



Air-Cooled Liquid Chillers  
High Outdoor Temperature Version

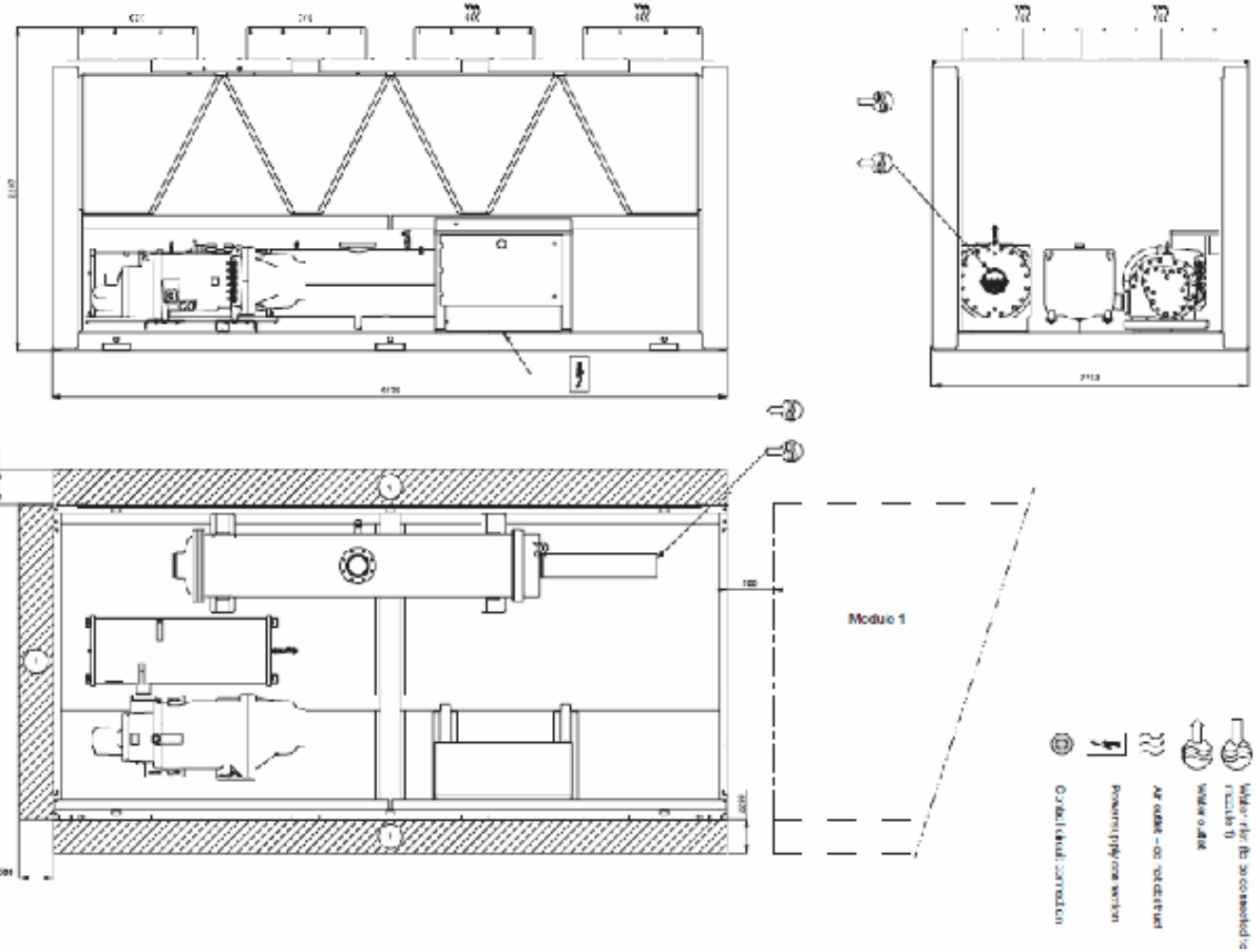


AQUAFORCE™



# CARRIER, Model 30XA1402

**Dimensions/clearances**  
30XA 1402-1502, module 2/2 - MCHX heat exchanger (standard)  
30XA 1402-1502, module 2/2 - Cu/Al heat exchanger (option 255)



NOTE: Always use not contradictory ratings before designing an installation. Consult the cabinet directions. Drawings available on request. All dimensions are in millimeters unless otherwise specified. All dimensions are in millimeters unless otherwise specified.

# CARRIER, Model 30XA1402



High ambient temperature unit - LWT = 5°C

Air temperature, °C																	
30						35					40					46	
30XA	CAP kW	COMP kW	UNIT kW	COOL l/s	COOL kPa	CAP kW	COMP kW	UNIT kW	COOL l/s	COOL kPa	CAP kW	COMP kW	UNIT kW	COOL l/s	COOL kPa	CAP kW	COMI kW
252	267	69	79	13	13	257	76	85	12	12	247	84	93	12	12	233	93
302	294	77	86	14	14	282	84	93	13	13	269	93	102	13	12	253	104
352	320	84	93	15	16	307	93	102	15	15	292	101	110	14	14	273	114
402	382	96	108	18	31	369	105	117	18	30	355	115	127	17	28	338	128
452	440	113	125	21	34	425	124	136	20	32	408	136	148	19	30	387	153
502	496	124	138	24	34	479	136	150	23	31	459	149	163	22	29	435	166
602	599	154	171	29	42	578	169	186	28	39	556	185	202	26	36	527	206
702	660	163	182	31	34	637	178	197	30	32	612	195	214	29	29	581	218
752	708	190	209	34	35	683	208	226	33	32	658	228	246	31	30	625	254
802	773	202	223	37	33	746	222	242	36	31	717	243	263	34	28	681	271
852	818	206	230	39	36	789	226	249	38	34	758	248	271	36	32	720	277
902	878	232	256	42	34	847	254	278	40	32	815	279	302	39	30	774	312
1002	976	249	278	46	34	942	272	301	45	32	905	299	327	43	30	859	334
1102	1119	281	312	53	39	1080	307	338	51	36	1038	336	367	49	34	985	376
1202	1216	314	347	58	40	1174	344	376	56	38	1129	376	409	54	35	1073	421
1302	1322	346	379	63	44	1275	379	412	61	41	1226	416	449	58	38	1163	466
1352	1411	360	411	67	41	1360	417	448	65	38	1306	457	488	62	35	1236	512
1402	1433	363	404	68	43	1383	397	437	66	40	1330	436	475	63	37	1263	487
1502	1489	375	416	71	44	1436	411	451	68	41	1380	450	490	66	38	1309	504
1702	1635	413	459	78	53	1578	452	498	75	50	1517	495	541	72	46	1440	554

High ambient temperature unit - LWT = 6°C

**COP= 1433/363=3.9**

**COP= 1330/4363=3.05**

**~8% POWER SAVING**  
**Say 400 RT (1,400 kW)**  
**358 kWe Vs. 459 kWe**  
**EcoMESH CONVENTIONAL**

# MODERATE CLIMATE

Saving between 40C Vs. 30C = 101 kW<sub>e</sub>

8 hours / day x 101 kW<sub>e</sub> = 808 kW<sub>e</sub> / day

175 days / year x 808 = 141,400 kW<sub>e</sub>

€0.15 / kW<sub>e</sub> x 141,400 kW<sub>e</sub> = € 21,210.00

Less water cost

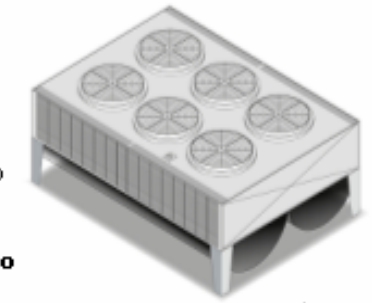
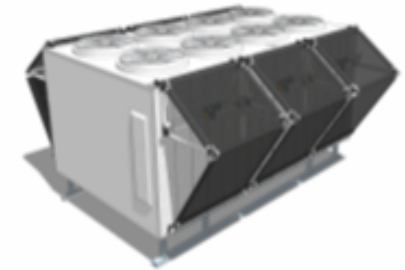
€0.75/m<sup>3</sup> x 676 m<sup>3</sup>/year = € 507.00

NET SAVING €20,703.00

UNIT INSTALLED COST € 5,000.00

**PAY BACK = 3~4 MONTHS**

19	<i>Air Inlet Relative Humidity (%)</i>	<b>10</b>	<b>20</b>	<b>30</b>	<b>40</b>	<b>50</b>	<b>60</b>	<b>70</b>	<b>80</b>	<b>90</b>
20										
21	<i>Air Cooling across EcoMESH (DegC)</i>	<b>17.2</b>	<b>15.3</b>	<b>12.4</b>	<b>10.5</b>	<b>8.6</b>	<b>6.6</b>	<b>4.8</b>	<b>2.9</b>	<b>1.3</b>
22										
23	<b>WATER CALCULATIONS</b>									
24		<b>Hot Climate</b>		<b>Temperate Climate</b>		<b>Head Pressure Control</b>				
25										
26	<b>Water Consumption per nozzle (Lt/h)</b>	<b>10.5</b>		<b>6.3</b>		<b>3.15</b>				
27										
28	<b>System Total Water Consumption (Lt./h)</b>	<b>483</b>		<b>290</b>		<b>145</b>				
29										
30	<b>Daily Water Consumption (m3/day)</b>	<b>3.864</b>		<b>2.318</b>		<b>1.159</b>				
31										
32	<b>Annual Water Consumption (m3/PA)</b>	<b>676</b>		<b>406</b>		<b>203</b>				
33										
34	<b>Annual Water Cost (Cost-1)</b>	<b>507.15 Euro</b>		<b>304.29 Euro</b>		<b>152.15 Euro</b>				
35										
36	<b>ESTIMATED ENERGY SAVINGS</b>									
37		<b>Air Conditioning</b>		<b>Refrigeration Chilled</b>		<b>Refrigeration Frozen</b>				
38										
39	<b>Energy Saving (kWh)</b>	<b>107</b>		<b>102</b>		<b>94</b>				
40										
41	<b>Electricity Cost</b>	0.15	Euro	per kWh						
42										
43	<b>Daily Savings</b>	128.83	Euro	122.36	Euro	112.29	Euro			
44	<b>Daily Running Hours</b>	<b>8</b>	hours/day	<b>(107)</b>						
45	<b>Annual number of days operation</b>	<b>175</b>	days/year	<b>(111)</b>						
46	<b>Annual Energy Saving (Cost-2)</b>	<b>22,545.67 Euro</b>		<b>21,413.86 Euro</b>		<b>19,650.60 Euro</b>				
47										
48	<b>ECONOMICS</b>									
49										
50	<b>Estimate System Fully Installed Cost</b>	<b>5,140.00 Euro</b>								
51										
52	<b>Annual Cost Saving</b>	<b>22,038.52 Euro</b>		<b>21,109.57 Euro</b>		<b>19,498.46 Euro</b>				
53										
54	<b>Payback Period (months)</b>	<b>2.8</b>		<b>2.9</b>		<b>3.2</b>				



€ 507.00

€21,210.00

3 Month

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Difference between cost-2 & cost-1

# CARRIER, Model 30XA1402



High ambient temperature unit - LWT = 5°C

30XA	Air temperature, °C																								
	30					35					40					46					49				
	CAP kW	COMP kW	UNIT kW	COOL l/s	COOL kPa	CAP kW	COMP kW	UNIT kW	COOL l/s	COOL kPa	CAP kW	COMP kW	UNIT kW	COOL l/s	COOL kPa	CAP kW	COMP kW	UNIT kW	COOL l/s	COOL kPa	CAP kW	COMP kW	UNIT kW	COOL l/s	
252	267	69	79	13	13	257	76	85	12	12	247	84	93	12	12	233	93	102	11	10	225	99	107	11	
302	294	77	86	14	14	282	84	93	13	13	269	93	102	13	12	253	104	112	12	10	244	110	118	12	
352	320	84	93	15	16	307	93	102	15	15	292	101	110	14	14	273	114	123	13	12	264	121	129	13	
402	382	96	108	18	31	369	105	117	18	30	355	115	127	17	28	338	128	140	16	25	328	135	147	16	
452	440	113	125	21	34	425	124	136	20	32	408	136	148	19	30	387	153	164	18	27	376	161	173	18	
502	496	124	138	24	34	479	136	150	23	31	459	149	163	22	29	435	166	180	21	26	422	176	190	20	
602	599	154	171	29	42	578	169	186	28	39	556	185	202	26	36	527	206	223	25	33	512	218	234	24	
702	660	163	182	31	34	637	178	197	30	32	612	195	214	29	29	581	218	237	28	27	564	230	249	27	
752	708	190	209	34	35	683	208	226	33	32	658	228	246	31	30	625	254	273	30	28	607	269	287	29	
802	773	202	223	37	33	746	222	242	36	31	717	243	263	34	28	681	271	291	32	26	662	287	307	32	
852	818	206	230	39	36	789	226	249	38	34	758	248	271	36	32	720	277	299	34	29	699	293	315	33	
902	878	232	256	42	34	847	254	278	40	32	815	279	302	39	30	774	312	334	37	27	752	330	352	36	
1002	976	249	278	46	34	942	272	301	45	32	905	299	327	43	30	859	334	362	41	27	835	354	381	40	
1102	1119	281	312	53	39	1080	307	338	51	36	1038	336	367	49	34	985	376	405	47	31	957	397	427	46	
1202	1216	314	347	58	40	1174	344	376	56	38	1129	376	409	54	35	1073	421	452	51	32	1043	445	476	50	
1302	1322	346	379	63	44	1275	379	412	61	41	1226	416	449	58	38	1163	466	498	55	35	1106	478	509	53	
1352	1411	380	411	67	41	1360	417	448	65	38	1306	457	488	62	35	1238	512	542	59	32	1124	494	524	54	
1402	1433	363	404	68	43	1383	397	437	66	40	1330	436	475	63	37	1263	487	526	60	34	1228	515	554	58	
1502	1489	375	416	71	44	1436	411	451	68	41	1380	450	490	66	38	1309	504	543	62	35	1272	533	572	61	

**COP= 1383/397=3.48**

**COP= 1228/515=2.38**

**~30% POWER SAVING**  
**Say 400 RT (1,400 kW)**  
**402 kWe Vs. 588 kWe**  
**EcoMESH CONVENTIONAL**



# HOT CLIMATE

Saving between 49C Vs. 35C = 186 kW e

12 hours / day x 186 kW e = 2,232 kW e / day

275 days / year x 2,232 = 613,800 kW e/year

€0.15 / kW e x 613.800 kW e = € 92,070.00

Less water cost

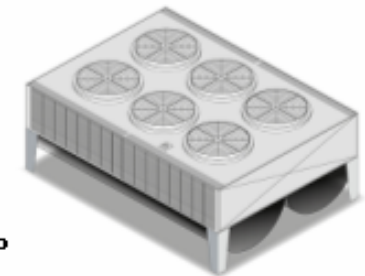
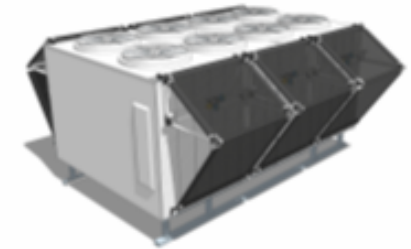
€0.75/m<sup>3</sup> x 1,594 m<sup>3</sup>/year = € 1,195.00

NET SAVING €90,875.00

UNIT INSTALLED COST € 5,000.00

**PAY BACK = 2 MONTHS**

19	Air Inlet Relative Humidity (%)	10	20	30	40	50	60	70	80	90
20										
21	Air Cooling across EcoMESH (DegC)	21.5	16.8	15.3	12.4	9.6	7.7	5.6	3.6	1.5
22										
23	<b>WATER CALCULATIONS</b>									
24		Hot Climate		Temperate Climate		Head Pressure Control				
25										
26	Water Consumption per nozzle (Lt/h)	10.5		6.3		3.15				
27										
28	System Total Water Consumption (Lt./h)	483		290		145				
29										
30	Daily Water Consumption (m3/day)	5.796		3.478		1.739				
31										
32	Annual Water Consumption (m3/PA)	1594		956		478				
33										
34	Annual Water Cost (Cost-1)	1,195.43	Euro	717.26	Euro	358.63	Euro			
35										
36	<b>ESTIMATED ENERGY SAVINGS</b>									
37		Air Conditioning		Refrigeration Chilled		Refrigeration Frozen				
38										
39	Energy Saving (kWh)	129		122		112				
40										
41	Electricity Cost	0.15	Euro	per kWh						
42										
43	Daily Savings	231.90	Euro	220.26	Euro	202.12	Euro			
44	Daily Running Hours	12	hours/day	(16)						
45	Annual number of days operation	275	days/year	(11)						
46	Annual Energy Saving (Cost-2)	63,772.05	Euro	60,570.63	Euro	55,583.13	Euro			
47										
48	<b>ECONOMICS</b>									
49										
50	Estimate System Fully Installed Cost	5,140.00	Euro							
51										
52	Annual Cost Saving	62,576.63	Euro	59,853.37	Euro	55,224.50	Euro			
53										
54	Payback Period (months)	1.0		1.0		1.1				



€ 1,195.00

€90,875.00

1 Month

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Difference between cost-2 & cost-1