KLK weld

User Guide (EN)

KLK welding Procedures

Capsule Exothermic Welding

The **safest**, **fastest**, and **most advanced exothermic welding system** on the market.

Kcup®

Kcup® is our most innovative exothermic welding solution, designed to provide **maximum reliability, safety, and speed** for **professional installers** in their daily work.

www.klk.es

#weareKLK

KLK Electro Materials S.L.U. operates on five continents, serving clients in more than 30 countries.

KLK is a supplier of equipment for the industrial and energy electrical sectors. Founded in 1965, we have more than fifty years of experience providing technical solutions to national and international clients in the most demanding and competitive markets.

Since 2022, KLK has been part of the French Novarc Group, a global leader in energy, telecommunications, safety, and installation solutions.

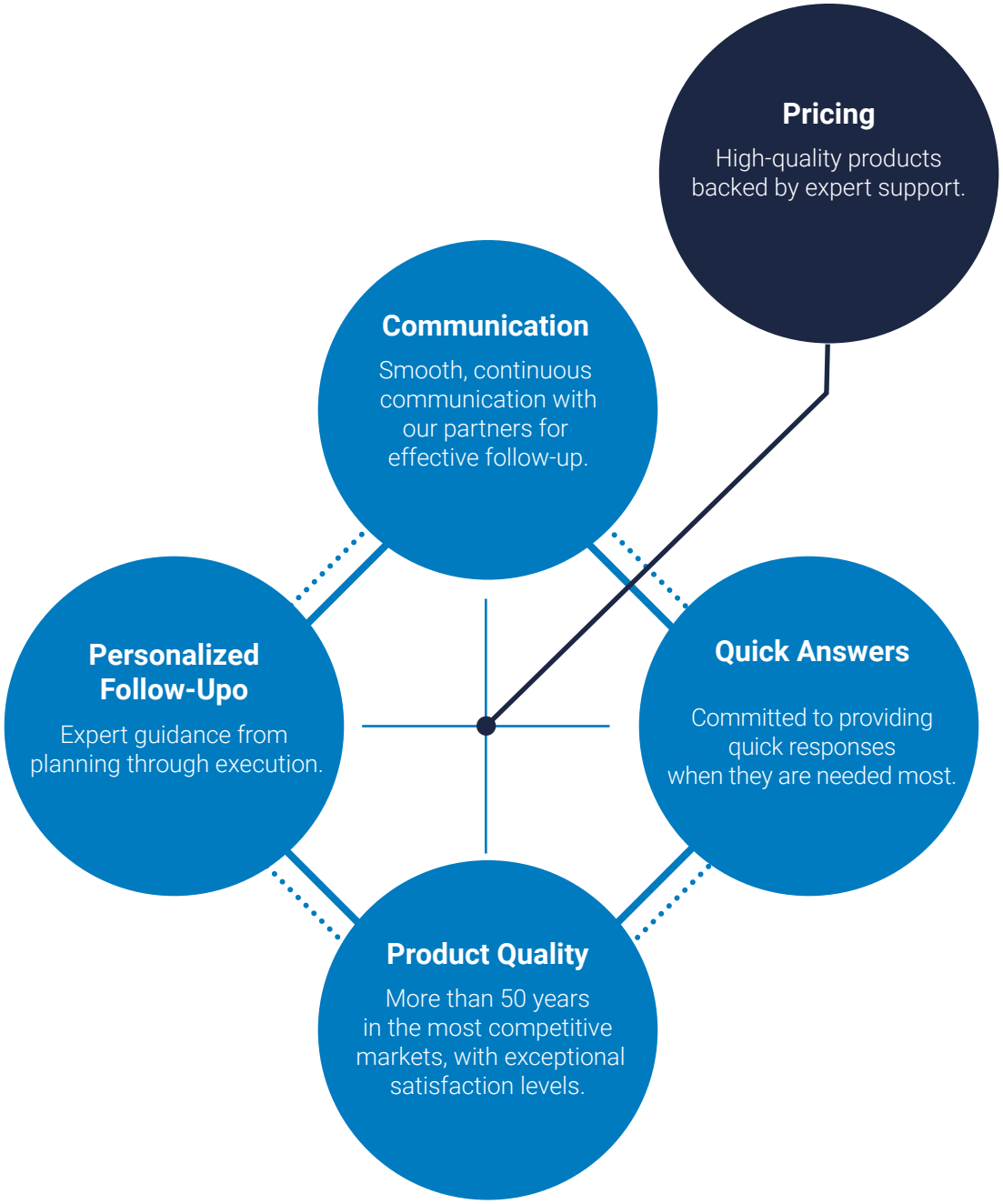
We are currently the leading national supplier of safety solutions for high-, medium-, and low-voltage electrical installations. We are also one of the most important grounding-solution providers in Europe, with a strong presence in Latin America and the Middle East.

KLK is an industry leader with a specialized division dedicated to producing and marketing grounding materials and exothermic welding solutions—KLK weld—achieving an undisputed reputation in highly mature sectors such as the railway industry, both nationally and internationally.

In addition, KLK complements its offering with its KLK Tech service line, designed to provide comprehensive solutions to customers. Available services include specialized training at different levels, post-sales technical support, and personalized consulting.

Thanks to its focus on quality, innovation, and service excellence, KLK has positioned itself as a benchmark company in the market and the preferred choice for professionals and organizations seeking reliable, high-performance solutions in grounding systems and exothermic welding.

novarc NETWORKS


Pricing
High-quality products backed by expert support.
Communication
Smooth, continuous communication with our partners for effective follow-up.
Personalized Follow-Upo
Expert guidance from planning through execution.
Quick Answers
Committed to providing quick responses when they are needed most.
Product Quality
More than 50 years in the most competitive markets, with exceptional satisfaction levels.

Summary

Introduction

The safest, fastest, and most advanced on the market.

Kcup® is our most innovative exothermic welding solution, designed to deliver maximum reliability, safety, and speed for professional installers in their daily work.

Thanks to its remote ignition system and preformed Kcup® capsules, it shortens working time, eliminates risks, and simplifies the process without compromising connection quality.

This manual is more than just a set of instructions. It is a practical tool created by and for professionals, aimed at guiding you throughout the installation process. Here you'll find best practices, technical recommendations, solutions to common errors, and visual resources to help you achieve perfect results in every exothermic connection you perform.

Precautions

GENERAL SAFETY PRECAUTIONS

The Kcup® system has been developed to provide a welding process that is safe, reliable, and easy to use. Even so, it is essential to follow the instructions in this guide correctly and use only original Kcup® system components.

Incorrect handling of materials or the use of non-approved elements can compromise both installation safety and operator safety.

If you have any questions during the process or need technical support, our team is available to help you. You can contact us through our technical form at www.klk.es/contacto or by emailing comercial@klk.es

Before starting any connection, make sure to:

IMPORTANT

- Use protective gloves and safety glasses..
- Keep conductors and molds dry and clean.
- Do not use damaged components or tampered capsules.
- Do not modify the system without technical authorization.
- Do not work near flammable materials.
- Never attempt to manually ignite a Kcup® capsule.
- In case of fire, use CO_2 or water spray from a safe distancea.
- Kcup® operates at temperatures up to 1,400 °C.

Exothermic welding involves very high temperatures. Use proper PPE, follow all procedures, and avoid improvisations.

TIP TOP Kcup®:
Encapsulated technology that **reduces human risk**. Meets safety standards f**or electrical connections in civil works, energy, and industrial applications.**

Components System

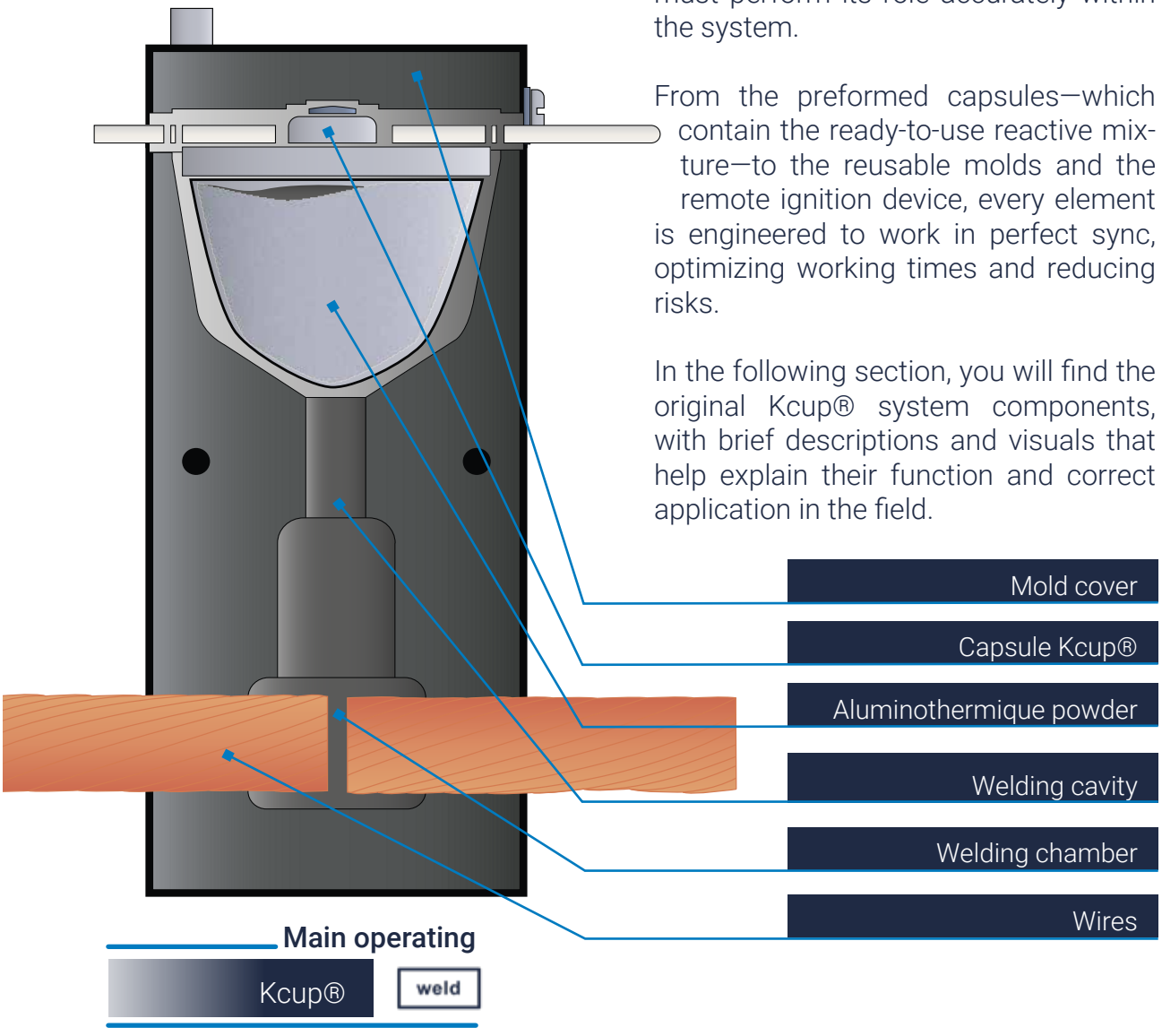
UNDERSTANDING THE Kcup® SYSTEM

The Kcup® system **has been developed to deliver an exothermic welding process that is efficient, safe, and fully standardized**. Each kit is made up of specific components that enable precise, repeatable electrical connections while ensuring maximum operator safety.

The **foundation of the system is a controlled chemical reaction that generates extreme temperatures capable of melting metals and creating a high-conductivity, mechanically robust molecular bond**. For this process to take place reliably, each component must perform its role accurately within the system.

From the preformed capsules—which contain the ready-to-use reactive mixture—to the reusable molds and the remote ignition device, every element is engineered to work in perfect sync, optimizing working times and reducing risks.

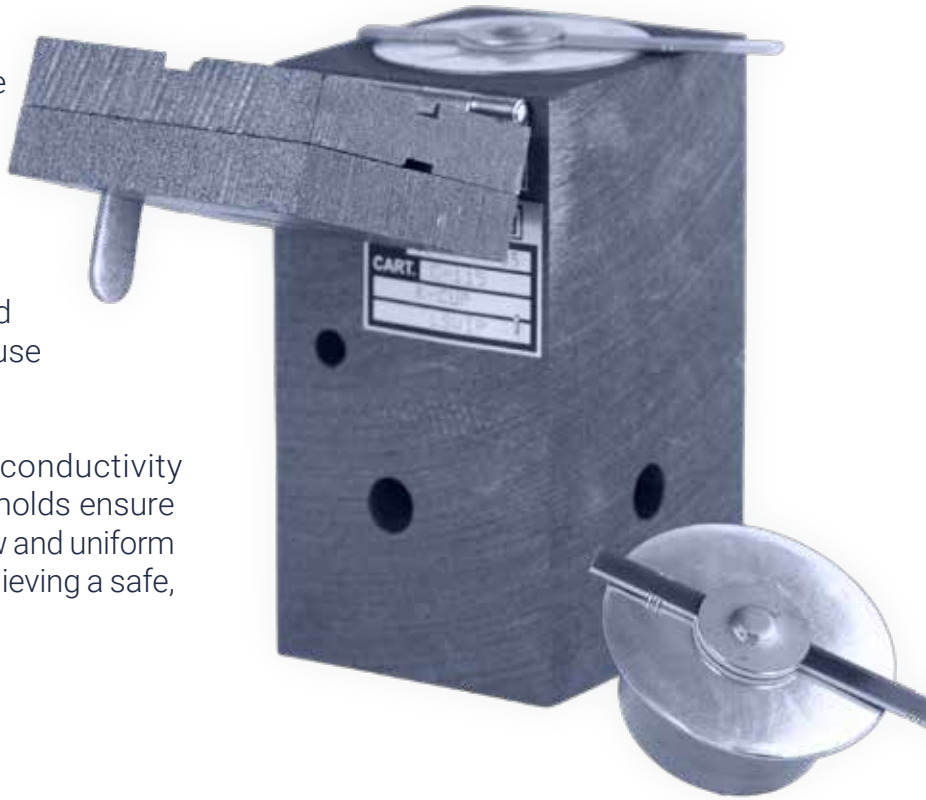
In the following section, you will find the original Kcup® system components, with brief descriptions and visuals that help explain their function and correct application in the field.



Kcup® MOLDS:

The exothermic reaction of the Kcup® system takes place inside a mold made entirely of high-quality graphite. This component is designed to withstand repeated exposure to high temperatures, maintaining its geometry and functionality even after numerous use cycles.

Thanks to its excellent thermal conductivity and mechanical strength, Kcup® molds ensure effective control of molten metal flow and uniform solidification—both essential for achieving a safe, high-performance electrical weld.



Graphyte molds

Kcup® weld

General Characteristics of Kcup® Molds

- **Material:** High-density technical graphite, resistant to high temperatures..
- **Format**: Standardized designs according to the connection type (cable-to-cable, cable-to-flat bar, cable-to-ground rod, etc.)
- **Compatibility**: All Kcup® molds are prepared for Kcup® capsules or manual charges.
- **Reusabillity**: Long service life with proper maintenance (see cleaning section).
- **Quick identification**: Each mold includes an engraved marking with its connection type and reference.
- **Easy replacement**: The KLK support system allows for quick mounting and removal of the mold.

TIP TOP Did you know that the Kcup® molds system are compatible with all ignition devices in the KLK weld range?

Video Kcup®Process

CAPSULE Kcup®:

The core of the Kcup® system is a chemical–thermal reaction that activates without any external power source. This reaction releases a very high amount of heat (approximately 1,400 °C), enough to melt metals such as copper, steel, brass, or bronze and create a high-quality electrical and mechanical bond..

During the process, the capsule:

1. Contains the aluminothermic powder prior to ignition.
2. Controls the reaction, ensuring a uniform burn before the metal pour.
3. Allows natural separation between the slag (aluminum oxide, lighter) and the molten metal (copper, denser), which flows by gravity to the connection point.

The conductors or components to be welded, previously positioned inside the mold cavity, are fused by the thermal input of the liquefied metal. The result is a solid connection composed of an alloy formed from the metals involved, featuring a highly stable intra-molecular structure.

Advantages of this type of bond:

1. **The connection** remains unaffected by harsh environmental conditions.
2. **Electrical conductivity** superior to that of other mechanical solutions.
3. **Excellent mechanical performance**, even under stress and vibration.

Capsules by pack

Kcup® | weld

Capsule type	KC-45	KC-65	KC-90	KC-115	KC-150	KC-200	KC-250
Capsule	Capsule KC45	Capsule KC65	Capsule KC90	Capsule KC115	Capsula KC150	Capsule KC200	Capsule KC250
Unit/pack	10	10	8	8	6	6	6

Kcup® IGNITION REMOTE :

Remote ignition, precise and risk-free.

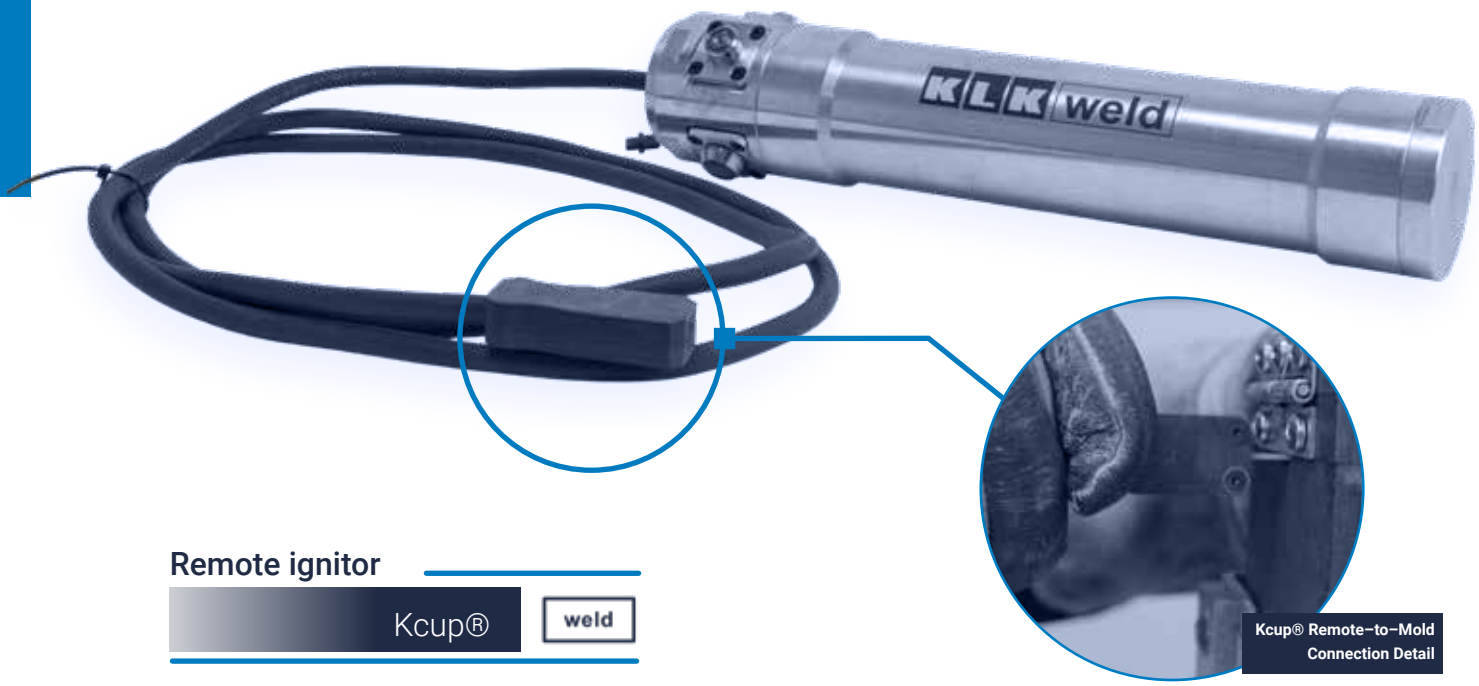
The Kcup® ignition remote is the exclusive device used to safely initiate the exothermic reaction within the Kcup® system. Its design incorporates a clamp-type connection that activates the electrode integrated into the preformed powder capsules, ensuring controlled ignition without any direct handling.

This remote solution eliminates the need for flint igniters, fuses, or manual ignition methods, significantly reducing operator risk and allowing safer operation in sensitive or hard-to-reach environments.

In addition, the Kcup® remote is engineered to provide a fast, reliable connection to the capsule, ensuring effective current transfer and instant activation of the welding process.

IMPORTANT

The remote is exclusive to the Kcup® system and must not be used with other ignition systems. Its use ensures ignition integrity and maintains a safe working environment.



Remote ignitor

Kcup® weld

Kcup® Remote–to–Mold Connection Detail

HANDLE CLAMPS:

Secure Fastening, Installation Without Surprises

The Kcup® support clamps are designed to ensure stable, precise holding of the mold throughout the entire exothermic welding process. This component is essential for maintaining proper alignment and preventing movement during the molten metal pour.

Its adjustable locking mechanism allows accurate adaptation to different mold types. It also enables quick mounting and replacement of the mold without the need for complex tools, optimizing installation time on site.

Manufactured from robust materials and built for intensive use, this holding system ensures both repeatability and safety of the process—even under demanding field conditions.

Handle Clamp

Kcup® | weld

TIP TOP : Improper fastening can compromise the final welding result. Always use the original Kcup® support to ensure stability and precision in every connection.

Handle Clamp Type	TSC-80	TSC-100
Code	14001	14002
Ref.	Tenaza TSC-80	Tenaza TSC-100

ACCESORIES Kcup®

Proper maintenance of all Kcup® system components is essential to ensure performance, extend service life, and guarantee reliable welds over time..

To support this, KLK weld offers a series of accessories specifically designed for the system, allowing proper cleaning and maintenance.

The **cleaning kit accessories are reusable and designed to facilitate both the preparation and upkeep of the Kcup®** system before and after each use.

It includes: a card colth brush (carding brush), scraper*, mold brush, and heat-resistant gloves**, all adapted to work effectively without damaging the components.


Scraper Kcup®


Mold brush


Welder globes


Card cloth brush

IMPORTANT

Using only KLK weld–approved accessories and tools ensures maintenance that is fully compatible with Kcup® system materials, preventing damage from improper abrasion or contamination of the process.

These tools help remove residue, slag deposits, and built-up dirt, ensuring the mold and weld chamber remain in optimal condition for every new connection.

Regular use of this kit clears out slag, metallic debris, and fine dust particles, preventing buildup that could compromise connection quality or interfere with proper mold closure.

TIP TOP Kcup®:
Download our KLK weld Kit Maintenance Guide here **aquí**

(*) The scraper is a mold-specific accessory. Using a model that does not match the mold can damage the graphite surface and compromise weld quality.
(**) KLK recommends using welding gloves made from buffalo leather. Burn Protection Level 1.

Kcup® Connections

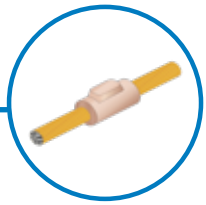
STANDARDIZED MOLD AND CONNECTION TYPES

This section presents the most common Kcup® system molds, designed to cover the connection types most frequently used in electrical, railway, and industrial installations.

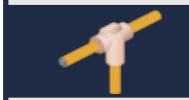
IMPORTANT

All molds ending in "Kcup" are specifically designed to be fully compatible with the Kcup® system, ensuring a precise fit, an efficient reaction, and a reliable connection.

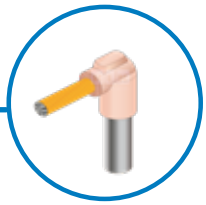
Kcup® Cable-to-Cable Connection



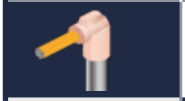
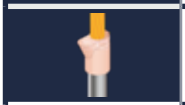
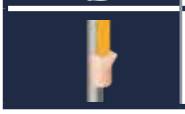
A connection designed to join conductors of different cross-sections.
It is widely used in grounding systems to ensure electrical continuity between different points along the layout.

Connection Type	Mold mm²	Mold AWG/MCM	Permitted conductors mm²	Permitted conductors AWG/MCM
	CC-L KCup	CCL Kcup	25 mm² - 240 mm²	#4 AWG - 1000 MCM
	CC-TH Kcup	CCTH Kcup	25 mm² - 240 mm²	#4 AWG - 1000 MCM
	CC-TV Kcup	CCTV Kcup	25 mm² - 240 mm²	#4 AWG - 1000 MCM
	CC-DPH Kcup	CCDPH Kcup	25 mm² - 240 mm²	#4 AWG - 1000 MCM
	CC-X Kcup	CCX Kcup	25 mm² - 240 mm²	#4 AWG - 1000 MCM
	CC-XS Kcup	CCXS Kcup	25 mm² - 240 mm²	#4 AWG - 1000 MCM

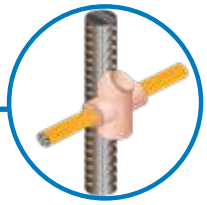
Kcup® Cable-to-Ground Rod Connection



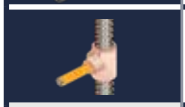
Specially designed for vertical grounding connections, where the conductor must be welded to a ground rod driven into the soil.
It ensures a strong, stable electrical joint.

Connection Type	Mold mm²	Mold AWG/MCM	Permitted conductors mm²	Permitted Rods	Permitted Rods AWG/ MCM	Permitted Rods
	CP-AR Kcup	CPAR Kcup	25 mm² - 240 mm²	5/8" - 143 mm	#4 AWG - 1000 MCM	1/2" - 3/4"
	CP-TS Kcup	CPTS Kcup	25 mm² - 240 mm²	5/8" - 143 mm	#4 AWG - 1000 MCM	1/2" - 3/4"
	CP-T Kcup	CPT Kcup	25 mm² - 240 mm²	5/8" - 143 mm	#4 AWG - 1000 MCM	1/2" - 3/4"
	CP-TV Kcup	CPTV Kcup	25 mm² - 240 mm²	5/8" - 143 mm	#4 AWG - 1000 MCM	1/2" - 3/4"
	CP-VS Kcup	CPVS Kcup	25 mm² - 240 mm²	5/8" - 143 mm	#4 AWG - 1000 MCM	1/2" - 3/4"

Kcup® Cable-to-Rebar Connection



Designed to bond copper conductors to steel rods or round bars, commonly used as grounding electrodes.

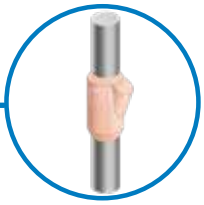
Connection Type	Mold mm²	Mold AWG/MCM	Permitted conductors mm²	Rebar	Permitted conductors AWG/MCM	Steel building
	CR-PH Kcup	CRPH Kcup	25 mm² - 240 mm²	6 - 25	#6 AWG - 4/0 AWG	3 - 18
	CR-TH Kcup	CRTH Kcup	25 mm² - 240 mm²	6 - 25	#6 AWG - 4/0 AWG	3 - 18
	CR-PV Kcup	CRPV Kcup	25 mm² - 240 mm²	6 - 25	#6 AWG - 4/0 AWG	3 - 18
	CR-XS Kcup	CRXS Kcup	25 mm² - 240 mm²	6 - 25	#6 AWG - 4/0 AWG	3 - 18
	CR-TL Kcup	CRTL Kcup	25 mm² - 240 mm²	6 - 25	#6 AWG - 4/0 AWG	3 - 18
	CR-TP Kcup	CRTP Kcup	25 mm² - 240 mm²	6 - 25	#6 AWG - 4/0 AWG	3 - 18

Kcup® Cable-to-Bus Bar Connection

Designed to safely join copper conductors to flat bars, especially in grounding systems and equipotential networks.
It provides a weld with high conductivity and strong mechanical resistance.

Connection Type	Mold mm²	Mold AWG/MCM	Permitted conductors mm²	Bus-bars Permitted *	Permitted conductors AWG/MCM	Bus-bars Permitted *
	CPL-L Kcup	CPLL Kcup	25 mm² - 240 mm²	20 x 2 mm - 60 x 6 mm	#4 AWG - 1000 MCM	1/8 x 1" - 1/2 x 3"
	CPL-H Kcup	CPLH Kcup	25 mm² - 240 mm²	20 x 2 mm - 60 x 6 mm	#4 AWG - 1000 MCM	1/8 x 1" - 1/2 x 3"
	CPL-VI Kcup	CPLVI Kcup	25 mm² - 240 mm²	20 x 2 mm - 60 x 6 mm	#4 AWG - 1000 MCM	1/8 x 1" - 1/2 x 3"
	CPL-T Kcup	CPLT Kcup	25 mm² - 240 mm²	20 x 2 mm - 60 x 6 mm	#4 AWG - 1000 MCM	1/8 x 1" - 1/2 x 3"
	CPL-VS Kcup	CPLVS Kcup	25 mm² - 240 mm²	20 x 2 mm - 60 x 6 mm	#4 AWG - 1000 MCM	1/8 x 1" - 1/2 x 3"

Kcup® Ground Rod–to–Rod Connection



A connection designed to join two grounding electrodes (ground rods) together, creating a continuous dissipation system. It is widely used in installations where the grounding network needs to be extended without sacrificing conductivity or mechanical reliability.

Connection Type	Mold mm²	Mold AWG/MCM	Permitted Rods	Permitted Rods
	PP-V Kcup	PPV Kcup	5/8" - 143 mm	1/2" - 3/4"

(*) For other possible connection options between busbars, please inquire.

Other Available Kcup® Connections

The Kcup® system allows for hundreds of combinations between different types of conductors and metallic elements:
cables, flat bars, rods, round bars, plates, structures, and more.

Our range also includes connections to pipes for galvanic protection, joints between horizontal or crossed flat bars, attachments on steel plates, and multiple solutions adapted to civil works, substations, industrial facilities, and railway installations.

CAN'T FIND THE CONNECTION YOUR PROJECT NEEDS?

At KLK weld, we know every installation is unique.

If you don't see the connection type that fits your project, don't worry—we design custom solutions tailored to your technical requirements.

https://www.klk.es/en/contact/

How to Weld with Kcup®

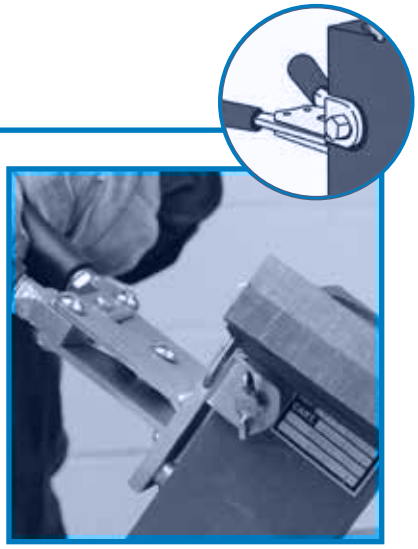
Key Steps for a Safe, Efficient, and Professional Connection

The Kcup® system has been designed to simplify the exothermic welding process as much as possible, ensuring safety and quality in every connection.

Below are the steps to follow in order to perform a proper weld using Kcup® capsules and the system's approved components.

Step 1. Clamp Placement

Securing the mold to the clamp.

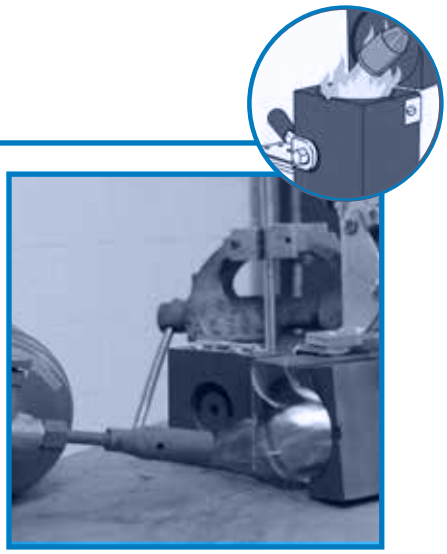


Before starting, **make sure the KLK weld TSC clamp is properly positioned and secured to the mold.**
This fastening system ensures a stable position throughout the welding process and also serves as a safe handling tool once the mold reaches high temperatures in the following step. Lock the system firmly using the safety latch to prevent any movement during ignition.

Required Tools: TSC clamps, select the appropriate clamp according to the mold being used.

Step 2. Mold Preparation

Mandatory Preheating. (On the first weld of the day)

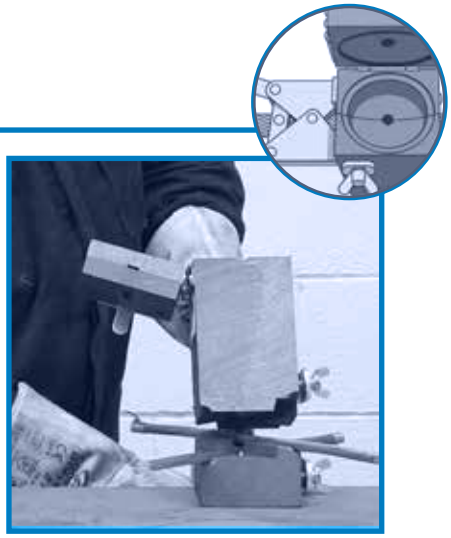


Before performing the first weld of the day, **it is essential to preheat the mold to ensure a stable reaction and a high-quality connection.**
Apply a direct flame to the mold for at least 5 minutes, making sure the entire surface—especially the inner chamber—is completely dry and free of moisture. This step is critical to prevent thermal shock, ensure proper metal fusion, and extend the mold's service life.

Required Tools: To perform this operation, use a standard torch available on the market.

Step 3. Conductor Placement

Positioning According to Connection Type.



Insert the conductors into the mold housings, **ensuring they are properly brushed, clean, and correctly aligned beforehand.**
Follow the KLK weld Kcup® kit instructions carefully to avoid mistakes during placement.
Precise conductor positioning and a firm clamp closure are key to ensuring a safe, high-quality weld.

Observation: In the example shown, we use a CC-XS connection for two overlapping copper conductors..

Step 4. Capsule Placement

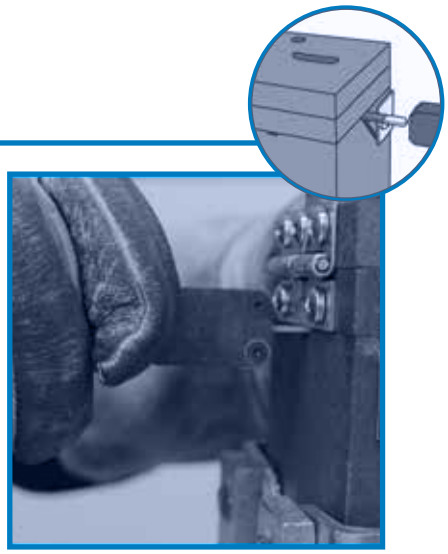
Position the capsule in its housing.

Place the Kcup® capsule into the upper housing of the mold. **Make sure it is properly seated and aligned with the mold's grooves so the electrode is correctly exposed for attaching the clamp in the next step.**
This step is essential to ensure a complete pour and a high-quality connection.

Required Tools: No specific tools are required. The use of the necessary PPE is mandatory.

Step 5. Fuse Connection

Connect the remote to the Kcup® mold.

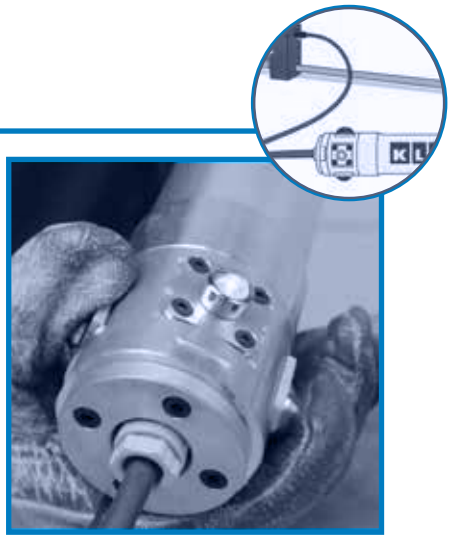


Connect the LSVIP remote clamps to the electrode integrated into the Kcup® capsule.
Make sure the clamp is firmly attached and free of play to ensure a safe and effective ignition.
Once connected, step back from the mold to the maximum distance allowed by the device cable before proceeding with ignition.

Required Tools: o perform this operation, use the remote specifically designed for Kcup®.

Step 6. Ignition Activation

Start of the Welding Process



Press both buttons on the LSVIP remote for at least 3 seconds to activate the system.
The device will display a status light indicating the battery level:
🟢 Optimal Level | 🟠 Intermediate Level | 🔴 Battery Depleted
Once the charge level has been verified, release the buttons to start the automatic ignition sequence, which will run for 10 seconds.

Observation: During this time, stay clear of the mold and avoid any handling.

Step 7. Open the Mold

Process Completion: Opening, Removal, and Cleaning..

Once ignition is complete, **wait at least 15 seconds to allow the mold temperature to drop safely.**
Then open the mold using the KLK weld clamp and carefully remove the solidified weld.
Use a hammer or chipping tool to gently tap the connection and **detach any remaining slag (aluminum oxide).**
Next, **clean the inside of the mold with the KLK weld cleaning tools** to remove any residue and prepare the equipment for the next use.

Required tools: Proper maintenance after each weld extends the mold's service life and ensures consistent results. Always use the original, approved accessories designed for your KLK weld kit.

AVOID THE MOST COMMON ERRORS

Did you know that most exothermic welding failures are caused by:

- Poorly brushed conductors with remaining impurities or debris.
- Molds that are improperly closed or incorrectly secured in the clamps.
- Capsules improperly positioned or slag residue left inside the mold.

TIP TOP : Scan the QR code and access the official Kcup® system video*, where we show you step by step how to carry out a safe, efficient, and error-free exothermic weld.

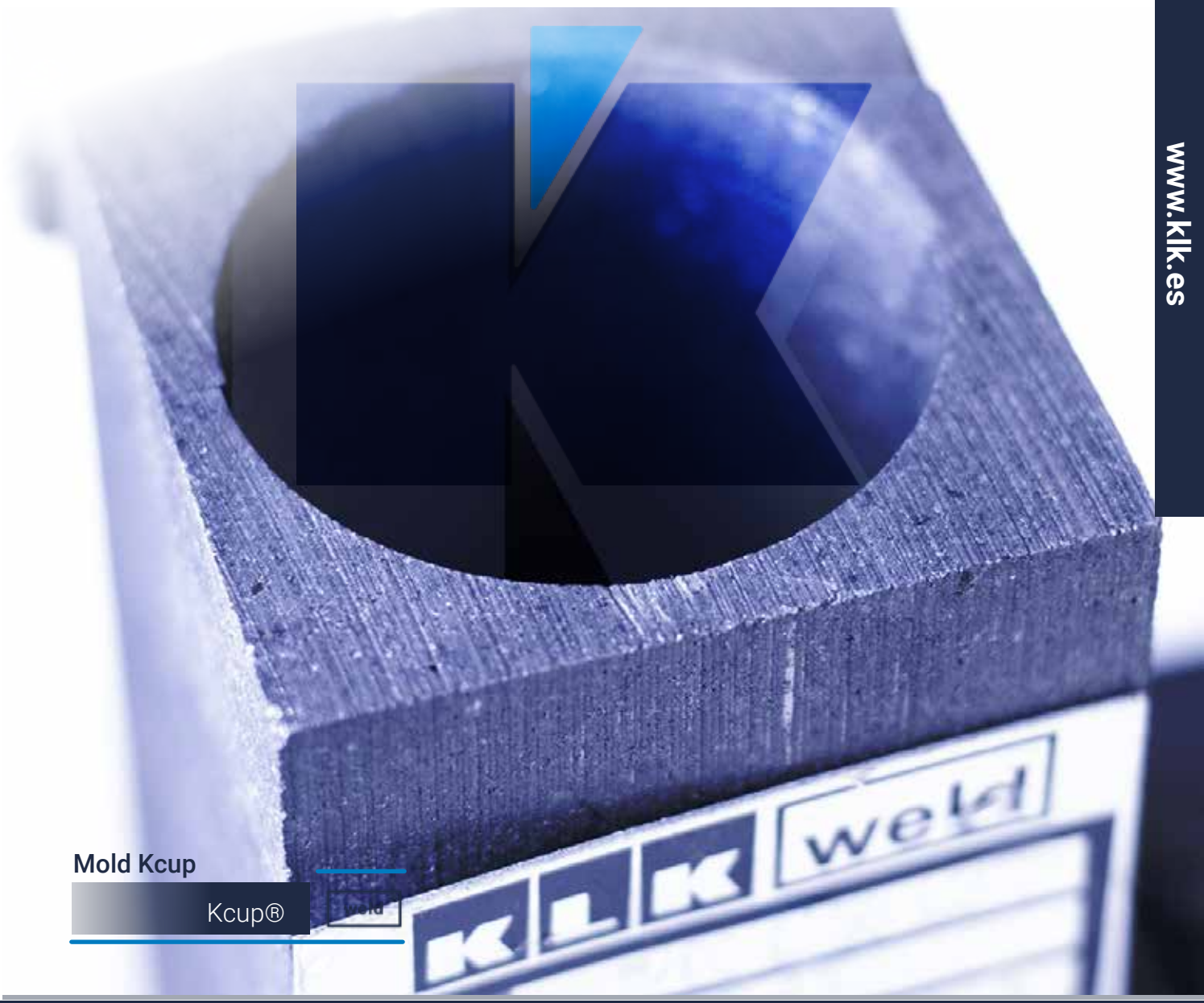
(*)3D demonstration video showing how to use the Kcup® welding kit for a CCL-type connection. A detailed visual representation of the entire process—ideal for training and technical reference.

Common errors

Common Errors When Using the Kcup® System

Although the Kcup® system is designed to be safe, precise, and easy to use, an incorrect installation can compromise the quality of the connection.
This section outlines the top five issues most frequently observed in the field, helping you identify and prevent them to ensure a professional result in every weld.

Avoiding these mistakes is essential for achieving durable, safe electrical connections with maximum performance.



Mold Kcup

Kcup®

Top 5 common errors in exothermic welds

#01

Moisture in the Materials.

Pre-Installation Inspection

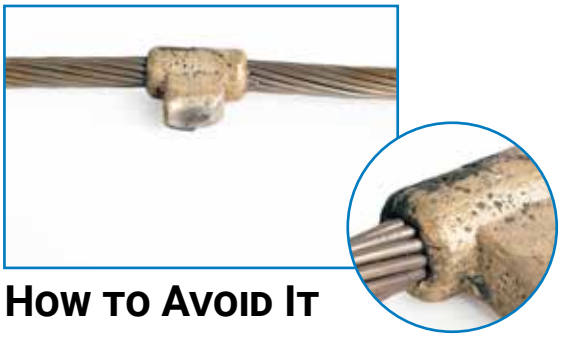
How to Avoid It

Moisture is one of the main enemies of exothermic welding. It can generate bubbles in the joint, weakening the structure and affecting conductivity. Before starting, make sure all components are completely dry. This simple step can prevent many long-term issues.

#02

Residue in Molds.

Pre-Installation Inspection



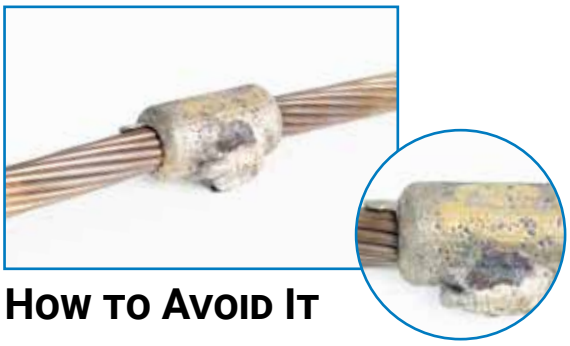
How to Avoid It

Carefully inspect and clean the mold and all materials to be welded, removing any residue from previous welds, rust, grease, or dirt. Use the scraper to clean the mold and the brush to remove debris from cables, ground rods, plates, and other conductors.

#03

Not Preheating the Mold

Pre-Installation Inspection



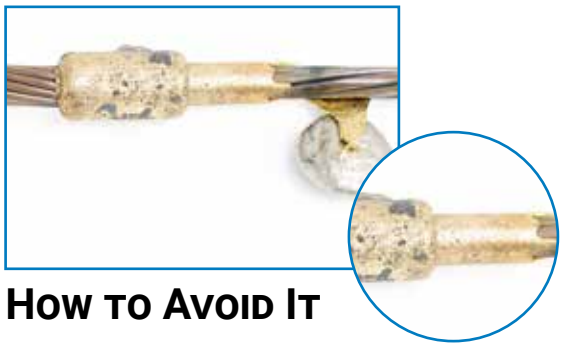
How to Avoid It

A cold mold can prevent the metal from settling properly. Heating the mold for at least 5 minutes helps the weld flow smoothly, ensuring a solid and reliable connection. This step is essential to guarantee a uniform exothermic weld.

#04

Posición Cable/Secciones incorrectas.

Pre-Installation Inspection



How to Avoid It

Use conductors of the correct cross-section and make sure they are properly positioned inside the mold. KLK's precision pure-graphite molds keep the cables securely in place, ensuring safe, durable connections for every type of exothermic joint.

#05

Mold Not Fully Closed.

Pre-Installation Inspection

How to Avoid It

Use the correct clamp for each mold type and verify that it is fully closed and properly tightened before starting the welding process. A secure closure with the right clamp will prevent material leaks and ensure a high-quality weld.

TIP TOP : Here's access to the most common mistakes that can occur during exothermic welding, so you can avoid them and always achieve a safe, reliable result:

https://www.klk.es/como-evitar-errores-comunes-en-soldadura-exotermica/

Quick-Use Table: Common Kcup® Errors

Below is a summary table of the most frequent errors during the Kcup® welding process, along with their possible causes and solutions.
A practical tool designed to help you quickly identify issues and learn how to avoid them in future installations.

Problem	Possible Cause	Recommended Solution
Porous Weld	Moisture or Dirt	Clean and preheat the mold and conductors
Material Leakage	Damaged Mold or Misaligned Conductor	Apply sealing paste or replace the mold
Insufficient Material	Incorrect Capsule	Check the charge selection table
Ignition Failure	Low Battery or Poor Connection	Verify the remote and the capsule contact

Cleaning and Maintenance

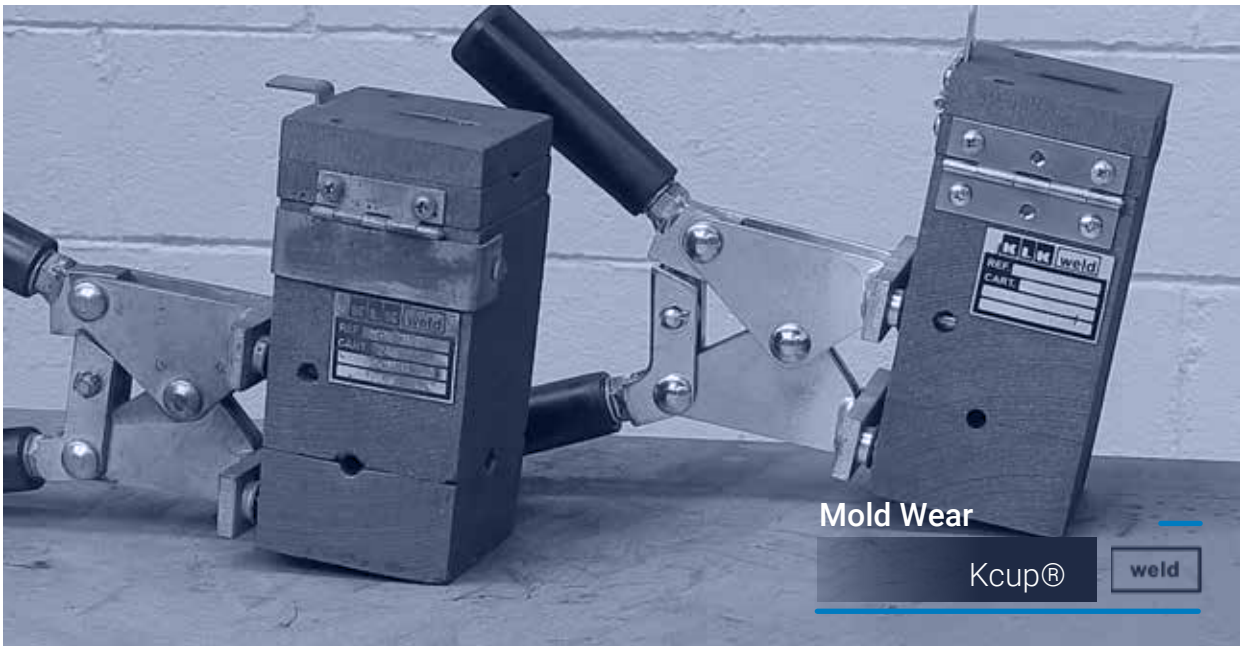
KEEP YOUR KLK WELD KIT PERFORMING LIKE THE FIRST DAY WITH PROPER, REGULAR MAINTENANCE.

The Kcup® system has been developed to deliver a welding process that is safe, reliable, and easy to apply.

However, its performance depends largely on proper maintenance.
Cleaning the mold after each use and using only KLK weld–approved tools not only ensures stable, secure welds, but also extends the equipment's service life and prevents damage to the graphite.

IMPORTANT

A well-maintained KLK weld graphite mold can exceed 70 welds without losing performance or precision.



TIP TOP : Want to extend the service life of your KLK weld molds? Here's access to an exclusive article where you'll find key recommendations for proper system maintenance, along with a practical video showing the essential steps to keep your molds and accessories in perfect condition.

Mold´s Care

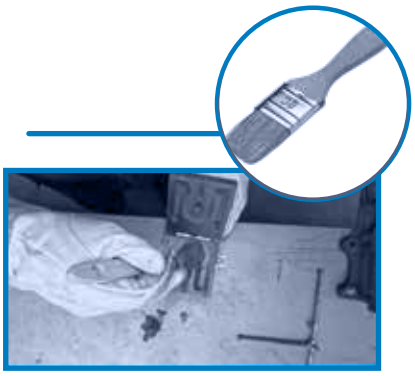
Step 1. Remove Slag

Remove slag using the KLK weld scraper.

After each weld, it is essential to remove any residual slag accumulated in the hopper using the KLK weld scraper from the kit.
Also make sure to clear the pouring channel to prevent blockages and ensure a proper pour in the next weld.

Step 2. Clean the Mold

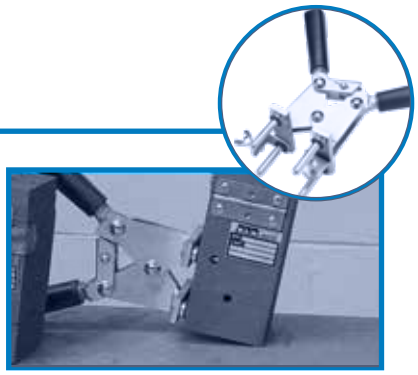
Clean the hopper and channels using the brush.



After each weld, thoroughly clean the entire mold using the KLK weld brush and spatula.
Carefully remove dust, fine residues, and any impurities from every corner and channel of the mold.

Step 3. Check the Closure

Check that the mold closes properly.



Always check the mold closure and the fixation of the KLK weld clamp before each weld.
Make sure there are no gaps, play, or signs of wear, as these could compromise the mold's sealing and cause a failure during the pour.

Step 4. Mold Replacement

Replace the mold if you detect wear, cracks, or any other damage.

A mold in good condition, properly cared for, and regularly maintained can withstand dozens of welds with complete reliability. However, if you detect cracks, fractures, or deformation, it must be replaced immediately.

Equivalency Tables

Equivalency Tables for Cables, Rods, and Ground Rods

Molds are machined according to the copper cable sizes, steel round-rod dimensions, and grounding-rod specifications listed in these tables.

Copper conductor (UNE 21012)

Section (mm²)	Composition	Ø Wire Exterior (mm)
10	7 x 1,35	4,05
16	7 x 1,70	5,10
25	7 x 2,14	6,42
35	7 x 2,52	7,56
50	19 x 1,83	9,15
70	19 x 2,17	10,85
95	19 x 2,52	12,60
120	19 x 2,85	[14]25
150	37 x 2,25	15,75
185	37 x 2,52	17,64
235	37 x 2,85	19,95
300	61 x 2,62	22,68
400	61 x 2,85	25,65

Copper-steel rods

Earth rod type	Ø Exterior (mm)
J-..58	14,3
J - ...34	17,3
...NU 146	14,6
...NU 183	18,3
...ST 143	14,3

Rebar

Ø Nominal	Ø Exterior (mm)
6	7,2
8	9,6
10	12,0
12	14,4
14	16,8
16	192
20	24,0
25	30,0

Copper-steel rods

Nominal diameter	Material	Threaded diameter	Diameter In	Diameter mm
1/2"	Copper plating	1/2"	0,500	12,70
	Steel	-	0,500 12,70	12,70
	Copper plating	-	0,475	12,07
5/8"	Copper plating	5/8"	0,625	15,88
	Steel	-	0,625	15,88
	Copper plating	-	0,563	14,30
3/4"	Copper plating	3/4"	0,750	19,05
	Steel	-	0,750	19,05
	Copper plating	-	0,682	17,32

Copper conductor AWG/MCM

Section (AWG)	Diameter In	Diameter mm
1000 MCM	1,152	29,26
800 MCM	1,031	24,49
750 MCM	0,998	25,35
700 MCM	0,964	24,49
600 MCM	0,893	22,49
500 MCM	0,813	20,65
400 MCM	0,728	18,49
350 MCM	0,681	17,30
300 MCM	0,630	16,00
250 MCM	0,575	14,61
4/0 AWG	0,528	13,41
3/0 AWG	0,470	11,94
2/0 AWG	0,419	10,64
1/0 AWG	0,373	9,47
#1 AWG	0,332	8,43
#2 AWG	0,292	7,42
#3 AWG	0,260	6,60
#4 AWG	0,232	5,89
#6 AWG	0,184	4,67
#8 AWG	0,146	3,71
#10 AWG	0,116	2,95

Copper solid conductor AWG/MCM

Section	Diameter In	Diameter mm
4/0 AWG	0,4600	11,68
3/0 AWG	0,4096	10,40
2/0 AWG	0,3648	9,27
1/0 AWG	0,3249	8,25
#1 AWG	0,2893	7,35
#2 AWG	0,2576	6,54
#3 AWG	0,2294	5,83
#4 AWG	0,2043	5,19
#6 AWG	0,1620	4,11
#8 AWG	0,1258	3,26
#10 AWG	0.1019	2,59

Rebar

Re-bar	Diameter In	Diameter mm
3 (3/8")	0,413	10,49
4 (1/2")	0,550	13,97
5 (5/8")	0,687	17,45
6 (3/4")	0,825	20,96
7 (7/8")	0,962	24,43
8 (1")	1,100	27,94
9	1,240	31,50
10	1,397	35,48
11	1,551	39,40
14	1,862	47,29
18	2,483	63,07

Frequently Asked Questions

Kcup® OPERATION AND COMMON ISSUES

Is the KLKcup® capsule not activating?
Verify that the **Kcup®** remote is charged, the clamps are properly connected, and the capsule is correctly positioned in the mold.

Was the weld porous or incomplete?
This may be caused by moisture in the mold or on the conductors. Make sure to properly preheat the mold and thoroughly clean the cables before welding.

Is molten material leaking from the mold during the pour?
The mold may be worn, or the conductors may not be fitting properly. Check the closure and consider applying KLK weld sealing paste or replacing the mold.

Kcup® USE AND MAINTENANCE

How many times can I use a Kcup® mold?
With proper maintenance and no impacts, it can achieve between 70 or more welds.

How should I clean the mold?
Always use the approved KLK weld cleaning kit, removing slag and dust residues with the included accessories (mold scraper, brush, cleaning broom, etc.).

When should I replace the mold?
If you notice cracks, deformation, or leakage, replace it immediately. A damaged mold compromises the safety of the process.

COMPATIBILITY AND SUPPORT

What should I do if I'm not sure which mold I need?
Contact our technical support team. You can send us a photo of the conductor type and the intended application, and we will advise you with no obligation here: https://www.klk.es/en/contact//

Can I use Kcup® capsules with other igniters?
No. The system is designed exclusively to operate with the KLK weld Kcup® remote and its direct-connection clamp.

Environment

KLK, GREEN ATTITUDE

Responsible Use and Environmental Management of the Kcup® Ignition Device

As part of our commitment to minimizing the environmental impact of our products, we recommend following these usage and recycling guidelines for the proper handling of KLK weld remote ignition devices and their internal rechargeable batteries.

Safe Use Recommendations

During charging, the device automatically disconnects. Do not use it until the charging cycle is complete.
• Store the device and its batteries away from metal objects such as keys or tools to prevent short circuits.
• In case of leakage or contact with the battery electrolyte, rinse immediately with plenty of water. If it comes into contact with the eyes, seek medical attention.
• If the device will not be used for an extended period, store it in a dry, moisture-free area at a stable temperature.

Recycling and Waste Treatment

Electronic devices, batteries, and packaging must be disposed of at authorized collection points to ensure proper recycling in accordance with current regulations.
KLK Electro Materiales S.L.U. is responsible for the collection and management of these components at the end of their service life, in compliance with European Directive 2012/19/EU (WEEE) and applicable national legislation.

Information on Batteries

The ignition controller batteries may contain corrosive compounds and heavy metals.
Avoid improper handling and ensure they are treated as hazardous waste by delivering them to authorized facilities for decontamination and recycling.

Warranties

Kcup® Safe, Fast, and Advanced

WARNINGS

- KLK weld system products and components must be used strictly in accordance with the manufacturer's instructions and the procedures detailed in the corresponding technical manuals available at www.klk.es
- Improper use, incorrect application, or handling without prior training may result in malfunctions, property damage, or even pose risks to the operator's physical safety.
- Products must be stored in dry, well-ventilated, and secure areas, away from heat sources, ignition points, or impacts. When stored under proper conditions, KLKcup® capsules have no known expiration date.
- For more information, refer to the corresponding product safety data sheet or contact our technical support team.

WARRANTY

- All KLK weld products are guaranteed to be free from manufacturing and material defects at the time of shipment.
- KLK Electro Materiales S.L.U. will not recognize any additional warranties, whether explicit or implied, beyond those stated here, nor will it be held responsible for improper uses or applications not covered in the official technical documentation.
- Claims must be submitted in writing and require prior authorization from the technical department. The material must be returned for evaluation under the conditions agreed upon.
- KLK Electro Materiales S.L.U. reserves the right to repair or replace any non-conforming products, provided they have been used properly and in accordance with the supplied instructions.

LIMITATION OF LIABILITY

KLK Electro Materiales S.L.U. shall not, under any circumstances, be liable for indirect losses such as delays, downtime, additional labor costs, or any damages resulting from improper use of the product. The maximum liability shall be limited to the invoiced value of the product.

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