

water/refrigerant heat exchanger and tank

The Tank is made in carbon steel, suitable for being connected to closed hydraulic circuits. The water/refrigerant heat exchanger is a stainless steel plate type, braze welded with copper alloy. Up to model 016 the heat exchanger is inside the tank. For higher models, the heat exchanger is external to the tank. From 024, the unit can be also supplied with only the plate heat exchanger. In this case, it is fitted with a antifreezing heater controlled by the electronic board to protect the evaporator from the danger of freezing.

air/refrigerant heat exchanger

This comprises one or more finned pack batteries with copper tubes and aluminium fins. It is generously sized in order to work at high room temperatures.

air/refrigerant heat exchanger protection grill

Standard on all models. Protects from contact with the unit and condensor surface. Feature an extremely high empty/full ratio.

Cooling circuit

- Capillary (CG006 and CG007) or thermostatic expansion tank
- Flow indicator from model 015 up
- High and low pressure switches
- Dehydrator filter
- Reverse cycle valve (HCYGNUS)

Hydraulic circuit

- comprises:
- Differential pressure switch.
 - Pump*
 - Tank*
 - Expansion tank*.
 - Water inlet cock*.
 - Pressure gauge*.
 - Manual air-bleed valve*.
 - Safety valve.
 - Drain cock*.
 - Water filter (separately supplied up to 016 model).
- (*) optional from model 024 up

Axial fan

With external impeller and crescent-shaped aluminium blades. Features low noise level and variable fan speed control depending on condensation temperature.

Centrifugal fan

Double intake with impeller directly keyed to the shaft of the electric motor. On request, it possible to have the electronic control of the fan speed as a function of the condensation temperature.

Compressor

Hermetic Scroll compressor cooled by primary intake refrigerant and protected by thermal and current relays. Features high energy efficiency (COP) and very low vibration and noise levels.

Casing

This is made with galvanised carbon steel panels, subjected to phosphodegreasing treatment and painted with polyester powders.

Control unit

The terminal display has 1 line showing 3 characters and 4 buttons to program the unit. Handless up to 6 alarms and can programme up to 30 function parameters. Real-time read out of water outlet and inlet temperature from unit.

Easy *user friendly*

CYGNUS chillers and HGYGNUS heat pumps are controlled by a microprocessor control unit programmed to optimise compressor, fan and pump operation and to ensure both the cooling and hydraulic circuits work efficiently. The digital display allows monitoring of the chilled water temperature at a glance.



Simple *to install and service*

To install a chilled water air-conditioning system complete with pump, tank, expansion tank, just connect the CYGNUS chiller or the HGYGNUS heat pump to the main power supply and the water supply, thereby making considerable savings on labour, costs and components. The panels of the chiller and heat pump are easy to remove for total accessibility and simple servicing.

Ecologicals *R407c* *ISO 9001*

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

CYGNUS / HCYGNUS		model CG / HCG	006 CA	007 CA	011 CA	016 CA	024 CA	033 CA	040 CA	049 CA	057 CA	066 CA
CG	Cooling capacity	kW	6.1	7.4	11.1	15.9	23.8	32.9	40.5	49.1	56.8	66.3
		kcal/h	5246	6364	9546	13674	20468	28294	34830	42226	48848	57018
	Compressor absorbed power	kW	1.9	2.3	3.5	5.0	7.4	10.3	12.7	15.3	17.8	20.7
HCG	Heating capacity	kW	7.6	9.4	13.7	19.0	29.3	38.3	47.5	59.3	67.1	72.0
		kcal/h	6536	8084	11782	16340	25198	32938	40850	50998	57706	61920
	Cooling capacity	kW	5.7	6.9	10.4	14.9	22.0	30.5	37.6	45.2	52.8	61.5
		kcal/h	4902	5934	8944	12814	18920	26230	32336	38872	45408	52890
Compressor absorbed power	kW	2.0	2.5	3.6	5.0	7.7	10.1	12.5	15.6	17.7	19.0	
Max. compressor absorbed power	kW	2.1	2.7	3.7	5.3	8.0	11.6	14.6	16.1	19.8	23.2	
Power supply	V/F/Hz	230 / 1 / 50			400 / 3 / 50 (1)							
Tank capacity	l	12	12	25	25	45	45	45	75	75	75	
Pump	water flow / available pressure (CG)	m ³ /h / bar	5.0 / 1.7	1.3 / 1.4	1.9 / 1.3	2.7 / 1.1	4.1 / 2.1	5.7 / 1.8	7.0 / 1.7	8.4 / 2.5	9.8 / 2.2	11.4 / 2.0
	water flow / available pressure (HCG) (2)	m ³ /h / bar	1.3 / 1.6	1.6 / 1.3	2.4 / 1.3	3.3 / 2.1	5.0 / 1.9	6.6 / 1.4	8.2 / 1.3	10.2 / 2.1	11.5 / 2.0	12.4 / 2.0
	max. absorbed power	kW	0.55	0.55	0.55	0.55	0.75	0.75	0.75	1.1	1.1	1.1
Axial fan	number	n.	1	1	1	1	1	2	2	2	2	2
	noise level (3)	dB(A)	41	41	47	47	47	47	49	49	49	53
	max. absorbed power	kW	0.16	0.16	0.77	0.77	0.77	1.54	1.54	1.54	1.54	1.54
Centrifugal fan	number / air flow	n. / m ³ /h	1 / 3100	1 / 3100	1 / 7000	1 / 7000	2 / 8300	2 / 12200	2 / 12200	3 / 16400	3 / 16000	3 / 16000
	available pressure (CG / HCG)	Pa	107	107	89	89	291	92	92	215	226	226
	noise level (4)	dB(A)	45.5	45.5	55.6	55.6	51.2	57.7	57.7	55.4	55.4	55.4
	max. absorbed power	kW	0.51	0.51	1.1	1.1	2.2	2.2	2.2	3.3	3.3	3.3
Dimensions	Width	a	mm	540	540	746	746	747	747	747	860	860
	Depth	L	mm	996	996	1109	1109	1735	1735	1735	2216	2216
	Height	h	mm	878	878	1024	1024	1213	1213	1213	1448	1448
	Height	g	mm	1372	1372	1532	1532	1721	1721	1721	1972	1972
Weight	kg	125	128	185	197	308	332	357	478	606	612	
Water connections	BSP	3/4"	3/4"	1"	1"	1 1/2"	1 1/2"	1 1/2"	2"	2"	2"	

All the data in the table (except the max.) refers to the unit with axial fans and at the following nominal conditions: in chiller mode, water inlet temperature 12°C, water outlet temperature 7°C and ambient temperature 35°C. In heat pump mode, water inlet temperature 40°C, water outlet temperature 45°C and ambient temperature 10°C.

- (1) It's necessary the neutral.
(2) Available pressure to process.
(3) Sound pressure level in free field at a 10 m distance from the unit at air/refrigerant heat exchanger and at 1.2 m from the ground.
(4) Noise level value correlated to the air flow rate indicated.

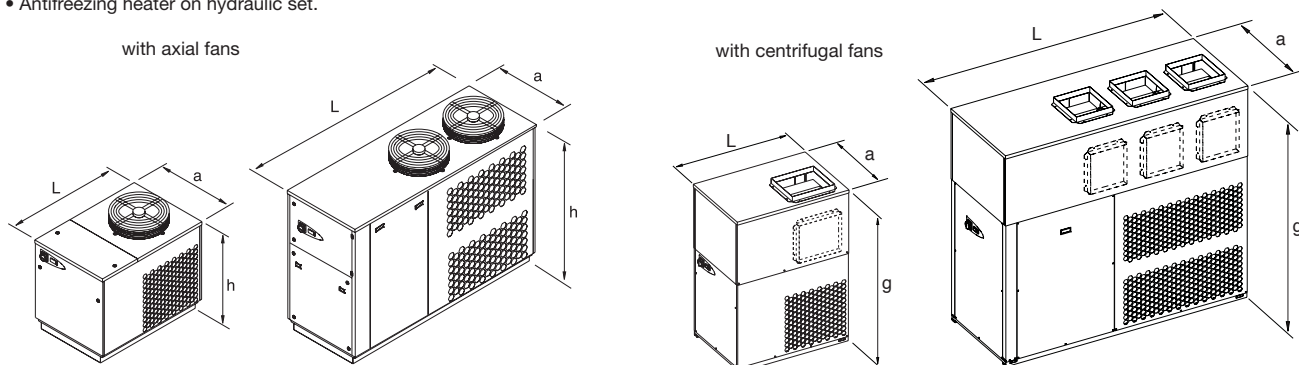
Sound pressure level at distance L; $dB(A)_L = dB(A)_{10m} + D$

Distance	L	1	3	5	10
	D	15	9	5	0

Maximum working ambient temperature in chiller mode is 46°C.
Minimum working ambient temperature in heat pump mode is -5°C.
Maximum working pressure with hydraulic kit it is 3 bar, without hydraulic kit it is 6 bar.

Accessories and optional equipment

- **Hydraulic kit from model CG/HCG 024:**
pump, tank, expansion tank, drain cock, water inlet cock, pressure gauge, air-bleed valve and water filter (separately supplied up to model CG/HCG 016).
- **Remote control unit:**
with the same functions as the basic machine card (max. distance 150 m).
- **Centrifugal fan with electronic control of the fan speed.**
- Antifreezing heater on hydraulic set.



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Cygnus

air cooled **water chillers**

nominal cooling capacity
from 6 to 66 kW

HCygnus

air to water **heat pumps**
with reversible cycle

nominal heating capacity
from 7 to 72 kW

for chilled water
air-conditioning
systems

R407c



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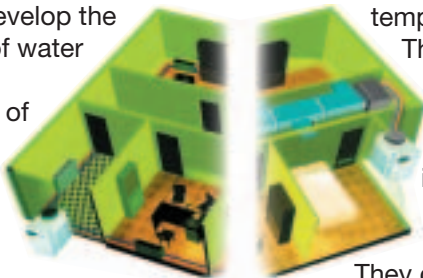
the easy conditioner



Perfect

for commercial and domestic chilled water air-conditioning systems

Continuous research, experienced designers and the increasingly more qualified and diversified requirements of its customers has led MTA to develop the CYGNUS range of water chillers and the HCYGNUS range of heat pumps. The perfect solution for commercial and domestic chilled water air-conditioning systems. A chilled water air-conditioning system comprises a water chiller or heat pump connected to one or more internal units (fan coils) or to a



ducted air processing unit. The chiller or heat pump is installed outdoor while the internal units precisely control the temperature and humidity.

The growing success of chilled water air-conditioning systems is due to their ease of installation and their suitability for many different requirements.

They can be used in renovation work or in new constructions such as apartments, villas, professional studios, shops, offices, public buildings, hotels and residences, etc.

Complete

and compact

Chilled water air-conditioning systems always require a pump, a water tank and a series of accessories to be installed. The CYGNUS water chillers and HCYGNUS heat pumps are completely packaged. They include all the hydraulic components required for a chilled water air-conditioning system: tank, pump, expansion tank, air-bleed valve, charge/discharge valve. The external water circuit is therefore extremely simplified, allowing an easy, low cost installation. Moreover, the configuration of the internal components has been specifically designed to give a small, compact unit.



Reliability

The result of MTA technology, research and experience

Leading edge technology has been used in every aspect of the development of the CYGNUS chillers and HGYGNUS heat pumps. MTA Research and Development has utilised in-house design and simulation software, combined with quality components (enhanced by the choice of SCROLL compressors) and modern production techniques ensuring total reliability.

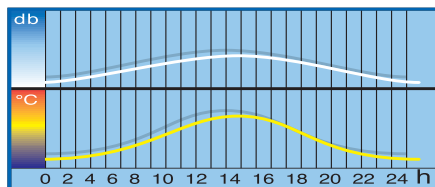
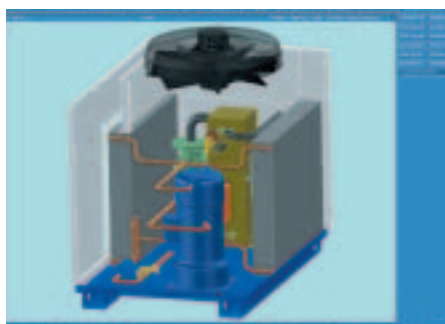
Silent

CYGNUS water chillers and HGYGNUS heat pumps use fans with crescent-shaped blades, specifically designed to reduce noise to a minimum. This is enhanced by the use of SCROLL compressors and the continuous control of the fan speed depending on the condensing temperature. Indeed, in the chiller mode, in the evening, in the morning and, especially, at night, room temperature decreases and, with it, also the noise level.

Centrifugal fan kit

versions with centrifugal fans for ducted installation

A simple kit makes it possible to replace axial fans with centrifugal fans. CYGNUS and HCYGNUS can therefore be installed inside insufficiently ventilated rooms where the air flow needs to be ducted. Also, on request, it is possible to have continuous control of the fan rotation speed depending on the condensation pressure. As needed, the duct opening can be positioned on the top or on the side of the unit.





Heat pump

with reversible cycle

An air-to-water heat pump is a cooling unit which transfers the heat from the evaporator's surrounding air and from the electric power absorbed by the cooling compressor to the water which flows in the condenser. The heat pump with reversible cycle can also work as a water chiller for summer air conditioning. For this reason, heat exchangers are designed to function as both evaporators and condensers.

Tested

just like every MTA product and component

CYGNUS water chillers and HGYGNUS heat pumps 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 contained in the MTA Quality System. MTA obtained Quality System certification in compliance with ISO 9001 standards from the ICIM Certification Institute in July 1996. Particular attention is dedicated to the servicing network, the training of technicians, territorial coverage and servicing speed and efficiency.



Cooling, drying and caring.