



Product Catalog

RTHE Series R Helical Rotary Liquid Chiller

65-220 RT

50Hz



Introduction

To meet a wide range of applications in the 65–220 ton water-cooled market, Trane is proud to introduce the model RTHE helical-rotary liquid chiller. The introduction of this new chiller is an exciting step forward in reliability, high performance, life-cycle cost-effectiveness and simple, economical installation. The new RTHE chiller is designed to deliver proven Series R performance, plus all the benefits of an advanced heat transfer design and a low-speed, direct drive compressor.

The industrial-grade design of the Series R helical-rotary chiller is ideal for both industrial and commercial markets, in applications such as small & medium plants, recreational facilities, commercial and public buildings.



Public buildings



Transportation



Hotel



Industrial



Commercial

Features and Benefits

Reliability

- The Trane helical rotary compressor is a proven design resulting from years of research and thousands of test hours, including extensive testing under extraordinarily severe operating conditions.
- Direct drive, low-speed compressors—a simple design with only four moving parts—provides maximum efficiency, high reliability, and low maintenance requirements.
- Suction gas-cooled motor stays at a uniformly low temperature for long motor life.
- Electronic expansion valve, with fewer moving parts than alternative valve designs, provides highly reliable operation.

High Performance

- The superior low noise design means the chiller operates at the lowest noise level when compared to other product equivalents on the market.
- The electronic expansion valve with the Adaptive control™ logic can accurately adjust the flow of the refrigerant from 10% to 100%, based on loads.
- Optional LonTalk/Trace Summit or Modbus communications interface provides excellent, trouble-free interoperability.

Life Cycle Cost-Effectiveness

- The GP2 compressor, based on Trane's global development platform, employs low-speed, direct-drive motors and hermetic structures. The motors are cooled by the refrigerant without being exposed to air, leading to an extended life.
- Precise compressor rotor tip clearance ensures optimal efficiency.
- Electronic expansion valve enables exceptionally tight temperature control, resulting in more efficient full-load and part-load operation than previously available.
- The compressor contains only 4 moving parts, meaning less mechanical losses and operational faults.
- The CH530 controller provides Feed Forward and Softloading functions, effectively eliminating the water temperature fluctuations and frequent start of the chiller, thus extending the chiller's life.

Simple, Economical Installation

- With its minimum width of only 890mm, the chiller's small footprint saves valuable equipment room space and alleviates access concerns for most retrofit jobs.
- Due to its plug-and-play design, the chiller can be put into service immediately after the water pipes and power supply are connected at sites, greatly decreasing the construction period.
- Full factory refrigerant and oil charges reduce required field labor, materials, and installation cost.
- Trane CH530 controls easily interface with Tracer Summit™, Modbus™ or LonTalk™ building automation systems through single twisted-pair wire.
- Trane has conducted extensive factory testing during manufacturing.

Options

Pressure Relief Valve

Dual RV with 3-Way Isolation Valve

Refrigerant Isolation Valves

Refrigerant Isolation Valves (Discharge and Liquid Line Valve)

2-Way Water Regulating Valve

For water regulation, a field-installed, 2-way butterfly-type (lug-style) valve, with integral electrical operator and factory-mounted valve actuator, is available.

Insulation

The evaporator and water boxes are covered with factory installed 1.5 inch (38.1 mm) insulation. Factory installed foam insulation is used on the motor housing, suction line, liquid level sensor, and oil return system assembly (with its associated piping).

Circuit Breaker

A molded case standard interrupting capacity circuit breaker, factory pre-wired with terminal block power connections and equipped with a lockable external operator handle, is available to disconnect the chiller from main power.

Non-Fused Disconnect

A non-fused molded case disconnect switch, factory pre-wired with terminal block power connections and equipped with a lockable external operator handle, is available to disconnect the chiller from main power.

Communication

Time of Day Scheduling
COMM5 (Lontalk)
BACnet
MODbus

External Current-Limiting

External current-limit set point is communicated to a factory-installed, tested communication board through a 2–10 Vdc or 4–20 mA signal.

Cond Refrigerant Pressure Output
Condenser Water Control
Condenser Pressure (%HPC)
Differential Pressure Output

Motor Current Analog Output

Control system indicates the active chiller percent of full run load amps, based on a 2–10 Vdc.

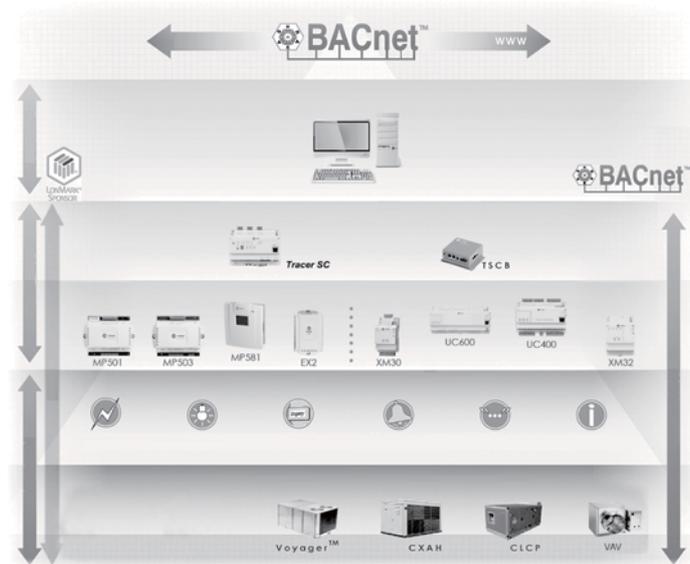
The Cutting-edge CH530 Controller



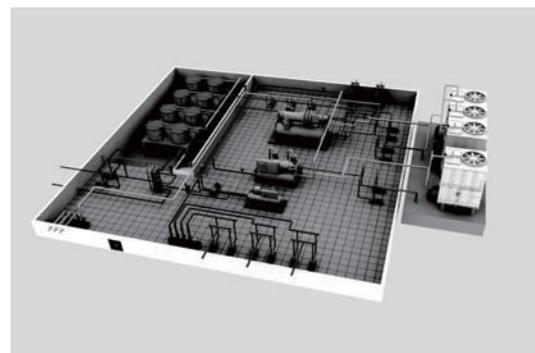
CH530 Controller

Microprocessor-based Trane CH530 controls monitor and maintain optimal operation of the chiller and its associated sensors, actuators, relays, and switches, all of which are factory assembled and extensively tested.

- Easy interface with computers hosting LonTalk/Tracer Summit™ or Modbus building automation/energy management systems allows the operator to efficiently optimize comfort system performance and minimize operating costs.
- Proportional Integral Derivative (PID) control strategy ensures stable, efficient chilled water temperature, maintaining $\pm 1^{\circ}\text{F}$ (0.56°C) by reacting to instantaneous load changes.
- Adaptive Control™ attempts to maintain chiller operation under adverse conditions, when many other chillers might simply shut down. This is accomplished by unloading the compressor due to high condensing pressure, low suction pressure and/or overcurrent.
- Easy-to-use operator interface displays all operating and safety messages, with complete diagnostics information, on a easily readable panel with a scrolling touch-screen display.
- Seamless integration with Trane’s new generation of building automation systems -TRACER SC, featuring streamlined system architecture, a more instinctive user interface and user friendly operation offers users automated chiller plant services.



System Architecture Diagram



Equipment Room Diagram



Model Number Descriptions

R T H E 1 1 5 A B X X A A X X X X
 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17

- Digits 1-4** Product Family
RTHE - RTHE Family
- Digits 5-7** Nominal tons
065 = 65 nominal tons
080 = 80 nominal tons
095 = 95 nominal tons
115 = 115 nominal tons
125 = 125 nominal tons
150 = 150 nominal tons
170 = 170 nominal tons
200 = 200 nominal tons
220 = 220 nominal tons
- Digit 8** Cond Waterbox Connection Direction
A = 150psig + 2pass + LELE
B = 150psig + 2pass + RERE
- Digits 9** Pressure Relief Valve
A = Single Relief Valvet
B = Dual RV with 3-Way Isolation Valve (option)
- Digits 10** Refrigerant Isolation Valves
X = None
A = Refrigerant Isolation Valves (Discharge and Liquid Line Valve) (option)
- Digits 11** 2-Way Water Regulating Valve
X = None
A = 3" 150psi/88.9mm 10.5 Bar 115V (option)
B = 3" 150psi/88.9mm 10.5 Bar 220V (option)
C = 4" 150psi/114.3mm 10.5 Bar 115V (option)
D = 4" 150psi/114.3mm 10.5 Bar 220V (option)
- Digit 12** Insulation
A = Standard Insulation
B = Thick Insulation (option)
- Digit 13** Power Line Connection Type
A = Terminal block connection
B = Disconnct switch (option)
C = Circuit breaker (option)
- Digit 14** Communication
X = No remote digital comm
4 = Time of Day Scheduling (option)
5 = COMM5 (Lontalk) (option)
6 = BACnet (option)
7 = MODbus (option)
- Digit 15** External Chilled Water & Current Limit Setpoint
X = None
4 = 4-20mA input (option)
5 = 2-10VDC input (option)
- Digit 16** Cond Refrigerant Pressure Output Option
X = None
V = Condenser Water Control Output (option)
P = Condenser Pressure (%HPC) Output (option)
D = Differential Pressure Output (option)
- Digit 17** Motor Current Analog Output (%RLA)
X = None
A = Motor Current Analog Output (option)

Technical Data

Model		65	80	95	115	125	150	170	200	220		
Water Side Conditions		Evap. 7/12°C Cond. 30/35°C										
Power Supply		380V/3Ph/50Hz										
Cooling	Capacity	kW	225	267	322	386	425	527	590	711	772	
	Capacity	RT	64	76	91	110	121	150	168	202	219	
	Power Input	kW	46.7	54.4	67.2	80.9	83.0	108.0	121.6	148.9	162.0	
Running Current		A	87	101	122	145	139	99/99	120/99	141/120	141/141	
Starting Current		A	217	259	291	354	354	358	390	354	354	
Capacity Modulation		%	30% ~100%					15%~100%				
Compressor	Charge		1					2				
	Starting Method		Wye-delta starter									
Oil	Charge	L	8.0	8.0	11.0	11.0	10.7	170	170	170	170	
Refrigerant	Type		R134a									
	Charge	kg	41	42	57	58	100	79	80	86	87	
Evaporator	Water Flow Rate	m³/h	38.8	46.0	55.4	66.6	73.2	90.8	101.7	121.9	132.4	
	Pressure Drop	kPa	69.1	79.6	86.6	72.7	64.4	69.1	70.1	89.1	68.7	
	Water Conn. Size	mm	DN100	DN100	DN100	DN100	DN125	DN125	DN125	DN150	DN150	
Condenser	Water Flow Rate	m³/h	46.8	55.3	67.0	80.5	87.5	109.4	122.6	146.8	160.3	
	Pressure Drop	kPa	68.7	77.3	63.4	76.0	69.5	83.8	88.0	89.4	88.5	
	Water Conn. Size	mm	DN100	DN100	DN125	DN125	DN125	DN150	DN150	DN150	DN150	
Net Weight		kg	1800	1818	2137	2162	2546	3573	3787	3900	4123	
Operating Weight		kg	1975	1990	2378	2392	2660	3953	4139	4310	4567	
Dimensions	Length	mm	2927	2927	3010	3010	3024	3615	3615	3601	3601	
	Width	mm	890	890	890	890	890	1089	1089	1198	1198	
	Height	mm	1530	1530	1581	1581	1689	1894	1894	1905	1905	
Language of Control Panel			English									

Note: FF (Evap) = 0.018 m² · °C/kW, FF (cond) = 0.044 m² · °C/kW
 Based on Topss 150 version, please contact your local sales office for more information.



Technical Data

Model		65	80	95	115	125	150	170	200	220	
Water Side Conditions		Evap. 7/12°C Cond. 32/37°C									
Power Supply		380V/3Ph/50Hz									
Cooling	Capacity	kW	220	261	314	378	401	516	578	695	755
	Capacity	RT	62	74	89	108	114	147	164	198	215
	Power Input	kW	48.8	56.8	70.2	84.1	83.1	112.7	126.9	154.9	168.1
Running Current		A	87	101	122	145	139	99/99	120/99	141/120	141/141
Starting Current		A	217	259	291	354	354	358	390	354	354
Capacity Modulation		%	30% ~100%								
Compressor	Quantity	1									
	Starting Method	Wye-delta starter									
Oil	Charge	L	8.0	8.0	11.0	11.0	10.7	17.0	17.0	17.0	17.0
Refrigerant	Type	R134a									
	Charge	kg	41	42	57	58	100	79	80	86	87
Evaporator	Water Flow Rate	m³/h	37.8	44.9	54.1	65.2	69.1	88.8	99.5	119.2	129.5
	Pressure Drop	kPa	67.2	76.4	84.2	69.9	64.4	66.2	66.0	85.5	66.1
	Water Conn. Size	mm	DN100	DN100	DN100	DN100	DN125	DN125	DN125	DN150	DN150
Condenser	Water Flow Rate	m³/h	46.2	54.7	66.2	79.7	83.4	108.2	121.3	145.4	158.7
	Pressure Drop	kPa	67.0	76.8	61.3	74.5	69.2	82.4	86.8	87.6	86.7
	Water Conn. Size	mm	DN100	DN100	DN125	DN125	DN125	DN150	DN150	DN150	DN150
Net Weight		kg	1800	1818	2137	2162	2546	3573	3787	3900	4123
Operating Weight		kg	1975	1990	2378	2392	2660	3953	4139	4310	4567
Dimensions	Length	mm	2927	2927	3010	3010	3024	3615	3615	3601	3601
	Width	mm	890	890	890	890	890	1089	1089	1198	1198
	Height	mm	1530	1530	1581	1581	1689	1894	1894	1905	1905
Language of Control Panel		English									

Note: FF (Evap) = 0.018 m² · °C/kW, FF (cond) = 0.044 m² · °C/kW

Based on Topss 150 version, please contact your local sales office for more information.

Technical Data

Model		65	80	95	115	125	150	170	200	220		
Water Side Conditions		Evap. 6.7/12.2°C Cond. 30.5/36.1°C										
Power Supply		380V/3Ph/50Hz										
Cooling	Capacity	kW	220	261	314	378	401	516	578	697	757	
	Capacity	RT	62	74	89	108	114	147	164	198	215	
	Power Input	kW	48.8	56.8	70.2	84.1	83.1	112.7	126.9	151.8	164.8	
Running Current		A	87	101	122	145	139	99/99	120/99	141/120	141/141	
Starting Current		A	217	259	291	354	354	358	390	354	354	
Capacity Modulation		%	30% ~100%					15%~100%				
Compressor	Quantity	1					2					
	Starting Method	Wye-delta starter										
Oil	Charge	L	8.0	8.0	11.0	11.0	10.7	170	170	170	170	
Refrigerant	Type	R134a										
	Charge	kg	41	42	57	58	100	79	80	86	87	
Evaporator	Water Flow Rate	m³/h	37.8	44.9	54.1	65.2	69.1	88.8	99.5	107.6	116.8	
	Pressure Drop	kPa	67.2	76.4	84.2	69.9	64.4	66.2	66.0	70.5	54.4	
Condenser	Water Conn. Size	mm	DN100	DN100	DN100	DN100	DN125	DN125	DN125	DN150	DN150	
	Water Flow Rate	m³/h	46.2	54.7	66.2	79.7	83.4	108.2	121.3	130.5	142.5	
Dimensions	Pressure Drop	kPa	67.0	76.8	61.3	74.5	69.2	82.4	86.8	71.4	70.5	
	Water Conn. Size	mm	DN100	DN100	DN125	DN125	DN125	DN150	DN150	DN150	DN150	
Net Weight		kg	1800	1818	2137	2162	2546	3573	3787	3900	4123	
Operating Weight		kg	1975	1990	2378	2392	2660	3953	4139	4310	4567	
Dimensions	Length	mm	2927	2927	3010	3010	3024	3615	3615	3601	3601	
	Width	mm	890	890	890	890	890	1089	1089	1198	1198	
	Height	mm	1530	1530	1581	1581	1689	1894	1894	1905	1905	
Language of Control Panel		English										

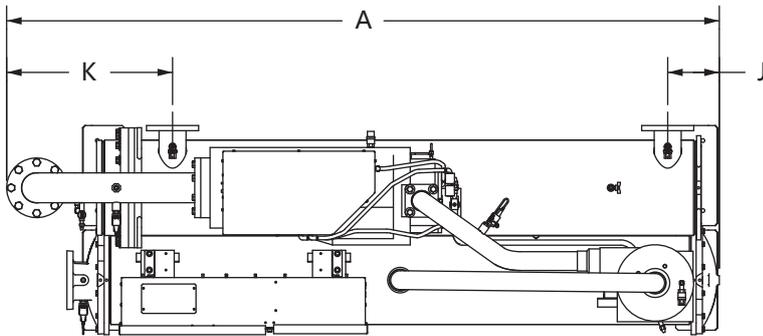
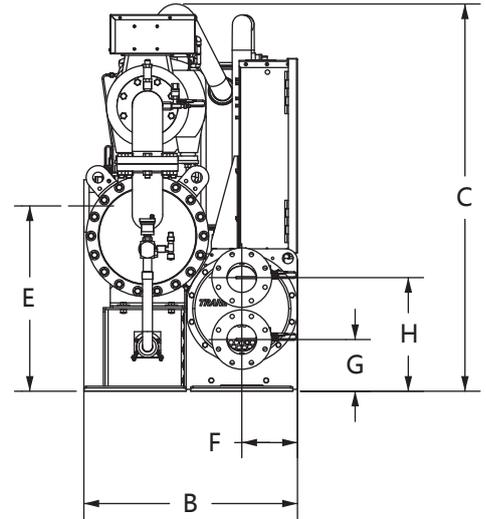
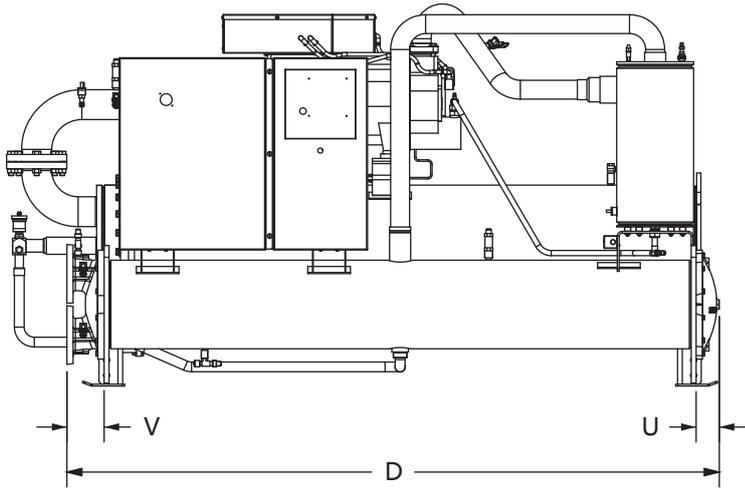
Note: FF (Evap) = 0.018 m² · °C/kW, FF (cond) = 0.044 m² · °C/kW

Based on Topss 150 version, please contact your local sales office for more information.

Dimensions

Single Compressor Unit 65, 80, 95, 115 Ton

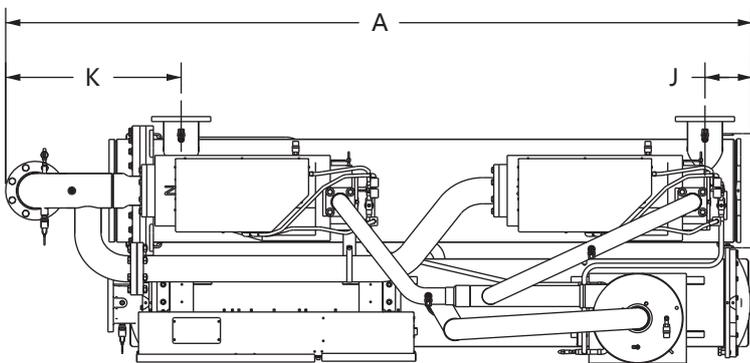
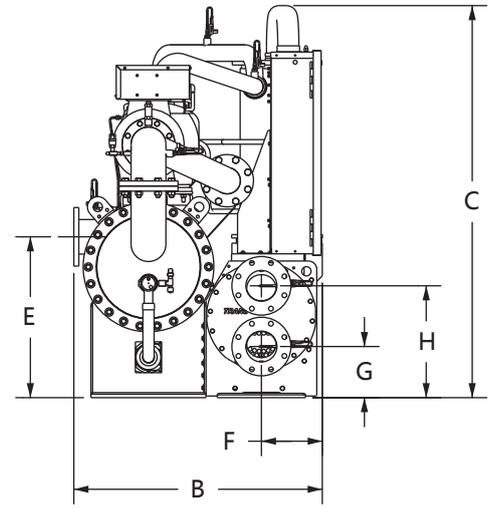
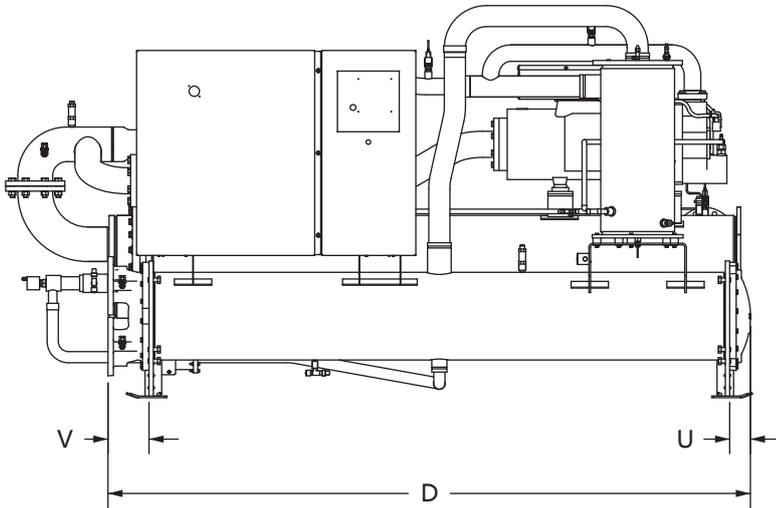
Unit: mm



RTHE	65, 80 Ton mm	90, 115 Ton mm
A	2927	3003
B	890	890
C	1582	1626
D	2698	2744
E	726	778
F	232	232
G	200	217
H	440	477
J	209	218
K	610	701
U	59	87
V	138	157

Dual Compressor Unit 150, 170, 200, 220 Tons

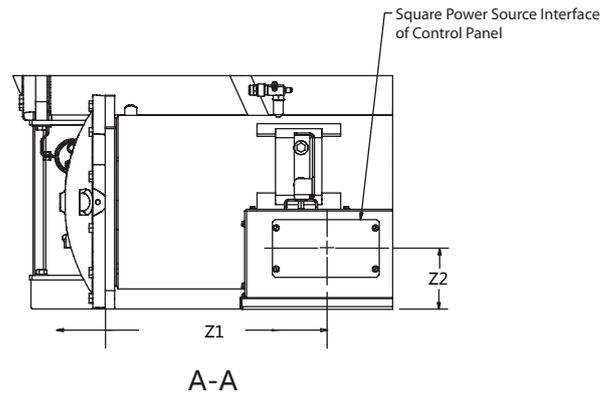
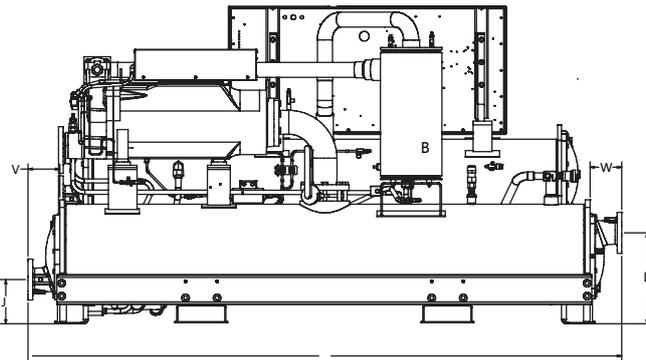
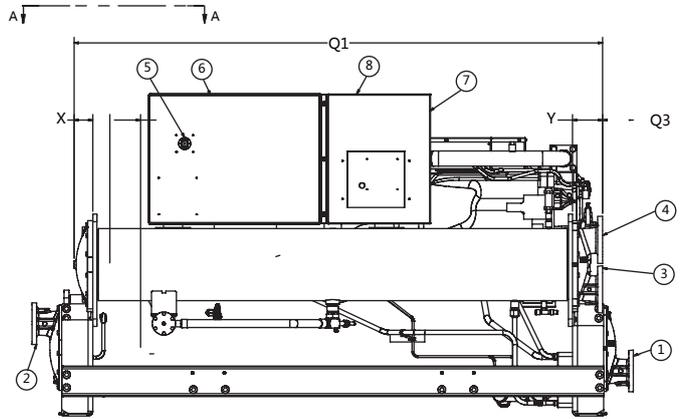
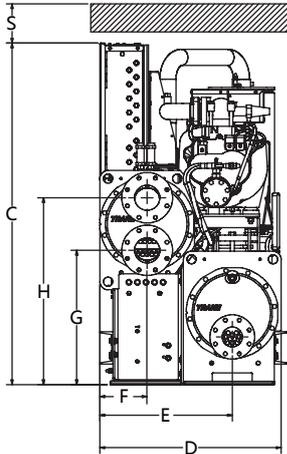
Unit: mm



RTHE	150, 170 Ton mm	200, 220 Ton mm
A	3615	3601
B	1198	1198
C	1894	1905
D	3098	3098
E	777	782
F	267	267
G	249	249
H	544	544
J	220	229
K	847	846
U	100	100
V	198	198

RTHE125 Unit Dimension

Unit: mm

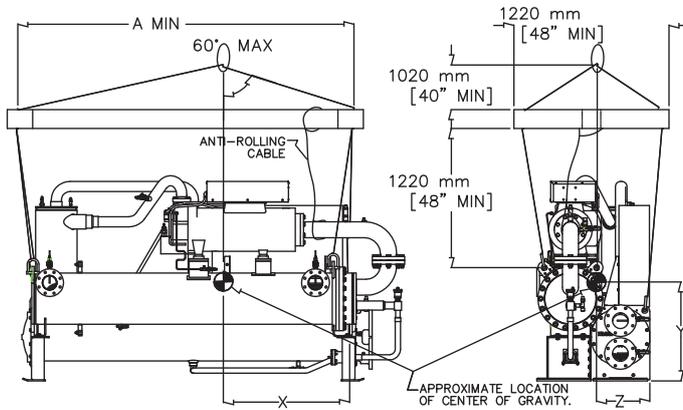


Unit Dimension

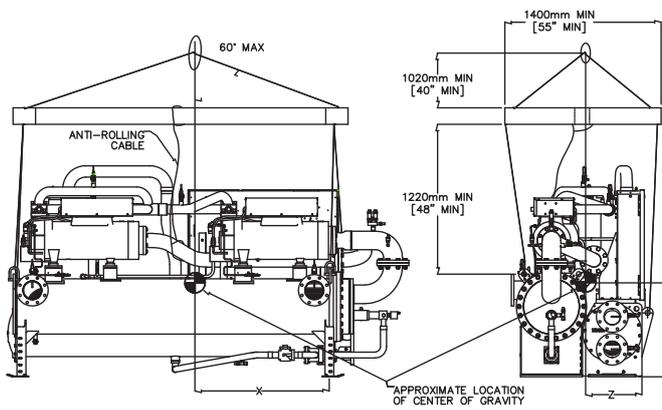
RTHE125	mm
A	3028
C	1690
D	890
E	650
F	232
G	665
H	925
I	226
K	486
Q1	2755
Q2	142
S	915
T	149
U	76
X	98
Y	158
Z1	456
Z2	132

- 1 Evaporator Water Inlet
- 2 Evaporator Water Outlet
- 3 Condenser Water Inlet
- 4 Condenser Water Outlet
- 5 Power Disconnect
- 6 Power Wire
- 7 Control Wire
- 8 Control Panel

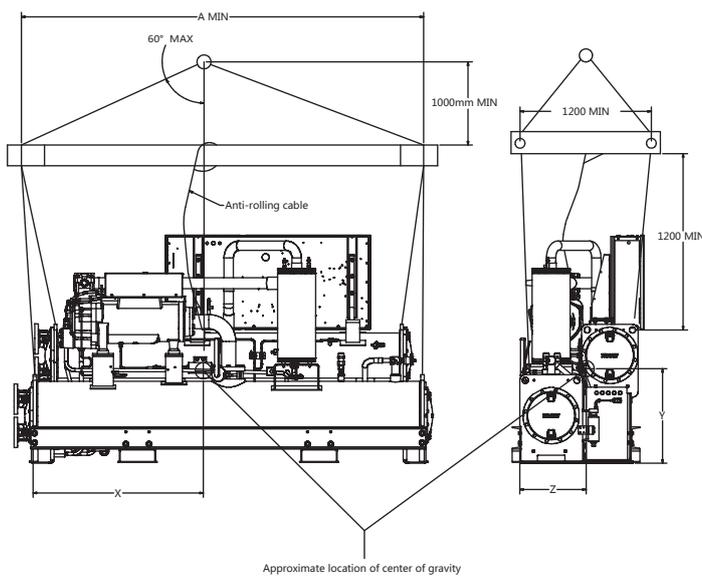
Rigging Diagram



Model #	A (mm)	Center of Gravity		
		X (mm)	Y (mm)	Z (mm)
65	2800	1054	779	480
80	2800	1057	777	481
95	2800	1066	802	479
115	2800	1070	799	481



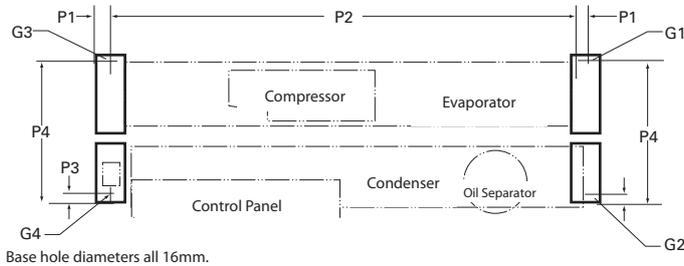
Model #	A (mm)	Center of Gravity		
		X (mm)	Y (mm)	Z (mm)
150	3000	1301	829	607
170	3000	1272	834	615
200	3000	1280	866	647
220	3000	1266	855	653



Model #	A (mm)	Center of Gravity		
		X (mm)	Y (mm)	Z (mm)
125	3134	1144	753	403

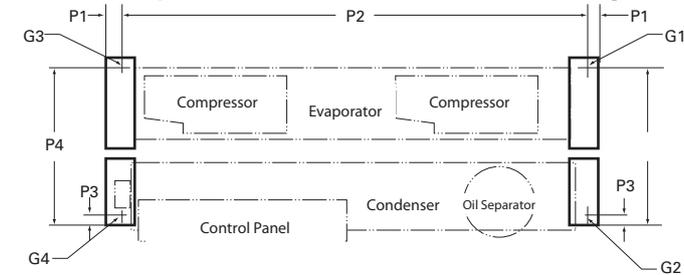
Unit Base

Single Compressor Installation Base Diagram

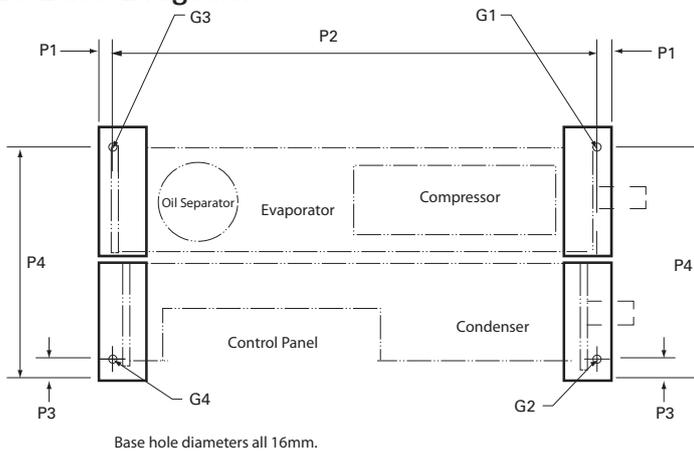


	65, 80, 90, 115 Ton (mm)	150, 170, 200, 220 Ton (mm)
P1	62.58	81.4
P2	2557.2	2857.2
P3	64	64
P4	807	990
N1	1250	1250
N2	795*	795*

Dual Compressors Installation Base Diagram



RTHE125 Base Diagram



	mm
P1	94
P2	2668
P3	104
P4	737



Trane optimizes the performance of homes and buildings around the world. A business of Ingersoll Rand, the leader in creating and sustaining safe, comfortable and energy efficient environments, Trane offers a broad portfolio of advanced controls and HVAC systems, comprehensive building services, and parts. For more information, visit www.Trane.com.

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