

# eco<sup>3</sup> FLUID TO FLUID HEAT PUMP



# **SUBMITTAL DATA**

# eco<sup>3</sup>, ECO-4100

### Fluid-to-Fluid R-410a Heat Pump Engineering Guide Specifications

#### **General Notes:**

- a. The liquid source fluid-to-fluid heat pump shall be a single packaged non-reversing heating / cooling unit containing an internal refrigerant by water subcooling heat exchanger for preheating non potable water (such as an ice resurfacer).
- b. The unit shall be listed by a nationally recognized safety testing laboratory or agency, such as ETL. Testing shall be equal to CSA C22-2 or UL 427.
- c. The ECO-4100 liquid source fluid-to-fluid heat pump unit as manufactured by *Emerald Environmental Technologies*, shall be designed to operate with evaporator entering liquid temperatures between 10°F (-12°C) and 70°F (21°C), and condenser entering liquid temperatures between 50°F (10°C) and 110°F (43°C).
- d. The evaporator entering fluid temperature must be lower than the condenser entering fluid temperature.
- e. Each unit shall be run-tested at the factory. Each unit shall be pallet mounted and stretch wrapped for shipping.

#### **Refrigerant Circuit:**

- a. All units shall contain a sealed refrigerant circuit including a hermetically sealed scroll compressor with internal check valve, unidirectional electronically controlled thermal expansion valve assembly, two (2) stainless brazed plate fluid to refrigerant heat exchangers, factory-installed high and low pressure safety switches and service ports and a liquid line filter-drier.
- b. The refrigerant circuit shall utilize the tight closing electronic expansion valve to prevent migration of refrigerant to the evaporator when the compressor is not operating.
- c. Low-pressure lockout switch shall be automatic reset with interruption to compressor contactor power supply.
- d. High-pressure lockout switch shall be manual reset.
- e. The electronic thermal expansion valve assembly shall provide proper superheat over the liquid temperature range with minimal "hunting". The electronic thermal expansion valve shall be designed for single direction refrigerant flow. Bi-directional valves shall not be permitted.
- f. Externally mounted pressure controlled fluid regulating flow valves are not acceptable.
- g. The fluid to refrigerant evaporator and refrigerant suction lines shall be insulated with 3/4" (13mm) thick closed cell foam insulation (Armaflex) to prevent condensation at low liquid temperatures.
- h. Compressor shall be designed for refrigeration duty, with internal isolation and mounted on rubber vibration isolators. Compressor shall be manufactured with oil-sight glass.
- i. Compressor motor shall have internal motor protection and shall be three phase.

- j. Compressor shall be designed for use with R410A refrigerant. Refrigerant piping shall be connected to compressor through a vibration isolator to permit absorption of compressor vibration and start-up torque without stress on piping.
- k. Refrigerant piping shall be clamped and supported to minimize vibration and prevent stress cracking.
- I. The liquid to refrigerant heat exchangers shall be brazed plate type constructed with type 316 stainless steel plates and brazed with copper. The heat exchangers shall be designed for minimum operation from -321°F (-196°C) to 350°f (177°C), and be capable of withstanding 650 PSIG (4480kPa) working pressure on liquid and refrigerant sides. Heat exchangers shall be manufactured with built in refrigerant distributor tube with calibrated orifices to distribute gas evenly throughout heat exchanger, and be designed for use with R410A refrigerant.
- m. Each unit shall be factory run tested for a minimum of two hours under actual load conditions, including:
  - Amperage and voltage draw
  - Refrigerant Pressures
  - Sight Glass Status
  - Operation and Verification of High/Low Pressure Controls
  - Entering and Leaving Fluid Temperatures for Condenser, Evaporator and Subcooler
  - Superheat Measurement
  - Operation of Compressor Overload Protection

#### **Electrical:**

- a. Controls and safety devices will be factory wired and mounted within the unit.
- b. Controls shall include digital controller, expansion device controller for electronic EXV, user interface, compressor contactor, 24 VAC control circuit, built-in fuse protection, anti-rotation protection and voltage/loss of phase protection.
- c. Electrical circuit shall include fault light indicator light and green running indicator light on outside of cabinet, and shall include an "on-off-auto" selector switch mounted inside the heat pump cabinet.
- d. The digital controls can be provided with optional BACnet and or Modbus cards for remote BMS control.
- e. The system can be provided with a full digital control system to act as a global controller.

<b>Electrical Specifications</b>	Compressor		Total	Minimum	Maximum
			Unit	Circuit	Fuse
Voltage/Phase/Hz	RLA	LRA	FLA	Ampacity	Size
460/3/60	53.0	290	61.9	77.3	140
575/3/60	42.0	232	50.0	62.5	113

#### **Fluid Piping:**

- a. Evaporator and Condenser supply and return fluid connections shall be 2" MPT threaded fittings.
- b. Non potable water connections to the subcooling heat exchanger shall be 3/4" sweat to a provided ball valve.
- c. All Fluid piping shall be insulated by customer on site to prevent condensation at low liquid temperatures.
- d. Pressure/temperature ports shall be included on both condenser and evaporator fluid inlets and outlets.
- e. Each unit shall be factory run-tested for a minimum of two hours under actual load conditions. A copy of the run test shall include:
  - Amperage and voltage draw
  - Refrigerant pressures
  - Sight glass status
  - Operation and verification of high and low pressure controls
  - Entering and leaving fluid temperatures for condenser and evaporator
  - Superheat measurement
- f. A copy of the run-test shall be included in the installation manual shipped with the unit and a copy shall be maintained at the factory.

#### **Casing and Cabinet:**

- a. The cabinet shall be fabricated from 16 gauge polished stainless steel. The cabinet shall have removable access panels on three sides, and a hinged access door over the electrical cabinet.
- b. The interior shall be insulated with  $\frac{1}{2}$ " (13 mm) thick multi-density, coated glass fiber, with edges sealed or tucked under flanges.
- c. All units shall have 7/8" (22 mm) and 1 1/8" (29 mm) knockouts for entrance of low and high voltage wiring.
- d. Cabinet dimensions shall be less than 31" (788 mm) in width or depth to permit units to be easily moved through a standard size door.
- e. The unit shall be built on a 14 gauge stainless steel baseplate. The cabinet shall be built to allow service access to the internal components. The baseplate shall have skids to allow for forklift handling the unit and to sit the unit on the floor or mount to a stand. This design minimizes the physical space requirements of the units.

#### **Optional Mounting Rack:**

Unit(s) can be mounted on a painted welded carbon steel rack supplied by the manufacturer.

## **Warranty Information:**

Emerald Environmental Technologies has great confidence in the quality of the eco<sup>3</sup> unit and this is reflected in our warranty. The unit shall be warranted by the manufacturer against defects in materials and workmanship for a period of one (1) year from date of delivery to original purchaser-user including the compressor, condenser, evaporator and expansion valve. The stainless steel cabinet shall be warranted for life against defect in materials and workmanship, excluding damage due to rough handling, abuse, accident or casualty loss, chlorine or salt air exposure, airborne contaminants or outdoor installation. Other warranty options are available, please contact manufacturer for details.

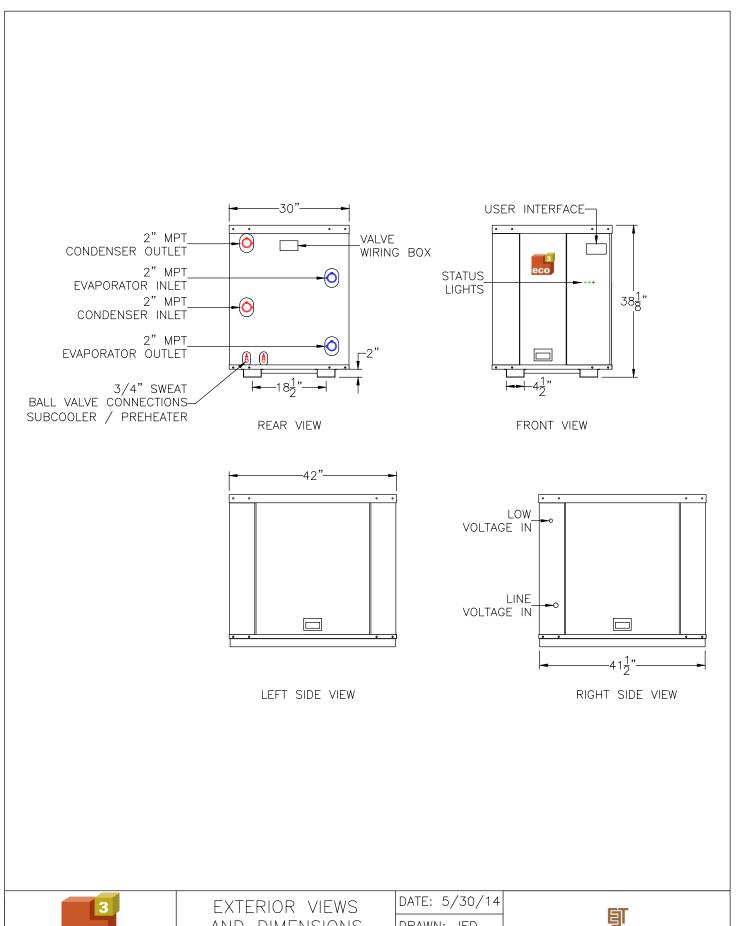
Separate   Control Hostin Performance Data   Condense   Control Hostin Performance Data   Control Hostin Pe	1	1															
Contention   Con		- 1	0-4100 Heat	Pump Performand	ce Data										<u>%</u>	ev. (2) 6/3/2	014
Triangle		Fvanorator				Condenser				Heating & Cooling	Canacity	Ι,					
FF / G   FF / G   USGPN / Intro-	_	FET	1	Flow	G	FFT	191	Flow	G	Heating Canacity	á	FFR, C	Joling Canacity	, acc	FFR,	kw.	kW/ton
89/786 809/226 100/630 138/411 538/1875 75 26 479/3376 67 223 225 225 225 225 225 225 225 225 225		(°F/°C)	(°F/°C)	USGPM / litres/s	(ft / kPa)	(°F/°C)	(°F/°C)	USGPM / litres/s	(ft / kPa)	(MBH / kW)	3		(MBH / kW)	Š	i		in fami
89/7264 6 907/322 100/630 138/411 530/1525 6 5 2 46/1238 6 5 3 124 217 5 100/327 100/372 100/373 100/630 138/411 530/1525 6 5 2 18 2 45/1230 5 8 1 100/372 100/373 100/630 138/411 521/1525 6 6 1 20 26 2 2 2 2 1 1 1 1 1 1 1 1 1 1 1 1 1 1		50.0 / 10.0	39.5 / 4.16	100 / 6.30	16.0 / 47.7	75 / 23.8	85.9 / 29.9	100 / 6.30	13.8 / 41.1	539 / 157.8	7.6	56	470 / 137.6	6.7	22.9	20.5	0.52
85/232   100/3729   100/630   138/411   531/1525   64   128   431/1225   53   126   231   120/632   138/411   531/1525   64   128   431/1225   53   125   120/632   138/411   531/1432   65   25   431/1408   64   52   128   231   120/632   138/411   531/1432   65   25   431/1408   64   52   23   138   138/411   531/1432   65   25   431/1408   64   52   23   23   23   23   23   23   23		50.0 / 10.0	39.6 / 4.22	100 / 6.30	16.0 / 47.7	80 / 26.6	90.7 / 32.6	100 / 6.30	13.8 / 41.1	538 / 157.5	7.3	25	464 / 135.8	6.3	21.4	21.7	0.56
99/322 1003/1932 1006/630 138/411 521/1525 66 20 26 429/1244 499 1166 256 1100/327 1006/630 138/411 521/1526 66 20 26 425/1244 499 166 256 1100/327 100/630 138/411 521/1526 86 29 20 435/1244 499 166 256 126 126 126 126 126 126 126 126 126 12		50.0 / 10.0	39.9 / 4.38	100 / 6.30	16.0 / 47.7	85 / 29.4	95.4 / 35.2	100 / 6.30	13.8 / 41.1	530 / 155.1	6.7	23	451 / 132.0	5.8	19.6	23	0.61
95/35         100/630         138/411         55/1439         55         86         26         45/17444         49         156         55           100/377         1009 432         100/630         138/411         56/14642         86         26/2         48/1408         67         128         208           75/238         66/903         138/411         56/14642         86         26/2         48/1408         67         128         708           86/266         910/327         100/630         138/411         56/14642         86         26/2         48/1408         67         228         208           96/322         100/630         138/411         550/1626         56         26         48/1408         56         26         26         48/1408         56         26         26         46/1435         56         26	_	50.0 / 10.0	40.1 / 4.5	100 / 6.30	16.0 / 47.7	90 / 32.2	100.3 / 37.9	100 / 6.30	13.8 / 41.1	521 / 152.5	6.4	21.8	439 / 128.5	5.3	18.2	24.1	99'0
\$100   \$200   \$100   \$100	_	50.0 / 10.0	40.5 / 4.72	100 / 6.30	16.0 / 47.7		105.1 / 40.6	100 / 6.30	13.8 / 41.1	512 / 149.9	0.9	50.6	425 / 124.4	4.9	16.6	25.6	0.72
86 / 75	_	50.0 / 10.0	40.8 / 4.88	100 / 6.30	16.0 / 47.7		109.9 / 43.2	100 / 6.30	13.8 / 41.1	505 / 147.8	5.5	18.7	412 / 120.6	4.5	15.2	27.1	0.79
85/294 95.9/355 100/630 138/411 556/1616 7 25 25 45 130 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2		53.0 / 11.66	42.2 / 5.66	100 / 6.30	15.9 / 47.4	75 / 23.8	86.6 / 30.3	100 / 6.30	13.8 / 41.1	561 / 164.2	8.6	29.2	481 / 140.8	6.7	22.8	20.8	0.51
80/324         35.54         35.55         35.5         100.6 330         138 /41.1         356/151.0         24         466/1364         5.9         20.2         33.3           90/322         100.6/38.1         110.0/6.30         138 /41.1         356/159.5         6.6         453/135.5         5.6         19.2         23.3           95/32         100.6/38.1         100/6.30         138 /41.1         357/157.2         6.2         2.1         450/131.7         5.1         176         25.6           95/32         100.6/37.1         100.8         33.8 /41.1         357/157.43         5.2         18         501/139.3         7.1         24.7           75/23.8         86.6/30.2         100.6.30         13.8 /41.1         556/161.0         7.6         2.6         489/147.3         6.0         2.2           80/26.6         91.4/33.0         100.6.30         13.8 /41.1         556/161.0         7.6         489/147.3         6.0         2.2         480/143.3         7.1         24.7           80/26.5         100.9/39.1         13.8 /41.1         556/162.5         6.0         2.6         469/143.3         7.1         17.6         2.2         3.2         3.2         3.2         3.2         3.2		53.0 / 11.66	42.3 / 5.72	100 / 6.30	15.9 / 47.4	80 / 26.6	91.0 / 32.7	100 / 6.30	13.8 / 41.1	552 / 161.6	7.5	25.5	475 / 139.0	6.4	21.7	22	0.55
99/325 1056/408 1 100/630 138/41.1 545/1595 66 222 450/1317 5.1 176 5 170/630 138/41.1 545/1592 6.2 21 21 206/1317 5.1 176 5 170/630 138/41.1 527/1343 5.7 196 434/127 6.2 21 176 5 172 6 173 6		53.0 / 11.66	42.5 / 5.83	100 / 6.30	15.9 / 47.4	85 / 29.4	95.9 / 35.5	100 / 6.30	13.8 / 41.1	550 / 161.0	7.0	24	466 / 136.4	5.9	20.2	23.3	9.0
95/328 1056/40.8 100/630 138/411 537/1343 5.2 136 434/1270 4.7 1106/377 108/433 100/630 138/411 572/1343 5.2 136 434/1270 4.7 160 2.2 100/371 108/433 100/630 138/411 572/1363 5.2 136 434/1270 4.7 160 2.2 136 5.2 13	_	53.0 / 11.66	42.8 / 6.0	100 / 6.30	15.9 / 47.4	90 / 32.2	100.6 / 38.1	100 / 6.30	13.8 / 41.1	545 / 159.5	9.9	22.6	463 / 135.5	5.6	19.2	24.1	0.62
100/377   1098   432   210 / 630   138   411   527 / 1564   527   1568   156   272   157   1588   565   323   157   1588   586 / 586   1518   1588   1518   1588   1518   1588   1518   1588   1518   1588		53.0 / 11.66	42.9 / 6.05	100 / 6.30	15.9 / 47.4	95 / 35	105.6 / 40.8	100 / 6.30	13.8 / 41.1	537 / 157.2	6.2	21	450 / 131.7	5.1	17.6	25.6	0.68
10   10   10   10   10   10   10   10		53.0 / 11.66	43.3 / 6.27	100 / 6.30	15.9 / 47.4		109.8 / 43.2	100 / 6.30	13.8 / 41.1	527 / 154.3	5.7	19.6	434 / 127.0	4.7	16.0	27.2	0.75
80   266   914   330   100   630   138   411   566   1610   056   205	_	55.0 / 12.77	43.8 / 6.66	100 / 6.30	15.8 / 45.4	75 / 23.8	86.6 / 30.2	100 / 6.30	13.8 / 41.1	572 / 160.1	8.2	28	501 / 139.3	7.1	24.1	20.8	0.49
85/294 96.1/36.3 100/6.30 13.8/41.1 559/161.9 70 24 480/1405 6.0 20.5 23.3 29/23.2 100/9/39.1 100/6.30 13.8/41.1 550/162.5 6.6 2.6 467/137.9 5.6 13.1 24.7 20/0.37 100/37.1 100/6.30 13.8/41.1 533/164.2 5.0 10.6 440/136.1 4.7 16.2 27.2 100/37.1 100/37.2 100/6.30 13.8/41.1 533/164.2 5.0 10.6 440/136.1 4.7 16.2 27.2 100/37.2 100/6.30 13.8/41.1 533/164.2 5.0 10.6 440/136.1 4.7 16.2 27.2 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0	_	55.0 / 12.77	44.2 / 6.77	100 / 6.30	15.8 / 45.4	80 / 26.6	91.4 / 33.0	100 / 6.30	13.8 / 41.1	568 / 161.0	7.6	56	493 / 144.3	6.5	22.3	22.1	0.53
90/322   1009/331   1000/630   138/41.1   550/1625   66   226   467/1379   5.6   191   247   247   267   2	_	55.0 / 12.77	44.3 / 6.83	100 / 6.30	15.8 / 45.4	85 / 29.4	96.1/36.3	100 / 6.30	13.8 / 41.1	559 / 161.9	7.0	24	480 / 140.5	6.0	20.5	23.3	0.58
100/317   100/21436   100/6.30   13.8 / 41.1   543 / 163.5   5.7   19.6   449 / 136.1   5.2   17.5   26.2   100/6.30   13.8 / 41.1   533 / 164.2   5.7   19.6   440 / 136.1   4.7   16.2   27.2   110.0 / 23.7   110.0 / 23.0   110.0		55.0 / 12.77	44.5 / 6.88	100 / 6.30	15.8 / 45.4	90 / 32.2	100.9 / 39.1	100 / 6.30	13.8 / 41.1	550 / 162.5	9.9	22.6	467 / 137.9	5.6	19.1	24.7	69.0
100 / 37.7   110.5 / 43.6   100 / 6.30   13.8 / 41.1   533 / 154.2   5.7   19.6   440 / 136.1   4.7   16.2   27.2     Furthe test fluid: Multipliers for other fluids are as follows:   Further consumed fluid temperature: 85 deg. F   Condenser assumed fluid temperature: 85 deg. F		55.0 / 12.77	44.8 / 6.94	100 / 6.30	15.8 / 45.4	95 / 35	105.7 / 41.9	100 / 6.30	13.8 / 41.1	542/163.6	6.0	50.6	453 / 137.3	5.1	17.5	26.2	69.0
Evaporator assumed fluid temperature: 55 deg. F         Condenser assumed fluid temperature: 55 deg. F         Condenser assumed fluid temperature: 85 deg. F         ERT       LRT       Flow       PD       Heating Capacity         ERT       LB/H       (PSI / kPa)       (MBH / kW)         95/35       72.3/22.3       3.146       0.922 / 6.35       29.9 / 8.75         100/37.7       77.6/25.3       3.02       29.9 / 8.75         105/40.5       83 / 28.3       3.098       0.916 / 6.31       29.9 / 8.75         105/40.5       83 / 28.3       3.098       0.916 / 6.31       29.9 / 8.75         105/40.5       81.1/27.2       5764       3.07 / 21.1       54.0 / 15.8         5/de-2       81.1/27.2       5744       3.05 / 21.0       54.0 / 15.8		55.0 / 12.77	45.1 / 7.55	100 / 6.30	15.8 / 45.4	100/37.7	110.5 / 43.6	100 / 6.30	13.8 / 41.1	533 / 164.2	5.7	19.6	440 / 136.1	4.7	16.2	27.2	0.74
Refrigerant Side   Facility Condenser assumed fluid temperature: 85 deg. F   Condenser assumed fluid temperature: 85 deg. F   Condenser assumed fluid temperature: 85 deg. F   Facility Condenser assumed fluid temperature: 85 deg. Facility Condense		Pressure drop	is shown in feet c	of head, using 35% Eth)	vlene Glycol as	the test fluir	d. Multipliers fc	or other fluids are as	: follows:								
Refrigerant Side   Flow   PD   Heating Capacity		Water			0.96				ı								
Condenser assumed fluid temperature: 83 deg. r         Refrigerant Side         ERT       Flow       PD       Heating Capacity         (*F/*C)       (*F/*C)       (B/H)       (PSI / kPa)       (MBH / kW)         95 / 35       72.3 / 22.3       3146       0.922 / 6.35       29.9 / 8.75         100 / 37.7       77.6 / 25.3       3122       0.918 / 6.32       29.9 / 8.75         105 / 40.5       83 / 28.3       3098       0.916 / 6.31       29.9 / 8.75         95 / 35       70.2 / 21.2       5788       3.10 / 21.3       54.0 / 15.8         100 / 37.7       75.7 / 24.2       5766       3.07 / 21.1       54.0 / 15.8         105 / 40.5       81.1 / 27.2       5744       3.05 / 21.0       54.0 / 15.8		40% Ethylene (	Glycol		1.01	Evaporator	assumed fluid t	emperature: 55 de <u>c</u>	7. T								
Refrigerant Side         FD         Heating Capacity           ERT         LRT         Flow         PD         Heating Capacity           (**F,*C)         (**F,*C)         LB/H         (*PSI / kPa)         (*MBH / kWy)           95 / 35         72.3 / 22.3         3.146         0.922 / 6.35         29.9 / 8.75           100 / 37.7         77.6 / 25.3         3.122         0.918 / 6.32         29.9 / 8.75           105 / 40.5         83 / 28.3         3.098         0.916 / 6.31         29.9 / 8.75           100 / 37.7         75.7 / 24.2         5788         3.07 / 21.1         54.0 / 15.8           100 / 37.7         75.7 / 24.2         5744         3.05 / 21.0         54.0 / 15.8           5/de-2         81.1 / 27.2         5744         3.05 / 21.0         54.0 / 15.8		40% Propylene	Glycol		0.99	Condenser	issumed jiuid te	emperature: 85 deg			7						
Refrigerant Side           ET         Flow         PD         Heating Capacity           (*F/°C)         (*F/°C)         LB/H         (PSI / kPa)         (MBH / kW)           95/35         72.3/22.3         3146         0.922 / 6.35         29.9 / 8.75           100/37.7         77.6/25.3         3122         0.918 / 6.32         29.9 / 8.75           105/40.5         83 / 28.3         3098         0.916 / 6.31         29.9 / 8.75           95/35         70.2/21.2         5788         3.00 / 21.3         54.0 / 15.8           100/37.7         75.7/24.2         5766         3.07 / 21.1         54.0 / 15.8           105/40.5         81.1/27.2         5744         3.05 / 21.0         54.0 / 15.8           5ide-2         3.05/21.0         54.0 / 15.8         3.05 / 21.0         54.0 / 15.8											_						
LFT         Flow         PD         Refigerant side         PD         Heating Capacity           ("F,"C]         USGPM/litres/s         (ft/kPa)         ("F,"C]         ("F,"C]         ("B/H)         (WBH/kW)           5         90/32.2         2.0/0.126         0.27/0.82         95/35         72.3/22.3         3146         0.922/6.35         29.9/8.75           5         90/32.2         2.0/0.126         0.27/0.82         100/37.7         776/25.3         3122         0.918 /6.32         29.9/8.75           5         90/32.2         2.0/0.126         0.27/0.82         105/40.5         83/28.3         3098         0.916/6.31         29.9/8.75           5         90/32.2         3.0/0.18         0.58/1.75         105/40.5         83/28.3         3098         0.916/6.31         29.9/8.75           90/32.2         3.0/0.18         0.58/1.75         100/37.7         75.7/24.2         5786         3.07/21.1         54.0/15.8           90/32.2         3.0/0.18         0.58/1.75         105/40.5         81.1/27.2         5744         3.05/21.0         54.0/15.8		Non Potable W	Vater Preneater /	/ Kerrigerant Subcoolei	r Pertormance						_						
tT         LRT         Flow         PD         Heating Capacity           f*C         (*F /*C)         LB/H         (PSI / kPa)         (MBH / kW)           f35         72.3 / 22.3         3146         0.92 / 6.35         29.9 / 8.75           37.7         77.6 / 25.3         3122         0.918 / 6.32         29.9 / 8.75           40.5         31.2         0.916 / 6.31         29.9 / 8.75           37.7         77.6 / 25.3         3098         0.916 / 6.31         29.9 / 8.75           38.         70.2 / 21.2         5788         3.00 / 21.3         54.0 / 15.8           40.5         81.1 / 27.2         5744         3.05 / 21.0         54.0 / 15.8	_	water side				Reirigerant					_						
(15)   (*F/°C)		EWT	15	Flow	DO :	ERT	LRT	Flow	OD :	Heating Capacity	_						
735 72.3 72.4 6.35 29.9 f 8.75 37.7 77.6 f 25.3 3122 0.918 f 6.32 29.9 f 8.75 37.7 77.6 f 6.31 29.9 f 8.75 39.8 0.916 f 6.31 29.9 f 8.75 39.7 77.6 f 6.31 29.9 f 8.75 39.7 75.7 f 24.2 5766 3.07 f 21.1 54.0 f 15.8 37.7 75.7 f 24.2 5766 3.07 f 21.1 54.0 f 15.8 40.5 81.1 f 27.2 5744 3.05 f 21.0 54.0 f 15.8 54.0 f 15.0 f	_	(°F/°C)	(°F/°C)	USGPM / litres/s	(ft / kPa)	(°F/°C)	(°F/°C)	Н/81	(PSI / kPa)	(MBH / kW)	- 1						
37.7     77.6/25.3     3122     0.918/6.32     29.9/8.75       40.5     83/28.3     3098     0.916/6.31     29.9/8.75       43     70.2/21.2     5788     3.01/21.3     54.0/15.8       37.7     75.7/24.2     5766     3.07/21.1     54.0/15.8       40.5     81.1/27.2     5744     3.05/21.0     54.0/15.8		60 / 15.55	90 / 32.2	2.0 / 0.126	0.27 / 0.82	95 / 35	72.3 / 22.3	3146	0.922 / 6.35	29.9 / 8.75	20° EF	, Retrige	ration Duty				
40.5     83 / 28.3     3098     0.916 / 6.31     29.9 / 8.75       /35     70.2 / 21.2     5788     3.10 / 21.3     54.0 / 15.8       37.7     75.7 / 24.2     5766     3.07 / 21.1     54.0 / 15.8       40.5     81.1 / 27.2     5744     3.05 / 21.0     54.0 / 15.8	_	60 / 15.55	90 / 32.2	2.0 / 0.126	0.27 / 0.82	100/37.7	77.6 / 25.3	3122	0.918 / 6.32	29.9 / 8.75		ſ, Refrige	ration Duty				
35   70.2 / 21.2   5788   3.10 / 21.3   54.0 / 15.8   37.7   75.7 / 24.2   5766   3.07 / 21.1   54.0 / 15.8   40.5   81.1 / 27.2   5744   3.05 / 21.0   54.0 / 15.8	_	60 / 15.55	90 / 32.2	2.0 / 0.126	0.27 / 0.82	105 / 40.5	83 / 28.3	3098	0.916 / 6.31	29.9 / 8.75		ſ, Refrige	ration Duty				
37.7     75.7 / 24.2     5766     3.07 / 21.1     54.0 / 15.8       40.5     81.1 / 27.2     5744     3.05 / 21.0     54.0 / 15.8	_	50 / 10	90 / 32.2	3.0 / 0.18	0.58 / 1.75	95 / 35	70.2 / 21.2	5788	3.10 / 21.3	54.0 / 15.8	55° EF	r, Air Cor	ditioning Duty				
40.5     81.1/27.2     5744     3.05/21.0     54.0/15.8	_	50 / 10	90 / 32.2	3.0 / 0.18	0.58 / 1.75		75.7 / 24.2	9925	3.07 / 21.1	54.0 / 15.8	55° EF	r, Air Cor	ditioning Duty				
Performance Calculated with using R-410A on Side-1 and Water on Side-2	_	50 / 10	90 / 32.2	3.0 / 0.18	0.58 / 1.75	105 / 40.5	81.1 / 27.2	5744	3.05 / 21.0	54.0 / 15.8	55° EF	, Air Cor	ditioning Duty				
		Performance C	alculated with u	sing R-410A on Side-1	and Water on						1						
	_																



DATA MODEL: ECO-4100 DRAWN: JED

REV: 1



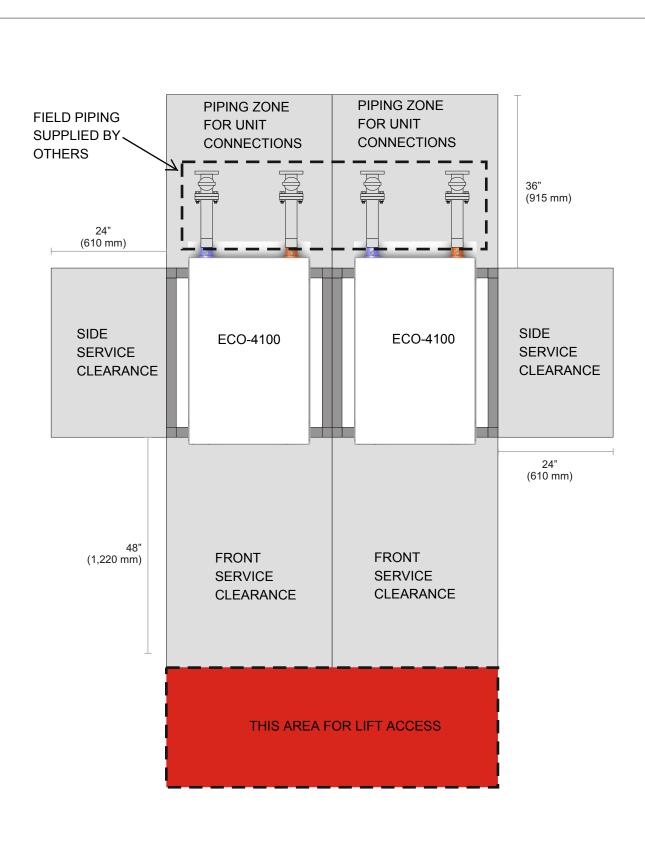




AND DIMENSIONS MODEL: ECO-4100 DRAWN: JED

REV: 1



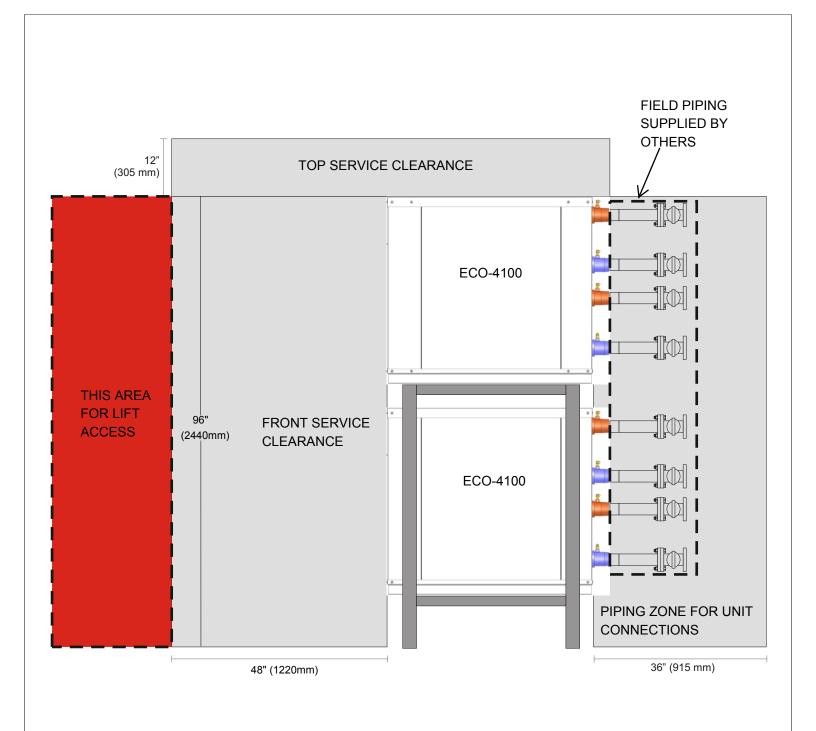




MINIMUM CLEARANCE REQUIREMENTS MODEL: ECO-4100

DATE: 5/30/14	
DRAWN: J.E.D.	
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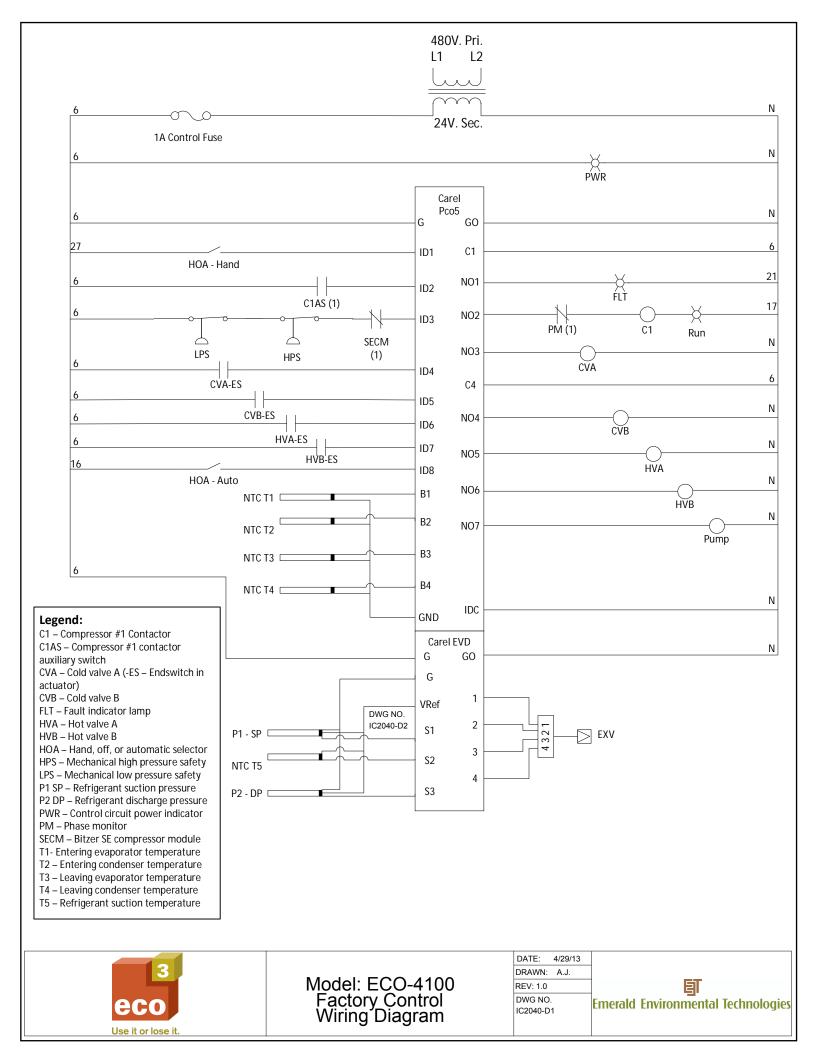


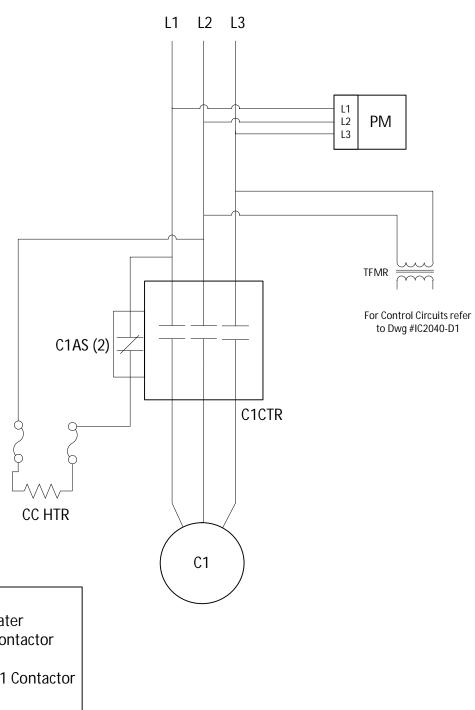
# Side view



MINIMUM CLEARANCE REQUIREMENTS MODEL: ECO-4100

DATE: 5/30/14			
DRAWN: J.E.D.			
REV: 1		訂	
	Emerald	Environmental	<b>Technologies</b>
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CC Htr- Crankcase Heater

C1AS – Compressor Contactor

**Auxiliary Switch** 

C1CTR- Compressor #1 Contactor

C1 – Compressor #1

PM - Phase Monitor

TFMR - Transformer



Model: ECO-4100 Factory Line Voltage Wiring Diagram

DATE: 5/30/14	Γ
DRAWN: A.J.	l
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IC2040-D2	ľ

