

# RoeTest - das Computer-Röhren-Messgerät -



professional tube-testing-system (c) Helmut Weigl [www.roehrentest.de](http://www.roehrentest.de)

## Fans

Normally (when testing standard receiver tubes) passive cooling with the recommended heat sink will suffice. If the housing has enough ventilation holes/slots there is also no fan needed for cooling the housing's interior.

However if you want to test powerful end tubes (e.g. KT120), transmitter tubes (e.g. 6C33), etc. using the RoeTest in permanent operation mode additional cooling is recommendable.

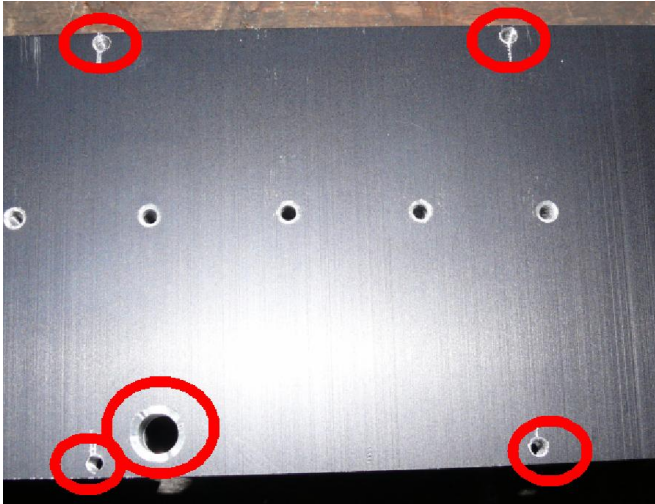
### 1. Fan for the heat sink

The cooling efficiency of the rear mounted heat sink can be significantly increased by installing a fan. The software will switch the fan on and off depending on the heat sink's temperature (the temperature measured with the temperature sensor mounted on the heat sink – adjustable in the section 'Optionen (options)').

You can attach a fan with little effort at the back of the heat sink. I suggest to use a fan with 80 mm diameter. The fan should be a 12V type and should not draw more than 0,3A current.

Mounting:

Drill 4 M3 threaded holes and a hole for the cable into the heat sink:



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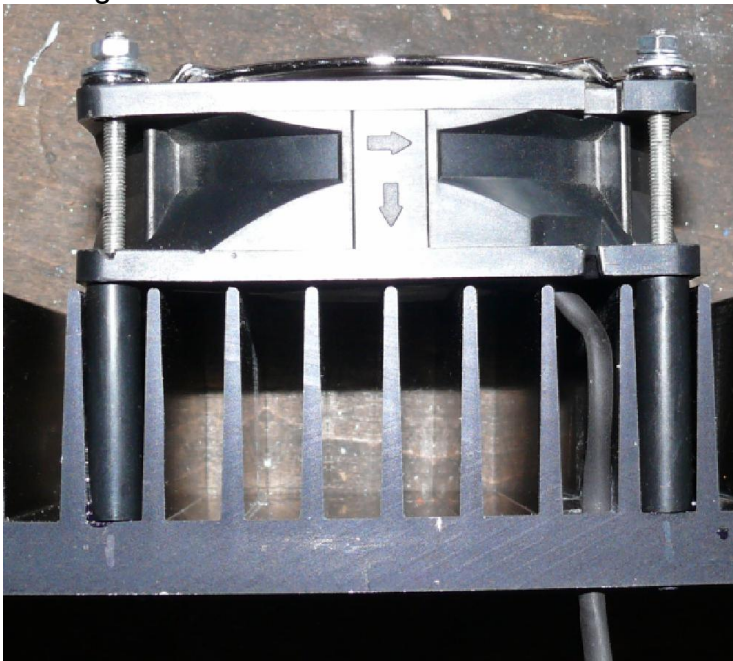


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Mount 4 pieces of threaded rods to the M3 thread holes (the length depends on the fan used) and attach 4 plastic distance rollers:



Attach the fan and the protective grill with washers, spring washers and M3 nuts. The fan's blowing direction must be towards the heat sink!



Connect the fan to the following socket on the main board (temperature controlled, switched by software):



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## 2. Fan for housing ventilation

The heat sink not only radiates to the backside but also into the interior of the housing. Additionally there are other components (e.g. the small transformers, resistors) that also emit heat. When using the RoeTest in permanent operation mode and with high power consuming tubes normal convectional cooling is no longer sufficient. Therefore it is advisable to use a fan for the housing's internal ventilation.

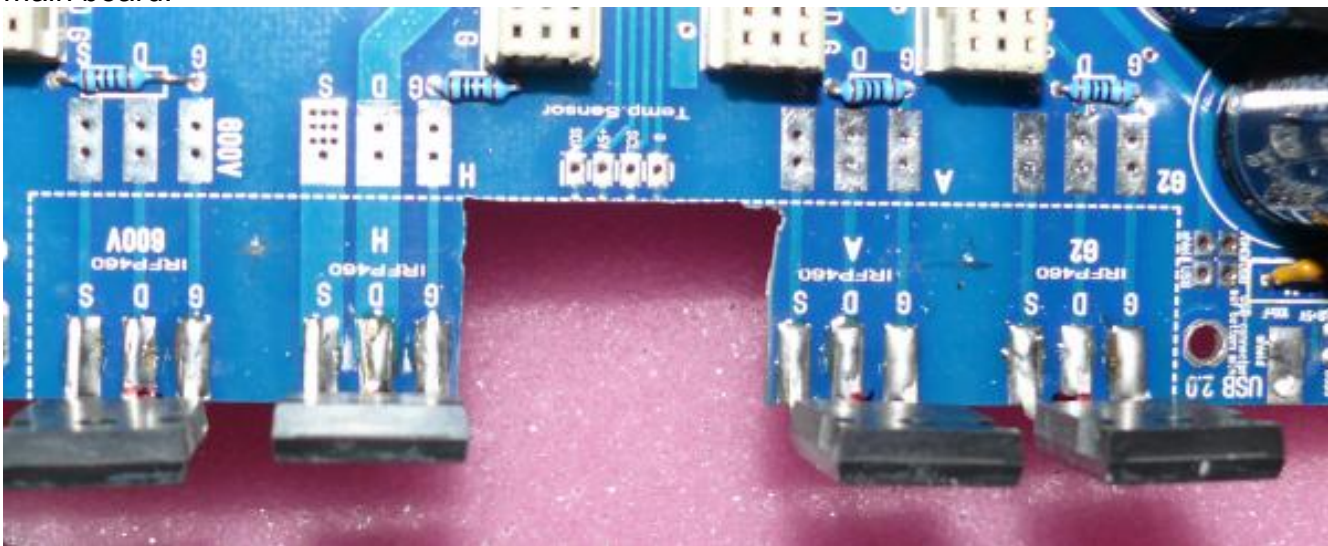
It is reasonable to mount the fan at the position where the most heat is generated: This is on the front panel above the MOSFets.

Fan selection: Use a small and quiet type with low current consumption; I suggest a fan with 60 mm diameter, 12V and max. 0,1A.

Cut out a hole for the fan (60 mm diameter), drill 4 M3 threaded holes and an additional hole for the cable into the front panel:



Cut out a small rectangle piece from the main board so that the air flow can pass around the main board:



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Mount the fan and the protection grill on the top side of the front panel. The fan's flow direction shall be from the housing's interior outwards through the front panel. This is also the air flow direction for natural convection. Caution: Assure that the fan's mounting screws do not stand out of the front panel's inner side and do not touch the main board.



Connect the fan to the following socket of the main board (socket for continuous operation mode, the fan's speed is adjustable with the trimmer at the left side of the socket):



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The RoeTest with the two fans attached:

