



# FLCU-P SERIES, A.1

## LARGE-SIZED CONDENSING UNIT

PREMIUM SERIES, AIR COOLED CONDENSER  
DUAL OR TRIPLE SEMI-HERMETIC COMPRESSORS

34 – 150 HP 

**PREMIUM**  
SERIES



10% **VRF** 100%  
VARIABLE REFRIGERANT FLOW  
VARIABLE REFRIGERANT FLOW "LOOP"  
*Optional*

### COMMERCIAL REFRIGERATION LINE

The FLCU-P: FriconUSA Large-Sized Condensing Unit, Premium series, air cooled condenser, is built with the best components in the market including Bitzer semi-hermetic compressors; available in capacities from 34 to 150 HP in configurations of dual and triple parallel compressors. The high quality and efficiency of our products allow us to ensure our clients a highly reliable operation, low energy consumption and long equipment service life.

The most common commercial refrigeration applications are centralized refrigeration for medium and large-sized supermarkets, hypermarkets, refrigerated warehouses, cold rooms, blast coolers or freezers, continuous rapid cooling tunnels, block or flake ice making machines, thermal ice storage, etc.

By using Bitzer Ecoline Semi-Hermetic compressors with infinite variable capacity control "CRIL" between 10% and 100% or the implementation of an external VFD (Variable Frequency Drive) on the first compressor, we convert this condensing unit into an incredible VRF (Variable Refrigerant Flow) system resulting in a greater adaptability to the thermal load demand and maximizes energy savings at partial load.

Application Temperature:

"H" High: +45°F (+7.2°C) to +10°F (-12.2°C) SST.

"M" Medium: +30°F (-1.1°C) to -20°F (-29°C) SST.

"L" Low: +5°F (-15°C) to -40°F (-40°C) SST.

### STANDARD FEATURES & BENEFITS:

- Bitzer Ecoline semi-hermetic compressors with spring mounted vibration insulation, crankcase heater and internal thermal protection.
- Step unloaders on each compressor (4 cylinders: 50-100%, 6 cylinders: 33-66-100%).
- Aluminum frame with galvanized steel reinforcement, high efficiency condenser with strong structure and micro-channel coil aluminum, less weight and size; reduces transport, assembly and construction costs.
- EcoFriendly; Air cooled micro-channel condenser coil with internal volume reduced requires between 40% and 60% less refrigerant charge and results in a significant reduction of the refrigerant charge necessary for normal or flooded operations.
- Wide range of SST (Saturated Suction Temperature).
- Quiet, high efficiency, external rotor motor, two speed, AC type axial fans for a better operation.
- Horizontal liquid receiver with inlet and outlet insulate valves, stainless steel relief valve at 450 PSI and electronic low liquid level indicator.
- Liquid sight glass and solenoid valve.
- Suction filter and liquid drier with replaceable core.
- Suction accumulator.
- Flexible joint on suction and discharge lines on each compressor.
- Helical oil separator with built-in oil reservoir, discharge check valve and replaceable 5 micron oil filter.
- Electronic oil level regulator.
- Electronic oil pressure switch.
- Refrigerant: R-404a



REV-C FLCU-P EN 1809

**STANDARD FEATURES & BENEFITS (CONT.):**

- Factory pre-charged with nitrogen and electrical work tested.
- UL 508A listed built-in electrical control panel.
- Compressor and fan circuit breakers.
- Voltage and phase-loss monitor with protection module for each compressor.
- Control: 208-230V / 1PH / 60HZ
- Power supply voltage 460V / 3PH / 60HZ with single point power connection.
- Electronic Control System; compressors and condenser fans operational management: alarms, measurement of pressure and temperature variables, 132x64 LCD backlit built-in display with 6-button keypad. Alarm management: 3 alarms for compressors (overload, pressure and oil) and 1 overload alarm for condenser fans.
- Fixed high pressure controls on each compressor.
- BMS (Building Management System): ModBus protocol for supervisor or HMI (Human Machine Interface).
- 2-year warranty.

**STANDARD OPTIONS:**

- Different compressor brand.
- Condenser coil with E-Coating for greater resistance to corrosion.
- Protective mesh for the condenser.
- EC type fans with variable speed (for 575V a VFD is used).
- Refrigerants: R-407a, R-407c, R-448a, R-449a, R-507a
- Different power supply voltage.

**ADDITIONAL OPTIONS:**

- VRF (Variable Refrigerant Flow) package to maximize the efficiency and capacity adaptability to the demand:
  - VRF-I: CRUI Unloader. Infinite capacity control on the first compressor (4 cylinders: 10≈100%, 6 cylinders: 33≈100%).
  - VRF-II\*: VFD (Variable Frequency Drive). Infinite capacity control on the lead compressor in each circuit (42~116%).

\*Certain limitations apply.

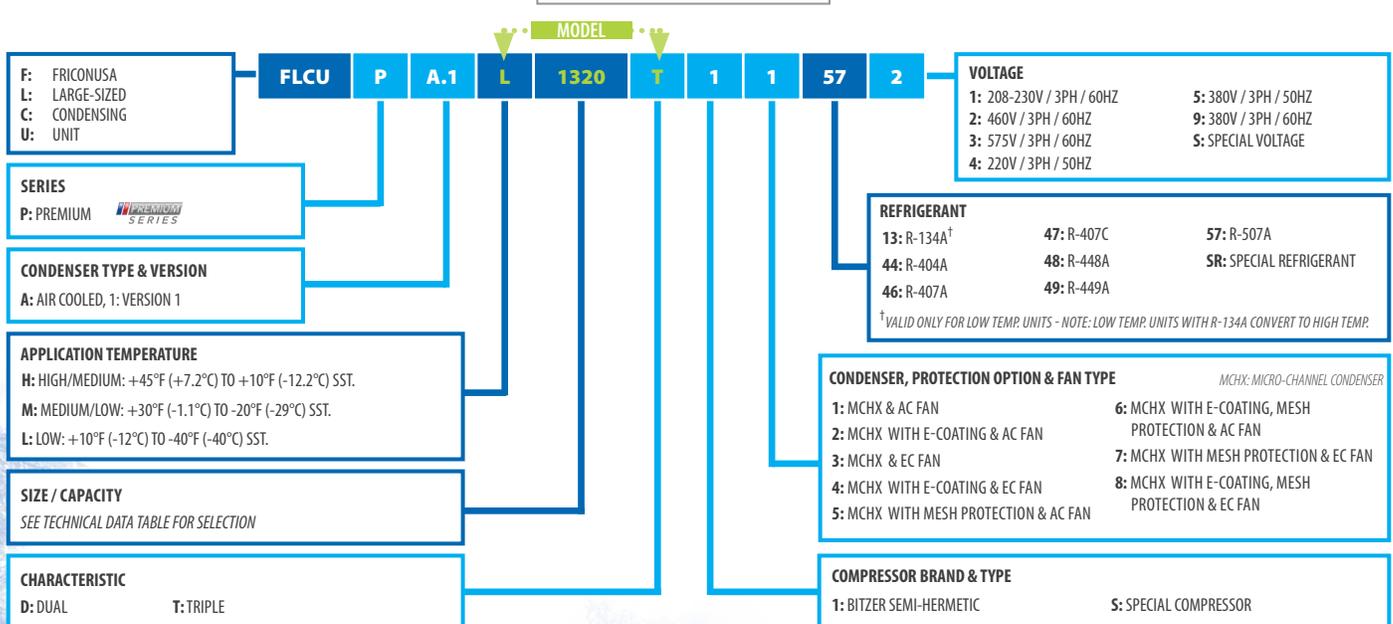
**ADDITIONAL OPTIONS (CONT.):**

- SECC (Semi-Enclosed Compressor Cabin) package for compressor protection:
  - SECC-I: Galvanized, powder coated, acoustically semi-insulated and weatherproof compressor cabin.
- FECC (Fully Enclosed Compressor Cabin)\* package for better soundproofing:
  - FECC-I: Fully enclosed metal compressor cabin.
  - FECC-II: Same as FECC-I with internal convoluted acoustic foam panel lining.

*\*SECC required.*
- LAHPC (Low Ambient Head Pressure Control). Required for Ambient Temperature Operation below +40°F.
  - LAHPC-I: +110°F (+43.3°C) to 0°F (-18°C). Includes: Sporlan head pressure control valves ORI & ORD.
  - LAHPC-II: +110°F (+43.3°C) to -20°F (-28.9°C). Includes: same as LAHPC-I plus Split condenser and Variable Speed fan on the first fan.
  - LAHPC-III\*: +110°F (+43.3°C) to -35°F (-37.2°C). Includes: same as LAHPC-II plus insulated liquid receiver with electric heater, thermally insulated compressor cabin and control panel with ventilated heating.

*\*Requires FECC-II (Fully Enclosed Compressor Cabin) package.*
- HAOP (High Ambient Operation Package) required for operation above +110°F:
  - HAOP-I: +125°F (+51.7°C) to +40°F (4.4°C), includes: control panel air extractor fan and filter for air intake.
- EMSP (External Mechanical Sub-Cooling Package):
  - EMSP-I: Includes: brazed plate sub-cooling heat exchanger, liquid and suction connection ball valve, liquid solenoid valve, sealed drier, sight glass and thermostatic expansion valve.
  - EMSP-II: same as EMSP-I except that in place of a thermostatic expansion valve is an electronic expansion valve drive and sensors.
- MDS (Main Disconnect Switch).
- Electronic Control System:
  - BACnet Communication board.
  - Remote LCD display.
  - Local or remote touch screen display.
  - Energy Management Module.
- Extended 5-year warranty on the compressor (U.S. only).

**NOMENCLATURE**



- 1. Compressors
- 2. Micro-channel condenser
- 3. Fans
- 4. Electrical control panels
- 5. Electronic control system
- 6. Liquid receiver
- 7. Suction accumulators
- 8. Oil separator
- 9. Liquid driers
- 10. Suction filters
- 11. Full enclosure (optional)



 Triple Compressors



CAPACITY CORRECTION FACTORS

Ambient Temperature in °F	60	65	70	75	80	85	90	95	100	105	110	115	120	125
Capacity Factor R-404A & R-507A	1.32	1.28	1.23	1.19	1.15	1.10	1.05	1.00	0.95	0.90	0.85	0.81	0.76	0.72
Capacity Factor R-407A & R-407C	1.29	1.25	1.21	1.17	1.12	1.08	1.04	1.00	0.97	0.92	0.87	0.83	0.79	0.75

Some limitations on models with high SST.

HAOP (High Ambient Operation Package) required for operation above +110°F

‡ Multiply capacity by .83 when used with 50 Hz power.

All capacities are calculated at 20°F return gas temperature and dew point values

## TECHNICAL DATA - APPLICATION TEMPERATURE

## DUAL SEMI-HERMETIC COMPRESSORS

R-404a

H: HIGH/MEDIUM: +45°F (+7.2°C) TO +10°F (-12.2°C) SST.

MODEL	COMPRESSOR		FAN		EVAPORATION CAPACITY MBH AT 95°F AMBIENT R-404A*								ELECTRICAL DATA 60HZ						MECHANICAL DATA									
	SIZE		QTY	BITZER MODEL	QTY	ACTYPE CFM	+45°F	+40°F	+35°F	+30°F	+25°F	+20°F	+15°F	+10°F	230 VOLT		460 VOLT		575 VOLT		LIQUID RECEIVER CAPACITY LB (KG)	CONNECTIONS				APROX. WEIGHT		FRAME
	UNIT	HP					+7.2°C	+4.4°C	+1.7°C	-1.1°C	-3.9°C	-6.7°C	-9.4°C	-12°C	COMP. RLA	SYSTEM MCA	COMP. RLA	SYSTEM MCA	COMP. RLA	SYSTEM MCA		LIQ	IN	IN	IN	IN	IN	
H-0500-D	50	2	4HE-25Y	3	43500	586.0	531.0	485.0	442.0	402.0	361.0	323.0	291.0	75.6	196.4	37.8	98.7	30.1	78.7	221.7	(101)	1 3/8	(35)	2 5/8	(67)	3,436	(1,562)	A
H-0600-D	60	2	4GE-30Y	4	58000	692.0	628.0	574.0	518.0	472.0	424.0	380.0	343.0	89.7	236.2	44.9	118.8	35.9	95.0	268	(122)	1 3/8	(35)	2 5/8	(67)	3,662	(1,665)	A
H-0660-D	66	2	6JE-33Y	4	58000	756.0	690.0	622.0	566.0	513.0	459.0	409.0	364.0	100.0	259.4	50.0	130.3	39.7	103.6	268	(122)	1 3/8	(35)	2 5/8	(67)	3,802	(1,728)	A
H-0680-D	70	2	4FE-35Y	5	72500	816.0	751.0	682.0	624.0	564.0	508.0	456.0	413.0	95.0	256.3	47.5	128.9	38.0	103.1	318.2	(145)	1 3/8	(35)	2 5/8	(67)	4,250	(1,932)	B
H-0700-D	70	2	*6HE-35Y	5	72500	880.0	806.0	728.0	664.0	598.0	542.0	485.0	433.0	105.1	279.0	52.6	140.4	41.7	111.4	346.7	(158)	1 3/8	(35)	2 5/8	(67)	4,488	(2,040)	B
H-0800-D	80	2	6GE-40Y	6	87000	1001.0	919.0	832.0	761.0	686.0	617.0	566.0	506.0	141.0	367.9	70.5	184.8	56.4	148.1	419.7	(191)	1 5/8	(41)	3 1/8	(79)	5,086	(2,312)	B
H-1000-D	100	2	6FE-50Y	7	101500	1213.0	1103.0	1012.0	916.0	827.0	752.0	675.0	604.0	143.6	381.8	71.8	192.0	57.1	153.1	523.2	(238)	1 5/8	(41)	3 1/8	(79)	5,675	(2,579)	C

"M" MEDIUM: +30°F (-1.1°C) TO -20°F (-29°C) SST.

MODEL	COMPRESSOR		FAN		EVAPORATION CAPACITY MBH AT 95°F AMBIENT R-404A*								ELECTRICAL DATA 60HZ						MECHANICAL DATA									
	SIZE		QTY	BITZER MODEL	QTY	ACTYPE CFM	+30°F	+20°F	+15°F	+5°F	0°F	-10°F	-15°F	-20°F	230 VOLT		460 VOLT		575 VOLT		LIQUID RECEIVER CAPACITY LB (KG)	CONNECTIONS				APROX. WEIGHT		FRAME
	UNIT	HP					-1.1°C	-7°C	-10°C	-15°C	-18°C	-23°C	-26°C	-29°C	COMP. RLA	SYSTEM MCA	COMP. RLA	SYSTEM MCA	COMP. RLA	SYSTEM MCA		LIQ	IN	IN	IN	IN	IN	
M-0460-D	46	2	4GE-23Y	4	58000	529.0	429.0	389.0	310.0	276.0	215.0	188.7	164.6	57.7	164.2	28.8	82.6	23.1	66.4	268	(122)	1 3/8	(35)	2 5/8	(67)	3,600	(1,636)	A
M-0500-D	50	2	6JE-25Y	4	58000	574.0	467.0	422.0	334.0	296.0	228.0	198.9	172.4	71.0	194.2	35.5	97.7	28.4	78.1	268	(122)	1 3/8	(35)	2 5/8	(67)	3,694	(1,679)	A
M-0540-D	56	2	4FE-28Y	4	58000	601.0	495.0	445.0	360.0	321.0	254.0	223.0	194.2	76.9	207.4	38.5	104.4	30.8	83.5	318	(145)	1 3/8	(35)	2 5/8	(67)	3,690	(1,677)	A
M-0560-D	56	2	6HE-28Y	5	72500	666.0	545.0	494.0	393.0	348.0	270.0	237.0	206.0	77.6	217.1	38.8	109.3	31.0	87.4	318	(145)	1 3/8	(35)	2 5/8	(67)	4,326	(1,966)	B
M-0680-D	68	2	6GE-34Y	5	72500	752.0	619.0	557.0	451.0	402.0	315.0	277.0	242.0	84.6	232.9	42.3	117.2	33.3	92.5	420	(191)	1 3/8	(35)	2 5/8	(67)	4,521	(2,055)	B
M-0880-D	88	2	6FE-44Y	6	87000	902.0	743.0	676.0	540.0	481.0	376.0	330.0	288.0	97.4	269.8	48.7	135.8	39.1	109.2	420	(191)	1 5/8	(41)	3 1/8	(79)	5,090	(2,314)	B

"L" LOW: +10°F (-12°C) TO -40°F (-40°C) SST.

MODEL	COMPRESSOR		FAN		EVAPORATION CAPACITY MBH AT 95°F AMBIENT R-404A*								ELECTRICAL DATA 60HZ						MECHANICAL DATA									
	SIZE		QTY	BITZER MODEL	QTY	ACTYPE CFM	+10°F	+5°F	0°F	-10°F	-15°F	-20°F	-30°F	-40°F	230 VOLT		460 VOLT		575 VOLT		LIQUID RECEIVER CAPACITY LB (KG)	CONNECTIONS				APROX. WEIGHT		FRAME
	UNIT	HP					-12°C	-15°C	-18°C	-23°C	-26°C	-29°C	-35°C	-40°C	COMP. RLA	SYSTEM MCA	COMP. RLA	SYSTEM MCA	COMP. RLA	SYSTEM MCA		LIQ	IN	IN	IN	IN	IN	
L-0680-D	68	2	6GE-34Y	4	58000	488.0	436.0	392.0	307.0	270.0	239.0	177.0	128.6	84.6	224.8	42.3	113.0	33.3	89.2	268	(122)	1 3/8	(35)	2 5/8	(67)	4,054	(1,843)	A
L-0880-D	88	2	6FE-44Y	4	58000	564.0	509.0	453.0	357.0	317.0	276.0	205.0	146.9	97.4	253.6	48.7	127.4	39.1	102.4	318	(145)	1 5/8	(41)	3 1/8	(79)	4,468	(2,031)	A

\*See Capacity Correction Factors on PG.3

Compressor RLA: Rated Load Amperage (RLA) estimated to the full load of the compressor RLA = Maximum Continuous Current (MCC) / 1.56  
Compressor MCC: Maximum Continuous Current (MCC) of the compressor(s)MCA: Minimum Circuit Amperage (MCA) = RLA of the largest compressor X 1.25 + SUM RLA other compressor(s) + Total FLA Fans + Control panel load  
FLA Fan: Full Load Amperage (FLA) of the fans





TECHNICAL DATA - APPLICATION TEMPERATURE

Performance based on Bitzer EcoLine Compressor

DUAL SEMI-HERMETIC COMPRESSORS



R-407a

"H" HIGH/MEDIUM: +45°F (+7.2°C) TO +10°F (-12.2°C) SST.

MODEL	COMPRESSOR		FAN		EVAPORATION CAPACITY MBH AT 95°F AMBIENT R-407A*								ELECTRICAL DATA 60HZ						MECHANICAL DATA									
	SIZE	QTY	BITZER	QTY	ACTYPE	+45°F	+40°F	+35°F	+30°F	+25°F	+20°F	+15°F	+10°F	230 VOLT		460 VOLT		575 VOLT		LIQUID RECEIVER CAPACITY		CONNECTIONS				APROX. WEIGHT		FRAME
						UNIT	HP	MODEL	CFM	+7.2°C	+4.4°C	+1.7°C	-1.1°C	-3.9°C	-6.7°C	-9.4°C	-12°C	COMP. RLA	SYSTEM MCA	COMP. RLA	SYSTEM MCA	COMP. RLA	SYSTEM MCA	LB	(KG)	LIQUID	SUCTION	
H-0500-D	50	2	4HE-25Y	3	43500	555.5	503.0	455.0	410.0	369.0	327.0	292.0	257.0	75.6	196.4	37.8	98.7	30.1	78.7	249	(113)	1 3/8	(35)	2 5/8	(67)	3,436	(1,562)	A
H-0600-D	60	2	4GE-30Y	4	58000	667.0	606.0	549.0	492.0	443.0	395.0	350.0	312.0	89.7	236.2	44.9	118.8	35.9	95.0	301	(137)	1 3/8	(35)	2 5/8	(67)	3,662	(1,665)	A
H-0660-D	66	2	6JE-33Y	4	58000	727.0	659.0	596.0	538.0	479.0	429.0	379.0	337.0	100.0	259.4	50.0	130.3	39.7	103.6	301	(137)	1 3/8	(35)	2 5/8	(67)	3,802	(1,728)	A
H-0680-D	70	2	4FE-35Y	5	72500	801.0	728.0	654.0	591.0	528.0	474.0	420.0	371.0	95.0	256.3	47.5	128.9	38.0	103.1	357	(162)	1 3/8	(35)	2 5/8	(67)	4,250	(1,932)	B
H-0700-D	70	2	6HE-35Y	5	72500	863.0	783.0	709.0	635.0	572.0	513.0	455.0	401.0	105.1	279.0	52.6	140.4	41.7	111.4	389	(177)	1 3/8	(35)	2 5/8	(67)	4,488	(2,040)	B
H-0800-D	80	2	6GE-40Y	6	87000	1001.0	909.0	817.0	738.0	665.0	592.0	524.0	467.0	141.0	367.9	70.5	184.8	56.4	148.1	471	(214)	1 5/8	(41)	3 1/8	(79)	5,086	(2,312)	B
H-1000-D	100	2	6FE-50Y	7	101500	1182.0	1083.0	972.0	871.0	784.0	705.0	624.0	556.0	143.6	381.8	71.8	192.0	57.1	153.1	587	(267)	1 5/8	(41)	3 1/8	(79)	5,675	(2,579)	C

"M" MEDIUM: +30°F (-1.1°C) TO -20°F (-29°C) SST.

MODEL	COMPRESSOR		FAN		EVAPORATION CAPACITY MBH AT 95°F AMBIENT R-407A*								ELECTRICAL DATA 60HZ						MECHANICAL DATA									
	SIZE	QTY	BITZER	QTY	ACTYPE	+30°F	+20°F	+15°F	+5°F	0°F	-10°F	-15°F	-20°F	230 VOLT		460 VOLT		575 VOLT		LIQUID RECEIVER CAPACITY		CONNECTIONS				APROX. WEIGHT		FRAME
						UNIT	HP	MODEL	CFM	-1.1°C	-7°C	-10°C	-15°C	-18°C	-23°C	-26°C	-29°C	COMP. RLA	SYSTEM MCA	COMP. RLA	SYSTEM MCA	COMP. RLA	SYSTEM MCA	LB	(KG)	LIQUID	SUCTION	
M-0460-D	46	2	4GE-23Y	4	58000	517.0	424.0	385.0	307.0	273.0	213.0	186.3	162.4	57.7	164.2	28.8	82.6	23.1	66.4	301	(137)	1 3/8	(35)	2 5/8	(67)	3,600	(1,636)	A
M-0500-D	50	2	6JE-25Y	4	58000	568.0	462.0	418.0	330.0	292.0	228.0	198.9	172.4	71.0	194.2	35.5	97.7	28.4	78.1	301	(137)	1 3/8	(35)	2 5/8	(67)	3,694	(1,679)	A
M-0540-D	56	2	4FE-28Y	4	58000	581.0	472.0	419.0	329.0	288.0	216.0	187.0	158.5	76.9	207.4	38.5	104.4	30.8	83.5	357	(162)	1 3/8	(35)	2 5/8	(67)	3,690	(1,677)	A
M-0560-D	56	2	6HE-28Y	5	72500	644.0	517.0	458.0	355.0	314.0	235.0	200.0	169.1	77.6	217.1	38.8	109.3	31.0	87.4	357	(162)	1 3/8	(35)	2 5/8	(67)	4,326	(1,966)	B
M-0680-D	68	2	6GE-34Y	5	72500	727.0	583.0	522.0	409.0	358.0	268.0	229.0	193.0	84.6	232.9	42.3	117.2	33.3	92.5	471	(214)	1 3/8	(35)	2 5/8	(67)	4,521	(2,055)	B
M-0880-D	88	2	6FE-44Y	6	87000	872.0	701.0	628.0	493.0	431.0	324.0	277.0	235.0	97.4	269.8	48.7	135.8	39.1	109.2	471	(214)	1 5/8	(41)	3 1/8	(79)	5,090	(2,314)	B

"L" LOW: +10°F (-12°C) TO -40°F (-40°C) SST.

MODEL	COMPRESSOR		FAN		EVAPORATION CAPACITY MBH AT 95°F AMBIENT R-407A*								ELECTRICAL DATA 60HZ						MECHANICAL DATA									
	SIZE	QTY	BITZER	QTY	ACTYPE	+10°F	+5°F	0°F	-10°F	-15°F	-20°F	-30°F	-40°F	230 VOLT		460 VOLT		575 VOLT		LIQUID RECEIVER CAPACITY		CONNECTIONS				APROX. WEIGHT		FRAME
						UNIT	HP	MODEL	CFM	-12°C	-15°C	-18°C	-23°C	-26°C	-29°C	-35°C	-40°C	COMP. RLA	SYSTEM MCA	COMP. RLA	SYSTEM MCA	COMP. RLA	SYSTEM MCA	LB	(KG)	LIQUID	SUCTION	
L-0680-D	68	2	6GE-34Y	4	58000	447.0	396.0	346.0	261.0	223.0	190.6	141.1	93.9	84.6	224.8	42.3	113.0	33.3	89.2	301	(137)	1 3/8	(35)	2 5/8	(67)	3,740	(1,700)	A
L-0880-D	88	2	6FE-44Y	4	58000	522.0	463.0	409.0	309.0	267.0	226.0	163.5	109.3	97.4	253.6	48.7	127.4	39.1	102.4	357	(162)	1 5/8	(41)	3 1/8	(79)	3,840	(1,745)	A

\*See Capacity Correction Factors on PG.3

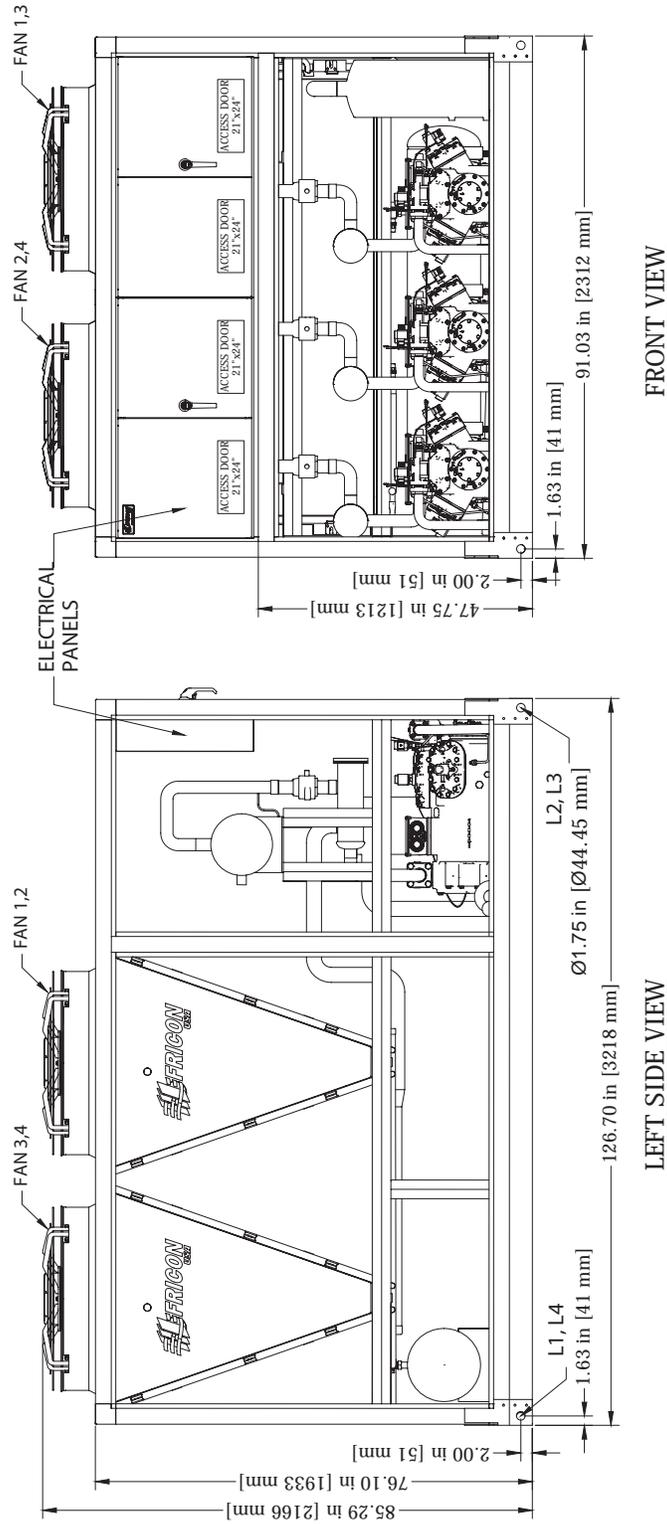
Compressor RLA: Rated Load Amperage (RLA) estimated to the full load of the compressor RLA = Maximum Continuous Current (MCC) / 1.56  
Compressor MCC: Maximum Continuous Current (MCC) of the compressor(s)

MCA: Minimum Circuit Amperage (MCA) = RLA of the largest compressor X 1.25 + SUM RLA other compressor(s) + Total FLA Fans + Control panel load  
FLA Fan: Full Load Amperage (FLA) of the fans

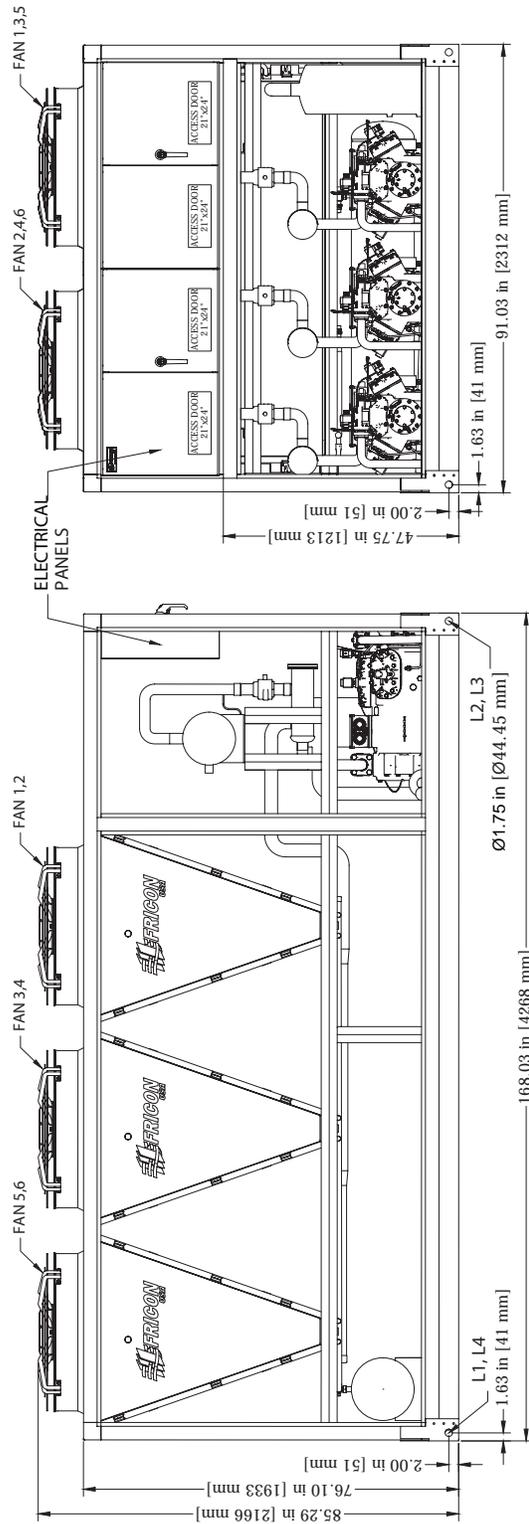


DRAWING REFERENCE

A) Dual or Triple Compressors with 3 or 4 fans (800mm)



B) Dual or Triple Compressors with 5 or 6 fans (800mm)

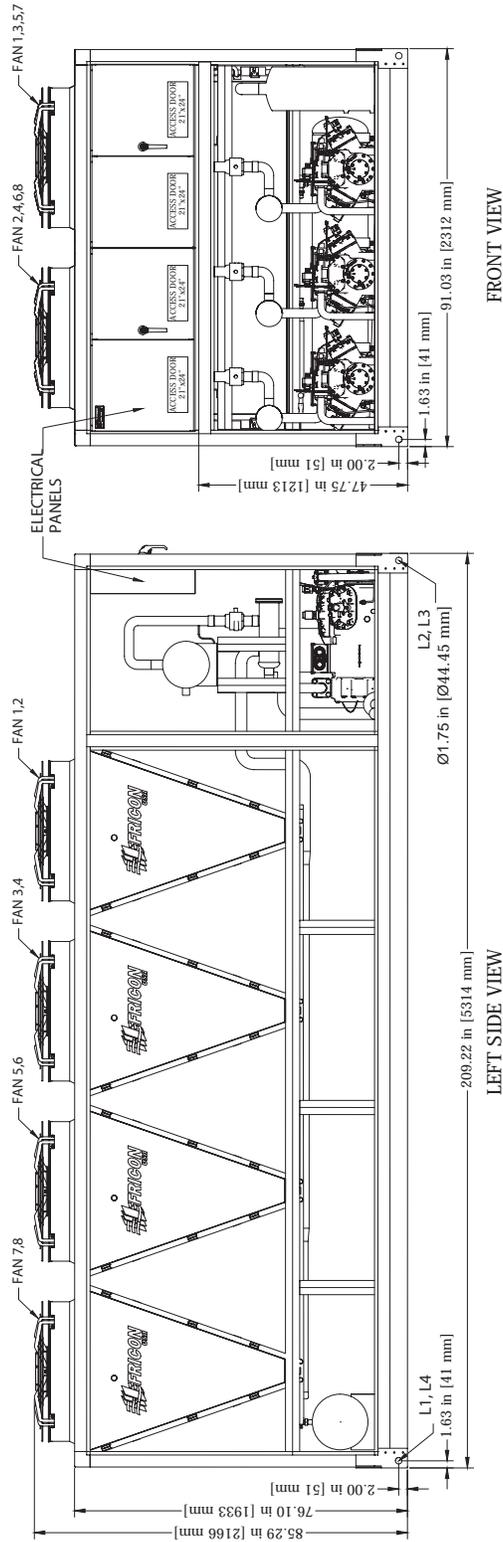


FRONT VIEW

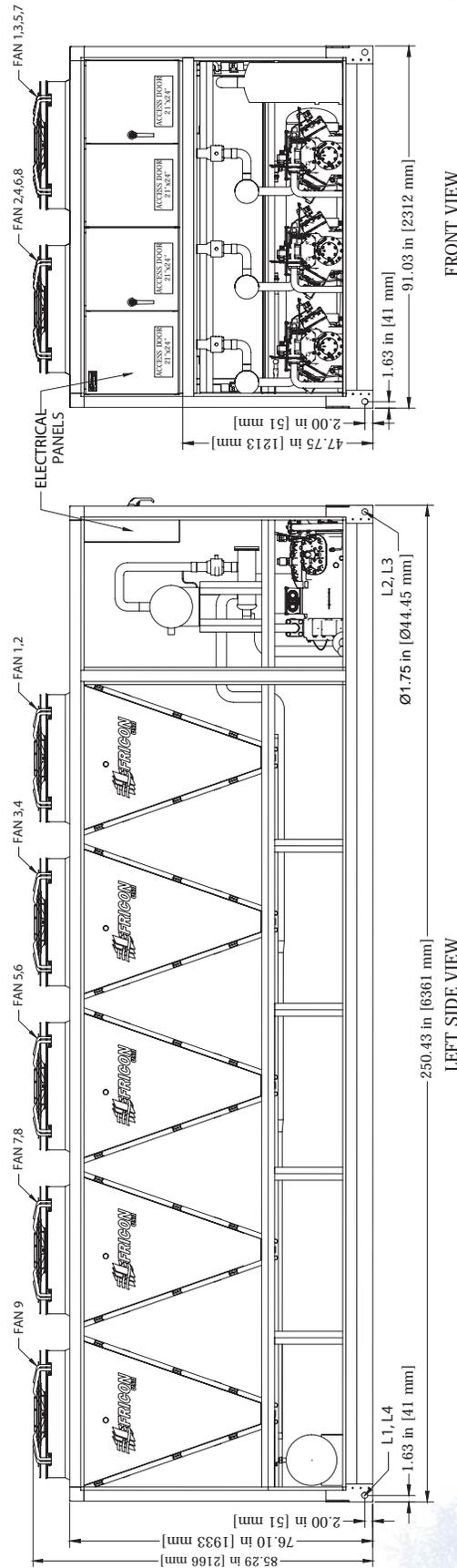
LEFT SIDE VIEW

DRAWING REFERENCE

C) Dual or Triple Compressors with 7 or 8 fans (800mm)

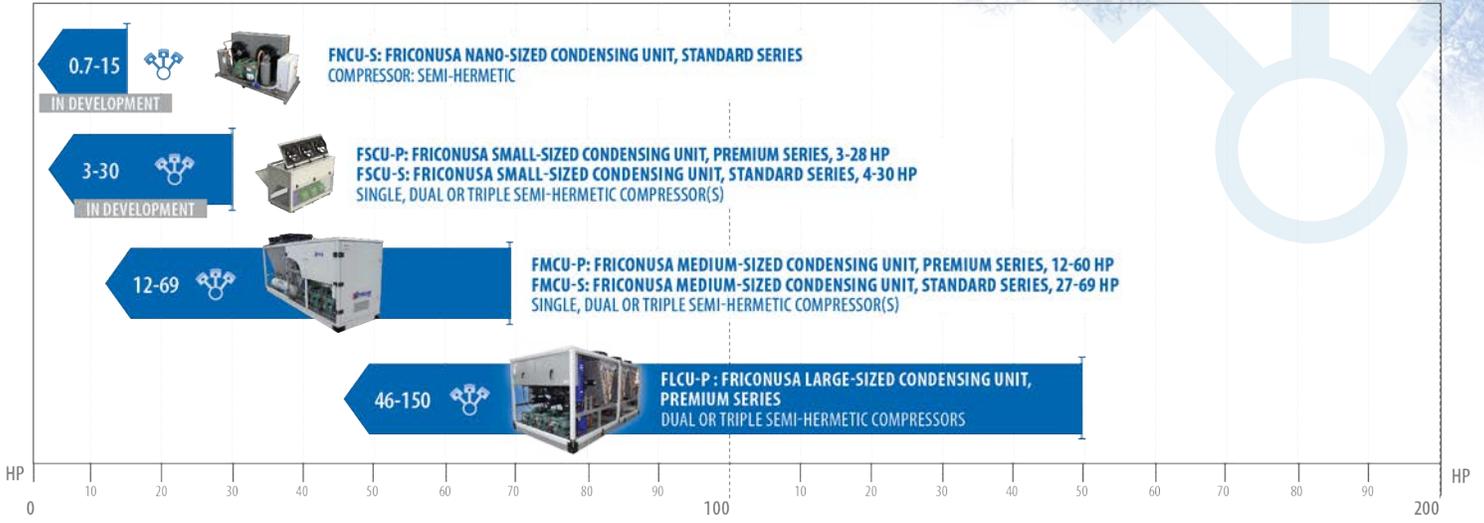


D) Dual or Triple Compressors with 9 fans (800mm)



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