

**Kelvion**



**Reliable Engineering that lasts**

# **KELVION FM INDUSTRIAL COOLER**







**Kelvion –  
a tribute to  
Lord Kelvin**

**70 branches and  
sales partners  
worldwide**

**More than 4,000  
employees  
worldwide**

Lord Kelvin (1824 – 1907) formulated  
the laws of thermodynamics

# EXPERTS IN HEAT EXCHANGE – SINCE 1920

Welcome to Kelvion. As successor to the GEA Heat Exchangers Group, we continue to break new ground, making discerning customers more successful than ever with our integrated heat exchanger solutions.

#### **Our solutions for your applications:**

We offer our customers one of the world's largest product portfolios in the field of heat exchangers. It includes individual solutions for practically all conceivable applications and complex environmental conditions: plate heat exchangers, shell and tube heat exchangers, finned tube heat exchangers, modular cooling tower systems, and refrigeration heat exchangers.

#### **Your markets are our markets, too:**

The markets in which you and we together operate are among the most important in the world: the chemical industry, food and beverages, the heavy industry, climate and environment, marine applications, the oil and gas industry, energy, refrigeration technology, sugar and transportation. We provide every single market segment with solutions of outstanding efficiency, safety, and sustainability.

#### **We are highly committed to earning your trust:**

We want to win your trust with everything we do and convince you with the solutions we offer. With this high aim in mind, we invest our extensive know-how, our great precision, and our passion in everything we do: including product development, manufacturing, installation, and after-sales support.





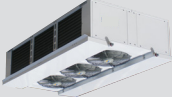

#### **Seeing things from the customer perspective:**

Your specific requirements count – and nothing else. Whatever we offer you, it must meet these requirements. Our entire way of thinking and working is geared towards this aim. Our customers truly appreciate this: after all, this is how we make their companies more efficient.

#### **We are at your service.**

Kelvion – Experts in Heat Exchange.

# INDUSTRIAL AIR COOLER RANGE

MODEL	NO.FANS	CONFIGURATION	EUROVENT	SUPPLY	EC FANS	STANDARD ELECTRIC	HEAVY ELECTRIC DEFROST	HOT GAS A/B/C/D DEFROST	CO2	FIN MATERIAL	CAPACITY
SM 	1 - 4		✓	3 ph	○	✓	✓	✓	✓	AL, AV	12 - 199kW
FM 	1 - 4		✓	3 ph	○	✓	✓	✓	✓	AL, AV	22 - 265kW
LSR 	1 - 6		✓	3 ph	X	✓	X	✓	✓	AL, AV	6 - 89kW

✓ YES X NO ○ OPTION

## FM SPECIFICATION

**CASEWORK:** The FM displays a unique style the casework is manufactured in galvanized steel sheet panels painted in our traditional white RAL 9010 with the option of either vertical or horizontal orientation. The robust construction design is durable to withstand the most demanding of applications allowing easy access for maintaining and cleaning. The axial fan sets are bolted directly onto the heavy gauge fan plates which are supported by rigid cross members. The structural one-piece draintray allows units to be lifted from underneath. It is double skinned to assist defrost at low temperature and prevent condensation in high temperature applications

**FANS/MOTORS & NOISE DATA:** Defrost loads include drain pan power peripheral heater load (where fitted) for ducted axial fan sets 800mm diameter = 630W, 900mm diameter = 710W per fan.

- Ducted axial fans with 125Pa of external static pressure are standard.
- Standard fans are supplied with 4 pole, nominal 1440rpm fan speeds.
- Noise levels are quoted at a distance of 3m from the unit at an angle of 45° to the horizontal within a free field condition.
- The motors are three phase and suitable for 400V/50Hz as standard.
- The fan sets are provided with a motor side wire guard.

**COIL:** The coil has been specially designed to offer a large secondary cooling surface which is beneficial for industrial refrigeration applications. Frost can build over a larger surface, reducing the number of defrost cycles, and allowing the cooler to operate efficiently for longer periods.

- Manufactured from 5/8" Tube
- Tube Pitch In Direction of Airflow = 50.8mm
- Tube Pitch Across Airflow = 55mm
- Fin Spacing(s): 4mm, 6mm and 8mm
- Fin Features: Light Ripple and Heater Holes

**ADDITIONAL INFORMATION:** Air throws quoted within this catalogue are based on a terminal velocity of 0.25m/s in ideal conditions. Store layout, cooler location and discharge orientation can affect the air throw. Please refer to your supplier for further information. Arranged as bottom feed for pump rates between 3:1 and 5:1. For other pump rates please refer to your supplier. Incorrect unit location will adversely affect unit performance and air throw. For advice on unit location, please contact your supplier.

A full range of turning cowls (for vertical discharge units no external static pressure) and air operated dampers are available. Other options may be available please consult your local Kelvion representative for further details.

# FM INDUSTRIAL COOLER






## BENEFITS

- ▶ **The FM range of large floor mounted coolers from Kelvion features:** draw through' arrangement where air enters the front of the cooler horizontally and is turned to discharge either horizontally or vertically.
- ▶ **The FM displays a unique style the casework:** Robust construction, designed to withstand demanding applications. One-piece draintray allows units to be lifted, fully-assembled, from underneath with easy access for maintenance and cleaning.
- ▶ **The coil has been specially designed to offer a large secondary cooling surface:** Beneficial for industrial refrigeration applications. Frost can build over a larger surface, reducing the number of defrost cycles, and allowing the cooler to operate efficiently for longer periods.
- ▶ **Eurovent certify-all:** independent certification for thermal performance, power consumption, sound data and unit air volumes for standard products under scheme limits.

## CAPACITY RANGE

**HFO/HFK 22 kW - 265 kW**  
 $t_L=0^{\circ}\text{C} \mid t_o=-8^{\circ}\text{C} \mid \text{DT}=8\text{K} \mid \text{[SC2]} \mid \text{R404A}$

---

## HEAT EXCHANGE

- ▶ Fin Type: S
- ▶ Tube Diameter: [in mm]  
15.8 |
- ▶ Standard Fin spacing: [in mm]  
4 | 6 | 8 |
- ▶ Fin Enhancements: Light Ripple

## VARIANTS & ACCESSORIES

- ▶ Fan sets
- ▶ Heaters - Coil Block
- ▶ Heaters - Drain Tray

## DEFROST

DEFROST	FAN	COIL	DRIP TRAY
Standard Electric	✓	✓	✓
Heavy Electric		✓	✓
Hot gas		✓	✓

Defrost loads include drain pan power as below

MODULES	FM-1	FM-2	FM-3	FM-4
Drainpan	1.6	3.2	4.8	6.4

Peripheral heater load (where fitted) for ducted axial fan sets 800mm diameter = 630W, 900mm diameter = 710W per fan.

## FAN

- ▶ AC Standard



Ø 800mm  
Ø 900mm  
IP55  
3 phase

## MATERIALS

MATERIAL	TUBE	FINS	CASING	END PLATE
Copper (Cu)	✓	✓		
Aluminium (Al)		✓		✓
Aluminium Epoxy (AV)		✓		
Galvanised Steel			✓	

✓ Standard | ✓ Available as a variant

## REFRIGERANT DATA

REFRIGERATION	R404A	R134a	R507A	R407A/F	R407C
Capacity factor (dew point, DT1)	1.00	0.91	0.97	1.24*	1.26*
Refrigerant charge density (kg/dm <sup>3</sup> )	0.312	0.338	0.313	0.332	0.332

\* Capacity factors for refrigerants with high glide apply only at the nominal rating condition. Refrigerant charge densities are based on 25% of the internal volume being liquid.

## DESIGNATION

The model number indicates the casework model size and other relevant information, for example: -

PART NUMBER	FM	20	1	-	6	6	-	AA	-	V	EL	CU/AL
-------------	----	----	---	---	---	---	---	----	---	---	----	-------

Range:	<b>FM</b>											
Height of case:	Tube high = <b>20</b> , 24, 30, 36											
No of fans:	<b>1</b> , 2, 3, 4,											
Coil depth:	4, <b>6</b> , 8											
Fin spacing:	4mm, <b>6</b> mm, 8mm											
Fan/motor type:	Ducted axial <b>AA</b> , AB, AC, AD											
Orientation:	Discharge: <b>V</b> = vertical, H = Horizontal											
Coil materials:	<b>EL</b> = Electric defrost in coil and drain tray, HGDA,B,C,D = hot gas coil, electric drain tray defrost, HGDA,B = hot gas coil and drain tray defrost, HGDC = hot gas coil and drain tray defrost, HGDD = hot gas coil and drain tray defrost,											
Coil material:	<b>CU/AL</b> = Copper, Aluminium Fin											

**SELECTION DATA - 4MM SPECIFICATION**

MODEL	CAPACITY	DIA	SECTION	POWER INPUT	FLC PER FAN	SC PER FAN					CONNECTION		INTER-NAL VOLUME	SUR-FACE AREA	DE-FROST	WEIGHT	
							AIR VOLUME at 125Pa	AIR THROW	SOUND POWER LEVEL	SOUND PRESSURE LEVEL	INLET	OUTLET				VER-TICAL	HORI-ZONTAL
	kw			w	Amps	Amps	m <sup>3</sup> /s	m	dB(A)	dB(A)			dm <sup>3</sup>	m <sup>2</sup>	kg	kg	kg
FM201-44-AA	26.4	800	1	3.3	5.8	30A	4.54	51	94	77	5/8"	13/8"	26	137.5	10	451	532
FM201-64-AA	32.1	800	1	3.3	5.8	30A	4.19	47	94	77	5/8"	13/8"	38	206.3	12	488	569
FM202-44-AA	52.1	800	1	3.3	5.8	30A	9.07	51	97	80	3/4"	13/8"	49	275	19	686	782
FM202-64-AA	64.5	800	1	3.3	5.8	30A	8.39	47	97	80	3/4"	15/8"	72	412.5	24	759	855
FM203-44-AA	80.1	800	1	3.3	5.8	30A	13.59	51	99	82	3/4"	2 1/8"	71	412.5	29	921	1032
FM203-64-AA	96.7	800	2	3.3	5.8	30A	12.56	47	99	82	2 x 3/4"	2 x 1 5/8"	106	618.8	36	1029	1141
FM241-44-AB	29.2	800	1	3.3	5.8	30A	4.75	54	94	77	5/8"	13/8"	31	165	10	489	569
FM241-64-AB	35.4	800	1	3.3	5.8	30A	4.45	51	94	77	3/4"	13/8"	46	247.5	12	533	614
FM242-44-AB	57.9	800	1	3.3	5.8	30A	9.5	54	97	80	3/4"	15/8"	59	330	19	742	838
FM242-64-AB	71.0	800	1	3.3	5.8	30A	8.9	51	97	80	3/4"	15/8"	87	495.1	24	830	925
FM243-44-AB	88.3	800	1	3.3	5.8	30A	14.25	54	99	82	3/4"	2 1/8"	85	495.1	29	996	1107
FM243-64-AB	106.6	800	2	3.3	5.8	30A	13.35	51	99	82	2 x 3/4"	2 x 1 5/8"	128	742.6	36	1126	1237
FM302-44-AC	73.9	900	2	3.3	5.8	30A	12.06	55	101	84	2 x 5/8"	2 x 1 3/8"	74	412.5	19	849	944
FM302-64-AC	91.70	900	2	3.3	5.8	30A	11.65	50	101	84	2 x 3/4"	2 x 1 3/8"	109	618.8	29	958	1054
FM303-44-AC	111.0	900	2	3.3	5.8	30A	18	55	103	86	2 x 3/4"	2 x 1 5/8"	107	618.8	29	1141	1152
FM303-64-AC	137.8	900	2	3.3	5.8	30A	17.47	50	103	86	2 x 3/4"	2 x 1 5/8"	158	928.2	43	1304	1415
FM304-44-AC	146.5	900	2	3.3	5.8	30A	24	55	104	87	2 x 3/4"	2 x 1 5/8"	140	825.1	38	1433	1560
FM304-64-AC	183.1	900	2	3.3	5.8	30A	23.29	50	104	87	2 x 3/4"	2 x 2 1/8"	208	1237.6	58	1650	1776
FM362-64-AD	117.6	900	2	3.3	9.4	55A	15.39	52	103	86	2 x 3/4"	2 x 1 5/8"	130	742.6	34	1064	1160
FM363-84-AD	132.0	900	2	3.3	9.4	55A	15.02	49	103	86	2 x 3/4"	2 x 1 5/8"	172	990.1	45	1644	1755
FM363-64-AD	176.6	900	3	3.3	9.4	55A	23.08	52	105	88	3 x 3/4"	3 x 1 5/8"	191	1113.9	50	1449	1560
FM363-84-AD	196.6	900	2	3.3	9.4	55A	22.53	49	105	88	2 x 3/4"	2 x 2 1/8"	254	1485.2	67	1644	1755
FM364-64-AD	233.8	900	3	3.3	9.4	55A	30.77	52	106	89	3 x 3/4"	3 x 2 1/8"	252	1485.2	67	1833	1960
FM364-84-AD	265.0	900	3	3.3	9.4	55A	30.05	49	106	89	3 x 3/4"	3 x 2 1/8"	336	1980.2	90	2093	2220

**SELECTION DATA - 6MM SPECIFICATION**

MODEL	CAPACITY	DIA	SECTION	POWER INPUT	FLC PER FAN	SC PER FAN					CONNECTION		INTER-NAL VOLUME	SUR-FACE AREA	DE-FROST	WEIGHT	
							AIR VOLUME at 125Pa	AIR THROW	SOUND POWER LEVEL	SOUND PRESSURE LEVEL	INLET	OUTLET				VER-TICAL	HORI-ZONTAL
	kw			w	Amps	Amps	m <sup>3</sup> /s	m	dB(A)	dB(A)	dm <sup>3</sup>	m <sup>2</sup>	kg	kg	kg		
FM201-66-AA	26.4	800	1	3.3	5.8	30A	4.45	50	94	77	5/8"	13/8"	38	140	10	464	545
FM201-86-AA	29.9	800	1	3.3	5.8	30A	4.28	48	94	77	5/8"	13/8"	50	186.8	12	493	574
FM202-66-AA	52.9	800	1	3.3	5.8	30A	8.89	50	97	80	3/4"	13/8"	72	280	19	711	807
FM202-86-AA	61.2	800	1	3.3	5.8	30A	8.55	48	97	80	3/4"	15/8"	95	373.7	24	767	863
FM203-66-AA	79.4	800	2	3.3	5.8	30A	13.34	50	99	82	2 x 3/4"	2 x 13/8"	106	420.1	29	957	1068
FM203-86-AA	91.5	800	1	3.3	5.8	30A	12.83	48	99	82	3/4"	13/8"	141	560.5	36	1042	1153
FM241-66-AB	29.1	800	1	3.3	5.8	30A	4.7	54	94	77	5/8"	13/8"	46	168	10	504	585
FM241-86-AB	33.4	800	1	3.3	5.8	30A	4.5	51	94	77	3/4"	13/8"	61	224.2	12	539	620
FM242-66-AB	58.5	800	1	3.3	5.8	30A	9.4	54	97	80	3/4"	15/8"	87	336.1	19	772	868
FM242-86-AB	67.2	800	1	3.3	5.8	30A	9	51	97	80	3/4"	15/8"	115	448.4	24	840	936
FM243-66-AB	88.8	800	2	3.3	5.8	30A	14.1	54	99	82	2 x 3/4"	2 x 13/8"	128	504.1	29	1039	1150
FM243-86-AB	100.8	800	2	3.3	5.8	30A	13.5	51	99	82	2 x 3/4"	2 x 15/8"	171	672.6	36	1141	1252
FM302-66-AC	74.2	900	2	3.3	5.8	30A	12	54	101	84	2 x 3/4"	2 x 13/8"	109	420.4	19	885	981
FM302-86-AC	86.1	900	2	3.3	5.8	30A	11.65	52	101	84	2 x 3/4"	2 x 13/8"	144	560.5	29	970	1066
FM303-66-AC	111.6	900	2	3.3	5.8	30A	18	54	103	86	2 x 3/4"	2 x 15/8"	158	630.6	29	1195	1307
FM303-86-AC	129.1	900	2	3.3	5.8	30A	17.47	52	103	86	2 x 3/4"	2 x 15/8"	209	840.8	43	1322	1433
FM304-66-AC	149.6	900	2	3.3	5.8	30A	24	54	104	87	2 x 3/4"	2 x 15/8"	208	840.8	38	1505	1632
FM304-86-AC	172.6	900	3	3.3	5.8	30A	23.29	52	104	87	3 x 3/4"	3 x 2 5/8"	276	1121.1	58	1674	1800
FM362-66-AD	94.3	900	2	3.3	9.4	55A	15.78	56	103	86	2 x 3/4"	2 x 15/8"	130	504.5	34	977	1073
FM362-86-AD	110.8	900	2	3.3	9.4	55A	15.3	54	103	86	2 x 3/4"	2 x 15/8"	172	672.6	45	1079	1175
FM363-66-AD	141.6	900	2	3.3	9.4	55A	23.67	56	105	88	2 x 3/4"	2 x 15/8"	191	756.7	50	1319	1430
FM363-86-AD	165.8	900	2	3.3	9.4	55A	23.29	54	105	88	2 x 3/4"	2 x 2 1/8"	254	1009	67	1471	1582
FM364-66-AD	190.1	900	3	3.3	9.4	55A	31.57	56	106	89	3 x 3/4"	3 x 1 5/8"	252	1009	67	1660	1787
FM364-86-AD	222.0v	900	3	3.3	9.4	55A	31.03	54	106	89	3 x 3/4"	3 x 1 5/8"	336	1345.3	90	1862	1989



**SELECTION DATA - 8MM SPECIFICATION**

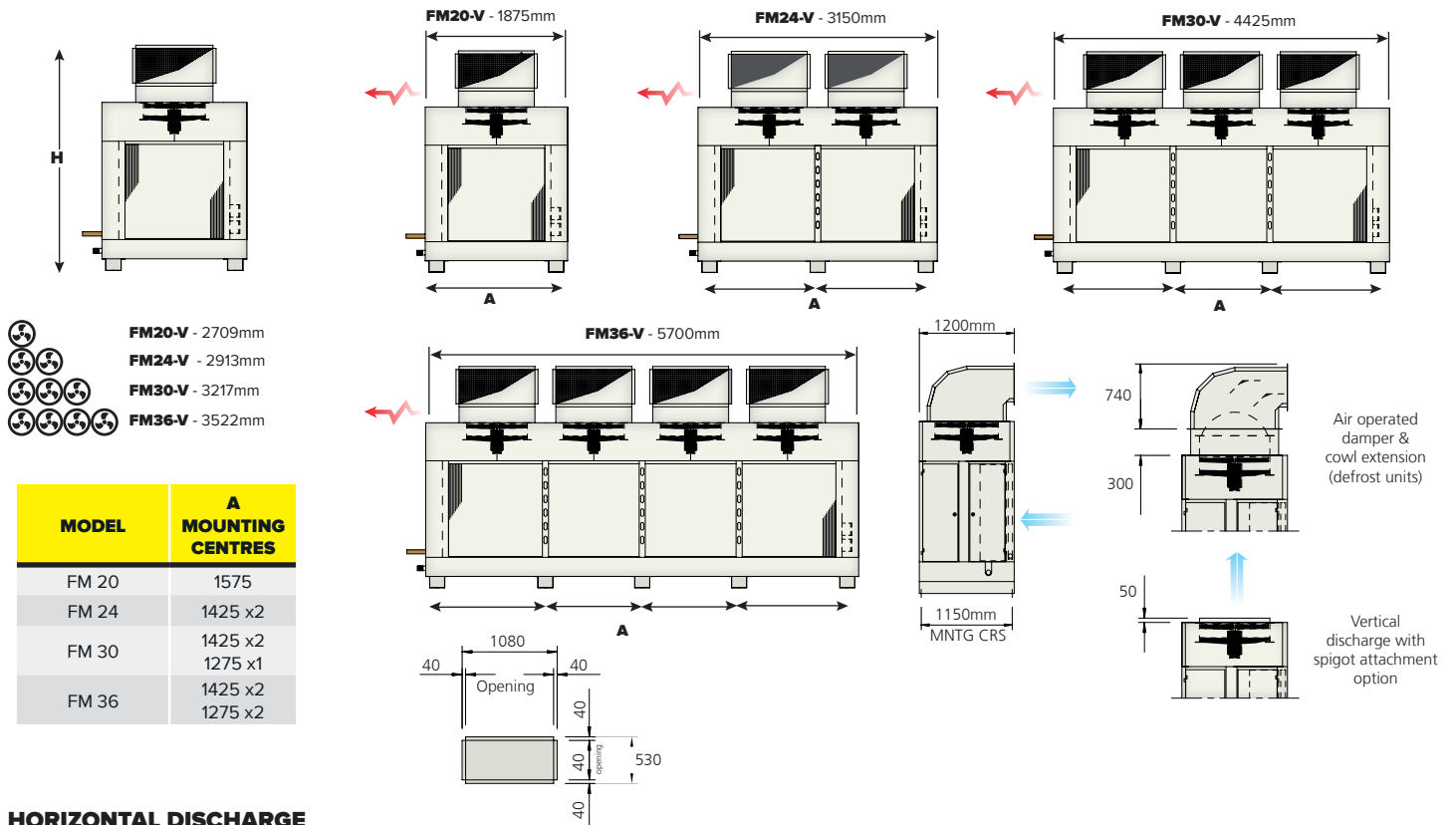
MODEL	CAPACITY	DIA	SECTION	POWER INPUT	FLC PER FAN	SC PER FAN					CONNECTION		INTER-NAL VOLUME	SUR-FACE AREA	DE-FROST	WEIGHT	
							AIR VOLUME at 125Pa	AIR THROW	SOUND POWER LEVEL	SOUND PRESSURE LEVEL	INLET	OUTLET				VER-TICAL	HORI-ZONTAL
	kw			w	Amps	Amps	m <sup>3</sup> /s	m	dB(A)	dB(A)	dm <sup>3</sup>	m <sup>2</sup>	kg	kg	kg		
FM201-68-AA	22.1	800	1	3.3	5.8	30A	4.63	52	94	77	5/8"	1 1/8"	38	107.1	12	452	533
FM201-88-AA	25.9	800	1	3.3	5.8	30A	4.45	50	94	77	5/8"	1 3/8"	50	142.8	14	477	558
FM202-68-AA	44.6	800	1	3.3	5.8	30A	9.23	52	97	80	3/4"	1 3/8"	72	214.1	24	687	782
FM202-88-AA	52.3	800	1	3.3	5.8	30A	8.89	50	97	80	3/4"	1 5/8"	95	285.5	29	735	831
FM203-68-AA	66.3	800	2	3.3	5.8	30A	13.86	52	99	82	2 x 3/4"	2 x 1 5/8"	106	321.2	36	921	1032
FM203-88-AA	75.5	800	1	3.3	5.8	30A	13.34	50	99	82	3/4"	2 1/8"	141	428.3	43	993	1105
FM241-68-AB	24.4	800	1	3.3	5.8	30A	4.8	55	94	77	5/8"	1 1/8"	46	128.5	12	490	570
FM241-88-AB	25.7	800	1	3.3	5.8	30A	4.67	53	94	77	5/8"	1 3/8"	61	171.3	14	520	600
FM242-68-AB	48.5	800	1	3.3	5.8	30A	9.6	55	97	80	3/4"	1 5/8"	87	257	24	743	839
FM242-88-AB	57.7	800	1	3.3	5.8	30A	9.34	53	97	80	3/4"	1 5/8"	115	342.6	29	801	897
FM243-68-AB	72.8	800	1	3.3	5.8	30A	14.4	55	99	82	2 x 3/4"	2 x 1 3/8"	128	385.4	36	996	1107
FM243-88-AB	86.6	800	2	3.3	5.8	30A	14.01	53	99	82	2 x 3/4"	2 x 1 3/8"	171	513.9	43	1083	1194
FM302-68-AC	61.6	900	2	3.3	5.8	30A	12.21	56	101	84	2 x 5/8"	2 x 1 3/8"	109	321.2	29	849	945
FM302-88-AC	73.2	900	2	3.3	5.8	30A	12	54	101	84	2 x 3/4"	2 x 1 3/8"	144	428.3	38	922	1018
FM303-68-AC	93	900	2	3.3	5.8	30A	18.32	56	103	86	2 x 3/4"	2 x 1 3/8"	158	481.8	43	1141	1252
FM303-88-AC	110.3	900	2	3.3	5.8	30A	18	54	103	86	2 x 3/4"	2 x 1 5/8"	209	642.4	58	1250	1361
FM304-68-AC	124.1	900	2	3.3	5.8	30A	24.42	56	104	87	2 x 3/4"	2 x 1 5/8"	208	642.4	58	1433	1560
FM304-88-AC	145	900	2	3.3	5.8	30A	24	54	104	87	2 x 3/4"	2 x 1 5/8"	276	856.6	77	1577	1704
FM362-68-AD	77.5	900	2	3.3	9.4	55A	15.95	58	103	86	2 x 3/4"	2 x 1 3/8"	130	385.4	34	934	1030
FM362-88-AD	93.2	900	2	3.3	9.4	55A	15.77	56	103	86	2 x 3/4"	2 x 1 5/8"	172	513.9	45	1021	1117
FM363-68-AD	117.5	900	2	3.3	9.4	55A	23.92	58	105	88	2 x 3/4"	2 x 1 5/8"	191	578.2	50	1254	1365
FM363-88-AD	140.1	900	2	3.3	9.4	55A	23.65	56	105	88	2 x 3/4"	2 x 2 5/8"	254	770.9	67	1384	1495
FM364-68-AD	157	900	3	3.3	9.4	55A	31.89	58	106	89	3 x 3/4"	3 x 1 5/8"	252	770.9	67	1573	1700
FM364-88-AD	186.8	900	3	3.3	9.4	55A	31.53	56	106	89	3 x 3/4"	3 x 1 5/8"	336	1027.9	90	1746	1973

## DIMENSIONS

### VERTICAL DISCHARGE

#### MODEL HEIGHT

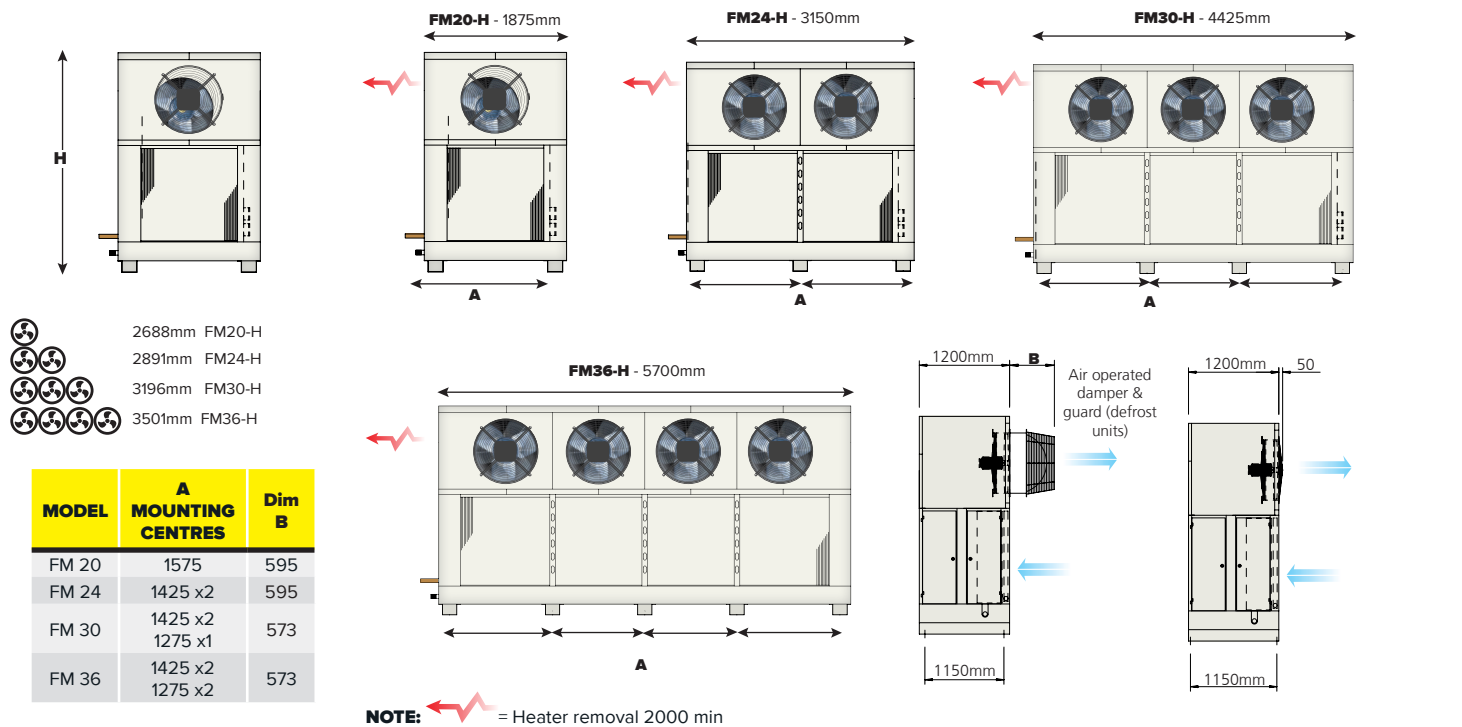
#### MODEL WIDTH



### HORIZONTAL DISCHARGE

#### MODEL HEIGHT

#### MODEL WIDTH



### SELECTION AND PRICING

This can be performed on the Selection software which can be downloaded from our website [www.kelvion.com](http://www.kelvion.com)

# www.kelvion.com

Distributor/Wholesaler



**Kelvion UK - Fareham**  
20 Davis Way, Newgate Lane, Fareham  
Hampshire, PO14 1AR, United Kingdom  
Tel: +44 (0) 1329 823344  
[www.kelvion.com](http://www.kelvion.com)

**Kelvion UK - Birmingham**  
3 Maybrook Road, Birmingham,  
B76 1AL, United Kingdom  
Tel: +44 (0) 121 352 3340  
[www.kelvion.com](http://www.kelvion.com)

