050	HCC	185	185	200 x 2	CC4-E-185185	HCD
50	35	90	CC4-C-5035	HCC	185	150	200 x 2	CC4-D-185150	HCD
50	25	90	CC4-C-5025	HCC	185	120	250	CC4-D-185120	HCC
70	70	115	CC4-C-7070	HCC	185	95	200	CC4-D-18595	HCC
70	50	115	CC4-C-7050	HCC	185	70	200	CC4-D-18570	HCC
70	35	115	CC4-C-7035	HCC	185	50	200	CC4-C-18550	HCC
70	25	115	CC4-C-7025	HCC	185	35	150	CC4-C-18535	HCC
95	95	150	CC4-C-9595	HCC	185	25	150	CC4-C-18525	HCC
95	70	150	CC4-C-9570	HCC	240	240	250x2	CC4-D-240240	HCD
95	50	115	CC4-C-9550	HCC	240	185	250x2	CC4-D-240185	HCD
95	35	115	CC4-C-9535	HCC	240	150	200x2	CC4-D-240150	HCD
95	25	115	CC4-C-9525	HCC	240	120	150X2	CC4-D-240120	HCD
120	120	200	CC4-C-120120	HCC	240	95	150X2	CC4-D-24095	HCD
120	95	200	CC4-C-12095	HCC	240	70	250	CC4-C-24070	HCC
120	70	150	CC4-C-12070	HCC	240	50	250	CC4-C-24050	HCC
120	50	150	CC4-C-12050	HCC	300	300	200x3	CC4-D-300300	HCD
120	35	150	CC4-C-12035	HCC	300	240	200x3	CC4-D-300240	HCD
120	25	150	CC4-C-12025	HCC	300	185	250x2	CC4-D-300185	HCD
150	150	250	CC4-D-150150	HCC	300	150	250x2	CC4-D-300150	HCD
150	120	250	CC4-D-150120	HCC	300	120	200x2	CC4-D-300120	HCD
					300	95	200x2	CC4-D-30095	HCD

Note: If you do not see the connection, configuration or size of conductor required by you mentioned in this product catalogue then please contact us at info@exothermicweld.com

4) Cable to Rod Connections (CR)

Weld Type – CR1

Horizontal Cable to Ground Rod Joint

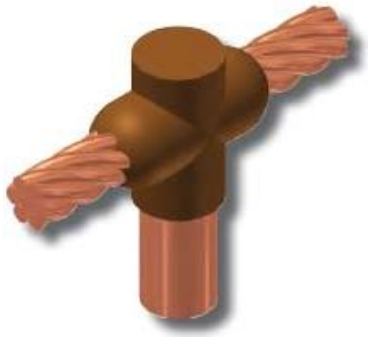
Rod		Cable Size		Powder	Mould	Clamp
in mm.	in inch.	mm^2	AWG	in Gram	Code	Type
		10	8	65	CR1-C-12710	HCC
		16	6	65	CR1-C-12716	HCC
		25	4	65	CR1-C-12725	HCC
12.7	**1/2**	35	2	65	CR1-C-12735	HCC
		50	1/0	90	CR1-C-12750	HCC
		70	2/0	90	CR1-C-12770	HCC
		95	3/0	115	CR1-C-12795	HCC
		120	4/0	115	CR1-C-127120	HCC
		10	8	65	CR1-C-14210	HCC
		16	6	65	CR1-C-14216	HCC
		25	4	65	CR1-C-14225	HCC
		35	2	90	CR1-C-14235	HCC
		50	1/0	90	CR1-C-14250	HCC
14.2	**5/8**	70	2/0	90	CR1-C-14270	HCC
		95	3/0	115	CR1-C-14295	HCC
		120	4/0	115	CR1-C-142120	HCC
		150	300 MCM	150	CR1-C-142150	HCC
		185	350 MCM	150	CR1-C-142185	HCC
		240	500 MCM	150	CR1-C-142240	HCC
		10	8	65	CR1-C-17210	HCC
		16	6	65	CR1-C-17216	HCC
		25	4	65	CR1-C-17225	HCC
		35	2	65	CR1-C-17235	HCC
		50	1/0	90	CR1-C-17250	HCC
		70	2/0	90	CR1-C-17270	HCC
17.2	**3/4**	95	3/0	115	CR1-C-17295	HCC
		120	4/0	150	CR1-C-172120	HCC
		150	300 MCM	200	CR1-C-172150	HCC
		185	350 MCM	250	CR1-C-172185	HCC
		240	500 MCM	250	CR1-C-172240	HCC
		300	750 MCM	150 x 2	CR1-C-172300	HCD

Note: If you do not see the connection, configuration or size of conductor required by you mentioned in this product catalogue then please contact us at info@exothermicweld.com

5) Cable to Rod Connections (CR)

Weld Type – CR2

Horizontal Cable to Ground Rod Joint – T Joint



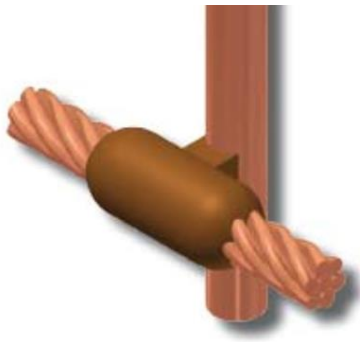
Rod		Cable Size		Powder	Mould	Clamp
in mm.	in inch.	mm^2	AWG	in Gram	Code	Type
		10	8	90	CR2-C-12710	HCC
		16	6	90	CR2-C-12716	HCC
		25	4	90	CR2-C-12725	HCC
12.7	**1/2**	35	2	90	CR2-C-12735	HCC
		50	1/0	90	CR2-C-12750	HCC
		70	2/0	115	CR2-C-12770	HCC
		95	3/0	115	CR2-C-12795	HCC
		120	4/0	150	CR2-C-127120	HCC
		10	8	65	CR2-C-14210	HCC
		16	6	65	CR2-C-14216	HCC
		25	4	90	CR2-C-14225	HCC
		35	2	90	CR2-C-14235	HCC
		50	1/0	90	CR2-C-14250	HCC
14.2	**5/8**	70	2/0	115	CR2-C-14270	HCC
		95	3/0	150	CR2-C-14295	HCC
		120	4/0	200	CR2-C-142120	HCC
		150	300 MCM	250	CR2-C-142150	HCC
		185	350 MCM	250	CR2-C-142185	HCC
		240	500 MCM	150 x 2	CR2-C-142240	HCD
		10	8	65	CR2-C-17210	HCC
		16	6	65	CR2-C-17216	HCC
		25	4	90	CR2-C-17225	HCC
		35	2	90	CR2-C-17235	HCC
		50	1/0	115	CR2-C-17250	HCC
		70	2/0	115	CR2-C-17270	HCC
17.2	**3/4**	95	3/0	150	CR2-C-17295	HCC
		120	4/0	200	CR2-C-172120	HCC
		150	300 MCM	250	CR2-C-172150	HCC
		185	350 MCM	150 x 2	CR2-C-172185	HCD
		240	500 MCM	150 x 2	CR2-C-172240	HCD
		300	750 MCM	200 x 2	CR2-D-172300	HCD

Note: If you do not see the connection, configuration or size of conductor required by you mentioned in this product catalogue then please contact us at info@exothermicweld.com

6) Cable to Rod Connections (CR)

Weld Type – CR3

Horizontal Cable thru to Ground Rod Joint – X Joint



Rod		Cable Size		Powder	Mould	Clamp
in mm.	in inch.	mm^2	AWG	in Gram	Code	Type
		10	8	90	CR3-E-12710	HCD
		16	6	90	CR3-E-12716	HCD
		25	4	90	CR3-E-12725	HCD
12.7	1/2	35	2	90	CR3-E-12735	HCD
		50	1/0	115	CR3-E-12750	HCD
		70	2/0	115	CR3-E-12770	HCD
		95	3/0	115	CR3-E-12795	HCD
		120	4/0	150	CR3-E-127120	HCD
		10	8	90	CR3-E-14210	HCD
		16	6	90	CR3-E-14216	HCD
		25	4	90	CR3-E-14225	HCD
		35	2	90	CR3-E-14235	HCD
		50	1/0	115	CR3-E-14250	HCD
14.2	5/8	70	2/0	115	CR3-E-14270	HCD
		95	3/0	115	CR3-E-14295	HCD
		120	4/0	200	CR3-E-142120	HCD
		150	300 MCM	250	CR3-E-142150	HCD
		185	350 MCM	250	CR3-E-142185	HCD
		240	500 MCM	150 x 2	CR3-J-142240	HCD
		10	8	90	CR3-E-17210	HCC
		16	6	90	CR3-E-17216	HCC
		25	4	90	CR3-E-17225	HCC
		35	2	90	CR3-E-17235	HCC
		50	1/0	115	CR3-E-17250	HCC
		70	2/0	150	CR3-E-17270	HCC
17.2	3/4	95	3/0	150	CR3-E-17295	HCC
		120	4/0	200	CR3-E-172120	HCC
		150	300 MCM	250	CR3-E-172150	HCC
		185	350 MCM	200x2	CR3-L-172185	HCD
		240	500 MCM	200x2	CR3-L-172240	HCD
		300	750 MCM	200x3	CR3-L-172300	HCD

Note: If you do not see the connection, configuration or size of conductor required by you mentioned in this product catalogue then please contact us at info@exothermicweld.com

7) Cable to Rod Connections (CB)

Weld Type – CB4

Horizontal Cable Tap to Horizontal Bar – T Joint

Cable		Bar	Powder	Mould	Clamp
mm²	AWG	Width x Thick	in Gram	Code	Type
10	8	20x2	32	CB4-C-10202	HCC
16	6	20x2	32	CB4-C-16202	HCC
16	6	20x3	32	CB4-C-16203	HCC
16	6	25x3	32	CB4-C-16253	HCC
25	4	20x2	45	CB4-C-25202	HCC
25	4	20x3	32	CB4-C-25203	HCC
25	4	25x3	32	CB4-C-25253	HCC
35	2	20x2	32	CB4-C-35202	HCC
35	2	20x3	45	CB4-C-35203	HCC
35	2	25x3	65	CB4-C-35253	HCC
50	1/0	20x3	45	CB4-C-50203	HCC
50	1/0	25x2	45	CB4-C-50252	HCC
50	1/0	25x3	65	CB4-C-50523	HCC
50	1/0	25x4	65	CB4-C-50254	HCC
50	1/0	25x6	90	CB4-C-50256	HCC
70	2/0	25x3	90	CB4-C-70253	HCC
70	2/0	25x4	90	CB4-C-70254	HCC
70	2/0	25x6	115	CB4-C-70256	HCC
95	3/0	25x3	115	CB4-C-95253	HCC

A		Bar	Powder	Mould	Clamp
mm²	AWG	Width x Thick	in Gram	Code	Type
95	3/0	25x4	115	CB4-C-95254	HCC
95	3/0	25x5	115	CB4-C-95255	HCC
95	3/0	25x6	115	CB4-C-95256	HCC
120	4/0	25x3	115	CB4-C-120253	HCC
120	4/0	25x5	150	CB4-C-120255	HCC
120	4/0	25x6	150	CB4-C-120256	HCC
120	4/0	30x5	150	CB4-C-120305	HCC
150	300 MCM	25x6	150	CB4-C-150256	HCC
150	300 MCM	30x5	150	CB4-C-150305	HCC
150	300 MCM	40x5	200	CB4-C-150405	HCC
185	350 MCM	25x3	200	CB4-C-185253	HCC
185	350 MCM	30x5	200	CB4-C-185305	HCC
185	350 MCM	40x5	250	CB4-C-185405	HCC
185	350 MCM	50x5	250	CB4-C-185405	HCC
185	350 MCM	50x6	250	CB4-C-185506	HCC
240	500 MCM	50x5	250	CB4-C-240505	HCC
240	500 MCM	50x6	150x2	CB4-C-240506	HCD
300	750 MCM	50x6	200x2	CB4-D-300506	HCD
300	750 MCM	50x8	250x2	CB4-D-300508	CC

Note: If you do not see the connection, configuration or size of conductor required by you mentioned in this product catalogue then please contact us at info@exothermicweld.com

8) Cable to Rod Connections (CB)

Weld Type – CB5

Horizontal Cable Run to Horizontal Bar – T Joint

Cable		Bar	Powder	Mould	Clamp		A		Bar	Powder	Mould	Clamp
mm²	AWG	Width x Thick	in Gram	Code	Type		mm²	AWG	Width x Thick	in Gram	Code	Type
10	8	20x2	45	CB5-C-10202	HCC		95	3/0	25x4	200	CB5-C-95254	HCC
16	6	20x2	45	CB5-C-16202	HCC		95	3/0	25x5	200	CB5-C-95255	HCC
16	6	20x3	45	CB5-C-16203	HCC		95	3/0	25x6	200	CB5-C-95256	HCC
16	6	25x3	65	CB5-C-16253	HCC		120	4/0	25x5	200	CB5-C-120254	HCC
25	4	20x2	45	CB5-C-25202	HCC		120	4/0	25x6	200	CB5-C-120256	HCC
25	4	20x3	45	CB5-C-25203	HCC		120	4/0	30x5	250	CB5-C-120305	HCC
25	4	25x3	65	CB5-C-25253	HCC		150	300 MCM	25x6	250	CB5-C-150256	HCC
35	2	20x2	45	CB5-C-35202	HCC		150	300 MCM	30x5	250	CB5-C-150305	HCC
35	2	20x3	45	CB5-C-35203	HCC		150	300 MCM	40x5	150 x 2	CB5-C-150405	HCD
35	2	25x3	65	CB5-C-35253	HCC		185	350 MCM	30x5	150 x 2	CB5-C-185305	HCD
50	1/0	20x3	65	CB5-C-50203	HCC		185	350 MCM	40x5	150 x 2	CB5-C-185405	HCD
50	1/0	25x2	65	CB5-C-50252	HCC		185	350 MCM	50x5	200x2	CB5-D-185505	HCD
50	1/0	25x3	65	CB5-C-50523	HCC		240	500 MCM	30x5	150 x 2	CB5-C-240305	HCD
70	2/0	25x3	90	CB5-C-70253	HCC		240	500 MCM	50x6	250 x 2	CB5-D-240506	HCD
70	2/0	25x4	115	CB5-C-70254	HCC		300	750 MCM	50x6	200 x 3	CB5-D-300506	CC
70	2/0	25x6	115	CB5-C-70256	HCC		300	750 MCM	50x8	200 x 3	CB5-D-300508	CC

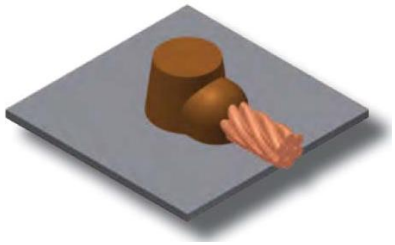
Note: If you do not see the connection, configuration or size of conductor required by you mentioned in this product catalogue then please contact us at info@exothermicweld.com

9) Cable to Surface (Steel/Copper) Connections (CS)

Weld Type – CS1

Horizontal Cable to Horizontal Surface (Steel / Copper)

Cable		Powder	Mould	Clamp
mm²	AWG	in Grams	Code	Type
10	8	32	CS1-A-10	HCP
16	6	32	CS1-A-16	HCP
25	4	45	CS1-A-25	HCP
35	2	45	CS1-A-35	HCP
50	1/0	90	CS1-C-50	HCC
70	2/0	115	CS1-C-70	HCC
95	3/0	150	CS1-C-95	HCC
120	4/0	150	CS1-C-120	HCC
150	300 MCM	200	CS1-C-150	HCC
185	350 MCM	220	CS1-C-185	HCC
240	500 MCM	250	CS1-C-240	HCC
300	750 MCM	150 X 2	CS1-C-300	HCC

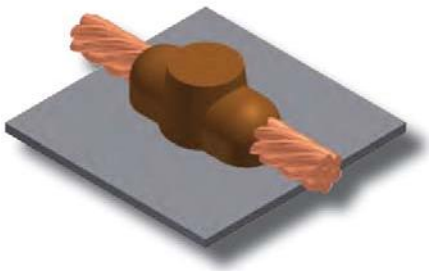


10) Cable to Surface (Steel/Copper) Connections (CS)

Weld Type – CS2

Horizontal Cable Run to Horizontal Surface (Steel / Copper)

Cable		Powder	Mould	Clamp
mm²	AWG	in Grams	Code	Type
10	8	32	CS2-A-10	HCP
16	6	45	CS2-A-16	HCP
25	4	45	CS2-A-25	HCP
35	2	65	CS2-A-35	HCP
50	1/0	90	CS2-C-50	HCC
70	2/0	115	CS2-C-70	HCC
95	3/0	150	CS2-C-95	HCC
120	4/0	200	CS2-C-120	HCC
150	300 MCM	200	CS2-C-150	HCC
185	350 MCM	250	CS2-C-185	HCC
240	500 MCM	150x2	CS2-D-240	HCD
300	750 MCM	200x2	CS2-D-300	HCD

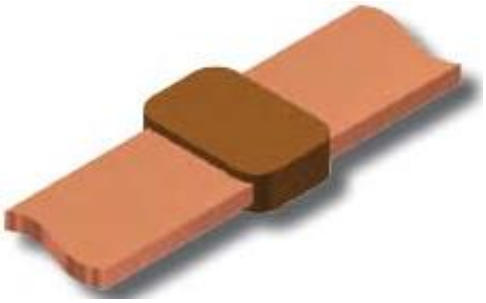


Note: If you do not see the connection, configuration or size of conductor required by you mentioned in this product catalogue then please contact us at info@exothermicweld.com

11) Bar to Bar Connections (BB)

Weld Type – BB1

Horizontal Bar to Horizontal Bar – Straight Joint



Bar mm x mm	Powder in Grams	Mould Type	Clamp Type		Bar mm x mm	Powder in Grams	Mould Type	Clamp Type
20x2	45	BB1-C-202	HCC		40x3	115	BB1-C-403	HCC
20x3	45	BB1-C-203	HCC		40x4	200	BB1-C-404	HCC
25x2	65	BB1-C-252	HCC		40x5	150	BB1-C-405	HCC
25x3	90	BB1-C-253	HCC		40x6	250	BB1-C-406	HCC
25x4	90	BB1-C-254	HCC		50x3	150	BB1-C-503	HCC
25x6	150	BB1-C-256	HCC		50x4	150	BB1-C-504	HCC
30x2	65	BB1-C-302	HCC		50x5	200	BB1-C-505	HCC
30x3	90	BB1-C-303	HCC		50x6	150x2	BB1-C-506	HCD
30x4	115	BB1-C-304	HCC		50x8	200x2	BB1-D-508	HCD
30x5	115	BB1-C-305	HCC		50x10	250x2	BB1-D-5010	HCD
31x3	90	BB1-C-313	HCC		60x10	250x2	BB1-D-6010	HCD
31x6	115	BB1-C-316	HCC		75x10	250x3	BB1-D-7510	HCD
38x3	200	BB1-C-383	HCC		75x12	200x4	BB1-D-7512	CC
38x5	150	BB1-C-385	HCC		80x8	250x3	BB1-D-808	CC
38x6	200	BB1-C-386	HCC		80x10	200x4	BB1-D-8010	CC

Note:

1) If you do not see the connection, configuration or size of conductor required by you mentioned in this product catalogue then please contact us at info@exothermicweld.com.

2) The Strip must be clean using the wire Brush and Dry cloth and **then make two Hole of 3mm to 5mm each on all the strips at corner side where Exothermic Welding needed to be performed** and then **heat the Strips with the OXY Acetylene / Propane Torch.**

P.N – Two hole on each Strips is must as this will ensure little fusion with the Exothermic Powder and putting the Hole will also give good Mechanical Strength.

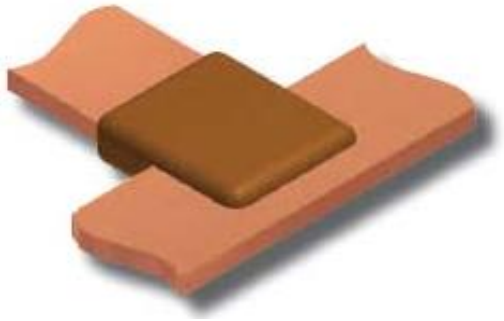
Make sure to heat the Copper Strip until it become Reddish Tone.

Also preheat the graphite mould with a gas welding torch to remove moisture.

12) Bar to Bar Connections (BB)

Weld Type – BB2

Horizontal Bar to Horizontal Bar – T Joint



Bar mm x mm	Powder in Grams	Mould Type	Clamp Type		Bar mm x mm	Powder in Grams	Mould Type	Clamp Type
20x2	45	BB2-C-202202	HCC		40x4	150	BB2-C-404404	HCC
20x3	90	BB2-C-203203	HCC		40x5	150	BB2-C-405405	HCC
25x2	65	BB2-C-252252	HCC		40x6	250	BB2-C-406406	HCC
25x3	90	BB2-C-253253	HCC		50x3	200	BB2-C-503503	HCC
25x4	90	BB2-C-254254	HCC		50x4	200	BB2-C-504504	HCC
25x6	200	BB2-C-256256	HCC		50x5	200	BB2-C-505505	HCC
30x2	65	BB2-C-302302	HCC		50x6	150x2	BB2-C-506506	HCD
30x3	90	BB2-C-303303	HCC		50x8	200x2	BB2-C-508508	CC
30x4	115	BB2-C-304304	HCC		60x6	150x2	BB2-C-606606	CC
31x3	115	BB2-C-313313	HCC		60x8	200x2	BB2-C-608608	CC
31x6	250	BB2-C-316316	HCC		60x10	250x2	BB2-C-60106010	CC
38x3	115	BB2-C-383383	HCC		75x12	200 x 6	BB2-C-75127512	CC
38x5	150	BB2-C-385385	HCC		80x8	250x2	BB2-C-808808	CC
38x6	250	BB2-C-386386	HCC		80x10	200x3	BB2-C-80108010	CC
40x3	115	BB2-C-403403	HCC		100x10	250x6	BB2-C-1001010	CC

Note:

1) If you do not see the connection, configuration or size of conductor required by you mentioned in this product catalogue then please contact us at info@exothermicweld.com.

2) The Strip must be clean using the wire Brush and Dry cloth and **then make two Hole of 3mm to 5mm each on all the strips at corner side where Exothermic Welding needed to be performed** and then **heat the Strips with the OXY Acetylene / Propane Torch.**

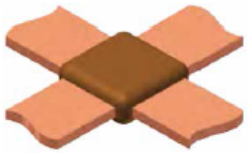
P.N – Two hole on each Strips is must as this will ensure little fusion with the Exothermic Powder and putting the Hole will also give good Mechanical Strength.

Make sure to heat the Copper Strip until it become Reddish Tone.

Also preheat the graphite mould with a gas welding torch to remove moisture.

13) Bar to Bar Connections (BB) ,Weld Type – BB3
Horizontal Bar – Full Cross Joint

Bar	Powder	Mould	Clamp
mm x mm	in Grams	Type	Type
25 x 3	250	BB3-C-253253	HCC
25 X 6	250	BB3-C-256256	HCD
30 X 6	150 X 2	BB3-C-306306	HCD
40 X 6	250 X 2	BB3-C-406406	HCD
50 X 3	250 X 2	BB3-C-503503	HCD
50 X 6	250 X 3	BB3-C-506506	CC
75 X 12	250 X 6	BB3-C-75127512	CC



14) Bar to Bar Connections (BB), Weld Type – BB4
Horizontal Bar – Half Cross Joint

Bar	Powder	Mould	Clamp		Bar	Powder	Mould	Clamp
mm x mm	in Grams	Type	Type		mm x mm	in Grams	Type	Type
20 x 2	65	BB4-C-202202	HCC		25 x 5	115	BB4-C-255255	HCC
25 x 2	65	BB4-C-25252	HCC		30 x 5	150	BB4-C-305305	HCC
30 x 2	65	BB4-C-302302	HCC		40 x 5	200	BB4-C-405405	HCC
20 x 3	90	BB4-C-203203	HCC		50 x 5	250	BB4-C-505505	HCC
25 x 3	115	BB4-C-253253	HCC		25 x 6	250	BB4-C-256256	HCC
30 x 3	115	BB4-C-303303	HCC		30 x 6	250	BB4-C-306306	HCC
40 x 3	115	BB4-C-403403	HCC		40 x 6	250	BB3-C-406406	HCC
50 x 3	200	BB4-C-503503	HCC		50 x 6	150 x 2	BB4-C-506506	HCD
20 x 4	115	BB4-C-204204	HCC		60 x 6	2 x 200	BB4-C-606606	HCD
25 x 4	115	BB4-C-254254	HCC		50 x 8	2 x 250	BB4-C-508508	CC
30 x 4	115	BB4-C-304304	HCC		60 x 8	3 x 200	BB4-C-608608	CC
40 x 4	150	BB4-C-404404	HCC		50 x 10	3 x 200	BB4-C-50105010	CC
20 x 5	115	BB4-C-385385	HCC		75 x 12	6 x 200	BB4-C-75127512	CC

Note:

The Strip must be clean using the wire Brush and Dry cloth and **then make two Hole of 3mm to 5mm each on all the strips at corner side where Exothermic Welding needed to be performed** and then **heat the Strips with the OXY Acetylene / Propane Torch.**

P.N – Two hole on each Strips is must as this will ensure little fusion with the Exothermic Powder and putting the Hole will also give good Mechanical Strength.

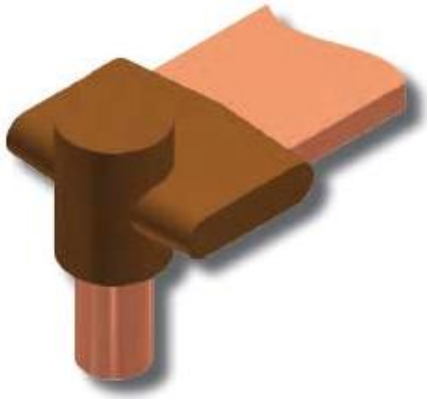
Make sure to heat the Copper Strip until it become Reddish Tone.

Also preheat the graphite mould with a gas welding torch to remove moisture.

15) Bar to Ground Rod Connections (BR)

Weld Type – BR1

Horizontal Bar to Vertical Ground Rod

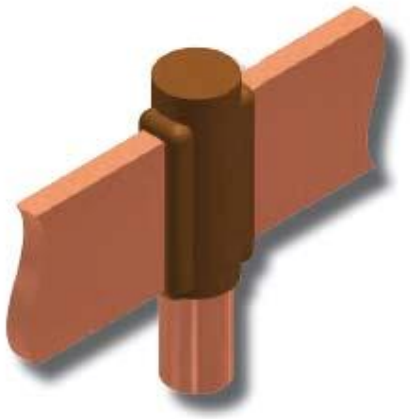


Rod		Bar Size	Powder	Mould	Clamp
in mm.	in inch.	Width X Thick	in Gram	Code	Type
		30 x 2	115	BR1-14-302	HCC
		20 x 3	90	BR1-14--203	HCC
		25 x 3	90	BR1-14--253	HCC
		30 x 3	115	BR1-14-303	HCC
		40 x 3	115	BR1--14-403	HCC
		50 x 3	150	BR1-14-503	HCC
		20 x 4	90	BR1-14-204	HCC
14.2	**5/8**	25 x 4	115	BR1-14-254	HCC
		25 x 5	115	BR1-14-255	HCC
		30 x 5	150	BR1-14-305	HCC
		40 x 5	150	BR1-14--405	HCC
		50 x 5	200	BR1-14--505	HCC
		25 x 6	200	BR1-14--256	HCC
		30 x 6	200	BR1-14-306	HCC
		40 x 6	250	BR1-14--406	HCC
		50 x 6	250	BR1-14-506	HCC
		30 x 2	150	BR1-17-302	HCC
		20 x 3	115	BR1-17-203	HCC
		25 x 3	150	BR1-17-253	HCC
		30 x 3	150	BR1-17-303	HCC
		40 x 3	200	BR1-17-403	HCC
		50 x 3	2x150	BR1-17-503	HCD
		20 x 4	150	BR1-17-204	HCC
17.2	**3/4**	25 x 4	150	BR1-17-254	HCC
		25 x 5	150	BR1-17-255	HCC
		30 x 5	250	BR1-17-305	HCC
		40 x 5	250	BR1-17-405	HCC
		50 x 5	2x150	BR1-17-505	HCD
		25 x 6	250	BR1-17-256	HCC
		30 x 6	250	BR1-17-306	HCC
		40 x 6	2x150	BR1-17-406	HCD
		50 x 6	2x250	BR1-17-506	HCD

16) Bar to Ground Rod Connections (BR)

Weld Type – BR2

Horizontal Bar Run to Vertical Ground Rod



Rod		Bar Size	Powder	Mould	Clamp
in mm.	in inch.	Width X Thick	in Gram	Code	Type
		30 x 2	115	BR2-142302	HCC
		20 x 3	90	BR2-142203	HCC
		25 x 3	115	BR2-142253	HCC
		30 x 3	115	BR2-142303	HCC
		40 x 3	115	BR2-14403	HCC
		50 x 3	150	BR2-142503	HCC
		20 x 4	90	BR2-142204	HCC
14.2	**5/8**	25 x 4	150	BR2-142254	HCC
		25 x 5	150	BR2-142255	HCC
		30 x 5	200	BR2-142305	HCC
		40 x 5	200	BR2-142405	HCC
		50 x 5	250	BR2-142505	HCC
		25 x 6	200	BR2-142256	HCC
		30 x 6	200	BR2-142306	HCC
		40 x 6	250	BR2-142406	HCC
		50 x 6	150 X 2	BR2-142506	HCD
		30 x 2	150	BR2-172302	HCC
		20 x 3	115	BR2-17203	HCC
		25 x 3	150	BR2-172253	HCC
		30 x 3	150	BR2-172303	HCC
		40 x 3	200	BR2-172403	HCC
		50 x 3	2x150	BR2-172503	HCD
		20 x 4	150	BR2-172204	HCC
17.2	**3/4**	25 x 4	150	BR2-172254	HCC
		25 x 5	150	BR2-172255	HCC
		30 x 5	200	BR2-172305	HCC
		40 x 5	250	BR2-172405	HCC
		50 x 5	2x150	BR2-172505	HCD
		25 x 6	250	BR2-172256	HCC
		30 x 6	250	BR2-172306	HCC
		40 x 6	150 X 2	BR2-172406	HCD
		50 x 6	2 x 200	BR2-172506	HCD

Note: If you do not see the connection, configuration or size of conductor required by you mentioned in this product catalogue then please contact us at info@exothermicweld.com

Trouble Shooting Guide

Problem	Probable Cause	Correction To Make
Insufficient metal to make weld.	Leaking of Exothermic liquid from the Graphite Mould near Cavity side.	Replace mould or if only worn around conductor opening, use Sealing Compound around conductor where conductor passes from Mould.
	Use of wrong size Exothermic Powder cartridge for mould.	Please check the Mould / Mould Box / Quotation File and tally the amount of Powder require per Joint. Every Tube consisting of different grams Exothermic Powder has different chemical composition.
	Too much spillage of Exothermic powder while pouring in Graphite Mould.	Carefully open the Exothermic Powder Tube and ensure that the Powder to be poured in the Graphite Mould only without any Spillage.
	Wrong mould for conductor being used.	i) Replace with correct mould if have. ii) If Conductor not going Smoothly than use Glass Paper and rub gently at Weld Cavity ensuring equal rubbing on both side of Cavity. iii) If Conductor goes very easily and Liquid Pouring out of Mould even after using of Sealing Compound than use Copper Foil and ensure the Conductor and Hole gap not more than 0.3mm
Mould does not close tightly causing weld metal to leak out.	Handle clamps not properly adjusted.	Remove set screw between the handles of the mould and adjust handle tension by backing out the eye bolt.
	Dirt or Slag stuck in the edge of the Mould or near the Weld Cavity	Clean mould thoroughly between connections.
	Bent or out-of-round cable.	Straighten or cut out bad section of cable.
Handle clamps will not lock or closed.	Handle clamps not properly adjusted.	Remove set screw between the handles of the mould and adjust handle tension by backing out the eye bolt.
Excessively high weld, bubbly or gassy appearance, poor weld.	Moisture in mould.	Pre-heat mould to above 220˚ F with a propane torch.
	Oil, grease, moisture or foreign material on conductors.	Pre-heat conductors with propane torch then use a clean wire brush on conductor to remove any residue left on conductors. If welding to cast iron or steel surface, weld area must be cleaned down to with wire brush to remove rust
	Use of wrong size Exothermic Powder cartridge for mould.	Please check the Mould / Mould Box / Quotation File and tally the amount of Powder require per Joint.
	Sealing Compound Appearance in side weld Cavity	Take special precautions to keep duct seal out of weld cavity.
	Weld powder caught moisture	Replace with fresh, dry weld powder.
Exothermic Weld Powder spills from the Mould near Cavity	Mould worn or disc is cracked allowing powder to leak into mould cavity.	Replace mould.
	Forgot to use steel disc or did not seat it properly at bottom of crucible.	Make sure disc is seated at bottom of crucible before pouring the powder into crucible.

Trouble Shooting Guide continuation……

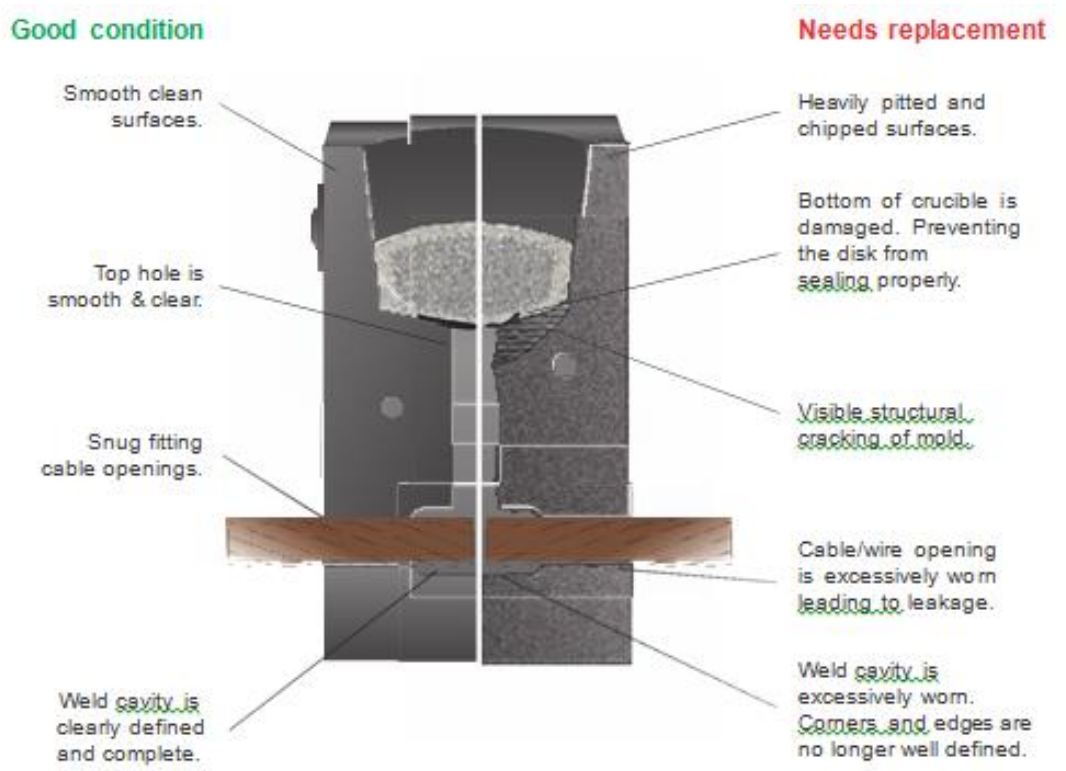
Problem	Probable Cause	Correction To Make
Cannot ignite powder.	Insufficient starting powder pours in the Mould or at the top of Mould	Place at least half of the Starting Powder from the Lock Bag provided in bottom of Exo Powder Tube.
	Flint ignitor shooting not giving enough spark.	Replace flint ignitor. P.N – Flint Gun gives average 80 Sparks only.
Mould wearing out too fast. (Not Making enough Joint recommended by us)	Improper cleaning of mould.	Use mould cleaner brush provided. P.N – Use Soft Brush to clean Weld Cavity Hard Brush to Clean Mould Crucible **Don't Use Wire Brush for Cleaning Moulds**
	Bent or out of round cable causes damage and premature wear of the mould.	Be caution when closing mould. Does not force mould to shut around bent, twisted or out of round conductors
Poor weld to ground rod.	Exothermic Liquid spilling out from the Bottom where Rod is Placed Vertically	Use more Sealing Compound at the Bottom where the Rod is Placed and ensure that Exothermic Liquid not Spilling. In case if spilling again than Use Copper Foil and Cover with Rod and ensure Graphite Mould have tight grip to
	Moisture or Rust on cable or ground rod.	Pre-heat conductors with propane torch then use a clean wire brush on conductors and Rod to remove any residue / rust / dirt left on conductors.
Weld not sticking to Steel Surface	Improperly cleaned area on steel.	Clean the Steel Surface properly with Wire Brush and ensure no rust and dirt on the Surface.
	Moisture or contaminant on cable or steel surface.	Pre-heat conductors with propane torch then use a clean wire brush on conductors to remove any residue left on conductors.
	Cable is improperly positioned in mould, blocking the flow of weld metal.	Position cable in mould in accordance with directions for mould. If directions are not available, position top of cable in the centre of where the liquid weld metal hits the steel.
Cable pulls out of mould when it is fired.	Cables are either twisted or under tension.	Use our recommended cable clamp or other method to remove tension. Cut out severely twisted cable.

AURAWELD Mold Inspection

AuraWeld molds are made from superior quality graphite and can be expected to give about 50 or more connections depending upon the Size of Conductor / Tape. The more the Size of the Conductor / Tape the lesser will be the life of Connection.

The Joint which consumes less than or equal to # 200 Weld Powder, it can give about 50 Joint. In order to ensure better life of the connection proper care must be taken at the time of cleaning the Mold.

Please note that the mold will eventually wear out due to the extreme heat cycling and abrasion. The diagram below shows the difference between a mold that is in good condition and one that needs to be replaced.



NOTE: Inspect the mold regularly to determine if a mold should be replaced.

P.N – The Mold needs to be replaced if:

i) more slag is forming on the Top of the Joint which earlier was not the case.

ii) the Welding Portion is leaking out from the Passage of Conductor Passing.

iii) the Cavity inside the Mold is damaged and is in improper shape & size than the Original one.

iv) the reaction sound different than normal one. (In this case repeated exposure to atmospheric condition to above 600 degree, the graphite start oxidation and graphite reacts with Oxygen and it start deteriorating)

v) the Joint forming is incomplete

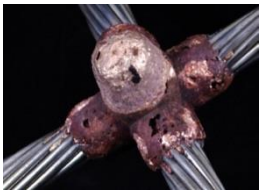
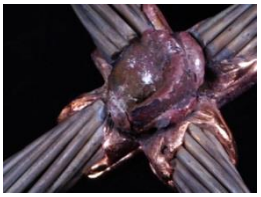
Exothermic Weld Checklist

STEP	TASK	CHECK
1	**Dry and clean the mold** with Flame torch (crucible & all cavities).	
2	**Dry and clean the Conductors/ Tape*** with a torch to completely remove all oil coating. Any oil residue will show itself via smoke or discolored flame. ***NOTES/TIPS on Drying & Cleaning Conductors / Tape** • Weld surface MUST be clean of all dirt, grime, and oil residue (oil is occasionally a residual of the manufacturing process and MUST BE REMOVED). • When cleaning conductor with a torch, a orange/red/green flame or smoke indicates that oil is being burned off the conductor. Wait for the torch flame to turn BLUE to assure all oil is burned off the conductor surface.	
3	**Clean the conductors*** with a wire brush to remove all dirt, ash & oxides.	
4	When welding to a steel surface: • Use a rasp or grinding wheel • Remove rust-proofing, paint, rust or scale • Weld surface should be bright clean metal	
5	**Position mold properly over the conductors** (center) and lock the mold handle. i) Ensure that the Mold tighten Properly with Handle. Any gap at the time of clamping the Mold with handle will not make Connection properly. ii) Please also ensure that the Conductor passing inside the Mold is not loosening. If it's little loosening than it can be used applying Sealing compound. iii) In case after using Sealing Compound, if the molten metal is spilling out than immediately replace the Mold and scrap the older one. iv) If Conductor not passing smoothly inside the Mold than use Glass Paper and rub the Graphite equally on all the side but **strictly do not rub the Cavity**	
6	Place the metal disk in bottom of crucible with curved side down (cover tap hole).	
7	Pour the weld metal into crucible and sprinkle the starter material (tube) on the top of the Weld Powder and on the centre of the mold ensuring little starting Powder also goes inside.	
8	Close the mold cover — Ignite the starter material with flint igniter.	
9	Wait for weld process to complete, and then open the mold.	
10	Remove any slag from the welded connection.	
11	**Clean the mold** with a mold cleaning brush. • Use Soft Brush only to clean Cavity and Hard Brush on other part of the Molds. • Remove any remaining slag, dust, or weld residue with Slag Tool • Do Not use any wire brush or metal object to clean mold. • Apply Butemin Paint on the Welded Joint to avoid oxidation on Joint	
12	Discard the mold when leakage occurs or the disk seat is worn/chipped.	

Visual Inspection

Color	The connection can be seen most clearly by brushing the connection lightly with a wire brush. This should produce a connection in brass or gold or bronze or Copper colour. As per IEEEE Standard the colour forming is not important and the Weld Powder is mixture of various alloys of Powder and when alloys reacts with each other it tend to change the Colour. The Welding Connection should never be judge with colour it produce but the Copper Colour joint is prefably considered as good connection because the joints shows the true purity colour.
Surface Finish	The goal of the surface finish is to be reasonably smooth & free from major slag deposits. If the slag is spreaded all over the Joints and at the time of removal of Slag using Slag tool - heavy porosity is visualise than the Connection is rejected. If slag covers **more than 20%** of the connection surface then cut the cable and try to reapply weld. If the Slag is little forming on the middle of the Joint i.e approx. to 15% than it can be accepted provided that after slag removal the porosity is not much that the Conductor can be seen.
Porosity	The connection should be free from porosity, which it is normally the result of contaminants (water, oil, dirt, etc.) in the mold and/or conductor. A few small pinholes may be present on the surface of the riser. Please note: the depth of a pinhole must never extend beyond the centre of the conductor. A paper clip or a 1/32" wire can be used to check the depth. Reject the connection if the depth of the pinhole extends beyond the centre of the conductor.

Connection Ratings

GOOD	A GOOD connection is a normal weld with only slight exterior blemishes.	
ACCEPTABLE	An ACCEPTABLE connection is a less than normal weld, but still it is a fine performing weld. Imperfections indicate that either: • A new mold is required sooner • A change in procedure is necessary • The proper mold conductor and/or weld metal should be used. (This generally happens when at time of welding the Air is not getting enough space to move out from the Mold. However this is accepted)	
REJECT	A REJECT connection shows inadequate fill or an extra high riser due to either: • Use of incorrect equipment and/or equipment worn beyond its useful life • Use of an incorrect procedure or use of incorrect material. In this case use more Powder to get the complete Joint	

Disclaimer

Warranty

AURAWELD's exothermic welding products are guaranteed to be defect-free in material and construction at the time of shipment. Claims should be made in writing within 5 days of the buyer's reception of the products. All claims under the warranty provided herein must be made within sixty (60) days from the date of discovery of the defect. Failure to notify AURA WELD of a warranted defect within sixty (60) days of its discovery voids AURA WELD obligations hereunder. Products maintained to be faulty or defective must be returned to AURA WELD for inspection without delay. Warranty void if claims not made within the applicable time period or if regulations not followed exactly as stated above. AURA WELD is not responsible for products that have not been stored or used in agreement with AURAWELD's recommended specifications and practices. AURA WELD will either repair or replace the defective products or return the purchase price to the buyer, at its discretion.

Limitation of Liability

AURA WELD shall not be liable for any loss, cost, damage, or expense of any kind arising out of a breach of warranty. AURA WELD excludes all liability except that which is directly attributed to willful or gross negligence of AURAWELD's employees. In the event that AURAWELD claims liability it should in not exceed the total purchase price of a defective product. AURA WELD shall in no event be liable for any incidental, consequential, exemplary, special, or punitive damages, nor for any loss of revenue, profit or use, arising out of a breach of this warranty or in connection with the sale, maintenance, use, operation or repair of any AURAWELD product.

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