

PRODUCT GUIDE

Industrial Process Cooling



PURE ENERGY



Cooling your industry,
optimising your process.



Cooling, conditioning, purifying.



Cooling, conditioning, purifying.

ENERGY FOR



A company built on solid foundations

Founded over 30 years ago with the aim of providing innovative energy solutions, today MTA covers a role of Global leader within the fields of compressed air & gas purification, industrial process cooling and the conditioning of commercial and residential ambients, providing unique answers to individual Customer needs. MTA's mission is to maximize Customer satisfaction by means of expert support, implementing optimized solutions with a minimal environmental impact.



Expert consultancy and service

MTA's energy lies within its people, with a dedicated team of experts focused to a single aim, that of satisfying and exceeding the needs and requests of its Customers. Continuous Business Process updates, coupled with advanced operating procedures, ensure MTA remains at the forefront of corporate development. MTA's worldwide network of expert personnel receive continuous and extensive training, to ensure that everybody representing MTA assumes the role of expert consultant towards its Customers.



The power of a global team

MTA boasts 3 production facilities, Sales Companies covering 4 continents and a network of Partners in over 80 countries worldwide. The expert international service network is backed up by a comprehensive worldwide spare parts coverage. MTA products, designed for operation worldwide, comply to local legislations. Advanced supervision technology, including web browser and GPRS connectivity, ensures peace of mind wherever you may be.

MODERN INDUSTRY'S INCREASING LEVELS OF SOPHISTICATION AND CAPITAL INVESTMENT IMPLY THAT HIGHEST PRECISION WITH ZERO DOWNTIME ARE AN ABSOLUTE MUST FOR AN ECONOMICALLY VIABLE PROCESS. MTA'S COOLING SOLUTIONS, DEVELOPED SPECIFICALLY FOR INDUSTRIAL USERS, PERFECTLY ANSWER INDUSTRY'S NEED FOR PRECISE TEMPERATURE CONTROL AND ABSOLUTE RELIABILITY, 24 HOURS A DAY, 365 DAYS A YEAR. THE COST OF NOT IMPLEMENTING THE OPTIMISED SOLUTION FAR EXCEEDS THE COST OF AN OPTIMISED MTA INDUSTRIAL COOLING SOLUTION.

THE MTA GLOBAL TEAM



MTA AUSTRALASIA PTY. LTD



MTA FRANCE S.A.



MTA ROMANIA SRL



MTA DEUTSCHLAND GMBH



M.T.A. S.P.A. - ITA



MTA USA, LLC



NOVAIR-MTA, S.A. - E



MTA UK LIMITED



MTA IS REPRESENTED IN OVER 80 COUNTRIES WORLDWIDE, OFFERING KNOWLEDGEABLE CONSULTANCY AND SERVICE SUPPORT

8 MTA GROUP SALES COMPANIES COVER 4 CONTINENTS. WHEREVER YOU MAY BE, MTA IS ALWAYS CLOSE AT HAND.

THE FUTURE



A partner you can trust

MTA's success has been built upon its reputation within the marketplace, with endless renowned companies worldwide placing their trust in MTA to supply them with the optimum solution to their needs. MTA's flexibility towards special Customer solutions ensures each and every need can be satisfied. Continuous communication and cooperation with its Partners and Customers ensures MTA creates a team spirit with an aim towards excellence and long-term collaboration.



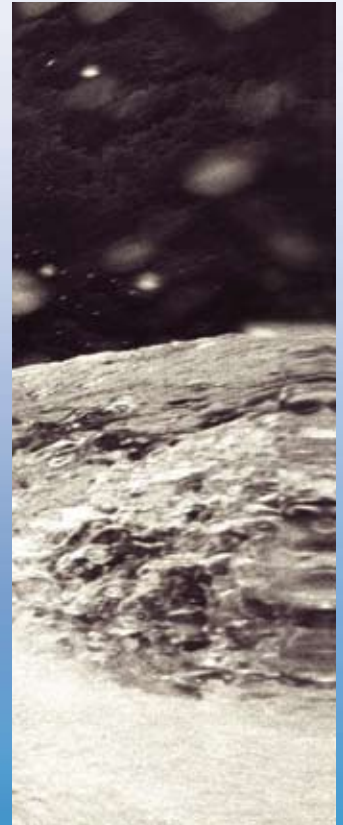
Pioneering innovation

MTA's future is founded upon the principals of innovation and excellence. Unique Customer solutions are born from a notable and continuous investment in R&D. Numerous patented products and state-of-the-art testing facilities ensure MTA products are not only highly advanced, but also extremely reliable. MTA's production facilities offer flexible manufacturing processes with extensive individual testing of each and every product leaving the factory. MTA is ISO9001:2000 certified.



Environmental commitment

MTA's very first product, a patented refrigeration dryer offering a new dimension in energy savings, set the path which has been followed ever since. Today MTA boasts novel products ensuring a minimal environmental impact and offers expert consultancy concerning energy savings within Customer applications. MTA's facilities and processes meet the requirements of ISO 14000 environmental legislations. MTA strives to ensure its success also benefits the ambient in which it operates.



Application driven Customer solutions

MTA's success is based upon understanding Customer applications. At MTA the aim is not to merely supply products, rather to fully maximize Customer potential. The following are just some of the sectors where MTA excels: plastics & rubber, lasers, food & beverage, chemical, pharmaceutical, metal working, machine tools, welding, rental, wine, natural gas treatment, residential & commercial air conditioning, industrial air conditioning. So whatever your application, MTA has the answers.

MANUFACTURING

TRIBANO - ITALY



CONSELVE - ITALY



BAGNOLI - ITALY



MTA'S FACILITIES OFFER ADVANCED MANUFACTURING TECHNOLOGY AND ATTENTIVE QUALITY CONTROL FOR EACH INDIVIDUAL UNIT.

CERTIFICATIONS



MTA is ISO9001 certified, a sign of its commitment to complete customer satisfaction.



MTA products comply with European safety directives, as recognised by the CE symbol.



MTA participates in the E.C.C. programme for LCP-HP. Certified products are listed on: www.eurovent-certification.com

MTA'S QUALITY IS REFLECTED IN NUMEROUS CERTIFICATIONS, OF WHICH THE ABOVE ARE MERELY A SMALL SAMPLE.

THE PERFECT SOLUTION...

Achieving a successful industrial cooling solution is an art: the art of perfectly answering the specific needs of each and every industrial application; the art of understanding that individual applications differ significantly, and require significantly differing process cooling solutions; the art of ensuring that each and every application, however complex, benefits from precise temperature control and utmost reliability at all times. MTA benefits from over 30 years experience in industry, its experience matured in the most diverse applications imaginable. MTA's customers can be found on all continents, with expert personnel in over 60 countries ready to provide advice and support to its customers. MTA's reputation has been gained thanks to some of the most famous names in the industrial market, companies which have chosen MTA as

their partner for their individual cooling needs. MTA's vast product range, specifically designed for the industrial user, offer an endless list of options and accessories to personalize them to the individual need. To this one should add the ability to create special products tailored to specific customer needs. Which brings us to the secret of our success, truly and completely understanding your application. But not just understanding it: more importantly, understanding how to perfectly solve its cooling needs. Whichever your application, however particular and diverse it may be, chances are MTA has already successfully solved a similar problem in the past. So ask yourself: do I merely want a product which cools, or do I want an optimised solution to my specific industrial application? An MTA solution.

HYDRAULIC CONTROL UNIT OIL COOLING

LABELS

FERMENTATION

EXTRUSION

WELDING

PROFILING

PAPER

AIR COMPRESSOR COOLING

BOTTLING

RUBBER

PROCESSING OF METALS

CUTTING MACHINERY

THERMOFORMING

CERAMICS

RENTAL

VEGETABLE & SALAD PROCESSING

• Plastics & rubber

presses, injection moulding, extrusion (sheet & profile), blow moulding, thermoforming, PET

• Lasers

(with a specific Laser chiller) cutting, welding, profiling, optics, medical, engraving

• Food & drinks

confectionary, bakeries, distilleries, breweries, wineries, dairies, bottling, carbonation, meat & fish processing, vegetable & salad processing, storage

• Chemical & pharmaceutical

jacketed vessels, polyurethane foam mixers, natural gas, industrial cleaning, laboratories, healthcare, solvents, paints

• Metal working

processing & transformation of precious metals, aluminium working & processing

• Mechanical & Engineering

machine tools, welding machines, rolling mills, presses, extruders, cutting, profiling, polishing, electric spark machinery, hydraulic control unit oil cooling, pneumatic transport, heat treatment

• Paper & related applications

printers, cardboard, labels, plastic film

• Other applications

ceramics, textiles, wood, rental, air compressor cooling, other applications.

...WHATEVER THE APPLICATION

LASER



The performance of high power excimer, CO₂, diode or ion lasers is strictly dependent upon the efficiency and precision of the relative cooling systems. MTA offers a range of chillers specifically developed for Laser applications. These ensure highest system operating stability, thus achieving the following three goals: maintenance of a preset wavelength; high beam quality (of paramount importance, for example, in cutting or marking applications in which overheating of the crystal can lead to thermal lensing); a reduction in the thermal stress to which the laser components are subjected, with a consequent increase in their working life and a decrease in maintenance costs. The TAE^{ew} Laser ranges were specifically developed by MTA to meet the specific needs of this

industrial sector. The integrated fine temperature control System, featuring a hot gas by-pass valve, is combined with generous sizing of the storage tank installed inside the unit, ensuring minimal temperature fluctuations down to $\pm 0,5$ °C, thereby guaranteeing the operating stability of the system and an unvarying laser wavelength. The NON-FERROUS hydraulic circuit protects the purity of the process fluid, thereby avoiding contamination phenomena or "scaling", of the laser source and optics. The precise and stable temperature control of the laser allows it to work with the optimal wavelength, with minimal power variations and an optimised beam quality. Lasers: just one of a multitude of applications where MTA is leader.

CUTTING

MEDICAL

PRINTERS

WOOD

LASER

CARDBOARD

PLASTIC FILM

ENGRAVING

IMMERSION BATHS

CHEMICAL

HEALTHCARE

WELDING

JACKETED VESSELS

OPTICS

PHARMACEUTICAL

An MTA chiller, optimized for utilization in a multitude of chemical and pharmaceutical applications, constitutes a reliable and economically viable system solution.

The chiller must not only ensure continuity of the process, but must also adapt its cooling capacity output as rapidly as possible to match fluctuations in the system cooling demands, ensuring perfect temperature control at all times and in every condition imaginable. Chemical and pharmaceutical industries benefit notably from the implementation of an MTA chiller. MTA chillers respond perfectly to the specific needs of such applications as they are able to guarantee a

high level of reliability by means of field-proven design and refrigerant circuit redundancy, as well as very high control precision thanks to their close temperature control properties, achieved by hot gas injection or continuous cooling capacity control. MTA chillers can be equipped with stainless steel frames and coated condensing coils for the use in plants which utilize aggressive fluids. In addition, when a very high level of process fluid purity must be guaranteed, the units can be supplied with a NON-FERROUS hydraulic circuit. Chemicals and pharmaceuticals: just one of a multitude of applications where MTA is leader.

CHEMICAL & PHARMACEUTICAL

VINIFICATION



Wine: the product of a complex blend of art and science.

The precise control of process temperatures is one of the primary requirements in modern winemaking. This ensures high productivity levels and, above all, guarantees the unique properties of the product which reaches the consumer's table. Temperature control is also a fundamental factor in the maturing and storage processes wines are subject to, which are a key factor in guaranteeing the optimal quality which is essential to compete on the world market.

MTA chillers are utilised for precise cooling during fermentation control, a highly critical role since overheating of the must can inhibit the fermentation reaction, with

devastating effects on production; MTA chillers are also utilised to keep storage vats at exactly the required temperature. Another application is sub-zero temperature cooling in the production phases of purification and tartaric stabilisation. Purification leads to static sedimentation of vegetable impurities in the must; during tartaric stabilisation sudden chilling causes the precipitation of potassium bitartrate crystals, which prevents the formation of unsightly sediments after bottling. In the fine line between an excellent wine and an ordinary one, MTA's cooling solutions play a fundamental role in the quest for excellence.

Vinification: just one of a multitude of applications where MTA is leader.

STORAGE PRESSES CUTTING
BREWERIES FERMENTATION EXTRUSION
ENOLOGY INJECTION MOULDING
BOTTLING PET **PLASTICS**
DISTILLERIES THERMOFORMING
CARBONATION BLOW MOULDING

Precision temperature control in plastics production processes ensure enhanced quality and dimensional stability of the finished product. As such the use of efficient thermoregulation is a fundamental precondition for the qualitative and aesthetic properties of plastic components in addition to constituting an important factor in reducing the duration of production cycles. Incorrect process temperature control can lead to surface flaws of the finished product including roughness, blisters, and opacification, as well as structural defects including impairment of the mechanical properties and dimensional instabilities. MTA water chillers perfectly respond to the general requirements of industrial applications, i.e. absolute reliability, the capacity to handle abrupt changes in thermal load and flexibility in operation. They also comply with the following specific requirements of the plastics industry: high

available head pressures, the necessity to overcome the pressure drops associated with complex mould cooling channels, the ability to operate with high temperature gradients and the operating flexibility offered by their hydraulic bypass. MTA chillers are used efficiently for the cooling of moulds, the hydraulic circuits of injection moulding machines, tanks, extrusion heads, rolls and thermoforming dies. Since the hydraulic oil temperature is higher than the ambient temperature for most of the year, in many cases the application of MTA chillers with integral free-cooling, or RWD liquid coolers, proves economically beneficial. These solutions utilise ambient air to cool the process fluid free of charge, thereby eliminating energy wastages caused by running the refrigerant compressors during winter periods. Plastics: just one of a multitude of applications where MTA is leader.

PLASTICS



RENTAL

MTA invariably represents the ideal solution for all types of temporary cooling needs.

Industrial process cooling is witnessing a rising trend among companies towards the support of specialist water chiller rental companies, especially when the need for cooling is for a limited period, thereby not justifying the outright purchase of a water chiller.

Processing of seasonal food products, ice-skating rinks, or more generally the need to urgently replace a faulty chiller within a continuous cycle line or the need to cope with sudden production peaks are just some of the examples of temporary applications in which the use of a rental chiller may be the most viable option.

MTA possesses the capability and experience to meet the individual

requirements of rental companies, thanks to a large number of product ranges, with capacities from 1kW to 1718kW, and thanks also to the comprehensive availability of differing configurations and accessories, including numerous dedicated solutions designed specifically for the plant hire industry. The special structure of MTA chillers destined for rental applications features a series of reinforcements, including lifting frames that allow safe and easy handling in even the most critical conditions. Thanks to their compact design and plug-and-play configuration, with all the main hydraulic components installed within the unit, connection to existing hydraulic plants is notably simplified, with consequent savings in installation times and costs. Plant hire: just one of a multitude of applications where MTA is leader.

TEXTILES

PAINTS

MACCHINE PER SALDATURA

RENTAL

PNEUMATIC TRANSPORT

POLYURETHANE FOAM MIXERS

INDUSTRIAL CLEANING

GAS TREATMENT

SOLVENTS

POLISHING

LABORATORIES

NATURAL GAS

HYDRAULIC CONTROL UNIT OIL COOLING

Perfect control of the temperature and moisture contents of compressed gases by means of liquid chillers combined with heat exchangers is a requirement of a vast range of industries; such applications can be divided into 3 types.

TECHNICAL GASES: the use of technical gases including nitrogen, oxygen, carbon dioxide and helium is an integral part of the production processes of a large number of industrial activities, and is of key importance in environmental protection operations. MTA chillers are frequently installed to control the temperature and reaction speed in the separation processes of these gases.

COMPRESSED AIR: MTA liquid chillers are utilised in conjunction with MTA shell and tube exchangers, as an alternative to refrigeration dryers, for the control of compressed air moisture contents. With respect to conventional dryers, this "thermal

mass" type solution provides numerous benefits, including: high energy savings, because the compressors stop when no load is present; excellent control of the dew point even in the presence of continuous load fluctuations, thanks to the generous sizing of the storage tanks installed within the unit; the ability to closely control the cooling capacity output.

BIOGAS & NATURAL GAS: one of the basic safety requirements for these gases is that they should be kept at a very low dew point. MTA chillers are used for the pre-treatment of biogas and natural gas, by cooling the gas to below the dew-point temperature. This avoids corrosion phenomena caused by the formation of acidic condensate, as well as problems associated with the presence of water in the combustion chambers. Gas treatment: just one of a multitude of applications where MTA is leader.

GAS TREATMENT

MACHINE TOOLS



MTA liquid chillers are the ideal solution where production processes or individual machine tools require a precise and stable temperature control. Even though they account for only a minimal proportion of the total cost of a plant, MTA liquid chillers are of vital importance in assuring both the reliability of the process and the quality of the finished product, completely safeguarding the process 24 hours a day, 365 days a year.

Accurate temperature control ensures increased productivity, but above all it leads to a reduction in the defect rate whilst also increasing the lifetime of the machine tools. Whether the application calls for temperature control that is precise and reliable, as in the case of very high precision machining centres, or safe and flexible, as in the case of welding machines, MTA is always able to provide

a tailored solution for a very broad range of differing applications.

Precision cooling of mechanical components, cutting oils and hydraulic fluids allows machine tools to work at high speeds in an extremely accurate and repeatable manner, increasing tool life and contributing to stabilisation of the finished part proportions and dimensions.

MTA chillers are also ideal for both the temperature control of surface coating or galvanization dip baths, where they ensure optimised production cycles, as well as in the compliance to environmental protection regulations, by means of systems for solvent condensation and the reduction of pollutant emissions into the atmosphere. Machine tools: just one of a multitude of applications where MTA is leader.

ALUMINIUM WORKING & PROCESSING

HEAT TREATMENT

ROLLING MILLS

DAIRIES

BAKERIES

MACHINE TOOLS

EXTRUSION

STORAGE

ENGRAVING

WELDING

FOOD & BEVERAGE

PROFILING

CONFECTIONARY

PROCESSING & TRANSFORMATION OF PRECIOUS METALS

MEAT PROCESSING

MTA vanta twenty five years experience in the production of food & beverage process cooling systems. The multiple applications in which MTA liquid chillers are implemented range from direct cooling of frozen foods, fish and pasta, to indirect cooling of dairy products, chocolate, meats and beverages, including wine, beer and fruit juices. MTA units are also succesfully applied in direct or indirect expansion cooling using water/glycol mixtures for fruit and vegetable produce processing and for storage premises, which call for extreme precision as regards temperature and humidity control. MTA chillers are capable of satisfying the specific challanges of the food & beverage sector, including

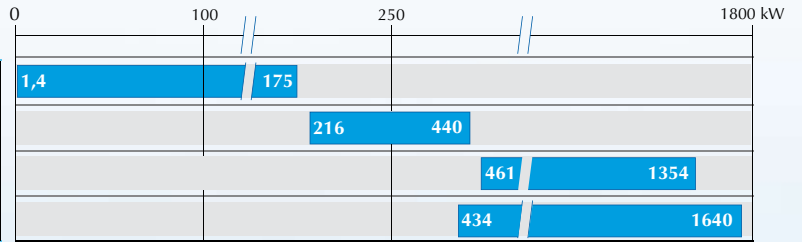
elevated system reliability, thanks to innovative design solutions, premium quality components and materials and redundancy of the refrigerant circuits, as well as utmost levels of hygiene, with the availability of various NON-FERROUS hydraulic circuits, including stainless steel, as well as stainless steel unit housings. High precision temperature control in the various processes ensures increased productivity, ensuring that the product reaches each stage of the production process in precise and repeatable conditions, and safeguarding the all-important organoleptic properties of the finished product such as taste, colour and smell. Food & beverage: just one of a multitude of applications where MTA is leader.



FOOD & BEVERAGE

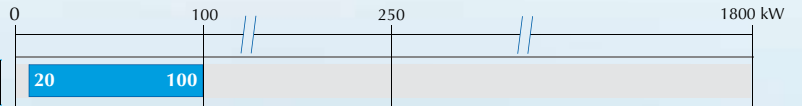
Air-cooled water chillers

TAE_{evo}	page 10 - 13			R407C		
ARIES_{tech}	page 16 - 17			R410A		
GALAXY_{tech}	page 18 - 19			R410A		
PHOENIX_{plus}	page 20 - 21			R134a		



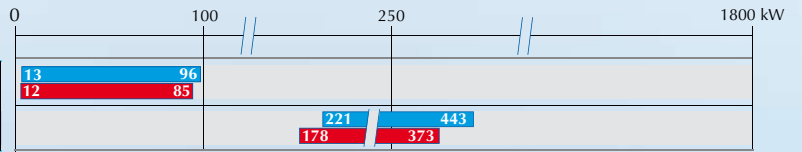
Air-cooled water chillers (Laser version)

TAE_{laser}_{evo}	page 14 - 15			R407C		
--	--------------	--	--	-------	--	--



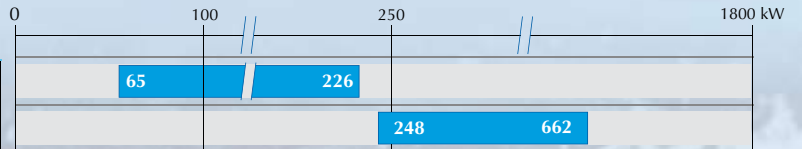
Air-cooled heat pumps

HAE_{evo}	page 10 - 13			R407C		
HARIES_{tech}	page 16 - 17			R410A		



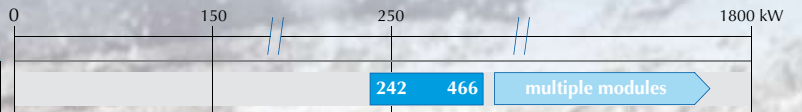
Air-cooled water chillers with integrated freecooling

ARIES_{freecooling}	page 22 - 23			R407C		
PHOENIX_{freecooling}	page 24 - 25			R407C		



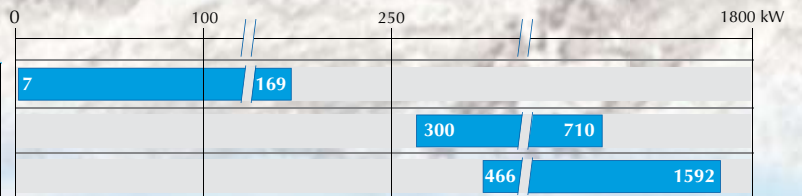
Add-on Freecooling modules

AQUA_{free}	page 26 - 27		-	-		
----------------------------	--------------	--	---	---	--	--



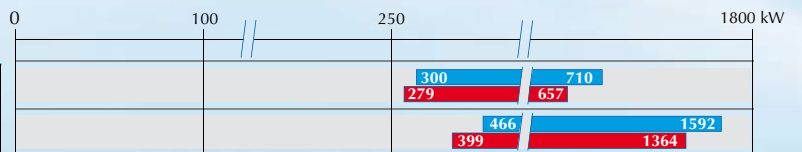
Water-cooled water chillers

TWE_{evo}	page 10 - 13			R407C	-	
NEPTUNE_{tech}	page 28 - 29			R410A	-	
AQUARIUS_{plus}	page 30 - 31			R134a	-	



Water-cooled heat pumps

NEPTUNE_{tech}	page 28 - 29			R410A	-	
AQUARIUS_{plus}	page 30 - 31			R134a	-	



Water coolers

RWD	page 32-33		-	-		
------------	------------	--	---	---	--	--



Mode

- cooling
- cooling/heating

Fans

- axial
- centrifugal

Heat exchanger

- plate
- shell and tube
- immersed finned coil
- finned coil

Compressors

- rotary
- piston
- scroll
- screw

AIR AND WATER-COOLED CHILLERS AND HEAT PUMPS WITH R407C EQUIPPED SCROLL PISTON OR ROTARY COMPRESSORS. COOLING CAPACITY 1,4 - 175 KW, HEATING CAPACITY 12 - 85 KW.

TAEvo, POSSIBLY THE WORLD'S FAVOURITE INDUSTRIAL CHILLERS, FEATURE A UNIQUE EVAPORATOR-IN-TANK CONFIGURATION, GENEROUS OPERATING LIMITS, NUMEROUS ACCESSORIES, FIELD PROVEN RELIABILITY AND EUROVENT CERTIFIED PERFORMANCE, CREATING THE PERFECT ANSWER TO ALL INDUSTRIAL NEEDS.



PURE ENERGY



AN EXTENSIVE RANGE

TAEvo air-cooled models allow quick and easy installation and high versatility in a multitude of applications.

TWEvo water-cooled models offer elevated energy efficiency levels, and are well suited to hot ambients or indoor installation. Noise levels are reduced notably.

HAEvo heat pumps produce chilled and hot water. They are supplied with a 4-way valve allowing easy cycle inversion. MTA's unique Frost Detection System offers intelligent defrosting with efficiency gains.

TAEvo Laser chillers, supplied to renowned OEM accounts, feature a non ferrous water circuit and close control temperature regulation via a hot gas by-pass. A 6bar pump and tank electrical heater are standard.

CLOSED CIRCUIT OPERATION

Closed circuit operation, offers precise water temperature control (independent of ambient conditions) and quick reactions to sudden load changes, ensuring steady operating conditions. The same water is continuously reutilised, avoiding unwanted wastage of this precious resource and the health hazards of water born bacteria.

LOWEST OPERATING COSTS

Energy efficient scroll compressors, the oversized evaporator and the unique evaporator-in-tank configuration ensure TAEvo achieves leading energy efficiency levels. This is mated to low maintenance needs, ensuring TAEvo is a highly economical long-term proposition.

MAXIMUM CONTROL

The large tank and evaporator ensure steady water temperatures, even during sudden load variations. This is further enhanced by passing the water through the evaporator before entering the tank, offering a ready chilled water supply. HP, LP and water manometers (from 031) give a quick overview of status. Models from 402 feature multi speed fan control.

EVAPORATOR-IN-TANK CONFIGURATION

The innovative evaporator-in-tank configuration (co-axial copper coil with stainless steel tank on M03-10, finned aluminium/copper coil with carbon steel tank from 015) allows operation even with impure liquids. Unit dimensions are reduced, and a steady water temperature is ensured as the evaporator also cools the tank itself.

Ambient heat gain is reduced, increasing efficiency. Both atmospheric and (from 015) pressurised operation is permitted. Bleed and drain valves and a water level sensor are fitted (from 015); a water by-pass and antifreeze warning ensure fail-safe operation. The oversized evaporator improves efficiency and reduces pressure drops. The tank is insulated and is removable.

FAIL-SAFE OPERATION IN ALL CONDITIONS

TAEvo offers Eurovent certified performance and operates in all conditions, thanks to an internal trace water by-pass, numerous safety devices, 46 °C ambient temperature limit, antifreeze protection and internal water level sensor.

Water inlet limits of -5 to 35 °C and outlet limits of -10 (0 °C on M03-10) to 30 °C ensure TAEvo is suited to all industrial applications. IP54 protection (from 031), full frontal access, easily removable panels and a separate refrigeration compartment (from 015) facilitate ease of use. All the units are equipped with a phase monitor which provides protection against phase loss and phase reversal.

ASSURED QUALITY

All models are individually water-side tested at nominal operating conditions, and also undergo operating tests, refrigerant charge and leakage controls, and microprocessor and safety device setting verifications. Leading brand components are used throughout.

NUMEROUS PUMP CONFIGURATIONS

A 3bar pump, standard on all models, is mounted within the chiller itself. Various other pump options are available. Centrifugal pumps are fitted (from 015), models 015-251 feature a stainless steel water-side.

PERSONALIZE TAE^{evo} TO YOUR INDIVIDUAL NEEDS

As industrial applications differ, so TAE^{evo} can be adapted to each individual need thanks to numerous configurations and accessories:

Pump options – 3 bar pumps are supplied as standard, 5bar pumps or no pump as option (015-602). Twin pumps are also offered (from 201-602).

Water circuit – A non-ferrous option (stainless steel water tank, copper/brass exchanger, stainless steel pump if not already standard) is offered on models 015-351. Alternatively models 015-351 can be supplied with a prismatic stainless steel tank and an external stainless steel plate heat exchanger (designed for open circuit operation); this configuration is also available with an evaporator water pressure switch which protects against water flow stoppages.

Condenser section – Electronic fan speed control is offered from model 031. Centrifugal fans (from 031) are ideal for ducted or indoor installation. Pre-treated, blygold-type treated and copper-copper condenser coils (all from 015) cater for harsh ambients.

Low ambient temperature operation – The -20 °C ambient version (from 031) offers electrical panel heating, electronic fan speed control and a crankcase heater. Antifreeze heating and pump trace heating are also available (from 015).

Special voltages – 60 Hz versions with or without UL approval are available.

Close Control version – The Laser version offers extremely precise temperature regulation (+/- 0,5 °C) thanks to the application of hot gas by-pass control.

HAE^{evo} options – Transport wheels and handles (031-161) and stainless steel panels (031-351) are available.

Other accessories – Differing refrigerants (R134a, R404A) can be supplied on request, as can NPT water connection adapters (standard on 60Hz/UL units). Glycol fill kit (from 015) is also offered.



Internal pump



Centrifugal fans



Stainless steel plate exchanger

FILL KITS



Atmospheric pressure fill kit

The atmospheric pressure fill kit (standard on M03-10, optional from 015) is installed onto the back of the chiller, and features a generous tank (with water level indication) encased within a galvanized steel cabinet. A tap offers easy tank filling.



Pressurised fill kit

The pressurised fill kit (up to 6 barg) is available from model 015. The kit features a pressure reducer, water inlet valve, pressure gauge, automatic relief valve, safety valve and expansion tank.

CONNECTIVITY



Remote control

Two remote control options are offered (from model 015) for installation at up to 150m from the unit:

- Simple remote control module (on/off, unit status);
- Advanced remote control module (full control).



xWEB300D Supervisor

The following supervisor options are available:

- RS485 serial connection to an external Supervisor (MODBUS and other leading systems);
- xWEB300D Supervisor kit, operating via Internet;
- GPRS connection to a cellphone.

Large buffer tank.



4-way valve (HAE^{evo}).



Shell & tube condenser (TWE^{evo}).



Advanced microprocessor.





CONDENSING SECTION

Air-cooled condensers (copper tubes / aluminium fins) are fitted on one side only, reducing space needs for installation. A pre-filter is standard (from 031).

Water-cooled models feature a plate (015-020), co-axial (031-161) or shell & tube (201-602) configuration.

HAEew's condenser maximizes efficiency in the heat pump mode, when it inverts to an evaporator function.

COMPRESSOR SECTION

Piston (M03 and 015-051), rotary (M05-10) or scroll (from 081) compressors are utilised. Scroll compressors offer reduced energy consumptions, low vibrations, less moving parts and high resistance to liquid refrigerant returns, and they are equipped with crankcase heaters as standard.

Units with 2 compressors (from 201) or 4 compressors within 2 circuits (from 402) feature compressor rotation and a compressor unloading function which improves operation in harsh conditions.

ADVANCED MICROPROCESSOR

The microprocessor (from M05) offers icon messages and a digital water outlet temperature reading. Up to 10 alarms are offered, plus extensive programming to individual needs. An alarm history, volt free general alarm contact and protective plastic cover are standard from model 015.

Easy frontal access.

Extensively lab tested quality assurance.



		M03	M05	M10	
TAEew	Cooling capacity (1)	kW	1,4	2,5	4,4
	Total absorbed power (1)	kW	0,5	0,73	1,32
	Cooling capacity (2)	kW	0,9	1,8	3,2
TWEew	Total absorbed power (2)	kW	0,52	0,77	1,36
	Cooling capacity (3)	kW	-	-	-
	Total absorbed power (3)	kW	-	-	-
HAEew	Cooling capacity (4)	kW	-	-	-
	Total absorbed power (4)	kW	-	-	-
	Cooling capacity (1)	kW	-	-	-
	Total absorbed power (1)	kW	-	-	-
	Cooling capacity (2)	kW	-	-	-
	Total absorbed power (2)	kW	-	-	-
	Heating capacity (5)	kW	-	-	-
	Total absorbed power (5)	kW	-	-	-

General data

Refrigerant	-	R134a	R407C	
Power Supply	V/Ph/Hz	230±10%/1/50		
Protection Class	-	IP20	IP33	
Total installed power (6)	kW	1,03	1,64	2,06
Compressors / Circuits	N°	1 / 1	1 / 1	1 / 1

Air-cooled models TAEew

Axial Fans	N° Fans	N°	1	1	1
	Nominal power (each)	kW	0,065	0,146	0,146
	Total air flow	m³/h	900	2200	2100
	Noise level (7)	dB(A)	48,2	48,3	48,3
Centrif. Fans	N° Fans	N°	-	-	-
	Nominal power (each)	kW	-	-	-
	Available head pressure	kPa	-	-	-
	Total air flow	m³/h	-	-	-
	Noise level (7)	dB(A)	-	-	-

Water-cooled models TWEew

Water flow for each condenser	m³/h	-	-	-
Condenser water connections	Rp	-	-	-

Pump section

P3	Water Flow (nom. with ΔT 5°C / MAX)	m³/h	0,24/0,34	0,43/1,2	0,76/1,2
	Available head pressure (nom./min.)	bar	1,18/0,54	2,78/0,46	2,78/0,46
	Nominal Power	kW	0,25	0,33	0,33
P5	Water Flow (nom. with ΔT 5°C / MAX)	m³/h	-	-	-
	Available head pressure (nom./min.)	bar	-	-	-
	Nominal Power	kW	-	-	-

Dimensions (8)

Width	mm	325	575	575
Depth	mm	728	652	652
Height	mm	540	805	805
Operating weight (with P3 pump)	kg	63	106	113
Tank volume	l	8	25	25
Evaporator water connections	Rp	1/4"	1/2"	1/2"

- (1) Evaporator water inlet/outlet temperature 20/15 °C, external air temperature 25 °C;
- (2) Evaporator water inlet/outlet temperature 12/7 °C, external air temperature 32 °C;
- (3) Evaporator water inlet/outlet temperature 20/15 °C, condenser water inlet/outlet temperature 30/25 °C;
- (4) Evaporator water inlet/outlet temperature 12/7 °C, condenser water inlet/outlet temperature 30/25 °C;
- (5) Condenser water inlet/outlet temperature 40/45 °C, external air temperature 10 °C;
- (6) TAEew unit with P3 pump and ON/OFF fan speed control (if fitted);
- (7) Sound pressure level in free field at 10m from unit condenser side and 1,6m from ground level;
- (8) For TAEew unit with standard power supply, axial fans, ON/OFF fan speed control. Air-cooled models operate at external air temperatures of up to 46 °C (with 12/7 °C water inlet/outlet temperature).

Data declared according to UNI EN 14511:2011. For data concerning TAEew laser contact your distributor.

The capacity correction factors in the following table should be used as a guide only under conditions differing from the above the selection software should be utilised.

Water outlet temperature ≠ 15 °C	°C	-10	-5	0	5
Correction factor	K1	0,36	0,44	0,56	0,74
Correction factor (M series)	K1	-	-	0,57	0,73

Evaporator ΔT ≠ 5 °C	°C	4	5	6	7
Correction factor	K2	0,994	1	1,005	1,010

External air temperature ≠ 25 °C	°C	20	25	30	35
Correction factor	K3	1	1	0,95	0,9
Correction factor (M series)	K3	1,04	1	0,95	0,9

Ethylene glycol solutions	%	0	10	20	30
Correction factor	K4	1	0,99	0,98	0,97

Condenser ΔT ≠ 5 °C (TWEew)	°C	5	10	15
Correction factor	K5	1	0,96	0,94

015	020	031	051	081	101	121	161	201	251	301	351	402	502	602
7,3	9,5	13,8	20,3	28,3	41,8	52,1	59,0	67,3	80,6	88,1	99,8	126	146	175
2,2	2,4	4,2	5,6	7,2	10,2	12,0	14,8	17,0	19,1	22,0	25,4	31,2	34,6	40,5
5,0	6,6	9,9	14,4	21,0	30,7	38,4	43,5	49,7	59,1	65,6	73,3	92,5	107	129
2,0	2,3	4,0	5,5	7,5	10,6	12,5	15,2	17,8	19,9	22,9	26,4	33,0	36,6	42,4
6,8	8,0	12,9	21,0	28,3	38,5	50,5	57,1	65,0	75,5	84,6	96,1	123	142	169
1,9	2,4	3,5	5,5	6,3	8,0	10,8	12,2	14,7	17,5	20,6	25,3	29,4	34,5	40,6
4,9	6,0	10,4	15,4	21,5	30,5	39,0	43,4	51,0	59,0	65,9	74,1	94,1	108	130
1,6	2,1	3,2	4,7	6,1	7,8	10,4	11,8	14,1	16,8	19,7	24,6	28,5	33,1	38,8
-	-	13,4	19,6	27,6	40,0	49,9	56,2	64,9	78,1	85,1	96,3	-	-	-
-	-	4,3	6,2	7,1	10,2	11,8	14,5	17,0	18,9	22,0	25,0	-	-	-
-	-	9,7	14,1	20,2	29,2	36,6	41,9	48,6	57,1	63,7	70,9	-	-	-
-	-	4,0	5,5	7,5	10,7	12,5	15,1	17,8	19,9	22,9	26,2	-	-	-
-	-	11,7	16,7	24,5	32,2	39,2	46,1	52,8	63,6	74,3	84,6	-	-	-
-	-	3,9	5,1	7,5	10,2	12,8	14,4	16,4	18,8	22,0	26,5	-	-	-

R407C														
400 ± 10% / 3-PE / 50														
IP44					IP54									
3,19	3,83	5,96	7,85	10,8	14,5	18,4	21,2	23,6	27,0	31,2	37,3	48,3	55,1	61,0
1 / 1	1 / 1	1 / 1	1 / 1	1 / 1	1 / 1	1 / 1	1 / 1	2 / 1	2 / 1	2 / 1	2 / 1	4 / 2	4 / 2	4 / 2

1	1	1	1	1	2	2	2	2	2	3	3	2	2	2
0,27	0,27	0,54	0,54	0,79	0,79	0,79	0,79	0,79	0,79	0,79	0,79	2,0	2,0	2,0
3500	3100	6600	6200	8500	15100	13500	13500	16900	16300	22350	22350	45600	44000	42500
52,4	52,4	53,1	53,1	53,6	54,1	54,1	55,0	56,3	56,3	58,0	58,0	64,0	64,0	64,0
-	-	1	1	2	2	2	2	3	3	3	3	2	2	2
-	-	1,1	1,1	1,1	1,1	1,1	1,1	1,1	1,1	1,1	1,1	5,5	5,5	5,5
-	-	166	185	260	140	125	138	237	245	150	150	245	230	215
-	-	6900	6400	9200	13600	13500	12780	18200	17600	20145	20145	40000	40000	40000
-	-	58,8	58,8	61,2	61,2	61,2	61,2	63,1	63,1	63,1	63,1	65,0	65,0	65,0

0,25 / 1,3	0,3 / 1,6	1,0 / 5,0	1,0 / 5,0	1,3 / 6,0	1,6 / 8,0	1,9 / 10	2,5 / 15	3,3 / 14	3,3 / 14	4,0 / 18	4,0 / 18	3,3 / 14	3,3 / 14	4,0 / 18
3/4"	3/4"	1 1/4"	1 1/4"	1 1/2"	1 1/2"	1 1/2"	1 1/2"	2"	2"	2"	2"	2 1/2"	2 1/2"	2 1/2"

0,3/4,8	0,5/4,8	0,7/6	1,0/6	1,8/9,6	2,3/9,6	3,0/18	3,7/18	3,9/18	4,4/18	4,9/27	5,5/27	7,7/48	8,2/48	10,4/48
3,2/1,4	3,2/1,4	3,1/1,5	3,0/1,4	2,9/1,3	2,9/1,5	2,8/1,6	2,8/1,7	2,8/2,0	2,8/2,0	3,3/0,9	3,2/0,8	3,8/1,5	3,8/1,5	3,7/1,5
0,55	0,55	0,75	0,75	0,9	0,9	1,85	1,85	1,85	1,85	2,2	2,2	4	4	4
0,3/4,8	0,5/4,8	0,7/4,8	1,0/4,8	1,8/13	2,3/13	3,0/13	3,7/13	3,9/30	4,4/30	4,9/30	5,5/30	7,7/48	8,2/48	10,4/48
5,4/2,9	5,4/2,9	5,4/3,1	5,3/3,2	5,2/2,8	5,1/3,1	5,1/3,1	5,0/3,2	5,2/1,8	5,1/1,8	5,1/1,9	5,1/1,8	5,5/3,0	5,5/3,0	5,4/3,0
1,1	1,1	1,1	1,1	2,2	2,2	2,2	2,2	4	4	4	4	7,5	7,5	7,5

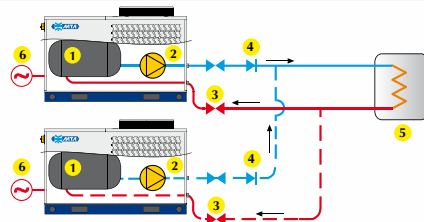
560	560	660	660	760	760	760	760	866	866	866	866	1255	1255	1255
1266	1266	1310	1310	1860	1860	1860	1860	2240	2240	2240	2240	3294	3294	3294
810	810	1400	1400	1447	1447	1447	1447	2064	2064	2064	2064	2140	2140	2140
188	193	316	336	474	644	663	674	916	1008	1118	1134	1812	1847	1911
60	60	115	115	140	255	255	255	350	350	350	350	500	500	500
3/4"	3/4"	1"	1"	1 1/2"	1 1/2"	1 1/2"	1 1/2"	2"	2"	2"	2"	2 1/2"	2 1/2"	2 1/2"

Typical configuration for users suitable for closed circuits

The below diagram shows a typical closed circuit lay-out.

Pressurised closed circuit applications (5) always require an expansion vessel. TAE^{eco} units in standard (evaporator in tank) configurations are ideal for such applications, and offer a pressurised automatic fill kit including the expansion tank (as option).

Pressurised closed circuit applications (5) can also feature TAE^{eco} units equipped with prismatic tank and plate type evaporator, with these featuring a pump and a tank kit (verify the height difference between the chiller and the user).



- 1 Accumulation tank
- 2 Pump
- 3 Valve
- 4 Non return valve
- 5 User
- 6 Expansion tank

EUROVENT CERTIFIED PERFORMANCE
 MTA participates in the E.C.C. programme for LCP-HP. Certified products are listed on www.eurovent-certification.com
 Eurovent Certification applied to the units:
 - Air/Water with cooling capacity up to 600 kW
 - Water/Water up to 1500 kW (excluded TAE^{eco} M)

temperature 35/40 °C;
 temperature 35/40 °C;

ground;

water temperature).

ect MTA.

ly, for accurate selection at

7	11	15
0,79	0,89	1
0,79	0,89	1

8	9	10
1,017	1,021	1,025

32	35	40
0,92	0,89	0,83
0,92	0,87	0,83

30	40	50
0,97	0,96	0,93

15
0,92

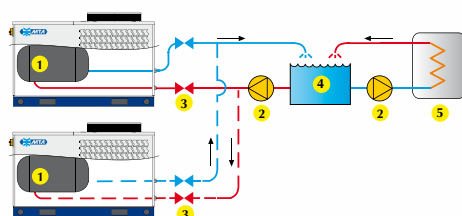
Typical configuration for users suitable for open circuits

The below diagram shows a typical open circuit lay-out.

For atmospheric circuit applications featuring an open tank (4), the water is in contact with the ambient air, as such no expansion vessel is required.

Such applications are suited to TAE^{eco} units in standard (evaporator in tank) configuration but without the tank kit and pump, given that the system typically features an external pump (2).

These applications are not adapt to TAE^{eco} units equipped with prismatic tank and plate type evaporator, given that the tank cannot be put under pressure.



- 1 Accumulation tank
- 2 Pump
- 3 Valve
- 4 Open tank
- 5 User

AIR-COOLED CHILLERS FOR LASER APPLICATIONS WITH R407C EQUIPPED SCROLL OR PISTON COMPRESSORS. COOLING CAPACITY 17,5 - 90,2 KW.

TAEvo LASER IS BORN FROM MTA'S EXTENSIVE EXPERIENCE IN THE LASER INDUSTRY, AN EXPERIENCE ACCUMULATED THANKS TO MANY YEARS OF COOPERATION TOGETHER WITH THE MOST PRESTIGIOUS MANUFACTURERS OF LASER EQUIPMENT. THE OBJECTIVE IS RESOLVING PROBLEMS SUCH AS THE VARIABILITY OF THE WAVELENGTHS, THERMAL STRESS, AND CONTAMINATION OF THE SOURCE AND OPTICS.



NON-FERROUS WATER CIRCUIT

The increasing complexity of the laser sources necessitate the use of cooling fluids with an ever greater purity level. TAEvo Laser's non-ferrous water circuit is suited to operation with demineralised water containing additives. The tank, plate evaporator and high head pressure centrifugal pump are all in stainless steel, and protect the laser source from all forms of contamination.

A PLUG-AND-PLAY SOLUTION

TAEvo Laser always operates, whatever the conditions, thanks to shut-off valves, an adjustable internal by-pass valve, a 43 °C ambient temperature limit, an antifreeze protection and a self-regulating level sensor. Installation is notably simplified thanks to the integration of all components within the unit itself, an IP54 protection rating and the easy transportability of the unit itself.

ROBUST AND RELIABLE

A robust frame and components from renowned suppliers, including reliable scroll compressors (models 081-351), ensure absolute peace of mind. Advanced safety devices ensure stable and safe operation, including a heater immersed in the tank (to avoid condensation on the laser's optics), and an antifreeze function which activates the heater and starts the pump (for stable operation). Metallic condenser pre-filters are mounted as standard.

All the units are equipped with a phase monitor which provides protection against phase loss and phase reversal. All the scroll compressors are equipped with crankcase heater as standard.

EASY TO USE AND MAINTAIN

The sophisticated laser equipment installed within a continuous production cycle needs to be backed up by chillers which are both absolutely reliable and very easy to maintain. MTA's TAEvo Laser allows the chiller to be serviced even whilst it continues to operate normally, notably reducing downtimes. Easy access is ensured, thanks to the application of removable panels and access doors.

WELL SPECIFIED HYDRAULIC CIRCUIT

- Non-ferrous design, allows the use of demineralised water containing additives.
- Stainless steel centrifugal multistage pump, including an outlet manometer.
- Heating element to maintain the process fluid above the dewpoint, minimizing condensation risks.
- Stainless steel atmospheric pressure accumulation tank with integrated drain valve.
- Hydraulic circuit fill tank with externally visible water level.
- Stainless steel brazed plate evaporator with manual bleed and drain valves.
- Electronic level sensor with water conductivity function.

NUMEROUS OPTIONS

- 460/3/60 electrical power supply.
- Coated condenser coils.
- Industrial Westec connectors (Harting compatible).
- Automatic water by-pass valve with differential overpressure.
- Compressor valves.
- Electronic fan speed control (also supplied as kit).
- Remote control kit.
- Supervisor kits (RS485, GPRS modem, xWEB300D).

TAE ^{evo} Laser Model		051	081	101	121	161	201	251	301	351
Cooling capacity (1)	kW	17,5	25,5	38,2	47,8	52,6	60,5	73,2	80,7	90,2
Compressor absorbed power (2)	kW	6	7,7	10,5	12,4	15,7	18,7	21,3	23,7	27,8

General data

Refrigerant	-	R407C								
Power Supply		400 ± 10% / 3-PE / 50								
Protection Class	V/Ph/Hz	IP54								
Total installed power (6)	kW	8,5	13	17	20	21	28	31	37	43

Fans

N° Axial fans	N°	1	1	2	2	2	2	2	3	3
Total nominal power	kW	0,61	0,78	1,56	1,56	1,56	1,56	1,56	2,34	2,34
Total air flow	m ³ /h	6400	9200	16000	15000	14200	18200	17600	23700	23700
Noise level (5)	dB(A)	50	50,6	51	51	52	53,3	53,3	55	55

Pump section

Water flow (nom. with ΔT 5 °C / max) (3)	m ³ /h	3/8	4.4/11	6.6/11	8.2/12	9.1/12	10.4/20	12.6/20	13.9/23	15.6/23
Available head pressure (nom./min.) (4)	bar	5.5/2.7	5.5/2.7	5/2.8	5/3.1	4.8/3.4	4.8/2.2	4.4/2	5.4/2.9	5.2/2.9
Nominal Power	kW	1,85	3	3	3	3	5,5	5,5	7,5	7,5

Dimensions

Width	mm	660	760	760	760	760	866	866	866	866
Depth	mm	1369	1964	1964	1964	1964	2351	2351	2351	2351
Height	mm	1400	1447	1447	1447	1447	2064	2064	2064	2064
Operating weight	kg	343	585	640	683	688	1015	1020	1100	1117
Tank volume	l	115	260	260	260	260	350	350	350	350
Evaporator water connections	BSP	1"	1 1/2"	1 1/2"	1 1/2"	1 1/2"	2"	2"	2"	2"

(1) Evaporator water inlet/outlet temperature 20/15 °C, external air temperature 35 °C;

(2) Absorbed power from compressor(s) at reference conditions;

(3) Nominal values refer to condition (1);

(4) Nominal values refer to condition (1);

(5) Sound pressure level in free field at 10m from unit condenser side and 1,2 m from the unit support base;

(6) Max installed power with power supply 400/3/50, compressors, pump and fans with functioning working.

The listed noise levels, weights and dimensions refer to base chillers with no options fitted.

ADVANCED MICROPROCESSOR

The microprocessor features a PID algorithm which controls the hot gas by-pass valve, ensuring a regulation accuracy of less than $\pm 0,5$ °K. The compressors are deactivated during prolonged load absences, offering notable energy savings. RS485 Modbus, GPRS and web connectivity is offered, whilst an optional Westec industrial connector allows direct interfacing with the laser equipment.

ELECTRICAL AND CONTROL CIRCUITS

TAE^{evo} Laser offers numerous safety and protection features, including anticondensate and antifreeze functions, plus general alarm, remote on/off and unit status volt free contacts. Automatic circuit breakers for compressors, pump and fans are mounted as standard, as are refrigerant high and low pressure manometers.

ARIES TECH

R410A

AIR-COOLED CHILLERS WITH R410A EQUIPPED SCROLL COMPRESSORS. COOLING CAPACITY 216 - 440 KW, HEATING CAPACITY 178 - 373 KW.

ARIES TECH FEATURES SCROLL COMPRESSORS, AN INTERNALLY MOUNTED TANK, MULTIPLE PUMP CONFIGURATIONS AND GENEROUS OPERATING LIMITS. NUMEROUS ACCESSORIES ALLOW ARIES TECH TO BE PERSONALISED TO ALL INDUSTRIAL NEEDS.



RELIABILITY YOU CAN RELY ON

Choose between plate evaporators and shell-and-tube evaporators that are among the most technologically advanced on the market. Thanks to their construction and the possibility to be serviced they ensure stable and reliable operation in even the harshest industrial applications. All evaporators are protected from freezing by means of the microprocessor's antifreeze function and a differential pressure switch. All the units are equipped with a phase monitor which provides protection against phase loss and phase reversal.

AN ALL-IN-ONE SOLUTION

Storage tank, single or double pumps, expansion vessel, pressure relief valve, pressure gauge: ARIES *tech* allows all hydronic components to be installed inside the unit. This translates into savings in time otherwise required to select the hydraulic circuit components, plus less complex installation procedures and hence a reduction in installation times and costs.

SUITABLE FOR ALL INDUSTRIAL CONDITIONS

ARIES *tech* operates at outlet water temperatures down to 0 °C (-10 °C or lower on request). The large number of configurations, such as the -20 °C ambient version, the H version for ambient temperatures of up to +50 °C, or the low noise SN and SSN versions, allow ARIES *tech* to meet the requirements of the most diverse operating conditions.

HIGH ENERGY EFFICIENCY

Thanks to the use of two compressors on each circuit and the extensive heat exchange surface dimensions, ARIES *tech* offers optimal energy efficiency and consequently maximum operating economy. The electronic thermostatic valve, available as an option, ensures high energy savings and high precision capacity control, extending the unit's operating limits.

VERSIONS

- Chiller (AST);
- Heat pump (HAST);
- Low ambient air temperature version (down to -20 °C in cooling mode) (AST only);
- High external air temperature / high efficiency (H version);
- Version with desuperheaters and total heat recovery condenser (AST and HAST only);
- Acoustic configurations:
 - N (standard);
 - SN (low noise);
 - SSN (very low noise).

ACCESSORIES

- Shell and tube evaporator (AST only);
- 1 or 2 high/low head pressure pumps and water pressure gauge;
- Storage tank;
- Electronic thermostatic valve (AST only);
- Compressor shut-off valves on suction and discharge lines;
- Electronic fan speed control;
- Condenser coils designed for aggressive atmospheres;
- Antivibration dampers;
- Anti-freeze heaters on evaporator, pump and tank;
- Metal mesh filters for condenser coil protection;
- Replicated remote user terminal;
- Serial connection to supervisor systems;
- MTA xCONNECT supervision based on internal web pages;
- Electric power supplies differing from standard;
- Modularity/web interconnection hub;
- Soft starter;
- Victaulic connections;
- Simple remote control.

AST - HAST Model		070	080	090	100	110	120	130	140	
AST	Cooling capacity (1)	kW	216	261	284	300	333	363	414	440
	Total absorbed power (1)	kW	57,5	64,0	67,6	73,3	86,0	100	105	115
	Cooling capacity (2)	kW	160	193	210	222	247	269	308	327
	Total absorbed power (2)	kW	66,9	74,9	79,0	85,9	99,5	114	120	131
	Max external air temperature vers. N (2)	°C	45	46	46	46	45	44	46	45
	Max external air temperature vers. H (2)	°C	49	49	48	48	49	48	48	48
HAST	ESEER (N)	-	3,61	3,90	4,04	4,06	3,88	3,95	3,87	3,89
	ESEER (H)	-	3,81	4,01	4,11	4,16	3,78	3,84	3,97	3,99
	Cooling capacity (1)	kW	221	262	276	291	332	380	409	443
	Cooling capacity (2)	kW	163	193	204	215	246	281	303	329
	Heating capacity (3)	kW	178	213	229	243	276	316	338	373
	Total absorbed power (in heating) (3)	kW	60,8	70,4	75,0	79,6	93,4	102	109	116
	Min external air temperature	°C	-7	-7	-6	-6	-6	-8	-7	-8
	Power supply	V/Ph/Hz	400 ± 10% / 3-PE / 50							
	Circuits / Compressors	N°	2/4	2/4	2/4	2/4	2/4	2/4	2/4	2/4
	Sound pressure level (N)	dB(A)	65,6	64,6	64,6	64,6	64,6	64,6	65,3	65,3
Sound pressure level (SN)	dB(A)	59,2	58,0	58,0	58,0	58,0	58,0	58,2	58,2	
Sound pressure level (SSN)	dB(A)	50,9	50,9	49,7	49,7	50,7	50,7	51,1	51,1	
Sound pressure level (H)	dB(A)	64,6	64,6	63,7	63,7	65,3	65,3	64,3	64,3	
Depth	mm	3418	3418	3418	3418	4518	4518	4518	4518	
Width	mm	2188	2188	2188	2188	2188	2188	2188	2188	
Height	mm	1989	1989	1989	1989	1989	1989	1989	1989	
Installed weight	Kg	1761	1934	1998	2062	2288	2310	2498	2591	

All data refers to standard units at the following nominal conditions:

(1) Evaporator water inlet-outlet 20-15 °C, external air temperature 25 °C;

(2) Evaporator water inlet-outlet 12-7 °C, external air temperature 35 °C;

(3) Condenser water inlet/outlet temperature 40/45 °C, external air temperature 7 °C, dry bulb 6 °C wet bulb.

Sound pressure level in hemispherical field at 10 m from condenser side and 1.6 m from ground. Values with tolerance ± 2 dB.

The sound levels refer to operation of the unit under full load in nominal conditions and with circulation pump.

The listed noise levels, weights and dimensions refer to base chillers with no options fitted.

Data declared according to UNI EN 14511:2011.



MTA participates in the E.C.C. programme for LCP-HP. Certified products are listed on www.eurovent-certification.com. Eurovent Certification applied to the units:
 - Air/Water with cooling capacity up to 600 kW
 - Water/Water up to 1500 kW

A COMPRESSOR FOR ALL NEEDS

ARIES^{tech} chillers feature 4 hermetic scroll compressors, equipped with crankcase heater as standard. Thanks to their reduced number of moving parts, scroll compressors offer very high reliability and very low noise levels. With parallel installation on two circuits, and thanks to the absence of suction and discharge valves, these compressors achieve very high efficiency levels combined with significant energy savings, also at partial loads. On request 2 semi-hermetic piston compressors are offered, which are extremely flexible and reliable, and feature constant efficiency in relation to changing operating conditions. Their accessible housing allows for easy maintenance and repair interventions.

ADVANCED MICROPROCESSOR

The new programmable 32-byte "xDRIVE" microprocessor is equipped with a LINUX operating system and a backlit semi-graphic user terminal. The use of icons, multifunction keys with dynamic description and moving images, render xDRIVE extremely user friendly. xDRIVE features the ModBUS-RTU communication protocol as standard, allowing connection with the most widely utilised Building Management Systems (BMS). It also features an Ethernet port as standard, with HTML supervision pages preloaded for connection to a company intranet or the Internet. The xDRIVE can manage in master/slave mode up to 10 units.

Semi-graphic user terminal with multifunction keys and dynamic icons.



Shell and tube evaporator: a reliable solution.



Add-on pumping module with or without storage tank.



xWEB supervision system for easy connectivity.



AIR-COOLED CHILLERS WITH R410A EQUIPPED SCROLL COMPRESSORS.
COOLING CAPACITY 461 - 1354 KW.

UP TO 12 SCROLL COMPRESSORS OFFER PERFECT TEMPERATURE CONTROL IN ALL CONDITIONS, WITH ELEVATED PARTIAL LOAD EFFICIENCIES. THE MULTI-COMPONENT CONFIGURATION ENSURES PEACE OF MIND IN APPLICATIONS REQUIRING ROUND THE CLOCK COOLING.



PURE ENERGY

HIGH ENERGY EFFICIENCY

The use of several scroll compressors in parallel ensures high performance at partial loads, with the absorbed power decreasing in proportion to the cooling capacity demand. HE and SHE configurations offer even higher efficiency levels, with ESEER values of up to 4,55. The electronic thermostatic valve, available as an option, offers further energy savings and high precision capacity control; the microprocessor analyses circuit operation and consequently adjusts the valve, optimising operation in all load conditions.

MULTI-SCROLL TECHNOLOGY

Multi-scroll technology, with several compressors in parallel on each circuit, ensures maximum performance at partial loads by varying the cooling capacity in proportion to the real demand. This solution also reduces the system minimum thermal inertia value and its related energy loss. All the compressors are equipped with crankcase heaters as standard. Apart from reducing the level of absorbed power, progressive disactivation of the compressors and fans renders Galaxytech extremely quiet, making it ideal for installation in noise-sensitive surroundings.

ADVANCED MICROPROCESSOR

The new programmable 32-byte "xDRIVE" microprocessor is equipped with a LINUX operating system and a backlit semi-graphic user terminal. The use of icons, multifunction keys with dynamic description and moving images, render xDRIVE extremely user friendly. xDRIVE features the ModBUS-RTU communication protocol as standard, allowing connection with the most widely utilised Building Management Systems (BMS). It also features an Ethernet port as standard, with HTML supervision pages preloaded for connection to a company intranet or the Internet. The xDRIVE can manage in master/slave mode up to 10 units.

ABSOLUTE RELIABILITY

The numerous compressors (up to 12) and refrigerant circuits (up to 4) reduces the risk of downtimes in the event of faults, thus increasing system reliability. The shell and tube evaporator special is well suited to critical industrial applications. All the units are equipped with a phase monitor which provides protection against phase loss and phase reversal and checks the operating voltage limits.

VERSIONS

- Low ambient temperature (down to -20 °C);
- Acoustic & high efficiency configurations:
 - N (standard);
 - SN (low noise);
 - SSN (very low noise);
 - HE (high efficiency);
 - SHE (low noise high efficiency).

ACCESSORIES

- Shell and tube evaporator (special);
- 1 or 2 pumps and water pressure gauge;
- Storage tank;
- Condenser coils designed for aggressive atmospheres;
- Metal mesh filters for condenser coil protection;
- Electronic fan speed control;
- Compressor suction and discharge valves;
- Electronic thermostatic expansion valve;
- Antifreeze heater on evaporator, pumps and tank;
- Antivibration dampers;
- Serial connection to supervisor systems;
- MTA xCONNECT supervision based on internal web pages;
- Modularity / web interconnection hub;
- Replicated remote user terminal;
- Soft starter;
- Compressor housings for acoustic insulation;
- Victaulic connections;
- Simple remote control;
- Special applications with partial or total heat recovery exchangers;
- Special applications for water temperatures down to -10 °C.

GLT Model		120	135	150	165	180	195	210	225	240	255	270	285	300	315	330	345	360
Cooling capacity (1)	kW	461	517	574	626	677	751	808	869	921	973	1024	1091	1148	1200	1251	1303	1354
Total absorbed power (1)	kW	116	129	144	155	166	185	201	216	227	239	250	273	288	300	311	322	333
Cooling capacity (2)	kW	343	383	426	465	504	557	600	645	684	723	762	810	852	891	930	969	1008
Total absorbed power (2)	kW	126	143	159	170	182	206	222	238	250	262	273	301	317	329	341	352	364
Max ext. air temperature N (2)	°C	46	46	46	46	46	46	46	45	45	46	46	46	46	46	46	46	46
Max ext. air temperature HE (2)	°C	51	48	48	48	51	48	48	48	48	48	51	48	48	48	48	48	46
ESEER (N)	-	4,01	3,88	3,92	4,02	4,10	3,96	3,98	4,01	4,09	4,13	4,19	3,97	3,98	4,04	4,10	4,13	4,16
ESEER (HE)	-	4,33	4,11	4,12	4,10	4,14	4,21	4,21	4,21	4,29	4,19	4,20	4,19	4,18	4,16	4,16	4,23	4,22
ESEER (SHE)	-	4,55	4,30	4,29	4,39	4,43	4,45	4,41	4,39	4,52	4,47	4,51	4,42	4,39	4,43	4,46	4,55	4,38

Power supply	400 ± 10% / 3-PE / 50																	
Circuits / Compressors	N°	2/4	2/6	2/6	2/6	2/6	3/9	3/9	3/9	3/9	3/9	3/9	4/12	4/12	4/12	4/12	4/12	4/12
Sound pressure level (N)	dB(A)	66,6	66,5	66,3	66,4	66,6	67,6	67,5	67,4	67,5	67,7	67,9	68,7	68,6	68,7	68,8	68,9	69,0
Sound pressure level (SN)	dB(A)	59,2	59,1	58,9	59,0	59,1	60,1	60,0	60,1	60,0	60,1	60,3	61,2	61,1	61,2	61,3	61,3	61,4
Sound pressure level (SSN)	dB(A)	52,9	53,0	53,1	53,9	54,1	54,7	54,6	54,8	55,4	55,9	56,4	56,0	56,1	56,5	56,9	57,2	57,5
Sound pressure level (HE)	dB(A)	65,6	65,8	65,8	66,6	67,3	67,5	67,6	67,6	68,1	68,6	69,1	68,8	68,8	69,3	69,6	70,0	70,2
Sound pressure level (SHE)	dB(A)	58,2	58,5	58,6	60,0	60,2	60,3	60,3	60,8	61,3	61,7	61,5	61,6	62,0	62,3	62,7	62,7	62,8
Depth	mm	4530	4530	4530	4530	4530	6510	6510	6510	6510	6510	6510	8490	8490	8490	8490	8490	8490
Width	mm	2190	2190	2190	2190	2190	2190	2190	2190	2190	2190	2190	2190	2190	2190	2190	2190	2190
Height	mm	2360	2360	2360	2360	2360	2360	2360	2360	2360	2360	2360	2360	2360	2360	2360	2360	2360
Installed weight	Kg	3096	3399	3491	3690	3887	5022	5116	5218	5422	5616	5801	6748	6839	7057	7237	7444	7640

All data refers to standard units at the following nominal conditions:

(1) Evaporator water inlet-outlet 20-15 °C, external air temperature 25 °C;

(2) Evaporator water inlet-outlet 12-7 °C, external air temperature 35 °C;

Sound pressure level in hemispherical field at 10 m from condenser side and 1.6 m from ground. Values with tolerance ± 2 dB.

The sound levels refer to operation of the unit under full load in nominal conditions and with circulation pump.

The listed noise levels, weights and dimensions refer to base chillers with no options fitted (NB: dimensions for lower noise and/or higher efficiency versions may differ). Data declared according to UNI EN 14511:2011.



MTA participates in the E.C.C. programme for LCP-HP. Certified products are listed on www.eurovent-certification.com. Eurovent Certification applied to the units:
- Air/Water with cooling capacity up to 600 kW
- Water/Water up to 1500 kW

R410A ENVIRONMENTALLY-FRIENDLY REFRIGERANT

MTA, traditionally attentive to the issues of environmental protection and energy efficiency, has developed its *Galaxytech* series based on the use of eco-friendly refrigerant R410A. This fluid has zero impact on the ozone layer (ODP=0), features a very high thermal conductivity, and achieves excellent energy efficiency levels with resulting benefits in terms of reduced electrical power consumption and hence lower CO₂ emissions.

EASY TO INSTALL

Storage tank, single or double pumps, expansion vessel, pressure relief valve, and pressure gauge: with *Galaxytech* all the main hydronic components can be installed on board. This translates into savings in time otherwise required to select hydraulic circuit components, plus simplified installation procedures, leading to reduced installation times and costs. *Galaxytech* is supplied, as standard, with a differential pressure switch protecting the evaporator and with "Victaulic" connections to help reduce vibration, noise levels and the problems associated with thermal expansion of the piping.

Semigraphic user interface with multifunctional buttons and dynamic display icons.



Optimised performance in the most common conditions thanks to multiscroll logic.



Add-on pumping module with or without storage tank.



Design with individual independent condensing modules.



PHOENIX PLUS R134a

AIR-COOLED CHILLERS WITH R134A EQUIPPED SEMI-HERMETIC TWIN SCREW COMPRESSORS. COOLING CAPACITY 434 - 1640 KW.

CLASS A ENERGY EFFICIENCY ON MOST MODELS, REFRIGERANT R134A, UP TO 4 SCREW COMPRESSORS, LOWEST NOISE LEVELS, ENDLESS ACCESSORIES, GENEROUS OPERATING LIMITS: TOGETHER THESE MAKE PHOENIX PLUS AN UNMATCHED INDUSTRIAL CHILLER PACKAGE.



CLASS A ENERGY EFFICIENCY

As the cost of electricity rises so energy efficiency is becoming an increasingly critical factor for the operating overheads of an industrial system. That's why Phoenix^{plus} is designed to offer unmatched energy efficiency levels. This has been achieved thanks to meticulous design and components selection including, for example, continuous compressor capacity control and the availability of up to 4 compressors within independent circuits.

QUIET AND POWERFUL

SN, SSN and SHE versions feature compressors housed in acoustically insulated metal compartments clad with sound absorbing material, combined with reduced fan speeds, anti-vibration dampers and mufflers. This results in the lowest sound emission levels on the market.

HIGH EFFICIENCY EVAPORATORS

The direct expansion shell-and-tube evaporators, optimised for R134a, are among the most technologically advanced on the market. Thanks to their construction, and the facility for periodic maintenance, they provide stable and reliable operation in even the harshest industrial applications. All evaporators are protected from freezing by means of the microprocessor's antifreeze function and a differential pressure switch.

PERFECT TEMPERATURE CONTROL

The compressor cooling capacity is continuously controlled by an actuator driven partialisation device; this ensures perfect cooling capacity control and, consequently, extremely precise water temperature control, a fundamental requirement in industrial applications.

R134A ENVIRONMENTALLY FRIENDLY REFRIGERANT

Phoenix^{plus} features R134a, a chlorine-free, zero ozone depletion potential (ODP) refrigerant with significant environmental benefits. R134a's reduced operating pressures and temperatures ensure high compression levels with reduced electrical power consumptions.

HIGH RELIABILITY IN THE MOST EXTREME CONDITIONS

Phoenix^{plus} units are designed to ensure reliable operation in the typically demanding conditions of industrial applications thanks to the availability of up to 4 independent refrigerant circuits and generously sized condensing coils. N models guarantee full load operation up to ambient temperatures at 44 °C, whilst the high efficiency HE version can handle temperatures up to 49 °C without the compressor capacity control devices cutting in. Phoenix^{plus} can operate at even higher temperatures in conjunction with cooling capacity management. All the units are equipped with a phase monitor which provides protection against phase loss and phase reversal and checks the operating voltage limits.

VERSIONS

- Version for -20 °C external air temperature;
- Acoustic & high efficiency configurations:
 - N (standard);
 - SN (low noise);
 - SSN (very low noise);
 - HE (high efficiency);
 - SHE (low noise high efficiency).

ACCESSORIES

- Electronic thermostatic expansion valves;
- Electronic fan speed control;
- Refrigerant-water exchangers with antifreeze heaters;
- Condenser coils with anticorrosion treatment;
- Replicated remote user terminal;
- Antivibration dampers;
- Serial connection to supervision systems;
- MTA xCONNECT Supervision based on internal web pages;
- Modularity / web interconnection hub;
- Special applications with partial or total heat recovery;
- Special applications for water temperatures down to -10 °C;
- Compressor automatic circuit breakers;
- Metal mesh filters for condenser coil protection;
- Compressor housings for acoustic insulation;
- Simple remote control.

PNP Model		160	170	180	190	200	220	250	265	280	310	330	360	390	405	420	440	470	500	530	560
Cooling capacity (1)	kW	434	458	482	527	563	638	704	756	808	897	959	1030	1108	1160	1233	1306	1353	1404	1534	1640
Total absorbed power (1)	kW	124	133	141	143	156	167	198	208	217	236	251	283	307	316	331	344	367	394	421	441
Cooling capacity (2)	kW	305	324	343	373	401	455	498	538	578	639	684	731	787	827	884	934	961	993	1094	1175
Total absorbed power (2)	kW	125	133	142	148	160	175	196	209	221	244	263	285	307	319	336	356	372	391	422	447
Max external air temp. vers. N (2)	°C	3,31	3,45	3,50	3,54	3,60	3,65	3,35	3,64	3,73	3,67	3,67	3,54	3,61	3,67	3,79	3,68	3,58	3,38	3,66	3,79
Max external air temp. vers. HE (2)	°C	3,62	3,71	3,71	3,77	3,90	3,76	3,66	3,93	4,01	3,91	3,91	3,81	3,89	3,95	4,02	3,95	3,85	3,66	3,96	4,02
ESEER (N)	-	3,31	3,45	3,50	3,54	3,60	3,65	3,35	3,64	3,73	3,67	3,67	3,54	3,61	3,67	3,79	3,68	3,58	3,38	3,66	3,79
ESEER (HE)	-	3,62	3,71	3,71	3,77	3,90	3,76	3,66	3,93	4,01	3,91	3,91	3,81	3,89	3,95	4,02	3,95	3,85	3,66	3,96	4,02
ESEER (SHE)	-	3,51	3,59	3,60	3,66	3,78	3,65	3,54	3,80	3,87	3,79	3,79	3,68	3,76	3,82	3,93	3,78	3,72	3,53	3,81	3,84

Power supply	V/Ph/Hz	400 ± 10% / 3-PE / 50																			
Circuits / Compressors	N°	2/2	2/2	2/2	2/2	2/2	2/2	2/2	2/2	2/2	2/2	2/2	2/2	2/2	2/2	2/2	2/2	2/2	2/2	2/2	2/2
Sound pressure level (N)	dB(A)	68,9	68,9	68,9	70,1	70,1	71,0	71,1	71,0	70,9	72,4	72,7	72,8	72,8	72,7	72,6	74,0	74,1	74,1	74,0	73,9
Sound pressure level (SN)	dB(A)	61,4	61,4	61,4	62,3	62,3	63,0	62,9	62,9	63,0	64,7	64,8	64,7	64,6	64,6	64,6	66,0	66,0	65,9	65,9	65,9
Sound pressure level (SSN)	dB(A)	55,1	55,0	55,0	56,2	56,1	57,0	56,8	56,9	56,9	58,2	58,8	58,7	58,6	58,6	58,6	61,2	61,1	61,1	61,1	61,1
Sound pressure level (HE)	dB(A)	70,2	70,0	69,9	71,6	71,5	72,7	72,6	72,4	72,2	73,7	74,4	74,4	74,2	74,1	73,9	75,3	75,2	75,2	75,0	74,9
Sound pressure level (SHE)	dB(A)	63,1	63,0	62,8	64,3	64,2	65,2	64,9	64,7	64,5	66,3	67,0	66,8	66,5	66,4	66,3	67,8	67,6	67,5	67,3	67,2
Depth	mm	4530	4530	4530	4530	4530	4530	4530	4530	4530	6510	6510	6510	6510	6510	6510	8490	8490	8490	8490	8490
Width	mm	2190	2190	2190	2190	2190	2190	2190	2190	2190	2190	2190	2190	2190	2190	2190	2190	2190	2190	2190	2190
Height	mm	2360	2360	2360	2360	2360	2360	2360	2360	2360	2360	2360	2360	2360	2360	2360	2360	2360	2360	2360	2360
Installed weight	Kg	3467	3509	3554	4137	4288	4702	4866	4949	5033	6511	6907	7286	7391	7472	7627	9085	9306	9349	9833	10000

All data refers to standard units at the following nominal conditions:

(1) Evaporator water inlet-outlet 20-15 °C, external air temperature 25 °C;

(2) Evaporator water inlet-outlet 12-7 °C, external air temperature 35 °C.

Sound pressure level in hemispherical field at 10 m from condenser side and 1.6 m from ground. Values with tolerance ± 2 dB.

The sound levels refer to operation of the unit under full load in nominal conditions.

The listed noise levels, weights and dimensions refer to base chillers with no options fitted (NB: dimensions for lower noise and/or higher efficiency versions may differ).

Data declared according to UNI EN 14511:2011.



MTA participates in the E.C.C. programme for LCP-HP. Certified products are listed on www.eurovent-certification.com. Eurovent certification applied to the units:

- Air/Water with cooling capacity up to 600 kW
- Water/Water up to 1500 kW

OPTIMISED SCREW COMPRESSORS

Phoenix^{plus}' semi-hermetic twin screw compressors have been developed and optimised specifically for R134a and are equipped, as standard, with a continuous capacity control facility, part winding starter device and compressor crankcase heaters. The high level of reliability these compressors offer is assured by the reduced number of moving parts and the direct coupling of the drive screw to the motor in a solution that ensures near continuous refrigerant delivery, thereby reducing the level of vibration. The reduction of the resistive torque and compression ratio associated with the use of R134a result in reduced wear of the mechanical elements and lower electrical power consumptions.

ADVANCED MICROPROCESSOR

The new programmable 32-byte "xDRIVE" microprocessor is equipped with a LINUX operating system and a backlit semi-graphic user terminal. The use of icons, multifunction keys with dynamic description and moving images, render xDRIVE extremely user friendly. xDRIVE features the ModBUS-RTU communication protocol as standard, allowing connection with the most widely utilised Building Management Systems (BMS). It also features an Ethernet port as standard, with HTML supervision pages preloaded for connection to a company intranet or the Internet. The xDRIVE can manage in master / slave mode up to 10 units.

Semi-graphic user terminal with multifunction keys and dynamic icons.

Electronic thermostatic valves (optional).

Unimpeded access to the compressors.

Optimised fans for whisper-quiet operation (SSN version).



ARIES FREECOOLING

AIR-COOLED CHILLERS FEATURING INTEGRATED FREECOOLING WITH R407C EQUIPPED SCROLL COMPRESSORS. COOLING CAPACITY 65 - 226 KW.

FREECOOLING OFFERS NOTABLE ENERGY SAVINGS AND RAPID PAYBACKS IN INDUSTRIES REQUIRING COLD WATER ALL YEAR ROUND. ARIES FC FEATURES SEPARATE REFRIGERATION AND FREECOOLING SECTIONS, FOR IMPROVED EFFICIENCY VERSUS TRADITIONAL SOLUTIONS.



ENORMOUS UTILISATION POTENTIAL

Aries *free-cooling* units are the ideal solution for industrial processes which require cooling throughout the entire year, especially when the ambient air temperature is lower than the temperature of the fluid returning from the process circuit. As an example of the potential of the free-cooling operating mode, for applications with 24 hour/day production cycles the annual percentage of free-cooling operation can be in excess of 90%, resulting in energy savings in the region of 40-50%.

INDEPENDENT AERAUIC SECTIONS

The total aeraulic independence of the free-cooling coils with respect to the condensing coils is achieved using dedicated fans and coils within separate compartments. This solution offers maximum efficiency in the exploitation and control of the free-cooling mode, providing a simple and reliable solution to the problems associated with conventional designs in which the free-cooling coils are positioned in front of the condensing coils and served by shared fans. In fact such conventional solutions result in a significant reduction in energy savings because of the higher power consumption of the fans and the critical conditions caused by the concurrency of conflicting requirements, namely the need to reduce the air flow for condensing pressure control and to increase it to maximise the useful free-cooling effect.

ADVANCED SOFTWARE

Apart from managing the free-cooling parameters, the innovative software, specifically developed by MTA, controls the automatic rotation of the compressors start sequence, the unloading procedure and the management of the optional electronic thermostatic valves.

The microprocessor also interfaces with peripheral systems at several levels, from user level to supervision network level. GSM modem connection is offered, as is guaranteed compatibility with the most widely used BMS system communication protocols: BACnet, Lonworks, and ModBus.

A PLUG & PLAY SOLUTION

AS 201-301 FC are equipped, as standard, with a storage tank with a finned evaporator immersed within it, whilst AS 351-751 FC feature a shell-and-tube evaporator and an optional storage tank. All hydronic components can be pre-installed inside the unit, creating a packaged solution. This translates into savings in time otherwise required to select hydraulic circuit components plus less complex installation procedures and hence a reduction in installation times and costs. The scroll compressors are equipped with crankedcase heaters as standar. All the units are delivered with a phase monitor which provides protection against phase loss and phase reversal.

VERSIONS

- N (standard);
- SN (low noise);
- SSN (very low noise);
- Low ambient temperature version (min. -15 °C).

ACCESSORIES

- Compressor suction and discharge valves;
- Electronic fan speed control;
- Electronic thermostatic expansion valve (except 201-301);
- Hydronic group without pump;
- Hydronic group with storage tank and single or twin pumps (351-751 only);
- High, medium and low head pressure pumps;
- Air filter on condenser coils (standard on 201-301);
- Power factor correction capacitors (351-751);
- Antivibration dampers;
- Simple remote control;
- Replicated remote user terminal;
- Supervisor systems;
- Victaulic connections.

		AS FC Model										
		201	251	301	351	401	501	551	601	701	751	
Free-cooling OFF	Cooling capacity (1)	kW	65,4	70,8	88,2	104	126	148	170	185	206	226
	Absorbed power (1)	kW	13,9	16,2	17,0	26,3	30,2	35,7	39,6	45,4	47,0	53,9
	Max external air temperature (1)	°C	42	45	45	39	41	40	40	38	42	41
	Cooling capacity (2)	kW	46,5	49,5	63,1	72,8	88,6	105	121	133	147	162
	Absorbed power (2)	kW	15,7	18,8	19,5	29,0	33,1	38,5	42,7	48,6	50,8	57,8
TOTAL Free-cooling	Cooling capacity (1)	kW	65,4	70,8	88,2	104	126	148	170	185	206	226
	Absorbed power (*)	kW	1,6	2,3	2,3	4,0	4,0	4,0	4,0	4,0	6,0	6,0
	Total freecooling achieved at (1)	°C	4,3	4,7	2,7	5,0	3,7	2,3	3,4	2,2	4,6	3,5
	Cooling capacity (2)	kW	46,5	49,5	63,1	72,8	88,6	105	121	133	147	162
	Absorbed power (*)	kW	1,6	2,3	2,3	4,0	4,0	4,0	4,0	4,0	6,0	6,0
	Total freecooling achieved at (2)	°C	-1,1	-0,7	-2,3	-0,6	-1,5	-2,5	-1,5	-2,5	-0,6	-1,6
ESEER	-	4,19	3,82	4,07	3,56	3,73	3,79	3,97	3,94	3,91	3,75	
Power supply	V/Ph/Hz	400 ± 10% / 3-PE / 50										
Circuits / Compressors	N°	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	
Sound pressure level Freecooling OFF (N)	dB(A)	60,2	60,2	61,5	62,6	61,6	61,6	61,6	61,6	62,3	62,3	
Sound pressure level Freecooling OFF (SN)	dB(A)	-	-	-	56,2	55,0	55,0	55,0	55,0	55,2	55,2	
Sound pressure level Freecooling OFF (SSN)	dB(A)	-	-	-	48,9	48,9	47,7	48,7	48,7	49,1	49,1	
Depth	mm	2550	2550	2550	3495	3495	3495	4595	4595	4595	4595	
Width	mm	1400	1400	1400	2188	2188	2188	2188	2188	2188	2188	
Height	mm	2136	2136	2136	1989	1989	1989	1989	1989	1989	1989	
Installed weight	Kg	1494	1494	1509	1858	1980	2276	2536	2541	2752	2803	

All data refers to standard units at the following nominal conditions:

(1) Evaporator water inlet-outlet 20-15 °C, external air temperature 25 °C; glycol water at 30%.

(2) Evaporator water inlet-outlet 12-7 °C, external air temperature 35 °C; glycol water at 30%.

(*) In total freecooling mode the total absorbed power is only the fans absorbed power.

Sound pressure level in hemispherical field at 10 m from condenser side and 1.6 m from ground. Values with tolerance ± 2 dB.

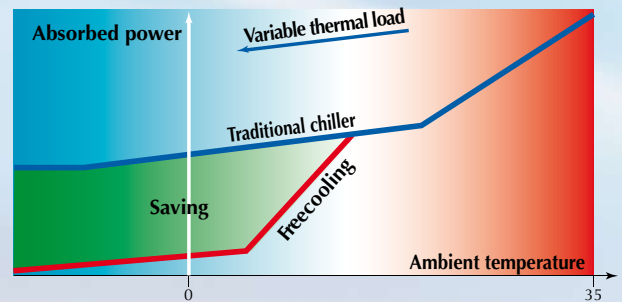
The sound levels refer to operation of the unit under full load in nominal conditions.

The listed noise levels, weights and dimensions refer to base chillers with no options fitted.

INSTANT COOLING, FREE OF CHARGE

The difference between the ambient air temperature and the temperature of the fluid in the process circuit is continuously monitored by the microprocessor which, as soon as conditions permit it, automatically activates the free-cooling mode, starting the dedicated fans and diverting the flow of fluid to the free-cooling coil by means of a three-way modulating valve (fitted as standard). The microprocessor independently controls the speed of both the free-cooling and the condensing fans, maximising energy savings and simultaneously optimising refrigerant cycle performance. The resulting overall EER value is higher than 10.

THE BENEFITS OF FREE-COOLING



Backlit semi-graphic user terminal.



Aeraulically separate sections for the maximum exploitation of free-cooling.



Servo-controlled three-way modulating hydraulic valve supplied as standard.



Shell-and-tube evaporator: a reliable solution (mod 351 - 751).



PHOENIX FREECOOLING

AIR-COOLED CHILLERS FEATURING INTEGRATED FREECOOLING WITH R407C EQUIPPED SEMI-HERMETIC TWIN SCREW COMPRESSORS. COOLING CAPACITY 248 - 662 KW.

INDUSTRY NEVER STOPS, AND PHOENIX FC NEVER WASTES UNWANTED ENERGY, ENSURING RAPID PAYBACKS. UNIQUE SEPARATE CONDENSING AND FREECOOLING SECTIONS COMBINE THE BENEFITS OF ALL-IN-ONE PACKAGES AND CHILLER + COOLER SOLUTIONS.



AN ENVIRONMENTALLY FRIENDLY SOLUTION

Phoenix *free-cooling* units are the optimum solution for applications such as plastics production and any other process in which cooling is required throughout the year.

By exploiting low ambient air temperatures Phoenix *free-cooling* units cool the process fluid free of charge, eliminating the energy wastage caused by running refrigerant compressors during the winter season.

As an example of the extensive energy saving potential this technology offers, for a 24 hour/day production cycle the unit could operate in free-cooling for 90% of its operating cycle, resulting in energy savings in the region of 40-50%.

ADVANCED SOFTWARE

Apart from managing the free-cooling parameters, the innovative software, specifically developed by MTA, controls the automatic rotation of the compressors start sequence, the unloading procedure and the management of the optional electronic thermostatic valves.

The microprocessor also interfaces with peripheral systems at several levels, from user to supervision network level. GSM modem connection is offered, as is guaranteed compatibility with the most widely used BMS system communication protocols: BACnet, Lonworks, and ModBus.

POWERFUL AND RELIABLE

Phoenix *free-cooling* units are generally installed in high capacity plants requiring maximum energy savings and absolute reliability. The semi-hermetic twin screw compressors ensure continuous and reliable operation thanks to the reduced number of moving parts, the absence of suction and discharge valves and the presence of oil pumps, as well as a unique patented lubrication system. All the units are delivered with a phase monitor which provides protection against phase loss and checks the operating voltage limits.

INDEPENDENT AERAUIC SECTIONS

The total aeraulic independence of the free-cooling coils with respect to the condensing coils is achieved using dedicated fans and coils within separate compartments. This solution offers maximum efficiency in the exploitation and control of the free-cooling mode, providing a simple and reliable solution to the problems associated with conventional designs in which the free-cooling coils are positioned in front of the condensing coils and served by shared fans. In fact such conventional solutions result in a significant reduction in energy savings because of the higher power consumption of the fans and the critical conditions caused by the concurrency of conflicting requirements, namely the need to reduce the air flow for condensing pressure control and to increase it to maximise the useful free-cooling effect.

VERSIONS

- C - standard;
 - SC - low noise;
 - SF - low noise (for high ambient temperatures);
 - SSN - super-silent;
- Low ambient temperature version (min. -15 °C).

ACCESSORIES

- Compressors cover (for C only, standard on other versions);
- Electronic fan speed regulation;
- Electronic thermostatic valve (special);
- Electrical protection by means of automatic cut-outs;
- Metal mesh protection filters for coils;
- Anti-vibration dampers kit;
- Replicated remote user terminal kit;
- Supervisor kits.

PH FC Model		0801	0901	1101	1251	1401	1602	1702	1802	2002	2202	
Free-cooling OFF	Cooling capacity (1)	kW	248	287	352	406	476	495	522	543	621	662
	Absorbed power (1)	kW	63	72	86	98	109	126	139	151	162	182
	Max external air temperature (1)	°C	41	40	39	41	42	41	39	37	38	36
	Cooling capacity (2)	kW	170	198	239	278	329	339	359	375	425	449
	Absorbed power (2)	kW	65	75	88	101	114	130	144	157	167	185
TOTAL Free-cooling	Cooling capacity (1)	kW	248	287	352	406	476	495	522	543	621	662
	Absorbed power (*)	kW	6,0	8,0	8,0	10,0	12,0	12,0	12,0	12,0	14,0	14,0
	Total freecooling achieved at (1)	°C	2,8	1,4	0,8	2,4	3,2	2,8	2,1	1,6	2,3	1,6
	Cooling capacity (2)	kW	170	198	239	278	329	339	359	375	425	449
	Absorbed power (*)	kW	6,0	8,0	8,0	10,0	12,0	12,0	12,0	12,0	14,0	14,0
	Total freecooling achieved at (2)	°C	-2,1	-3,4	-3,7	-2,4	-1,8	-2,1	-2,7	-3,1	-2,4	-3,0
ESEER	-	3,4	3,7	3,6	3,6	4,0	3,5	3,6	3,7	3,6	3,4	
Power supply	V/Ph/Hz	400 ± 10% / 3-PE / 50										
Circuits / Compressors	N°	1/1	1/1	1/1	1/1	1/1	1/1	2/2	2/2	2/2	2/2	
Sound pressure level Freecooling OFF (C)	dB(A)	62,0	63,2	62,6	63,6	65,0	65,5	65,6	65,7	66,9	66,9	
Sound pressure level Freecooling OFF (SC)	dB(A)	55,4	56,3	56,0	57,0	59,0	59,1	59,3	59,4	60,5	60,6	
Sound pressure level Freecooling OFF (SF)	dB(A)	55,7	56,1	56,3	57,2	59,1	59,2	-	-	-	-	
Sound pressure level Freecooling OFF (SSF)	dB(A)	49,1	49,5	49,8	50,6	51,0	51,5	-	-	-	-	
Depth	mm	3675	4590	4590	5490	6425	6425	6425	6425	7360	7360	
Width	mm	2190	2190	2190	2190	2190	2190	2190	2190	2190	2190	
Height	mm	2350	2350	2350	2350	2350	2350	2350	2350	2350	2350	
Installed weight	Kg	2623	3306	3814	4648	5003	5273	5385	6089	6133	6154	

All data refers to standard units at the following nominal conditions:

(1) Evaporator water inlet-outlet 20-15 °C, external air temperature 25 °C; glycol water at 30%.

(2) Evaporator water inlet-outlet 12-7 °C, external air temperature 35 °C; glycol water at 30%.

(*) In total freecooling mode the total absorbed power is only the fans absorbed power.

Sound pressure level in hemispherical field at 10 m from condenser side and 1.6 m from ground. Values with tolerance ± 2 dB.

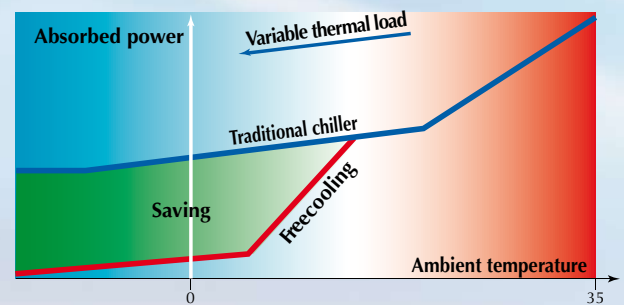
The sound levels refer to operation of the unit under full load in nominal conditions.

The listed noise levels, weights and dimensions refer to base chillers with no options fitted.

INSTANT COOLING, FREE OF CHARGE

The difference between the ambient air temperature and the temperature of the fluid in the process circuit is continuously monitored by the microprocessor which, as soon as conditions permit it, automatically activates the *free-cooling* mode, starting the dedicated fans and diverting the flow of fluid to the *free-cooling* coil by means of a three-way modulating valve (fitted as standard). The microprocessor independently controls the speed of both the *free-cooling* and the condensing fans, maximising energy savings and simultaneously optimising refrigerant cycle performance. The resulting overall EER value is higher than 10.

THE BENEFITS OF FREE-COOLING



Backlit semi-graphic user terminal.



Aeratically separate sections for the maximum exploitation of free-cooling.



Servo-controlled three-way modulating hydraulic valve supplied as standard.



Shell-and-tube evaporator: a reliable solution.



AQUAFREE

ADD-ON FREECOOLING MODULES FOR ARIES TECH, GALAXY TECH AND PHOENIX PLUS, TRANSFORMING THE CHILLER INTO AN ALL-IN-ONE MODULAR AND EXPANDABLE FREECOOLING CHILLER. COOLING CAPACITY 242 – 466 kW PER SINGLE MODULE.

AQUAFREE IS THE MOST ENERGY EFFICIENT AND FLEXIBLE FREECOOLING CONCEPT ON THE MARKET, OFFERING A PACKAGED SOLUTION WHICH TRANSFORMS A STANDARD CHILLER INTO A FREECOOLING CHILLER. AQUAFREE ALLOWS THE USER TO SIMPLY COMBINE MULTIPLE MODULES TO ACHIEVE THE OPTIMUM FREECOOLING LEVEL.



PLUG & PLAY

Connect AquaFree to the chiller (AST, GLT and PNP) and set the software parameters communications between the units. The chiller's xDRIVE microprocessor will control the chiller / free-cooler combination as a single unit. In case of AQUAfree connection to a chiller previously installed check before the software compability. The AQUAfree / chiller piping kit is available on request.

ENERGY EFFICIENT

AquaFree can easily obtain savings of 30% or more, offering efficiency levels well beyond the industry norm. The modular design permits additional AquaFree modules to be added, allowing efficiencies to be further increased and tailored to individual applications.

SUPER SILENT

Choose between 2 noise levels, both extremely quiet, with an electronic fan speed control option to further reduce part load noise levels. Especially during night time, when temperatures drop and freecooling becomes more active, AquaFree's low noise becomes a notable asset.

INDEPENDENT

Each module features its own electrical connection and 3-way valve, as well as its own electrical panel and microprocessor with independent alarms and water in/out and ambient temperature visualization: consequently each module can operate completely autonomously.

GLYCOL FREE KIT

The glycol free kit is available on request and is ideal in applications requiring an absence of glycol, such as food industries. The glycol free kit, which features its own intermediate exchanger and hydraulic circuit, is simply installed between the chiller and the AquaFree modules.

PEACE OF MIND

Each AquaFree module features its own microprocessor, allowing it to operate independently. If one module suffers a fault the others can still operate, if the chiller suffers a fault the modules can continue to operate. AquaFree can operate at ambient temperatures of -15 °C to +46 °C. Each AquaFree module features independent aeraulic sections featuring axial fans with progressive activation (continuous control on request).

VERSATILE

As AquaFree modules are independent, so system transportation is simplified. AquaFree can be positioned separately if space needs dictate it. It is also possible to install AquaFree, or add additional modules, at a later date. Each AquaFree module features its own remote on/off control.

VERSIONS

- Acoustic versions:
 - N (standard);
 - SN (low noise).
- Modules:
 - AFW100 (for connection to AST 090-140);
 - AFV200 (for connection to GLT/PNP);
 - AFV300 (for connection to GLT/PNP);
- Low ambient version (down to -20 °C).

ACCESSORIES

- Freecooling coils with anticorrosion treatment;
- Lateral hydraulic connections (AFW100);
- Metal mesh filters for freecooling coils;
- Electronic fan speed control;
- Antivibration dampers;
- On request Chiller-AquaFree interconnection kit (tubing to be supplied by installer);
- On request (special) add-on Glycol-free kit;
- Replicated remote user terminal;
- Victaulic connections.

AFW-AFV Model		AFW100	AFV200	AFV300
Applicable chiller		AST 090-140	GLT & PNP	GLT & PNP
Cooling capacity (N)	kW	310	310	466
Cooling capacity (SN)	kW	242	242	363
Absorbed power (N)	kW	8	8	12
Absorbed power (SN)	kW	7,8	7,8	11,7
Water flow (N)	m ³ /h	58,3	58,3	87,4
Water flow (SN)	m ³ /h	45,4	45,4	68,1
Pressure drop (N)	kPa	77	77	86
Pressure drop (SN)	kPa	47	47	52
No. of Coils / Fans	-	4	4	6
Power supply	V/Ph/Hz	400 ± 10% / 3-PE / 50		
Sound pressure level (N)	dB(A)	61,0	61,0	62,8
Sound pressure level (SN)	dB(A)	54,0	54,0	55,8
Depth (D)	mm	2.100	2.100	3.100
Width (W)	mm	2.188	2.190	2.190
Height (H)	mm	1.989	2.360	2.360
Installed weight	kg	1.071	1.260	1.835

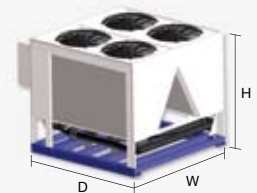
All data refers to standard units at the following nominal conditions:

Water inlet-outlet 15-10 °C, external air temperature 0 °C, 30% ethylene glycol.

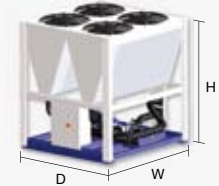
Sound pressure level in hemispherical field at 10m from coil side, 1.6 m from ground, full load operation at nominal conditions, tolerance ± 2 dB.

The listed noise levels, weights and dimensions refer to base chillers with no options fitted.

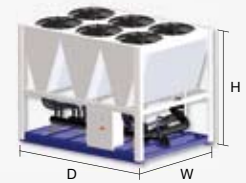
AFW100



AFV200



AFV300



AFV200 & AFV300 can be mounted directly to the back of the chiller, AFW100 requires a small service area between itself and the chiller.

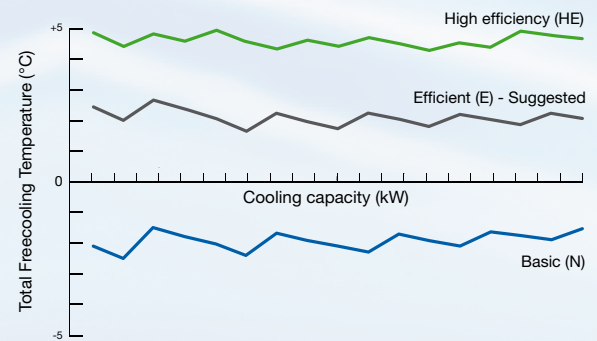
TAILOR MADE FREECOOLING

AquaFree allows the user to define the desired efficiency, simply combining multiple modules to achieve the optimum freecooling level. Any combination of AFV200 and AFV300 modules allows the freecooling section to be increased one "V" coil at a time from a minimum of two coils upwards.

As an example, a GLT150N chiller, operating at water 15/10 °C with 30% glycol and a single AFV300 module (Basic "N" configuration), achieves a TFT (total freecooling temperature) the temperature at which the unit achieves 100% freecooling) of -0,2 °C). Alternatively, the application of two AFV200 modules (Efficient "E" configuration) achieves a TFT of +3,1 °C. By applying an AFV300 module and an AFV200 module (High efficiency "HE" configuration), a TFT of +5,0 °C can be achieved.

SELECT YOUR EFFICIENCY

The size and number of AquaFree modules applied allows the efficiency level to be progressively increased from Basic (N) to Efficient (E) and even High efficiency (HE) levels.



The integral microprocessor allows AquaFree to operate independently.



Each AquaFree module features its own independent electrical panel.



A 3-way valve, installed on-board as standard, optimises freecooling levels.



Unique design allows interconnection of multiple AquaFree modules.



WATER COOLED WATER CHILLERS, HEAT PUMPS AND EVAPORATING UNITS WITH R410A EQUIPPED SCROLL COMPRESSORS. COOLING CAPACITY 300 – 710 KW.

NEPTUNE TECH'S WATER-COOLED CONFIGURATION WITH UP TO 3 SCROLL COMPRESSORS IN PARALLEL OFFERS HIGH ENERGY EFFICIENCIES IN THE PARTIAL LOAD CONDITIONS WHICH ARE TYPICAL IN INDUSTRY. THE EXTREMELY COMPACT OPEN-FRAME DESIGN MAXIMIZES INSTALLATION.



HIGH ENERGY EFFICIENCY

Neptune*tech* units are designed to offer optimal energy efficiency and consequently maximum operating economy. Thanks to the use of tandem or trio scroll compressors installed in one or two independent circuits, mated with an oversized evaporator section, Neptune*tech* can achieve ESSER values of up to 5,54, meaning that on average 1 kWh of electrical power is required to remove 5,54 kWh of heat energy from the process.

MULTISCROLL COMPRESSORS

Scroll compressors installed in tandem or trio configurations ensure high performance and elevated energy savings at partial loads. Thanks to the reduced number of moving parts and the absence of suction and discharge valves, scroll compressors feature reduced maintenance requirements and a minimal emission of noise and vibration, whilst guaranteeing absolutely reliable operation. All the scroll compressors are equipped with crankcase heaters as standard.

COMPLETE MODULARITY

Neptune*tech* can meet the needs of a wide range of industrial applications, thanks to its many different configurations and generous operating limits. Neptune*tech* can be supplied in cooling version, heat pump, evaporating unit and low noise versions, with total or partial recovery exchangers.

SIMPLE INSTALLATION AND MAINTENANCE

The extremely compact footprint and limited width allow easy installation in cramped plant rooms and transit through standard size doors, thus reducing installation times and costs. In addition, class leading sound emission performances dispense with the need to install costly sound insulation. Troublefree and unimpeded access to the main components of the refrigerant circuit, plus the microprocessor's simple and intuitive graphic interface, combine to simplify maintenance activities, minimising downtimes and maintenance costs. All the units are delivered with a phase monitor which provides protection against phase loss and phase reversal.

SMART CONTROLS

The microprocessor has an icon-based display offering a clear presentation of the values for all main functional parameters. The microprocessor itself exchanges data with peripheral systems at several levels, from dialogue with users to dialogue with the supervision network, also by means of an optional GPRS modem, or towards the most widely used Building Management Systems (BMS). The optional xWEB300D device is a small supervisor system which supports connectivity with PCs equipped with a browser. This device allows the display and editing of the functional parameters, plus alarms visualization and resetting.

VERSIONS

- Standard;
- Low noise;
- ME - Evaporating unit combinable with remote condenser;
- Heat pump with inversion on the water side.

ACCESSORIES

- Antifreeze heaters for exchangers;
- Total recovery exchangers (100% of rejection heat);
- Desuperheater for recovery of 20% of rejection heat;
- Antivibration dampers kit;
- Modulating condensing pressure control valves;
- Replicated remote user terminal kit;
- xWEB300D and RS485 ModBus supervisor kits;
- Matching cooling tower or dry cooler available on request;
- Remote condensers for integration with unit available on request (ME);
- Noise reducing compressor housing;
- Soft starter;
- Shell and tube evaporator (on request).

NET - NET/ME Model		075	090	100	110	120	135	150	165	180	
Tower water											
NET	Cooling capacity (1)	kW	300	354	397	429	472	533	596	655	710
	Total absorbed power (1)	kW	58	68	78	86	92	105	119	128	138
	Cooling capacity (2)	kW	237	280	313	338	373	420	469	517	560
	Total absorbed power (2)	kW	56	65	75	82	88	101	114	121	131
ESEER		-	5,35	5,43	5,22	5,21	5,36	5,32	5,36	5,49	5,54
Well water											
NET	Cooling capacity (3)	kW	305	359	403	435	479	541	605	669	724
	Total absorbed power (3)	kW	54	64	73	81	85	98	110	117	126
	Cooling capacity (4)	kW	251	297	332	360	396	446	498	551	598
	Total absorbed power (4)	kW	48	57	65	72	75	87	98	104	111
Heat pump	Heating capacity (5)	kW	279	328	370	400	438	496	554	607	657
	Total absorbed power (5)	kW	68	79	91	99	105	121	136	146	156
Evaporating unit											
NET/ME	Cooling capacity (6)	kW	287	338	380	415	449	509	571	622	674
	Total absorbed power (6)	kW	61	72	81	88	96	109	122	133	144
	Cooling capacity (7)	kW	224	264	297	324	352	398	445	487	527
	Total absorbed power (7)	kW	60	70	80	87	94	107	121	131	141

Power supply	V/Ph/Hz	400 ± 10% / 3-PE / 50									
Circuits / Compressors	N°	1/3	1/3	2/4	2/4	2/4	2/5	2/6	2/6	2/6	2/6
Sound pres. level (Standard)	dB(A)	58,1	59,8	59,3	60,3	61,0	61,1	61,1	62,0	62,8	62,8
Sound pres. level (comp. housing)	dB(A)	51,1	52,8	52,4	53,3	54,0	54,1	54,1	55,0	55,8	55,8
Depth	mm	2010	2010	2610	2610	2610	3705	3705	3705	3705	3705
Width	mm	800	800	800	800	800	800	800	800	800	800
Height	mm	1830	1830	1830	1830	1830	1830	1830	1830	1830	1830
Installed weight	Kg	993	1161	1332	1440	1549	1729	1867	2061	2211	2211

All data refers to standard units at the following nominal conditions:

- (1) Evaporator water inlet/outlet temperature 20-15 °C, condenser water inlet/outlet temperature 30-35 °C;
- (2) Evaporator water inlet/outlet temperature 12-7 °C, condenser water inlet/outlet temperature 30-35 °C;
- (3) Evaporator water inlet/outlet temperature 20-15 °C, condenser water inlet/outlet temperature 15-30 °C;
- (4) Evaporator water inlet/outlet temperature 12-7 °C, condenser water inlet/outlet temperature 15-30 °C;
- (5) Condenser water inlet/outlet temperature 40-45 °C; evaporator water inlet/outlet temperature 12-7 °C.
- (6) Evaporator water inlet/outlet temperature 20-15 °C; condensing temperature 45 °C;
- (7) Evaporator water inlet/outlet temperature 12-7 °C; condensing temperature 45 °C;

Maximum condenser water outlet temperature at nominal conditions 50 °C.

Maximum condensing temperature for evaporating unit at nominal conditions 64 °C.

Sound pressure level in hemispherical field at 10 m from condenser side and 1.6 m from ground. Values with tolerance ± 2 dB.

The sound levels refer to operation of the unit under full load in nominal conditions.

The listed noise levels, weights and dimensions refer to base chillers with no options fitted.

Data declared according to UNI EN 14511:2011.

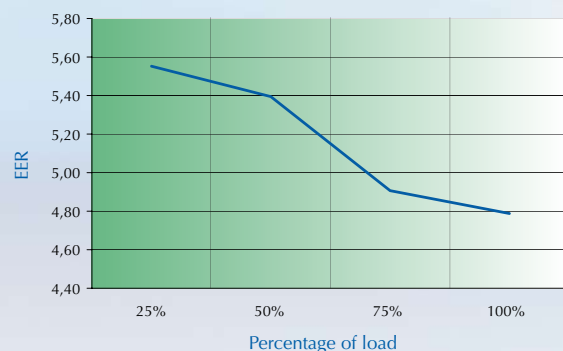


MTA participates in the E.C.C. programme for LCP-HP. Certified products are listed on www.eurovent-certification.com. Eurovent Certification applied to the units:
- Air/Water with cooling capacity up to 600 kW
- Water/Water up to 1500 kW (N.A. on ME)

HIGH EER VALUES AT PARTIAL LOADS

One of the main factors within elevated production costs in industry is the fact that chiller operation is frequently not optimised on the basis of fluctuations in production loads, which are increasingly subject to fast changing market demands. There is an enormous potential for energy saving, achievable by units that are able to adapt their operation in relation to the variability of these conditions. The use of Neptune*tech's* multi-scroll technology, with several compressors in parallel which are activated in accordance with the system load requirements, allows maximised performance and minimum power consumption at partial loads, in addition to reducing the minimum required volume of the storage tanks.

EER TREND AT DIFFERENT LOADS



Microprocessor with dual display and icon-based interface.



Performance optimisation thanks to multiscroll logic.



Ideal for the cooling of all industrial processes.



Easy access to all components.



AQUARIUS PLUS R134a

WATER-COOLED CHILLERS AND HEAT PUMPS WITH R134A EQUIPPED SEMI-HERMETIC TWIN SCREW COMPRESSORS. COOLING CAPACITY 466 - 1592 kW.

CLASS A ENERGY EFFICIENCY ON ALL MODELS, REFRIGERANT R134A EQUIPPED SCREW COMPRESSORS, AN ADVANCED EVAPORATOR AND SOPHISTICATED MICROPROCESSOR ALL COMBINE TO MAKE AQUARIUS PLUS THE CHOICE SOLUTION FOR THE MOST DISCERNING INDUSTRIAL USER.



ENERGY EFFICIENCY CLASS A

The high energy efficiency levels offered by Aquarius^{plus} have been achieved thanks to meticulous design and accurate selection of sophisticated components aimed at reducing operating costs. Continuous compressor capacity control, together with the use of up to 2 compressors in 2 independent circuits and electronic thermostatic valves, offer excellent partial load energy efficiency levels.

R134A ENVIRONMENTALLY FRIENDLY REFRIGERANT

Aquarius^{plus} features R134a, a chlorine-free, zero ozone depletion potential (ODP) refrigerant with significant environmental benefits. R134a's reduced operating pressures and temperatures ensure high compression levels with reduced electrical power consumptions.

HIGH TECHNOLOGY SUPPLIED AS STANDARD

The electronic thermostatic valves, supplied as standard on almost all models, control the refrigerant flow by means of an actuator on the basis of the pressure and temperature values measured by sensors in the refrigerant circuit. The thermostatic valves ensure unparalleled cooling capacity precision whilst simultaneously extending the operating limits of the units. Thanks to these features Aquarius^{plus} ensures highest energy efficiency levels.

RELIABLE IN EVEN EXTREME CONDITIONS

Aquarius^{plus} units are designed to ensure reliable operation in the typically demanding conditions of industrial applications, thanks to the availability of up to 2 independent refrigerant circuits, generous operating limits and the use of highest quality components. All the units are equipped with a phase monitor which provides protection against phase loss and phase reversal and checks the operating voltage limits.

HIGH EFFICIENCY EXCHANGERS

The direct expansion shell-and-tube evaporators and condensers, optimised for R134a, are amongst the most technologically advanced on the market. Thanks to their construction, and the facility for periodic maintenance, they provide stable and reliable operation in even the harshest industrial applications. All evaporators are protected from freezing by means of the microprocessor's antifreeze function and a differential pressure switch.

PERFECT TEMPERATURE CONTROL

Continuous capacity control combined with the electronic thermostatic valves allow perfect control of the cooling capacity output and hence the water outlet temperature, this being a fundamental requirement in the precision cooling of industrial processes.

VERSIONS

- N (standard);
- SSN (very low noise);
- Heat pump with inversion on water side.

ACCESSORIES

- Compressor protection by means of automatic cut-outs;
- Condensing pressure control kit;
- Anti-vibration dampers kit;
- Replicated remote user terminal kit;
- Supervisor kits;
- Combinable cooling tower or dry cooler available on request;
- Antifreeze heater;
- Total or partial recovery exchangers (50% or 100% of rejection heat (available on request);
- Pressure control valves kit;
- MTA xCONNECT supervision based on internal web pages;
- Modularity / web interconnection hub.

AQP Model		1401	1601	1801	2101	2401	1402	1502	1602	1802	2002	2202	2502	2652	2802	3202	3402	3602	4202	4802
Tower water																				
Cooling capacity (1)	kW	466	552	625	713	786	467	497	531	611	680	733	838	888	944	1101	1178	1252	1443	1592
Total absorbed power (1)	kW	80	97	106	127	136	83	88	94	110	116	125	150	156	159	190	201	215	257	270
Cooling capacity (2)	kW	353	423	481	549	603	360	381	407	472	525	565	644	680	723	842	904	964	1107	1214
Total absorbed power (2)	kW	73	87	99	113	123	74	79	85	98	106	116	132	139	145	173	185	199	228	246
ESEER	-	5,70	5,42	5,90	5,32	5,77	5,91	5,67	5,48	5,79	6,11	5,99	5,48	5,78	6,01	5,58	5,91	5,93	5,50	5,92

Well water

Cooling capacity (3)	kW	484	572	647	740	817	485	517	551	636	706	759	869	923	982	1141	1220	1295	1495	1657
Total absorbed power (3)	kW	74	89	97	119	125	77	81	87	101	106	115	140	145	147	175	185	197	241	250
Cooling capacity (4)	kW	370	441	501	574	630	376	398	424	494	549	589	672	711	756	880	942	1002	1155	1268
Total absorbed power (4)	kW	67	81	90	105	114	69	73	78	90	97	106	123	129	134	159	170	182	212	228

Heat pump

Heating capacity (5)	kW	399	474	545	615	679	404	427	455	529	591	642	721	764	810	945	1020	1094	1240	1364
Total absorbed power (5)	kW	86	103	119	132	146	87	93	99	113	126	141	154	163	172	203	221	240	266	291

Power supply	V/Ph/Hz	400 ± 10% / 3-PE / 50																		
Circuits / Compressors	N°	1/1	1/1	1/1	1/1	1/1	2/2	2/2	2/2	2/2	2/2	2/2	2/2	2/2	2/2	2/2	2/2	2/2	2/2	2/2
Sound pressure level (N)	dB(A)	69,0	68,0	68,0	69,0	70,0	66,0	66,0	66,0	68,0	68,5	69,0	70,0	71,0	72,0	71,0	71,0	71,0	72,0	73,0
Sound pressure level (SSN)	dB(A)	63,0	62,0	62,0	63,0	64,0	60,0	60,0	60,0	62,0	62,5	63,0	64,0	65,0	66,0	65,0	65,0	65,0	66,0	67,0
Depth	mm	1020	1020	1020	1020	1020	1200	1200	1200	1200	1200	1200	1200	1200	1200	1200	1200	1200	1200	1200
Width	mm	3345	3345	3345	3345	3345	3745	3745	3745	3745	3745	3745	3745	4295	3755	4745	4845	4860	4760	4760
Height	mm	2020	2020	2110	2110	2110	1850	1850	1850	1850	1940	1940	1940	1940	2000	2130	2200	2200	2250	2250
Installed weight	Kg	2455	2909	3420	3477	3586	2691	2966	2966	3024	3683	3983	4040	4409	4509	5826	6539	6539	6539	7141

All data refers to standard units at the following nominal conditions:

- (1) Evaporator water inlet/outlet temperature 20-15 °C, condenser water inlet/outlet temperature 30-35 °C;
- (2) Evaporator water inlet/outlet temperature 12-7 °C, condenser water inlet/outlet temperature 30-35 °C;
- (3) Evaporator water inlet/outlet temperature 20-15 °C, condenser water inlet/outlet temperature 15-30 °C;
- (4) Evaporator water inlet/outlet temperature 12-7 °C, condenser water inlet/outlet temperature 15-30 °C;
- (5) Condenser water inlet/outlet temperature 40-45 °C; evaporator water inlet/outlet temperature 12-7 °C.

Heating capacity = Cooling capacity + Absorbed power.

Sound pressure level in hemispherical field at 10 m from condenser side and 1.6 m from ground. Values with tolerance ± 2 dB.

The sound levels refer to operation of the unit under full load in nominal conditions.

The listed noise levels, weights and dimensions refer to base chillers with no options fitted.

Data declared according to UNI EN 14511:2011.



MTA participates in the E.C.C. programme for LCP-HP. Certified products are listed on www.eurovent-certification.com. Eurovent Certification applied to the units:
- Air/Water with cooling capacity up to 600 kW
- Water/Water up to 1500 kW

OPTIMISED SCREW COMPRESSORS

Aquarius^{plus} semi-hermetic twin screw compressors have been developed and optimised specifically for R134a and are equipped, as standard, with a continuous capacity control facility and part winding starter device. The high level of reliability these compressors offer is assured by the reduced number of moving parts and the direct coupling of the drive screw to the motor in a solution that ensures near continuous refrigerant delivery, thereby reducing the level of vibration. The reduction of the resistive torque and compression ratio associated with the use of R134a result in reduced wear of the mechanical elements and lower electrical power consumptions.

ADVANCED MICROPROCESSOR

The new programmable 32-byte "xDRIVE" microprocessor is equipped with a LINUX operating system and a backlit semi-graphic user terminal. The use of icons, multifunction keys with dynamic description and moving images, render xDRIVE extremely user friendly. xDRIVE features the ModBUS-RTU communication protocol as standard, allowing connection with the most widely utilised Building Management Systems (BMS). It also features an Ethernet port as standard, with HTML supervision pages preloaded for connection to a company intranet or the Internet. The xDRIVE can manage in master/slave mode up to 10 units.

Semi-graphic user terminal with multifunction keys and dynamic icons.



Electronic thermostatic valves.



Continuous cooling capacity control.



Shell-and-tube evaporator: a reliable solution.



RWD

AIR-COOLED LIQUID COOLERS.
COOLING CAPACITIES 10 - 372 KW.

RWD PROVIDES MEDIUM TEMPERATURE COOLING, OR FREE-COOLING IN WINTER WHEN MATED WITH A CHILLER, ENSURING EXCEPTIONAL ENERGY SAVINGS AND RAPID PAY-BACKS VERSUS CHILLER ONLY SOLUTIONS. RWD FEATURES ALL SYSTEM COMPONENTS INSTALLED ON-BOARD.



AN ENVIRONMENT-FRIENDLY SOLUTION

RWD liquid coolers, with finned coils and axial fans, are the ideal solution for the free-cooling of applications in which the process temperature is higher than the ambient temperature for most of the year. Exploiting low ambient air temperatures, RWD cools the fluid free of charge, eliminating energy wastages caused by running refrigerant compressors during winter.

FREE-COOLING

In new plants customers can select the RWD model which provides the ideal compromise between installation cost and return on investment. In the case of existing plants retrofitting an RWD equipped with a 3-way valve in series with the system chiller is a viable solution. Installation of an RWD not only increases the life of the chiller, but also allows significant energy saving levels ensuring a return on the initial investment in approximately twelve months.

PLUG AND PLAY

From RWD 200 the main components such as 3-way valves, manifolds, and single or double pumps can be installed in the unit. RWD can be installed outdoors thanks to the IP54 protection rating and epoxy surface coating of the frame. Consequently no time is lost in component selection and RWD installation is rendered quick and easy.

VERSIONS

- Acoustic versions:
 - C (standard);
 - SC (low noise);
 - SSC (very low noise).
- Configurations:
 - Single coil (RWD 010-150);
 - Packaged twin coil (RWD 200-350).
- Airbatic version.

ACCESSORIES

- Electrical panel;
- Microprocessor controller;
- Electronic fan speed regulation (special);
- Differing head pressure pumps in single or twin configurations (RWD 200-350) (special);
- Metal mesh protection filters for coils;
- 3-way valves + manifolds (RWD 200-350) (special);
- 60 Hz power supply (special);
- Manifolds kit;
- Horizontal installation kit (RWD 030-150);
- Remote control.

RWD Model		010	020	030	040	050	075	100	150	200	250	300	350
Cooling power (1)	kW	10,3	20,0	30,6	40,6	49,0	68,5	96,8	133	195	248	304	372
Absorbed power	kW	0,48	0,96	2,10	2,10	2,10	4,10	4,10	6,10	8,10	10,0	10,0	12,0
Water flow	l/h	1797	3470	5315	7052	8522	11899	16821	23126	33822	43079	52783	64653
Pressure drop	bar	0,16	0,26	0,33	0,26	0,38	0,60	0,34	0,63	0,33	0,53	0,39	0,66
Fans	n°	1	2	1	1	1	2	2	3	4	5	5	6
Sound pressure level (3)	dB(A)	47,8	50,8	60,1	59,1	58,1	62,1	61,1	62,8	64,1	65,0	64,0	65,8
Power supply (2)	V/Ph/Hz	230±10%/3/50			400 ± 10% / 3-PE / 50								
Depth	mm	847	1682	2145	2145	2145	3042	3959	4860	4390	5295	5295	6200
Width	mm	440	440	779	779	779	779	779	779	1510	1510	1510	1510
Height	mm	763	763	1364	1364	1364	1364	1364	1364	1485	1485	2085	2085
Height with legs	mm	-	-	1534	1534	1534	1534	1534	1534	-	-	-	-
Weight	Kg	57	109	413	423	433	562	679	821	1064	1271	1543	1803
Water connections without manifolds		G 1"	G 1"	G 1 1/2"	G 1 1/2"	G 1 1/2"	G 2"	G 2"	G 2"	G 2"	G 2"	G 2 1/2"	G 2 1/2"
Water connections with manifolds		-	-	-	-	-	-	-	-	DN 80	DN 80	DN 100	DN 100

(1) Values refer to standard units at the following operating conditions: ΔT 10 °C between water inlet temperature and ambient temperature, ΔT 5 °C between water inlet temperature and water temperature at outlet from chiller located at sea level and with 0% glycol.

(2) Model RWD 020 is available also in a version for connection to a 400V±10%/3/50Hz power supply.

(3) Sound pressure level in hemispherical field at 10 m from condenser side and 1.6 m from ground. Values with tolerance ± 2 dB. The sound levels refer to operation of the unit under full load in nominal conditions.

REDUCED COSTS, REDUCED ENVIRONMENTAL IMPACT

Cooling towers suffer substantial costs due to the treatment of the process water. Because it uses a closed circuit, RWD does not require any form of process fluid treatment and eliminates liquid losses caused by evaporation.

MICROPROCESSOR CONTROLLER

RWD units can be equipped with a microprocessor featuring an intuitive graphic interface. The controller manages the fans independently, starting them in steps in proportion to the fluid inlet temperature.

AIRBATIC VERSION

The RWD Airbatic version, thanks to the water sprayed on the cooling coils, offers the following benefits:

- The chilled water at the outlet can be at a temperature which is below ambient temperature;
- High cooling capacity within compact dimensions;
- Low water consumption compared to cooling towers;
- Radical energy savings when cooling the condensation water for water-cooled chillers;
- High cooling power in presence of high ambient temperatures;
- High cooling efficiency also in the low noise operating mode.

Integral independent electrical panel.



Internal view of packaged RWD 300-350.



Fans with integrated motors.



Remote control (optional).



CONNECTIVITY

CONNECT



CLICK AND CHECK

xCONNECT, MTA's world of connectivity solutions, allows connection to User-supplied Building Management Systems (**BMS**), connection **via local LAN** or **Ethernet networks**, connection to MTA's dedicated **xWEB** supervisor, the possibility to program or download storical data via **USB** connection, and much more beyond.

Serial connection to the most advanced **BMS** systems allows MTA units to be integrated into a centralised supervisor through ModBus protocol. The integration with Lonworks, Bacnet, Profibus system is possible through apposite gateways (not included).

Local supervision via intranet or internet can also be achieved **via Ethernet**, with **pre-programmed HTML supervision pages** which, according to the unit type, are already pre-programmed within the unit itself.

Local Ethernet connection allows multiple units to be interconnected within an autonomous system, with one unit acting as Master. The User can manage all units within the system via the Master unit, or via a remote User interface.

MTA's **xWEB** function represents one of the most advanced supervision systems currently available, and integrates the latest internet applications.

All **xWEB** solutions feature a server utilising a μ -Linux operating system, allowing data transmission to a client PC. The server reads, files and manages all information arriving from the units to which it is connected. The following functions are offered in Web page format, either locally or remotely, even **via GPRS**:

- Dynamic multiparameter visualization, either graphically or numerically, of all analogue data, the outputs status and the alarm status;
- Remote modification of the operating parameters;
- Graphic scheduling for command functions;
- System personalization, including alarm messaging rules;
- Alarm reset procedures and alarm history filing by remote display;
- Alarm message transmission via fax, sms and e-mail (only for xWEB with built in GPRS modem).

Features offered depend upon unit type and xCONNECT configuration utilised.

THE COMPLETE MTA PRODUCT PROGRAMME

LIQUID CHILLERS



CYGNUS
tech

Air-cooled chillers, heat pumps & condensing units (cooling capacity 4-66 kW) featuring rotary or scroll compressors. Lowest noise levels, standard electronic fan speed regulation, storage tank and pump(s) installed on-board.



TAURUS
tech

Air-cooled chillers, heat pumps & condensing units (cooling capacity 73-143 kW) featuring scroll compressors. 3 noise levels (down to super silent), low ambient & heat recovery configurations.



OCEAN
tech

Water-cooled chillers, heat pumps & evaporating units (cooling capacity 4-193 kW) featuring rotary or scroll compressors. Extremely compact with an optional add-on module featuring a pump and storage tank.

SPECIALIST AIR-CONDITIONING



ORION

Air-cooled chillers & heat pumps with centrifugal fans allowing installation flexibility (17-67 kW).

ANCILLARY EQUIPMENT



EURUS

Fan coils for floor, ceiling and concealed installation.



Remote condensers to be combined with MTA chillers.



Beyond RWD, MTA offers an extensive range of water cooling solutions.



Evaporative cooling towers to be combined with MTA water-cooled chillers.



Add-on hydraulic modules including tank and single or twin pumps.



External liquid storage tanks for integration within the system hydraulic circuit.



Auxiliary intermediate heat exchangers for specific application needs.

ENERDRYER: THE BIOGAS DRYER



ENERDRYER

A packaged plug & play solution, for the dessiccation of Biogas. EnerDryer is supplied on a compact galvanized steel frame, requiring no additional installation or programming. The stainless steel gas side features a gas/gas economizer, water/gas exchanger and separation / condensate discharge system. The cooling water circuit features a pump and storage tank. MTA offers complete design flexibility, including solutions with integrated blowers (biogas 50 - 4700 m³/h).

COMPRESSED AIR DRYERS

Refrigeration dryers:



- DE Hybrid: High reliability, easy to use energy saving dryers (air flow 17-2250 m³/h).
- DE iTECH: New energy saving system Impulse Technology (air flow 18-1620 m³/h).
- MG: Scroll compressor equipped dryers featuring unique DRYMODULE evaporators (air flow 1320-11400 m³/h).
- MGI: Energy saving dryers with twin inverter technology (air flow 4500-10800 m³/h).
- DN: Up to 4 scroll compressors for high energy savings (air flow 13500-45600 m³/h).
- BD: High capacity dryers for all personal needs (air flow 17400-32400 m³/h).
- HPD: 50barg dryers (air flow 1530-7302 m³/h).

Adsorption dryers:



- NA: Compact aluminium heatless dryers (air flow 7-118 m³/h).
- NC: Heatless dryers featuring unique energy saving microprocessor (air flow 240-1500 m³/h).
- NH: Heat regenerated blower purge dryers for reduced purge air energy losses (air flow 600-10000 m³/h).
- NST: Heat regenerated dryers (air flow 116-8903 m³/h).

COMPRESSED AIR COMPONENTS



Filters and separators for the removal of condensate, oil and impurities from compressed air.

Air and water-cooled aftercoolers for air and gas treatment, with a complete choice of applied materials and including high pressure versions.

Electronic zero-loss, mechanical zero-loss and timed drains, including high pressure versions.

Oil-water separators for simple and economic condensate disposal.

ENERGY FOR THE FUTURE

MTA was born over 30 years ago with a clear objective: improving mankind's relationship with two distinct natural resources, air and water, and optimising their transformation into energy sources. And as each application differs, so MTA offers a personalised energy solution perfectly aligned to each individual need. At MTA energy is our business, and improving your relationship with your energy is our aim.

www.mta-it.com

STRATEGIC DIVERSIFICATION

MTA covers three distinct market segments. As well as Industrial Process Cooling solutions, MTA offers products for Air Conditioning, as well as Compressed Air & Gas Treatment solutions. MTA is renowned for the innovation it brings into each of these three sectors; in fact our strategic diversification offers our Customers unique benefits unseen in their individual fields.

FAR REACHING BUT ALWAYS CLOSE BY

MTA is present in over 80 countries worldwide. 7 MTA Sales Companies cover 4 continents. Expert knowledge and an accurate attention to application consultancy and service support guarantees that our Customers can look forward to long term peace of mind and an optimized energy solution. We always remain close to our Customers, so wherever you may be, we are close by.

The data contained herein is not binding. With a view to continuous improvement, MTA reserves the right to make changes without prior notice. Please contact our sales office for further information. Reproduction in whole or in part is forbidden.



Cooling, conditioning, purifying.



MTA is ISO9001 certified, a sign of its commitment to complete customer satisfaction.



MTA products comply with European safety directives, as recognised by the CE symbol.



MTA participates in the E.C.C. programme for LCP-HP. Certified products are listed on: www.eurovent-certification.com

M.T.A. S.p.A.

Viale Spagna, 8 ZI
35020 Tribano (PD) - Italy
Tel. +39 049 9588611
info@mta-it.com

Industrial process cooling

Fax +39 049 9588661

Air conditioning

Fax +39 049 9588604

Compressed air & gas treatment

Fax +39 049 9588612

Milan branch office

Viale Gavazzi, 52
20066 Melzo (MI)
Tel. +39 02 95738492

MTA worldwide

MTA is present in over 80 countries worldwide. For information concerning your nearest MTA representative please contact MTA.

International Sales Companies:

MTA Australasia

Tel. +61 3 9702 4348
www.mta-au.com

MTA France

Tel. +33 04 7249 8989
www.mtafrance.fr

MTA Germany

Tel. +49 2163 5796-0
www.mta.de

MTA Romania

Tel. +40 723 022 023
www.mta-it.ro

MTA Spain

Tel. +34 938 281 790
www.novair-mta.com

MTA UK

Tel. +44 01702 217878
www.mta-uk.co.uk

MTA USA

Tel. +1 716 693 8651
www.mta-usa.com