

Air Coolers

	Heat Removal (Watts), T=0 °C, 35 °C Ambient		Heat Removal (Watts), T=0 °C, 25 °C Ambient		Operating Voltage (V)	Operating Current (Amps), Typical	Internal Fan Current (Amps), Maximum	External Fan Current (Amps)	Terminal Block Location (Amps)	Overall Dimensions (mm), length X width X height	Can be Customized with Large Orders	Can be Used for Cooling and Heating*	NEMA Rating Maintained	Weight (Kg)	Heat Sink Airflow Parallel/Vertical	External Fan Noise (dBA)	TC-24-10	TC-36-25 RS485	TC-36-25 RS232	TC-48-20 OEM	TC-48-20	TC-720 OEM	TC-720	PS-12-8.4A	PS-24-6.5	PS-24-12.5	PS-24-25	PS-48-10	
AC-027	25	24	12	4.6	5.6	0.24	0.58	E	127 X 152 X 176	• •	12	1.8	V	44	• • • • • • • •														
AC-046	44	42	24	4.5	5.4	0.14	0.34	E	127 X 178 X 176	• •	12	2.5	V	44	• • • • • • • •								•						
AC-053	53	51	24	4.6	5.6	0.16	0.23	E	198 X 194 X 210	• •	12	2.9	P	42	• • • • • • • •								•						
AC-055	58	55	12	5.6	7.28	0.19	0.40	I	203 X 127 X 152	• •	4	2.7	V	45	• • • • • • • •								•						
AC-073	67	63	24	9.0	10.8	0.17	0.50	E	203 X 130 X 205	• •	12	3.6	V	47	• • • • • • • •										•				
AC-140	141	139	24	4.7	6.9	0.22	1.0	I	259 X 176 X 258	• •	4	7.8	V	55	• • • • • • • •									•					
AC-162	165	159	24	14.1	17.1	0.22	1.0	E	254 X 176 X 257	• •	12	7.8	V	55	• • • • • • • •											•			
AC-194	197	185	48	7.7	9.5	0.14	0.46	I	259 X 176 X 259	• •	4	7.8	V	55	• • • • • • • •													•	
Specifications															Temperature Controllers						Power Supplies								

*Requires bipolar (heat/cool) controller.

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RoHS compliant

Visit <http://totech.com/product-category/air-coolers/> to view our air cooler products & data sheets.

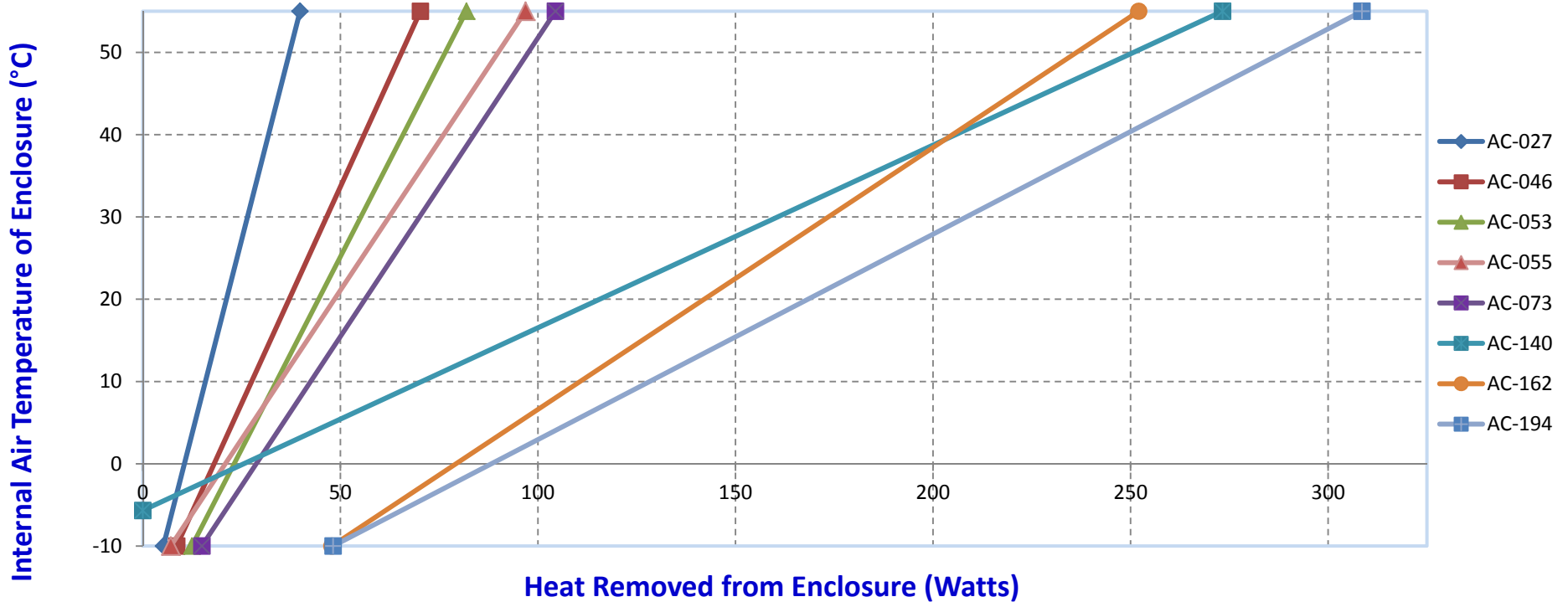


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Air Cooler Performance in a 25 °C Ambient Environment



How to use the Performance Graph:

1. Select Performance Line.

The diagonal lines shown represent cooling performance at the indicated ambient air temperature. Performance lines at other ambient temperatures can be seen on the data sheet for each specific cooler.



2. Select Desired Temperature.

Draw a horizontal line on the graph corresponding to your desired enclosure temperature until it intersects with the performance line corresponding to the ambient temperature at which the cooler is to operate.

NOTE: heating performance is not shown. Contact TE Technology, Inc. if you require this information.



3. Determine Cooling Capacity.

The maximum amount of heat that the cooler can remove is determined by the intersection point (determined in the previous step).

If the heat load exceeds the cooling capacity, then the cooler will not be able to maintain the desired temperature. If the heat load is less, then the cooler can operate with less input power.

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Cold Plate Coolers

Heat Pumping (Watts), $\Delta T=0^{\circ}\text{C}$,
35 °C Ambient

Heat Pumping (Watts), $\Delta T=0^{\circ}\text{C}$,
25 °C Ambient

Operating Voltage (Volts)

Operating Current (Amps), Typical

Hot-side Fan Current (Amps), Maximum

Overall Dimensions (mm)
length X width X height

Can be Customized with Large Orders

Can be Used for Cooling and Heating*

Weight (Kg)

Heat Sink Airflow Parallel/Vertical

External Fan Noise (dBA)

TC-24-10

TC-36-25 RS485

TC-36-25 RS232

TC-48-20 OEM

TC-48-20

TC-720 OEM

TC-720

PS-12-8.4A

PS-24-6.5

PS-24-12.5

PS-24-25

	Heat Pumping (Watts), $\Delta T=0^{\circ}\text{C}$, 35 °C Ambient	Heat Pumping (Watts), $\Delta T=0^{\circ}\text{C}$, 25 °C Ambient	Operating Voltage (Volts)	Operating Current (Amps), Typical	Hot-side Fan Current (Amps), Maximum	Overall Dimensions (mm) length X width X height	Can be Customized with Large Orders	Can be Used for Cooling and Heating*	Weight (Kg)	Heat Sink Airflow Parallel/Vertical	External Fan Noise (dBA)	TC-24-10	TC-36-25 RS485	TC-36-25 RS232	TC-48-20 OEM	TC-48-20	TC-720 OEM	TC-720	PS-12-8.4A	PS-24-6.5	PS-24-12.5	PS-24-25	
CP-031	30	28	12	4.5	5.5	0.24	102 X 80 X 91	•	•	0.9	V	35	•	•	•	•	•	•	•				
CP-031HT	30	28	12	4.5	5.5	0.24	102 X 80 X 91	•	•	0.9	V	35	•	•	•	•	•	•	•				
CP-036	33	32	12	4.7	5.7	0.58	152 X 127 X 114	•	•	1.8	V	44	•	•	•	•	•	•	•				
CP-036HT	32	31	12	4.7	5.7	0.58	152 X 127 X 114	•	•	1.8	V	44	•	•	•	•	•	•	•				
CP-061	65	62	24	4.6	5.7	0.23	198 X 194 X 127	•	•	2.3	P	39	•	•	•	•	•	•		•			
CP-061HT	59	56	24	4.5	5.4	0.23	198 X 194 X 127	•	•	2.3	P	39	•	•	•	•	•	•		•			
CP-065	60	57	24	4.5	5.5	0.34	178 X 127 X 114	•	•	2.2	V	44	•	•	•	•	•	•		•			
CP-110	105	101	24	9.0	10.9	0.50	203 X 130 X 140	•	•	3.0	V	47		•	•	•	•	•			•		
CP-121	128	123	24	9.2	11.1	0.46	198 X 188 X 119	•	•	4.2	P	42		•	•	•	•	•			•		
CP-200	206	198	24	14.1	17.3	1.00	254 X 176 X 165	•	•	6.3	V	55		•	•	•	•	•					•
CP-200HT	204	196	24	14.1	17.4	1.00	254 X 176 X 165	•	•	6.3	V	55		•	•	•	•	•					•
CP-200HTTT	204	196	24	14.1	17.4	1.00	254 X 176 X 206	•	•	6.7	V	55		•	•	•	•	•					•
CP-200TT	206	198	24	14.1	17.3	1.00	254 X 176 X 206	•	•	6.7	V	55		•	•	•	•	•					•
Specifications												Temperature Controllers						Power Supplies					

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RoHS compliant

*Requires Bipolar (heat/cool) controller

Visit <http://totech.com/product-category/cold-plate-coolers/> to view our cold plate cooler products & data sheets.

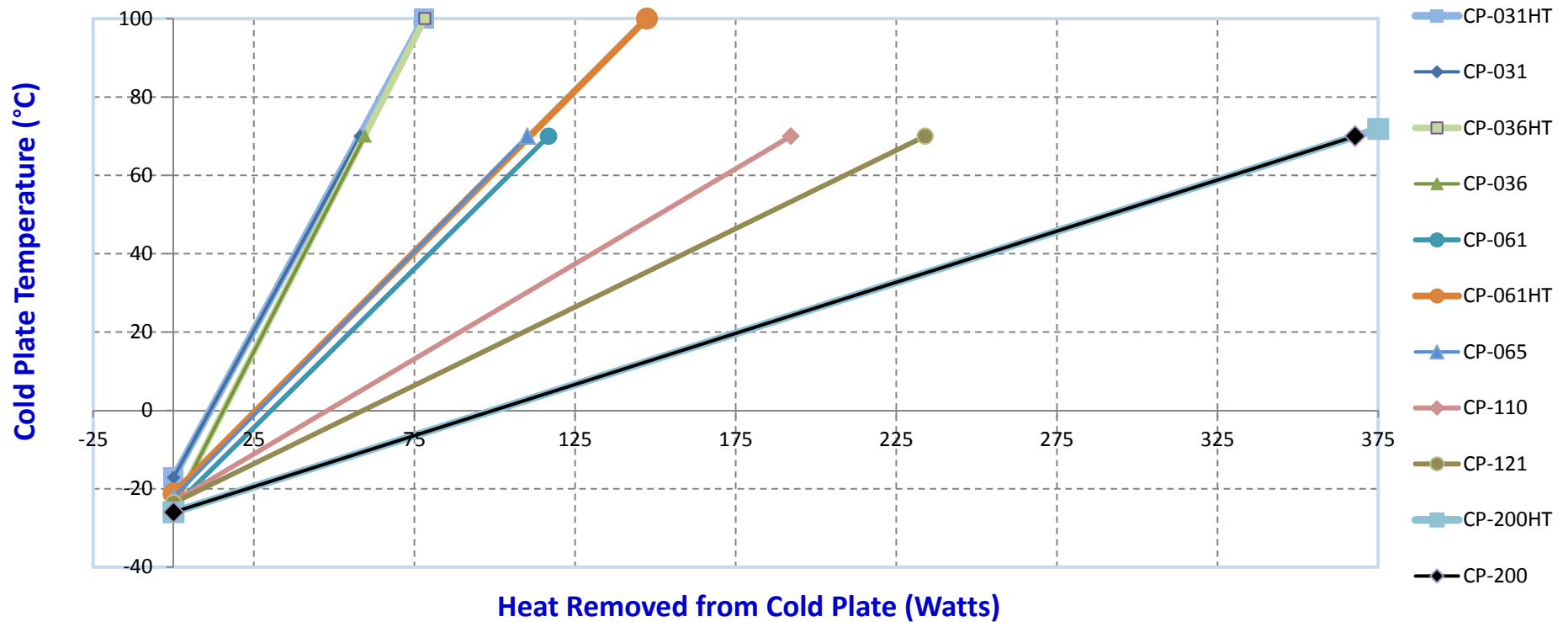


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Cold Plate Cooler Performance in a 25 °C Ambient Environment



How to use the Performance Graph:

1. Select Performance Line.

The diagonal lines shown represent cooling performance at the indicated ambient air temperature. Performance lines at other ambient temperatures can be seen on the data sheet for each specific cooler



2. Select Desired Temperature.

Draw a horizontal line on the graph corresponding to your desired cold plate temperature until it intersects with the performance line corresponding to the ambient temperature at which the cooler is to operate.

NOTE: heating performance is not shown. Contact TE Technology, Inc. if you require this information.



3. Determine Cooling Capacity.

The maximum amount of heat that the cooler can remove is determined by the intersection point (determined in the previous step).

If the heat load exceeds the cooling capacity, then the cooler will not be able to maintain the desired temperature. If the heat load is less, then the cooler can operate with less input power.

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Liquid Coolers

Heat Pumping (Watts), $\Delta T=0^\circ\text{C}$,
 35 °C Inlet Water Temperature
 Heat Pumping (Watts), $\Delta T=0^\circ\text{C}$,
 25 °C Inlet Water Temperature
 Operating Voltage (Volts)
 Operating Current (Amps), Typical
 Hot-side Fan Current (Amps), Maximum
 Overall Dimensions (mm)

Can be Customized with Large Orders
 Can be Used for Cooling and Heating*
 Weight (Kg)
 Heat Sink Airflow Parallel and Heating*
 External Fan Noise (dBA)

TC-24-10
 TC-36-25 RS485
 TC-36-25 RS232
 TC-48-20 OEM
 TC-48-20
 TC-720 OEM
 TC-720
 PS-12-8-4A
 PS-24-6-5
 PS-24-12-5
 PS-24-25

Model	Heat Pumping (Watts), $\Delta T=0^\circ\text{C}$, 35 °C Inlet Water Temperature	Heat Pumping (Watts), $\Delta T=0^\circ\text{C}$, 25 °C Inlet Water Temperature	Operating Voltage (Volts)	Operating Current (Amps), Typical	Hot-side Fan Current (Amps), Maximum	Overall Dimensions (mm)	Can be Customized with Large Orders	Can be Used for Cooling and Heating*	Weight (Kg)	Heat Sink Airflow Parallel and Heating*	External Fan Noise (dBA)	TC-24-10	TC-36-25 RS485	TC-36-25 RS232	TC-48-20 OEM	TC-48-20	TC-720 OEM	TC-720	PS-12-8-4A	PS-24-6-5	PS-24-12-5	PS-24-25	
LC-035	31	30	12	4.7	5.7	0.58	152 X 127 X 97	• •	1.7	V	44	• • • • • • • •	•	•	•	•	•	•	•	•	•	•	•
LC-061	56	54	24	4.5	5.5	0.34	178 X 127 X 97	• •	2.0	V	44	• • • • • • • •	•	•	•	•	•	•	•	•	•	•	•
LC-200	192	185	24	14.1	17.3	1.00	254 X 176 X 155	• •	5.8	V	55	• • • • • • • •	•	•	•	•	•	•	•	•	•	•	•
CP-061 + SSX1	62	58	24	4.6	4.7	0.23	198 X 194 X 139	• •	2.7	P	39	• • • • • • • •	•	•	•	•	•	•	•	•	•	•	•
CP-065 + SSX1	57	53	24	4.5	5.5	0.34	178 X 127 X 127	• •	2.7	V	44	• • • • • • • •	•	•	•	•	•	•	•	•	•	•	•
CP-110 + SSX1	99	104	24	9.0	10.9	0.50	203 X 130 X 153	• •	3.4	V	47	• • • • • • • •	•	•	•	•	•	•	•	•	•	•	•
CP-121 + SSX1	118	113	24	9.2	11.1	0.46	198 X 188 X 136	• •	4.6	P	42	• • • • • • • •	•	•	•	•	•	•	•	•	•	•	•
CP-200 + SSX1	183	176	24	14.1	17.4	1.00	254 X 176 X 178	• •	6.7	V	55	• • • • • • • •	•	•	•	•	•	•	•	•	•	•	•
CP-200 + 2 SSX1's	193	185	24	14.1	17.4	1.00	254 X 176 X 178	• •	7.1	V	55	• • • • • • • •	•	•	•	•	•	•	•	•	•	•	•

Specifications

Temperature Controllers

Power Supplies

*Requires Bipolar (heat/cool) controller

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Visit <http://totech.com/product-category/liquid-coolers/> to view our liquid cooler products & data sheets.

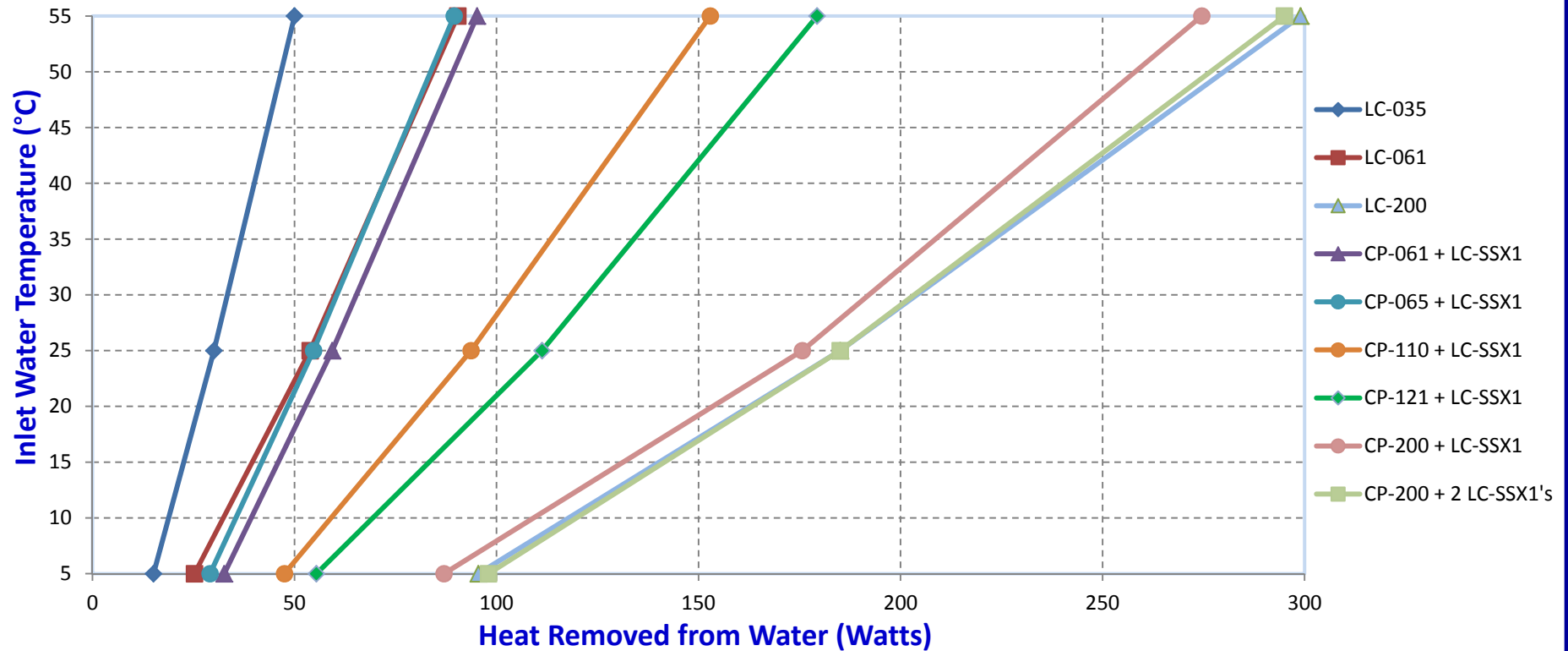


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Liquid Cooler Performance in a 25 °C Ambient Environment



How to use the Performance Graph:

1. Select Performance Line.

The diagonal lines shown represent cooling performance at the indicated ambient air temperature. Performance lines at other ambient temperatures can be seen on the data sheet for each specific cooler



2. Select Desired Temperature.

Draw a horizontal line on the graph corresponding to your desired liquid temperature until it intersects with the performance line corresponding to the ambient temperature at which the cooler is to operate.

NOTE: heating performance is not shown. Contact TE Technology, Inc. if you require this information.



3. Determine Cooling Capacity.

The maximum amount of heat that the cooler can remove is determined by the intersection point (determined in the previous step).

If the heat load exceeds the cooling capacity, then the cooler will not be able to maintain the desired temperature. If the heat load is less, then the cooler can operate with less input power.

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Temperature Controllers																					
	Maximum Input Voltage (V)	Maximum Output Current (Thermoelectric/Peltier)	PWM Output Frequency (Hz)	PWM Output	Temperature Resolution	Output Power Resolution	Signal Level Analog Output	Cool or Heat Control Only	Bipolar Cool and Heat Control	Communication	Ramp/Soak Capability	Optional Second Thermistor Input (for Alarm/Data)	Number of Alarm Signals	Maximum Alarm Current	Over current Protection	Fan Speed Control	Display & Keyboard (Integrated)	Display & Keyboard (Optional)	Thermistor Compatibility	Software Source Code Available	Energy-Saving Control Mode for Air Coolers
TC-24-10	26	10	1000	•	0.1	50 steps		•											15K		
TC-36-25 RS485	36	25	2700	•	0.01 °C	512 steps			•	RS485		•	3	25 mA	•			•	5K, 10K, 15K, 50K, 230K	•	
TC-36-25 RS232	36	25	2700	•	0.01 °C	512 steps			•	RS232		•	3	25 mA	•			•	5K, 10K, 15K, 50K, 230K	•	
TC-48-20 OEM	50	20	337	•	0.1 °C	512 steps	0 - 5 VDC	•		RS232		•	2	1 A					10K, 15K	•	
TC-48-20	50	20	337	•	0.1 °C	512 steps	0 - 5 VDC	•		RS232		•	2	1 A				•	10K, 15K	•	
TC-720 OEM	36	20	337	•	0.01 °C	512 steps	0 - 10 VDC		•	USB	•	•	2	2 A	•	•			5K, 10K-1, 10K-2, 15K, 50K, 230K, user	•	•
TC-720	36	20	337	•	0.01 °C	512 steps	0 - 10 VDC		•	USB	•	•	2	2 A	•	•	•		5K, 10K-1, 10K-2, 15K, 50K, 230K, user	•	•

Control Range for Thermistors	
5K	-40 °C to 70 °C *
10K	-20 °C to 85 °C
15K	-20 °C to 100 °C
50K	0°C to 150 °C
230K	25 °C to 199 °C

* Control range is extended to -60 °C on TC-720 controllers with firmware revision K or newer.

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