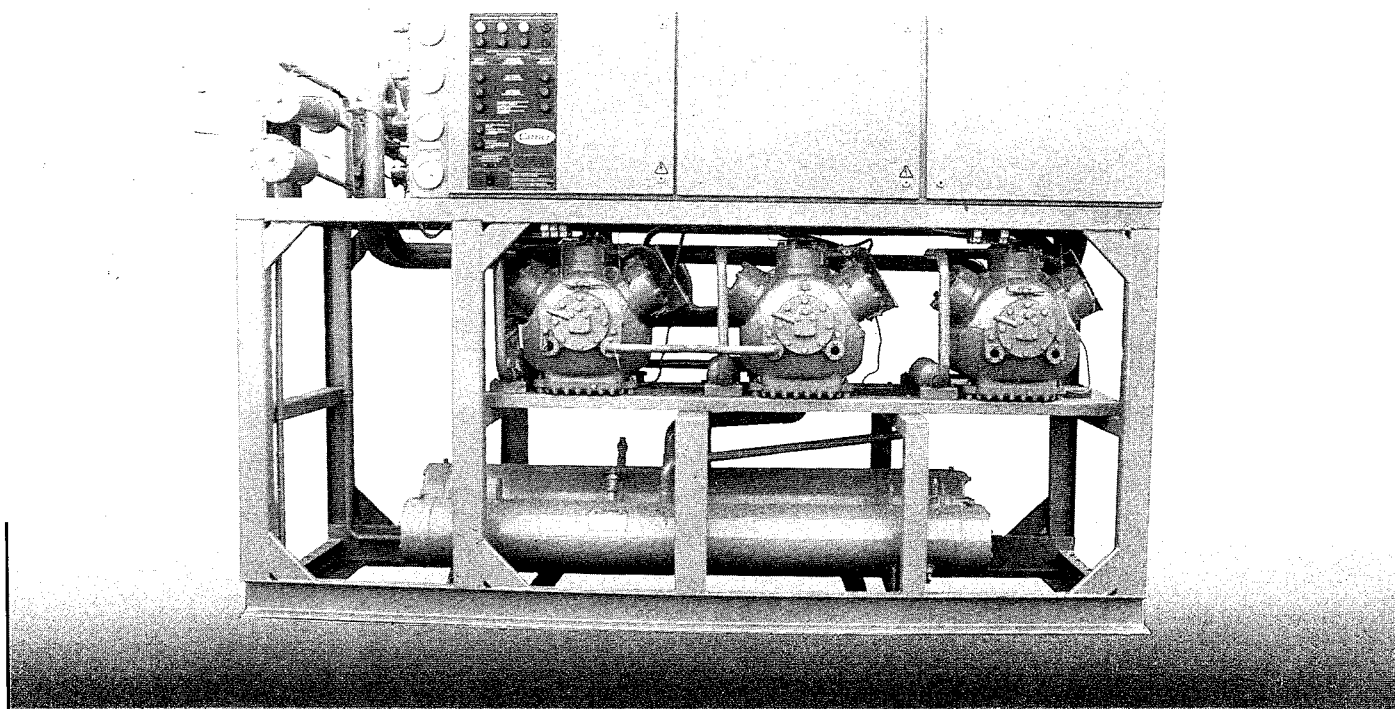


Carrier

30HK, HR HL, HS

Reciprocating Liquid Chillers

Nominal cooling capacity: 30HK, HR 59.1 – 892 kW
30HL, HS 52.4 – 804 kW



30HK, HL/HR, HS liquid chillers are suitable for use in chilled water air conditioning systems and for various process cooling applications. They are quiet, reliable and easy to service. Even the large capacity multiple-compressor units will pass through standard doorways.

30HK and 30HR units are fitted with coolers, condensers, compressors, controls and interconnecting piping and wiring. They are shipped fully charged.

30HL and HS units are supplied without condensers, and with a refrigerant holding charge. They can be adapted to systems which include remote air-cooled, water-cooled or evaporative condensers. Models 018-036 have one refrigerant circuit; all others have two independent circuits.

Units have up to eight easy to service semi-hermetic 06E compressors; for large units, stand-by capacity is available, produced by remaining compressor(s).

Multi-step thermostat, adapts unit capacity to actual cooling load by starting or stopping compressors. On single-compressor units (018-036), the compressor is fitted with unloaders. Sequence switch, to vary the compressor starting sequence, in order to balance the service frequency.

Water flow switch shuts down the unit if cooler water flow is interrupted.

Each compressor motor is protected against overcurrent in each of the three phases, using manually reset magnetic circuit breakers.

Isolators under the compressors minimize vibration transmission to building structures.

Multitubular condensers with integral subcoolers increase unit capacity for the same power input.

Crankcase heaters are activated whenever the compressor is shut down, prevents liquid refrigerant from accumulating in the compressors.

Time Guard prevents compressor short cycling.

Electrical panel with high and low pressure switches, low temperature cutout, controls and indicators.

An oil pressure switch is standard on HL and HS units. They are accessories on HK and HR units.

Each compressor is protected by a DGT (high discharge temperature thermostat).

Filter-driers collect impurities in the refrigerant circuits – liquid sight glass indicates the amount of moisture mixed with refrigerant.

Accessories

Control circuit transformer.

Suction and discharge pressure gauge panel (HK, HL).

Part-winding start package.

Enclosure panels.

Interconnecting heat reclaim condenser piping (30H "Y" 037 through 280).

TÜV pressostats (for units built in accordance to TÜV code).

Physical data

Unit and compressors

30 Series	30HK, HL								30HR, HS										
Model	018	024	027	036	037	043	052	065	081	091	101	111	121	141	161	195	225	250	280
Nom. capacity* kW	kW																		
HK, HR	59.1	77.3	87.5	112.2	118.5	142.8	170.5	220.2	223.3	246.5	286.6	308.8	333.1	392.5	442.1	574.0	681.0	788.0	892.0
HK, HS	52.4	68.6	79.1	102.0	105.5	128.4	153.4	199.5	200.5	222.0	258.5	297.3	300.0	354.2	399.0	510.6	606.4	706.8	804.0
Operating weight kg	kg																		
HK; HR; HK/HR "W"	807	860	950	1000	1300	1356	1470	1530	2024	2100	2548	2624	2700	2900	3120	4400	4690	5600	6050
HL, HS	610	620	730	765	994	1040	1145	1190	1595	1650	2074	2127	2180	2340	2360	3270	3420	4066	4316
Refrigerant charge R-22 kg	The 30HL and 30HS units have a holding charge only																		
Standard Circuit 1	17	17.5	19	23	15	16	18	19	30.5	34.5	28	31	31	35	39	47	70	85	85
Circuit 2	-	-	-	-	14	14	17	18	17.5	17.5	28	28	31	35	39	70	70	81	85
'Y' Circuit 1	19.5	20	22	26.3	18	19	21	22	-	-	-	-	-	-	-	-	-	-	-
Circuit 2	-	-	-	-	17	19	20	21	-	-	-	-	-	-	-	-	-	-	-
'W' Circuit 1	17	-	19	-	15	16	18	-	30.5	34.5	28	31	31	35	-	-	-	-	-
Circuit 2	-	-	-	-	14	14	17	-	17.5	17.5	28	28	31	35	-	-	-	-	-
Compressors Number	06E, semi-hermetic; 4 or 6 cylinders, 24.2 r/s																		
Circuit 1	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	3	4	4	4
Circuit 2	-	-	-	-	1	1	1	1	1	1	2	2	2	2	2	3	3	3	4
Oil charge	6.7 L per 4-cylinder compressor, and 9.0 L per 6-cylinder compressor																		
Capacity control	Multi-step thermostat, compressor on/off as needed Step controller switches compressor on/off as needed																		
No. of control steps	2	3	3	3	4	4	4	4	6	6	8	8	8	8	8	5	6	7	8
Total No. of cyl.	4	3	3	3	8	10	12	12	16	18	20	22	24	24	24	30	36	42	48
Cooler 10HA	020	020	030	030	040	040	060	060	090	090	105	105	105	160	160	200	200	280	280
Condenser 09RQ																			
Circuit 1	022	022	027	033	022	027	027	033	043	054	043	054	054	054	070	084**	097**	127**	127**
Circuit 2	-	-	-	-	022	022	027	033	027	027	043	043	054	054	070	097**	097**	097**	127**
Refrigerant connections in																			
Liquid Circuit 1	7/8	7/8	7/8	7/8	7/8	7/8	7/8	7/8	1-1/8	1-1/8	1-1/8	1-1/8	1-1/8	1-1/8	1-1/8	1-1/8	1-5/8	1-5/8	1-5/8
Circuit 2	-	-	-	-	7/8	7/8	7/8	7/8	7/8	7/8	1-1/8	1-1/8	1-1/8	1-1/8	1-1/8	1-1/8	1-5/8	1-5/8	1-5/8
Discharge Circuit 1	1-3/8	1-3/8	1-3/8	1-3/8	1-3/8	1-3/8	1-3/8	1-3/8	1-5/8	2-1/8	1-5/8	2-1/8	2-1/8	2-1/8	2-1/8	2-1/8	2-5/8	2-5/8	2-5/8
Circuit 2	-	-	-	-	1-3/8	1-3/8	1-3/8	1-5/8	1-3/8	1-3/8	1-5/8	1-5/8	2-1/8	2-1/8	2-1/8	2-5/8	2-5/8	2-5/8	2-5/8

* Ratings are based on a leaving chilled water temperature of 6.7°C, chilled water temperature rise of 5.6°C and a fouling factor of 0.000088 (m²K)/W, 8.3°C subcooling and R-22.

** 09RP condensers

30HK, HR units: - condenser water entering at 29°C and leaving at 35°C.
 30HL, HS units: - condensing temperature 40.5°C for remote water-cooled condenser.
 - condensing temperature 48.8°C for air-cooled condenser.
 - saturated discharge temperature 49°C with 6.7°C subcooling.

Capacity control steps (%)

Model		Sequence 1	Sequence 2
30 HK, HL	018	50/100	-
	024	33/66/100	-
	027	33/66/100	-
	036	33/66/100	-
	037	25/50/75/100	25/50/75/100
	043	40/60/80/100	20/40/80/100
	052	33/50/83/100	33/50/83/100
	065	33/50/83/100	33/50/83/100
30 HR, HS	081	25/37.5/62.5/75/87.5/100	12.5/25/50/62.5/87.5/100
	091	22.2/33.3/55.5/66.6/88.8/100	22.2/33.3/55.5/66.6/88.8/100
	101	20/30/50/60/70/80/90/100	10/20/40/50/60/70/100
	111	18.2/27.3/45.5/54.6/63.7/72.8/91/100	18.2/27.3/45.5/54.6/63.7/72.8/91/100
	121	16.6/25/41.6/50/66.6/75/91.6/100	16.6/25/41.6/50/66.6/75/91.6/100
	141	19/28.4/46.5/57/69/78.6/91/100	14.3/21.5/43/50/64.5/71.5/92.5/100
	161	16.6/25/41.6/50/66.6/75/91.6/100	16.6/25/41.6/50/66.6/75/91.6/100
	195	20/40/60/80/100	20/40/60/80/100
	225	16.7/33.3/50/66.7/83.3/100	16.7/33.3/50/66.7/83.3/100
	250	14.3/28.6/42.9/57.2/71.5/85.8/100	14.3/28.6/42.9/57.2/71.5/85.8/100
	280	12.5/25/37.5/50/62.5/75/87.5/100	12.5/25/37.5/50/62.5/75/87.5/100

Cooler (shell and tube)

10HA		020	030	040	060	090	105	160	200	280
Surface	m ²	6.16	8.52	11.46	13.56	19.77	27.13	34.17	49.33	56.25
Volume	L									
Refrigerant		21.0	28.0	40.0	45.5	66.0	92.7	116.8	158.0	170.0
Water		31.0	43.0	55.6	64.0	92.0	154.0	199.0	242.0	276.0
No. of refig. circuits		1	1	2	2	2	2	2	2	2
Outside diameter	mm	219	219	273	273	324	407	407	457	457
Number of tubes		81	81	129	129	188	258	258	364	364
Length	mm	1576	2163	1882	2163	2174	2174	2780	2788	3164
Dry weight	kg	180	225	255	292	408	610	700	870	942
Connections	in									
Water in & out		2 FPT Gas	2 FPT Gas	DN 80 flange, 3" nom. PN16 NFE 29233		4	5	DN flange, 6" nom. PN16 NFE 29233		
Drain		½ FPT	½ FPT	1 MPT	1 MPT	¾ FPT	¾ FPT	¾ FPT	¾ FPT	¾ FPT
No. of baffles (std.)		13	13	11	9	7	9	9	7	7
No. of refig. passes		6	5	5	4	4	4	4	4	3

Condenser (shell and tube)

09RQ/RP**		022	027	033	043	054	070	084	097	127
Outside diameter	mm	219	219	219	273	273	323	356	356	475
Inside area	m ²	2.32	3.09	3.67	4.83	6.67	8.60	12.28	15.78	19.96
Ratio		3.45	3.45	3.45	3.45	3.45	3.45	3.15	3.15	3.15
Tubes	Finned copper, ¾" outside diameter, fin spacing 1.7 mm									
Wall thickness	1.14 mm at plain ends, 0.7 mm over finned length									
	1.32 mm at plain ends, 0.9 mm over finned length									
Condenser (No.)*		24	32	38	50	69	89	130	130	189
Subcooler (No.)		5	5	5	5	5	5	9	9	14
Length	mm	1772	1772	1772	1772	1772	1772	2197	2794	2197
Dry weight	kg	140	150	160	195	215	290	435	560	706
Water passes		2	2	2	2	2	2	3/6	3/6	3/6
Water connections	in									
2 pass inlet (gas)		1-½	2	2	2-½	2-½	2-½	2½-2 off ⁺	2½-2 off ⁺	3-2 off ⁺
Outlet (gas)		1-½	2	2	2-½	2-½	2-½	4-1 off ⁺	4-1 off ⁺	5-1 off ⁺
Volume	L									
Refrigerant		47	44	41	70	62	90	132	170	216
Water		11	13	15	21	28	37	47	60	76

* Subcooler tubes included.
 ** Sizes 084 - 127 are 09RP condensers
 + 3-pass connections shown

Electrical data (50 Hz)

Nominal voltage (V-ph-Hz) Network voltage (V)*	230-3-50 198-264							400-3-50 342-457							Nominal voltage (V-ph-Hz) Network voltage (V)	230-3-50 198-264							400-3-50 342-457						
	30	Max kW	WSA	ICF	ICI	WSA	ICF	ICI	30	Max kW	WSA	ICF	ICI	WSA		ICF	ICI	30	Max kW	WSA	ICF	ICI	WSA	ICF	ICI				
HK 018	18.9	69	205	205	40	142	142	HL 018	21.2	77.5	250	250	45	173	173														
024	28.0	104	342	342	60	223	223	024	28.0	104	342	342	60	223	223														
027	28.0	104	342	342	60	223	223	027	32.6	117	366	366	67.5	253	253														
036	45.0	169	545	545	96	345	345	036	45.0	169	545	545	96	345	345														
037	37.8	124	260	205	72	774	142	037	42.4	140	312	250	81	209	173														
043	46.9	160	397	342	92	255	223	043	53.8	179	428	366	103	289	253														
052	56.0	188	425.5	342	108	271	223	052	65.2	210	459.5	366	121.5	307	253														
065	90.0	303	680	545	173	422	345	065	90.0	303	680	545	173	422	345														
HR 081	74.9	243	480.5	342	140	303	223	HS 081	86.4	272	521.5	366	157.5	343	253														
091	84.0	271	509	342	156	319	223	091	97.8	304	553	366	175.5	361	253														
101	93.8	298	535.5	342	172	335	223	101	107.6	334	583.5	366	193.5	379	253														
111	102.9	326	564	342	188	351	223	111	119.0	365	615	366	211.5	397	253														
121	112.0	354	592.5	342	204	367	223	121	130.4	397	646.5	366	229.5	415	253														
141	146.0	471	847	545	269	518	345	141	155.2	490	867	545	281	530	345														
161	180.0	574	950	545	327	576	345	161	180.0	574	950	545	327	576	345														
195	270	698	1046	690	404	725	345	195	270	698	1046	690	404	725	345														
225	324	831	1635	690	481	820	345	225	324	831	1635	690	481	820	345														
250	378	964	1824	690	558	915	345	250	378	964	1824	690	558	915	345														
280	432	1097	2013	690	635	1010	345	280	432	1097	2013	690	635	1010	345														

* The supply voltage must be within these limits.
 ICF = instantaneous maximum starting amps – ICI = largest compressor starting amps – FLA = full load amps.

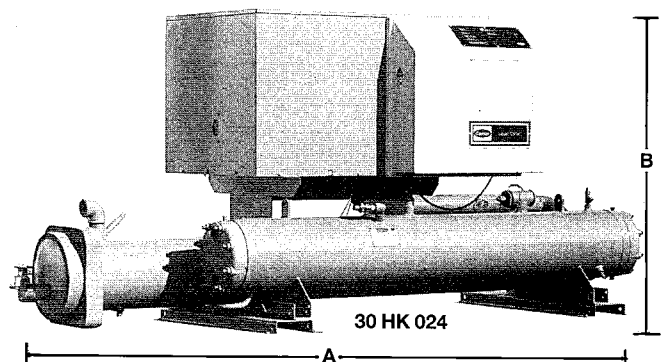
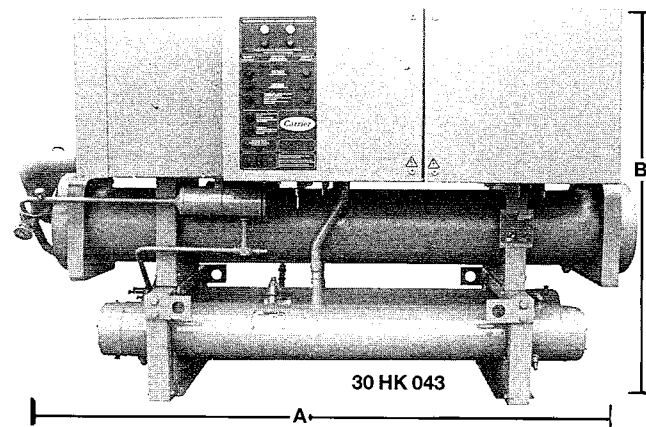
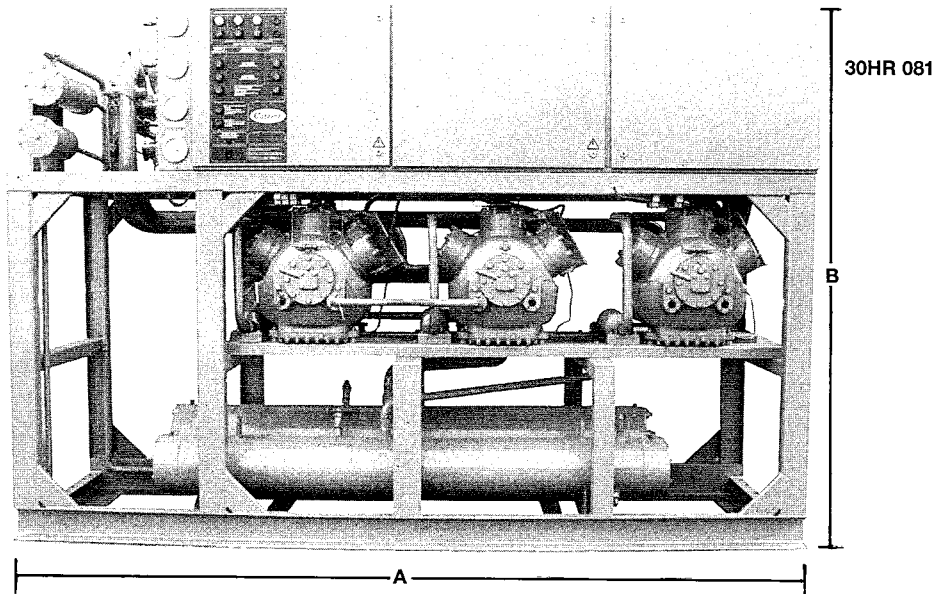
Electrical data, compressors

06E Ph II	Max kW	230-3-50				400-3-50			
		FLA	MTA	LRA		FLA	MTA	LRA	
				XL	PW			XL	PW
150	18.9	55	75	205	123	32	42	142	85
250	21.2	62	95	250	150	36	51	173	104
175/265	28	83.5	112	342	205	48	62	223	134
275	32.6	93.5	138	366	220	54	75	253	152
299	45	135	202	545	327	77	110	345	207

PW – Part winding
 XL – Across-the-line

FLA – Full load amps
 LRA – Locked rotor amps
 MTA – Must trip amps

Dimensions (mm)



30HK	081	024	027	036	037	043	052	065
A	2000	2000	2580	2580	2295	2295	2470	2470
B	1205	1205	1205	1205	1470	1470	1470	1470
C (width)	910	910	910	910	885	885	885	885
D1* (left)	1700	1700	2060	2060	-	-	-	-
D2* (right)	1700	1700	2000	2000	2700	2700	2700	2700
E**	650	650	650	650	710	710	710	710

30HL Condenserless units

A	1870	1870	2580	2580	2295	2295	2470	2470
B	1205	1205	1205	1205	1202	1202	1202	1202
C (width)	910	910	910	910	885	885	885	885
D1* (left)	1520	1520	2060	2060	-	-	-	-
D2* (right)	1340	1340	2000	2000	2700	2700	2700	2700
E**	650	650	650	650	710	710	710	710

30HR	081	091	101	111	121	141	161	195	225	250	280
A	2898	2898	2881	2881	2881	3126	3126	4255	4255	4070	4070
B	1915	1915	1915	1915	1915	1929	1929	1956	1956	2000	2000
C (width)	912	912	912	912	912	912	912	912	912	1275	1275
D1* (left)	-	-	-	-	-	-	-	2060	2060	2315	1425
D2* (right)	2500	2500	2500	2500	2500	3200	3200	2110	2110	2710	2710
E**	750	750	750	750	750	750	750	1100	1100	900	900

30HS Condenserless units

A	2898	2898	2881	2881	2881	3126	3126	4255	4255	4070	4070
B	1298	1298	1298	1298	1298	1311	1311	1338	1338	1600	1600
C (width)	912	912	912	912	912	912	912	912	912	1275	1275
D1* (left)	-	-	-	-	-	-	-	-	-	-	-
D2* (right)	2500	2500	2500	2500	2500	3200	3200	2110	2110	2710	2710
E**	750	750	750	750	750	750	750	1100	1100	900	900

* D1 and D2 show the space required for the removal of the heat exchanger tubes.
 ** E shows the space required for access to the electrical box.

Cooling capacity

5°C leaving chilled water

Model	Capacity, kW	Sat. dis. temp. °C	Input, kW	Heat rejection, kW	Chilled water flow, L/s	Condenser water entering temp. °C														
						27		30		35		40		45						
						Flow rate L/s	Temp. out °C	Flow rate L/s	Temp. out °C	Flow rate L/s	Temp. out °C	Flow rate L/s	Temp. out °C	Flow rate L/s	Temp. out °C					
30 HK, HL 018	42.9	58.0	16.9	59.0	1.70															
	45.9	54.0	16.3	61.4	1.82															
	48.9	50.0	15.7	63.8	1.94															
	50.4	48.0	15.3	64.9	2.00															
	51.9	46.0	14.9	66.0	2.06															
	53.3	44.0	14.5	67.1	2.12															
	56.2	40.0	13.7	69.2	2.23															
	57.5	38.0	13.3	70.1	2.29															
							1.30	39.4	1.13	43.8	1.48	45.3	1.57	49.4	1.67	53.5				
						2.13	34.8	1.41	41.3	2.63	41.0	2.93	45.2	3.32	49.4					
						2.88	32.8	1.79	39.0	3.80	39.2	4.49	43.5							
								1.13	43.8											
								1.41	41.3											
								1.79	39.0											
								2.12	37.1											
								2.49	34.8											
								2.88	32.8											
30 HK, HL 024	57.4	58.0	22.8	79.1	2.28															
	60.9	54.0	21.9	81.7	2.42															
	64.4	50.0	21.0	84.3	2.56															
	66.1	48.0	20.5	85.6	2.63															
	67.8	46.0	20.0	86.8	2.69															
	69.7	44.0	19.5	88.2	2.77															
	73.2	40.0	18.4	90.7	2.91															
	75.0	38.0	17.9	92.0	2.98															
							1.61	40.1	1.74	42.0	1.84	46.0	1.97	50.0	2.12	54.0				
						2.60	35.4	2.21	39.6	2.39	43.6	2.62	45.6	2.91	49.2					
						3.51	33.3	2.77	36.6	3.22	41.5	3.62	43.8	4.13	49.7					
								1.74	42.0											
								2.21	39.6											
								2.60	35.4											
								2.98	33.3											
30 HK, HL 027	66.5	58.0	25.9	91.1	2.64															
	70.4	54.0	25.0	94.1	2.80															
	74.1	50.0	24.0	96.9	2.94															
	75.9	48.0	23.4	98.2	3.02															
	77.7	46.0	22.9	99.5	3.09															
	79.6	44.0	22.3	100.8	3.16															
	83.2	40.0	21.1	103.3	3.31															
	85.0	38.0	20.4	104.4	3.38															
							1.61	41.8	1.73	43.6	1.48	50.2	1.54	54.2	1.67	58.2				
						1.97	39.3	2.13	41.2	2.28	45.2	2.44	49.3	2.62	53.3					
						3.17	34.8	2.70	39.0	2.94	43.0	3.26	45.6	3.54	49.4					
						4.25	32.9	3.31	35.2	3.95	41.0	4.47	43.4	5.12	49.4					
								2.13	41.2											
								2.70	39.0											
								3.31	35.2											
								3.95	41.0											
								4.64	39.6											
30 HK, HL 036	87.3	58.0	34.6	120.2	3.47															
	91.6	54.0	33.4	123.4	3.64															
	95.9	50.0	32.2	126.5	3.81															
	98.1	48.0	31.6	128.1	3.90															
	100.2	46.0	30.9	129.6	3.98															
	102.3	44.0	30.2	131.0	4.07															
	106.6	40.0	28.8	134.0	4.24															
	108.8	38.0	28.1	135.5	4.32															
							1.80	44.1	1.90	45.9	1.99	49.9	2.09	53.8	2.26	57.8				
						2.14	41.5	2.30	43.4	3.03	45.0	3.26	49.1	3.54	53.3					
						2.61	39.1	2.82	41.0	3.90	42.9	4.13	45.1	4.64	49.4					
						4.17	34.7	3.57	38.8	5.23	41.0	5.92	43.2	6.85	49.3					
						5.59	32.8	4.42	33.1	7.68	39.1	9.49	43.2	11.25	49.4					
								2.30	43.4											
								2.82	41.0											
								3.57	38.8											
								4.42	35.0											
								5.23	33.1											
30 HK, HL 037	85.1	58.0	33.8	117.2	3.38															
	91.2	54.0	32.6	122.1	3.62															
	97.1	50.0	31.3	126.8	3.86															
	100.0	48.0	30.6	129.1	3.97															
	102.9	46.0	29.8	131.3	4.09															
	105.9	44.0	29.0	133.5	4.21															
	111.6	40.0	27.4	137.6	4.43															
	114.3	38.0	26.5	139.5	4.54															
							2.59	39.4	2.78	41.3	2.94	45.4	3.11	49.4	3.30	53.5				
						4.22	34.8	3.56	39.0	3.83	43.1	4.47	45.2	5.23	49.4					
						5.71	32.9	4.42	33.2	7.54	39.2	8.90	43.5	9.67	49.5					
								2.24	43.8											
								2.78	41.3											
								3.56	39.0											
								4.42	35.0											
								5.23	33.2											
30 HK, HL 043	105.4	58.0	42.2	145.4	4.19															
	112.1	54.0	40.8	150.8	4.45															
	118.7	50.0	39.2	155.9	4.71															
	122.0	48.0	38.3	158.4	4.85															
	125.2	46.0	37.4	160.8	4.97															
	128.4	44.0	36.5	163.1	5.10															
	134.7	40.0	34.5	167.5	5.35															
	137.9	38.0	33.5	169.7	5.48															
							3.14	39.5	3.40	41.4	3.60	45.4	3.84	49.4	4.11	53.5				
						5.10	34.9	4.33	39.1	4.68	43.1	5.13	45.3	5.81	49.5					
						6.90	32.9	5.23	33.2	9.27	39.2	11.25	43.4	13.08	49.4					
								3.40	41.4											
								4.33	39.1											
								5.23	35.0											
								6.05	33.2											
30 HK, HL 052	126.9	58.0	50.7	175.1	5.04															
	134.5	54.0	49.1	181.2	5.35															
	142.1	50.0	47.2	187.0	5.64															
	145.8	48.0	46.2	189.7	5.79															
	149.5	46.0	45.2	192.4	5.94															
	153.2	44.0	44.1	195.1	6.09															

Cooling capacity

5°C leaving chilled water

Model	Capacity, kW	Sat. dis. temp. °C	Input, kW	Heat rejection, kW	Chilled water flow, L/s	Condenser water entering temp. °C														
						27		30		35		40		45						
						Flow rate L/s	Temp. out °C	Flow rate L/s	Temp. out °C	Flow rate L/s	Temp. out °C	Flow rate L/s	Temp. out °C	Flow rate L/s	Temp. out °C					
30 HR, HS 081	165.9	58.0	67.0	229.6	6.59															
	176.3	54.0	64.9	237.9	7.00															
	186.4	50.0	62.4	245.7	7.40															
	191.4	48.0	61.1	249.4	7.60															
	196.4	46.0	59.7	253.1	7.80	3.97	42.3	4.24	44.1	5.58	45.6	5.95	49.6	6.38	53.6	12.60	49.5			
	201.3	44.0	58.2	256.7	8.00	4.86	39.7	5.25	41.6	7.23	43.3	11.02	45.4							
	211.1	40.0	55.2	263.5	8.39	7.86	35.0	6.68	39.2	9.80	41.2	17.39	43.4							
216.0	38.0	53.5	266.8	8.58	10.61	33.0	12.26	35.2	14.29	39.3										
30 HR, HS 091	185.0	58.0	75.2	256.5	7.35															
	196.0	54.0	72.8	265.1	7.79															
	206.7	50.0	70.1	273.3	8.21															
	212.0	48.0	68.6	277.2	8.42					5.86	46.2	6.28	50.1	6.78	54.1	13.70	49.6			
	217.3	46.0	67.1	281.0	8.63			5.49	42.3	7.63	43.7	11.83	45.5							
	222.5	44.0	65.5	284.8	8.84	5.06	40.5	7.00	39.8	10.41	41.5	18.91	43.5							
	232.9	40.0	62.1	291.9	9.25	8.25	35.5	13.07	35.4	15.27	39.5									
238.0	38.0	60.4	295.3	9.45	11.22	33.3	21.22	33.3												
30 HR, HS 101	214.7	58.0	84.9	295.4	8.53															
	227.3	54.0	81.9	305.2	9.03															
	239.8	50.0	78.6	314.5	9.53			4.49	46.8	4.66	50.7	4.84	54.7	8.26	53.6	16.22	49.5			
	246.1	48.0	76.9	319.2	9.78			5.44	44.1	7.17	45.5	7.68	49.5							
	252.1	46.0	75.0	323.4	10.02	5.09	42.3	6.73	41.5	9.29	43.2	14.16	45.3							
	258.1	44.0	73.1	327.6	10.25	6.21	39.7	8.55	39.2	12.55	41.2	22.45	43.4							
	270.0	40.0	69.0	335.6	10.73	10.03	35.0	15.63	35.2	18.17	39.3									
276.0	38.0	66.9	339.6	10.96	13.53	33.0	25.31	33.2												
30 HR, HS 111	232.9	58.0	93.0	321.3	9.25															
	246.2	54.0	89.8	331.5	9.78															
	259.2	50.0	86.3	341.1	10.30															
	265.6	48.0	84.4	345.8	10.55			5.56	44.9	7.36	46.1	7.90	50.1	8.52	54.1	16.93	49.7			
	271.9	46.0	82.4	350.2	10.80			6.88	42.2	9.54	43.7	14.68	45.6							
	278.3	44.0	80.3	354.7	11.06	6.35	40.4	8.76	39.7	12.95	41.5	22.97	43.6							
	290.7	40.0	76.0	363.0	11.55	10.32	35.4	16.24	35.4	18.82	39.5									
296.7	38.0	73.8	366.8	11.79	13.91	33.3	25.69	33.4												
30 HR, HS 121	252.2	58.0	101.2	348.3	10.02															
	265.9	54.0	97.7	358.8	10.56															
	279.4	50.0	93.9	368.6	11.10															
	286.2	48.0	91.9	373.5	11.37															
	292.6	46.0	89.8	377.9	11.63			7.03	42.9	9.72	44.2	14.82	46.0							
	299.1	44.0	87.6	382.3	11.88	6.48	41.2	8.91	40.3	13.09	41.9	22.27	44.0							
	311.9	40.0	83.0	390.8	12.39	10.41	36.0	16.19	35.8	18.78	39.9	44.49	42.0							
318.4	38.0	80.6	395.0	12.65	14.00	33.8	24.25	33.9												
30 HR, HS 141	298.9	58.0	119.4	412.4	11.88															
	315.1	54.0	115.6	424.9	12.52															
	331.1	50.0	111.3	436.9	13.15					6.35	51.1	6.63	54.9	11.30	53.8	22.05	49.6			
	339.1	48.0	109.1	442.7	13.47			7.38	44.4	9.74	45.8	10.45	49.8							
	347.1	46.0	106.7	448.5	13.79	6.90	42.6	9.12	41.8	12.58	43.4	19.19	45.5							
	355.0	44.0	104.3	454.1	14.10	8.42	40.0	11.57	39.4	16.98	41.3	30.15	43.5							
	370.8	40.0	99.2	465.1	14.73	13.56	35.2	21.10	35.3	24.40	39.5									
378.7	38.0	96.5	470.4	15.04	18.25	33.2	33.88	33.3												
30 HR, HS 161	339.5	58.0	136.5	469.3	13.49															
	356.6	54.0	132.2	482.2	14.17															
	373.7	50.0	127.5	494.8	14.84															
	382.3	48.0	125.0	501.1	15.19					10.23	46.6	11.03	50.5	11.98	54.4	23.47	49.9			
	390.7	46.0	122.5	507.1	15.52			9.55	42.8	13.25	44.1	20.33	45.8							
	399.6	44.0	119.9	513.5	15.88	8.81	41.0	12.15	40.1	17.91	41.8	30.67	43.9							
	416.8	40.0	114.4	525.5	16.56	14.26	35.9	22.29	35.7	25.86	39.8									
425.2	38.0	111.4	531.1	16.89	19.24	33.6	34.13	33.7												
30 HR, HS 195	421.3	58.0	169.2	582.1	16.74															
	443.5	54.0	164.0	599.3	17.62	5.65	52.5	6.58	51.9	8.92	55.8	9.24	55.1	14.27	54.8	24.98	50.8			
	465.8	50.0	158.3	616.3	18.51	7.19	47.6	8.63	47.2	12.62	46.7	13.38	50.8							
	477.3	48.0	155.4	625.0	18.96	8.24	45.2	10.08	44.9	15.57	44.6	22.06	46.7							
	488.3	46.0	152.3	633.0	19.40	9.54	42.9	11.97	42.7	19.89	42.6	31.85	44.7							
	499.8	44.0	149.1	641.5	19.86	11.22	40.7	14.55	40.6	27.36	40.6									
	522.4	40.0	142.4	657.7	20.75	16.58	36.5	24.06	36.6											
533.7	38.0	138.8	665.7	21.20	21.17	34.6	35.06	34.6												
30 HR, HS 225	500.3	58.0	205.8	695.9	19.88	5.61	56.8	6.37	56.2	8.17	55.5	11.18	54.9	17.15	54.7	30.05	50.7			
	526.5	54.0	199.5	716.1	20.92	6.90	51.9	8.01	51.5	10.79	50.9	16.08	50.7							
	552.9	50.0	192.7	736.0	21.97	8.73	47.2	10.44	46.9	15.17	46.7	26.35	46.7							
	565.8	48.0	189.0	745.5	22.48	9.96	45.0	12.14	44.7	18.62	44.6	38.58	44.6							
	578.9	46.0	185.3	755.0	23.00	11.49	42.8	14.36	42.6	23.69	42.7									
	592.4	44.0	181.4	764.8	23.53	13.48	40.6	17.39	40.6	32.88	40.6									
	618.5	40.0	173.3	783.1	24.57	19.75	36.5	28.69	36.6											
631.7	38.0	169.0	792.2	25.09	25.09	34.6	42.40	34.5												
30 HR, HS 250	598.4	58.0	237.0	823.6	23.77	6.77	56.2	7.75	55.5	10.11	54.6	14.16	54.0	22.53	53.8	42.28	49.8			
	630.7	54.0	229.8	849.1	25.06	8.45														

Cooling capacity

7°C leaving chilled water

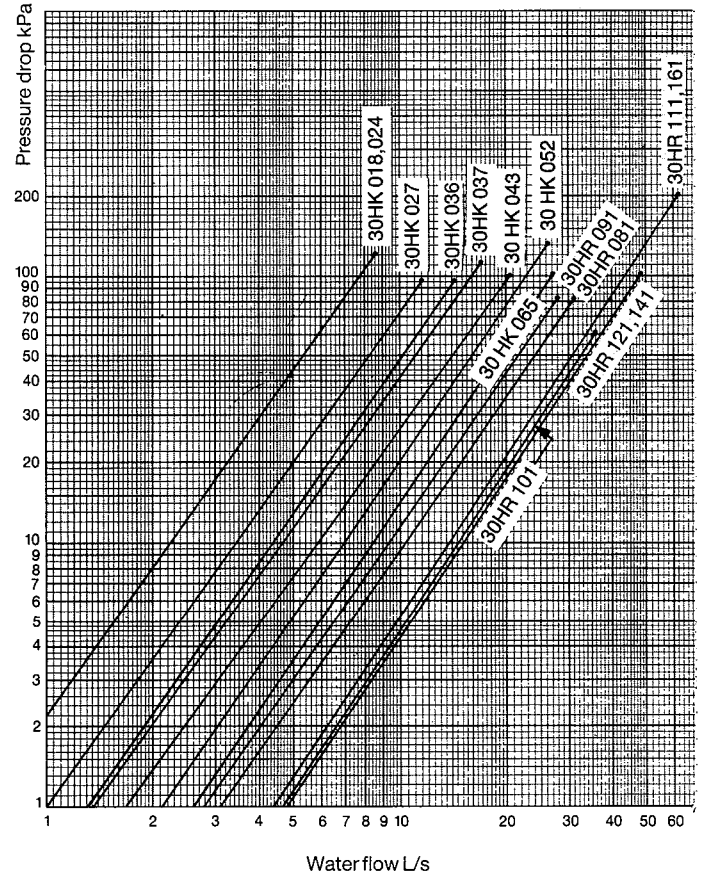
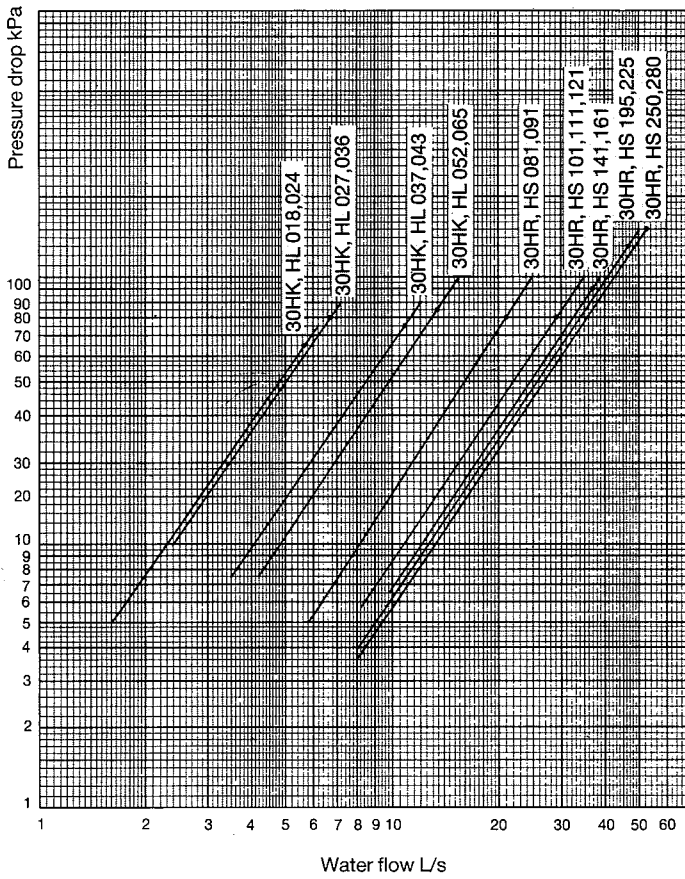
Condenser water entering temp. °C

Model	Capacity, kW	Sat. dis. temp. °C	Input, kW	Heat rejection, kW	Chilled water flow, L/s	Condenser water entering temp. °C															
						27		30		35		40		45							
						Flow rate L/s	Temp. out °C	Flow rate L/s	Temp. out °C	Flow rate L/s	Temp. out °C	Flow rate L/s	Temp. out °C	Flow rate L/s	Temp. out °C						
30 HR, HS 081	179.4	58.0	69.2	245.2	7.14																
	190.1	54.0	66.7	253.5	7.56																
	200.7	50.0	64.0	261.5	7.98																
	205.8	48.0	62.5	265.2	8.19																
	211.0	46.0	61.0	268.9	8.39	4.35	41.8	4.65	43.7	3.98	50.3	4.13	54.3	7.05	53.4	3.98	50.3	4.13	54.3	7.05	53.4
	216.1	44.0	59.4	272.5	8.60	5.32	39.3	5.75	41.2	6.13	45.2	6.56	49.3	13.99	49.4	6.13	45.2	6.56	49.3	13.99	49.4
	226.2	40.0	56.0	279.4	9.00	8.59	34.8	7.32	38.9	10.74	41.0	12.12	45.2			10.74	41.0	12.12	45.2		
	231.2	38.0	54.3	282.8	9.20	11.59	32.9	13.40	35.0	15.90	39.1	19.53	43.3			15.90	39.1	19.53	43.3		
30 HR, HS 091	199.6	58.0	77.6	273.3	7.94																
	210.9	54.0	74.9	282.1	8.39																
	222.1	50.0	71.9	290.4	8.83																
	227.6	48.0	70.3	294.4	9.05																
	233.1	46.0	68.6	298.3	9.27																
	238.4	44.0	66.8	301.9	9.48	5.53	40.1	6.00	44.6	6.42	45.9	6.90	49.8	7.47	53.8	6.42	45.9	6.90	49.8	7.47	53.8
	249.1	40.0	63.2	309.1	9.91	9.00	35.3	7.65	39.5	11.39	41.3	12.97	45.4	15.06	49.5	11.39	41.3	12.97	45.4	15.06	49.5
	254.4	38.0	61.2	312.6	10.12	12.23	33.1	14.26	35.2	16.82	39.3	21.12	43.3			16.82	39.3	21.12	43.3		
30 HR, HS 101	233.4	58.0	87.8	316.8	9.28																
	246.6	54.0	84.4	326.7	9.81																
	259.5	50.0	80.7	336.1	10.32																
	266.0	48.0	78.7	340.8	10.58	4.69	44.5	4.97	46.3	5.17	50.2	5.38	54.1	9.19	53.3	5.17	50.2	5.38	54.1	9.19	53.3
	272.2	46.0	76.6	345.0	10.83	5.61	41.8	6.01	43.6	7.94	45.2	8.52	49.2	18.08	49.3	7.94	45.2	8.52	49.2	18.08	49.3
	278.4	44.0	74.5	349.2	11.07	6.85	39.2	7.43	41.2	10.27	43.0	15.67	45.2			10.27	43.0	15.67	45.2		
	290.7	40.0	70.1	357.3	11.56	11.04	34.8	9.43	38.9	20.56	39.1	25.48	43.2			20.56	39.1	25.48	43.2		
	296.9	38.0	67.9	361.4	11.81	14.87	32.8	17.20	35.0							17.20	35.0				
30 HR, HS 111	252.8	58.0	96.2	344.1	10.05																
	266.6	54.0	92.5	354.5	10.60																
	280.1	50.0	88.5	364.2	11.14																
	286.6	48.0	86.4	368.7	11.40																
	293.2	46.0	84.2	373.3	11.66	5.73	42.7	6.14	44.4	8.13	45.8	8.75	49.7	9.47	53.7	8.13	45.8	8.75	49.7	9.47	53.7
	299.7	44.0	82.0	377.6	11.92	6.99	40.0	7.59	41.8	10.53	43.4	16.23	45.4	18.77	49.5	10.53	43.4	16.23	45.4	18.77	49.5
	312.5	40.0	77.3	385.9	12.43	11.30	35.2	9.64	39.4	14.28	41.3	25.88	43.4			14.28	41.3	25.88	43.4		
	318.7	38.0	74.8	389.8	12.68	15.27	33.1	17.76	35.2	20.87	39.3					20.87	39.3				
30 HR, HS 121	273.1	58.0	104.6	372.5	10.86																
	287.3	54.0	100.7	382.9	11.43																
	301.2	50.0	96.4	392.8	11.98																
	308.3	48.0	94.2	397.8	12.26																
	315.0	46.0	91.8	402.2	12.53																
	321.7	44.0	89.4	406.6	12.79	7.12	40.7	7.72	42.5	8.28	46.4	8.93	50.3	9.68	54.2	8.28	46.4	8.93	50.3	9.68	54.2
	334.9	40.0	84.4	415.1	13.32	11.41	35.7	9.78	40.0	10.69	43.9	16.32	45.8	18.83	49.9	10.69	43.9	16.32	45.8	18.83	49.9
	341.7	38.0	81.8	419.4	13.59	15.33	33.6	17.75	35.6	20.62	39.7	24.53	43.9			20.62	39.7	24.53	43.9		
30 HR, HS 141	322.0	58.0	123.3	439.2	12.81																
	338.9	54.0	119.0	452.0	13.48																
	355.7	50.0	114.3	464.3	14.15																
	364.0	48.0	111.8	470.3	14.48	6.31	44.9	6.69	46.7	6.98	50.6	7.29	54.5	12.43	53.5	6.98	46.7	7.29	54.5	12.43	53.5
	372.2	46.0	109.2	476.0	14.80	7.55	42.1	8.09	44.0	10.68	45.4	11.49	49.5	24.22	49.5	10.68	45.4	11.49	49.5	24.22	49.5
	380.9	44.0	106.6	482.2	15.15	9.22	39.6	9.98	41.5	13.79	43.2	15.05	45.3			13.79	43.2	15.05	45.3		
	397.4	40.0	101.0	493.4	15.81	14.84	35.0	12.67	39.1	18.59	41.1	21.05	43.3			18.59	41.1	21.05	43.3		
	405.4	38.0	98.1	498.7	16.13	19.95	33.0	23.08	35.1	27.37	39.2	33.87	43.3			27.37	39.2	33.87	43.3		
30 HR, HS 161	364.7	58.0	141.0	498.7	14.50																
	382.7	54.0	136.2	512.1	15.22																
	400.9	50.0	131.1	525.5	15.95																
	409.7	48.0	128.4	531.7	16.30																
	418.5	46.0	125.6	537.8	16.65																
	427.7	44.0	122.7	544.3	17.01	9.63	40.6	10.45	42.4	11.23	46.2	12.10	50.2	13.15	54.1	11.23	46.2	12.10	50.2	13.15	54.1
	445.4	40.0	116.7	556.4	17.72	15.56	35.6	13.29	39.8	28.28	39.6	34.21	43.7	25.74	49.8	28.28	39.6	34.21	43.7	25.74	49.8
	454.6	38.0	113.6	562.5	18.08	21.02	33.4	18.21	33.5							18.21	33.5				
30 HR, HS 195	456.9	58.0	175.5	623.7	18.17																
	480.6	54.0	169.7	641.8	19.11	6.15	52.1	7.15	51.5	7.30	55.5	10.06	54.9	15.53	54.6	7.30	55.5	10.06	54.9	15.53	54.6
	504.0	50.0	163.4	659.2	20.04	7.81	47.3	9.37	46.9	9.70	50.9	14.56	50.6			9.70	50.9	14.56	50.6		
	516.1	48.0	160.1	668.3	20.53	8.94	44.9	10.94	44.7	13.71	46.5	24.13	46.6			13.71	46.5	24.13	46.6		
	527.8	46.0	156.7	676.7	20.99	10.35	42.7	12.99	42.5	16.91	44.5	35.26	44.6			16.91	44.5	35.26	44.6		
	540.0	44.0	153.2	685.5	21.48	12.18	40.5	15.78	40.4	19.71	42.5					19.71	42.5				
	563.6	40.0	145.7	702.0	22.42	17.96	36.4	26.24	36.4	29.90	40.5					26.24	36.4	29.90	40.5		
	575.9	38.0	141.9	710.7	22.91	23.09	34.4	38.73	34.4							38.73	34.4				
30 HR, HS 225	541.9	58.0	213.4	744.7	21.55	6.08	56.4	6.91	55.9	8.85	55.2	12.12	54.7	18.60	54.6	8.85	55.2	12.12	54.7	18.60	54.6
	569.6	54.0	206.3	765.6	22.66	7.47	51.6	8.67	51.2	11.69	50.7	17.42	50.6	32.93	50.6	11.69	50.7	17.42	50.6	32.93	50.6
	597.3	50.0	198.7	786.2	23.76	9.45	47.0	11.29	46.7	16.41	46.5	28.84	46.5			16.41	46				

Evaporator pressure drop

Condenser pressure drop

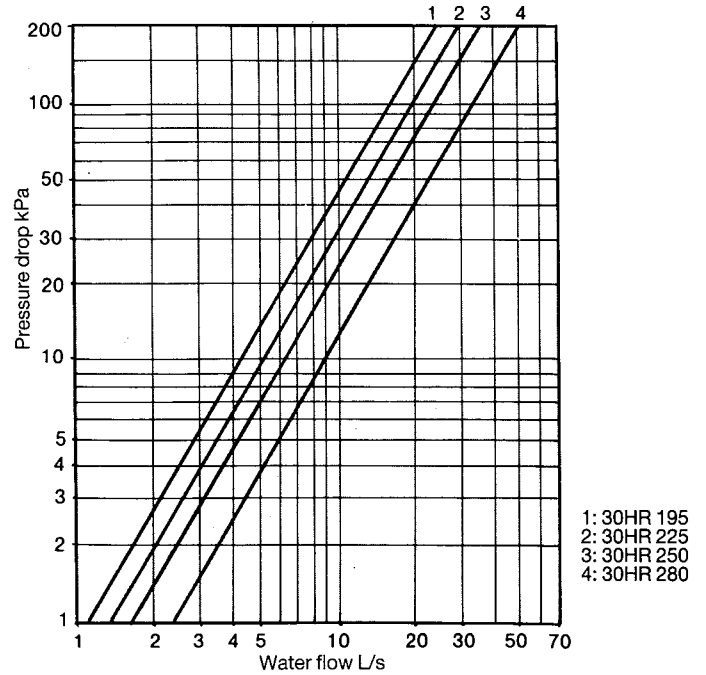
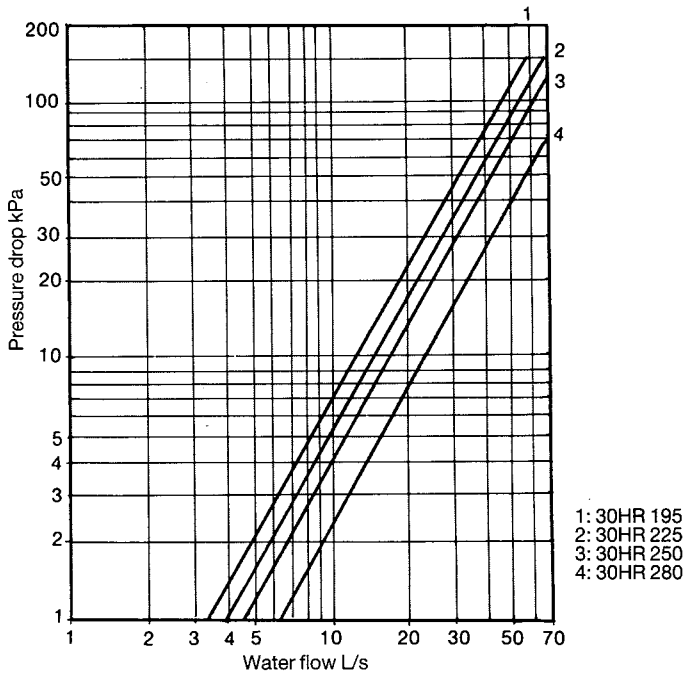
30HK, HR 018-161, 2-pass



Condenser pressure drop

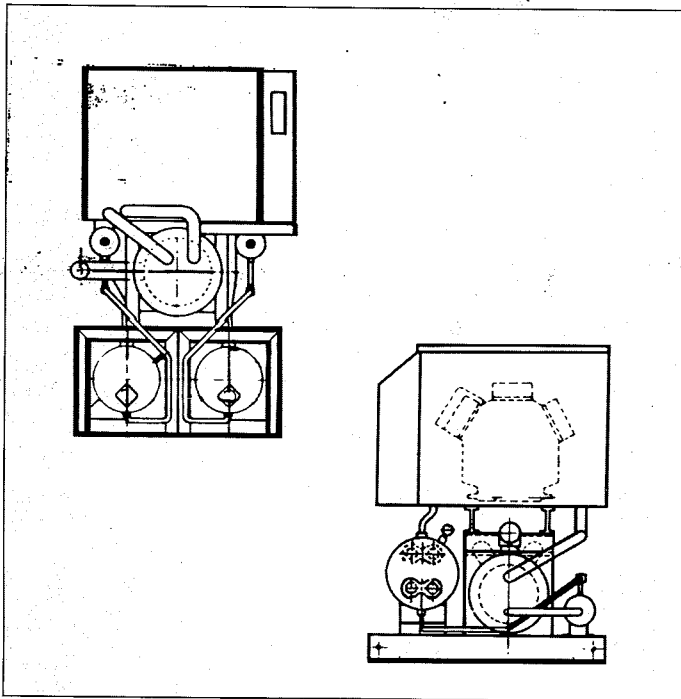
30 HR 195-280 3-pass

30 HR 195-280 6-pass



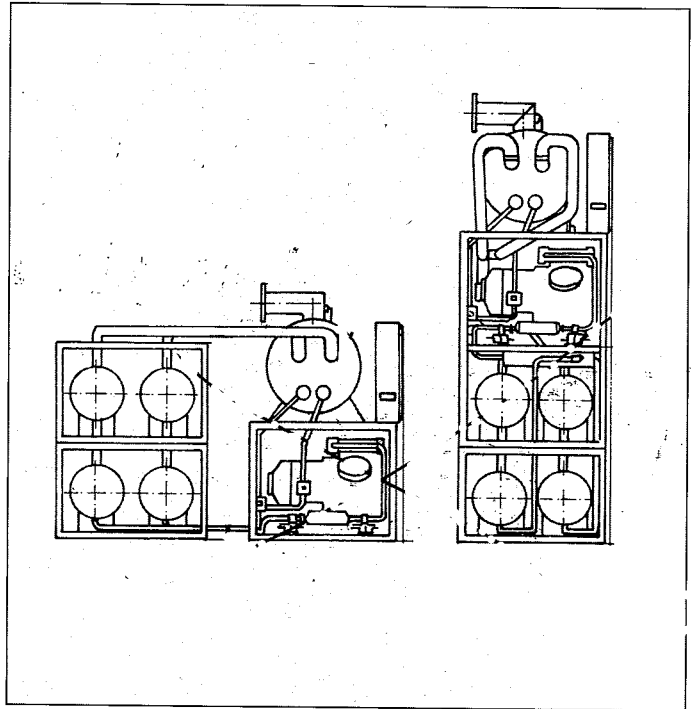
Carrier chillers for special applications

Many options are available to adapt 30H Series chillers for special applications. For heat reclaim heavy duty compressors allow higher condenser leaving water temperatures (**30H-W Series**).



30H-Y chillers have heavy-duty compressors, and special heat reclaim condensers each with two separate circuits on the water side are also offered. One side is connected to a heating circuit, the other to a cooling tower. Lower capacity machines have one refrigerant circuit; others have two refrigerant circuits.

High capacity **30H-DB** chillers have separate condenser sections with four heat exchangers (two per refrigerant circuit). In these the heating and the cooling tower circuits have separate heat exchangers. This permits either packaged or remote installation of the condenser. 30H-DB machines have heavy-duty compressors.



A comprehensive range of factory supplied options adapts standard chillers for:

- Brine cooling down to -20°C
- Operation with different refrigerants (R-12, R-500, R-502)
- Tropical applications
- Heat exchangers made of special metals (e.g. Cu/Ni 90/10 etc.)
- Two-pass condensers
- Special power supplies
- Flotronic electronically controlled expansion valve.



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Manufacturer reserves the right to change any product specifications without notice.

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