

## **pCO control unit**

Microprocessor with 80 display characters and 14 push button LEDs.

It controls the temperature of the water, the fans, the pressures of the cooling circuit, etc. And it can handle up to 22 different alarm conditions. Various remote control solutions are available, ranging from a simple ON-OFF switch to the more complete BMS system. If the ambient temperature exceeds the limit, an "unloading" system will trip and step down the chiller capacity in order to prevent the machine from blocking.

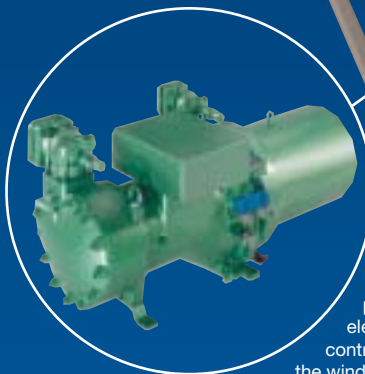


## **Fans**

With an external impeller and crescent-shaped aluminium blades. The fans are "step" controlled and therefore only some of them are stopped when the ambient temperature decreases. On request the fans can also be fitted with a continuous control system, a device that continuously varies the speed of rotation of all fans.

## **Condenser**

These feature a characteristic upside-down "M" shape and comprise four finned coils with copper tubes and aluminium fins. They are generously sized in order to work at elevated temperatures.



## **Compressors**

Double-screw semi-hermetic compressor cooled by primary intake refrigerant and protected by an electronic device that controls the temperature of the winding and by a lubricating oil level sensor. Fitted with an internal non-return valve on the discharge line. Each compressor is fitted with a crankcase heater.



## **Metal filters for condensers**

Aluminium filters with galvanised sheet metal frames to protect the surface of the condenser can be supplied on request. They are easy to remove and clean and feature an extremely high empty/full ratio. Available on request.

## **Casing**

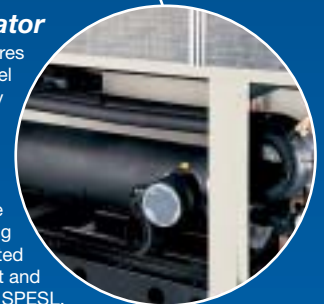
Made with galvanised carbon steel panels, subjected to phospho-degreasing treatment and painted with polyester powders.

## **Cooling circuit**

- Two or four independent cooling circuits.
- Thermostatic expansion valves with external compensation.
- High and low pressure transducers.
- Inspectable dehydrator filter.
- Flow indicator.

## **Evaporator**

Shell and tube evaporator features copper tubes and carbon steel shell. The tubes are internally finned to improve evaporator performance. The tubes are "U" bent to reduce size to a minimum. It is protected by a differential water pressure switch and an antifreezing sensor probe. It can be protected by an ambient thermostat and heating element on request. ISPESEL, TUV, SDM, etc., testing available.



## **Easy**

### *user friendly*

PHOENIX is controlled by a microprocessor control unit programmed to optimise compressor, fan and pump operation and to ensure efficient work both the cooling and hydraulic circuits work efficiently. The digital display allows monitoring of the chilled water temperature at a glance and provides information on all operating parameters. The chillers can also be remote-controlled or connected to BMS systems on request.

## **Simple**

### *to install and service*

To install the PHOENIX chiller, simply connect it to the main electrical power and water supplies. No other operations on the machine are required. The components are easy accessible in order to simplify both routine and extraordinary maintenance operations.

## **Ecological**

### *R407c*

### *ISO 9001*

Because the use of HFC R407c doesn't damage the ozone layer. Because they save energy thanks to the highly efficient compressors. Because a chilled water air-conditioning system doesn't require primary refrigerant in rooms where people live and work. Because they have been designed and produced in accordance with the MTA Environmental Management System which complies with ISO 14001 standards.

PHOENIX	model	PH	0232	0290	0347	0399	0443	0466	0515	0567	0617	0663	0715	0768	0802	0841	0876	0969	1008	1134	1234	1326	1430	1536
<b>C</b>	cooling capacity	kW	232	290	347	399	443	466	515	567	617	663	715	768	802	841	876	969	1008	1134	1234	1326	1430	1536
	absorbed power	kW	80	100	110	129	135	147	162	177	186	198	209	222	258	286	312	314	333	354	372	396	418	444
	max. ambient temperature	°C	44	44	46	46	45	45	45	45	46	46	47	47	47	46	43	43	44	46	47	46	47	47
	noise level (1)	dB(A)	64.2	66.6	64.2	61.2	64.1	63.8	64.2	63.7	64.0	62.4	65.9	63.1	64.1	65.1	65.1	65.1	65.3	66.7	67.0	65.5	69.0	66.1
	n. cooling circuit (2)	n.	2	2	2	2	2	2	2	2	2	2	2	2	2	4	4	4	4	4	4	4	4	4
	n. modules	n.	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2
depth (3)	L mm	3295	3295	3295	3295	4260	4260	4260	4260	4260	5165	5165	6100	6100	6100	6100	6100	7035	8520	10330	10330	12200	12200	
weight	kg	2141	2276	2662	2616	3162	3249	3249	3607	4003	4480	4795	4878	4976	5407	5519	5535	6243	8006	8960	9590	9756	9952	
<b>SC</b>	cooling capacity	kW	213	267	322	372	417	436	478	523	576	620	674	726	746	778	804	899	927	1046	1152	1240	1348	1452
	absorbed power	kW	87	110	119	140	146	160	176	191	200	215	226	240	281	314	346	342	362	382	400	430	452	480
	max. ambient temperature	°C	41	40	43	43	42	42	42	42	43	43	44	44	44	42	39	39	41	40	42	43	44	44
	noise level (1)	dB(A)	55.7	58.1	57.2	56.7	57.4	57.1	56.7	56.7	57.7	58.8	58.7	58.4	58.4	58.6	58.4	58.4	58.5	58.5	60.7	61.8	61.4	61.4
	n. cooling circuit (2)	n.	2	2	2	2	2	2	2	2	2	2	2	2	2	4	4	4	4	4	4	4	4	4
	n. modules	n.	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2
depth (3)	L mm	3295	3295	3295	3295	4260	4260	4260	4260	4260	5165	5165	6100	6100	6100	6100	6100	7035	8520	10330	10330	12200	12200	
weight	kg	2141	2276	2662	2616	3162	3249	3249	3607	4003	4480	4795	4878	4976	5407	5519	5535	6243	8006	8960	9590	9756	9952	
<b>SF</b>	cooling capacity	kW	249	307	357	410	454	488	546	604	653	689	724	761	793	820	864	908	976	1092	1208	1306	1378	1448
	absorbed power	kW	73	93	107	124	129	137	150	164	174	188	207	225	262	248	253	258	274	300	328	348	376	414
	max. ambient temperature	°C	48	47	47	47	47	47	47	48	48	48	48	46	46	45	47	47	47	48	48	48	48	48
	noise level (1)	dB(A)	56.4	56.4	57.4	56.9	57.5	56.9	56.9	57.0	57.7	58.8	58.8	58.3	58.5	58.7	60.0	60.2	60.5	60.0	60.7	61.8	61.8	61.3
	n. cooling circuit (2)	n.	2	2	2	2	2	2	2	2	2	2	2	2	2	4	4	4	4	4	4	4	4	4
	n. modules	n.	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2
depth (3)	L mm	3295	3295	4260	4260	5165	5165	6100	6100	6100	7035	7035	7035	7035	7035	8520	8520	10330	12200	12200	14070	14070	14070	
weight	kg	2338	2497	3022	3095	3638	3745	4394	4818	5229	5563	5595	5605	5605	5801	6190	6733	7276	7490	8788	9636	10458	11126	
<b>SSF</b>	cooling capacity	kW	231	284	328	378	425	457	511	560	613	643	671	700	713	756	803	849	915	1022	1120	1227	1285	1342
	absorbed power	kW	80	103	117	137	141	150	164	179	189	206	229	252	294	274	278	282	300	328	358	378	412	458
	max. ambient temperature	°C	45	43	44	43	44	44	44	45	45	45	45	42	42	40	43	43	44	45	45	45	45	42
	noise level (1)	dB(A)	51.5	50.8	52.7	52.1	52.2	52.2	52.2	52.3	52.8	52.7	52.6	52.8	52.7	53.2	55.1	55.2	55.3	55.2	55.8	55.7	55.6	55.8
	n. cooling circuit (2)	n.	2	2	2	2	2	2	2	2	2	2	2	2	2	4	4	4	4	4	4	4	4	4
	n. modules	n.	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2
depth (3)	L mm	3295	3295	4260	4260	5165	5165	6100	6100	6100	7035	7035	7035	7035	7035	8520	8520	10330	12200	12200	14070	14070	14070	
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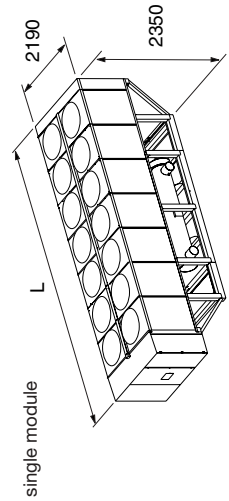
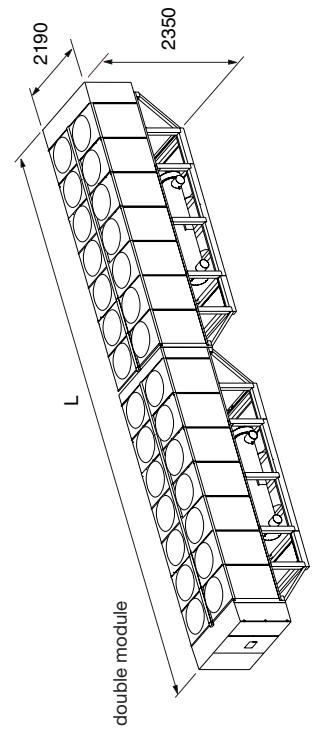
electric supply 400V / 3Ph / 50 Hz

All the data in table refers to the following nominal conditions: inlet water temperature 12°C, outlet water temperature 7°C, ambient temperature 35°C.

(1) Sound pressure level in open field (hemispherical irradiation) on condenser side at distance of 10 m and height of 1.2 m.

(2) Each cooling circuit is fitted with a single compressor.

(3) The other dimensions for all the machines are: width 2190 mm and height 2350 mm.



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# Phoenix

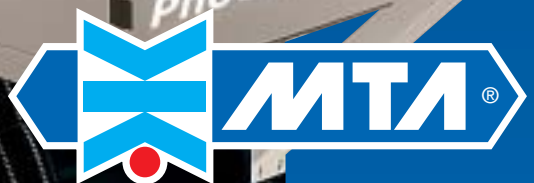
air cooled **water chillers**

for  
**air-conditioning**

nominal cooling capacity  
**from 213 to 1536 kW**

TWIN **screw** semi-hermetic compressors

**R407c**  
**50 Hz**



# Phoenix

## **Perfect**

*For commercial and domestic air-conditioning systems*

Constant research, experienced designers and the increasingly more qualified and diversified requirements of its customers has led MTA to produce the PHOENIX range of air-cooled water chillers, the perfect solution for commercial and domestic air-conditioning systems. These can be used to air-condition both homes and public buildings such as shopping centers, conference halls, hotels, etc.



## **Innovative shape**

MTA designers put a lot of work into devising a structure for improving the performance of the chillers. The result was the innovative "trapezoid" structure of the base which both reduces floor area and considerably improves the cooling air flow to the condenser.

## **Extremely low vibration levels**

Twin-screw compressors use two coupled axial rotors, which rotate around their axis without producing any extra movement when pushing the refrigerant. This ensures a uniform and continuous flow of gas, which in turn ensures the absence of beating and vibration on the cooling circuit.

## **Step capacity control**

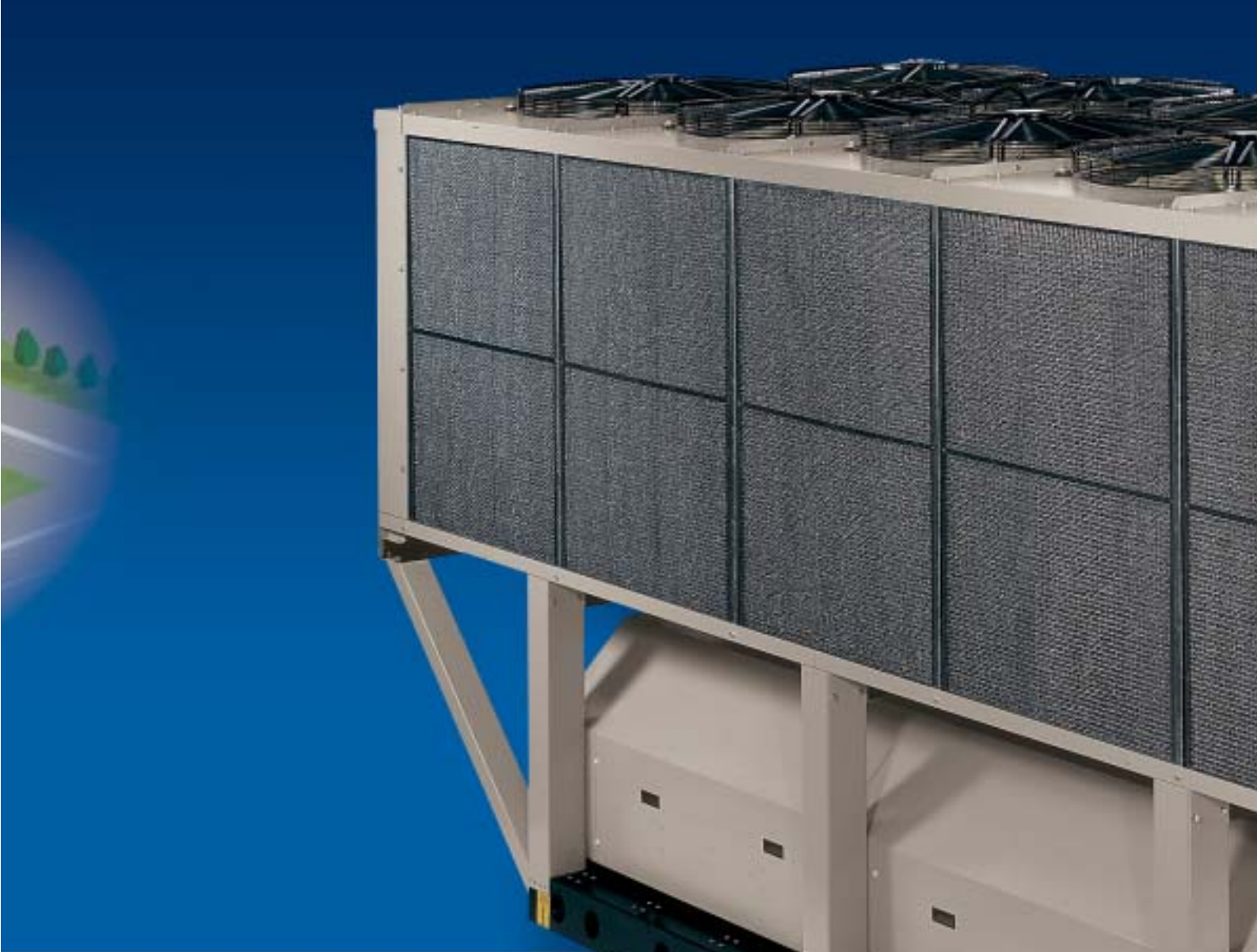
Twin-screw PHOENIX compressors provide 6 or 8 step capacity control of the cooling capacity; therefore, each unit can optimise cooling capacity according to the power requirements of the user.



## **Simpler cooling circuit**

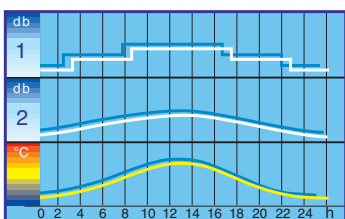
Therefore, PHOENIX chillers can be installed where it is required to work with extremely low vibration.

The use of twin-screw compressors and the absence of vibration ensures a simple and compact cooling circuit without the need for mufflers and vibration dampers. This results in a saving of labour, space and components.



## Quiet

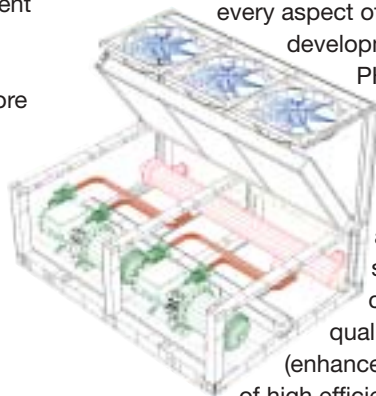
PHOENIX water chillers use fans with crescent-shaped blades, specifically designed to reduce noise to a minimum. To cater for all requirements, “step” (1) or continuously (2) controlled fans can be chosen. When the ambient temperature decrease the controller proporzionally reduce the fan speed. The noise level of the machine therefore is lower when it is most needed. In fact, in the evening, in the morning and, especially, at night, the ambient temperature decreases along with the noise level.



## Reliability

*The result of MTA technology, research and experience*

Leading edge technology has been used in every aspect of the development of



PHOENIX. MTA Research and Development has utilised in-house design and simulation software, combined with quality components (enhanced by the choice of high efficiency twin-screw compressors) and modern production techniques ensuring total reliability.

## Four versions

*suitable for all requirements*

Four versions are available for each model:

- “C” basic version for normal applications.
- “SC” basic version soundproofed for reduced noise, in not excessively high ambient temperatures .
- “SF” silent version for high ambient temperatures.
- “SSF” extra soundproofing version for normal ambient temperatures.



## **Tested**

*just like every MTA product and component*

PHOENIX water chillers and are individually tested under all working conditions in fully computerised testing chambers fitted with a complete set of high precision tools.

Temperatures, pressures, loads and electrical values are measured. All the results are filed to ensure a quick traceability.



## **Guaranteed and serviced**

MTA products are designed, built, tested and serviced following the procedures of the MTA Quality System. MTA obtained Quality System certification in compliance with ISO 9001 standards from the ICIM Certification Institute in July, 1996.

Particulars attention is dedicated to the servicing network, the training of technicians, territorial coverage and servicing speed and efficiency.



**Cooling, drying and caring.**