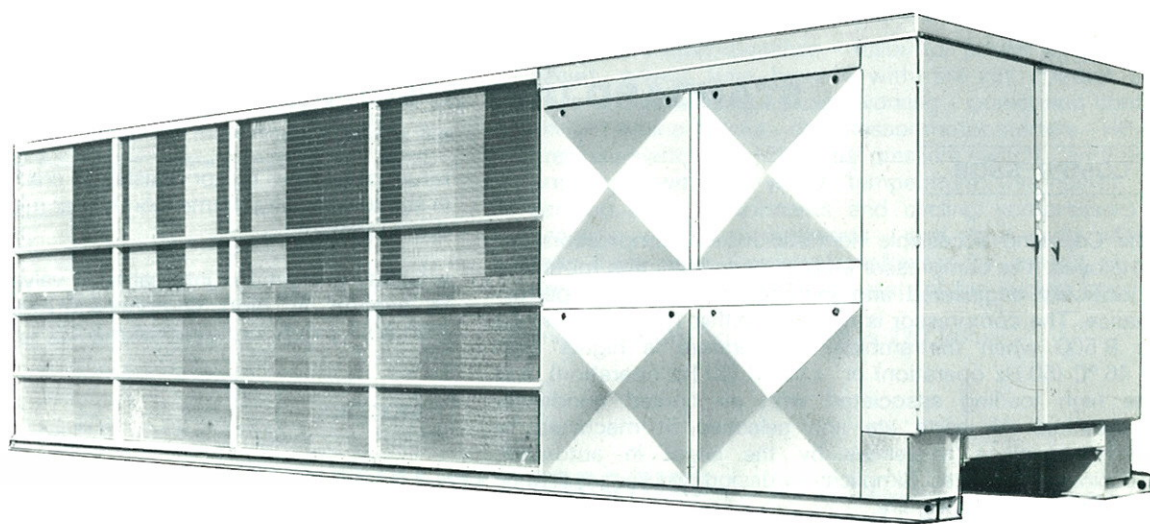




Division de HCF Industries



DRLA. HV

**REFROIDISSEURS DE LIQUIDE
A CONDENSATION PAR AIR**

**AIR COOLED
PACKAGED LIQUID COOLERS**

536 - 1380 kW

INTRODUCTION

- The air cooled liquid chillers are destined to cooling water for air conditioning and industrial applications.

- Their capacities are ranged from 536 kW up to 1380 kW with an outlet water temperature of +6 °C and with an ambient temperature of up to +52 °C.

- These chillers have a packaged design making the installation easier. The main electrical supply and the cooled water piping have just to be connected.

- Two types of packaged chillers are available according to the required application :

- when ambient temperature does not drop below +6 °C.

- when ambient temperature does not drop below -20 °C.

- Each unit includes 2, 3 or 4 independent refrigerating circuits.

LOCATION

- The packaged chillers must be outdoors located due to the fans used which do not allow the air exhaust duct installation, except for very specific applications.

- These chillers may be either roof or ground level mounted. A free space around the unit must be provided for air circulation (see page 16).

- In case of no-drainable chillers in winter, the water pipes must be equipped with an electrical heater when they are outdoors located or placed in a freezing area.

- The heater becomes purposeless if the water circulation pump permanently operates or if Ethy Glycol is added to the water. In such a case, according to the concentration, a loss of capacity must be expected and would affect as well the chiller as the terminal exchangers performances.

- Electrical installation must be designed so that the heating device of the evaporator could not be switched off in winter.

STANDARD UNIT SPECIFICATIONS

COMPRESSOR

The Copeland accessible hermetic motor-compressors are employed. The compressor and hermetic induction motor are specifically engineered and matched for optimum performance. The compressor is designed either for refrigerant 22 or R 500 when the ambient temperature is higher than +46 °C (50 Hz operation) or +46 °C (60 Hz operation), and the high loading associated with air cooled condenser application. All parts are non selective fit machined to extremely close tolerances by the latest in automatic machining processes. Simplicity of design provides exceptional reliability and long life.

- Housing : close grained cast iron. One piece construction with no bolted joint between motor and compressor. Oil sight glass and cast iron cylinder heads and stator cover.

- Crankshaft : die forged steel, one piece construction with integral counter weights. Statically and dynamically balanced for smooth operation.

- Main bearings : solid bronze of the insert precision type with large bearing area.

- Connectings rods : light weight aluminium alloy with integral bearing surface on crankshaft and piston ends.

- Pistons : cast iron ; with oil and compression rings. Pistons pins are full floating type for long life.

- Valve service : swedish steel with heavy, contoured valve retainer to relieve valve stress and reduce valve noise. Low clearance volume for high volumetric efficiency.

- Suction strainer : built into the compressor in the gas stream between suction shut-off valve and the motor. Filters out foreign and abrasive particles.

- Lubrication : force feed by automatically reversible gear pump feeding through rifle drilled passages in crankshaft. Oil supply is full filtered through large area oil strainer. Magnetic plugs trap magnetic particles that enter crankcase. Positive

return of oil from motor housing to crankcase by venturi tube in suction housing. Immersion heater minimizes oil dilution by the refrigerant.

- Safety protection : internal relief valve to relieve discharge to suction at high compression ratios as required by ASA B 91 safety code requirements.

MOTORS

Hermetic induction type, 1450 or 1750 RPM, refrigerant gas cooled with inherent thermal protection (sensors and electronic module monitors).

All electrical characteristics available. Across the line starting is standard, part-winding optional (see optional features).

CHILLER EVAPORATOR

Direct expansion U tube cooler type with water flowing thru the baffled shell and refrigerant thru. The tubes independant refrigerant circuits are furnished on two compressor units.

Shell fabricated from seamless carbon steel pipe. Tubes seamless copper tubes.

Tube sheets - heavy gauge carbon steel with tube holes serated to anchor tubes.

Refrigerant heads - cast steel with multi-pass baffles to assure oil return. Heads are removable to permit access from end.

Baffles - water around the tubes is controlled by hot rolled steel baffles, terne coated to resist corrosion.

Definitively tested and approved by the French «Service des Mines» (upon request ASME compliance, ANCC and TUV).

Insulation of closed cellular structure is provided on all models.

Specifications may change without notice.

STANDARD UNIT SPECIFICATIONS (cont'd)

VERTICAL AIR COOLED CONDENSERS

The fins have full self spacing colars which completely cover the copper tube.

Sub cooling coil : a separate sub-cooling coil integral with the main condenser coil is provided for each refrigerant circuit.

Condenser fans : multiple propeller type, directly driven, providing uniform air distribution. A full width baffle between each fan section prevents air by-pass. Fans are of a low tpe speed for minimum noise and vibration. Each fan orifice is spun eliminating fan panel vibration and reducing air outlet noise.

RECEIVERS

When the unit is used at an ambient temperature from + 6 °C to - 20 °C it includes a receiver heater.

The heater is energized by a pressure switch. A safety thermostat controls gas temperature inside receiver, and a pressure relief valve is provided to eventually prevent a too high pressure.

Definitively tested and stamped by the French «Service des Mines» (upon request ASME compliance, ANCC and TUV).

FRAME - CASING

They are in galvanized steel.
Casing can be painted on request only.

REFRIGERANT CIRCUIT

Each refrigerant circuit is carefully engineered using matched components and is fully assembled and adjusted at the factory. Accessories and controls furnished include shut-off liquid valve solenoid valve, filter-dryer and sight glass with moisture indicator, insulated suction line «schrader» connectors on suction and discharge lines.

WEATHERPROOF CONTROL PANEL

Completely assembled and wired at factory incorporating the necessary operating limit and safety controls mounted in a steel enclosure.

The following is furnished on each control panel :

- off-on and start switches - fuses for power and control circuit, power fuse breaker with pre-cut contact and contact against single phase working - power and control circuit terminal blocks - compressor motor starters - HP-LP pressure switch, oil differential pressure switch - antifreeze pressure switch - water temperature thermostat for sensing load requirements and cycling compressors in accordance with requirements - anti-short cycle relay - time delay relay - safety transformer for control circuit, pressure switches and thermostat for fan cycling control.

Standard control circuit voltage is 220 Volts.

OPTIONAL ACCESSORIES

1. LOW AMBIENT CONTROL (- 20 °C)
2. WATER FLOW SWITCH
3. DISCHARGE LINE MUFFLER
4. VIBRATION ISOLATORS (SPRING)
5. OIL - PRESSURE GAUGES
6. PART-WINDING START FOR 380 V/415 V/440 V.
7. HEAT RECOVERY SYSTEM (hot water up to + 50 °C) ONLY ON DRLA 170 HV and 200 HV
8. MAIN POWER ISOLATOR SWITCHES
9. HOURS METER ON COMPRESSORS

CAPACITY CONTROL DATA

Capacity reduction controls are used for those applications where the air conditioning load may vary over a wide range.

to either energize or de-energize the factory reduction for each of the above mentioned units as shown in table «Capacity control reduction steps».

COMPRESSOR MOTOR CAPACITY CONTROL

Compressor motor capacity control is standard on model DRLA.HV. Capacity control is achieved by starting and stopping compressor motors. The starting and stopping of the compressor motors is in response to system load and is accomplished by the unit mounted chiller water thermostat which senses the temperature of water returning to the chiller

CYLINDER UNLOADING CAPACITY CONTROL

Cylinder unloading control is available for all water chillers and as an optional priced feature. Capacity control is achieved by an internal unloader valve reacting to a drop or increase in return water temperature as sensed by the unit mounted multi-stage water thermostat.

CAPACITY CONTROL REDUCTION STEPS

MODEL	GUIDE MARK STARTING SEQUENCE SWITCH	
	POSITION I (a)	POSITION II (a)
DRLA 170 HV	0 - 25 - 50 - 75 - 100	0 - 25 - 50 - 75 - 100
DRLA 200 HV	0 - 20 - 40 - 60 - 80 - 100	0 - 20 - 40 - 60 - 80 - 100
DRLA 250 HV	0 - 16 - 33 - 66 - 83 - 100	0 - 16 - 33 - 66 - 83 - 100
DRLA 285 HV	14 - 28 - 43 - 57 - 71 - 85 - 100	14 - 28 - 43 - 57 - 71 - 85 - 100
DRLA 325 HV	12 - 25 - 37 - 50 - 62 - 75 - 87 - 100	12 - 25 - 37 - 50 - 62 - 75 - 87 - 100

(a) % reduction capacity and power input.

RATINGS AND SELECTIONS

Capacity ratings of packaged water chillers as shown in page 10 and 11 are based on normal chilled water quantities and cover the majority of job requirements.

SELECTION RULES

1. Ratings may be interpolated for any chilled water temperatures between 5 and 10 °C, but must not be extrapolated.
2. Chilled water quantities ratings are based on 6 °C chilled water range and are applicable from a minimum of 4 °C to a maximum of 8 °C differential between entering and leaving chilled water temperature.
3. Ratings are based on .0001 scale fouling factor in the chiller. For other fouling factors, multiply ratings from capacity tables by factors shown below capacity tables.

Fouling factors to be considered are :

- 2×10^{-4} capacity \times 1,000
- 1×10^{-3} capacity \times 0,980
- 2×10^{-3} capacity \times 0,940

NOTE: consult factory for temperatures higher or lower than + 10 °C and + 4 °C.

SELECTION PROCEDURE

To properly select a packaged water chiller the following information must be known.

1. design capacity in Kcal/h
2. entering and leaving water temperatures
3. m³/h of chilled water to be circulated
4. design ambient temperature and minimum ambient temperature
5. electrical power.

Knowing the design conditions for any two of items 1, 2 or 3 the third can be calculated by using the following formulas :

Capacity (Kcal/h.) = m³/h. \times chilled water range \times 1000

Chilled water Flow = $\frac{\text{Capacity (Kcal/h)}}{\text{chilled water range} \times 1000}$

EXAMPLE

Select a water cooled packaged chiller for the following conditions :

- 158,5 m³/h. water, cooled from 12 °C to 6 °C.

Fouling factor for chilled water is .0001

Electrical characteristics 380/3/50.

Design ambient temperature : + 46 °C

Minimum " " : - 10 °C.

STEP 1 - Unit selection

Capacity : $158,5 \times 6 \times 1000 = 951.000$ Kcal/h.
(1103.2 kW)

Using the capacity table page 10, select unit DRLA 325 HV.
GROUP VERSION B.

Power input : 426 kW.

STEP 2 - Chiller pressure drop

Refer to chiller pressure drop curves on page 7, DRLA 325 HV - Curve E.

Water Flow : 158,5 m³/h. Pressure drop : 0.38 bar.

STEP 3 - Electrical

Refer to electrical table page 8.

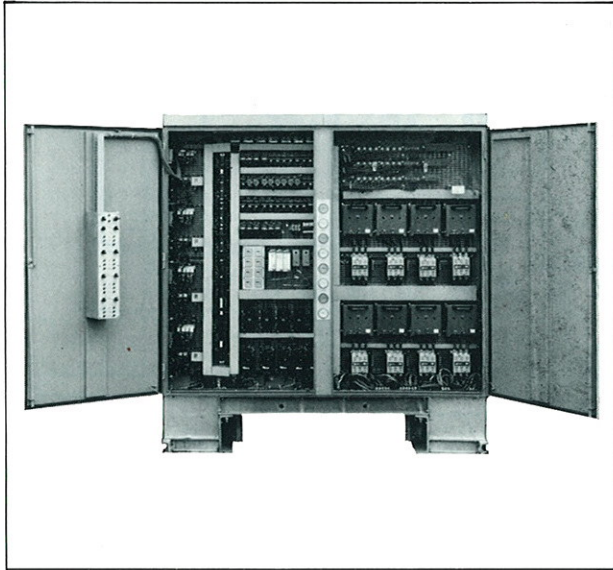
At 380/3/50 the main power wire is to be sized for : full load intensity 918 A. Locked rotor intensity (across the line start) 1327 A. Locked rotor intensity (part-winding start) 1141 A.

STEP 4 - Dimensions and weight (see pages 12 and 14).

STEP 5 - Optional accessories

With min. ambient temperature - 10 °C, the option «Low ambient control» is obligatory.

TYPICAL CONTROL CENTER



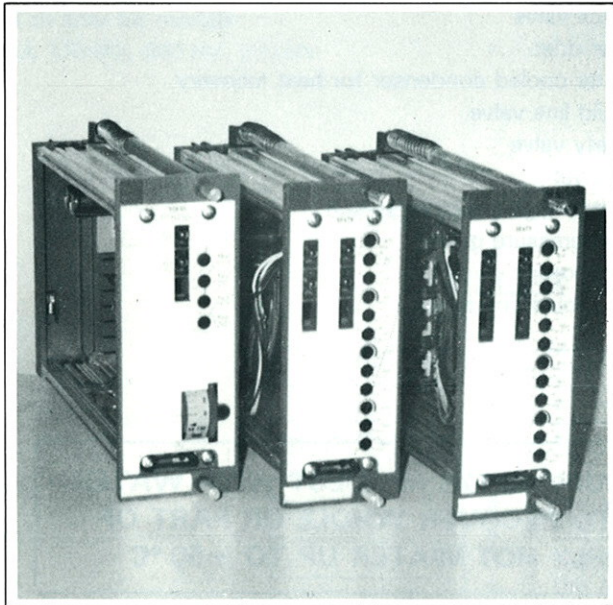
- A fully enclosed and weatherproofed control panel with key locked access door. Dual compartments separate safety and operating controls from power controls.

- Safety and operating panel include :

- Refrigerant circuit system on/off switch (each refrigerant circuit) - system on/off switch (each compressor) - oil pressure control(s) (manual reset) - high pressure control(s) (manual reset) - pumpdown pressure control(s) (automatic reset) - freezestat-low water temperature control - freezestat-low evaporator pressure - system overload and overheat controls - compressor start time delay relays - fan cycling relays - fan cycling controls - electronic control thermostat - control terminal blocks - anti-short cycle relay.

- Power panel controls include :

- Fuses for power and control circuits - power fuse breaker with pre-cut contact and contact against - single phase working - power and control circuit terminal blocks - compressor motor starters - fan motor starters - main power bus-bars.



ELECTRONIC CONTROL THERMOSTAT

This electronic regulating system allows for the adjustment of the chilled water temperature in accordance with the installation requirements.

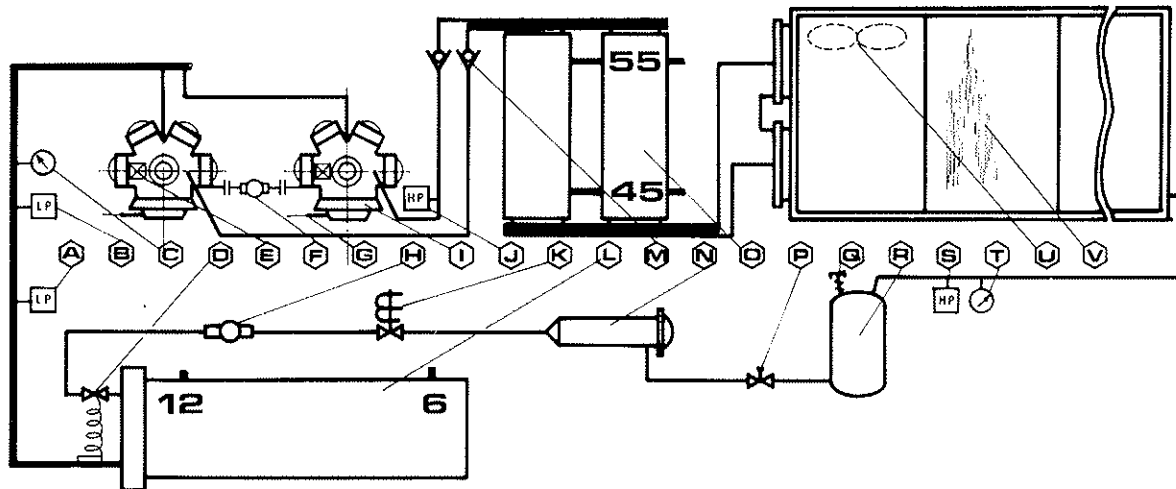
- A very precise modulation of the chilled water temperature can be achieved within a small temperature range.
- A change of the inlet water temperature at the sensor will alter the resistance value. This value, when compared to the control set point, generates a signal which is transmitted to the regulator (RDK). The regulator amplifies the sensor signal and supplies an output proportional voltage between 0 and 20 Volts to the step-sequencer (SETV). The step-sequencer is energized by the output of the regulator and provides up to 8 stages of proportional sequencing.



LIFTING OF EQUIPMENT

This type of equipment is specially designed to give easy handling, a low cost transportation, and installation for the contractor. The DRLA.HV are placed without packing into a 40 FT open-top container at the factory site. On the job site the units will be hoisted out of the container and positioned on the vibration isolators or foundation blocks.

HEAT RECOVERY SYSTEM TYPICAL PIPING DIAGRAM



- | | |
|--------------------------------|--|
| A Low pressure switch | L Chiller evaporator |
| B Anti freeze pressure switch | M Check valve |
| C Low pressure gauge | N Filter drier |
| D Thermostatic expansion valve | O Water cooled condenser for heat recovery |
| E Oil pressure switch | P Liquid line valve |
| F Oil sight glass | Q Safety valve |
| G Crankcase heater | R Receiver |
| H Liquid sight glass | S Control high pressure switch |
| I Compressor | T High pressure gauge |
| J High pressure switch | U Fan motor |
| K Liquid line solenoid valve | V Air cooled condenser |

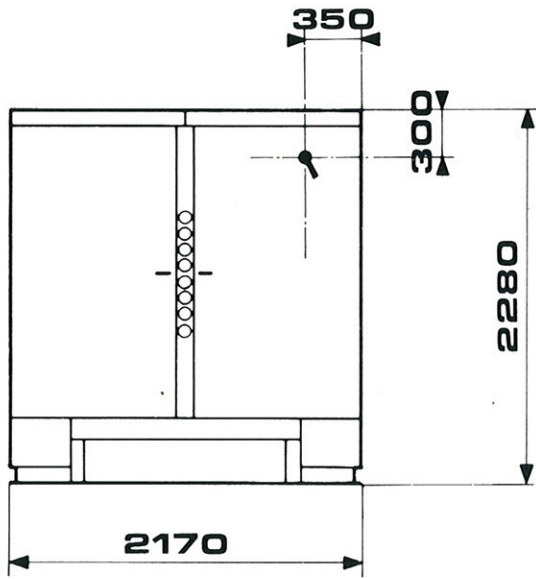
DRLA 170 HV AND DRLA 200 HV CAN BE EQUIPPED ON REQUEST WITH WATER-COOLED CONDENSERS, WHICH ENABLE TO RECOVER WHOLE OR PART OF HEATING CAPACITY IN ORDER TO SUPPLY HOT WATER UP TO + 50 °C

RATINGS

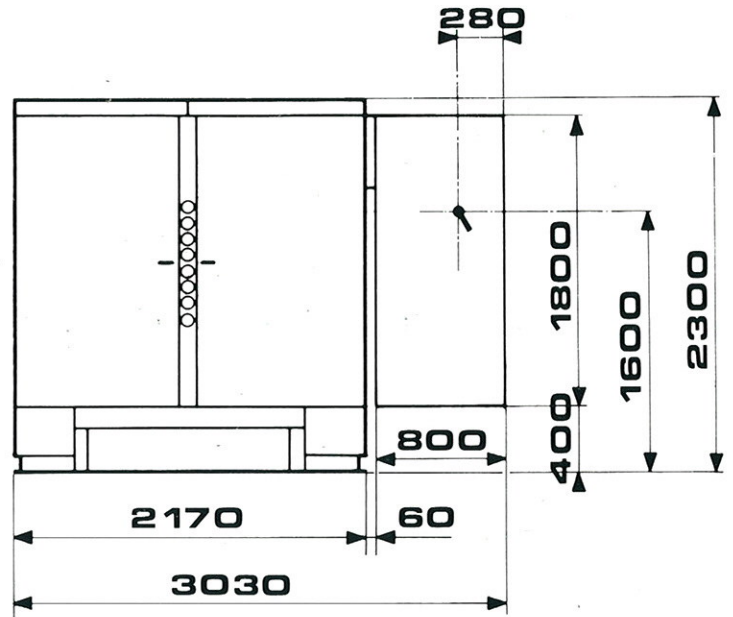
- | | |
|-------|--|
| 50 Hz | Capacity 320 KW per circuit water flow 240 gpm at 45 °C EWT/50 °C LWT. |
| 60 Hz | Capacity 380 KW per circuit water flow 285 gpm at 45 °C EWT/50 °C LWT. |

FOR UNITS DRLA 250 HV - DRLA 285 HV AND DRLA 325 HV
CONSULT OUR TECHNICAL DEPARTMENT

LOCATION-MAIN ISOLATOR SWITCH

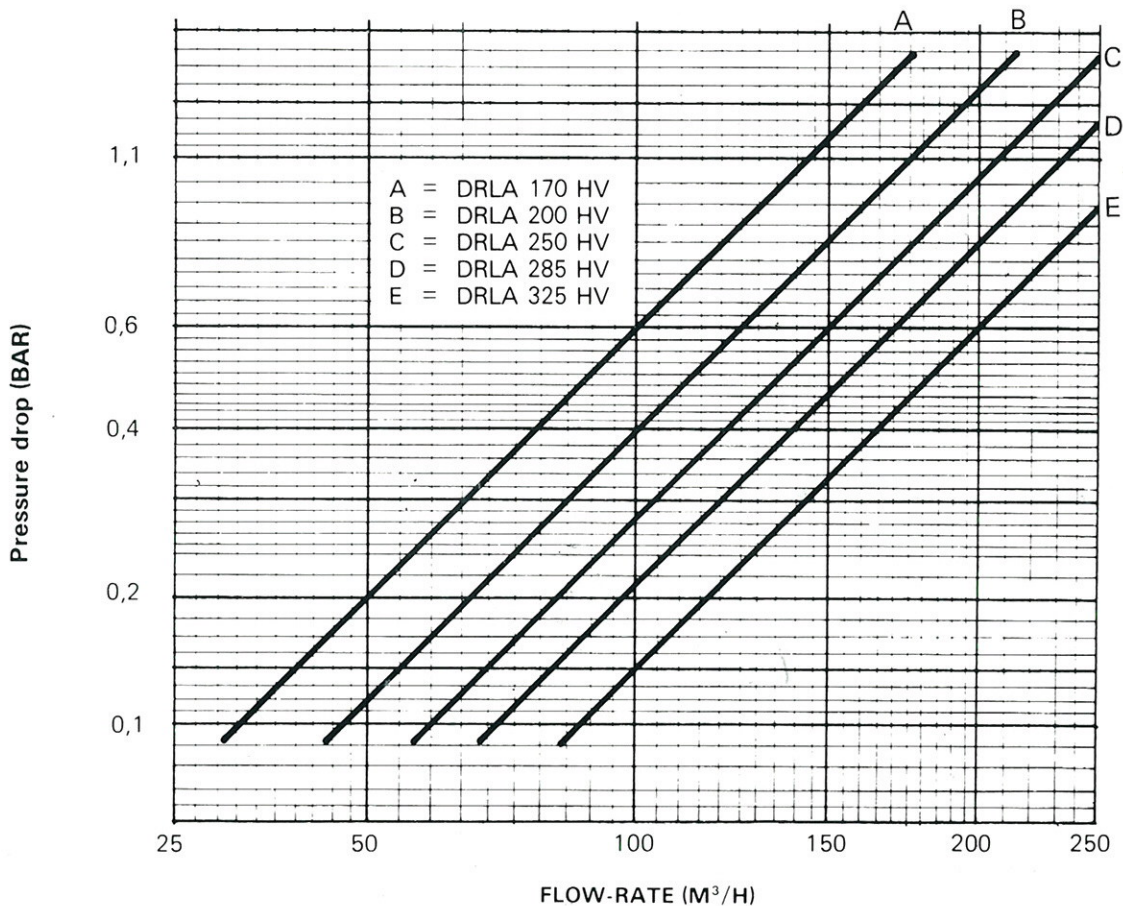


Built-in only for models :
DRLA 170 HV, 200 HV, 250 HV



External for all models
(main power isolator switch box
is disassembled during transportation
to the site)

CHILLER PRESSURE DROP



1 M³/H = 0,278 dm³/s - 1450 tr/mn = 152 rd/s - 1 Bar = 10⁵ Pa

PHYSICAL DATA

MODEL DRLA	GROUP VERSION A — R 22 - R 500					GROUP VERSION B — R 22				
	170 HV	200 HV	250 HV	285 HV	325 HV	170 HV	200 HV	250 HV	285 HV	325 HV

COMPRESSOR MOTOR

	4	5	6	7	8	4	5	6	7	8
Number of compressors	4	5	6	7	8	4	5	6	7	8
Total compressor power kW	236	295	354	413	472	236	295	354	413	472

CHILLER

Type	Direct expansion					Direct expansion				
Number of evaporators	1	1	1	2	2	1	1	1	2	2
Number of refrigerant circuits	2	3	3	4	4	2	3	3	4	4
Max working press. water side-bar	10	10	10	10	10	10	10	10	10	10

CONDENSER

Type	3N-5600	4N-5600	4N-7000	5N-7000	5N-7000	4N-5600	5N-5600	5N-7000	6N-7000	6N-7000
Fan model	BZ-100 2,24	BZ-100 3,31	BZ-100 3,26	BZ-100 4,34	BZ-100 6,35	BZ-100 4,37	BZ-100 6,37	BZ-100 6,35	BZ-125 2,17	BZ-125 2,17
Total air flow M ³ /h	149700	185000	220500	255600	273000	216000	223200	273000	288000	288000
Number of fan motors	4	4	5	5	5	4	4	5	5	5
Total fan motor power kW	12	22	20	37	55	30	44	55	27	27

SOUND LEVEL

Distance 10 m.	dBa	67,3	68,5	69,7	70,7	72	68,2	70,7	71,7	73,7	73,8
	dB	NR 65	NR 65	NR 65	NR 70	NR 70	NR 65	NR 70	NR 70	NR 70	NR 70

ELECTRICAL DATA

UNIT*

Full load intensity (FLA)	220 V	787	1007	1187	1432	1676	846	1079	1302	1399	1586
	380 V	455	583	687	829	970	490	624	753	810	918
	415 V	417	534	630	759	890	448	571	690	742	840

* Power input compressor + fan

COMPRESSOR

Full load intensity each (FLA)	220 V	187					187				
	380 V	108					108				
	415 V	99					99				
Max inrush each across the line (LRA)	220 V	805					805				
	380 V	466					466				
	415 V	427					427				
Max inrush each part winding start (LRA)	220 V	483					483				
	380 V	280					280				
	415 V	256					256				

FAN MOTOR

Full load intensity each (FLA)	220 V	10,02	18,57	13,47	25,04	36,30	25,04	36,30	36,30	18,57	18,57
	380 V	5,80	10,75	7,80	14,50	21,00	14,50	21,00	21,00	10,75	10,75
	415 V	5,31	9,84	7,14	13,28	19,23	13,28	19,23	19,23	9,84	9,84
Max inrush each across the line (LRA)	220 V	43,09	79,85	57,92	107,67	156,09	107,67	156,09	156,09	79,85	79,85
	380 V	24,94	46,22	33,54	62,35	90,30	62,35	90,30	90,30	46,22	46,22
	415 V	22,83	42,31	30,70	57,10	82,69	57,10	82,69	82,69	42,31	42,31

PHYSICAL DATA

MODEL DRLA	GROUP VERSION A — R 22					GROUP VERSION B — R 500				
	170 HV	200 HV	250 HV	285 HV	325 HV	170 HV	200 HV	250 HV	285 HV	325 HV

COMPRESSOR MOTOR

	4	5	6	7	8	4	5	6	7	8
Number of compressors	4	5	6	7	8	4	5	6	7	8
Total compressor power kW	283	354	425	495	567	283	354	425	495	567

CHILLER

Type	Direct expansion					Direct expansion				
	1	1	1	2	2	1	1	1	2	2
Number of evaporators	1	1	1	2	2	1	1	1	2	2
Number of refrigerant circuits	2	3	3	4	4	2	3	3	4	4
Max working press. water side-bar	10	10	10	10	10	10	10	10	10	10

CONDENSER

Type	4N-5600	6N-5600	5N-7000	6N-7000	6N-7000	3N-5600	4N-5600	4N-7000	5N-7000	5N-7000
Fan model	BZ-125 2,17	BZ-125 2,18	BZ-125 2,17	BZ-125 2,17	BZ-125 2,17	BZ-100 2,15	BZ-100 2,21	BZ-100 2,21	BZ-100 3,28	BZ-100 3,28
Total air flow M ³ /h	274000	281000	351000	342000	342000	149700	176500	220500	270000	270000
Number of fan motors	4	4	5	5	5	4	4	5	5	5
Total fan motor power kW	50	50	63	63	63	14	18	23	43	43

SOUND LEVEL

Distance 10 m.	dBa	76,1	76,9	77,5	76,9	77,2	72,4	72,3	73,3	74,2	74,6
	dB	NR 75	NR 75	NR 75	NR 75	NR 75	NR 70	NR 70	NR 70	NR 75	NR 75

ELECTRICAL DATA

UNIT*

Full load intensity (FLA)	220 V	1068	1296	1563	1790	2016	950	1192	1434	1725	1950
	380 V	619	750	905	1036	1167	550	690	830	999	1130
	440 V	534	648	781	895	1008	475	596	717	863	976

* Power input compressor + fan

COMPRESSOR

Full load intensity each (FLA)	220 V	226					226				
	380 V	131					131				
	440 V	113					113				
Max inrush each across the line (LRA)	220 V	1192					1192				
	380 V	690					690				
	440 V	596					596				
Max inrush each part winding start (LRA)	220 V	715					715				
	380 V	414					414				
	440 V	357					357				

FAN MOTOR

Full load intensity each (FLA)	220 V	41,10	41,10	41,10	41,10	41,10	11,23	15,20	15,20	28,50	28,50
	380 V	23,80	23,80	23,80	23,80	23,80	6,50	8,80	8,80	16,50	16,50
	440 V	20,50	20,50	20,50	20,50	20,50	5,62	7,60	7,60	14,25	14,25
Max inrush each across the line (LRA)	220 V	176,73	176,73	176,73	176,73	173,73	48,29	65,36	65,36	122,55	122,55
	380 V	102,34	102,34	102,34	102,34	102,34	27,95	37,84	37,84	70,95	70,95
	440 V	88,15	88,15	88,15	88,15	88,15	24,17	32,68	32,68	61,28	61,28

CAPACITY DATA

MODEL DRLA		GROUP VERSION A									GROUP VERSION B					
		AMBIENT AIR TEMPERATURE														
		+ 35 °C			+ 38 °C			+ 40 °C			+ 42 °C			+ 44 °C		
		Water Outlet C°	CAPACITY		Power Input kW	CAPACITY		Power Input kW	CAPACITY		Power Input kW	CAPACITY		Power Input kW	CAPACITY	
kW	1000 kcal/h		kW	1000 kcal/h		kW	1000 kcal/h		kW	1000 kcal/h		kW	1000 kcal/h		kW	1000 kcal/h
170 HV	6	545	467	183	520	447	189	500	430	193	574	494	208	562	483	214
	7	563	484	187	538	462	193	520	447	197	583	501	213	572	492	218
	8	582	500	191	556	478	198	540	464	202	592	509	218	583	501	223
	10	619	532	199	592	509	206	574	494	211	630	542	227	615	530	232
200 HV	6	681	586	238	650	559	245	633	544	249	719	619	265	709	610	271
	7	704	605	244	672	578	251	654	562	255	730	627	270	718	618	276
	8	727	625	250	695	598	257	675	581	262	740	636	276	728	626	282
	10	774	666	260	740	636	268	717	617	274	785	675	288	766	658	294
250 HV	6	817	703	287	780	671	296	760	654	303	861	740	314	845	726	322
	7	858	739	293	807	694	303	785	675	310	874	752	322	860	739	331
	8	899	773	300	834	717	310	810	697	317	888	763	331	874	751	339
	10	928	798	314	888	764	324	861	740	331	942	810	340	919	790	349
285 HV	6	953	819	339	910	783	351	887	763	359	1005	864	347	985	847	357
	7	985	847	347	941	809	359	916	787	367	1020	877	355	1001	861	365
	8	1018	875	355	973	837	367	945	813	376	1035	890	363	1018	875	373
	10	1083	931	370	1036	891	383	1004	864	392	1099	945	378	1073	923	388
325 HV	6	1090	938	404	1041	895	419	1014	872	428	1149	988	402	1125	967	414
	7	1127	969	413	1077	926	428	1047	901	437	1167	1003	411	1145	984	423
	8	1164	1001	423	1113	957	437	1081	930	447	1185	1020	421	1165	1002	433
	10	1239	1065	441	1185	1019	455	1148	987	465	1255	1079	439	1225	1053	451

REFRIGERANT R 22

(Power input = compressors + fans) Fouling factors see page 4

MODEL DRLA		GROUP VERSION B									GROUP VERSION A					
		AMBIENT AIR TEMPERATURE														
		+ 45 °C			+ 46 °C			+ 48 °C			+ 50 °C			+ 52 °C		
		Water Outlet C°	CAPACITY		Power Input kW	CAPACITY		Power Input kW	CAPACITY		Power Input kW	CAPACITY		Power Input kW	CAPACITY	
kW	1000 kcal/h		kW	1000 kcal/h		kW	1000 kcal/h		kW	1000 kcal/h		kW	1000 kcal/h		kW	1000 kcal/h
170 HV	6	556	478	217	551	473	220	430	370	140	413	355	142	399	343	145
	7	567	487	221	562	483	224	438	376	149	421	362	152	407	350	155
	8	578	497	226	573	492	228	445	382	158	430	369	161	414	356	164
	10	607	522	235	597	513	237	464	399	168	448	385	171	432	371	174
200 HV	6	703	604	273	689	592	276	537	462	181	517	444	185	499	429	189
	7	712	612	279	702	604	282	548	471	193	527	453	197	508	437	201
	8	722	620	285	716	615	288	558	480	205	537	462	208	517	445	217
	10	756	650	299	747	642	304	582	500	218	560	481	221	540	464	224
250 HV	6	836	719	326	828	712	330	648	557	212	620	533	216	597	513	220
	7	851	732	334	844	726	339	659	567	226	632	544	230	608	522	234
	8	867	745	343	860	740	348	672	578	239	645	555	243	618	531	248
	10	907	780	353	896	770	357	702	604	255	672	578	259	647	556	264
285 HV	6	975	838	362	965	830	367	751	646	261	724	623	266	697	600	271
	7	992	853	370	984	846	375	766	658	273	739	635	282	711	611	287
	8	1010	868	378	1003	863	383	782	672	292	754	648	297	726	624	302
	10	1060	912	393	1046	899	398	815	701	310	784	674	315	756	650	320
325 HV	6	1114	958	420	1103	946	426	859	739	310	827	711	316	800	688	322
	7	1135	976	429	1125	966	435	874	751	329	843	725	335	818	703	341
	8	1156	994	439	1147	986	445	891	766	346	860	739	352	830	713	358
	10	1210	1040	456	1195	1028	462	931	800	367	896	770	373	864	743	379

REFRIGERANT R 22

REFRIGERANT R 500

CAPACITY DATA

MODEL DRLA		GROUP VERSION A															
		Water Outlet C°	AMBIENT AIR TEMPERATURE														
			+ 35 °C			+ 38 °C			+ 40 °C			+ 42 °C			+ 44 °C		
			CAPACITY		Power Input kW	CAPACITY		Power Input kW	CAPACITY		Power Input kW	CAPACITY		Power Input kW	CAPACITY		Power Input kW
kW	1000 kcal/h	kW	1000 kcal/h	kW		1000 kcal/h	kW		1000 kcal/h	kW		1000 kcal/h	kW		1000 kcal/h		
170 HV	6	696	598	221	679	584	221	662	570	222	654	562	253	630	542	259	
	7	706	607	224	690	593	224	675	580	224	665	572	258	644	554	265	
	8	716	616	227	702	604	227	688	591	227	676	581	263	657	565	270	
	10	763	656	236	740	636	236	717	617	236	706	607	274	685	589	281	
200 HV	6	870	748	276	848	729	277	827	712	278	815	701	311	791	680	319	
	7	822	758	280	863	742	280	844	726	280	832	715	318	808	695	326	
	8	895	770	284	878	755	284	860	740	283	849	730	324	824	709	332	
	10	953	820	295	925	796	295	897	771	295	884	760	337	859	739	345	
250 HV	6	1044	898	322	1018	876	333	993	854	333	974	838	370	945	813	379	
	7	1059	911	336	1036	891	336	1012	870	337	994	855	378	966	831	387	
	8	1074	924	340	1053	906	340	1032	887	340	1013	871	386	986	848	395	
	10	1144	984	354	1110	955	354	1076	925	354	1058	910	402	1025	882	411	
285 HV	6	1218	1047	387	1188	1022	388	1158	996	389	1139	979	436	1104	949	447	
	7	1235	1062	392	1208	1039	392	1181	1016	393	1160	998	446	1127	969	456	
	8	1253	1078	397	1228	1056	397	1204	1035	397	1182	1016	455	1150	989	466	
	10	1335	1448	414	1295	1114	414	1255	1079	413	1240	1066	473	1194	1027	485	
325 HV	6	1392	1197	442	1358	1168	443	1324	1138	444	1303	1120	505	1259	1083	518	
	7	1412	1214	448	1381	1188	448	1350	1161	448	1330	1144	516	1289	1108	528	
	8	1432	1232	454	1404	1207	453	1376	1184	452	1357	1167	528	1319	1134	538	
	10	1525	1312	473	1480	1272	472	1434	1234	472	1410	1213	549	1370	1178	558	

REFRIGERANT R 22

(Power input = compressors + fans) Fouling factors see page 4

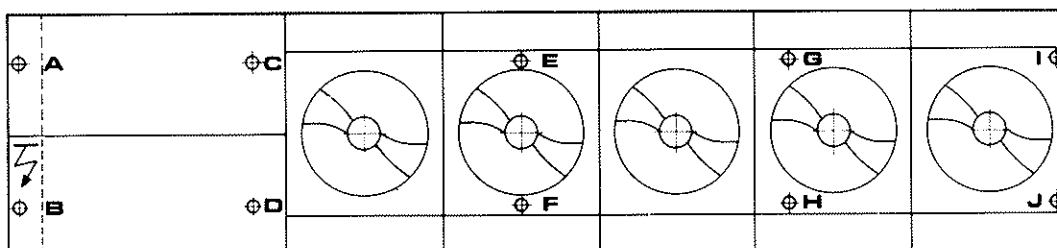
MODEL DRLA		GROUP VERSION A							GROUP VERSION B								
		Water Outlet C°	AMBIENT AIR TEMPERATURE														
			+ 45 °C			+ 46 °C			+ 48 °C			+ 50 °C			+ 52 °C		
			CAPACITY		Power Input kW	CAPACITY		Power Input kW	CAPACITY		Power Input kW	CAPACITY		Power Input kW	CAPACITY		Power Input kW
kW	1000 kcal/h	kW	1000 kcal/h	kW		1000 kcal/h	kW		1000 kcal/h	kW		1000 kcal/h	kW		1000 kcal/h		
170 HV	6	621	534	263	610	525	265	516	444	172	498	428	173	480	412	175	
	7	634	545	268	623	536	270	526	452	177	508	436	178	489	420	180	
	8	674	556	273	636	547	275	535	460	182	517	445	184	497	427	186	
	10	672	578	284	662	569	286	558	480	193	539	464	194	519	446	197	
200 HV	6	780	671	322	766	659	327	645	555	221	622	535	223	599	515	225	
	7	796	685	328	782	672	333	658	565	227	634	545	230	610	525	232	
	8	812	698	335	797	685	340	670	576	234	646	556	237	621	534	239	
	10	847	728	348	830	714	353	699	601	246	674	680	250	648	557	252	
250 HV	6	930	800	384	916	788	390	778	669	261	746	642	264	717	617	266	
	7	948	816	392	934	803	398	792	682	270	760	654	272	730	627	274	
	8	967	832	400	951	818	406	807	694	278	775	666	280	742	638	283	
	10	1008	867	415	997	857	420	843	725	294	809	696	297	777	668	299	
285 HV	6	1088	936	453	1070	920	459	902	776	321	870	748	325	837	720	327	
	7	1108	953	462	1093	940	470	920	792	330	888	763	334	854	735	336	
	8	1129	971	472	1116	960	480	939	808	339	905	778	343	872	750	346	
	10	1178	1013	491	1163	1000	497	978	841	358	943	810	361	908	781	365	
325 HV	6	1243	1069	524	1228	1056	530	1031	887	365	996	856	368	960	826	372	
	7	1272	1093	536	1251	1076	539	1050	903	375	1015	873	378	982	845	382	
	8	1300	1118	543	1274	1096	548	1070	920	385	1034	889	388	997	857	392	
	10	1350	1161	562	1329	1143	567	1118	961	407	1078	927	413	1037	892	418	

REFRIGERANT R 22

REFRIGERANT R 500

DISTRIBUTION OF WEIGHT for standard units

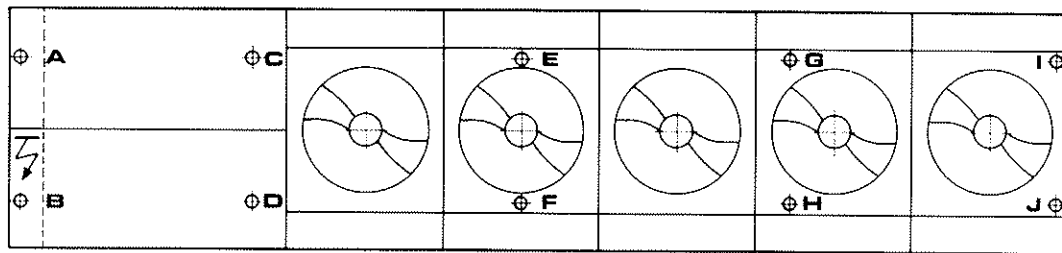
MODEL DRLA	GROUP VERSION A					GROUP VERSION B				
	170 HV	200 HV	250 HV	285 HV	325 HV	170 HV	200 HV	250 HV	285 HV	325 HV
A da N	795	1150	1125	1150	1200	795	1150	1125	1150	1200
B da N	795	625	775	975	1200	795	625	775	975	1200
C da N	1100	1595	1590	1670	1700	1170	1680	1650	1735	1750
D da N	1100	1040	1195	1465	1700	1170	1125	1235	1530	1750
E da N	750	895	890	970	1000	820	980	1050	1035	1000
F da N	750	865	825	940	1000	820	950	885	1005	1000
G da N	750	895	890	970	1000	820	980	1050	1035	1000
H da N	750	865	825	940	1000	820	950	885	1005	1000
I da N			625	685	700			625	750	750
J da N			625	685	700			665	750	750
Weight Kg	6790	7930	9365	10450	11200	7210	8440	9945	10970	11400



MODEL DRLA	GROUP VERSION A					GROUP VERSION B				
	170 HV	200 HV	250 HV	285 HV	325 HV	170 HV	200 HV	250 HV	285 HV	325 HV
A da N	795	1150	1125	1150	1200	795	1150	1125	1150	1200
B da N	795	625	775	975	1200	795	625	775	975	1200
C da N	1255	1805	1730	1795	1800	1170	1680	1650	1735	1750
D da N	1255	1250	1315	1590	1800	1170	1125	1235	1530	1750
E da N	905	1105	1030	1095	1150	820	980	1050	1035	1000
F da N	905	1075	965	1065	1150	820	950	885	1005	1000
G da N	905	1105	1030	1095	1100	820	980	1050	1035	1000
H da N	905	1075	965	1065	1100	820	950	885	1005	1000
I da N			765	810	800			665	750	750
J da N			765	810	800			665	750	750
Weight Kg	7720	9190	10465	11450	12100	7210	8440	9985	10970	11400

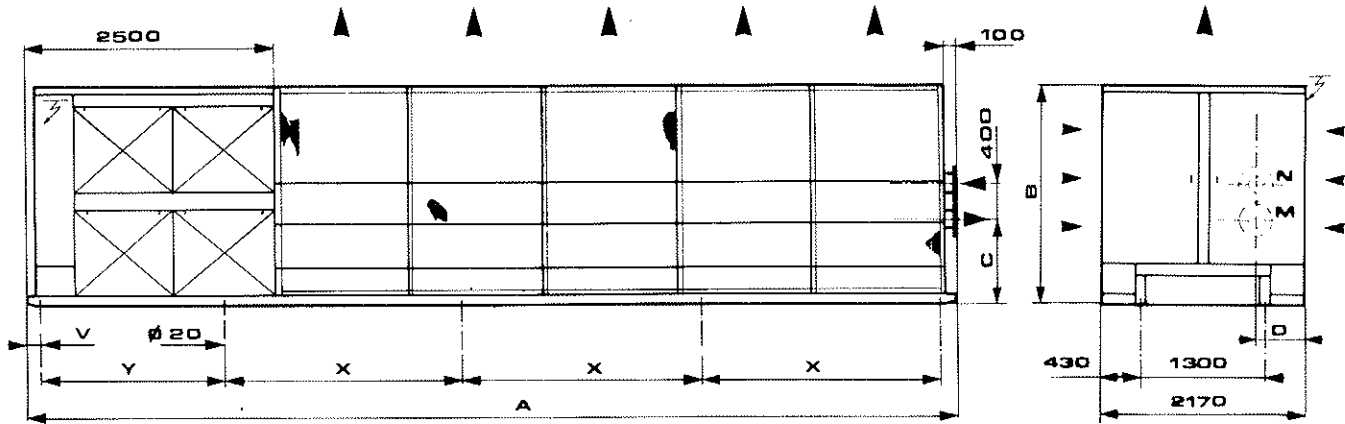
DISTRIBUTION OF WEIGHT for units using copper fins electroplated

MODEL DRLA	GROUP VERSION A					GROUP VERSION B				
	170 HV	200 HV	250 HV	285 HV	325 HV	170 HV	200 HV	250 HV	285 HV	325 HV
A da N	845	1210	1200	1240	1290	860	1230	1220	1260	1300
B da N	845	690	850	1070	1290	860	700	870	1080	1300
C da N	1240	1770	1740	1850	1880	1340	1890	1830	1950	1960
D da N	1240	1210	1350	1650	1880	1340	1330	1420	1740	1960
E da N	900	1080	1000	1170	1200	1000	1200	1260	1280	1240
F da N	900	1050	995	1140	1200	1000	1180	1090	1250	1240
G da N	900	1100	1060	1170	1200	1020	1220	1260	1280	1240
H da N	900	1070	995	1140	1200	1020	1190	1090	1250	1240
I da N			810	910	925			890	1010	1010
J da N			810	910	925			890	1010	1010
Weight Kg	7770	9180	10810	12250	12990	8440	9940	11820	13110	13500



MODEL DRLA	GROUP VERSION A					GROUP VERSION B				
	170 HV	200 HV	250 HV	285 HV	325 HV	170 HV	200 HV	250 HV	285 HV	325 HV
A da N	860	1240	1220	1260	13000	850	1210	1200	1240	1290
B da N	860	710	870	1080	1300	850	690	850	1070	1290
C da N	1430	2040	910	2010	2010	1310	1850	1800	1920	1930
D da N	1430	1490	1460	1800	2010	1310	1300	1390	1710	1930
E da N	1090	1370	1230	1330	1390	970	1170	1220	1240	1200
F da N	1090	1340	1170	1300	1390	970	1140	1050	1210	1200
G da N	1110	1390	1230	1330	1340	980	1170	1220	1240	1200
H da N	1110	1360	1170	1300	1340	980	1140	1050	1210	1200
I da N			990	1080	1070			850	980	980
J da N			990	1080	1070			850	980	980
Weight Kg	8980	11240	13510	13570	14220	8220	9670	11480	12800	13200

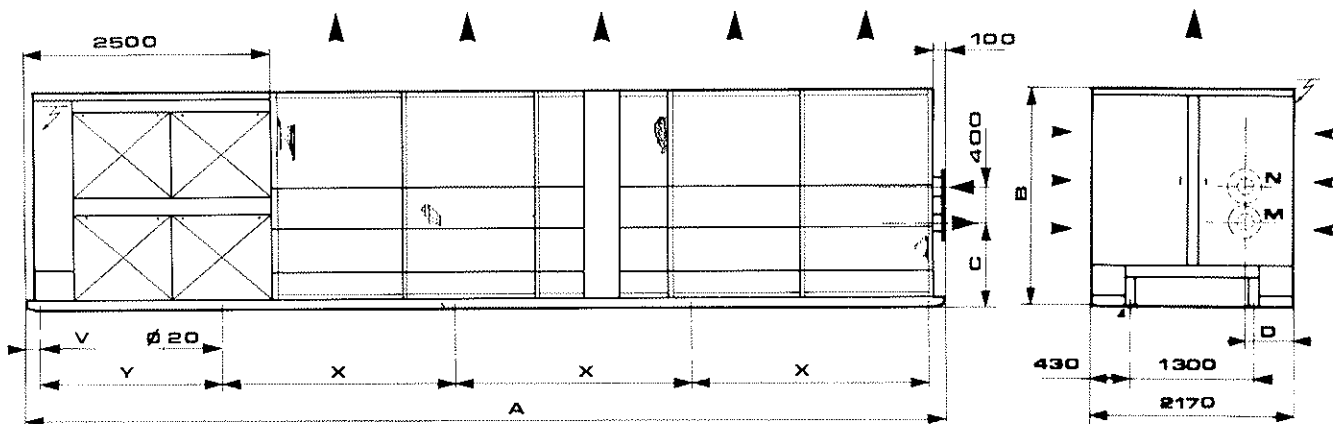
DIMENSIONAL DATA for standard unit



N : Water inlet M : Water outlet

MODEL	A	B	C	D	M-N	V	X	Y
DRLA 170 HV	8300	2280	1050	640	DN 125	150	2950	2100
DRLA 200 HV	8300	2280	1150	460	DN 125	150	2950	2100
DRLA 250 HV	9700	2300	1100	480	DN 150	150	2500	1900
DRLA 285 HV	9700	2300	1100	480	DN 150	150	2500	1900
DRLA 325 HV	9700	2300	1100	480	DN 150	150	2500	1900

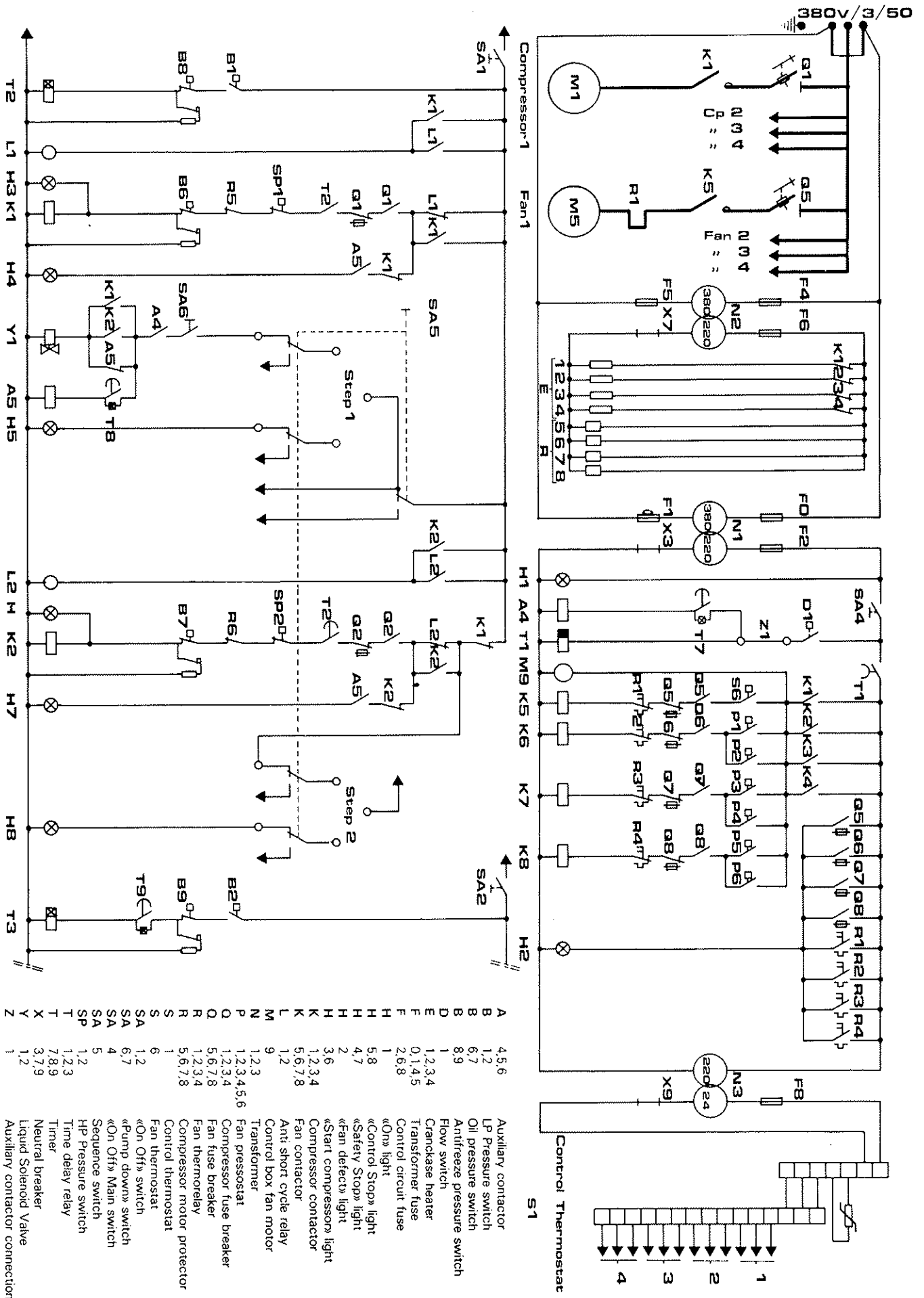
DIMENSIONAL DATA for units using copper fins condenser



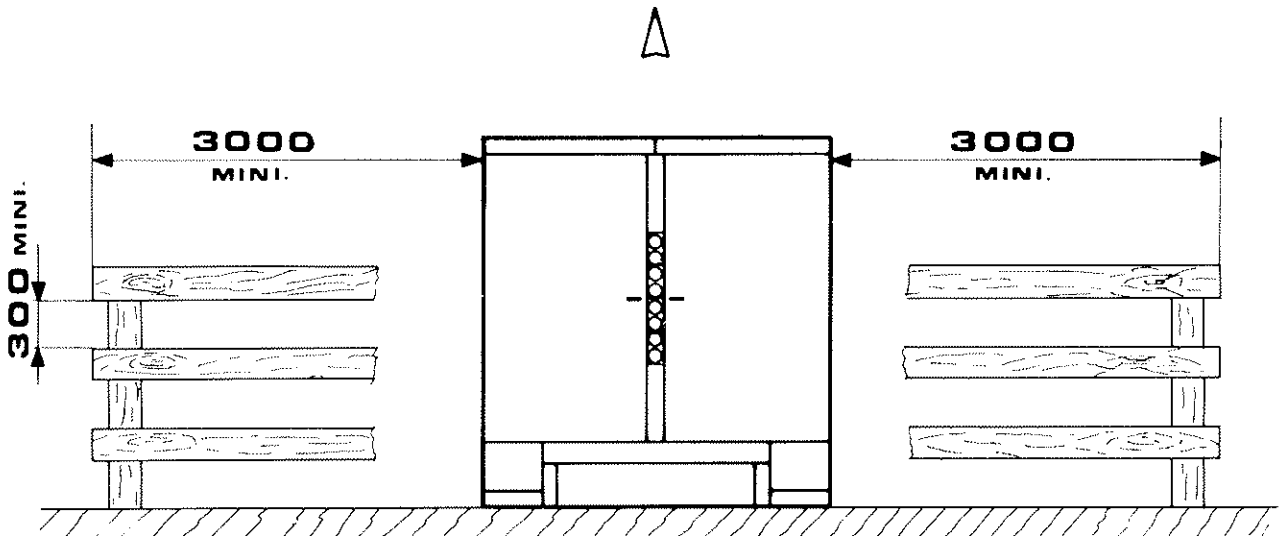
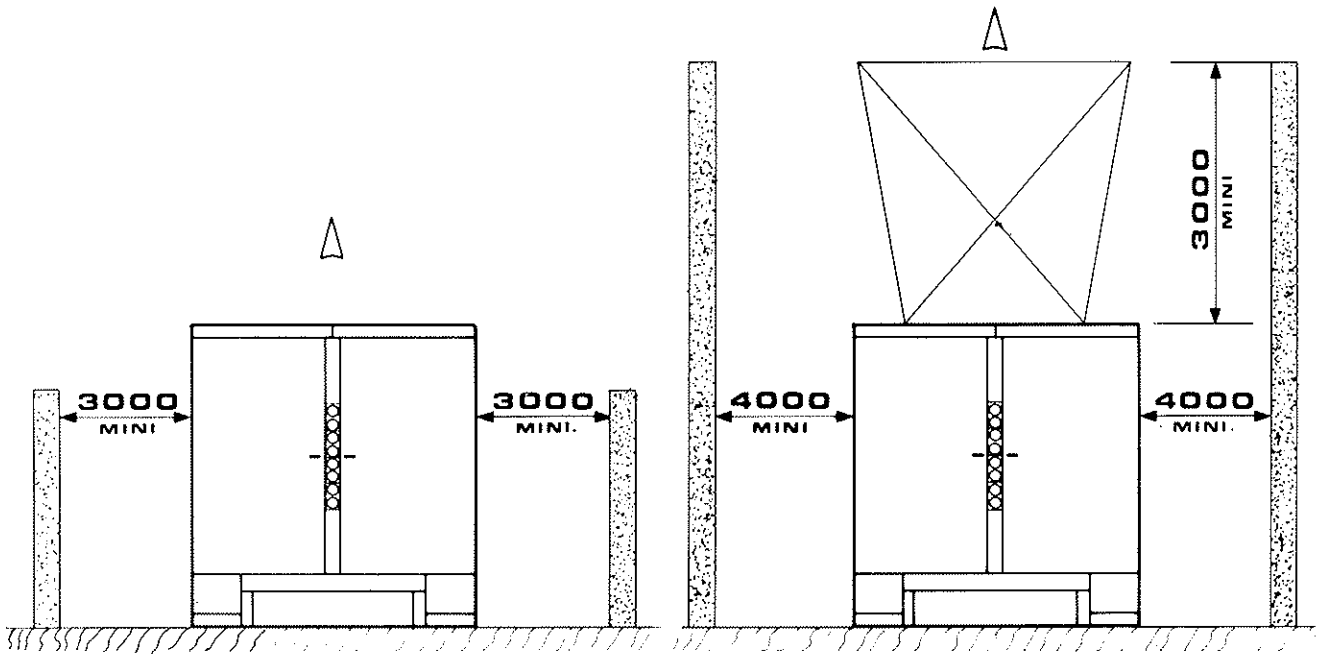
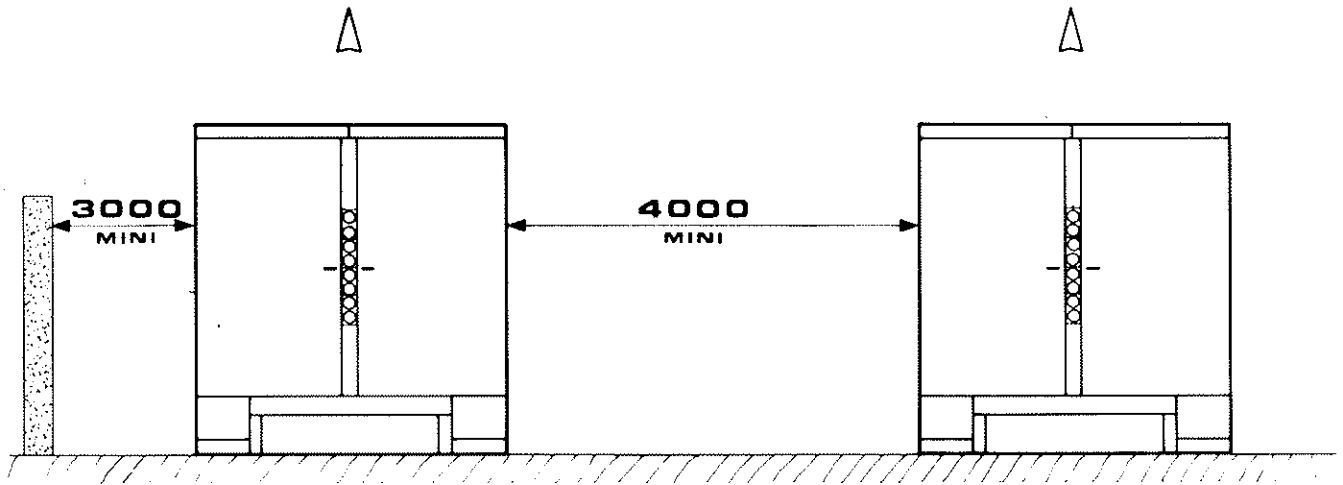
N : Water inlet M : Water outlet

MODEL	A	B	C	D	M-N	V	X	Y
DRLA 170 HV	8650	2280	1050	640	DN 125	150	3075	2100
DRLA 200 HV	8650	2280	1150	460	DN 125	150	3075	2100
DRLA 250 HV	10050	2300	1100	480	DN 150	150	2550	1900
DRLA 285 HV	10050	2300	1100	480	DN 150	150	2550	1900
DRLA 325 HV	10050	2300	1100	480	DN 150	150	2550	1900

TYPICAL WIRING DIAGRAM FOR 2 REFRIGERANT CIRCUITS



LOCATION REQUIREMENTS



GUIDE SPECIFICATIONS

Furnish and install factory-assembled, one-piece DRLA.HV packaged air-cooled liquid chiller(s). Unit(s) shall be completely factory charged with R-22 OR R-500. All factory wiring and piping shall be contained within the unit enclosure. All electrical components shall be mounted in a rain-tight enclosure. The exterior sheet metal shall be galvanized steel, zinc phosphatized, with an electrostatically applied, high solids polyester, baked enamel finish.

Capacity of unit(s) shall be not less than kW cooling m³/h of water from °C to °C, air entering the condenser at °C. Cooling fouling factor shall be Unit power input shall not exceed kW.

Unit electrical power shall be volts, 3 phase, Hz. Unit shall be capable of operating within line voltage limits of to volts. Control power shall be provided by a separate -volt, single-phase, -Hz source.

Construction and ratings shall be in accordance with ARI Standard 590-81 and shall comply with ANSI B9.1 Safety Code, National Electrical Code (NEC), ASME Code and French «Service des Mines», BS - TUV.

Each compressor shall be reciprocating, serviceable hermetic type and shall have an automatically reversible oil pump, complete with operating oil charge. Compressors shall be equipped with suction and discharge shutoff valves and shall be mounted on rails. Motors shall be cooled by suction gas passing around the windings and shall have overtemperature protection. Manual restart of unit shall be required after motor stoppage due to thermal overload. Each compressor shall be equipped with an insert-type crankcase heater to minimize oil dilution during shutdown periods.

Each compressor motor shall be operated and protected against overload by means of definite-purpose contactors and calibrated, ambient-compensated, magnetic-trip circuit breakers. The circuit breakers shall open all (3) phases in the event of overload in any one phase and shall be manually reset.

Cooler shall be covered by 2 layers of 3/4-in. closed cell, vapor barrier, expanded polyvinyl chloride (PVC) insulation, with a maximum "K" factor of 0.28. Heaters along the shell, under the insulation, shall protect the cooler against freeze-up.

Refrigerant circuit components shall include hot-gas muffler ; highside pressure relief device ; liquid line shut-off valve ; replaceable-core filter drier ; moisture-indicating sight glass ; liquid line solenoid valve ; maximum operating pressure limiting thermal expansion valve.

Air-cooled condensers shall be circuited to provide subcooling. Condensers shall be constructed of 1/2-in OD seamless copper tubes with mechanically-bonded aluminium fins, leak tested at : 10 bars and pressure tested at 20 bars.

Condenser fans and motors - The condenser section of each unit shall have direct-drive, propeller type fans, with steel wire safety guards. Fan motors shall be 3-phase, permanently lubricated and inherently protected with corrosion-resistant fan shaft.

Head-pressure control - Each unit shall be equipped with a head-pressure control system. Condenser fans shall be cycled by a combination of discharge pressure and ambient temperature to permit unit operation to - 20 °C outdoor ambient temperature at full load.

Each unit shall contain an electrically operated multiple-step capacity controller with a minimum of 4 steps of capacity reduction on DRLA-170 HV ; the 200-HV unit, shall have 5 steps ; the 250 HV shall have 6 steps ; the 285 HV shall have 7 steps and the 325 HV shall have 8 steps. Unit capacity shall be controlled by starting and stopping compressors.

Controls shall be factory mounted and wired in a weather-proof enclosure. It shall include a low-pressure switch for each refrigerant circuit ; an electronic ground current sensing refrigerant circuit protection device for each compressor ; lead-lag switch ; chilled water safety thermostat ; field power and control circuit terminal blocks ; compressor motor and fan motor fuse breakers ; motor contactors ; control relays ; control circuit ON-OFF switch.

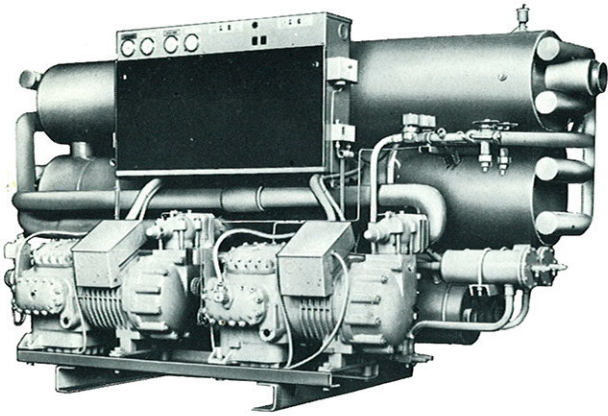
Suction and discharge pressure gages, with shutoff valves, shall be standard.

An oil pressure safety switch on the lead compressor of each refrigerant circuit shall be standard.

A high-pressure switch shall be factory mounted on each compressor ; on the lead compressor in each circuit an oil-pressure safety switch shall be factory mounted. A chilled water flow switch shall be factory mounted on the chilled water inlet nozzle.

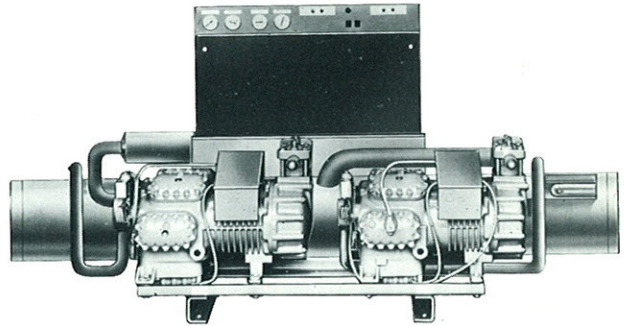
Specifications may change without notice.

OTHER PRODUCTS



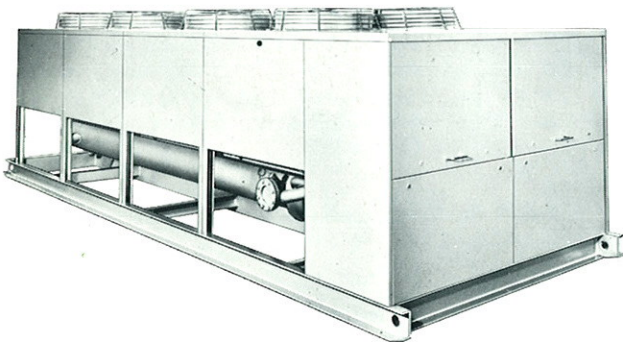
RLY - DRLY

Packaged water chiller - water cooled condenser
58 to 325 kW - standard manufacture



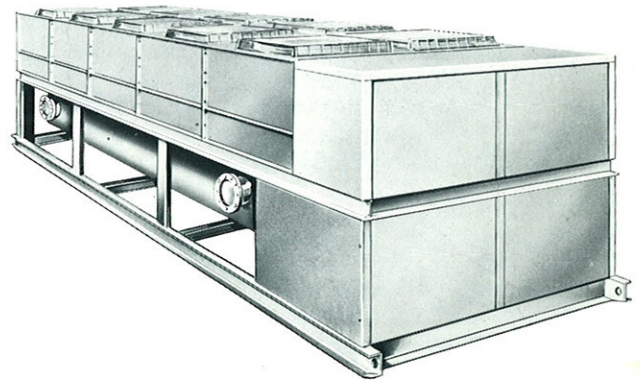
GCE

Water cooled condensing unit
32 to 385 kW - Standard manufacture



RLA DH - DRLA DH

Packaged water chiller - air cooled condenser
58 to 325 kW - standard manufacture



DRLA H

Packaged water chiller - air cooled condenser
320 to 600 kW - standard manufacture



"Les Meurières" 69780 MIONS - France

Société Anonyme au capital de 1.260.000 F - R.C. Lyon B 970 502 985

TÉL. 78 20 95 48 - TÉLEX 380300 CLIREF-MIONS

Division de HCF Industries

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Doc. 590/83.06