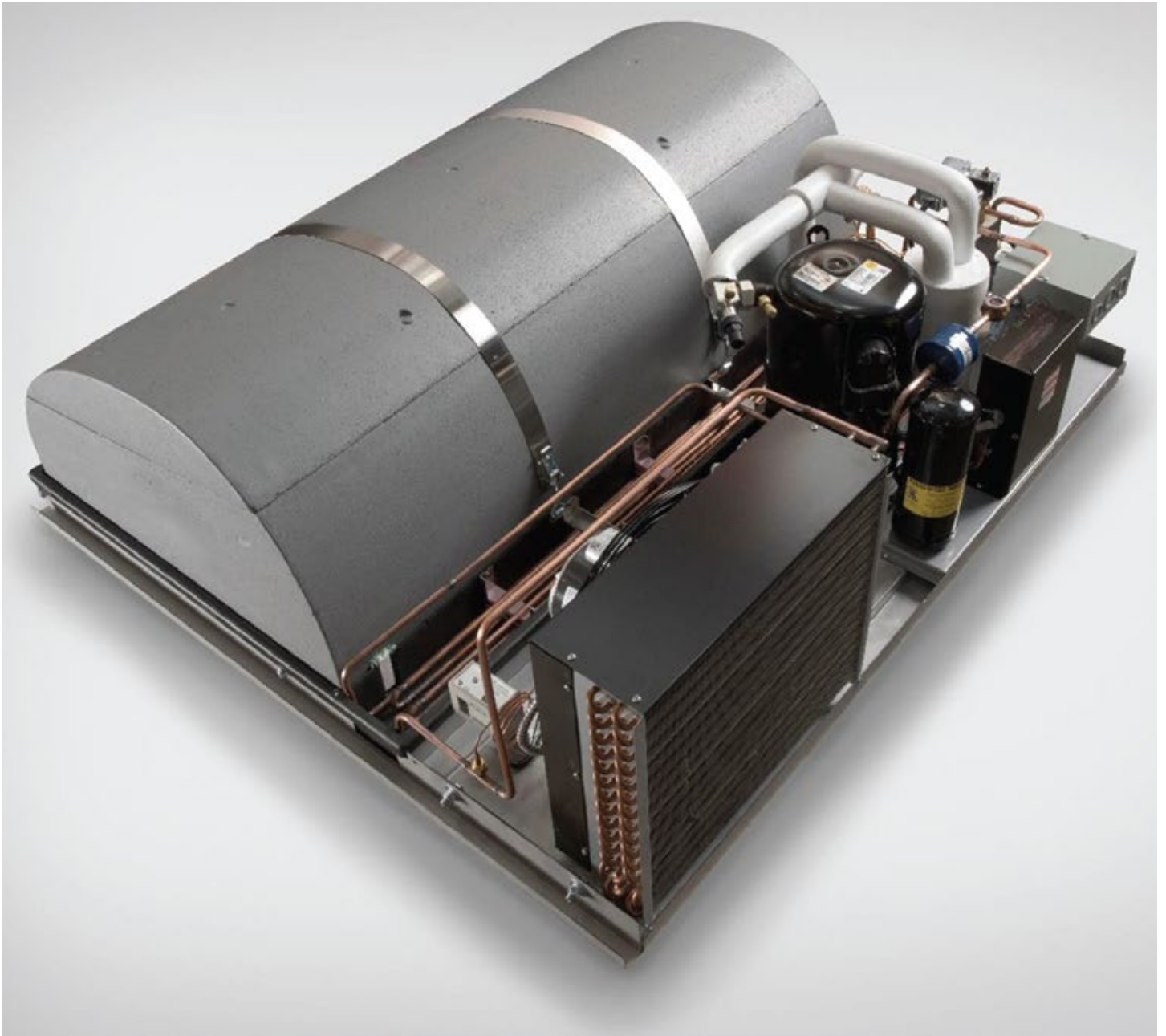


# FARRAR™ ECOFLEX DATA SHEET



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# 1 NOMENCLATURE

PRODUCT LINE	APPLICATION RANGE	BTU CAPACITY	VOLTAGE	PACKAGE LOCATION	EVAPORATOR MOTORS	CONDENSER	VENTILATION	COATED EVAPORATOR COIL
EF	VS	12	1	P	E	A	1	1
EcoFlex	VS = Variable Speed	12 = 12,000 17 = 17,000	1 = 208/1/60 2 = 208/3/60	P = Package Unit	E = ECM Variable Speed P = PSC fixed speed	A = Air-Cooled W = Water-Cooled	1 = Fresh air option selected 0 = No / Not required	1 = Phenolic coated evaporator selected 0 = No / Not required

# 2 SUMMARY & FEATURES

- 2.1

FARRAR™ has developed a prepackaged refrigeration unit designed specifically for critical environmental room applications. We have eliminated traditional ceiling-mounted cooling coils and associated drain lines.

The FARRAR EcoFlex unit is a low-profile, light-weight, self-contained, top-mounted refrigeration system designed specifically for environmental rooms, and is available in freezer and dual cooler/incubator applications. Ideal for redundant system applications, the FARRAR EcoFlex unit offers more features and benefits than a standard built-up refrigeration system.
- 2.2

Features and Benefits

**Ready to use:** The quiet, compact FARRAR™ EcoFlex refrigeration system is factory-acceptance tested, charged, and operational before arrival. Traditional systems typically need to be assembled onsite and put in place by specialized refrigeration trades, risking refrigerant-piping leaks, and electrical-wiring mistakes.

**Easy to install:** Units in stock for quick installation. Lightweight construction and intuitive design enable quick installation and fast connection to the standard control panel. Units are available in different voltages to suit the exact site needs.

**Easy to operate:** The simple setpoint allows a standard unit to operate in a full range of +4°C up to +37°C. No electric heaters needed for incubator mode.

**Energy efficient:** FARRAR EcoFlex is up to 50 percent more energy efficient in standard use vs. traditional environmental rooms, dependent on loading.

**Flexible and reusable:** The environmental room’s modular approach enables the equipment to be redeployed after room modifications or relocation.

**Secure:** All service and maintenance can be completed outside the environmental chamber so that stored, valuable product remains untouched and undisturbed.

**No wasted space:** Since refrigeration is added to the top of the unit, the EcoFlex provides 100 percent usable volume, maximizing storage space.

**Designed for sustainability:** LEED-driven design with sustainability in mind, the energy-efficient, variable speed, refrigeration system requires only 6lbs of R448a refrigerant, the latest low GWP, non-flammable refrigerant. The factory-brazed, charged, and tested unit reduces the risk of environmentally harmful leaks.

**Easily accessible replacement parts and service:** Available as air-cooled or water-cooled modules, all units are assembled in North America with quick-ship replacement parts available. Solutions are serviceable across the United States and Canada.

2.3 Optional Features

- EC Motors
- Low sound pressure evaporator fans
- Humidifier/dehumidifier
- Ventilation
- Chemically treated cooling coil
- Defrost clock
- Fresh air-cooling module (Dedicated cooling coil designed to pre-chill and dehumidify the fresh makeup air to the room)
- Split system design (Remote condensing unit)
- Coated coil for corrosion resistance
- Additional units to provide N+1 redundancy
- Dual water-cooled condenser coils for redundancy
- Manufactured in air or water-cooled with optional city water backup

3 PERFORMANCE DATA CHART BELOW

3.1 FARRAR™ EcoFlex Performance

3.1.1 Scroll Digital Compressors. High Efficiency for Modulated Refrigeration Applications

MODEL: EFVSxx1PExxx

Compressor Model	Refrigerant	Displacement	Capacity (Btu/hr)	EER (Btu/W- hr)	Length	Width	Height	Weight
Low Temperature (Data @ -25/105/90/0/90)								
ZFD13KVE	R-448A	412.4 CFM / 194.6 L/s	20200	5.80	11.83 in / 30.05 cm	11.79 in / 29.94 cm	19.46 in / 49.42 cm	85.0 lbs / 38.6 kg
ZFD18KVE	R-448A	727.0 CFM / 343.1 L/s	29200	5.90	9.67 in / 24.56 cm	9.67 in / 24.56 cm	18.94 / 48.11 cm	95.0 lbs / 43.1 kg
ZFD25KVE	R-448A	911.5 CFM / 430.2 L/s	35500	5.95	11.83 in / 30.05 cm	11.79 in / 29.94 cm	19.44 in / 49.38 cm	95.0 lbs / 43.1 kg

Compressor Model	Refrigerant	Displacement	Capacity (Btu/hr)	EER (Btu/W- hr)	Length	Width	Height	Weight
Medium Temperature (Data @ 20/120/45/0/90)								
ZBD21KCE	R-448A	355.7 CFM / 167.9 L/s	22500	7.10	9.57 in / 24.31 cm	9.57 in / 24.31 cm	17.03 in / 43.26 cm	66.5 lbs / 30.2 kgs
ZBD28KCE	R-448A	602.5 CFM / 284.3 L/s	22900	7.85	9.48 in / 24.08 cm	9.70 in / 24.64 cm	19.46 in / 49.43 cm	88.0 lbs / 39.9 kgs
ZBD30KCE	R-448A	497.8 CFM / 234.9 L/s	30500	7.40	9.48 in / 24.08 cm	9.70 in / 24.64 cm	18.96 in / 48.16 cm	81.0 lbs / 36.7 kgs
ZBD38KCE	R-448A	612.5 CFM / 289.1 L/s	37400	7.30	9.67 in / 24.56 cm	9.67 in / 24.56 cm	18.94 / 48.11 cm	84.0 lbs / 38.1 kgs
ZBD38KCP	R-448A	612.5 CFM / 289.1 L/s	37400	7.30	9.67 in / 24.56 cm	9.67 in / 24.56 cm	19.44 in / 49.38 cm	84.0 lbs / 38.1 kgs
ZBD45KCE	R-448A	727.1 CFM / 343.2 L/s	44300	7.00	9.67 in / 24.56 cm	9.67 in / 24.56 cm	18.94 / 48.11 cm	88.0 lbs / 39.9 kgs
ZBD49KCP	R-448A	572.4 CFM / 270.1 L/s	47700	7.15	9.39 in / 23.85 cm	9.64 in / 24.49 cm	18.99 in / 48.23 cm	89.9 lbs / 40.8 kgs

## 3.2 Additional Performance Data

### 3.2.1 FARRAR Power Consumption Test. \ Annual Upkeep Cost with Standard Compressor

Average Hourly Consumption: 2.3 kWh

Average Yearly Power Consumption: 19856 kWh

### 3.2.2 Sound Level Results of FARRAR™ EcoFlex

**Table 1 – Six test points 1.5m / 4.9ft above floor**

1/3 Octave freq. HZ	T1 dB	T2 dB	Octave dB	T3 dB	T4 dB	T5 dB	Octave dB	T6 dB	OB <sub>r</sub> dB
Overall dBA	63.4	63		60.8	63.5	62.7		62.1	

**Table 2 – Other test points**

1/3 Octave centre freq. Hz	T7 dB	T7 Above Machine with purge running dB	In front of door dB	Inside Chamber dB
Overall dBA	65.5	72.2	58.4	79.4

## 4 CONNECTION REQUIREMENTS

### 4.1 • Power (V, MCA, MOP, Amps)

1 = 208/1/60  
 2 = 208/3/60  
 MCA, 12 Amps  
 MOP, 10 or 20 Amps

### 4.2 • Condenser (Water, Pipe size, Flow, Temperature, Pressure drops)

Edwards Coil above Model – H-2

Copper Tubing Connections			
Refrigerant		Water	
Tube Size	Wall	Tube Size	Wall
3/8”ID / 9.525mm ID	0.028” / 0.7112mm	5/8” OD / 15.875mm OD	0.028” / 0.7112mm

FARRAR EcoFlex Chilled Water Requirements (Water-Cooled)						
Chilled Water	Min. Inlet Water	Max. Water Inlet Pressure	Max. Water Regulating Valve and Combined Condenser Pressure Drop	Supply Water Connection	Return Water Connection	Drain Line Connection
1.5 USPM Per System @Approx 4.0C Inlet Water Temp Min	20 PSIG	150 PSIG	10 PSIG	1/2” (Sweat) (12.7mm)	1/2” (Sweat) (12.7mm)	1/2” NPT (12.7mm)

### 4.3 • Drain: NPT Connection ½” ID / 12.7mm, NPT.

### 4.4 • Ventilation Total Air Flow: 50 CFM or 23.6 L/s Max Dry Bulb: 95°F or 35°C Max Wet Bulb: 80°F or 26.67°C

## 5 REFRIGERANT

R448A, 6lbs

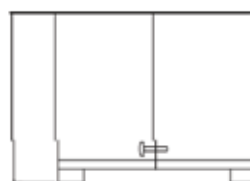
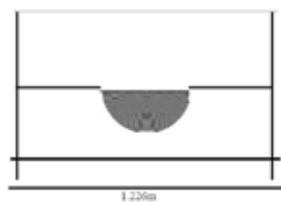
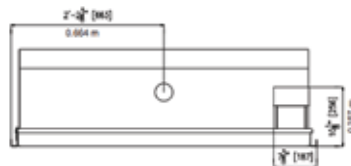
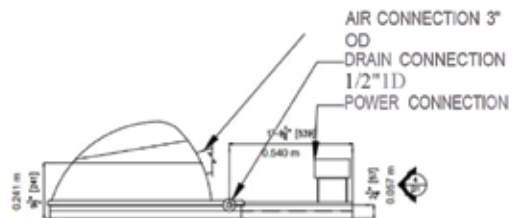
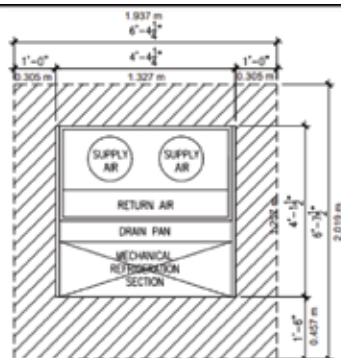
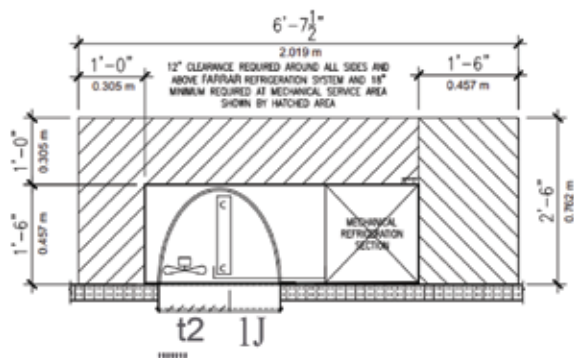
## 6 WEIGHT

Approx. Net Weight Min: 222.68 Lbs | 117.4 Kgs  
 Max 257.94 Lbs | 101.1 Kgs

## 7 CERTIFICATIONS

Electrically approved for use in North America.

## 8 DIMENSIONAL DATA









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