MIPAL
Technology and Trust

Medium/High profile

Forced Air Evaporator

Hd 450

3.329 a 58.037 Kcal/h
3.871 a 67.485 W

3.329 a 58.037 Kcal/h
3.871 a 67.485 W

Air evaporator
Medium - High profile

For rooms up to 8m in height

Benefícios

- Greater thermal and energy efficiency
- Adaptable to all refrigerant fluids
- Extended life of the fan motor assembly
- Wider range of capacities
- Plug & Play concept: Ease of installation and operation
- Standardized electrical sets (NBR5410)
- Electric defrost system with quick response
- Incorporated protective thermostat
- Mobile tray
- Mcoat 2 levels of protection against aggressive environments

Standard Version

- Copper tubes with an outer diameter of 1/2".
- Spacing between aluminum fins of 4.5mm (model A) and 8mm (model B).
- Smooth plain aluminum casing.
  Safety thermostat.
- Air defrost.
- 450mm AC motor fan.

Optional items

- Copper tubes and aluminum fins (Cu/Al) for CO2
- Aluminum tubes and fins (Al/Al) with circuits for R717 (NH3) or glycol solutions
- Copper tubes and aluminum fins (Cu/Al) with circuits for chilled water and glycol solutions
- Cabinet and tray with epoxy electrostatic paint in white color
- Electric defrost
- Stainless steel cabinet
- Hot gas defrost
- Double tray with intermediate insulation
- Mcoat Exclusive protection against aggressive environments
- Electronic motors

Applications

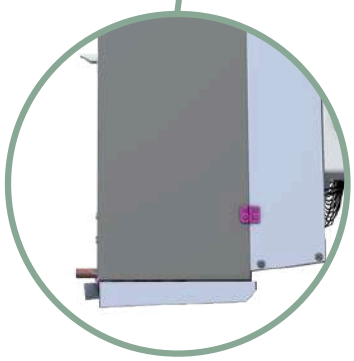
Dairy products | Meat | Agribusiness | Drinks

Wholesale and Retail | Pharmacist | Food | Industrial

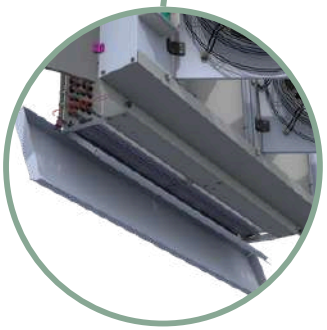
Exclusive Advantages

Easy access to electrical boxes

Articulated Hoods

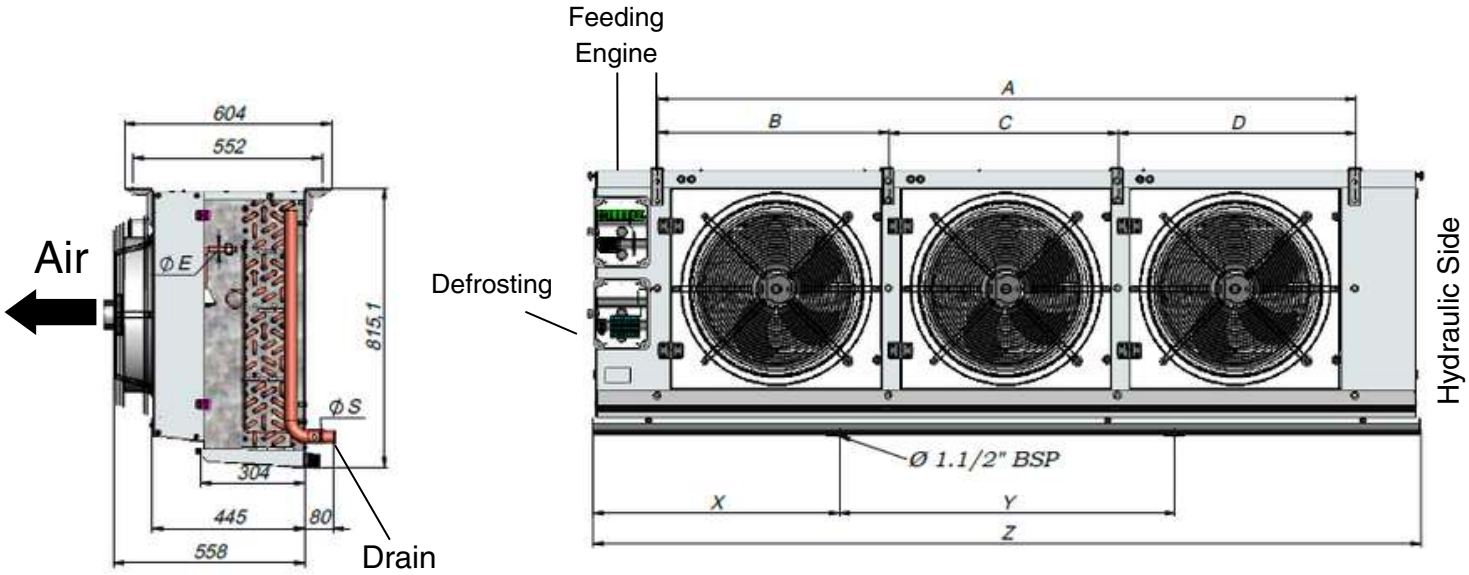


Back drain connection



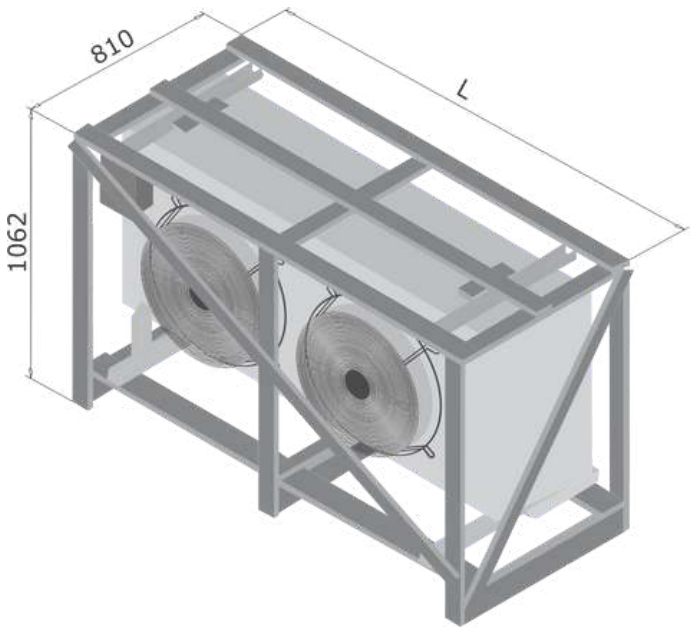
Inclined and tilting condensation collection tray

Dimensional



Modelo			Dimensionais (mm)											
A	B		A	B	C	D	F	G	H	Z	ØE	ØS	X	Y
72	62	1	730	-	-	-	-	-	-	1026	1/2"	1.1/8"	563	-
86	74	1	730	-	-	-	-	-	-	1026	1/2"	1.1/8"	563	-
97	85	1	730	-	-	-	-	-	-	1026	1/2"	1.1/8"	563	-
145	125	2	1430	700	-	-	-	-	-	1826	1/2"	1.1/4"	910	-
171	149	2	1430	700	-	-	-	-	-	1826	5/8"	1.1/4"	910	-
193	170	2	1430	700	-	-	-	-	-	1826	5/8"	1.1/4"	910	-
217	187	3	2130	705	700	725	-	-	-	2526	5/8"	1.1/2"	751	1025
256	223	3	2130	705	700	725	-	-	-	2526	5/8"	1.1/2"	751	1025
290	255	3	2130	705	700	725	-	-	-	2526	5/8"	1.1/2"	751	1025
341	297	4	2830	705	700	700	725	-	-	3226	5/8"	2"	1000	1225
386	340	4	2830	705	700	700	725	-	-	3226	7/8"	2"	1000	1225
426	372	5	3530	705	700	700	700	725	-	3926	7/8"	2"	995	1925
483	424	5	3530	705	700	700	700	725	-	3926	7/8"	2"	955	1925
511	446	6	4230	705	700	700	700	700	725	4626	7/8"	2"	1345	1925
579	509	6	4230	705	700	700	700	700	725	4626	7/8"	2"	1345	1925

Packaging



Modelo			L	Peso (Kg)	
A	B			Líquido (A)	Líquido (B)
72	62	1	1160	48,6	55
86	74	1	1160	54	61
97	85	1	1160	58	68
145	125	2	1810	96	106
171	149	2	1810	108	121
193	170	2	1810	118	127
217	187	3	2540	127	136
256	223	3	2540	135	146
290	255	3	2540	146	161
341	297	4	3240	166	176
386	340	4	3240	202	215
426	372	5	3940	237	251
483	424	5	3940	256	270
511	446	6	4670	300	316
579	509	6	4670	320	335

HD450A capabilities • AC/EC Motor Fan

	Kcal/h									Watts								
	Temperaturas de evaporação																	
Modelo A	-31 ºF -35 ºC	-22 ºF -30 ºC	-13 ºF -25 ºC	-4 ºF -20 ºC	5 ºF -15 ºC	14 ºF -10 ºC	23 ºF -5 ºC	32 ºF 0 ºC	41 ºF 5 ºC	-31 ºF -35 ºC	-22 ºF -30 ºC	-13 ºF -25 ºC	-4 ºF -20 ºC	5 ºF -15 ºC	14 ºF -10 ºC	23 ºF -5 ºC	32 ºF 0 ºC	41 ºF 5 ºC
0072	3999	4515	4967	5483	5934	6450	6674	7095	7289	4650	5250	5775	6375	6900	7500	7761	8250	8475
0086	4700	5306	5837	6443	6974	7580	7844	8338	8565	5465	6170	6787	7492	8109	8814	9121	9695	9960
0097	5307	5992	6591	7276	7875	8560	8858	9416	9673	6171	6967	7664	8460	9157	9953	10300	10949	11247
0145	7998	9030	9933	10965	11868	12900	13349	14190	14577	9300	10500	11550	12750	13800	15000	15522	16500	16950
0171	9399	10612	11673	12886	13947	15160	15688	16676	17131	10929	12340	13573	14984	16218	17628	18241	19391	19920
0193	10614	11984	13182	14552	15750	17120	17716	18832	19346	12342	13935	15328	16921	18314	19907	20600	21898	22495
0217	11997	13545	14900	16448	17802	19350	20023	21285	21866	13950	15750	17325	19125	20700	22500	23283	24750	25425
0256	14099	15918	17510	19329	20921	22740	23531	25014	25696	16394	18509	20360	22476	24327	26442	27362	29086	29879
0290	15922	17976	19774	21828	23626	25680	26574	28248	29018	18513	20902	22993	25381	27472	29860	30900	32847	33742
0341	18798	21224	23346	25772	27894	30320	31375	33352	34262	21859	24679	27147	29967	32435	35256	36483	38781	39839
0386	21229	23968	26365	29104	31501	34240	35432	37664	38691	24685	27870	30657	33842	36629	39814	41199	43795	44990
0426	23498	26530	29183	32215	34868	37900	39219	41690	42827	27323	30849	33934	37459	40544	44070	45603	48477	49799
0483	26536	29960	32956	36380	39376	42800	44289	47080	48364	30856	34837	38321	42302	45786	49767	51499	54744	56237
0511	28198	31836	35020	38658	41842	45480	47063	50028	51392	32788	37019	40720	44951	48653	52884	54724	58172	59759
0579	31843	35952	39547	43656	47251	51360	53147	56496	58037	37027	41805	45985	50763	54943	59721	61799	65693	67485

HD450B Capacities • AC/EC Motor Fan

	Kcal/h									Watts								
	Temperaturas de evaporação																	
Modelo B	-31 ºF -35 ºC	-22 ºF -30 ºC	-13 ºF -25 ºC	-4 ºF -20 ºC	5 ºF -15 ºC	14 ºF -10 ºC	23 ºF -5 ºC	32 ºF 0 ºC	41 ºF 5 ºC	-31 ºF -35 ºC	-22 ºF -30 ºC	-13 ºF -25 ºC	-4 ºF -20 ºC	5 ºF -15 ºC	14 ºF -10 ºC	23 ºF -5 ºC	32 ºF 0 ºC	41 ºF 5 ºC
0062	3329	3759	4135	4565	4940	5370	5557	5907	6068	3871	4371	4808	5308	5745	6244	6461	6869	7056
0074	3962	4473	4920	5432	5879	6390	6612	7029	7221	4607	5201	5721	6316	6836	7430	7689	8173	8396
0085	4526	5110	5621	6205	6716	7300	7554	8030	8249	5263	5942	6536	7215	7809	8488	8784	9337	9592
0125	6659	7518	8270	9129	9881	10740	11114	11814	12136	7743	8742	9616	10615	11489	12488	12923	13737	14112
0149	7924	8946	9841	10863	11758	12780	13225	14058	14441	9213	10402	11443	12631	13672	14860	15378	16347	16792
0170	9052	10220	11242	12410	13432	14600	15108	16060	16498	10526	11884	13072	14430	15619	16977	17568	18674	19184
0187	9988	11277	12405	13694	14821	16110	16671	17721	18204	11614	13113	14424	15923	17234	18733	19384	20606	21168
0223	11885	13419	14761	16295	17636	19170	19837	21087	21662	13820	15603	17164	18947	20507	22291	23066	24520	25188
0255	13578	15330	16863	18615	20148	21900	22662	24090	24747	15788	17826	19608	21645	23428	25465	26351	28012	28776
0297	15847	17892	19681	21726	23515	25560	26449	28116	28883	18427	20805	22885	25263	27343	29721	30755	32693	33585
0340	18104	20440	22484	24820	26864	29200	30216	32120	32996	21051	23767	26144	28860	31237	33953	35135	37349	38367
0372	19809	22365	24602	27158	29394	31950	33062	35145	36104	23034	26006	28606	31578	34179	37151	38444	40866	41981
0424	22630	25550	28105	31025	33580	36500	37770	40150	41245	26314	29709	32680	36076	39047	42442	43919	46686	47959
0446	23771	26838	29522	32589	35273	38340	39674	42174	43324	27640	31207	34328	37894	41015	44581	46133	49040	50377
0509	27156	30660	33726	37230	40296	43800	45324	48180	49494	31577	35651	39216	43291	46856	50930	52703	56023	57551

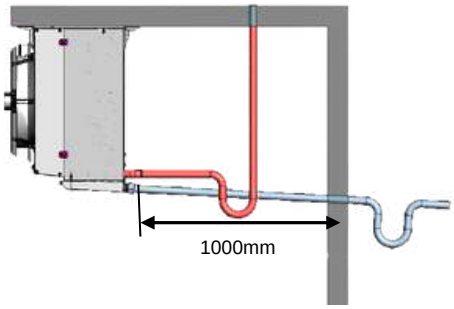
Capacidades (DT=10,8ºF / DT1=6ºK)

(*) 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.

Fator de correção para refrigerante				
R22	R134A	R404A	R407C	R410A
1	1,01	0,983	0,98	0,95

Arrow of air and installation

Hd450 A 21 meters → **Hd50 B 24 meters**



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

Electrical characteristics Hd450A • AC/EC Motor Fan

Modelo A		V dm³	C Kg	Ruído dBA	Motor EC			Motor AC					
					VAZÃO m³/h	1 ~ 220V 50/60Hz		3 ~ 230V - 400V			3 ~ 230V		3 ~ 400V
						W	A	VAZÃO m³/h	W 50Hz	W 60Hz	A 50Hz	A 60Hz	A 50Hz	A 60Hz
0072	1	7,76	1,55	63	1 x 5720	345	2,2	1 x 5500	430	580	1,4	1,73	0,81	1
0086	1	9,7	1,94	64	1 x 5670	345	2,2	1 x 5450	430	580	1,4	1,73	0,81	1
0097	1	11,64	2,33	65	1 x 5620	345	2,2	1 x 5400	430	580	1,4	1,73	0,81	1
0145	2	15,52	3,1	66	2 x 5720	690	4,4	2 x 5500	860	1160	2,8	3,46	1,62	2
0171	2	19,4	3,88	67	2 x 5670	690	4,4	2 x 5450	860	1160	2,8	3,46	1,62	2
0193	2	23,28	4,66	68	2 x 5620	690	4,4	2 x 5400	860	1160	2,8	3,46	1,62	2
0217	3	23,28	4,66	68	3 x 5720	1035	6,6	3 x 5500	1290	1740	4,2	5,19	2,43	3
0256	3	29,1	5,82	69	3 x 5670	1035	6,6	3 x 5450	1290	1740	4,2	5,19	2,43	3
0290	3	34,92	6,98	70	3 x 5620	1035	6,6	3 x 5400	1290	1740	4,2	5,19	2,43	3
0341	4	38,79	7,76	70	4 x 5670	1380	8,8	4 x 5450	1720	2320	5,6	6,92	3,24	4
0386	4	46,55	9,31	71	4 x 5620	1380	8,8	4 x 5400	1720	2320	5,6	6,92	3,24	4
0426	5	48,49	9,7	71	5 x 5670	1725	11	5 x 5450	2150	2900	7	8,65	4,05	5
0483	5	58,19	11,64	72	5 x 5620	1725	11	5 x 5400	2150	2900	7	8,65	4,05	5
0511	6	58,19	11,64	72	6 x 5670	2070	13,2	6 x 5450	2580	3480	8,4	10,38	4,86	6
0579	6	69,83	13,97	73	6 x 5620	2070	13,2	6 x 5400	2580	3480	8,4	10,38	4,86	6

Electrical Characteristics Hd450B • AC/EC Fan Motor

Modelo B		V dm³	C Kg	Ruído dBA	Motor EC			Motor AC					
					VAZÃO m³/h	1 ~ 220V 50/60Hz		3 ~ 230V - 400V			3 ~ 230V		3 ~ 400V
						W	A	VAZÃO m³/h	W 50Hz	W 60Hz	A 50Hz	A 60Hz	A 50Hz	A 60Hz
0062	1	7,76	1,55	63	1 x 5800	345	2,2	1 x 5600	430	580	1,4	1,73	0,81	1
0074	1	9,7	1,94	64	1 x 5750	345	2,2	1 x 5550	430	580	1,4	1,73	0,81	1
0085	1	11,64	2,33	65	1 x 5700	345	2,2	1 x 5500	430	580	1,4	1,73	0,81	1
0125	2	15,52	3,1	66	2 x 5800	690	4,4	2 x 5600	860	1160	2,8	3,46	1,62	2
0149	2	19,4	3,88	67	2 x 5750	690	4,4	2 x 5550	860	1160	2,8	3,46	1,62	2
0170	2	23,28	4,66	68	2 x 5700	690	4,4	2 x 5500	860	1160	2,8	3,46	1,62	2
0187	3	23,28	4,66	68	3 x 5800	1035	6,6	3 x 5600	1290	1740	4,2	5,19	2,43	3
0223	3	29,1	5,82	69	3 x 5750	1035	6,6	3 x 5550	1290	1740	4,2	5,19	2,43	3
0255	3	34,92	6,98	70	3 x 5700	1035	6,6	3 x 5500	1290	1740	4,2	5,19	2,43	3
0297	4	38,79	7,76	70	4 x 5750	1380	8,8	4 x 5550	1720	2320	5,6	6,92	3,24	4
0340	4	46,55	9,31	71	4 x 5700	1380	8,8	4 x 5500	1720	2320	5,6	6,92	3,24	4
0372	5	48,49	9,7	71	5 x 5750	1725	11	5 x 5550	2150	2900	7	8,65	4,05	5
0424	5	58,19	11,64	72	5 x 5700	1725	11	5 x 5500	2150	2900	7	8,65	4,05	5
0446	6	58,19	11,64	72	6 x 5750	2070	13,2	6 x 5550	2580	3480	8,4	10,38	4,86	6
0509	6	69,83	13,97	73	6 x 5700	2070	13,2	6 x 5500	2580	3480	8,4	10,38	4,86	6

Electric Characteristics • Resistances

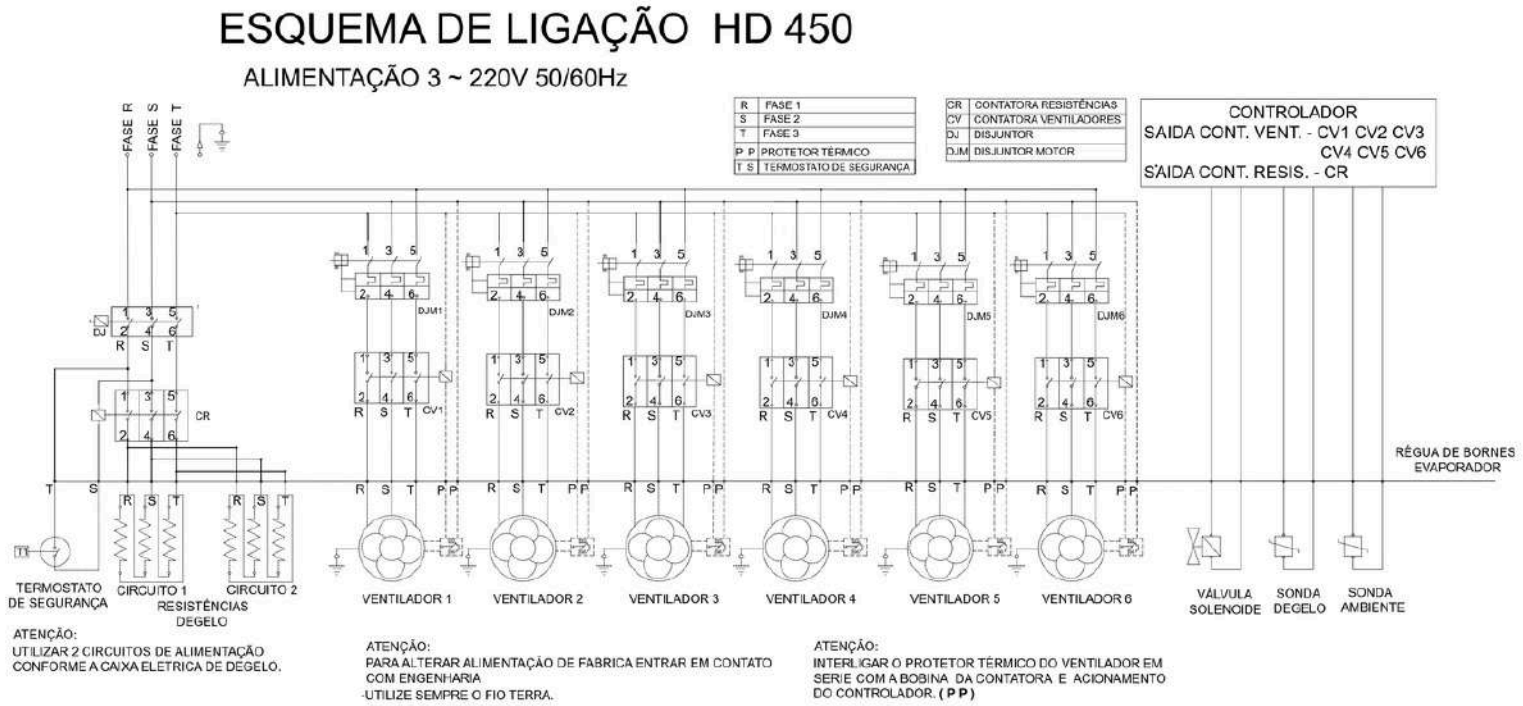
Hd 450 A	Hd 450 B		W	3 ~ 230V A	3 ~ 380V A	3 ~ 440V A
72	62	1	6x850	13,4	7,76	6,7
86	74	1	6x850	13,4	7,76	6,7
97	85	1	6x850	13,4	7,76	6,7
145	125	2	6x1700	26,8	15,52	13,4
171	149	2	6x1700	26,8	15,52	13,4
193	170	2	6x1700	26,8	15,52	13,4
217	187	3	6x2400	37,83	21,9	18,92
256	223	3	6x2400	37,83	21,9	18,92
290	255	3	6x2400	37,83	21,9	18,92
341	297	4	6x3500	55,18	31,94	27,59
386	340	4	6x3500	55,18	31,94	27,59
426	372	5	6x4500	70,94	41,07	35,47
483	424	5	6x4500	70,94	41,07	35,47
511	446	6	6x5400	85,13	49,29	42,56
579	509	6	6x5400	85,13	49,29	42,56

How to Buy

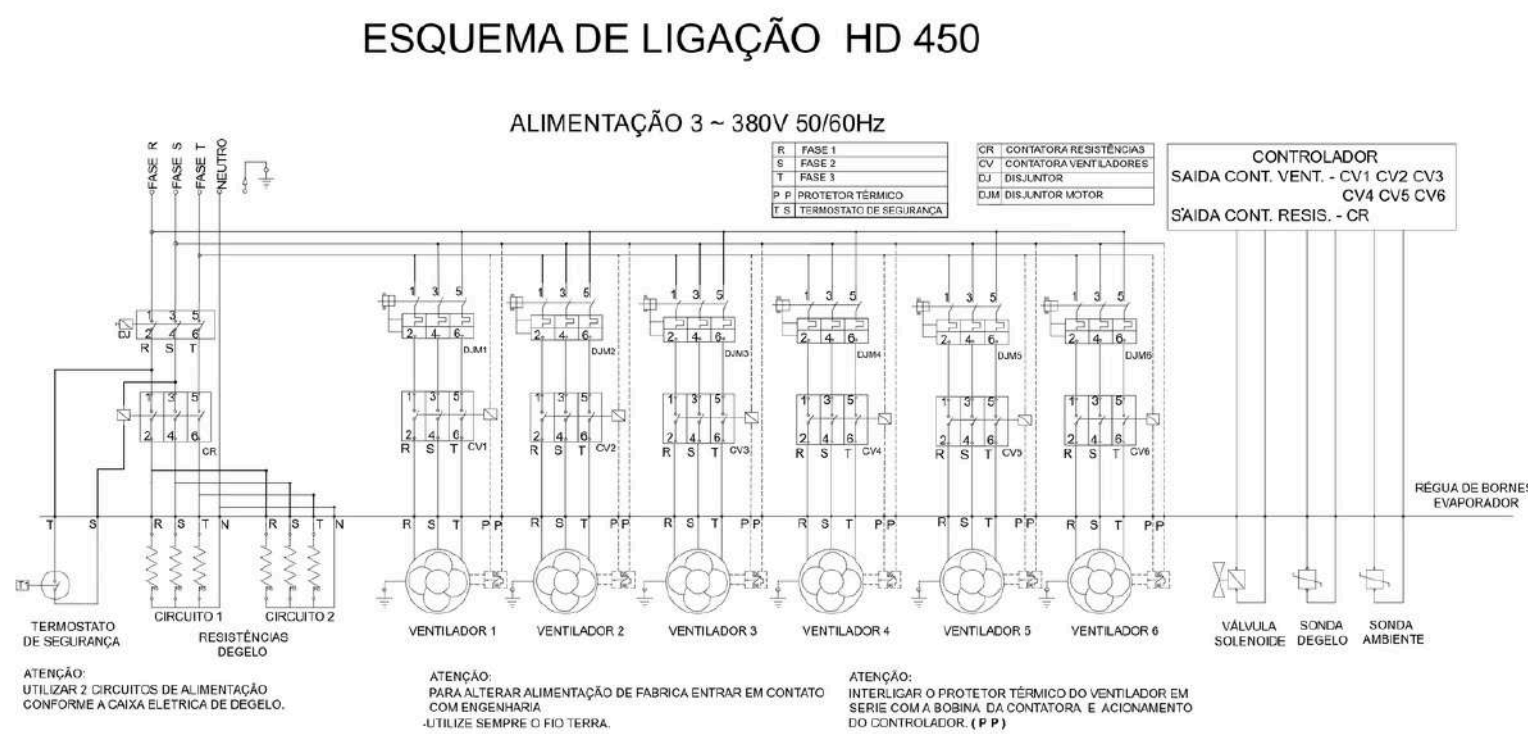
Model	Description	Available Options
HD450	Medium-High Profile Forced Air Evaporator	
H	Fin spacing	C • 4,5mm (model A) H • 8,0mm (model B)
E	Melting	A • Air E • Electric in the core and tray F • Air in the core and electric on the tray G • Gas in the core and tray H • Gas in the core and electric on the tray J • Water K • Water and electric on the tray L • Water, hot gas in the core and on the tray M • Water, hot gas in the core and electric on the tray N • Water and electric in the core and on the tray
0062	Model	0062 a 0579
C	Tubes	A • Aluminum B • Copper for CO2 C • Copper
A	Connections and tray	A • Direct Expansion B • 2 Collectors C • 2 Collectors with Flanges D • 2 Collectors with Nipples E • 2 Threaded Collectors (Aluminum) F • Direct Expansion and Double Insulated Tray G • 2 Collectors and Double Insulated Tray H • 2 Collectors with Flanges and Double Insulated Tray I • 2 Collectors with Nipples and Double Insulated Tray J • 2 Threaded Collectors (Aluminum) and Double Insulated Tray
00	Accessories	00 • Without accessories 01 • Expansion Valve 02 • Solenoid Valve 03 • Drain Resistance 10 • 1 + 2 + 3 11 • 1 + 2 12 • 2 + 3 13 • 1 + 3
A	Finishing	A • Aluminum Cabinet B • Aluminum Cabinet with N1 protection on fins C • Aluminum Cabinet with N2 protection on fins D • Protected Aluminum Cabinet E • Protected Aluminum Cabinet with N1 protection on fins F • Protected Aluminum Cabinet with N2 protection on fins G • Stainless Steel Cabinet H • Stainless Steel Cabinet with N1 protection on fins I • Stainless Steel Cabinet with N2 protection on fins
MEC	Engine	MAC • AC Fan MEC • EC Fan
G	Voltage and Frequency	G • Motor = 230V/1F/50Hz H • Motor = 230V/3F/50Hz E • Motor = 380V/3F/50Hz N • Motor = 230V/1F/60Hz Q • Motor = 230V/3F/60Hz V • Motor = 380V/3F/60Hz
1	Packaging	1 • Box 2 • Crate

Esquemas Elétricos

220V 50/60Hz 3Ø

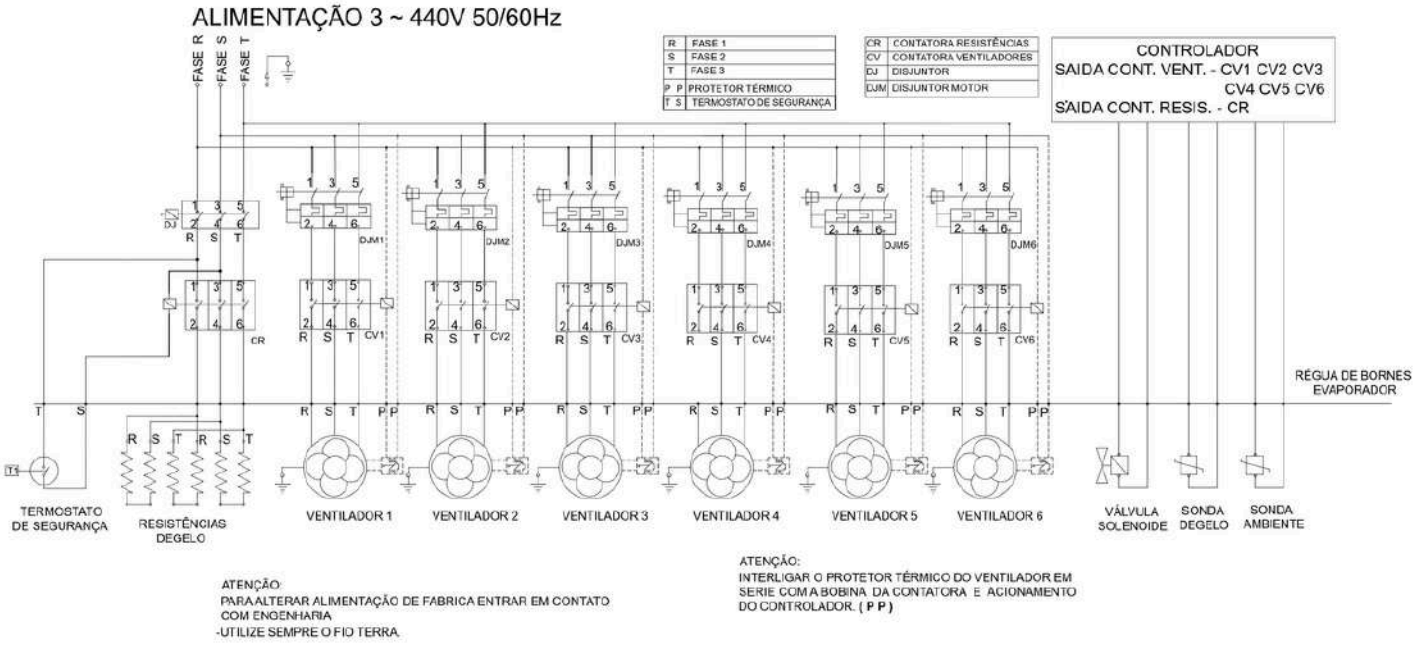


380V 50/60Hz 3Ø



440V 50/60Hz 3Ø

ESQUEMA DE LIGAÇÃO HD 450



Atenção

- Ao dimensionar componentes da instalação consulte a tabela de dados de catálogo.
- Para alterar alimentação de fábrica entre em contato com a engenharia Mipal.
- O termostato de segurança deverá ser ligado em série com a bobina da contatora.
- Utilize sempre o fio terra.

CR • Contatora Resistências
CV • Contatora Ventiladores
CJ • Disjuntor
DJM • Disjuntor Motor

Hd 450

Acesso a vídeos e materiais complementares do produto

mipal.com.br
mipal_evaporadores
mipaloficial
mipal
mipal
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11 97617-5467
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