

FM Industrial Cooler

AFC Compact Systems



FM 20 1 - 6 6 - A AV EL CU/AL

Range	FM
Height of case	Tubes high = 20, 24, 30, 36
No. of fans	1, 2, 3, 4
No. of rows	4, 6, 8
Fin spacing	4mm, 6mm, 8mm
Fan/Motor type	Ducted Axial AA, AB, AC, AD
Discharge orientation	V = Vertical, H = Horizontal
Defrost	EL = Electric defrost in coil and drain tray, HGEA,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 materials	Cu/Al = Copper, Aluminium fin.

FM Industrial Cooler

Features

- Versatile range of floor mounted coolers.
- Robust construction, designed to withstand demanding applications
- Capacities can be achieved with many choices of size, fin spacing and air volume.
- Easy access for maintenance and cleaning.
- Double-skinned, insulated draintray assists defrost in low temperature applications and prevents
- condensation in high temperature applications.
- Structural, one-piece draintray allows units to be lifted, fully-assembled, from underneath.
- Fin design provides high secondary surface extending operating times between defrosts.

Minimal refrigerant charge.

General

The FM range is versatile with a large number of configurations. This catalogue layout allows quick and easy selection of the correct unit for each application. The range is divided into 4 heights; the FM20, FM24, FM30 and the FM36, with up to 4 fans and 3 coil depths. Data is shown for 4, 6 and 8mm fin spacing. As a rough guide for 12mm fin spacing multiply 8mm duty figures by 0.8. The discharge of the cooler can be vertical or horizontal.

Refrigerant

Capacity data is shown for R404A, with correction factors provided for other common refrigerants. For refrigerants and fluids not shown, including ammonia and water/glycol mixes, please consult your supplier.

Coil

The 'S' fin featured in this cooler has been 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. This will lead to reduced ongoing energy costs. In addition, the relatively low internal coil volume results in reduced refrigerant charge.

Fans/Motors

Ducted axial fans with 125Pa of external static pressure are standard, other pressure requirements can be designed on application. Standard fans are supplied with 4 pole, nominal 1440rpm fan speeds, for working areas with noise restrictions please consult our applications department.

Noise Levels

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 figures are supplied as a guide only, showing comparative noise levels between models and fan selections. If the application is noise sensitive we would advise the appointment of an independent noise consultant.

Air Throws

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.

Pump Circulation

Arranged as bottom feed for pump rates between 3:1 and 5:1. For other pump rates please refer to your supplier.

Location

Incorrect unit location will adversely affect unit performance and air throw. For advice on unit location, please contact your supplier.

Defrost

Electric defrost coil and draintray Stainless steel heater elements with hermetically sealed terminals are pre-wired to a common junction box.

Hot gas coil, electric draintray (HGDA, HGDB, HGDC, HGDD) Incorporating four circuiting options all with electric heater rods within the draintray.

Hot gas coil and draintray (HGDA, HGDB, HGDC, HGDD) Generally as above but units are supplied with a hot gas tube matrix within the draintray.

Peripheral Heaters Recommended for use on all ducted axial fan options when operating below freezing, with horizontal discharge.

Options

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 our applications department for further details.

4mm, 6mm and 8mm specification

4mm

Model	Capacity	Air volume at 125Pa	Surface area	Section	Inlet	Outlet	Internal volume	Defrost power	Sound power level	Sound pressure level	Air throw
	kW	m³/s			m²	Inches					
FM201-44-AA	26.4	4.54	137.5	1	5/8"	1 3/8"	26	10	94	77	51
FM201-64-AA	32.1	4.19	206.3	1	5/8"	1 3/8"	38	12	94	77	47
FM202-44-AA	52.1	9.07	275.0	1	3/4"	1 3/8"	49	19	97	80	51
FM202-64-AA	64.5	8.39	412.5	1	3/4"	1 5/8"	72	24	97	80	47
FM203-44-AA	80.1	13.59	412.5	1	3/4"	2 1/8"	71	29	99	82	51
FM203-64-AA	96.7	12.56	618.8	2	2 x 3/4"	2 x 1 5/8"	106	36	99	82	47
FM241-44-AB	29.2	4.75	165.0	1	5/8"	1 3/8"	31	10	94	77	54
FM241-64-AB	35.4	4.45	247.5	1	3/4"	1 3/8"	46	12	94	77	51
FM242-46-AB	57.9	9.50	330.0	1	3/4"	1 5/8"	59	19	97	80	54
FM242-66-AB	71.0	8.90	495.1	1	3/4"	1 5/8"	87	24	97	80	51
FM243-46-AB	88.3	14.25	495.1	1	3/4"	2 1/8"	85	29	99	82	54
FM243-66-AB	106.6	13.35	742.6	2	2 x 3/4"	2 x 1 5/8"	128	36	99	82	51
FM302-46-AC	73.9	12.06	412.5	2	2 x 5/8"	2 x 1 3/8"	74	19	101	84	55
FM302-66-AC	91.7	11.65	618.8	2	2 x 3/4"	2 x 1 3/8"	109	29	101	84	50
FM303-46-AC	111.0	18.0	618.8	2	2 x 3/4"	2 x 1 5/8"	107	29	103	86	55
FM303-66-AC	137.8	17.47	928.2	2	2 x 3/4"	2 x 1 5/8"	158	43	103	86	50
FM304-44-AC	146.5	24.0	825.1	2	2 x 3/4"	2 x 1 5/8"	140	38	104	87	55
FM304-64-AC	183.1	23.29	1237.6	2	2 x 3/4"	2 x 2 1/8"	208	58	104	87	50
FM362-64-AD	117.6	15.39	742.6	2	2 x 3/4"	2 x 1 5/8"	130	34	103	86	52
FM363-64-AD	132.0	15.02	990.1	2	2 x 3/4"	2 x 1 5/8"	172	45	103	86	49
FM363-64-AD	176.6	23.08	1113.9	3	3 x 3/4"	3 x 1 5/8"	191	50	105	88	52
FM363-84-AD	196.6	22.53	1485.2	2	2 x 3/4"	2 x 2 1/8"	254	67	105	88	49
FM364-64-AD	233.8	30.77	1485.2	3	3 x 3/4"	3 x 2 1/8"	252	67	106	89	52
FM364-84-AD	265.0	30.05	1980.2	3	3 x 3/4"	3 x 2 1/8"	336	90	106	89	49

6mm

Model	Capacity	Air volume at 125Pa	Surface area	Section	Inlet	Outlet	Internal volume	Defrost power	Sound power level	Sound pressure level	Air throw
	kW	m³/s			m²	Inches					
FM201-66-AA	26.4	4.45	140.0	1	5/8"	1 3/8"	38	10	94	77	50
FM201-86-AA	29.9	4.28	186.8	1	5/8"	1 3/8"	50	12	94	77	48
FM202-66-AA	52.9	8.89	280.0	1	3/4"	1 3/8"	72	19	97	80	50
FM202-86-AA	61.2	8.55	373.7	1	3/4"	1 5/8"	95	24	97	80	48
FM203-66-AA	79.4	13.34	420.1	2	2 x 3/4"	2 x 1 3/8"	106	29	99	82	50
FM203-86-AA	91.5	12.83	560.5	1	3/4"	1 3/8"	141	36	99	82	48
FM241-66-AB	29.1	4.7	168.0	1	5/8"	1 3/8"	46	10	94	77	54
FM241-86-AB	33.4	4.5	224.2	1	3/4"	1 3/8"	61	12	94	77	51
FM242-66-AB	58.5	9.4	336.1	1	3/4"	1 5/8"	87	19	97	80	54
FM242-86-AB	67.2	9.0	448.4	1	3/4"	1 5/8"	115	24	97	80	51
FM243-66-AB	88.8	14.1	504.1	2	2 x 3/4"	2 x 1 3/8"	128	29	99	82	54
FM243-86-AB	100.8	13.5	672.6	2	2 x 3/4"	2 x 1 5/8"	171	36	99	82	51
FM302-66-AC	74.2	12.0	420.4	2	2 x 3/4"	2 x 1 3/8"	109	19	101	84	54
FM302-86-AC	86.1	11.65	560.5	2	2 x 3/4"	2 x 1 3/8"	144	29	101	84	52
FM303-66-AC	111.6	18.0	630.6	2	2 x 3/4"	2 x 1 5/8"	158	29	103	86	54
FM303-86-AC	129.1	17.47	840.8	2	2 x 3/4"	2 x 1 5/8"	209	43	103	86	52
FM304-66-AC	1149.6	24.0	840.8	2	2 x 3/4"	2 x 1 5/8"	208	38	104	87	54
FM304-86-AC	172.6	23.29	1121.1	3	3 x 3/4"	3 x 2 5/8"	276	58	104	87	52
FM362-66-AD	94.3	15.78	504.5	2	2 x 3/4"	2 x 1 5/8"	130	34	103	86	56
FM363-86-AD	110.8	15.3	672.6	2	2 x 3/4"	2 x 1 5/8"	172	45	103	86	54
FM363-66-AD	141.6	23.67	756.7	2	2 x 3/4"	2 x 1 5/8"	191	50	105	88	56
FM363-86-AD	165.8	23.29	1009.0	2	2 x 3/4"	2 x 2 1/8"	254	67	105	88	54
FM364-66-AD	190.1	31.57	1009.0	3	3 x 3/4"	3 x 1 5/8"	252	67	106	89	56
FM364-86-AD	222	31.03	1345.3	3	3 x 3/4"	3 x 1 5/8"	336	90	106	89	54

8mm

Model	Capacity	Air volume at 125Pa	Surface area	Section	Inlet	Outlet	Internal volume	Defrost power	Sound power level	Sound pressure level	Air throw
	kW	m³/s	m²		Inches	Inches					
FM201-68-AA	22.1	4.63	107.1	1	5/8"	1 1/8"	38	12	94	77	52
FM201-88-AA	25.9	4.45	142.8	1	5/8"	1 3/8"	50	14	94	77	50
FM202-68-AA	44.6	9.23	214.1	1	3/4"	1 3/8"	72	24	97	80	52
FM202-88-AA	52.3	8.89	285.5	1	3/4"	1 5/8"	95	29	97	80	50
FM203-68-AA	66.3	13.86	321.2	2	2 x 3/4"	2 x 1 5/8"	106	36	99	82	52
FM203-88-AA	75.5	13.34	428.3	1	3/4"	2 1/8"	141	43	99	82	50
FM241-68-AB	24.4	4.80	128.5	1	5/8"	1 1/8"	46	12	94	77	55
FM241-88-AB	25.7	4.67	171.3	1	5/8"	1 3/8"	61	14	94	77	53
FM242-68-AB	48.5	9.60	257.0	1	3/4"	1 5/8"	87	24	97	80	55
FM242-88-AB	57.7	9.34	342.6	1	3/4"	1 5/8"	115	29	97	80	53
FM243-68-AB	72.8	14.40	385.4	1	2 x 3/4"	2 x 1 3/8"	128	36	99	82	55
FM243-88-AB	86.6	14.01	513.9	2	2 x 3/4"	2 x 1 3/8"	171	43	99	82	53
FM302-68-AC	61.6	12.21	321.2	2	2 x 5/8"	2 x 1 3/8"	109	29	101	84	56
FM302-88-AC	73.2	12.00	428.3	2	2 x 3/4"	2 x 1 3/8"	144	38	101	84	56
FM303-68-AC	93	18.32	481.8	2	2 x 3/4"	2 x 1 3/8"	158	43	103	86	54
FM303-88-AC	110.3	18.00	642.4	2	2 x 3/4"	2 x 1 5/8"	209	58	103	86	54
FM304-68-AC	124.1	24.42	642.4	2	2 x 3/4"	2 x 1 5/8"	208	58	104	87	56
FM304-88-AC	145	24.00	856.6	2	2 x 3/4"	2 x 1 5/8"	276	77	104	87	54
FM362-68-AD	77.5	15.95	385.4	2	2 x 3/4"	2 x 1 3/8"	130	34	103	86	58
FM363-88-AD	93.2	15.77	513.9	2	2 x 3/4"	2 x 1 5/8"	172	45	103	86	56
FM363-68-AD	117.5	23.92	578.2	2	2 x 3/4"	2 x 1 5/8"	191	50	105	88	58
FM363-88-AD	140.1	23.65	770.9	2	2 x 3/4"	2 x 2 5/8"	254	67	105	88	56
FM364-68-AD	157	31.89	770.9	3	3 x 3/4"	3 x 1 5/8"	252	67	106	89	58
FM364-88-AD	186.8	31.53	1027.9	3	3 x 3/4"	3 x 1 5/8"	336	90	106	89	56

Defrost Defrost

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

Correction factors

Refrigeration	R404A	R134a	R507A	R407A/F	R407C
Capacity factor (dew point, DT1)	1.00	0.91	0.97	1.18*	1.35*
Refrigerant charge density (kg/dm³)	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 charges densities are based on 25% of the internal volume being liquid.

Fan data

Fanset	Diameter	Pole	FLC/SC	Power input kW
AA	800mm	4 pole	5.8/30A	3.3
AB	800mm	4 pole	5.8/30A	3.3
AC	800mm	4 pole	5.8/30A	3.3
AD	800mm	4 pole	9.4/55A	5.3

General

Note: All data for 400V, 3 phase, 50Hz supply. Noise levels are quoted at a distance of 3m from the units (free field). Capacities are nominal, based on DT1 dew point and stated at Eurovent standard condition 2 (-8°C saturated suction temp, 0°C air entering).

FM Cooler DT1 - WET

