



GUARDIAN

READY CONNECT



KIRBY GUARDIAN™ READY CONNECT

Evaporators

Future proof,
environmentally
friendly performance



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Evaporators

Introduction and Overview

Kirby Guardian™ Ready Connect range of evaporators are factory fitted with EVD ice, the new control solution for Carel ExV proportional electronic expansion valves directly installed on the evaporator, with a revolutionary design intended specifically for low temperature conditions.

The range delivers considerable benefits for contractors and asset owners alike in delivering a more efficient refrigeration system with reduced energy consumption:

Features & Benefits

The Kirby Guardian™ Ready Connect offers:

- Simple and fast installation and commissioning
- Extremely short pull-down times
- Precise refrigerant flow
- Enhanced durability rated to IP65
- Operating conditions between -30°C to 40°C

EVD ice is also designed to be compatible with third party regulation and control solutions, using standard communication protocols, or can work as a standalone solution for refrigeration cells and other applications in which compactness and versatility are key.



Kirby Guardian™ Ready Connect delivers all the performance benefits available without the need for cabling, welding or complex configuration. The range also offers the quality and reliability of a factory tested and installed solution, backed by the combined knowledge and strength of both Kirby and Carel.

Kirby Guardian™ Ready Connect – Nomenclature

K	MS	H	A		3	-RC	
			Fan Size				
			A 300mm (AC)	C 300mm (EC)		Additional Functionality	
			B 350mm (AC)	D 350mm (EC)			`-RC Factory Fitted Carel EVD-Ice
			Fluid Type			`-E Factory Fitted Defrost Heater	
		H	HFC & HFC Blends			Nominal Capacity	
		C	CO ₂				HFC Models - R448A CO ₂ Models - R744
		Usage Application				Number of Fans	
		LU	Low Temperature – Low Frost				1 1 Fan
		LS	Low Temperature – Standard				4 4 Fans
		MU	Medium Temperature – Low Frost				2 2 Fans
		MS	Medium Temperature – Standard			5 5 Fans	
Manufacturer Brand							
K	Kirby						
						3 3 Fans	

GUARDIAN READY CONNECT EVAPORATORS

Features and Benefits

Advanced Coil Design for Greater Efficiency

SERIES 9

ADVANCED COIL DESIGN FOR GREATER EFFICIENCY

The secret of the Kirby Guardian™ performance lies in our Series9 coil, which thanks to its innovative design and use of sine wave technology produces a larger heat exchange surface area.

Series9 significantly improves the efficiency of the unit, reducing overall energy consumption and lowering greenhouse emissions, as well as making a valuable contribution to the bottom line through a lower cost of ownership.

Here Today, Ready for Tomorrow



All models within the Kirby Guardian™ range are specifically designed for next-generation, low Global Warming Potential (GWP) refrigerants, including R407F, R450A, R448A, R449A and R513A.

Not only does this provide tremendous flexibility for installation and system performance options, but your investment is future proofed for years to come through the global HFC phase-down.

Innovative Features, Real Benefits

All models within the Kirby Guardian™ family combine innovative features to deliver substantial benefits.

User friendly access panels are designed for ease of commissioning and service, with front opening access to both electrical and refrigeration components.

Premium aluminum construction with a crisp, white powder coated finish is durable, easy to clean and provides an aesthetically pleasing appearance.

Pre-wired fans simplifies installation and speeds up commissioning.

Fully reversible drain pan provides flexibility when selecting installation locations while making maintenance quick and easy.

Ziehl-Abegg FE2owlet fans feature bionic blade technology to optimise air volumes and flow properties, and improved noise ratings, whilst offering maintenance free use.

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Rating and Performance Data

Selection of Heat Exchange Equipment on High Glide Refrigerants

As the refrigeration industry moves towards high glide alternatives to the commonly used refrigerants R134a, R404A and R507A, it is becoming increasingly common to rate capacities for suitable heat exchange equipment and condensing units.

Currently, it is possible to rate heat exchange equipment via two methods, dew point and mid point. These methods offer significantly different results depending on the application and glide of the refrigerant to be used.

Kirby recommends using the **dew point factor for condensing unit selections**, and the **mid point factor for heat exchange equipment selections**. This position has been taken to ensure the correct humidity control in coolrooms and condensing units are adequately sized for the use of high glide refrigerants.

Correction factors, listed in Tables 1 and 2 below, are based on European Standards EN327 and EN328.

Table 1: Refrigerant correction factors (Dew Point Factor)

PRODUCT TYPE CONDITION	DX AIR COOLERS				AIR COOLED CONDENSERS	GLIDE @40°C (INFORMATION ONLY)
	SC 1	SC 2	SC 3	SC 4	DTI=15 K OR DTI = 10 K	
R404A (reference)	1	1	1	1	1	0.5
R134a	0.93	0.91	0.85	-	0.96	0
R507A [REFPROP 9.1]	0.97	0.97	0.97	0.97	1	0
R407A	1.19	1.24	1.28	1.32	0.89	4.5
R407C	1.21	1.26	1.31	1.36	0.87	5.06
R407F	1.19	1.24	1.29	1.35	0.89	4.52
R448A	1.23	1.26	1.28	1.31	0.89	4.82
R449A	1.21	1.23	1.24	1.26	0.89	4.65
R450A	0.92	0.91	0.84	-	0.93	0.63
R452A	1.1	1.12	1.13	1.15	0.93	3.43
R513A	0.91	0.91	0.85	-	0.95	0.17

Table 2: Refrigerant Correction Factors (Mid Points Factor)

PRODUCT TYPE CONDITION	DX AIR COOLERS				AIR COOLED CONDENSERS	GLIDE @40°C (INFORMATION ONLY)
	SC 1	SC 2	SC 3	SC 4	DTI=15 K OR DTI = 10 K	
R404A (reference in dew point)	1	1	1	1	1	0.5
R448A	0.97	0.96	0.95	0.94	1.08	4.82
R449A	0.96	0.95	0.94	0.93	1.07	4.65
R452A	0.96	0.94	0.94	0.93	1.04	3.43
R450A	0.93	0.89	0.83	0.79	0.92	0.63
R513A	0.92	0.9	0.86	0.83	0.93	0

GUARDIAN READY CONNECT EVAPORATORS

Medium Temperature Performance Data

Model	CAPACITY WATTS @ -4°C SST. & 6KTD		FAN MOTOR DATA						EXPANSION VALVE
			240V / 50HZ / 1 PHASE						
	R134a	R449A	NUMBER OF FANS	AIR MOVEMENT		MOTORS (TOTAL)		SOUND POWER dB(A)	CAREL E2V MODEL
		FLOW (l/s)		THROW (m)	WATTS	AMPS			
300mm FAN DIAMETER									
KMSHA1015	1423	1501	1	364	7.1	85	0.42	68	E2V09
KMSHA1017	1589	1676	1	322	6.4	85	0.42	69	E2V11
KMSHA2026	2473	2608	2	778	10.6	170	0.84	71	E2V11
KMSHA2034	3227	3404	2	683	9.6	170	0.84	71	E2V14
KMSHA3047	4423	4667	3	1092	12.5	255	1.26	72	E2V14
KMSHA4062	5924	6249	4	1456	14	340	1.68	74	E2V18
KMSHA4069	6559	6919	4	1289	12.7	340	1.68	75	E2V24
350mm FAN DIAMETER									
KMSHB1025	2383	2514	1	672	8.7	215	1.05	72	E2V11
KMSHB2047	4427	4671	2	1450	13.0	430	2.10	77	E2V14
KMSHB2060	5683	5996	2	1261	11.9	430	2.10	77	E2V24
KMSHB2065	6186	6526	2	1189	11.2	430	2.10	77	E2V18
KMSHB3091	8664	9140	3	1892	14.5	645	3.15	79	E2V24
KMSHB3098	9314	9826	3	1783	13.8	645	3.15	79	E2V24
KMSHB4124	11775	12422	4	2522	16.3	860	4.20	81	E2V24
KMSHB5162	15379	16224	5	2972	17.5	1075	5.25	82	E2V30

Some models subject to minimum order quantities and special order lead times. Speak to your Kirby representative for further information

GUARDIAN READY CONNECT EVAPORATORS

Low Temperature Performance Data

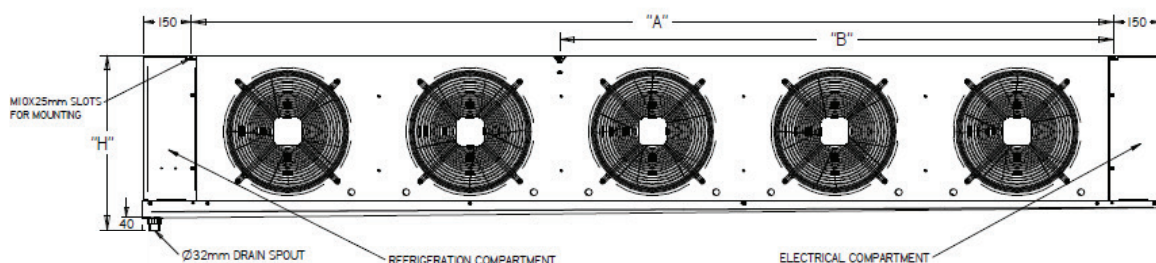
Model	CAPACITY WATTS @ -24°C SST. & 6KTD		FAN MOTOR DATA						HEATERS			EXPANSION VALVE
			240V / 50HZ / 1 PHASE						SUPPLY	WATTS	AMPS	
	R449A	R404A	NUMBER OF FANS	AIR MOVEMENT		MOTORS (TOTAL)		SOUND POWER dB(A)	(V/Ph)	(W)	(A)	CAREL E2V MODEL
		FLOW (l/s)		THROW (m)	WATTS	AMPS						
300mm FAN DIAMETER												
KLSHA1013	1339	1410	1	342	6.3	85	0.42	68	240/1	1,000	4.2	E2V09
KLSHA2023	2346	2470	2	728	9.4	170	0.84	71	240/1	2,000	8.3	E2V11
KLSHA2028	2755	2900	2	644	8.5	170	0.84	72	240/1	2,000	8.3	E2V14
KLSHA3035	3541	3727	3	1092	11.5	255	1.26	72	415/3	3,000	4.4	E2V14
KLSHA3039	3924	4131	3	1025	10.9	255	1.26	72	415/3	3,000	4.4	E2V14
KLSHA4055	5451	5738	4	1289	11.7	340	1.68	75	415/3	4,000	5.8	E2V18
350mm FAN DIAMETER												
KLSHB1021	2057	2165	1	631	7.6	215	1.05	73	240/1	1,750	7.3	E2V11
KMSHB2047	4427	4671	2	1450	13.0	430	2.10	77	415/3	3,500	7.0	E2V14
KLSHB2052	4974	5236	2	1189	10.4	430	2.10	77	415/3	3,500	7.0	E2V18
KLSHB3067	6666	7017	3	1892	13.5	645	3.15	79	415/3	5,250	10.6	E2V18
KLSHB3075	7517	7912	3	1783	12.8	645	3.15	79	415/3	5,250	10.6	E2V24
KLSHB4099	9887	10407	4	2378	14.3	860	4.20	81	415/3	7,000	14.2	E2V24
KLSHB5119	11909	12536	5	2972	16	1075	5.25	82	415/3	8,750	17.7	E2V24

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Physical Data

MODEL	FIELD SERVICES CONNECTIONS (mm)				OPERATING REFRIGERANT CHARGE (kg)			DIMENSIONS (mm)						DRY WEIGHT (kg)	
	SUCTION	LIQUID	EXT. EQUALISER STUB	CONDENSATE DRAIN	R134a	R448A	R404A	L LENGTH	D DEPTH	H HEIGHT	A	B	C	UNPACKED	PACKED
KIRBY GUARDIAN™ READY CONNECT – MEDIUM TEMPERATURE (300mm FAN DIAMETER)															
KMSHA1015	9.52	9.52	9.52	32	1.26	1.13	1.12	750	470	494	440	-	375	13	16
KMSHA1017	12.70	12.70	9.52	32	1.89	1.70	1.69	750	470	494	440	-	375	15	18
KMSHA2026	12.70	12.70	9.52	32	1.89	1.70	1.69	1155	470	494	845	-	375	21	26
KMSHA2034	15.88	12.70	9.52	32	3.25	2.92	2.91	1155	470	494	845	-	375	24	29
KMSHA3047	19.05	12.70	9.52	32	3.88	3.49	3.47	1560	470	494	1250	-	375	31	47
KMSHA4062	22.22	12.70	9.52	32	5.14	4.62	4.59	1970	470	494	1660	-	375	40	60
KMSHA4069	22.22	12.70	9.52	32	7.76	6.97	7.76	1970	470	494	1660	-	375	47	56
KIRBY GUARDIAN™ READY CONNECT – MEDIUM TEMPERATURE (350mm FAN DIAMETER)															
KMSHB1025	12.70	12.70	9.52	32	1.89	1.70	1.69	850	470	545	540	-	420	18	22
KMSHB2047	19.05	12.70	9.52	32	3.15	2.83	2.81	1485	470	545	1175	-	420	29	37
KMSHB2060	22.22	12.70	9.52	32	5.24	4.71	4.69	1485	470	545	1175	-	420	35	43
KMSHB2065	22.22	12.70	9.52	32	6.40	5.75	5.72	1485	470	545	1175	-	420	38	46
KMSHB3091	25.40	12.70	9.52	32	7.97	7.16	7.12	2060	470	545	1745	-	420	49	74
KMSHB3098	25.40	12.70	9.52	32	9.55	8.58	8.53	2060	470	545	1745	-	420	54	81
KMSHB4124	25.40	15.88	9.52	32	10.59	9.52	9.47	2630	470	545	2320	1165	420	65	98
KMSHB5162	31.75	15.88	9.52	32	15.84	14.23	14.15	3200	470	545	2890	1735	420	86	128
KIRBY GUARDIAN™ READY CONNECT – LOW TEMPERATURE (300mm FAN DIAMETER)															
KLSHA1013	15.88	12.70	9.52	32	-	1.70	1.69	750	470	494	440	-	375	16	19
KLSHA2023	19.05	12.70	9.52	32	-	2.36	2.34	1155	470	494	845	-	375	23	28
KLSHA2028	22.22	12.70	9.52	32	-	3.49	3.47	1155	470	494	845	-	375	27	32
KLSHA3035	22.22	12.70	9.52	32	-	3.49	3.47	1560	470	494	1250	-	375	32	48
KLSHA3039	25.40	12.70	9.52	32	-	4.34	4.31	1560	470	494	1250	-	375	34	50
KLSHA4055	25.40	12.70	9.52	32	-	4.34	6.94	1970	470	494	1660	-	375	47	67
KIRBY GUARDIAN™ READY CONNECT – LOW TEMPERATURE (350mm FAN DIAMETER)															
KLSHB1021	19.05	9.52	9.52	32	-	2.07	2.06	850	470	545	540	-	420	19	23
KLSHB2042	25.40	9.52	9.52	32	-	3.77	3.75	1485	470	545	1175	-	420	32	40
KLSHB2052	25.40	9.52	9.52	32	-	5.75	5.72	1485	470	545	1175	-	420	39	48
KLSHB3067	28.58	9.52	9.52	32	-	7.16	7.12	2030	470	545	1745	-	420	50	75
KLSHB3075	31.75	12.70	9.52	32	-	8.58	8.53	2060	470	545	1745	-	420	55	83
KLSHB4099	41.28	12.70	9.52	32	-	11.40	11.34	2630	470	545	2320	1165	420	72	108
KLSHB5119	41.28	12.70	9.52	32	-	14.23	14.15	3200	470	545	2890	1735	420	87	129





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