



Large Air-Cooled Condensing Units

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NOTE:
Refrigeration systems identified with black shading are not intended for use in Walk-In Coolers or Freezers where US Department of Energy (DOE) or Natural Resources Canada (NRCan) efficiency requirements apply.
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Large Air-Cooled Condensing Units

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Model Introduction

Control Panel Nomenclature

Character Position: 1,2 3 4 5,6,7,8 9 10 11 12

CS	B	-	0300	-	L	Q	M
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CONDENSING UNIT FAMILY:

- CS - Single Compressor
- CP - Parallel Compressor
- CD - Dual Compressor

COMPRESSOR MANUFACTURER:

- D - Copeland Discus
- B - Bitzer Ecoline, Motor 2*
- E - Bitzer Ecoline, Motor 1**

TOTAL HP AND CONDENSER:

- xxxx
- xxx - Total Horsepower
- y - 0 for Standard Condenser
- 1 for Oversized Condenser
- 2 for Title 24 Condenser

APPLICATION TEMPERATURE:

- M - Medium
- L - Low

VOLTAGE:

- K - 208-230/3/60
- M - 460/3/60
- P - 575/3/60
- U - 380/3/50
(use 460/3 for electrical info)

REFRIGERANT:

- S - R-404A
- P - R-507A
- Q - R-407A
- F - R-407F
- T - R-448A
- R - R-449A

* Low and medium temperatures

** Medium and high temperatures

Standard Features for All Models

Large Air-Cooled Condensing Units Available in Standard, Oversize, and Title 24 Model Configurations

- Medium Temperature R-404A, R-407A, and R-448A
- Low Temperature R-404A, R-407A, and R-448A

Models

- CS Series Units are new, more efficiently sized units that have a reduced footprint, more standard features and provide increased options for sizing large jobs.
- CP Series Parallel Units are two compressors piped together to provide one refrigeration circuit.
- CD Series Dual Units are two compressors piped independently for a separate circuit operation.

Model Introduction

Features for All Models

Compressor

- Bitzer Ecoline Compressors or Copeland Discus Compressors (CS, CP and CD models).
- Factory balanced and rigid mounted to reduce risk of line fatigue failure and vibration eliminator leaks.
- Internal motor overheat protection.
- Crankcase heater is de-energized during compressor operation for energy savings.
- Oil level sight glass.
- CS, CP and CD models use an internal driven shaft oil pump with manual reset oil safety control.
- Back-seating suction and discharge valves.
- Safety controls are factory installed using armored capillary tubes to prevent leaks with automatic reset low pressure and manual reset high pressure controls standard.

Receiver

- Amply sized receivers are sized to hold condenser flooding charge, evaporator charge and 100' of liquid line.
- Pressure relief valve and charging valve are standard.

Condenser

- Constructed with 3/8" grooved tubing for maximum efficiency.
- Sub-cooling circuit cools liquid leaving the receiver to ensure a solid column of liquid at the expansion valve.
- Adjustable head pressure system (flooding) for low ambient operation.
- Mechanically bonded, die formed, aluminum fin stock with full self-spacing collars.
- Maximum 10 FPI for efficiency and ease of maintenance.
- Generous sizing allows low head pressure operation.
- Oversized condenser provides an option for lower temperature difference for high ambient applications.
- Suspended coil design eliminates tube sheet leaks.
- Title 24 condenser option exceeds minimum efficiency required for California and requires the addition of a Variable Speed fans (K motors) or ship loose VFD with 3 phase motors, and controller capable of floating head pressure.

Condenser Fans

- 30" statically and dynamically balanced direct drive fans with a separate motor for each fan.
- Fan sections are divided by full width baffles to prevent air by-pass.
- Three phase 1.5 HP motors operate fans at 1140 RPM.
- Each fan is protected by a heavy gauge, corrosion resistant fan guard.
- Inverter Duty Suitable motor (230/3 and 460/3 only).
- The "swept-wing" blade design for lower noise levels.

Control Panel

- Fully enclosed and weather proofed.
- Single point connections provide reliable distribution to panel components.
- Dual compartments, separate line voltage and controls for safety during service.
- Lockable with field supplied padlock.
- Manual pump down switch for ease of service.
- 230 V; single phase control voltage is standard.
 - A transformer is included where necessary.
- Power and control circuit terminal strip.

Refrigerant Circuit

- Replaceable core liquid line filter drier.
- Sight glass at receiver outlet for charging.
- Suction accumulator is included on low temperature units.

Construction Features

- Galvanized cabinet.

Optional Features

- 115 control voltage with transformer.
- Oil separator system to activate flow of oil. (Recommended for room temperatures of -10° F and below.)
- Suction accumulator on medium temperature.
- Sealed or replaceable core suction filter.
- Heated and insulated receiver.
- Electrical control panel with all necessary controls to run electric defrost evaporators (includes timer, contactors).
- Air defrost timer.
- Fused disconnect shipped loose.
- Mounted non-fused disconnect with interlock.
- Cylinder unloaders for compressors.
- Alternate fin materials, such as vinyl and copper, can be specified for adverse environmental conditions.
- Condenser access/clean out doors.
- Electrofin condenser coating.
- Hurricane-rated kits available.

Note

- Additional information will be given per model on their respective pages.

CS Single Systems

CSD Low Temp R-404A

CSD Performance Data - Low Temperature R-404A - Total Capacity

			95°F AMBIENT TEMPERATURE								
CONDENSING UNIT MODEL	COMPRESSOR	CONDENSER	-40	-35	-30	-25	-20	-15	-10	-5	0
CSD-0150-L	4DKNF63KE	11410	39.1	46.3	53.6	61.2	69.1	77.4	86.3	95.8	106.0
CSD-0151-L	4DKNF63KE	12210	39.9	47.3	54.8	62.6	70.8	79.4	88.7	98.6	109.4
CSD-0220-L	4DJNF76KE	12210	47.7	56.4	65.2	74.4	83.9	93.8	104.2	115.1	126.6
CSD-0221-L	4DJNF76KE	12310	49.1	58.0	67.3	76.9	87.0	97.6	108.8	120.6	133.1
CSD-0222-L	4DJNF76KE	12410	49.6	58.7	68.1	78.0	88.3	99.1	110.7	122.9	135.9
CSD-0270-L	6DHNF93KE	12310	58.7	68.9	80.2	92.4	105.6	119.5	134.0	149.2	164.7
CSD-0271-L	6DHNF93KE	13210	59.1	69.4	80.8	93.2	106.5	120.6	135.3	150.7	166.6
CSD-0272-L	6DHNF93KE	12410	59.6	69.9	81.4	94.0	107.5	121.8	136.8	152.5	168.8
CSD-0300-L	6DJNF11ME	12310	66.5	77.7	89.8	102.7	116.4	131.0	146.5	162.8	179.9
CSD-0301-L	6DJNF11ME	13310	68.8	80.5	93.2	106.9	121.6	137.5	154.5	172.6	191.8
CSD-0302-L	6DJNF11ME	12410	67.6	79.0	91.3	104.6	118.8	134.0	150.1	167.2	185.3

			105°F AMBIENT TEMPERATURE								
CONDENSING UNIT MODEL	COMPRESSOR	CONDENSER	-40	-35	-30	-25	-20	-15	-10	-5	0
CSD-0150-L	4DKNF63KE	11410	34.0	40.9	47.8	54.8	62.1	69.8	78.0	86.7	96.2
CSD-0151-L	4DKNF63KE	12210	34.7	41.7	48.8	56.0	63.6	71.6	80.1	89.3	99.2
CSD-0220-L	4DJNF76KE	12210	41.2	49.5	58.0	66.6	75.5	84.7	94.3	104.3	114.8
CSD-0221-L	4DJNF76KE	12310	42.6	51.2	60.0	69.0	78.4	88.1	98.4	109.2	120.6
CSD-0222-L	4DJNF76KE	12410	43.2	51.9	60.8	70.0	79.6	89.6	100.1	111.2	123.0
CSD-0270-L	6DHNF93KE	12310	51.0	60.7	71.4	82.9	95.2	108.1	121.5	135.3	149.5
CSD-0271-L	6DHNF93KE	13210	51.3	61.2	72.0	83.6	96.0	109.1	122.7	136.8	151.3
CSD-0272-L	6DHNF93KE	12410	51.8	61.7	72.6	84.4	97.0	110.2	124.1	138.5	153.3
CSD-0300-L	6DJNF11ME	12310	58.0	68.7	80.1	92.1	104.8	118.1	132.1	146.8	162.1
CSD-0301-L	6DJNF11ME	13310	60.2	71.4	83.4	96.1	109.7	124.2	139.6	155.9	173.2
CSD-0302-L	6DJNF11ME	12410	59.0	69.9	81.6	93.9	107.0	120.9	135.5	150.9	167.1

NOTE:
All evaporator temps are MIDPOINT. Blacked out values indicate the condensing temp is above 135°F and are not recommended.

Electrical Specifications - Low Temperature R-404A

Voltage			208-230/3/60				460/3/60				575/3/60				Condenser LAVF
Unit	Compressor	Cond	Comp RLA	Cond FLA	MCA	MOPD	Comp RLA	Cond FLA	MCA	MOPD	Comp RLA	Cond FLA	MCA	MOPD	
CSD-0150-LS*	4DKNF63KE	S	52.6	5.4	74.1	125	26.3	2.5	36.9	60	20.9	2.5	29.9	50	11410
CSD-0151-LS		O		10.8	79.5	125		5.0	39.4	60		5.0	32.4	50	12210
CSD-0220-LS	4DJNF76KE	S	64.3	10.8	94.2	150	32.1	5.0	46.7	80	29.1	5.0	42.5	70	12210
CSD-0221-LS		O		10.8	94.2	150		5.0	46.7	80		5.0	42.5	70	12310
CSD-0222-LS	6DHNF93KE	T	80.7	10.8	94.2	150	40.4	5.0	46.7	80	32.5	5.0	42.5	70	12410
CSD-0270-LS		S		10.8	114.7	175		5.0	56.9	90		5.0	46.8	70	12310
CSD-0271-LS	O	16.2	120.1	200	47.8	7.5	59.4	100	39.6	7.5	49.3	80	13210		
CSD-0272-LS	T	10.8	114.7	175		5.0	56.9	90		5.0	46.8	70	12410		
CSD-0300-LS	6DJNF11ME	S	95.6	10.8	133.3	225	47.8	5.0	66.3	110	39.6	5.0	55.7	90	12310
CSD-0301-LS		O		16.2	138.7	225		7.5	68.8	110		7.5	58.2	90	13310
CSD-0302-LS	T	10.8	133.3	225	47.8	5.0	66.3	110	39.6	5.0	55.7	90	12410		

1. Condenser size in the 8th position of the model number are: 0 - Standard, 1 - Oversize, 2 (or * at the end of the model) - Meets Title 24 efficiency requirement and need VFD added to vary fan speed to meet the full regulation.
2. Calculated MCA and MOPD in the table includes compressor, condenser fans and control circuit. Use the MCA / MOPD Calculation at the end of section to include evaporator fans and defrost loads when powered from the condensing unit.

3. Condensing unit capacities are calculated based on the LAVF condenser model shown in the table and mid-point temperatures.
4. Use R-404A capacity and electrical data for R-507A while replacing the "S" at the end of the model nomenclature with a "P."
5. Compressor head cooling fan is included for all low temperature applications.

CS Single Systems

CSD Low Temp R-407A

CSD Performance Data - Low Temperature R-407A - Total Capacity

95°F AMBIENT TEMPERATURE

CONDENSING UNIT MODEL	COMPRESSOR	CONDENSER	-40	-35	-30	-25	-20	-15	-10	-5	0
CSD-0150-L	4DKNF63KE	11410	33.0	39.6	46.8	54.6	62.9	71.8	81.1	91.0	101.3
CSD-0151-L	4DKNF63KE	12210	33.4	40.2	47.5	55.5	64.0	73.1	82.7	92.9	103.7
CSD-0220-L	4DJNF76KE	12210	43.1	49.5	57.4	66.6	77.1	88.7	101.5	115.3	130.1
CSD-0221-L	4DJNF76KE	12310	44.0	50.8	59.1	68.9	80.0	92.3	105.9	120.6	136.5
CSD-0222-L	4DJNF76KE	12410	44.4	51.4	59.9	69.8	81.2	93.9	107.8	122.9	139.2
CSD-0270-L	6DHNF93KE	12310	45.9	57.6	69.5	81.8	94.9	109.0	124.2	140.9	159.1
CSD-0271-L	6DHNF93KE	13210	46.2	57.9	69.9	82.3	95.5	109.7	125.1	141.9	160.4
CSD-0272-L	6DHNF93KE	12410	46.7	58.5	70.6	83.2	96.6	111.1	126.8	144.0	162.9
CSD-0300-L	6DJNF11ME	12310	54.4	68.2	82.3	96.9	112.2	128.7	146.4	165.7	186.8
CSD-0301-L	6DJNF11ME	13310	56.5	70.8	85.5	100.7	117.0	134.5	153.5	174.4	197.3
CSD-0302-L	6DJNF11ME	12410	55.5	69.6	83.9	98.9	114.7	131.7	150.1	170.2	192.2

105°F AMBIENT TEMPERATURE

CONDENSING UNIT MODEL	COMPRESSOR	CONDENSER	-40	-35	-30	-25	-20	-15	-10	-5	0
CSD-0150-L	4DKNF63KE	11410	28.6	34.9	41.6	48.9	56.6	64.8	73.5	82.5	92.0
CSD-0151-L	4DKNF63KE	12210	29.0	35.4	42.3	49.7	57.7	66.1	75.0	84.4	94.3
CSD-0220-L	4DJNF76KE	12210	38.7	44.1	51.0	59.3	68.8	79.6	91.6	104.6	118.7
CSD-0221-L	4DJNF76KE	12310	39.6	45.4	52.7	61.5	71.7	83.2	95.9	109.9	125.0
CSD-0222-L	4DJNF76KE	12410	40.0	46.0	53.5	62.5	72.9	84.7	97.8	112.1	127.6
CSD-0270-L	6DHNF93KE	12310	37.9	49.3	60.8	72.7	85.1	98.4	112.7	128.4	145.5
CSD-0271-L	6DHNF93KE	13210	38.2	49.7	61.2	73.2	85.7	99.1	113.6	129.4	146.7
CSD-0272-L	6DHNF93KE	12410	38.8	50.3	62.0	74.1	86.9	100.5	115.3	131.5	149.3
CSD-0300-L	6DJNF11ME	12310	44.7	58.2	71.7	85.7	100.3	115.8	132.4	150.5	170.3
CSD-0301-L	6DJNF11ME	13310	47.0	61.0	75.1	89.8	105.2	121.8	139.7	159.4	180.9
CSD-0302-L	6DJNF11ME	12410	45.8	59.6	73.5	87.8	102.8	118.9	136.2	155.1	175.8

NOTE:

Refrigeration systems identified with black shading are not intended for use in Walk-In Coolers or Freezers where US Department of Energy (DOE) or Natural Resources Canada (NRCAN) efficiency requirements apply. All evaporator temps are MIDPOINT. Blacked out values indicate the condensing temp is above 135 °F and are not recommended.

Electrical Specifications - Low Temperature R-407A

Voltage			208-230/3/60				460/3/60				575/3/60			
Unit	Compressor	Cond	Comp RLA	Cond FLA	MCA	MOPD	Comp RLA	Cond FLA	MCA	MOPD	Comp RLA	Cond FLA	MCA	MOPD
CSD-0150-LQ*	4DKNF63KE	S	52.6	5.4	74.1	125	26.3	2.5	36.9	60	20.9	2.5	29.9	50
CSD-0151-LQ		O		10.8	79.5	125		5.0	39.4	60		5.0	32.4	50
CSD-0220-LQ	4DJNF76KE	S	64.3	10.8	94.2	150	32.1	5.0	46.7	80	29.1	5.0	42.5	70
CSD-0221-LQ		O		10.8	94.2	150		5.0	46.7	80		5.0	42.5	70
CSD-0222-LQ		T		10.8	94.2	150		5.0	46.7	80		5.0	42.5	70
CSD-0270-LQ	6DHNF93KE	S	80.7	10.8	114.7	175	40.4	5.0	56.9	90	32.5	5.0	46.8	70
CSD-0271-LQ		O		16.2	120.1	200		7.5	59.4	100		7.5	49.3	80
CSD-0272-LQ		T		10.8	114.7	175		5.0	56.9	90		5.0	46.8	70
CSD-0300-LQ	6DJNF11ME	S	95.6	10.8	133.3	225	47.8	5.0	66.3	110	39.6	5.0	55.7	90
CSD-0301-LQ		O		16.2	138.7	225		7.5	68.8	110		7.5	58.2	90
CSD-0302-LQ		T		10.8	133.3	225		5.0	66.3	110		5.0	55.7	90

Unit	Condenser LAVF
CSD-0150-LQ*	11410
CSD-0151-LQ	12210
CSD-0220-LQ	12210
CSD-0221-LQ	12310
CSD-0222-LQ	12410
CSD-0270-LQ	12310
CSD-0271-LQ	13210
CSD-0272-LQ	12410
CSD-0300-LQ	12310
CSD-0301-LQ	13310
CSD-0302-LQ	12410

- Condenser size in the 8th position of the model number are: 0 - Standard, 1 - Oversize, 2 for * at the end of the model) - Meets Title 24 efficiency requirement and need VFD added to vary fan speed to meet the full regulation.
- Calculated MCA and MOPD in the table includes compressor, condenser fans and control circuit. Use the MCA / MOPD Calculation at the end of section to include evaporator fans and defrost loads when powered from the condensing unit.

- Condensing unit capacities are calculated based on the LAVF condenser model shown in the table and mid-point temperatures.
- Use R-407A capacity and electrical data for R-407F while replacing the "O" at the end of the model nomenclature with an "F".
- Compressor head cooling fan and liquid injection are included on all low temperature units.

CS Single Systems

CSD Low Temp R-448A

CSD Performance Data - Low Temperature R-448A - Total Capacity

CONDENSING UNIT MODEL	COMPRESSOR	CONDENSER	95°F AMBIENT TEMPERATURE								
			-40	-35	-30	-25	-20	-15	-10	-5	0
CSD-0150-L	4DKNF63KE	11410	34.5	42.0	49.7	57.8	66.3	75.3	84.8	94.9	105.6
CSD-0151-L	4DKNF63KE	12210	35.1	42.7	50.6	58.8	67.5	76.7	86.5	97.0	108.1
CSD-0220-L	4DJNF76KE	12210	42.0	51.2	60.7	70.7	81.4	93.0	105.8	120.0	135.7
CSD-0221-L	4DJNF76KE	12310	43.5	53.1	63.0	73.4	84.6	96.9	110.5	125.6	142.4
CSD-0222-L	4DJNF76KE	12410	44.2	53.9	63.9	74.6	86.0	98.6	112.5	128.0	145.3
CSD-0270-L	6DHNF93KE	12310	50.9	62.1	73.9	86.5	100.1	114.8	130.8	148.2	167.2
CSD-0271-L	6DHNF93KE	13210	51.2	62.5	74.4	87.1	100.7	115.6	131.7	149.3	168.5
CSD-0272-L	6DHNF93KE	12410	51.8	63.2	75.2	88.1	102.0	117.1	133.6	151.5	171.2
CSD-0300-L	6DJNF11ME	12310	59.8	73.3	87.4	102.3	118.2	135.4	153.9	174.1	196.0
CSD-0301-L	6DJNF11ME	13310	62.3	76.4	91.1	106.7	123.5	141.8	161.7	183.5	207.4
CSD-0302-L	6DJNF11ME	12410	61.1	74.9	89.3	104.6	121.0	138.7	157.9	178.9	201.9

CONDENSING UNIT MODEL	COMPRESSOR	CONDENSER	105°F AMBIENT TEMPERATURE								
			-40	-35	-30	-25	-20	-15	-10	-5	0
CSD-0150-L	4DKNF63KE	11410	29.0	36.4	43.9	51.6	59.7	68.1	76.9	86.2	96.1
CSD-0151-L	4DKNF63KE	12210	29.6	37.0	44.7	52.6	60.8	69.5	78.6	88.3	98.5
CSD-0220-L	4DJNF76KE	12210	34.9	43.9	53.0	62.5	72.6	83.7	95.9	109.3	124.3
CSD-0221-L	4DJNF76KE	12310	36.4	45.7	55.2	65.1	75.8	87.5	100.4	114.8	130.8
CSD-0222-L	4DJNF76KE	12410	37.0	46.4	56.1	66.3	77.2	89.2	102.4	117.1	133.6
CSD-0270-L	6DHNF93KE	12310	42.3	53.2	64.7	76.7	89.7	103.6	118.6	135.0	152.9
CSD-0271-L	6DHNF93KE	13210	42.6	53.6	65.1	77.3	90.3	104.4	119.6	136.2	154.3
CSD-0272-L	6DHNF93KE	12410	43.3	54.4	66.1	78.4	91.7	106.0	121.5	138.5	157.1
CSD-0300-L	6DJNF11ME	12310	49.2	62.4	76.1	90.3	105.5	121.7	139.1	158.1	178.6
CSD-0301-L	6DJNF11ME	13310	51.9	65.7	80.0	95.0	111.1	128.4	147.2	167.8	190.4
CSD-0302-L	6DJNF11ME	12410	50.6	64.1	78.1	92.7	108.4	125.1	143.3	163.1	184.7

NOTE:
 Refrigeration systems identified with black shading are not intended for use in Walk-In Coolers or Freezers where US Department of Energy (DOE) or Natural Resources Canada (NRCAN) efficiency requirements apply.
 All evaporator temps are MIDPOINT. Blacked out values indicate the condensing temp is above 135°F and are not recommended.

Electrical Specifications - Low Temperature R-448A

Voltage			208-230/3/60				460/3/60				575/3/60			
Unit	Compressor	Cond	Comp RLA	Cond FLA	MCA	MOPD	Comp RLA	Cond FLA	MCA	MOPD	Comp RLA	Cond FLA	MCA	MOPD
CSD-0150-LT*	4DKNF63KE	S	52.6	5.4	74.1	125	26.3	2.5	36.9	60	20.9	2.5	29.9	50
CSD-0151-LT		O		10.8	79.5	125		5.0	39.4	60		5.0	32.4	50
CSD-0220-LT		S		10.8	94.2	150		5.0	46.7	80		5.0	42.5	70
CSD-0221-LT	4DJNF76KE	O	64.3	10.8	94.2	150	32.1	5.0	46.7	80	29.1	5.0	42.5	70
CSD-0222-LT		T		10.8	94.2	150		5.0	46.7	80		5.0	42.5	70
CSD-0270-LT		S		10.8	114.7	175		5.0	56.9	90		5.0	46.8	70
CSD-0271-LT	6DHNF93KE	O	80.7	16.2	120.1	200	40.4	7.5	59.4	100	32.5	7.5	49.3	80
CSD-0272-LT		T		10.8	114.7	175		5.0	56.9	90		5.0	46.8	70
CSD-0300-LT		S		10.8	133.3	225		5.0	66.3	110		5.0	55.7	90
CSD-0301-LT	6DJNF11ME	O	95.6	16.2	138.7	225	47.8	7.5	68.8	110	39.6	7.5	58.2	90
CSD-0302-LT		T		10.8	133.3	225		5.0	66.3	110		5.0	55.7	90

Unit	Condenser LAVF
CSD-0150-LT*	11410
CSD-0151-LT	12210
CSD-0220-LT	12210
CSD-0221-LT	12310
CSD-0222-LT	12410
CSD-0270-LT	12310
CSD-0271-LT	13210
CSD-0272-LT	12410
CSD-0300-LT	12310
CSD-0301-LT	13310
CSD-0302-LT	12410

1. Condenser size in the 8th position of the model number are: 0 – Standard, 1 – Oversize, 2 (or * at the end of the model) – Meets Title 24 efficiency requirement and need VFD added to vary fan speed to meet the full regulation.
2. Calculated MCA and MOPD in the table includes compressor, condenser fans and control circuit. Use the MCA / MOPD Calculation at the end of section to include evaporator fans and defrost loads when powered from the condensing unit.
3. Condensing unit capacities are calculated based on the LAVF condenser model shown in the table and mid-point temperatures.
4. Use R-448A capacity and electrical data for R-449A while replacing the "T" at the end of the model nomenclature with a "R".
5. Compressor head cooling fan and liquid injection are included on all low temperature units.

CS Single Systems

CSE Low Temp R-404A

CSE Performance Data - Low Temperature R-404A - Total Capacity

95°F AMBIENT TEMPERATURE

CONDENSING UNIT MODEL	COMPRESSOR	CONDENSER	-40	-35	-30	-25	-20	-15	-10	-5	0
CSE-0150-L	4HE-25	11410	36.9	44.2	51.9	60.2	69.0	78.4	88.4	98.9	110.0
CSE-0151-L	4HE-25	12210	37.6	45.0	53.0	61.6	70.8	80.6	91.1	102.2	114.1
CSE-0220-L	4GE-30	12210	43.7	52.1	61.1	70.6	80.8	91.6	103.1	115.3	128.2
CSE-0221-L	4GE-30	12310	44.9	53.6	62.9	73.0	83.8	95.4	107.9	121.2	135.4
CSE-0222-L	4GE-30	12410	45.4	54.2	63.7	74.0	85.0	97.0	109.8	123.6	138.4
CSE-0270-L	6HE-35	12310	55.2	66.0	77.6	90.0	103.3	117.5	132.7	148.8	165.9
CSE-0271-L	6HE-35	13210	55.6	66.5	78.2	90.8	104.3	118.7	134.1	150.6	168.1
CSE-0272-L	6HE-35	12410	56.0	67.0	78.9	91.6	105.3	120.0	135.8	152.6	170.6
CSE-0300-L	6GE-40	12310	64.2	76.3	89.1	102.9	117.5	133.1	149.5	166.9	185.2
CSE-0301-L	6GE-40	13310	66.4	79.0	92.6	107.3	123.1	140.0	158.2	177.6	198.3
CSE-0302-L	6GE-40	12410	65.2	77.5	90.8	104.9	120.1	136.2	153.5	171.8	191.2

105°F AMBIENT TEMPERATURE

CONDENSING UNIT MODEL	COMPRESSOR	CONDENSER	-40	-35	-30	-25	-20	-15	-10	-5	0
CSE-0150-L	4HE-25	11410	32.0	38.7	45.9	53.4	61.4	69.8	78.8	88.2	98.1
CSE-0151-L	4HE-25	12210	32.6	39.5	46.9	54.7	63.0	71.9	81.3	91.4	102.0
CSE-0220-L	4GE-30	12210	38.3	46.0	54.2	62.9	72.1	81.8	92.1	103.0	114.5
CSE-0221-L	4GE-30	12310	39.3	47.4	56.0	65.1	74.9	85.4	96.6	108.6	121.4
CSE-0222-L	4GE-30	12410	39.7	47.9	56.7	66.1	76.1	86.9	98.5	110.9	124.2
CSE-0270-L	6HE-35	12310	47.8	57.8	68.5	79.9	91.9	104.8	118.5	133.0	148.3
CSE-0271-L	6HE-35	13210	48.1	58.3	69.1	80.6	92.8	105.9	119.8	134.6	150.4
CSE-0272-L	6HE-35	12410	48.5	58.8	69.7	81.4	93.8	107.2	121.4	136.6	152.7
CSE-0300-L	6GE-40	12310	55.9	67.2	79.1	91.6	104.9	118.8	133.6	149.1	165.5
CSE-0301-L	6GE-40	13310	58.0	69.8	82.4	95.8	110.2	125.5	141.9	159.4	177.9
CSE-0302-L	6GE-40	12410	56.9	68.4	80.6	93.5	107.3	121.9	137.4	153.8	171.1

NOTE:

Selection of the CSB model is recommended for low temperature applications where the larger motor in the CSE model is not required. All evaporator temps are MIDPOINT. Blacked out values indicate the condensing temp is above 135°F and are not recommended.

Electrical Specifications - Low Temperature R-404A

Voltage			208-230/3/60				460/3/60				575/3/60			
Unit	Compressor	Cond	Comp RLA	Cond FLA	MCA	MOPD	Comp RLA	Cond FLA	MCA	MOPD	Comp RLA	Cond FLA	MCA	MOPD
CSE-0150-LS*	4HE-25	S	84.3	5.4	113.8	175	42.1	2.5	56.6	100	33.6	2.5	45.7	80
CSE-0151-LS		O		10.8	119.2	200		5.0	59.1	100		5.0	48.2	80
CSE-0220-LS	4GE-30	S	100.0	10.8	138.8	225	50.0	5.0	69.0	110	40.0	5.0	56.2	90
CSE-0221-LS		O		10.8	138.8	225		5.0	69.0	110		5.0	56.2	90
CSE-0222-LS		T		10.8	138.8	225		5.0	69.0	110		5.0	56.2	90
CSE-0270-LS	6HE-35	S	117.1	10.8	160.2	250	58.6	5.0	79.8	125	46.4	5.0	64.2	110
CSE-0271-LS		O		16.2	165.6	250		7.5	82.3	125		7.5	66.7	110
CSE-0272-LS		T		10.8	160.2	250		5.0	79.8	125		5.0	64.2	110
CSE-0300-LS	6GE-40	S	157.1	10.8	210.2	350	78.6	5.0	104.8	175	62.9	5.0	84.8	125
CSE-0301-LS		O		16.2	215.6	350		7.5	107.3	175		7.5	87.3	150
CSE-0302-LS		T		10.8	210.2	350		5.0	104.8	175		5.0	84.8	125

Unit	Condenser LAVF
CSE-0150-LS*	11410
CSE-0151-LS	12210
CSE-0220-LS	12210
CSE-0221-LS	12310
CSE-0222-LS	12410
CSE-0270-LS	12310
CSE-0271-LS	13210
CSE-0272-LS	12410
CSE-0300-LS	12310
CSE-0301-LS	13310
CSE-0302-LS	12410

- Condenser size in the 8th position of the model number are: 0 - Standard, 1 - Oversize, 2 for * at the end of the model) - Meets Title 24 efficiency requirement and need VFD added to vary fan speed to meet the full regulation.
- Calculated MCA and MOPD in the table includes compressor, condenser fans and control circuit. Use the MCA / MOPD Calculation at the end of section to include evaporator fans and defrost loads when powered from the condensing unit.

- Condensing unit capacities are calculated based on the LAVF condenser model shown in the table and mid-point temperatures.
- Use R-404A capacity and electrical data for R-507A while replacing the "S" at the end of the model nomenclature with a "P".
- Compressor head cooling fan is included for all low temperature applications.

CS Single Systems

CSE Low Temp R-407A

CSE Performance Data - Low Temperature R-407A - Total Capacity

			95°F AMBIENT TEMPERATURE								
CONDENSING UNIT MODEL	COMPRESSOR	CONDENSER	-40	-35	-30	-25	-20	-15	-10	-5	0
CSE-0150-L	4HE-25	11410	21.5	29.2	37.3	45.9	55.1	64.9	75.4	86.5	98.5
CSE-0151-L	4HE-25	12210	21.8	29.6	37.9	46.7	56.1	66.2	77.0	88.6	101.1
CSE-0220-L	4GE-30	12210	28.9	37.9	47.3	57.3	68.0	79.3	91.5	104.4	118.3
CSE-0221-L	4GE-30	12310	29.6	38.9	48.7	59.2	70.4	82.4	95.3	109.3	124.3
CSE-0222-L	4GE-30	12410	29.9	39.3	49.3	60.0	71.4	83.7	97.0	111.4	126.9
CSE-0270-L	6HE-35	12310	36.8	48.6	61.1	74.3	88.4	103.5	119.6	136.9	155.3
CSE-0271-L	6HE-35	13210	37.0	48.9	61.4	74.8	89.0	104.2	120.5	138.0	156.8
CSE-0272-L	6HE-35	12410	37.3	49.4	62.1	75.6	90.1	105.7	122.4	140.3	159.6
CSE-0300-L	6GE-40	12310	43.0	56.4	70.5	85.4	101.2	118.0	135.9	155.1	175.5
CSE-0301-L	6GE-40	13310	44.4	58.3	73.0	88.7	105.5	123.5	142.9	163.8	186.3
CSE-0302-L	6GE-40	12410	43.7	57.4	71.8	87.1	103.4	120.8	139.5	159.5	180.9

			105°F AMBIENT TEMPERATURE								
CONDENSING UNIT MODEL	COMPRESSOR	CONDENSER	-40	-35	-30	-25	-20	-15	-10	-5	0
CSE-0150-L	4HE-25	11410	17.1	24.3	31.9	39.9	48.3	57.3	66.9	77.2	88.2
CSE-0151-L	4HE-25	12210	17.4	24.7	32.4	40.6	49.2	58.5	68.5	79.1	90.6
CSE-0220-L	4GE-30	12210	24.0	32.5	41.3	50.6	60.5	70.9	82.1	94.0	106.7
CSE-0221-L	4GE-30	12310	24.7	33.4	42.6	52.3	62.7	73.7	85.7	98.5	112.3
CSE-0222-L	4GE-30	12410	25.0	33.8	43.1	53.0	63.6	75.0	87.2	100.4	114.7
CSE-0270-L	6HE-35	12310	30.4	41.5	53.1	65.4	78.4	92.3	107.1	123.0	140.0
CSE-0271-L	6HE-35	13210	30.5	41.7	53.4	65.8	78.9	93.0	108.0	124.0	141.3
CSE-0272-L	6HE-35	12410	30.9	42.2	54.0	66.6	80.0	94.3	109.7	126.2	143.9
CSE-0300-L	6GE-40	12310	35.8	48.4	61.5	75.3	89.9	105.4	121.9	139.5	158.2
CSE-0301-L	6GE-40	13310	37.0	50.1	63.8	78.4	93.9	110.5	128.4	147.6	168.3
CSE-0302-L	6GE-40	12410	36.4	49.3	62.7	76.9	91.9	108.0	125.2	143.6	163.3

NOTE:
Selection of the CSB model is recommended for low temperature applications where the larger motor in the CSE model is not required.
All evaporator temps are MIDPOINT. Blacked out values indicate the condensing temp is above 135° F and are not recommended.

Electrical Specifications - Low Temperature R-407A

Voltage			208-230/3/60				460/3/60				575/3/60			
Unit	Compressor	Cond	Comp RLA	Cond FLA	MCA	MOPD	Comp RLA	Cond FLA	MCA	MOPD	Comp RLA	Cond FLA	MCA	MOPD
CSE-0150-LQ*	4HE-25	S	84.3	5.4	113.8	175	42.1	2.5	56.6	100	33.6	2.5	45.7	80
CSE-0151-LQ		O		10.8	119.2	200		5.0	59.1	100		5.0	48.2	80
CSE-0220-LQ	4GE-30	S	100.0	10.8	138.8	225	50.0	5.0	69.0	110	40.0	5.0	56.2	90
CSE-0221-LQ		O		10.8	138.8	225		5.0	69.0	110		5.0	56.2	90
CSE-0222-LQ		T		10.8	138.8	225		5.0	69.0	110		5.0	56.2	90
CSE-0270-LQ	6HE-35	S	117.1	10.8	160.2	250	58.6	5.0	79.8	125	46.4	5.0	64.2	110
CSE-0271-LQ		O		16.2	165.6	250		7.5	82.3	125		7.5	66.7	110
CSE-0272-LQ		T		10.8	160.2	250		5.0	79.8	125		5.0	64.2	110
CSE-0300-LQ	6GE-40	S	157.1	10.8	210.2	350	78.6	5.0	104.8	175	62.9	5.0	84.8	125
CSE-0301-LQ		O		16.2	215.6	350		7.5	107.3	175		7.5	87.3	150
CSE-0302-LQ		T		10.8	210.2	350		5.0	104.8	175		5.0	84.8	125

Unit	Condenser LAVF
CSE-0150-LQ*	11410
CSE-0151-LQ	12210
CSE-0220-LQ	12210
CSE-0221-LQ	12310
CSE-0222-LQ	12410
CSE-0270-LQ	12310
CSE-0271-LQ	13210
CSE-0272-LQ	12410
CSE-0300-LQ	12310
CSE-0301-LQ	13310
CSE-0302-LQ	12410

1. Condenser size in the 8th position of the model number are: 0 – Standard, 1 – Oversize, 2 (or * at the end of the model) – Meets Title 24 efficiency requirement and need VFD added to vary fan speed to meet the full regulation.
2. Calculated MCA and MOPD in the table includes compressor, condenser fans and control circuit. Use the MCA / MOPD Calculation at the end of section to include evaporator fans and defrost loads when powered from the condensing unit.

3. Condensing unit capacities are calculated based on the LAVF condenser model shown in the table and mid-point temperatures.

4. Use R-407A capacity and electrical data for R-407F while replacing the "Q" at the end of the model nomenclature with an "F".

5. Compressor head cooling fan and liquid injection are included on all low temperature units.

CS Single Systems

CSE Low Temp R-448A

CSE Performance Data - Low Temperature R-448A - Total Capacity

95°F AMBIENT TEMPERATURE

CONDENSING UNIT MODEL	COMPRESSOR	CONDENSER	-40	-35	-30	-25	-20	-15	-10	-5	0
CSE-0150-L	4HE-25	11410	32.7	40.4	48.6	57.3	66.5	76.5	87.1	98.4	110.5
CSE-0151-L	4HE-25	12210	33.2	41.0	49.3	58.2	67.8	78.0	89.0	100.8	113.5
CSE-0220-L	4GE-30	12210	38.9	47.7	57.1	67.1	77.7	89.1	101.2	114.2	128.0
CSE-0221-L	4GE-30	12310	39.9	49.1	58.8	69.3	80.5	92.6	105.6	119.7	134.8
CSE-0222-L	4GE-30	12410	40.4	49.7	59.6	70.2	81.7	94.1	107.5	122.0	137.7
CSE-0270-L	6HE-35	12310	48.8	60.3	72.4	85.4	99.3	114.2	130.2	147.4	165.8
CSE-0271-L	6HE-35	13210	49.1	60.6	72.8	85.9	100.0	115.1	131.3	148.7	167.3
CSE-0272-L	6HE-35	12410	49.6	61.2	73.7	87.0	101.3	116.7	133.3	151.2	170.4
CSE-0300-L	6GE-40	12310	57.2	70.1	83.7	98.2	113.7	130.1	147.7	166.4	186.2
CSE-0301-L	6GE-40	13310	59.1	72.5	86.8	102.1	118.6	136.3	155.3	175.8	197.8
CSE-0302-L	6GE-40	12410	58.2	71.3	85.3	100.2	116.2	133.3	151.6	171.2	192.2

105°F AMBIENT TEMPERATURE

CONDENSING UNIT MODEL	COMPRESSOR	CONDENSER	-40	-35	-30	-25	-20	-15	-10	-5	0
CSE-0150-L	4HE-25	11410	27.9	35.2	42.8	50.9	59.5	68.6	78.3	88.7	99.8
CSE-0151-L	4HE-25	12210	28.3	35.7	43.6	51.8	60.7	70.1	80.2	91.0	102.6
CSE-0220-L	4GE-30	12210	33.6	42.0	50.8	60.0	69.8	80.2	91.3	103.1	115.7
CSE-0221-L	4GE-30	12310	34.6	43.3	52.4	62.1	72.5	83.6	95.6	108.4	122.2
CSE-0222-L	4GE-30	12410	35.0	43.8	53.1	63.0	73.6	85.1	97.4	110.7	125.0
CSE-0270-L	6HE-35	12310	41.4	52.3	63.7	75.8	88.8	102.6	117.3	133.1	150.0
CSE-0271-L	6HE-35	13210	41.6	52.6	64.1	76.3	89.4	103.3	118.3	134.3	151.4
CSE-0272-L	6HE-35	12410	42.1	53.2	64.9	77.3	90.6	104.9	120.2	136.7	154.4
CSE-0300-L	6GE-40	12310	48.7	61.0	73.9	87.5	101.8	117.0	133.1	150.2	168.3
CSE-0301-L	6GE-40	13310	50.6	63.4	77.0	91.4	106.7	123.1	140.6	159.4	179.6
CSE-0302-L	6GE-40	12410	49.7	62.3	75.5	89.5	104.3	120.1	137.0	154.9	174.1

NOTE:

Selection of the CSB model is recommended for low temperature applications where the larger motor in the CSE model is not required. All evaporator temps are MIDPOINT. Blacked out values indicate the condensing temp is above 135°F and are not recommended.

Electrical Specifications - Low Temperature R-448A

Voltage			208-230/3/60				460/3/60				575/3/60			
Unit	Compressor	Cond	Comp RLA	Cond FLA	MCA	MOPD	Comp RLA	Cond FLA	MCA	MOPD	Comp RLA	Cond FLA	MCA	MOPD
CSE-0150-LT*	4HE-25	S	84.3	5.4	113.8	175	42.1	2.5	56.6	100	33.6	2.5	45.7	80
CSE-0151-LT		O		10.8	119.2	200		5.0	59.1	100		5.0	48.2	80
CSE-0220-LT	4GE-30	S	100.0	10.8	138.8	225	50.0	5.0	69.0	110	40.0	5.0	56.2	90
CSE-0221-LT		O		10.8	138.8	225		5.0	69.0	110		5.0	56.2	90
CSE-0222-LT		T		10.8	138.8	225		5.0	69.0	110		5.0	56.2	90
CSE-0270-LT		S		10.8	160.2	250		5.0	79.8	125		5.0	64.2	110
CSE-0271-LT	6HE-35	O	117.1	16.2	165.6	250	58.6	7.5	82.3	125	46.4	7.5	66.7	110
CSE-0272-LT		T		10.8	160.2	250		5.0	79.8	125		5.0	64.2	110
CSE-0300-LT		S		10.8	210.2	350		5.0	104.8	175		5.0	84.8	125
CSE-0301-LT	6GE-40	O	157.1	16.2	215.6	350	78.6	7.5	107.3	175	62.9	7.5	87.3	150
CSE-0302-LT		T		10.8	210.2	350		5.0	104.8	175		5.0	84.8	125

Unit	Condenser LAVF
CSE-0150-LT*	11410
CSE-0151-LT	12210
CSE-0220-LT	12210
CSE-0221-LT	12310
CSE-0222-LT	12410
CSE-0270-LT	12310
CSE-0271-LT	13210
CSE-0272-LT	12410
CSE-0300-LT	12310
CSE-0301-LT	13310
CSE-0302-LT	12410

- Condenser size in the 8th position of the model number are: 0 - Standard, 1 - Oversize, 2 for * at the end of the model) - Meets Title 24 efficiency requirement and need VFD added to vary fan speed to meet the full regulation.
- Calculated MCA and MOPD in the table includes compressor, condenser fans and control circuit. Use the MCA / MOPD Calculation at the end of section to include evaporator fans and defrost loads when powered from the condensing unit.

- Condensing unit capacities are calculated based on the LAVF condenser model shown in the table and mid-point temperatures.
- Use R-448A capacity and electrical data for R-449A while replacing the "T" at the end of the model nomenclature with a "R".
- Compressor head cooling fan and liquid injection are included on all low temperature units.

CS Single Systems

CSB Low Temp R-404A

CSB Performance Data - Low Temperature R-404A - Total Capacity

			95°F AMBIENT TEMPERATURE								
CONDENSING UNIT MODEL	COMPRESSOR	CONDENSER	-40	-35	-30	-25	-20	-15	-10	-5	0
CSB-0150-L	4HE-18	11410	39.1	46.3	54.0	62.2	70.9	80.3	90.2	100.7	111.8
CSB-0151-L	4HE-18	12210	39.8	47.2	55.1	63.6	72.8	82.5	93.0	104.1	116.0
CSB-0220-L	4GE-23	12210	47.5	55.8	64.7	74.1	84.3	95.0	106.5	118.6	131.5
CSB-0221-L	4GE-23	12310	48.7	57.4	66.7	76.7	87.5	99.1	111.5	124.8	139.0
CSB-0222-L	4GE-23	12410	49.2	58.0	67.5	77.7	88.8	100.7	113.5	127.3	142.1
CSB-0270-L	6HE-28	12310	58.7	69.4	80.9	93.2	106.4	120.6	135.7	151.8	169.0
CSB-0271-L	6HE-28	13210	59.0	69.8	81.5	94.0	107.4	121.8	137.2	153.7	171.2
CSB-0272-L	6HE-28	12410	59.5	70.4	82.2	94.8	108.5	123.2	138.9	155.7	173.7
CSB-0300-L	6GE-34	12310	72.8	84.8	97.7	111.4	126.0	141.4	157.9	175.2	193.5
CSB-0301-L	6GE-34	13310	75.1	87.8	101.4	116.1	131.9	148.9	167.1	186.5	207.2
CSB-0302-L	6GE-34	12410	73.9	86.2	99.4	113.5	128.7	144.8	162.1	180.4	199.8

			105°F AMBIENT TEMPERATURE								
CONDENSING UNIT MODEL	COMPRESSOR	CONDENSER	-40	-35	-30	-25	-20	-15	-10	-5	0
CSB-0150-L	4HE-18	11410	34.3	40.9	47.9	55.3	63.2	71.6	80.5	90.0	100.0
CSB-0151-L	4HE-18	12210	34.9	41.7	48.9	56.6	64.9	73.7	83.2	93.2	103.9
CSB-0220-L	4GE-23	12210	42.2	49.8	57.8	66.4	75.5	85.1	95.4	106.3	117.8
CSB-0221-L	4GE-23	12310	43.3	51.2	59.7	68.8	78.5	89.0	100.2	112.1	124.9
CSB-0222-L	4GE-23	12410	43.8	51.8	60.5	69.8	79.8	90.5	102.1	114.5	127.9
CSB-0270-L	6HE-28	12310	51.4	61.2	71.7	82.9	94.9	107.7	121.4	135.9	151.4
CSB-0271-L	6HE-28	13210	51.7	61.6	72.3	83.6	95.8	108.8	122.8	137.6	153.5
CSB-0272-L	6HE-28	12410	52.1	62.1	72.9	84.5	96.9	110.1	124.4	139.6	155.9
CSB-0300-L	6GE-34	12310	64.9	75.9	87.7	100.1	113.2	127.2	141.9	157.4	173.7
CSB-0301-L	6GE-34	13310	67.1	78.8	91.3	104.7	119.0	134.3	150.8	168.3	186.9
CSB-0302-L	6GE-34	12410	65.9	77.2	89.3	102.2	115.9	130.5	145.9	162.4	179.7

NOTE:

All evaporator temps are MIDPOINT. Blacked out values indicate the condensing temp is above 135°F and are not recommended.

Electrical Specifications - Low Temperature R-404A

Voltage			208-230/3/60				460/3/60				575/3/60			
Unit	Compressor	Cond	Comp RLA	Cond FLA	MCA	MOPD	Comp RLA	Cond FLA	MCA	MOPD	Comp RLA	Cond FLA	MCA	MOPD
CSB-0150-LS*	4HE-18	S	60.3	5.4	83.8	125	30.1	2.5	41.6	70	24.1	2.5	33.8	50
CSB-0151-LS		O		10.8	89.2	125		5.0	44.1	70		5.0	36.3	60
CSB-0220-LS	4GE-23	S	64.3	10.8	94.2	150	32.1	5.0	46.6	80	25.7	5.0	38.3	60
CSB-0221-LS		O		10.8	94.2	150		5.0	46.6	80		5.0	38.3	60
CSB-0222-LS		T		10.8	94.2	150		5.0	46.6	80		5.0	38.3	60
CSB-0270-LS		S		10.8	121.8	200		5.0	60.5	100		5.0	49.5	80
CSB-0271-LS	6HE-28	O	86.4	16.2	127.2	200	43.2	7.5	63.0	100	34.6	7.5	52.0	80
CSB-0272-LS		T		10.8	121.8	200		5.0	60.5	100		5.0	49.5	80
CSB-0300-LS	6GE-34	S	94.3	10.8	131.7	225	47.1	5.0	65.4	110	37.1	5.0	52.6	90
CSB-0301-LS		O		16.2	137.1	225		7.5	67.9	110		7.5	55.1	90
CSB-0302-LS		T		10.8	131.7	225		5.0	65.4	110		5.0	52.6	90

Unit	Condenser LAVF
CSB-0150-LS*	11410
CSB-0151-LS	12210
CSB-0220-LS	12210
CSB-0221-LS	12310
CSB-0222-LS	12410
CSB-0270-LS	12310
CSB-0271-LS	13210
CSB-0272-LS	12410
CSB-0300-LS	12310
CSB-0301-LS	13310
CSB-0302-LS	12410

1. Condenser size in the 8th position of the model number are: 0 – Standard, 1 – Oversize, 2 (or * at the end of the model) – Meets Title 24 efficiency requirement and need VFD added to vary fan speed to meet the full regulation.
2. Calculated MCA and MOPD in the table includes compressor, condenser fans and control circuit. Use the MCA / MOPD Calculation at the end of section to include evaporator fans and defrost loads when powered from the condensing unit.

3. Condensing unit capacities are calculated based on the LAVF condenser model shown in the table and mid-point temperatures.
4. Use R-404A capacity and electrical data for R-507A while replacing the "S" at the end of the model nomenclature with a "P".
5. Compressor head cooling fan is included for all low temperature applications.

CS Single Systems

CSB Low Temp R-407A

CSB Performance Data - Low Temperature R-407A - Total Capacity

95°F AMBIENT TEMPERATURE

CONDENSING UNIT MODEL	COMPRESSOR	CONDENSER	-40	-35	-30	-25	-20	-15	-10	-5	0
CSB-0150-L	4HE-18	11410	26.8	34.3	42.3	50.8	60.0	69.8	80.3	91.7	103.8
CSB-0151-L	4HE-18	12210	27.2	34.8	42.9	51.6	61.0	71.2	82.1	93.8	106.4
CSB-0220-L	4GE-23	12210	34.5	43.2	52.4	62.2	72.7	84.1	96.2	109.2	123.2
CSB-0221-L	4GE-23	12310	35.3	44.3	53.8	64.1	75.2	87.2	100.2	114.2	129.3
CSB-0222-L	4GE-23	12410	35.6	44.7	54.4	64.9	76.3	88.6	101.9	116.4	132.0
CSB-0270-L	6HE-28	12310	40.7	52.0	64.1	77.1	91.0	106.0	122.2	139.6	158.2
CSB-0271-L	6HE-28	13210	40.8	52.2	64.4	77.5	91.6	106.8	123.1	140.7	159.7
CSB-0272-L	6HE-28	12410	41.2	52.7	65.1	78.4	92.8	108.3	125.0	143.1	162.6
CSB-0300-L	6GE-34	12310	46.9	59.7	73.3	87.9	103.5	120.2	138.2	157.4	178.0
CSB-0301-L	6GE-34	13310	48.3	61.6	75.9	91.3	107.9	125.9	145.3	166.3	188.9
CSB-0302-L	6GE-34	12410	47.6	60.7	74.6	89.6	105.7	123.1	141.8	161.9	183.5

105°F AMBIENT TEMPERATURE

CONDENSING UNIT MODEL	COMPRESSOR	CONDENSER	-40	-35	-30	-25	-20	-15	-10	-5	0
CSB-0150-L	4HE-18	11410	23.0	29.9	37.2	45.0	53.4	62.5	72.2	82.6	93.8
CSB-0151-L	4HE-18	12210	23.3	30.3	37.8	45.8	54.4	63.7	73.8	84.6	96.3
CSB-0220-L	4GE-23	12210	30.4	38.3	46.8	55.8	65.5	75.9	87.1	99.1	112.0
CSB-0221-L	4GE-23	12310	31.1	39.3	48.1	57.6	67.8	78.9	90.8	103.7	117.7
CSB-0222-L	4GE-23	12410	31.4	39.7	48.7	58.4	68.8	80.1	92.4	105.8	120.2
CSB-0270-L	6HE-28	12310	34.9	45.3	56.4	68.3	81.1	94.9	109.8	125.9	143.1
CSB-0271-L	6HE-28	13210	35.0	45.5	56.7	68.7	81.7	95.6	110.7	126.9	144.4
CSB-0272-L	6HE-28	12410	35.3	45.9	57.3	69.5	82.7	97.0	112.4	129.1	147.1
CSB-0300-L	6GE-34	12310	40.4	52.2	64.7	78.0	92.4	107.7	124.3	142.0	161.0
CSB-0301-L	6GE-34	13310	41.6	53.8	67.0	81.1	96.4	112.9	130.8	150.2	171.2
CSB-0302-L	6GE-34	12410	41.0	53.0	65.8	79.6	94.4	110.4	127.6	146.2	166.2

NOTE:

All evaporator temps are MIDPOINT. Blacked out values indicate the condensing temp is above 135°F and are not recommended.

Electrical Specifications - Low Temperature R-407A

Voltage			208-230/3/60				460/3/60				575/3/60			
Unit	Compressor	Cond	Comp RLA	Cond FLA	MCA	MOPD	Comp RLA	Cond FLA	MCA	MOPD	Comp RLA	Cond FLA	MCA	MOPD
CSB-0150-LQ*	4HE-18	S	60.3	5.4	83.8	125	30.1	2.5	41.6	70	24.1	2.5	33.8	50
CSB-0151-LQ		O		10.8	89.2	125		5.0	44.1	70		5.0	36.3	60
CSB-0220-LQ	4GE-23	S	64.3	10.8	94.2	150	32.1	5.0	46.6	80	25.7	5.0	38.3	60
CSB-0221-LQ		O		10.8	94.2	150		5.0	46.6	80		5.0	38.3	60
CSB-0222-LQ		T		10.8	94.2	150		5.0	46.6	80		5.0	38.3	60
CSB-0270-LQ	6HE-28	S	86.4	10.8	121.8	200	43.2	5.0	60.5	100	34.6	5.0	49.5	80
CSB-0271-LQ		O		16.2	127.2	200		7.5	63.0	100		7.5	52.0	80
CSB-0272-LQ		T		10.8	121.8	200		5.0	60.5	100		5.0	49.5	80
CSB-0300-LQ	6GE-34	S	94.3	10.8	131.7	225	47.1	5.0	65.4	110	37.1	5.0	52.6	90
CSB-0301-LQ		O		16.2	137.1	225		7.5	67.9	110		7.5	55.1	90
CSB-0302-LQ		T		10.8	131.7	225		5.0	65.4	110		5.0	52.6	90

Unit	Condenser LAVF
CSB-0150-LQ*	11410
CSB-0151-LQ	12210
CSB-0220-LQ	12210
CSB-0221-LQ	12310
CSB-0222-LQ	12410
CSB-0270-LQ	12310
CSB-0271-LQ	13210
CSB-0272-LQ	12410
CSB-0300-LQ	12310
CSB-0301-LQ	13310
CSB-0302-LQ	12410

- Condenser size in the 8th position of the model number are: 0 - Standard, 1 - Oversize, 2 for * at the end of the model) - Meets Title 24 efficiency requirement and need VFD added to vary fan speed to meet the full regulation.
- Calculated MCA and MOPD in the table includes compressor, condenser fans and control circuit. Use the MCA / MOPD Calculation at the end of section to include evaporator fans and defrost loads when powered from the condensing unit.

- Condensing unit capacities are calculated based on the LAVF condenser model shown in the table and mid-point temperatures.
- Use R-407A capacity and electrical data for R-407F while replacing the "O" at the end of the model nomenclature with an "F".
- Compressor head cooling fan and liquid injection are included on all low temperature units.

CS Single Systems

CSB Low Temp R-448A

CSB Performance Data - Low Temperature R-448A - Total Capacity

			95°F AMBIENT TEMPERATURE								
CONDENSING UNIT MODEL	COMPRESSOR	CONDENSER	-40	-35	-30	-25	-20	-15	-10	-5	0
CSB-0150-L	4HE-18	11410	35.4	42.8	50.7	59.3	68.5	78.4	89.1	100.6	112.8
CSB-0151-L	4HE-18	12210	35.8	43.4	51.5	60.3	69.8	80.0	91.1	103.0	115.8
CSB-0220-L	4GE-23	12210	43.3	51.8	60.9	70.7	81.3	92.7	104.9	118.0	131.9
CSB-0221-L	4GE-23	12310	44.3	53.1	62.7	73.0	84.2	96.3	109.4	123.6	138.9
CSB-0222-L	4GE-23	12410	44.8	53.7	63.4	73.9	85.4	97.9	111.4	126.0	141.8
CSB-0270-L	6HE-28	12310	52.8	63.8	75.6	88.5	102.3	117.2	133.4	150.7	169.3
CSB-0271-L	6HE-28	13210	53.1	64.1	76.1	89.0	103.0	118.1	134.4	152.0	170.9
CSB-0272-L	6HE-28	12410	53.6	64.8	76.9	90.0	104.3	119.7	136.5	154.5	174.0
CSB-0300-L	6GE-34	12310	67.0	79.5	93.0	107.4	122.9	139.5	157.2	176.1	196.2
CSB-0301-L	6GE-34	13310	68.9	82.0	96.1	111.3	127.8	145.7	164.9	185.7	208.0
CSB-0302-L	6GE-34	12410	68.0	80.8	94.6	109.4	125.4	142.6	161.2	181.0	202.3

			105°F AMBIENT TEMPERATURE								
CONDENSING UNIT MODEL	COMPRESSOR	CONDENSER	-40	-35	-30	-25	-20	-15	-10	-5	0
CSB-0150-L	4HE-18	11410	30.9	37.8	45.2	53.1	61.6	70.7	80.5	91.0	102.3
CSB-0151-L	4HE-18	12210	31.3	38.4	45.9	54.0	62.8	72.2	82.4	93.4	105.2
CSB-0220-L	4GE-23	12210	38.6	46.5	54.9	63.9	73.6	84.0	95.2	107.1	119.9
CSB-0221-L	4GE-23	12310	39.5	47.7	56.5	66.1	76.3	87.5	99.5	112.5	126.5
CSB-0222-L	4GE-23	12410	40.0	48.3	57.2	67.0	77.5	89.0	101.4	114.8	129.4
CSB-0270-L	6HE-28	12310	45.9	56.2	67.2	79.1	91.9	105.7	120.6	136.6	153.7
CSB-0271-L	6HE-28	13210	46.1	56.5	67.6	79.6	92.5	106.5	121.6	137.8	155.2
CSB-0272-L	6HE-28	12410	46.6	57.1	68.4	80.6	93.8	108.1	123.5	140.2	158.2
CSB-0300-L	6GE-34	12310	59.6	71.4	83.9	97.3	111.6	126.9	143.1	160.5	178.9
CSB-0301-L	6GE-34	13310	61.4	73.8	87.0	101.2	116.5	133.0	150.7	169.8	190.4
CSB-0302-L	6GE-34	12410	60.5	72.6	85.5	99.3	114.1	130.0	147.0	165.3	184.8

NOTE:

All evaporator temps are MIDPOINT. Blacked out values indicate the condensing temp is above 135°F and are not recommended.

Electrical Specifications - Low Temperature R-448A

Voltage			208-230/3/60				460/3/60				575/3/60			
Unit	Compressor	Cond	Comp RLA	Cond FLA	MCA	MOPD	Comp RLA	Cond FLA	MCA	MOPD	Comp RLA	Cond FLA	MCA	MOPD
CSB-0150-LT*	4HE-18	S	60.3	5.4	83.8	125	30.1	2.5	41.6	70	24.1	2.5	33.8	50
CSB-0151-LT		O		10.8	89.2	125		5.0	44.1	70		5.0	36.3	60
CSB-0220-LT	4GE-23	S	64.3	10.8	94.2	150	32.1	5.0	46.6	80	25.7	5.0	38.3	60
CSB-0221-LT		O		10.8	94.2	150		5.0	46.6	80		5.0	38.3	60
CSB-0222-LT		T		10.8	94.2	150		5.0	46.6	80		5.0	38.3	60
CSB-0270-LT	6HE-28	S	86.4	10.8	121.8	200	43.2	5.0	60.5	100	34.6	5.0	49.5	80
CSB-0271-LT		O		16.2	127.2	200		7.5	63.0	100		7.5	52.0	80
CSB-0272-LT		T		10.8	121.8	200		5.0	60.5	100		5.0	49.5	80
CSB-0300-LT	6GE-34	S	94.3	10.8	131.7	225	47.1	5.0	65.4	110	37.1	5.0	52.6	90
CSB-0301-LT		O		16.2	137.1	225		7.5	67.9	110		7.5	55.1	90
CSB-0302-LT		T		10.8	131.7	225		5.0	65.4	110		5.0	52.6	90

Unit	Condenser LAVF
CSB-0150-LT*	11410
CSB-0151-LT	12210
CSB-0220-LT	12210
CSB-0221-LT	12310
CSB-0222-LT	12410
CSB-0270-LT	12310
CSB-0271-LT	13210
CSB-0272-LT	12410
CSB-0300-LT	12310
CSB-0301-LT	13310
CSB-0302-LT	12410

1. Condenser size in the 8th position of the model number are: 0 – Standard, 1 – Oversize, 2 (or * at the end of the model) – Meets Title 24 efficiency requirement and need VFD added to vary fan speed to meet the full regulation.
2. Calculated MCA and MOPD in the table includes compressor, condenser fans and control circuit. Use the MCA / MOPD Calculation at the end of section to include evaporator fans and defrost loads when powered from the condensing unit.

3. Condensing unit capacities are calculated based on the LAVF condenser model shown in the table and mid-point temperatures.

4. Use R-448A capacity and electrical data for R-449A while replacing the "T" at the end of the model nomenclature with a "R".

5. Compressor head cooling fan and liquid injection are included on all low temperature units.

CS Single Systems

CSD MCA / MOPD Calculation

Model CSD-0300LxM

Compressor RLA		43.6
Condenser Fans	+	5.4
Control*	+	3.0
<hr/>		
25% Compressor RLA	+	10.9
MCA		62.9
<hr/>		
Evaporator Fan RLA	+	12.0
Calculated MCA		74.9
<hr/>		
Compressor RLA	+	43.6
Calculated MOP		118.5
MOPD**		110

Example calculation has details for the calculation of the MCA shown in the electrical table above. The Calculated MCA includes the addition of 12.0 amps to power evaporator fans to show how to recalculate values for MCA and MOPD for the addition of electrical loads that would be in operation at the same time as the compressor and condenser.

*Control circuit amps are: 208-230/3/60 3.0A, 460/3/60 1.5A, 575/3/60 1.2A

**Round MOP down to next Standard MOPD Size shown below. The MOPD must be larger than the calculated MCA.

Standard MOPD Sizes : 15, 20, 25, 30, 35, 40, 45, 50, 60, 70, 80, 90, 100, 110, 125, 150, 175, 200, 225, 250, 300, 350, 400, 450, 500

Alternate Calculation for Electric Defrost: If 1.25 X defrost amps plus Control Transformer exceeds calculated MCA use this value and round up to next standard breaker size for MOPD. Use the MOPD calculated for defrost if it exceeds what is calculated using the compressor information.

Sound Data for C-Series

Sound from condensing units is primarily from the condenser fans. C-Series units use Levitor II LAVF condensers with 1140 rpm fans. For sound calculations, the published sound data in the Levitor Technical bulletin should be used with 1 db added to account for the compressor.

Example: CSD-0202-MT condenser is LAVF-12410 which has published sound of 75 dbA at 10'. For this unit, add 1 dbA to this value for 76 dbA at 10' for sound evaluations.

CS Single Systems

CS Single Series Model Specifications

Unit		Connections (in)		Receiver	Receiver Capacity***			Est. Ship Weight	Dimensional Drawings	Piping Schematic
					R-404A	R-407A	R-448A			
		Liq. OD	Suct. OD	Dia. x Length	(lb)	(lb)	(lb)	(lb)	See pgs. 72 - 73	See pg. 80
10 hp	CS*-0100-M**	7/8	1 5/8	8 5/8 x 48	75	83	80	1564	CS-11	CS PIPE 1W
	CS*-0101-M**	7/8	1 5/8	8 5/8 x 48	75	83	80	1845	CS-12	CS PIPE 1W
	CS*-0102-M**	7/8	1 5/8	8 5/8 x 48	75	83	80	1594	CS-11	CS PIPE 1W
15 hp	CS*0150M**	1 1/8	2 1/8	8 5/8 x 48	75	83	80	1834	CS-12	CS PIPE 1W
	CS*0151M**	1 1/8	2 1/8	8 5/8 x 60	94	103	100	1930	CS-12	CS PIPE 1W
	CS*0152M**	1 1/8	2 1/8	8 5/8 x 60	114	125	121	1989	CS-12	CS PIPE 1W
20 hp	CS*0200M**	1 1/8	2 1/8	8 5/8 x 48	75	83	80	1882	CS-12	CS PIPE 1W
	CS*0201M**	1 1/8	2 1/8	8 5/8 x 60	94	103	100	1979	CS-12	CS PIPE 1W
	CS*0202M**	1 1/8	2 1/8	10 3/4 x 48	114	125	121	2038	CS-12	CS PIPE 1W
25 hp	CS*0250M**	1 1/8	2 1/8	8 5/8 x 60	94	103	100	2002	CS-12	CS PIPE 1W
	CS*0251M**	1 1/8	2 1/8	10 3/4 x 48	114	125	121	2511	CS-13	CS PIPE 1W
	CS*0252M**	1 1/8	2 1/8	10 3/4 x 48	114	125	121	2061	CS-12	CS PIPE 1W
30 hp	CS*0300M**	1 1/8	2 1/8	10 3/4 x 48	114	125	121	2106	CS-12	CS PIPE 1W
	CS*0301M**	1 1/8	2 1/8	10 3/4 x 72	174	191	184	2584	CS-13	CS PIPE 1W
	CS*0302M**	1 1/8	2 1/8	10 3/4 x 48	114	125	121	2152	CS-12	CS PIPE 1W
35 hp	CS*0350M**	1 3/8	2 1/8	10 3/4 x 72	174	191	184	2605	CS-13	CS PIPE 1W
	CS*0351M**	1 3/8	2 1/8	10 3/4 x 72	174	191	184	3099	CS-22	CS PIPE 2W
	CS*0352M**	1 3/8	2 1/8	10 3/4 X 72	174	191	184	2885	CS-13	CS PIPE 1W
40 hp	CS*0400M**	1 3/8	2 5/8	10 3/4 x 72	174	191	184	2820	CS-13	CS PIPE 1W
	CS*0401M**	1 3/8	2 5/8	10 3/4 x 96	233	256	247	3380	CS-22	CS PIPE 2W
15 hp	CS*0150L**	7/8	2 1/8	8 5/8 x 48	75	83	80	1639	CS-11	CS PIPE 1W
	CS*0151L**	7/8	2 1/8	8 5/8 x 48	75	83	80	1934	CS-12	CS PIPE 1W
22 hp	CS*0220L**	7/8	2 1/8	8 5/8 x 48	75	83	80	1890	CS-12	CS PIPE 1W
	CS*0221L**	7/8	2 1/8	8 5/8 x 60	94	103	100	1987	CS-12	CS PIPE 1W
	CS*0222L**	7/8	2 1/8	8 5/8 x 60	94	103	100	2046	CS-12	CS PIPE 1W
27 hp	CS*0270L**	1 1/8	2 5/8	8 5/8 x 60	94	103	100	2056	CS-12	CS PIPE 1W
	CS*0271L**	1 1/8	2 5/8	8 5/8 x 60	94	103	100	2439	CS-13	CS PIPE 1W
	CS*0272L**	1 1/8	2 5/8	8 5/8 x 60	94	103	100	2115	CS-12	CS PIPE 1W
30 hp	CS*0300L**	1 1/8	2 5/8	8 5/8 x 60	94	103	100	2170	CS-12	CS PIPE 1W
	CS*0301L**	1 1/8	2 5/8	10 3/4 x 48	114	125	121	2617	CS-13	CS PIPE 1W
	CS*0302L**	1 1/8	2 5/8	10 3/4 x 48	114	125	121	2229	CS-12	CS PIPE 1W

*-D,E,B

** S(R-404A), Q(R-407A), T(R-448A)

*** Receiver capacity based on 80% full.

Annual Walk-In Energy Factor (AWEF)

See the Annual Walk-In Energy Factor (AWEF) tables on the following pages and apply the below example to find the AWEF for specific model and refrigerant.

AWEF EXAMPLE:

Insert refrigerant letter in () to produce model number.

Example: CSD-0100-M() for R404A will be CSD-0100MS with AWEF of 7.6.

CS Single Systems

Annual Walk-In Energy Factor (AWEF)

CSD Single Series Units - Medium Temperature

Copeland Discus Models	R-404A	R-507A	R-407A	R-407F	R-448A	R-449A
	S	P	Q	F	T	R
CSD-0100-M()	7.6	7.6	7.6	7.6	7.6	7.6
CSD-0101-M()	7.6	7.6	7.6	7.6	7.6	7.6
CSD-0102-M()	7.6	7.6	7.6	7.6	7.6	7.6
CSD-0150-M()	7.6	7.6	7.6	7.6	7.6	7.6
CSD-0151-M()	7.6	7.6	7.6	7.6	7.6	7.6
CSD-0152-M()	7.6	7.6	7.6	7.6	7.6	7.6
CSD-0200-M()	7.6	7.6	7.6	7.6	7.6	7.6
CSD-0201-M()	7.6	7.6	7.6	7.6	7.6	7.6
CSD-0202-M()	7.6	7.6	7.6	7.6	7.6	7.6
CSD-0250-M()	7.6	7.6	7.6	7.6	7.6	7.6
CSD-0251-M()	7.6	7.6	7.6	7.6	7.6	7.6
CSD-0252-M()	7.6	7.6	7.6	7.6	7.6	7.6
CSD-0300-M()	7.6	7.6	7.6	7.6	7.6	7.6
CSD-0301-M()	7.6	7.6	7.6	7.6	7.6	7.6
CSD-0302-M()	7.6	7.6	7.6	7.6	7.6	7.6
CSD-0350-M()	7.6	7.6	7.6	7.6	7.6	7.6
CSD-0351-M()	7.6	7.6	7.6	7.6	7.6	7.6
CSD-0352-M()	7.6	7.6	7.6	7.6	7.6	7.6
CSD-0400-M()	7.6	7.6	7.6	7.6	7.6	7.6
CSD-0401-M()	7.6	7.6	7.6	7.6	7.6	7.6

NOTE:

See Tables on pages 4 - 6 for more data.

"()" = See AWEF Example on page 23.

CSD Single Series Units - Low Temperature

Copeland Discus Models	R-404A	R-507A	R-407A	R-407F	R-448A	R-449A
	S	P	Q	F	T	R
CSD-0150-L()	3.15	3.15	3.15	3.15	3.15	3.15
CSD-0151-L()	3.15	3.15	3.15	3.15	3.15	3.15
CSD-0220-L()	3.15	3.15	3.15	3.15	3.15	3.15
CSD-0221-L()	3.15	3.15	3.15	3.15	3.15	3.15
CSD-0222-L()	3.15	3.15	3.15	3.15	3.15	3.15
CSD-0270-L()	3.15	3.15	3.15	3.15	3.15	3.15
CSD-0271-L()	3.15	3.15	3.15	3.15	3.15	3.15
CSD-0272-L()	3.15	3.15	3.15	3.15	3.15	3.15
CSD-0300-L()	3.15	3.15	3.15	3.15	3.15	3.15
CSD-0301-L()	3.15	3.15	3.15	3.15	3.15	3.15
CSD-0302-L()	3.15	3.15	3.15	3.15	3.15	3.15

NOTE:

See Tables on pages 13 - 15 for more data.

"()" = See AWEF Example on page 23.

NOTE:

NA: This refrigeration system is not intended for use in Walk-In Coolers or Freezers where US Department of Energy (DOE) or Natural Resources Canada (NRCAN) efficiency requirements apply.

AWEF EXAMPLE:

Insert refrigerant letter in () to produce model number.

Example: CSD-0100-M() for R404A will be CSD-0100MS with AWEF of 7.6.

CS Single Systems

Annual Walk-In Energy Factor (AWEF)

CSE Single Series Units - Medium Temperature

NOTE:
See Tables on pages 7 - 9
for more data.
“()” = See AWEF Example
on page 23.

Bitzer Ecoline Models	R-404A	R-507A	R-407A	R-407F	R-448A	R-449A
	S	P	Q	F	T	R
CSE-0100-M()	7.6	7.6	7.6	7.6	7.6	7.6
CSE-0101-M()	7.6	7.6	7.6	7.6	7.6	7.6
CSE-0102-M()	7.6	7.6	7.6	7.6	7.6	7.6
CSE-0150-M()	7.6	7.6	7.6	7.6	7.6	7.6
CSE-0151-M()	7.6	7.6	7.6	7.6	7.6	7.6
CSE-0152-M()	7.6	7.6	7.6	7.6	7.6	7.6
CSE-0200-M()	7.6	7.6	7.6	7.6	7.6	7.6
CSE-0201-M()	7.6	7.6	7.6	7.6	7.6	7.6
CSE-0202-M()	7.6	7.6	7.6	7.6	7.6	7.6
CSE-0250-M()	7.6	7.6	7.6	7.6	7.6	7.6
CSE-0251-M()	7.6	7.6	7.6	7.6	7.6	7.6
CSE-0252-M()	7.6	7.6	7.6	7.6	7.6	7.6
CSE-0300-M()	7.6	7.6	7.6	7.6	7.6	7.6
CSE-0301-M()	7.6	7.6	7.6	7.6	7.6	7.6
CSE-0302-M()	7.6	7.6	7.6	7.6	7.6	7.6
CSE-0350-M()	7.6	7.6	7.6	7.6	7.6	7.6
CSE-0351-M()	7.6	7.6	7.6	7.6	7.6	7.6
CSE-0352-M()	7.6	7.6	7.6	7.6	7.6	7.6
CSE-0400-M()	7.6	7.6	7.6	7.6	7.6	7.6
CSE-0401-M()	7.6	7.6	7.6	7.6	7.6	7.6

CSE Single Series Units - Low Temperature

NOTE:
See Tables on pages 16 - 18
for more data.
“()” = See AWEF Example
on page 23.

Bitzer Ecoline Models	R-404A	R-507A	R-407A	R-407F	R-448A	R-449A
	S	P	Q	F	T	R
CSE-0150-L()	3.15	3.15	3.15	3.15	3.15	3.15
CSE-0151-L()	3.15	3.15	3.15	3.15	3.15	3.15
CSE-0220-L()	3.15	3.15	3.15	3.15	3.15	3.15
CSE-0221-L()	3.15	3.15	3.15	3.15	3.15	3.15
CSE-0222-L()	3.15	3.15	3.15	3.15	3.15	3.15
CSE-0270-L()	3.15	3.15	3.15	3.15	3.15	3.15
CSE-0271-L()	3.15	3.15	3.15	3.15	3.15	3.15
CSE-0272-L()	3.15	3.15	3.15	3.15	3.15	3.15
CSE-0300-L()	3.15	3.15	3.15	3.15	3.15	3.15
CSE-0301-L()	3.15	3.15	3.15	3.15	3.15	3.15
CSE-0302-L()	3.15	3.15	3.15	3.15	3.15	3.15

NOTE:

NA: This refrigeration system is not intended for use in Walk-In Coolers or Freezers where US Department of Energy (DOE) or Natural Resources Canada (NRCAN) efficiency requirements apply.

AWEF EXAMPLE:

Insert refrigerant letter in () to produce model number.
Example: CSE-0100-M() for R404A will be CSE-0100MS with AWEF of 7.6.

CS Single Systems

Annual Walk-In Energy Factor (AWEF)

CSB Single Series Units - Medium Temperature

Bitzer Ecoline Models	R-404A	R-507A	R-407A	R-407F	R-448A	R-449A
	S	P	Q	F	T	R
CSB-0100-M()	7.6	7.6	7.6	7.6	7.6	7.6
CSB-0101-M()	7.6	7.6	7.6	7.6	7.6	7.6
CSB-0102-M()	7.6	7.6	7.6	7.6	7.6	7.6
CSB-0150-M()	7.6	7.6	7.6	7.6	7.6	7.6
CSB-0151-M()	7.6	7.6	7.6	7.6	7.6	7.6
CSB-0152-M()	7.6	7.6	7.6	7.6	7.6	7.6
CSB-0200-M()	7.6	7.6	7.6	7.6	7.6	7.6
CSB-0201-M()	7.6	7.6	7.6	7.6	7.6	7.6
CSB-0202-M()	7.6	7.6	7.6	7.6	7.6	7.6
CSB-0250-M()	7.6	7.6	7.6	7.6	7.6	7.6
CSB-0251-M()	7.6	7.6	7.6	7.6	7.6	7.6
CSB-0252-M()	7.6	7.6	7.6	7.6	7.6	7.6
CSB-0300-M()	7.6	7.6	7.6	7.6	7.6	7.6
CSB-0301-M()	7.6	7.6	7.6	7.6	7.6	7.6
CSB-0302-M()	7.6	7.6	7.6	7.6	7.6	7.6
CSB-0350-M()	7.6	7.6	7.6	7.6	7.6	7.6
CSB-0351-M()	7.6	7.6	7.6	7.6	7.6	7.6
CSB-0352-M()	7.6	7.6	7.6	7.6	7.6	7.6
CSB-0400-M()	7.6	7.6	7.6	7.6	7.6	7.6
CSB-0401-M()	7.6	7.6	7.6	7.6	7.6	7.6

NOTE:
See Tables on pages 10 - 12
for more data.

"()" = See AWEF Example
on page 23.

CSB Single Series Units - Low Temperature

Bitzer Ecoline Models	R-404A	R-507A	R-407A	R-407F	R-448A	R-449A
	S	P	Q	F	T	R
CSB-0150-L()	3.15	3.15	3.15	3.15	3.15	3.15
CSB-0151-L()	3.15	3.15	3.15	3.15	3.15	3.15
CSB-0220-L()	3.15	3.15	3.15	3.15	3.15	3.15
CSB-0221-L()	3.15	3.15	3.15	3.15	3.15	3.15
CSB-0222-L()	3.15	3.15	3.15	3.15	3.15	3.15
CSB-0270-L()	3.15	3.15	3.15	3.15	3.15	3.15
CSB-0271-L()	3.15	3.15	3.15	3.15	3.15	3.15
CSB-0272-L()	3.15	3.15	3.15	3.15	3.15	3.15
CSB-0300-L()	3.15	3.15	3.15	3.15	3.15	3.15
CSB-0301-L()	3.15	3.15	3.15	3.15	3.15	3.15
CSB-0302-L()	3.15	3.15	3.15	3.15	3.15	3.15

NOTE:
See Tables on pages 19 - 21
for more data.

"()" = See AWEF Example
on page 23.

AWEF EXAMPLE:

Insert refrigerant letter in () to produce model number.

Example: CSB-0100-M() for R404A will be CSB-0100MS with AWEF of 7.6.

CP Parallel Systems

CPD Low Temp R-404A

CPD Performance Data - Low Temperature R-404A - Total Capacity

NOTE:
Refrigeration systems identified with black shading are not intended for use in Walk-In Coolers or Freezers where US Department of Energy (DOE) or Natural Resources Canada (NRCAN) efficiency requirements apply.

All evaporator temps are MIDPOINT. Blacked out values indicate the condensing temp is above 135°F and are not recommended.

			95°F AMBIENT TEMPERATURE								
CONDENSING UNIT MODEL	COMPRESSOR	CONDENSER	-40	-35	-30	-25	-20	-15	-10	-5	0
CPD-0300-L	4DKNF63KE	12410	78.2	92.6	107.3	122.4	138.2	154.8	172.5	191.5	211.9
CPD-0301-L	4DKNF63KE	13310	80.0	94.9	110.1	125.8	142.2	159.7	178.3	198.4	220.1
CPD-0440-L	4DJNF76KE	13310	95.8	113.2	131.1	149.5	168.7	188.7	209.7	231.8	255.1
CPD-0441-L	4DJNF76KE	13410	97.3	115.0	133.2	152.2	171.9	192.7	214.5	237.5	261.9
CPD-0540-L	6DHNF93KE	13410	116.1	136.2	158.4	182.4	208.1	235.3	263.6	292.9	322.9
CPD-0541-L	6DHNF93KE	22410	119.2	139.9	162.9	188.0	214.9	243.6	273.7	305.1	337.5
CPD-0600-L	6DJNF11ME	22310	133.1	155.5	179.6	205.3	232.8	262.1	293.0	325.6	359.7
CPD-0601-L	6DJNF11ME	23310	137.7	161.0	186.4	213.7	243.3	275.0	308.9	345.1	383.6
CPD-0602-L	6DJNF11ME	22410	135.2	158.0	182.7	209.2	237.6	268.0	300.3	334.5	370.6

			105°F AMBIENT TEMPERATURE								
CONDENSING UNIT MODEL	COMPRESSOR	CONDENSER	-40	-35	-30	-25	-20	-15	-10	-5	0
CPD-0300-L	4DKNF63KE	12410	68.1	81.8	95.5	109.6	124.2	139.6	155.9	173.5	192.3
CPD-0301-L	4DKNF63KE	13310	69.6	83.7	97.9	112.5	127.8	143.9	161.1	179.6	199.6
CPD-0440-L	4DJNF76KE	13310	82.8	99.6	116.6	133.9	151.9	170.4	189.8	210.1	231.3
CPD-0441-L	4DJNF76KE	13410	84.3	101.3	118.7	136.5	154.9	174.0	194.1	215.1	237.3
CPD-0540-L	6DHNF93KE	13410	100.6	119.9	140.9	163.5	187.5	212.7	238.8	265.6	293.0
CPD-0541-L	6DHNF93KE	22410	103.5	123.4	145.2	168.8	193.9	220.5	248.3	277.0	306.6
CPD-0600-L	6DJNF11ME	22310	115.9	137.4	160.2	184.2	209.5	236.2	264.2	293.5	324.1
CPD-0601-L	6DJNF11ME	23310	120.4	142.8	166.7	192.2	219.4	248.4	279.1	311.8	346.3
CPD-0602-L	6DJNF11ME	22410	118.0	139.9	163.2	187.9	214.1	241.8	271.0	301.8	334.2

Electrical Specifications - Low Temperature R-404A

Voltage			208-230/3/60				460/3/60				575/3/60			
Unit	Compressor	Cond	Comp RLA	Cond FLA	MCA	MOPD	Comp RLA	Cond FLA	MCA	MOPD	Comp RLA	Cond FLA	MCA	MOPD
CPD-0300-LS*	2 - 4DKNF63KE	S	52.6	10.8	132.1	175	26.3	5.0	65.6	90	20.9	5.0	53.3	70
CPD-0301-LS		O		16.2	137.5	175		7.5	68.1	90		7.5	55.8	70
CPD-0440-LS	2 - 4DJNF76KE	S	64.3	16.2	163.8	225	32.1	7.5	81.3	110	29.1	7.5	74.1	100
CPD-0441-LS*		O		16.2	169.2	225		7.5	83.8	110		7.5	76.6	100
CPD-0540-LS*	2 - 6DHNF93KE	S	80.7	16.2	200.8	250	40.4	7.5	99.8	125	32.5	7.5	81.8	110
CPD-0541-LS*		O		21.6	206.2	250		10.0	102.3	125		10.0	84.3	110
CPD-0600-LS	2 - 6DJNF11ME	S	95.6	21.6	239.7	300	47.8	10.0	119.2	150	39.6	10.0	100.3	125
CPD-0601-LS		O		32.4	250.5	300		15.0	124.2	150		15.0	105.3	125
CPD-0602-LS		T		21.6	239.7	300		10.0	119.2	150		10.0	100.3	125

Unit	Condenser LAVF
CPD-0300-LS*	12410
CPD-0301-LS	13310
CPD-0440-LS	13310
CPD-0441-LS*	13410
CPD-0540-LS*	13410
CPD-0541-LS*	22410
CPD-0600-LS	22310
CPD-0601-LS	23310
CPD-0602-LS	22410

- Condenser size in the 8th position of the model number are: 0 - Standard, 1 - Oversize, 2 (or * at the end of the model) - Meets Title 24 efficiency requirement and need VFD added to vary fan speed to meet the full regulation.
- Calculated MCA and MOPD in the table includes compressor, condenser fans and control circuit. Use the MCA / MOPD Calculation at the end of section to include evaporator fans and defrost loads when powered from the condensing unit.

- Condensing unit capacities are calculated based on the LAVF condenser model shown in the table and mid-point temperatures.
- Use R-404A capacity and electrical data for R-507A while replacing the "S" at the end of the model nomenclature with a "P".
- Compressor head cooling fan is included for all low temperature applications.

CP Parallel Systems

CPD Low Temp R-407A

CPD Performance Data - Low Temperature R-407A - Total Capacity

95°F AMBIENT TEMPERATURE

CONDENSING UNIT MODEL	COMPRESSOR	CONDENSER	-40	-35	-30	-25	-20	-15	-10	-5	0
CPD-0300-L	4DKNF63KE	12410	66.0	79.3	93.7	109.2	125.8	143.5	162.2	181.9	202.6
CPD-0301-L	4DKNF63KE	13310	67.2	80.7	95.5	111.5	128.7	147.1	166.6	187.2	209.0
CPD-0440-L	4DJNF76KE	13310	86.5	99.6	115.5	134.1	155.2	178.8	204.6	232.6	262.7
CPD-0441-L	4DJNF76KE	13410	87.5	101.0	117.4	136.6	158.4	182.8	209.5	238.5	269.7
CPD-0540-L	6DHNF93KE	13410	90.9	114.0	137.6	162.0	187.8	215.5	245.4	278.1	313.7
CPD-0541-L	6DHNF93KE	22410	93.4	117.0	141.2	166.4	193.2	222.1	253.5	287.9	325.7
CPD-0600-L	6DJNF11ME	22310	108.8	136.4	164.6	193.7	224.5	257.4	292.9	331.5	373.7
CPD-0601-L	6DJNF11ME	23310	113.0	141.6	170.9	201.5	233.9	268.9	307.0	348.7	394.7
CPD-0602-L	6DJNF11ME	22410	111.0	139.1	167.8	197.7	229.4	263.3	300.2	340.4	384.5

NOTE:
Refrigeration systems identified with black shading are not intended for use in Walk-In Coolers or Freezers where US Department of Energy (DOE) or Natural Resources Canada (NRCAN) efficiency requirements apply.

All evaporator temps are MIDPOINT. Blacked out values indicate the condensing temp is above 135°F and are not recommended.

105°F AMBIENT TEMPERATURE

CONDENSING UNIT MODEL	COMPRESSOR	CONDENSER	-40	-35	-30	-25	-20	-15	-10	-5	0
CPD-0300-L	4DKNF63KE	12410	57.1	69.7	83.3	97.8	113.3	129.7	146.9	165.1	184.0
CPD-0301-L	4DKNF63KE	13310	58.3	71.2	85.1	100.0	116.0	133.1	151.1	170.1	190.1
CPD-0440-L	4DJNF76KE	13310	77.7	88.7	102.6	119.4	138.7	160.6	184.8	211.2	239.8
CPD-0441-L	4DJNF76KE	13410	78.8	90.2	104.6	121.9	141.9	164.5	189.6	217.1	246.8
CPD-0540-L	6DHNF93KE	13410	74.9	97.5	120.2	143.6	168.1	194.2	222.3	252.9	286.4
CPD-0541-L	6DHNF93KE	22410	77.5	100.7	124.1	148.3	173.8	201.1	230.7	263.0	298.5
CPD-0600-L	6DJNF11ME	22310	89.3	116.3	143.4	171.3	200.5	231.5	264.9	301.1	340.5
CPD-0601-L	6DJNF11ME	23310	93.9	121.9	150.2	179.5	210.5	243.6	279.5	318.7	361.9
CPD-0602-L	6DJNF11ME	22410	91.7	119.2	147.0	175.6	205.6	237.7	272.4	310.2	351.5

Electrical Specifications - Low Temperature R-407A

Voltage			208-230/3/60				460/3/60				575/3/60			
Unit	Compressor	Cond	Comp RLA	Cond FLA	MCA	MOPD	Comp RLA	Cond FLA	MCA	MOPD	Comp RLA	Cond FLA	MCA	MOPD
CPD-0300-LQ*	2 - 4DKNF63KE	S	52.6	10.8	132.1	175	26.3	5.0	65.6	90	20.9	5.0	53.3	70
CPD-0301-LQ		O		16.2	137.5	175		7.5	68.1	90		7.5	55.8	70
CPD-0440-LQ	2 - 4DJNF76KE	S	64.3	16.2	163.8	225	32.1	7.5	81.3	110	29.1	7.5	74.1	100
CPD-0441-LQ*		O		16.2	169.2	225		7.5	83.8	110		7.5	76.6	100
CPD-0540-LQ*	2 - 6DHNF93KE	S	80.7	16.2	200.8	250	40.4	7.5	99.8	125	32.5	7.5	81.8	110
CPD-0541-LQ*		O		21.6	206.2	250		10.0	102.3	125		10.0	84.3	110
CPD-0600-LQ	2 - 6DJNF11ME	S	95.6	21.6	239.7	300	47.8	10.0	119.1	150	39.6	10.0	100.3	125
CPD-0601-LQ		O		32.4	250.5	300		15.0	124.2	150		15.0	105.3	125
CPD-0602-LQ		T		21.6	239.7	300		10.0	119.1	150		10.0	100.3	125

Unit	Condenser LAVF
CPD-0300-LQ*	12410
CPD-0301-LQ	13310
CPD-0440-LQ	13310
CPD-0441-LQ*	13410
CPD-0540-LQ*	13410
CPD-0541-LQ*	22410
CPD-0600-LQ	22310
CPD-0601-LQ	23310
CPD-0602-LQ	22410

- Condenser size in the 8th position of the model number are: 0 - Standard, 1 - Oversize, 2 for * at the end of the model) - Meets Title 24 efficiency requirement and need VFD added to vary fan speed to meet the full regulation.
- Calculated MCA and MOPD in the table includes compressor, condenser fans and control circuit. Use the MCA / MOPD Calculation at the end of section to include evaporator fans and defrost loads when powered from the condensing unit.

- Condensing unit capacities are calculated based on the LAVF condenser model shown in the table and mid-point temperatures.
- Use R-407A capacity and electrical data for R-407F while replacing the "O" at the end of the model nomenclature with an "F".
- Compressor head cooling fan and liquid injection are included on all low temperature units.

CP Parallel Systems

CPD Low Temp R-448A

CPD Performance Data - Low Temperature R-448A - Total Capacity

NOTE:
Refrigeration systems identified with black shading are not intended for use in Walk-In Coolers or Freezers where US Department of Energy (DOE) or Natural Resources Canada (NRCAN) efficiency requirements apply.

All evaporator temps are MIDPOINT. Blacked out values indicate the condensing temp is above 135°F and are not recommended.

CONDENSING UNIT MODEL	COMPRESSOR	CONDENSER	95°F AMBIENT TEMPERATURE								
			-40	-35	-30	-25	-20	-15	-10	-5	0
CPD-0300-L	4DKNF63KE	12410	69.1	84.0	99.5	115.6	132.6	150.6	169.6	189.7	211.2
CPD-0301-L	4DKNF63KE	13310	70.5	85.8	101.7	118.3	135.8	154.4	174.2	195.4	218.0
CPD-0440-L	4DJNF76KE	13310	84.6	103.2	122.3	142.4	164.0	187.5	213.4	242.1	274.0
CPD-0441-L	4DJNF76KE	13410	86.3	105.3	124.8	145.4	167.6	191.9	218.6	248.4	281.5
CPD-0540-L	6DHNF93KE	13410	100.6	122.9	146.3	171.2	198.0	226.9	258.2	292.3	329.4
CPD-0541-L	6DHNF93KE	22410	103.6	126.3	150.4	176.2	204.0	234.2	267.1	303.1	342.5
CPD-0600-L	6DJNF11ME	22310	119.6	146.7	174.9	204.7	236.5	270.7	307.8	348.1	392.0
CPD-0601-L	6DJNF11ME	23310	124.7	152.8	182.2	213.4	247.0	283.5	323.3	366.9	414.8
CPD-0602-L	6DJNF11ME	22410	122.2	149.8	178.7	209.2	241.9	277.3	315.8	357.9	403.8

CONDENSING UNIT MODEL	COMPRESSOR	CONDENSER	105°F AMBIENT TEMPERATURE								
			-40	-35	-30	-25	-20	-15	-10	-5	0
CPD-0300-L	4DKNF63KE	12410	58.0	72.8	87.8	103.3	119.3	136.2	153.8	172.5	192.2
CPD-0301-L	4DKNF63KE	13310	59.5	74.5	89.9	105.8	122.4	139.9	158.3	177.9	198.7
CPD-0440-L	4DJNF76KE	13310	70.4	88.4	106.8	126.0	146.5	168.9	193.4	220.7	251.0
CPD-0441-L	4DJNF76KE	13410	72.0	90.4	109.2	128.9	150.1	173.1	198.5	226.8	258.3
CPD-0540-L	6DHNF93KE	13410	83.4	105.1	127.7	151.5	176.9	204.3	233.8	265.9	300.7
CPD-0541-L	6DHNF93KE	22410	86.6	108.8	132.1	156.8	183.3	212.0	243.1	277.1	314.2
CPD-0600-L	6DJNF11ME	22310	98.3	124.8	152.1	180.7	210.9	243.3	278.3	316.1	357.2
CPD-0601-L	6DJNF11ME	23310	103.8	131.4	159.9	190.0	222.1	256.8	294.5	335.6	380.7
CPD-0602-L	6DJNF11ME	22410	101.1	128.2	156.2	185.5	216.7	250.3	286.6	326.2	369.3

Electrical Specifications - Low Temperature R-448A

Voltage			208-230/3/60				460/3/60				575/3/60			
Unit	Compressor	Cond	Comp RLA	Cond FLA	MCA	MOPD	Comp RLA	Cond FLA	MCA	MOPD	Comp RLA	Cond FLA	MCA	MOPD
CPD-0300-LT*	2 - 4DKNF63KE	S	52.6	10.8	132.1	175	26.3	5.0	65.6	90	20.9	5.0	53.3	70
CPD-0301-LT		O		16.2	137.5	175		7.5	68.1	90		7.5	55.8	70
CPD-0440-LT	2 - 4DJNF76KE	S	64.3	16.2	163.8	225	32.1	7.5	81.3	110	29.1	7.5	74.1	100
CPD-0441-LT*		O		16.2	169.2	225		7.5	83.8	110		7.5	76.6	100
CPD-0540-LT*	2 - 6DHNF93KE	S	80.7	16.2	200.8	250	40.4	7.5	99.8	125	32.5	7.5	81.8	110
CPD-0541-LT*		O		21.6	206.2	250		10.0	102.3	125		10.0	84.3	110
CPD-0600-LT	2 - 6DJNF11ME	S	95.6	21.6	239.7	300	47.8	10.0	119.1	150	39.6	10.0	100.3	125
CPD-0601-LT		O		32.4	250.5	300		15.0	124.2	150		15.0	105.3	125
CPD-0602-LT		T		21.6	239.7	300		10.0	119.1	150		10.0	100.3	125

Unit	Condenser LAVF
CPD-0300-LT*	12410
CPD-0301-LT	13310
CPD-0440-LT	13310
CPD-0441-LT*	13410
CPD-0540-LT*	13410
CPD-0541-LT*	22410
CPD-0600-LT	22310
CPD-0601-LT	23310
CPD-0602-LT	22410

1. Condenser size in the 8th position of the model number are: 0 – Standard, 1 – Oversize, 2 (or * at the end of the model) – Meets Title 24 efficiency requirement and need VFD added to vary fan speed to meet the full regulation.
2. Calculated MCA and MOPD in the table includes compressor, condenser fans and control circuit. Use the MCA / MOPD Calculation at the end of section to include evaporator fans and defrost loads when powered from the condensing unit.

3. Condensing unit capacities are calculated based on the LAVF condenser model shown in the table and mid-point temperatures.

4. Use R-448A capacity and electrical data for R-449A while replacing the "T" at the end of the model nomenclature with a "R".

5. Compressor head cooling fan and liquid injection are included on all low temperature units.

CP Parallel Systems

CPE Low Temp R-404A

CPE Performance Data - Low Temperature R-404A - Total Capacity

95°F AMBIENT TEMPERATURE

CONDENSING UNIT MODEL	COMPRESSOR	CONDENSER	-40	-35	-30	-25	-20	-15	-10	-5	0
CPE-0300-L	4HE-25	12410	73.8	88.3	103.8	120.4	138.0	156.8	176.7	197.8	220.0
CPE-0301-L	4HE-25	13310	75.4	90.4	106.5	123.7	142.2	162.0	183.2	205.8	229.8
CPE-0440-L	4GE-30	13310	87.8	104.7	122.7	141.9	162.5	184.4	207.7	232.4	258.6
CPE-0441-L	4GE-30	13410	89.0	106.2	124.6	144.4	165.6	188.4	212.7	238.6	266.1
CPE-0540-L	6HE-35	13410	109.2	130.5	153.2	177.5	203.4	231.1	260.4	291.5	324.4
CPE-0541-L	6HE-35	22410	112.0	134.1	157.8	183.3	210.7	240.1	271.6	305.3	341.2
CPE-0600-L	6GE-40	22310	128.4	152.5	178.3	205.8	235.0	266.1	299.1	333.9	370.5
CPE-0601-L	6GE-40	23310	132.8	158.1	185.3	214.6	246.2	280.0	316.4	355.2	396.6
CPE-0602-L	6GE-40	22410	130.4	155.1	181.5	209.8	240.1	272.5	307.0	343.6	382.4

NOTE:
Refrigeration systems identified with black shading are not intended for use in Walk-In Coolers or Freezers where US Department of Energy (DOE) or Natural Resources Canada (NRCan) efficiency requirements apply.

Selection of the CSB model is recommended for low temperature applications where the larger motor in the CSE model is not required.

All evaporator temps are MIDPOINT. Blacked out values indicate the condensing temp is above 135°F and are not recommended.

105°F AMBIENT TEMPERATURE

CONDENSING UNIT MODEL	COMPRESSOR	CONDENSER	-40	-35	-30	-25	-20	-15	-10	-5	0
CPE-0300-L	4HE-25	12410	64.0	77.5	91.7	106.8	122.8	139.7	157.5	176.4	196.3
CPE-0301-L	4HE-25	13310	65.5	79.4	94.1	109.9	126.7	144.6	163.7	184.0	205.5
CPE-0440-L	4GE-30	13310	76.9	92.4	108.9	126.4	145.0	164.7	185.6	207.7	231.0
CPE-0441-L	4GE-30	13410	77.9	93.9	110.8	128.8	148.0	168.5	190.3	213.5	238.2
CPE-0540-L	6HE-35	13410	94.5	114.2	135.1	157.3	180.9	205.8	232.2	260.1	289.5
CPE-0541-L	6HE-35	22410	97.0	117.5	139.4	162.7	187.7	214.3	242.8	273.2	305.5
CPE-0600-L	6GE-40	22310	111.9	134.4	158.1	183.2	209.7	237.7	267.2	298.3	330.9
CPE-0601-L	6GE-40	23310	116.0	139.6	164.8	191.6	220.3	251.0	283.8	318.7	355.9
CPE-0602-L	6GE-40	22410	113.7	136.8	161.2	187.1	214.6	243.8	274.8	307.6	342.3

Electrical Specifications - Low Temperature R-404A

Voltage			208-230/3/60				460/3/60				575/3/60			
Unit	Compressor	Cond	Comp RLA	Cond FLA	MCA	MOPD	Comp RLA	Cond FLA	MCA	MOPD	Comp RLA	Cond FLA	MCA	MOPD
CPE-0300-LS*	2 - 4HE-25	S	84.3	10.8	203.5	250	42.1	5.0	101.2	125	33.6	5.0	81.8	110
CPE-0301-LS		O		16.2	208.9	250		7.5	103.7	125		7.5	84.3	110
CPE-0440-LS	2 - 4GE-30	S	100.0	16.2	244.2	300	50.0	7.5	121.5	150	40.0	7.5	98.7	125
CPE-0441-LS*		O		16.2	244.2	300		7.5	124.0	175		7.5	101.2	125
CPE-0540-LS*	2 - 6HE-35	S	117.1	16.2	282.7	350	58.6	7.5	140.9	200	46.4	7.5	113.1	150
CPE-0541-LS*		O		21.6	288.1	400		10.0	143.4	200		10.0	115.6	150
CPE-0600-LS	2 - 6GE-40	S	157.1	21.6	378.1	500	78.6	10.0	188.4	250	62.9	10.0	152.7	200
CPE-0601-LS		O		32.4	388.9	500		15.0	193.4	250		15.0	157.7	200
CPE-0602-LS		T		21.6	378.1	500		10.0	188.4	250		10.0	152.7	200

Unit	Condenser LAVF
CPE-0300-LS*	12410
CPE-0301-LS	13310
CPE-0440-LS	13310
CPE-0441-LS*	13410
CPE-0540-LS*	13410
CPE-0541-LS*	22410
CPE-0600-LS	22310
CPE-0601-LS	23310
CPE-0602-LS	22410

- Condenser size in the 8th position of the model number are: 0 - Standard, 1 - Oversize, 2 for * at the end of the model) - Meets Title 24 efficiency requirement and need VFD added to vary fan speed to meet the full regulation.
- Calculated MCA and MOPD in the table includes compressor, condenser fans and control circuit. Use the MCA / MOPD Calculation at the end of section to include evaporator fans and defrost loads when powered from the condensing unit.

- Condensing unit capacities are calculated based on the LAVF condenser model shown in the table and mid-point temperatures.
- Use R-404A capacity and electrical data for R-507A while replacing the "S" at the end of the model nomenclature with a "P".
- Compressor head cooling fan is included for all low temperature applications.

CP Parallel Systems

CPE Low Temp R-407A

CPE Performance Data - Low Temperature R-407A - Total Capacity

NOTE:
Refrigeration systems identified with black shading are not intended for use in Walk-In Coolers or Freezers where US Department of Energy (DOE) or Natural Resources Canada (NRCan) efficiency requirements apply.

Selection of the CSB model is recommended for low temperature applications where the larger motor in the CSE model is not required.

All evaporator temps are MIDPOINT. Blacked out values indicate the condensing temp is above 135°F and are not recommended.

			95°F AMBIENT TEMPERATURE								
CONDENSING UNIT MODEL	COMPRESSOR	CONDENSER	-40	-35	-30	-25	-20	-15	-10	-5	0
CPE-0300-L	4HE-25	12410	43.0	58.4	74.7	91.9	110.2	129.8	150.7	173.1	197.0
CPE-0301-L	4HE-25	13310	43.8	59.6	76.3	94.0	113.0	133.3	155.2	178.7	203.9
CPE-0440-L	4GE-30	13310	58.0	76.1	95.2	115.4	136.9	159.9	184.4	210.7	238.8
CPE-0441-L	4GE-30	13410	58.9	77.3	96.7	117.4	139.5	163.2	188.7	216.1	245.4
CPE-0540-L	6HE-35	13410	73.0	96.4	121.0	147.1	174.9	204.4	236.0	269.7	305.7
CPE-0541-L	6HE-35	22410	74.7	98.8	124.2	151.3	180.3	211.3	244.7	280.6	319.2
CPE-0600-L	6GE-40	22310	86.0	112.8	140.9	170.7	202.3	236.0	271.8	310.1	350.9
CPE-0601-L	6GE-40	23310	88.8	116.6	146.0	177.4	211.0	247.0	285.8	327.6	372.5
CPE-0602-L	6GE-40	22410	87.4	114.7	143.6	174.1	206.7	241.6	279.0	319.0	361.9

			105°F AMBIENT TEMPERATURE								
CONDENSING UNIT MODEL	COMPRESSOR	CONDENSER	-40	-35	-30	-25	-20	-15	-10	-5	0
CPE-0300-L	4HE-25	12410	34.2	48.6	63.8	79.7	96.6	114.6	133.9	154.4	176.4
CPE-0301-L	4HE-25	13310	34.9	49.7	65.2	81.6	99.1	117.9	137.9	159.5	182.7
CPE-0440-L	4GE-30	13310	48.3	65.3	83.1	101.9	121.7	142.9	165.5	189.7	215.5
CPE-0441-L	4GE-30	13410	49.1	66.4	84.5	103.7	124.2	146.0	169.5	194.6	221.7
CPE-0540-L	6HE-35	13410	60.2	82.2	105.2	129.4	155.0	182.2	211.2	242.2	275.3
CPE-0541-L	6HE-35	22410	61.7	84.3	108.1	133.2	160.0	188.6	219.3	252.4	287.9
CPE-0600-L	6GE-40	22310	71.6	96.8	123.0	150.6	179.8	210.8	243.8	278.9	316.4
CPE-0601-L	6GE-40	23310	74.1	100.2	127.7	156.8	187.8	221.1	256.8	295.2	336.6
CPE-0602-L	6GE-40	22410	72.9	98.5	125.4	153.8	183.9	216.0	250.4	287.2	326.7

Electrical Specifications - Low Temperature R-407A

Voltage			208-230/3/60				460/3/60				575/3/60			
Unit	Compressor	Cond	Comp RLA	Cond FLA	MCA	MOPD	Comp RLA	Cond FLA	MCA	MOPD	Comp RLA	Cond FLA	MCA	MOPD
CPE-0300-LQ*	2 - 4HE-25	S	84.3	10.8	203.5	250	42.1	5.0	101.2	125	33.6	5.0	81.8	110
CPE-0301-LQ		O		16.2	208.9	250		7.5	103.7	125		7.5	84.3	110
CPE-0440-LQ	2 - 4GE-30	S	100.0	16.2	244.2	300	50.0	7.5	121.5	150	40.0	7.5	98.7	125
CPE-0441-LQ*		O		16.2	244.2	300		7.5	124.0	175		7.5	101.2	125
CPE-0540-LQ*	2 - 6HE-35	S	117.1	16.2	282.7	350	58.6	7.5	140.9	200	46.4	7.5	113.1	150
CPE-0541-LQ*		O		21.6	288.1	400		10.0	143.4	200		10.0	115.6	150
CPE-0600-LQ	2 - 6GE-40	S	157.1	21.6	378.1	500	78.6	10.0	188.4	250	62.9	10.0	152.7	200
CPE-0601-LQ		O		32.4	388.9	500		15.0	193.4	250		15.0	157.7	200
CPE-0602-LQ		T		21.6	378.1	500		10.0	188.4	250		10.0	152.7	200

Unit	Condenser LAVF
CPE-0300-LQ*	12410
CPE-0301-LQ	13310
CPE-0440-LQ	13310
CPE-0441-LQ*	13410
CPE-0540-LQ*	13410
CPE-0541-LQ*	22410
CPE-0600-LQ	22310
CPE-0601-LQ	23310
CPE-0602-LQ	22410

1. Condenser size in the 8th position of the model number are: 0 – Standard, 1 – Oversize, 2 (or * at the end of the model) – Meets Title 24 efficiency requirement and need VFD added to vary fan speed to meet the full regulation.
2. Calculated MCA and MOPD in the table includes compressor, condenser fans and control circuit. Use the MCA / MOPD Calculation at the end of section to include evaporator fans and defrost loads when powered from the condensing unit.

3. Condensing unit capacities are calculated based on the LAVF condenser model shown in the table and mid-point temperatures.

4. Use R-407A capacity and electrical data for R-407F while replacing the "Q" at the end of the model nomenclature with an "F".

5. Compressor head cooling fan and liquid injection are included on all low temperature units.

CP Parallel Systems

CPE Low Temp R-448A

CPE Performance Data - Low Temperature R-448A - Total Capacity

95°F AMBIENT TEMPERATURE

CONDENSING UNIT MODEL	COMPRESSOR	CONDENSER	-40	-35	-30	-25	-20	-15	-10	-5	0
CPE-0300-L	4HE-25	12410	65.4	80.8	97.1	114.5	133.1	152.9	174.2	196.8	221.0
CPE-0301-L	4HE-25	13310	66.7	82.4	99.2	117.2	136.4	157.1	179.4	203.3	228.9
CPE-0440-L	4GE-30	13310	78.2	96.0	114.9	135.0	156.5	179.5	204.1	230.4	258.6
CPE-0441-L	4GE-30	13410	79.3	97.5	116.8	137.5	159.6	183.4	209.0	236.5	266.1
CPE-0540-L	6HE-35	13410	96.8	119.4	143.4	168.9	196.3	225.6	256.9	290.4	326.1
CPE-0541-L	6HE-35	22410	99.2	122.5	147.3	173.9	202.6	233.4	266.6	302.4	340.8
CPE-0600-L	6GE-40	22310	114.3	140.1	167.4	196.4	227.3	260.3	295.4	332.7	372.5
CPE-0601-L	6GE-40	23310	118.3	145.1	173.7	204.3	237.2	272.6	310.7	351.7	395.7
CPE-0602-L	6GE-40	22410	116.3	142.7	170.6	200.5	232.4	266.6	303.2	342.4	384.3

NOTE:
Refrigeration systems identified with black shading are not intended for use in Walk-In Coolers or Freezers where US Department of Energy (DOE) or Natural Resources Canada (NRCan) efficiency requirements apply.

Selection of the CSB model is recommended for low temperature applications where the larger motor in the CSE model is not required.

All evaporator temps are MIDPOINT. Blacked out values indicate the condensing temp is above 135°F and are not recommended.

105°F AMBIENT TEMPERATURE

CONDENSING UNIT MODEL	COMPRESSOR	CONDENSER	-40	-35	-30	-25	-20	-15	-10	-5	0
CPE-0300-L	4HE-25	12410	55.7	70.3	85.6	101.8	119.0	137.2	156.7	177.4	199.6
CPE-0301-L	4HE-25	13310	56.9	71.8	87.6	104.3	122.2	141.2	161.7	183.6	207.1
CPE-0440-L	4GE-30	13310	67.6	84.5	102.1	120.8	140.6	161.7	184.2	208.2	233.8
CPE-0441-L	4GE-30	13410	68.7	85.9	104.0	123.2	143.6	165.5	188.9	214.1	241.0
CPE-0540-L	6HE-35	13410	81.9	103.4	126.0	149.9	175.3	202.3	231.1	261.9	294.7
CPE-0541-L	6HE-35	22410	84.2	106.4	129.8	154.7	181.3	209.8	240.5	273.4	308.8
CPE-0600-L	6GE-40	22310	97.3	122.0	147.8	175.0	203.7	234.1	266.3	300.5	336.7
CPE-0601-L	6GE-40	23310	101.2	126.9	154.0	182.7	213.4	246.1	281.2	318.9	359.3
CPE-0602-L	6GE-40	22410	99.3	124.5	151.0	179.0	208.7	240.3	273.9	309.9	348.2

Electrical Specifications - Low Temperature R-448A

Voltage			208-230/3/60				460/3/60				575/3/60			
Unit	Compressor	Cond	Comp RLA	Cond FLA	MCA	MOPD	Comp RLA	Cond FLA	MCA	MOPD	Comp RLA	Cond FLA	MCA	MOPD
CPE-0300-LT*	2 - 4HE-25	S	84.3	10.8	203.5	250	42.1	5.0	101.2	125	33.6	5.0	81.8	110
CPE-0301-LT		O		16.2	208.9	250		7.5	103.7	125		7.5	84.3	110
CPE-0440-LT	2 - 4GE-30	S	100.0	16.2	244.2	300	50.0	7.5	121.5	150	40.0	7.5	98.7	125
CPE-0441-LT*		O		16.2	244.2	300		7.5	124.0	175		7.5	101.2	125
CPE-0540-LT*	2 - 6HE-35	S	117.1	16.2	282.7	350	58.6	7.5	140.9	200	46.4	7.5	113.1	150
CPE-0541-LT*		O		21.6	288.1	400		10.0	143.4	200		10.0	115.6	150
CPE-0600-LT	2 - 6GE-40	S	157.1	21.6	378.1	500	78.6	10.0	188.4	250	62.9	10.0	152.7	200
CPE-0601-LT		O		32.4	388.9	500		15.0	193.4	250		15.0	157.7	200
CPE-0602-LT		T		21.6	378.1	500		10.0	188.4	250		10.0	152.7	200

Unit	Condenser LAVF
CPE-0300-LT*	12410
CPE-0301-LT	13310
CPE-0440-LT	13310
CPE-0441-LT*	13410
CPE-0540-LT*	13410
CPE-0541-LT*	22410
CPE-0600-LT	22310
CPE-0601-LT	23310
CPE-0602-LT	22410

1. Condenser size in the 8th position of the model number are: 0 - Standard, 1 - Oversize, 2 for * at the end of the model) - Meets Title 24 efficiency requirement and need VFD added to vary fan speed to meet the full regulation.
2. Calculated MCA and MOPD in the table includes compressor, condenser fans and control circuit. Use the MCA / MOPD Calculation at the end of section to include evaporator fans and defrost loads when powered from the condensing unit.

3. Condensing unit capacities are calculated based on the LAVF condenser model shown in the table and mid-point temperatures.
4. Use R-448A capacity and electrical data for R-449A while replacing the "T" at the end of the model nomenclature with a "R".
5. Compressor head cooling fan and liquid injection are included on all low temperature units.

CP Parallel Systems

CPB Low Temp R-404A

CPB Performance Data - Low Temperature R-404A - Total Capacity

NOTE:
Refrigeration systems identified with black shading are not intended for use in Walk-In Coolers or Freezers where US Department of Energy (DOE) or Natural Resources Canada (NRCAN) efficiency requirements apply.

All evaporator temps are MIDPOINT. Blacked out values indicate the condensing temp is above 135°F and are not recommended.

CONDENSING UNIT MODEL	COMPRESSOR	CONDENSER	95°F AMBIENT TEMPERATURE								
			-40	-35	-30	-25	-20	-15	-10	-5	0
CPB-0300-L	4HE-18	12410	78.3	92.6	107.9	124.4	141.9	160.5	180.4	201.4	223.6
CPB-0301-L	4HE-18	13310	79.9	94.7	110.7	127.8	146.2	166.0	187.1	209.7	233.7
CPB-0440-L	4GE-23	13310	95.4	112.1	129.9	149.0	169.4	191.2	214.4	239.1	265.2
CPB-0441-L	4GE-23	13410	96.7	113.7	132.0	151.7	172.8	195.5	219.7	245.5	273.0
CPB-0540-L	6HE-28	13410	116.1	137.1	159.6	183.7	209.5	237.0	266.3	297.4	330.3
CPB-0541-L	6HE-28	22410	118.9	140.8	164.3	189.7	217.0	246.4	277.8	311.5	347.4
CPB-0600-L	6GE-34	22310	145.6	169.7	195.4	222.8	251.9	282.9	315.7	350.4	387.0
CPB-0601-L	6GE-34	23310	150.2	175.5	202.8	232.2	263.8	297.7	334.1	373.0	414.5
CPB-0602-L	6GE-34	22410	147.7	172.4	198.8	227.1	257.4	289.7	324.2	360.8	399.6

CONDENSING UNIT MODEL	COMPRESSOR	CONDENSER	105°F AMBIENT TEMPERATURE								
			-40	-35	-30	-25	-20	-15	-10	-5	0
CPB-0300-L	4HE-18	12410	68.6	81.8	95.7	110.6	126.4	143.2	161.0	179.9	199.9
CPB-0301-L	4HE-18	13310	70.1	83.7	98.2	113.8	130.5	148.3	167.4	187.7	209.4
CPB-0440-L	4GE-23	13310	84.8	100.0	116.2	133.5	151.8	171.4	192.2	214.3	237.7
CPB-0441-L	4GE-23	13410	86.0	101.5	118.2	136.0	155.0	175.4	197.2	220.4	245.1
CPB-0540-L	6HE-28	13410	101.6	120.9	141.4	163.3	186.6	211.5	237.9	265.9	295.6
CPB-0541-L	6HE-28	22410	104.2	124.3	145.8	168.9	193.7	220.3	248.8	279.3	311.8
CPB-0600-L	6GE-34	22310	129.7	151.9	175.3	200.2	226.5	254.3	283.8	314.8	347.4
CPB-0601-L	6GE-34	23310	134.2	157.6	182.6	209.3	238.0	268.7	301.5	336.5	373.9
CPB-0602-L	6GE-34	22410	131.8	154.5	178.7	204.4	231.8	260.9	291.9	324.7	359.5

Electrical Specifications - Low Temperature R-404A

Unit	Compressor	Cond	208-230/3/60				460/3/60				575/3/60			
			Comp RLA	Cond FLA	MCA	MOPD	Comp RLA	Cond FLA	MCA	MOPD	Comp RLA	Cond FLA	MCA	MOPD
CPB-0300-LS	2 - 4HE-18	S	60.3	10.8	149.5	200	30.1	5.0	74.2	100	24.1	5.0	60.4	80
CPB-0301-LS		O		16.2	154.9	200		7.5	76.7	100		7.5	62.9	80
CPB-0440-LS	2 - 4GE-23	S	64.3	16.2	163.9	225	32.1	7.5	81.2	110	25.7	7.5	66.5	90
CPB-0441-LS		O		16.2	163.9	225		7.5	83.7	110		7.5	69.0	90
CPB-0540-LS	2 - 6HE-28	S	86.4	16.2	213.6	300	43.2	7.5	106.2	150	34.6	7.5	86.6	110
CPB-0541-LS		O		21.6	219.0	300		10.0	108.7	150		10.0	89.1	125
CPB-0600-LS	2 - 6GE-34	S	94.3	21.6	236.8	300	47.1	10.0	117.5	150	37.1	10.0	94.7	125
CPB-0601-LS		O		32.4	247.6	300		15.0	122.5	150		15.0	99.7	125
CPB-0602-LS		T		21.6	236.8	300		10.0	117.5	150		10.0	94.7	125

Unit	Condenser LAVF
CPB-0300-LS	12410
CPB-0301-LS	13310
CPB-0440-LS	13310
CPB-0441-LS	13410
CPB-0540-LS	13410
CPB-0541-LS	22410
CPB-0600-LS	22310
CPB-0601-LS	23310
CPB-0602-LS	22410

1. Condenser size in the 8th position of the model number are: 0 – Standard, 1 – Oversize, 2 (or * at the end of the model) – Meets Title 24 efficiency requirement and need VFD added to vary fan speed to meet the full regulation.
2. Calculated MCA and MOPD in the table includes compressor, condenser fans and control circuit. Use the MCA / MOPD Calculation at the end of section to include evaporator fans and defrost loads when powered from the condensing unit.

3. Condensing unit capacities are calculated based on the LAVF condenser model shown in the table and mid-point temperatures.

4. Use R-404A capacity and electrical data for R-507A while replacing the "S" at the end of the model nomenclature with a "P".

5. Compressor head cooling fan is included for all low temperature applications.

CP Parallel Systems

CPB Low Temp R-407A

CPB Performance Data - Low Temperature R-407A - Total Capacity

95°F AMBIENT TEMPERATURE

CONDENSING UNIT MODEL	COMPRESSOR	CONDENSER	-40	-35	-30	-25	-20	-15	-10	-5	0
CPB-0300-L	4HE-18	12410	53.7	68.6	84.6	101.6	119.9	139.6	160.7	183.3	207.6
CPB-0301-L	4HE-18	13310	54.6	69.9	86.2	103.8	122.8	143.2	165.3	189.1	214.7
CPB-0440-L	4GE-23	13310	69.4	86.8	105.3	125.1	146.4	169.3	193.9	220.3	248.7
CPB-0441-L	4GE-23	13410	70.2	88.0	106.9	127.3	149.2	172.9	198.4	225.9	255.5
CPB-0540-L	6HE-28	13410	80.7	103.1	127.0	152.5	180.0	209.4	241.1	275.0	311.4
CPB-0541-L	6HE-28	22410	82.4	105.4	130.2	156.8	185.5	216.5	250.0	286.2	325.1
CPB-0600-L	6GE-34	22310	93.8	119.4	146.6	175.8	207.0	240.4	276.3	314.8	356.0
CPB-0601-L	6GE-34	23310	96.5	123.2	151.7	182.5	215.8	251.7	290.6	332.6	377.9
CPB-0602-L	6GE-34	22410	95.2	121.3	149.2	179.2	211.4	246.2	283.6	323.8	367.1

NOTE:
Refrigeration systems identified with black shading are not intended for use in Walk-In Coolers or Freezers where US Department of Energy (DOE) or Natural Resources Canada (NRCAN) efficiency requirements apply.

All evaporator temps are MIDPOINT. Blacked out values indicate the condensing temp is above 135°F and are not recommended.

105°F AMBIENT TEMPERATURE

CONDENSING UNIT MODEL	COMPRESSOR	CONDENSER	-40	-35	-30	-25	-20	-15	-10	-5	0
CPB-0300-L	4HE-18	12410	46.0	59.8	74.4	90.1	106.9	124.9	144.4	165.3	187.7
CPB-0301-L	4HE-18	13310	46.8	60.8	75.9	92.0	109.5	128.3	148.6	170.5	194.2
CPB-0440-L	4GE-23	13310	61.0	77.1	94.1	112.3	131.9	153.0	175.6	200.0	226.2
CPB-0441-L	4GE-23	13410	61.8	78.1	95.6	114.3	134.5	156.2	179.7	205.1	232.5
CPB-0540-L	6HE-28	13410	69.2	89.8	111.7	135.2	160.4	187.5	216.6	247.9	281.6
CPB-0541-L	6HE-28	22410	70.6	91.9	114.6	139.0	165.4	193.9	224.8	258.2	294.2
CPB-0600-L	6GE-34	22310	80.8	104.3	129.4	156.1	184.7	215.5	248.5	284.0	322.0
CPB-0601-L	6GE-34	23310	83.1	107.7	133.9	162.2	192.8	225.8	261.6	300.4	342.3
CPB-0602-L	6GE-34	22410	82.0	106.0	131.7	159.2	188.8	220.7	255.2	292.3	332.3

Electrical Specifications - Low Temperature R-407A

Unit	Voltage		208-230/3/60				460/3/60				575/3/60			
	Compressor	Cond	Comp RLA	Cond FLA	MCA	MOPD	Comp RLA	Cond FLA	MCA	MOPD	Comp RLA	Cond FLA	MCA	MOPD
CPB-0300-LQ*	2 - 4HE-18	S	60.3	10.8	149.5	200	30.1	5.0	74.2	100	24.1	5.0	60.4	80
CPB-0301-LQ		O		16.2	154.9	200		7.5	76.7	100		7.5	62.9	80
CPB-0440-LQ	2 - 4GE-23	S	64.3	16.2	163.9	225	32.1	7.5	81.2	110	25.7	7.5	66.5	90
CPB-0441-LQ*		O		16.2	163.9	225		7.5	83.7	110		7.5	69.0	90
CPB-0540-LQ*	2 - 6HE-28	S	86.4	16.2	213.6	300	43.2	7.5	106.2	150	34.6	7.5	86.6	110
CPB-0541-LQ*		O		21.6	219.0	300		10.0	108.7	150		10.0	89.1	125
CPB-0600-LQ	2 - 6GE-34	S	94.3	21.6	236.8	300	47.1	10.0	117.5	150	37.1	10.0	94.7	125
CPB-0601-LQ		O		32.4	247.6	300		15.0	122.5	150		15.0	99.7	125
CPB-0602-LQ		T		21.6	236.8	300		10.0	117.5	150		10.0	94.7	125

Unit	Condenser LAVF
CPB-0300-LQ*	12410
CPB-0301-LQ	13310
CPB-0440-LQ	13310
CPB-0441-LQ*	13410
CPB-0540-LQ*	13410
CPB-0541-LQ*	22410
CPB-0600-LQ	22310
CPB-0601-LQ	23310
CPB-0602-LQ	22410

- Condenser size in the 8th position of the model number are: 0 - Standard, 1 - Oversize, 2 for * at the end of the model) - Meets Title 24 efficiency requirement and need VFD added to vary fan speed to meet the full regulation.
- Calculated MCA and MOPD in the table includes compressor, condenser fans and control circuit. Use the MCA / MOPD Calculation at the end of section to include evaporator fans and defrost loads when powered from the condensing unit.

- Condensing unit capacities are calculated based on the LAVF condenser model shown in the table and mid-point temperatures.
- Use R-407A capacity and electrical data for R-407F while replacing the "0" at the end of the model nomenclature with an "F".
- Compressor head cooling fan and liquid injection are included on all low temperature units.

CP Parallel Systems

CPB Low Temp R-448A

CPB Performance Data - Low Temperature R-448A - Total Capacity

NOTE:
Refrigeration systems identified with black shading are not intended for use in Walk-In Coolers or Freezers where US Department of Energy (DOE) or Natural Resources Canada (NRCAN) efficiency requirements apply.

All evaporator temps are MIDPOINT. Blacked out values indicate the condensing temp is above 135°F and are not recommended.

CONDENSING UNIT MODEL	COMPRESSOR	CONDENSER	95°F AMBIENT TEMPERATURE								
			-40	-35	-30	-25	-20	-15	-10	-5	0
CPB-0300-L	4HE-18	12410	70.7	85.5	101.4	118.6	137.0	156.9	178.3	201.2	225.7
CPB-0301-L	4HE-18	13310	72.0	87.1	103.5	121.2	140.4	161.1	183.5	207.7	233.7
CPB-0440-L	4GE-23	13310	87.0	104.1	122.5	142.3	163.7	186.7	211.5	238.1	266.5
CPB-0441-L	4GE-23	13410	88.1	105.6	124.4	144.8	166.9	190.8	216.5	244.3	274.2
CPB-0540-L	6HE-28	13410	104.7	126.4	149.8	175.0	202.2	231.5	263.0	296.9	333.1
CPB-0541-L	6HE-28	22410	107.1	129.5	153.8	180.1	208.6	239.5	272.9	309.0	348.0
CPB-0600-L	6GE-34	22310	134.0	159.1	186.0	214.8	245.8	278.9	314.3	352.2	392.4
CPB-0601-L	6GE-34	23310	137.8	164.0	192.2	222.7	255.7	291.4	329.9	371.4	416.0
CPB-0602-L	6GE-34	22410	135.9	161.6	189.2	218.9	250.9	285.3	322.3	362.0	404.5

CONDENSING UNIT MODEL	COMPRESSOR	CONDENSER	105°F AMBIENT TEMPERATURE								
			-40	-35	-30	-25	-20	-15	-10	-5	0
CPB-0300-L	4HE-18	12410	61.8	75.6	90.3	106.1	123.1	141.4	161.1	182.1	204.7
CPB-0301-L	4HE-18	13310	63.0	77.1	92.3	108.6	126.3	145.4	166.1	188.3	212.2
CPB-0440-L	4GE-23	13310	77.6	93.4	110.4	128.7	148.3	169.3	192.0	216.3	242.3
CPB-0441-L	4GE-23	13410	78.6	94.8	112.2	131.0	151.3	173.2	196.8	222.3	249.7
CPB-0540-L	6HE-28	13410	91.0	111.3	133.0	156.4	181.5	208.6	237.6	268.8	302.2
CPB-0541-L	6HE-28	22410	93.2	114.2	136.8	161.2	187.6	216.2	247.1	280.5	316.4
CPB-0600-L	6GE-34	22310	119.1	142.8	167.9	194.7	223.2	253.7	286.3	320.9	357.8
CPB-0601-L	6GE-34	23310	122.9	147.5	174.0	202.4	233.0	265.9	301.4	339.7	380.8
CPB-0602-L	6GE-34	22410	121.0	145.2	171.0	198.6	228.2	260.0	294.0	330.5	369.5

Electrical Specifications - Low Temperature R-448A

Voltage			208-230/3/60				460/3/60				575/3/60			
Unit	Compressor	Cond	Comp RLA	Cond FLA	MCA	MOPD	Comp RLA	Cond FLA	MCA	MOPD	Comp RLA	Cond FLA	MCA	MOPD
CPB-0300-LT*	2 - 4HE-18	S	60.3	10.8	149.5	200	30.1	5.0	74.2	100	24.1	5.0	60.4	80
CPB-0301-LT		O		16.2	154.9	200		7.5	76.7	100		7.5	62.9	80
CPB-0440-LT	2 - 4GE-23	S	64.3	16.2	163.9	225	32.1	7.5	81.2	110	25.7	7.5	66.5	90
CPB-0441-LT*		O		16.2	163.9	225		7.5	83.7	110		7.5	69.0	90
CPB-0540-LT*	2 - 6HE-28	S	86.4	16.2	213.6	300	43.2	7.5	106.2	150	34.6	7.5	86.6	110
CPB-0541-LT*		O		21.6	219.0	300		10.0	108.7	150		10.0	89.1	125
CPB-0600-LT	2 - 6GE-34	S	94.3	21.6	236.8	300	47.1	10.0	117.5	150	37.1	10.0	94.7	125
CPB-0601-LT		O		32.4	247.6	300		15.0	122.5	150		15.0	99.7	125
CPB-0602-LT		T		21.6	236.8	300		10.0	117.5	150		10.0	94.7	125

Unit	Condenser LAVF
CPB-0300-LT*	12410
CPB-0301-LT	13310
CPB-0440-LT	13310
CPB-0441-LT*	13410
CPB-0540-LT*	13410
CPB-0541-LT*	22410
CPB-0600-LT	22310
CPB-0601-LT	23310
CPB-0602-LT	22410

1. Condenser size in the 8th position of the model number are: 0 – Standard, 1 – Oversize, 2 (or * at the end of the model) – Meets Title 24 efficiency requirement and need VFD added to vary fan speed to meet the full regulation.
2. Calculated MCA and MOPD in the table includes compressor, condenser fans and control circuit. Use the MCA / MOPD Calculation at the end of section to include evaporator fans and defrost loads when powered from the condensing unit.

3. Condensing unit capacities are calculated based on the LAVF condenser model shown in the table and mid-point temperatures.

4. Use R-448A capacity and electrical data for R-449A while replacing the "T" at the end of the model nomenclature with a "R".

5. Compressor head cooling fan and liquid injection are included on all low temperature units.

CP Parallel Systems

CPD MCA / MOPD Calculation

Model CPD-0440LxM

Compressor 1 RLA		22.3
Compressor 2 RLA	+	22.3
Condenser Fans	+	5.4
Control*	+	3.0
25% Compressor RLA	+	5.6
MCA		58.6
<hr/>		
Evaporator Fan RLA	+	12.0
Calculated MCA		70.6
<hr/>		
Compressor RLA 1	+	22.3
Calculated MOP		92.9
MOPD**		90

Example calculation has details for the calculation of the MCA shown in the electrical table above. The Calculated MCA includes the addition of 12.0 amps to power evaporator fans to show how to recalculate values for MCA and MOPD for the addition of electrical loads that would be in operation at the same time as the compressor and condenser.

*Control circuit amps are: 208-230/3/60 3.0A, 460/3/60 1.5A, 575/3/60 1.2A

**Round MOP down to next Standard MOPD Size shown below. The MOPD must be larger than the calculated MCA.

Standard MOPD Sizes : 15, 20, 25, 30, 35, 40, 45, 50, 60, 70, 80, 90, 100, 110, 125, 150, 175, 200, 225, 250, 300, 350, 400, 450, 500

Alternate Calculation for Electric Defrost: If 1.25 X defrost amps plus Control Transformer exceeds calculated MCA use this value and round up to next standard breaker size for MOPD. Use the MOPD calculated for defrost if it exceeds what is calculated using the compressor information.

Sound Data for C-Series

Sound from condensing units is primarily from the condenser fans. C-Series units use Levitor II LAVF condensers with 1140 rpm fans. For sound calculations, the published sound data in the Levitor Technical bulletin should be used with 1 db added to account for the compressor.

Example: CSD-0202-MT condenser is LAVF-12410 which has published sound of 75 dbA at 10'. For this unit, add 1 dbA to this value for 76 dbA at 10' for sound evaluations.

CP Parallel Systems

CP Parallel Series Model Specifications

Unit		Connections (in)		Receiver	Receiver Capacity***			Est. Ship Weight	Dimensional Drawings	Piping Schematic
					R-404A	R-407A	R-448A			
		Liq. OD	Suct. OD	Dia. x Length	(lb)	(lb)	(lb)	(lb)	See pgs. 74 - 76	See pg. 81
10 hp	CP*0100M**	7/8	1 5/8	8 5/8 x 48	75	83	80	1793	CP-11	CP PIPE 1W
	CP*0101M**	7/8	1 5/8	8 5/8 x 48	75	83	80	1857	CP-11	CP PIPE 1W
15 hp	CP*0150M**	7/8	1 5/8	8 5/8 x 48	75	83	80	1884	CP-11	CP PIPE 1W
	CP*0151M**	7/8	1 5/8	8 5/8 x 60	94	103	100	2416	CP-12	CP PIPE 1W
16 hp	CP*0160M**	1 1/8	2 1/8	8 5/8 x 60	94	103	100	2423	CP-12	CP PIPE 1W
	CP*0161M**	1 1/8	2 1/8	8 5/8 x 60	94	103	100	2485	CP-12	CP PIPE 1W
	CP*0162M**	1 1/8	2 1/8	10 3/4 x 48	114	125	121	2544	CP-12	CP PIPE 1W
18 hp	CP*0180M**	1 1/8	2 1/8	8 5/8 x 60	94	103	100	2578	CP-12	CP PIPE 1W
	CP*0181M**	1 1/8	2 1/8	10 3/4 x 48	114	125	121	2774	CP-12	CP PIPE 1W
20 hp	CP*0200M**	1 3/8	2 1/8	10 3/4 x 48	114	125	121	2705	CP-12	CP PIPE 1W
	CP*0201M**	1 3/8	2 1/8	10 3/4 x 48	114	125	121	3122	CP-13	CP PIPE 1W
	CP*0202M**	1 3/8	2 1/8	10 3/4 x 48	114	125	121	2764	CP-12	CP PIPE 1W
24 hp	CP*0240M**	1 3/8	2 1/8	10 3/4 x 48	114	125	121	2770	CP-12	CP PIPE 1W
	CP*0241M**	1 3/8	2 1/8	10 3/4 x 72	174	191	184	3124	CP-13	CP PIPE 1W
30 hp	CP*0300M**	1 3/8	2 5/8	10 3/4 x 72	174	191	184	3160	CP-13	CP PIPE 1W
	CP*0301M**	1 3/8	2 5/8	10 3/4 x 72	174	191	184	3322	CP-13	CP PIPE 1W
40 hp	CP*0400M**	1 3/8	2 5/8	10 3/4 x 72	174	191	184	3213	CP-13	CP PIPE 1W
	CP*0401M**	1 3/8	2 5/8	10 3/4 x 96	233	256	247	3560	CP-22	CP PIPE 2W
	CP*0402M**	1 3/8	2 5/8	10 3/4 x 72	174	191	184	3301	CP-13	CP PIPE 1W
50 hp	CP*0500M**	1 3/8	2 5/8	10 3/4 x 72	174	191	184	3410	CP-13	CP PIPE 1W
	CP*0501M**	1 3/8	2 5/8	10 3/4 x 96	233	256	247	4389	CP-23	CP PIPE 2W
60 hp	CP*0600M**	1 3/8	2 5/8	10 3/4 x 96	233	256	247	3833	CP-22	CP PIPE 2W
	CP*0601M**	1 3/8	2 5/8	10 3/4 x 108	263	289	279	4448	CP-23	CP PIPE 2W
70 hp	CP*0700M**	1 3/8	3 1/8	10 3/4 x 96	233	256	247	4397	CP-23	CP PIPE 2W
	CP*0701M**	1 5/8	3 1/8	10 3/4 x 144	347	382	368	5412	CP-24	CP PIPE 2W
	CP*0702M**	1 5/8	3 1/8	10 3/4 x 144	347	382	368	4999	CP-23	CP PIPE 2W
80 hp	CP*0800M**	1 5/8	3 1/8	10 3/4 x 144	347	382	368	5058	CP-23	CP PIPE 2W
	CP*0801M**	1 5/8	3 1/8	10 3/4 x 144	347	382	368	5816	CP-24	CP PIPE 2W
30 hp	CP*0300L**	1 1/8	2 5/8	10 3/4 x 48	114	125	121	2737	CP-12	CP PIPE 1W
	CP*0301L**	1 1/8	2 5/8	10 3/4 x 48	114	125	121	3230	CP-13	CP PIPE 1W
44 hp	CP*0440L**	1 1/8	3 1/8	10 3/4 x 48	114	125	121	3167	CP-13	CP PIPE 1W
	CP*0441L**	1 1/8	3 1/8	10 3/4 x 72	174	191	184	3509	CP-13	CP PIPE 1W
54 hp	CP*0540L**	1 3/8	3 1/8	10 3/4 x 72	174	191	184	3463	CP-13	CP PIPE 1W
	CP*0541L**	1 3/8	3 1/8	10 3/4 x 96	233	256	247	3872	CP-22	CP PIPE 2W
60 hp	CP*0600L**	1 3/8	3 1/8	10 3/4 x 72	174	191	184	3772	CP-22	CP PIPE 2W
	CP*0601L**	1 3/8	3 1/8	10 3/4 x 96	233	256	247	4566	CP-23	CP PIPE 2W
	CP*0602L**	1 3/8	3 1/8	10 3/4 x 96	233	256	247	3890	CP-22	CP PIPE 2W

*-D,E,B

** S(R-404A), Q(R-407A), T(R-448A)

*** Receiver capacity based on 80% full.

Annual Walk-In Energy Factor (AWEF)

See the Annual Walk-In Energy Factor (AWEF) tables on the following pages and apply the below example to find the AWEF for specific model and refrigerant.

AWEF EXAMPLE:

Insert refrigerant letter in () to produce model number.

Example: CPD-0100-M() for R404A will be CPD-0100MS with AWEF of 7.6.

CP Parallel Systems

Annual Walk-In Energy Factor (AWEF)

CPD Parallel Series Units - Medium Temperature

Copeland Discus Models	R-404A	R-507A	R-407A	R-407F	R-448A	R-449A
	S	P	Q	F	T	R
CPD-0100-M()	7.6	7.6	7.6	7.6	7.6	7.6
CPD-0101-M()	7.6	7.6	7.6	7.6	7.6	7.6
CPD-0150-M()	7.6	7.6	7.6	7.6	7.6	7.6
CPD-0151-M()	7.6	7.6	7.6	7.6	7.6	7.6
CPD-0160-M()	7.6	7.6	7.6	7.6	7.6	7.6
CPD-0161-M()	7.6	7.6	7.6	7.6	7.6	7.6
CPD-0162-M()	7.6	7.6	7.6	7.6	7.6	7.6
CPD-0180-M()	7.6	7.6	7.6	7.6	7.6	7.6
CPD-0181-M()	7.6	7.6	7.6	7.6	7.6	7.6
CPD-0200-M()	7.6	7.6	7.6	7.6	7.6	7.6
CPD-0201-M()	7.6	7.6	7.6	7.6	7.6	7.6
CPD-0202-M()	7.6	7.6	7.6	7.6	7.6	7.6
CPD-0240-M()	7.6	7.6	7.6	7.6	7.6	7.6
CPD-0241-M()	7.6	7.6	7.6	7.6	7.6	7.6
CPD-0300-M()	7.6	7.6	7.6	7.6	7.6	7.6
CPD-0301-M()	7.6	7.6	7.6	7.6	7.6	7.6
CPD-0400-M()	7.6	7.6	7.6	7.6	7.6	7.6
CPD-0401-M()	7.6	7.6	7.6	7.6	7.6	7.6
CPD-0402-M()	7.6	7.6	7.6	7.6	7.6	7.6
CPD-0500-M()	7.6	7.6	7.6	7.6	7.6	7.6
CPD-0501-M()	7.6	7.6	7.6	7.6	7.6	7.6
CPD-0600-M()	7.6	7.6	7.6	7.6	7.6	7.6
CPD-0601-M()	7.6	7.6	7.6	7.6	7.6	7.6
CPD-0700-M()	7.6	7.6	7.6	7.6	7.6	7.6
CPD-0701-M()	7.6	7.6	7.6	7.6	7.6	7.6
CPD-0702-M()	7.6	7.6	7.6	7.6	7.6	7.6
CPD-0800-M()	7.6	7.6	7.6	7.6	7.6	7.6
CPD-0801-M()	7.6	7.6	7.6	7.6	7.6	7.6

NOTE:

NA: This refrigeration system is not intended for use in Walk-In Coolers or Freezers where US Department of Energy (DOE) or Natural Resources Canada (NRCAN) efficiency requirements apply.

See Tables on pages 28 - 30 for more data.

"()" = See AWEF Example on page 47.

CPD Parallel Series Units - Low Temperature

Copeland Discus Models	R-404A	R-507A	R-407A	R-407F	R-448A	R-449A
	S	P	Q	F	T	R
CPD-0300-L()	NA	3.15	NA	3.15	3.15	3.15
CPD-0301-L()	3.15	3.15	NA	3.15	NA	NA
CPD-0440-L()	3.15	3.15	3.15	3.15	3.15	3.15
CPD-0441-L()	3.15	3.15	3.15	3.15	3.15	3.15
CPD-0540-L()	3.15	3.15	NA	NA	NA	NA
CPD-0541-L()	3.15	3.15	NA	NA	NA	NA
CPD-0600-L()	NA	NA	NA	NA	NA	NA
CPD-0601-L()	NA	NA	NA	NA	NA	NA
CPD-0602-L()	NA	NA	NA	NA	NA	NA

NOTE:

NA: This refrigeration system is not intended for use in Walk-In Coolers or Freezers where US Department of Energy (DOE) or Natural Resources Canada (NRCAN) efficiency requirements apply.

See Tables on pages 37 - 39 for more data.

"()" = See AWEF Example on page 47.

AWEF EXAMPLE:

Insert refrigerant letter in () to produce model number.

Example: CPD-0100-M() for R404A will be CPD-0100MS with AWEF of 7.6.

CP Parallel Systems

Annual Walk-In Energy Factor (AWEF)

CPE Parallel Series Units - Medium Temperature

NOTE:
NA: This refrigeration system is not intended for use in Walk-In Coolers or Freezers where US Department of Energy (DOE) or Natural Resources Canada (NRCAN) efficiency requirements apply.

See Tables on pages 31 - 33 for more data.

"()" = See AWEF Example on page 47.

Bitzer	R-404A	R-507A	R-407A	R-407F	R-448A	R-449A
Ecoline Models	S	P	Q	F	T	R
CPE-0100-M()	7.6	7.6	7.6	7.6	7.6	7.6
CPE-0101-M()	7.6	7.6	7.6	7.6	7.6	7.6
CPE-0150-M()	7.6	7.6	7.6	7.6	7.6	7.6
CPE-0151-M()	7.6	7.6	7.6	7.6	7.6	7.6
CPE-0160-M()	7.6	7.6	7.6	7.6	7.6	7.6
CPE-0161-M()	7.6	7.6	7.6	7.6	7.6	7.6
CPE-0162-M()	7.6	7.6	7.6	7.6	7.6	7.6
CPE-0180-M()	7.6	7.6	7.6	7.6	7.6	7.6
CPE-0181-M()	7.6	7.6	7.6	7.6	7.6	7.6
CPE-0200-M()	7.6	7.6	7.6	7.6	7.6	7.6
CPE-0201-M()	7.6	7.6	7.6	7.6	7.6	7.6
CPE-0202-M()	7.6	7.6	7.6	7.6	7.6	7.6
CPE-0240-M()	7.6	7.6	7.6	7.6	7.6	7.6
CPE-0241-M()	7.6	7.6	7.6	7.6	7.6	7.6
CPE-0300-M()	7.6	7.6	7.6	7.6	7.6	7.6
CPE-0301-M()	7.6	7.6	7.6	7.6	7.6	7.6
CPE-0400-M()	7.6	7.6	7.6	7.6	7.6	7.6
CPE-0401-M()	7.6	7.6	7.6	7.6	7.6	7.6
CPE-0402-M()	7.6	7.6	7.6	7.6	7.6	7.6
CPE-0500-M()	7.6	7.6	7.6	7.6	7.6	7.6
CPE-0501-M()	7.6	7.6	7.6	7.6	7.6	7.6
CPE-0600-M()	7.6	7.6	7.6	7.6	7.6	7.6
CPE-0601-M()	7.6	7.6	7.6	7.6	7.6	7.6
CPE-0700-M()	7.6	7.6	7.6	7.6	7.6	7.6
CPE-0701-M()	7.6	7.6	7.6	7.6	7.6	7.6
CPE-0702-M()	7.6	7.6	7.6	7.6	7.6	7.6
CPE-0800-M()	7.6	7.6	7.6	7.6	7.6	7.6
CPE-0801-M()	7.6	7.6	7.6	7.6	7.6	7.6

CPE Parallel Series Units - Low Temperature

NOTE:
NA: This refrigeration system is not intended for use in Walk-In Coolers or Freezers where US Department of Energy (DOE) or Natural Resources Canada (NRCAN) efficiency requirements apply.

See Tables on pages 40 - 42 for more data.

"()" = See AWEF Example on page 47.

Bitzer	R-404A	R-507A	R-407A	R-407F	R-448A	R-449A
Ecoline Models	S	P	Q	F	T	R
CPE-0300-L()	3.15	3.15	3.15	3.15	3.15	3.15
CPE-0301-L()	3.15	3.15	3.15	3.15	3.15	3.15
CPE-0440-L()	3.15	3.15	3.15	3.15	3.15	3.15
CPE-0441-L()	3.15	3.15	3.15	3.15	3.15	3.15
CPE-0540-L()	3.15	3.15	3.15	3.15	3.15	3.15
CPE-0541-L()	3.15	NA	3.15	3.15	3.15	3.15
CPE-0600-L()	NA	NA	NA	NA	NA	NA
CPE-0601-L()	NA	3.15	NA	NA	NA	NA
CPE-0602-L()	NA	3.15	3.15	3.15	NA	3.15

AWEF EXAMPLE:

Insert refrigerant letter in () to produce model number.
Example: CPE-0100-M() for R404A will be CPE-0100MS with AWEF of 7.6.

CP Parallel Systems

Annual Walk-In Energy Factor (AWEF)

CPB Parallel Series Units - Medium Temperature

Bitzer Ecoline Models	R-404A	R-507A	R-407A	R-407F	R-448A	R-449A
	S	P	Q	F	T	R
CPB-0100-M()	7.6	7.6	7.6	7.6	7.6	7.6
CPB-0101-M()	7.6	7.6	7.6	7.6	7.6	7.6
CPB-0150-M()	7.6	7.6	7.6	7.6	7.6	7.6
CPB-0151-M()	7.6	7.6	7.6	7.6	7.6	7.6
CPB-0160-M()	7.6	7.6	7.6	7.6	7.6	7.6
CPB-0161-M()	7.6	7.6	7.6	7.6	7.6	7.6
CPB-0162-M()	7.6	7.6	7.6	7.6	7.6	7.6
CPB-0180-M()	7.6	7.6	7.6	7.6	7.6	7.6
CPB-0181-M()	7.6	7.6	7.6	7.6	7.6	7.6
CPB-0200-M()	7.6	7.6	7.6	7.6	7.6	7.6
CPB-0201-M()	7.6	7.6	7.6	7.6	7.6	7.6
CPB-0202-M()	7.6	7.6	7.6	7.6	7.6	7.6
CPB-0240-M()	7.6	7.6	7.6	7.6	7.6	7.6
CPB-0241-M()	7.6	7.6	7.6	7.6	7.6	7.6
CPB-0300-M()	7.6	7.6	7.6	7.6	7.6	7.6
CPB-0301-M()	7.6	7.6	7.6	7.6	7.6	7.6
CPB-0400-M()	7.6	7.6	7.6	7.6	7.6	7.6
CPB-0401-M()	7.6	7.6	7.6	7.6	7.6	7.6
CPB-0402-M()	7.6	7.6	7.6	7.6	7.6	7.6
CPB-0500-M()	7.6	7.6	7.6	7.6	7.6	7.6
CPB-0501-M()	7.6	7.6	7.6	7.6	7.6	7.6
CPB-0600-M()	7.6	7.6	7.6	7.6	7.6	7.6
CPB-0601-M()	7.6	7.6	7.6	7.6	7.6	7.6
CPB-0700-M()	7.6	7.6	7.6	7.6	7.6	7.6
CPB-0701-M()	7.6	7.6	7.6	7.6	7.6	7.6
CPB-0702-M()	7.6	7.6	7.6	7.6	7.6	7.6
CPB-0800-M()	7.6	7.6	7.6	7.6	7.6	7.6
CPB-0801-M()	7.6	7.6	7.6	7.6	7.6	7.6

NOTE:

NA: This refrigeration system is not intended for use in Walk-In Coolers or Freezers where US Department of Energy (DOE) or Natural Resources Canada (NRCAN) efficiency requirements apply.

See Tables on pages 34 - 36 for more data.

"()" = See AWEF Example on page 47.

CPB Parallel Series Units - Low Temperature

Bitzer Ecoline Models	R-404A	R-507A	R-407A	R-407F	R-448A	R-449A
	S	P	Q	F	T	R
CPB-0300-L()	3.15	3.15	3.15	3.15	3.15	3.15
CPB-0301-L()	3.15	3.15	3.15	3.15	3.15	3.15
CPB-0440-L()	3.15	3.15	3.15	3.15	3.15	3.15
CPB-0441-L()	3.15	3.15	3.15	3.15	3.15	3.15
CPB-0540-L()	3.15	3.15	3.15	3.15	3.15	3.15
CPB-0541-L()	3.15	3.15	3.15	3.15	3.15	3.15
CPB-0600-L()	NA	NA	3.15	3.15	3.15	3.15
CPB-0601-L()	NA	3.15	NA	3.15	3.15	3.15
CPB-0602-L()	NA	3.15	3.15	3.15	3.15	3.15

NOTE:

NA: This refrigeration system is not intended for use in Walk-In Coolers or Freezers where US Department of Energy (DOE) or Natural Resources Canada (NRCAN) efficiency requirements apply.

See Tables on pages 43 - 45 for more data.

"()" = See AWEF Example on page 47.

AWEF EXAMPLE:

Insert refrigerant letter in () to produce model number.

Example: CPB-0100-M() for R404A will be CPB-0100MS with AWEF of 7.6.

CP Parallel Systems

Notes

CD Dual Systems

CDD Low Temp R-404A

CDD Performance Data - Low Temperature R-404A - Total Capacity

NOTE:
All evaporator temps are MIDPOINT.
Blacked out values indicate the
condensing temp is above 135° F
and are not recommended.

			95°F AMBIENT TEMPERATURE								
CONDENSING UNIT MODEL	COMPRESSOR	CONDENSER	-40	-35	-30	-25	-20	-15	-10	-5	0
CDD-0300-L	4DKNF63KE	12410	39.1	46.3	53.6	61.2	69.1	77.4	86.3	95.7	105.9
CDD-0301-L	4DKNF63KE	13310	40.0	47.5	55.0	62.9	71.1	79.8	89.2	99.2	110.0
CDD-0440-L	4DJNF76KE	13310	47.9	56.6	65.5	74.8	84.3	94.4	104.9	115.9	127.5
CDD-0441-L	4DJNF76KE	13410	48.6	57.5	66.6	76.1	86.0	96.3	107.3	118.8	130.9
CDD-0540-L	6DHNF93KE	13410	58.1	68.1	79.2	91.2	104.1	117.6	131.8	146.5	161.5
CDD-0541-L	6DHNF93KE	22410	59.6	69.9	81.4	94.0	107.5	121.8	136.8	152.5	168.8
CDD-0600-L	6DJNF11ME	22310	66.5	77.7	89.8	102.7	116.4	131.0	146.5	162.8	179.9
CDD-0601-L	6DJNF11ME	23310	68.8	80.5	93.2	106.9	121.6	137.5	154.4	172.6	191.8
CDD-0602-L	6DJNF11ME	22410	67.6	79.0	91.3	104.6	118.8	134.0	150.1	167.2	185.3

			105°F AMBIENT TEMPERATURE								
CONDENSING UNIT MODEL	COMPRESSOR	CONDENSER	-40	-35	-30	-25	-20	-15	-10	-5	0
CDD-0300-L	4DKNF63KE	12410	34.0	40.9	47.8	54.8	62.1	69.8	78.0	86.7	96.1
CDD-0301-L	4DKNF63KE	13310	34.8	41.8	49.0	56.3	63.9	71.9	80.5	89.8	99.8
CDD-0440-L	4DJNF76KE	13310	41.4	49.8	58.3	67.0	75.9	85.2	94.9	105.0	115.7
CDD-0441-L	4DJNF76KE	13410	42.2	50.7	59.3	68.2	77.4	87.0	97.0	107.6	118.7
CDD-0540-L	6DHNF93KE	13410	50.3	59.9	70.4	81.8	93.8	106.4	119.4	132.8	146.5
CDD-0541-L	6DHNF93KE	22410	51.8	61.7	72.6	84.4	97.0	110.2	124.1	138.5	153.3
CDD-0600-L	6DJNF11ME	22310	58.0	68.7	80.1	92.1	104.8	118.1	132.1	146.8	162.1
CDD-0601-L	6DJNF11ME	23310	60.2	71.4	83.4	96.1	109.7	124.2	139.6	155.9	173.2
CDD-0602-L	6DJNF11ME	22410	59.0	69.9	81.6	93.9	107.0	120.9	135.5	150.9	167.1

Electrical Specifications - Low Temperature R-404A

Voltage			208-230/3/60				460/3/60				575/3/60			
Unit	Compressor	Cond	Comp RLA	Cond FLA	MCA	MOPD	Comp RLA	Cond FLA	MCA	MOPD	Comp RLA	Cond FLA	MCA	MOPD
CDD-0300-LS*	2 - 4DKNF63KE	S	52.6	10.8	132.1	175	26.3	5.0	65.6	90	20.9	5.0	53.3	70
CDD-0301-LS		O		16.2	137.5	175		7.5	68.1	90		7.5	55.8	70
CDD-0440-LS	2 - 4DJNF76KE	S	64.3	16.2	163.8	225	32.1	7.5	81.3	110	29.1	7.5	74.1	100
CDD-0441-LS*		O		16.2	169.2	225		7.5	83.8	110		7.5	76.6	100
CDD-0540-LS*	2 - 6DHNF93KE	S	80.7	16.2	200.8	250	40.4	7.5	99.8	125	32.5	7.5	81.8	110
CDD-0541-LS*		O		21.6	206.2	250		10.0	102.3	125		10.0	84.3	110
CDD-0600-LS	2 - 6DJNF11ME	S	95.6	21.6	239.7	300	47.8	10.0	119.1	150	39.6	10.0	100.3	125
CDD-0601-LS		O		32.4	250.5	300		15.0	124.1	150		15.0	105.3	125
CDD-0602-LS		T		21.6	239.7	300		10.0	119.1	150		10.0	100.3	125

Unit	Condenser LAVF
CDD-0300-LS*	12410
CDD-0301-LS	13310
CDD-0440-LS	13310
CDD-0441-LS*	13410
CDD-0540-LS*	13410
CDD-0541-LS*	22410
CDD-0600-LS	22310
CDD-0601-LS	23310
CDD-0602-LS	22410

1. Condenser size in the 8th position of the model number are: 0 – Standard, 1 – Oversize, 2 (or * at the end of the model) – Meets Title 24 efficiency requirement and need VFD added to vary fan speed to meet the full regulation.
2. Calculated MCA and MOPD in the table includes compressor, condenser fans and control circuit. Use the MCA / MOPD Calculation at the end of section to include evaporator fans and defrost loads when powered from the condensing unit.

3. Condensing unit capacities are calculated based on the LAVF condenser model shown in the table and mid-point temperatures.
4. Use R-404A capacity and electrical data for R-507A while replacing the "S" at the end of the model nomenclature with a "P".
5. Compressor head cooling fan is included for all low temperature applications.

CD Dual Systems

CDD Low Temp R-407A

CDD Performance Data - Low Temperature R-407A - Total Capacity

95°F AMBIENT TEMPERATURE

CONDENSING UNIT MODEL	COMPRESSOR	CONDENSER	-40	-35	-30	-25	-20	-15	-10	-5	0
CDD-0300-L	4DKNF63KE	12410	33.0	39.6	46.8	54.6	62.9	71.8	81.1	91.0	101.3
CDD-0301-L	4DKNF63KE	13310	33.6	40.4	47.8	55.8	64.3	73.5	83.3	93.6	104.5
CDD-0440-L	4DJNF76KE	13310	43.3	49.8	57.7	67.0	77.6	89.4	102.3	116.3	131.3
CDD-0441-L	4DJNF76KE	13410	43.8	50.5	58.7	68.3	79.2	91.4	104.8	119.3	134.9
CDD-0540-L	6DHNF93KE	13410	45.5	57.0	68.8	81.0	93.9	107.8	122.7	139.0	156.9
CDD-0541-L	6DHNF93KE	22410	46.7	58.5	70.6	83.2	96.6	111.1	126.8	144.0	162.9
CDD-0600-L	6DJNF11ME	22310	54.4	68.2	82.3	96.9	112.2	128.7	146.4	165.7	186.8
CDD-0601-L	6DJNF11ME	23310	56.5	70.8	85.5	100.7	117.0	134.5	153.5	174.4	197.3
CDD-0602-L	6DJNF11ME	22410	55.5	69.6	83.9	98.9	114.7	131.7	150.1	170.2	192.2

NOTE:
All evaporator temps are MIDPOINT.
Blacked out values indicate the
condensing temp is above 135°F
and are not recommended.

105°F AMBIENT TEMPERATURE

CONDENSING UNIT MODEL	COMPRESSOR	CONDENSER	-40	-35	-30	-25	-20	-15	-10	-5	0
CDD-0300-L	4DKNF63KE	12410	28.6	34.9	41.6	48.9	56.6	64.8	73.5	82.5	92.0
CDD-0301-L	4DKNF63KE	13310	29.1	35.6	42.5	50.0	58.0	66.5	75.6	85.1	95.1
CDD-0440-L	4DJNF76KE	13310	38.9	44.4	51.3	59.7	69.4	80.3	92.4	105.6	119.9
CDD-0441-L	4DJNF76KE	13410	39.4	45.1	52.3	60.9	71.0	82.3	94.8	108.5	123.4
CDD-0540-L	6DHNF93KE	13410	37.4	48.7	60.1	71.8	84.0	97.1	111.2	126.5	143.2
CDD-0541-L	6DHNF93KE	22410	38.8	50.3	62.0	74.1	86.9	100.5	115.3	131.5	149.3
CDD-0600-L	6DJNF11ME	22310	44.7	58.2	71.7	85.7	100.3	115.8	132.4	150.5	170.3
CDD-0601-L	6DJNF11ME	23310	47.0	61.0	75.1	89.8	105.2	121.8	139.7	159.4	180.9
CDD-0602-L	6DJNF11ME	22410	45.8	59.6	73.5	87.8	102.8	118.9	136.2	155.1	175.8

Electrical Specifications - Low Temperature R-407A

Voltage			208-230/3/60				460/3/60				575/3/60			
Unit	Compressor	Cond	Comp RLA	Cond FLA	MCA	MOPD	Comp RLA	Cond FLA	MCA	MOPD	Comp RLA	Cond FLA	MCA	MOPD
CDD-0300-LQ*	2 - 4DKNF63KE	S	52.6	10.8	132.1	175	26.3	5.0	65.6	90	20.9	5.0	53.3	70
CDD-0301-LQ		O		16.2	137.5	175		7.5	68.1	90		7.5	55.8	70
CDD-0440-LQ	2 - 4DJNF76KE	S	64.3	16.2	163.8	225	32.1	7.5	81.3	110	29.1	7.5	74.1	100
CDD-0441-LQ*		O		16.2	169.2	225		7.5	83.8	110		7.5	76.6	100
CDD-0540-LQ*	2 - 6DHNF93KE	S	80.7	16.2	200.8	250	40.4	7.5	99.8	125	32.5	7.5	81.8	110
CDD-0541-LQ*		O		21.6	206.2	250		10.0	102.3	125		10.0	84.3	110
CDD-0600-LQ	2 - 6DJNF11ME	S	95.6	21.6	239.7	300	47.8	10.0	119.1	150	39.6	10.0	100.3	125
CDD-0601-LQ		O		32.4	250.5	300		15.0	124.1	150		15.0	105.3	125
CDD-0602-LQ	T			21.6	239.7	300		10.0	119.1	150		10.0	100.3	125

Unit	Condenser LAVF
CDD-0300-LQ*	12410
CDD-0301-LQ	13310
CDD-0440-LQ	13310
CDD-0441-LQ*	13410
CDD-0540-LQ*	13410
CDD-0541-LQ*	22410
CDD-0600-LQ	22310
CDD-0601-LQ	23310
CDD-0602-LQ	22410

1. Condenser size in the 8th position of the model number are: 0 - Standard, 1 - Oversize, 2 for * at the end of the model) - Meets Title 24 efficiency requirement and need VFD added to vary fan speed to meet the full regulation.
2. Calculated MCA and MOPD in the table includes compressor, condenser fans and control circuit. Use the MCA / MOPD Calculation at the end of section to include evaporator fans and defrost loads when powered from the condensing unit.

3. Condensing unit capacities are calculated based on the LAVF condenser model shown in the table and mid-point temperatures.
4. Use R-407A capacity and electrical data for R-407F while replacing the "0" at the end of the model nomenclature with an "F".
5. Compressor head cooling fan and liquid injection are included on all low temperature units.

CD Dual Systems

CDD Low Temp R-448A

CDD Performance Data - Low Temperature R-448A - Total Capacity

NOTE:
All evaporator temps are MIDPOINT.
Blacked out values indicate the
condensing temp is above 135° F
and are not recommended.

			95°F AMBIENT TEMPERATURE								
CONDENSING UNIT MODEL	COMPRESSOR	CONDENSER	-40	-35	-30	-25	-20	-15	-10	-5	0
CDD-0300-L	4DKNF63KE	12410	34.5	42.0	49.7	57.8	66.3	75.3	84.8	94.9	105.6
CDD-0301-L	4DKNF63KE	13310	35.3	42.9	50.8	59.1	67.9	77.2	87.1	97.7	109.0
CDD-0440-L	4DJNF76KE	13310	42.3	51.6	61.2	71.2	82.0	93.8	106.7	121.1	137.0
CDD-0441-L	4DJNF76KE	13410	43.1	52.6	62.4	72.7	83.8	95.9	109.3	124.2	140.7
CDD-0540-L	6DHNF93KE	13410	50.3	61.4	73.2	85.6	99.0	113.4	129.1	146.2	164.7
CDD-0541-L	6DHNF93KE	22410	51.8	63.2	75.2	88.1	102.0	117.1	133.6	151.5	171.2
CDD-0600-L	6DJNF11ME	22310	59.8	73.3	87.4	102.3	118.2	135.4	153.9	174.1	196.0
CDD-0601-L	6DJNF11ME	23310	62.3	76.4	91.1	106.7	123.5	141.8	161.7	183.5	207.4
CDD-0602-L	6DJNF11ME	22410	61.1	74.9	89.3	104.6	121.0	138.7	157.9	178.9	201.9

			105°F AMBIENT TEMPERATURE								
CONDENSING UNIT MODEL	COMPRESSOR	CONDENSER	-40	-35	-30	-25	-20	-15	-10	-5	0
CDD-0300-L	4DKNF63KE	12410	29.0	36.4	43.9	51.6	59.7	68.1	76.9	86.2	96.1
CDD-0301-L	4DKNF63KE	13310	29.7	37.3	45.0	52.9	61.2	69.9	79.2	88.9	99.4
CDD-0440-L	4DJNF76KE	13310	35.2	44.2	53.4	63.0	73.3	84.4	96.7	110.4	125.5
CDD-0441-L	4DJNF76KE	13410	36.0	45.2	54.6	64.5	75.0	86.5	99.3	113.4	129.1
CDD-0540-L	6DHNF93KE	13410	41.7	52.5	63.8	75.8	88.5	102.1	116.9	132.9	150.3
CDD-0541-L	6DHNF93KE	22410	43.3	54.4	66.1	78.4	91.7	106.0	121.5	138.5	157.1
CDD-0600-L	6DJNF11ME	22310	49.2	62.4	76.1	90.3	105.5	121.7	139.1	158.1	178.6
CDD-0601-L	6DJNF11ME	23310	51.9	65.7	80.0	95.0	111.1	128.4	147.2	167.8	190.4
CDD-0602-L	6DJNF11ME	22410	50.6	64.1	78.1	92.7	108.4	125.1	143.3	163.1	184.7

Electrical Specifications - Low Temperature R-448A

Voltage			208-230/3/60				460/3/60				575/3/60			
Unit	Compressor	Cond	Comp RLA	Cond FLA	MCA	MOPD	Comp RLA	Cond FLA	MCA	MOPD	Comp RLA	Cond FLA	MCA	MOPD
CDD-0300-LT*	2 - 4DKNF63KE	S	52.6	10.8	132.1	175	26.3	5.0	65.6	90	20.9	5.0	53.3	70
CDD-0301-LT		O		16.2	137.5	175		7.5	68.1	90		7.5	55.8	70
CDD-0440-LT	2 - 4DJNF76KE	S	64.3	16.2	163.8	225	32.1	7.5	81.3	110	29.1	7.5	74.1	100
CDD-0441-LT*		O		16.2	169.2	225		7.5	83.8	110		7.5	76.6	100
CDD-0540-LT*	2 - 6DHNF93KE	S	80.7	16.2	200.8	250	40.4	7.5	99.8	125	32.5	7.5	81.8	110
CDD-0541-LT*		O		21.6	206.2	250		10.0	102.3	125		10.0	84.3	110
CDD-0600-LT	2 - 6DJNF11ME	S	95.6	21.6	239.7	300	47.8	10.0	119.1	150	39.6	10.0	100.3	125
CDD-0601-LT		O		32.4	250.5	300		15.0	124.1	150		15.0	105.3	125
CDD-0602-LT		T		21.6	239.7	300		10.0	119.1	150		10.0	100.3	125

Unit	Condenser LAVF
CDD-0300-LT*	12410
CDD-0301-LT	13310
CDD-0440-LT	13310
CDD-0441-LT*	13410
CDD-0540-LT*	13410
CDD-0541-LT*	22410
CDD-0600-LT	22310
CDD-0601-LT	23310
CDD-0602-LT	22410

1. Condenser size in the 8th position of the model number are: 0 – Standard, 1 – Oversize, 2 (or * at the end of the model) – Meets Title 24 efficiency requirement and need VFD added to vary fan speed to meet the full regulation.
2. Calculated MCA and MOPD in the table includes compressor, condenser fans and control circuit. Use the MCA / MOPD Calculation at the end of section to include evaporator fans and defrost loads when powered from the condensing unit.

3. Condensing unit capacities are calculated based on the LAVF condenser model shown in the table and mid-point temperatures.

4. Use R-448A capacity and electrical data for R-449A while replacing the "T" at the end of the model nomenclature with a "R".

5. Compressor head cooling fan and liquid injection are included on all low temperature units.

CD Dual Systems

CDE Low Temp R-404A

CDE Performance Data - Low Temperature R-404A - Total Capacity

95°F AMBIENT TEMPERATURE

CONDENSING UNIT MODEL	COMPRESSOR	CONDENSER	-40	-35	-30	-25	-20	-15	-10	-5	0
CDE-0300-L	4HE-25	12410	36.9	44.2	51.9	60.2	69.0	78.4	88.4	98.9	110.0
CDE-0301-L	4HE-25	13310	37.7	45.2	53.2	61.9	71.1	81.0	91.6	102.9	114.9
CDE-0440-L	4GE-30	13310	43.9	52.3	61.3	70.9	81.2	92.2	103.8	116.2	129.3
CDE-0441-L	4GE-30	13410	44.5	53.1	62.3	72.2	82.8	94.2	106.3	119.3	133.1
CDE-0540-L	6HE-35	13410	54.6	65.2	76.6	88.8	101.7	115.5	130.2	145.8	162.2
CDE-0541-L	6HE-35	22410	56.0	67.0	78.9	91.6	105.3	120.0	135.8	152.6	170.6
CDE-0600-L	6GE-40	22310	64.2	76.3	89.1	102.9	117.5	133.1	149.5	166.9	185.3
CDE-0601-L	6GE-40	23310	66.4	79.0	92.6	107.3	123.1	140.0	158.2	177.6	198.3
CDE-0602-L	6GE-40	22410	65.2	77.5	90.8	104.9	120.1	136.3	153.5	171.8	191.2

NOTE:

Selection of the CSB model is recommended for low temperature applications where the larger motor in the CSE model is not required.

All evaporator temps are MIDPOINT. Blacked out values indicate the condensing temp is above 135°F and are not recommended.

105°F AMBIENT TEMPERATURE

CONDENSING UNIT MODEL	COMPRESSOR	CONDENSER	-40	-35	-30	-25	-20	-15	-10	-5	0
CDE-0300-L	4HE-25	12410	32.0	38.7	45.9	53.4	61.4	69.8	78.8	88.2	98.1
CDE-0301-L	4HE-25	13310	32.7	39.7	47.1	54.9	63.3	72.3	81.8	92.0	102.8
CDE-0440-L	4GE-30	13310	38.4	46.2	54.5	63.2	72.5	82.4	92.8	103.8	115.5
CDE-0441-L	4GE-30	13410	39.0	46.9	55.4	64.4	74.0	84.2	95.2	106.8	119.1
CDE-0540-L	6HE-35	13410	47.2	57.1	67.6	78.7	90.4	102.9	116.1	130.1	144.8
CDE-0541-L	6HE-35	22410	48.5	58.8	69.7	81.4	93.8	107.2	121.4	136.6	152.8
CDE-0600-L	6GE-40	22310	55.9	67.2	79.1	91.6	104.9	118.9	133.6	149.1	165.5
CDE-0601-L	6GE-40	23310	58.0	69.8	82.4	95.8	110.2	125.5	141.9	159.4	177.9
CDE-0602-L	6GE-40	22410	56.9	68.4	80.6	93.5	107.3	121.9	137.4	153.8	171.2

Electrical Specifications - Low Temperature R-404A

Voltage			208-230/3/60				460/3/60				575/3/60			
Unit	Compressor	Cond	Comp RLA	Cond FLA	MCA	MOPD	Comp RLA	Cond FLA	MCA	MOPD	Comp RLA	Cond FLA	MCA	MOPD
CDE-0300-LS*	2 - 4HE-25	S	84.3	10.8	203.5	250	42.1	5.0	101.2	125	33.6	5.0	81.8	110
CDE-0301-LS		O		16.2	208.9	250		7.5	103.7	125		7.5	84.3	110
CDE-0440-LS	2 - 4GE-30	S	100.0	16.2	244.2	300	50.0	7.5	121.5	150	40.0	7.5	98.7	125
CDE-0441-LS*		O		16.2	244.2	300		7.5	124.0	175		7.5	101.2	125
CDE-0540-LS*	2 - 6HE-35	S	117.1	16.2	282.7	350	58.6	7.5	140.9	200	46.4	7.5	113.1	150
CDE-0541-LS*		O		21.6	288.1	400		10.0	143.4	200		10.0	115.6	150
CDE-0600-LS	2 - 6GE-40	S	157.1	21.6	378.1	500	78.6	10.0	188.4	250	62.9	10.0	152.7	200
CDE-0601-LS		O		32.4	388.9	500		15.0	193.4	250		15.0	157.7	200
CDE-0602-LS		T		21.6	378.1	500		10.0	188.4	250		10.0	152.7	200

Unit	Condenser LAVF
CDE-0300-LS*	12410
CDE-0301-LS	13310
CDE-0440-LS	13310
CDE-0441-LS*	13410
CDE-0540-LS*	13410
CDE-0541-LS*	22410
CDE-0600-LS	22310
CDE-0601-LS	23310
CDE-0602-LS	22410

1. Condenser size in the 8th position of the model number are: 0 - Standard, 1 - Oversize, 2 for * at the end of the model) - Meets Title 24 efficiency requirement and need VFD added to vary fan speed to meet the full regulation.
2. Calculated MCA and MOPD in the table includes compressor, condenser fans and control circuit. Use the MCA / MOPD Calculation at the end of section to include evaporator fans and defrost loads when powered from the condensing unit.

3. Condensing unit capacities are calculated based on the LAVF condenser model shown in the table and mid-point temperatures.
4. Use R-404A capacity and electrical data for R-507A while replacing the "S" at the end of the model nomenclature with a "P".
5. Compressor head cooling fan is included for all low temperature applications.

CD Dual Systems

CDE Low Temp R-407A

CDE Performance Data - Low Temperature R-407A - Total Capacity

NOTE:
Selection of the CSB model is recommended for low temperature applications where the larger motor in the CSE model is not required.

All evaporator temps are MIDPOINT. Blacked out values indicate the condensing temp is above 135°F and are not recommended.

CONDENSING UNIT MODEL	COMPRESSOR	CONDENSER	95°F AMBIENT TEMPERATURE								
			-40	-35	-30	-25	-20	-15	-10	-5	0
CDE-0300-L	4HE-25	12410	21.5	29.2	37.3	46.0	55.1	64.9	75.4	86.5	98.5
CDE-0301-L	4HE-25	13310	21.9	29.8	38.1	47.0	56.5	66.7	77.6	89.3	101.9
CDE-0440-L	4GE-30	13310	29.0	38.1	47.6	57.7	68.4	79.9	92.2	105.4	119.4
CDE-0441-L	4GE-30	13410	29.4	38.6	48.4	58.7	69.8	81.6	94.3	108.0	122.7
CDE-0540-L	6HE-35	13410	36.5	48.2	60.5	73.6	87.4	102.2	118.0	134.8	152.8
CDE-0541-L	6HE-35	22410	37.3	49.4	62.1	75.6	90.1	105.7	122.4	140.3	159.6
CDE-0600-L	6GE-40	22310	43.0	56.4	70.5	85.4	101.2	118.0	135.9	155.1	175.5
CDE-0601-L	6GE-40	23310	44.4	58.3	73.0	88.7	105.5	123.5	142.9	163.8	186.3
CDE-0602-L	6GE-40	22410	43.7	57.4	71.8	87.1	103.4	120.8	139.5	159.5	180.9

CONDENSING UNIT MODEL	COMPRESSOR	CONDENSER	105°F AMBIENT TEMPERATURE								
			-40	-35	-30	-25	-20	-15	-10	-5	0
CDE-0300-L	4HE-25	12410	17.1	24.3	31.9	39.9	48.3	57.3	66.9	77.2	88.2
CDE-0301-L	4HE-25	13310	17.4	24.8	32.6	40.8	49.6	58.9	69.0	79.8	91.4
CDE-0440-L	4GE-30	13310	24.2	32.7	41.6	50.9	60.9	71.4	82.7	94.8	107.8
CDE-0441-L	4GE-30	13410	24.5	33.2	42.3	51.9	62.1	73.0	84.7	97.3	110.8
CDE-0540-L	6HE-35	13410	30.1	41.1	52.6	64.7	77.5	91.1	105.6	121.1	137.6
CDE-0541-L	6HE-35	22410	30.9	42.2	54.0	66.6	80.0	94.3	109.7	126.2	143.9
CDE-0600-L	6GE-40	22310	35.8	48.4	61.5	75.3	89.9	105.4	121.9	139.5	158.2
CDE-0601-L	6GE-40	23310	37.0	50.1	63.8	78.4	93.9	110.5	128.4	147.6	168.3
CDE-0602-L	6GE-40	22410	36.4	49.3	62.7	76.9	91.9	108.0	125.2	143.6	163.3

Electrical Specifications - Low Temperature R-407A

Voltage			208-230/3/60				460/3/60				575/3/60			
Unit	Compressor	Cond	Comp RLA	Cond FLA	MCA	MOPD	Comp RLA	Cond FLA	MCA	MOPD	Comp RLA	Cond FLA	MCA	MOPD
CDE-0300-LQ*	2 - 4HE-25	S	84.3	10.8	203.5	250	42.1	5.0	101.2	125	33.6	5.0	81.8	110
CDE-0301-LQ		O		16.2	208.9	250		7.5	103.7	125		7.5	84.3	110
CDE-0440-LQ	2 - 4GE-30	S	100.0	16.2	244.2	300	50.0	7.5	121.5	150	40.0	7.5	98.7	125
CDE-0441-LQ*		O		21.6	249.6	300		10.0	124.0	175		10.0	101.2	125
CDE-0540-LQ*	2 - 6HE-35	S	117.1	16.2	282.7	350	58.6	7.5	140.9	200	46.4	7.5	113.1	150
CDE-0541-LQ*		O		21.6	288.1	400		10.0	143.4	200		10.0	115.6	150
CDE-0600-LQ	2 - 6GE-40	S	157.1	21.6	378.1	500	78.6	10.0	188.4	250	62.9	10.0	152.7	200
CDE-0601-LQ		O		32.4	388.9	500		15.0	193.4	250		15.0	157.7	200
CDE-0602-LQ		T		21.6	378.1	500		10.0	188.4	250		10.0	152.7	200

Unit	Condenser LAVF
CDE-0300-LQ*	12410
CDE-0301-LQ	13310
CDE-0440-LQ	13310
CDE-0441-LQ*	13410
CDE-0540-LQ*	13410
CDE-0541-LQ*	22410
CDE-0600-LQ	22310
CDE-0601-LQ	23310
CDE-0602-LQ	22410

1. Condenser size in the 8th position of the model number are: 0 – Standard, 1 – Oversize, 2 (or * at the end of the model) – Meets Title 24 efficiency requirement and need VFD added to vary fan speed to meet the full regulation.
2. Calculated MCA and MOPD in the table includes compressor, condenser fans and control circuit. Use the MCA / MOPD Calculation at the end of section to include evaporator fans and defrost loads when powered from the condensing unit.

3. Condensing unit capacities are calculated based on the LAVF condenser model shown in the table and mid-point temperatures.

4. Use R-407A capacity and electrical data for R-407F while replacing the "Q" at the end of the model nomenclature with an "F".

5. Compressor head cooling fan and liquid injection are included on all low temperature units.

CD Dual Systems

CDE Low Temp R-448A

CDE Performance Data - Low Temperature R-448A - Total Capacity

95°F AMBIENT TEMPERATURE

CONDENSING UNIT MODEL	COMPRESSOR	CONDENSER	-40	-35	-30	-25	-20	-15	-10	-5	0
CDE-0300-L	4HE-25	12410	32.7	40.4	48.6	57.3	66.5	76.5	87.1	98.4	110.5
CDE-0301-L	4HE-25	13310	33.3	41.2	49.6	58.6	68.2	78.6	89.7	101.6	114.5
CDE-0440-L	4GE-30	13310	39.1	48.0	57.4	67.5	78.3	89.8	102.1	115.2	129.3
CDE-0441-L	4GE-30	13410	39.7	48.7	58.4	68.7	79.8	91.7	104.5	118.3	133.0
CDE-0540-L	6HE-35	13410	48.4	59.7	71.7	84.5	98.1	112.8	128.4	145.2	163.1
CDE-0541-L	6HE-35	22410	49.6	61.2	73.7	87.0	101.3	116.7	133.3	151.2	170.4
CDE-0600-L	6GE-40	22310	57.2	70.1	83.7	98.2	113.7	130.1	147.7	166.4	186.2
CDE-0601-L	6GE-40	23310	59.1	72.5	86.8	102.1	118.6	136.3	155.3	175.8	197.8
CDE-0602-L	6GE-40	22410	58.2	71.3	85.3	100.2	116.2	133.3	151.6	171.2	192.2

NOTE:

Selection of the CSB model is recommended for low temperature applications where the larger motor in the CSE model is not required.

All evaporator temps are MIDPOINT. Blacked out values indicate the condensing temp is above 135°F and are not recommended.

105°F AMBIENT TEMPERATURE

CONDENSING UNIT MODEL	COMPRESSOR	CONDENSER	-40	-35	-30	-25	-20	-15	-10	-5	0
CDE-0300-L	4HE-25	12410	27.9	35.2	42.8	50.9	59.5	68.6	78.4	88.7	99.8
CDE-0301-L	4HE-25	13310	28.5	35.9	43.8	52.2	61.1	70.6	80.8	91.8	103.6
CDE-0440-L	4GE-30	13310	33.8	42.2	51.1	60.4	70.3	80.9	92.1	104.1	116.9
CDE-0441-L	4GE-30	13410	34.4	42.9	52.0	61.6	71.8	82.7	94.5	107.0	120.5
CDE-0540-L	6HE-35	13410	41.0	51.7	63.0	74.9	87.6	101.2	115.6	130.9	147.3
CDE-0541-L	6HE-35	22410	42.1	53.2	64.9	77.3	90.6	104.9	120.2	136.7	154.4
CDE-0600-L	6GE-40	22310	48.7	61.0	73.9	87.5	101.8	117.0	133.1	150.2	168.3
CDE-0601-L	6GE-40	23310	50.6	63.4	77.0	91.4	106.7	123.1	140.6	159.4	179.6
CDE-0602-L	6GE-40	22410	49.7	62.3	75.5	89.5	104.3	120.1	137.0	154.9	174.1

Electrical Specifications - Low Temperature R-448A

Voltage			208-230/3/60				460/3/60				575/3/60			
Unit	Compressor	Cond	Comp RLA	Cond FLA	MCA	MOPD	Comp RLA	Cond FLA	MCA	MOPD	Comp RLA	Cond FLA	MCA	MOPD
CDE-0300-LT*	2 - 4HE-25	S	84.3	10.8	203.5	250	42.1	5.0	101.2	125	33.6	5.0	81.8	110
CDE-0301-LT		O		16.2	208.9	250		7.5	103.7	125		7.5	84.3	110
CDE-0440-LT	2 - 4GE-30	S	100.0	16.2	244.2	300	50.0	7.5	121.5	150	40.0	7.5	98.7	125
CDE-0441-LT*		O		21.6	249.6	300		10.0	124.0	175		10.0	101.2	125
CDE-0540-LT*	2 - 6HE-35	S	117.1	16.2	282.7	350	58.6	7.5	140.9	200	46.4	7.5	113.1	150
CDE-0541-LT*		O		21.6	288.1	400		10.0	143.4	200		10.0	115.6	150
CDE-0600-LT	2 - 6GE-40	S	157.1	21.6	378.1	500	78.6	10.0	188.4	250	62.9	10.0	152.7	200
CDE-0601-LT		O		32.4	388.9	500		15.0	193.4	250		15.0	157.7	200
CDE-0602-LT		T		21.6	378.1	500		10.0	188.4	250		10.0	152.7	200

Unit	Condenser LAVF
CDE-0300-LT*	12410
CDE-0301-LT	13310
CDE-0440-LT	13310
CDE-0441-LT*	13410
CDE-0540-LT*	13410
CDE-0541-LT*	22410
CDE-0600-LT	22310
CDE-0601-LT	23310
CDE-0602-LT	22410

- Condenser size in the 8th position of the model number are: 0 - Standard, 1 - Oversize, 2 for * at the end of the model) - Meets Title 24 efficiency requirement and need VFD added to vary fan speed to meet the full regulation.
- Calculated MCA and MOPD in the table includes compressor, condenser fans and control circuit. Use the MCA / MOPD Calculation at the end of section to include evaporator fans and defrost loads when powered from the condensing unit.

- Condensing unit capacities are calculated based on the LAVF condenser model shown in the table and mid-point temperatures.
- Use R-448A capacity and electrical data for R-449A while replacing the "T" at the end of the model nomenclature with a "R".
- Compressor head cooling fan and liquid injection are included on all low temperature units.

CD Dual Systems

CDB Low Temp R-404A

CDB Performance Data - Low Temperature R-404A - Total Capacity

NOTE:
All evaporator temps are MIDPOINT.
Blacked out values indicate the
condensing temp is above 135°F
and are not recommended.

CONDENSING UNIT MODEL	COMPRESSOR	CONDENSER	95°F AMBIENT TEMPERATURE								
			-40	-35	-30	-25	-20	-15	-10	-5	0
CDB-0300-L	4HE-18	12410	39.1	46.3	54.0	62.2	70.9	80.3	90.2	100.7	111.8
CDB-0301-L	4HE-18	13310	40.0	47.4	55.3	63.9	73.1	83.0	93.6	104.8	116.8
CDB-0440-L	4GE-23	13310	47.7	56.0	65.0	74.5	84.7	95.6	107.2	119.5	132.6
CDB-0441-L	4GE-23	13410	48.3	56.8	66.0	75.8	86.4	97.7	109.8	122.8	136.5
CDB-0540-L	6HE-28	13410	58.0	68.6	79.8	91.9	104.8	118.5	133.2	148.7	165.2
CDB-0541-L	6HE-28	22410	59.5	70.4	82.2	94.8	108.5	123.2	138.9	155.8	173.7
CDB-0600-L	6GE-34	22310	72.8	84.8	97.7	111.4	126.0	141.5	157.9	175.2	193.5
CDB-0601-L	6GE-34	23310	75.1	87.8	101.4	116.1	131.9	148.9	167.1	186.5	207.2
CDB-0602-L	6GE-34	22410	73.9	86.2	99.4	113.5	128.7	144.9	162.1	180.4	199.8

CONDENSING UNIT MODEL	COMPRESSOR	CONDENSER	105°F AMBIENT TEMPERATURE								
			-40	-35	-30	-25	-20	-15	-10	-5	0
CDB-0300-L	4HE-18	12410	34.3	40.9	47.9	55.3	63.2	71.6	80.5	90.0	100.0
CDB-0301-L	4HE-18	13310	35.1	41.9	49.1	56.9	65.2	74.2	83.7	93.9	104.7
CDB-0440-L	4GE-23	13310	42.4	50.0	58.1	66.7	75.9	85.7	96.1	107.1	118.8
CDB-0441-L	4GE-23	13410	43.0	50.8	59.1	68.0	77.5	87.7	98.6	110.2	122.6
CDB-0540-L	6HE-28	13410	50.8	60.4	70.7	81.7	93.3	105.7	118.9	133.0	147.8
CDB-0541-L	6HE-28	22410	52.1	62.1	72.9	84.5	96.9	110.2	124.4	139.6	155.9
CDB-0600-L	6GE-34	22310	64.9	75.9	87.7	100.1	113.2	127.2	141.9	157.4	173.7
CDB-0601-L	6GE-34	23310	67.1	78.8	91.3	104.7	119.0	134.3	150.8	168.3	186.9
CDB-0602-L	6GE-34	22410	65.9	77.3	89.3	102.2	115.9	130.5	145.9	162.4	179.8

Electrical Specifications - Low Temperature R-404A

Voltage			208-230/3/60				460/3/60				575/3/60			
Unit	Compressor	Cond	Comp RLA	Cond FLA	MCA	MOPD	Comp RLA	Cond FLA	MCA	MOPD	Comp RLA	Cond FLA	MCA	MOPD
CDB-0300-LS*	2 - 4HE-18	S	60.3	10.8	149.5	200	30.1	5.0	74.2	100	24.1	5.0	60.4	80
CDB-0301-LS		O		16.2	154.9	200		7.5	76.7	100		7.5	62.9	80
CDB-0440-LS	2 - 4GE-23	S	64.3	16.2	163.9	225	32.1	7.5	81.2	110	25.7	7.5	66.5	90
CDB-0441-LS*		O		16.2	163.9	225		7.5	83.7	110		7.5	69.0	90
CDB-0540-LS*	2 - 6HE-28	S	86.4	16.2	213.6	300	43.2	7.5	106.2	150	34.6	7.5	86.6	110
CDB-0541-LS*		O		21.6	219.0	300		10.0	108.7	150		10.0	89.1	125
CDB-0600-LS	2 - 6GE-34	S	94.3	21.6	236.8	300	47.1	10.0	117.5	150	37.1	10.0	94.7	125
CDB-0601-LS		O		32.4	247.6	300		15.0	122.5	150		15.0	99.7	125
CDB-0602-LS		T		21.6	236.8	300		10.0	117.5	150		10.0	94.7	125

Unit	Condenser LAVF
CDB-0300-LS*	12410
CDB-0301-LS	13310
CDB-0440-LS	13310
CDB-0441-LS*	13410
CDB-0540-LS*	13410
CDB-0541-LS*	22410
CDB-0600-LS	22310
CDB-0601-LS	23310
CDB-0602-LS	22410

1. Condenser size in the 8th position of the model number are: 0 – Standard, 1 – Oversize, 2 (or * at the end of the model) – Meets Title 24 efficiency requirement and need VFD added to vary fan speed to meet the full regulation.
2. Calculated MCA and MOPD in the table includes compressor, condenser fans and control circuit. Use the MCA / MOPD Calculation at the end of section to include evaporator fans and defrost loads when powered from the condensing unit.

3. Condensing unit capacities are calculated based on the LAVF condenser model shown in the table and mid-point temperatures.
4. Use R-404A capacity and electrical data for R-507A while replacing the "S" at the end of the model nomenclature with a "P".
5. Compressor head cooling fan is included for all low temperature applications.

CD Dual Systems

CDB Low Temp R-407A

CDB Performance Data - Low Temperature R-407A - Total Capacity

95°F AMBIENT TEMPERATURE

CONDENSING UNIT MODEL	COMPRESSOR	CONDENSER	-40	-35	-30	-25	-20	-15	-10	-5	0
CDB-0300-L	4HE-18	12410	26.9	34.3	42.3	50.8	60.0	69.8	80.3	91.7	103.8
CDB-0301-L	4HE-18	13310	27.3	34.9	43.1	51.9	61.4	71.6	82.6	94.5	107.3
CDB-0440-L	4GE-23	13310	34.7	43.4	52.7	62.6	73.2	84.7	97.0	110.2	124.3
CDB-0441-L	4GE-23	13410	35.1	44.0	53.5	63.6	74.6	86.4	99.2	112.9	127.7
CDB-0540-L	6HE-28	13410	40.3	51.5	63.5	76.3	90.0	104.7	120.5	137.5	155.7
CDB-0541-L	6HE-28	22410	41.2	52.7	65.1	78.4	92.8	108.3	125.0	143.1	162.6
CDB-0600-L	6GE-34	22310	46.9	59.7	73.3	87.9	103.5	120.2	138.2	157.4	178.0
CDB-0601-L	6GE-34	23310	48.3	61.6	75.9	91.3	107.9	125.9	145.3	166.3	188.9
CDB-0602-L	6GE-34	22410	47.6	60.7	74.6	89.6	105.7	123.1	141.8	161.9	183.5

NOTE:

All evaporator temps are MIDPOINT. Blacked out values indicate the condensing temp is above 135°F and are not recommended.

105°F AMBIENT TEMPERATURE

CONDENSING UNIT MODEL	COMPRESSOR	CONDENSER	-40	-35	-30	-25	-20	-15	-10	-5	0
CDB-0300-L	4HE-18	12410	23.0	29.9	37.2	45.0	53.4	62.5	72.2	82.6	93.8
CDB-0301-L	4HE-18	13310	23.4	30.4	37.9	46.0	54.7	64.1	74.3	85.3	97.1
CDB-0440-L	4GE-23	13310	30.5	38.5	47.1	56.2	66.0	76.5	87.8	100.0	113.1
CDB-0441-L	4GE-23	13410	30.9	39.1	47.8	57.1	67.2	78.1	89.9	102.6	116.3
CDB-0540-L	6HE-28	13410	34.6	44.9	55.9	67.6	80.2	93.7	108.3	124.0	140.8
CDB-0541-L	6HE-28	22410	35.3	45.9	57.3	69.5	82.7	97.0	112.4	129.1	147.1
CDB-0600-L	6GE-34	22310	40.4	52.2	64.7	78.0	92.4	107.7	124.3	142.0	161.0
CDB-0601-L	6GE-34	23310	41.6	53.8	67.0	81.1	96.4	112.9	130.8	150.2	171.2
CDB-0602-L	6GE-34	22410	41.0	53.0	65.8	79.6	94.4	110.4	127.6	146.2	166.2

Electrical Specifications - Low Temperature R-407A

Voltage			208-230/3/60				460/3/60				575/3/60			
Unit	Compressor	Cond	Comp RLA	Cond FLA	MCA	MOPD	Comp RLA	Cond FLA	MCA	MOPD	Comp RLA	Cond FLA	MCA	MOPD
CDB-0300-LQ	2 - 4HE-18	S	60.3	10.8	149.5	200	30.1	5.0	74.2	100	24.1	5.0	60.4	80
CDB-0301-LQ		O		16.2	154.9	200		7.5	76.7	100		7.5	62.9	80
CDB-0440-LQ	2 - 4GE-23	S	64.3	16.2	163.9	225	32.1	7.5	81.2	110	25.7	7.5	66.5	90
CDB-0441-LQ		O		16.2	163.9	225		7.5	83.7	110		7.5	69.0	90
CDB-0540-LQ	2 - 6HE-28	S	86.4	16.2	213.6	300	43.2	7.5	106.2	150	34.6	7.5	86.6	110
CDB-0541-LQ		O		21.6	219.0	300		10.0	108.7	150		10.0	89.1	125
CDB-0600-LQ	2 - 6GE-34	S	94.3	21.6	236.8	300	47.1	10.0	117.5	150	37.1	10.0	94.7	125
CDB-0601-LQ		O		32.4	247.6	300		15.0	122.5	150		15.0	99.7	125
CDB-0602-LQ		T		21.6	236.8	300		10.0	117.5	150		10.0	94.7	125

Unit	Condenser LAVF
CDB-0300-LQ	12410
CDB-0301-LQ	13310
CDB-0440-LQ	13310
CDB-0441-LQ	13410
CDB-0540-LQ	13410
CDB-0541-LQ	22410
CDB-0600-LQ	22310
CDB-0601-LQ	23310
CDB-0602-LQ	22410

- Condenser size in the 8th position of the model number are: 0 - Standard, 1 - Oversize, 2 for * at the end of the model) - Meets Title 24 efficiency requirement and need VFD added to vary fan speed to meet the full regulation.
- Calculated MCA and MOPD in the table includes compressor, condenser fans and control circuit. Use the MCA / MOPD Calculation at the end of section to include evaporator fans and defrost loads when powered from the condensing unit.

- Condensing unit capacities are calculated based on the LAVF condenser model shown in the table and mid-point temperatures.
- Use R-407A capacity and electrical data for R-407F while replacing the "0" at the end of the model nomenclature with an "F".
- Compressor head cooling fan and liquid injection are included on all low temperature units.

CD Dual Systems

CDB Low Temp R-448A

CDB Performance Data - Low Temperature R-448A - Total Capacity

NOTE:
All evaporator temps are MIDPOINT.
Blacked out values indicate the
condensing temp is above 135° F
and are not recommended.

CONDENSING UNIT MODEL	COMPRESSOR	CONDENSER	95°F AMBIENT TEMPERATURE								
			-40	-35	-30	-25	-20	-15	-10	-5	0
CDB-0300-L	4HE-18	12410	35.4	42.8	50.7	59.3	68.5	78.5	89.1	100.6	112.9
CDB-0301-L	4HE-18	13310	36.0	43.6	51.7	60.6	70.2	80.6	91.8	103.8	116.8
CDB-0440-L	4GE-23	13310	43.5	52.0	61.2	71.2	81.9	93.4	105.8	119.0	133.3
CDB-0441-L	4GE-23	13410	44.1	52.8	62.2	72.4	83.5	95.4	108.3	122.2	137.1
CDB-0540-L	6HE-28	13410	52.4	63.2	74.9	87.5	101.1	115.8	131.5	148.4	166.5
CDB-0541-L	6HE-28	22410	53.6	64.8	76.9	90.0	104.3	119.7	136.5	154.5	174.0
CDB-0600-L	6GE-34	22310	67.0	79.5	93.0	107.4	122.9	139.5	157.2	176.1	196.2
CDB-0601-L	6GE-34	23310	68.9	82.0	96.1	111.3	127.8	145.7	164.9	185.7	208.0
CDB-0602-L	6GE-34	22410	68.0	80.8	94.6	109.4	125.4	142.6	161.2	181.0	202.3

CONDENSING UNIT MODEL	COMPRESSOR	CONDENSER	105°F AMBIENT TEMPERATURE								
			-40	-35	-30	-25	-20	-15	-10	-5	0
CDB-0300-L	4HE-18	12410	30.9	37.8	45.2	53.1	61.6	70.7	80.5	91.1	102.3
CDB-0301-L	4HE-18	13310	31.5	38.5	46.1	54.3	63.2	72.7	83.0	94.1	106.1
CDB-0440-L	4GE-23	13310	38.8	46.7	55.2	64.3	74.1	84.7	96.0	108.1	121.2
CDB-0441-L	4GE-23	13410	39.3	47.4	56.1	65.5	75.6	86.6	98.4	111.1	124.8
CDB-0540-L	6HE-28	13410	45.5	55.6	66.5	78.2	90.8	104.3	118.8	134.4	151.1
CDB-0541-L	6HE-28	22410	46.6	57.1	68.4	80.6	93.8	108.1	123.5	140.2	158.2
CDB-0600-L	6GE-34	22310	59.6	71.4	83.9	97.3	111.6	126.9	143.1	160.5	178.9
CDB-0601-L	6GE-34	23310	61.4	73.8	87.0	101.2	116.5	133.0	150.7	169.8	190.4
CDB-0602-L	6GE-34	22410	60.5	72.6	85.5	99.3	114.1	130.0	147.0	165.3	184.8

Electrical Specifications - Low Temperature R-448A

Voltage			208-230/3/60				460/3/60				575/3/60			
Unit	Compressor	Cond	Comp RLA	Cond FLA	MCA	MOPD	Comp RLA	Cond FLA	MCA	MOPD	Comp RLA	Cond FLA	MCA	MOPD
CDB-0300-LT*	2 - 4HE-18	S	60.3	10.8	149.5	200	30.1	5.0	74.2	100	24.1	5.0	60.4	80
CDB-0301-LT		O		16.2	154.9	200		7.5	76.7	100		7.5	62.9	80
CDB-0440-LT	2 - 4GE-23	S	64.3	16.2	163.9	225	32.1	7.5	81.2	110	25.7	7.5	66.5	90
CDB-0441-LT*		O		16.2	163.9	225		7.5	83.7	110		7.5	69.0	90
CDB-0540-LT*	2 - 6HE-28	S	86.4	16.2	213.6	300	43.2	7.5	106.2	150	34.6	7.5	86.6	110
CDB-0541-LT*		O		21.6	219.0	300		10.0	108.7	150		10.0	89.1	125
CDB-0600-LT	2 - 6GE-34	S	94.3	21.6	236.8	300	47.1	10.0	117.5	150	37.1	10.0	94.7	125
CDB-0601-LT		O		32.4	247.6	300		15.0	122.5	150		15.0	99.7	125
CDB-0602-LT		T		21.6	236.8	300		10.0	117.5	150		10.0	94.7	125

Unit	Condenser LAVF
CDB-0300-LT*	12410
CDB-0301-LT	13310
CDB-0440-LT	13310
CDB-0441-LT*	13410
CDB-0540-LT*	13410
CDB-0541-LT*	22410
CDB-0600-LT	22310
CDB-0601-LT	23310
CDB-0602-LT	22410

1. Condenser size in the 8th position of the model number are: 0 – Standard, 1 – Oversize, 2 (or * at the end of the model) – Meets Title 24 efficiency requirement and need VFD added to vary fan speed to meet the full regulation.
2. Calculated MCA and MOPD in the table includes compressor, condenser fans and control circuit. Use the MCA / MOPD Calculation at the end of section to include evaporator fans and defrost loads when powered from the condensing unit.

3. Condensing unit capacities are calculated based on the LAVF condenser model shown in the table and mid-point temperatures.

4. Use R-448A capacity and electrical data for R-449A while replacing the "T" at the end of the model nomenclature with a "R".

5. Compressor head cooling fan and liquid injection are included on all low temperature units.

CD Dual Systems

CDD MCA / MOPD Calculation

Model CDD-0401MxK

Compressor 1 RLA		22.3
Compressor 2 RLA	+	22.3
Condenser Fans	+	5.4
Control*	+	3.0
25% Compressor RLA	+	5.6
MCA		58.6
<hr/>		
Evaporator Fan RLA	+	16.0
Calculated MCA		74.6
<hr/>		
Compressor RLA 1	+	22.3
Calculated MOP		96.9
MOPD**		90

Example calculation has details for the calculation of the MCA shown in the electrical table above. The Calculated MCA includes the addition of 16.0 amps to power evaporator fans to show how to recalculate values for MCA and MOPD for the addition of electrical loads that would be in operation at the same time as the compressor and condenser.

*Control circuit amps are: 208-230/3/60 3.0A, 460/3/60 1.5A, 575/3/60 1.2A

**Round MOP down to next Standard MOPD Size shown below. The MOPD must be larger than the calculated MCA.

Standard MOPD Sizes : 15, 20, 25, 30, 35, 40, 45, 50, 60, 70, 80, 90, 100, 110, 125, 150, 175, 200, 225, 250, 300, 350, 400, 450, 500

Alternate Calculation for Electric Defrost: If 1.25 X defrost amps plus Control Transformer exceeds calculated MCA use this value and round up to next standard breaker size for MOPD. Use the MOPD calculated for defrost if it exceeds what is calculated using the compressor information.

Sound Data for C-Series

Sound from condensing units is primarily from the condenser fans. C-Series units use Levitor II LAVF condensers with 1140 rpm fans. For sound calculations, the published sound data in the Levitor Technical bulletin should be used with 1 db added to account for the compressor.

Example: CSD-0202-MT condenser is LAVF-12410 which has published sound of 75 dbA at 10'. For this unit, add 1 dbA to this value for 76 dbA at 10' for sound evaluations.

CD Dual Systems

CD Dual Series Model Specifications

Unit		Connections (in)		Receiver	Receiver Capacity***			Est. Ship Weight	Dimensional Drawings	Piping Schematic
					R-404A	R-407A	R-448A			
		Liq. OD	Suct. OD	Dia. x Length	(lb)	(lb)	(lb)	(lb)	See pgs. 77 - 79	See pg. 82
10 hp	CD*0100M**	7/8	1 1/8	8 5/8 x 28	43	47	46	1748	CD-11	CD PIPE
	CD*0101M**	7/8	1 1/8	8 5/8 x 28	43	47	46	1812	CD-11	CD PIPE
15 hp	CD*0150M**	7/8	1 3/8	8 5/8 x 28	43	47	46	1839	CD-11	CD PIPE
	CD*0151M**	7/8	1 3/8	8 5/8 x 28	43	47	46	2371	CD-12	CD PIPE
16 hp	CD*0160M**	1 1/8	1 3/8	8 5/8 x 28	43	47	46	2378	CD-12	CD PIPE
	CD*0161M**	1 1/8	1 3/8	8 5/8 x 28	43	47	46	2440	CD-12	CD PIPE
	CD*0162M**	1 1/8	1 3/8	8 5/8 x 28	43	47	46	2499	CD-12	CD PIPE
18 hp	CD*0180M**	1 1/8	1 5/8	8 5/8 x 28	43	47	46	2533	CD-12	CD PIPE
	CD*0181M**	1 1/8	1 5/8	8 5/8 x 48	75	83	80	2729	CD-12	CD PIPE
20 hp	CD*0200M**	1 1/8	1 5/8	8 5/8 x 48	75	83	80	2660	CD-12	CD PIPE
	CD*0201M**	1 1/8	1 5/8	8 5/8 x 48	75	83	80	3077	CD-13	CD PIPE
	CD*0202M**	1 1/8	1 5/8	8 5/8 x 48	75	83	80	2719	CD-12	CD PIPE
24 hp	CD*0240M**	1 1/8	1 5/8	8 5/8 x 48	75	83	80	2725	CD-12	CD PIPE
	CD*0241M**	1 1/8	1 5/8	8 5/8 x 48	75	83	80	3079	CD-13	CD PIPE
30 hp	CD*0300M**	1 1/8	2 1/8	8 5/8 x 48	75	83	80	3115	CD-13	CD PIPE
	CD*0301M**	1 1/8	2 1/8	8 5/8 x 60	94	103	100	3277	CD-13	CD PIPE
40 hp	CD*0400M**	1 1/8	2 1/8	8 5/8 x 48	75	83	80	3168	CD-13	CD PIPE
	CD*0401M**	1 1/8	2 1/8	8 5/8 x 60	94	103	100	3515	CD-22	CD PIPE
	CD*0402M**	1 1/8	2 1/8	8 5/8 X 60	94	103	100	3256	CD-13	CD PIPE
50 hp	CD*0500M**	1 1/8	2 1/8	8 5/8 x 60	94	103	100	3381	CD-13	CD PIPE
	CD*0501M**	1 1/8	2 1/8	10 3/4 x 48	114	125	121	4329	CD-23	CD PIPE
60 hp	CD*0600M**	1 1/8	2 1/8	10 3/4 x 48	114	125	121	3776	CD-22	CD PIPE
	CD*0601M**	1 1/8	2 1/8	10 3/4 x 72	174	191	184	4474	CD-23	CD PIPE
70 hp	CD*0700M**	1 3/8	2 1/8	10 3/4 x 72	174	191	184	4319	CD-23	CD PIPE
	CD*0701M**	1 3/8	2 1/8	10 3/4 x 72	174	191	184	5329	CD-24	CD PIPE
	CD*0702M**	1 3/8	2 1/8	10 3/4 X 72	174	191	184	4916	CD-23	CD PIPE
80 hp	CD*0800M**	1 3/8	2 5/8	10 3/4 x 72	174	191	184	4942	CD-23	CD PIPE
	CD*0801M**	1 3/8	2 5/8	10 3/4 x 96	233	256	247	5895	CD-24	CD PIPE
30 hp	CD*0300L**	7/8	2 1/8	8 5/8 x 48	75	83	80	2719	CD-12	CD PIPE
	CD*0301L**	7/8	2 1/8	8 5/8 x 48	75	83	80	3212	CD-13	CD PIPE
44 hp	CD*0440L**	7/8	2 1/8	8 5/8 x 48	75	83	80	3179	CD-13	CD PIPE
	CD*0441L**	7/8	2 1/8	8 5/8 x 60	106	117	112	3526	CD-13	CD PIPE
54 hp	CD*0540L**	1 1/8	2 5/8	8 5/8 x 60	94	103	100	3477	CD-13	CD PIPE
	CD*0541L**	1 1/8	2 5/8	8 5/8 x 60	106	117	112	3788	CD-22	CD PIPE
60 hp	CD*0600L**	1 1/8	2 5/8	8 5/8 x 60	94	103	100	3765	CD-22	CD PIPE
	CD*0601L**	1 1/8	2 5/8	10 3/4 x 48	128	141	136	4527	CD-23	CD PIPE
	CD*0602L**	1 1/8	2 5/8	8 5/8 X 60	94	103	100	3883	CD-22	CD PIPE

*-D,E,B

** S(R-404A), Q(R-407A), T(R-448A)

*** Receiver capacity based on 80% full.

NOTE: 'CD' refrigeration systems are designed to serve more than one refrigerated load.

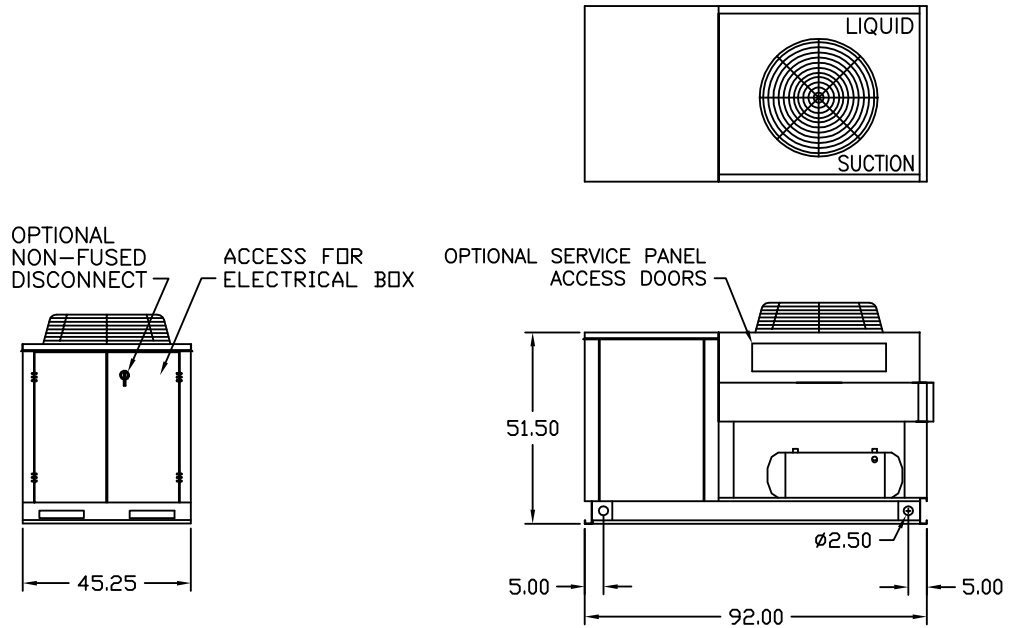
Annual Walk-In Energy Factor (AWEF)

CD units are designed to serve more than one refrigeration load and are exempt from the US Department of Energy (DOE) and Natural Resources Canada (NRCAN) requirements so no AWEF values are provided.

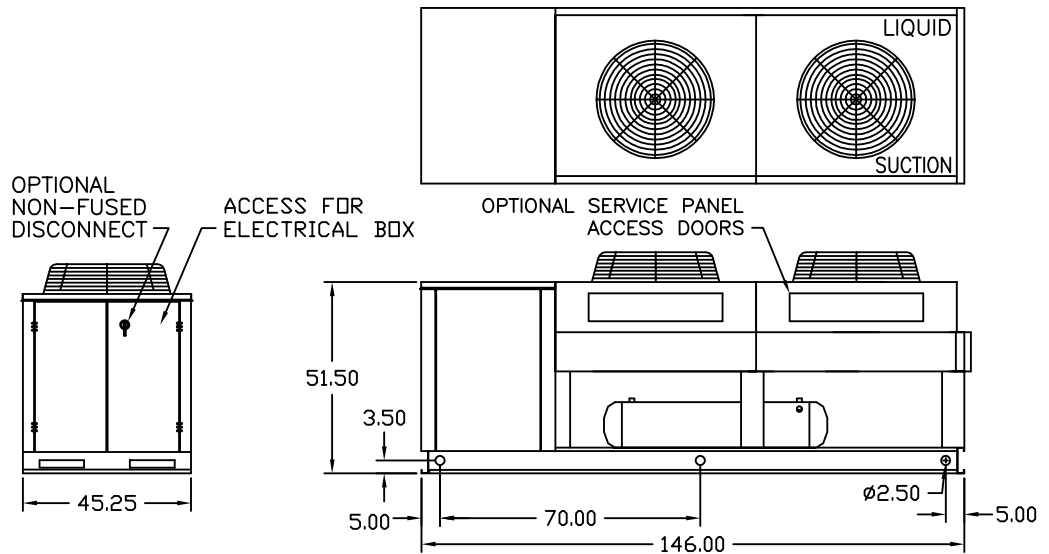
Dimensional Drawings

CS Single Systems

CS-11



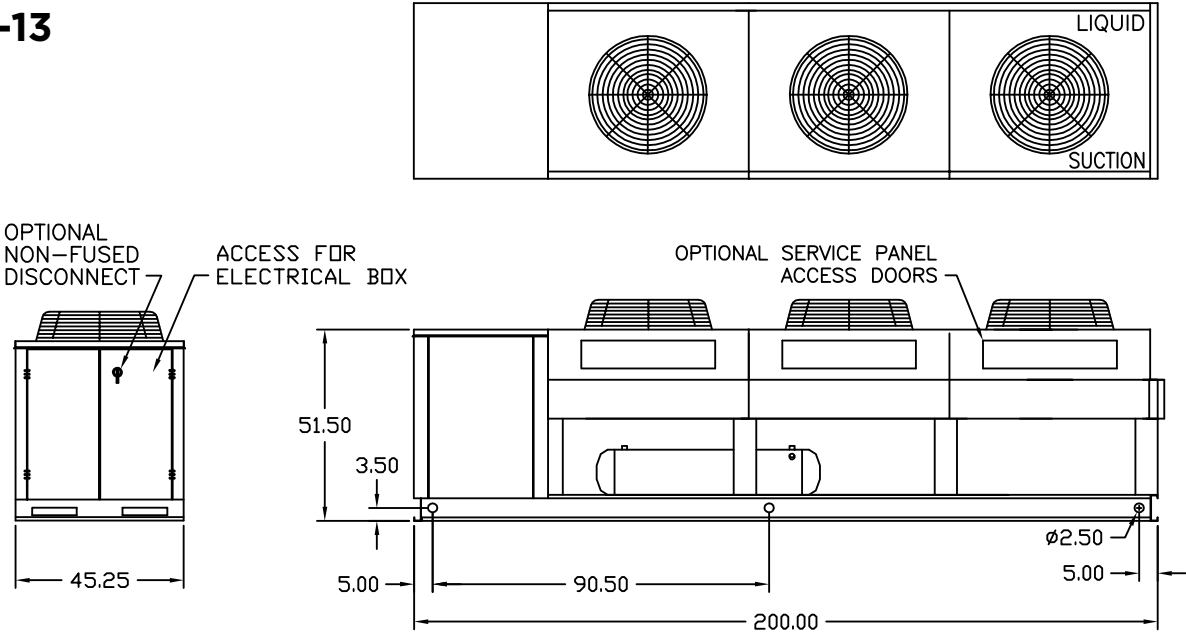
CS-12



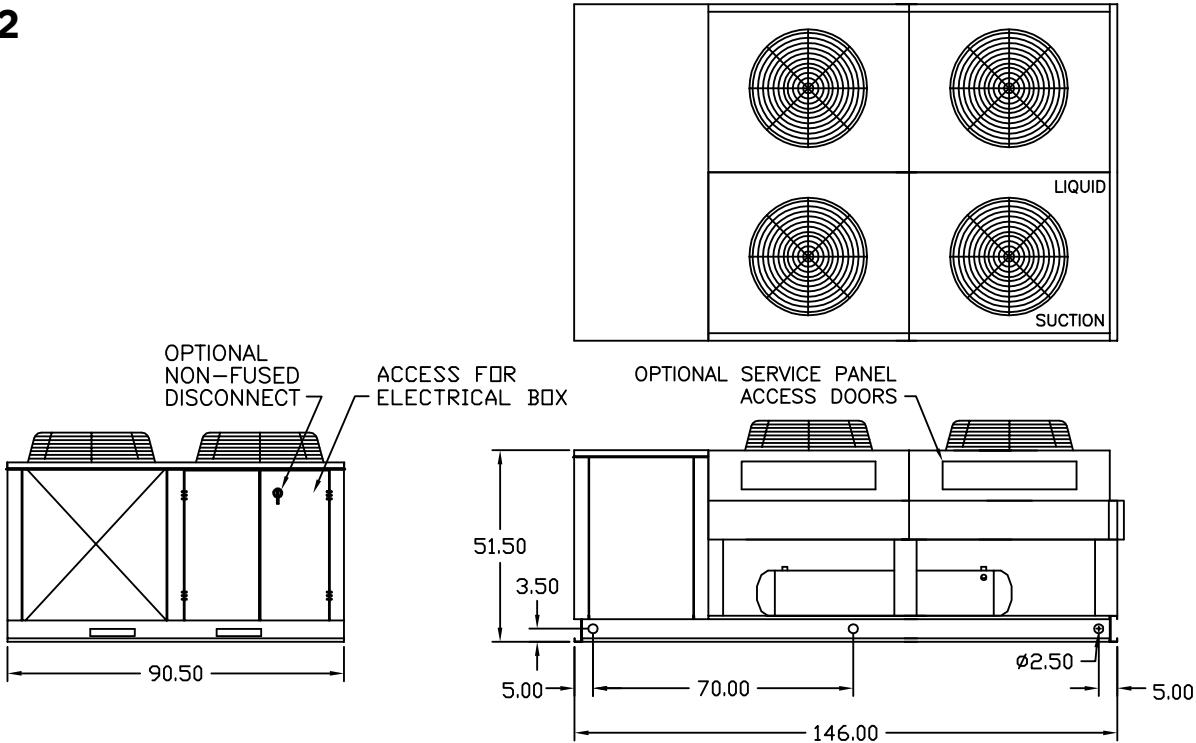
Dimensional Drawings

CS Single Systems

CS-13



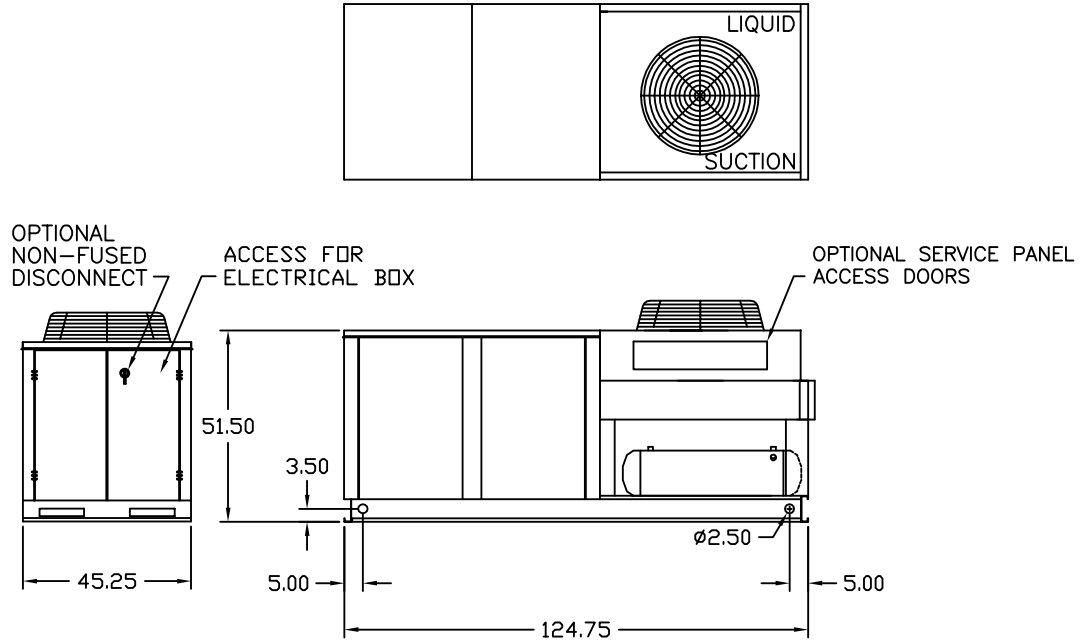
CS-22



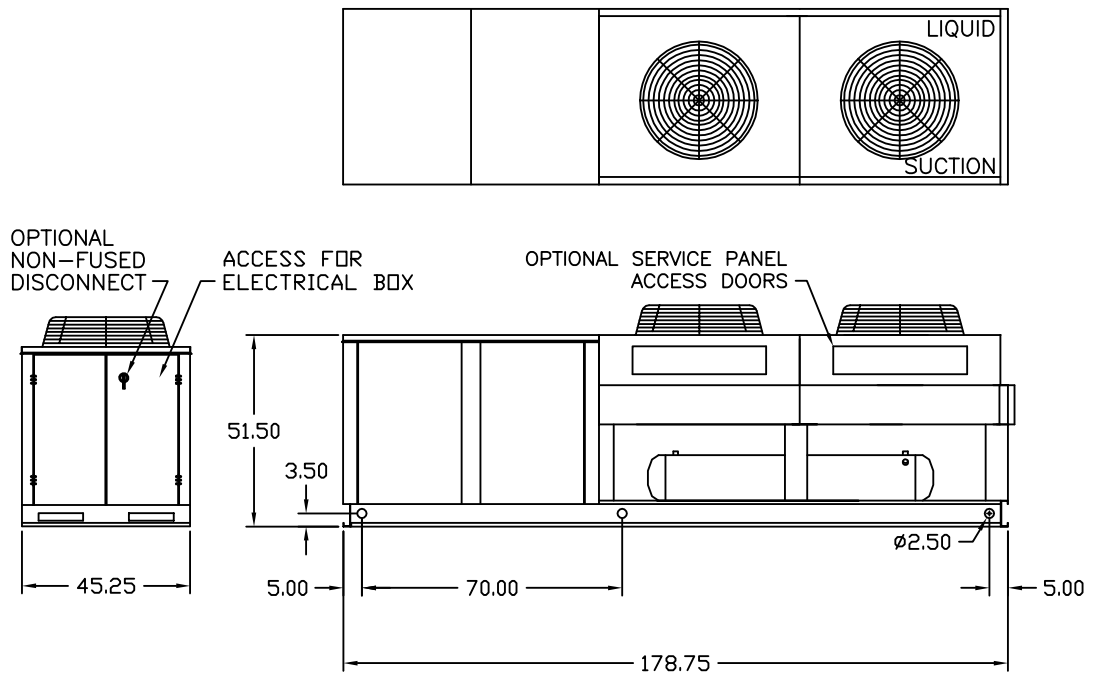
Dimensional Drawings

CP Parallel Systems

CP-11

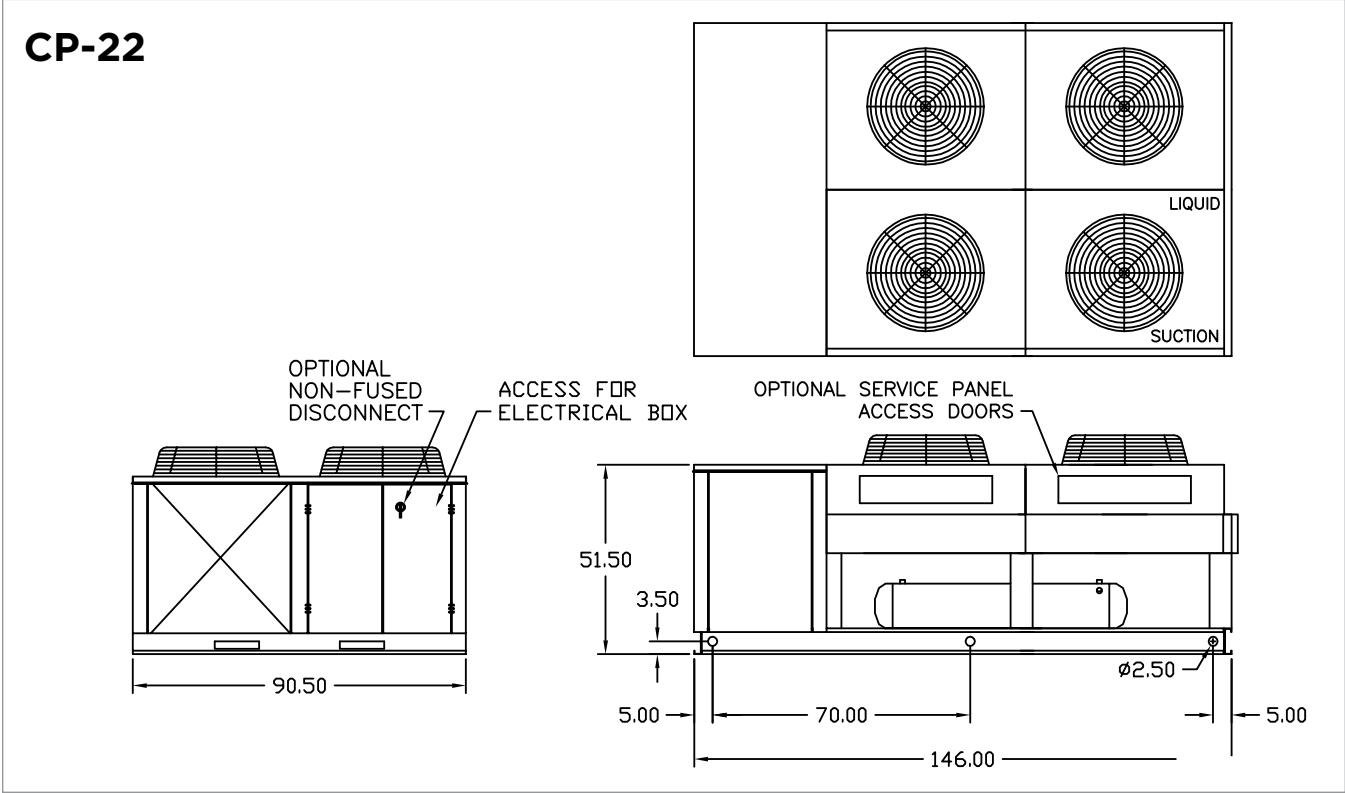
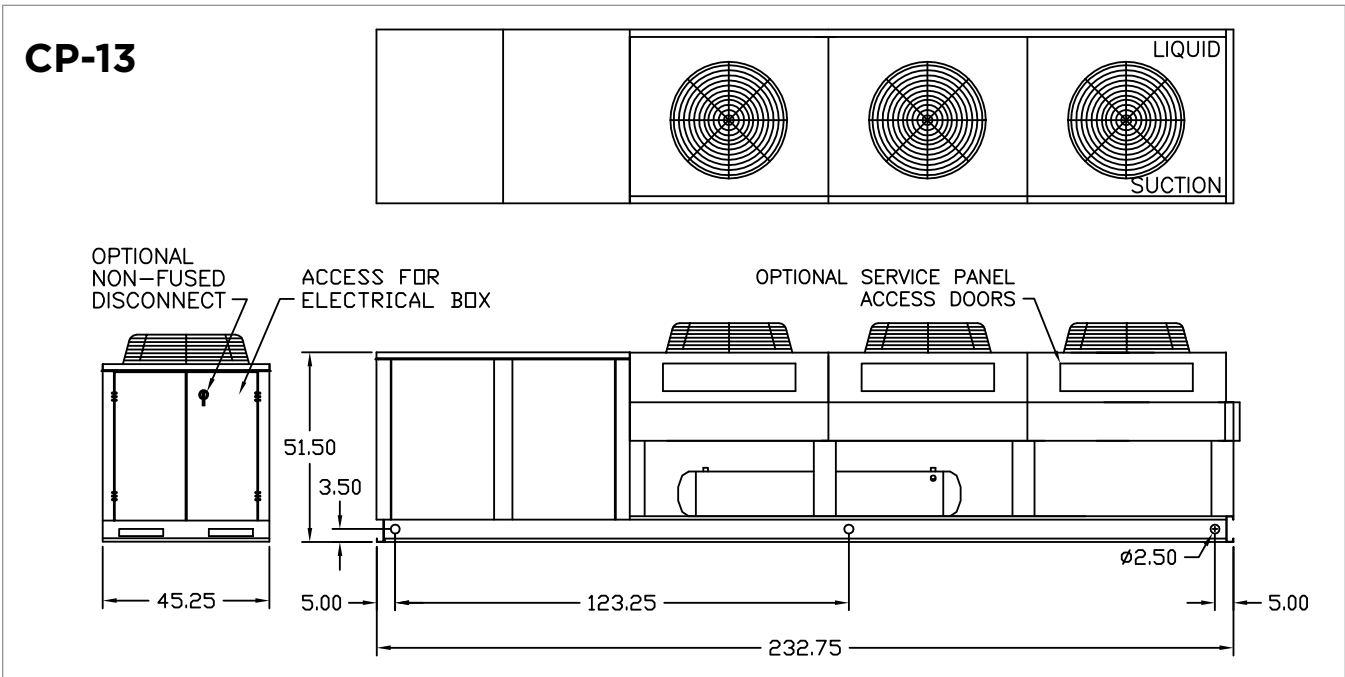


CP-12



Dimensional Drawings

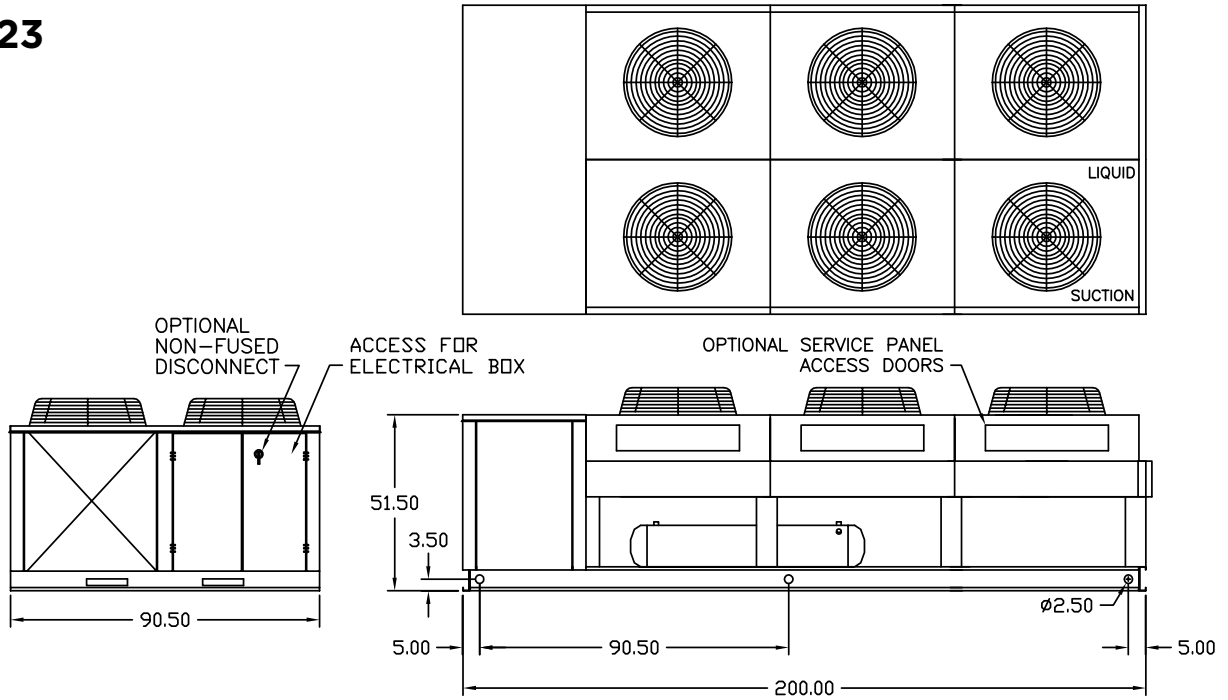
CP Parallel Systems



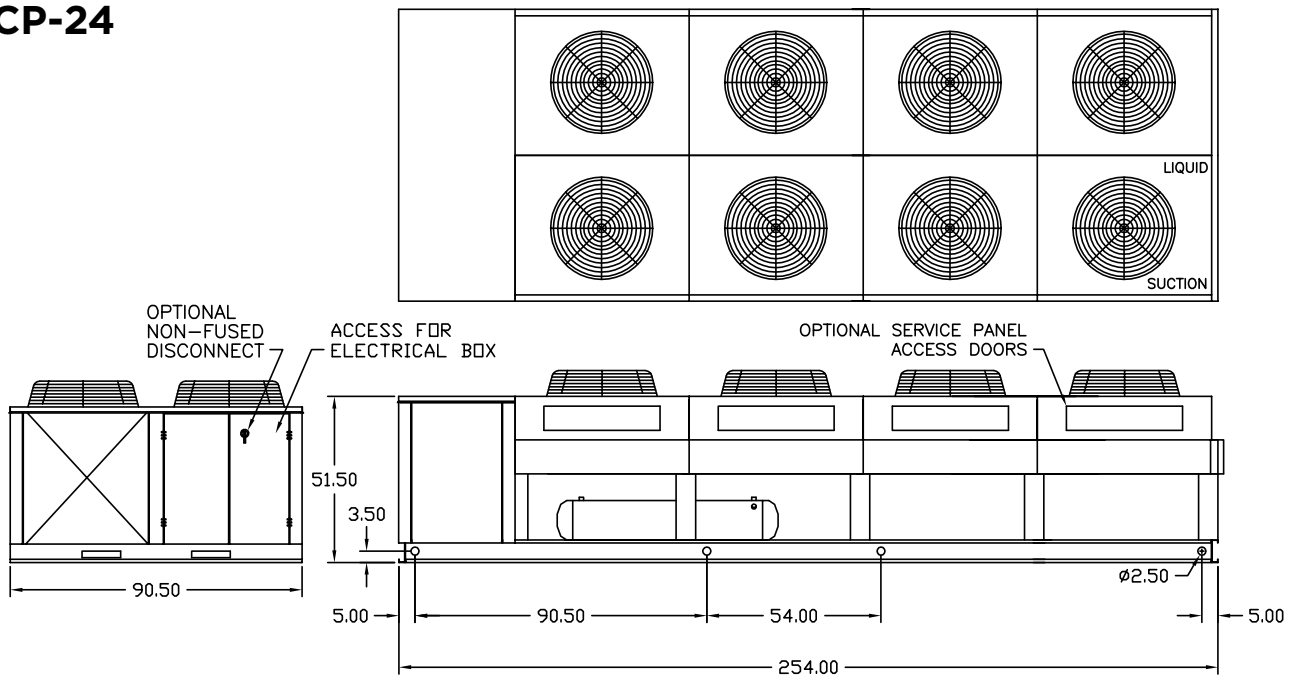
Dimensional Drawings

CP Parallel Systems

CP-23



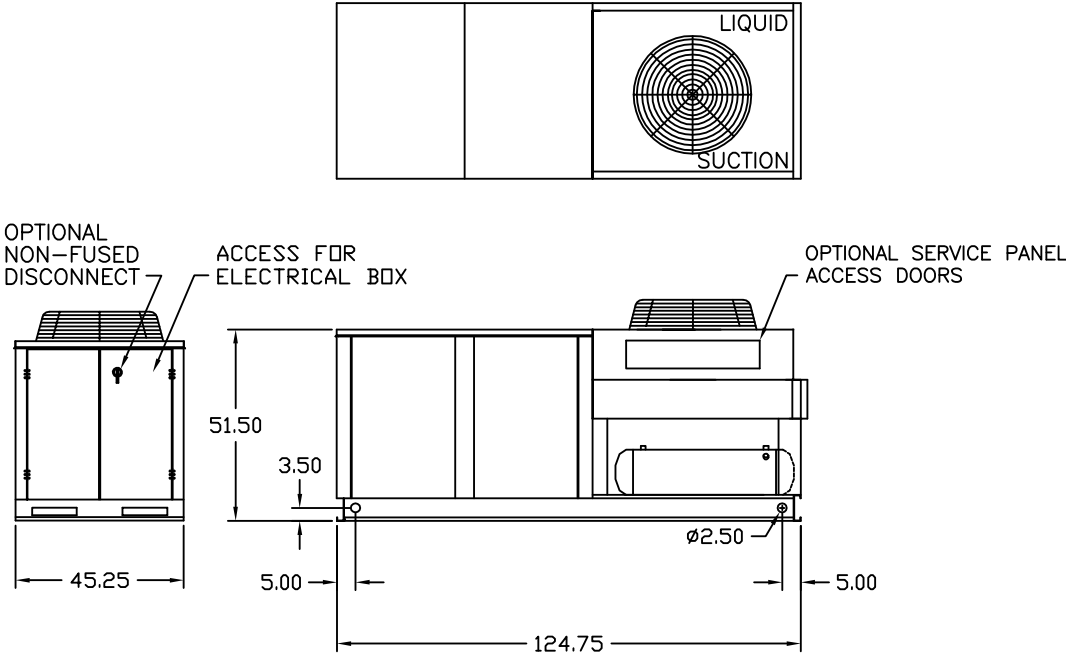
CP-24



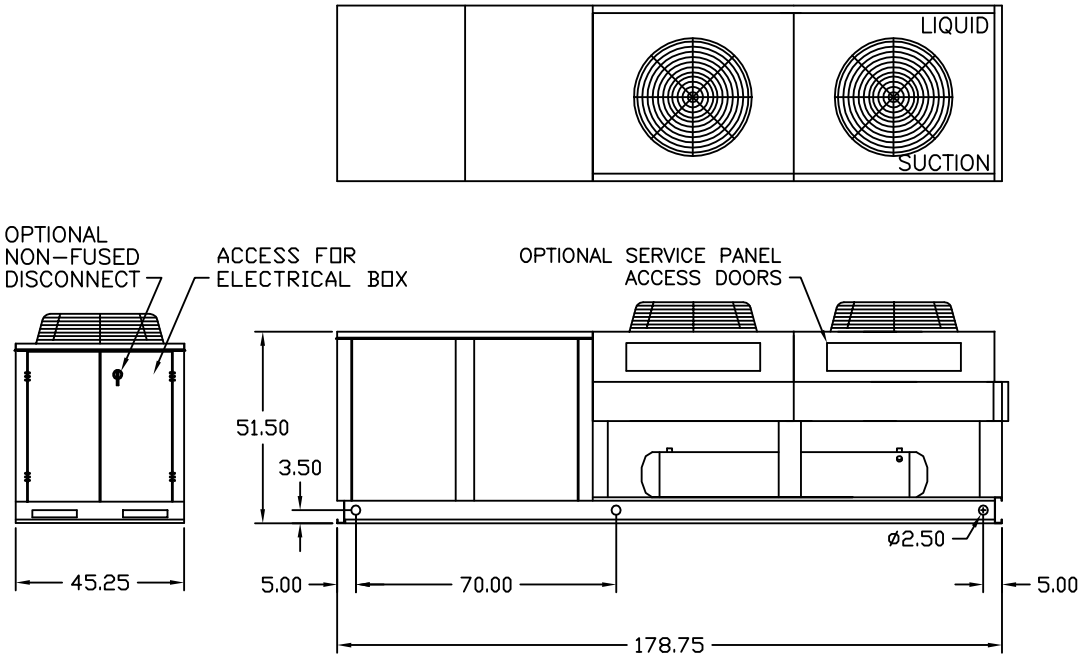
Dimensional Drawings

CD Dual Systems

CD-11



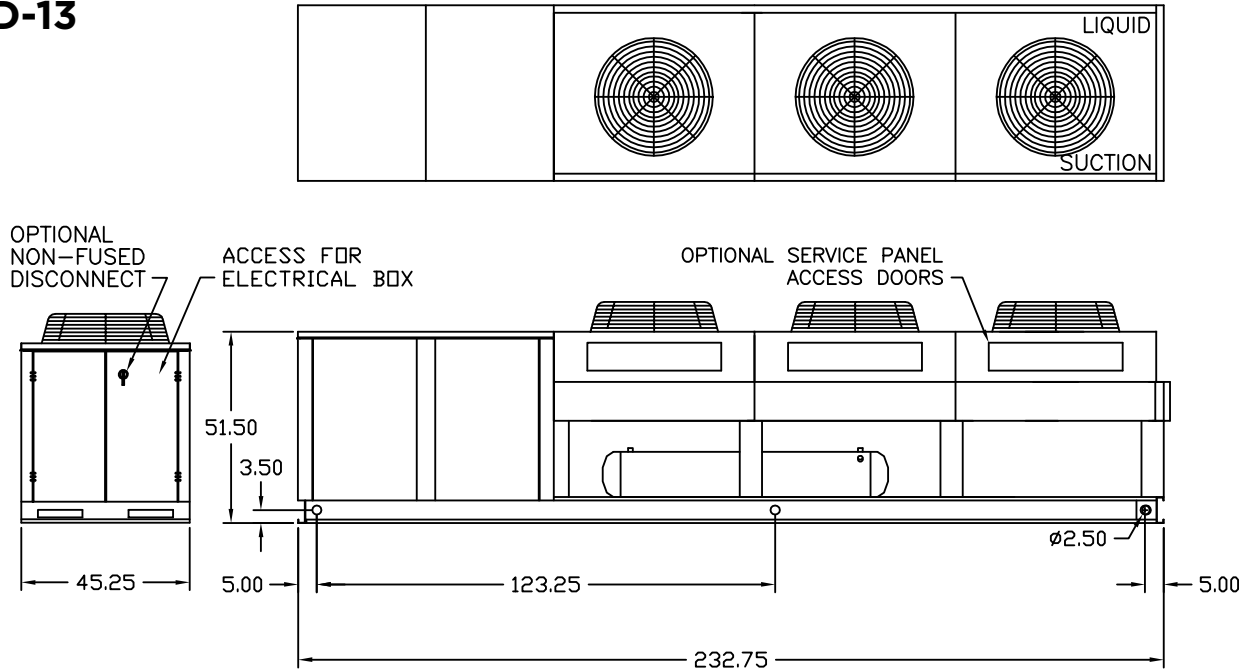
CD-12



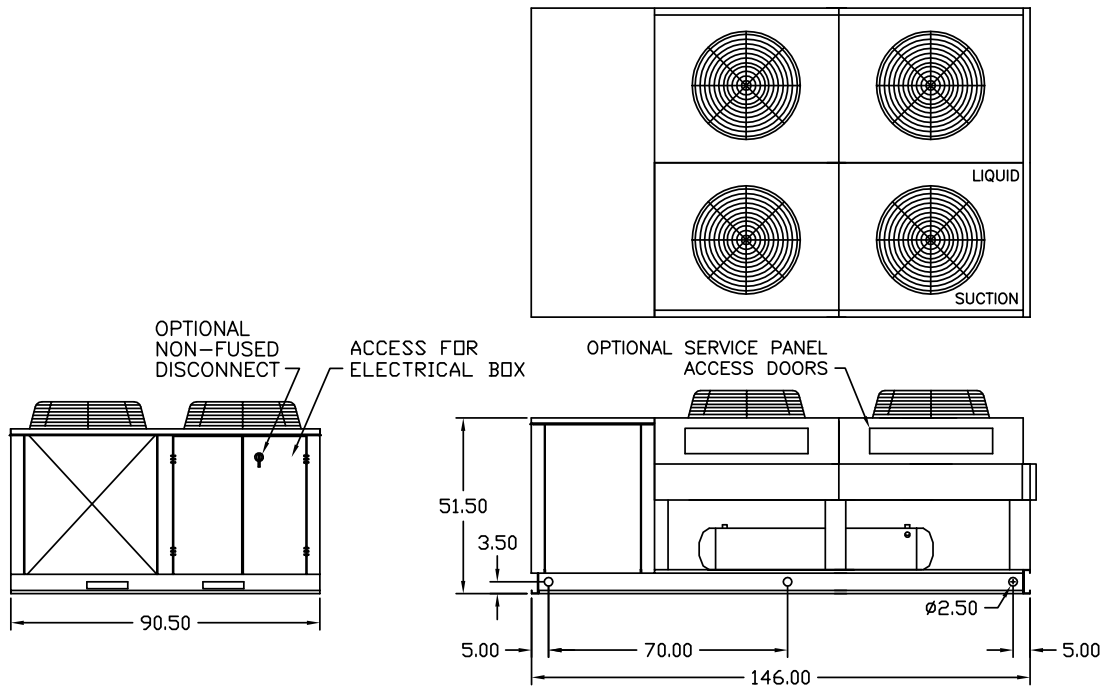
Dimensional Drawings

CD Dual Systems

CD-13



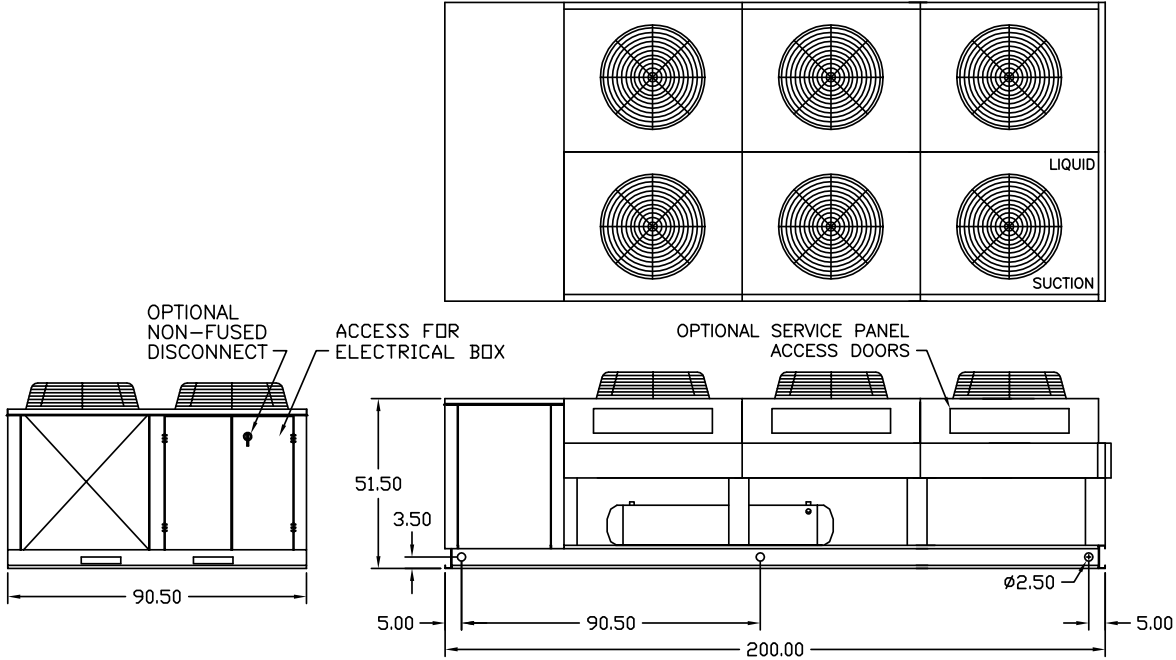
CD-22



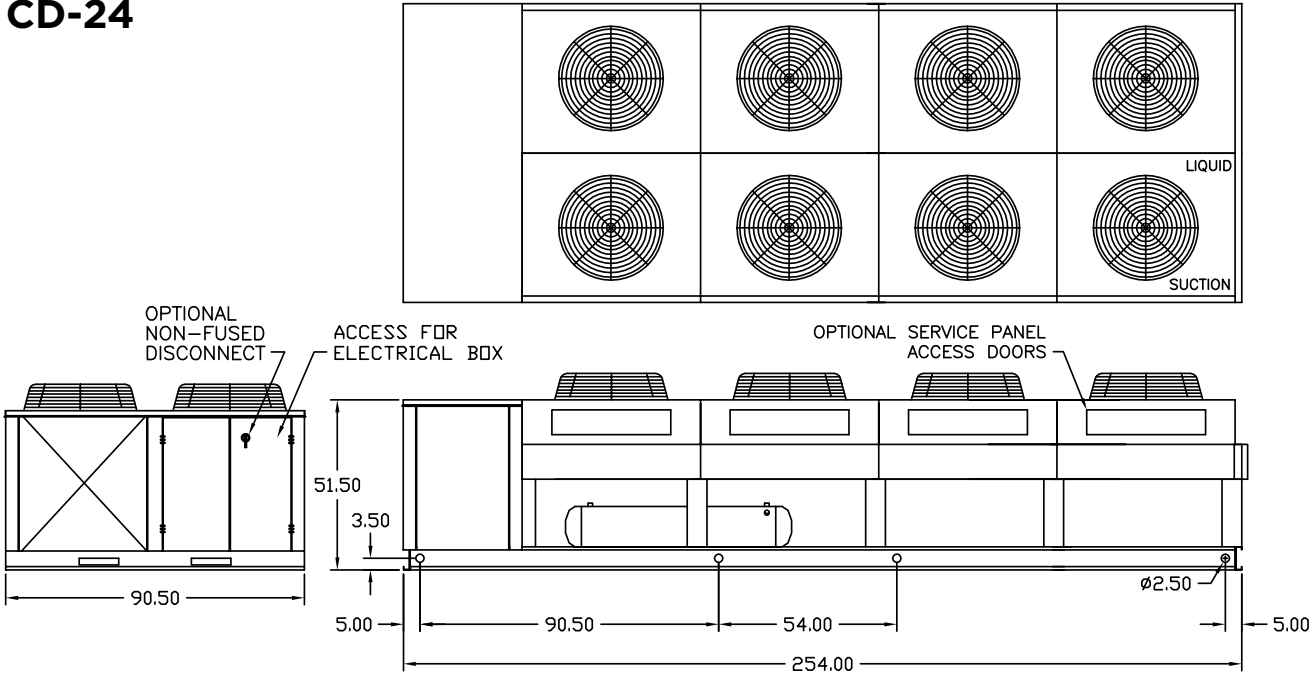
Dimensional Drawings

CD Dual Systems

CD-23

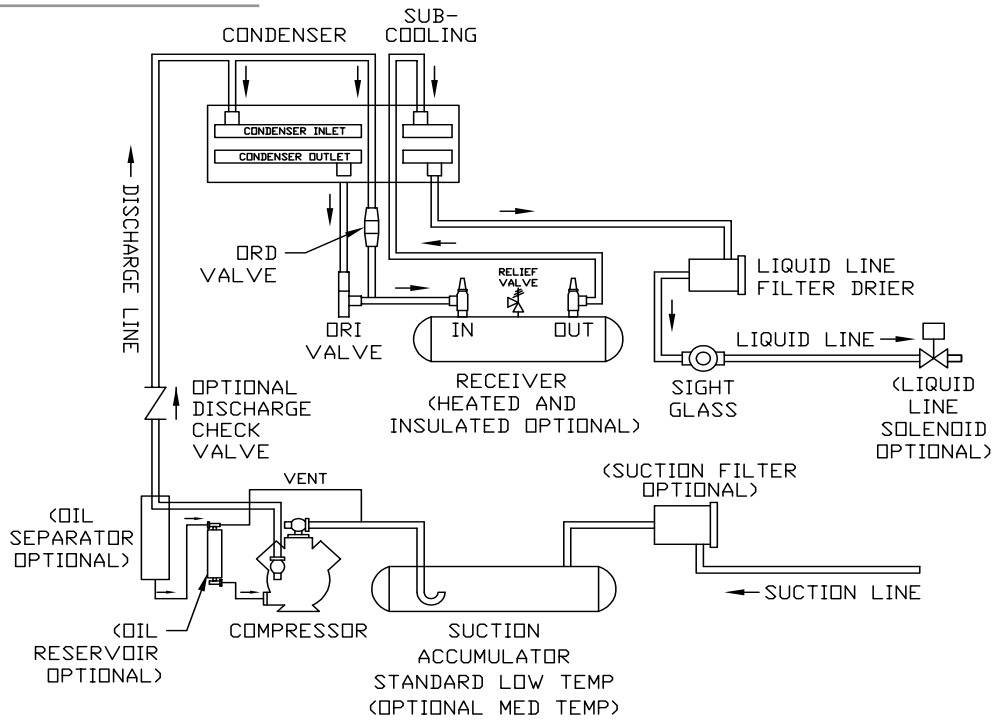


CD-24

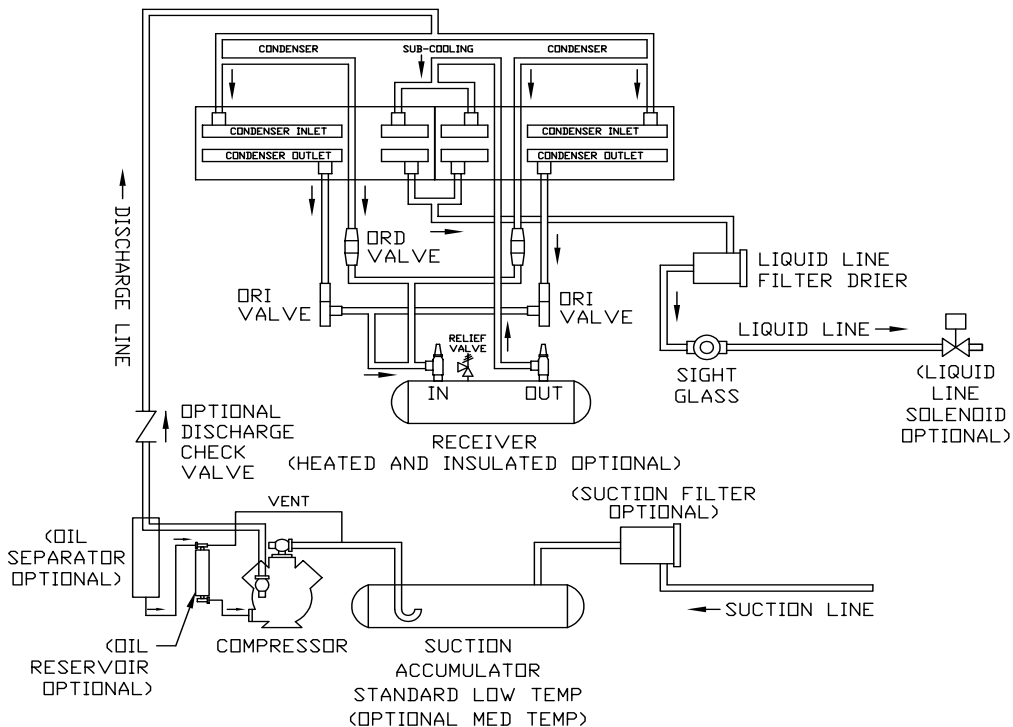


Piping Schematics

CS Single Piping - 1 Wide Coil

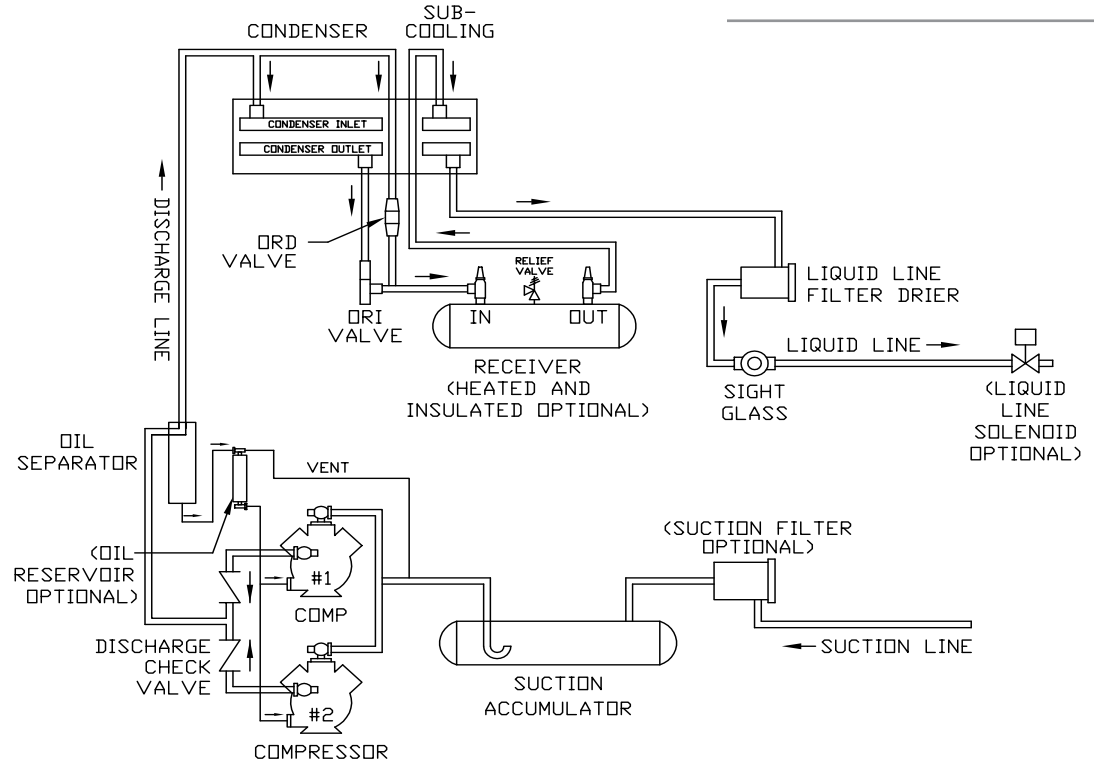


CS Single Piping - 2 Wide Coil

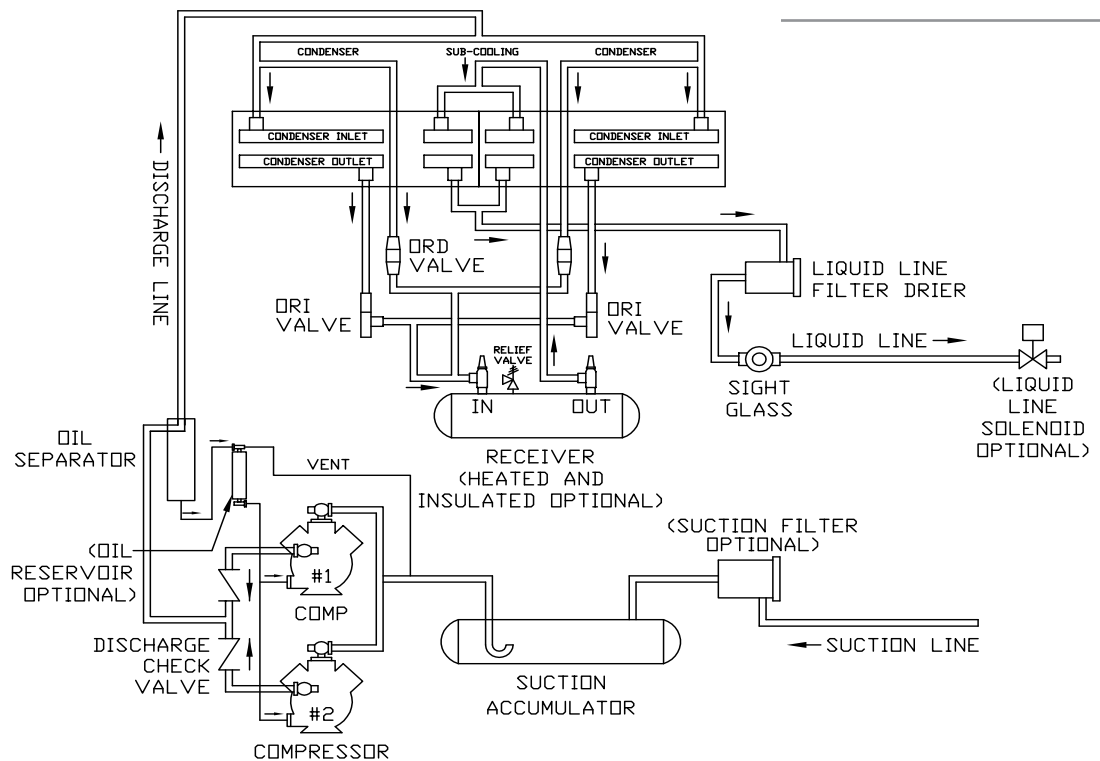


Piping Schematics

CP Parallel Piping - 1 Wide Coil

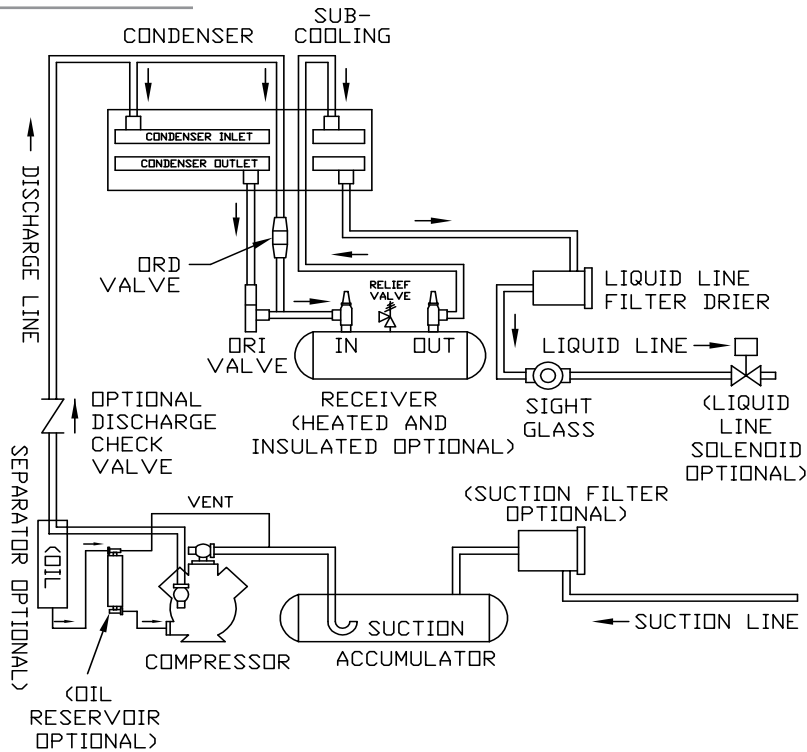


CP Parallel Piping - 2 Wide Coil

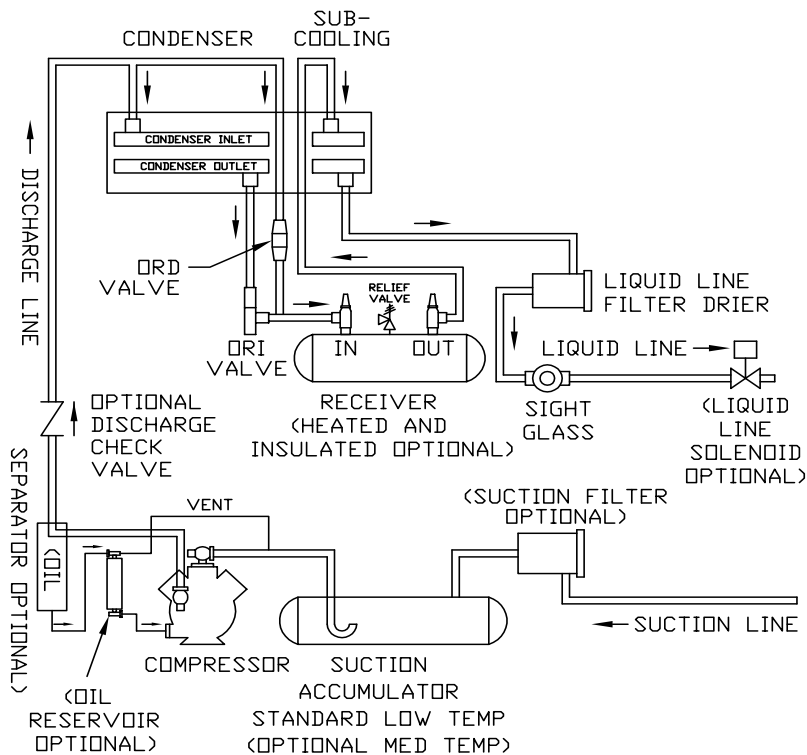


Piping Schematics

CD Dual Piping - Refrigerant Circuit 1



CD Dual Piping - Refrigerant Circuit 2





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