

4 8 12 16 20 24 28 32 36 40 44 48 52 56 58  
 RTHD UC2FXMOUAF2W2RAL F3A2 LALA VXQX EXABBXV276F5UTXXXXXX YX 295



# Model Number Descriptions

## Unit Model Number

### Digits 1-4 – Chiller Model

RTHD= Water-Cooled Optimus™ Chiller

### Digit 5 – Manufacturing Location

U = Water Chiller Business Unit, Pueblo, CO USA

### Digits 6, 7 – Compressor Frame

- B1 = B1 Compressor
- B2 = B2 Compressor
- C1 = C1 Compressor
- C2 = C2 Compressor
- D1 = D1 Compressor
- D2 = D2 Compressor
- D3 = D3 Compressor (50 hz only)
- E3 = E3 Compressor (50 hz only)

### Digits 8 – Unit Power Supply

- A = 200V/60Hz/3Ph power
- C = 230V/60Hz/3Ph power
- D = 380V/60Hz/3Ph power
- F = 460V/60Hz/3Ph power
- H = 575V/60Hz/3Ph power
- R = 380V/50Hz/3Ph power
- T = 400V/50Hz/3Ph power
- U = 415V/50Hz/3Ph power

### Digit 9 – Specials

X = No Specials

*Historical information:*

- C = Specials denoted elsewhere
- S = Specials not denoted elsewhere

### Digit 10, 11 – Design Sequence

\*\* = Factory assigned

### Digit 12 – Agency Listing

X = No Agency Listing  
 U = UL Listed to US and Canadian Safety Standard

- A = IBC Seismically Rated
- B = UL/Canadian and IBC
- C = OSHPD Seismically Rated
- D = UL/Canadian and OSHPD

*Historical information:*

3 = CCC - Chinese Compulsory Code

**Note:** Digit 12 selections A, B, C & D are special order only.

### Digit 13 – Pressure Vessel Code

- A = ASME Pressure Vessel Code
- C = Canadian Code
- D = Australian Code
- L = Chinese Code-Imported Pressure Vessel

*Historical information:*

S = Special

### Digits 14,15 – Evaporator

- B1 = B1 Evaporator
- B2 = B2 Evaporator
- C1 = C1 Evaporator
- C2 = C2 Evaporator
- D1 = D1 Evaporator
- D2 = D2 Evaporator
- D3 = D3 Evaporator
- D4 = D4 Evaporator
- D5 = D5 Evaporator
- D6 = D6 Evaporator
- E1 = E1 Evaporator
- F1 = F1 Evaporator
- F2 = F2 Evaporator
- G1 = G1 Evaporator
- G2 = G2 Evaporator
- G3 = G3 Evaporator

### Digit 16 – Evaporator Tube Type

- A = Enhanced fin copper (all fluids)
- W = Enhanced fin copper (water only)

### Digit 17 – Evaporator Water Pass Configuration

- 2 = 2 Pass
- 3 = 3 Pass
- 4 = 4 Pass

### Digit 18 – Evaporator Water Connection

- L = Left Hand
- R = Right Hand

### Digit 19 – Evaporator Connection Type

A = Standard Grooved Pipe

*Historical information:*

S = Special

### Digit 20 – Evaporator Water Side Pressure

- L = 150 psi (10.5 bar)
- H = 300 psi (21 bar)

### Digit 21, 22 – Condenser

- B1 = B1 Condenser
- B2 = B2 Condenser
- D1 = D1 Condenser
- D2 = D2 Condenser
- E1 = E1 Condenser
- E2 = E2 Condenser
- E3 = E3 Condenser
- E4 = E4 Condenser
- E5 = E5 Condenser
- F1 = F1 Condenser
- F2 = F2 Condenser
- F3 = F3 Condenser
- G1 = G1 Condenser
- G2 = G2 Condenser
- G3 = G3 Condenser

### Digit 23 – Condenser Tube Type

- A = Enhanced Fin Copper - 0.028"
- B = Smooth Bore Copper
- C = Smooth Bore CuNi
- D = Enhanced Fin Copper - 0.025"

### Digit 24 – Condenser Water Passes

2 = 2 Pass

### Digit 25 – Condenser Water Connection

- L = Left Hand
- R = Right Hand

### Digit 26 – Condenser Connection Type

- A = Standard Grooved Pipe
- C = Marine
- S = Special

### Digit 27 – Condenser Waterside Pressure

- L = 150 psi (10.5 bar)
- H = 300 psi (21 bar)

### Digit 28 – Condenser Leaving Water Temperature

A = Standard

### Digit 29 – Refrigerant Isolation Valves

- X = No Refrigerant Isolation Valves
- V = With Refrigerant Isolation Valves

### Digit 30 – Oil Cooler

- X = Without Oil Cooler
- C = With Oil Cooler

### Digit 31 – Thermal Insulation

- X = No Insulation
- Q = Factory Installed Insulation

### Digit 32 – Acoustic Insulation

- X = No Insulation
- Historical information:*
- A = Standard Attenuator

### Digit 33 – Label and Literature Language

- C = Spanish
- E = English
- F = French

### Digit 34 – Safety Devices

X = Standard

### Digit 35 – Factory Charge

- A = Factory Refrigerant Charge (R-134a)
- B = Factory Nitrogen Charge

### Digit 36 – Shipping Package

- A = No Skid (Standard)
- B = Shrink Wrap
- C = Skid
- D = Skid + Shrink Wrap

*Historical information:*

J = Special



## Model Number Descriptions

### Digit 37 – Flow Switch

- X = No Flow Switch
- A = Evaporator (NEMA 1)
- B = Evaporator and Condenser (NEMA 1)
- C = Evaporator (NEMA 4)
- D = Evaporator and Condenser (NEMA 4)

### Digit 38 – Factory Test

- X = Standard Test
- C = Witness Test
- D = Performance Test

### Digit 39 – Starter Type

- Y = Wye-Delta Closed Transition Starter

- V = Premium AFD

Historical information:

- A = Solid State Starter

### Digits 40 - 42 – Design RLA (for starter)

- \*\*\* = Selection Assigned

### Digit 43 – Power Line Connection Type

- A = Terminal Block
- B = Mechanical Disconnect Switch
- D = Circuit Breaker
- F = High Interrupt Circuit Breaker

Historical information:

- H = Ground Fault Circuit Breaker
- J = Ground Fault High Interrupt Circuit Breaker

### Digit 44 – Max RLA (Starter)

- C = 277 max RLA (Unit Mounted)
- E = 364 max RLA (Unit Mounted)
- Q = 397 max RLA (Unit Mounted)
- R = 476 max RLA (Unit Mounted)
- T = 598 max RLA (Unit Mounted)
- U = 779 max RLA (Unit Mounted)
- V = 197 max RLA (Drive and Panel)
- W = 241 max RLA (Drive and Panel)
- X = 292 max RLA (Drive and Panel)
- Y = 367 max RLA (Drive and Panel)
- Z = 446 max RLA (Drive and Panel)
- 1 = 549 max RLA (Drive and Panel)
- 2 = 176 max RLA (Drive and Panel)
- 3 = 223 max RLA (Drive and Panel)
- 4 = 280 max RLA (Drive and Panel)
- 5 = 335 max RLA (Drive and Panel)
- 6 = 411 max RLA (Drive and Panel)
- 7 = 455 max RLA (Drive and Panel)

Historical information - Enclosure Type:

- F = NEMA 1 - MRLA207
- G = NEMA 1 - MRLA277
- H = NEMA 1 - MRLA300
- J = NEMA 1 - MRLA364
- K = NEMA 1 - MRLA397
- L = NEMA 1 - MRLA476
- M = NEMA 1 - MRLA500
- N = NEMA 1 - MRLA598
- P = NEMA 1 - MRLA779

### Digit 45 – Under/Over Voltage Protection

- X = None
- U = With Under/Over Voltage Protection

### Digit 46 – Operator Interface

- T = Tracer AdaptiView™ TD7 Display

Historical information:

- A = DynaView™ - English
- B = DynaView - French
- C = DynaView - Italian
- D = DynaView - Spanish
- E = DynaView - German
- F = DynaView - Dutch
- G = DynaView - Chinese (traditional)
- H = DynaView - Chinese (simple)
- J = DynaView - Japanese
- K = DynaView - Portuguese (Brazil)
- L = DynaView - Korean
- M = DynaView - Thai

### Digit 47 – Digital Communication Interface

- X = None
- 5 = LCI-C (LonTalk®) Interface
- 7 = BACnet®
- 8 = Modbus™ Interface

Historical information:

- 4 = Tracer™ Comm 4 Interface

### Digit 48 – External Water & Current-Limit Setpoint

- X = None
- 2 = 2–10 Vdc input
- 4 = 4–20 mA input

### Digit 49 – External Base Loading

- X = None
- 2 = 2–10 Vdc input
- 4 = 4–20 mA input

### Digit 50 – Ice Making

- X = None
- A = Ice Making with Relay
- B = Ice Making without Relay

### Digit 51 – Programmable Relays

- X = None
- R = With Programmable Relays

### Digit 52 – Chilled Water Reset

- X = Chilled Water Reset - Return Water
- T = Chilled Water Reset - Outdoor Air Temperature

### Digit 53 – Control Outputs

- X = None
- D = Chiller Differential Pressure & Percent RLA
- P = Condenser Pressure (% HPC) & Percent RLA
- V = Condenser Regulating Valve Control & Percent RLA

### Digits 54 – Refrigerant Monitor

- X = None
- A = 100 ppm / 4-20 mA
- B = 1000 ppm / 4-20 mA
- C = 100 ppm / 2-10 Vdc
- D = 1000 ppm / 2-10 Vdc

### Digit 55 – Condenser Leaving Hot Water Temp Control

- X = None
- H = Hot Water Temp Control

## Compressor Model Number

### Digits 1-4 – Compressor Model

CHHC= Positive displacement, helical rotary (twin screw) hermetic compressor

### Digit 5 – Design Control

- \* = Factory Assigned

### Digit 6 – Frame Size

- B = B Frame
- C = C Frame
- D = D Frame
- E = E Frame

### Digit 7 – Capacity

- 1 = Smaller capacity (minor)
- 2 = Larger capacity (major)
- 3 = Special 50 Hz

### Digit 8 – Motor Voltage

- A = 200V/60Hz/3Ph
- C = 230V/60Hz/3Ph
- D = 380V/60Hz/3Ph
- F = 400/480V- 50/60Hz - 3Ph used for 380V/50Hz/3Ph
- H = 575V/60Hz/3Ph
- M = 690V/50Hz/3Ph
- B = 525V/50Hz/3Ph
- G = 500V/50Hz/3Ph
- S = Special voltage

### Digit 9 – Design Specials

- 0 = No specials
- C = All specials denoted by digits elsewhere
- S = Uncategorized special not denoted by other digits

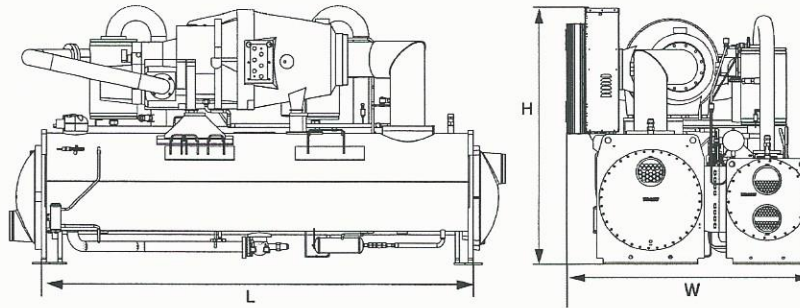
### Digits 10-11 – Design Sequence

- \*\* = Factory assigned

## Dimensions – Units with AFD Option

**Note:** Overall unit dimensions for units with the AFD option are shown in Table 15. All other dimensions are the same as standard unit dimensions specified in "Unit Dimensions - Standard (Wye-Delta Starter)," p. 32.

**Figure 7. Overall unit dimensions - units with AFD option**



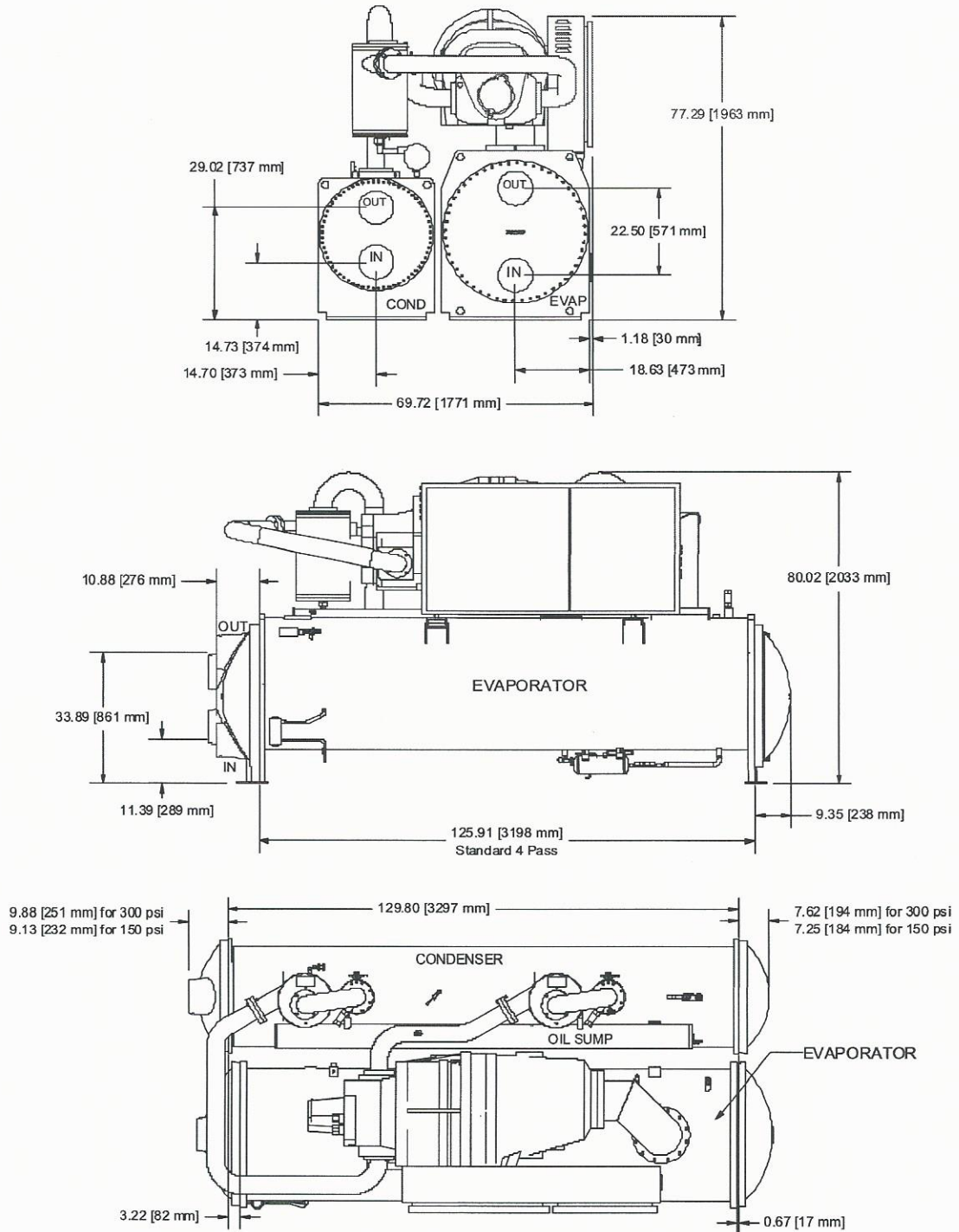
**Table 15. Overall dimensions — units with AFD option<sup>(a)</sup>**

Unit Configuration <sup>(b)</sup>	AFD D1H Frame						AFD D2H Frame					
	Length (L)		Width (W)		Height (H)		Length (L)		Width (W)		Height (H)	
	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm
B1B1B1	107.6	2734	71.3	1811	75.6	1920	107.6	2733	71.3	1811	80.8	2052
B1C1D1	125.9	3198	71.3	1811	75.6	1920	125.9	3198	71.3	1811	80.8	2052
B2B2B2	107.6	2734	71.3	1811	75.6	1920	107.6	2733	71.3	1811	80.8	2052
B2C2D2	125.9	3198	71.3	1811	75.6	1920	125.9	3198	71.3	1811	80.8	2052
C1D5E4	107.6	2734	74.5	1893	78.3	1989	107.6	2734	74.5	1893	83.5	2121
C1D6E5	107.6	2734	74.5	1893	78.3	1989	107.6	2734	74.5	1893	83.5	2121
C1E1F1	125.9	3198	74.4	1891	78.3	1989	125.9	3198	74.4	1891	83.5	2121
C2D3E3	107.6	2734	74.5	1893	78.3	1989	107.6	2734	74.5	1893	83.5	2121
C2D4E4	107.6	2734	74.5	1893	78.3	1989	107.6	2734	74.5	1893	83.5	2121
C2F2F3	125.9	3198	74.2	1886	78.7	1999	125.9	3198	74.2	1886	84.3	2141
D1D1E1	-	-	-	-	-	-	107.6	2734	74.5	1893	83.5	2121
D1F1F2	-	-	-	-	-	-	125.9	3198	74.2	1885.7	84.3	2141
D1G1G1	-	-	-	-	-	-	129.5	3289	76.7	1948	87.3	2217
D1G2G2	-	-	-	-	-	-	129.5	3289	76.7	1948	87.3	2217
D2D2E2	-	-	-	-	-	-	107.6	2734	74.5	1893	83.5	2121
D2F2F3	-	-	-	-	-	-	125.9	3198	74.2	1886	84.3	2141
D2G2G1	-	-	-	-	-	-	129.5	3289	76.7	1948	87.3	2217
D2G3G3	-	-	-	-	-	-	129.5	3289	76.7	1948	87.3	2217
D3D2E2	-	-	-	-	-	-	107.6	2734	74.5	1893	83.5	2121
D3F2F3	-	-	-	-	-	-	125.9	3198	74.2	1886	84.3	2141
D3G2G1	-	-	-	-	-	-	129.5	3289	76.7	1948	87.3	2217
E3D2E2	-	-	-	-	-	-	107.6	2734	74.5	1893	83.5	2121
E3F2F3	-	-	-	-	-	-	125.9	3198	74.2	1886	84.3	2141
E3G2G1	-	-	-	-	-	-	129.5	3289	76.7	1948	87.3	2217
E3G3G3	-	-	-	-	-	-	129.5	3289	76.7	1948	87.3	2217

(a) Dimensions vary with AFD frame size. D1H frame size used on units with model number digit 44 = V, W, X, 2, 3, 4, G, H or J. D2H frame size used with model number digit 44 = Y, Z, 1, 5, 6, 7, K, L, M or N.

(b) Unit configuration digits 1, 2 - compressor code (also shown in unit model number digits 6, 7); digits 3, 4 - evaporator code (unit model number digits 14, 15); digits 5, 6 - condenser code (unit model number digits 21, 22).

Figure 6. DGG, EGG configurations



**Table 6. Weights – units with AFD option<sup>(a)</sup>**

Unit Configuration <sup>(b)</sup>	Shipping Weight				Operating Weight			
	AFD D1H Frame		AFD D2H Frame		AFD D1H Frame		AFD D2H Frame	
	lbs	kg	lbs	kg	lbs	kg	lbs	kg
B1B1B1	9526	4321	-	-	10101	4582	-	-
B1C1D1	10071	4568	-	-	10787	4893	-	-
B2B2B2	9636	4371	-	-	10251	4650	-	-
B2C2D2	10187	4621	-	-	10886	4938	-	-
C1D5E4	13206	5990	13344	6053	13904	6307	14043	6370
C1D6E5	13014	5903	13153	5966	13631	6183	13770	6246
C1E1F1	14949	6781	15088	6844	16801	7621	16940	7684
C2D3E3	14235	6457	14374	6520	15278	6930	15417	6993
C2D4E4	13206	5990	13344	6053	13907	6308	14046	6371
C2F2F3	17055	7736	17194	7799	18446	8367	18585	8430
D1D1E1	-	-	14815	6720	-	-	15756	7147
D1F1F2	-	-	16559	7511	-	-	17910	8124
D1G1G1	-	-	18973	8606	-	-	20873	9468
D1G2G2	-	-	19480	8836	-	-	21438	9724
D2D2E2	-	-	14934	6774	-	-	15944	7232
D2F2F3	-	-	17194	7799	-	-	18594	8434
D2G2G1	-	-	19072	8651	-	-	21074	9559
D2G3G3	-	-	19881	9018	-	-	22013	9985
D3D2E2	-	-	14934	6774	-	-	15944	7232
D3F2F3	-	-	17194	7799	-	-	18594	8434
D3G2G1	-	-	19023	8629	-	-	21023	9536
E3D2E2	-	-	15093	6846	-	-	16100	7303
E3F2F3	-	-	17337	7864	-	-	18728	8495
E3G2G1	-	-	19173	8697	-	-	21173	9604

**Notes:**

1. All weights +/- 3%
2. Shipping weights include standard 150 psig water boxes, refrigerant charge and oil charge.
3. Operating weights include refrigerant, oil and water charges.
4. AFD frame size determined by unit selection. See submittal for information.

(a) Weights dependent on AFD frame size. D1H frame size used on units with max RLA values 176 - 292 amps (model number digit 44 = V, W, X, 2, 3 or 4). D2H frame size used with max RLA values of 335 - 549 amps (model number digit 44 = Y, Z, 1, 5, 6 or 7).

(b) Unit configuration digits 1, 2 - compressor code (also shown in unit model number digits 6, 7); digits 3, 4 - evaporator code (unit model number digits 14, 15); digits 5, 6 - condenser code (unit model number digits 21, 22).



## General Information

**Table 2. General Data**

Unit Configuration <sup>(a)</sup>		C2D4E4	C2F2F3	D1D1E1	D1F1F2	D1G1G1	D1G2G2	D2D2E2	D2F2F3
<b>GENERAL</b>									
Refrigerant Type		HFC-134a							
Refrigerant Charge	lb	490	625	475	625	700	700	475	625
	kg	222	284	216	284	318	318	216	284
Oil Type (wye-delta)		OIL48							
Oil Charge <sup>(b)</sup> (wye-delta)	gal	6	10	6	10	11	11	6	10
	L	23	38	23	38	42	42	23	38
Oil Type (AFD)		OIL315							
Oil Charge (AFD)	gal	10	12	9.5	11	13.5	13.5	9.5	11
	L	38	45.5	36	42	51	51	36	42
<b>EVAPORATOR</b>									
Water Storage	gal	52	107	69	102	136	144	74	107
	L	197	405	261	386	515	545	280	405
Connection size	in	8	10	8	10	-	-	8	10
	mm	200	250	200	250	-	-	200	250
Min Flow - Water	gpm	351	604	415	563	-	-	450	604
	l/s	21	38	26	36	-	-	28	38
2-pass Min Flow - Brine	gpm	422	725	498	676	-	-	541	725
	l/s	27	46	31	43	-	-	34	46
Maximum Flow	gpm	1542	2667	1812	2478	-	-	1980	2667
	l/s	97	168	114	156	-	-	125	168
Connection size	in	8	8	8	8	10	10	8	8
	mm	200	200	200	200	250	250	200	200
Min Flow - Water	gpm	234	404	275	376	505	550	300	404
	l/s	15	25	17	24	35	35	19	25
3-pass Min Flow - Brine	gpm	281	487	330	454	606	660	357	487
	l/s	18	31	21	29	38	42	23	31
Maximum Flow	gpm	1028	1780	1206	1655	2218	2413	1320	1780
	l/s	65	112	76	104	140	152	83	112
Connection size	in	-	-	-	-	8	8	-	-
	mm	-	-	-	-	200	200	-	-
Min Flow - Water	gpm	-	-	-	-	379	411	-	-
	l/s	-	-	-	-	24	26	-	-
4-pass Min Flow - Brine	gpm	-	-	-	-	454	492	-	-
	l/s	-	-	-	-	29	31	-	-
Maximum Flow	gpm	-	-	-	-	1666	1807	-	-
	l/s	-	-	-	-	105	114	-	-
<b>CONDENSER(all are 2-pass)</b>									
Connection size	in	8	8	8	8	8	8	8	8
	mm	200	200	200	200	200	200	200	200
Water Storage	gal	32	61	44	57	79	91	47	61
	L	121	231	166	216	299	344	178	231
Min Flow - Water	gpm	245	355	291	355	444	535	316	385
	l/s	15	22	18	22	28	34	20	24
Min Flow - Brine	gpm	295	460	350	430	530	650	380	460
	l/s	19	29	22	27	33	41	24	29
Max Flow	gpm	1080	1700	1280	1560	1960	2360	1390	1700
	l/s	68	107	81	98	124	149	88	107

(a) Unit configuration digits 1, 2 - compressor code (also shown in unit model number digits 6, 7); digits 3, 4 - evaporator code (unit model number digits 14, 15); digits 5, 6 - condenser code (unit model number digits 21, 22).

(b) If oil cooler is installed, add 0.3 gal (1L) to oil charge value given for B compressor family units. Add 1.0 gal (4L) for all other units.