



THE HEART OF FRESHNESS

CO₂ // SEMI-HERMETIC

RECIPROCATING COMPRESSOR

OUTDOOR AIRCOOLED MICRO CASCADE R134a/R744 (CO₂)
CONDENSING UNIT

ORIGINAL MANUFACTURED EQUIPMENT



BA-401-1 AUS



Products Specifications

Air-cooled cascade Condensing Units with Semi-hermetic Octagon® Compressors.

The newly developed Micro cascade R134a/R744(CO₂) air cooled condensing units are now available. These highly innovative packages feature state of the art cascade solutions for small to medium commercial freezer projects. These partially natural refrigerant hybrid systems make introduction to cascade technology easier. With a wide range of freezer and side coolroom load combinations available 1 system can provide the refrigeration to many smaller sites.

Important features:

- ☐ Robust construction with compact dimensions
- ☐ Semi-hermetic energy efficient compressors designed for harsh conditions
- ☐ Balanced cascade systems integrating factory set control parameters for rapid site commissioning
- ☐ R744 (CO₂) low GWP(Global Warming Potential) refrigerant for the freezer, R134a moderate GWP refrigerant for the coolroom.
- ☐ Maximum allowable pressure of up to 46bar in the R744 system, ISO relief valve
- ☐ Microchannel eCoated condenser facilitating reduced R134a refrigerant charge
- ☐ Highest efficiency EC fan motors capable of 0-100% infinite control to ensure fully stable systems and maximum energy savings.
EC fans range of operation includes integrated soft starting and low sound during night operation.
- ☐ The R134a OCTAGON VARISPEED compressor with incorporated suction gas cooled frequency inverter. This premium inverter allows the R134a compressor to operate between 25-87Hz* which means it can perfectly match system demand under all conditions whilst maintaining highest energy efficiency.
- ☐ Generously sized liquid receivers, liquid filters, sight glass and moisture indicators
- ☐ Fully wired electrical control panel, contactors, isolations switch and PLC
- ☐ Cascade interstage plate heat exchanger, R744 suction gas superheater and flood back protection, fitted interstage expansion valve
- ☐ High pressure safety switch (manual reset) additional to the PLC
- ☐ Pre-charged with oil inside the R134a and R744 systems.
- ☐ Powder coated weather proof enclosure

* minimum of 30Hz on the 2DC-3.F1Y compressor.

Options

- ☐ Sound attenuation material fitted to the interior of the enclosure
- ☐ Network serial card so the system can communicate with other BMS systems

Explanation of type designation

4EC-6.F1Y // 2MSL-07K // RCM-EC

R134a suction gas cooled inverter compressor model

4EC-6.F1Y // 2MSL-07K // RCM-EC

R744 (CO₂) compressor model

4EC-6.F1Y // 2MSL-07K // RCM-EC

Condenser model - Fan series

Performance data

based on 15K R134a & 20K R744 suction gas superheat, 3K R134a & 5K R744 liquid sub cooling

Type	Ambient temp. °C	Cooling capacity Q_o [Watt]				Power Consumption P_e ① [kW]	
		Coolroom R134a Vari-speed@87Hz		Freezer R744 (CO ₂)			
		Evaporating -7°C		Evaporating -24°C		Total power consumption	
2DC-3.F1Y // 2MSL-07K // RCM-EC	35	Q	3,139		4,090		
		P	3.22		0.78		4.00
	40	Q	2,577		4,090		
		P	3.37		0.78		4.15
	43	Q	2,248		4,090		
		P	3.45		0.78		4.23
4EC-6.F1Y // 2MSL-07K // RCM-EC	35	Q	8,393		4,090		
		P	5.88		0.78		6.66
	40	Q	7,403		4,090		
		P	6.08		0.78		6.86
	43	Q	6,816		4,090		
		P	6.18		0.78		6.96
4EC-6.F1Y // 2KSL-1K // RCM-EC	35	Q	5,333		6,750		
		P	5.88		1.29		7.17
	40	Q	4,343		6,750		
		P	6.08		1.29		7.37
	43	Q	3,756		6,750		
		P	6.18		1.29		7.47
45	45	Q	3,366		6,750		
		P	6.25		1.29		7.54

Performance data

based on 15K R134a & 20K R744 suction gas superheat, 3K R134a & 5K R744 liquid sub cooling

Type	Ambient temp. °C	Cooling capacity $\dot{Q}_0$ [Watt] Power Consumption P_e ① [kW]			
		Coolroom R134a Vari-speed@87Hz		Freezer R744 (CO ₂)	
		Evaporating -7°C		Evaporating -24°C	Total power consumption
4NES-12.F3Y // 2MSL-07K // FMCM-EC	35	Q	29,188	4,090	
		P	12.61	0.78	13.39
	40	Q	26,491	4,090	
		P	13.02	0.78	13.80
	43	Q	24,883	4,090	
4NES-12.F3Y // 2KSL-1K // FMCM-EC		P	13.22	0.78	14.00
	45	Q	23,816	4,090	
		P	13.33	0.78	14.11
	35	Q	26,128	6,750	
		P	12.61	1.29	13.90
4NES-12.F3Y // 2HSL-3K // FMCM-EC	40	Q	23,431	6,750	
		P	13.02	1.29	14.31
	43	Q	21,823	6,750	
		P	13.22	1.29	14.51
	45	Q	20,756	6,750	
4NES-12.F3Y // 2FSL-4K // FMCM-EC		P	13.33	1.29	14.62
	35	Q	21,118	11,070	
		P	12.61	2.09	14.70
	40	Q	18,421	11,070	
		P	13.02	2.09	15.11
4NES-12.F3Y // 2DSL-5K // FMCM-EC	43	Q	16,813	11,070	
		P	13.22	2.09	15.31
	45	Q	15,746	11,070	
		P	13.33	2.09	15.42
4NES-12.F3Y // 2FSL-4K // FMCM-EC	35	Q	14,878	16,640	
		P	12.61	3.09	15.70
	40	Q	12,181	16,640	
		P	13.02	3.09	16.11
	43	Q	10,573	16,640	
4NES-12.F3Y // 2DSL-5K // FMCM-EC		P	13.22	3.09	16.31
	45	Q	9,506	16,640	
		P	13.33	3.09	16.42
	35	Q	5,978	24,600	
		P	12.61	4.35	16.96
4NES-12.F3Y // 2DSL-5K // FMCM-EC	40	Q	3,281	24,600	
		P	13.02	4.35	17.37
	43	Q	1,673	24,600	
		P	13.22	4.35	17.57
	45	Q	606	24,600	
		P	13.33	4.35	17.68

Technical data

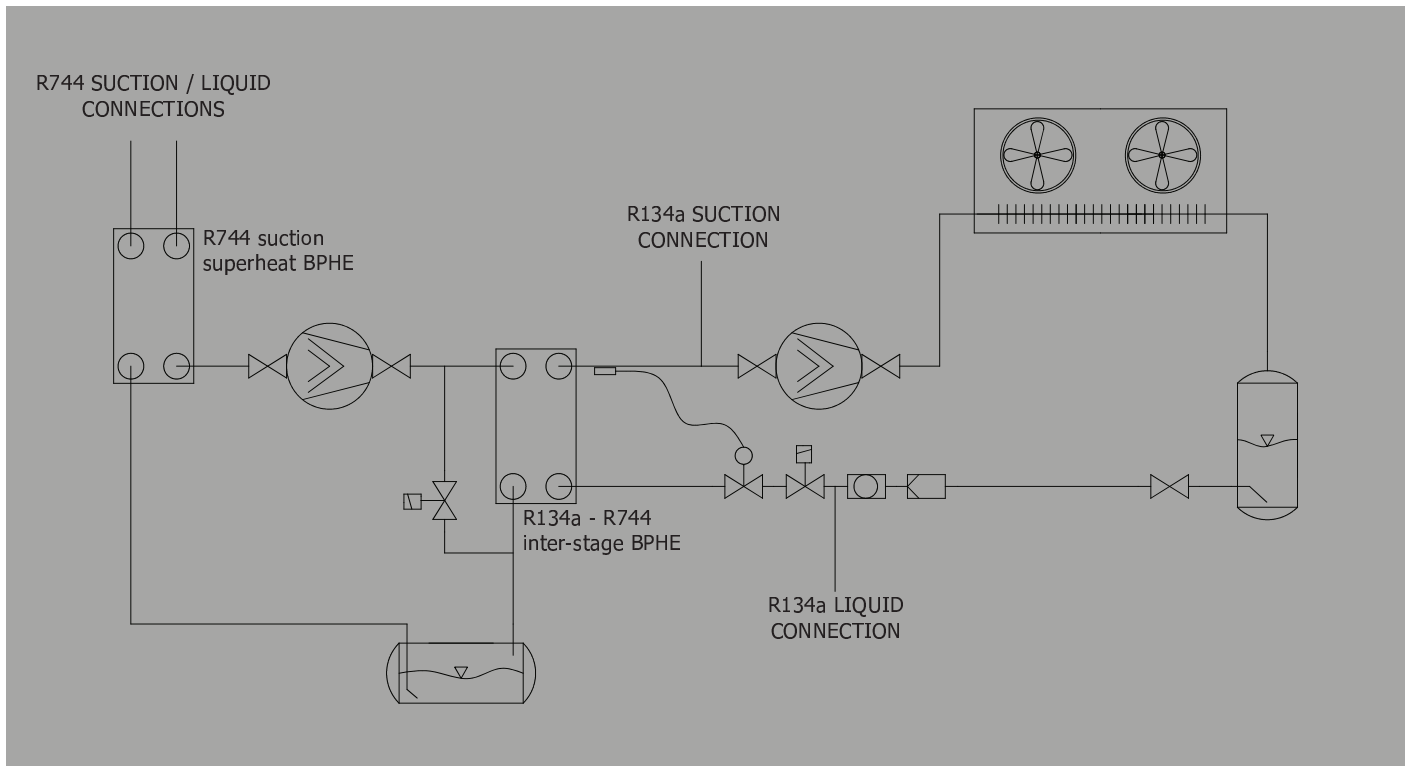
Condensing unit type	Compressor 1 - R134a		Compressor 2 - R744		Fan			Maximum Ø refrigerant charge		Weight (Stand.)
	Motor connection	max. operating current	Motor connection	max. operating current	Current consumption	Power consumption	Air flow condenser			
		A		A				A	Watt	l/s
2DC-3.F1Y // 2MSL-07K // RCM-EC	380 .. 480V D / 3 / 50 Hz	15	380 .. 420V D / 3 / 50 Hz	2.5	2 x 4.4 (1ph)	2 x 840	3300	9.5	3.5	315
4EC-6.F1Y // 2MSL-07K // RCM-EC		22		2.5	2 x 4.4 (1ph)	2 x 840	3300	9.5	3.5	338
4EC-6.F1Y // 2KSL-1K // RCM-EC		22		3.5	2 x 4.4 (1ph)	2 x 840	3300	9.5	3.5	341
4NES-12.F3Y // 2MSL-07K // FMCM-EC		34		2.5	2 x 4.8 (3ph)	2 x 3000	12420	46	7.0	526
4NES-12.F3Y // 2KSL-1K // FMCM-EC		34		3.5	2 x 4.8 (3ph)	2 x 3000	12420	46	7.0	532
4NES-12.F3Y // 2HSL-3K // FMCM-EC		34		6.0	2 x 4.8 (3ph)	2 x 3000	12420	46	7.0	557
4NES-12.F3Y // 2FSL-4K // FMCM-EC		34		8.6	2 x 4.8 (3ph)	2 x 3000	12420	46	7.0	557
4NES-12.F3Y // 2DSL-5K // FMCM-EC		34		11.3	2 x 4.8 (3ph)	2 x 3000	12420	46	7.0	583

Spare parts

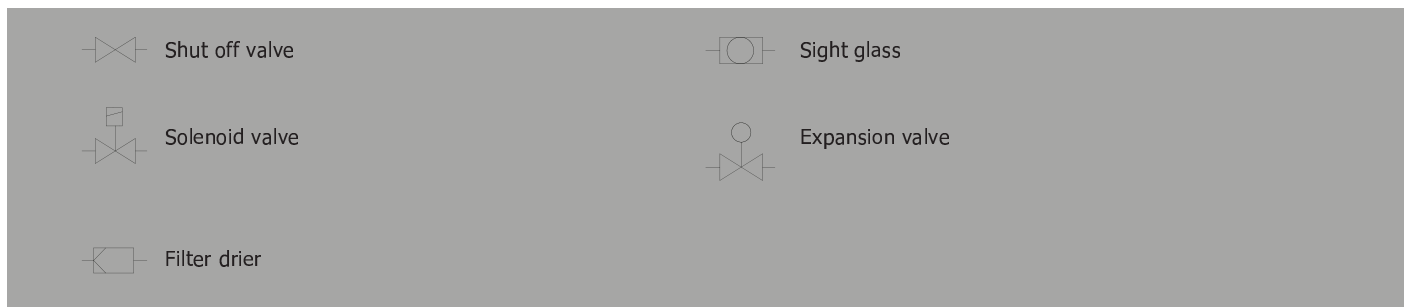
Condensing unit type	Complete unit	Compressor R134a	Compressor R744	Condenser fan EC	Sump heater suit R134a comp.	Sump heater suit R744 comp.
	Part No.	Part No.	Part No.	Part No.	Part No.	Part No.
2DC-3.F1Y // 2MSL-07K // RCM-EC	U26-601	J07-414	J04-469	R51000240	343219-01	On request
4EC-6.F1Y // 2MSL-07K // RCM-EC	U26-603	J07-416	J04-469	R51000240	343219-01	
4EC-6.F1Y // 2KSL-1K // RCM-EC	U26-605	J07-416	J04-490	R51000240	343219-01	
4NES-12.F3Y // 2MSL-07K // FMCM-EC	U26-608	J07-441	J04-469	R51000246	343219-04	
4NES-12.F3Y // 2KSL-1K // FMCM-EC	U26-610	J07-441	J04-490	R51000246	343219-04	
4NES-12.F3Y // 2HSL-3K // FMCM-EC	U26-613	J07-441	J04-491	R51000246	343219-04	
4NES-12.F3Y // 2FSL-4K // FMCM-EC	U26-616	J07-441	J04-492	R51000246	343219-04	
4NES-12.F3Y // 2DSL-5K // FMCM-EC	U26-618	J07-441	J04-493	R51000246	343219-04	

Condensing unit type	Oil suit R134a	Oil suit R744	Oil Watch system	Liquid line Drier suit R134a	Motor protection device suit R134a comp.	Motor protection device suit R744 comp.
	Part No.	Part No.	Part No.	Part No.	Part No.	Part No.
2DC-3.F1Y // 2MSL-07K // RCM-EC	I06-019 (2lt)	I06-033 (2lt)	K04-021	S03-018	347019-01	347019-01
4EC-6.F1Y // 2MSL-07K // RCM-EC	I06-019 (2lt)	I06-033 (2lt)	K04-021	S03-018	347019-01	347019-01
4EC-6.F1Y // 2KSL-1K // RCM-EC	I06-019 (2lt)	I06-033 (2lt)	K04-021	S03-018	347019-01	347019-01
4NES-12.F3Y // 2MSL-07K // FMCM-EC	I06-015 (5lt)	I06-033 (2lt)	K04-021	S03-024	347019-01	347019-01
4NES-12.F3Y // 2KSL-1K // FMCM-EC	I06-015 (5lt)	I06-033 (2lt)	K04-021	S03-024	347019-01	347019-01
4NES-12.F3Y // 2HSL-3K // FMCM-EC	I06-015 (5lt)	I06-033 (2lt)	K04-021	S03-024	347019-01	347019-01
4NES-12.F3Y // 2FSL-4K // FMCM-EC	I06-015 (5lt)	I06-033 (2lt)	K04-021	S03-024	347019-01	347019-01
4NES-12.F3Y // 2DSL-5K // FMCM-EC	I06-015 (5lt)	I06-033 (2lt)	K04-021	S03-024	347019-01	347019-01

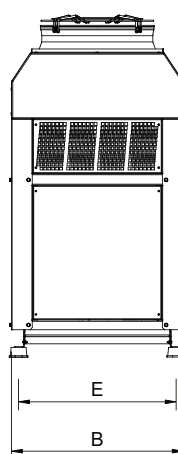
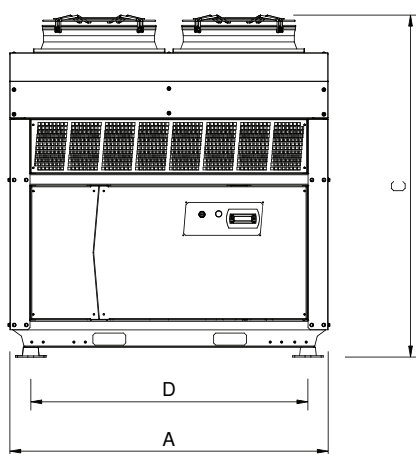
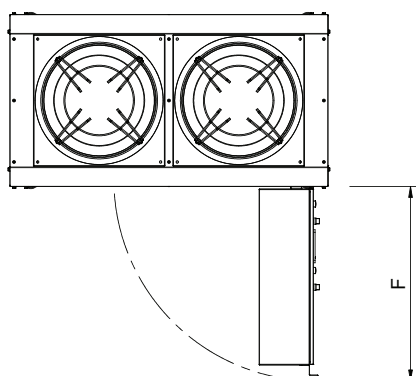
Schematic diagram



Legend for schematic diagram



Dimensional drawings



Condensing unit type	Dimensions in mm					
	A	B	C	D	E	F
2DC-3.F1Y // 2MSL-07K // RCM-EC	1466	803	1557	1263	746	900
4EC-6.F1Y // 2MSL-07K // RCM-EC	1466	803	1557	1263	746	900
4EC-6.F1Y // 2KSL-1K // RCM-EC	1466	803	1557	1263	746	900
4NES-12.F3Y // 2MSL-07K // FMCM-EC	2250	1303	1980	2047	1246	1200
4NES-12.F3Y // 2KSL-1K // FMCM-EC	2250	1303	1980	2047	1246	1200
4NES-12.F3Y // 2HSL-3K // FMCM-EC	2250	1303	1980	2047	1246	1200
4NES-12.F3Y // 2FSL-4K // FMCM-EC	2250	1303	1980	2047	1246	1200
4NES-12.F3Y // 2DSL-5K // FMCM-EC	2250	1303	1980	2047	1246	1200

Condensing unit type	Connections R134a				Connections R744			
	Suction connection		Refrigerant outlet		Suction connection		Refrigerant outlet	
	mm	inch	mm	inch	mm	inch	mm	inch
2DC-3.F1Y // 2MSL-07K // RCM-EC	16	5/8"	10	3/8"	12	1/2"	10	3/8"
4EC-6.F1Y // 2MSL-07K // RCM-EC	28	1-1/8"	10	3/8"	12	1/2"	10	3/8"
4EC-6.F1Y // 2KSL-1K // RCM-EC	28	1-1/8"	10	3/8"	12	1/2"	10	3/8"
4NES-12.F3Y // 2MSL-07K // FMCM-EC	42	1 5/8"	16	5/8"	12	1/2"	10	3/8"
4NES-12.F3Y // 2KSL-1K // FMCM-EC	42	1 5/8"	16	5/8"	12	1/2"	10	3/8"
4NES-12.F3Y // 2HSL-3K // FMCM-EC	42	1 5/8"	16	5/8"	16	5/8"	10	3/8"
4NES-12.F3Y // 2FSL-4K // FMCM-EC	35	1 3/8"	12	1/2"	22	7/8"	12	1/2"
4NES-12.F3Y // 2DSL-5K // FMCM-EC	28	1 1/8"	12	1/2"	22	7/8"	12	1/2"



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