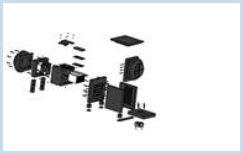
Modular Photoreactor Assembly Instructions



Standard

TITLE	Assembly of the Photoreactor Corpus 130x130x130mm	ORGANIZATION	Institute of Chemical Engineering Ulm University
DESIGNER	Daniel Kowalczyk		

INSTRUCTIONS

1) LED Module assembly: slide the cooler with mounted LED into the 3D-printed holder. Fix the cooler with 4 M3 screws (length adjusted to the thickness of the cooler) and 4 M3 nuts as shown in the depiction of the setup.

2) Fixation of the ventilation fins: place the fins of the right length in the front and back part of the corpus fixed by each 8 M3 (length: 30 mm and 40 mm) screws.

3) Make sure to cut out foam sealings for every surface connecting the 3D-printed parts. This ensures sufficient tempering of the setup.

4) Corpus assembly: place 8 M3 nuts in the slits of the side parts of the corpus. Fix the back part of the corpus with 8 M3 (length: 30 mm) according to the graphical assembly instruction.

5) Assembly of the tempering module: The peltier elements must be connected in a row according to (A-B-C-D). Make sure to put heat conducting paste between all interfaces to assure sufficient heat conduction. Place the peltier elements A and B on top of the passive alumina cooler. Stack C and D on A and B according to the 3D graph. Make sure that each heating and cooling side of the Peltier elements face the same direction. Place the alumina water cooler on top of C and D. Cut a piece of the foam sealing to the dimensions of the water cooler (40x80mm) and place it on top of the cooler. Slide the whole tempering unit into the 3D-printed holder. Fix the alumina passive holder in place using the 3D-printed spacer. Fix the water cooler from the top using the four slotted screws delivered with the alumina passive cooler. Place the 15 M3 nuts into the slits of the 3D-printed holder. Fix the assembled tempering module with 8 M3 screws from the inside of the corpus (length: 30 mm).

6) Assembly of the fan module: fix the fan with four M3 screws (length: 30 mm) and four M3 nuts according to the 3D-graphic. Make sure the air flow is directed into the tempering module. Place 8 M3 nuts in the slits of the 3D-printed fan holder. Fix the fan module to the tempering module using 7 M3 screws (length: 30 mm).

7) Fixation of the tempering air inlet: fix the 3D-printed inlet using 8 M3 screws (length: 30 mm). Connect the tempering air inlet with the tempering air outlet using the thermoinsulated tubing with the hose clamps.