

Remote Air Cooled Condensers C2 Series



High Fan Speed Capacity



Low Fan Speed Capacity



GREENHALGH

Innovative Heat Transfer Solutions

APPLICATION BENEFITS / FEATURES

HIGH EFFICIENCY HEAT EXCHANGER COIL

- Optimised 'fin to fan' ratio
- Large heat exchange surface area and seamless inner grooved tube
- Reduction of internal refrigerant circuit volume
- All coils are degreased and Leak Tested at 3100 kPa pressure
- Floating coil technology eliminates tube contact with the condenser frame
- Suspended coil protected against damage in transit, installation and vibration when in operation
- Epoxy Aluminium Gold Fins
- 2.2 mm fin spacing
- Protective enclosure for both manifolds and U-bends
- Designed for low pressure drop through coil



FANS

- 415V/3/50 Hz Ziehl Abegg motors, with 630 mm dia impeller fitted as standard on all models
- All motors are wired for delta connected for high speed operation as standard
- Low speed, low noise operation is obtainable by changing the motor connections from Delta to Star
- High Efficiency Fan nozzle / shroud is designed for maximum air flow, air throw, fan efficiency and noise reduction
- Motor: IP 54 protection class
- F-Class motor windings
- High performance – low energy consumption
- Life-lubricated
- Thermally protected
- Both motors and fans are statically and dynamically balanced
- Fan motors are prewired to the electrical junction box
- Fan guards conform to most stringent Australian standards
- Separate chamber for each fan ensures uniform air distribution and minimises the decrease in performance should one fan fail.

STRUCTURE

- Units designed for outdoor installation
- Durable, rigid materials in Galvanised steel
- Hard gloss, Epoxy-Polyester powder coated finish – corrosion resistant
- Reduced unit weight

CAPACITY RATINGS

- Based on 25°C Ambient/ 40°C Saturated Condensing Temperature on R404A

CAPACITY RANGE – STANDARD C2 SERIES

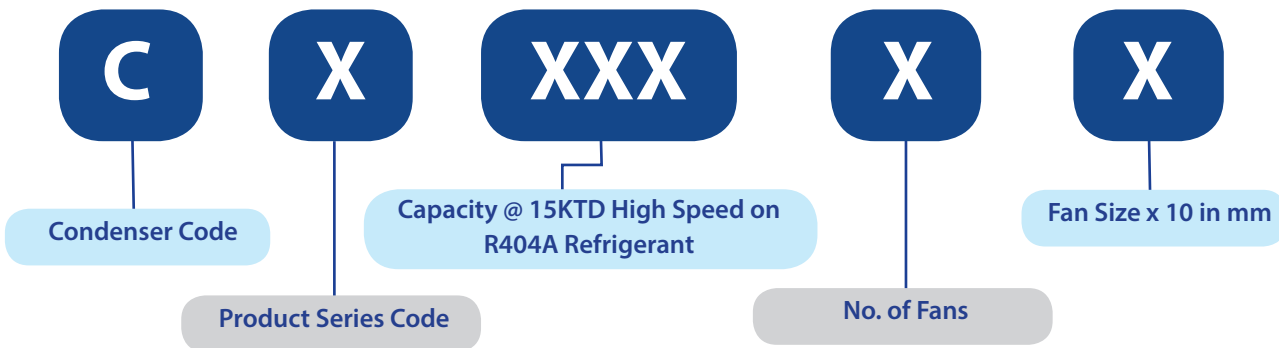
- High Fan Speed: 236kW to 1740kW
- Low Fan Speed: 180kW to 1257kW

ACCESS TO STATE OF THE ART SELECTION DESIGN SOFTWARE

OPTIONS

- EC Motors • Customised solutions with fan selection
- Copper/ Copper coils
- Multiple circuits & special circuiting for various applications and fluids
- Sub-Cooling circuits
- Special Applications on request:-
 - o Dry Coolers
 - o Oil Coolers
 - o Hydro-Spray
 - o Pre-Cooler modules
- Stainless Steel Casing
- Special anti-corrosive coatings

NOMENCLATURE GREENHALGH C2 CONDENSERS



Example: C2-236-4.63

Nomenclature

- C = Condenser Code
- 2 = Series Code
- 236 = Capacity @ 15KTD in Kilowatts
- 4 = Number of Fans
- 63 = Fan diameter x 10 in mm (630mm)

DEW POINT

Popular refrigerants used today have significant glide and do not have a definite saturated pressure/temperature relationship, meaning that although the pressure remains constant the saturated gas and saturated liquid temperatures are not the same.

The 100% saturated gas condition is known as the dew point, whilst the 100% saturated liquid condition is known as the bubble point.

The capacities specified in this catalogue have been calculated using the refrigerants dew point condition. The dew point is the pressure /temperature condition at which a refrigerant gas begins condensing.

The calculation of condenser capacities on this basis will result in slightly conservative but advantageous ratings.

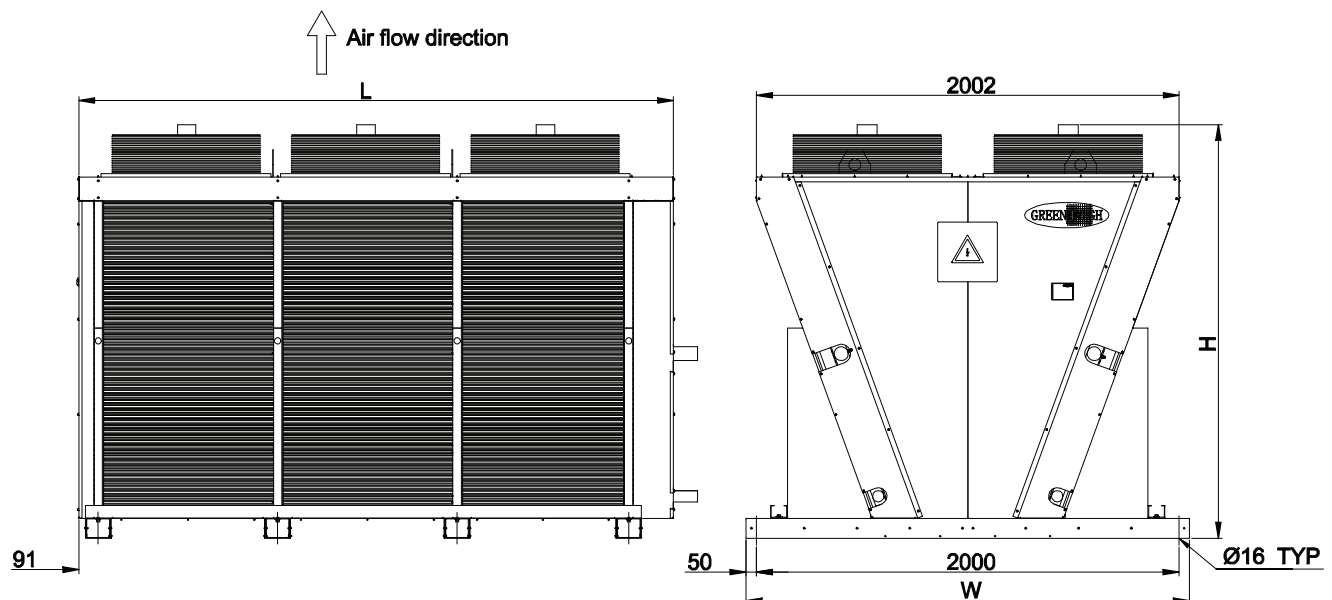




AIR COOLED CONDENSER C2 SERIES

MODEL	CAPACITY IN KW @ 15KTD								AIRFLOW		Power Supply	Fan Qty x Ømm
	R404A		R134A		R407C		R22		l/s			
	Low Speed	High Speed	Low Speed	High Speed	Low Speed	High Speed	Low Speed	High Speed	Low Speed	High Speed		
C2 SERIES												
C2-236-4.63	180	236	174	226	152	201	175	231	45116	71234	415/3/50	4x630
C2-285-4.63	206	285	198	273	171	239	197	275	43250	65922		4x630
C2-348-6.63	266	348	260	341	226	299	260	344	67639	106807		6x630
C2-421-6.63	306	421	293	402	254	354	293	408	62219	98832		6x630
C2-465-8.63	355	465	342	442	299	392	344	451	90180	142410		8x630
C2-560-8.63	405	560	390	537	338	470	389	541	82933	131767		8x630
C2-589-10.63	445	589	426	558	371	488	424	559	112738	178077		10x630
C2-706-10.63	511	706	481	651	419	577	483	666	103702	164753		10x630
C2-859-12.63	615	859	581	802	502	698	574	801	124456	197800		12x630
C2-1013-14.63	724	1013	676	928	587	821	674	944	145251	230853		14x630
C2-1163-16.63	832	1164	768	1057	674	943	775	1085	166033	263885		16x630
C2-1314-18.63	940	1314	865	1185	760	1063	876	1224	186822	296909		18x630
C2-1460-20.63	1048	1461	959	1306	846	1179	975	1358	207600	329907		20x630
C2-1603-22.63	1153	1603	1050	1418	930	1292	1072	1488	228366	362866		22x630
C2-1740-24.63	1257	1740	1137	1520	1012	1399	1167	1611	249118	395781		24x630

Dimensions Diagram



GREENHALGH CONDENSER CAPACITIES ARE RATED AT 15KTD:

Method to re-rate capacity at other TD's

TD is the difference between the refrigerant saturation temperature and the air ambient temperature.

The condensers are rated at 15KTD. To determine condenser capacity for applications at other temperature differences multiply the rated capacity by the temperature difference correction factor shown in the table below.

Temperature Difference ~ TD					
8K	10k	12k	15k	17k	20k
0.53	0.67	0.80	1.00	1.13	1.33

Example: Condenser model C1-137.2.63 has a rated capacity of 137.4kW at 15KTD, on high fan speed, on R404A refrigerant. At a temperature difference of 10K the condenser is re-rated as follows: $137.4\text{kW} \times 0.67$ (factor for 10K) = 96.06kW

Method to determine sound pressure levels at other distances other than 10m

Sound Pressure Levels - Correction for Distance					
Distance from Unit (m)	5	10	20	40	60
Change in dB(A)	+6	0	-6	-12	-15

For approximate Sound Pressure Levels at distances other than the rating add or subtract the values shown in the table.

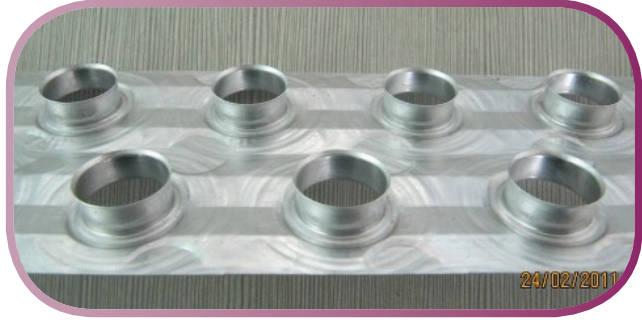
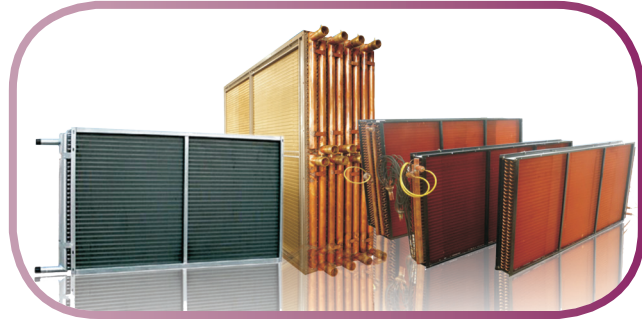




AIR COOLED CONDENSER C2 SERIES

GREENHALGH MODEL		C2-236-4.63	C2-285-4.63	C2-348-6.63	C2-421-6.63	C2-465-8.63	C2-560-8.63
Fan Motor Brand		ZIEHL-ABEGG					
No of Fans	Qty.	4	4	6	6	8	8
Fan Impeller Diameter	mm	630	630	630	630	630	630
HIGH SPEED FAN DATA (DELTA MOTOR CONNECTION)							
Capacity at 15KTD	kW	235.86	284.84	348.49	421.00	464.84	560.17
Fan Motor Model		FE063-VDS	FE063-VDS	FE063-VDS	FE063-VDS	FE063-VDS	FE063-VDS
Fan Motor No of Poles	No.	4	4	4	4	4	4
Air Flow total	l/sec	19790	18310	29670	27450	39560	36600
Fan Power Supply	V/Ø/Hz	415/3/50	415/3/50	415/3/50	415/3/50	415/3/50	415/3/50
Fan Power Input Total	W	10400	10400	15600	15600	20800	20800
Fan Motor Amperage Total	Amp	19.20	19.20	28.80	28.80	38.40	38.40
Sound Pressure at 10m	dBa	64	64	66	66	67	67
LOW SPEED FAN DATA (STAR MOTOR CONNECTION)							
Capacity at 15KTD - Sea Level	kW	180.44	206.01	266.46	306.19	354.61	405.00
Fan Motor Model		FE063-VDS	FE063-VDS	FE063-VDS	FE063-VDS	FE063-VDS	FE063-VDS
Fan Motor No of Poles	No.	4	4	4	4	4	4
Air Flow total	l/sec	45116	67639	67639	62219	90180	82933
Fan Power Supply	V/Ø/Hz	415/3/50	415/3/50	415/3/50	415/3/50	415/3/50	415/3/50
Fan Power Input Total	W	6400	6400	9600	9600	12800	12800
Fan Motor Amperage Total	Amp	10.80	10.80	16.20	16.20	21.60	21.60
Sound Pressure at 10m	dBa	57	57	59	59	60	60
GENERAL SPECIFICATION							
Gas Inlet Connection	mm	53.90 x 2	53.90 x 2	63.50 x 2	63.50 x 2	63.50 x 2	76.20 x 2
Liquid Outlet Connection	mm	41.28 x 2	41.28 x 2	53.90 x 2	53.90 x 2	53.90 x 2	63.50 x 2
Heat Exchange Surface Area	m ²	396	594	594	891	792	1189
Tube Diameter	mm	9.52	9.52	9.52	9.52	9.52	9.52
No of Rows High	No.	124	124	124	124	124	124
No of Rows Deep	No.	4	6	4	6	4	6
Fin Material	Type	Epoxy fin	Epoxy fin	Epoxy fin	Epoxy fin	Epoxy fin	Epoxy fin
Fin Spacing	mm	2.2	2.2	2.2	2.2	2.2	2.2
Length - excludes pipe connections (Add 105mm)	mm	1966	1966	2816	2816	3666	3666
Height - from base to top of condenser fan	mm	1977	1977	1977	1977	1977	1977
Width - widest point on base	mm	2100	2100	2100	2100	2100	2100
Net Weight.	kg	533	641	765	873	1025	1133

C2-589-10.63	C2-706-10.63	C2-859-12.63	C2-1013-14.63	C2-1163-16.63	C2-1314-18.63	C2-1460-20.63	C2-1603-22.63	C2-1740-24.63
ZIEHL-ABEGG								
10	10	12	14	16	18	20	22	24
630	630	630	630	630	630	630	630	630
588.54	705.62	858.66	1012.53	1163.63	1314.00	1460.81	1603.05	1739.81
FE063-VDS	FE063-VDS	FE063-VDS	FE063-VDS	FE063-VDS	FE063-VDS	FE063-VDS	FE063-VDS	FE063-VDS
4	4	4	4	4	4	4	4	4
49470	45760	54940	64130	73300	82470	91640	100800	109940
415/3/50	415/3/50	415/3/50	415/3/50	415/3/50	415/3/50	415/3/50	415/3/50	415/3/50
26000	26000	31200	36400	41600	46800	52000	57200	62400
48.00	48.00	57.60	67.20	76.80	86.40	96.00	105.60	115.20
68	68	69	70	71	72	73	74	75
444.83	510.93	614.87	724.34	831.93	940.38	1047.64	1153.32	1257.03
FE063-VDS	FE063-VDS	FE063-VDS	FE063-VDS	FE063-VDS	FE063-VDS	FE063-VDS	FE063-VDS	FE063-VDS
4	4	4	4	4	4	4	4	4
112738	103702	124456	145251	166033	186822	207600	228366	249118
415/3/50	415/3/50	415/3/50	415/3/50	415/3/50	415/3/50	415/3/50	415/3/50	415/3/50
16000	16000	19200	22400	25600	28800	32000	35200	38400
27.00	27.00	32.40	37.80	43.20	48.60	54.00	59.40	64.80
61	61	62	63	64	65	66	67	68
76.20 x 2	88.90 x 2	88.90 x 2	76.2 x 4	76.2 x 4	76.2 x 4	88.90 x 4	88.90 x 4	88.90 x 4
63.50	76.20 x 2	76.20 x 2	63.5 x 4	63.5 x 4	63.5 x 4	76.20 x 4	76.20 x 4	76.20 x 4
990	1486	1783	2080	2377	2674	2971	3269	3566
9.52	9.52	9.52	9.52	9.52	9.52	9.52	9.52	9.52
124	124	124	124	124	124	124	124	124
4	6	6	6	6	6	6	6	6
Epoxy fin	Epoxy fin	Epoxy fin	Epoxy fin	Epoxy fin	Epoxy fin	Epoxy fin	Epoxy fin	Epoxy fin
2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2
4516	4516	5366	6216	7066	7916	8766	9616	10466
1977	1977	1977	1977	1977	1977	1977	1977	1977
2100	2100	2100	2100	2100	2100	2100	2100	2100
1275	1385	1636	1883	2135	2385	2633	2885	3135



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