Technical specifications of HEM-series heat exchangers

1. Introduction

HEM-series are air-to-air thermoelectric heat exchangers developed based on ETE's proprietary DCS technology. It is the most compact, lightest weight, and highest cooling power device available in their category on the market.

HEM-series heat exchangers feature mounting surface and closely positioned mounting holes all around the perimeter to make it easily sealable. Please add –S suffix for environmentally sealable version.

2. Outline

Below are the outline dimensions of HEM-series. HEM-180 is the most powerful heat exchanger of the HEM-series.

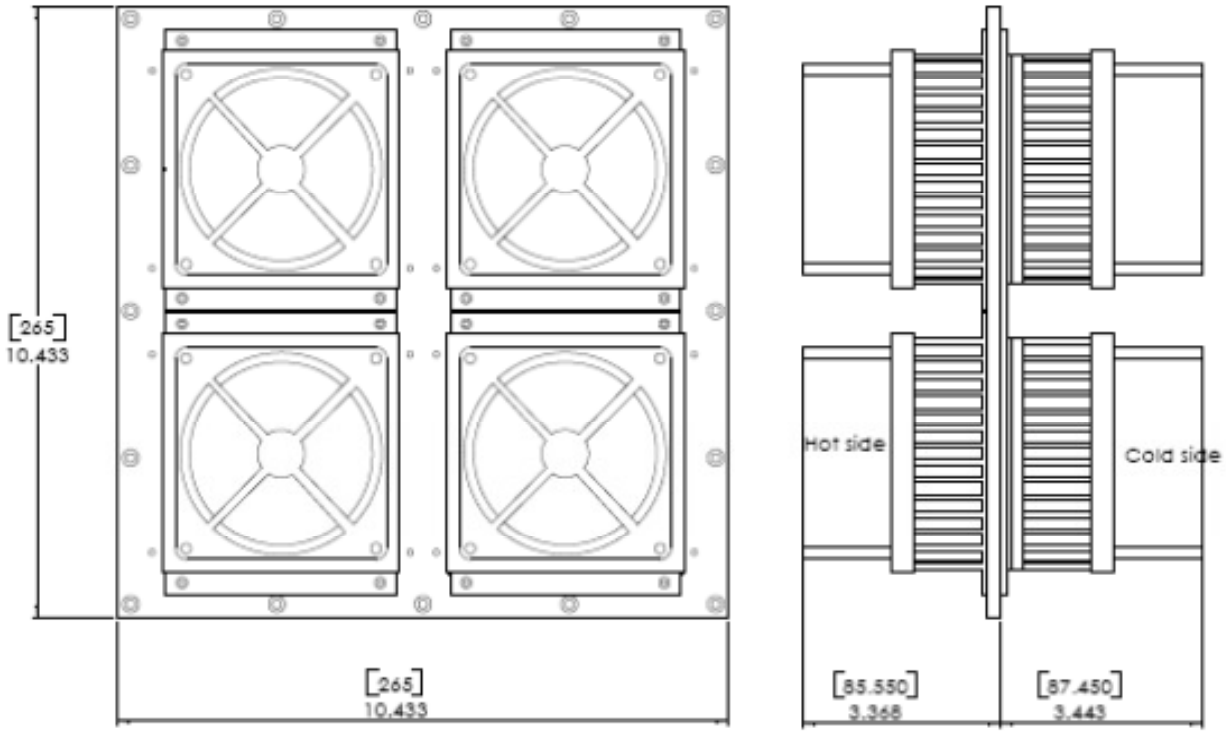


Figure 1 HEM-180 Outline Dimensions

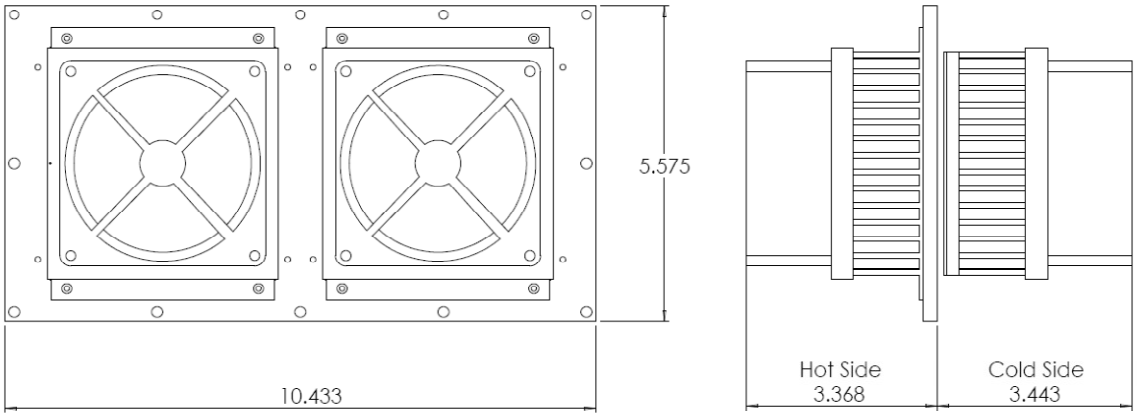


Figure 2 HEM-90 Outline Dimensions

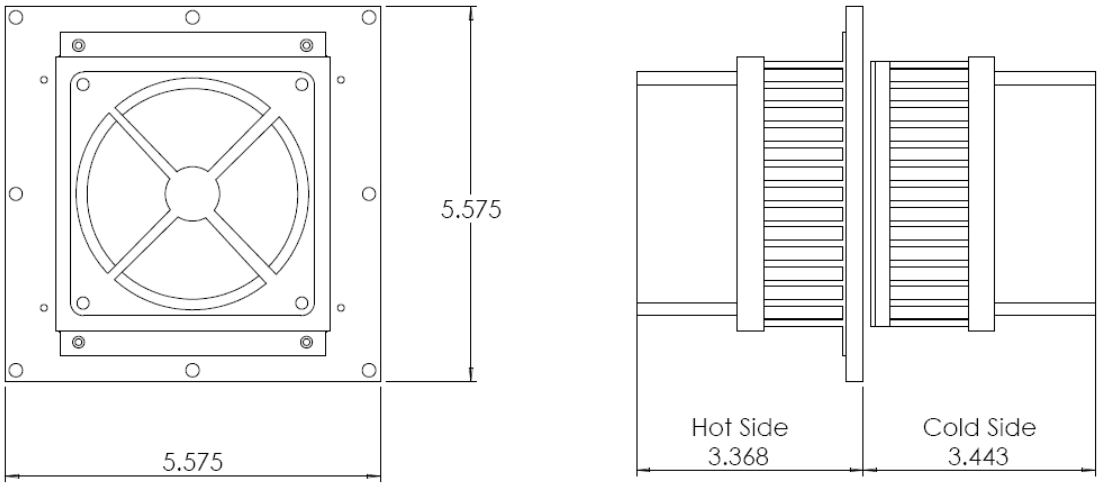
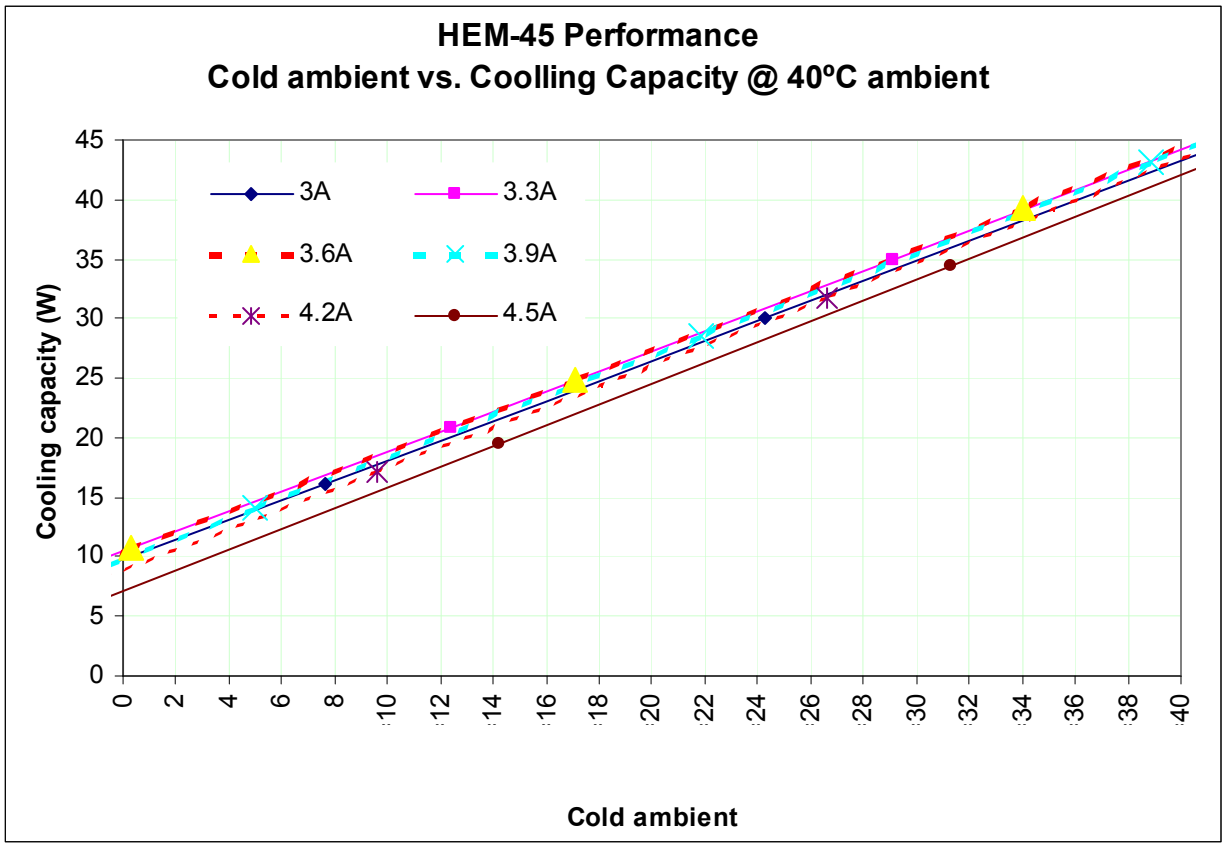


Figure 3 HEM-45 Outline Dimensions

3. Performance specifications

	HEM-045	HEM-90	HEM-180
Maximum cooling power (w) when ambient delta =0	45	90	180
Maximum ambient delta when Q=0	46	46	46
Operating temperature	-20 ~ 55ºC	-20 ~ 55ºC	-20 ~ 55ºC
Storage temperature	-40 ~ +85ºC	-40 ~ +85ºC	-40 ~ +85ºC
TEC maximum Voltage	12VDC	12VDC	12VDC
TEC max current per TEC	5.1A	5.1A	5.1A
Fan voltage (VDC)	12	12	12
Weight (LBS)	3	6	12
Price each (US$)	437.63	$669.44	$1088.36



Since HEM-045 is the building block for all higher power HEMs, the performance curves of higher power HEM products can be easily created by multiplying the cooling capacity while maintaining same cold ambient temperature.

4. Cooling Fan Specifications (for each fan)

Parameters	Standard
Rated voltage	12VDC
Operating voltage range	5.5-13.8 VDC
Input power	6.6w
Rated current	0.55A
Noise	36dBA

5. TEC specifications

There are two sets of TECs in HEM-045 (one cooing block) that are pre-wired in series. The maximum operating current for each cooling block is 4.2 A, and maximum voltage is 24VDC at room temperature. Maximum operating current and voltage increases if ambient is higher. Exceeding the specified maximum current may reduce the performance and degrade the reliability of TECs. We highly recommend driving the TEC sets in higher power HEM products in series to ensure optimum performance. The TECs shall run from constant current source.

Users are advised to manually ramp the TEC driving current after assembling the diode or other heat load on the cold plate to identify the optimum current and set current limit accordingly so that the TEC will not runaway.

All TECs are environmentally sealed for operating below dew points. The maximum rated operating temperature for TECs is 150ºC.

6. Contacts

For pricing and availability or any further information or clarification, please contact ETE in any of the following options:

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