

## Section 2 General Information

### Description

The Thermo Scientific ThermoFlex™ recirculating chillers are designed to provide a continuous supply of fluid at a constant temperature and flow rate. The chiller consists of an air-cooled or water-cooled refrigeration system, heat exchanger, recirculating pump, polyethylene reservoir and a microprocessor controller.

### Specifications

	ThermoFlex900	ThermoFlex1400	ThermoFlex2500
<b>Process Fluid Temperature and Setpoint Range</b>	+5°C to +40°C +41°F to +104°F	+5°C to +40°C +41°F to +104°F	+5°C to +40°C +41°F to +104°F
<b>Ambient Temperature Range</b>	+10°C to +40°C +50°F to +104°F	+10°C to +40°C +50°F to +104°F	+10°C to +40°C +50°F to +104°F
<b>Temperature Stability</b>	±0.1°C	±0.1°C	±0.1°C
<b>Cooling Capacity at 20°C</b> 60 Hz 50 Hz	900 W (3074 BTU) 750 W (2561 BTU)	1400 W (4781 BTU) 1170 W (3996 BTU)	2500 W (8538 BTU)* 2200 W (7513 BTU)
*To meet this specification, the ThermoFlex2500 air-cooled chillers require the fan to be operating in the high-speed mode, see Section 3.			
<b>Refrigerant</b>	R134A	R134A	R134A
<b>Reservoir Volume</b> Gallons Liters	1.9 7.2	1.9 7.2	1.9 7.2
<b>Footprint or Dimensions (H x W x D)</b> Inches Centimeters	27.3 x 14.2 x 24.6 69.2 x 36.0 x 62.4	27.3 x 14.2 x 24.6 69.2 x 36.0 x 62.4	29.0 x 17.2 x 26.5 73.6 x 43.6 x 67.3
<b>Weight P2 Pump (empty)</b> lb kg	130.5 59.2	130.5 59.2	175.5 79.6
<b>Pumping Capacity</b>			
P1/MD1 - Positive Displacement 60 Hz 50 Hz	2.1 gpm @ 60 psig (7.9 lpm @ 4.1 bar) 1.7 gpm @ 60 psig (6.4 lpm @ 4.1 bar)		
P2/MD2 - Positive Displacement 60 Hz 50 Hz	4.0 gpm @ 60 psig (15.1 lpm @ 4.1 bar) 3.3 gpm @ 60 psig (12.5 lpm @ 4.1 bar)		
T0 - Turbine 60 Hz* 50 Hz*	2.0 gpm @ 60 psid (7.6 lpm @ 4.1 bar) 1.3 gpm @ 60 psid (4.9 lpm @ 4.1 bar)		
T1 - Turbine 60 Hz* 50 Hz*	3.5 gpm @ 60 psid (13.3 lpm @ 4.1 bar) 2.5 gpm @ 60 psid (9.5 lpm @ 4.1 bar)		

\* Pressure values for turbine pumps are differential pressures between the inlet and the outlet of the chiller.

- Cooling capacity based on P2 pumps with no backpressure. Heat input from the pump will result in a reduction in cooling capacity. The cooling capacity reduction will vary based on the pump chosen as well as pump backpressure and flow.
- Specifications obtained at sea level using water as the recirculating fluid, at a 20°C process setpoint, 25°C ambient condition, at nominal operating voltage. Other fluids, fluid temperatures, ambient temperatures, altitude or operating voltages will affect performance. See Section 3.
- Additional dimensions are at the end of this section, add 1/8" (3 mm) to height for SEMI.
- Add 5 pounds (2 kilograms) for global voltage chillers.
- Thermo Fisher Scientific reserves the right to change specifications without notice.

## Specifications

	ThermoFlex3500	ThermoFlex5000
<b>Process Fluid Temperature and Setpoint Range</b>	+5°C to +40°C +41°F to +104°F	+5°C to +40°C +41°F to +104°F
<b>Ambient Temperature Range</b>	+10°C to +40°C +50°F to +104°F	+10°C to +40°C +50°F to +104°F
<b>Temperature Stability</b>	± 0.1°C	± 0.1°C
<b>Cooling Capacity at 20°C</b> 60 Hz 50 Hz	3500 W (11953 BTU) 3050 W (10416 BTU)	5000 W (17076 BTU) 4400 W (15027 BTU)
<b>Refrigerant</b>	R407C	R407C
<b>Reservoir Volume</b> Gallons Liters	1.9 7.2	1.9 7.2
<b>Footprint or Dimensions (H x W x D)</b> Inches Centimeters	38.9 x 19.3 x 30.9 98.7 x 48.8 x 78.4	38.9 x 19.3 x 30.9 98.7 x 48.8 x 78.4
<b>Weight P1/ P2/P3/P4 (empty)</b> lb kg	264/264/270/303 120/120/123/138	NA/264/270/303 NA/120/123/138
<b>Pumping Capacity</b>		
P1/MD1 - Positive Displacement 60 Hz 50 Hz	2.1 gpm @ 60 psig (7.9 lpm @ 4.1 bar) 1.7 gpm @ 60 psig (6.4 lpm @ 4.1 bar)	Not Available Not Available
P2/MD2 - Positive Displacement 60 Hz 50 Hz	4.0 gpm @ 60 psig (15.1 lpm @ 4.1 bar) 3.3 gpm @ 60 psig (12.5 lpm @ 4.1 bar)	4.0 gpm @ 60 psig (15.1 lpm @ 4.1 bar) 3.3 gpm @ 60 psig (12.5 lpm @ 4.1 bar)
T1 - Turbine 60 Hz* 50 Hz*	3.5 gpm @ 60 psid (13.3 lpm @ 4.1 bar) 2.5 gpm @ 60 psid (9.5 lpm @ 4.1 bar)	3.5 gpm @ 60 psid (13.3 lpm @ 4.1 bar) 2.5 gpm @ 60 psid (9.5 lpm @ 4.1 bar)
P3 - Centrifugal Pump 60 Hz* 50 Hz*	10 gpm @ 32 psid (37.9 lpm @ 2.2 bar) 10 gpm @ 20 psid (37.9 lpm @ 1.4 bar)	10 gpm @ 32 psid (37.9 lpm @ 2.2 bar) 10 gpm @ 20 psid (37.9 lpm @ 1.4 bar)
P4 - Centrifugal Pump 60 Hz* 50 Hz*	15 gpm @ 57 psid (56.8 lpm @ 3.9 bar) 15 gpm @ 34 psid (56.8 lpm @ 2.3 bar)	15 gpm @ 57 psid (56.8 lpm @ 3.9 bar) 15 gpm @ 34 psid (56.8 lpm @ 2.3 bar)

\* Pressure values for turbine and centrifugal pumps are differential pressures between the inlet and the outlet of the chiller.

- Cooling capacity based on P2 pumps with no backpressure. Heat input from the pump will result in a reduction in cooling capacity. The cooling capacity reduction will vary based on the pump chosen as well as pump backpressure and flow.
- Specifications obtained at sea level using water as the recirculating fluid, at a 20°C process setpoint, 25°C ambient condition, at nominal operating voltage. Other fluids, fluid temperatures, ambient temperatures, altitude or operating voltages will affect performance. See Section 3.
- Additional dimensions are at the end of this section, add 1/8" (3 cm) to height for SEMI.
- Add 30 pounds (14 kilograms) for global voltage chillers.
- Thermo Fisher Scientific reserves the right to change specifications without notice.

## Specifications

	ThermoFlex7500	ThermoFlex10000
<b>Process Fluid Temperature and Setpoint Range</b>	+5°C to +40°C +41°F to +104°F	+5°C to +40°C +41°F to +104°F
<b>Ambient Temperature Range</b>	+10°C to +40°C +50°F to +104°F	+10°C to +40°C +50°F to +104°F
<b>Temperature Stability</b>	±0.1°C	±0.1°C
<b>Cooling Capacity at 20°C</b> 60 Hz 50 Hz	7500 W (25575 BTU) 6425 W (21910 BTU)	10000 W (34100 BTU) 8500 W (28985 BTU)
<b>Refrigerant</b>	R407C	R407C
<b>Reservoir Volume</b> Gallons Liters	4.75 17.9	4.75 17.9
<b>Footprint or Dimensions (H x W x D)</b>		
Air-Cooled Inches	52.3 x 25.2 x 33.8	52.3 x 25.2 x 33.8
Centimeters	132.7 x 63.9 x 85.6	132.7 x 63.9 x 85.6
Water-Cooled Inches	45.9 x 25.2 x 33.8	45.9 x 25.2 x 33.8
Centimeters	116.6 x 63.9 x 85.6	116.6 x 63.9 x 85.6
<b>Weight P2/P3/P5 (empty)</b>		
Air-Cooled lb	356/372.5/405.5	356/372.5/405.5
kg	161.5/169/184	161.5/169/184
Water-Cooled lb	315/331.5/364.5	315/331.5/364.5
kg	143/150/165	143/150/165
<b>Pumping Capacity</b>		
P2/MD2 - Positive Displacement 60 Hz	4.0 gpm @ 60 psig (15.1 lpm @ 4.1 bar)	4.0 gpm @ 60 psig (15.1 lpm @ 4.1 bar)
50 Hz	3.3 gpm @ 60 psig (12.5 lpm @ 4.1 bar)	3.3 gpm @ 60 psig (12.5 lpm @ 4.1 bar)
P3 - Centrifugal Pump 60 Hz*	10 gpm @ 32 psid (37.9 lpm @ 2.2 bar)	10 gpm @ 32 psid (37.9 lpm @ 2.2 bar)
50 Hz*	10 gpm @ 20 psid (37.9 lpm @ 1.4 bar)	10 gpm @ 20 psid (37.9 lpm @ 1.4 bar)
P5 - Centrifugal Pump 60 Hz*	20 gpm @ 60 psid (75.7 lpm @ 4.1 bar)	20 gpm @ 60 psid (75.7 lpm @ 4.1 bar)
50 Hz*	20 gpm @ 35 psid (75.7 lpm @ 2.4 bar)	20 gpm @ 35 psid (75.7 lpm @ 2.4 bar)
T 5 - Turbine Pump 60 Hz*	7.3 gpm @ 60 psid (27.6 lpm @ 4.1 bar)	7.3 gpm @ 60 psid (27.6 lpm @ 4.1 bar)
50 Hz*	6.2 gpm @ 60 psid (23.5 lpm @ 4.1 bar)	6.2 gpm @ 60 psid (23.5 lpm @ 4.1 bar)

\* Pressure values for centrifugal and turbine pumps are differential pressures between the inlet and the outlet of the chiller.

- Cooling capacity based on P2 pumps with no backpressure. Heat input from the pump will result in a reduction in cooling capacity. The cooling capacity reduction will vary based on the pump chosen as well as pump backpressure and flow.
- Specifications obtained at sea level using water as the recirculating fluid, at a 20°C process setpoint, 25°C ambient condition, at nominal operating voltage. Other fluids, fluid temperatures, ambient temperatures, altitude or operating voltages will affect performance. See Section 3.
- Additional dimensions are at the end of this section.
- For global voltage chillers with a P2 pump add 30 pounds (14 kilograms). Add 10 pounds (4.5 kilograms) for chillers with a P3 or P5 pump.
- Thermo Fisher Scientific reserves the right to change specifications without notice.