MIPAL
Technology and Trust

Air-cooled remote condenser

Mini air-cooled remote condenser

Cdr mini

48.600 a 90.913 Kcal/h
56.512 a 105.712 W

january - 2023

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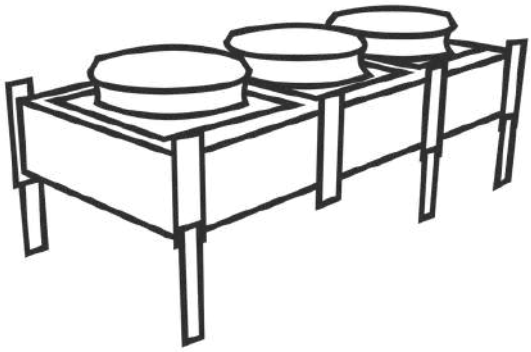


Benefícios

- Maior vida útil do conjunto motoventilador
- Maior eficiência térmica e energética
- Máxima eficiência ao longo de toda vida útil
- Motores eletrônicos standard
- Maior amplitude de capacidades
- Adaptável a todos os fluidos refrigerantes
- Intercambiabilidade de motores: AC e EC, 800mm, com possibilidade de uso misto
- Conceito Plug & Play: Facilidade de instalação e operação
- Conjuntos elétricos normatizados (NBR5410)
- Painel elétrico com circuitos impressos e de fácil alimentação
- Fácil limpeza e manutenção
- Pintura KTL especial e ultra resistente nos pés
- Proteção exclusiva contra ambientes agressivos em 2 níveis

Standard Version

- Spacing between aluminum fins of 10 and 12 app
- Copper tubes with 3/8” outer diameter
- Galvanized steel cabinet with white epoxy paint
- Electronic fan motors
- Lifting handles

Optional

- Multiple circuits capable of powering several compressors at the same time
- Anticorrosive treatment fo installations near the seaside
- Copper tubes and aluminum fins (Cu/Al) for CO2

Aplicações

Meat

Dairy

Agribusiness

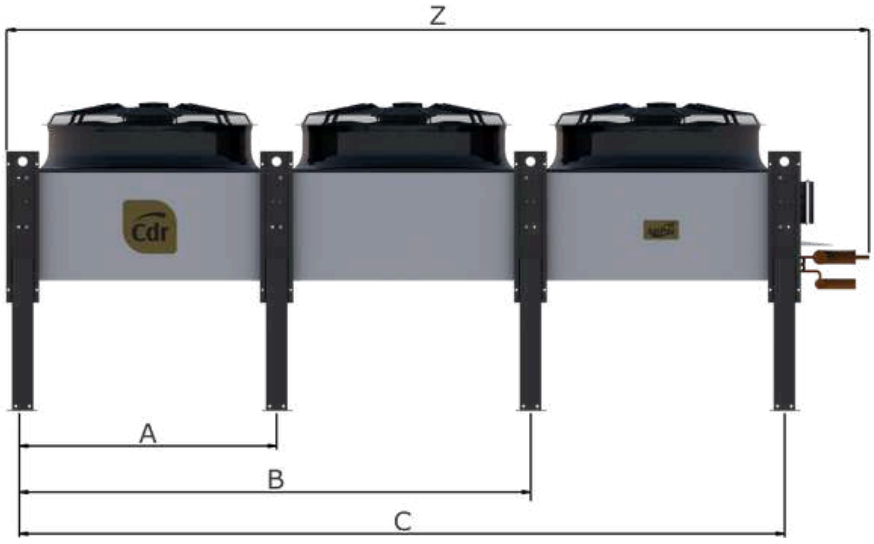
Beverages

Industrial

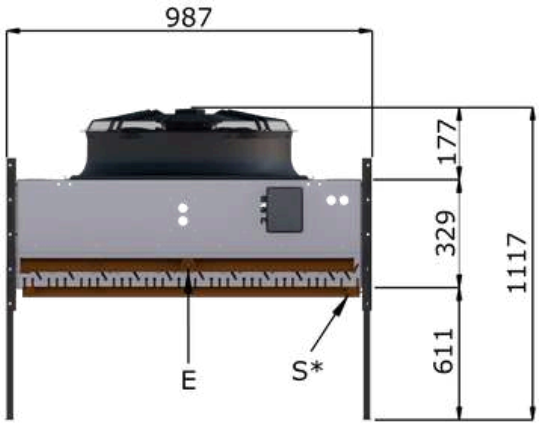
Food

Wholesale and retail

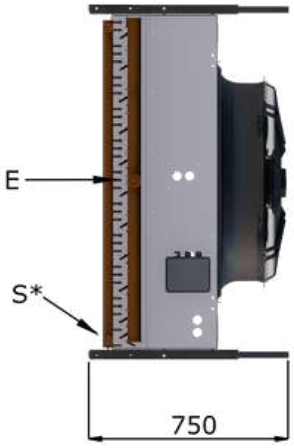
Dimensional



Vertical Mounting



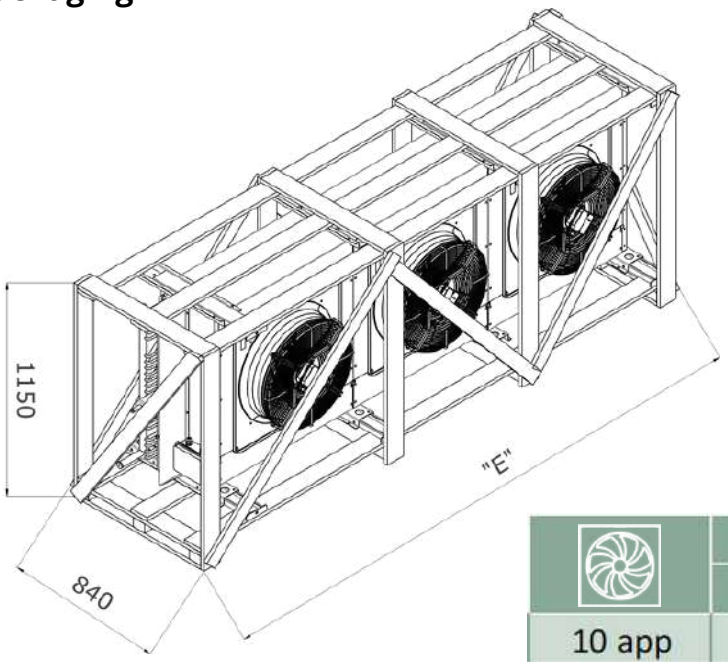
Horizontal Mounting



	Dimensional (mm)					
	A	B	C	Z	ØE	ØS
2	-	1660	-	2050	1 5/8"	7/8"
3	830	1660	2490	2880	2 1/8"	1 1/8"

Weight (Kg)	Model (mm)					
	060	066	075	087	102	113
Net 10app	110	120	130	162	177	191
Net 12app	114	125	136	168	184	200

Packaging



	Gross weight (Kg)					
	060	066	075	087	102	113
10 app	139	149	159	201	216	230
12 app	143	154	165	207	223	240

Features and Capabilities • Electronic Fan Motors

Model		Selection data				Motor fan data					
		Spacing	Kcal/h	Watts	Noise dBa	Ø	Flow rate (m³/h)	3~ 220V		3~ 380V	
								W	A	W	A
0060	2	10 app	48.600	57.642	60	500	20.200	1,96	5,54	1,96	3,20
0060	2	12 app	51.100	60.607	60						
0066	2	10 app	53.770	63.774	60	500	19.780	1,96	5,54	1,96	3,20
0066	2	12 app	55.780	66.158	60						
0075	2	10 app	57.230	67.877	60	500	19.520	1,96	5,54	1,96	3,20
0075	2	12 app	58.860	69.810	60						
0087	3	10 app	73.200	89.919	62	500	30.300	2,94	8,31	2,94	4,80
0087	3	12 app	77.100	91.444	62						
0102	3	10 app	81.230	96.343	62	500	29.820	2,94	8,31	2,94	4,80
0102	3	12 app	84.270	99.948	62						
0113	3	10 app	86.840	102.996	62	500	29.490	2,94	8,31	2,94	4,80
0113	3	12 app	89.130	105.712	62						

Features and Capabilities • AC Motor Fans

Model		Selection data				Motor fan data					
		Spacing	Kcal/h	Watts	Noise dBa	Ø	Flow rate (m³/h)	3~ 220V		3~ 380V	
								W	A	W	A
0060	2	10 app	48.600	56.512	60	500	19.500	1,90	5,54	1,90	3,20
0060	2	12 app	51.100	59.419	60						
0066	2	10 app	53.770	62.523	60	500	19.080	1,90	5,54	1,90	3,20
0066	2	12 app	55.780	64.860	60						
0075	2	10 app	57.230	66.547	60	500	18.860	1,90	5,54	1,90	3,20
0075	2	12 app	58.860	68.442	60						
0087	3	10 app	73.200	85.116	62	500	29.250	2,85	8,31	2,85	4,80
0087	3	12 app	77.100	89.651	62						
0102	3	10 app	81.230	94.453	62	500	28.620	2,85	8,31	2,85	4,80
0102	3	12 app	84.270	97.988	62						
0113	3	10 app	86.840	100.977	62	500	28.290	2,85	8,31	2,85	4,80
0113	3	12 app	89.130	103.640	62						

Connectors resistant to temperature variations, vibration, and shock. Spring connection technology reduces the time for 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.

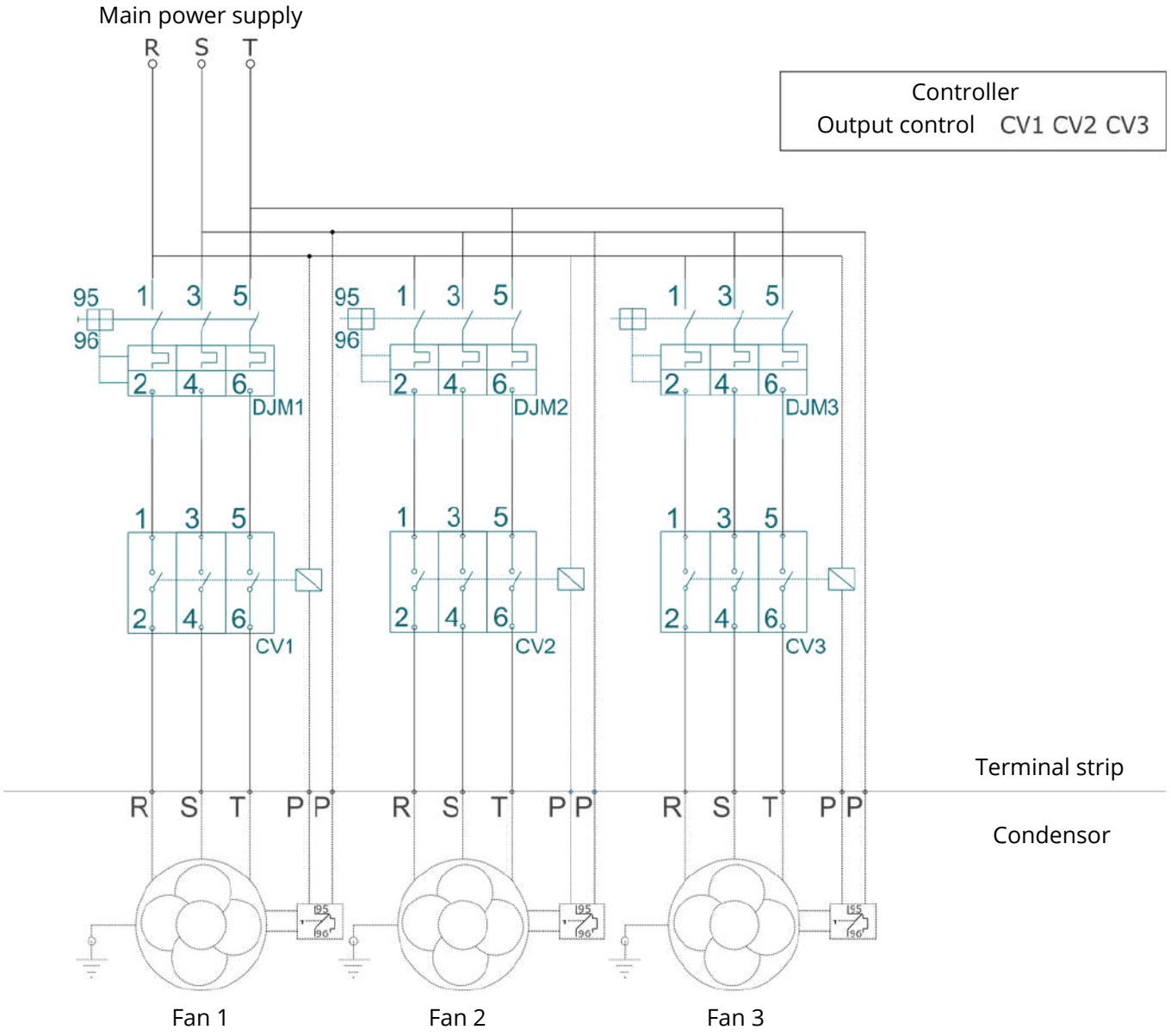
ºK=Kelvin Degrees ºF=Fahrenheit Degrees

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

How to buy

Model	Description	Available Options
CDRM	Mini air-cooled remote condenser	
E	Espaçamento entre aletas	E • 10 app F • 12 app
0027	Modelo	0027 à 0113
TN	Number of circuits	Up 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 • Electrical panel with control 06 • Electrical panel without control 07 • Electrical box 08 • Electrical box and pressure transducer 09 • Pressure transducer and electrical panel without control
A	Fisnish	A • Aluminum Cabinet B • Aluminum cabinet with N1 protection on fins P • Aluminum cabinet with N3 protection on fins
EC500	Motor	EC500 • EC 500mm Motorized Fan AC50A • AC 500mm 04-Pole Motorized Fan
Q	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 Contactors
T = Phase 3 DJM = Motor Circuit Breaker

Attention:

- To size the installation components, refer to the catalog data tables
- To change the factory power supply, please contact engineering
- The safety thermostat must be connected in series with the contactor coil and controller activation
- Always use ground wire
- Connect the fan thermal protector in series with the contactor coil and controller activation (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 inlet air temperature							
Entrance 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 related to the altitude of the installation location								
Height	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 adjustment based on the distance from the condenser and desired location										
Distance	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 real conditions that should be applied before entering the equipment selection table

DT = difference between air inlet and condensation temperatures

FCP	Evaporation temperature	FCP coefficient for hermetic or semi-hermetic compressors Condensation Temperature (°C)						Coeficiente Fcp para compressores abertos Temperatura de Condensação °C					
	°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

Example of selection

Terminology	
Q_{cd}	Heat effectively rejected in the condenser (value for entry in selection tables)
Q_{cp}	Refrigeration capacity of the compressor (installation project data)
Q_m	Heat generated by the compressor engine
Q_{bhp}	Potênca do eixo em compressores abertos (em HP)
Q_{kw}	Potênca consumida por compressores herméticos e semi-herméticos
F1, F2, F3, F4, Fsom e FCP	Correction factor and compressor factor
TA	Room temperature

Calculation formulas
$Q_m = P_{bhp} \times 642$
To open compressors
$Q_m = Q_{kw} \times 860$
For hermetic or semi-hermetic compressors
$Q_{cd} = (Q_{cp} + Q_m) \times F1 \times F2 \times F3 \times F4$
Here's the translation: "If information regarding the compressor's engine and consumption is not available, we recommend practical factors (Fcp) to be used for obtaining the effectively rejected capacity in the condenser, according to the formula below:
$Q_{cd} = Q_{cp} \times F_{cp} \times F1 \times F2 \times F3 \times F4$

Data	
Compressor	**QCP capacity**
Semi-hermetic	68.000 Kcal/h
Refrigerent	**Room temperature of the installation site**
R 404A	+ 30°C
TEV Evaporation	**Instalation Height**
- 10°C	800m
TCD Condensation	**Max sound level**
+ 45°C	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 compressor
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 - Effectively rejected capacity by the capacitor under these design conditions. Sound level = 55DBa at 20m = 55-6 = 49DBa at 10m

Given the capacity of 68,577 Kcal/h and the sound level of 49 dBA, let's refer to the table and select the Vmax 083 model with a capacity of 71,940 Kcal/h and 45 dBA

Cdr mini

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