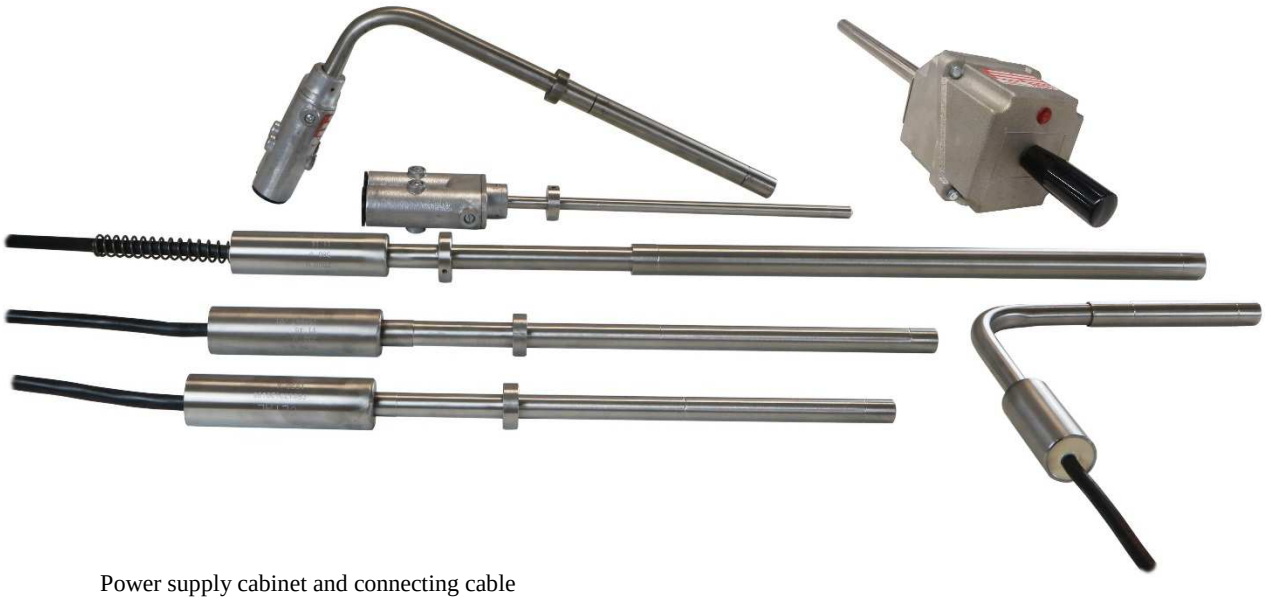
High-performance bolt heater

Storage, installation and maintenance instructions



Power supply cabinet and connecting cable available on request

* Non contractual picture

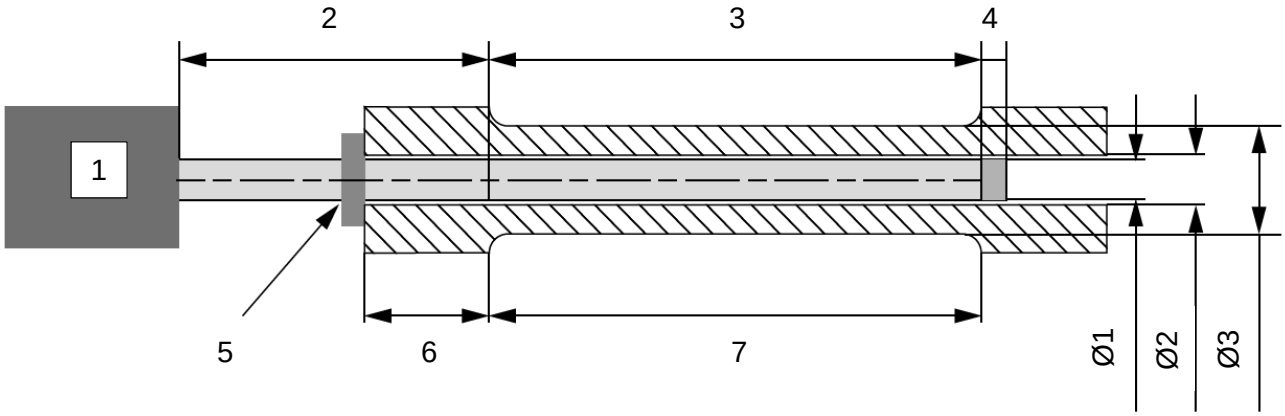
Warning
It is imperative to read these instructions carefully before installing or maintaining the equipment.

General information

CETAL bolt heaters are tools used for bolt tightening/loosening applications by thermal expansion. The use of Boron Nitride as an insulator makes it possible to concentrate a lot of energy in a very small volume. The technology used makes it possible to quickly reach high temperatures and reduce the tightening/loosening times to a few minutes.

Technical characteristics :

The bolt heater is designed and sized on specification for each bolt. The heating zone, delimited by 2 small grooves, must be positioned in the bolt. This heating part must be approximately equal to the thinned length of the bolt (the threaded parts of the bolt must not be heated). A locking ring facilitates the adjustment of the bolt heater heating part to the middle of the thinned length of the bolt.
This hole must be perfectly straight and smooth. A minimum machining tolerance of H11 must be observed. The mechanical clearance between the bolt heater and the bore can vary between 0.3mm and 0.8mm to the diameter. It determines the maximum surface load of the bolt heater. The power of the bolt heater is adapted during its design to these different parameters.



1. Connection box (if applicable)
2. Cold length
3. Heating length
4. Non-heating length
5. Positioning/stopping ring
6. Threaded length of the bolt
7. Thinned length of the bolt

Ø1. Bolt heater diameter
Ø2. Hole diameter
Ø3. Outer diameter of the blot thinned length

Storage

- Store the bolt heater in its original packaging protected from rain, sun, shock and moisture.
- Unpack the heating element only before use and check its general condition.
- Any material, even without fret and packing, travels at the recipient's own risk. The recipient must make written reservations on the carrier's delivery note if he finds damage caused during transport (confirmation to the carrier according to local and national regulations).
- Inform CETAL for any warranty default (a defective product must not be put into service).

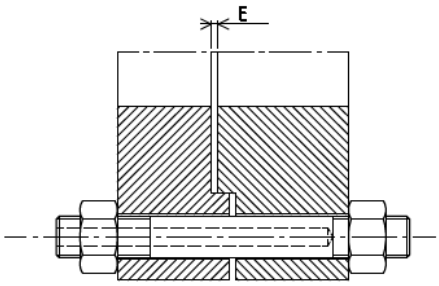
Condition of use

Important
Any electrical or mechanical intervention with the bolt heater must be carried out by qualified people for electrical operations in accordance with local and national regulations.
The mechanical clearance between the bolt heater and the bolt hole must be in accordance with the defined specifications.
The heating length of the bolt heater must be less than the bolt length.
Never heat the bolt heater out of the bolt hole.

- Some parts of the bolt heater and connectors may reach high temperatures. Never handle the bolt heater without protection and do not store the bolt heater between two uses on dangerous and/or flammable surfaces.
- Check that the technical characteristics of the bolt heater meet the requirements.
- The electrical installation to which the bolt heater is connected must be sized for safe and full operation.
- Check the supply voltage (see information on the bolt heater). Do not use the bolt heater at a voltage higher than that indicated. Excessive voltage will shorten the life of the product.
- Electrical protective devices must be installed in accordance with the regulations in force and the rules of the art.
- The bolt heater must be used in accordance with specifications.
- The bolt heater is under the responsibility of the user.

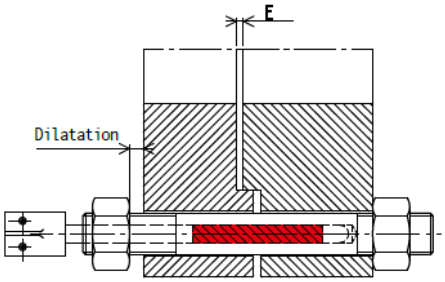
Procedure for tightening a bolt

1. Assembling



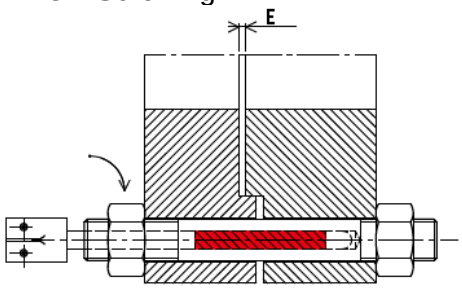
At this stage, the assembly is realized but not tightened. Clearance E between the 2 pieces to be assembled.

2. Bolt expansion



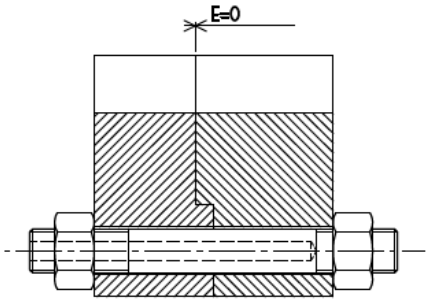
Check mechanical clearance. It shall not be greater than the calculated maximum clearance. Insert the bolt heater into the hole so that the heating part is positioned at the bolt thinned length (use the adjustable stopping ring if necessary).
The power supply of the bolt heater can only start at this point.
Never remove the bolt heater from the housing during the entire heating phase.

3. Screwing



Once the thermal expansion of the bolt heater is achieved, tighten the bolt while holding the bolt heater in the housing.

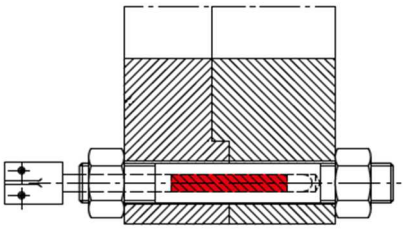
4. Cooling



After tightening, the bolt heater can be de-energized (never disconnect the power cable from the bolt heater under voltage : electric arc risk). Allow the bolt heater to cool before removing it from the housing (the heating part must be less than 400°C before any removal).

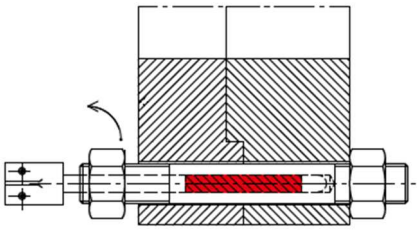
Procedure for loosening a bolt

1. Bolt expansion



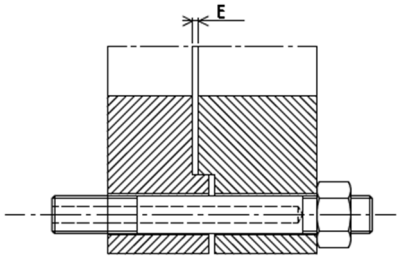
Check mechanical clearance. It shall not be greater than the calculated maximum clearance. Insert the bolt heater into the hole so that the heating part is positioned at the bolt thinned length (use the adjustable stopping ring if necessary).
The power supply of the bolt heater can only start at this point.
Never remove the bolt heater from the housing during the entire heating phase.

2. Unscrewing



Once the thermal expansion of the bolt heater is achieved, loosen the bolt while holding the bolt heater in the housing.
Never remove the bolt heater from the housing during the entire heating phase.

3. Bolt heater removal



The bolt heater can be de-energized (never disconnect the power cable from the bolt heater under voltage : electric arc risk). Allow the bolt heater to cool before removing it from the housing (the heating part must be less than 400°C before any removal).

Maintenance

Before each use, check the surface of the bolt heater. It is a high precision tool, no impact and no deformation must be present. Store the bolt heater in its original packaging between each use in order to eliminate any risk due to moisture, corrosive aggressions or mechanical shock.

Warning

All modification work on the bolt heater such as cutting, heating, grinding, welding or modification of equipment without analysis and written agreement of the company CETAL is prohibited.

The specified technical data must be observed. They can not be changed without prior agreement.

The manufacturer can not be held responsible for failures in the event that the electrical equipment has to withstand particular stresses in service (eg sudden handling, effects of moisture, variation in ambient temperature, effects of chemical agents, corrosion) if these had not been provided at order stage.

Due to the evolution of the standards and the material, the characteristics indicated by the texts and the pictures of this document can change from time to time. Please ask the company CETAL for confirmation of the given information.