



120-ton and 40-ton Outdoor Chiller

Standard Features

Direct Drive Scroll Compressors

Direct drive hermetically sealed scroll compressors with proven performance in industrial cooling for reliable, low maintenance, and efficient operation.

Built-In Redundancy

All chillers include dual refrigeration circuits with multiple compressors. The 80 ton (281 kW) through 120 ton (422 kW) units also incorporate independent process fluid circuits as well. Automatic compressor lead/lag sequencing is standard. PLC control integrates up to 12 circuits across multiple chillers.

Stainless Steel Evaporators

High-efficiency stainless steel plates with copper brazing provide maximum performance, long life, and an enhanced level of protection from harsh process conditions.

Stainless Steel Pumps

Stainless steel pumps were selected for peak performance with the utmost in corrosion protection to ensure a long useful life under severe industrial conditions. Each pump uses TEFC motors for maximum protection from the environment.

Evaporator Inlet Strainer

The evaporator inlet strainer removes debris present in the process fluid to prevent costly downtime and repair due to a clogged chiller evaporator.

Industry Best Ambient Temperature Range

Outdoor air-cooled chillers operate in -20°F up to 125°F (-29°C to 52°C) ambient temperatures allowing installations in many climates.

Flexible Set Point Range

Wide set point range from 20°F to 80°F (-7°C to 27°C). Powerful and innovative PLC control maintains stable +/- 2°F accuracy.

Heavy Gauge Security and Hail Guard Grates

Industrial grade security screens protect exposed components while still allowing access for easy operation and maintenance while also protecting against hail.

Compressor Protection Technology

Our compressor protection technology uses start-to-start anti-recycle control logic to limit cycling under low-load operating conditions to extend compressor life.

Compressor and Pump Run Hour Displays

The ability to monitor compressor and pump running hours is an important tool to assist with scheduling maintenance.

Micro-Channel, Aluminum Condensers

Energy efficient, compact design uses less refrigerant and withstands high pressure spray for easy cleaning.

Power Monitor

The main power monitoring system protects the chiller from extensive damage to the compressor and pump due to loss of phase or phase reversal in the main supply.

Variable Speed Fan Motors

EC fan motors ensure energy efficient operation and lowest possible noise levels. Coupled with electronic expansion valves, Thermal Care's **Dynamic Lift** technology uses the fans to maximize energy efficiency for all ambient conditions.

Temperature Deviation Warnings and Alarms

A warning alerts the operator of a potential problem before a fault occurs and if the condition gets worse, an alarm stops the chiller to prevent damage.

Adjustable Deviation Alarm Time Delays

Allows for programming a start-up alarm time delay to deactivate the alarms long enough for the process loop to stabilize before activating the alarms.

High-Quality 24 VDC Power Supply

The 24-volt DC power supply ensures dependable control circuit power and isolates the control circuit from static interference to ensure stable and precise operation.

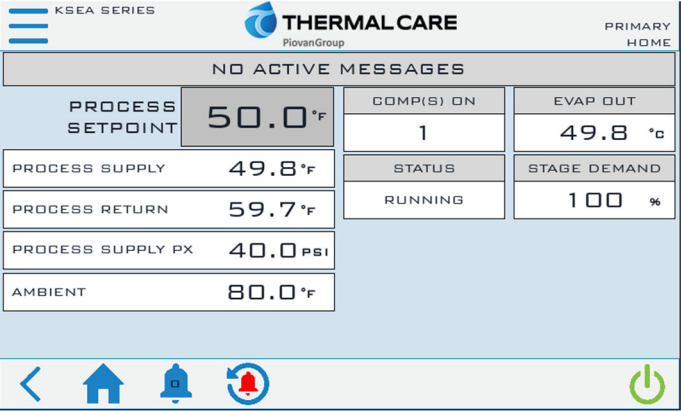
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UL-508A Industrial Control Panel

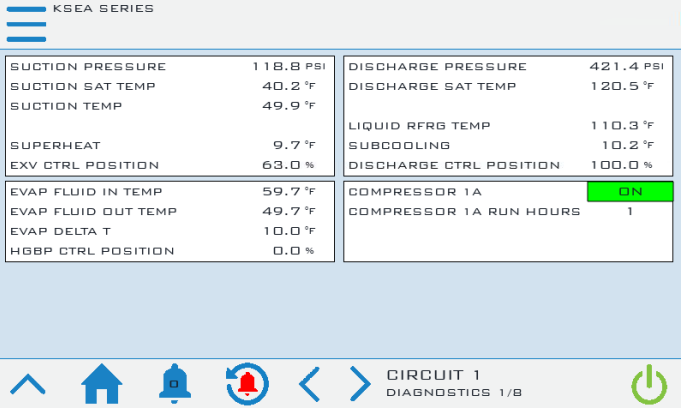
Every chiller has a UL label certifying our panel design and components comply with UL 508A standards ensuring the panels are safe and consistent for reliable operation.

7-Inch Color Touch Screen

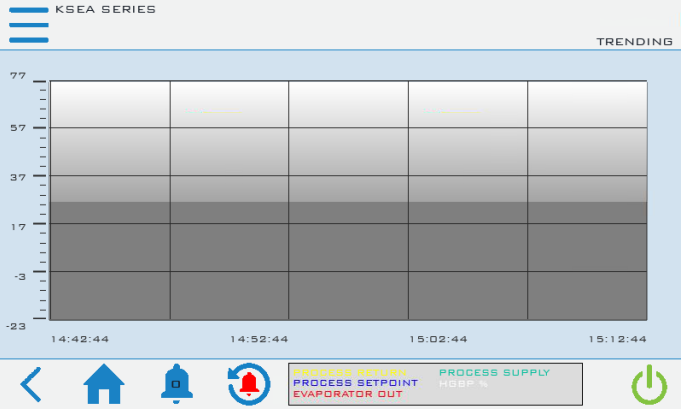
Home Screen



Diagnostics Screen



Trending Data Screen



Warranty

1 year parts on entire unit
1 year labor

Description of Functions	Control Features
Process Fluid Supply and Return Temperatures	•
Evaporator Fluid Leaving Temperature	•
Process Fluid Supply Pressure	•
Refrigerant Suction Pressure	•
Refrigerant Suction Temperature & Superheat	•
Refrigerant Liquid Temperature & Subcooling	•
Refrigerant Discharge Pressure	•
Refrigerant Discharge Temperature	•
High Process Fluid Temperature	•
Low Process Fluid Temperature	•
Evaporator Fluid Freeze	•
Evaporator Fluid Flow Switch	•
Refrigerant High Pressure	•
Ambient Temperature Tracking	•
Phase Monitor	•
Compressor Overload	•
Condenser Fan Overload	•
Remote Setpoint (0-10 VDC)	•
Remote Start/Stop	•
Alarm Horn	•
Alarm Contact	•
CONNEX4.0 Ready	•
Modbus RTU	•
Modbus TCP/IP	•
BACnet MS/TP	○
BACnet/IP	○

• = standard, ○ = optional

Available Options

- High or low pressure pump packages
- Alarm horn
- Alarm relay
- Rotary non-fused or fused disconnect switch
- Air-cooled condenser coating for coastal regions
- Emergency stop button
- Remote HMI with operator interface
- Special color paint

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Air-Cooled Condenser Chillers

General Data (60Hz)

	KSEA 040	KSEA 050	KSEA 060	KSEA 080	KSEA 100	KSEA120 120
General						
Cooling Capacity ¹	40 tons 141 kW	50 tons 176 kW	60 tons 211 kW	80 tons 281 kW	100 tons 352 kW	120 tons 422 kW
Set Point Range	20 to 80°F -7° to 27°C	20 to 80°F -7° to 27°C	20° to 80°F -7° to 27°C	20 to 80°F -7° to 27°C	20 to 80°F -7° to 27°C	20 to 80°F -7° to 27°C
Number of Compressors	2	2	2	4	4	4
Process In/Out (in) - Standard	3	3	4	4	4	4
Process In/Out (in) – High Flow	4	4	4	4	6	6
Minimum Unloaded Capacity	20 ton 70 kW	25 ton 88 kW	30 ton 106 kW	20 ton 70 kW	25 ton 88 kW	30 ton 106 kW
with HGBP Option	10 ton 35 kW	13 ton 46 kW	15 ton 53 kW	10 ton 35 kW	13 ton 46 kW	15 ton 53 kW
Dimensions, Weights (Chiller Only)						
Length	128 in 325 cm	173 in 439 cm	173 in 439 cm	128 in 325 cm	173 in 439 cm	173 in 439 cm
Width	47 in 119 cm	47 in 119 cm	47 in 119 cm	88 in 224 cm	88 in 224 cm	88 in 224 cm
Height	79 in 201 cm	79 in 201 cm	79 in 201 cm	79 in 201 cm	79 in 201 cm	79 in 201 cm
Ship Weight	2,876 lbs 1,305 kg	3,976 lbs 1,803 kg	3,976 lbs 1,803 kg	4,654 lbs 2,111 kg	5,954 lbs 2,701 kg	5,954 lbs 2,701 kg
Operating Weight	2,976 lbs 1,350 kg	4,251 lbs 1,928 kg	4,251 lbs 1,928 kg	4,754 lbs 2,156 kg	6,164 lbs 2,796 kg	6,229 lbs 2,825 kg
Dimensions, Weights (Chiller with Standard Pressure Pump)						
Process Pump/Chiller Pump	7½ hp	7½ hp	10 hp	15 hp	15 hp	20 hp
Nominal Flow Rate	96 gpm 363 lpm	120 gpm 454 lpm	144 gpm 545 lpm	192 gpm 727 lpm	240 gpm 909 lpm	288 gpm 1,090 lpm
Nominal Discharge Pressure	41 psi 2.8 bar	39 psi 2.7 bar	50 psi 3.4 bar	54 psi 3.7 bar	50 psi 3.4 bar	62 psi 4.3 bar
Ship Weight	3,009 lbs 1,365 kg	4,109 lbs 1,864 kg	4,176 lbs 1,894 kg	4,858 lbs 2,204 kg	6,158 lbs 2,793 kg	6,223 lbs 2,823 kg
Operating Weight	3,109 lbs 1,410 kg	4,384 lbs 1,989 kg	4,451 lbs 2,019 kg	4,958 lbs 2,249 kg	6,368 lbs 2,888 kg	6,498 lbs 2,947 kg
Dimensions, Weights (Chiller with Standard Pressure Pump with Dedicated Standby Pump)						
Process Pump/Chiller Pump	7½ hp	7½ hp	10 hp	15 hp	15 hp	20 hp
Nominal Flow Rate	96 gpm 363 lpm	120 gpm 454 lpm	144 gpm 545 lpm	192 gpm 727 lpm	240 gpm 909 lpm	288 gpm 1,090 lpm
Nominal Discharge Pressure	41 psi 2.8 bar	39 psi 2.7 bar	50 psi 3.4 bar	54 psi 3.7 bar	50 psi 3.4 bar	62 psi 4.3 bar
Ship Weight	3,142 lbs 1,425 kg	4,242 lbs 1,924 kg	4,376 lbs 1,985 kg	5,062 lbs 2,296 kg	6,362 lbs 2,886 kg	6,492 lbs 2,945 kg
Operating Weight	3,242 lbs 1,471 kg	4,517 lbs 2,049 kg	4,651 lbs 2,110 kg	5,162 lbs 2,341 kg	6,637 lbs 3,011 kg	6,767 lbs 3,070 kg

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General Data (continued)

	KSEA 040	KSEA 050	KSEA 060	KSEA 080	KSEA 100	KSEA 120
Dimensions, Weights (Chiller with High Pressure Pump)						
Process Pump/Chiller Pump	15 hp	15 hp	15 hp	25 hp	25 hp	25 hp
Nominal Flow Rate	96 gpm 363 lpm	120 gpm 454 lpm	144 gpm 545 lpm	192 gpm 727 lpm	240 gpm 909 lpm	288 gpm 1,090 lpm
Nominal Discharge Pressure	86 psi 5.9 bar	82 psi 5.7 bar	80 psi 5.5 bar	90 psi 6.2 bar	82 psi 5.7 bar	76 psi 5.2 bar
Ship Weight	3,088 lbs 1,401 kg	4,188 lbs 1,900 kg	4,188 lbs 1,900 kg	4,977 lbs 2,258 kg	6,277 lbs 2,847 kg	6,277 lbs 2,847 kg
Operating Weight	3,188 lbs 1,446 kg	4,463 lbs 2,024 kg	4,463 lbs 2,024 kg	5,077 lbs 2,303 kg	6,487 lbs 2,942 kg	6,552 lbs 2,972 kg
Dimensions, Weights (Chiller with High Pressure Pump with Dedicated Standby Pump)						
Process Pump/Chiller Pump	15 hp	15 hp	15 hp	25 hp	25 hp	25 hp
Nominal Flow Rate	96 gpm 363 lpm	120 gpm 454 lpm	144 gpm 545 lpm	192 gpm 727 lpm	240 gpm 909 lpm	288 gpm 1,090 lpm
Nominal Discharge Pressure	86 psi 5.9 bar	82 psi 5.7 bar	80 psi 5.5 bar	90 psi 6.2 bar	82 psi 5.7 bar	76 psi 5.2 bar
Ship Weight	3,300 lbs 1,497 kg	4,400 lbs 1,996 kg	4,400 lbs 1,996 kg	5,300 lbs 2,404 kg	6,600 lbs 2,994 kg	6,600 lbs 2,994 kg
Operating Weight (lbs)	3,400 lbs 1,542 kg	4,675 lbs 2,121 kg	4,675 lbs 2,121 kg	5,400 lbs 2,449 kg	6,810 lbs 3,089 kg	6,875 lbs 3,118

¹Cooling tons based on 12,000 BTU/Hr/ton with 50°F leaving coolant and 95°F ambient air, R410A or R454B refrigerant.

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Electrical Data (60 Hz)

Model	Rated Voltage	Chiller Only		Chiller with Standard Pressure Pump(s)		Chiller with High Pressure Pump(s)	
		MCA ²	MOP ³	MCA ²	MOP ³	MCA ²	MOP ³
KSEA040	208	186	300	211	300	233	350
	230	186	300	209	300	229	350
	460	89	125	101	150	111	150
	575	69	100	79	110	87	125
KSEA050	208	220	350	246	350	268	400
	230	220	350	244	350	264	400
	460	111	175	123	175	133	200
	575	79	110	89	125	97	150
KSEA060	208	272	400	304	450	320	450
	230	272	400	301	450	315	450
	460	124	175	139	200	146	200
	575	99	150	111	175	117	175
KSEA080	208	351	450	398	500	427	600
	230	351	450	394	500	420	500
	460	169	225	190	250	203	250
	575	131	175	149	200	159	200
KSEA100	208	417	600	465	600	493	600
	230	417	600	460	600	486	600
	460	210	300	232	300	245	300
	575	150	200	168	200	178	225
KSEA120	208	515	700	576	700	591	800
	230	515	700	570	700	584	700
	460	236	300	264	350	271	350
	575	188	250	211	300	216	300

¹ Allowable voltage range is $\pm 10\%$ from rated voltage.

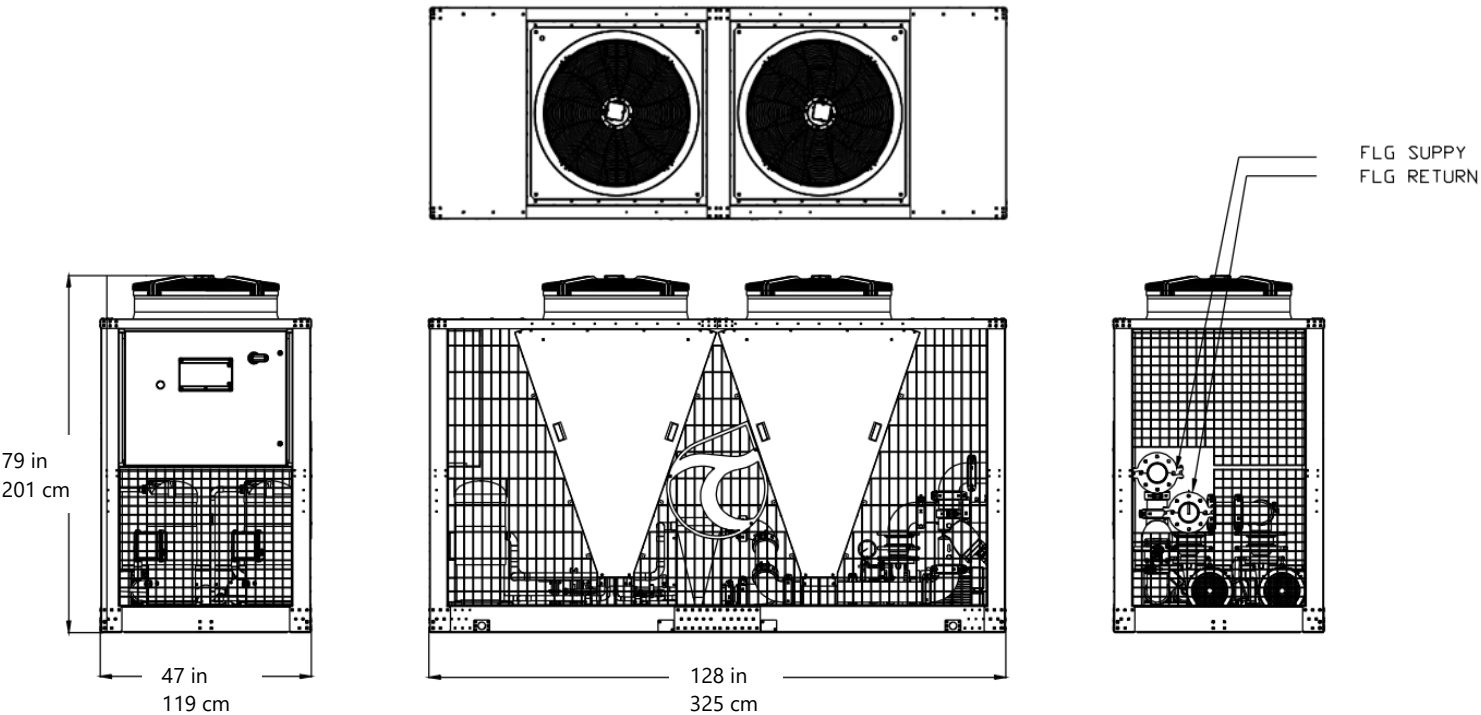
² MCA is Minimum Circuit Amps, used for minimum wire size requirement.

³ MOP is Maximum Overcurrent Protection, used for sizing main power protection device.

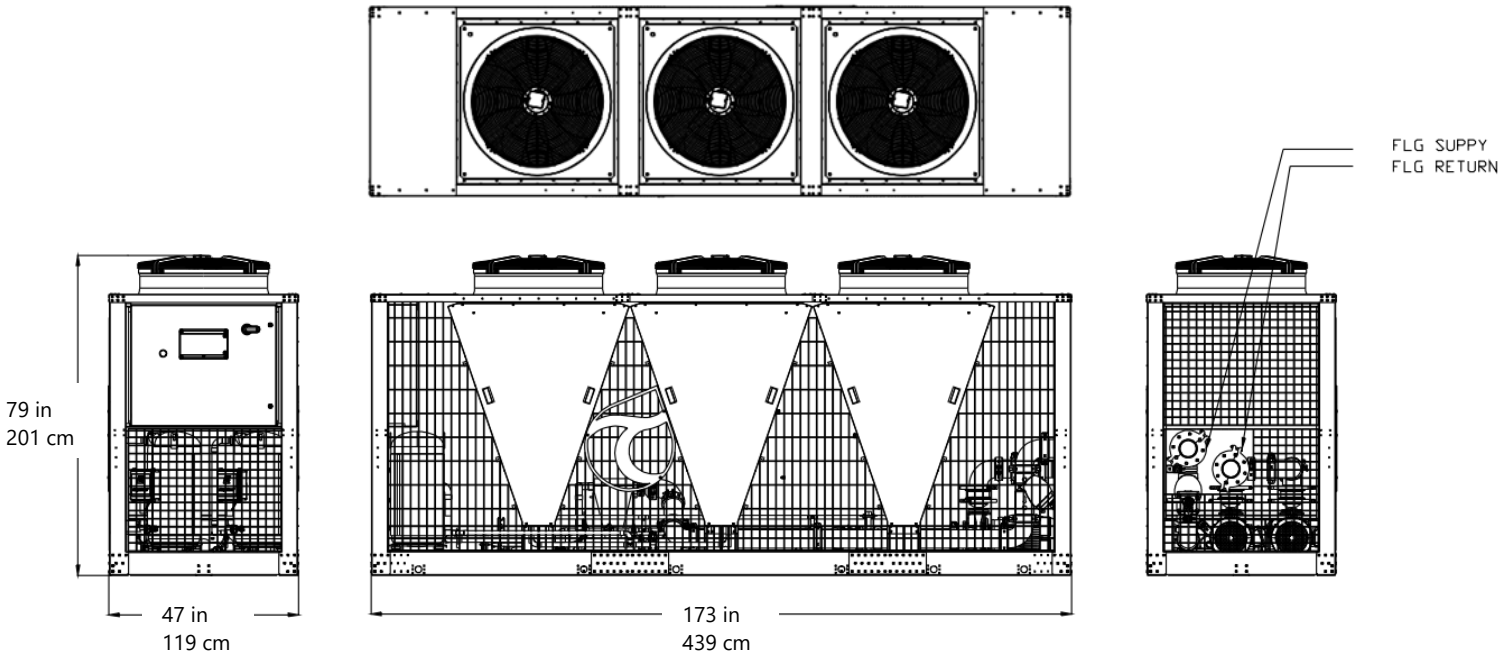
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Dimensional drawings (dimensions in inches)

KSEA040

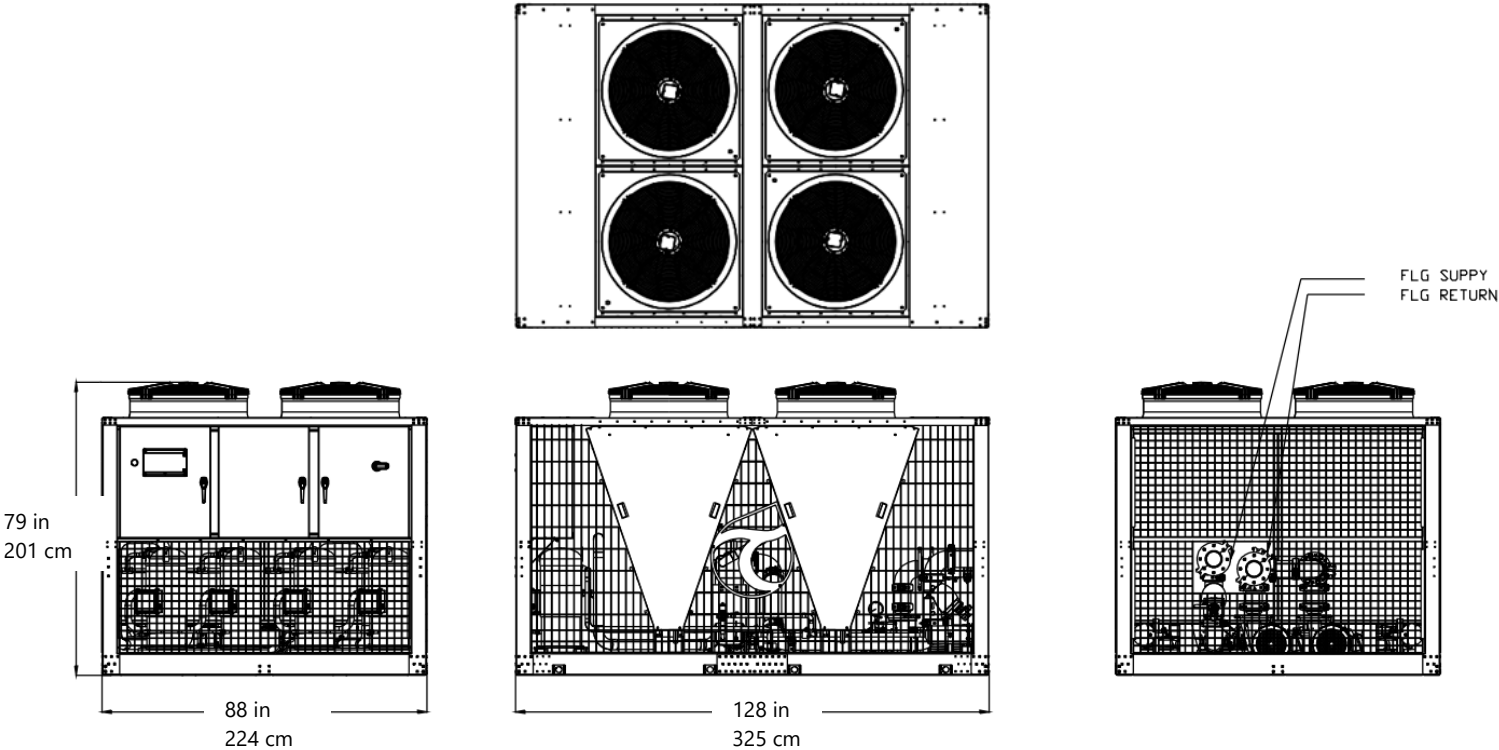


KSEA050 and KSEA060

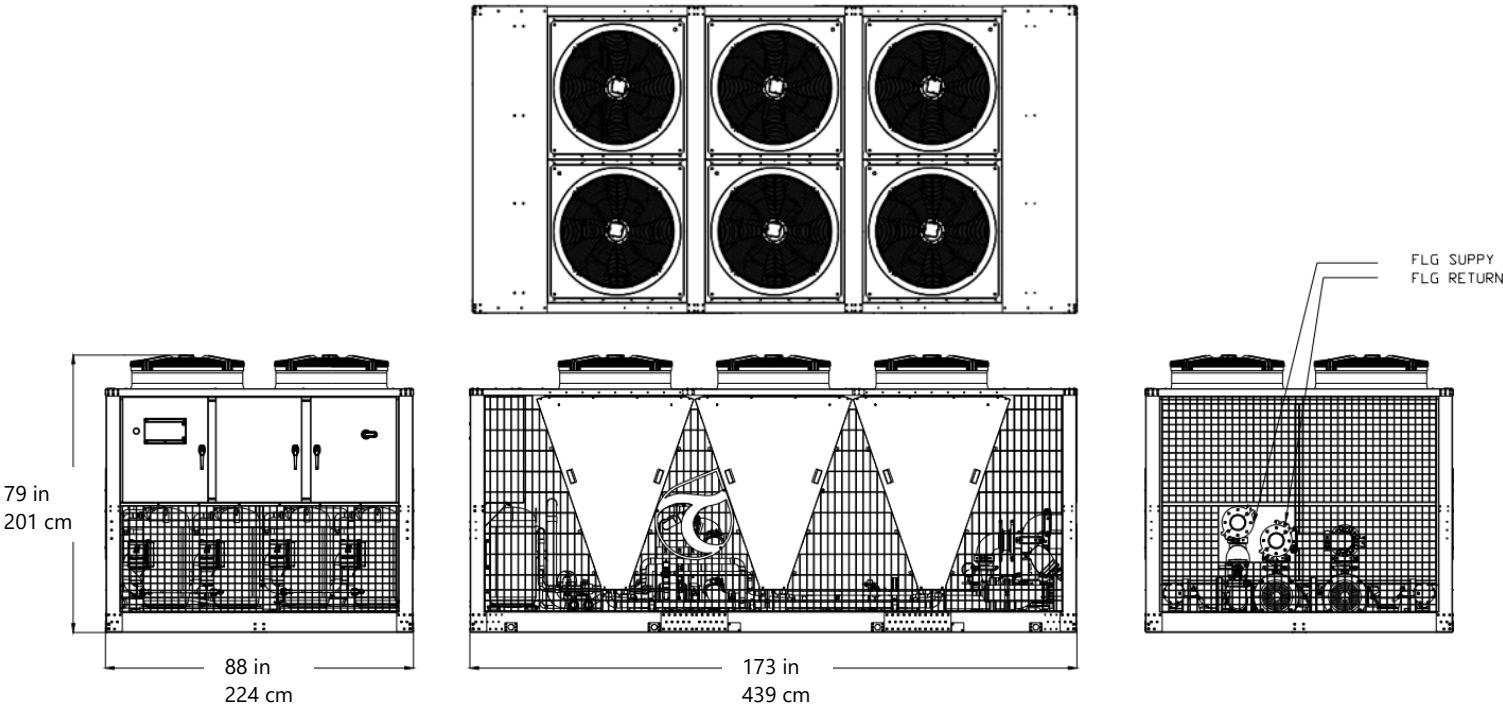


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KSEA080

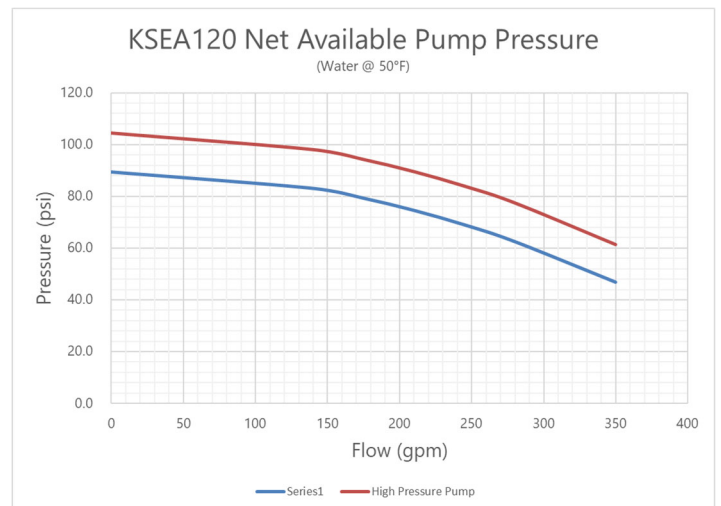
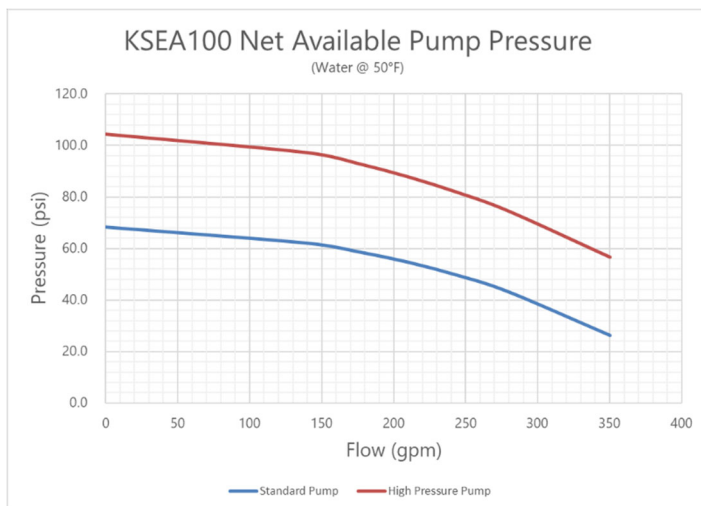
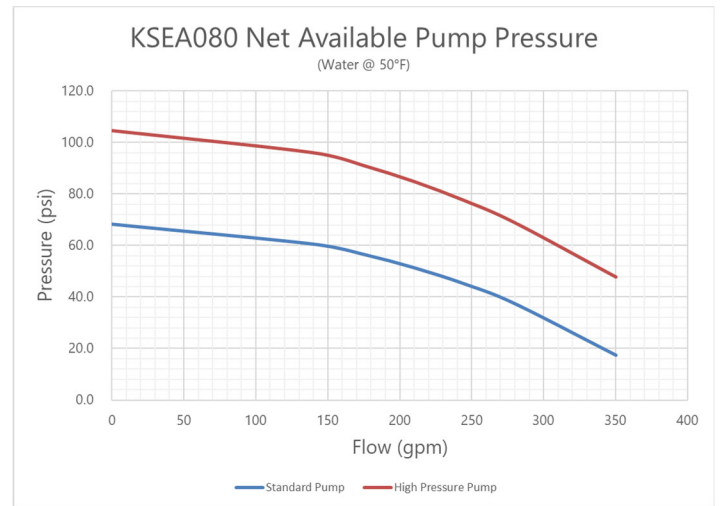
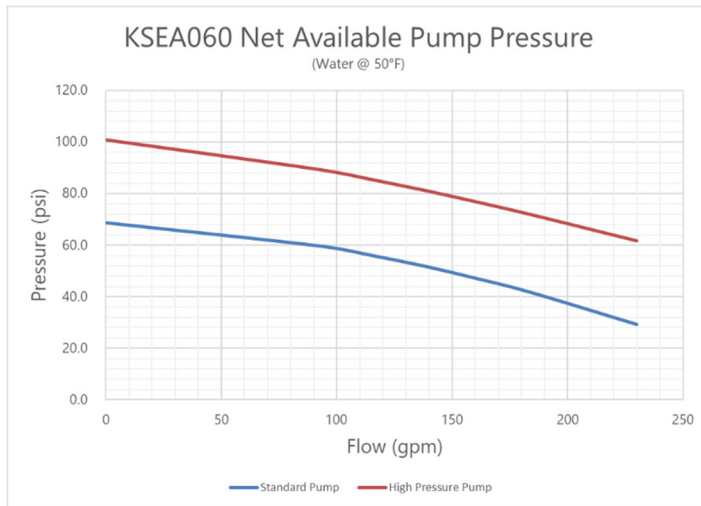
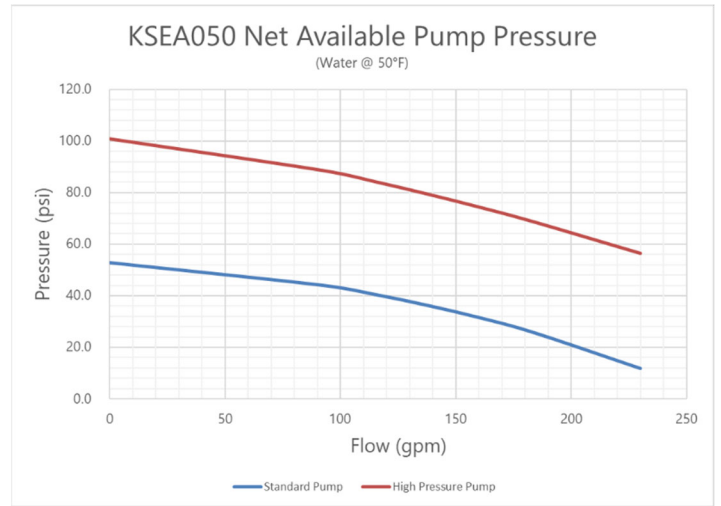
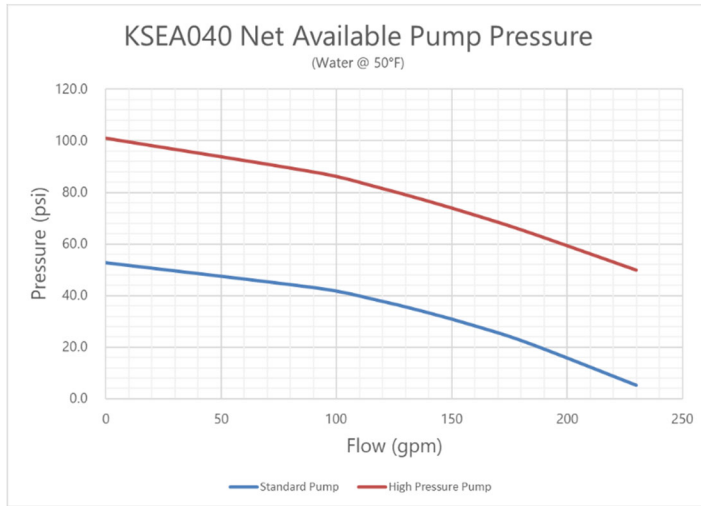


KSEA100 and KSEA120



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KSE Series Chiller – Pump Curves – Chiller Specific



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Thermal Care is ISO 9001 Certified
Manufacturer reserve the right to change specification
or design without notification or obligation
KSE Specification 06