MIPAL
Technology and Trust

Remote air condenser

Remote air-cooled condenser

Cdr

28.669 a 371.772 Kcal/h
33.336 a 432.293 W

january - 2023

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33.336 a 432.293 W

Remote air-cooled condenser

Benefits

- Extended lifespan of the fan motor assembly
- Enhanced thermal and energy efficiency
- Maximum efficiency throughout its entire lifespan
- Standard electronic motors
- Broader range of capacities
- Compatible with all refrigerant fluids
- Motor interchangeability: AC and EC, 800mm, with the possibility of mixed use
- Plug & Play concept: Easy installation and operation
- Standardized electrical assemblies (NBR5410)
- Electrical panel with printed circuits and easy power supply
- Easy cleaning and maintenance
- Special and highly resistant KTL painting on the feet
- Mcoat Exclusive protection against harsh environments in 2 levels

Standard Version

- Spacing between aluminum fins approximately 12 mm
- Copper tubes with 3/8” external diameter
- Flat aluminum cabinet
- Electronic fan motors
- Lifting handles

Optional

- Multiple circuits able to supply power to several compressors simultaneously
- Anticorrosive treatment for Mcoat installations near the seaside
- Pressure transducer for controlling electronic fans
- Copper tubes and aluminum fins (Cu/Al) for CO2

Applications

Meat

Dairy

Agribusiness

Beverages

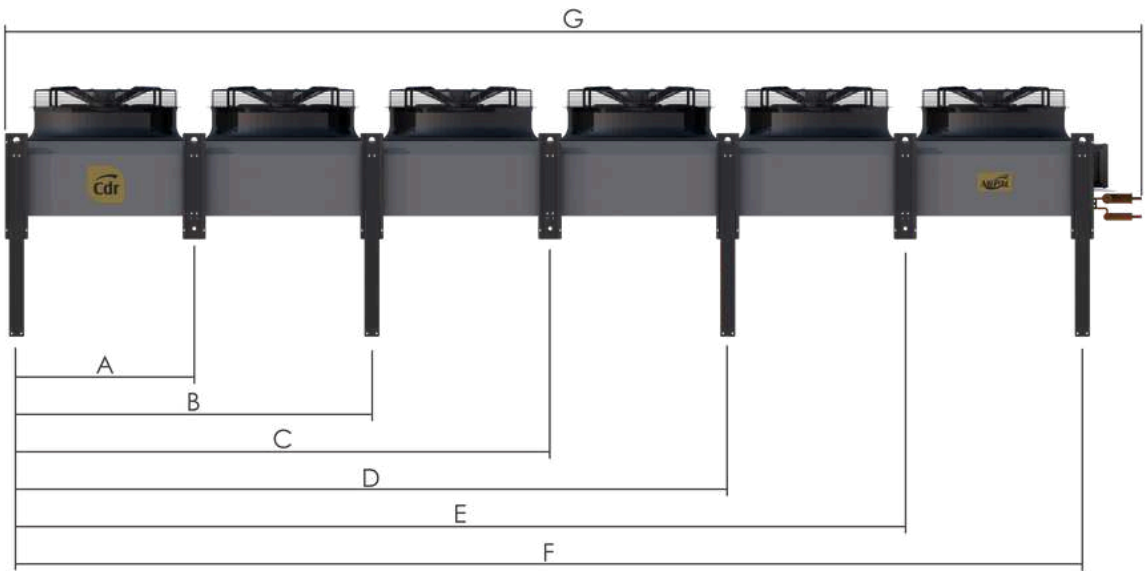
Industrial

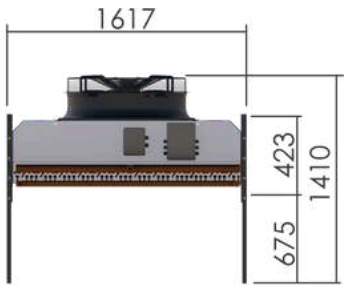
Pharmaceutical

Food

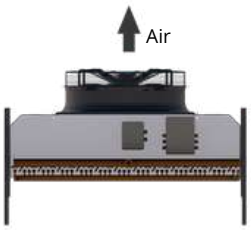
Wholesale and Retail

Dimensional

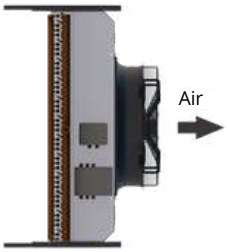




	Dimensional					
	A	B	C	D	E	F
1	1000	-	-	-	-	1375
2	1000	2000	-	-	-	2345
3	1000	2000	3000	-	-	3345
4	1000	2000	3000	4000	-	4685
5	1000	2000	3000	4000	5000	5446
6	1000	2000	3000	4000	5000	6385

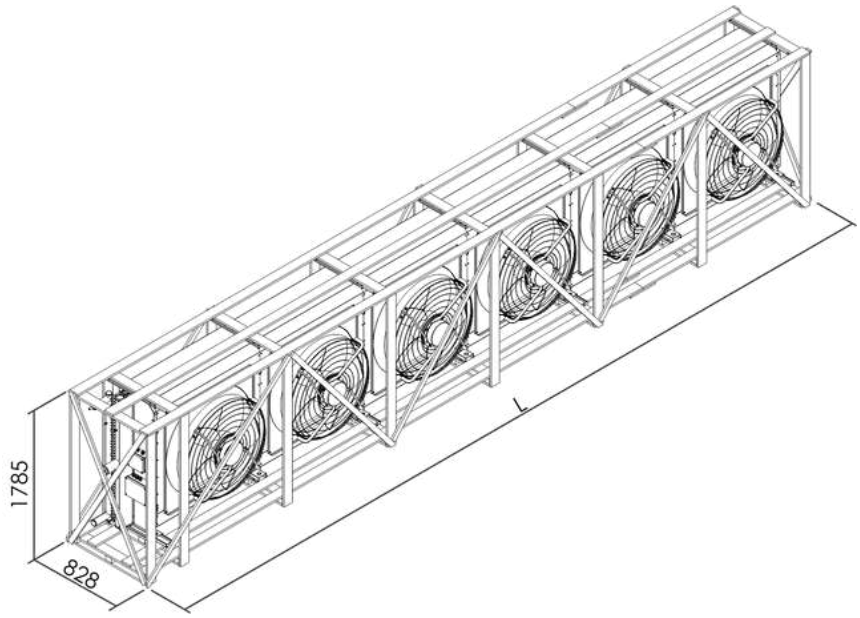


Vertical Flow



Horizontal Flow

Packaging



	(mm)
	L
1	1530
2	2530
3	3530
4	4530
5	5530
6	6530

Capacidades • 800mm Motor-driven fans

			1x		2x		3x		4x		5x	6x
AC 6 Polos	Model		47	58	94	116	142	174	188	232	290	348
	Noise level at 10 meters	dB(a)	43	43	46	46	48	48	49	49	50	51
	Cdr (12app) DT 10°C	Kcal/h	45,554	55,745	91,108	111,49	136,66	167,24	182,22	222,98	278,725	334,47
		Watts	52,967	64,82	105,939	129,64	158,91	194,46	211,88	259,28	324,099	388,919
	Airflow	m³/h	18,85	18,85	37,7	37,7	56,55	56,55	75,4	75,4	94,25	113,1
	Motor 60Hz Power	kW	1,99	1,99	3,98	3,98	5,97	5,97	7,96	7,96	9,95	11,94
	Motor 60Hz 220V current	A	6,5	6,5	13	13	19,5	19,5	26	26	32,5	39,0
	Motor 60Hz 380V current	A	3,78	3,78	7,56	7,56	11,34	11,34	15,12	15,12	18,9	22,68

AC 8 Polos	Model		42	48	84	96	127	144	168	192	240	288
	Noise level at 10 meters	dB(a)	39	39	42	42	44	44	45	45	46	47
	Cdr (12app) DT 10°C	Kcal/h	42,645	46,92	85,29	93,84	127,94	140,76	170,58	187,68	234,6	281,52
		Watts	49,587	54,558	99,174	108,54	148,76	163,67	198,35	218,23	272,791	327,349
	Airflow	m³/h	16,95	16,95	33,9	33,9	50,85	50,85	67,8	67,8	84,75	101,7
	Motor 60Hz Power	kW	1,12	1,12	2,24	2,24	3,36	3,36	4,48	4,48	5,6	6,72
	Motor 60Hz 220V current	A	4,15	4,15	8,3	8,3	12,45	12,45	16,6	16,6	20,75	24,9
	Motor 60Hz 380V current	A	2,4	2,4	4,8	4,8	7,2	7,2	9,6	9,6	12	14,4

AC 12 Polos	Model		27	31	55	63	81	93	109	125	155	187
	Noise level at 10 meters	dB(a)	32	32	35	35	36	36	38	38	39	40
	Cdr (12app) DT 10°C	Kcal/h	28,669	30,451	57,228	60,902	86,007	91,353	114,68	121,8	152,255	182,706
		Watts	33,336	35,408	66,544	70,816	100,01	106,22	133,34	141,63	177,041	212,449
	Airflow	m³/h	11.250	11.250	22,5	22,5	33,75	33,75	45	45	56,25	101,7
	Motor 60Hz Power	kW	0,4	0,4	0,8	0,8	1,2	1,2	1,6	1,6	2,0	2,4
	Motor 60Hz 220V current	A	2,00	2,00	4,00	4,00	6,00	6,00	8,00	8,00	10,0	12,0
	Motor 60Hz 380V current	A	1,15	1,15	2,3	2,3	3,45	3,45	4,6	4,6	12	14,4

Electric Motor	Model		54	62	108	124	162	186	216	248	310	372
	Noise level at 10 meters	dB(a)	44	44	47	47	49	49	50	50	51	52
	Cdr (12app) DT 10°C	Kcal/h	53,216	61,962	106,432	123,94	159,65	185,89	212,86	247,85	309,81	371,772
		Watts	61,879	72,043	123,758	144,12	185,64	215,86	247,52	288,2	360,244	432,293
	Airflow	m³/h	22,5	22,5	45	45	67,5	67,5	90	90	112,5	135
	230V Power	kW	2,4	2,4	4,8	4,8	7,2	7,2	9,6	9,6	12	14,4
	230V current	A	7,5	7,5	15	15	22,5	22,5	30	30	37,5	45
	380V current	kW	2,56	2,56	5,12	5,12	7,68	7,68	10,24	10,24	12,8	15,36
	380V current	A	3,9	3,9	7,8	7,8	11,7	11,7	15,6	15,6	19,5	23,4

Other data											
Volume of the tubes	Liters	6,90	10,40	13,80	20,80	20,70	31,20	27,60	41,60	52,00	62,40
Thermal exchange area	m²	111,70	113,20	223,40	226,40	335,10	339,60	446,80	452,80	556,00	679,20
Input collectors	Ø	1 5/8"	1 5/8"	1 5/8"	2 1/8"	2 1/8"	2 1/8"	3 1/8"	3 1/8"	3 1/8"	3 1/8"
Output collectors	Ø	7/8"	7/8"	1 5/8"	1 5/8"	1 5/8"	1 5/8"	2 5/8"	2 5/8"	2 5/8"	2 5/8"
Net weight	kg	103	114	206	228	309	342	412	456	625	654
Gross weight	kg	134	149	268	297	402	445	536	554	813	850

Connectors resistant to temperature variations, vibration, and shock. Spring connection technology reduces the time of electrical installations, without the need for special tools. Standardized electrical components

(*) Same capabilities for 50Hz and 60Hz. Capacity in R-22.

Dt1: Difference between the air inlet temperature at the evaporator and the refrigerant evaporation temperature.

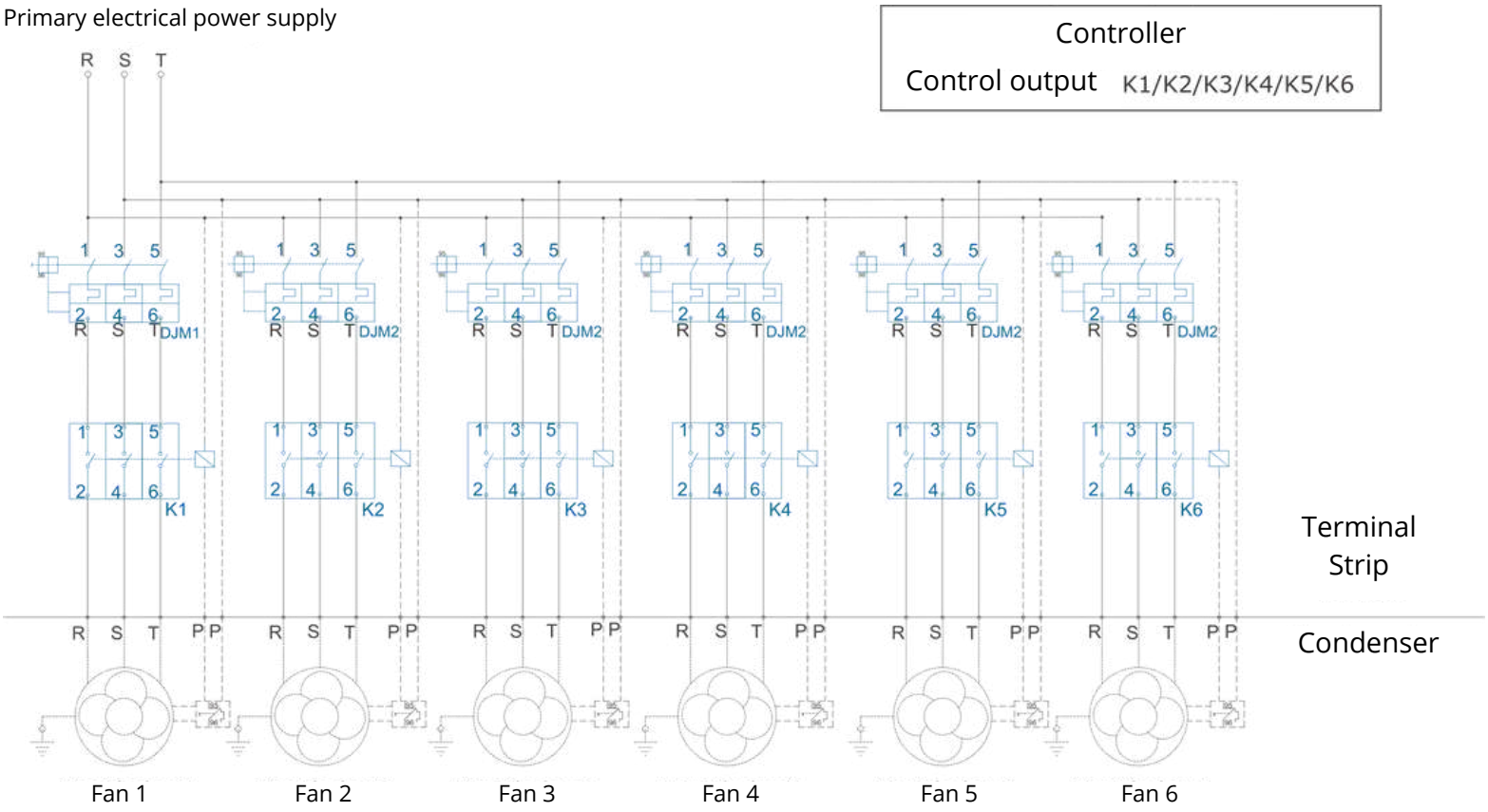
ºK=Kelvin degrees ºF=Fahrenheit degrees

The air inlet temperature at the evaporator is considered the chamber temperature approximately.

How to buy

Model	Descrição	Available Options
CDR	Remote Condenser	
F	Spacing between fins	F • 12 app
0027	Model	0027 à 0372
T1	Number of circuits	AUp to 9 circuits: T1, T2, T3, T4, T5, T6, T7, T8 ou T9 Above 9 circuits: 10, 11, 12...
00	Accessories	00 • Without accessories 04 • Pressure transducer 05 • Electric panel with control 06 • Electric panel without control 07 • Electric box 08 • Electric box and pressure transducer 09 • Pressure transducer and electric panel without control
A	Finish	A • Aluminum Cabinet B • Aluminum cabinet with N1 protection on the fins P • Aluminum cabinet with N3 protection on the fins
MEC	Motor	EC800 • EC 800mm motor-driven fan AC80B • AC 800mm motor-driven fan 06 poles AC80C • EC 800mm motor-driven fan 08 poles AC80E • EC 800mm motor-driven fan 12 poles
G	Voltage and Frequency	H • Motor = 230V/3F/50Hz Q • Motor = 230V/3F/60Hz E • Motor = 380V/3F/50Hz V • Motor = 380V/3F/60Hz
1	Packaging	1 • Crate

Power supply 220V, 380V, and 440V • 50/60Hz • 3Ø



Subtitles:

R = Phase 1 PP = Thermal Protector
S = Phase 2 K1-K6 = Fan Contactor
T = Phase 3 DJM = Motor Circuit Breaker

Attention:

- To size the installation components, refer to the data tables in the catalog.
- To change the factory power supply, contact engineering.
- The safety thermostat must be connected in series with the contactor coil and controller actuation.
- Always use ground wire.
- Interconnect the fan thermal protector in series with the contactor coil and controller actuation (PP)..

Correction of capabilities

F1	Factor related to DT(*)										
DT	7	8	9	10	11	12	13	14	15	18	20
F1	1,42	1,25	1,11	1	0,91	0,83	0,77	0,71	0,67	0,55	0,5

F2	Refrigerant factor				
Refrigerant	R22	R134A	R404A	R407C	R410A
F2	1	1,01	0,983	0,98	0,95

F3	Factor related to the air inlet temperature							
Inlet temperature	+15	+20	+25	+30	+35	+40	+45	+50
	0,9	0,95	0,97	0,98	1	1,03	1,08	1,12

F4	Factor relative to the altitude of the installation site								
Altitude	0	600	800	1000	1200	1400	1600	1800	2000
F4	1,00	1,04	1,06	1,07	1,09	1,10	1,12	1,14	1,16

FSound	Sound level correction based on the distance from the condenser and the desired location										
Distance (meters)	1	2	3	4	5	10	15	20	40	60	80
Dba	+20	+14	+10	+8	+6	0	-4	-6	-12	-16	-20

The thermal capacities presented in the tables of this catalog correspond to standard operating conditions and may not always be those available in the project. Therefore, we present a correction method for actual conditions that should be applied before entering the equipment selection table

(*) DT = difference between air inlet and condensation temperatures

FCP	Evaporation temperatures	FCP coefficient for hermetic or semi-hermetic compressors Condensing temperature						Fcp coefficient for open compressors Condensation temperature					
	°C	32	35	40	45	50	55	32	35	40	45	50	55
	10	1,14	1,16	1,18	1,22	1,24	1,29	1,09	1,11	1,13	1,16	1,18	1,21
	5	1,18	1,20	1,22	1,25	1,29	1,33	1,12	1,13	1,16	1,18	1,21	1,24
	0	1,21	1,23	1,25	1,29	1,33	1,37	1,14	1,15	1,18	1,21	1,24	1,28
	-5	1,25	1,27	1,30	1,33	1,38	1,41	1,16	1,18	1,21	1,24	1,28	1,32
	-10	1,29	1,31	1,34	1,38	1,43	1,48	1,19	1,21	1,24	1,28	1,32	1,36
	-15	1,33	1,35	1,39	1,43	1,48	1,55	1,23	1,25	1,28	1,32	1,36	1,40
	-20	1,38	1,41	1,44	1,48	1,55	1,62	1,26	1,28	1,32	1,36	1,40	1,45
	-25	1,44	1,47	1,50	1,55	1,62	1,72	1,30	1,32	1,36	1,40	1,45	1,49
	-30	1,51	1,53	1,57	1,62	1,72	1,87	1,34	1,36	1,40	1,45	1,49	1,55
	-35	1,58	1,60	1,66	1,75	1,87	2,07	1,37	1,40	1,45	1,49	1,55	1,62
	-40	1,66	1,70	1,76	1,87	2,03	2,27	1,39	1,45	1,50	1,55	1,62	1,67

Exemplo de selecionamento

Terminology	
Q_{cd}	Heat effectively rejected in the condenser (value for input in selection tables)
Q_{cp}	Compressor refrigeration capacity (installation project data)
Q_m	Heat generated by the compressor motor
Q_{bhp}	Shaft power in open compressors (in HP)
Q_{kw}	Power consumed by hermetic and semi-hermetic compressors
F1,F2,F3,F4,FSO UND and FCP	Correction factors and Compressor Factor
TA	Ambient temperature

Calculation formulas

$$Q_m = P_{bhp} \times 642$$

(For open compressors)

$$Q_m = Q_{kw} \times 860$$

(For hermetic or semi-hermetic compressors)

$$Q_{cd} = (Q_{cp} + Q_m) \times F_1 \times F_2 \times F_3 \times F_4$$

If information regarding the motor and compressor consumption is not available, we recommend practical factors (Fcp) to be used to obtain the capacity effectively rejected in the condenser, according to the formula below:

$$Q_{cd} = Q_{cp} \times F_{cp} \times F_1 \times F_2 \times F_3 \times F_4$$

Dados	
Compressor Semi - hermético	**Capacidade QCP** 68.000 Kcal/h
Refrigerante R 404A	**Temperatura ambiente do local de instalação** + 30°C
Evaporação TEV - 10°C	**Altitude do local de instalação** 800m
Condensação TCD + 45°C	**Nível sonoro máximo admissível** 55 Dba a 20m do local

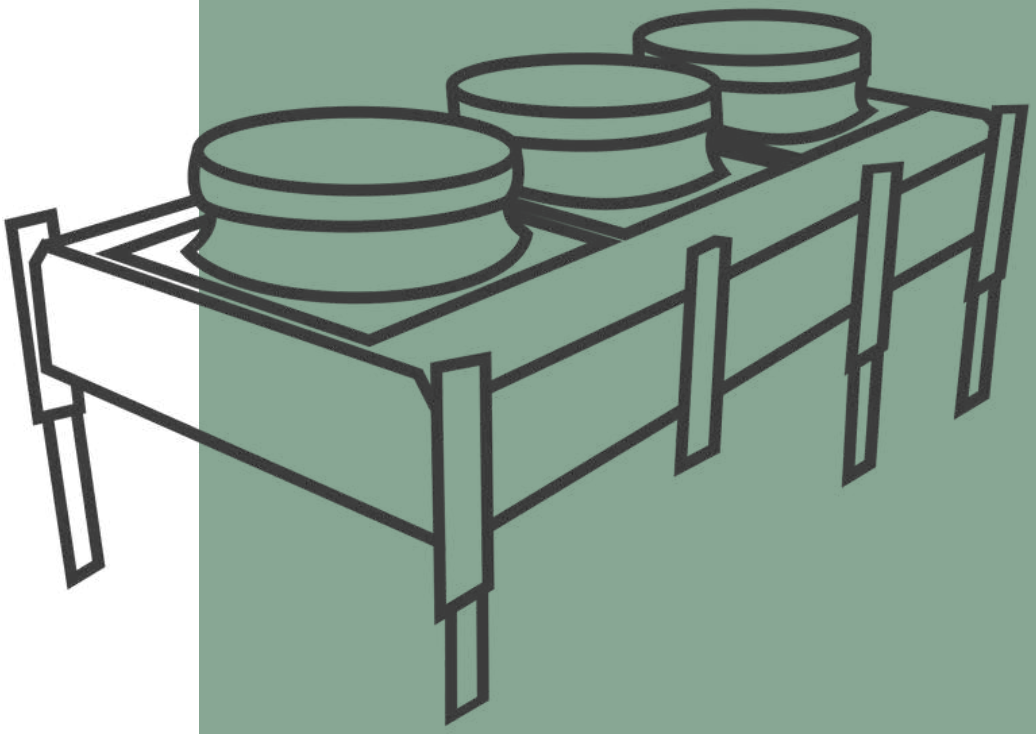
Resolução:

Qcd = Qcp x Fcp x F1 x F2 x F3 x F4
Qcp = 68000 Kcal/k
Fcp = -10°C/+45°C = 1,38 for semi-hermetic compressors
F1 = Tcd-Ta = 45-30 = 15 = 0,67
F2 = Gás R404A = 1,05
F3 = + 30°C = 0,98
F4 = Height = 1,06

Qcd = 68000 x 1,38 x 0,67 x 1,05 x 0,98 x 1,06 = 68577 Kcal/h - C
Effectively rejected capacity by the capacitor under these design conditions. Sound level = 55DBa at 20m = 55-6 = 49DBa at 10m

With a defined capacity of 68577 Kcal/h and a sound level of 49 Dba, let's consult the table and select the Vmax 083 model with a capacity of 71,940 Kcal/h and 45 Dba.

Cdr



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