

**Abstract from Assembly Instruction for diode and thyristor
- Hockey Puk type -**

ASSEMBLY INSTRUCTION:

The mounting surface of the heatsink must be flat and clean, and thermal compound must be coated on all mating surfaces between the base of the thyristor and the heatsink.

Care must be taken neither to exceed not to fall short of the specification Mounting Torque. A Torque spanner should be used.

The heatsinks should be mounted so that their cooling fins are parallel to the flow of cooling air, and they should be mounted near to the air inlet so that the air is not preheated by other components [...]

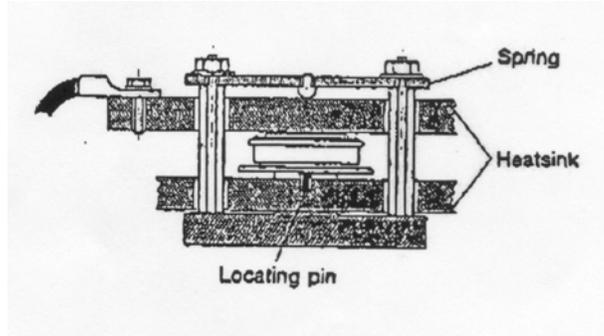
The ceramic and glass seals for the cathode and gate connections should not be subjected to mechanical stresses during assembly. In particular, with the small thyristor the connections to the terminals should be made by soldered flexible wires – screw connections should not be used [...].

SPECIAL MOUNTING INSTRUCTION FOR CAPSULE THYRISTORS:

In order to obtain the maximum possible current from a capsule thyristor, double side cooling (DSC) is normally used. In this case it is clamped between two identical heatsinks. It is also permissible to have single-side cooling (SSC) only. In the case of double-side cooling the thermal resistance figures related to both heatsinks together.

[...] In order to guarantee good electrical and thermal contact, the contact areas of the heatsinks must be cleaned and metallic bright. The unevenness remaining after grinding these areas should be less than 10 μm , the roughness less than 10 μm . The contact areas should be coated by a thin layer (ca 10 μm) of thermal compound.

The clamp must be shaped so that on of the two heatsinks may move freely during mounting. It is therefore recommended that one of the clamp plates should form a pivoting support together with the heatsink (contact between a spherical and a flat surface). The other plate should be shaped so that the heatsink does not deform when the screws are tightened



ASSEMBLY OF CAPSULE THYRISTORS USING CLAMPS AS PER DRAWING:

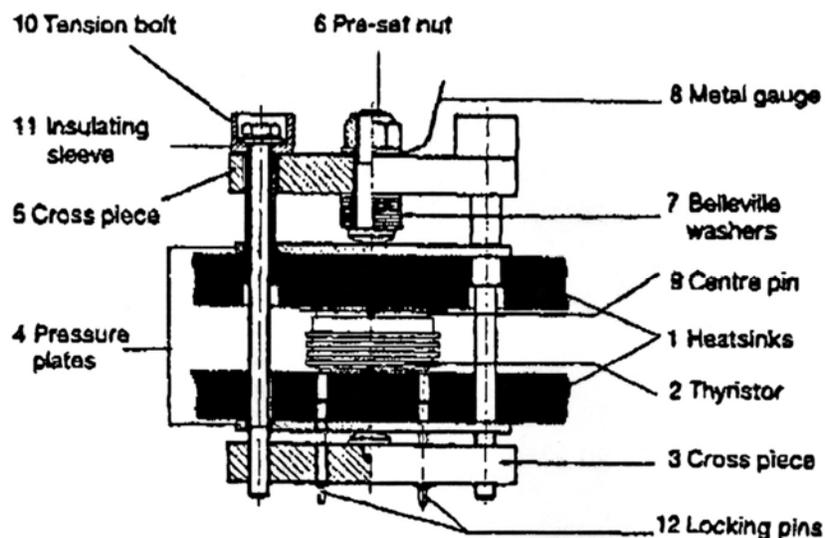
The contact faces on the heatsink for the thyristor and for current take-off point must be bare metal. If they are aluminum, before assembly the oxide layer must be removed with an abrasive sponge.

With plated surfaces it is sufficient clean them with a solvent, and this also applies to the contact face of the thyristor.

In addition both mating surfaces should be coated with thermal compound.

Each contact face of the thyristor should be placed on its mating heatsink surface and twisted backwards and forwards by hand at the same time applying a firm pressure. Note that the centre pin (9) must first be placed in position. When the thyristor is removed from the heatsink the mating surface must be uniformly coated with the thermal compound, or they can be thinly recoated.

Next the clamp is assembled so that the cross piece (5) with the pressure plate (4) and the torsion bolts (10) are at the top. Underneath the cross piece (3) with the pressure plate (4) is put in position and the two bolts (10) are alternately tightened up until a slight resistance is felt. Now a check is made that the both cross piece (3) and (5) are parallel. For this it is sufficient to check that the tie bolts project to equal amounts beyond the cross pieces (3). The tension bolts (10) may now be alternately tightened up until the metal gauge (8) can be easily moved.





The tension bolts should not be tightened beyond this point under any circumstances otherwise the mounting force will be exceeded. For this same reason the pre-set nut (6) compressing the Belleville washers should never be adjusted.

The metal gauge (8) is secured so that it cannot fall out.