Product Catalog

# Sintesis™ Air-Cooled Chillers Model RTAF, 500 Tons

## Middle East Applications Only

Supplement to Product Catalog
RLC-PRC049*-EN

March 2020

**RLC-PRC052E-EN**

# Introduction

This catalog is a supplement to Sintesis™ RTAF catalog RLC-PRC049*-EN, and provides information on the RTAF configuration specifically designed for Middle East applications. Not all options listed in RTAF catalog RLC-PRC049*-EN are available for this configuration.

## Copyright



## Trademarks



## Revision History

Updated AHRI logo on back cover.

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# Mechanical Specifications

## Certified AHRI Performance

Trane air-cooled chillers are rated within the scope of the Air-Conditioning, Heating & Refrigeration Institute (AHRI) Certification Program and display the AHRI Certified® mark as a visual confirmation of conformance to the certification sections of AHRI Standard 550/590 (I-P) and ANSI/AHRI Standard 551/591 (SI). The applications in this catalog specifically excluded from the AHRI certification program are:

- Custom Units
- Units produced outside of the USA for installations outside the USA
- Evaporatively-cooled chillers
- Units with evaporators that use fluid other than fresh water except units containing freeze protection fluids in the condenser or in the evaporator with a leaving chilled fluid temperature above 32°F [0°C] are certified when rated per the Standard with water.

## Condenser and Fans

The air-cooled microchannel condenser coils use all aluminum brazed fin construction. The condenser coil has an integral subcooling circuit. The maximum allowable working pressure of the condenser is 350 psig. Condensers are factory proof and leak tested at 525 psig. Coils can be cleaned with water (580 psi maximum water pressure).

Sintesis™ chillers offer direct-drive vertical-discharge airfoil condenser fans that are dynamically balanced. The condenser fan motors are fixed speed induction motors, which have permanently lubricated ball bearings and external overload protection.

## Compressor and Lube Oil System

The rotary screw compressor is semi-hermetic, direct drive, with capacity control, rolling element bearings, differential refrigerant pressure oil circulation system and heater. The motor is a suction gas cooled, hermetically sealed, two-pole squirrel cage induction motor.

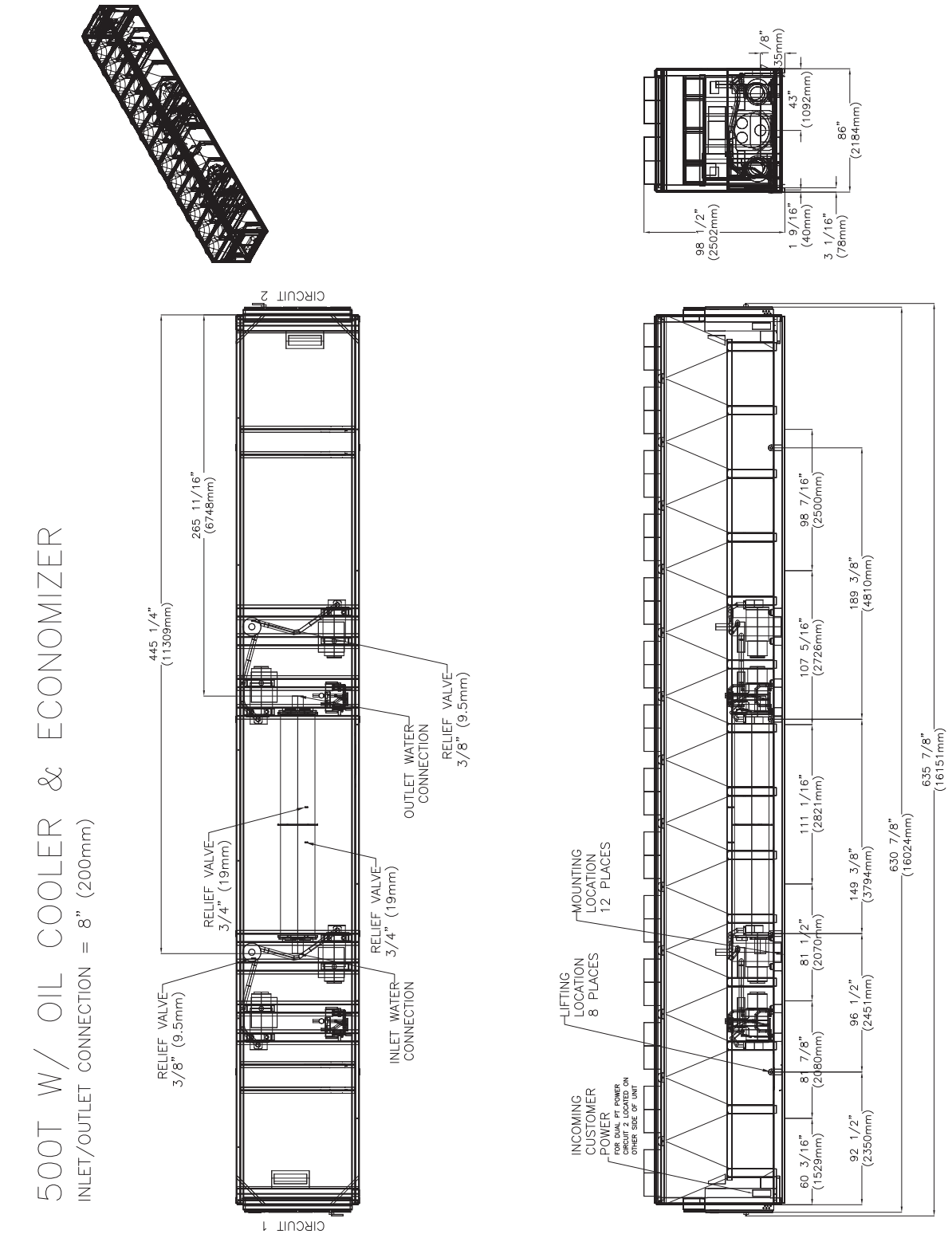
Oil separator is provided separate from the compressor. Oil filtration is provided internal to the compressor. Angle valves in the compressor oil line and crossover pipe are provided.

## Economizer

The economizer provides a lower fluid temperature entering the expansion valve, enabling increased overall unit capacity.

# Dimensions

**Figure 1. Dimensions — RTAF 500 ton unit for Middle East application only[(a)]**




(a) Mounting locations shown are for right side of unit only (as facing circuit 1 control panel). See RLC-PRC049*-EN for mounting locations on opposite side.

# Data Tables

**Table 1. General data — 500 ton unit, Middle East configuration**

| | | |
|---|---|---|
| **Compressor Model (ckt 1/ckt 2)[a]** | | 120-120/120-120 |
| Quantity | # | 4 |
| **Evaporator** | | |
| Water Connection Size | in | 8 |
| Passes | # | 1 |
| Water Storage | gal (L) | 46.1 (174.7) |
| Minimum Flow | gpm (l/s) | 506 (31.9) |
| Maximum Flow | gpm (l/s) | 1855 (117.1) |
| **Condenser** | | |
| Qty of Coils (ckt 1/ckt 2) | | 14/14 |
| Coil Length | in (mm) | 77.4 (1967) |
| Coil Height | in (mm) | 47.8 (1214) |
| **Condenser Fans** | | |
| Fan Type | | Fixed |
| Quantity (ckt 1/ckt 2) | # | 14/14 |
| Diameter | in (mm) | 31.5 (800) |
| Nominal Speed | rpm | 1030 |
| Airflow | cfm ($m^3$/sec) | 11800 (5.6) |
| Tip Speed | ft/min (m/s) | 8493 (43.1) |
| **Ambient Temperature Range** | | |
| High Ambient | °F (°C) | 32 to 130 (0 to 54.4) |
| **General Unit** | | |
| Refrigerant Ckts | # | 2 |
| Minimum Load | % | 15 |
| Refrigerant | | R-134a |
| Refrigerant Charge (ckt 1/ckt 2) | lbs (kg) | 310.6/323.3 (140.9/146.6) |
| Oil | | Trane Oil 00311 (bulk)/OIL00315 (1 gal)/OIL00317 (5 gal) |
| Oil Charge (ckt 1/ckt 2) | gal (L) | 4.33/4.37 (16.4/16.5) |

(a) Nominal tonnage at 60 Hz. Where there are 2 compressors on a circuit, they are indicated 1A-1B/2A-2B.

**Table 2. Electrical data — 500 ton unit, Middle East configuration**

| | Condenser Fans | | | | Compressors | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Rated Voltage[a]** | **Qty[c]** | **HP** | **FLA** | **CPT Amps[d]** | **RLA** | **Y LRA** | **XL LRA** | **MCA[b]** | **MOP[e]** | **Default Short Circuit Rating (A)** | **Customer Wiring[f]** |
| 380/60/3 | 14/14 | 3 | 4.0 | 2.6 | 265 | 424 | 1306 | 655 | 800 | 10 kA | 3 x 500 kcmil - 3/0 |
| 400/60/3 | 14/14 | 3 | 4.0 | 2.6 | 265 | 424 | 1306 | 655 | 800 | 10 kA | 3 x 500 kcmil - 3/0 |

(a) Voltage Utilization Range: +/- 10% of 380V (use range): 342-418V
(b) MCA (Minimum Circuit Ampacity) = 125 percent of largest compressor load (fixed speed amps) plus 100 percent of sum of all other loads. Value is the same for both circuits.
(c) Number of fans is indicated by ckt 1/ckt 2.
(d) CPT amps is the same for circuit 1 and circuit 2.
(e) MOP = 225 percent of largest compressor load (fixed speed amps) plus 100 percent of second compressor load, plus sum of all other loads. Value is the same for both circuits.
(f) Value is the same for circuit 1 and circuit 2.

# Model Number Descriptions

### Digits 1, 2 — Unit Model
RT = Rotary Chiller

### Digit 3 — Unit Type
A = Air-cooled

### Digit 4 — Development Sequence
F = Development Sequence

### Digits 5-7 — Nominal Capacity
500 = 500 Nominal Tons

### Digit 8— Unit Voltage
C = 380/60/3
G = 400/60/3

### Digit 9 — Manufacturing Location
U = Trane Commercial Systems, Pueblo, CO USA

### Digits 10, 11— Design Sequence
** = Factory assigned

### Digit 12 — Unit Efficiency
H = High Efficiency

### Digit 13— Unit Sound Package
X = Standard Noise

### Digit 14 — Agency Listing
U = UL/CUL Listing

### Digit 15 — Pressure Vessel Code
A = ASME Pressure Vessel Code

### Digit 16 — Factory Charge
2 = Refrigerant Charge R-134a
4 = Nitrogen Charge (R-134a Field Supplied)

### Digit 17 — Evaporator Application
N = Standard Cooling (above 40°F/5.5°C)

### Digit 18 — Evaporator Configuration
1 = 1-pass Evaporator
R = 1-pass Evaporator with Turbulators

### Digit 19 — Evaporator Fluid Type
1 = Water
2 = Calcium Chloride
3 = Ethylene Glycol
4 = Propylene Glycol
5 = Methanol

### Digit 20 — Water Connection
X = Grooved Pipe Connection
W = Grooved Pipe + Flange

### Digit 21 — Flow Switch
1 = Factory Installed - Other Fluid 15 cm/s
3 = Factory Installed - Water 45 cm/s

### Digit 22 — Insulation
**Note:** N= Factory Insulation All Cold Parts 0.75”

### Digit 23 — Unit Application
H = High Ambient (32 to 130°F/0 to 54.4°C)

### Digit 24 — Condenser Fin Options
N = Aluminum Microchannel

### Digit 25 — Fan Type
X = Fixed Speed Fans

### Digit 26 — Auxiliary Items
B = Oil Cooler and Economizer

### Digit 27 — Compressor Starter
W = Wye-Delta Starter

### Digit 28 — Incoming Power Line Connection
2 = Dual Point Unit Power Connection

### Digit 29 — Power Line Connection Type
C = Circuit Breaker

### Digit 30— Short Circuit Current Rating
A = Default Short Circuit Rating

### Digit 31 — Electrical Accessories
X = No Convenience Outlet

### Digit 32 — Remote Communication Options
X = None
B = BACnet® Interface
M = Modbus™ Interface
L = LonTalk® Interface

### Digit 33 — Hard Wire Communication
X = None
A = Hard Wired Bundle - All
B = Remote Leaving Water Temp Setpoint
C = Remote Leaving Temp and Demand Limit Setpoints
D = Programmable Relay
E = Programmable Relay and Leaving Water and Demand Limit Setpoint
F = Percent Capacity
G = Percent Capacity and Leaving Water and Demand Limit Setpoint
H = Percent Capacity and Programmable Relay

### Digit 34 — Energy Meter
X = None

### Digit 35 — Smart Flow Control
X = None

### Digit 36 — Structural Options
A = Standard Unit Structure

### Digit 37 — Appearance Options
X = No Appearance Options

### Digit 38 — Unit Isolation
X = None
1 = Elastomeric Isolators

### Digit 39 — Shipping Package
X = No Shipping Package
T = Shipped with Tarp Covering Full Unit

### Digits 40-42
XXX= Reserved for future use

### Digit 43 — Special Requirement
0 = None
S = Special Requirement



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