

Energy efficient liquid chillers

Air cooled water chillers with scroll or screw compressors, featuring R410A or R134a (162-1241 kW). Matching AquaFree freecooling modules.



Cooling, conditioning, purifying.

ENERGY EFFICIENT LIQUID CHILLING SOLUTIONS



REDUCE EMISSIONS

Energy saving is the challenge our planet faces today, with an increasing awareness as regards the need for environmental protection, reduced emissions and a marginalised impact on the world we live in.

SAVING ENERGY: AN MTA TRADITION

MTA was born into this mind set: witness MTA's very first product, launched 30 years ago, a patented refrigeration dryer offering notable energy savings versus standard solutions. Today MTA continues this philosophy, with numerous high efficiency solutions ensuring carbon footprints are kept to a minimum.



CREATE YOUR OWN AMBIENT STATEMENT

MTA's unique proposition allows the user to design a personalised high efficiency chilling system, ensuring that the final result not only perfectly matches the application needs, but also represents the most energy efficient solution, fruit of advanced technological solutions. Welcome to a new breed of liquid chilling.



THE 6 STEPS TO YOUR IDEAL CHILLER

1 COMPRESSOR TYPE

Choose between multiple scroll compressors (up to 12) on ARIES^{tech} / GALAXY^{tech}, or multiple screw compressors (up to 4) on PHOENIX^{plus}.

2 COOLING CAPACITY

Cooling capacities from 162 kW to 1241 kW ensure each system need can be catered for.

3 NOISE LEVELS

Choose between 3 noise levels, down to super silent, and including high efficiency low noise configurations.

4 ENERGY EFFICIENCY

Each model is available in either an energy efficient or a super energy efficient configuration.

5 FREE COOLING

Add AquaFree modules onto the selected chiller, with GALAXY^{tech} / PHOENIX^{plus} allowing flexibility as to the number of modules added.

6 PERSONALISATION

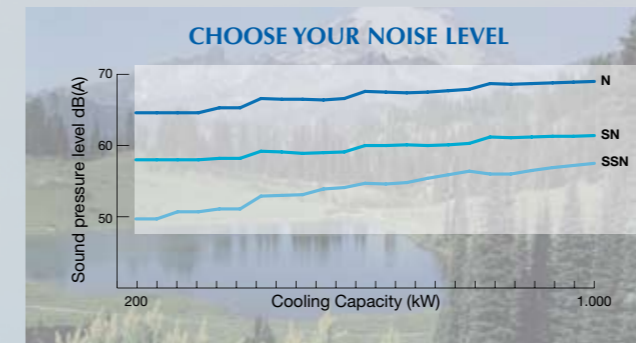
Numerous configurations and accessories ensure the system can be personalised to the individual application needs.

WHY LOW NOISE?

Crowded urban areas, new health & safety regulations, increasing levels of night-time operation and a desire for human well-being are all contributing to an increased focus on noise emissions.

THE MTA CHOICE

MTA offers 3 noise level versions, including high efficiency low noise models, allowing the user to select the optimum solution. An AST100, for example, is available with sound pressure levels of 64,6 dB(A) (N configuration), 58,0 dB(A) (SN configuration), or as low as 49,7 dB(A) (SSN configuration).

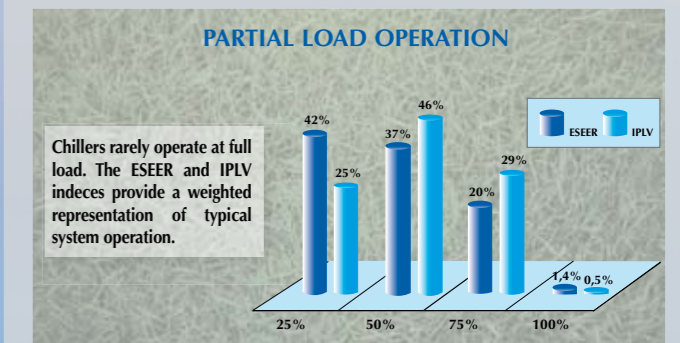


WHY HIGH EFFICIENCY?

High Efficiency chillers allow notable energy savings, with rapid pay-back periods and minimal carbon footprints.

THE MTA CHOICE

MTA offers multi-scroll and multi-screw compressor versions. A 1000 kW cooling load, for example, could be satisfied by a GLT330, with 12 scroll compressors offering partialisation down to 8% load, or a PNP440, with 4 screw compressors with continuous capacity control, offering partialisation down to 12,5% load; both models are offered in standard and high efficiency configurations.



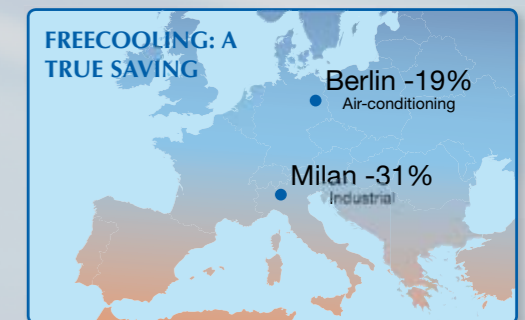
WHY FREE COOLING?

Freecooling allows liquid chilling with virtually zero energy input, and is especially effective in systems operating in cold climates, those operating all year round, or where night time operation is frequent.

WHAT SAVINGS?

A GLT180N equipped with AquaFree freecooling modules, operating in an air conditioning application in Berlin*, will offer an annual energy saving of 19%, whilst the same unit operating within an industrial plant in Milan** will offer an annual energy saving of 31%. The result is rapid pay-back periods and significant emissions reductions.

* With HE modules, water 12/7 °C, operation 52 wks/yr. - 7 days/wk. - 14 hrs./day.
**With HE modules, water 20/15 °C, operation 44 wks/yr. - 5 days/wk. - 16 hrs./day.



FREECOOLING OPERATION

MEDIUM AMBIENT TEMPERATURES

The water is partially cooled by freecooling, partially by mechanical chilling. The 3-way valve continuously modulates system operation to maximise freecooling.

LOW AMBIENT TEMPERATURES

The water is totally cooled by freecooling, the chiller does not operate. The only energy consumption is that of the freecooling fans.

HIGH AMBIENT TEMPERATURES

The water is totally cooled by the chiller section, freecooling does not operate.



AQUAFREE: THE MODULAR FREECOOLER



AquaFree is the most energy efficient and flexible freecooling concept on the market, offering a fully packaged solution which can be simply added on to the chiller, transforming it into a freecooling chiller, also at a later date. Once connected the chiller / freecooler combination is automatically controlled by the chiller's xDRIVE microprocessor, without the need for any additional programming.

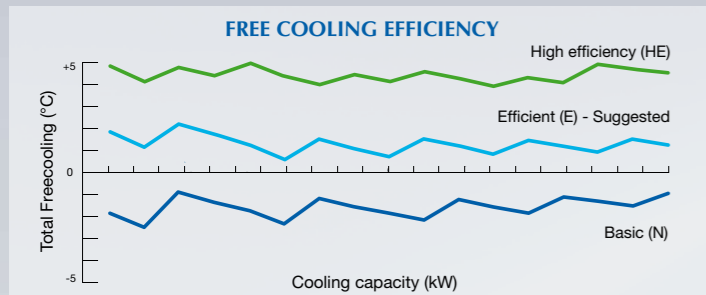
TAILOR MADE FREECOLING

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.



SELECT YOUR EFFICIENCY

A GLT150N chiller, operating at water 15/10 °C with 30% glycol and a single AFV300 module, 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 (suggested configuration) achieves a TFT of +3,1 °C. By applying an AFV300 module and an AFV200 module, a TFT of +5,0 °C can be achieved.



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.



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.

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 -20 °C to +46 °C.

PLUG & PLAY

Just connect **AquaFree** to the chiller using the optional connection kit, the chiller's xDRIVE then controls operation of all the modules and their 3-way valves to optimise freecooling.

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.

INDEPENDENT

Each module features its own electrical connection and 3-way valve, as well as its own microprocessor with independent alarms, consequently each module can operate autonomously.

GLYCOL FREE KIT

The glycol free kit 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.

VERSIONS

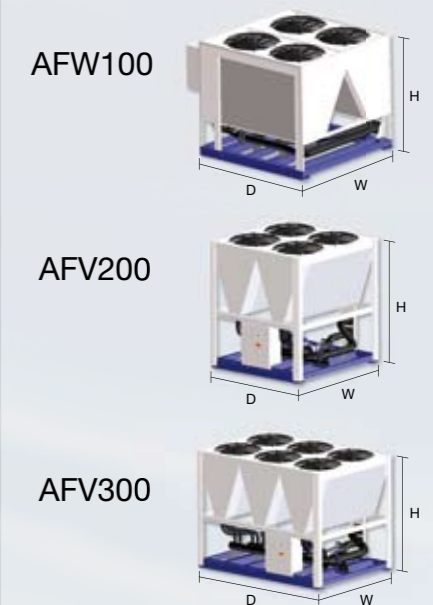
- Acoustic versions:
 - standard (N version)
 - low noise (SN version)
- Modules:
 - AFW100 (for connection to AST 090-140)
 - AFV200 (for connection to GLT/PNP)
 - AFV300 (for connection to GLT/PNP)
- Low ambient version (down to -20 °C).

STANDARD FEATURES

- Independent aeraulic sections featuring axial fans with progressive activation.
- 3-way valve.
- Independent electrical panel.
- Microprocessor control (with water in/out & ambient temperature visualization).
- Operation from -15 °C to +46 °C.
- Remote on/off control.

MAIN OPTIONS

- Metal mesh filters for freecooling coils.
- Electronic fan speed control.
- Chiller-AquaFree interconnection kit (tubing to be supplied by installer).
- Add-on Glycol-free kit.



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

Technical data	AFW100	AFV200	AFV300
Applicable chiller	AST 090-140	GLT & PNP	GLT & PNP
Absorbed power	8 kW	8	12
No. of Coils / Fans	-	4	6
Sound pressure level (N)	61,0 dB(A)	61,0	62,8
Sound pressure level (SN)	54,0 dB(A)	54,0	55,8
Depth (D)	2.100 mm	2.100	3.100
Width (W)	2.188 mm	2.190	2.190
Height (H)	1.989 mm	2.360	2.360
Installed weight	1.071 kg	1.260	1.835

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

AquaFree - chiller combinations	ARIES <i>tech</i>						GALAXY <i>tech</i>														PHOENIX <i>plus</i>																						
Chiller Model	090	100	110	120	130	140	120	135	150	165	180	195	210	225	240	255	270	285	300	315	330	345	360	160	170	180	190	200	220	250	265	280	310	330	360	390	405	420	440	470	500	530	560
Cooling capacity at Total FC temp. ⁽¹⁾ kW	222	234	260	284	326	345	376	420	467	509	551	611	658	708	750	792	834	888	934	976	1018	1060	1101	339	359	380	416	446	506	556	600	643	714	764	817	879	923	988	1045	1073	1108	1223	1313
High efficiency (HE)	N.A.						2A														2B																						
Efficient (E)	A						C														C																						
Basic (N)	N.A.						B														B																						
Total FC temperature °C	N.A.						5,0														5,0																						
Configuration ⁽²⁾	A						A														A																						
Total FC temperature °C	3,2						2,7														1,5																						
Configuration ⁽²⁾	N.A.						N.A.														N.A.																						
Total FC temperature °C	N.A.						-2,8														-2,8																						

⁽¹⁾ Data refers to standard units operating with water containing 30% glycol and inlet-outlet 15-10 °C.

⁽²⁾ A= AFW100 module, B= AFV200 module, C= AFV300 module. "2B" represents two times the B (ie. AFV200 module), so a configuration with B+2C features one AFV200 module and 2 AFV300 modules.

THE ENERGY EFFICIENT CHILLER



Viewed over its entire working life, the energy consumption of a chiller far outweighs its initial purchasing price, consequently any energy savings obtained will lead to rapid pay-backs.

CLEVER ECOLOGY

MTA chillers offer advanced design solutions to ensure efficiencies are optimised and energy costs are minimised.

SAVE FOR LONGER

Born from industry, MTA chillers have been built to last. High quality components and robust design not only reduce maintenance needs, but also ensure a long operating life, reducing the environmental impact and ensuring that the unit continues to save energy for many years.



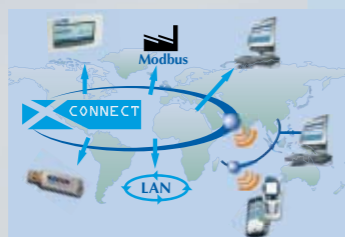
A tank and up to 2 pumps can be mounted on-board (AST/GLT)



Shell & tube evaporator (standard on PNP, optional on AST/GLT)



xDRIVE: advanced control for advanced energy savings



xCONNECT: a vast world of connectivity solutions

SUPER SILENT

3 noise levels are offered, right down to super silent, and including high efficiency low noise versions. Aeraulic separation is standard, whilst the continuous fan speed regulation option further reduces noise levels. Multiple compressors deactivate to reduce noise levels, with a night function for even quieter operation.



PLURIX

MTA offers **Plurix** multi-compressor technology, with numerous advantages, most notably in partial load energy efficiency. Choose between up to 12 scroll compressors on AST/GLT with on-off control, or up to 4 screw compressors on PNP, combining modulating control with on/off control. Reliability is increased, whilst maintenance costs are kept to a minimum.



ENERGY EFFICIENT

High efficiency versions offer mainly class "A" energy efficiency ratings, with ESEER levels of as high as 5.03. AST/GLT offer both partial and total heat recovery, creating a free source of heating. Part winding is standard on PNP, whilst all ranges are available with soft starting. The refrigerants (R410A on AST/GLT, R134a on PNP) ensure high energy efficiencies.

ESEER = 5,03

PLUG & PLAY

MTA offers as standard what many offer as an option. AST and GLT allow the tank and up to 2 pumps to be installed on-board. Victaulic connections (standard on PNP, optional on AST/GLT) facilitate installation. The unit arrives pre-programmed and ready to use, including freecooling operation combined with **AquaFree**.

PEACE OF MIND

Born from industry, MTA solutions withstand the harshest conditions, with strong build and the application of renowned components throughout. Extensively tested units with Eurovent certification offer further assurances. Multiple compressor technology within up to 4 independent refrigeration circuits ensure extensive component redundancy.



XDRIVE

Welcome to the most advanced microprocessor technology. Moving images, dynamic switches and a large display facilitate user interfacing, with elevated memory and processing capacities to meet the needs of the future. Connectivity functions include Ethernet, web, GSM, CANBus, ModBUS, BACNET and LAN.



VERSATILE

MTA units operate anywhere and everywhere. According to the model, ambient limits range from -20 °C to +50 °C, further aided by an unloading function, whilst water temperatures range from -10 °C to +20 °C. Shell & tube evaporators are standard on PNP, and optional on AST/GLT. The many options adapt the unit to each personal customer need.

VERSIONS

- Acoustic versions:
 - standard (N version)
 - low noise (SN version)
 - very low noise (SSN version)
- Efficiency levels:
 - standard
 - high efficiency (H on AST, HE on GLT/PNP)
- Low ambient version (down to -20 °C).

STANDARD FEATURES

- Up to 12 scroll compressors within up to 4 independent circuits (AST/GLT); up to 4 dual screw compressors within up to 4 independent circuits (PNP).
- Brazed stainless steel plate evaporator (AST/GLT); R134a optimised shell&tube evaporator (PNP).
- Independent aeraulic sections featuring axial fans with progressive activation.
- xDRIVE microprocessor including RS485 serial connection and Ethernet connection via pre-programmed HTML pages.
- Environmentally friendly refrigerants R410A (AST/GLT) and R134a (PNP), with zero ozone depletion potential.
- IP54 electrical protection rating.
- Shut-off and solenoid valves on each liquid line.
- Factory tested and supplied with refrigerant charge and antifreeze oil.
- High & low pressure transducer (GLT).
- Victaulic connections (PNP).
- Part winding (PNP).
- Compressors with muffler and flexible hoses (PNP - SSN version).
- Water differential switch, air bleed valve and water drain valve (GLT).
- Compressor discharge check valve, suction & discharge shut-off valves (PNP).

MAIN OPTIONS

- Shell&tube evaporator (AST/GLT).
- Single or twin pumps mounted on-board (AST/GLT).
- Storage tank (AST/GLT).
- Electronic thermostatic valves.
- Water temperatures down to -10 °C.
- Compressor suction & discharge shut-off valves (AST/GLT).
- Compressor housings (GLT/PNP).
- Electronic fan speed control.
- Pre-treated coils for aggressive atmospheres.
- Metal mesh filters for condenser coil protection.
- Anti-freeze heaters on evaporator, pump and tank (if fitted).
- Compressor crankcase heaters (AST/GLT).
- Victaulic connections (standard on PNP).
- Recovery desuperheaters.
- Total heat recovery.
- Antivibration dampers.
- Power supplies differing from standard.
- Phase monitor (AST, standard on GLT).
- Soft starters (AST/GLT).
- Power factor correction capacitors.
- Compressor automatic circuit breakers (PNP).
- Modularity / web interconnection hub.
- MTA xWEB supervision using internal web pages.
- Serial connection to supervisor systems.
- Replicated remote user terminal.
- Simple remote control.

