DEFENDER
EVAPORATORS

KIRBY DEFENDER®
Evaporators

Built tough and reliable
for Australia's
harsh conditions

Exclusively distributed by

KIRBY
A BEIJER REF Company

Here Today, Ready for Tomorrow

DESIGNED FOR LOW GWP REFRIGERANTS

High glide refrigerants can currently be applied to heat exchange equipment using two rating methods: the dew-point method and the mid-point method. These approaches can produce significantly different results depending on the application and the refrigerant's glide characteristics.

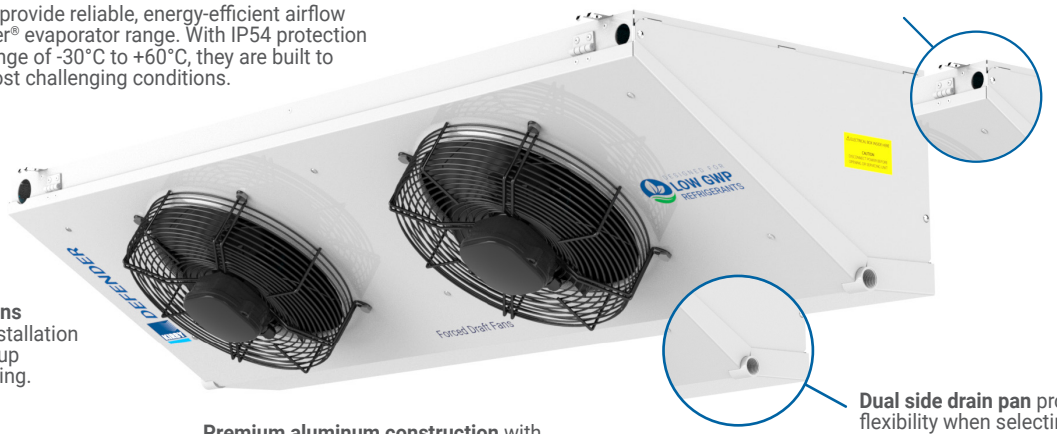
Kirby recommends applying the dew-point method for condenser selections and the mid-point method for evaporator selections. This position ensures appropriate humidity control within coolrooms and supports correct condenser sizing when high glide refrigerants are used.

Innovative Features, Real Benefits

All models within the Kirby Defender® range are designed to address modern refrigeration challenges like never before. With rising energy costs, the need to prevent food loss and wastage, evolving refrigerant technologies, and increasing demands for cool room efficiency, sustainable solutions have become an urgent priority. The Kirby Defender® series delivers reliable, future-ready performance to meet these critical industry needs.

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

Freddox Axial Fans provide reliable, energy-efficient airflow to the Kirby Defender® evaporator range. With IP54 protection and an operating range of -30°C to +60°C, they are built to resist Australia's most challenging conditions.



Pre-wired fans simplifies installation and speeds up commissioning.

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

Dual side drain pan provides flexibility when selecting installation locations while making maintenance quick and easy.

Kirby Defender® Evaporators - Nomenclature

KD	MS	H	A	1	017	-RC

Fan Type & Size
A 300mm (AC)
B 300mm (EC)

Fluid Type
H HFC&HFC Blends

Usage Application
LS Low Temperature – Standard
LU Low Temperature – Low Frost
MS Medium Temperature – Standard
MU Medium Temperature – Low Frost

Product Brand
KD Kirby Defender®

Additional Functionality
-RC Ready Connect
-E Defrost Heater
(medium temperature only)

Nominal Capacity - Watts/100 (rounded up or down)
017 = 1700W
CO_2 Models - R744
HFC Models - R448A

Number of Fans
1 - 4 Fans

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.

HIGH GLIDE REFRIGERANTS – At this time it is possible to rate heat exchange equipment via two methods, dew point and mid-point. These methods give significantly different results depending on application and glide of refrigerant to be used. Kirby's position is that we will recommend using the "Dew Point" factor for condenser selections and "Mid-point" for the Evaporators. This position has been taken to ensure correct humidity control in Coolrooms and ensure condensers are adequately sized for the use of High Glide refrigerants.

Table 1: Standard conditions for refrigerants

STANDARD CONDITION	t_{A1} °C	t_{dp} °C	t_{e} °C	$\Delta t_{sup} / Dt_{1}$ -	t_{R1} °C
SC 1	+10	< -2	0	0,65	30
SC 2	0	< -10	-8	0,65	30
SC 3	-18	< -27	-25	0,65	20
SC 4	-25	< -42	-31	0,65	20

It is essential that the oil content be below 1% of mass.

Table 2: 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=10K	
R404A	1	1	1	1	1	0.5
R134a	0.93	0.91	0.85	-	-	0
R507A	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	-	0.93	0.17

Table 3: 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=10K	
R404A	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

PRODUCT NUMBER	CAPACITY WATTS @ -4°C SST. & 6KTD, 85% RH (AUST. WET COIL RATING)		CAPACITY WATTS @ -8°C SST. & 8KTD, 85% RH (EN 328 SC2 WET COIL RATING)		FAN MOTOR DATA - YWF4E-300B-92/35-G 220-240V / 50HZ / 1 PHASE						DEFROST HEATER DATA FACTORY FITTED				
					No. OF FANS	AIR MOVEMENT		MOTORS (TOTAL)		SOUND POWER dB(A)	FACTORY FITTED MODEL NUMBER	VOLTS	TOTAL WATTS	TOTAL AMPS/ PHASE	PHASE
	R134a	R448A	R134a	R448A		FLOW (l/s)	THROW (m)	WATTS	AMPS						
KIRBY DEFENDER EVAPORATORS® - MEDIUM TEMPERATURE (300mm FAN DIAMETER)															
KDMSHA1015	1470	1570	1910	2040	1	300	5.0	85	0.42	68	KDMSHA1015-E	220	1160	5.3	Single Phase
KDMSHA2022	2110	2250	2700	2880	2	630	8.0	170	0.84	71	KDMSHA2022-E	220	2120	9.6	Single Phase
KDMSHA3034	3180	3380	4080	4350	3	940	8.5	255	1.26	73	KDMSHA3034-E	380	3080	7.2	Three Phase (Star)
KDMSHA3044	4130	4410	5210	5550	3	920	8.0	255	1.26	73	KDMSHA3044-E	380	3080	7.2	Three Phase (Star)
KDMSHA3050	4590	4890	5780	6160	3	900	8.0	255	1.26	73	KDMSHA3050-E	380	3080	7.2	Three Phase (Star)
KDMSHA4066	6130	6540	7720	8230	4	1200	9.5	340	1.68	74	KDMSHA4066-E	380	4040	9.4	Three Phase (Star)

Ratings are at midpoint.

KIRBY DEFENDER® EVAPORATORS
Low Temperature Performance Data

PRODUCT NUMBER	CAPACITY WATTS @ -24°C SST. & 6KTD, 90% RH (AUST. WET COIL RATING)		CAPACITY WATTS @ -25°C SST. & 8KTD, 95% RH (EN 328 SC3 WET COIL RATING)		FAN MOTOR DATA - YWF4E-300B-92/35-G 220-240V / 50HZ / 1 PHASE									
					No. OF FANS	AIR MOVEMENT		MOTORS (TOTAL)		SOUND POWER dB(A)	VOLTS	TOTAL WATTS	TOTAL AMPS/ PHASE	PHASE
	R452A	R448A	R452A	R448A		FLOW (l/s)	THROW (m)	WATTS	AMPS					
KIRBY DEFENDER EVAPORATORS® - LOW TEMPERATURE (300mm FAN DIAMETER)														
KDLSHA1013	1330	1360	1560	1590	1	300	5.0	85	0.42	68	220	1690	7.7	Single Phase
KDLSHA2022	2090	2130	2430	2480	2	630	8.0	170	0.84	71	220	3130	14.2	Single Phase
KDLSHA2027	2660	2710	3070	3140	2	600	7.5	170	0.84	71	220	3130	14.2	Single Phase
KDLSHA3032	3170	3240	3690	3770	3	940	8.5	255	1.26	73	380	4570	7.2	Three Phase (Star)
KDLSHA3036	3570	3650	4120	4210	3	920	8.0	255	1.26	73	380	4570	7.2	Three Phase (Star)
KDLSHA3040	3990	4070	4600	4700	3	900	8.0	255	1.26	73	380	4570	7.2	Three Phase (Star)
KDLSHA4054	5310	5430	6140	6270	4	1200	9.5	340	1.68	74	380	6010	9.4	Three Phase (Star)

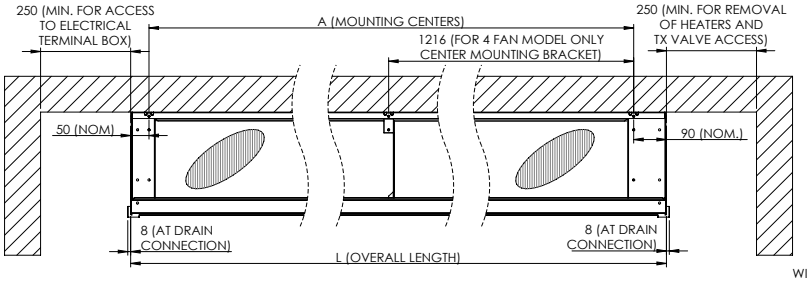
Ratings are at midpoint.

KIRBY DEFENDER® EVAPORATORS
Medium Temperature Performance Data

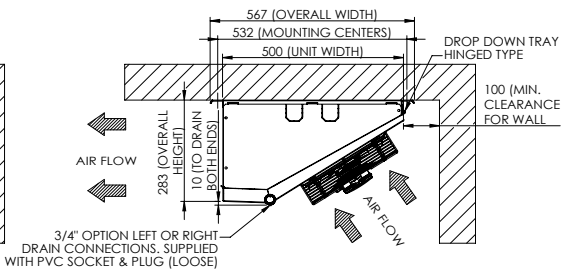
PRODUCT NUMBER	DIMENSIONS (mm)				CONNECTIONS (mm)		WEIGHT (kg)	
	LENGTH	DEPTH	HEIGHT	A	LIQUID	SUCTION	UNPACKED	PACKED
KIRBY DEFENDER EVAPORATORS® - MEDIUM TEMPERATURE (300mm FAN DIAMETER)								
KDMSHA1015	774	567	283	632	12.7	12.7	15	17
KDMSHA2022	1374	567	283	1232	12.7	15.9	25	28
KDMSHA3034	1974	567	283	1832	12.7	19.0	33	37
KDMSHA3044	1974	567	283	1832	12.7	19.0	35	39
KDMSHA3050	1974	567	283	1832	12.7	19.0	37	41
KDMSHA4066	2574	567	283	2432	12.7	22.2	49	54

KIRBY DEFENDER® EVAPORATORS
Low Temperature Performance Data

PRODUCT NUMBER	DIMENSIONS (mm)				CONNECTIONS (mm)		WEIGHT (kg)	
	LENGTH	DEPTH	HEIGHT	A	LIQUID	SUCTION	UNPACKED	PACKED
KIRBY DEFENDER EVAPORATORS® - LOW TEMPERATURE (300mm FAN DIAMETER)								
KDLSHA1013	774	567	283	632	12.7	12.7	17	19
KDLSHA2022	1374	567	283	1232	12.7	15.9	27	30
KDLSHA2027	1374	567	283	1232	12.7	15.9	30	33
KDLSHA3032	1974	567	283	1832	12.7	19.0	35	39
KDLSHA3036	1974	567	283	1832	12.7	19.0	37	41
KDLSHA3040	1974	567	283	1832	12.7	19.0	39	43
KDLSHA4054	2574	567	283	2432	12.7	22.2	51	56



FRONT ELEVATION



SIDE ELEVATION

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