

Surface Temperatures of Silicone Heater Mats

It is generally impossible to predict which temperature can be reached by a heater mat as there are plenty of influencing factors. Among them are beside the power, also weight and type of the material to be heated, ambient temperature, air flow and, naturally, the process control. The table below shows which temperature will be reached on a mat in relation to the watt density and without temperature control.

Test conditions:

- Silicone heater mat, vulcanised to a 1.5 mm aluminium plate
- Ambient temperature 20°C
- Still air
- Heating element in a horizontal position
- Measured in a steady state condition

Watt density of heating element [W/cm ²]	Surface temperature on mat [°C]	Watt density of heating element [W/cm ²]	Surface temperature on mat [°C]
0,05	40	0,75	238
0,075	60	0,8	247
0,1	70	0,85	253
0,125	80	0,9	259
0,15	90	0,95	265
0,2	105	1,0	270
0,25	121	1,1	280
0,3	135	1,2	290
0,35	150	1,3	300
0,4	164	1,4	310
0,45	176	1,5	320
0,5	188	1,6	330
0,55	200	1,7	340
0,6	210	1,8	350
0,65	220	1,9	360
0,7	230	2,0	370

Silicone heater mats are temperature resistant up to 200°C, with adhesive foil a maximum of 180°C should not be exceeded. Short-term higher temperatures can be reached without destroying the heating element. As a rule of thumb it can be said the lower the watt density the longer the lifetime. We recommend a maximum watt density of 0.8W/cm². Some of our customer have applications in which mats with 2W/cm² or more are operated without issues. In which applications this is possible can be found out only by tests. We do not assume any liability for overheated mats with a watt density of more than 1.3W/cm².