

COOLING **PANELS**

ELECTRIC ARC FURNACE
COOLING PANELS

KME Germany GmbH & Co. KG
SPECIAL DIVISION
[EN]



Electric Arc Furnace Cooling Panels

KME Product Range

It is well known that copper alloys have a much higher thermal conductivity compared with steel alloys - this is the crucial advantage of copper alloys over steel in the application of cooling panels.

Copper cooling panels made of finned tubes have been used for many years for the cooling of electric arc furnaces all over the world. High levels of productivity result in difficult operating conditions and highest temperatures. To meet this demand for high performance, copper cooling panels are used due to their thermal efficiency. To achieve the required enhanced operating conditions for this application, KME uses two different copper materials with excellent heat transfer properties: Cu-DHP and Cu-HCP. Each alloy has the inherent advantage of high thermal conductivity and both are deoxidized copper materials with excellent weldability characteristics which are essential for the assembly of copper cooling panels.

Standard Finned Tube

As it is well known, copper finned tubes are mostly used for copper cooling panels in electric arc furnaces. For years KME has been supplying the full range of all sizes and designs of copper finned tubes. KME can provide tailor made individual designs and customized fins to meet the customers' requirements. Depending on the design of the tube KME can offer lengths up to 6m (additional lengths on request).

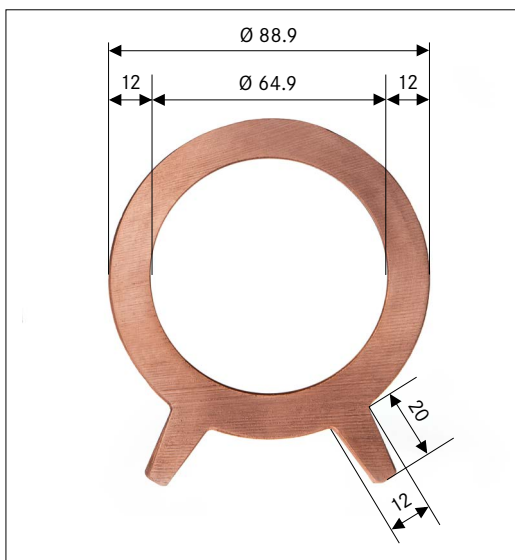
The Easy Assembly Finned Tube (EAF Tube)

With a unique combination of know-how and technical expertise in the production of copper cooling elements, KME can offer an improved finned tube for cooling panels – the “Easy Assembly Finned Tube” or EAF tube.

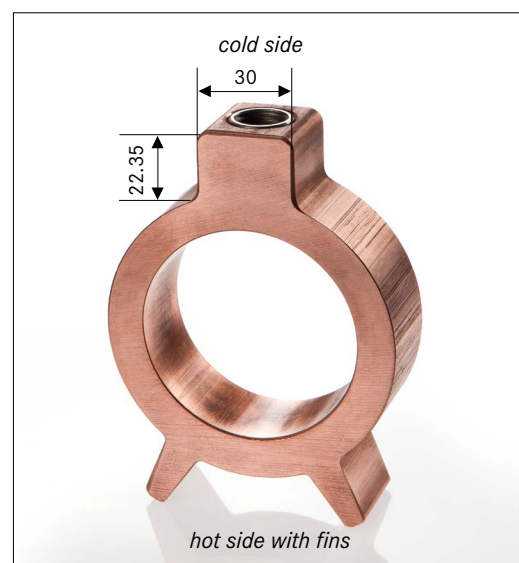
It is well known that the welding joints between the steel base plate and the copper tubes are weak spots for damage and leakages. A lot of these problems are caused by differential expansion of the materials steel and copper resulting in stress fractures. For this reason the EAF tube enables the possibility to assemble the cooling panel with a unique screw assembly connection to fix the EAF tube to the steel base plate. The new design allows the EAF tube to move relative to the steel base plate which therefore reduces bending stresses and potential resultant cracks in weld seams.

Field-tests and operations have shown the following results:

- simplified assembly of the panel
- fast replacement of the components in case of damage
- excellent operating performance which results in a longer life time of the panel



Standard finned tube 88.9 x 12 mm
(further shapes and dimensions possible)



EAF tube (patent applied)

Electric Arc Furnace Cooling Panels

KME Product Range

Assembly set

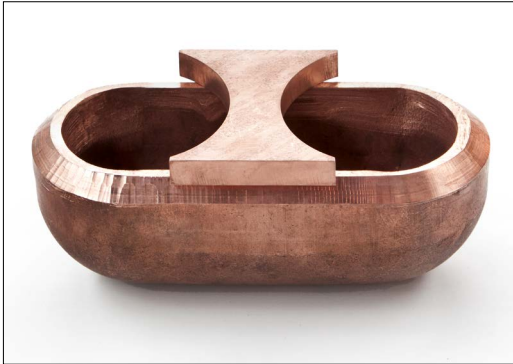
In addition to finned tubes KME can offer an assembly set for electric arc furnace builders, users as well as engineering and maintenance companies.

The assembly set includes all components which are necessary to mount a complete copper cooling panel:

- finned tubes
- 180° elbow
- spacers to seal and stabilize the panel

The assembly set provides various advantages:

- in the case of damage to the panel the customers are able to carry out immediate repairs
- simplified storage of the assembly set
- all materials from one source – simplified procurement



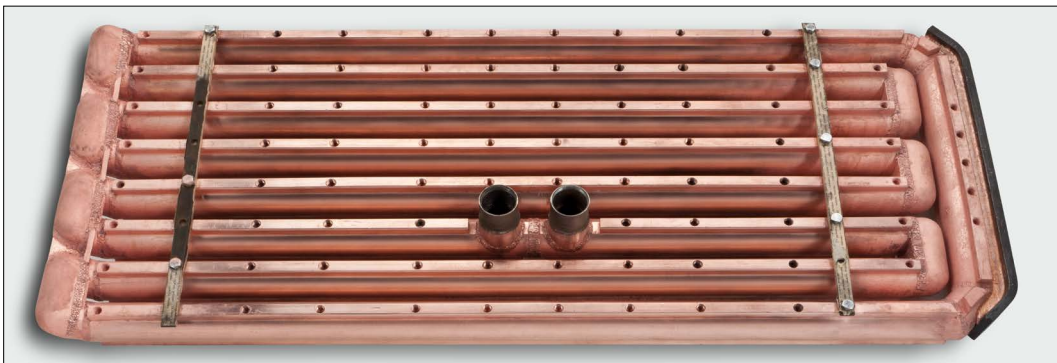
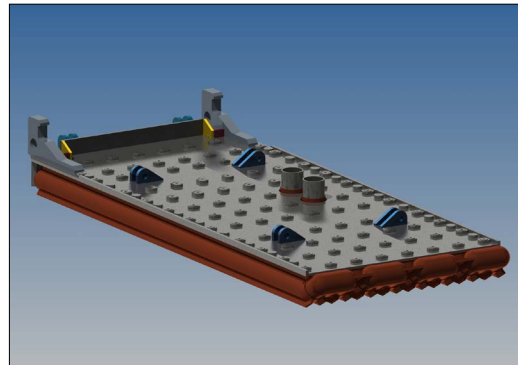
180° elbow with spacer



Cooling panel

KME can offer complete assembled copper cooling panels according to the customers' requirements and needs. All copper materials in the cooling panel are made by KME – this means that KME guarantees the highest product quality. Special designs as well as sophisticated constructions can be provided.

The improved design of cooling panels with EAF tubes allows the EAF tube to move relative to the steel base plate. Therefore bending stresses and damage of the panel will be reduced. This crucial improvement leads to a longer life time of the panel resulting in cost savings.



Back of cooling panel (cold side) showing threads for screw connection

Further information:

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