

Refrigeration Units with Semi-Hermetic Stream Compressors and CoreSense™ Diagnostics

Copeland air-cooled indoor refrigeration units for low, medium and high temperature applications.

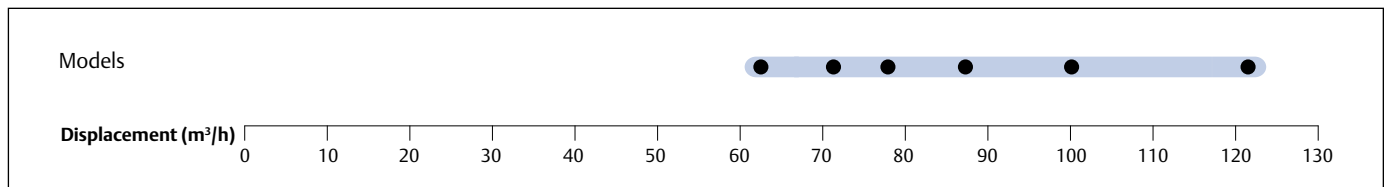
This series of refrigeration units is equipped with 4 or 6 cylinder high performance semi-hermetic Stream compressors. The advanced protection and diagnostic features reduce service costs and system downtime. These models are specifically suitable for those applications where high efficiency and reliability is required to achieve low lifecycle costs.

Multiple refrigerant approvals and wide range of accessories improve flexibility in system design.



Refrigeration Units with Semi-Hermetic Stream Compressors and CoreSense™ Diagnostics

Refrigeration Units with Stream Compressor Line-up



Features and Benefits

- Standard equipment: Stream compressor with CoreSense Diagnostics, condenser with thermally protected fan(s), discharge line with flexible pipe loop or vibration absorber, liquid receiver with shut-off-valve, HP/LP switch with automatic reset.
- Suitable for multiple refrigerants: R407A/F, R448A/R449A, R404A, R134a, R450A and R513A
- Wide range of quality accessories
- Excellent efficiency
- Proven reliability

Maximum Allowable Pressures (PS)

- Low pressure side = 22.5 bar
- High pressure side = 28 bar

CoreSense Diagnostics Features

- Motor and oil protection
- Storage of compressor asset and advanced runtime information
- Runtime and alarm signalling using multicoloured LED flash-codes
- System communication via Modbus
- Compressor power sensing

Technical Overview

Model	Displacement (m ³ /h)	Receiver Capacity (l)	Number of fans	Total Fan Motor Power (W)	Suction Line Diameter (inch)	Liquid Line Diameter (inch)	Net Weight (kg)	Motor Version/ Code	Maximum Operating Current (A)	Locked Rotor Current (A)	Sound Pressure @10m - dB(A)***
								3 Ph**	3 Ph**	3 Ph**	
W99-6MI-40X	121	47.9	4	1600	2 1/8	7/8	521.0	AWM	71	304	59.0
Z9-4MA-22X	62	18.9	4	1600	1 5/8	7/8	383.0	AWM	36	175	59.0
V6-4ML-15X	71	18.9	2	800	1 5/8	7/8	303.0	AWM	35	156	57.0
V6-4MF-13X	62	18.9	2	800	1 5/8	7/8	295.0	AWM	31	105	57.0
Z9-4MH-25X	71	18.9	4	1600	2 1/8	7/8	389.0	AWM	42	199	59.0
Z9-4MM-20X	71	18.9	4	1600	2 1/8	7/8	388.0	AWM	39	175	
Z9-4MI-30X	78	18.9	4	1600	2 1/8	7/8	416.0	AWM	47	221	59.0
Z9-4MT-22X	71	18.9	4	1600	2 1/8	7/8	389.0	AWM	45	175	
Z9-4MJ-33X	88	18.9	4	1600	2 1/8	7/8	416.0	AWM	53	221	59.0
W9-4MT-22X	88	18.9	2	800	2 1/8	7/8	358.0	AWM	45	175	59.0
W9-4MM-20X	78	18.9	2	800	2 1/8	7/8	358.0	AWM	39	175	57.0
Z9-4MU-25X	100	18.9	4	1600	2 1/8	7/8	392.0	AWM	52	199	59.0
Z9-6MM-30X	121	18.9	4	1600	2 1/8	7/8	410.0	AWM	60	255	59.0
W99-4MK-35X	121	47.9	4	1600	2 1/8	7/8	504.0	AWM	61	255	59.0
Z9-4ML-15X	71	18.9	4	1600	1 5/8	7/8	386.0	AWM	35	156	

** 3 Ph: 380-420V/ 50Hz

*** @ 10m: sound pressure level at 10m distance from the compressor, free field condition

Capacity Data

R407A	Cooling Capacity (kW)							R407A	Power Input (kW)						
	Ambient Temperature: 32°C								Ambient Temperature: 32°C						
	Evaporating Temperature (°C)								Evaporating Temperature (°C)						
Model	-45	-35	-30	-20	-10	-5	+5	Model	-45	-35	-30	-20	-10	-5	+5
V6-4MF-13X		7.5*	10.3*	18.4	26.5	31.0		V6-4MF-13X		6.9*	8.1*	10.9	14.0	15.8	
Z9-4MA-22X				20.9	32.0	38.7	54.5	Z9-4MA-22X				11.0	13.3	14.5	17.0
Z9-4ML-15X		10.2*	15.2	24.6	36.7	43.8		Z9-4ML-15X		8.9*	10.2	12.9	15.8	17.4	
Z9-4MH-25X				24.4	36.6	43.9	60.9	Z9-4MH-25X				12.9	15.7	17.1	20.0
V6-4ML-15X		9.3*	12.6*	21.7	30.9	35.9		V6-4ML-15X		8.2*	9.6*	12.9	16.7	18.9	
Z9-4MI-30X				26.6	40.0	47.9	66.1	Z9-4MI-30X				14.2	17.4	19.0	22.5
Z9-4MM-20X		11.4*	16.7	26.7	39.6	47.2		Z9-4MM-20X		9.7*	11.2	14.3	17.6	19.3	
W9-4MM-20X		10.5*	14.0*	23.8	33.8	39.2		W9-4MM-20X		9.0*	10.6*	14.3	18.5	20.9	
Z9-4MJ-33X				29.3	43.6	52.0	71.2	Z9-4MJ-33X				15.9	19.6	21.5	25.8
W9-4MT-22X		11.1*	14.7*	25.1	35.2	40.6		W9-4MT-22X		10.3*	12.1*	16.4	21.4	24.3	
Z9-4MT-22X		12.1*	17.9	28.4	41.9	49.8		Z9-4MT-22X		10.9*	12.6	16.2	20.1	22.2	
W99-4MK-35X				32.4	47.9	56.8	76.6	W99-4MK-35X				18.1	22.6	25.0	30.4
Z9-4MU-25X		13.2*	19.8	31.7	46.5	55.0		Z9-4MU-25X		12.1*	14.0	18.1	22.8	25.5	
Z9-6MM-30X		15.8*	23.7	37.5	54.5	64.0		Z9-6MM-30X		14.2*	16.5	21.7	27.6	30.9	
W99-6MI-40X				38.4	56.2	66.1	87.7	W99-6MI-40X				21.6	27.3	30.5	37.5

Conditions: EN13215: Suction Gas Return 20°C, Subcooling 0K

* Conditions: EN13215: Suction Superheat 10K

R407F	Cooling Capacity (kW)							R407F	Power Input (kW)						
	Ambient Temperature: 32°C								Ambient Temperature: 32°C						
	Evaporating Temperature (°C)								Evaporating Temperature (°C)						
Model	-45	-35	-30	-20	-10	-5	+5	Model	-45	-35	-30	-20	-10	-5	+5
Z9-4MA-22X				21.3*	34.0	41.1	57.5	Z9-4MA-22X				11.7*	14.2	15.5	18.0
V6-4MF-13X		8.0*	11.0*	18.1*	27.5	32.1		V6-4MF-13X		7.2*	8.5*	11.4*	14.9	16.8	
V6-4ML-15X		9.9*	13.3*	21.4*	32.4			V6-4ML-15X		8.6*	10.1*	13.6*	17.9		
Z9-4MH-25X				24.4*	38.7	46.5	64.6	Z9-4MH-25X				13.5*	16.6	18.1	21.3
Z9-4MI-30X				26.9*	42.0	50.2	68.8	Z9-4MI-30X				14.7*	18.2	20.0	23.9
W9-4MM-20X		10.9*	14.6*	23.3*	35.1			W9-4MM-20X		9.6*	11.2*	15.0*	19.6		
Z9-4MJ-33X				29.6*	45.9	54.5	74.1	Z9-4MJ-33X				16.6*	20.6	22.9	27.7
W9-4MT-22X		12.4*	16.4*	25.5*	36.1*			W9-4MT-22X		10.9*	12.7*	17.2*	22.8*		
Z9-4MU-25X		14.8*	19.8*	32.2*	49.5	58.5		Z9-4MU-25X		12.7*	14.7*	19.1*	24.4	27.3	
W99-4MK-35X				32.5*	50.1	59.3	79.8	W99-4MK-35X				18.8*	23.6	26.4	32.7
W99-6MI-40X				38.4*	59.0	69.3	91.6	W99-6MI-40X				22.6*	28.9	32.4	40.2
Z9-6MM-30X		17.7*	23.7*	38.1*	58.0	68.1		Z9-6MM-30X		15.1*	17.4*	22.8*	29.3	32.8	

Conditions: EN13215: Suction Gas Return 20°C, Subcooling 0K

* Conditions: EN13215: Suction Superheat 10K

Capacity Data

R448A	Cooling Capacity (kW)							R448A	Power Input (kW)						
	Ambient Temperature: 32°C								Ambient Temperature: 32°C						
	Evaporating Temperature (°C)								Evaporating Temperature (°C)						
Model	-45	-35	-30	-20	-10	-5	+5	Model	-45	-35	-30	-20	-10	-5	+5
Z9-4MA-22X		9.0*	13.1	21.8	33.6	40.8	57.8	Z9-4MA-22X		7.8*	9.0	11.3	13.6	14.8	17.2
V6-4MF-13X		8.4*	11.0*	18.2	25.8	30.1		V6-4MF-13X		7.0*	8.2*	11.1	14.4	16.3	
Z9-4MH-25X		10.6*	15.2	24.9	37.5	45.0	62.2	Z9-4MH-25X		9.1*	10.4	13.2	16.1	17.7	20.9
V6-4ML-15X		10.5*	13.8*	22.4	31.6	36.6		V6-4ML-15X		8.4*	9.8*	13.2	17.3	19.7	
Z9-4ML-15X		11.5*	16.0	25.3	37.3	44.3		Z9-4ML-15X		9.1*	10.4	13.2	16.3	17.9	
Z9-4MI-30X		11.9*	17.2	27.9	41.7	49.7	68.2	Z9-4MI-30X		9.8*	11.4	14.6	17.9	19.7	23.2
W9-4MM-20X		11.7*	15.3*	24.5	34.1	39.2		W9-4MM-20X		9.3*	10.9*	14.6	19.3	22.0	
Z9-4MM-20X		12.7*	17.6	27.7	40.3	47.5		Z9-4MM-20X		10.0*	11.4	14.5	18.0	20.0	
Z9-4MJ-33X		13.2*	18.8	30.3	45.0	53.6	73.3	Z9-4MJ-33X		10.8*	12.5	16.2	20.2	22.3	26.8
W9-4MT-22X		13.1*	16.9*	27.0	37.2			W9-4MT-22X		10.5*	12.4*	16.7	22.1		
Z9-4MT-22X		14.4*	18.8*	30.7	44.5	52.4		Z9-4MT-22X		11.2*	12.8*	16.4	20.5	22.8	
W99-4MK-35X		14.7*	19.8*	33.4	49.3	58.5	79.3	W99-4MK-35X		12.3*	14.2*	18.6	23.3	25.9	31.3
Z9-4MU-25X		15.2*	20.0*	33.1	48.3	57.1		Z9-4MU-25X		12.3*	14.2*	18.5	23.6	26.5	
W99-6MI-40X		17.8*	23.9*	40.0	57.7	67.5	88.5	W99-6MI-40X		14.5*	16.9*	21.9	27.7	30.9	37.9
Z9-6MM-30X		18.3*	24.0*	39.1	55.5	64.6		Z9-6MM-30X		14.6*	16.9*	22.2	28.1	31.4	

Conditions: EN13215: Suction Gas Return 20°C, Subcooling 0K

* Conditions: EN13215: Suction Superheat 10K

Preliminary data

R449A	Cooling Capacity (kW)							R449A	Power Input (kW)						
	Ambient Temperature: 32°C								Ambient Temperature: 32°C						
	Evaporating Temperature (°C)								Evaporating Temperature (°C)						
Model	-45	-35	-30	-20	-10	-5	+5	Model	-45	-35	-30	-20	-10	-5	+5
Z9-4MA-22X		9.0*	13.1	21.8	33.6	40.8	57.8	Z9-4MA-22X		7.8*	9.0	11.3	13.6	14.8	17.2
V6-4MF-13X		8.4*	11.0*	18.2	25.8	30.1		V6-4MF-13X		7.0*	8.2*	11.1	14.4	16.3	
Z9-4MH-25X		10.5*	15.2	24.9	37.5	45.0	62.2	Z9-4MH-25X		9.1*	10.4	13.2	16.1	17.7	20.9
V6-4ML-15X		10.4*	13.7*	22.4	31.6	36.6		V6-4ML-15X		8.4*	9.8*	13.2	17.3	19.7	
Z9-4ML-15X		11.4*	16.0	25.3	37.3	44.3		Z9-4ML-15X		9.1*	10.4	13.2	16.3	17.9	
W9-4MM-20X		11.7*	15.2*	24.5	34.1	39.2		W9-4MM-20X		9.3*	10.9*	14.6	19.3	22.0	
Z9-4MJ-33X		13.2*	18.8	30.3	45.0	53.6	73.3	Z9-4MJ-33X		10.8*	12.5	16.2	20.2	22.3	26.8
W9-4MT-22X		13.1*	16.9*	27.0	37.2			W9-4MT-22X		10.5*	12.4*	16.7	22.1		
Z9-4MT-22X		14.3*	18.8*	30.7	44.5	52.4		Z9-4MT-22X		11.2*	12.8*	16.4	20.5	22.8	
W99-4MK-35X		14.7*	19.7*	33.4	49.3	58.5	79.3	W99-4MK-35X		12.3*	14.2*	18.6	23.3	25.9	31.3
Z9-4MU-25X		15.1*	19.9*	33.1	48.3	57.1		Z9-4MU-25X		12.3*	14.2*	18.5	23.6	26.5	
W99-6MI-40X		17.7*	23.8*	40.0	57.7	67.5	88.5	W99-6MI-40X		14.5*	16.9*	21.9	27.7	30.9	37.9
Z9-6MM-30X		18.2*	24.0*	39.1	55.5	64.6		Z9-6MM-30X		14.6*	16.9*	22.2	28.1	31.4	

Conditions: EN13215: Suction Gas Return 20°C, Subcooling 0K

* Conditions: EN13215: Suction Superheat 10K

Preliminary data

Capacity Data

R404A	Cooling Capacity (kW)							R404A	Power Input (kW)						
	Ambient Temperature: 32°C								Ambient Temperature: 32°C						
	Evaporating Temperature (°C)								Evaporating Temperature (°C)						
Model	-45	-35	-30	-20	-10	-5	+5	Model	-45	-35	-30	-20	-10	-5	+5
Z9-4MA-22X		11.7	15.3	24.0	34.8	41.0	55.0	Z9-4MA-22X		8.9	10.1	12.5	14.9	16.0	18.2
V6-4MF-13X	4.3*	10.8	13.7	20.4	28.4	32.8		V6-4MF-13X	5.8*	8.2	9.5	12.3	15.3	16.9	
V6-4ML-15X	5.4*	13.0	16.4	23.9	32.6	37.2		V6-4ML-15X	7.1*	9.9	11.5	14.9	18.7	20.6	
Z9-4MH-25X		13.4	17.5	27.3	39.6	46.7	62.8	Z9-4MH-25X		10.2	11.6	14.6	17.6	19.1	22.0
Z9-4ML-15X	5.9*	14.2	18.1	27.7	39.5	46.3		Z9-4ML-15X	7.9*	10.5	12.0	15.0	18.0	19.4	
Z9-4MM-20X	6.8*	15.9	20.1	30.2	42.5	49.4		Z9-4MM-20X	8.7*	11.6	13.1	16.3	19.7	21.3	
W9-4MM-20X	6.3*	14.5	18.1	25.9	34.6	39.2		W9-4MM-20X	7.9*	11.0	12.7	16.5	20.7	23.0	
Z9-4MI-30X		15.4	20.0	30.5	43.1	50.3	66.1	Z9-4MI-30X		11.4	13.0	16.3	19.6	21.2	24.6
Z9-4MJ-33X		17.0	21.8	33.2	46.9	54.6	71.6	Z9-4MJ-33X		12.4	14.2	17.9	21.8	23.8	27.8
W9-4MT-22X	7.2*	15.9	19.7	28.1	37.6			W9-4MT-22X	8.8*	12.4	14.4	18.7	23.6		
Z9-4MT-22X	7.9*	17.7	22.2	33.3	46.9	54.6		Z9-4MT-22X	9.6*	13.0	14.7	18.5	22.4	24.4	
W99-4MK-35X		18.9	24.1	36.5	51.3	59.6	77.8	W99-4MK-35X		14.1	16.2	20.5	25.2	27.6	32.4
Z9-4MU-25X	8.4*	19.2	24.2	36.1	50.7			Z9-4MU-25X	10.5*	14.4	16.5	20.9	25.5		
W99-6MI-40X		22.1	28.2	42.3	58.8	67.9	87.3	W99-6MI-40X		16.8	19.3	24.8	30.6	33.6	40.0
Z9-6MM-30X	10.1*	22.8	28.4	41.8	58.1	67.2		Z9-6MM-30X	12.8*	17.5	20.0	25.3	31.2	34.3	

Conditions: EN13215: Suction Gas Return 20°C, Subcooling 0K

* Conditions: EN13215: Suction Superheat 10K

R407C	Cooling Capacity (kW)							R407C	Power Input (kW)						
	Ambient Temperature: 32°C								Ambient Temperature: 32°C						
	Evaporating Temperature (°C)								Evaporating Temperature (°C)						
Model	-45	-35	-30	-20	-10	-5	+5	Model	-45	-35	-30	-20	-10	-5	+5
Z9-4MA-22X				20.0	30.4	36.7	51.5	Z9-4MA-22X				10.7	12.9	13.9	16.0
Z9-4MH-25X				22.7	34.8	42.0	58.8	Z9-4MH-25X				12.2	14.8	16.1	18.8
Z9-4MI-30X				25.3	38.3	46.0	64.0	Z9-4MI-30X				13.4	16.4	18.0	21.1
Z9-4MJ-33X				27.8	42.0	50.4	69.6	Z9-4MJ-33X				14.8	18.4	20.2	24.3
W99-4MK-35X				31.9	47.7	56.9	77.5	W99-4MK-35X				16.9	21.2	23.5	28.5
W99-6MI-40X				36.2	53.5	63.3	84.5	W99-6MI-40X				20.0	25.5	28.4	34.9

Conditions: EN13215: Suction Gas Return 20°C, Subcooling 0K

Preliminary data

Capacity Data

R134a	Cooling Capacity (kW)							R134a	Power Input (kW)						
	Ambient Temperature: 32°C								Ambient Temperature: 32°C						
	Evaporating Temperature (°C)								Evaporating Temperature (°C)						
Model	-45	-35	-30	-20	-10	-5	+5	Model	-45	-35	-30	-20	-10	-5	+5
Z9-4MA-22X				14.0	21.9	26.9	39.1	Z9-4MA-22X				7.4	8.8	9.4	10.6
V6-4MF-13X				12.4	19.6	23.8	33.8	V6-4MF-13X				6.6	8.2	9.1	10.9
Z9-4ML-15X				15.7	24.8	30.5	44.0	Z9-4ML-15X				8.3	10.0	10.9	12.5
Z9-4MH-25X				15.8	24.9	30.6	44.4	Z9-4MH-25X				8.5	10.2	11.1	12.6
V6-4ML-15X				14.8	22.9	27.7	38.6	V6-4ML-15X				7.7	9.8	10.9	13.2
W9-4MM-20X				16.4	25.2	30.3	42.1	W9-4MM-20X				8.5	10.8	12.0	14.6
Z9-4MI-30X				17.5	27.2	33.3	47.9	Z9-4MI-30X				9.1	11.0	12.0	13.8
Z9-4MM-20X				17.3	27.1	33.2	47.6	Z9-4MM-20X				9.1	11.0	12.0	13.8
Z9-4MJ-33X				19.5	30.1	36.7	52.4	Z9-4MJ-33X				10.2	12.3	13.4	15.5
Z9-4MT-22X				19.6	30.4	37.1	52.9	Z9-4MT-22X				10.2	12.4	13.6	15.9
W9-4MT-22X				18.5	28.0	33.6	45.9	W9-4MT-22X				9.7	12.3	13.7	16.9
Z9-4MU-25X				21.2	33.3	40.6	57.9	Z9-4MU-25X				11.3	14.0	15.4	18.3
W99-4MK-35X				21.8	33.7	41.0	58.5	W99-4MK-35X				11.2	13.8	15.2	18.0
Z9-6MM-30X				25.3	39.1	47.4	66.7	Z9-6MM-30X				13.3	16.7	18.4	22.1
W99-6MI-40X				25.2	39.0	47.4	67.3	W99-6MI-40X				13.5	16.5	18.2	21.7

Conditions: EN13215: Suction Gas Return 20°C, Subcooling 0K

Refer to Emerson's Select software for R450A and R513A capacity data.

Compressors Motor Codes Table

Semi-Hermetic						
Motor Codes	Voltage	Connection		Motor Codes	Voltage	Connection
Standard Motor Version						
CAG	220-230/1/50	-				
EWL (DK, DL, D2S)	220-240/3/50	Δ		EWN (DK, DL, D2S)	250-280/3/60	Δ
EWL (DK, DL, D2S)	380-420/3/50	Y		EWN (DK, DL, D2S)	440-480/3/60	Y
AWM	380-420/3/50	YY/Y		AWD	440-480/3/60	YY/Y
Special Motor Version						
EWM	380-420/3/50	Δ/Y-Start		EWD	440-480/3/60	Δ/Y-Start
AWR	220-240/3/50	YY/Y		EWK (not D8)	220-240/3/60	Δ
AWY	500-550/3/50	YY/Y		EWK (not D8)	380-420/3/60	Y
				AWC	208-230/3/60	YY/Y
				AWX	380/3/60	YY/Y
Hermetic & Scroll						
Motor Codes	Voltage	Connection		Motor Codes	Voltage	Connection
Standard Motor Version						
PFJ	220-240/1/50	-		PFJ	265/1/60	-
PFT	220-240/1/50	-				
PFZ	220-240/1/50	-				
TFD	380-420/3/50	Y		TFD	460/3/60	Y
TFM	380-420/3/50	Y				
TWD	380-420/3/50	Y		TWD	460/3/60	Y
FWD	380-420/3/50	Δ/Δ				
FWM	380-420/3/50	Δ/Δ				
TWM	380-420/3/50	Y				
Special Motor Version						
TF5	200-220/3/50	Y		TF5	200-230/3/60	Y
TWR	220-240/3/50	Y		TW7	380/3/60	Y
TWC	200/3/50	Y		TWC	208-230/3/60	Y
TFE	500/3/50	Y		TFE	575/3/60	Y
TWE	500/3/50	Y		TWE	575/3/60	Y
				TF7	380/3/60	Y
TW5	200-220/3/50	Y		TW5	220-230/3/60	Y
Variable Speed Motor Version						
*E9	BPM Motor	-				

YY/Y = part-winding-start
 Δ/Δ = part-winding-start