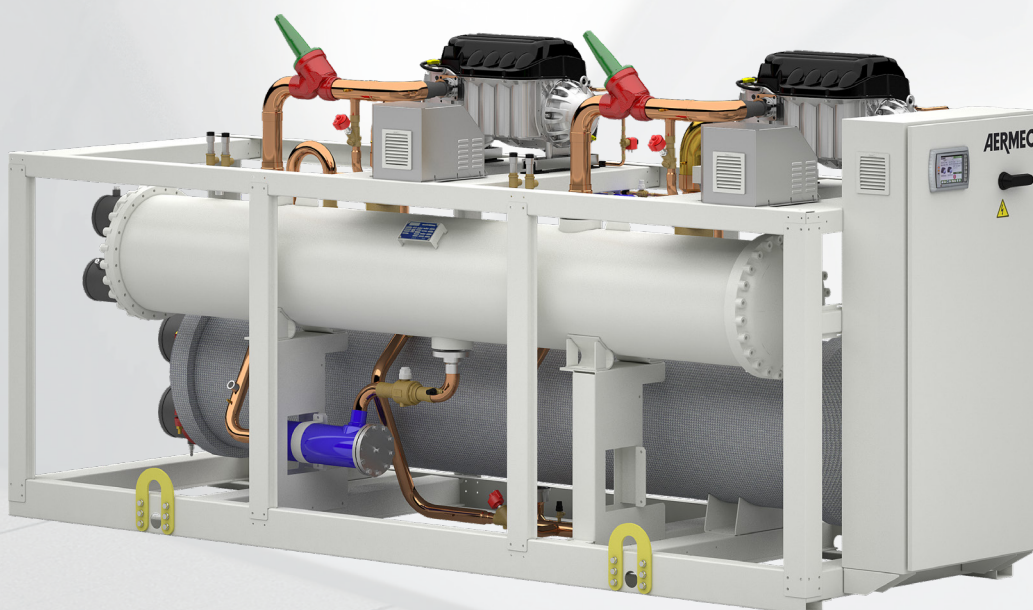


EN

22.03 - 4138446\_03  
Translation from original

# WTX

## Technical manual



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### **WATER/WATER CHILLER**

Cooling capacity 222,9 ÷ 1958,4 kW



[www.aermec.com](http://www.aermec.com)



*Dear Customer,*

*Thank you for wanting to learn about a product Aermec. This product is the result of many years of experience and in-depth engineering research, and it is built using top quality materials and advanced technologies.*

*The manual you are about to read is meant to present the product and help you select the unit that best meets the needs of your system.*

*However, please note that for a more accurate selection, you can also use the Magellano selection program, available on our website.*



*Aermec Aermec, always attentive to the continuous changes in the market and its regulations, reserves the right to make all the changes deemed necessary for improving the product, including technical data.*


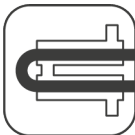
*Thank you again.*

*AERMEC S.p.A*

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	EN
gas	
	R134a refrigerant
	Cooling only

	EN
gas	
	Centrifugal compressor
	Shell and tube exchanger

## CERTIFICATIONS

### COMPANY CERTIFICATIONS



### COMPANY CERTIFICATIONS



Aermec participate in the EUROVENT program: LCP  
the products are present on the site  
[www.eurovent-certification.com](http://www.eurovent-certification.com)

### SAFETY CERTIFICATIONS



# DECLARATION OF CONFORMITY



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Tel. (+39) 0442 633111 – Fax (+39) 0442 93577  
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## DICHIARAZIONE DI CONFORMITÀ CE / EC DECLARATION OF CONFORMITY / DECLARATION DE CONFORMITE CE KONFORMITÄTSEKLRÄRUNG EG / DECLARACIÓN DE CONFORMIDAD CE

# WTX

MODEL*	
SERIAL NUMBER	
DATE	

Noi, firmatari della presente, dichiariamo sotto la nostra esclusiva responsabilità che l'insieme in oggetto così definito:  
We, the undersigned, hereby declare under our own responsibility that the assembly in question, defined as follows:  
Nous, Signataires du présent acte, déclarons sous notre responsabilité exclusive que le groupe cité à l'objet défini de la façon suivante:  
Die Unterzeichner erklären unter eigener Verantwortung, dass die oben genannte Maschineneinheit, bestehend aus:  
Nosotros, los abajo firmantes, declaramos bajo nuestra exclusiva responsabilidad, que el conjunto en cuestión, denominado:

**Nome / Name / Nom / Name / Nombre**      **WTX**  
**Tipo / Type / Type / Typ / Tipo**      **Chiller**  
**Modello / Model / Modèle / Model / Modelo**

A cui questa dichiarazione si riferisce è conforme a tutte le disposizioni pertinenti delle seguenti direttive:  
To which this declaration refers, complies with all the provisions related to the following directives:  
Auquel cette déclaration se réfère, est conforme à toutes les dispositions relatives des directives suivantes:  
Das Gerät, auf welches sich diese Erklärung bezieht, entspricht allen Verordnungen im Zusammenhang mit den folgenden Richtlinien:  
A la que esta declaración se refiere, es conforme con todas las disposiciones pertinentes de las siguientes directivas:

**Direttiva Macchine: 2006/42/CE**  
**Direttiva Compatibilità Elettromagnetica EMCD: 2014/30/UE**  
**Direttiva PED in materia di attrezzature a pressione: 2014/68/UE**  
**Direttiva RoHS sulla restrizione dell'uso di determinate sostanze pericolose nelle AEE: 2011/65/UE**  
**Direttiva ErP per la progettazione ecocompatibile: 2009/125/CE**

L'oggetto della dichiarazione di cui sopra è conforme alle pertinenti normative di armonizzazione dell'Unione:  
The above-mentioned declaration complies with the harmonised European standards:  
L'objet de la déclaration reportée ci-dessus est conforme aux normes d'harmonisation relatives de l'Union:  
Der Gegenstand der genannten Erklärung entspricht den diesbezüglichen harmonisierten Normen der europäischen Gemeinschaft:  
El objeto de la declaración de arriba es conforme con las normativas pertinentes de armonización de la Unión:

<b>CEI EN 60204-1: 2018</b>	<b>CEI EN IEC 61000-6-2: 2019</b>	<b>UNI EN 378-2: 2017</b>
<b>UNI EN ISO 12100: 2010</b>	<b>CEI EN IEC 61000-6-4: 2020</b>	<b>UNI EN 12735-1: 2020</b>

La presente dichiarazione di conformità è rilasciata sotto la responsabilità esclusiva del fabbricante.  
La persona autorizzata a costituire il fascicolo tecnico è Luca Martin, Via Roma 996, 37040 Bevilacqua (VR) Italy.  
L'unità è conforme ai dati di progetto riportati nel fascicolo tecnico al paragrafo Definizione dell'Insieme, è in accordo con la direttiva 2014/68/UE e soddisfa la procedura di Garanzia qualità Totale con controllo della progettazione (modulo H1) con certificato n.09/021-QT6704 Rev. 7 emesso dall'organismo notificato n. 1131 CEC via Pisacane 46 Legnano (MI) - Italia.  
L'elenco dei componenti critici pertinenti al numero di fabbrica sopra riferito, secondo quanto previsto dalla Direttiva 2014/68/UE, è fornito a corredo della presente Dichiarazione di Conformità (doc. "Lista componenti per Dichiarazione di Conformità").  
Dichiariamo inoltre che, al momento dell'immissione sul mercato Europeo di tale apparecchiatura precaricata da parte di Aermec S.p.A (che importa o produce nell'Unione), gli idrofluorocarburi, in essa contenuti, sono considerati nel sistema di quote dell'Unione di cui al Capo IV del regolamento UE 517/2014 in quanto sono stati immessi sul mercato da un produttore o importatore di idrofluorocarburi cui si applica l'articolo 15 del regolamento UE 517/2014.

Bevilacqua (VR)

Commercial Director  
Luigi Zucchi

This declaration of conformity has been released under the exclusive responsibility of the manufacturer.  
The person authorised to compile the technical file is Luca Martin, Via Roma 996, 37040 Bevilacqua (VR) Italy.  
The unit complies with the project data reported in the technical file in the Definition of the Assembly paragraph, it is in agreement with Directive 2014/68/EU and satisfies the full quality assurance plus design examination procedure (form H1) with certificate no. 09/021-QT6704 Rev. 7 issued by the notified body no. 1131 CEC via Pisacane 46 Legnano (MI) - Italy.  
The list of critical components relevant to the factory number shown above, in accordance with Directive 2014/68/EU, is provided together with this Declaration of Conformity (doc. "Component List for Declaration of Conformity").  
We also declare that, when such equipment preloaded by Aermec SpA (which imports or produces into the Union) is placed on the European market, the hydrofluorocarbons contained therein are considered in the Union quota system referred to in Chapter IV of UE Regulation no.517/2014 as they have been placed on the market by a producer or importer of hydrofluorocarbons to which Article 15 of UE Regulation no.517/2014.

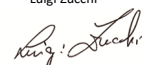
La déclaration de conformité présente est délivrée sous la responsabilité exclusive du fabricant.  
La personne autorisée à constituer le dossier technique est Luca Martin, Via Roma 996, 37040 Bevilacqua (VR) Italy.  
L'unité est conforme aux données du projet figurant dans le dossier technique dans le paragraphe Définition de l'assemblage, est conforme à la directive 2014/68/UE, et respecte la procédure de l'assurance complète de la qualité et du contrôle de la conception (module H1) par le certificat n. 09/021-QT6704 Rév. 7 émis par l'organisme notifié n. 1131 CEC via Pisacane 46 Legnano (MI) - Italie.  
La liste des composants critiques correspondant au numéro d'usine indiqué ci-dessus, conformément à la directive 2014/68/UE, est fournie avec la présente déclaration de conformité (doc. «Liste des composants pour la déclaration de conformité» ).  
Nous déclarons également que, lors de la mise sur le marché européen de cet équipement préchargé par Aermec SpA (qui importe ou produit dans l'Union), les hydrofluorocarbures qu'il contient sont pris en compte dans le système de quotas de l'Union visé à Le chapitre IV du règlement (UE) n.517/2014 car ils ont été mis sur le marché par un producteur ou un importateur d'hydrofluorocarbures auxquels l'article 15 du règlement (UE) n.517/2014.

Diese Konformitätserklärung wurde unter der ausschließlichen Verantwortung des Herstellers ausgestellt.  
Die bevollmächtigt, die technischen Unterlagen zusammenzustellen ist Luca Martin, Via Roma 996, 37040 Bevilacqua (VR) Italy.  
Die Einheit entspricht den Projektdaten, die in der technischen Datei im Abschnitt Definition der Baugruppe angegeben sind, entspricht der Richtlinie 2014/68/EU und erfüllt das Produkt die Anforderungen des Verfahrens der umfassenden Qualitätssicherung mit Entwurfsprüfung (Modul H1), Zertifikat n. 09/021-QT6704 Rev. 7 ausgestellt durch benannte Stelle n. 1131 CEC Via Pisacane 46, Legnano (MI) - Italy.  
Die Liste der kritischen Komponenten, die für die oben angegebene Fabriknummer gemäß der Richtlinie 2014/68/EU relevant sind, wird zusammen mit dieser Konformitätserklärung bereitgestellt (Dokument "Komponentenliste für die Konformitätserklärung").  
Wir erklären außerdem, dass beim Inverkehrbringen dieser von Aermec SpA (die in der Union importiert oder produziert) vorinstallierten Ausrüstung in Europa die darin enthaltenen Fluorwasserstoffe in dem in genannten Unionsquotensystem berücksichtigt werden Kapitel IV der Verordnung (EU) n.517/2014, da sie von einem Hersteller oder Importeur von Fluorkohlenwasserstoffen in Verkehr gebracht wurden, für die Artikel 15 der Verordnung (EU) n.517/2014.

Esta declaración de conformidad se ha otorgado bajo la responsabilidad exclusiva del fabricante.  
La persona facultada para elaborar el expediente técnico es Luca Martin, Via Roma 996, 37040 Bevilacqua (VR) Italy.  
La unidad cumple con los datos del proyecto reportados en el archivo técnico en el párrafo Definición de la Asamblea, está conforme a la directiva 2014/68/UE y cumple con el procedimiento de el pleno aseguramiento de la calidad más el examen del diseño (módulo H1) con certificado n. 09/021-QT6704 Rev. 7 emitido por el organismo autorizado n. 1131 CEC via Pisacane 46 Legnano (MI) - Italia.  
La lista de componentes críticos relevantes para el número de fábrica que se muestra arriba, de acuerdo con la Directiva 2014/68/UE, se proporciona junto con esta Declaración de conformidad (doc. "Lista de componentes para la Declaración de conformidad")  
También declaramos que, al colocar en el mercado europeo de este equipo precargado por Aermec SpA (que importa o produce en la Unión), los hidrofluorocarbonos contenidos en él se consideran en el sistema de cuotas de la Unión mencionado en El Capítulo IV del Reglamento (UE) n.517/2014 ya que han sido puestos en el mercado por un productor o importador de hidrofluorocarbonos al que se refiere el artículo 15 del Reglamento (UE) n.517/2014.

Bevilacqua (VR)

Commercial Director  
Luigi Zucchi



## PRODUCT DESCRIPTION

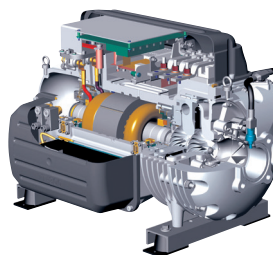
The WTX range is the new generation of high-efficiency liquid chillers, designed and manufactured to meet air conditioning requirements in residential/commercial buildings or to meet refrigeration requirements in industrial facilities.

High efficiency, energy saving, and reduced sound emissions allow this range to meet the various requirements of the market.

### CENTRIFUGAL COMPRESSOR WITH MAGNETIC LEVITATION

The technology of these inverter compressors assures tremendous benefits in terms of efficiency, adjustment, vibrations, and noise emissions. Magnetic levitation eliminates lubricating oil, its delicate management is detrimental to heat exchangers.

The electronic thermostatic valve, combined with the continuous modulation of the inverter compressor (from 30% to 100%), allows to rapidly and precisely meet any thermal load demand.



### LOW STARTING CURRENT

Other pluses of the compressor are the very low starting current, the result of the peculiar technological characteristics adopted and the start-up procedure. The starting current in the WTX unit is just 6 Amps! This guarantees a more streamlined design of the power line systems of the electrical system installed

### EXTRAORDINARY EFFICIENCIES BOTH AT FULL LOAD AS WELL AS AT PARTIAL LOAD

WTX was designed to achieve high efficiency, with EER full load values over 6 (class A for Eurovent working conditions) and extraordinary partial load performance (ESEER up to 9 amongst the highest on the market).

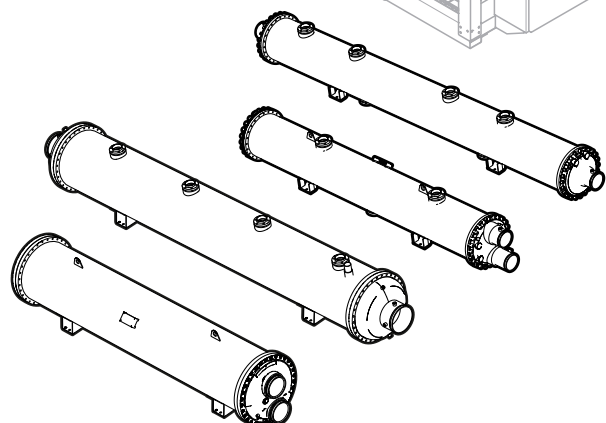
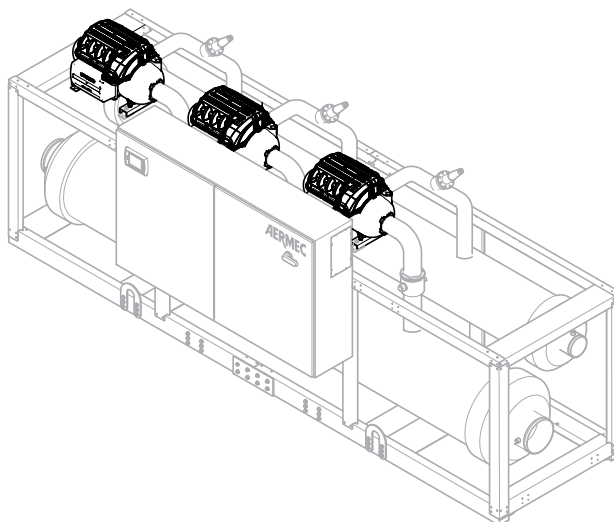
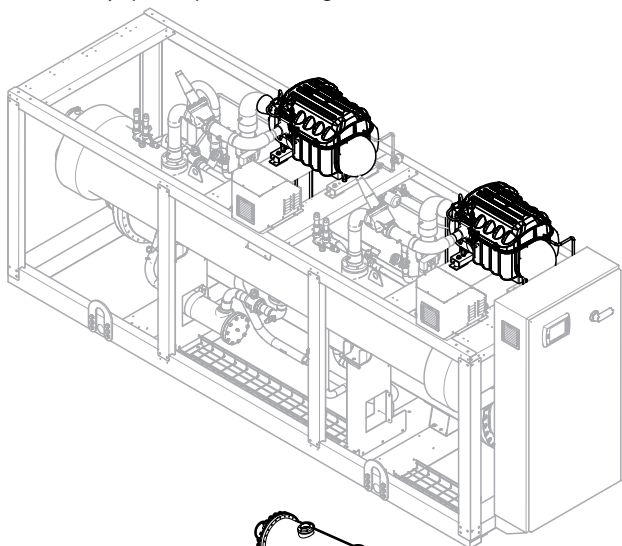
6Amps

ESEER<sup>\*</sup>  
fino a 9

### NUMEROUS DESIGN COMBINATIONS

WTX has been designed to house from 1 to 6 centrifugal oil free compressors, also envisaging the combination with different sizes. Each set of compressors is combined with heat exchangers created exclusively for WTX.

The evaporator is flooded with spray system, the condenser can be 1 or 2 water side passes. The result is a range of possible combinations that can meet any specific plant and design need

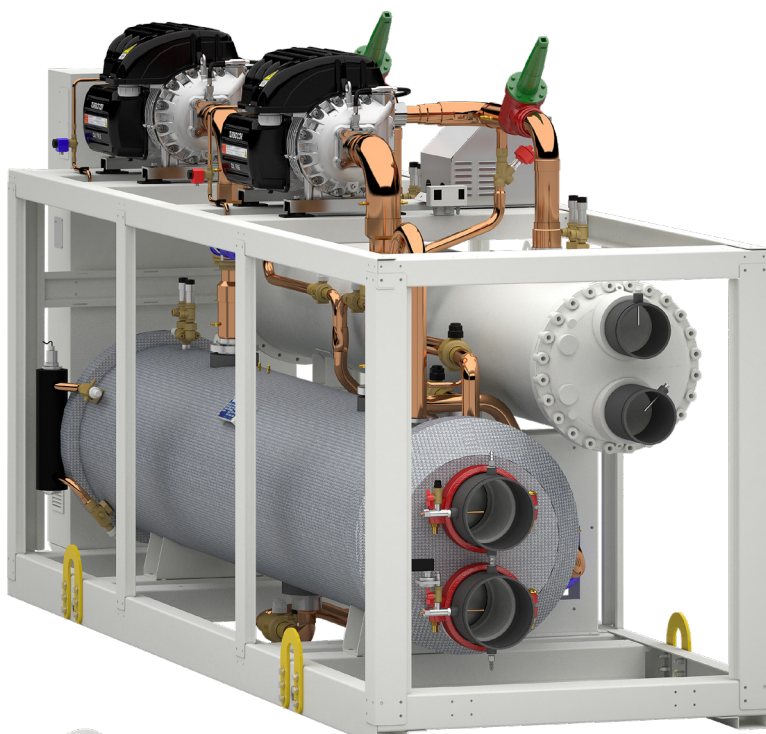


### TOTAL RELIABILITY

Through the adjustment WTX perfectly manages the correct compression ratio, the rotation speed, and the opening of the electronic valve. All this so that the compressors always remain - during start-up, during operation, in modulation and in shutdown in the work area, in complete safety and with the best possible performance.



## 1 OR 2 PASS HEAT EXCHANGERS



From size 1300 to size 2350, the heat exchangers are of the two pass water side type.

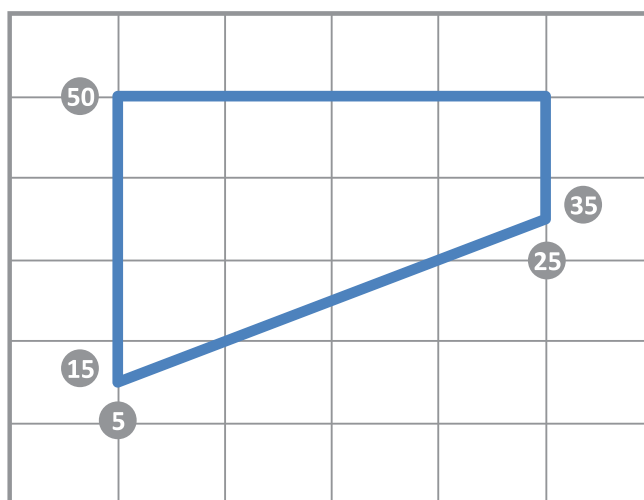
Starting from size WTX3300, the heat exchangers are available **both in the two-pass water side as well as one pass water side versions** to meet any plant requirements.

**The two configurations are dimensioned to ensure similar performance** (the same approach as the heat exchangers). **They differ since the two pass water side version offers the convenience of water connections on the same side**, in the face of generally higher pressure drops (nevertheless limited) compared to the one pass water side version.

## OPERATING RANGE

WTX can be installed both in applications that work at low condensing temperatures such as evaporative cooling towers and in systems that use higher operating temperatures and therefore combined with Dry Coolers.

The ability to produce water to the evaporator up to a temperature of 25° C makes the chiller suitable for applications such as Data Centres or cold water production for process applications.



CONFIGURATOR

Field	Description
1,2,3	WTX
4,5,6,7	Size
	1300 - 1350 - 2300 - 2350 - 3300 - 3325 - 3350 - 4325 - 4350
8	Efficiency
A	High efficiency
U	Extra high efficiency
9	Heat exchangers
2	Two passes on water side
1	On pass on water side (1)
10	Version
°	Standard
L	Sound-proofed
11	Power supply
°	400V 3 ~ 50Hz with circuit breakers on compressors and auxiliary circuit

(1) Available from size 3300 to 4350

## DESCRIPTION OF COMPONENTS

### REFRIGERANT CIRCUIT

#### Compressor

Two-stage, oil-free centrifugal compressor with latest-generation magnetic levitation. Oil-free operation without mechanical friction it is possible thanks to the use of magnetic levitation bearings that also ensure the total absence of vibration and low frequency noise. The compressor is equipped with an inverter for continuous load modulation by varying rpm (from 30% to 100%). Built-in device to reduce starting current (only 6 Amps!)

Two stage centrifugal compressor, with variable speed aluminium impeller, designed to operate without lubricating oil, fitted with radial and axial magnetic levitating bearings for the driven shaft, thereby eliminating mechanical contact.

Position sensors integrated in the magnetic bearings to centralise the suspended driven shaft communicating with the controller for instant repositioning. The controller integrated with the compressor controls the magnetic field for the suspension of the driven shaft and determines the voltage to the motor to vary the speed of rotation, in real time, on the basis of the load variations on the compressor.

The compressor is fitted with:

- Permanent magnet synchronous motor to operate at variable speed. Motor cooling by refrigerant injection.
- Check valve on the discharge to prevent the reverse flow of refrigerant.
- Internal thermal motor protection to protect against current overload conditions.
- Soft start function to control starting current.

### HEAT EXCHANGERS

Over-sized tube core exchangers ensure excellent performances at full and partial loads.

#### Flooded evaporator with spray system

Exchanger, with evaporator function, flooded Shell & Tube type with spray system, with pipes side water passage and case side refrigerant. The innovative spray system allows to reduce the refrigerant load by 50% differently from the solution with standard flooded evaporator. The level of liquid of the evaporator is maintained very low, while the most of the pipes are bordering with sprayed refrigerant, this guarantees an optimal heat exchange while containing the refrigerant load. Case covered with closed cell expanded elastomer anti-condensation covering. Openable heads so that the tubes can be inspected and cleaned on the water side.

The heat exchanger has a differential pressure switch to monitor the correct flow of water when the unit is running, thus preventing the formation of ice inside. The heat exchanger is manufactured respecting the PED Standard respectively working pressures and resistance to stress.

Victaulic water side connections (with stub pipe supplied for the connection).

#### Condenser

Flooded type shell and tube heat exchanger, with water flow within the tubes and refrigerant flow within the shell, insulated with a UV resistant closed cell expanded elastomeric anti-condensation material. Manufactured with internally grooved copper tubes for enhanced heat transfer.

#### Dehydrator filter

Hermetic-mechanical with cartridges made of ceramic and hygroscopic material, able to withhold impurities and any traces of humidity present in the cooling circuit.

#### Liquid indicator

It is used to verify that the expansion system is powered correctly and the presence of humidity in the cooling circuit.

#### Electronic thermostatic valve X

Compared to the classic thermostatic valve, the electronic thermostatic valve stands out for its best overheating regulation. This way, the evaporator is fully exploited increasing the machine yield.

Its use in applications intended for comfort provides important benefits, especially in the presence of variable loads, as it allows you to maintain maximum efficiency with any outdoor air temperature.

In industrial applications, where temperature changes are often required in relation to various environmental conditions, the electronic valve is ideal to prevent the system from continuous calibration, thus adapting the system to different load conditions, making it independent.

#### Taps

On the liquid and pressing line, to isolate the refrigerant if requested in the event of extraordinary maintenance.

#### Acoustic chiller enclosure (option):

In galvanised sheet metal of suitable thickness insulated on the inside with sound-proofing material.

### COMPONENTS OF THE STRUCTURE

#### Structure

Supporting structure made of hot-dipped galvanised steel sheets, painted with polyester powders, built to guarantee easy accessibility for service and maintenance.

### CONTROL AND SAFETY COMPONENTS

#### Manually reset high pressure switch

With fixed calibration, placed on the high pressure side of the cooling circuit, it inhibits the operation of the compressor if abnormal work pressure occurs

#### Differential Pressure Switch

Positioned between the evaporator inlet and outlet, it has the task of verifying that there is water circulation. Otherwise, it blocks the unit.

#### Low pressure transducer

Placed on low pressure side of cooling circuit, it signals the work pressure to the control board, generating a pre-warning in case abnormal pressure occurs.

#### High pressure transducer

Placed on the high pressure side of the cooling circuit, signals the work pressure to control board, generating a pre-warning in case abnormal pressure occurs

#### Twin safety valve with interception tap

The kit contains two valves, one for immediate use and the other a replacement piece. If the safety valve needs to be replaced, the interception tap allows this to be done without having to drain the cooling circuit.

They are fitted on both the high pressure and low pressure sides, to discharge the over-pressure in the event of abnormal values, and are calibrated at 20 bar (high pressure) - 16 bar (low pressure).

#### Control and electric power board

complete with:

- door lock main isolating switch,
- Circuit breakers and contactors for compressors,
- terminals for REMOTE PANEL
- evaporator pump and recovery pump control consent relay (only for versions without pump units),
- electrical panel, with single door and gaskets,
- electronic controller,
- pump evaporator and pump recovery unit control consent relay.
- All numbered cables

#### Door-lock isolating switch

The electrical board can be accessed by disconnecting the power supply using the door-lock isolating switch lever. In order to prevent energising the unit accidentally during maintenance, the isolator switch has been provided with a safety-lock.

#### Control board

The adjustment consists of an electronic board for every compressor connected by a network to a control panel with display. For units with more compressors, the board controlling compressor 1 is the "Master" board, while the others are "Slave"

The microprocessor controls features cutting edge functions and proprietary adjustments. The keyboard is equipped with control keys and LCD display, which allows you to consult and make interventions on the unit by means of the multi-level menu, with language selection settings. It controls:

- The system temperature for cooling the environments or industrial processes. The different temperatures are managed automatically according to the unit work conditions and requirements.
- Management and alarm log to have always a prompt diagnosis of the unit operation.
- Creation of operation time periods required for efficient programming.

For more than one chiller and with the Multichiller accessory supervision is possible thanks to different options, with proprietary devices or by integrating other systems via ModBus, Bacnet, LonWorks, etc. protocols.

A specific keyboard for wall-mounting installation (PRV3 accessory) allows the remote control of all the functions.

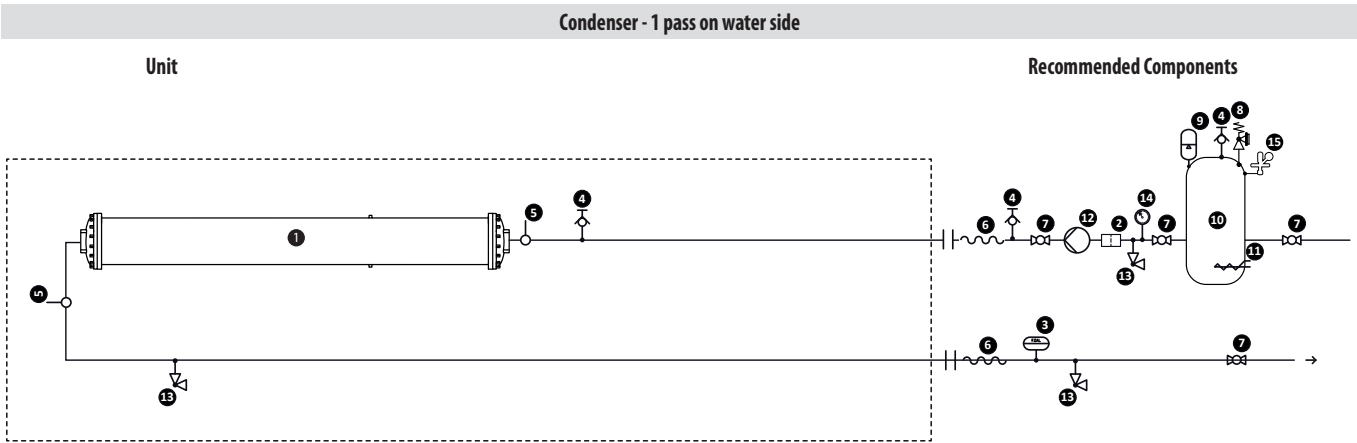
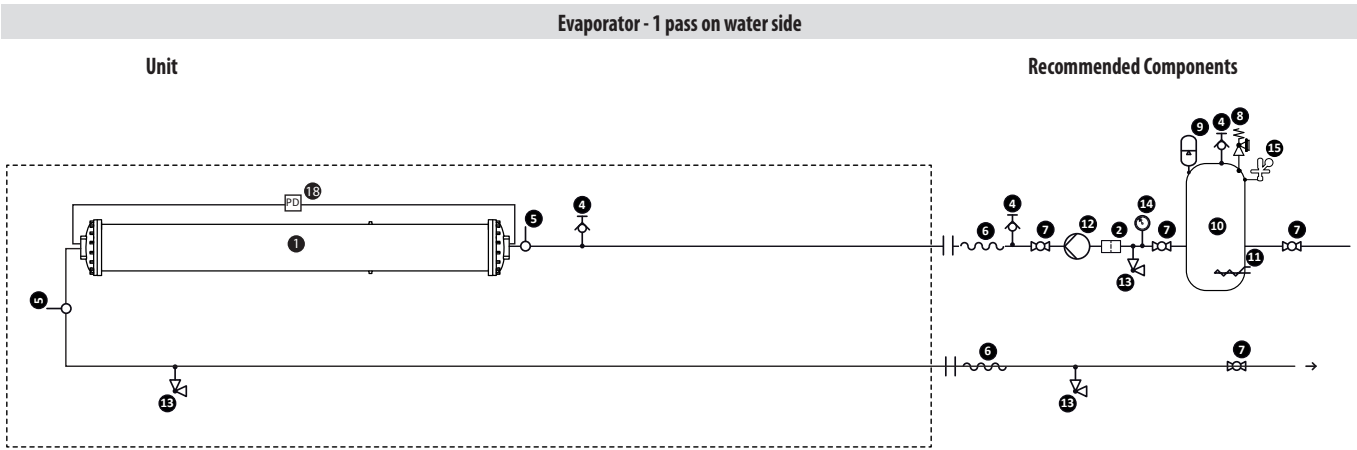
■ *Note: For further information, refer to the user manual.*

MAIN HYDRAULIC CIRCUITS

STANDARD COMPONENTS SUPPLIED ACCORDING TO THE MODEL AND COMPONENTS RECOMMENDED FOR THE USER:

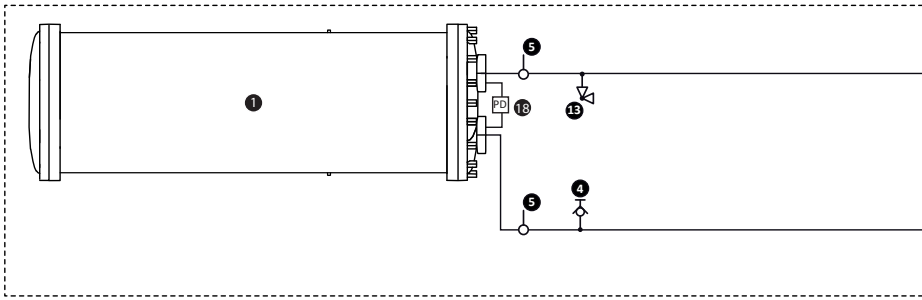
- 1 Shell and Tube heat exchanger
- 2 **Water filter** Not supplied
- 3 **Flow Switch** (or differential pressure switch) **Installation always compulsory for the warranty to be valid**
- 4 Air vent valve
- 5 Water temperature probe
- 6 Anti-vibration joints
- 7 Cut-off valve
- 8 Safety valve
- 9 Expansion vessel
- 10 Storage tank
- 11 Resistance (available as KRS accessory)
- 12 Circulation pump
- 13 Drain tap
- 14 Pressure gauge
- 15 Loading unit
- 17 One-way valves
- 18 Differential pressure switch

System: Chiller with shell and tube exchanger	
PH	6,8 - 8
Electric conductivity	<800 µS/cm
Total hardness (CaCO3)	<200 ppm
Total dissolved solids	<15000 ppm
Max solid particles dimension	0,5 mm
Max. glycol amount	50%
Iron (Fe)	<1 ppm
Copper (Cu)	<1 ppm
Alkalinity (CaCO3)	<100 ppm
Chloride ions (Cl-)	<150 ppm
Sulphate ions (SO42-)	<100 ppm
Sulphide ions (S-)	none
Ammonium ions (NH4+)	<1 ppm
Silica (SiO2)	<50 ppm
Silica (SiO2)	< 30ppm

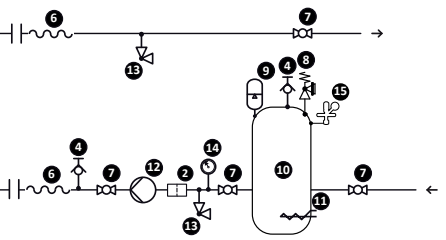


## Evaporator - 2 passes on water side

Unit

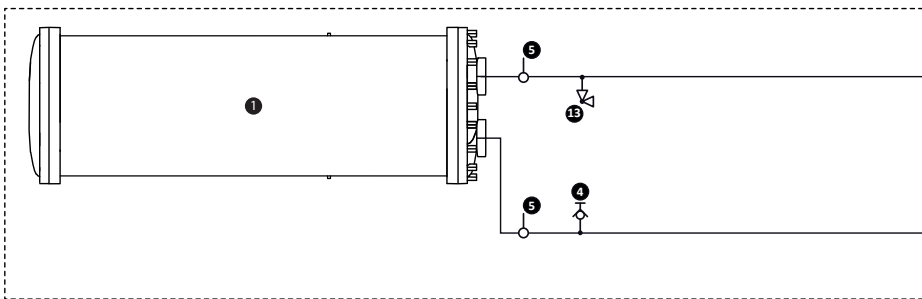


Recommended Components

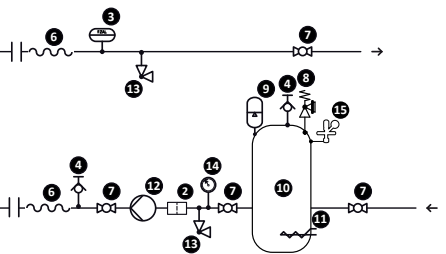


## Condensator - 2 passes on water side

Unit

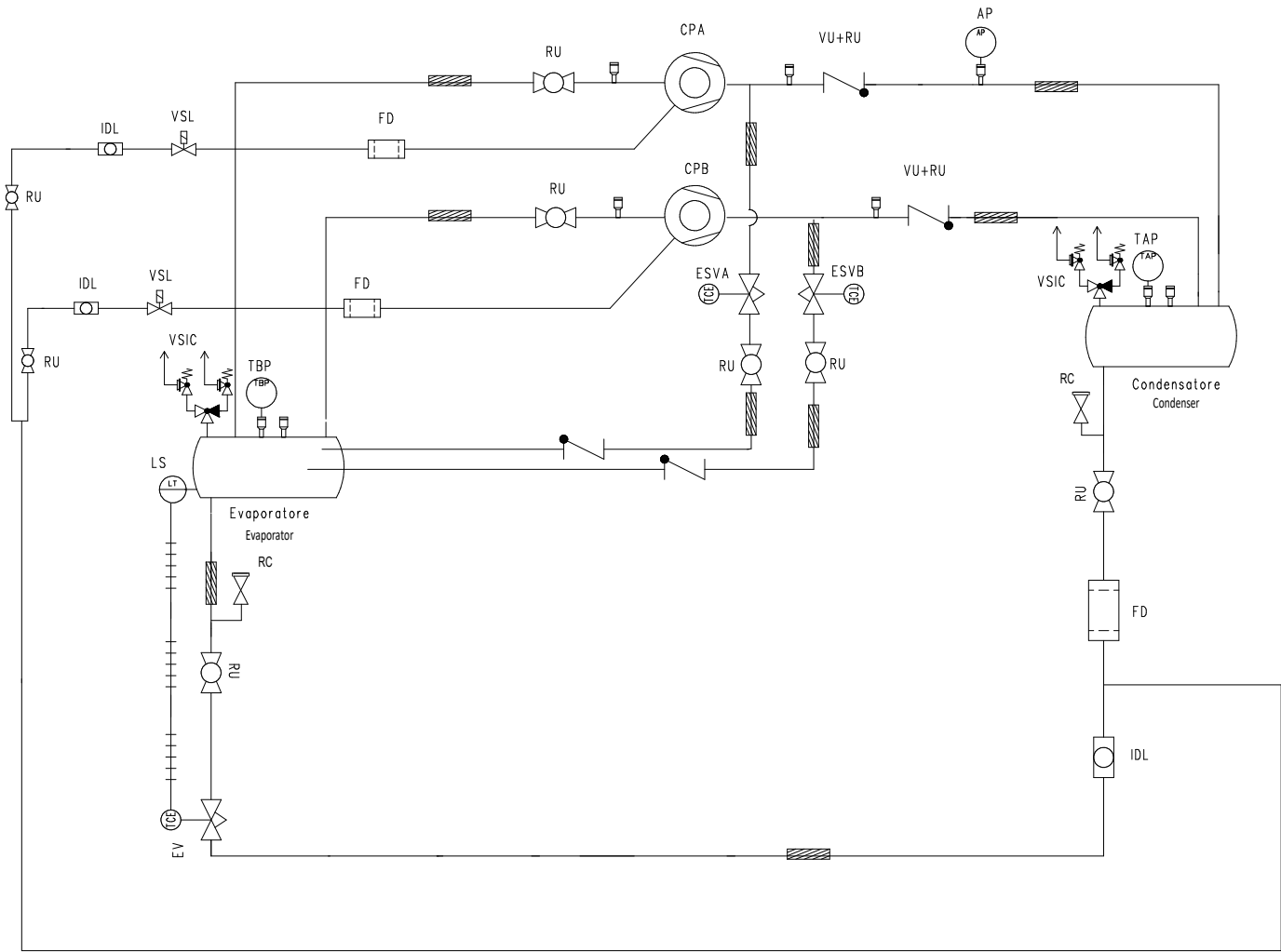


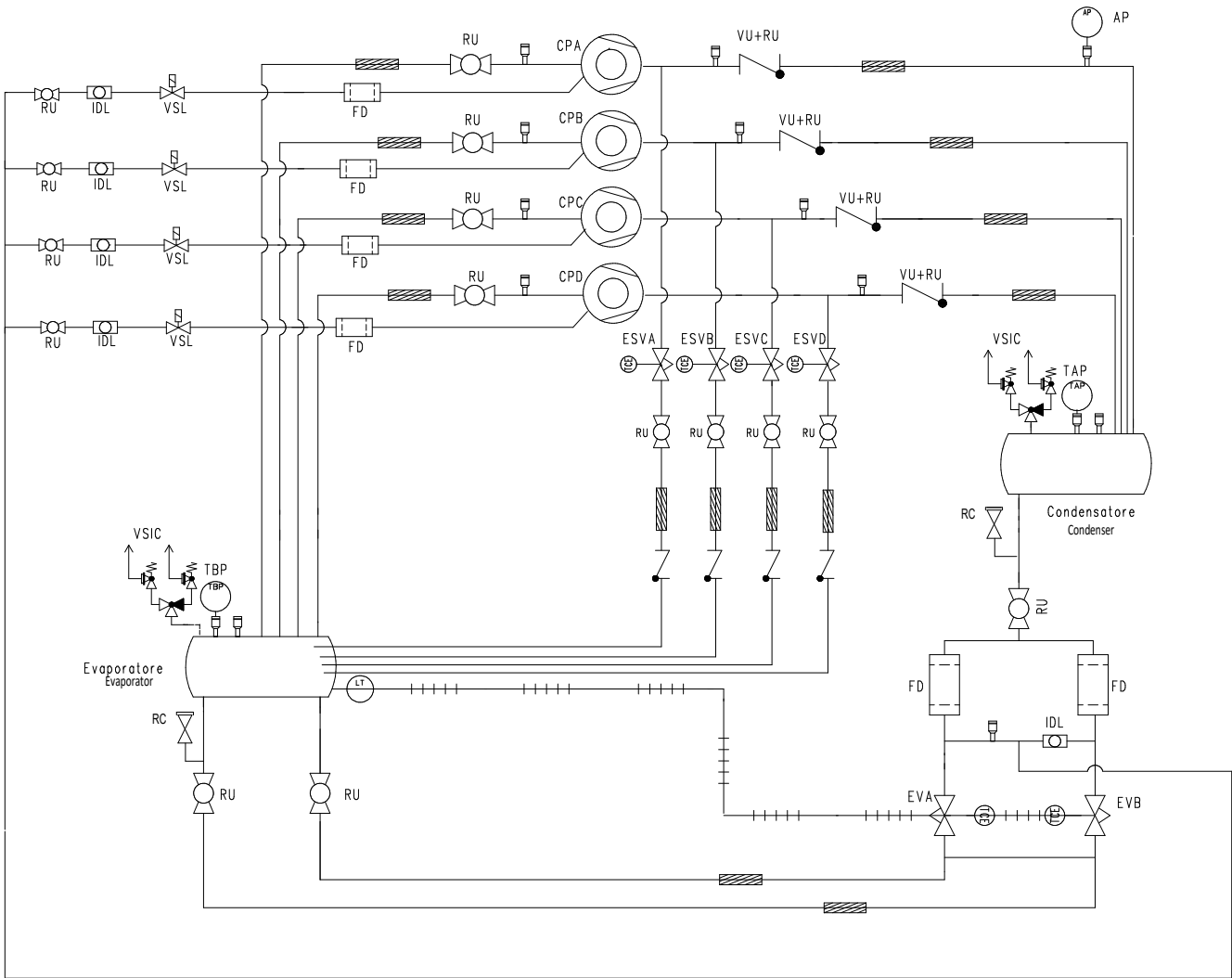
Recommended Components



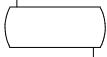


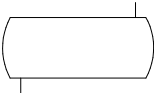

















PRINCIPLE FUNCTIONING DIAGRAMS

WTX 1300-1350-2300-2350





SYMBOL	SYMBOL NAME	FUNCTION
	AP	High pressure switch
	COMPRESSOR	Centrifugal compressor
	CONDENSER	Shell and tube heat condenser
	ESV	Staging valve
	EV	Electronic expansion valve
	FLOODED EVAPORATOR	Shell and tube flooded evaporator
	FD	Dehydrating filter
	IDL	Liquid indicator
	ISOL	Insulated piping
	LINEE-REGOL	Adjustment line
	LS	Level sensor
	RACC-DR_CF	Pressure plug
	RC	Loading tap
	RS	Exchange valve.
	RU	Tap
	TAP	High pressure transducer
	TBP	Low pressure transducer
	VSIC	Safety valve
	VSL	Solenoid valve
	VU	One way valve
	VU+RU	One way valve and flow shut-off valves



ACCESSORIES

**AER485P1:** RS-485 interface for supervising systems with MODBUS protocol.

**AVX:** Spring anti-vibration mounts.

**MULTICHILLER\_EVO:** Control, switch-on and switch-off system of the individual chillers when multiple units are installed in parallel, always ensuring constant flow rate to the evaporators.

**FLOW SWITCH (INSTALLATION ALWAYS COMPULSORY FOR THE WARRANTY TO BE VALID):** It checks that there is circulation of water. If this is not the case, it blocks the unit

ACCESSORIES COMPATIBILITY

WTX	Vers.	1300	1350	2300	2350	3300	3325	3350	4325	4350
AER485P1		•	•	•	•	•	•	•	•	•
MULTICHILLER_EVO		•	•	•	•	•	•	•	•	•
AVX	(1)	•	•	•	•	•	•	•	•	•
FLOW SWITCH		•	•	•	•	•	•	•	•	•

(1) Accessory to be defined when placing the order

PERFORMANCE SPECIFICATIONS

WTX - A

Size		1300	1350	2300	2350	3300	3325	3350	4325*	4350*					
Passes on water side	n°	2	2	2	2	1	2	1	2	1	2	1	2		
Power supply		400V 3 ~ 50Hz													
Cooling capacity	(1) kW	351,3	488,5	702,8	899,4	1054,4	1054,3	1214,3	1215,9	1466,1	1466,0	1716,2	1715,9	1955,0	1958,4
Input power	(1) kW	70,8	94,3	141,8	164,1	211,4	212,6	219,9	220,6	281,6	283,8	315,3	318,8	375,1	380,0
Cooling total input current	(1) A	106	145	212	255	317	317	356	356	435	435	503	503	580	580
EER	(1) W/W	4,96	5,18	4,96	5,48	4,99	4,96	5,52	5,51	5,21	5,17	5,44	5,38	5,21	5,15
Water flow rate system side	(1) l/h	60422	84006	120844	154630	181266	181266	208751	209053	252017	252017	294970	294970	336022	336647
Pressure drop system side	(1) kPa	32	30	40	33	32	54	39	77	31	54	24	60	31	82
Water flow rate source side	(1) l/h	72792	100515	145584	183481	218376	218376	247239	247235	301544	301544	350417	350417	402059	402062
Pressure drop source side	(1) kPa	31	33	35	28	31	28	38	35	31	33	42	41	31	53

(1) Date 14511:2018; Water user side 12 °C / 7 °C; Water source side 30 °C / 35 °C  
\* Units not included in the EUROVENT certification programme because Cooling capacity > 1500 kW

WTX - U

Size		1300	1350	2300	2350	3300	3325	3350	4325	4350						
Passes on water side	n°	2	2	2	2	1	2	1	2	1	2	1	2	1	2	
Power supply		400V 3 ~ 50Hz														
Cooling capacity	(1)	kW	222,9	334,1	445,9	559,7	669,0	669,0	869,6	840,1	1002,7	1006,1	1179,6	1191,4	1336,9	1342,6
Input power	(1)	kW	37,5	55,9	75,1	94,3	112,2	112,5	144,9	140,7	166,9	167,2	195,3	198,4	222,3	223,4
Cooling total input current	(1)	A	60	91	120	158	180	180	237	237	273	273	316	316	364	364
EER	(1)	W/W	5,95	5,98	5,94	5,93	5,96	5,95	6,00	5,97	6,01	6,02	6,04	6,01	6,01	6,01
Water flow rate system side	(1)	l/h	38335	57444	76669	96214	115004	115004	149476	144425	172333	172942	202737	204799	229777	230804
Pressure drop system side	(1)	kPa	12	13	16	12	12	21	18	32	14	24	10	26	14	37
Water flow rate source side	(1)	l/h	45016	67385	90033	113067	135049	135049	175273	169344	202156	202690	237660	240041	269542	270255
Pressure drop source side	(1)	kPa	12	14	13	10	12	10	17	15	13	14	17	18	13	23

(1) Date 14511:2018; Water user side 12 °C / 7 °C; Water source side 30 °C / 35 °C

ENERGY DATA

Size			1300	1350	2300	2350	3300	3325	3350	4325	4350
Cooling capacity with low leaving water temp (UE n° 2016/2281)											
SEER	A	W/W	8,23	8,40	8,12	8,58	8,71	8,40	8,85	8,53	8,84
	U	W/W	8,73	8,59	8,87	9,20	8,81	9,38	9,29	9,08	9,33
ηsc	A	%	321,1	328,1	316,6	335,1	340,4	327,8	345,8	333,0	345,5
	U	%	341,3	335,5	346,7	360,1	344,5	367,1	363,5	355,3	365,3

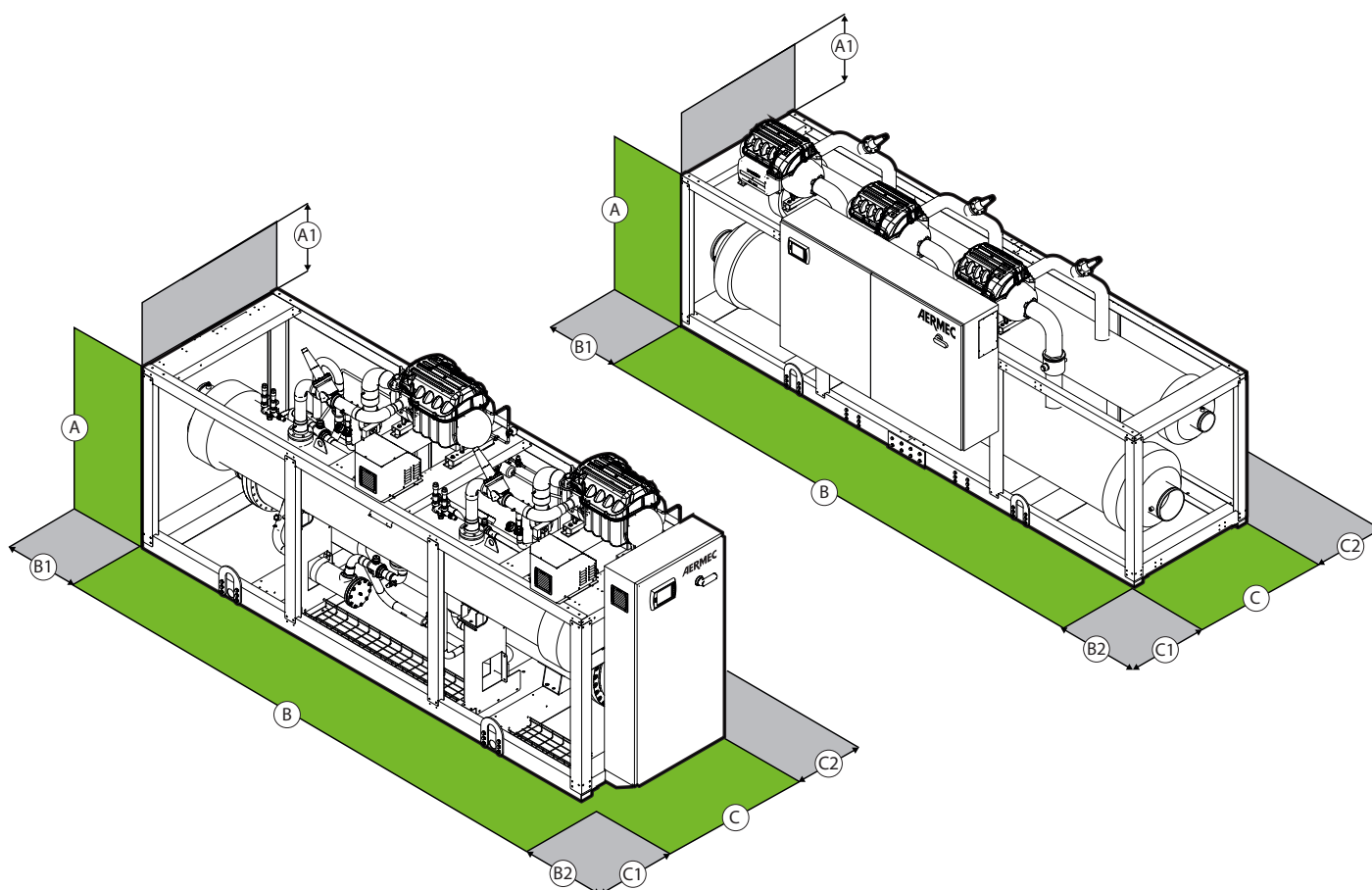
GENERAL TECHNICAL DATA

Size	Note	ver.	1300	1350	2300	2350	3300	3325	3350	4325	4350					
Passes on water side			2	2	2	2	1	2	1	2	1	2	1	2		
Electric data																
Power supply			400V~3 50Hz													
Maximum current (FLA)	A	A	135	210	270	420	405	405	630	630	630	630	840	840	840	840
	U	A	135	210	270	420	405	405	630	630	630	630	840	840	840	840
Peak current (LRA)	A	A	6	6	141	216	276	276	426	426	426	426	636	636	636	636
	U	A	6	6	141	216	276	276	426	426	426	426	636	636	636	636

Size	1300	1350	2300	2350	3300	3325	3350	4325*	4350*							
Passes on water side		2	2	2	2	1	2	1	2	1	2	1	2			
Compressor																
Operation		Inverter														
Type		Centrifugal														
No. of compressors	A	n°	1	1	2	2	3	3	3	3	3	3	4	4	4	4
	U	n°	1	1	2	2	3	3	3	3	3	3	4	4	4	4
Number of circuits	A/U	n°	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Partialisation (of the unit) with electronic thermostatic valve	A	%	30,0%	30,0%	15,0%	15,0%	10,0%	10,0%	10,0%	10,0%	10,0%	10,0%	7,5%	7,5%	7,5%	7,5%
	U	%	35,0%	35,0%	17,5%	17,5%	12,0%	12,0%	12,0%	12,0%	12,0%	12,0%	9,0%	9,0%	9,0%	9,0%
Refrigerant																
Gas type		R134a														
Refrigerant load	A	kg	65	65	100	140	190	190	275	275	300	220	220	285	285	285
	U	kg	65	65	100	140	190	190	275	275	300	220	220	285	285	285
System side heat exchanger																
Type		Shell & Tube														
Number		1														
Connections (in/out)	A	ø	5"	5"	5"	6"	6"	6"	10"	10"	10"	6"	6"	8"	8"	8"
	U	ø	5"	5"	5"	6"	6"	6"	10"	10"	10"	6"	6"	8"	8"	8"
Min. flow rate	A	l/h	33200	33200	59050	85100	99300	84100	128300	84100	143850	118850	151350	129800	151350	129800
	U	l/h	33200	33200	59050	85100	99300	84100	128300	84100	143850	118850	151350	129800	151350	129800
Max. flow rate	A	l/h	99550	99550	177100	255300	297850	252250	384900	252250	431500	358000	453950	389400	453950	389400
	U	l/h	99550	99550	177100	255300	297850	252250	384900	252250	431500	358000	453950	389400	453950	389400
Source side heat exchanger (geothermic)																
Type		Shell & Tube														
Number		1														
Connections (in/out)	A	ø	5"	5"	6"	6"	6"	6"	6"	6"	10"	8"	8"	8"	8"	8"
	U	ø	5"	5"	6"	6"	6"	6"	6"	6"	10"	8"	8"	8"	8"	8"
Min. flow rate	A	l/h	27375	34500	48750	60375	81750	84000	113250	113250	150750	99750	99750	125250	132750	132750
	U	l/h	27375	34500	48750	60375	81750	84000	113250	113250	150750	99750	99750	125250	132750	132750
Max. flow rate	A	l/h	109000	138500	195000	273000	327000	336000	453000	453000	605000	399000	399000	500000	531000	531000
	U	l/h	109000	138500	195000	273000	327000	336000	453000	453000	605000	399000	399000	500000	531000	531000
Sound data																
Sound power level	A	dB(A)	90,0	91,0	93,0	93,5	96,0	96,0	95,5	95,5	97,0	97,0	98,5	98,5	100,0	100,0
	U	dB(A)	87,0	88,0	90,0	88,0	90,0	90,0	91,0	91,0	94,0	94,0	94,0	94,0	97,0	97,0
	AL	dB(A)	84,0	85,0	87,0	87,5	90,0	90,0	89,5	89,5	91,0	91,0	92,5	92,5	94,0	94,0
	UL	dB(A)	81,0	82,0	84,0	82,0	84,0	84,0	85,0	85,0	88,0	88,0	88,0	88,0	91,0	91,0
Sound pressure level	A		58	59	61	62	64	64	63	63	65	65	66	66	68	68
	U		55	56	58	56	58	58	59	59	62	62	62	62	65	65

Sound power Aermec determines sound power values in agreement with the Standard UNI EN ISO 9614-2, in compliance with that requested by Eurovent certification.  
Sound pressure level, at a distance of 10 m, for units in open field conditions on a reflective surface; non-binding value obtained from the sound power level

## DIMENSIONS, WEIGHTS AND MINIMUM CLEARANCES\*



WTX	vers.		1300	1350	2300	2350	3300		3325		3350		4325		4350	
Passes on water side		n°	2	2	2	2	1	2	1	2	1	2	1	2	1	2
A	°	mm	1850	1950	1970	2010	1970	2240	2010	2280	2010	2280	2010	2280	2280	2280
A	L	mm	contact the head office													
B	°	mm	3040	3040	3340	3440	4966	3990	4966	3990	4966	3990	4966	4966	4966	4966
B	L	mm	contact the head office													
C	°	mm	1000	1000	1240	1240	1640	1732	1640	1732	1640	1836	1640	1836	1732	1836
C	L	mm	contact the head office													
A1	°/L	mm														
B1**	°/L	mm	2500	2500	2500	2500	2500	2000	2500	2000	2500	2000	2500	2000	2500	2000
B2**	°/L	mm	1300	1300	1300	1200	2500	2000	2500	2000	2500	2000	2500	2000	2500	2000
C1	°/L	mm	1000	1000	1000	1000	1600	1600	1600	1600	1600	1600	1700	1700	1700	1700
C2	°/L	mm	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
Empty weight + package	°	kg	2190	2370	2770	3390	4090	5440	4430	5730	5120	6630	5690	7200	6640	7380
	L	kg	contact the head office													
Running weight	°	kg	2350	2560	3010	3740	4430	6170	4810	6480	5620	7540	6250	8160	7450	8400
	L	kg	contact the head office													

\* DWG available for download in the webpage and in the Magellano's archive

\*\* Technical spaces provided for heat exchangers cleaning (chemical cleaning or with brushes). These spaces can be reduced only to 1000 mm in case of chemical cleaning.

OPERATING RANGE

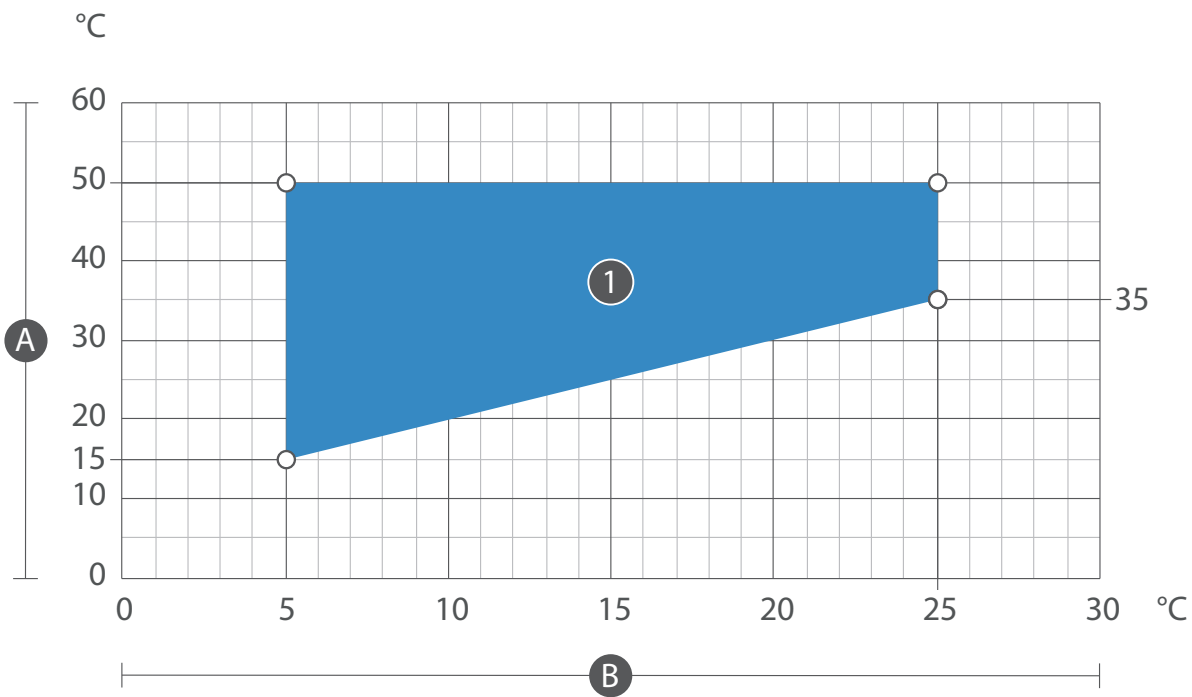
The units, in standard configuration, are not suitable for installation in aggressive environments.

The values indicated in the table refer to the min. and max. limits of the unit. For further information, refer to the tables of yields and consumptions different from the nominal ones. For operating limits, please refer to the diagrams, valid for  $\Delta T = 5^{\circ}\text{C}$ .

If the unit operates beyond the operational limits, we recommend you first contact our technical-sales service.

**(For partial load operations refer to Magellan).**

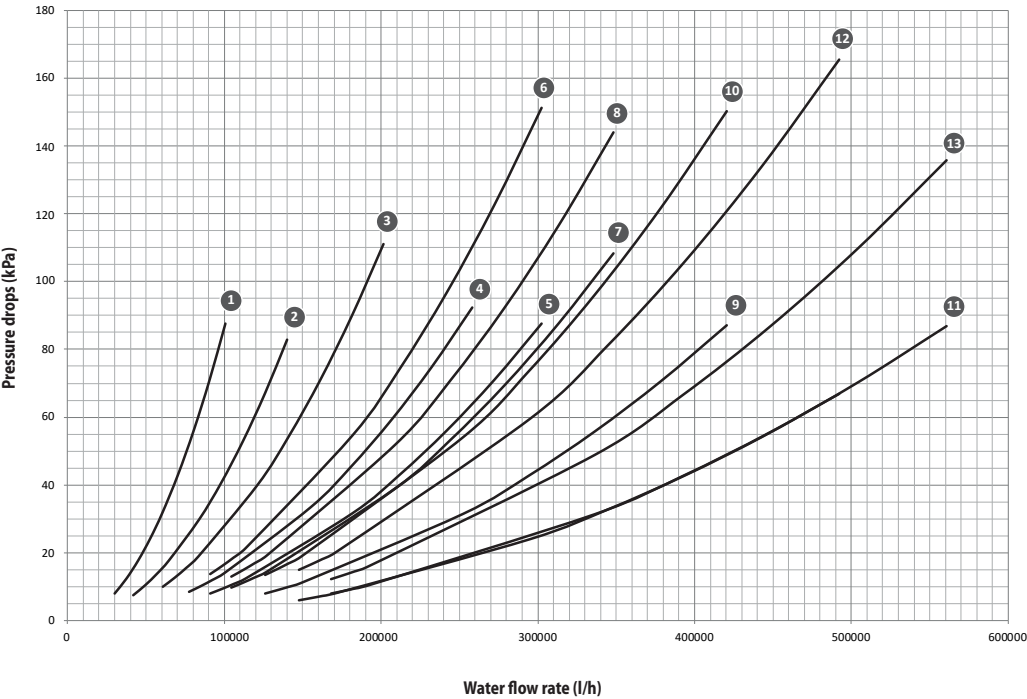
OPERATING RANGE FOR SIZES 1300-4350 - A/U EFFICIENCY - 100%



A - Temperature of water produced (source side) °C  
B - Temperature of water produced (system side) °C  
1 - Standard mode

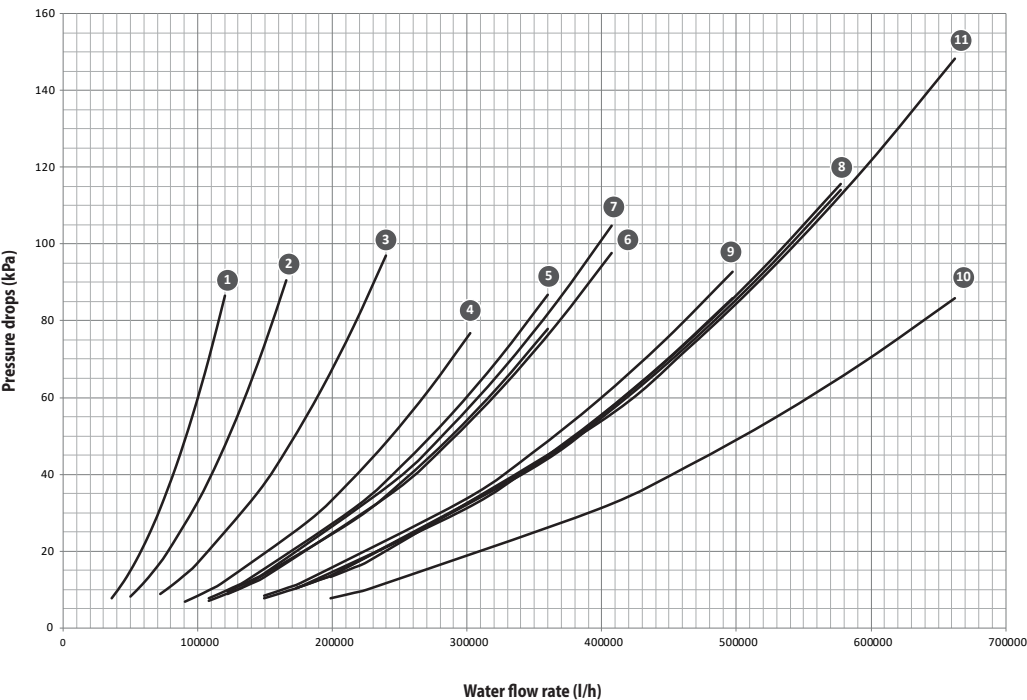
PRESSURE DROPS FUNCTIONING IN COOLING MODE HIGH EFFICIENCY

EVAPORATOR SIDE



WTX	PASSES ON WATER SIDE	
1	1300	2
2	1350	2
3	2300	2
4	2350	2
5	3300	1
6	3300	2
7	3325	1
8	3325	2
9	3350	1
10	3350	2
11	4325-4350	1-1
12	4325	2
13	4350	2

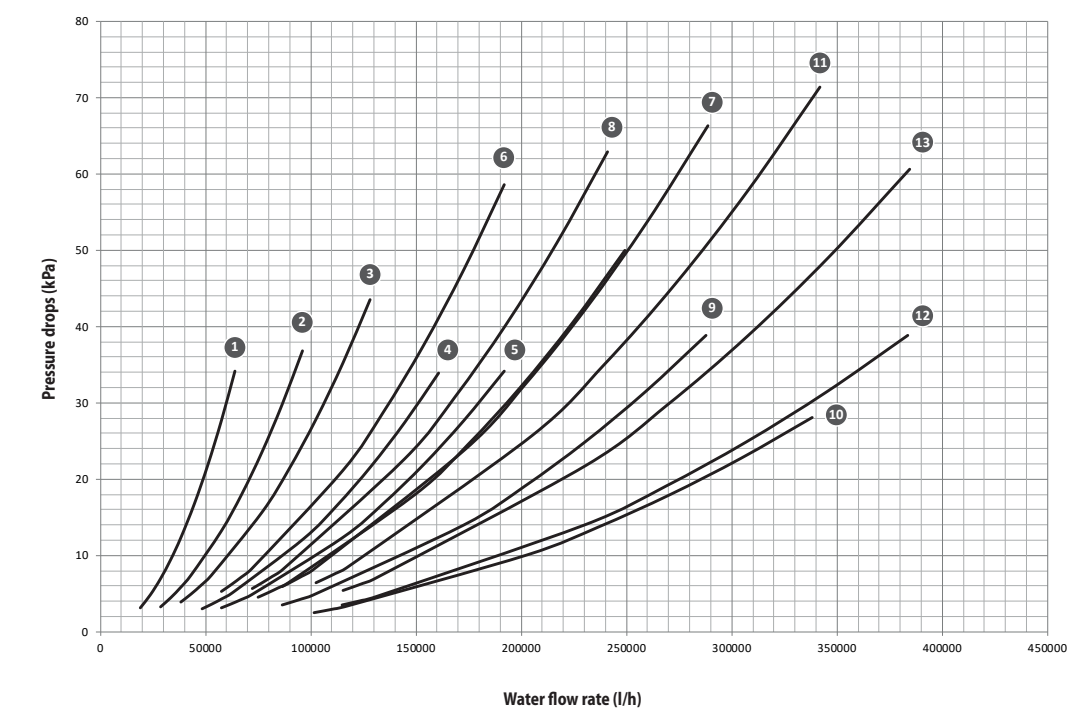
CONDENSER SIDE



WTX	PASSES ON WATER SIDE	
1	1300	2
2	1350	2
3	2300	2
4	2350	2
5	3300	1
6	3300-3325	2
7	3325	1
8	3350-4325-4325	1-1-2
9	3350	2
10	4350	1
11	4350	2

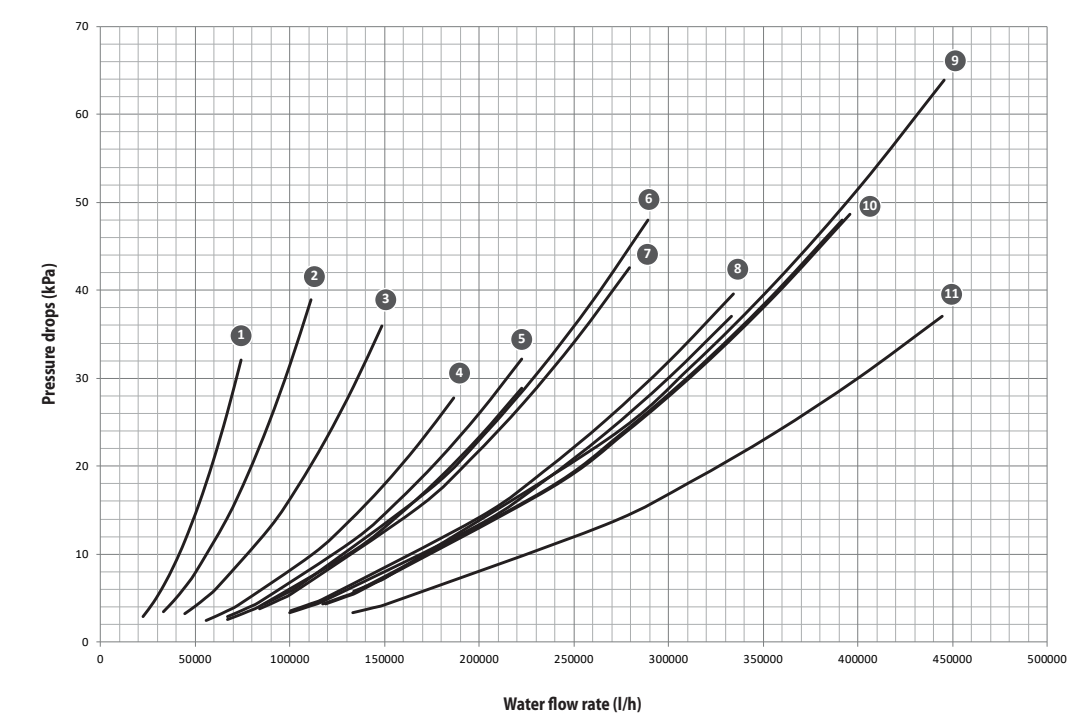
PRESSURE DROPS FUNCTIONING IN COOLING MODE EXTRA HIGH EFFICIENCY

EVAPORATOR SIDE



WTX	PASSES ON WATER SIDE
1	1300
2	1350
3	2300
4	2350
5	3300
6	3300
7	3325-3350
8	3325
9	3350
10	4325
11	4325
12	4350
13	4350

CONDENSER SIDE



WTX	PASSES ON WATER SIDE
1	1300
2	1350
3	2300
4	2350
5	3300
6	3300-3325
7	3325
8	3350
9	3350-4350
10	4325-4325
11	4350

CORRECTIVE FACTORS

Corrective factors for Average water temperatures different from the nominal																
System side heat exchanger	Operation in cooling mode								Operation in heating or recovery mode							
Average water temperatures (°C)	5	10	15	20	30	40	50	23	28	33	38	43	48	53	58	
Pressure drops corrective factor	1.02	1	0.98	0.97	0.95	0.93	0.91	1.04	1.03	1.02	1.01	1	0.99	0.98	0.97	

FOULING: DEPOSIT CORRECTIVE FACTORS

Fouling: deposit corrective factors [K²·m³]/[W]				
	0,0	0,00005	0,0001	0,0002
Cooling capacity correction factors	1,0	1,00	0,98	0,94
Input power correction factors	1,0	1,00	0,98	0,95

# GLYCOL

## ETHYLENE GLYCOL

### COOLING MODE

CORRECTION FACTOR WITH ETHYLENE GLYCOL - COOLING MODE											
Freezing Point	°C	0	-3.63	-6.10	-8.93	-12.11	-15.74	-19.94	-24.79	-30.44	-37.10
Percent ethylene glycol	%	0	10	15	20	25	30	35	40	45	50
Qwc	-	1.000	1.033	1.040	1.049	1.060	1.072	1.086	1.102	1.120	1.141
Pc	-	1.000	0.990	0.985	0.980	0.975	0.970	0.965	0.960	0.955	0.950
Pa	-	1.000	0.996	0.994	0.992	0.990	0.988	0.986	0.984	0.982	0.980
Dp	-	1.000	1.109	1.157	1.209	1.268	1.336	1.414	1.505	1.609	1.728

Average water temperature = 9.5 °C

### HEATING MODE

CORRECTION FACTOR WITH ETHYLENE GLYCOL - HEATING MODE											
Freezing Point	°C	0	-3.63	-6.10	-8.93	-12.11	-15.74	-19.94	-24.79	-30.44	-37.10
Percent ethylene glycol	%	0	10	15	20	25	30	35	40	45	50
Qwh	-	1.000	1.027	1.038	1.050	1.063	1.078	1.095	1.114	1.135	1.158
Ph	-	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Pa	-	1.000	1.002	1.003	1.004	1.005	1.007	1.008	1.010	1.012	1.015
Dp	-	1.000	1.087	1.128	1.175	1.227	1.286	1.353	1.428	1.514	1.610

Average water temperature = 42.5 °C

**Qwc:** Corrective factor of flow rates (middle water temperatur 9.5°C)

**Qwh:** Corrective factor of flow rates (middle water temperatur 42.5°C)

**Pc:** Corrective factor of cooling capacity

**Ph:** Corrective factor of heating capacity

**Pa:** Corrective factor of input power

**Dp:** Corrective factor of pressure drop

## PROPYLENE GLYCOL

### COOLING MODE

CORRECTION FACTOR WITH PROPYLENE GLYCOL - COOLING MODE											
Freezing Point	°C	0	-3.43	-5.30	-7.44	-9.98	-13.08	-16.86	-21.47	-27.04	-33.72
Percent PROPYLENE glycol	%	0	10	15	20	25	30	35	40	45	50
Qwc	-	1.000	1.007	1.006	1.007	1.010	1.015	1.022	1.032	1.044	1.058
Pc	-	1.000	0.985	0.978	0.970	0.963	0.955	0.947	0.939	0.932	0.924
Pa	-	1.000	0.996	0.994	0.992	0.990	0.988	0.986	0.984	0.982	0.980
Dp	-	1.000	1.082	1.102	1.143	1.201	1.271	1.351	1.435	1.520	1.602

Average water temperature = 9.5 °C

### HEATING MODE

CORRECTION FACTOR WITH PROPYLENE GLYCOL - HEATING MODE											
Freezing Point	°C	0	-3.43	-5.30	-7.44	-9.98	-13.08	-16.86	-21.47	-27.04	-33.72
Percent PROPYLENE glycol	%	0	10	15	20	25	30	35	40	45	50
Qwh	-	1.000	1.008	1.014	1.021	1.030	1.042	1.055	1.071	1.090	1.112
Ph	-	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Pa	-	1.000	1.003	1.004	1.005	1.007	1.009	1.011	1.014	1.018	1.023
Dp	-	1.000	1.050	1.077	1.111	1.153	1.202	1.258	1.321	1.390	1.467

Average water temperature =42.5 °C

**Qwc:** Corrective factor of flow rates (middle water temperatur 9.5°C)

**Qwh:** Corrective factor of flow rates (middle water temperatur 42.5°C)

**Pc:** Corrective factor of cooling capacity

**Ph:** Corrective factor of heating capacity

**Pa:** Corrective factor of input power

**Dp:** Corrective factor of pressure drop



**Do not fill up the hydraulic system by glycol near the suction of the pump. High concentration of glycol could stuck the pump. Do not use the pump to mix water and glycol**



## SOUND DATA

Sound power levels on the basis of measurements taken in accordance with ISO 9614 in compliance with EUROVENT certification (Eurovent 8/1 sound tests). This certification refers to the Sound Power in dB(A) which is therefore the only

acoustic data to be considered binding.

Unit	Vers.	EFF.	Water passage	Total sound levels			Octave band (Hz)						
				Pow.	Pres. 10 m	Pres. 1 m	125	250	500	1000	2000	4000	8000
				dB(A)	dB(A)	dB(A)	Sound potential for central band [dB] (A) frequency						
1300	°	A	2	90	58	40	61	74	77	86	86	81	78
		U		87	55	37	58	71	74	83	83	78	75
1350	°	A	2	91	59	41	62	75	78	87	87	82	79
		U		88	56	38	59	72	75	84	84	79	76
2300	°	A	2	93	61	43	64	77	80	89	89	84	81
		U		90	58	40	61	74	77	86	86	81	78
2350	°	A	2	93,5	62	43	64	78	80	89	89	85	81
		U		88	56	38	59	72	75	84	84	79	76
3300	°	A	1	96	64	44	67	80	83	92	92	87	84
		U		90	58	38	61	74	77	86	86	81	78
		A	2	96	64	45	67	80	83	92	92	87	84
		U		90	58	39	61	74	77	86	86	81	78
3325	°	A	1	95,5	63	44	66	80	82	91	91	87	83
		U		91	59	39	62	75	78	87	87	82	79
		A	2	95,5	63	44	66	80	82	91	91	87	83
		U		91	59	39	62	75	78	87	87	82	79
3350	°	A	1	97	65	45	68	81	84	93	93	88	85
		U		94	62	42	65	78	81	90	90	85	82
		A	2	97	65	45	68	81	84	93	93	88	85
		U		94	62	42	65	78	81	90	90	85	82
4325	°	A	1	98,5	66	47	69	83	85	94	94	90	86
		U		94	62	42	65	78	81	90	90	85	82
		A	2	98,5	66	46	69	83	85	94	94	90	86
		U		94	62	42	65	78	81	90	90	85	82
4350	°	A	1	100	68	48	71	84	87	96	96	91	88
		U		97	65	45	68	81	84	93	93	88	85
		A	2	100	68	48	71	84	87	96	96	91	88
		U		97	65	45	68	81	84	93	93	88	85
1300	L	A	2	84	Contact head office		58	70	73	69	82	77	73
		U		81			55	67	70	66	79	74	70
1350	L	A	2	85			59	71	74	70	83	78	74
		U		82			56	68	71	67	80	75	71
2300	L	A	2	87			61	73	76	72	85	80	76
		U		84			58	70	73	69	82	77	73
2350	L	A	2	88			61	74	76	73	85	81	76
		U		82			56	68	71	67	80	75	71
3300	L	A	1	90			64	76	79	75	88	83	79
		U		84			58	70	73	69	82	77	73
		A	2	90			64	76	79	75	88	83	79
		U		84			58	70	73	69	82	77	73
3325	L	A	1	90			63	76	78	75	87	83	78
		U		85			59	71	74	70	83	78	74
		A	2	90			63	76	78	75	87	83	78
		U		85			59	71	74	70	83	78	74
3350	L	A	1	91			65	77	80	76	89	84	80
		U		88			62	74	77	73	86	81	77
		A	2	91			65	77	80	76	89	84	80
		U		88			62	74	77	73	86	81	77
4325	L	A	1	93			66	79	81	78	90	86	81
		U		88			62	74	77	73	86	81	77
		A	2	93			66	79	81	78	90	86	81
		U		88			62	74	77	73	86	81	77
4350	L	A	1	94			68	80	83	79	92	87	83
		U		91			65	77	80	76	89	84	80
		A	2	94			68	80	83	79	92	87	83
		U		91			65	77	80	76	89	84	80

### Data 14511:2018 (Eurovent)

System Water Temperature (in/out) 12°C/7°C; Geothermic Water Temperature (in/out) 30°C/35°C





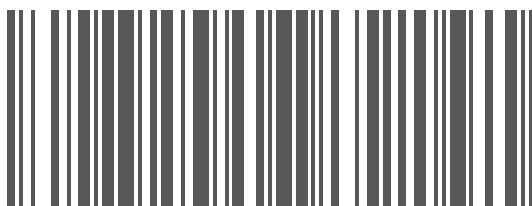


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