Product Data

# Air-Cooled Condensers
# 50/60 Hz

20 to 230 Nominal Tons (70 to 809 Nominal kW)


09RCS020-030, 09RCM035-230
Air-Cooled Condensers
50/60 Hz

# Features/Benefits

**The 09RC condensers offer the utmost in system configuration ideal for clinics, motels, schools, apartments, office buildings, and factories. These premium quality standard components ensure durable, efficient, and reliable operation.**

These dependable split systems match Carrier's 30MPA (R-32) and 30HXA (R-513A) air-cooled condenserless chillers with the versatile outdoor 09RC remote air-cooled condensers for a wide selection of commercial cooling solutions.

- Matching 30MPA or 30HXA chillers and 09RC condensers are compatible with ASHRAE 90.1
- Condenser coil options featuring the Novation® heat exchanger with microchannel coil technology
- Optional high-efficiency, variable-speed condenser fans with Greenspeed® intelligence
- 09RC single-circuit units are offered in 20 to 35 ton sizes
- 09RC single or dual-circuit units are offered in 50 to 230 ton sizes

The latest safety standards for 09RC units are certified to UL (Underwriters Laboratories) and CSA (Canadian Standards Association) standards, ETL approved.

## Versatility

The 09RC series air-cooled remote condensers feature up to 2 refrigerant circuits, and can be matched with a wide variety of air-cooled condenserless chillers. Single-circuit condensers can operate with single or dual chillers. Dual-circuit condensers can operate with single or dual chillers.

## Durable construction

All 09RC units have weatherized cabinets constructed of heavy-duty galvanized steel prepainted with corrosion resistant baked enamel. Inside and outside surfaces are protected to ensure long life and good appearance. The durable, galvanized steel, prepainted components shall withstand 1000 hours in constant neutral salt spray under ASTM B117 conditions with a 1mm scribe per ASTM D1654. After test, painted parts shall show no signs of wrinkling or cracking, no loss of adhesion, no evidence of blistering, and the mean creepage shall not exceed 1/4 in. (Rating ≥ per ASTM D1654) on either side of the scribe line.

09RC condensers have the availability of Novation heat exchangers with microchannel coil technology. The microchannel heat exchanger (MCHX) coils provide long-term reliability, high performance heat transfer, and significant savings in refrigerant charge. E-coated MCHX is offered as an option for harsh industrial or coastal conditions. As an individual component, the e-coated MCHX coil (as well as the e-coated version of the Al/Cu coil) can withstand a 10,000-hour salt spray test in accordance with ASTM B-117 standard.

## Refrigerant circuiting

The 09RCM units have single or dual independent circuit capability with factory included kit on all 09RCM units (field installation required). Each circuit is protected by a temperature fusible plug for safety.

## Easier installation and service

The 09RC units are available with factory-installed options (multiple coil options, low sound fans, high short circuit current rating [SCCR] interrupt, non-fused disconnect, and security grilles/hail guards) for every installation.

## Greater system economy

Subcooling offers more cooling capacity. A specially designed liquid refrigerant circuit provides subcooling for increased capacity without additional power consumption. Subcooling liquid refrigerant also expands condenser applications by permitting condenser installation below the evaporator without subjecting the refrigerant to flashing before the expansion valve.

## Quieter, more efficient operation

Standard, AeroAcoustic™ low sound fans provide efficient airflow and quiet operation.

## Multi-circuit, multi-refrigerant capability

Choose the single-circuit 09RC or single/dual-circuit 09RC unit and realize separate cooling system economy on each circuit. Single-circuit units are offered in sizes 020 to 035. Dual-circuit units are offered in sizes 050 to 230. Using the 09RCM unit, save space and satisfy installation needs without the expense of smaller condensers with single circuitry.

Units with fixed speed fans require head pressure switches, and these switches are factory provided for some refrigerants. Details related to the topic may be obtained in the 09RC Installation Instructions.

Note that for all units employing high efficiency variable condenser fans, no pressure switches are required or installed.

## Individual unit features

**The 09RCS020-035 condenser units** are available in 20, 30, and 35 ton sizes using a single coil design (with integral subcooling) that is used as single system. Units have vertical air discharge and contain a control box, 2 direct-drive fans and motors and motor mounts. The 020 and 030 have a single coil. The 035 has 2 coils. For all units, fan motors are 3-phase, TEAO (totally enclosed, air over).

**The 09RCM050-060 condenser units** are available in 50 and 60 ton sizes. The 09RCM050,060 units have 4 direct-drive fans, 4 motors and motor mounts. For all units, fan motors are 3-phase, TEAO (totally enclosed, air over). All units are equipped with a control box and 2 condenser coils with integral subcooling circuits. Each condenser is shipped from the factory as a dual cir-

# Table of contents

# Features/Benefits (cont)

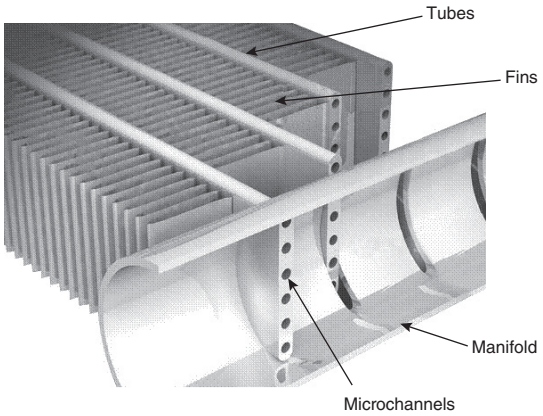
cuit unit. A kit is included with the unit to convert it to single circuit when needed.

**The 09RCM080-230 condenser units** are available in 80, 95, 115, 130, 145, 160, 170, 185, 200 and 230 ton sizes. See Physical Data table for detailed coil and motor information. All fan motors are 3-phase and are protected against single phasing conditions, TEAO (totally enclosed, air over).

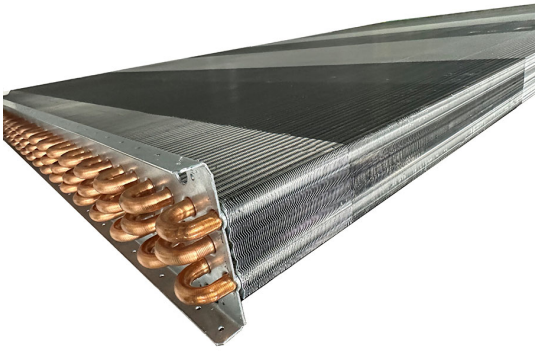
All 09RC units are equipped with control box access panels, which allow for easy entrance into the control box. A tubing package is supplied with the dual-circuit condenser units (09RCM) for single or dual coil circuiting applications to facilitate field installations and maximize unit flexibility.

## Coil split versatility

Model 09RCM coils can be split into one or 2 condensing circuits. Each 09RCM unit ships standard as a dual-circuit unit but can be field-modified to a single-circuit unit by installing the manifold kit that ships with the unit. Each circuit may handle a separate cooling system, using a different refrigerant if desired. Each circuit has a refrigerant subcooling circuit. This saves space and provides installation flexibility.




**Novation Heat Exchanger Technology with Microchannel Condenser Coils**



**Optional Al/Cu, Al/Cu E-Coat**


**Variable Speed Condenser Fan Option**

**Low-Noise Aeroacoustic Fan**

# Model number nomenclature

**09RC M 050 6 4 – 0 0 0 0 0**

**09RC** – Split System Condenser

**Refrigeration Circuit Options**
**M** – Single/Dual Refrigeration Circuit
**S** – Single Refrigeration Circuit

**Unit Size**
**020 080 160**
**030 095 170**
**035 115 185**
**050 130 200**
**060 145 230**

**Voltage Options**
**1** – 575-3-60
**2** – 380-3-60
**5** – 208/230-3-60
**6** – 460-3-60
**9** – 380/415-3-50

**Condenser Coil**
**0** – Aluminum Fin / Copper Tube
**3** – Aluminum E-Coat Fin / Copper Tube
**4** – Microchannel (MCHX)
**5** – E-Coat Microchannel (MCHX)

**Revision Level**
**–** – Current Revision Level

**Packaging/Security Options**
**0** – Coil Face Shipping Protection (CFSP)
**1** – Coil Trim Panels, CFSP
**2** – Coil Trim Panels, Security Grilles, CFSP
**3** – Coil Trim Panels, Security Grilles, Hail Guards (Ends)
**4** – Full Hail Guard
5 – Coil Trim Panels, CFSP, Export Packaging (Skid and Bag)
**J** – Export Packaging (Skid and Bag)
N – Export Packaging (Skid and Bag), Full Hail Guard

**Refrigerant Options**
**0** – R-32
**1** – R-513A
**2** – R-410A
**3** – R-134a
**4** – R-454B
**5** – R-515B
**6** – R-1234ze

**Electrical Options**
**0** – Single Point Power, Terminal Block
**1** – Single Point Power, Non-Fused Disconnect

**Ambient/Interrupt Options**
**0** – Std Ambient, Std SCCR
**3** – Std Ambient, HighSCCR
**6** – Low Ambient, (Variable Speed Fan-Greenspeed® Intelligence), Std SCCR
**9** – Low Ambient, (Variable Speed Fan-Greenspeed Intelligence), High SCCR

**Configuration**
**0** – MCHX
**1** – RTPF

LEGEND
**MCHX** — Microchannel Heat Exchanger
**RTPF** — Round Tube Plate Fin

## Quality Assurance

ISO 9001: 2015-certified processes

# Physical data

## 09RC 020-060 Units — English

| 09RC UNIT SIZE | 09RCS020 | 09RCS030 | 09RCS035 | 09RCM050 | | 09RCM060 | |
|---|---|---|---|---|---|---|---|
| **CIRCUIT** | Single | Single | Single | Dual | Single | Dual | Single |
| **CHASSIS DIMENSIONS** | | | | | | | |
| **Length (in.)** | 88.3 | 88.3 | 97.8 | 97.8 | | 97.8 | |
| **Width (in.)** | 46.1 | 46.1 | 88.3 | 88.3 | | 88.3 | |
| **Height (in.)** | 66.5 | 78.5 | 66.5 | 66.5 | | 78.5 | |
| **UNIT WEIGHTS (lb)** | | | | | | | |
| **MCHX Standard** | 805 | 955 | 1212 | 1484 | | 1682 | |
| **Cu-Al RTPF** | 860 | 1020 | 1322 | 1594 | | 1812 | |
| **NITROGEN SHIPPING CHARGE (psi)** | 15 | | | | | | |
| **CONDENSER FANS Axial Flying Bird 6** | | | | | | | |
| **Quantity** | 2 | 2 | 2 | 4 | | 4 | |
| **No. Blades… Diameter (in.)** | 9...30 | | | | | | |
| **Motor HP (per fan)** | 1.5 | | | | | | |
| **Rpm** | 850 (60 Hz), 700 (50 Hz) | | | | | | |
| **Airflow (cfm) AL-CU Coil (60 Hz)[a]** | 17,908 | 20,231 | 21,974 | 37,994 | | 40,462 | |
| **Airflow (cfm) MCHX Coil (60 Hz)[a]** | 18,500 | 20,900 | 22,700 | 39,250 | | 41,800 | |
| **Airflow (cfm) AL-CU Coil (50 Hz)[a]** | 14,927 | 16,863 | 18,315 | 31,663 | | 33,715 | |
| **Airflow (cfm) MCHX Coil (50 Hz)[a]** | 15,420 | 17,420 | 18,920 | 32,710 | | 34,830 | |
| **VARIABLE SPEED (rpm) 8 POLE** | 850 | | | | | | |
| **Airflow (cfm) AL-CU Coil (60/50 Hz)[a]** | 17,908 | 20,231 | 21,973.6 | 37,994 | | 40,462 | |
| **Airflow (cfm) MCHX Coil (60/50 Hz)[a]** | 18,500 | 20,900 | 22,700 | 39,250 | | 41,800 | |
| **COIL DETAIL** | | | | | | | |
| **No. Coils per Circuit (Ckt A/Ckt B)** | 1 | 1 | 2 | 1/1 | 2 | 1/1 | 2 |
| **Circuit % (Ckt A/Ckt B)** | N/A | N/A | N/A | 50/50 | N/A | 50/50 | N/A |
| **Total Coils** | 1 | 1 | 2 | 2 | 2 | 2 | 2 |
| **sq ft** | 27.1 | 27.1 | 54.2 | 54.2 | 54.2 | 67.8 | 67.8 |
| **PIPING** | | | | | | | |
| **Pressure Relief** | Fusible Plug on liquid line - 210°F | | | | | | |
| **Hot Gas Connection Line Size (in.)** | 1-3/8 | 1-3/8 | 1-5/8 | 1-3/8 + 1-3/8 | 1-5/8 | 1-3/8 + 1-3/8 | 1-5/8 |
| **Liquid Connection Line Size (in.)** | 5/8 | 5/8 | 7/8 | 5/8+ 5/8 | 7/8 | 5/8 + 5/8 | 7/8 |

NOTE(S):

a. Condenser fan airflow and power are for units operating at full load and 95°F ambient.

LEGEND
**MCHX** — Microchannel Heat Exchanger
**RTPF** — Round Tube Plate Fin

# Physical data (cont)

## 09RC 020-060 Units — SI

| 09RC UNIT SIZE | 09RCS020 | 09RCS030 | 09RCS035 | 09RCM050 | | 09RCM060 | |
|---|---|---|---|---|---|---|---|
| CIRCUIT | Single | Single | Single | Dual | Single | Dual | Single |
| CHASSIS DIMENSIONS | | | | | | | |
| Length (mm) | 2 242 | 2 242 | 2 485 | 2 485 | | 2 485 | |
| Width (mm) | 1 170 | 1 170 | 2 242 | 2 242 | | 2 242 | |
| Height (mm) | 1 689 | 1 994 | 1 689 | 1 689 | | 1 994 | |
| UNIT WEIGHTS (kg) | | | | | | | |
| MCHX Standard | 365 | 433 | 550 | 673 | | 763 | |
| Cu-Al RTPF | 390 | 463 | 600 | 723 | | 822 | |
| NITROGEN SHIPPING CHARGE (bar) | 1.02 | | | | | | |
| CONDENSER FANS Axial Flying Bird 6 | | | | | | | |
| Quantity | 2 | 2 | 2 | 4 | | 4 | |
| No. Blades… Diameter (in.) | 9...30 | | | | | | |
| Motor kW (per fan) | 1.12 | | | | | | |
| Rpm | 850 (60 Hz), 700 (50 Hz) | | | | | | |
| Airflow (l/sec) AL-CU Coil (60 Hz)[a] | 8 451 | 9 547 | 10 369 | 9 593 | | 9 593 | |
| Airflow (l/sec) MCHX Coil (60 Hz)[a] | 8 730 | 9 863 | 10 712 | 9 910 | | 9 910 | |
| Airflow (l/sec) AL-CU Coil (50 Hz)[a] | 7 040 | 7 953 | 8 638 | 7 954 | | 7 954 | |
| Airflow (l/sec) MCHX Coil (50 Hz)[a] | 7 272 | 8 216 | 8 923 | 8 217 | | 8 217 | |
| VARIABLE SPEED (rpm) 8 POLE | 850 | | | | | | |
| Airflow (l/sec) AL-CU Coil (60/50 Hz)[a] | 8 451 | 9 547 | 10 369 | 9 593 | | 9 593 | |
| Airflow (l/sec) MCHX Coil (60/50 Hz)[a] | 8 730 | 9 863 | 10 712 | 9 910 | | 9 910 | |
| COIL DETAIL | | | | | | | |
| No. Coils per Circuit (Ckt A/Ckt B) | 1 | 1 | 2 | 1/1 | 2 | 1/1 | 2 |
| Circuit % (Ckt A/Ckt B) | N/A | N/A | N/A | 50/50 | N/A | 50/50 | N/A |
| Total Coils | 1 | 1 | 2 | 2 | 2 | 2 | 2 |
| sq m | 2.5 | 2.5 | 3.1 | 5 | 5 | 6.3 | 6.3 |
| PIPING | | | | | | | |
| Pressure Relief | Fusible Plug on liquid line - 99°C | | | | | | |
| Hot Gas Connection Line Size (in.) | 1-3/8 | 1-3/8 | 1-5/8 | 1-3/8 + 1-3/8 | 1-5/8 | 1-3/8 + 1-3/8 | 1-5/8 |
| Liquid Connection Line Size (in.) | 5/8 | 5/8 | 7/8 | 5/8+ 5/8 | 7/8 | 5/8 + 5/8 | 7/8 |

NOTE(S):

a. Condenser fan airflow and power are for units operating at full load and 35°C ambient.

LEGEND
**MCHX** — Microchannel Heat Exchanger
**RTPF** — Round Tube Plate Fin

# Physical data (cont)

## 09RC 080-145 Units — English

| 09RC UNIT SIZE | 09RCM080 | | 09RCM095 | | 09RCM115 | | 09RCM130 | | 09RCM145 | |
|---|---|---|---|---|---|---|---|---|---|---|
| CIRCUIT | Dual | Single | Dual | Single | Dual | Single | Dual | Single | Dual | Single |
| CHASSIS DIMENSIONS | | | | | | | | | | |
| Length (in.) | 105 | | 152 | | | | 199 | | | |
| Width (in.) | 88 | | | | | | | | | |
| Height (in.) | 99 | | | | | | | | | |
| UNIT WEIGHTS (lb) | | | | | | | | | | |
| MCHX Standard | 2521 | | 3372 | | 3425 | | 4289 | | 4343 | |
| Cu-Al RTPF | 2901 | | 3887 | | 3996 | | 4993 | | 5102 | |
| PACKAGING ADDER | | | | | | | | | | |
| NITROGEN SHIPPING CHARGE (psi) | 15 | | | | | | | | | |
| CONDENSER FANS Axial Flying Bird 6 | | | | | | | | | | |
| Quantity | 2/2 | 4 | 2/3 | 5 | 3/3 | 6 | 3/4 | 7 | 4/4 | 8 |
| No. Blades… Diameter (in.) | 9...30 | | | | | | | | | |
| Motor HP (per fan) | 1.25 | | | | | | | | | |
| FAN SPEED (rpm) STANDARD 8 POLE | 850 (60 Hz), 700 (50 Hz) | | | | | | | | | |
| Airflow (cfm) AL-CU Coil (60 Hz)[a] | 40,575 | | 50,719 | | 60,863 | | 71,007 | | 81,151 | |
| Airflow (cfm) MCHX Coil (60 Hz)[a] | 41,906 | | 52,383 | | 62,860 | | 73,336 | | 83,813 | |
| Airflow (cfm) AL-CU Coil (50 Hz)[a] | 33,813 | | 42,266 | | 50,719 | | 59,173 | | 67,626 | |
| Airflow (cfm) MCHX Coil (50 Hz)[a] | 34,922 | | 43,653 | | 52,383 | | 61,113 | | 69,844 | |
| Motor HP (per fan) | 3 | | | | | | | | | |
| VARIABLE SPEED (rpm) 6 POLE | 1,140 | | | | | | | | | |
| Airflow (cfm) AL-CU Coil (60/50 Hz)[a] | 55,877 | | 69,847 | | 83,816 | | 97,785 | | 111,755 | |
| Airflow (cfm) MCHX Coil (60/50 Hz)[a] | 57,633 | | 72,041 | | 86,449 | | 100,857 | | 115,266 | |
| COIL DETAIL | | | | | | | | | | |
| No. Coils per Circuit (Ckt A/Ckt B) | 2/2 | 4 | 2/3 | 5 | 3/3 | 6 | 3/4 | 7 | 4/4 | 8 |
| Circuit % (Ckt A/Ckt B) | 50/50 | N/A | 40/60 | N/A | 50/50 | N/A | 43/57 | N/A | 50/50 | N/A |
| Total Coils | 4 | 4 | 5 | 5 | 6 | 6 | 7 | 7 | 8 | 8 |
| sq ft | 107.80 | | 134.75 | | 161.70 | | 188.65 | | 215.60 | |
| PIPING | | | | | | | | | | |
| Pressure Relief | Fusible Plug on liquid lines of both circuits - 210°F | | | | | | | | | |
| Hot Gas Connection Line Size (in.) | 1-1/8+1-1/8 | 1-5/8 | 1-1/8+1-5/8 | 2-1/8 | 1-5/8+1-5/8 | 2-1/8 | 1-5/8+1-5/8 | 2-1/8 | 1-5/8+1-5/8 | 2-1/8 |
| Liquid Connection Line Size (in.) | 7/8+7/8 | 1-1/8 | 7/8+1-1/8 | 1-3/8 | 1-1/8+1-1/8 | 1-5/8 | 1-1/8+1-1/8 | 1-5/8 | 1-1/8+1-1/8 | 1-5/8 |

NOTE(S):

a. Condenser fan airflow and power are for units operating at full load and 95°F ambient.

LEGEND
**MCHX** — Microchannel Heat Exchanger
**RTPF** — Round Tube Plate Fin

# Physical data (cont)

## 09RC 080-145 Units — SI

| 09RC UNIT SIZE | 09RCM080 | | 09RCM095 | | 09RCM115 | | 09RCM130 | | 09RCM145 | |
|---|---|---|---|---|---|---|---|---|---|---|
| **CIRCUIT** | Dual | Single | Dual | Single | Dual | Single | Dual | Single | Dual | Single |
| **CHASSIS DIMENSIONS** | | | | | | | | | | |
| **Length (mm)** | 2 678 | | 3 872 | | | | 5 066 | | | |
| **Width (mm)** | 2 236 | | | | | | | | | |
| **Height (mm)** | 2 513 | | | | | | | | | |
| **UNIT WEIGHTS (kg)** | | | | | | | | | | |
| **MCHX Standard** | 1143 | | 1529 | | 1553 | | 1945 | | 1970 | |
| **Cu-Al RTPF** | 1316 | | 1763 | | 1812 | | 2264 | | 2314 | |
| **NITROGEN SHIPPING CHARGE (bar)** | 1.02 | | | | | | | | | |
| **CONDENSER FANS Axial Flying Bird 6** | | | | | | | | | | |
| **Quantity** | 2/2 | 4 | 2/3 | 5 | 3/3 | 6 | 3/4 | 7 | 4/4 | 8 |
| **No. Blades… Diameter (in.)** | 9...30 | | | | | | | | | |
| **Motor kW (per fan)** | 0.93 | | | | | | | | | |
| **FAN SPEED (rpm) STANDARD 8 POLE** | 850 (60 Hz), 700 (50 Hz) | | | | | | | | | |
| **Airflow (l/sec) AL-CU coil (60 Hz)[a]** | 19 143 | | 23 929 | | 28 714 | | 33 500 | | 38 286 | |
| **Airflow (l/sec) MCHX Coil (60 Hz)[a]** | 19 775 | | 24 720 | | 29 664 | | 34 607 | | 39 551 | |
| **Airflow (l/sec) AL-CU coil (50 Hz)[a]** | 15 952 | | 19 940 | | 23 929 | | 27 917 | | 31 905 | |
| **Airflow (l/sec) MCHX Coil (50 Hz)[a]** | 16 480 | | 20 600 | | 24 720 | | 28 839 | | 32 959 | |
| **Motor kW (per fan)** | 2.24 | | | | | | | | | |
| **VARIABLE SPEED (rpm) 6 POLE** | 1140 | | | | | | | | | |
| **Airflow (l/sec) AL-CU Coil (60/50 Hz)[a]** | 26 327 | | 32 908 | | 39 490 | | 46 071 | | 52 653 | |
| **Airflow (l/sec) MCHX Coil (60/50 Hz)[a]** | 27 197 | | 33 996 | | 40 795 | | 47 594 | | 54 394 | |
| **COIL DETAIL** | | | | | | | | | | |
| **No. Coils per Circuit (Ckt A/Ckt B)** | 2/2 | 4 | 2/3 | 5 | 3/3 | 6 | 3/4 | 7 | 4/4 | 8 |
| **Circuit % (Ckt A/Ckt B)** | 50/50 | N/A | 40/60 | N/A | 50/50 | N/A | 43/57 | N/A | 50/50 | N/A |
| **Total Coils** | 4 | 4 | 5 | 5 | 6 | 6 | 7 | 7 | 8 | 8 |
| **sq m** | 10.01 | | 12.52 | | 15.02 | | 17.53 | | 20.03 | |
| **PIPING** | | | | | | | | | | |
| **Pressure Relief** | Fusible Plug on liquid line - 99°C | | | | | | | | | |
| **Hot Gas Connection Line Size (in.)** | 1-1/8+1-1/8 | 1-5/8 | 1-1/8+1-5/8 | 2-1/8 | 1-5/8+1-5/8 | 2-1/8 | 1-5/8+1-5/8 | 2-1/8 | 1-5/8+1-5/8 | 2-1/8 |
| **Liquid Connection Line Size (in.)** | 7/8+7/8 | 1-1/8 | 7/8+1-1/8 | 1-3/8 | 1-1/8+1-1/8 | 1-5/8 | 1-1/8+1-1/8 | 1-5/8 | 1-1/8+1-1/8 | 1-5/8 |

NOTE(S):

a. Condenser fan airflow and power are for units operating at full load and 35°C ambient.

LEGEND
**MCHX** — Microchannel Heat Exchanger
**RTPF** — Round Tube Plate Fin

# Physical data (cont)

## 09RC 160-230 Units — English

| 09RC UNIT SIZE | 09RCM160 | | 09RCM170 | | 09RCM185 | | 09RCM200 | | 09RCM230 | |
|---|---|---|---|---|---|---|---|---|---|---|
| **CIRCUIT** | Dual | Single | Dual | Single | Dual | Single | Dual | Single | Dual | Single |
| **CHASSIS DIMENSIONS** | | | | | | | | | | |
| **Length (in.)** | 247 | | | | 294 | | | | 341 | |
| **Width (in.)** | 88 | | | | | | | | | |
| **Height (in.)** | 99 | | | | | | | | | |
| **UNIT WEIGHTS (lb)** | | | | | | | | | | |
| **MCHX Standard** | 5271 | | 5335 | | 6182 | | 6238 | | 7201 | |
| **Cu-Al RTPF** | 6162 | | 6274 | | 7230 | | 7341 | | 8482 | |
| **NITROGEN SHIPPING CHARGE (psi)** | 15 | | | | | | | | | |
| **CONDENSER FANS Axial Flying Bird 6** | | | | | | | | | | |
| **Quantity** | 4/5 | 9 | 5/5 | 10 | 5/6 | 11 | 6/6 | 12 | 7/7 | 14 |
| **No. Blades… Diameter (in.)** | 9...30 | | | | | | | | | |
| **Motor HP (per fan)** | 3 | | | | | | | | | |
| **VARIABLE SPEED (rpm) 6 POLE** | 1,140 | | | | | | | | | |
| **Airflow (cfm) AL-CU Coil (60/50 Hz)[a]** | 125,724 | | 139,693 | | 153,662 | | 167,631 | | 195,570 | |
| **Airflow (cfm) MCHX Coil (60/50 Hz)[a]** | 129,675 | | 144,083 | | 158,491 | | 172,899 | | 201,716 | |
| **COIL DETAIL** | | | | | | | | | | |
| **No. Coils per Circuit (Ckt A/Ckt B)** | 4/5 | 9 | 5/5 | 10 | 5/6 | 11 | 6/6 | 12 | 7/7 | 14 |
| **Circuit % (Ckt A/Ckt B)** | 44/56 | N/A | 50/50 | N/A | 45/55 | N/A | 50/50 | N/A | 50/50 | N/A |
| **Total Coils** | 9 | 9 | 10 | 10 | 11 | 11 | 12 | 12 | 14 | 14 |
| **sq ft** | 242.6 | | 269.5 | | 296.5 | | 323.4 | | 377.3 | |
| **PIPING** | | | | | | | | | | |
| **Pressure Relief** | Fusible Plug on liquid lines of both circuits - 210°F | | | | | | | | | |
| **Hot Gas Connection Line Size (in.)** | 1-5/8+2-1/8 | 2-5/8 | 2-1/8+2-1/8 | 2-5/8 | 2-1/8+2-1/8 | 2-5/8 | 2-1/8+2-1/8 | 3-1/8 | 2-1/8+2-1/8 | 3-1/8 |
| **Liquid Connection Line Size (in.)** | 1-1/8+1-1/8 | 1-5/8 | 1-1/8+1-1/8 | 1-5/8 | 1-1/8+1-3/8 | 1-5/8 | 1-3/8+1-3/8 | 2-1/8 | 1-3/8+1-3/8 | 2-1/8 |

NOTE(S):

a. Condenser fan airflow and power are for units operating at full load and 95°F ambient.

LEGEND
**MCHX** — Microchannel Heat Exchanger
**RTPF** — Round Tube Plate Fin

# Physical data (cont)

## 09RC 160-230 Units — SI

| 09RC UNIT SIZE | 09RCM160 | | 09RCM170 | | 09RCM185 | | 09RCM200 | | 09RCM230 | |
|---|---|---|---|---|---|---|---|---|---|---|
| CIRCUIT | Dual | Single | Dual | Single | Dual | Single | Dual | Single | Dual | Single |
| CHASSIS DIMENSIONS | | | | | | | | | | |
| Length (mm) | 6 260 | | | | 7 454 | | | | 8643 | |
| Width (mm) | 2 236 | | | | | | | | | |
| Height (mm) | 2 513 | | | | | | | | | |
| UNIT WEIGHTS (kg) | | | | | | | | | | |
| MCHX Standard | 2390 | | 2420 | | 2804 | | 2829 | | 3266 | |
| Cu-Al RTPF | 2795 | | 2845 | | 3279 | | 3329 | | 3847 | |
| NITROGEN SHIPPING CHARGE (bar) | 1.02 | | | | | | | | | |
| CONDENSER FANS Axial Flying Bird 6 | | | | | | | | | | |
| Quantity | 4/5 | 9 | 5/5 | 10 | 5/6 | 11 | 6/6 | 12 | 7/7 | 14 |
| No. Blades… Diameter (in.) | 9...30 | | | | | | | | | |
| Motor kW (per fan) | 2.24 | | | | | | | | | |
| VARIABLE SPEED (rpm) 6 POLE | 1 140 | | | | | | | | | |
| Airflow (l/sec) AL-CU Coil (60/50 Hz)[a] | 59 329 | | 65 921 | | 72 513 | | 79 105 | | 92 289 | |
| Airflow (l/sec) MCHX Coil (60/50 Hz)[a] | 61 193 | | 67 993 | | 74 792 | | 81 591 | | 95 190 | |
| COIL DETAIL | | | | | | | | | | |
| No. Coils per Circuit (Ckt A/Ckt B) | 4/5 | 9 | 5/5 | 10 | 5/6 | 11 | 6/6 | 12 | 7/7 | 14 |
| Circuit % (Ckt A/Ckt B) | 44/56 | N/A | 50/50 | N/A | 45/55 | N/A | 50/50 | N/A | 50/50 | N/A |
| Total Coils | 9 | 9 | 10 | 10 | 11 | 11 | 12 | 12 | 14 | 14 |
| sq m | 22.5 | | 25.0 | | 27.5 | | 30.0 | | 35.1 | |
| PIPING | | | | | | | | | | |
| Pressure Relief | Fusible Plug on liquid line - 99°C | | | | | | | | | |
| Hot Gas Connection Line Size (in.) | 1-5/8+2-1/8 | 2-5/8 | 2-1/8+2-1/8 | 2-5/8 | 2-1/8+2-1/8 | 2-5/8 | 2-1/8+2-1/8 | 3-1/8 | 2-1/8+2-1/8 | 3-1/8 |
| Liquid Connection Line Size (in.) | 1-1/8+1-1/8 | 1-5/8 | 1-1/8+1-1/8 | 1-5/8 | 1-1/8+1-3/8 | 1-5/8 | 1-3/8+1-3/8 | 2-1/8 | 1-3/8+1-3/8 | 2-1/8 |

NOTE(S):

a. Condenser fan airflow and power are for units operating at full load and 35°C ambient.

LEGEND
**MCHX** — Microchannel Heat Exchanger
**RTPF** — Round Tube Plate Fin

# Options and accessories

| ITEM | FACTORY-INSTALLED OPTION | FIELD-INSTALLED ACCESSORY |
|---|---|---|
| **Refrigeration Circuit Options** | | |
| **E-Coated MCHX** | X | |
| **Aluminum Fin/Copper Tube** | X | |
| **Aluminum E-Coat Fin/Copper Tube** | X | |
| **Electrical Options** | | |
| **High Short Circuit Current Rating Interrupt[a,b]** | X | |
| **Non-Fused Disconnect** | X | |
| **Variable Speed Condenser Fans** | X | |
| **Packaging/Security Options** | | |
| **Export Packaging (Skid and Bag)** | X | |
| **Coil Trim Panels** | X | X |
| **Full Hail Guards** | X | X |
| **Wind Baffles** | | X |
| **Vibration Isolation Pads** | | X |
| **Security Grilles** | | X |
| **Security Grilles and End Hail Guard** | X | X |

NOTE(S):

a. Std Interrupt - SCCR (short circuit current rating) (10K)
b. High Interrupt - SCCR 460-v and 380/415-v (65K), 208/230-v (65K), 575-v (35K)

LEGEND
**E-Coated** — Epoxy Coating Applied to Entire Coil Assembly
**MCHX** — Microchannel Heat Exchanger

## Factory-installed options

### Condenser coils

Condenser coils are available to match coil construction to the site conditions for the best durability. Refer to the Condenser Coil Corrosion Protection Options table on page 12 or to the appropriate selection guide for more information.

### High short circuit current rating interrupt

High short circuit current rating interrupt provides a short circuit current rating protection for the unit up to 65,000 A on 460-v, 380/415-v, and 208/230-v units or 35,000 A on 575-v units.

### Non-fused disconnect

Non-fused disconnect includes factory-installed non-fused disconnect capability for power and control located at the unit.

### Export packaging

Export packaging provides a skid underneath the condenser as well as a bag covering the full condenser.

### Variable speed condenser fans

High-efficiency variable speed condenser fans control the speed of all fans for improvement in part load efficiency and sound levels. Additionally, high-efficiency variable condenser fans maintain head pressure control down to –20°F (–29°C) ambient temperature with the use of wind baffles. Variable speed condenser fans are standard on sizes 160-230.

### Security grilles and end hail guards

Security grilles and end hail guards consist of louvered, sheet metal panels (on the upper portion of the unit at both ends) which securely fasten to the unit and provide condenser coil protection against hail and physical damage, and, at the same time, provide coated grilles (on the unit sides and lower portion of the unit ends) that prevent larger animals and objects from entering in to the condenser envelope. Note that this item also functions as a low ambient wind baffle, and the wind baffle accessory is not required when this item is selected. Coil trim panels are included when this factory option is selected. This feature is available on unit sizes 080-230.

### Condenser coil trim panels

Condenser coil trim panels provide an aesthetic, finished appearance for the condenser coil ends.

### Full hail guards

Full hail guards consist of louvered sheet metal panels which securely fasten to the coil side(s) of the unit on sizes 020-060 and securely fasten to the sides and ends of the unit on sizes 080-230, while, on all unit sizes, providing condenser coil protection against hail and physical damage. Note that this item also functions as a low ambient wind baffle, and the wind baffle accessory is not required when this item is selected.

# Options and accessories (cont)

## Field-installed accessories

### Security grilles

Security grilles provide coated grilles on the unit sides and ends that prevent larger animals and objects from entering in to the condenser envelope. This accessory is available on unit sizes 080-230.

### Security grilles and end hail guards

Security grilles and end hail guards consist of louvered, sheet metal panels (on the upper portion of the unit at both ends) which securely fasten to the unit and provide condenser coil protection against hail and physical damage, and, at the same time, provide coated grilles (on the unit sides and lower portion of the unit ends) that prevent larger animals and objects from entering in to the condenser envelope. Note that this item also functions as a low ambient wind baffle, and the wind baffle accessory is not required when this item is selected. This feature is available on unit sizes 080-230.

### Full hail guards

Full hail guards consist of louvered sheet metal panels which securely fasten to the coil side(s) of the unit on sizes 020-060 and securely fasten to the sides and ends of the unit on sizes 080-230, while, on all unit sizes, providing condenser coil protection against hail and physical damage. Note that this item also functions as a low ambient wind baffle, and the wind baffle accessory is not required when this item is selected.

### Condenser coil trim panels

Condenser coil trim panels provide an aesthetic, finished appearance for the condenser coil ends.

### Wind baffles

Wind baffles facilitate operation down to –20°F (–29°C) when used in conjunction with high-efficiency variable condenser fans.

### Vibration isolation

Vibration isolation consists of field-installed 1/4-in. (0.64 cm) neoprene isolator pads (24-in. x 3-in.) (61.0 cm x 7.6 cm) that reduce vibration transmission from the compressor through the floor and into the conditioned space.

**Condenser Coil Corrosion Protection Options**

| ENVIRO-SHIELD™ OPTION[a] | ENVIRONMENT | | | | |
|---|---|---|---|---|---|
| | Standard | Mild Coastal | Severe Coastal | Industrial | Combined Industrial/Coastal |
| Novation Heat Exchanger (Standard) | See NACO Packaged Chiller Builder | | | | |
| Novation Heat Exchanger (E-Coat) | See NACO Packaged Chiller Builder | | | | |
| AL Fins | X | | | | |
| AL Fins, E-coat | | | X | X | X |

NOTE(S):

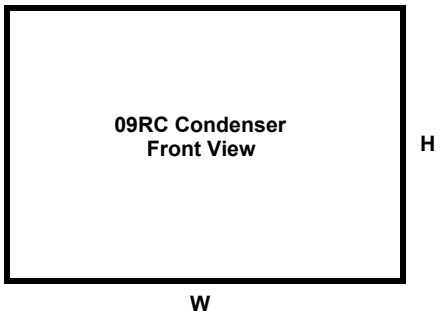
a. See NACO Packaged Chiller Builder for details. Additional corrosion protection is available. For Novation or round tube/plate fin (RTPF) heat exchangers, see selection guide “Environmental Corrosion Protection” (Publication 04-581061-01).

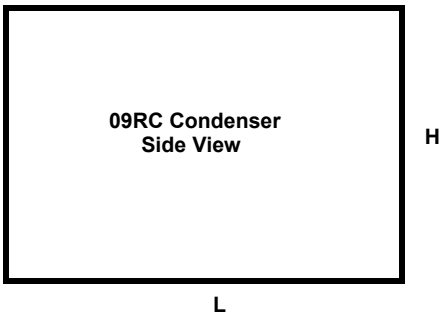
LEGEND

**AL** — Aluminum
**NACO** — North American Commercial Operations

# Dimensions

## 09RC020-060 Condenser Layout Dimensions




### Chiller Layout Dimensions - English

| 09RC UNIT | LENGTH (in.) | WIDTH (in.) | HEIGHT (in.) |
|---|---|---|---|
| **020** | 89 | 46 | 67 |
| **030** | 89 | 46 | 79 |
| **035** | 98 | 89 | 67 |
| **050** | 98 | 89 | 67 |
| **060** | 98 | 89 | 79 |

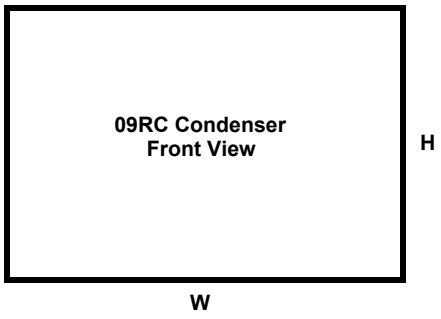
### Chiller Layout Dimensions - SI

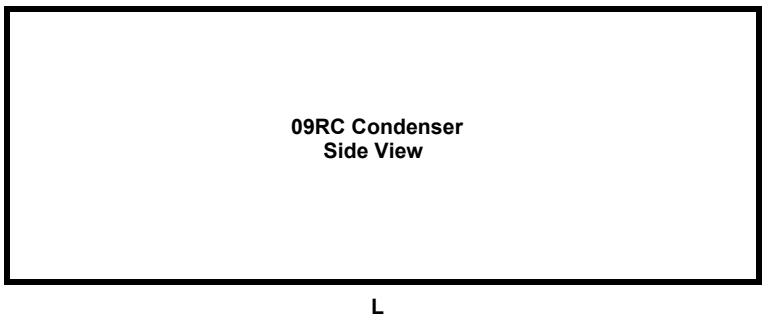
| 09RC UNIT | LENGTH (mm) | WIDTH (mm) | HEIGHT (mm) |
|---|---|---|---|
| **020** | 2243 | 1171 | 1690 |
| **030** | 2243 | 1171 | 1994 |
| **035** | 2485 | 2243 | 1690 |
| **050** | 2485 | 2243 | 1690 |
| **060** | 2485 | 2243 | 1994 |

NOTES:

1. The dimensions presented here are intended to determine the suitability of a given condenser for a given space. **Detailed dimensions may be determined from the Chiller Submittal Drawing Manager.**
2. When determining the suitability of a given condenser for a given space, do not forget to consider the availability of adequate airflow to that location. Contact your Carrier representative for guidelines.

## 09RC080-230 Condenser Layout Dimensions




### Chiller Layout Dimensions - English

| 09RC UNIT | LENGTH (in.) | WIDTH (in.) | HEIGHT (in.) |
|---|---|---|---|
| **080** | 105 | 88 | 99 |
| **095** | 152 | 88 | 99 |
| **115** | 152 | 88 | 99 |
| **130** | 199 | 88 | 99 |
| **145** | 199 | 88 | 99 |
| **160** | 247 | 88 | 99 |
| **170** | 247 | 88 | 99 |
| **185** | 294 | 88 | 99 |
| **200** | 294 | 88 | 99 |
| **230** | 341 | 88 | 99 |

### Chiller Layout Dimensions - SI

| 09RC UNIT | LENGTH (mm) | WIDTH (mm) | HEIGHT (mm) |
|---|---|---|---|
| **080** | 2678 | 2236 | 2513 |
| **095** | 3872 | 2236 | 2513 |
| **115** | 3872 | 2236 | 2513 |
| **130** | 5066 | 2236 | 2513 |
| **145** | 5066 | 2236 | 2513 |
| **160** | 6260 | 2236 | 2513 |
| **170** | 6260 | 2236 | 2513 |
| **185** | 7454 | 2236 | 2513 |
| **200** | 7454 | 2236 | 2513 |
| **230** | 8643 | 2236 | 2513 |

NOTES:

1. The dimensions presented here are intended to determine the suitability of a given condenser for a given space. **Detailed dimensions may be determined from the Chiller Submittal Drawing Manager.**
2. When determining the suitability of a given condenser for a given space, do not forget to consider the availability of adequate airflow to that location. Contact your Carrier representative for guidelines.

## MCHX Condenser Ratings Using R-32[a,b,c]

**ALL 60/50 Hz UNITS WITH GREENSPEED INTELLIGENCE (ENGLISH)**

**MAXIMUM SUBCOOLING CHARGE (15°F)**

| TD (F) | TOTAL HEAT REJECTION (TONS) | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 020 | 030 | 035 | 050 | 060 | 080 | 095 | 115 | 130 | 145 | 160 | 170 | 185 | 200 | 230 |
| 20 | 23.83 | 26.34 | 27.56 | 42.97 | 52.75 | 69.44 | 86.80 | 104.16 | 121.52 | 138.88 | 156.24 | 173.60 | 190.96 | 208.32 | 243.04 |
| 25 | 31.76 | 34.70 | 36.02 | 56.85 | 69.64 | 91.72 | 114.65 | 137.58 | 160.51 | 183.44 | 206.37 | 229.30 | 252.23 | 275.16 | 321.02 |
| 30 | 38.69 | 42.12 | 43.69 | 69.73 | 84.65 | 111.39 | 139.23 | 167.08 | 194.93 | 222.77 | 250.62 | 278.47 | 306.31 | 334.16 | 389.85 |
| 35 | 45.24 | 49.22 | 51.26 | 82.09 | 99.03 | 130.67 | 163.33 | 196.00 | 228.67 | 261.33 | 294.00 | 326.67 | 359.33 | 392.00 | 457.33 |
| 40 | 51.71 | 56.18 | 58.65 | 94.18 | 113.11 | 149.41 | 186.76 | 224.12 | 261.47 | 298.82 | 336.18 | 373.53 | 410.88 | 448.23 | 500.45 |

**ALL 60/50 Hz UNITS WITH GREENSPEED INTELLIGENCE (SI)**

**MAXIMUM SUBCOOLING CHARGE (8.3°C)**

| TD (C) | TOTAL HEAT REJECTION (kW) | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 020 | 030 | 035 | 050 | 060 | 080 | 095 | 115 | 130 | 145 | 160 | 170 | 185 | 200 | 230 |
| 11.11 | 83.82 | 92.65 | 96.91 | 151.11 | 185.51 | 244.21 | 305.26 | 366.31 | 427.36 | 488.41 | 549.46 | 610.51 | 671.56 | 732.62 | 854.72 |
| 13.89 | 111.70 | 122.02 | 126.67 | 199.94 | 244.91 | 322.56 | 403.20 | 483.85 | 564.49 | 645.13 | 725.77 | 806.41 | 887.05 | 967.69 | 1128.97 |
| 16.67 | 136.05 | 148.11 | 153.66 | 245.24 | 297.72 | 391.73 | 489.66 | 587.60 | 685.53 | 783.46 | 881.40 | 979.33 | 1077.26 | 1175.19 | 1371.06 |
| 19.44 | 159.11 | 173.11 | 180.27 | 288.72 | 348.26 | 459.53 | 574.42 | 689.30 | 804.18 | 919.07 | 1033.95 | 1148.83 | 1263.72 | 1378.60 | 1608.37 |
| 22.22 | 181.86 | 197.58 | 206.28 | 331.23 | 397.80 | 525.46 | 656.82 | 788.19 | 919.55 | 1050.92 | 1182.28 | 1313.64 | 1445.01 | 1576.37 | 1760.00 |

**60 Hz UNITS WITH FIXED-SPEED FANS (ENGLISH)**

**MAXIMUM SUBCOOLING CHARGE (15°F)**

| TD (F) | TOTAL HEAT REJECTION (TONS) | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 020 | 030 | 035 | 050 | 060 | 080 | 095 | 115 | 130 | 145 | 160 | 170 | 185 | 200 | 230 |
| 20 | 23.83 | 26.34 | 27.56 | 42.97 | 52.75 | 58.17 | 72.71 | 87.26 | 101.80 | 116.34 | — | — | — | — | — |
| 25 | 31.76 | 34.70 | 36.02 | 56.85 | 69.64 | 76.19 | 95.23 | 114.28 | 133.33 | 152.37 | — | — | — | — | — |
| 30 | 38.69 | 42.12 | 43.69 | 69.73 | 84.65 | 92.28 | 115.36 | 138.43 | 161.50 | 184.57 | — | — | — | — | — |
| 35 | 45.24 | 49.22 | 51.26 | 82.09 | 99.03 | 107.82 | 134.77 | 161.72 | 188.68 | 215.63 | — | — | — | — | — |
| 40 | 51.71 | 56.18 | 58.65 | 94.18 | 113.11 | 123.20 | 154.00 | 184.81 | 215.61 | 246.41 | — | — | — | — | — |

**60 Hz UNITS WITH FIXED-SPEED FANS (SI)**

**MAXIMUM SUBCOOLING CHARGE (8.3°C)**

| TD (C) | TOTAL HEAT REJECTION (kW) | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 020 | 030 | 035 | 050 | 060 | 080 | 095 | 115 | 130 | 145 | 160 | 170 | 185 | 200 | 230 |
| 11.11 | 83.82 | 92.65 | 96.91 | 151.11 | 185.51 | 204.58 | 255.72 | 306.86 | 358.01 | 409.15 | — | — | — | — | — |
| 13.89 | 111.70 | 122.02 | 126.67 | 199.94 | 244.91 | 267.93 | 334.92 | 401.90 | 468.89 | 535.87 | — | — | — | — | — |
| 16.67 | 136.05 | 148.11 | 153.66 | 245.24 | 297.72 | 324.55 | 405.69 | 486.83 | 567.96 | 649.10 | — | — | — | — | — |
| 19.44 | 159.11 | 173.11 | 180.27 | 288.72 | 348.26 | 379.17 | 473.97 | 568.76 | 663.55 | 758.35 | — | — | — | — | — |
| 22.22 | 181.86 | 197.58 | 206.28 | 331.23 | 397.80 | 433.29 | 541.61 | 649.93 | 758.26 | 866.58 | — | — | — | — | — |

**50 Hz UNITS WITH FIXED-SPEED FANS (ENGLISH)**

**MAXIMUM SUBCOOLING CHARGE (15°F)**

| TD (F) | TOTAL HEAT REJECTION (TONS) | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 020 | 030 | 035 | 050 | 060 | 080 | 095 | 115 | 130 | 145 | 160 | 170 | 185 | 200 | 230 |
| 20 | 21.26 | 23.16 | 23.90 | 38.50 | 46.72 | 50.26 | 62.82 | 75.39 | 87.95 | 100.51 | — | — | — | — | — |
| 25 | 27.93 | 30.36 | 31.25 | 50.61 | 61.41 | 65.87 | 82.33 | 98.80 | 115.27 | 131.73 | — | — | — | — | — |
| 30 | 33.66 | 36.79 | 37.91 | 61.92 | 74.52 | 79.78 | 99.73 | 119.67 | 139.62 | 159.56 | — | — | — | — | — |
| 35 | 39.36 | 42.97 | 44.34 | 72.81 | 87.10 | 93.16 | 116.45 | 139.74 | 163.03 | 186.31 | — | — | — | — | — |
| 40 | 44.99 | 49.02 | 50.66 | 83.53 | 99.50 | 106.12 | 132.65 | 159.18 | 185.71 | 212.24 | — | — | — | — | — |

**50 Hz UNITS WITH FIXED-SPEED FANS (SI)**

**MAXIMUM SUBCOOLING CHARGE (8.3°C)**

| TD (C) | TOTAL HEAT REJECTION (kW) | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 020 | 030 | 035 | 050 | 060 | 080 | 095 | 115 | 130 | 145 | 160 | 170 | 185 | 200 | 230 |
| 11.11 | 74.75 | 81.45 | 84.06 | 135.41 | 164.32 | 176.75 | 220.93 | 265.12 | 309.31 | 353.49 | — | — | — | — | — |
| 13.89 | 98.23 | 106.77 | 109.91 | 177.99 | 215.96 | 231.64 | 289.55 | 347.47 | 405.38 | 463.29 | — | — | — | — | — |
| 16.67 | 118.37 | 129.37 | 133.33 | 217.77 | 262.08 | 280.57 | 350.72 | 420.86 | 491.01 | 561.15 | — | — | — | — | — |
| 19.44 | 138.43 | 151.10 | 155.94 | 256.05 | 306.32 | 327.62 | 409.53 | 491.43 | 573.34 | 655.24 | — | — | — | — | — |
| 22.22 | 158.22 | 172.39 | 178.18 | 293.75 | 349.91 | 373.21 | 466.52 | 559.82 | 653.12 | 746.43 | — | — | — | — | — |

NOTE(S):

a. Use maximum charge when compressor, condenser, and evaporator are selected as a package and the components balanced to secure maximum benefits of 15°F (8.3°C) subcooling (for example, in selecting 09RC condensers with Carrier compressor rated at 15°F (8.3°C) subcooling). Maximum charge activates the subcooling circuit, resulting in higher system capacity at slightly higher head pressure and corresponding condensing temperature. Liquid refrigerant leaves the system subcooled to a stable condition to allow greater length of refrigerant run or lift. See Application Data section, for available liquid lift information.
b. Condenser subcooling = Saturated condensing temperature of refrigerant – Actual temperature of refrigerant leaving the coil.
c. TD (Temperature Difference) = Saturated Condensing Temperature (entering) – Entering-Air Temperature.

# Performance data (cont)

## RTPF Condenser Ratings Using R-32[a,b,c]

**ALL 60/50 Hz UNITS WITH GREENSPEED INTELLIGENCE (ENGLISH)**

**MAXIMUM SUBCOOLING CHARGE (15°F)**

| TD (F) | TOTAL HEAT REJECTION (TONS) | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 020 | 030 | 035 | 050 | 060 | 080 | 095 | 115 | 130 | 145 | 160 | 170 | 185 | 200 | 230 |
| 20 | 22.90 | 25.91 | 25.81 | 41.04 | 50.66 | 64.60 | 80.75 | 96.90 | 113.05 | 129.20 | 145.35 | 161.50 | 177.65 | 193.80 | 226.10 |
| 25 | 29.94 | 33.66 | 34.09 | 54.45 | 66.25 | 86.57 | 108.21 | 129.85 | 151.49 | 173.14 | 194.78 | 216.42 | 238.06 | 259.71 | 302.99 |
| 30 | 36.35 | 40.80 | 41.58 | 66.50 | 80.60 | 104.72 | 130.91 | 157.09 | 183.27 | 209.45 | 235.63 | 261.81 | 287.99 | 314.17 | 366.54 |
| 35 | 42.48 | 47.66 | 48.79 | 78.06 | 94.37 | 122.05 | 152.56 | 183.08 | 213.59 | 244.10 | 274.62 | 305.13 | 335.64 | 366.15 | 427.18 |
| 40 | 48.42 | 54.27 | 55.77 | 89.27 | 107.67 | 138.80 | 173.50 | 208.20 | 242.90 | 277.60 | 312.30 | 347.00 | 381.70 | 416.40 | 464.90 |

**ALL 60/50 Hz UNITS WITH GREENSPEED INTELLIGENCE (SI)**

**MAXIMUM SUBCOOLING CHARGE (8.3°C)**

| TD (C) | TOTAL HEAT REJECTION (kW) | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 020 | 030 | 035 | 050 | 060 | 080 | 095 | 115 | 130 | 145 | 160 | 170 | 185 | 200 | 230 |
| 11.11 | 80.55 | 91.11 | 90.76 | 144.35 | 178.15 | 227.19 | 283.99 | 340.79 | 397.59 | 454.39 | 511.19 | 567.98 | 624.78 | 681.58 | 795.18 |
| 13.89 | 105.31 | 118.36 | 119.90 | 191.48 | 233.01 | 304.45 | 380.56 | 456.67 | 532.78 | 608.90 | 685.01 | 761.12 | 837.23 | 913.34 | 1065.57 |
| 16.67 | 127.84 | 143.49 | 146.22 | 233.88 | 283.45 | 368.30 | 460.38 | 552.45 | 644.53 | 736.60 | 828.68 | 920.75 | 1012.83 | 1104.90 | 1289.05 |
| 19.44 | 149.41 | 167.60 | 171.60 | 274.54 | 331.88 | 429.24 | 536.55 | 643.86 | 751.16 | 858.47 | 965.78 | 1073.09 | 1180.40 | 1287.71 | 1502.33 |
| 22.22 | 170.27 | 190.85 | 196.14 | 313.96 | 378.67 | 488.14 | 610.17 | 732.21 | 854.24 | 976.28 | 1098.31 | 1220.34 | 1342.38 | 1464.41 | 1635.00 |

**60 Hz UNITS WITH FIXED-SPEED FANS (ENGLISH)**

**MAXIMUM SUBCOOLING CHARGE (15°F)**

| TD (F) | TOTAL HEAT REJECTION (TONS) | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 020 | 030 | 035 | 050 | 060 | 080 | 095 | 115 | 130 | 145 | 160 | 170 | 185 | 200 | 230 |
| 20 | 22.90 | 25.91 | 25.81 | 41.04 | 50.66 | 55.86 | 69.82 | 83.79 | 97.75 | 111.71 | — | — | — | — | — |
| 25 | 29.94 | 33.66 | 34.09 | 54.45 | 66.25 | 72.60 | 90.75 | 108.90 | 127.05 | 145.20 | — | — | — | — | — |
| 30 | 36.35 | 40.80 | 41.58 | 66.50 | 80.60 | 87.67 | 109.59 | 131.51 | 153.43 | 175.35 | — | — | — | — | — |
| 35 | 42.48 | 47.66 | 48.79 | 78.06 | 94.37 | 102.13 | 127.66 | 153.19 | 178.72 | 204.25 | — | — | — | — | — |
| 40 | 48.42 | 54.27 | 55.77 | 89.27 | 107.67 | 116.07 | 145.09 | 174.10 | 203.12 | 232.14 | — | — | — | — | — |

**60 Hz UNITS WITH FIXED-SPEED FANS (SI)**

**MAXIMUM SUBCOOLING CHARGE (8.3°C)**

| TD (C) | TOTAL HEAT REJECTION (kW) | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 020 | 030 | 035 | 050 | 060 | 080 | 095 | 115 | 130 | 145 | 160 | 170 | 185 | 200 | 230 |
| 11.11 | 80.55 | 91.11 | 90.76 | 144.35 | 178.15 | 196.44 | 245.55 | 294.66 | 343.77 | 392.88 | — | — | — | — | — |
| 13.89 | 105.31 | 118.36 | 119.90 | 191.48 | 233.01 | 255.33 | 319.16 | 383.00 | 446.83 | 510.66 | — | — | — | — | — |
| 16.67 | 127.84 | 143.49 | 146.22 | 233.88 | 283.45 | 308.34 | 385.42 | 462.51 | 539.59 | 616.68 | — | — | — | — | — |
| 19.44 | 149.41 | 167.60 | 171.60 | 274.54 | 331.88 | 359.16 | 448.95 | 538.74 | 628.53 | 718.32 | — | — | — | — | — |
| 22.22 | 170.27 | 190.85 | 196.14 | 313.96 | 378.67 | 408.20 | 510.25 | 612.30 | 714.35 | 816.40 | — | — | — | — | — |

**50 Hz UNITS WITH FIXED-SPEED FANS (ENGLISH)**

**MAXIMUM SUBCOOLING CHARGE (15°F)**

| TD (F) | TOTAL HEAT REJECTION (TONS) | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 020 | 030 | 035 | 050 | 060 | 080 | 095 | 115 | 130 | 145 | 160 | 170 | 185 | 200 | 230 |
| 20 | 20.44 | 22.91 | 22.68 | 37.15 | 45.20 | 49.32 | 61.65 | 73.98 | 86.31 | 98.64 | — | — | — | — | — |
| 25 | 26.54 | 29.61 | 29.89 | 48.93 | 58.82 | 63.74 | 79.68 | 95.61 | 111.55 | 127.48 | — | — | — | — | — |
| 30 | 32.17 | 35.86 | 36.45 | 59.69 | 71.47 | 76.88 | 96.10 | 115.32 | 134.54 | 153.76 | — | — | — | — | — |
| 35 | 37.58 | 41.85 | 42.73 | 70.03 | 83.62 | 89.49 | 111.87 | 134.24 | 156.61 | 178.99 | — | — | — | — | — |
| 40 | 42.79 | 47.63 | 48.79 | 80.03 | 95.34 | 101.64 | 127.06 | 152.47 | 177.88 | 203.29 | — | — | — | — | — |

**50 Hz UNITS WITH FIXED-SPEED FANS (SI)**

**MAXIMUM SUBCOOLING CHARGE (8.3°C)**

| TD (C) | TOTAL HEAT REJECTION (kW) | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 020 | 030 | 035 | 050 | 060 | 080 | 095 | 115 | 130 | 145 | 160 | 170 | 185 | 200 | 230 |
| 11.11 | 71.87 | 80.58 | 79.75 | 130.64 | 158.97 | 173.45 | 216.81 | 260.17 | 303.53 | 346.89 | — | — | — | — | — |
| 13.89 | 93.34 | 104.15 | 105.12 | 172.08 | 206.86 | 224.17 | 280.21 | 336.25 | 392.30 | 448.34 | — | — | — | — | — |
| 16.67 | 113.15 | 126.11 | 128.20 | 209.92 | 251.34 | 270.37 | 337.97 | 405.56 | 473.15 | 540.75 | — | — | — | — | — |
| 19.44 | 132.15 | 147.19 | 150.27 | 246.28 | 294.07 | 314.73 | 393.42 | 472.10 | 550.78 | 629.47 | — | — | — | — | — |
| 22.22 | 150.47 | 167.49 | 171.60 | 281.45 | 335.31 | 357.47 | 446.84 | 536.20 | 625.57 | 714.94 | — | — | — | — | — |

NOTE(S):

a. Use maximum charge when compressor, condenser, and evaporator are selected as a package and the components balanced to secure maximum benefits of 15°F (8.3°C) subcooling (for example, in selecting 09RC condensers with Carrier compressor rated at 15°F (8.3°C) subcooling). Maximum charge activates the subcooling circuit, resulting in higher system capacity at slightly higher head pressure and corresponding condensing temperature. Liquid refrigerant leaves the system subcooled to a stable condition to allow greater length of refrigerant run or lift. See Application Data section, for available liquid lift information.

b. Condenser subcooling = Saturated condensing temperature of refrigerant – Actual temperature of refrigerant leaving the coil.

c. TD (Temperature Difference) = Saturated Condensing Temperature (entering) – Entering-Air Temperature.

# Performance data (cont)

## MCHX Condenser Ratings Using R-410A[a,b,c]

**ALL 60/50 Hz UNITS WITH GREENSPEED INTELLIGENCE (ENGLISH)**

**MAXIMUM SUBCOOLING CHARGE (15°F)**

| TD (F) | TOTAL HEAT REJECTION (TONS) | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 020 | 030 | 035 | 050 | 060 | 080 | 095 | 115 | 130 | 145 | 160 | 170 | 185 | 200 | 230 |
| 20 | 21.30 | 24.31 | 26.11 | 39.09 | 48.58 | 63.27 | 79.09 | 94.90 | 110.72 | 126.54 | 142.36 | 158.17 | 173.99 | 189.81 | 221.44 |
| 25 | 29.44 | 32.51 | 34.23 | 53.33 | 65.16 | 86.47 | 108.09 | 129.71 | 151.33 | 172.94 | 194.56 | 216.18 | 237.80 | 259.42 | 302.65 |
| 30 | 36.20 | 39.73 | 41.95 | 65.83 | 79.73 | 106.16 | 132.70 | 159.24 | 185.78 | 212.32 | 238.86 | 265.40 | 291.94 | 318.49 | 371.57 |
| 35 | 42.42 | 46.50 | 49.34 | 77.83 | 93.44 | 124.87 | 156.08 | 187.30 | 218.52 | 249.73 | 280.95 | 312.16 | 343.38 | 374.60 | 437.03 |
| 40 | 48.09 | 52.96 | 56.51 | 89.15 | 106.54 | 142.56 | 178.19 | 213.83 | 249.47 | 285.11 | 320.75 | 356.39 | 392.03 | 427.67 | 498.95 |

**ALL 60/50 Hz UNITS WITH GREENSPEED INTELLIGENCE (SI)**

**MAXIMUM SUBCOOLING CHARGE (8.3°C)**

| TD (C) | TOTAL HEAT REJECTION (kW) | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 020 | 030 | 035 | 050 | 060 | 080 | 095 | 115 | 130 | 145 | 160 | 170 | 185 | 200 | 230 |
| 11.11 | 74.89 | 85.50 | 91.82 | 137.49 | 170.84 | 222.51 | 278.13 | 333.76 | 389.39 | 445.02 | 500.64 | 556.27 | 611.90 | 667.52 | 778.78 |
| 13.89 | 103.53 | 114.34 | 120.40 | 187.54 | 229.16 | 304.11 | 380.14 | 456.17 | 532.19 | 608.22 | 684.25 | 760.28 | 836.30 | 912.33 | 1064.39 |
| 16.67 | 127.33 | 139.71 | 147.54 | 231.53 | 280.39 | 373.36 | 466.69 | 560.03 | 653.37 | 746.71 | 840.05 | 933.39 | 1026.73 | 1120.07 | 1306.74 |
| 19.44 | 149.19 | 163.52 | 173.51 | 273.70 | 328.62 | 439.14 | 548.92 | 658.70 | 768.49 | 878.27 | 988.05 | 1097.84 | 1207.62 | 1317.41 | 1536.97 |
| 22.22 | 169.12 | 186.26 | 198.73 | 313.54 | 374.69 | 501.35 | 626.69 | 752.02 | 877.36 | 1002.70 | 1128.03 | 1253.37 | 1378.71 | 1504.04 | 1754.72 |

**60 Hz UNITS WITH FIXED-SPEED FANS (ENGLISH)**

**MAXIMUM SUBCOOLING CHARGE (15°F)**

| TD (F) | TOTAL HEAT REJECTION (TONS) | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 020 | 030 | 035 | 050 | 060 | 080 | 095 | 115 | 130 | 145 | 160 | 170 | 185 | 200 | 230 |
| 20 | 21.30 | 24.31 | 26.11 | 39.09 | 48.58 | 55.09 | 68.87 | 82.64 | 96.42 | 110.19 | — | — | — | — | — |
| 25 | 29.44 | 32.51 | 34.23 | 53.33 | 65.16 | 73.24 | 91.56 | 109.87 | 128.18 | 146.49 | — | — | — | — | — |
| 30 | 36.20 | 39.73 | 41.95 | 65.83 | 79.73 | 89.37 | 111.71 | 134.06 | 156.40 | 178.74 | — | — | — | — | — |
| 35 | 42.42 | 46.50 | 49.34 | 77.83 | 93.44 | 104.73 | 130.91 | 157.09 | 183.28 | 209.46 | — | — | — | — | — |
| 40 | 48.09 | 52.96 | 56.51 | 89.15 | 106.54 | 119.52 | 149.39 | 179.27 | 209.15 | 239.03 | — | — | — | — | — |

**60 Hz UNITS WITH FIXED-SPEED FANS (SI)**

**MAXIMUM SUBCOOLING CHARGE (8.3°C)**

| TD (C) | TOTAL HEAT REJECTION (kW) | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 020 | 030 | 035 | 050 | 060 | 080 | 095 | 115 | 130 | 145 | 160 | 170 | 185 | 200 | 230 |
| 11.11 | 74.89 | 85.50 | 91.82 | 137.49 | 170.84 | 193.76 | 242.20 | 290.64 | 339.08 | 387.52 | — | — | — | — | — |
| 13.89 | 103.53 | 114.34 | 120.40 | 187.54 | 229.16 | 257.59 | 321.99 | 386.39 | 450.78 | 515.18 | — | — | — | — | — |
| 16.67 | 127.33 | 139.71 | 147.54 | 231.53 | 280.39 | 314.30 | 392.88 | 471.46 | 550.03 | 628.61 | — | — | — | — | — |
| 19.44 | 149.19 | 163.52 | 173.51 | 273.70 | 328.62 | 368.32 | 460.40 | 552.47 | 644.55 | 736.63 | — | — | — | — | — |
| 22.22 | 169.12 | 186.26 | 198.73 | 313.54 | 374.69 | 420.32 | 525.40 | 630.48 | 735.56 | 840.63 | — | — | — | — | — |

**50 Hz UNITS WITH FIXED-SPEED FANS (ENGLISH)**

**MAXIMUM SUBCOOLING CHARGE (15°F)**

| TD (F) | TOTAL HEAT REJECTION (TONS) | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 020 | 030 | 035 | 050 | 060 | 080 | 095 | 115 | 130 | 145 | 160 | 170 | 185 | 200 | 230 |
| 20 | 18.43 | 21.20 | 22.40 | 34.71 | 42.65 | 48.26 | 60.33 | 72.40 | 84.46 | 96.53 | — | — | — | — | — |
| 25 | 25.96 | 28.38 | 29.63 | 47.29 | 57.29 | 63.74 | 79.67 | 95.61 | 111.54 | 127.47 | — | — | — | — | — |
| 30 | 31.84 | 34.65 | 36.17 | 58.36 | 70.07 | 77.39 | 96.74 | 116.09 | 135.44 | 154.79 | — | — | — | — | — |
| 35 | 37.33 | 40.55 | 42.55 | 68.99 | 82.13 | 90.63 | 113.29 | 135.95 | 158.60 | 181.26 | — | — | — | — | — |
| 40 | 42.47 | 46.23 | 48.71 | 79.08 | 93.68 | 103.33 | 129.16 | 155.00 | 180.83 | 206.66 | — | — | — | — | — |

**50 Hz UNITS WITH FIXED-SPEED FANS (SI)**

**MAXIMUM SUBCOOLING CHARGE (8.3°C)**

| TD (C) | TOTAL HEAT REJECTION (kW) | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 020 | 030 | 035 | 050 | 060 | 080 | 095 | 115 | 130 | 145 | 160 | 170 | 185 | 200 | 230 |
| 11.11 | 64.80 | 74.55 | 78.77 | 122.09 | 150.00 | 169.74 | 212.17 | 254.61 | 297.04 | 339.48 | — | — | — | — | — |
| 13.89 | 91.31 | 99.82 | 104.20 | 166.32 | 201.49 | 224.15 | 280.19 | 336.23 | 392.27 | 448.31 | — | — | — | — | — |
| 16.67 | 111.97 | 121.84 | 127.22 | 205.26 | 246.41 | 272.18 | 340.23 | 408.28 | 476.32 | 544.37 | — | — | — | — | — |
| 19.44 | 131.28 | 142.62 | 149.64 | 242.62 | 288.83 | 318.73 | 398.42 | 478.10 | 557.79 | 637.47 | — | — | — | — | — |
| 22.22 | 149.34 | 162.58 | 171.31 | 278.12 | 329.47 | 363.40 | 454.25 | 545.10 | 635.95 | 726.80 | — | — | — | — | — |

NOTE(S):

a. Use maximum charge when compressor, condenser, and evaporator are selected as a package and the components balanced to secure maximum benefits of 15°F (8.3°C) subcooling (for example, in selecting 09RC condensers with Carrier compressor rated at 15°F (8.3°C) subcooling). Maximum charge activates the subcooling circuit, resulting in higher system capacity at slightly higher head pressure and corresponding condensing temperature. Liquid refrigerant leaves the system subcooled to a stable condition to allow greater length of refrigerant run or lift. See Application Data section, for available liquid lift information.
b. Condenser subcooling = Saturated condensing temperature of refrigerant – Actual temperature of refrigerant leaving the coil.
c. TD (Temperature Difference) = Saturated Condensing Temperature (entering) – Entering-Air Temperature.

# Performance data (cont)

## RTPF Condenser Ratings Using R-410A[a,b,c]

**ALL 60/50 Hz UNITS WITH GREENSPEED INTELLIGENCE (ENGLISH)**

**MAXIMUM SUBCOOLING CHARGE (15°F)**

| TD (F) | TOTAL HEAT REJECTION (TONS) | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 020 | 030 | 035 | 050 | 060 | 080 | 095 | 115 | 130 | 145 | 160 | 170 | 185 | 200 | 230 |
| 20 | 20.88 | 23.84 | 24.82 | 37.55 | 46.50 | 61.26 | 76.58 | 91.89 | 107.21 | 122.52 | 137.84 | 153.15 | 168.47 | 183.78 | 214.41 |
| 25 | 27.95 | 31.62 | 32.97 | 51.32 | 62.22 | 83.71 | 104.64 | 125.57 | 146.49 | 167.42 | 188.35 | 209.28 | 230.21 | 251.13 | 292.99 |
| 30 | 34.08 | 38.49 | 40.47 | 63.03 | 76.07 | 101.59 | 126.99 | 152.39 | 177.78 | 203.18 | 228.58 | 253.98 | 279.38 | 304.77 | 355.57 |
| 35 | 39.79 | 44.96 | 47.57 | 74.00 | 89.11 | 118.37 | 147.97 | 177.56 | 207.15 | 236.74 | 266.34 | 295.93 | 325.52 | 355.12 | 414.30 |
| 40 | 45.22 | 51.05 | 54.34 | 84.37 | 101.39 | 134.17 | 167.72 | 201.26 | 234.80 | 268.35 | 301.89 | 335.44 | 368.98 | 402.52 | 469.61 |

**ALL 60/50 Hz UNITS WITH GREENSPEED INTELLIGENCE (SI)**

**MAXIMUM SUBCOOLING CHARGE (8.3°C)**

| TD (C) | TOTAL HEAT REJECTION (kW) | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 020 | 030 | 035 | 050 | 060 | 080 | 095 | 115 | 130 | 145 | 160 | 170 | 185 | 200 | 230 |
| 11.11 | 73.44 | 83.83 | 87.27 | 132.06 | 163.52 | 215.45 | 269.31 | 323.17 | 377.03 | 430.89 | 484.75 | 538.61 | 592.48 | 646.34 | 754.06 |
| 13.89 | 98.28 | 111.20 | 115.95 | 180.47 | 218.82 | 294.40 | 368.00 | 441.60 | 515.20 | 588.80 | 662.40 | 736.00 | 809.60 | 883.20 | 1030.40 |
| 16.67 | 119.85 | 135.38 | 142.33 | 221.66 | 267.54 | 357.28 | 446.60 | 535.92 | 625.24 | 714.56 | 803.88 | 893.20 | 982.52 | 1071.84 | 1250.48 |
| 19.44 | 139.94 | 158.11 | 167.31 | 260.24 | 313.38 | 416.30 | 520.37 | 624.45 | 728.52 | 832.60 | 936.67 | 1040.75 | 1144.82 | 1248.89 | 1457.04 |
| 22.22 | 159.02 | 179.53 | 191.12 | 296.70 | 356.58 | 471.87 | 589.84 | 707.81 | 825.77 | 943.74 | 1061.71 | 1179.68 | 1297.65 | 1415.61 | 1651.55 |

**60 Hz UNITS WITH FIXED-SPEED FANS (ENGLISH)**

**MAXIMUM SUBCOOLING CHARGE (15°F)**

| TD (F) | TOTAL HEAT REJECTION (TONS) | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 020 | 030 | 035 | 050 | 060 | 080 | 095 | 115 | 130 | 145 | 160 | 170 | 185 | 200 | 230 |
| 20 | 20.88 | 23.84 | 24.82 | 37.55 | 46.50 | 53.34 | 66.68 | 80.01 | 93.35 | 106.68 | — | — | — | — | — |
| 25 | 27.95 | 31.62 | 32.97 | 51.32 | 62.22 | 70.63 | 88.28 | 105.94 | 123.60 | 141.25 | — | — | — | — | — |
| 30 | 34.08 | 38.49 | 40.47 | 63.03 | 76.07 | 85.59 | 106.99 | 128.39 | 149.79 | 171.19 | — | — | — | — | — |
| 35 | 39.79 | 44.96 | 47.57 | 74.00 | 89.11 | 99.63 | 124.54 | 149.44 | 174.35 | 199.26 | — | — | — | — | — |
| 40 | 45.22 | 51.05 | 54.34 | 84.37 | 101.39 | 112.92 | 141.16 | 169.39 | 197.62 | 225.85 | — | — | — | — | — |

**60 Hz UNITS WITH FIXED-SPEED FANS (SI)**

**MAXIMUM SUBCOOLING CHARGE (8.3°C)**

| TD (C) | TOTAL HEAT REJECTION (kW) | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 020 | 030 | 035 | 050 | 060 | 080 | 095 | 115 | 130 | 145 | 160 | 170 | 185 | 200 | 230 |
| 11.11 | 73.44 | 83.83 | 87.27 | 132.06 | 163.52 | 187.59 | 234.49 | 281.38 | 328.28 | 375.18 | — | — | — | — | — |
| 13.89 | 98.28 | 111.20 | 115.95 | 180.47 | 218.82 | 248.38 | 310.48 | 372.57 | 434.67 | 496.77 | — | — | — | — | — |
| 16.67 | 119.85 | 135.38 | 142.33 | 221.66 | 267.54 | 301.02 | 376.28 | 451.54 | 526.79 | 602.05 | — | — | — | — | — |
| 19.44 | 139.94 | 158.11 | 167.31 | 260.24 | 313.38 | 350.38 | 437.97 | 525.57 | 613.16 | 700.76 | — | — | — | — | — |
| 22.22 | 159.02 | 179.53 | 191.12 | 296.70 | 356.58 | 397.14 | 496.42 | 595.71 | 694.99 | 794.28 | — | — | — | — | — |

**50 Hz UNITS WITH FIXED-SPEED FANS (ENGLISH)**

**MAXIMUM SUBCOOLING CHARGE (15°F)**

| TD (F) | TOTAL HEAT REJECTION (TONS) | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 020 | 030 | 035 | 050 | 060 | 080 | 095 | 115 | 130 | 145 | 160 | 170 | 185 | 200 | 230 |
| 20 | 18.59 | 21.03 | 21.62 | 33.93 | 41.35 | 47.60 | 59.50 | 71.40 | 83.30 | 95.20 | — | — | — | — | — |
| 25 | 24.68 | 27.70 | 28.74 | 45.93 | 54.98 | 62.19 | 77.74 | 93.29 | 108.84 | 124.39 | — | — | — | — | — |
| 30 | 30.07 | 33.70 | 35.22 | 56.38 | 67.18 | 75.30 | 94.13 | 112.95 | 131.78 | 150.61 | — | — | — | — | — |
| 35 | 35.15 | 39.39 | 41.40 | 66.27 | 78.75 | 87.58 | 109.48 | 131.38 | 153.27 | 175.17 | — | — | — | — | — |
| 40 | 39.95 | 44.75 | 47.29 | 75.59 | 89.67 | 99.20 | 123.99 | 148.79 | 173.59 | 198.39 | — | — | — | — | — |

**50 Hz UNITS WITH FIXED-SPEED FANS (SI)**

**MAXIMUM SUBCOOLING CHARGE (8.3°C)**

| TD (C) | TOTAL HEAT REJECTION (kW) | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 020 | 030 | 035 | 050 | 060 | 080 | 095 | 115 | 130 | 145 | 160 | 170 | 185 | 200 | 230 |
| 11.11 | 65.40 | 73.94 | 76.04 | 119.31 | 145.42 | 167.40 | 209.25 | 251.10 | 292.95 | 334.80 | — | — | — | — | — |
| 13.89 | 86.79 | 97.42 | 101.08 | 161.53 | 193.35 | 218.73 | 273.41 | 328.09 | 382.77 | 437.45 | — | — | — | — | — |
| 16.67 | 105.74 | 118.53 | 123.85 | 198.28 | 236.27 | 264.83 | 331.04 | 397.25 | 463.45 | 529.66 | — | — | — | — | — |
| 19.44 | 123.61 | 138.52 | 145.60 | 233.07 | 276.95 | 308.02 | 385.02 | 462.03 | 539.03 | 616.04 | — | — | — | — | — |
| 22.22 | 140.48 | 157.37 | 166.32 | 265.84 | 315.35 | 348.86 | 436.07 | 523.28 | 610.50 | 697.71 | — | — | — | — | — |

NOTE(S):

a. Use maximum charge when compressor, condenser, and evaporator are selected as a package and the components balanced to secure maximum benefits of 15°F (8.3°C) subcooling (for example, in selecting 09RC condensers with Carrier compressor rated at 15°F (8.3°C) subcooling). Maximum charge activates the subcooling circuit, resulting in higher system capacity at slightly higher head pressure and corresponding condensing temperature. Liquid refrigerant leaves the system subcooled to a stable condition to allow greater length of refrigerant run or lift. See Application Data section, for available liquid lift information.

b. Condenser subcooling = Saturated condensing temperature of refrigerant – Actual temperature of refrigerant leaving the coil.

c. TD (Temperature Difference) = Saturated Condensing Temperature (entering) – Entering-Air Temperature.

# Performance data (cont)

## MCHX Condenser Ratings Using R-515B[a,b,c]

**ALL 60/50 Hz UNITS WITH GREENSPEED INTELLIGENCE (ENGLISH)**

**MAXIMUM SUBCOOLING CHARGE (15°F)**

| TD (F) | TOTAL HEAT REJECTION (TONS) | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 020 | 030 | 035 | 050 | 060 | 080 | 095 | 115 | 130 | 145 | 160 | 170 | 185 | 200 | 230 |
| 20 | 9.17 | 11.98 | 18.55 | 20.76 | 23.98 | 30.13 | 37.66 | 45.19 | 52.73 | 60.26 | 67.79 | 75.32 | 82.86 | 90.39 | 105.45 |
| 25 | 15.59 | 20.07 | 28.97 | 34.57 | 40.15 | 51.55 | 64.44 | 77.32 | 90.21 | 103.10 | 115.99 | 128.87 | 141.76 | 154.65 | 180.42 |
| 30 | 20.75 | 26.48 | 36.36 | 45.56 | 52.97 | 68.04 | 85.05 | 102.06 | 119.07 | 136.08 | 153.09 | 170.10 | 187.11 | 204.12 | 238.14 |
| 35 | 25.61 | 32.46 | 43.31 | 55.97 | 64.94 | 82.74 | 103.42 | 124.11 | 144.79 | 165.48 | 186.16 | 206.85 | 227.53 | 248.22 | 289.59 |
| 40 | 30.46 | 38.33 | 50.23 | 66.01 | 76.72 | 97.28 | 121.60 | 145.93 | 170.25 | 194.57 | 218.89 | 243.21 | 267.53 | 291.85 | 340.49 |

**ALL 60/50 Hz UNITS WITH GREENSPEED INTELLIGENCE (SI)**

**MAXIMUM SUBCOOLING CHARGE (8.3°C)**

| TD (C) | TOTAL HEAT REJECTION (kW) | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 020 | 030 | 035 | 050 | 060 | 080 | 095 | 115 | 130 | 145 | 160 | 170 | 185 | 200 | 230 |
| 11.11 | 32.26 | 42.15 | 65.23 | 73.02 | 84.33 | 105.96 | 132.45 | 158.94 | 185.43 | 211.92 | 238.41 | 264.91 | 291.40 | 317.89 | 370.87 |
| 13.89 | 54.83 | 70.58 | 101.88 | 121.56 | 141.19 | 181.29 | 226.62 | 271.94 | 317.26 | 362.59 | 407.91 | 453.23 | 498.56 | 543.88 | 634.53 |
| 16.67 | 72.96 | 93.12 | 127.88 | 160.24 | 186.28 | 239.29 | 299.11 | 358.94 | 418.76 | 478.58 | 538.41 | 598.23 | 658.05 | 717.87 | 837.52 |
| 19.44 | 90.06 | 114.15 | 152.30 | 196.84 | 228.40 | 290.98 | 363.73 | 436.47 | 509.22 | 581.97 | 654.71 | 727.46 | 800.20 | 872.95 | 1018.44 |
| 22.22 | 107.13 | 134.79 | 176.65 | 232.15 | 269.80 | 342.13 | 427.66 | 513.20 | 598.73 | 684.26 | 769.80 | 855.33 | 940.86 | 1026.39 | 1197.46 |

**60 Hz UNITS WITH FIXED-SPEED FANS (ENGLISH)**

**MAXIMUM SUBCOOLING CHARGE (15°F)**

| TD (F) | TOTAL HEAT REJECTION (TONS) | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 020 | 030 | 035 | 050 | 060 | 080 | 095 | 115 | 130 | 145 | 160 | 170 | 185 | 200 | 230 |
| 20 | 9.17 | 11.98 | 18.55 | 20.76 | 23.98 | 29.03 | 36.29 | 43.55 | 50.80 | 58.06 | — | — | — | — | — |
| 25 | 15.59 | 20.07 | 28.97 | 34.57 | 40.15 | 48.89 | 61.11 | 73.33 | 85.55 | 97.77 | — | — | — | — | — |
| 30 | 20.75 | 26.48 | 36.36 | 45.56 | 52.97 | 63.70 | 79.62 | 95.55 | 111.47 | 127.40 | — | — | — | — | — |
| 35 | 25.61 | 32.46 | 43.31 | 55.97 | 64.94 | 76.72 | 95.90 | 115.09 | 134.27 | 153.45 | — | — | — | — | — |
| 40 | 30.46 | 38.33 | 50.23 | 66.01 | 76.72 | 89.45 | 111.81 | 134.17 | 156.53 | 178.90 | — | — | — | — | — |

**60 Hz UNITS WITH FIXED-SPEED FANS (SI)**

**MAXIMUM SUBCOOLING CHARGE (8.3°C)**

| TD (C) | TOTAL HEAT REJECTION (kW) | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 020 | 030 | 035 | 050 | 060 | 080 | 095 | 115 | 130 | 145 | 160 | 170 | 185 | 200 | 230 |
| 11.11 | 32.26 | 42.15 | 65.23 | 73.02 | 84.33 | 102.10 | 127.62 | 153.15 | 178.67 | 204.20 | — | — | — | — | — |
| 13.89 | 54.83 | 70.58 | 101.88 | 121.56 | 141.19 | 171.92 | 214.90 | 257.89 | 300.87 | 343.85 | — | — | — | — | — |
| 16.67 | 72.96 | 93.12 | 127.88 | 160.24 | 186.28 | 224.02 | 280.03 | 336.03 | 392.04 | 448.04 | — | — | — | — | — |
| 19.44 | 90.06 | 114.15 | 152.30 | 196.84 | 228.40 | 269.83 | 337.28 | 404.74 | 472.20 | 539.65 | — | — | — | — | — |
| 22.22 | 107.13 | 134.79 | 176.65 | 232.15 | 269.80 | 314.57 | 393.22 | 471.86 | 550.50 | 629.15 | — | — | — | — | — |

**50 Hz UNITS WITH FIXED-SPEED FANS (ENGLISH)**

**MAXIMUM SUBCOOLING CHARGE (15°F)**

| TD (F) | TOTAL HEAT REJECTION (TONS) | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 020 | 030 | 035 | 050 | 060 | 080 | 095 | 115 | 130 | 145 | 160 | 170 | 185 | 200 | 230 |
| 20 | 8.98 | 11.54 | 17.30 | 20.30 | 23.14 | 28.20 | 35.25 | 42.30 | 49.35 | 56.40 | — | — | — | — | — |
| 25 | 15.21 | 19.18 | 25.87 | 33.39 | 38.46 | 46.50 | 58.13 | 69.76 | 81.38 | 93.01 | — | — | — | — | — |
| 30 | 20.13 | 25.19 | 32.13 | 43.58 | 50.53 | 59.97 | 74.96 | 89.95 | 104.94 | 119.93 | — | — | — | — | — |
| 35 | 24.71 | 30.46 | 38.14 | 53.01 | 61.28 | 71.87 | 89.83 | 107.80 | 125.77 | 143.73 | — | — | — | — | — |
| 40 | 29.30 | 35.61 | 44.04 | 62.23 | 71.71 | 83.37 | 104.21 | 125.05 | 145.90 | 166.74 | — | — | — | — | — |

**50 Hz UNITS WITH FIXED-SPEED FANS (SI)**

**MAXIMUM SUBCOOLING CHARGE (8.3°C)**

| TD (C) | TOTAL HEAT REJECTION (kW) | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 020 | 030 | 035 | 050 | 060 | 080 | 095 | 115 | 130 | 145 | 160 | 170 | 185 | 200 | 230 |
| 11.11 | 31.58 | 40.59 | 60.85 | 71.38 | 81.38 | 99.18 | 123.98 | 148.77 | 173.57 | 198.36 | — | — | — | — | — |
| 13.89 | 53.48 | 67.46 | 90.98 | 117.43 | 135.27 | 163.55 | 204.43 | 245.32 | 286.21 | 327.09 | — | — | — | — | — |
| 16.67 | 70.79 | 88.59 | 113.00 | 153.27 | 177.71 | 210.90 | 263.62 | 316.34 | 369.07 | 421.79 | — | — | — | — | — |
| 19.44 | 86.89 | 107.11 | 134.12 | 186.42 | 215.50 | 252.75 | 315.93 | 379.12 | 442.30 | 505.49 | — | — | — | — | — |
| 22.22 | 103.06 | 125.23 | 154.88 | 218.87 | 252.21 | 293.20 | 366.49 | 439.79 | 513.09 | 586.39 | — | — | — | — | — |

NOTE(S):

a. Use maximum charge when compressor, condenser, and evaporator are selected as a package and the components balanced to secure maximum benefits of 15°F (8.3°C) subcooling (for example, in selecting 09RC condensers with Carrier compressor rated at 15°F (8.3°C) subcooling). Maximum charge activates the subcooling circuit, resulting in higher system capacity at slightly higher head pressure and corresponding condensing temperature. Liquid refrigerant leaves the system subcooled to a stable condition to allow greater length of refrigerant run or lift. See Application Data section, for available liquid lift information.

b. Condenser subcooling = Saturated condensing temperature of refrigerant – Actual temperature of refrigerant leaving the coil.

c. TD (Temperature Difference) = Saturated Condensing Temperature (entering) – Entering-Air Temperature.

# Performance data (cont)

## RTPF Condenser Ratings Using R-515B[a,b,c]

**ALL 60/50 Hz UNITS WITH GREENSPEED INTELLIGENCE (ENGLISH)**

**MAXIMUM SUBCOOLING CHARGE (15°F)**

| TD (F) | TOTAL HEAT REJECTION (TONS) | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 020 | 030 | 035 | 050 | 060 | 080 | 095 | 115 | 130 | 145 | 160 | 170 | 185 | 200 | 230 |
| 20 | 8.99 | 11.75 | 17.29 | 20.35 | 23.50 | 29.53 | 36.91 | 44.29 | 51.67 | 59.05 | 66.44 | 73.82 | 81.20 | 88.58 | 103.35 |
| 25 | 15.28 | 19.34 | 25.88 | 33.72 | 39.63 | 50.68 | 63.35 | 76.02 | 88.69 | 101.36 | 114.03 | 126.71 | 139.38 | 152.05 | 177.39 |
| 30 | 20.33 | 24.86 | 32.59 | 43.67 | 51.04 | 65.48 | 81.85 | 98.22 | 114.59 | 130.97 | 147.34 | 163.71 | 180.08 | 196.45 | 229.19 |
| 35 | 25.21 | 30.05 | 38.80 | 53.18 | 61.79 | 79.62 | 99.53 | 119.43 | 139.34 | 159.24 | 179.15 | 199.05 | 218.96 | 238.87 | 278.68 |
| 40 | 29.59 | 35.14 | 44.93 | 62.58 | 72.37 | 93.74 | 117.17 | 140.60 | 164.04 | 187.47 | 210.91 | 234.34 | 257.77 | 281.21 | 328.08 |

**ALL 60/50 Hz UNITS WITH GREENSPEED INTELLIGENCE (SI)**

**MAXIMUM SUBCOOLING CHARGE (8.3°C)**

| TD (C) | TOTAL HEAT REJECTION (kW) | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 020 | 030 | 035 | 050 | 060 | 080 | 095 | 115 | 130 | 145 | 160 | 170 | 185 | 200 | 230 |
| 11.11 | 31.62 | 41.31 | 60.82 | 71.56 | 82.64 | 103.84 | 129.80 | 155.76 | 181.73 | 207.69 | 233.65 | 259.61 | 285.57 | 311.53 | 363.45 |
| 13.89 | 53.73 | 68.01 | 91.03 | 118.60 | 139.37 | 178.24 | 222.80 | 267.36 | 311.92 | 356.48 | 401.04 | 445.60 | 490.16 | 534.72 | 623.84 |
| 16.67 | 71.50 | 87.44 | 114.60 | 153.59 | 179.49 | 230.29 | 287.87 | 345.44 | 403.01 | 460.59 | 518.16 | 575.73 | 633.31 | 690.88 | 806.03 |
| 19.44 | 88.67 | 105.68 | 136.46 | 187.02 | 217.31 | 280.02 | 350.02 | 420.03 | 490.03 | 560.04 | 630.04 | 700.05 | 770.05 | 840.06 | 980.07 |
| 22.22 | 104.05 | 123.57 | 158.00 | 220.07 | 254.51 | 329.65 | 412.07 | 494.48 | 576.90 | 659.31 | 741.72 | 824.14 | 906.55 | 988.96 | 1153.79 |

**60 Hz UNITS WITH FIXED-SPEED FANS (ENGLISH)**

**MAXIMUM SUBCOOLING CHARGE (15°F)**

| TD (F) | TOTAL HEAT REJECTION (TONS) | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 020 | 030 | 035 | 050 | 060 | 080 | 095 | 115 | 130 | 145 | 160 | 170 | 185 | 200 | 230 |
| 20 | 8.99 | 11.75 | 17.29 | 20.35 | 23.50 | 27.34 | 34.18 | 41.01 | 47.85 | 54.68 | — | — | — | — | — |
| 25 | 15.28 | 19.34 | 25.88 | 33.72 | 39.63 | 47.02 | 58.78 | 70.53 | 82.29 | 94.04 | — | — | — | — | — |
| 30 | 20.33 | 24.86 | 32.59 | 43.67 | 51.04 | 60.27 | 75.34 | 90.41 | 105.47 | 120.54 | — | — | — | — | — |
| 35 | 25.21 | 30.05 | 38.80 | 53.18 | 61.79 | 72.76 | 90.95 | 109.14 | 127.33 | 145.52 | — | — | — | — | — |
| 40 | 29.59 | 35.14 | 44.93 | 62.58 | 72.37 | 85.21 | 106.51 | 127.81 | 149.11 | 170.41 | — | — | — | — | — |

**60 Hz UNITS WITH FIXED-SPEED FANS (SI)**

**MAXIMUM SUBCOOLING CHARGE (8.3°C)**

| TD (C) | TOTAL HEAT REJECTION (kW) | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 020 | 030 | 035 | 050 | 060 | 080 | 095 | 115 | 130 | 145 | 160 | 170 | 185 | 200 | 230 |
| 11.11 | 31.62 | 41.31 | 60.82 | 71.56 | 82.64 | 96.15 | 120.19 | 144.23 | 168.26 | 192.30 | — | — | — | — | — |
| 13.89 | 53.73 | 68.01 | 91.03 | 118.60 | 139.37 | 165.37 | 206.71 | 248.05 | 289.39 | 330.73 | — | — | — | — | — |
| 16.67 | 71.50 | 87.44 | 114.60 | 153.59 | 179.49 | 211.96 | 264.95 | 317.94 | 370.93 | 423.92 | — | — | — | — | — |
| 19.44 | 88.67 | 105.68 | 136.46 | 187.02 | 217.31 | 255.88 | 319.85 | 383.82 | 447.80 | 511.77 | — | — | — | — | — |
| 22.22 | 104.05 | 123.57 | 158.00 | 220.07 | 254.51 | 299.66 | 374.57 | 449.48 | 524.40 | 599.31 | — | — | — | — | — |

**50 Hz UNITS WITH FIXED-SPEED FANS (ENGLISH)**

**MAXIMUM SUBCOOLING CHARGE (15°F)**

| TD (F) | TOTAL HEAT REJECTION (TONS) | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 020 | 030 | 035 | 050 | 060 | 080 | 095 | 115 | 130 | 145 | 160 | 170 | 185 | 200 | 230 |
| 20 | 8.48 | 11.08 | 16.36 | 19.20 | 22.17 | 25.79 | 32.24 | 38.69 | 45.14 | 51.58 | — | — | — | — | — |
| 25 | 14.41 | 18.36 | 23.87 | 32.39 | 37.76 | 44.44 | 55.55 | 66.67 | 77.78 | 88.89 | — | — | — | — | — |
| 30 | 19.75 | 23.44 | 29.72 | 41.76 | 48.36 | 56.55 | 70.69 | 84.83 | 98.97 | 113.11 | — | — | — | — | — |
| 35 | 23.85 | 28.16 | 35.26 | 50.68 | 58.26 | 67.95 | 84.93 | 101.92 | 118.91 | 135.89 | — | — | — | — | — |
| 40 | 27.87 | 32.76 | 40.71 | 59.50 | 67.93 | 79.18 | 98.98 | 118.77 | 138.57 | 158.37 | — | — | — | — | — |

**50 Hz UNITS WITH FIXED-SPEED FANS (SI)**

**MAXIMUM SUBCOOLING CHARGE (8.3°C)**

| TD (C) | TOTAL HEAT REJECTION (kW) | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 020 | 030 | 035 | 050 | 060 | 080 | 095 | 115 | 130 | 145 | 160 | 170 | 185 | 200 | 230 |
| 11.11 | 29.83 | 38.97 | 57.55 | 67.51 | 77.97 | 90.71 | 113.39 | 136.06 | 158.74 | 181.42 | — | — | — | — | — |
| 13.89 | 50.69 | 64.55 | 83.94 | 113.89 | 132.81 | 156.30 | 195.38 | 234.45 | 273.53 | 312.60 | — | — | — | — | — |
| 16.67 | 69.44 | 82.44 | 104.51 | 146.87 | 170.09 | 198.89 | 248.61 | 298.33 | 348.06 | 397.78 | — | — | — | — | — |
| 19.44 | 83.88 | 99.03 | 124.00 | 178.25 | 204.90 | 238.96 | 298.70 | 358.44 | 418.18 | 477.92 | — | — | — | — | — |
| 22.22 | 98.03 | 115.23 | 143.16 | 209.25 | 238.90 | 278.47 | 348.09 | 417.71 | 487.33 | 556.95 | — | — | — | — | — |

NOTE(S):

a. Use maximum charge when compressor, condenser, and evaporator are selected as a package and the components balanced to secure maximum benefits of 15°F (8.3°C) subcooling (for example, in selecting 09RC condensers with Carrier compressor rated at 15°F (8.3°C) subcooling). Maximum charge activates the subcooling circuit, resulting in higher system capacity at slightly higher head pressure and corresponding condensing temperature. Liquid refrigerant leaves the system subcooled to a stable condition to allow greater length of refrigerant run or lift. See Application Data section, for available liquid lift information.
b. Condenser subcooling = Saturated condensing temperature of refrigerant – Actual temperature of refrigerant leaving the coil.
c. TD (Temperature Difference) = Saturated Condensing Temperature (entering) – Entering-Air Temperature.

# Performance data (cont)

## MCHX Condenser Ratings Using R-454B[a,b,c]

**ALL 60/50 Hz UNITS WITH GREENSPEED INTELLIGENCE (ENGLISH)**

**MAXIMUM SUBCOOLING CHARGE (15°F)**

| TD (F) | TOTAL HEAT REJECTION (TONS) | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 020 | 030 | 035 | 050 | 060 | 080 | 095 | 115 | 130 | 145 | 160 | 170 | 185 | 200 | 230 |
| 20 | 11.80 | 16.23 | 21.69 | 26.58 | 32.42 | 38.95 | 48.68 | 58.42 | 68.16 | 77.89 | 87.63 | 97.37 | 107.10 | 116.84 | 136.31 |
| 25 | 28.38 | 31.39 | 33.20 | 51.33 | 62.86 | 85.46 | 106.82 | 128.18 | 149.55 | 170.91 | 192.28 | 213.64 | 235.00 | 256.37 | 299.10 |
| 30 | 35.69 | 39.02 | 41.08 | 64.56 | 78.29 | 106.93 | 133.66 | 160.39 | 187.12 | 213.86 | 240.59 | 267.32 | 294.05 | 320.78 | 374.25 |
| 35 | 42.33 | 46.15 | 48.75 | 76.97 | 92.72 | 127.12 | 158.91 | 190.69 | 222.47 | 254.25 | 286.03 | 317.81 | 349.59 | 381.37 | 444.94 |
| 40 | 48.65 | 52.98 | 56.20 | 89.05 | 106.56 | 146.48 | 183.09 | 219.71 | 256.33 | 292.95 | 329.57 | 366.19 | 402.81 | 439.43 | 512.66 |

**ALL 60/50 Hz UNITS WITH GREENSPEED INTELLIGENCE (SI)**

**MAXIMUM SUBCOOLING CHARGE (8.3°C)**

| TD (C) | TOTAL HEAT REJECTION (kW) | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 020 | 030 | 035 | 050 | 060 | 080 | 095 | 115 | 130 | 145 | 160 | 170 | 185 | 200 | 230 |
| 11.11 | 41.49 | 57.06 | 76.28 | 93.47 | 114.02 | 136.97 | 171.21 | 205.45 | 239.70 | 273.94 | 308.18 | 342.42 | 376.67 | 410.91 | 479.39 |
| 13.89 | 99.82 | 110.38 | 116.76 | 180.51 | 221.06 | 300.54 | 375.67 | 450.81 | 525.94 | 601.07 | 676.21 | 751.34 | 826.48 | 901.61 | 1051.88 |
| 16.67 | 125.51 | 137.21 | 144.49 | 227.05 | 275.33 | 376.05 | 470.06 | 564.08 | 658.09 | 752.10 | 846.11 | 940.13 | 1034.14 | 1128.15 | 1316.18 |
| 19.44 | 148.87 | 162.32 | 171.44 | 270.69 | 326.07 | 447.08 | 558.85 | 670.62 | 782.39 | 894.16 | 1005.93 | 1117.69 | 1229.46 | 1341.23 | 1564.77 |
| 22.22 | 171.11 | 186.33 | 197.65 | 313.16 | 374.74 | 515.13 | 643.92 | 772.70 | 901.48 | 1030.26 | 1159.05 | 1287.83 | 1416.61 | 1545.40 | 1802.96 |

**60 Hz UNITS WITH FIXED-SPEED FANS (ENGLISH)**

**MAXIMUM SUBCOOLING CHARGE (15°F)**

| TD (F) | TOTAL HEAT REJECTION (TONS) | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 020 | 030 | 035 | 050 | 060 | 080 | 095 | 115 | 130 | 145 | 160 | 170 | 185 | 200 | 230 |
| 20 | 11.80 | 16.23 | 21.69 | 26.58 | 32.42 | 37.58 | 46.97 | 56.37 | 65.76 | 75.16 | — | — | — | — | — |
| 25 | 28.38 | 31.39 | 33.20 | 51.33 | 62.86 | 69.43 | 86.79 | 104.15 | 121.50 | 138.86 | — | — | — | — | — |
| 30 | 35.69 | 39.02 | 41.08 | 64.56 | 78.29 | 86.08 | 107.60 | 129.12 | 150.64 | 172.16 | — | — | — | — | — |
| 35 | 42.33 | 46.15 | 48.75 | 76.97 | 92.72 | 101.78 | 127.23 | 152.67 | 178.12 | 203.56 | — | — | — | — | — |
| 40 | 48.65 | 52.98 | 56.20 | 89.05 | 106.56 | 117.13 | 146.41 | 175.69 | 204.97 | 234.25 | — | — | — | — | — |

**60 Hz UNITS WITH FIXED-SPEED FANS (SI)**

**MAXIMUM SUBCOOLING CHARGE (8.3°C)**

| TD (C) | TOTAL HEAT REJECTION (kW) | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 020 | 030 | 035 | 050 | 060 | 080 | 095 | 115 | 130 | 145 | 160 | 170 | 185 | 200 | 230 |
| 11.11 | 41.49 | 57.06 | 76.28 | 93.47 | 114.02 | 132.16 | 165.20 | 198.24 | 231.28 | 264.32 | — | — | — | — | — |
| 13.89 | 99.82 | 110.38 | 116.76 | 180.51 | 221.06 | 244.18 | 305.22 | 366.26 | 427.31 | 488.35 | — | — | — | — | — |
| 16.67 | 125.51 | 137.21 | 144.49 | 227.05 | 275.33 | 302.73 | 378.41 | 454.09 | 529.77 | 605.45 | — | — | — | — | — |
| 19.44 | 148.87 | 162.32 | 171.44 | 270.69 | 326.07 | 357.95 | 447.43 | 536.92 | 626.41 | 715.89 | — | — | — | — | — |
| 22.22 | 171.11 | 186.33 | 197.65 | 313.16 | 374.74 | 411.91 | 514.89 | 617.87 | 720.85 | 823.83 | — | — | — | — | — |

**50 Hz UNITS WITH FIXED-SPEED FANS (ENGLISH)**

**MAXIMUM SUBCOOLING CHARGE (15°F)**

| TD (F) | TOTAL HEAT REJECTION (TONS) | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 020 | 030 | 035 | 050 | 060 | 080 | 095 | 115 | 130 | 145 | 160 | 170 | 185 | 200 | 230 |
| 20 | 11.40 | 15.38 | 19.46 | 25.83 | 31.41 | 35.84 | 44.80 | 53.76 | 62.72 | 71.68 | — | — | — | — | — |
| 25 | 25.33 | 27.70 | 28.97 | 45.97 | 55.89 | 60.57 | 75.71 | 90.86 | 106.00 | 121.14 | — | — | — | — | — |
| 30 | 31.58 | 34.30 | 35.79 | 57.62 | 69.33 | 74.85 | 93.56 | 112.27 | 130.98 | 149.69 | — | — | — | — | — |
| 35 | 37.38 | 40.51 | 42.32 | 68.61 | 82.00 | 88.23 | 110.29 | 132.35 | 154.40 | 176.46 | — | — | — | — | — |
| 40 | 42.93 | 46.49 | 48.70 | 79.32 | 94.20 | 101.39 | 126.74 | 152.08 | 177.43 | 202.78 | — | — | — | — | — |

**50 Hz UNITS WITH FIXED-SPEED FANS (SI)**

**MAXIMUM SUBCOOLING CHARGE (8.3°C)**

| TD (C) | TOTAL HEAT REJECTION (kW) | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 020 | 030 | 035 | 050 | 060 | 080 | 095 | 115 | 130 | 145 | 160 | 170 | 185 | 200 | 230 |
| 11.11 | 40.11 | 54.09 | 68.43 | 90.84 | 110.46 | 126.05 | 157.56 | 189.07 | 220.58 | 252.09 | — | — | — | — | — |
| 13.89 | 89.08 | 97.42 | 101.90 | 161.67 | 196.54 | 213.02 | 266.27 | 319.52 | 372.78 | 426.03 | — | — | — | — | — |
| 16.67 | 111.08 | 120.64 | 125.87 | 202.64 | 243.84 | 263.22 | 329.03 | 394.84 | 460.64 | 526.45 | — | — | — | — | — |
| 19.44 | 131.46 | 142.46 | 148.82 | 241.31 | 288.40 | 310.30 | 387.87 | 465.44 | 543.02 | 620.59 | — | — | — | — | — |
| 22.22 | 150.97 | 163.49 | 171.28 | 278.97 | 331.27 | 356.57 | 445.71 | 534.85 | 624.00 | 713.14 | — | — | — | — | — |

NOTE(S):

a. Use maximum charge when compressor, condenser, and evaporator are selected as a package and the components balanced to secure maximum benefits of 15°F (8.3°C) subcooling (for example, in selecting 09RC condensers with Carrier compressor rated at 15°F (8.3°C) subcooling). Maximum charge activates the subcooling circuit, resulting in higher system capacity at slightly higher head pressure and corresponding condensing temperature. Liquid refrigerant leaves the system subcooled to a stable condition to allow greater length of refrigerant run or lift. See Application Data section, for available liquid lift information.

b. Condenser subcooling = Saturated condensing temperature of refrigerant – Actual temperature of refrigerant leaving the coil.

c. TD (Temperature Difference) = Saturated Condensing Temperature (entering) – Entering-Air Temperature.

# Performance data (cont)

## RTPF Condenser Ratings Using R-454B[a,b,c]

**ALL 60/50 Hz UNITS WITH GREENSPEED INTELLIGENCE (ENGLISH)**

**MAXIMUM SUBCOOLING CHARGE (15°F)**

| TD (F) | TOTAL HEAT REJECTION (TONS) | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 020 | 030 | 035 | 050 | 060 | 080 | 095 | 115 | 130 | 145 | 160 | 170 | 185 | 200 | 230 |
| 20 | 11.33 | 15.58 | 20.73 | 24.66 | 31.12 | 35.78 | 44.72 | 53.67 | 62.61 | 71.56 | 80.50 | 89.45 | 98.39 | 107.34 | 125.23 |
| 25 | 27.23 | 31.08 | 31.97 | 50.85 | 60.79 | 79.14 | 98.92 | 118.71 | 138.49 | 158.28 | 178.06 | 197.85 | 217.63 | 237.42 | 276.98 |
| 30 | 33.80 | 38.40 | 39.72 | 63.71 | 75.49 | 100.88 | 126.11 | 151.33 | 176.55 | 201.77 | 226.99 | 252.21 | 277.43 | 302.65 | 353.09 |
| 35 | 39.87 | 45.23 | 47.07 | 75.46 | 89.21 | 119.00 | 148.75 | 178.51 | 208.26 | 238.01 | 267.76 | 297.51 | 327.26 | 357.01 | 416.51 |
| 40 | 45.62 | 51.76 | 54.12 | 86.63 | 102.32 | 136.10 | 170.12 | 204.14 | 238.17 | 272.19 | 306.22 | 340.24 | 374.27 | 408.29 | 476.34 |

**ALL 60/50 Hz UNITS WITH GREENSPEED INTELLIGENCE (SI)**

**MAXIMUM SUBCOOLING CHARGE (8.3°C)**

| TD (C) | TOTAL HEAT REJECTION (kW) | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 020 | 030 | 035 | 050 | 060 | 080 | 095 | 115 | 130 | 145 | 160 | 170 | 185 | 200 | 230 |
| 11.11 | 39.83 | 54.78 | 72.90 | 86.72 | 109.46 | 125.83 | 157.29 | 188.75 | 220.20 | 251.66 | 283.12 | 314.58 | 346.03 | 377.49 | 440.41 |
| 13.89 | 95.76 | 109.30 | 112.44 | 178.82 | 213.78 | 278.32 | 347.90 | 417.48 | 487.06 | 556.64 | 626.22 | 695.80 | 765.38 | 834.96 | 974.11 |
| 16.67 | 118.87 | 135.04 | 139.68 | 224.07 | 265.49 | 354.79 | 443.49 | 532.19 | 620.89 | 709.59 | 798.29 | 886.99 | 975.68 | 1064.38 | 1241.78 |
| 19.44 | 140.21 | 159.06 | 165.53 | 265.39 | 313.73 | 418.52 | 523.15 | 627.78 | 732.41 | 837.04 | 941.67 | 1046.30 | 1150.93 | 1255.56 | 1464.82 |
| 22.22 | 160.45 | 182.02 | 190.32 | 304.67 | 359.85 | 478.63 | 598.29 | 717.95 | 837.61 | 957.26 | 1076.92 | 1196.58 | 1316.24 | 1435.90 | 1675.21 |

**60 Hz UNITS WITH FIXED-SPEED FANS (ENGLISH)**

**MAXIMUM SUBCOOLING CHARGE (15°F)**

| TD (F) | TOTAL HEAT REJECTION (TONS) | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 020 | 030 | 035 | 050 | 060 | 080 | 095 | 115 | 130 | 145 | 160 | 170 | 185 | 200 | 230 |
| 20 | 11.33 | 15.58 | 20.73 | 24.66 | 31.12 | 32.71 | 40.89 | 49.07 | 57.25 | 65.43 | — | — | — | — | — |
| 25 | 27.23 | 31.08 | 31.97 | 50.85 | 60.79 | 65.40 | 81.76 | 98.11 | 114.46 | 130.81 | — | — | — | — | — |
| 30 | 33.80 | 38.40 | 39.72 | 63.71 | 75.49 | 80.74 | 100.92 | 121.10 | 141.29 | 161.47 | — | — | — | — | — |
| 35 | 39.87 | 45.23 | 47.07 | 75.46 | 89.21 | 94.85 | 118.56 | 142.27 | 165.99 | 189.70 | — | — | — | — | — |
| 40 | 45.62 | 51.76 | 54.12 | 86.63 | 102.32 | 108.35 | 135.44 | 162.52 | 189.61 | 216.70 | — | — | — | — | — |

**60 Hz UNITS WITH FIXED-SPEED FANS (SI)**

**MAXIMUM SUBCOOLING CHARGE (8.3°C)**

| TD (C) | TOTAL HEAT REJECTION (kW) | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 020 | 030 | 035 | 050 | 060 | 080 | 095 | 115 | 130 | 145 | 160 | 170 | 185 | 200 | 230 |
| 11.11 | 39.83 | 54.78 | 72.90 | 86.72 | 109.46 | 115.05 | 143.81 | 172.57 | 201.33 | 230.09 | — | — | — | — | — |
| 13.89 | 95.76 | 109.30 | 112.44 | 178.82 | 213.78 | 230.02 | 287.52 | 345.03 | 402.53 | 460.04 | — | — | — | — | — |
| 16.67 | 118.87 | 135.04 | 139.68 | 224.07 | 265.49 | 283.94 | 354.92 | 425.90 | 496.89 | 567.87 | — | — | — | — | — |
| 19.44 | 140.21 | 159.06 | 165.53 | 265.39 | 313.73 | 333.57 | 416.96 | 500.35 | 583.75 | 667.14 | — | — | — | — | — |
| 22.22 | 160.45 | 182.02 | 190.32 | 304.67 | 359.85 | 381.05 | 476.31 | 571.57 | 666.83 | 762.10 | — | — | — | — | — |

**50 Hz UNITS WITH FIXED-SPEED FANS (ENGLISH)**

**MAXIMUM SUBCOOLING CHARGE (15°F)**

| TD (F) | TOTAL HEAT REJECTION (TONS) | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 020 | 030 | 035 | 050 | 060 | 080 | 095 | 115 | 130 | 145 | 160 | 170 | 185 | 200 | 230 |
| 20 | 10.79 | 14.83 | 18.71 | 23.48 | 29.64 | 31.48 | 39.35 | 47.22 | 55.08 | 62.95 | — | — | — | — | — |
| 25 | 24.33 | 27.46 | 27.96 | 44.37 | 54.14 | 58.44 | 73.05 | 87.66 | 102.28 | 116.89 | — | — | — | — | — |
| 30 | 30.04 | 33.78 | 34.65 | 57.42 | 66.96 | 71.68 | 89.60 | 107.52 | 125.44 | 143.36 | — | — | — | — | — |
| 35 | 35.37 | 39.73 | 40.98 | 67.90 | 79.01 | 84.07 | 105.09 | 126.11 | 147.13 | 168.14 | — | — | — | — | — |
| 40 | 40.46 | 45.41 | 47.05 | 77.91 | 90.53 | 95.94 | 119.92 | 143.90 | 167.89 | 191.87 | — | — | — | — | — |

**50 Hz UNITS WITH FIXED-SPEED FANS (SI)**

**MAXIMUM SUBCOOLING CHARGE (8.3°C)**

| TD (C) | TOTAL HEAT REJECTION (kW) | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 020 | 030 | 035 | 050 | 060 | 080 | 095 | 115 | 130 | 145 | 160 | 170 | 185 | 200 | 230 |
| 11.11 | 37.94 | 52.17 | 65.80 | 82.59 | 104.25 | 110.70 | 138.37 | 166.05 | 193.72 | 221.40 | — | — | — | — | — |
| 13.89 | 85.58 | 96.57 | 98.34 | 156.03 | 190.41 | 205.54 | 256.92 | 308.30 | 359.69 | 411.07 | — | — | — | — | — |
| 16.67 | 105.64 | 118.79 | 121.85 | 201.95 | 235.48 | 252.09 | 315.11 | 378.13 | 441.15 | 504.17 | — | — | — | — | — |
| 19.44 | 124.39 | 139.71 | 144.12 | 238.78 | 277.86 | 295.67 | 369.59 | 443.50 | 517.42 | 591.34 | — | — | — | — | — |
| 22.22 | 142.30 | 159.70 | 165.46 | 273.99 | 318.39 | 337.39 | 421.74 | 506.09 | 590.44 | 674.79 | — | — | — | — | — |

NOTE(S):

a. Use maximum charge when compressor, condenser, and evaporator are selected as a package and the components balanced to secure maximum benefits of 15°F (8.3°C) subcooling (for example, in selecting 09RC condensers with Carrier compressor rated at 15°F (8.3°C) subcooling). Maximum charge activates the subcooling circuit, resulting in higher system capacity at slightly higher head pressure and corresponding condensing temperature. Liquid refrigerant leaves the system subcooled to a stable condition to allow greater length of refrigerant run or lift. See Application Data section, for available liquid lift information.

b. Condenser subcooling = Saturated condensing temperature of refrigerant – Actual temperature of refrigerant leaving the coil.

c. TD (Temperature Difference) = Saturated Condensing Temperature (entering) – Entering-Air Temperature.

# Performance data (cont)

## MCHX Condenser Ratings Using R-513A[a,b,c]

**ALL 60/50 Hz UNITS WITH GREENSPEED INTELLIGENCE (ENGLISH)**

**MAXIMUM SUBCOOLING CHARGE (15°F)**

| TD (F) | TOTAL HEAT REJECTION (TONS) | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 020 | 030 | 035 | 050 | 060 | 080 | 095 | 115 | 130 | 145 | 160 | 170 | 185 | 200 | 230 |
| 20 | 11.34 | 15.08 | 21.71 | 25.48 | 30.16 | 37.68 | 47.10 | 56.53 | 65.95 | 75.37 | 84.79 | 94.21 | 103.63 | 113.05 | 131.89 |
| 25 | 19.15 | 24.68 | 30.90 | 41.33 | 49.35 | 62.20 | 77.75 | 93.30 | 108.85 | 124.40 | 139.95 | 155.50 | 171.05 | 186.60 | 217.70 |
| 30 | 25.47 | 31.64 | 38.18 | 53.76 | 63.35 | 81.22 | 101.53 | 121.84 | 142.14 | 162.45 | 182.75 | 203.06 | 223.37 | 243.67 | 284.28 |
| 35 | 31.14 | 37.88 | 45.27 | 64.81 | 75.92 | 97.91 | 122.38 | 146.86 | 171.34 | 195.82 | 220.29 | 244.77 | 269.25 | 293.72 | 342.68 |
| 40 | 36.44 | 43.93 | 52.33 | 75.27 | 88.12 | 115.19 | 143.98 | 172.78 | 201.58 | 230.37 | 259.17 | 287.97 | 316.76 | 345.56 | 403.15 |

**ALL 60/50 Hz UNITS WITH GREENSPEED INTELLIGENCE (SI)**

**MAXIMUM SUBCOOLING CHARGE (8.3°C)**

| TD (C) | TOTAL HEAT REJECTION (kW) | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 020 | 030 | 035 | 050 | 060 | 080 | 095 | 115 | 130 | 145 | 160 | 170 | 185 | 200 | 230 |
| 11.11 | 39.88 | 53.05 | 76.35 | 89.60 | 106.06 | 132.53 | 165.66 | 198.79 | 231.92 | 265.06 | 298.19 | 331.32 | 364.45 | 397.58 | 463.85 |
| 13.89 | 67.33 | 86.81 | 108.68 | 145.37 | 173.54 | 218.74 | 273.43 | 328.12 | 382.80 | 437.49 | 492.17 | 546.86 | 601.55 | 656.23 | 765.60 |
| 16.67 | 89.56 | 111.28 | 134.27 | 189.07 | 222.80 | 285.65 | 357.07 | 428.48 | 499.89 | 571.31 | 642.72 | 714.13 | 785.54 | 856.96 | 999.78 |
| 19.44 | 109.53 | 133.21 | 159.22 | 227.94 | 266.99 | 344.33 | 430.41 | 516.49 | 602.57 | 688.65 | 774.74 | 860.82 | 946.90 | 1032.98 | 1205.14 |
| 22.22 | 128.15 | 154.49 | 184.04 | 264.73 | 309.90 | 405.09 | 506.37 | 607.64 | 708.92 | 810.19 | 911.46 | 1012.74 | 1114.01 | 1215.28 | 1417.83 |

**60 Hz UNITS WITH FIXED-SPEED FANS (ENGLISH)**

**MAXIMUM SUBCOOLING CHARGE (15°F)**

| TD (F) | TOTAL HEAT REJECTION (TONS) | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 020 | 030 | 035 | 050 | 060 | 080 | 095 | 115 | 130 | 145 | 160 | 170 | 185 | 200 | 230 |
| 20 | 11.34 | 15.08 | 21.71 | 25.48 | 30.16 | 36.23 | 45.29 | 54.35 | 63.41 | 72.47 | — | — | — | — | — |
| 25 | 19.15 | 24.68 | 30.90 | 41.33 | 49.35 | 57.53 | 71.92 | 86.30 | 100.68 | 115.06 | — | — | — | — | — |
| 30 | 25.47 | 31.64 | 38.18 | 53.76 | 63.35 | 73.50 | 91.88 | 110.25 | 128.63 | 147.00 | — | — | — | — | — |
| 35 | 31.14 | 37.88 | 45.27 | 64.81 | 75.92 | 87.56 | 109.46 | 131.35 | 153.24 | 175.13 | — | — | — | — | — |
| 40 | 36.44 | 43.93 | 52.33 | 75.27 | 88.12 | 101.45 | 126.81 | 152.17 | 177.53 | 202.89 | — | — | — | — | — |

**60 Hz UNITS WITH FIXED-SPEED FANS (SI)**

**MAXIMUM SUBCOOLING CHARGE (8.3°C)**

| TD (C) | TOTAL HEAT REJECTION (kW) | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 020 | 030 | 035 | 050 | 060 | 080 | 095 | 115 | 130 | 145 | 160 | 170 | 185 | 200 | 230 |
| 11.11 | 39.88 | 53.05 | 76.35 | 89.60 | 106.06 | 127.43 | 159.29 | 191.14 | 223.00 | 254.86 | — | — | — | — | — |
| 13.89 | 67.33 | 86.81 | 108.68 | 145.37 | 173.54 | 202.33 | 252.91 | 303.50 | 354.08 | 404.66 | — | — | — | — | — |
| 16.67 | 89.56 | 111.28 | 134.27 | 189.07 | 222.80 | 258.49 | 323.12 | 387.74 | 452.36 | 516.99 | — | — | — | — | — |
| 19.44 | 109.53 | 133.21 | 159.22 | 227.94 | 266.99 | 307.95 | 384.94 | 461.93 | 538.91 | 615.90 | — | — | — | — | — |
| 22.22 | 128.15 | 154.49 | 184.04 | 264.73 | 309.90 | 356.77 | 445.97 | 535.16 | 624.35 | 713.55 | — | — | — | — | — |

**50 Hz UNITS WITH FIXED-SPEED FANS (ENGLISH)**

**MAXIMUM SUBCOOLING CHARGE (15°F)**

| TD (F) | TOTAL HEAT REJECTION (TONS) | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 020 | 030 | 035 | 050 | 060 | 080 | 095 | 115 | 130 | 145 | 160 | 170 | 185 | 200 | 230 |
| 20 | 11.14 | 14.55 | 19.95 | 24.80 | 29.14 | 34.80 | 43.49 | 52.19 | 60.89 | 69.59 | — | — | — | — | — |
| 25 | 18.58 | 22.98 | 27.37 | 39.34 | 46.20 | 53.54 | 66.93 | 80.31 | 93.70 | 107.09 | — | — | — | — | — |
| 30 | 24.40 | 28.84 | 33.69 | 50.40 | 58.11 | 67.53 | 84.42 | 101.30 | 118.19 | 135.07 | — | — | — | — | — |
| 35 | 29.60 | 34.30 | 39.80 | 60.31 | 69.19 | 80.00 | 100.00 | 120.00 | 140.00 | 160.00 | — | — | — | — | — |
| 40 | 34.42 | 39.64 | 45.89 | 69.75 | 80.06 | 91.94 | 114.92 | 137.90 | 160.89 | 183.87 | — | — | — | — | — |

**50 Hz UNITS WITH FIXED-SPEED FANS (SI)**

**MAXIMUM SUBCOOLING CHARGE (8.3°C)**

| TD (C) | TOTAL HEAT REJECTION (kW) | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 020 | 030 | 035 | 050 | 060 | 080 | 095 | 115 | 130 | 145 | 160 | 170 | 185 | 200 | 230 |
| 11.11 | 39.16 | 51.17 | 70.15 | 87.23 | 102.49 | 122.37 | 152.96 | 183.55 | 214.15 | 244.74 | — | — | — | — | — |
| 13.89 | 65.35 | 80.83 | 96.26 | 138.35 | 162.49 | 188.30 | 235.38 | 282.46 | 329.53 | 376.61 | — | — | — | — | — |
| 16.67 | 85.82 | 101.43 | 118.48 | 177.24 | 204.36 | 237.51 | 296.89 | 356.26 | 415.65 | 475.02 | — | — | — | — | — |
| 19.44 | 104.08 | 120.62 | 139.98 | 212.10 | 243.34 | 281.35 | 351.69 | 422.02 | 492.36 | 562.70 | — | — | — | — | — |
| 22.22 | 121.06 | 139.42 | 161.37 | 245.30 | 281.56 | 323.33 | 404.16 | 484.99 | 565.82 | 646.65 | — | — | — | — | — |

NOTE(S):

a. Use maximum charge when compressor, condenser, and evaporator are selected as a package and the components balanced to secure maximum benefits of 15°F (8.3°C) subcooling (for example, in selecting 09RC condensers with Carrier compressor rated at 15°F (8.3°C) subcooling). Maximum charge activates the subcooling circuit, resulting in higher system capacity at slightly higher head pressure and corresponding condensing temperature. Liquid refrigerant leaves the system subcooled to a stable condition to allow greater length of refrigerant run or lift. See Application Data section, for available liquid lift information.

b. Condenser subcooling = Saturated condensing temperature of refrigerant – Actual temperature of refrigerant leaving the coil.

c. TD (Temperature Difference) = Saturated Condensing Temperature (entering) – Entering-Air Temperature.

# Performance data (cont)

## RTPF Condenser Ratings Using R-513A[a,b,c]

**ALL 60/50 Hz UNITS WITH GREENSPEED INTELLIGENCE (ENGLISH)**

**MAXIMUM SUBCOOLING CHARGE (15°F)**

| TD (F) | TOTAL HEAT REJECTION (TONS) | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 020 | 030 | 035 | 050 | 060 | 080 | 095 | 115 | 130 | 145 | 160 | 170 | 185 | 200 | 230 |
| 20 | 10.77 | 14.33 | 20.53 | 24.20 | 28.65 | 35.80 | 44.75 | 53.70 | 62.65 | 71.60 | 80.55 | 89.50 | 98.45 | 107.40 | 125.30 |
| 25 | 18.19 | 23.45 | 28.93 | 39.64 | 46.84 | 60.06 | 75.07 | 90.09 | 105.10 | 120.12 | 135.13 | 150.15 | 165.16 | 180.18 | 210.21 |
| 30 | 25.02 | 29.47 | 35.63 | 51.05 | 59.00 | 77.40 | 96.76 | 116.11 | 135.46 | 154.81 | 174.16 | 193.51 | 212.86 | 232.21 | 270.92 |
| 35 | 29.90 | 35.01 | 42.11 | 61.61 | 70.23 | 93.54 | 116.93 | 140.31 | 163.70 | 187.08 | 210.47 | 233.85 | 257.24 | 280.62 | 327.39 |
| 40 | 34.59 | 40.40 | 48.49 | 71.79 | 81.15 | 109.33 | 136.67 | 164.00 | 191.34 | 218.67 | 246.00 | 273.34 | 300.67 | 328.00 | 382.67 |

**ALL 60/50 Hz UNITS WITH GREENSPEED INTELLIGENCE (SI)**

**MAXIMUM SUBCOOLING CHARGE (8.3°C)**

| TD (C) | TOTAL HEAT REJECTION (kW) | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 020 | 030 | 035 | 050 | 060 | 080 | 095 | 115 | 130 | 145 | 160 | 170 | 185 | 200 | 230 |
| 11.11 | 37.89 | 50.40 | 72.20 | 85.12 | 100.75 | 125.90 | 157.38 | 188.85 | 220.33 | 251.80 | 283.28 | 314.75 | 346.23 | 377.71 | 440.66 |
| 13.89 | 63.97 | 82.47 | 101.74 | 139.42 | 164.72 | 211.22 | 264.03 | 316.83 | 369.64 | 422.44 | 475.25 | 528.05 | 580.86 | 633.66 | 739.27 |
| 16.67 | 87.99 | 103.63 | 125.32 | 179.52 | 207.48 | 272.22 | 340.28 | 408.33 | 476.39 | 544.44 | 612.50 | 680.55 | 748.61 | 816.66 | 952.77 |
| 19.44 | 105.14 | 123.12 | 148.09 | 216.66 | 246.98 | 328.97 | 411.21 | 493.45 | 575.69 | 657.93 | 740.18 | 822.42 | 904.66 | 986.90 | 1151.38 |
| 22.22 | 121.66 | 142.08 | 170.54 | 252.47 | 285.39 | 384.51 | 480.64 | 576.77 | 672.90 | 769.03 | 865.16 | 961.29 | 1057.42 | 1153.54 | 1345.80 |

**60 Hz UNITS WITH FIXED-SPEED FANS (ENGLISH)**

**MAXIMUM SUBCOOLING CHARGE (15°F)**

| TD (F) | TOTAL HEAT REJECTION (TONS) | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 020 | 030 | 035 | 050 | 060 | 080 | 095 | 115 | 130 | 145 | 160 | 170 | 185 | 200 | 230 |
| 20 | 10.77 | 14.33 | 20.53 | 24.20 | 28.65 | 32.55 | 40.68 | 48.82 | 56.95 | 65.09 | — | — | — | — | — |
| 25 | 18.19 | 23.45 | 28.93 | 39.64 | 46.84 | 54.47 | 68.09 | 81.71 | 95.32 | 108.94 | — | — | — | — | — |
| 30 | 25.02 | 29.47 | 35.63 | 51.05 | 59.00 | 69.33 | 86.66 | 103.99 | 121.32 | 138.66 | — | — | — | — | — |
| 35 | 29.90 | 35.01 | 42.11 | 61.61 | 70.23 | 83.13 | 103.92 | 124.70 | 145.48 | 166.27 | — | — | — | — | — |
| 40 | 34.59 | 40.40 | 48.49 | 71.79 | 81.15 | 96.52 | 120.65 | 144.78 | 168.91 | 193.04 | — | — | — | — | — |

**60 Hz UNITS WITH FIXED-SPEED FANS (SI)**

**MAXIMUM SUBCOOLING CHARGE (8.3°C)**

| TD (C) | TOTAL HEAT REJECTION (kW) | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 020 | 030 | 035 | 050 | 060 | 080 | 095 | 115 | 130 | 145 | 160 | 170 | 185 | 200 | 230 |
| 11.11 | 37.89 | 50.40 | 72.20 | 85.12 | 100.75 | 114.46 | 143.07 | 171.68 | 200.30 | 228.91 | — | — | — | — | — |
| 13.89 | 63.97 | 82.47 | 101.74 | 139.42 | 164.72 | 191.57 | 239.46 | 287.35 | 335.24 | 383.13 | — | — | — | — | — |
| 16.67 | 87.99 | 103.63 | 125.32 | 179.52 | 207.48 | 243.81 | 304.77 | 365.72 | 426.68 | 487.63 | — | — | — | — | — |
| 19.44 | 105.14 | 123.12 | 148.09 | 216.66 | 246.98 | 292.37 | 365.46 | 438.55 | 511.64 | 584.73 | — | — | — | — | — |
| 22.22 | 121.66 | 142.08 | 170.54 | 252.47 | 285.39 | 339.45 | 424.32 | 509.18 | 594.04 | 678.91 | — | — | — | — | — |

**50 Hz UNITS WITH FIXED-SPEED FANS (ENGLISH)**

**MAXIMUM SUBCOOLING CHARGE (15°F)**

| TD (F) | TOTAL HEAT REJECTION (TONS) | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 020 | 030 | 035 | 050 | 060 | 080 | 095 | 115 | 130 | 145 | 160 | 170 | 185 | 200 | 230 |
| 20 | 10.26 | 13.65 | 18.90 | 23.05 | 27.28 | 31.00 | 38.74 | 46.49 | 54.24 | 61.99 | — | — | — | — | — |
| 25 | 16.98 | 21.88 | 26.05 | 37.94 | 43.93 | 51.24 | 64.05 | 76.86 | 89.67 | 102.48 | — | — | — | — | — |
| 30 | 23.35 | 27.14 | 32.00 | 48.55 | 54.70 | 64.61 | 80.76 | 96.91 | 113.06 | 129.21 | — | — | — | — | — |
| 35 | 27.73 | 32.08 | 37.75 | 58.30 | 64.80 | 76.98 | 96.22 | 115.47 | 134.71 | 153.96 | — | — | — | — | — |
| 40 | 31.99 | 36.94 | 43.41 | 67.67 | 74.72 | 88.91 | 111.14 | 133.36 | 155.59 | 177.82 | — | — | — | — | — |

**50 Hz UNITS WITH FIXED-SPEED FANS (SI)**

**MAXIMUM SUBCOOLING CHARGE (8.3°C)**

| TD (C) | TOTAL HEAT REJECTION (kW) | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 020 | 030 | 035 | 050 | 060 | 080 | 095 | 115 | 130 | 145 | 160 | 170 | 185 | 200 | 230 |
| 11.11 | 36.09 | 48.00 | 66.46 | 81.07 | 95.96 | 109.01 | 136.26 | 163.51 | 190.76 | 218.01 | — | — | — | — | — |
| 13.89 | 59.70 | 76.94 | 91.60 | 133.43 | 154.51 | 180.21 | 225.26 | 270.32 | 315.37 | 360.42 | — | — | — | — | — |
| 16.67 | 82.12 | 95.44 | 112.55 | 170.75 | 192.36 | 227.21 | 284.02 | 340.82 | 397.62 | 454.43 | — | — | — | — | — |
| 19.44 | 97.51 | 112.82 | 132.76 | 205.05 | 227.88 | 270.73 | 338.41 | 406.09 | 473.77 | 541.45 | — | — | — | — | — |
| 22.22 | 112.50 | 129.90 | 152.66 | 238.00 | 262.79 | 312.68 | 390.85 | 469.02 | 547.19 | 625.36 | — | — | — | — | — |

NOTE(S):

a. Use maximum charge when compressor, condenser, and evaporator are selected as a package and the components balanced to secure maximum benefits of 15°F (8.3°C) subcooling (for example, in selecting 09RC condensers with Carrier compressor rated at 15°F (8.3°C) subcooling). Maximum charge activates the subcooling circuit, resulting in higher system capacity at slightly higher head pressure and corresponding condensing temperature. Liquid refrigerant leaves the system subcooled to a stable condition to allow greater length of refrigerant run or lift. See Application Data section, for available liquid lift information.

b. Condenser subcooling = Saturated condensing temperature of refrigerant – Actual temperature of refrigerant leaving the coil.

c. TD (Temperature Difference) = Saturated Condensing Temperature (entering) – Entering-Air Temperature.

# Performance data (cont)

## MCHX Condenser Ratings Using R-1234ze[a,b,c]

**ALL 60/50 Hz UNITS WITH GREENSPEED INTELLIGENCE (ENGLISH)**

**MAXIMUM SUBCOOLING CHARGE (15°F)**

| TD (F) | TOTAL HEAT REJECTION (TONS) | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 020 | 030 | 035 | 050 | 060 | 080 | 095 | 115 | 130 | 145 | 160 | 170 | 185 | 200 | 230 |
| 20 | 9.36 | 12.18 | 18.82 | 21.16 | 24.37 | 30.71 | 38.39 | 46.07 | 53.74 | 61.42 | 69.10 | 76.78 | 84.45 | 92.13 | 107.49 |
| 25 | 15.89 | 20.37 | 28.84 | 35.18 | 40.75 | 52.50 | 65.62 | 78.75 | 91.87 | 105.00 | 118.12 | 131.25 | 144.37 | 157.50 | 183.75 |
| 30 | 21.13 | 26.86 | 36.55 | 46.32 | 53.74 | 69.26 | 86.57 | 103.89 | 121.20 | 138.51 | 155.83 | 173.14 | 190.46 | 207.77 | 242.40 |
| 35 | 26.06 | 32.91 | 43.51 | 56.78 | 65.85 | 84.16 | 105.21 | 126.25 | 147.29 | 168.33 | 189.37 | 210.41 | 231.45 | 252.49 | 294.58 |
| 40 | 30.99 | 38.83 | 50.43 | 66.94 | 77.73 | 98.91 | 123.64 | 148.37 | 173.10 | 197.83 | 222.56 | 247.29 | 272.01 | 296.74 | 346.20 |

**ALL 60/50 Hz UNITS WITH GREENSPEED INTELLIGENCE (SI)**

**MAXIMUM SUBCOOLING CHARGE (8.3°C)**

| TD (C) | TOTAL HEAT REJECTION (kW) | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 020 | 030 | 035 | 050 | 060 | 080 | 095 | 115 | 130 | 145 | 160 | 170 | 185 | 200 | 230 |
| 11.11 | 32.90 | 42.84 | 66.20 | 74.43 | 85.72 | 108.00 | 135.00 | 162.01 | 189.01 | 216.01 | 243.01 | 270.01 | 297.01 | 324.01 | 378.01 |
| 13.89 | 55.87 | 71.64 | 101.44 | 123.73 | 143.32 | 184.63 | 230.79 | 276.94 | 323.10 | 369.26 | 415.42 | 461.57 | 507.73 | 553.89 | 646.20 |
| 16.67 | 74.30 | 94.48 | 128.54 | 162.89 | 189.00 | 243.57 | 304.46 | 365.35 | 426.24 | 487.13 | 548.03 | 608.92 | 669.81 | 730.70 | 852.48 |
| 19.44 | 91.64 | 115.73 | 153.01 | 199.70 | 231.58 | 296.00 | 369.99 | 443.99 | 517.99 | 591.99 | 665.99 | 739.99 | 813.99 | 887.99 | 1035.98 |
| 22.22 | 108.98 | 136.56 | 177.37 | 235.41 | 273.35 | 347.87 | 434.83 | 521.80 | 608.77 | 695.74 | 782.70 | 869.67 | 956.64 | 1043.60 | 1217.54 |

**60 Hz UNITS WITH FIXED-SPEED FANS (ENGLISH)**

**MAXIMUM SUBCOOLING CHARGE (15°F)**

| TD (F) | TOTAL HEAT REJECTION (TONS) | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 020 | 030 | 035 | 050 | 060 | 080 | 095 | 115 | 130 | 145 | 160 | 170 | 185 | 200 | 230 |
| 20 | 9.36 | 12.18 | 18.82 | 21.16 | 24.37 | 29.56 | 36.95 | 44.35 | 51.74 | 59.13 | — | — | — | — | — |
| 25 | 15.89 | 20.37 | 28.84 | 35.18 | 40.75 | 49.68 | 62.10 | 74.52 | 86.95 | 99.37 | — | — | — | — | — |
| 30 | 21.13 | 26.86 | 36.55 | 46.32 | 53.74 | 64.67 | 80.84 | 97.00 | 113.17 | 129.34 | — | — | — | — | — |
| 35 | 26.06 | 32.91 | 43.51 | 56.78 | 65.85 | 77.84 | 97.30 | 116.77 | 136.23 | 155.69 | — | — | — | — | — |
| 40 | 30.99 | 38.83 | 50.43 | 66.94 | 77.73 | 90.70 | 113.37 | 136.05 | 158.72 | 181.40 | — | — | — | — | — |

**60 Hz UNITS WITH FIXED-SPEED FANS (SI)**

**MAXIMUM SUBCOOLING CHARGE (8.3°C)**

| TD (C) | TOTAL HEAT REJECTION (kW) | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 020 | 030 | 035 | 050 | 060 | 080 | 095 | 115 | 130 | 145 | 160 | 170 | 185 | 200 | 230 |
| 11.11 | 32.90 | 42.84 | 66.20 | 74.43 | 85.72 | 103.97 | 129.96 | 155.96 | 181.95 | 207.94 | — | — | — | — | — |
| 13.89 | 55.87 | 71.64 | 101.44 | 123.73 | 143.32 | 174.73 | 218.41 | 262.09 | 305.77 | 349.46 | — | — | — | — | — |
| 16.67 | 74.30 | 94.48 | 128.54 | 162.89 | 189.00 | 227.43 | 284.29 | 341.15 | 398.00 | 454.86 | — | — | — | — | — |
| 19.44 | 91.64 | 115.73 | 153.01 | 199.70 | 231.58 | 273.76 | 342.20 | 410.65 | 479.09 | 547.53 | — | — | — | — | — |
| 22.22 | 108.98 | 136.56 | 177.37 | 235.41 | 273.35 | 318.97 | 398.71 | 478.46 | 558.20 | 637.94 | — | — | — | — | — |

**50 Hz UNITS WITH FIXED-SPEED FANS (ENGLISH)**

**MAXIMUM SUBCOOLING CHARGE (15°F)**

| TD (F) | TOTAL HEAT REJECTION (TONS) | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 020 | 030 | 035 | 050 | 060 | 080 | 095 | 115 | 130 | 145 | 160 | 170 | 185 | 200 | 230 |
| 20 | 9.15 | 11.72 | 17.51 | 20.68 | 23.50 | 28.68 | 35.86 | 43.03 | 50.20 | 57.37 | — | — | — | — | — |
| 25 | 15.49 | 19.46 | 25.98 | 33.94 | 39.01 | 47.16 | 58.95 | 70.74 | 82.53 | 94.32 | — | — | — | — | — |
| 30 | 20.48 | 25.46 | 32.25 | 44.24 | 51.01 | 60.76 | 75.95 | 91.14 | 106.33 | 121.52 | — | — | — | — | — |
| 35 | 25.12 | 30.71 | 38.27 | 53.71 | 62.48 | 72.78 | 90.97 | 109.16 | 127.36 | 145.55 | — | — | — | — | — |
| 40 | 29.76 | 35.88 | 44.17 | 63.02 | 72.27 | 84.38 | 105.47 | 126.57 | 147.66 | 168.76 | — | — | — | — | — |

**50 Hz UNITS WITH FIXED-SPEED FANS (SI)**

**MAXIMUM SUBCOOLING CHARGE (8.3°C)**

| TD (C) | TOTAL HEAT REJECTION (kW) | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 020 | 030 | 035 | 050 | 060 | 080 | 095 | 115 | 130 | 145 | 160 | 170 | 185 | 200 | 230 |
| 11.11 | 32.19 | 41.22 | 61.56 | 72.71 | 82.65 | 100.88 | 126.10 | 151.32 | 176.54 | 201.76 | — | — | — | — | — |
| 13.89 | 54.47 | 68.43 | 91.38 | 119.37 | 137.20 | 165.85 | 207.31 | 248.77 | 290.23 | 331.70 | — | — | — | — | — |
| 16.67 | 72.02 | 89.53 | 113.43 | 155.59 | 179.40 | 213.68 | 267.10 | 320.52 | 373.94 | 427.36 | — | — | — | — | — |
| 19.44 | 88.34 | 108.01 | 134.59 | 188.89 | 219.72 | 255.94 | 319.93 | 383.92 | 447.90 | 511.89 | — | — | — | — | — |
| 22.22 | 104.67 | 126.18 | 155.35 | 221.65 | 254.18 | 296.75 | 370.93 | 445.12 | 519.30 | 593.49 | — | — | — | — | — |

NOTE(S):

a. Use maximum charge when compressor, condenser, and evaporator are selected as a package and the components balanced to secure maximum benefits of 15°F (8.3°C) subcooling (for example, in selecting 09RC condensers with Carrier compressor rated at 15°F (8.3°C) subcooling). Maximum charge activates the subcooling circuit, resulting in higher system capacity at slightly higher head pressure and corresponding condensing temperature. Liquid refrigerant leaves the system subcooled to a stable condition to allow greater length of refrigerant run or lift. See Application Data section, for available liquid lift information.
b. Condenser subcooling = Saturated condensing temperature of refrigerant – Actual temperature of refrigerant leaving the coil.
c. TD (Temperature Difference) = Saturated Condensing Temperature (entering) – Entering-Air Temperature.

# Performance data (cont)

## RTPF Condenser Ratings Using R-1234ze[a,b,c]

**ALL 60/50 Hz UNITS WITH GREENSPEED INTELLIGENCE (ENGLISH)**

**MAXIMUM SUBCOOLING CHARGE (15°F)**

| TD (F) | TOTAL HEAT REJECTION (TONS) | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 020 | 030 | 035 | 050 | 060 | 080 | 095 | 115 | 130 | 145 | 160 | 170 | 185 | 200 | 230 |
| 20 | 8.70 | 11.33 | 17.51 | 19.68 | 22.67 | 28.56 | 35.70 | 42.84 | 49.98 | 57.12 | 64.26 | 71.40 | 78.54 | 85.68 | 99.96 |
| 25 | 14.78 | 19.60 | 26.04 | 34.26 | 39.73 | 51.56 | 64.45 | 77.34 | 90.23 | 103.12 | 116.01 | 128.90 | 141.79 | 154.68 | 180.46 |
| 30 | 21.05 | 25.17 | 32.73 | 44.33 | 51.13 | 66.56 | 83.19 | 99.83 | 116.47 | 133.11 | 149.75 | 166.39 | 183.03 | 199.67 | 232.95 |
| 35 | 25.53 | 30.41 | 38.97 | 53.94 | 61.86 | 80.86 | 101.08 | 121.30 | 141.51 | 161.73 | 181.94 | 202.16 | 222.38 | 242.59 | 283.02 |
| 40 | 29.94 | 35.54 | 45.10 | 63.45 | 72.40 | 95.15 | 118.93 | 142.72 | 166.51 | 190.29 | 214.08 | 237.87 | 261.65 | 285.44 | 333.01 |

**ALL 60/50 Hz UNITS WITH GREENSPEED INTELLIGENCE (SI)**

**MAXIMUM SUBCOOLING CHARGE (8.3°C)**

| TD (C) | TOTAL HEAT REJECTION (kW) | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 020 | 030 | 035 | 050 | 060 | 080 | 095 | 115 | 130 | 145 | 160 | 170 | 185 | 200 | 230 |
| 11.11 | 30.60 | 39.84 | 61.57 | 69.22 | 79.72 | 100.44 | 125.55 | 150.66 | 175.78 | 200.89 | 226.00 | 251.11 | 276.22 | 301.33 | 351.55 |
| 13.89 | 51.96 | 68.92 | 91.57 | 120.50 | 139.71 | 181.33 | 226.67 | 272.00 | 317.33 | 362.67 | 408.00 | 453.33 | 498.67 | 544.00 | 634.67 |
| 16.67 | 74.03 | 88.53 | 115.12 | 155.89 | 179.81 | 234.07 | 292.58 | 351.10 | 409.62 | 468.14 | 526.65 | 585.17 | 643.69 | 702.20 | 819.24 |
| 19.44 | 89.77 | 106.94 | 137.03 | 189.70 | 217.55 | 284.39 | 355.48 | 426.58 | 497.68 | 568.77 | 639.87 | 710.97 | 782.06 | 853.16 | 995.35 |
| 22.22 | 105.30 | 124.97 | 158.62 | 223.15 | 254.62 | 334.62 | 418.27 | 501.92 | 585.58 | 669.23 | 752.88 | 836.54 | 920.19 | 1003.85 | 1171.15 |

**60 Hz UNITS WITH FIXED-SPEED FANS (ENGLISH)**

**MAXIMUM SUBCOOLING CHARGE (15°F)**

| TD (F) | TOTAL HEAT REJECTION (TONS) | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 020 | 030 | 035 | 050 | 060 | 080 | 095 | 115 | 130 | 145 | 160 | 170 | 185 | 200 | 230 |
| 20 | 8.70 | 11.33 | 17.51 | 19.68 | 22.67 | 26.69 | 33.37 | 40.04 | 46.71 | 53.38 | — | — | — | — | — |
| 25 | 14.78 | 19.60 | 26.04 | 34.26 | 39.73 | 47.69 | 59.62 | 71.54 | 83.46 | 95.39 | — | — | — | — | — |
| 30 | 21.05 | 25.17 | 32.73 | 44.33 | 51.13 | 61.06 | 76.33 | 91.60 | 106.86 | 122.13 | — | — | — | — | — |
| 35 | 25.53 | 30.41 | 38.97 | 53.94 | 61.86 | 73.67 | 92.09 | 110.50 | 128.92 | 147.34 | — | — | — | — | — |
| 40 | 29.94 | 35.54 | 45.10 | 63.45 | 72.40 | 86.21 | 107.76 | 129.32 | 150.87 | 172.42 | — | — | — | — | — |

**60 Hz UNITS WITH FIXED-SPEED FANS (SI)**

**MAXIMUM SUBCOOLING CHARGE (8.3°C)**

| TD (C) | TOTAL HEAT REJECTION (kW) | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 020 | 030 | 035 | 050 | 060 | 080 | 095 | 115 | 130 | 145 | 160 | 170 | 185 | 200 | 230 |
| 11.11 | 30.60 | 39.84 | 61.57 | 69.22 | 79.72 | 93.87 | 117.34 | 140.81 | 164.28 | 187.74 | — | — | — | — | — |
| 13.89 | 51.96 | 68.92 | 91.57 | 120.50 | 139.71 | 167.73 | 209.67 | 251.60 | 293.53 | 335.46 | — | — | — | — | — |
| 16.67 | 74.03 | 88.53 | 115.12 | 155.89 | 179.81 | 214.75 | 268.44 | 322.13 | 375.81 | 429.50 | — | — | — | — | — |
| 19.44 | 89.77 | 106.94 | 137.03 | 189.70 | 217.55 | 259.08 | 323.85 | 388.62 | 453.39 | 518.17 | — | — | — | — | — |
| 22.22 | 105.30 | 124.97 | 158.62 | 223.15 | 254.62 | 303.19 | 378.99 | 454.79 | 530.58 | 606.38 | — | — | — | — | — |

**50 Hz UNITS WITH FIXED-SPEED FANS (ENGLISH)**

**MAXIMUM SUBCOOLING CHARGE (15°F)**

| TD (F) | TOTAL HEAT REJECTION (TONS) | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 020 | 030 | 035 | 050 | 060 | 080 | 095 | 115 | 130 | 145 | 160 | 170 | 185 | 200 | 230 |
| 20 | 8.29 | 10.79 | 16.67 | 18.75 | 21.59 | 25.42 | 31.78 | 38.13 | 44.49 | 50.84 | — | — | — | — | — |
| 25 | 14.07 | 18.59 | 23.97 | 32.89 | 37.84 | 45.04 | 56.30 | 67.56 | 78.82 | 90.08 | — | — | — | — | — |
| 30 | 19.99 | 23.72 | 29.81 | 42.37 | 48.42 | 57.24 | 71.55 | 85.85 | 100.16 | 114.47 | — | — | — | — | — |
| 35 | 24.13 | 28.47 | 35.37 | 51.39 | 58.28 | 68.72 | 85.90 | 103.08 | 120.26 | 137.44 | — | — | — | — | — |
| 40 | 28.19 | 33.11 | 40.83 | 60.30 | 67.91 | 80.03 | 100.03 | 120.04 | 140.05 | 160.05 | — | — | — | — | — |

**50 Hz UNITS WITH FIXED-SPEED FANS (SI)**

**MAXIMUM SUBCOOLING CHARGE (8.3°C)**

| TD (C) | TOTAL HEAT REJECTION (kW) | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 020 | 030 | 035 | 050 | 060 | 080 | 095 | 115 | 130 | 145 | 160 | 170 | 185 | 200 | 230 |
| 11.11 | 29.14 | 37.94 | 58.63 | 65.93 | 75.92 | 89.40 | 111.75 | 134.10 | 156.45 | 178.80 | — | — | — | — | — |
| 13.89 | 49.49 | 65.37 | 84.30 | 115.66 | 133.08 | 158.40 | 198.00 | 237.60 | 277.20 | 316.79 | — | — | — | — | — |
| 16.67 | 70.30 | 83.41 | 104.85 | 149.01 | 170.29 | 201.29 | 251.62 | 301.94 | 352.26 | 402.59 | — | — | — | — | — |
| 19.44 | 84.88 | 100.14 | 124.40 | 180.72 | 204.96 | 241.67 | 302.09 | 362.51 | 422.93 | 483.34 | — | — | — | — | — |
| 22.22 | 99.14 | 116.45 | 143.60 | 212.06 | 238.81 | 281.44 | 351.80 | 422.16 | 492.52 | 562.88 | — | — | — | — | — |

NOTE(S):

a. Use maximum charge when compressor, condenser, and evaporator are selected as a package and the components balanced to secure maximum benefits of 15°F (8.3°C) subcooling (for example, in selecting 09RC condensers with Carrier compressor rated at 15°F (8.3°C) subcooling). Maximum charge activates the subcooling circuit, resulting in higher system capacity at slightly higher head pressure and corresponding condensing temperature. Liquid refrigerant leaves the system subcooled to a stable condition to allow greater length of refrigerant run or lift. See Application Data section, for available liquid lift information.
b. Condenser subcooling = Saturated condensing temperature of refrigerant – Actual temperature of refrigerant leaving the coil.
c. TD (Temperature Difference) = Saturated Condensing Temperature (entering) – Entering-Air Temperature.

# Performance data (cont)

## MCHX Condenser Ratings Using R-134a[a,b,c]

**ALL 60/50 Hz UNITS WITH GREENSPEED INTELLIGENCE (ENGLISH)**

**MAXIMUM SUBCOOLING CHARGE (15°F)**

| TD (F) | TOTAL HEAT REJECTION (TONS) | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 020 | 030 | 035 | 050 | 060 | 080 | 095 | 115 | 130 | 145 | 160 | 170 | 185 | 200 | 230 |
| 20 | 12.39 | 15.94 | 22.86 | 27.68 | 31.86 | 39.26 | 49.08 | 58.89 | 68.71 | 78.52 | 88.34 | 98.15 | 107.97 | 117.78 | 137.41 |
| 25 | 20.63 | 25.81 | 31.78 | 44.31 | 51.66 | 64.77 | 80.97 | 97.16 | 113.35 | 129.55 | 145.74 | 161.94 | 178.13 | 194.32 | 226.71 |
| 30 | 27.28 | 32.63 | 39.19 | 57.11 | 65.39 | 83.43 | 104.29 | 125.15 | 146.00 | 166.86 | 187.72 | 208.58 | 229.43 | 250.29 | 292.01 |
| 35 | 33.33 | 38.97 | 46.33 | 68.24 | 78.15 | 100.77 | 125.96 | 151.15 | 176.35 | 201.54 | 226.73 | 251.92 | 277.12 | 302.31 | 352.69 |
| 40 | 38.97 | 45.17 | 53.43 | 79.45 | 90.66 | 116.58 | 145.73 | 174.87 | 204.02 | 233.16 | 262.31 | 291.45 | 320.60 | 349.74 | 408.03 |

**ALL 60/50 Hz UNITS WITH GREENSPEED INTELLIGENCE (SI)**

**MAXIMUM SUBCOOLING CHARGE (8.3°C)**

| TD (C) | TOTAL HEAT REJECTION (kW) | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 020 | 030 | 035 | 050 | 060 | 080 | 095 | 115 | 130 | 145 | 160 | 170 | 185 | 200 | 230 |
| 11.11 | 43.56 | 56.06 | 80.38 | 97.35 | 112.05 | 138.07 | 172.59 | 207.11 | 241.63 | 276.15 | 310.67 | 345.18 | 379.70 | 414.22 | 483.26 |
| 13.89 | 72.55 | 90.76 | 111.77 | 155.85 | 181.67 | 227.80 | 284.75 | 341.70 | 398.65 | 455.60 | 512.55 | 569.50 | 626.45 | 683.40 | 797.31 |
| 16.67 | 95.93 | 114.76 | 137.83 | 200.84 | 229.96 | 293.41 | 366.77 | 440.12 | 513.47 | 586.83 | 660.18 | 733.53 | 806.89 | 880.24 | 1026.95 |
| 19.44 | 117.21 | 137.03 | 162.95 | 239.98 | 274.85 | 354.39 | 442.99 | 531.59 | 620.19 | 708.79 | 797.38 | 885.98 | 974.58 | 1063.18 | 1240.37 |
| 22.22 | 137.06 | 158.84 | 187.92 | 279.40 | 318.85 | 410.00 | 512.50 | 615.00 | 717.50 | 820.00 | 922.50 | 1025.00 | 1127.50 | 1230.00 | 1435.00 |

**60 Hz UNITS WITH FIXED-SPEED FANS (ENGLISH)**

**MAXIMUM SUBCOOLING CHARGE (15°F)**

| TD (F) | TOTAL HEAT REJECTION (TONS) | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 020 | 030 | 035 | 050 | 060 | 080 | 095 | 115 | 130 | 145 | 160 | 170 | 185 | 200 | 230 |
| 20 | 12.39 | 15.94 | 22.86 | 27.68 | 31.86 | 37.24 | 46.55 | 55.87 | 65.18 | 74.49 | — | — | — | — | — |
| 25 | 20.63 | 25.81 | 31.78 | 44.31 | 51.66 | 59.02 | 73.78 | 88.53 | 103.29 | 118.04 | — | — | — | — | — |
| 30 | 27.28 | 32.63 | 39.19 | 57.11 | 65.39 | 74.67 | 93.34 | 112.01 | 130.68 | 149.35 | — | — | — | — | — |
| 35 | 33.33 | 38.97 | 46.33 | 68.24 | 78.15 | 88.75 | 110.93 | 133.12 | 155.31 | 177.49 | — | — | — | — | — |
| 40 | 38.97 | 45.17 | 53.43 | 79.45 | 90.66 | 102.50 | 128.13 | 153.75 | 179.38 | 205.00 | — | — | — | — | — |

**60 Hz UNITS WITH FIXED-SPEED FANS (SI)**

**MAXIMUM SUBCOOLING CHARGE (8.3°C)**

| TD (C) | TOTAL HEAT REJECTION (kW) | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 020 | 030 | 035 | 050 | 060 | 080 | 095 | 115 | 130 | 145 | 160 | 170 | 185 | 200 | 230 |
| 11.11 | 43.56 | 56.06 | 80.38 | 97.35 | 112.05 | 130.98 | 163.72 | 196.47 | 229.21 | 261.96 | — | — | — | — | — |
| 13.89 | 72.55 | 90.76 | 111.77 | 155.85 | 181.67 | 207.57 | 259.46 | 311.35 | 363.24 | 415.13 | — | — | — | — | — |
| 16.67 | 95.93 | 114.76 | 137.83 | 200.84 | 229.96 | 262.61 | 328.27 | 393.92 | 459.57 | 525.23 | — | — | — | — | — |
| 19.44 | 117.21 | 137.03 | 162.95 | 239.98 | 274.85 | 312.11 | 390.14 | 468.16 | 546.19 | 624.22 | — | — | — | — | — |
| 22.22 | 137.06 | 158.84 | 187.92 | 279.40 | 318.85 | 360.48 | 450.60 | 540.72 | 630.84 | 720.96 | — | — | — | — | — |

**50 Hz UNITS WITH FIXED-SPEED FANS (ENGLISH)**

**MAXIMUM SUBCOOLING CHARGE (15°F)**

| TD (F) | TOTAL HEAT REJECTION (TONS) | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 020 | 030 | 035 | 050 | 060 | 080 | 095 | 115 | 130 | 145 | 160 | 170 | 185 | 200 | 230 |
| 20 | 12.10 | 15.15 | 20.39 | 26.74 | 30.34 | 36.45 | 45.56 | 54.67 | 63.78 | 72.89 | — | — | — | — | — |
| 25 | 19.88 | 23.50 | 27.73 | 41.60 | 47.30 | 55.67 | 69.58 | 83.50 | 97.41 | 111.33 | — | — | — | — | — |
| 30 | 25.93 | 29.40 | 34.12 | 51.99 | 59.25 | 68.92 | 86.15 | 103.38 | 120.62 | 137.85 | — | — | — | — | — |
| 35 | 31.31 | 34.90 | 40.26 | 62.03 | 70.44 | 81.52 | 101.90 | 122.28 | 142.66 | 163.04 | — | — | — | — | — |
| 40 | 36.36 | 40.27 | 46.32 | 71.94 | 81.38 | 93.95 | 117.44 | 140.93 | 164.41 | 187.90 | — | — | — | — | — |

**50 Hz UNITS WITH FIXED-SPEED FANS (SI)**

**MAXIMUM SUBCOOLING CHARGE (8.3°C)**

| TD (C) | TOTAL HEAT REJECTION (kW) | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 020 | 030 | 035 | 050 | 060 | 080 | 095 | 115 | 130 | 145 | 160 | 170 | 185 | 200 | 230 |
| 11.11 | 42.56 | 53.30 | 71.70 | 94.04 | 106.72 | 128.17 | 160.22 | 192.26 | 224.30 | 256.34 | — | — | — | — | — |
| 13.89 | 69.93 | 82.64 | 97.51 | 146.30 | 166.36 | 195.77 | 244.71 | 293.65 | 342.59 | 391.53 | — | — | — | — | — |
| 16.67 | 91.20 | 103.38 | 120.01 | 182.85 | 208.39 | 242.39 | 302.99 | 363.59 | 424.19 | 484.78 | — | — | — | — | — |
| 19.44 | 110.12 | 122.72 | 141.58 | 218.16 | 247.72 | 286.69 | 358.36 | 430.03 | 501.70 | 573.38 | — | — | — | — | — |
| 22.22 | 127.88 | 141.63 | 162.92 | 253.00 | 286.21 | 330.41 | 413.01 | 495.62 | 578.22 | 660.82 | — | — | — | — | — |

NOTE(S):

a. Use maximum charge when compressor, condenser, and evaporator are selected as a package and the components balanced to secure maximum benefits of 15°F (8.3°C) subcooling (for example, in selecting 09RC condensers with Carrier compressor rated at 15°F (8.3°C) subcooling). Maximum charge activates the subcooling circuit, resulting in higher system capacity at slightly higher head pressure and corresponding condensing temperature. Liquid refrigerant leaves the system subcooled to a stable condition to allow greater length of refrigerant run or lift. See Application Data section, for available liquid lift information.
b. Condenser subcooling = Saturated condensing temperature of refrigerant – Actual temperature of refrigerant leaving the coil.
c. TD (Temperature Difference) = Saturated Condensing Temperature (entering) – Entering-Air Temperature.

# Performance data (cont)

## RTPF Condenser Ratings Using R-134a[a,b,c]

**ALL 60/50 Hz UNITS WITH GREENSPEED INTELLIGENCE (ENGLISH)**

**MAXIMUM SUBCOOLING CHARGE (15°F)**

| TD (F) | TOTAL HEAT REJECTION (TONS) | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 020 | 030 | 035 | 050 | 060 | 080 | 095 | 115 | 130 | 145 | 160 | 170 | 185 | 200 | 230 |
| 20 | 11.77 | 15.14 | 21.71 | 26.30 | 30.27 | 37.30 | 46.62 | 55.95 | 65.27 | 74.60 | 83.92 | 93.24 | 102.57 | 111.89 | 130.54 |
| 25 | 20.40 | 24.35 | 29.19 | 41.02 | 48.14 | 62.02 | 77.53 | 93.03 | 108.54 | 124.04 | 139.55 | 155.06 | 170.56 | 186.07 | 217.08 |
| 30 | 25.97 | 30.70 | 36.01 | 52.60 | 60.77 | 79.10 | 98.87 | 118.65 | 138.42 | 158.20 | 177.97 | 197.75 | 217.52 | 237.30 | 276.84 |
| 35 | 31.08 | 36.50 | 42.48 | 63.44 | 72.35 | 95.36 | 119.21 | 143.05 | 166.89 | 190.73 | 214.57 | 238.41 | 262.25 | 286.09 | 333.78 |
| 40 | 36.02 | 42.15 | 48.90 | 73.99 | 83.66 | 111.29 | 139.11 | 166.93 | 194.76 | 222.58 | 250.40 | 278.22 | 306.05 | 333.87 | 389.51 |

**ALL 60/50 Hz UNITS WITH GREENSPEED INTELLIGENCE (SI)**

**MAXIMUM SUBCOOLING CHARGE (8.3°C)**

| TD (C) | TOTAL HEAT REJECTION (kW) | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 020 | 030 | 035 | 050 | 060 | 080 | 095 | 115 | 130 | 145 | 160 | 170 | 185 | 200 | 230 |
| 11.11 | 41.39 | 53.26 | 76.36 | 92.48 | 106.45 | 131.17 | 163.96 | 196.76 | 229.55 | 262.34 | 295.13 | 327.93 | 360.72 | 393.51 | 459.10 |
| 13.89 | 71.73 | 85.62 | 102.66 | 144.25 | 169.30 | 218.12 | 272.65 | 327.18 | 381.71 | 436.25 | 490.78 | 545.31 | 599.84 | 654.37 | 763.43 |
| 16.67 | 91.33 | 107.98 | 126.64 | 184.99 | 213.72 | 278.18 | 347.72 | 417.27 | 486.81 | 556.36 | 625.90 | 695.44 | 764.99 | 834.53 | 973.62 |
| 19.44 | 109.31 | 128.37 | 149.41 | 223.11 | 254.44 | 335.38 | 419.23 | 503.07 | 586.92 | 670.76 | 754.61 | 838.46 | 922.30 | 1006.15 | 1173.84 |
| 22.22 | 126.67 | 148.22 | 171.97 | 260.22 | 294.23 | 391.39 | 489.24 | 587.08 | 684.93 | 782.78 | 880.63 | 978.47 | 1076.32 | 1174.17 | 1369.86 |

**60 Hz UNITS WITH FIXED-SPEED FANS (ENGLISH)**

**MAXIMUM SUBCOOLING CHARGE (15°F)**

| TD (F) | TOTAL HEAT REJECTION (TONS) | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 020 | 030 | 035 | 050 | 060 | 080 | 095 | 115 | 130 | 145 | 160 | 170 | 185 | 200 | 230 |
| 20 | 11.77 | 15.14 | 21.71 | 26.30 | 30.27 | 33.91 | 42.38 | 50.86 | 59.34 | 67.81 | — | — | — | — | — |
| 25 | 20.40 | 24.35 | 29.19 | 41.02 | 48.14 | 56.42 | 70.52 | 84.63 | 98.73 | 112.84 | — | — | — | — | — |
| 30 | 25.97 | 30.70 | 36.01 | 52.60 | 60.77 | 71.15 | 88.94 | 106.73 | 124.52 | 142.30 | — | — | — | — | — |
| 35 | 31.08 | 36.50 | 42.48 | 63.44 | 72.35 | 85.10 | 106.38 | 127.65 | 148.93 | 170.20 | — | — | — | — | — |
| 40 | 36.02 | 42.15 | 48.90 | 73.99 | 83.66 | 98.73 | 123.42 | 148.10 | 172.78 | 197.47 | — | — | — | — | — |

**60 Hz UNITS WITH FIXED-SPEED FANS (SI)**

**MAXIMUM SUBCOOLING CHARGE (8.3°C)**

| TD (C) | TOTAL HEAT REJECTION (kW) | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 020 | 030 | 035 | 050 | 060 | 080 | 095 | 115 | 130 | 145 | 160 | 170 | 185 | 200 | 230 |
| 11.11 | 41.39 | 53.26 | 76.36 | 92.48 | 106.45 | 119.25 | 149.06 | 178.87 | 208.68 | 238.49 | — | — | — | — | — |
| 13.89 | 71.73 | 85.62 | 102.66 | 144.25 | 169.30 | 198.41 | 248.02 | 297.62 | 347.22 | 396.83 | — | — | — | — | — |
| 16.67 | 91.33 | 107.98 | 126.64 | 184.99 | 213.72 | 250.23 | 312.79 | 375.35 | 437.90 | 500.46 | — | — | — | — | — |
| 19.44 | 109.31 | 128.37 | 149.41 | 223.11 | 254.44 | 299.29 | 374.11 | 448.93 | 523.76 | 598.58 | — | — | — | — | — |
| 22.22 | 126.67 | 148.22 | 171.97 | 260.22 | 294.23 | 347.23 | 434.04 | 520.85 | 607.66 | 694.46 | — | — | — | — | — |

**50 Hz UNITS WITH FIXED-SPEED FANS (ENGLISH)**

**MAXIMUM SUBCOOLING CHARGE (15°F)**

| TD (F) | TOTAL HEAT REJECTION (TONS) | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 020 | 030 | 035 | 050 | 060 | 080 | 095 | 115 | 130 | 145 | 160 | 170 | 185 | 200 | 230 |
| 20 | 11.12 | 14.31 | 19.23 | 24.86 | 28.61 | 32.05 | 40.06 | 48.07 | 56.09 | 64.10 | — | — | — | — | — |
| 25 | 19.33 | 22.84 | 26.28 | 39.20 | 45.37 | 52.90 | 66.12 | 79.34 | 92.57 | 105.79 | — | — | — | — | — |
| 30 | 24.34 | 28.37 | 32.32 | 50.01 | 56.50 | 66.18 | 82.73 | 99.27 | 115.82 | 132.36 | — | — | — | — | — |
| 35 | 28.92 | 33.50 | 38.08 | 60.06 | 66.88 | 78.59 | 98.24 | 117.88 | 137.53 | 157.18 | — | — | — | — | — |
| 40 | 33.38 | 38.54 | 43.77 | 69.84 | 77.08 | 90.74 | 113.43 | 136.11 | 158.80 | 181.48 | — | — | — | — | — |

**50 Hz UNITS WITH FIXED-SPEED FANS (SI)**

**MAXIMUM SUBCOOLING CHARGE (8.3°C)**

| TD (C) | TOTAL HEAT REJECTION (kW) | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 020 | 030 | 035 | 050 | 060 | 080 | 095 | 115 | 130 | 145 | 160 | 170 | 185 | 200 | 230 |
| 11.11 | 39.12 | 50.34 | 67.64 | 87.41 | 100.62 | 112.71 | 140.89 | 169.07 | 197.25 | 225.43 | — | — | — | — | — |
| 13.89 | 67.99 | 80.33 | 92.42 | 137.87 | 159.55 | 186.03 | 232.54 | 279.04 | 325.55 | 372.06 | — | — | — | — | — |
| 16.67 | 85.61 | 99.76 | 113.67 | 175.88 | 198.71 | 232.75 | 290.94 | 349.13 | 407.32 | 465.51 | — | — | — | — | — |
| 19.44 | 101.70 | 117.82 | 133.93 | 211.24 | 235.21 | 276.39 | 345.48 | 414.58 | 483.68 | 552.77 | — | — | — | — | — |
| 22.22 | 117.39 | 135.55 | 153.93 | 245.60 | 271.09 | 319.12 | 398.90 | 478.68 | 558.47 | 638.25 | — | — | — | — | — |

NOTE(S):

a. Use maximum charge when compressor, condenser, and evaporator are selected as a package and the components balanced to secure maximum benefits of 15°F (8.3°C) subcooling (for example, in selecting 09RC condensers with Carrier compressor rated at 15°F (8.3°C) subcooling). Maximum charge activates the subcooling circuit, resulting in higher system capacity at slightly higher head pressure and corresponding condensing temperature. Liquid refrigerant leaves the system subcooled to a stable condition to allow greater length of refrigerant run or lift. See Application Data section, for available liquid lift information.

b. Condenser subcooling = Saturated condensing temperature of refrigerant – Actual temperature of refrigerant leaving the coil.

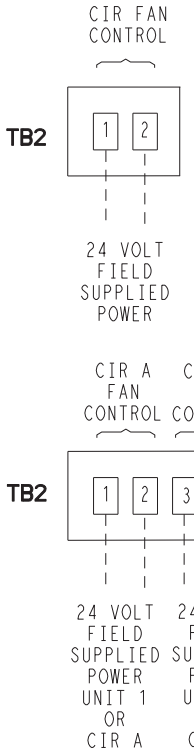
c. TD (Temperature Difference) = Saturated Condensing Temperature (entering) – Entering-Air Temperature.

# Electrical data

09RC electrical data is located in the 09RC Installation Instructions.

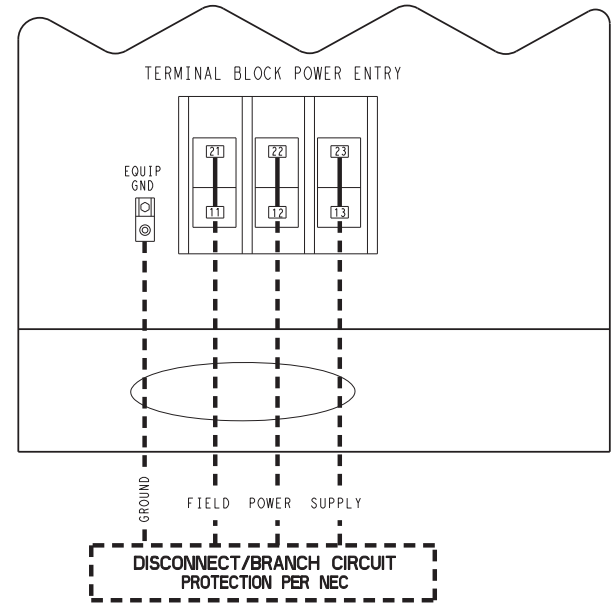
# Typical wiring schematic

## 09RC Power Schematic and Component Arrangement

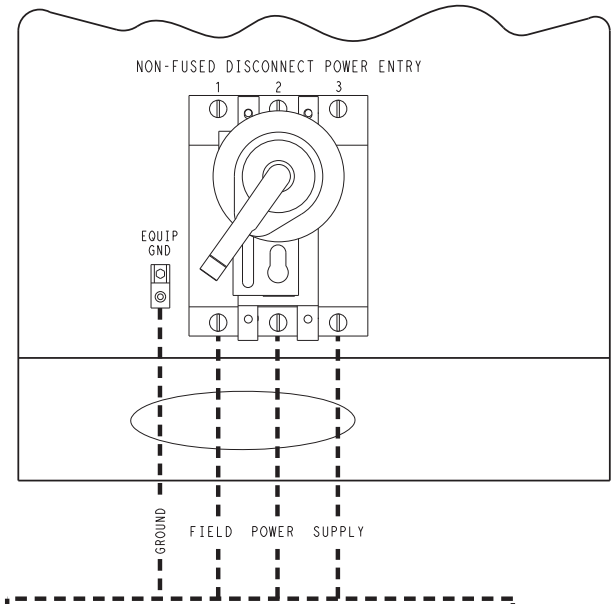



**09RC020-035**
TYPICAL CONNECTION

**09RC050-230**
TYPICAL CONNECTION
EXTERNALLY SOURCED POWER
SEE NOTE 5




TERMINAL BLOCK




NON-FUSED DISCONNECT

NOTES:
1. Factory wiring is in accordance with UL 1995 standards. Field modifications or additions must be in compliance with all applicable codes.
2. All units have single point primary power connection. If the unit is not supplied with a factory-installed disconnect, main power must be supplied from a field-supplied disconnect.
3. Wiring for main field supply must be rated 75C. Use copper conductors only.
   a. Incoming wire size range for terminal block is 14 AWG (American Wire Gage) to 2 AWG.
   b. Incoming wire size for non-fused disconnect is 14 AWG to 3/0.
4. Refer to certified dimensional drawings for exact locations of the main power and control power entrance locations.
5. Jumper terminals 2 and 3 together and terminals 1 and 4 together for single unit operation.
6. All units rated for high short circuit interrupt capability must be protected using fuses.

LEGEND:

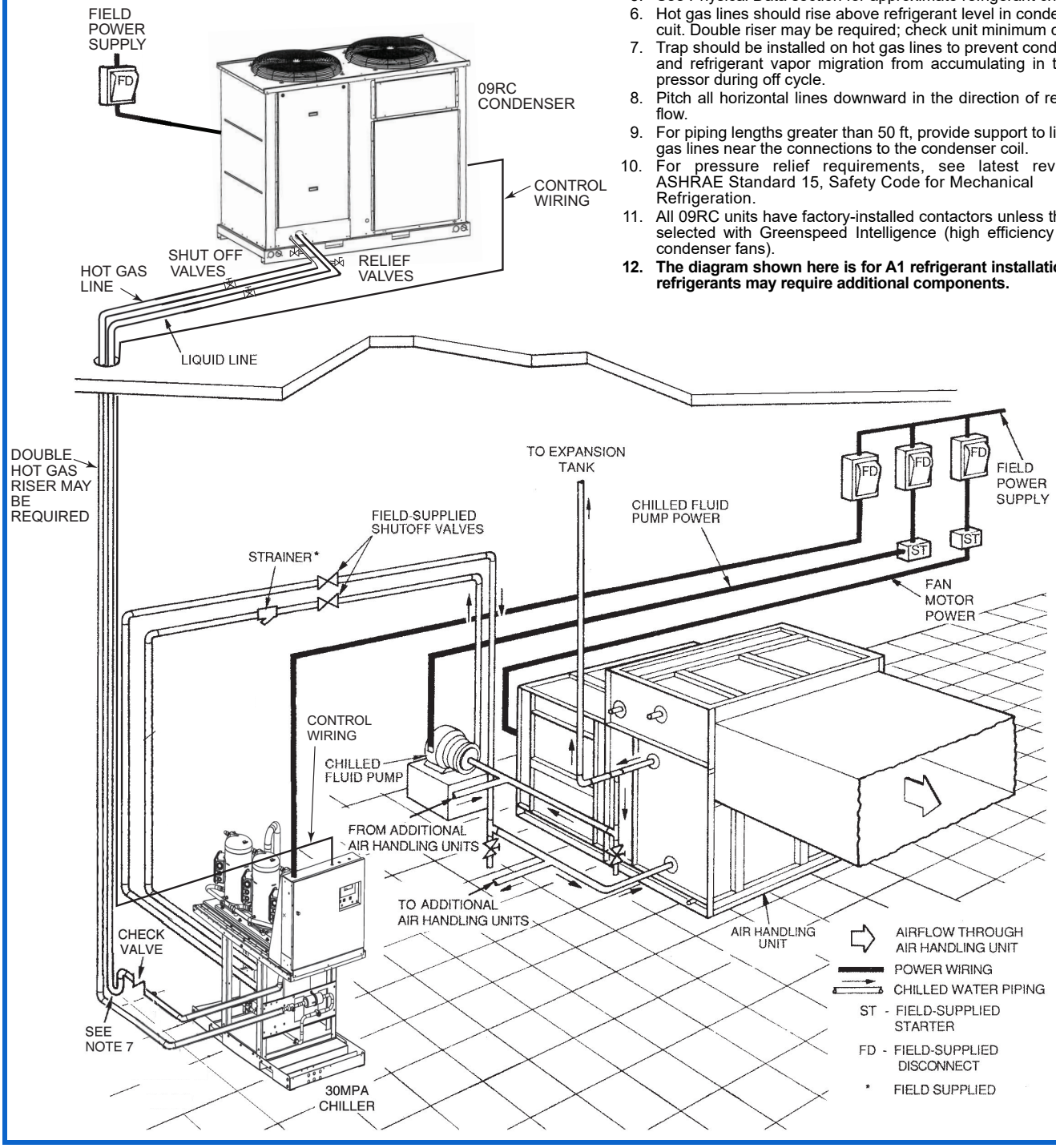
- FIELD POWER WIRING
- FIELD CONTROL WIRING
- FACTORY INSTALLED WIRING

# Typical piping and wiring

## Typical 30MPA Refrigerant Piping to 09RC Remote Condenser (30MPA031 and 09RCS030 Units Shown)

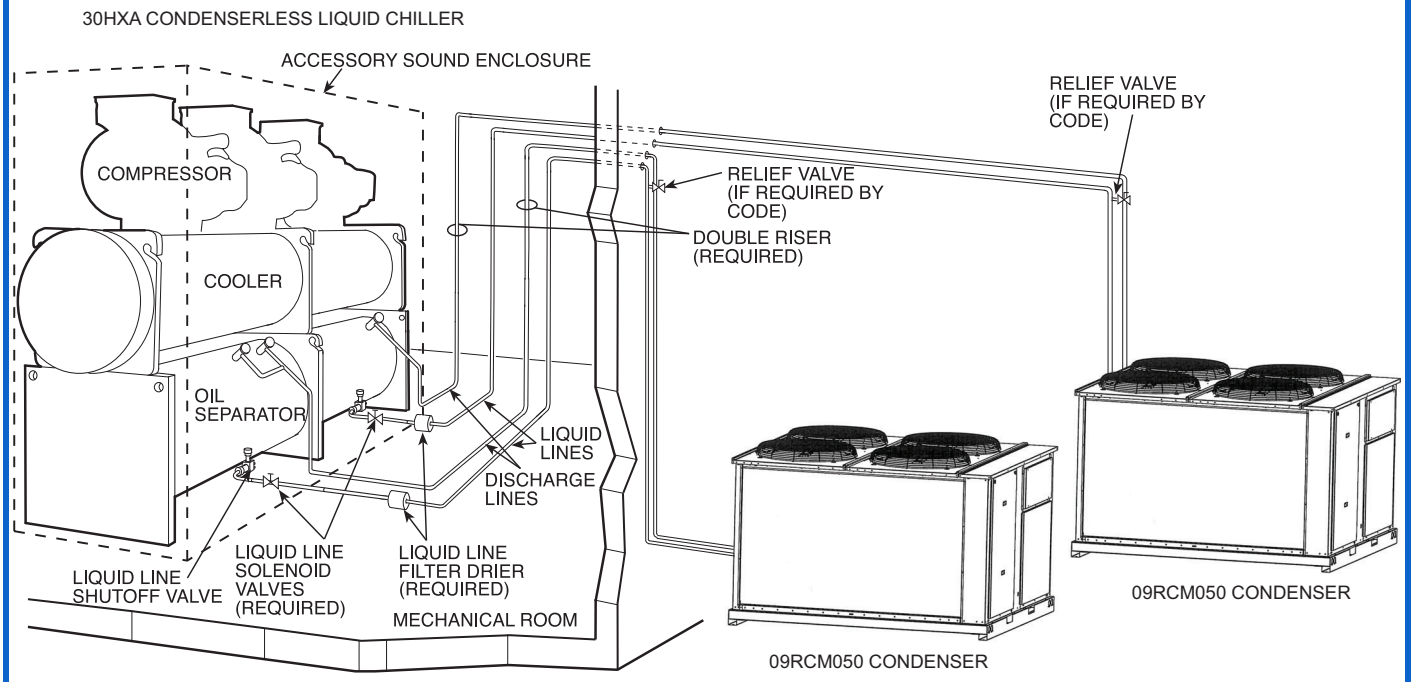
NOTES:

1. Chiller and condenser must be installed *levelly* to maintain proper compressor oil return.
2. Wiring and piping shown are general points-of-connection guides only and are not intended for a specific installation. Wiring and piping shown are for a quick overview of system and are not in accordance with recognized standards.
3. All wiring must comply with applicable local and national codes.
4. All piping must follow standard piping techniques. Please refer to the 09RC Installation Instructions.
5. See Physical Data section for approximate refrigerant charge.
6. Hot gas lines should rise above refrigerant level in condenser circuit. Double riser may be required; check unit minimum capacity.
7. Trap should be installed on hot gas lines to prevent condenser oil and refrigerant vapor migration from accumulating in the compressor during off cycle.
8. Pitch all horizontal lines downward in the direction of refrigerant flow.
9. For piping lengths greater than 50 ft, provide support to liquid and gas lines near the connections to the condenser coil.
10. For pressure relief requirements, see latest revision of ASHRAE Standard 15, Safety Code for Mechanical Refrigeration.
11. All 09RC units have factory-installed contactors unless the unit is selected with Greenspeed Intelligence (high efficiency variable condenser fans).
12. **The diagram shown here is for A1 refrigerant installations. A2L refrigerants may require additional components.**



# Typical piping and wiring (cont)

**Typical 30HXA Condenserless Liquid Chiller Refrigerant Piping to 09RC Remote Condensers (30HXA076 and 09RCM050 Units Shown)**




NOTES:

1. Chiller and condenser must be installed *levelly* to maintain proper compressor oil return.
2. Wiring and piping shown are general points-of-connection guides only and are not intended for a specific installation. Wiring and piping shown are for a quick overview of system and are not in accordance with recognized standards.
3. All wiring must comply with applicable local and national codes.
4. All piping must follow standard piping techniques. Please refer to the 09RC Installation Instructions.
5. See Physical Data section for approximate refrigerant charge.
6. Hot gas lines should rise above refrigerant level in condenser circuit. Double riser may be required; check unit minimum capacity.
7. Trap should be installed on hot gas lines to prevent condenser oil and refrigerant vapor migration from accumulating in the compressor during off cycle.
8. Pitch all horizontal lines downward in the direction of refrigerant flow.
9. For piping lengths greater than 50 ft (15.2 m), provide support to liquid and gas lines near the connections to the condenser coil.
10. For pressure relief requirements, see latest revision of ASHRAE Standard 15, Safety Code for Mechanical Refrigeration.
11. All 09RC units have factory-installed contactors unless the unit is selected with Greenspeed Intelligence (high efficiency variable condenser fans).
12. **The diagram shown here is for A1 refrigerant installations. A2L refrigerants may require additional components.**

# Application data

## Liquid lift

The amount of liquid lift available before refrigerant flashing occurs depends on the amount of liquid subcooling in the system.

All 09RC condensers have positive subcooling when applied with an optimum charge. With subcooling, it is possible to overcome an appreciable friction drop and/or static head (due to the elevation of the liquid metering device above the condenser).

When 09RC condensers are applied with a minimum charge, minimal subcooling in the condenser is realized; therefore, if subcooling is required it must be obtained by external means such as a liquid suction interchanger.

The average amount of liquid lift available from the 09RC condensers is shown in the accompanying table.

## Head Pressure Control

Head pressure control is used primarily during intermediate seasons, and this function may be accomplished by either of 2 means. One method of providing head pressure control is through the use of fan cycling. When this method is employed, one fan is cycled on 09RCS020-035 and 09RCM115 units. Two fans are cycled on 09RCM050, 060, 065, 080, 095, 130, and 145 units. All units with fixed speed fans require head pressure switches. For certain refrigerants, these switches are factory installed. For some refrigerants, these switches must be field supplied and installed. See the 09RC Installation Instructions for details. Carrier 30HXA units are shipped with head pressure switches for use with R-513A refrigerant.

Head pressure control may also be accomplished by employing high efficiency variable speed condenser fans. When this method is employed, no pressure switches are required or installed. The VFD control setpoints will require field adjustment. Unit sizes 160-230 are always provided with variable speed condenser fans.

## Process applications

09RC condensers may be used in process applications. Process applications are defined as heat rejection loads that are not related to or significantly affected by outside ambient conditions. Process applications tend to have constant heat rejection requirements throughout the year.

**Available Liquid Lift (ft)[a] — English[b]**

| REFRIGERANT | AVAILABLE LIQUID LIFT (ft) |
|---|---|
| R-410A | 75 |
| R-32 | 85 |
| R-454B | 75 |
| R-134a | 50 |
| R-513A | 50 |
| R-515B | 30 |
| R-1234ze | 30 |

NOTE(S):

a. Allows 7 psi drop for liquid line accessories with maximum charge.
b. Data based on 15°F subcooling.
Subcooling = Saturated condensing temperature of refrigerant – Actual temperature of refrigerant leaving the coil.

**Available Liquid Lift (m)[a] — SI[b]**

| REFRIGERANT | AVAILABLE LIQUID LIFT (m) |
|---|---|
| R-410A | 22.9 |
| R-32 | 25.9 |
| R-454B | 22.9 |
| R-134a | 15.2 |
| R-513A | 15.2 |
| R-515B | 9.1 |
| R-1234ze | 9.1 |

NOTE(S):

a. Allows 48 kPa drop for liquid line accessories with maximum charge.
b. Data based on 8.3°C subcooling.
Subcooling = Saturated condensing temperature of refrigerant – Actual temperature of refrigerant leaving the coil.

## Novation heat exchanger technology microchannel coil (aluminum fin/aluminum tube) condenser

The Novation microchannel coil is available for optimum durability. Novation heat exchangers with microchannel coil technology are offered coated or uncoated to match coil protection to site conditions. The Carrier Electronic Catalog (E-Cat) can be used to determine whether or not corrosion protection is recommended for particular applications in coastal/marine environments. Following the input of the requested data, the E-Cat program output will advise the appropriate coil to be used. Other factors described in "Selection Guide: Environmental Corrosion Protection, Novation Heat Exchanger with Microchannel Coil Technology" catalog number 04-581061-01 must also be considered to determine if corrosion protection is required.

**NOTE: Applications employing 30HX chillers must use RTPF coils and cannot use microchannel technology.**

# Application data (cont)

## Minimum Outdoor-Air Operating Temperature — English [a,b,c]

| 09RC UNIT SIZE | TD (F) | MINIMUM AMBIENT (F) | | | |
|---|---|---|---|---|---|
| | | 100% Capacity | 75% Capacity | 50% Capacity | 25% Capacity |
| 020 | 30 | 27 | 38 | 50 | 63 |
| | 25 | 35 | 44 | 54 | 65 |
| | 20 | 43 | 50 | 59 | 67 |
| 030 | 30 | 27 | 38 | 50 | 63 |
| | 25 | 35 | 44 | 54 | 65 |
| | 20 | 43 | 50 | 59 | 67 |
| 035 | 30 | 27 | 38 | 50 | 63 |
| | 25 | 35 | 44 | 54 | 65 |
| | 20 | 43 | 50 | 59 | 67 |
| 050 | 30 | 27 | 38 | 50 | 63 |
| | 25 | 35 | 44 | 54 | 65 |
| | 20 | 43 | 50 | 59 | 67 |
| 060 | 30 | 27 | 38 | 50 | 63 |
| | 25 | 35 | 44 | 54 | 65 |
| | 20 | 43 | 50 | 59 | 67 |
| 080 | 30 | 27 | 38 | 50 | 63 |
| | 25 | 35 | 44 | 54 | 65 |
| | 20 | 43 | 50 | 59 | 67 |
| 095 | 30 | 33 | 42 | 53 | 65 |
| | 25 | 40 | 48 | 57 | 66 |
| | 20 | 47 | 53 | 61 | 68 |
| 115 | 30 | 27 | 38 | 50 | 63 |
| | 25 | 35 | 44 | 54 | 65 |
| | 20 | 43 | 50 | 59 | 67 |
| 130 | 30 | 33 | 42 | 53 | 65 |
| | 25 | 40 | 48 | 57 | 66 |
| | 20 | 47 | 53 | 61 | 68 |
| 145 | 30 | 27 | 38 | 50 | 63 |
| | 25 | 35 | 44 | 54 | 65 |
| | 20 | 43 | 50 | 59 | 67 |

NOTE(S):

a. Based on 80°F condensing temperature at 100% and 75% capacity and a 75°F condensing temperature at 50% and 25% capacity.
b. Units 050 to 060 are based on dual circuit operation. Dual circuit low ambient option should be based on circuit with lowest TD.
***c. The minimum outdoor-air operating temperature for variable speed fans is –20°F.***

LEGEND

**TD** — Temperature Difference (F)

# Application data (cont)

## Minimum Outdoor-Air Operating Temperature — SI [a,b,c]

| 09RC UNIT SIZE | TD (C) | MINIMUM AMBIENT (C) | | | |
|---|---|---|---|---|---|
| | | 100% Capacity | 75% Capacity | 50% Capacity | 25% Capacity |
| 020 | 16.7 | –2.78 | 3.26 | 10.14 | 17.22 |
| | 13.9 | 1.67 | 6.70 | 12.43 | 18.33 |
| | 11.1 | 6.11 | 10.14 | 14.72 | 19.44 |
| 030 | 16.7 | –2.78 | 3.26 | 10.14 | 17.22 |
| | 13.9 | 1.67 | 6.70 | 12.43 | 18.33 |
| | 11.1 | 6.11 | 10.14 | 14.72 | 19.44 |
| 035 | 16.7 | –2.78 | 3.26 | 10.14 | 17.22 |
| | 13.9 | 1.67 | 6.70 | 12.43 | 18.33 |
| | 11.1 | 6.11 | 10.14 | 14.72 | 19.44 |
| 050 | 16.7 | –2.78 | 3.26 | 10.14 | 17.22 |
| | 13.9 | 1.67 | 6.70 | 12.43 | 18.33 |
| | 11.1 | 6.11 | 10.14 | 14.72 | 19.44 |
| 060 | 16.7 | –2.78 | 3.26 | 10.14 | 17.22 |
| | 13.9 | 1.67 | 6.70 | 12.43 | 18.33 |
| | 11.1 | 6.11 | 10.14 | 14.72 | 19.44 |
| 080 | 16.7 | –2.78 | 3.26 | 10.14 | 17.22 |
| | 13.9 | 1.67 | 6.70 | 12.43 | 18.33 |
| | 11.1 | 6.11 | 10.14 | 14.72 | 19.44 |
| 095 | 16.7 | 0.56 | 5.76 | 11.81 | 18.06 |
| | 13.9 | 4.44 | 8.78 | 13.82 | 19.03 |
| | 11.1 | 8.33 | 11.81 | 15.83 | 20.00 |
| 115 | 16.7 | –2.78 | 3.26 | 10.14 | 17.22 |
| | 13.9 | 1.67 | 6.70 | 12.43 | 18.33 |
| | 11.1 | 6.11 | 10.14 | 14.72 | 19.44 |
| 130 | 16.7 | 0.56 | 5.76 | 11.81 | 18.06 |
| | 13.9 | 4.44 | 8.78 | 13.82 | 19.03 |
| | 11.1 | 8.33 | 11.81 | 15.83 | 20.00 |
| 145 | 16.7 | –2.78 | 3.26 | 10.14 | 17.22 |
| | 13.9 | 1.67 | 6.70 | 12.43 | 18.33 |
| | 11.1 | 6.11 | 10.14 | 14.72 | 19.44 |

NOTE(S):

a. Based on 26.7°C condensing temperature at 100% and 75% capacity and a 23.9°C condensing temperature at 50% and 25% capacity.
b. Units 050 to 060 are based on dual circuit operation. Dual circuit low ambient option should be based on circuit with lowest TD.
***c. The minimum outdoor-air operating temperature for variable speed fans is –28.9°C.***

LEGEND
**TD** — Temperature Difference (C)

## Commercial Air-Cooled Condensers 50/60 Hz

## HVAC Guide Specifications

Size Range: **20 to 230 Nominal Tons (70 to 809 Nominal kW)**

Carrier Model Number: **09RCM, 09RCS**

### Part 1 — General

1.01 SYSTEM DESCRIPTION

Outdoor-mounted, air-cooled condenser on the ground or rooftop installation. The 09RCS unit shall have one refrigeration circuit and the 09RCM unit shall have two independent refrigeration circuits capable of field conversion to single circuit. Unit shall have air-cooled coils, aeroacoustic condenser fans, a control box, and shall discharge condenser air vertically upward as shown on certified drawings. Unit shall be used in refrigeration circuit with 30MPA or 30HXA air-cooled condenserless chillers.

1.02 QUALITY ASSURANCE

A. Unit construction shall comply with latest edition of ASHRAE 15 Safety Code, UL 60335-2-40, and ASME applicable codes (U.S.A. codes).

B. Unit shall be manufactured in a facility registered to ISO 9001: 2015 Manufacturing Quality Standard.

C. Base unit shall be constructed in accordance with UL standards and CSA.

D. Painted parts shall withstand 1000 hours in constant neutral salt spray under ASTM B117 conditions with a 1mm scribe per ASTM D1654. After test, painted parts shall show no signs of wrinkling or crackling, no loss of adhesion, no evidence of blistering, and the main creepage shall not exceed 1/4 in. (rating ≥ 4 per ASTM D1654) on either side of the scribe line.

E. Design pressure shall be 650 psig (4482 kPa).

F. Unit shall be functional checked at the factory.

G. Unit shall be rated using refrigerants R-32, R-454B, R-515B, R-513A, R-1234ze, R-410A, and R-134a.

1.03 DELIVERY, STORAGE, AND HANDLING

Unit shall be shipped as single package and shall be stored and handled per unit manufacturer's recommendations.

1.04 WARRANTY (FOR INCLUSION BY SPECIFYING ENGINEER)

### Part 2 — Products

2.01 EQUIPMENT

A. General:

Factory assembled, single-piece, air-cooled remote condenser. Contained within the unit enclosure shall be all factory wiring, piping, controls, nitrogen holding charge, and special features required prior to field start-up.

B. Unit Cabinet:

1. Cabinet shall be galvanized steel casing with a baked enamel powder or pre-painted finish.
2. Painted parts shall withstand 1000 hours in constant neutral salt spray under ASTM B117 conditions with a 1 mm scribe per ASTM D1654. After test, painted parts shall show no signs of wrinkling or crackling, no loss of adhesion, no evidence of blistering, and the main creepage shall not exceed 1/4-in. (rating ≥ 4 per ASTM D1654) on either side of the scribe line.
3. Control box access panels shall be removable for service access.
4. Lifting holes shall be provided to facilitate rigging.

C. Fans:

1. Condenser fans shall be direct-drive aeroacoustic, discharging air vertically upward.
2. All condenser fan motors shall be totally enclosed 3-phase type with permanently lubricated ball bearings, class F insulation, and internal, automatic-reset thermal overload protection.
3. Shafts shall have inherent corrosion resistance.
4. Fan blades shall be statically and dynamically balanced.

D. Condenser Coils:

1. Coil shall be air-cooled microchannel heat exchanger (MCHX) and shall have a series of flat tubes containing a series of multiple, parallel flow microchannels layered between the refrigerant manifolds. Microchannel coils shall consist of a two-pass arrangement. Coil construction shall consist of aluminum alloys for the fins, tubes and manifolds in combination with a corrosion-resistant coating on the tubes.
2. Tubes shall be cleaned, dehydrated, and sealed.
3. Assembled condenser coils shall be leak tested and pressure tested at 650 psig (4482 kPa).
4. To plan the unit installation and for ease of maintenance/coil removal on unit sizes 09RC080-230, all refrigerant piping entering and leaving the condenser coils shall be located on only one side of the condensing unit so the coils can be removed (when needed) from the side free of piping. This is important to consider because removing the coils from the header side, although possible, involves extra labor due to extra bending and brazing of the coil headers.

E. Refrigeration Components:

Refrigeration circuit components shall include liquid line temperature relief device and nitrogen holding charge.

# Guide specifications (cont)

F. Controls and Safeties:

Unit controls shall include:

1. Unit shall have a temperature fusible plug for safety on each refrigerant circuit.
2. Self-contained low voltage control circuit.
3. Cycle condenser fans to maintain proper head pressure control.

G. Operating Characteristics:

1. Unit shall be capable of rejecting the required heat at the required cfm and be capable of operating down to moderate ambient temperatures with standard factory supplied fan cycling.
2. Head pressure fan cycling control utilizes pressure switches for all units.

H. Electrical Requirements:

1. A 3-phase power circuit voltage and a 24 volt single-phase control circuit shall be required.
2. The number of control circuits shall depend on the unit application, whether it is matched with one unit or two units.
3. Power supply for all units shall enter the control box through factory-punched entrance holes in the control box shelf.
4. Terminal blocks shall be supplied for field wiring connections.
5. Units shall utilize electromechanical fan cycling head pressure controls to control proper head pressure.

I. Special Features:

1. Optional Condenser Coil Materials:

a. E-coated microchannel coils:

E-coated aluminum microchannel coil shall have a flexible epoxy polymer coating uniformly applied to all coil external surface areas without material bridging between fins or louvers. Coating process shall ensure complete coil encapsulation, including all exposed fin edges. E-coat shall have a thickness of 0.8 to 1.2 mil with top coat having a uniform dry film thickness from 1.0 to 2.0 mil on all external coil surface areas including fin edges. E-coated coils shall have superior hardness characteristics of 2H per ASTM D3363-00 and cross hatch adhesion of 4B-5B per ASTM D3359-02. Impact resistance shall be up to 160 in./lb (ASTM D2794-93). E-coated coil shall have superior impact resistance with no cracking, chipping, or peeling per NSF/ANSI 51-2002 Method 10.2. E-coated aluminum microchannel coils shall be capable of withstanding 10,000-hour salt spray test in accordance with the ASTM (American Society for Testing and Materials) B-117 Standard.

b. Aluminum fin/copper tube coils:

Coil shall be constructed of seamless copper tubes mechanically bonded to aluminum fins. Fins shall have wavy enhancements. These condenser coils are recommended with remote cooler applications. These coils are not recommended for corrosive environments.

c. E-coated aluminum-fin coils:

Coil shall have a flexible epoxy polymer coating uniformly applied to all coil surface areas without material bridging between fins. Coating process shall ensure complete coil encapsulation. Color shall be high gloss black with gloss 60° of 65 to 90% per ASTM ID523-89. Uniform dry film thickness from 0.8 to 1.2 mil on all surface areas including fin edges. Superior hardness characteristics of 2H per ASTM D3363-92A and crosshatch adhesion of 4B-5B per ASTM D3359-93. Impact resistance shall be up to 160 in./lb (ASTM D2794-93). Humidity and water immersion resistance shall be up to minimum 1000 and 250 hours respectively (ASTM D2247-92 and ASTM D870-92). E-coated aluminum-fin coils shall be capable of withstanding a 10,000-hour salt spray test in accordance with the ASTM (American Society for Testing and Materials) (U.S.A.) B-117 Standard. Coil construction shall be aluminum fins mechanically bonded to copper tubes.

2. Non-Fused Disconnect:

Units shall be factory-installed with non-fused disconnect capability for power and control located at the unit.

3. High Short Circuit Current Rating (SCCR):

The optional high SCCR interrupt capability shall allow the unit to tolerate a 65 kA (208/230v, 380v and 460-v units) or 35 kA (575-v units) short circuit current for a brief period of time while protecting downstream components. The high SCCR option shall provide a higher level of protection than the standard unit (option for 60 Hz only). High interrupt shall be available as factory-installed option on all units.

4. Security Grilles and End Hail Guards:

Unit sizes 080-230 shall be provided with factory or field-installed louvered, sheet metal panels (on the upper portion of the unit at both ends) which securely fasten to the unit and provide condenser coil protection against hail and physical damage, and, at the same time, provide coated grilles (on the unit sides and lower portion of the unit ends) that prevent larger animals and objects from entering in to the condenser envelope. Note that this item also functions as a low ambient wind baffle, and the wind baffle accessory is not required when this item is selected. Coil trim panels are included when this feature is selected as a factory-installed option.

5. Security Grilles:

   Unit sizes 080-230 shall be provided with field-installed coated grilles on the unit sides and ends that prevent larger animals and objects from entering in to the condenser envelope.

6. Full Hail Guard:

   Unit shall be provided with factory or field-installed louvered sheet metal panels which securely fasten to the coil side(s) of the unit on sizes 020-060 and securely fasten to the sides and ends of the unit on sizes 080-230, thus providing condenser coil protection against hail and physical damage. Note that this item also functions as a low ambient wind baffle, and the wind baffle accessory is not required when this item is selected.

7. Vibration Isolation Pads:

   Neoprene vibration isolation pads (24 in. x 3 in. x 1/4 in.) shall be available for field installation to reduce vibration transmission from the compressor through the floor and into the conditioned space.

8. Low Ambient Head Pressure Control:

   Unit shall be provided with factory or field-installed low ambient head pressure control to permit operation to –20°F (–29°C) outdoor ambient temperature when field-installed wind baffles are provided.

9. Variable Speed Condenser Fans:

   All fans on the unit shall have factory-installed variable speed fan motors to provide higher part load efficiency and reduced acoustic levels. Each fan circuit shall have a factory-installed, independent variable speed drive. Variable speed drives are rated IP-55 enclosures and UL Listed. The use of this option or accessory, with the addition of wind baffles and antifreeze in the evaporator circuit, shall allow Carrier chillers to run with outdoor ambient temperatures down to –20°F (–28.9°C).

10. Wind Baffles:

    Wind baffles shall be field installed to facilitate operation down to –20°F (–29°C) when used in conjunction with high-efficiency variable condenser fans.

11. Coil Trim Panels:

    Coil trim panels shall be factory or field installed to provide the unit with an aesthetic, finished appearance for the condenser coil ends.

12. Export Packaging:

    Unit shall be provided with a skid underneath the condenser as well as a bag covering the complete package.

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