



# Product Catalog

Model #: CGAM 020F 2Q02 AXJ2 AXB1 B1HX XA1D 1A4X XAXX XBXA 3A1D 1XXC X  
Serial #: U18H69230

Year: 2018  
Size: 20 Tons

## **Air-Cooled Scroll Chillers** **Model CGAM — Made in USA** 20 to 130 Nominal Tons (60 Hz and 50 Hz)



Shipping Weight: 1,967 lbs.  
Operating Weight: 1,975 lbs.

L: 9' 6" W: 4' 3" H: 7' 1"



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## Model Number Descriptions

### Digits 1-4— Chiller Model

CGAM= Air-Cooled Scroll Packaged  
Chiller

### Digits 5-7— Unit Nominal Ton

020 = 20 Tons  
026 = 26 Tons  
030 = 30 Tons  
035 = 35 Tons  
040 = 40 Tons  
052 = 52 Tons  
060 = 60 Tons  
070 = 70 Tons  
080 = 80 Tons  
090 = 90 Tons  
100 = 100 Tons  
110 = 110 Tons  
120 = 120 Tons  
130 = 130 Tons

### Digit 8— Unit Voltage

A = 208 Volt 60 Hz 3 Phase  
B = 230 Volt 60 Hz 3 Phase  
D = 380 Volt 60 Hz 3 Phase  
E = 400 Volt 50 Hz 3 Phase  
F = 460 Volt 60 Hz 3 Phase  
G = 575 Volt 60 Hz 3 Phase

### Digit 9— Manufacturing Plant

2 = Pueblo, USA

### Digits 10-11— Design Sequence

\*\* = Factory/ABU Assigned

### Digit 12— Unit Type

2 = High Efficiency  
3 = Extra Efficiency

### Digit 13— Agency Listing

X = No Agency Listing  
A = UL Listed to U.S. and  
Canadian Safety Standard

### Digit 14— Pressure Vessel Code

X = No Pressure Vessel Code

### Digit 15— Unit Application

B = High Ambient (32-125°F/0-52°C)  
D = Wide Ambient  
(0-125°F/-18-52°C)  
J = Extreme Low Ambient —  
down to -20°F (-28.9°C)

### Digit 16— Refrigerant Isolation Valves

2 = Refrigerant Isolation Valves  
(Discharge Valve)

### Digit 17— Structural Options

A = Standard Unit Structure  
B = Seismic to International Building  
Code (IBC)  
C = California Office of Statewide  
Health Planning and  
Development (OSHPD)  
Certification  
D = Wind Load for Florida Hurricane

### Digit 18— Freeze Protection (Factor-Installed Only)

X = Without Freeze Protection  
1 = With Freeze Protection  
(External T-Stat Control)

### Digit 19— Insulation

A = Factory Insulation - All Cold Parts  
B = Insulation for High Humidity/  
Low Evap Temp

### Digit 20— Factory Charge

1 = Full Factory Refrigerant Charge  
(R-410A)  
2 = Nitrogen Charge

### Digit 21— Evaporator Application

A = Standard Cooling  
(42 to 65°F/5.5 to 18°C)  
B = Low Temperature Process  
(10 to 42°F/-12.2 to 5.5°C)  
C = Ice-Making - Hardwired Interface  
(20 to 65°F/-7 to 18°C)  
D = Low Leaving Water  
(below 10°F/-12.2°C)

### Digit 22— Water Connections

1 = Grooved Pipe Connection

### Digit 23— Condenser Fin Material

A = Lanced Aluminum Fins  
C = Non-Lanced Copper Fins  
D = Lanced Aluminum Fins  
w/ CompleteCoat™  
H = Microchannel Coils  
J = Microchannel Coils  
w/ CompleteCoat

### Digit 24— Condenser Heat Recovery

X = No Heat Recovery  
1 = Partial Heat Recovery with  
Fan Control

### Digit 25— Not Used

X

### Digit 26— Starter Type

A = Across the Line Starter/  
Direct on Line

### Digit 27— Incoming Power Line Connection

1 = Single Point Power Connection

### Digit 28— Power Line Connection Type

A = Terminal Block  
C = Circuit Breaker  
D = Circuit Breaker with High Fault  
Rated Control Panel

### Digit 29— Enclosure Type

1 = WaterTight (per UL 1995  
Standard)

### Digit 30— Unit Operator Interface

A = Dyna-View/English

### Digit 31— Remote Interface (Digital Comm)

X = No Remote Digital  
Communication  
2 = LonTalk®/Tracer® Summit  
Interface  
3 = Time of Day Scheduling  
4 = BACNet® Interface

### Digit 32— External Chilled/Hot Water and Current Demand Limit Setpoint

X = No External Chilled Water  
Setpoint  
A = External Chilled Water and  
Demand Limit Setpoint 4-20mA  
B = External Chilled Water and  
Demand Limit Setpoint 2-10Vdc

### Digit 33— Percent Capacity

X = Without % Capacity  
1 = With % Capacity

### Digit 34— Programmable Relays

X = No Programmable Relays  
A = Programmable Relays

### Digit 35— Pump Type

X = No Pumps and No Contactors  
8 = Dual High Head Pump

### Digit 36— Pump Flow Control

X = No Pump Control  
B = Pump Flow Controlled by  
Variable Speed Drive

### Digit 37— Buffer Tank

X

### Digit 38— Short Circuit Rating

X = No Short Circuit Rating  
A = Default A Short Circuit Rating  
B = High A Short Circuit Rating

### Digit 39— Installation Accessories

X = No Installation Accessories  
1 = Elastomeric Isolators  
3 = Seismically Rated Isolators  
5 = Elastomeric Pads

### Digit 40— Water Strainer

A = With Water Strainer Factory  
Installed

### Digit 41— Sound Attenuator Package

3 = Super Quiet  
5 = Comprehensive Acoustic  
Package



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## Model Number Descriptions

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### Digit 42— Appearance Options

- X = No Appearance Options
- A = Architectural Louvered Panels
- B = Half Louvers

### Digit 43— Exterior Finish

- 1 = Standard Paint

### Digit 44— Label, Literature Language

- B = Spanish and English
- D = English
- E = French and English

### Digit 45— Phase Reversal Protection

- 1 = Phase Reversal Protection

### Digit 46— Shipping Package

- X = No Skid (Standard)
- A = Unit Containerization Package

### Digit 47— Performance Test Options

- X = No Performance Test
- 2 = Test with Report
- 3 = Witness Test with Report

### Digit 48— Flow Switch Set Point

- C = Flow Switch Set Point 15
- F = Flow Switch Set Point 35
- H = Flow Switch Set Point 45
- L = Flow Switch Set Point 60

### Digit 49— Not Used

X

### Digit 50— Specials

- X = None
- S = Special

**Note:** If a digit is not defined it may be held for future use.

# General Data

**Table 1. General data, 60 Hz, high efficiency (I-P)**

| Size                                  |          | 20     | 26     | 30     | 35     | 40           | 52           | 60           | 70           | 80           | 90           | 100          | 110          | 120          | 130                |
|---------------------------------------|----------|--------|--------|--------|--------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------------|
| <b>Compressor</b>                     |          |        |        |        |        |              |              |              |              |              |              |              |              |              |                    |
| Number                                | #        | 2      | 2      | 2      | 2      | 4            | 4            | 4            | 4            | 4            | 4            | 4            | 4            | 4            | 6                  |
| Tonnage/ckt(a)                        |          | 10+10  | 13+13  | 15+15  | 15+20  | 10+10        | 13+13        | 15+15        | 15+20        | 20+20        | 20+25        | 25+25        | 25+30        | 30+30        | 20+20+25           |
| <b>Evaporator</b>                     |          |        |        |        |        |              |              |              |              |              |              |              |              |              |                    |
| Water storage                         | (gal)    | 1.4    | 2.2    | 2.2    | 3.2    | 2.4          | 4.1          | 5.0          | 7.5          | 7.0          | 9.0          | 10.3         | 11.5         | 11.5         | 12.3               |
| Min. flow (LWT ≥42°F)                 | (gpm)    | 23.2   | 29.8   | 33.1   | 39.2   | 45.4         | 58.8         | 67.1         | 79.5         | 91.8         | 102.6        | 115.5        | 125.2        | 135.9        | 146.9              |
| Min. flow (LWT 40 to 41.9°F)          | (gpm)    | 29.1   | 37.2   | 41.8   | 49.1   | 56.7         | 73.5         | 83.9         | 99.4         | 114.7        | 128.3        | 144.4        | 156.5        | 169.9        | 183.7              |
| Max. flow                             | (gpm)    | 69     | 89     | 100    | 117    | 136          | 176          | 201          | 238          | 275          | 307          | 346          | 375          | 407          | 440                |
| Water connection                      | (in)     | 2      | 2.5    | 2.5    | 2.5    | 3            | 3            | 3            | 3            | 4            | 4            | 4            | 4            | 4            | 4                  |
| <b>Condenser</b>                      |          |        |        |        |        |              |              |              |              |              |              |              |              |              |                    |
| <b>Round Tube and Plate Fin Coils</b> |          |        |        |        |        |              |              |              |              |              |              |              |              |              |                    |
| Quantity of coils                     | #        | 1      | 1      | 1      | 1      | 2            | 2            | 2            | 2            | 4            | 4            | 4            | 4            | 4            | 4                  |
| Coil length                           | (in)     | 91     | 91     | 127    | 127    | 91           | 91           | 127          | 127          | 121          | 121          | 144          | 144          | 144          | 180                |
| Coil height                           | (in)     | 68     | 68     | 68     | 68     | 68           | 68           | 68           | 68           | 42           | 42           | 42           | 42           | 42           | 42                 |
| Number of rows                        | #        | 2      | 2      | 2      | 2      | 2            | 2            | 2            | 2            | 3            | 3            | 3            | 3            | 3            | 3                  |
| Fins per foot                         | (fpf)    | 192    | 192    | 192    | 192    | 192          | 192          | 192          | 192          | 192          | 192          | 192          | 192          | 192          | 192                |
| <b>Microchannel Coils</b>             |          |        |        |        |        |              |              |              |              |              |              |              |              |              |                    |
| Quantity of coils                     | #        | 1      | 1      | 1      | 1      | 2            | 2            | 2            | 2            | 8            | 8            | 8            | 8            | 8            | 8                  |
| Coil length                           | (in)     | 91     | 91     | 127    | 127    | 91           | 91           | 127          | 127          | 68+46        | 68+46        | 68+68        | 68+68        | 68+68        | 68+104             |
| Coil height(b)                        | (in)     | 42+10  | 42+10  | 42+10  | 42+10  | 42+10        | 42+10        | 42+10        | 42+10        | 34+7         | 34+7         | 34+7         | 34+7         | 34+7         | 34+7               |
| Tube width                            | (in)     | 1      | 1      | 1      | 1      | 1            | 1            | 1            | 1            | 1            | 1            | 1            | 1            | 1            | 1                  |
| <b>Fan</b>                            |          |        |        |        |        |              |              |              |              |              |              |              |              |              |                    |
| Quantity                              | #        | 2      | 2      | 3      | 3      | 4            | 4            | 6            | 6            | 6            | 6            | 8            | 8            | 8            | 10                 |
| Diameter                              | (in)     | 28.8   | 28.8   | 28.8   | 28.8   | 28.8         | 28.8         | 28.8         | 28.8         | 28.8         | 28.8         | 28.8         | 28.8         | 28.8         | 28.8               |
| Airflow per fan                       | (cfm)    | 9413   | 9420   | 9168   | 9173   | 9413         | 9420         | 9168         | 9173         | 9470         | 9472         | 9094         | 9096         | 9098         | 9094               |
| Power per motor                       | (HP)     | 1.3    | 1.3    | 1.3    | 1.3    | 1.3          | 1.3          | 1.3          | 1.3          | 1.3          | 1.3          | 1.3          | 1.3          | 1.3          | 1.3                |
| Motor RPM                             | (rpm)    | 840    | 840    | 840    | 840    | 840          | 840          | 840          | 840          | 840          | 840          | 840          | 840          | 840          | 840                |
| Tip speed                             | (ft/min) | 6333   | 6333   | 6333   | 6333   | 6333         | 6333         | 6333         | 6333         | 6333         | 6333         | 6333         | 6333         | 6333         | 6333               |
| <b>General Unit</b>                   |          |        |        |        |        |              |              |              |              |              |              |              |              |              |                    |
| Refrig circuits                       | #        | 1      | 1      | 1      | 1      | 2            | 2            | 2            | 2            | 2            | 2            | 2            | 2            | 2            | 2                  |
| Capacity steps                        | %        | 50-100 | 50-100 | 50-100 | 43-100 | 25-50-75-100 | 25-50-75-100 | 25-50-75-100 | 21-43-71-100 | 25-50-75-100 | 22-44-72-100 | 25-50-75-100 | 23-45-73-100 | 25-50-75-100 | 15-31-46-62-81-100 |
| Min ambient - wide                    | (°F)     | 0      | 0      | 0      | 0      | 0            | 0            | 0            | 0            | 0            | 0            | 0            | 0            | 0            | 0                  |
| Min ambient - high                    | (°F)     | 32     | 32     | 32     | 32     | 32           | 32           | 32           | 32           | 32           | 32           | 32           | 32           | 32           | 32                 |
| Min ambient - extreme low             | (°F)     | -20    | -20    | -20    | -20    | -20          | -20          | -20          | -20          | -20          | -20          | -20          | -20          | -20          | -20                |



## General Data

**Table 1. General data, 60 Hz, high efficiency (I-P) (continued)**

| Size                                                     | 20   | 26   | 30   | 35   | 40   | 52   | 60   | 70   | 80   | 90   | 100  | 110  | 120  | 130  |
|----------------------------------------------------------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| <b>Round Tube and Plate Fin Coils</b>                    |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Refrig charge/ckt <sup>(a)</sup> (lbs)                   | 32   | 34   | 44   | 48   | 32   | 32   | 44   | 48   | 74   | 78   | 90   | 86   | 86   | 112  |
| Oil charge/ckt <sup>(a)</sup> (gal)                      | 1.7  | 1.7  | 1.9  | 3.5  | 1.7  | 1.7  | 1.9  | 3.5  | 3.5  | 3.5  | 3.5  | 3.7  | 3.8  | 5.8  |
| <b>Microchannel Coils</b>                                |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Refrig charge/ckt <sup>(a)</sup> (lbs)                   | 19   | 22.5 | 28   | 35   | 19   | 20.5 | 28   | 35.5 | 45   | 47   | 49   | 46   | 50   | 66   |
| Oil charge/ckt <sup>(a)</sup> (gal)                      | 1.4  | 1.4  | 1.6  | 2.9  | 1.4  | 1.4  | 1.6  | 2.9  | 2.9  | 2.9  | 2.9  | 3.0  | 3.1  | 5.4  |
| <b>Pump Package</b>                                      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Avail head pressure <sup>(c)</sup> (ft H <sub>2</sub> O) | 78.2 | 77.7 | 71.1 | 67.6 | 67.1 | 58.6 | 76.7 | 63.5 | 82.0 | 78.1 | 69.0 | 61.9 | 71.3 | 62.2 |
| Power (HP)                                               | 5    | 5    | 5    | 5    | 5    | 5    | 7.5  | 7.5  | 10   | 10   | 10   | 10   | 15   | 15   |
| Expansion tank volume (gal)                              | 5    | 5    | 5    | 5    | 5    | 5    | 5    | 5    | 6    | 6    | 6    | 6    | 6    | 6    |
| Buffer tank volume (gal)                                 | 140  | 140  | 140  | 140  | 140  | 140  | 140  | 140  | 152  | 152  | 195  | 195  | 195  | 195  |
| <b>Partial Heat Recovery</b>                             |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Water storage/ckt <sup>(a)</sup> (gal)                   | 0.02 | 0.02 | 0.02 | 0.03 | 0.02 | 0.02 | 0.02 | 0.03 | 0.03 | 0.04 | 0.04 | 0.04 | 0.06 | 0.06 |
| Max flow (gpm)                                           | 39   | 39   | 39   | 39   | 78   | 78   | 78   | 78   | 127  | 127  | 127  | 127  | 127  | 127  |
| Water connection (in)                                    | 1.5  | 1.5  | 1.5  | 1.5  | 1.5  | 1.5  | 1.5  | 1.5  | 2.5  | 2.5  | 2.5  | 2.5  | 2.5  | 2.5  |

(a) Data shown for one circuit only. The second circuit always matches.

(b) Microchannel coils are split horizontally between the condenser and subcooler coil.

(c) Pump available head pressure is based on 44/54°F evaporator with water, .0001 hr-ft<sup>2</sup>-°F/Btu, 95°F ambient and 0 ft elevation.

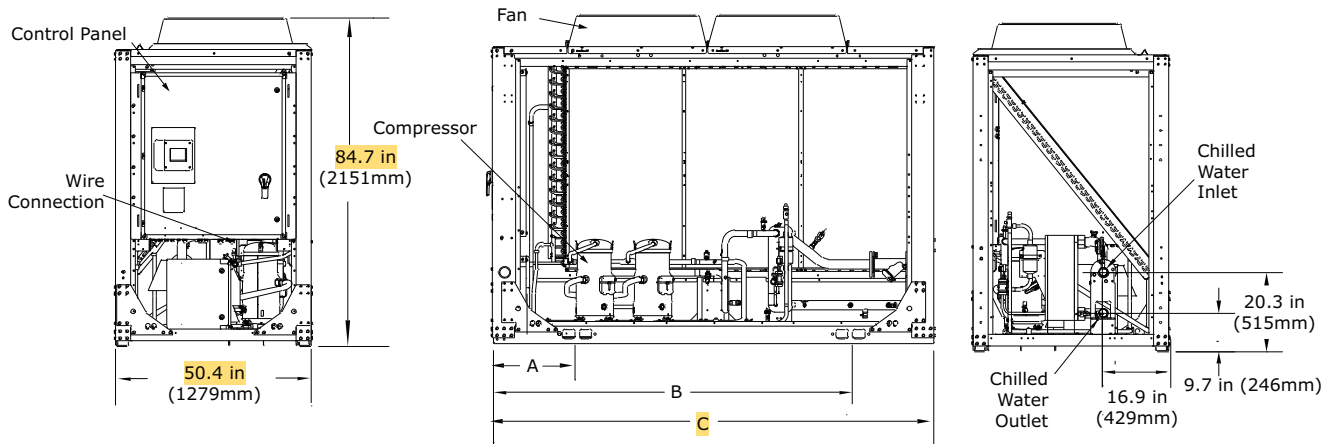
# Dimensions

## Unit Dimensions

### Unit without Options

**Note:** The number of fans shown does not represent the number of fans installed.

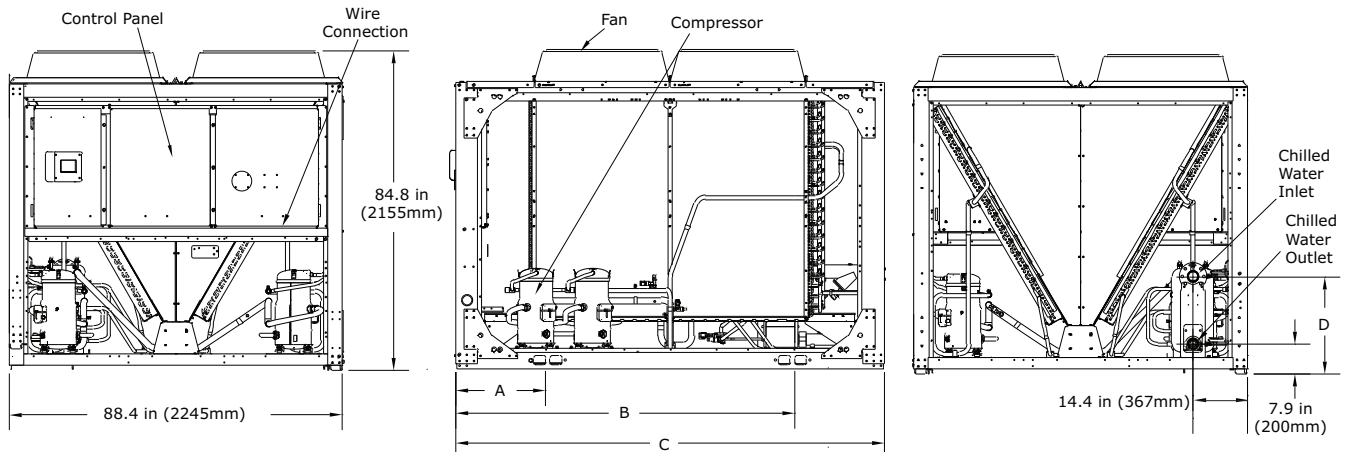
**Figure 4. Dimensions, 20 to 35 ton units, no options**



**Table 13. Dimensions, 20 to 35 ton units, no options**

| Unit Size (tons) | A    |     | B     |      | C     |      | Water Connection (from end of chiller) |    |
|------------------|------|-----|-------|------|-------|------|----------------------------------------|----|
|                  | in   | mm  | in    | mm   | in    | mm   | in                                     | mm |
| 20, 26           | 21.2 | 535 | 92.7  | 2354 | 113.8 | 2890 | 1.7                                    | 44 |
| 30, 35           | 21.3 | 541 | 128.4 | 3263 | 149.8 | 3804 | 1.6                                    | 40 |

**Figure 5. Dimensions, 40 to 70 ton units, no options**



**Table 14. Dimensions, 40 to 70 ton units, no options**

| Unit Size (tons) | A    |     | B     |      | C     |      | D    |     | Water Connection (from end of chiller) |
|------------------|------|-----|-------|------|-------|------|------|-----|----------------------------------------|
|                  | in   | mm  | in    | mm   | in    | mm   | in   | mm  |                                        |
| 40, 52           | 23.8 | 603 | 89.9  | 2282 | 113.8 | 2890 | 25.8 | 656 | Even with unit end                     |
| 60, 70           | 23.8 | 603 | 125.8 | 3196 | 149.8 | 3804 | 31.1 | 790 | Even with unit end                     |

## Weights

### Microchannel Condenser Coils

**Notes:**

- Base unit weights include refrigerant charge, isolators, circuit breakers and louvers.
- For units with round tube and plate fin condensers, see [“Round Tube and Plate Fin Condenser Coils,” p. 53.](#)

**Table 28. Base unit weights, 60 Hz, microchannel condenser — I-P (lb)**

| Unit Size<br>(Tons) | Base Unit |           | Base Unit<br>With Pump Package |           | Base Unit<br>With Pump Package and Buffer Tank |           |
|---------------------|-----------|-----------|--------------------------------|-----------|------------------------------------------------|-----------|
|                     | Shipping  | Operating | Shipping                       | Operating | Shipping                                       | Operating |
| High Efficiency     |           |           |                                |           |                                                |           |
| 20                  | 1967      | 1975      | 2507                           | 2582      | 3034                                           | 4259      |
| 26                  | 2030      | 2046      | 2571                           | 2659      | 3098                                           | 4329      |
| 30                  | 2388      | 2403      | 2929                           | 3021      | 3456                                           | 4686      |
| 35                  | 2608      | 2630      | 3150                           | 3256      | 3677                                           | 4914      |
| 40                  | 3307      | 3314      | 3926                           | 3999      | 4517                                           | 5732      |
| 52                  | 3402      | 3422      | 4021                           | 4122      | 4612                                           | 5840      |
| 60                  | 4136      | 4156      | 4972                           | 5108      | 5563                                           | 6817      |
| 70                  | 4579      | 4616      | 5415                           | 5589      | 6006                                           | 7278      |
| 80                  | 4888      | 4899      | 5766                           | 5996      | 6357                                           | 7768      |
| 90                  | 5141      | 5163      | 6020                           | 6277      | 6611                                           | 8032      |
| 100                 | 5816      | 5838      | 6719                           | 6988      | 7434                                           | 9215      |
| 110                 | 5893      | 5924      | 6796                           | 7083      | 7511                                           | 9301      |
| 120                 | 5930      | 5966      | 7186                           | 7477      | 7902                                           | 9696      |
| 130                 | 6722      | 6757      | 7976                           | 8287      | 8691                                           | 10480     |

Note: All weights  $\pm 3\%$ .

**Table 29. Base unit weights, 60 Hz, microchannel condenser — SI (kg)**

| Unit Size<br>(Tons) | Base Unit |           | Base Unit<br>With Pump Package |           | Base Unit<br>With Pump Package and Buffer Tank |           |
|---------------------|-----------|-----------|--------------------------------|-----------|------------------------------------------------|-----------|
|                     | Shipping  | Operating | Shipping                       | Operating | Shipping                                       | Operating |
| High Efficiency     |           |           |                                |           |                                                |           |
| 20                  | 892       | 896       | 1137                           | 1171      | 1376                                           | 1932      |
| 26                  | 921       | 928       | 1166                           | 1206      | 1405                                           | 1964      |
| 30                  | 1083      | 1090      | 1329                           | 1370      | 1568                                           | 2126      |
| 35                  | 1183      | 1193      | 1429                           | 1477      | 1668                                           | 2229      |
| 40                  | 1500      | 1503      | 1781                           | 1814      | 2049                                           | 2600      |
| 52                  | 1543      | 1552      | 1824                           | 1870      | 2092                                           | 2649      |
| 60                  | 1876      | 1885      | 2255                           | 2317      | 2523                                           | 3092      |
| 70                  | 2077      | 2094      | 2456                           | 2535      | 2724                                           | 3301      |
| 80                  | 2217      | 2222      | 2616                           | 2720      | 2884                                           | 3523      |
| 90                  | 2332      | 2342      | 2731                           | 2847      | 2999                                           | 3643      |
| 100                 | 2638      | 2648      | 3048                           | 3170      | 3372                                           | 4180      |
| 110                 | 2673      | 2687      | 3083                           | 3213      | 3407                                           | 4219      |
| 120                 | 2690      | 2706      | 3260                           | 3392      | 3584                                           | 4398      |
| 130                 | 3049      | 3065      | 3618                           | 3759      | 3942                                           | 4754      |

Note: All weights  $\pm 3\%$ .