

G5 LOW PROFILE SERIES UNIT COOLER



CAPACITY

FEM - Medium Temperature: 2.5kW - 19.7kW

FEME....P - Medium Temperature with Partial Defrost: 2.4kW - 13.0kW

FEME - Low Temperature: 1.3kW - 8.5kW

Effective Air Throw: 6.0m - 8.6m

G5

LOW PROFILE SERIES

UNIT COOLER

FEM / FEME...P/ FEME

General Features

Eden G5 Low Profile Series are designed with our latest in-house Smart Circuitry Program; allowing maximum mass flow rate of refrigerant to be evenly distributed throughout the evaporator. This improves coil efficiency thus providing higher cooling capacities from a smaller compact coil design.

Eden G5 Low Profile Series incorporates a modular design ensuring a more balanced and consistent airflow throughout each fan bay section for better coil performance and efficiency. Centre plates incorporated between each fan bay to enhance air side performance and structural strength for models with 2 or more fans.

Eden coils use copper Inner Groove Tubes (IGT) that increases the internal coil surfaces whilst having a low oil film coefficient thus providing higher efficiencies and capacities. These copper tubes are in accordance with JIS-C1220T.

Fins are produced from high grade Aluminium (Aluminium Association - AA1100 Standard) with Double Sine Wave Pattern and Rippled Fin Edges for maximum fin surface and higher heat transfer efficiency.

Fan Motors used in all models are high quality German fan motors, fitted with thermistor motor protection and conform to DIN 40050 safety standards. Fan motors are of the highest quality offered in the industry ensuring long life and durability for both high and low temperature applications.

Casing is made from high quality powder coated Aluminium, according to AA1100 Standards.

Compact design reduces dimensional volume to enhance cold room productivity without losing cooling capacity and is also easier to handle during installations.

Defrosting is by electrical sheathed stainless-steel heating elements with vulcanized rubber connections to ensure effective defrosting and durability. Water resulting from defrosting is channelled to the drain pan with a centrally positioned outlet for positive draining from all points.

Electrical junction box(es) are 3mm thick ABS, IP56 protection rating with flame class V-0 and are mounted internally. Side panels on both ends are hinged allow for easy access to junction box(es) and service of components.

Eden G5 Low Profile Series can also be applied with most new generation refrigerants (except CO₂ & NH₃). All Capacity Ratings in this document are thermally guaranteed by Eden and tested in accordance to ASHRAE dry box standards.

Eden G5 Low Profile Series comes with Quality Assurance as they are designed, manufactured and tested at our factory with ISO9001 certification. It also comes with a One(1) Year Warranty against quality & manufacturing defects (Terms and conditions apply).

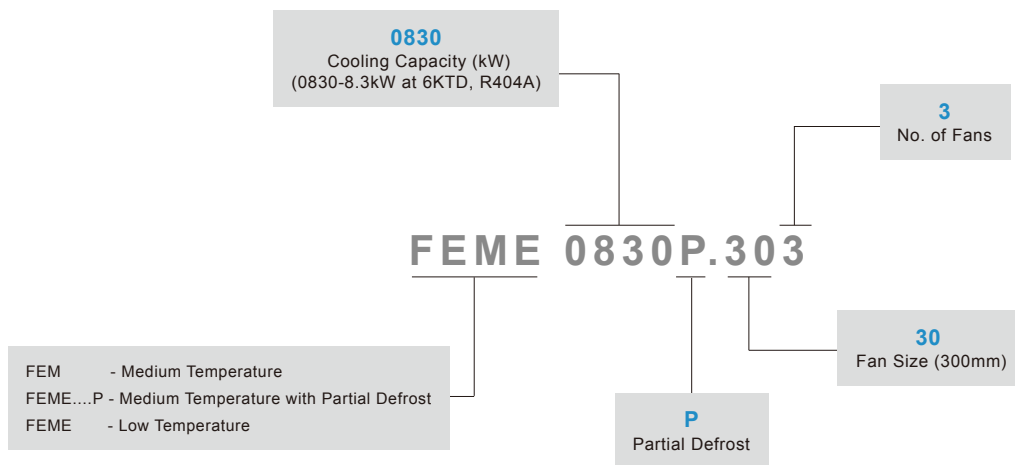




Options

- a** Copper-Fins coil
- b** Epoxy-Coated Aluminum Fin Coil (Only on large volume orders)
- c** Passivated Corrosion Protection for All Aluminum Fin Products
- d** Hot gas Bypass
- e** Stainless Steel Casing
- f** Special Circuitry for Ultra Low Temperature or Overfeed Systems
- g** Chilled water Coils, Brine Coils or Liquid Overfeed Coils

Nomenclature



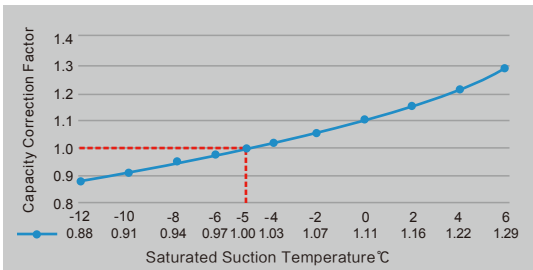
Technical Data

FEM - Medium Temperature Unit Cooler

Air Defrost 6FPI (4.23mm), Room Temperature +3°C

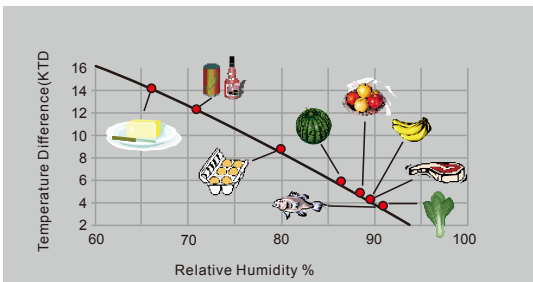
Model	CAPACITY R404A / R507		FAN DATA							
	ASHRAE ET= -5°C, RT=+3°C	EUROVENT* ET= -8°C, RT=+0°C	No. of Fans 300mm	Fan Motor			Fan Speed	Air Flow		Air Throw** (m)
	Watts (8KTD)	Watts (8KTD)		(V/Ph/Hz)	(Watts)	(Amps)	(rpm)	(l/s)	(m³/h)	
FEM 0250.301	2,500	2,730	1	230/1/50	70	0.32	1,380	450	1,620	7.0
FEM 0340.301	3,400	3,710	1	230/1/50	70	0.32	1,380	446	1,607	6.8
FEM 0490.301	4,900	5,350	1	230/1/50	70	0.32	1,380	429	1,545	6.7
FEM 0660.302	6,600	7,210	2	230/1/50	140	0.64	1,380	892	3,211	7.6
FEM 0760.302	7,600	8,300	2	230/1/50	140	0.64	1,380	849	3,055	7.3
FEM 0900.302	9,000	9,830	2	230/1/50	140	0.64	1,380	825	2,971	7.1
FEM 1020.302	10,200	11,140	2	230/1/50	140	0.64	1,380	803	2,889	6.8
FEM 1180.303	11,800	12,890	3	230/1/50	210	0.96	1,380	1,272	4,581	8.0
FEM 1420.303	14,200	15,510	3	230/1/50	210	0.96	1,380	1,238	4,457	7.9
FEM 1660.303	16,600	18,130	3	230/1/50	210	0.96	1,380	1,204	4,334	7.8
FEM 1970.304	19,700	21,520	4	230/1/50	280	1.28	1,380	1,604	5,775	8.3

Application & Correction Factor Guideline



FEM Correction Chart

Refrigerant	Capacity Multiplier
R22	1.011
R407B	0.961
R407C	0.940
R134A	0.986
R404A / R507	1.000
R407F	1.011
R448A	1.030
R449A	0.930



Relative Humidity %RH vs KTD

Products	Storage Temperature (°C)	Recommended RH %
Apple	1.5	87%
Banana	5.0	88%
Dairy Product	2.0	65%
Egg, Shell	5.0 to 6.0	80%
Fish, Fresh	0 to 1.0	90 - 95%
Beef, Fresh	0 to 1.0	88 - 92%
Chicken	-1.0 to 1.0	95%
Watermelon	3.0 to 5.0	85%
Vegetables	1.0 to 2.0	90 - 95%
Bottle/Can Drink	3.0 to 4.0	70%

Capacity Ratings & Conditions

All Eden Heat Exchangers are tested in Accordance to ASHRAE Dry Box Standard (Recommended for Asia Usage)

ASHRAE Condition - Air Inlet Temperature = +3°C and Evaporating Temperature = -5°C

* **EUROVENT Data is used for Comparison Purposes**

* EUROVENT Data is based on SC2 Nominal Capacity

SC2 Condition - Air Inlet Temperature = +0°C and Evaporating Temperature = -8°C

** Air Throw indicated is the distance from the unit to the furthest point where an air velocity of 0.5m/s can still be measured

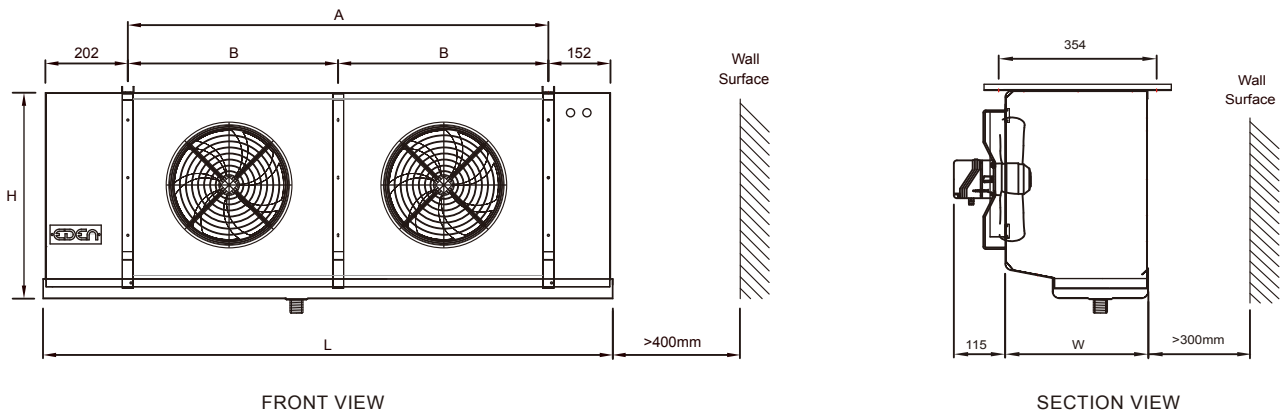
Technical Data

FEM - Medium Temperature Unit Cooler

Air Defrost 6FPI (4.23mm), Room Temperature +3°C

Model	CONNECTION DETAILS			DIMENSIONAL DETAILS								Weight (Kg)*
	Connection (mm)			A	B	H	W	L	H*	W*	L*	
	Liquid	Suction	Drain Pipe									
FEM 0250.301	12.7	22.2	25.4	527.5	-	503	321	890	675	595	1,026	25
FEM 0340.301	12.7	22.2	25.4	527.5	-	503	321	890	675	595	1,026	26
FEM 0490.301	12.7	22.2	25.4	527.5	-	503	321	890	675	595	1,026	29
FEM 0660.302	12.7	28.6	25.4	1,027.5	-	503	321	1,390	675	595	1,531	42
FEM 0760.302	12.7	28.6	25.4	1,027.5	-	503	321	1,390	675	595	1,531	44
FEM 0900.302	12.7	28.6	25.4	1,027.5	-	503	321	1,390	675	595	1,531	46
FEM 1020.302	12.7	28.6	25.4	1,027.5	-	503	321	1,390	675	595	1,531	49
FEM 1180.303	12.7	28.6	25.4	1,527.5	-	503	321	1,890	675	595	2,031	56
FEM 1420.303	15.88	28.6	25.4	1,527.5	-	503	321	1,890	675	595	2,031	60
FEM 1660.303	15.88	28.6	25.4	1,527.5	-	503	321	1,890	675	595	2,031	64
FEM 1970.304	15.88	28.6	25.4	2,027.5	1,013.7	503	321	2,390	675	595	2,536	82

*Packed Dimensions / Weight



Additional Information

Example

Application: Apple Cooler
 Required Room Temperature: 4°C
 Ambient: +35°C
 Evaporating Temperature: -1°C at 5KTD (Recommended)
 Cooling Capacity: 11.3kW (Inclusive of the fan and heater load)
 Type of Refrigerant: R22

Selection of the Eden G5 Unit Cooler as follows

- Determine the Correction Factors and Multiplier (Refers to page 3)
 - Capacity Correction Factor is Approximately 1.09 (-5°ET --> -1°ET)
 - Refrigerant multiplier = 1.011 (R404A --> R22)
- Calculation of required capacity
 - $11.3\text{kW} / 1.09 / 1.011 = 10.25\text{kW}$ (Inclusive of the fan and heater load)
- Calculate the unit cooler capacity need at 8KTD
 - $10.25 / 5 \times 8 = 16.41\text{kW}$
- Hence a FEM 1660.303 is the suitable unit cooler for the above application.

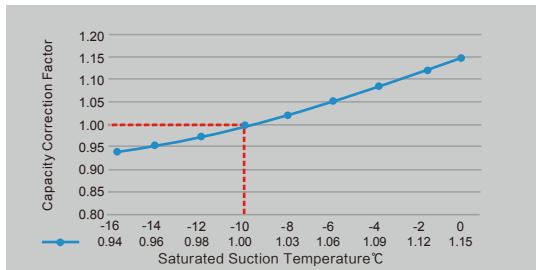
Technical Data

FEME...P - Partial Defrost Unit Cooler

Electric Defrost 6FPI (4.23mm), Room Temperature -4°C

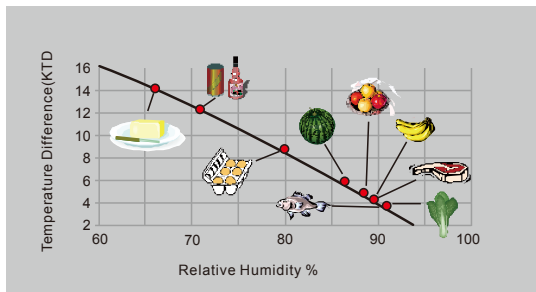
Model	CAPACITY R404A / R507		No. of Fans 300mm	FAN DATA						
	ASHRAE ET=-10°C, RT=-4°C	EUROVENT* ET=-8°C, RT=+0°C		Fan Motor			Fan Speed	Air Flow		Air Throw** (m)
	Watts (6KTD)	Watts (8KTD)		(V/Ph/Hz)	(Watts)	(Amps)	(rpm)	(l/s)	(m³/h)	
FEME 0260P.301	2,600	4,180	1	230/1/50	70	0.32	1,380	424	1,526	6.5
FEME 0340P.301	3,400	5,470	1	230/1/50	70	0.32	1,380	401	1,445	6.2
FEME 0450P.302	4,500	7,240	2	230/1/50	140	0.64	1,380	871	3,136	7.5
FEME 0550P.302	5,500	8,850	2	230/1/50	140	0.64	1,380	849	3,055	7.3
FEME 0650P.302	6,500	10,460	2	230/1/50	140	0.64	1,380	825	2,971	7.1
FEME 0700P.302	7,000	11,270	2	230/1/50	140	0.64	1,380	803	2,889	6.9
FEME 0830P.303	8,300	13,360	3	230/1/50	210	0.96	1,380	1,272	4,581	8.2
FEME 0920P.303	9,200	14,810	3	230/1/50	210	0.96	1,380	1,238	4,457	8.0
FEME 1030P.303	10,300	16,580	3	230/1/50	210	0.96	1,380	1,204	4,334	7.8
FEME 1320P.304	13,200	21,250	4	230/1/50	280	1.28	1,380	1,651	5,944	8.6
FEME 1430P.304	14,300	23,020	4	230/1/50	280	1.28	1,380	1,604	5,775	8.3

Application & Correction Factor Guideline



FEME...P Correction Chart

Refrigerant	Capacity Multiplier
R22	1.011
R407B	0.961
R407C	0.940
R134A	0.986
R404A / R507	1.000
R407F	1.011
R448A	1.030
R449A	0.930



Relative Humidity %RH vs KTD

Products	Storage Temperature (°C)	Recommended RH %
Apple	1.5	87%
Banana	5.0	88%
Dairy Product	2.0	65%
Egg, Shell	5.0 to 6.0	80%
Fish, Fresh	0 to 1.0	90 - 95%
Beef, Fresh	0 to 1.0	88 - 92%
Chicken	-1.0 to 1.0	95%
Watermelon	3.0 to 5.0	85%
Vegetables	1.0 to 2.0	90 - 95%
Bottle/Can Drink	3.0 to 4.0	70%

Capacity Ratings & Conditions

All Eden Heat Exchangers are tested in Accordance to ASHRAE Dry Box Standard (Recommended for Asia Usage)

ASHRAE Condition - Air Inlet Temperature = -4°C and Evaporating Temperature = -10°C

*** EUROVENT Data is used for Comparison Purposes**

* EUROVENT Data is based on SC2 Nominal Capacity

SC2 Condition - Air Inlet Temperature = +0°C and Evaporating Temperature = -8°C

** Air Throw indicated is the distance from the unit to the furthest point where an air velocity of 0.5m/s can still be measured

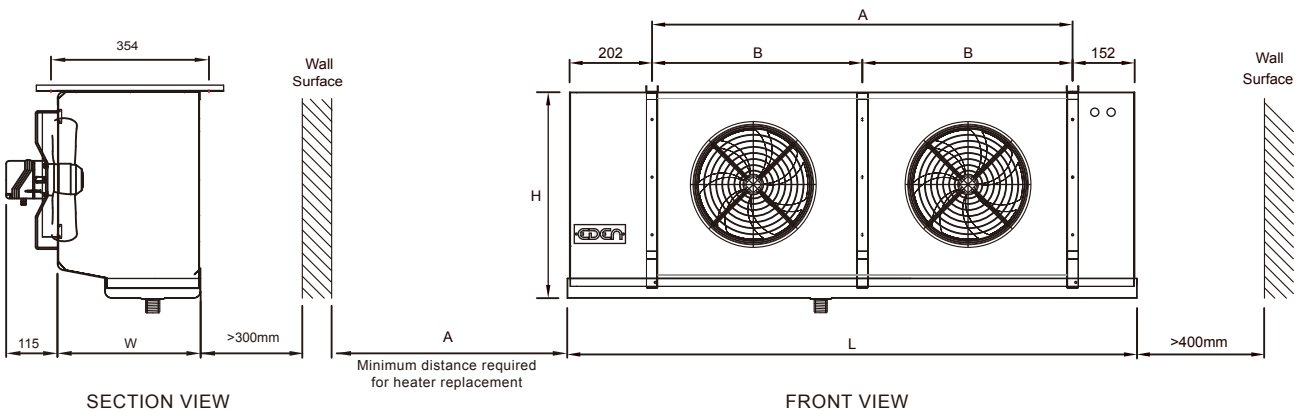
Technical Data

FEME...P - Partial Defrost Unit Cooler

Electric Defrost 6FPI (4.23mm), Room Temperature -4°C

Model	CONNECTION DETAILS			HEATER DETAILS		DIMENSIONAL DETAILS							Weight (Kg)*	
	Connection (mm)			Coil Heater (Watts)	Drain Pan Heater (Watts)	A	B	H	W	L	H*	W*		L*
	Liquid	Suction	Drain Pipe											
FEME 0260P.301	12.7	22.2	25.4	1 x 700	1 x 300	527.5	-	503	321	890	675	595	1,026	26
FEME 0340P.301	12.7	22.2	25.4	1 x 700	1 x 300	527.5	-	503	321	890	675	595	1,026	29
FEME 0450P.302	12.7	28.6	25.4	1 x 1,370	1 x 840	1,027.5	-	503	321	1,390	675	595	1,531	43
FEME 0550P.302	12.7	28.6	25.4	1 x 1,370	1 x 840	1,027.5	-	503	321	1,390	675	595	1,531	45
FEME 0650P.302	12.7	28.6	25.4	1 x 1,370	1 x 840	1,027.5	-	503	321	1,390	675	595	1,531	47
FEME 0700P.302	12.7	28.6	25.4	1 x 1,370	1 x 840	1,027.5	-	503	321	1,390	675	595	1,531	49
FEME 0830P.303	12.7	28.6	25.4	1 x 1,910	1 x 840	1,527.5	-	503	321	1,890	675	595	2,031	58
FEME 0920P.303	12.7	28.6	25.4	1 x 1,910	1 x 840	1,527.5	-	503	321	1,890	675	595	2,031	62
FEME 1030P.303	12.7	28.6	25.4	1 x 1,910	1 x 840	1,527.5	-	503	321	1,890	675	595	2,031	66
FEME 1320P.304	15.88	28.6	25.4	1 x 2,520	1 x 930	2,027.5	1,013.7	503	321	2,390	675	595	2,536	75
FEME 1430P.304	15.88	28.6	25.4	1 x 2,520	1 x 930	2,027.5	1,013.7	503	321	2,390	675	595	2,536	83

*Packed Dimensions / Weight



Additional Information

Example

Application: Seafood Cold Room
 Required Room Temperature: -1°C
 Ambient: +35°C
 Evaporating Temperature: -6°C at 5KTD (Recommended)
 Cooling Capacity: 6.2kW (Inclusive of the fan and heater load)
 Type of Refrigerant: R407B

Selection of the Eden G5 Unit Cooler as follows

- Determine the Correction Factors and Multiplier (Refers to page 5)
 - Capacity Correction Factor is Approximately 1.06 (-10°CET --> -6°CET)
 - Refrigerant multiplier = 0.961 (R404A --> R407B)
- Calculation of required capacity
 - $6.2\text{kW} / 1.06 / 0.961 = 6.09\text{kW}$ (Inclusive of the fan and heater load)
- Calculate the unit cooler capacity need at 6KTD
 - $6.09 / 5 \times 6 = 7.3\text{kW}$
- Hence a FEME 0830P.303 is the suitable unit cooler for the above application.

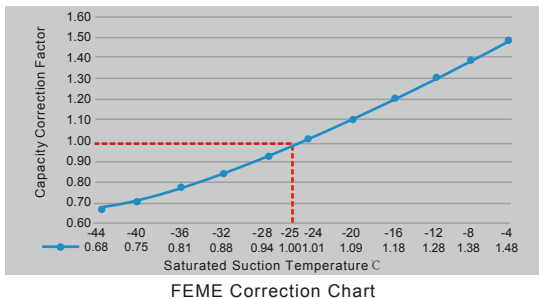
Technical Data

FEME - Low Temperature Unit Cooler

Electric Defrost 4FPI (6.35mm), Room Temperature -19°C

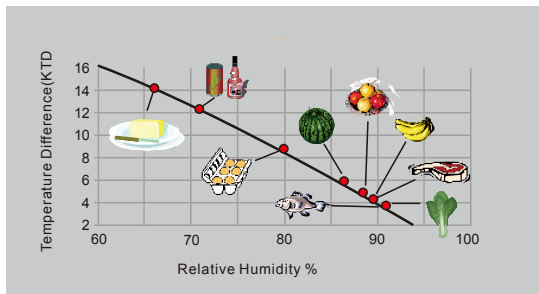
Model	CAPACITY R404A / R507		No. of Fans 300mm	FAN DATA						
	ASHRAE ET= -25°C, RT=-19°C	EUROVENT* ET= -25°C, RT=-18°C		Fan Motor			Fan Speed	Air Flow		Air Throw** (m)
	Watts (6KTD)	Watts (7KTD)		(V/Ph/Hz)	(Watts)	(Amps)	(rpm)	(l/s)	(m³/h)	
FEME 0130.301	1,300	1,590	1	230/1/50	70	0.32	1,380	442	1,591	6.2
FEME 0200.301	2,000	2,450	1	230/1/50	70	0.32	1,380	424	1,526	6.0
FEME 0280.302	2,800	3,430	2	230/1/50	140	0.64	1,380	889	3,201	7.0
FEME 0380.302	3,800	4,650	2	230/1/50	140	0.64	1,380	849	3,055	6.7
FEME 0410.302	4,100	5,020	2	230/1/50	140	0.64	1,380	825	2,971	6.5
FEME 0500.303	5,000	6,120	3	230/1/50	210	0.96	1,380	1,299	4,675	7.7
FEME 0580.303	5,800	7,100	3	230/1/50	210	0.96	1,380	1,272	4,581	7.6
FEME 0680.303	6,800	8,330	3	230/1/50	210	0.96	1,380	1,238	4,457	7.4
FEME 0780.304	7,800	9,550	4	230/1/50	280	1.28	1,380	1,697	6,110	8.1
FEME 0850.304	8,500	10,410	4	230/1/50	280	1.28	1,380	1,651	5,944	7.8

Application & Correction Factor Guideline



FEME Correction Chart

Refrigerant	Capacity Multiplier
R22	1.011
R407B	0.961
R407C	0.940
R134A	0.986
R404A / R507	1.000
R407F	1.011
R448A	1.030
R449A	0.930



Relative Humidity %RH vs KTD

Products	Storage Temperature (°C)	Recommended RH %
Apple	1.5	87%
Banana	5.0	88%
Dairy Product	2.0	65%
Egg, Shell	5.0 to 6.0	80%
Fish, Fresh	0 to 1.0	90 - 95%
Beef, Fresh	0 to 1.0	88 - 92%
Chicken	-1.0 to 1.0	95%
Watermelon	3.0 to 5.0	85%
Vegetables	1.0 to 2.0	90 - 95%
Bottle/Can Drink	3.0 to 4.0	70%

Capacity Ratings & Conditions

All Eden Heat Exchangers are tested in Accordance to ASHRAE Dry Box Standard (Recommended for Asia Usage)

ASHRAE Condition - Air Inlet Temperature = -19°C and Evaporating Temperature = -25°C

* EUROVENT Data is used for Comparison Purposes

* EUROVENT Data is based on SC3 Nominal Capacity

SC3 Condition - Air Inlet Temperature = -18°C and Evaporating Temperature = -25°C

** Air Throw indicated is the distance from the unit to the furthest point where an air velocity of 0.5m/s can still be measured

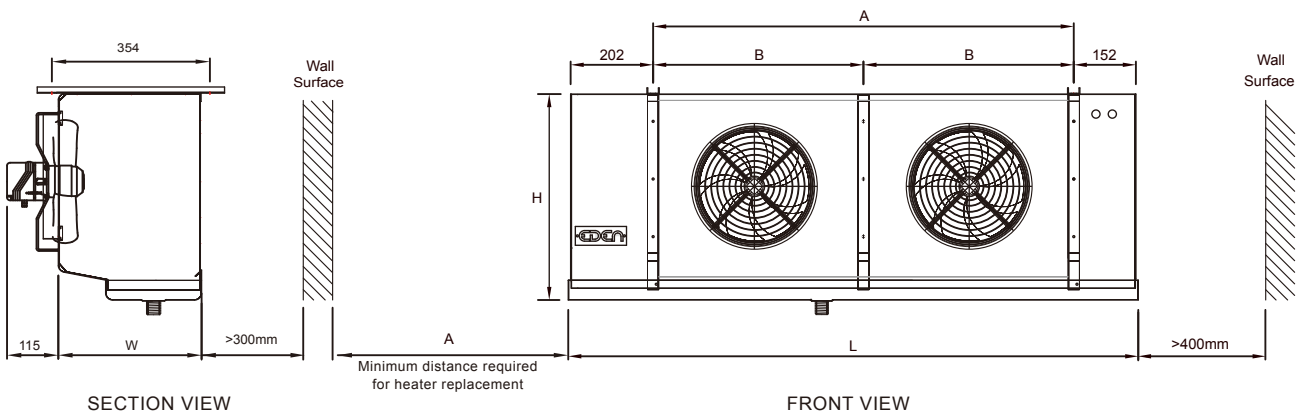
Technical Data

FEME - Low Temperature Unit Cooler

Electric Defrost 4FPI (6.35mm), Room Temperature -19°C

Model	CONNECTION DETAILS			HEATER DETAILS		DIMENSIONAL DETAILS								Weight (Kg)*
	Connection (mm)			Coil Heater (Watts)	Drain Pan Heater (Watts)	A	B	H	W	L	H*	W*	L*	
	Liquid	Suction	Drain Pipe											
FEME 0130.301	12.7	22.2	25.4	2 x 700	1 x 300	527.5	-	503	321	890	675	595	1,026	25
FEME 0200.301	12.7	22.2	25.4	2 x 700	1 x 300	527.5	-	503	321	890	675	595	1,026	28
FEME 0280.302	12.7	28.6	25.4	2 x 1,370	1 x 840	1,027.5	-	503	321	1,390	675	595	1,531	42
FEME 0380.302	12.7	28.6	25.4	2 x 1,370	1 x 840	1,027.5	-	503	321	1,390	675	595	1,531	48
FEME 0410.302	12.7	28.6	25.4	2 x 1,370	1 x 840	1,027.5	-	503	321	1,390	675	595	1,531	51
FEME 0500.303	12.7	28.6	25.4	2 x 1,910	1 x 840	1,527.5	-	503	321	1,890	675	595	2,031	58
FEME 0580.303	15.88	28.6	25.4	2 x 1,910	1 x 840	1,527.5	-	503	321	1,890	675	595	2,031	61
FEME 0680.303	15.88	28.6	25.4	2 x 1,910	1 x 840	1,527.5	-	503	321	1,890	675	595	2,031	64
FEME 0780.304	15.88	28.6	25.4	2 x 2,520	1 x 930	2,027.5	1,013.7	503	321	2,390	675	595	2,536	76
FEME 0850.304	15.88	28.6	25.4	2 x 2,520	1 x 930	2,027.5	1,013.7	503	321	2,390	675	595	2,536	84

*Packed Dimensions / Weight



Additional Information

Example

Application: Meat Freezer
 Required Room Temperature: -15°C
 Ambient: +35°C
 Evaporating Temperature: -20°C at 5KTD (Recommended)
 Cooling Capacity: 5.7kW (Inclusive of the fan and heater load)
 Type of Refrigerant: R407C

Selection of the Eden G5 Unit Cooler as follows

- Determine the Correction Factors and Multiplier (Refers to page 7)
 - Capacity Correction Factor is Approximately 1.09 (-25°CET --> -20°CET)
 - Refrigerant multiplier = 0.94 (R404A --> R407C)
- Calculation of required capacity
 - 5.7kW / 1.09 / 0.94 = 5.56kW (Inclusive of the fan and heater load)
- Calculate the unit cooler capacity need at 6KTD
 - 5.56 / 5 x 6 = 6.68kW
- Hence a FEME 0680.303 is the suitable unit cooler for the above application.