

## STANDARD UNIT SPECIFICATIONS

### MSRT-XSC3 90.4 Water chillers, Air cooled, Cooling only, Outdoor installation(R410A-400T-PED-CREFB-IOM2--)

Remotex is an air-cooled liquid chiller condenserless. The system is made up of a unit including the primary components of the refrigeration circuit ((MSRT-XSC3) and an external section (CEV-XT), designed according to ISO 9001 quality standards, consisting of:

#### COMPRESSOR

High efficiency hermetic orbiting scroll compressor complete with oil charge, motor over-temperature and over-current devices and protection against excessive gas discharge temperature with oil heater, which starts automatically, keeps the oil from being diluted by the refrigerant when the compressor stops. Compressors, fitted on rubber antivibration mounts to prevent transmission of noise and vibration, are connected in TANDEM on a single refrigerating circuit with biphasic oil equalisation, it allows to reach high efficiency at partial load. Uniform compression process with reduced number of moving parts which ensure very low levels of noise and vibration.

#### STRUCTURE

Structure and base made entirely of sturdy sheet steel, thickness of 30/10 or 40/10, with the surface treatment in Zinc–Magnesium painted, for the parts in view, with polyester powder RAL 9001 that guarantees excellent mechanical characteristics and high corrosion strength over time.

#### PANELLING

External pre-painted zinc-magnesium paneling, thickness 10/10, with the surface treatment in Zinc–Magnesium painted with polyester powder RAL 9001 that ensures superior resistance to corrosion for outdoor installation and eliminates the need for periodical painting. The panels can be easily removed to fully access internal components and are lined with sound-proof material on the inside to contain the unit's sound levels.

#### INTERNAL EXCHANGER

Direct expansion heat exchanger, brazed AISI 316 stainless steel plates, in pack without seals using copper as the brazing material, with low refrigerant charge and large exchange surface, complete with: - external thermal insulation no-condensation, thickness 9,5 mm, in extruded elastomer foam with closed cells. - differential pressure switch, water side - antifreeze heater to protect the water side exchanger, preventing the formation of frost if the water temperature falls below a set value. Maximum operating pressure exchanger: 10 bar on the water side and 45 bar on the refrigerant side.

#### EXTERNAL EXCHANGER

##### EXTERNAL SECTION

Direct expansion finned exchanger, made from copper pipes arranged in staggered rows and mechanically expanded for better adherence to the collar of the fins. The fins are made of aluminium with hydrophilic treatment and with a special corrugated surface, set a suitable distance apart to ensure maximum heat exchange efficiency.

#### FAN

##### EXTERNAL SECTION

Axial fans with high performance and low-noise, balanced statically and dynamically, with blades in aluminum sheet coated in PP and sickle profile terminating with "Winglets", Wall ring in sheet steel pre-galvanised, directly coupled to the three-phase electric motor with external rotor and IP54 protection and class F insulation. Fans are located in aerodynamically shaped structures, equipped with accident prevention steel guards.

Axitop diffusers installed on the outdoor section fans to recover dynamic energy, resulting in increased efficiency and minimal sound emission. It creates an ideal air distribution: it aerodynamically decelerates the flow and transforms a big part of its dynamic energy in static pressure.

#### REFRIGERANT CIRCUIT

the units are made with two independent refrigerant circuits, each with:

- replaceable antiacid dehydrator filter with solid cartridge
- liquid flow and moisture indicator
- electronic expansion valve
- High pressure safety pressure switch
- high pressure safety valve
- low pressure safety valve
- cutoff valve on liquid line
- cutoff valve on compressor supply
- copper pipes with closed cell insulation at the inlet.

#### ELECTRICAL PANEL

The Capacity Section includes:

##### INTERNAL SECTION

- main door lock isolator switch
- power input terminals
- isolating transformer for auxiliary circuit power supply
- compressor circuit breaker
- compressor control contactor

##### EXTERNAL SECTION

- main door lock isolator switch
- fan overload circuit breakers
- fan thermal overload relay

the control section includes:

##### INTERNAL SECTION

- interface terminal with graphic display
- display of the set values, the error codes and the parameter index
- ON/OFF and alarm reset buttons
- Proportional-integral-derivative water temperature control
- daily, weekly programmer of temperature set-point and unit on/off
- Unit switching on management by local or remote (serial)
- antifreeze protection water side
- compressor overload protection and timer
- prealarm function for water antifreeze and high refrigerant gas pressure
- self-diagnosis system with immediate display of the fault code
- automatic rotation control for compressor starts
- compressor operating hour display
- remote ON/OFF control
- relay for remote cumulative fault signal
- inlet for demand limit (power input limitation according to a 0÷10V external signal)
- potential-free contacts for compressor status
- Digital input for double set-point enabling
- Electrical panel ventilation
- Multi-function phase monitor

#### EXTERNAL SECTION

- Probe of the outdoor air temperature.
- fan thermal overload
- Modbus connection with internal section

#### CONNECTIONS

Both sections of Remotex system are shipped with nitrogen charge. The refrigerant charge (R-410A) has to be made during installation, at the start-up and is provided by the Customer. The dimensioning of the connection refrigerant lines is very important for the proper operating and reliability of the system, therefore the connection must be made by a qualified refrigerant technician, respecting the local operations and good rules in force. The materials and the complete realization of the refrigerant lines are provided by the Customer.

#### TEST

Unit subjected to factory-tested in specific steps and test pressure of the piping of the refrigerant circuit (with nitrogen and hydrogen), before shipping them. After the approval, the moisture contents present in all circuits are analyzed, in order to ensure the respect of the limits set by the manufacturers of the different components.

#### EXCELLENCE

Units with high seasonal efficiency and extremely high energy efficiency ratio (EER) during full-load cooling. This is all possible thanks to high performance levels in compressor technology, high efficiency of heat exchangers and external section fans.

#### ACOUSTIC CONFIGURATION WITH COMPRESSOR SOUNDPROOFING

Unit fitted with insulated compressor compartment with sound-proof material on the inside to contain the unit's sound levels.

#### DEVICE FOR FAN CONSUMPTION REDUCTION OF THE EXTERNAL SECTION, ECOBREEZE TYPE

The device allows the reduction of consumption for the external section fans using variable speed control. Constituted of electric motor, Brushless type, with external rotor and permanent magnet with electronically commutated stator, induced by integrated electronics control, with incorporated thermal protection IP54 and class F insulation. The device allows to optimize the condensation phase at low outdoor temperatures cutting down the fans or activating the booster function at high temperature, always ensuring reduced noise levels.

#### HYDROPACK USER SIDE WITH NO.3 OF INVERTER PUMPS

Pumping unit supplied on the unit consisting of n.3 parallel electric pumps (all in duty) and controlled by inverter to adapt to the different conditions of the load system. It enables the automatic reduction of the liquid flow rate in critical conditions, avoiding blocks due to overloading and consequential intervention work by specialised technical personnel. Through the inverter calibration, standard supplied, it is possible to adapt the pump flow-rate/head to the installation feature. Centrifugal electric pump with impeller made with AISI 304 steel and AISI 304 stainless steel body or grey cast iron (depending on models). Mechanical seal using ceramic, carbon and EPDM elastomer components. Three-phase electric motor with IP55 protection and class F insulation. Complete with thermoformed insulated casing, Victaulic type quick connections with insulated casing, non return valve, safety valve (6 bar), pressure gauges, system load safety pressure switch, stainless steel antifreeze immersion heaters located at the return and supply point.

#### RUBBER ANTIVIBRATION MOUNTS

Rubber anti-vibration mounts to be secured in appropriate housings on supporting struts. Their function is to dampen the vibrations produced by the unit, thus reducing the noise transmitted to the supporting structures.

#### MULTI-FUNCTION PHASE MONITOR

The phase monitor controls the electrical parameters of the power line to the unit. It works on the command circuit and orders the unit to be switched off when one of the following cases is present: when the phase connections do not respect the correct sequence, or when there is over voltage or under voltage for a certain amount of time: limit values of over and under voltage and the time interval can be manually and separately set. When the line conditions are re-established, the unit is re-armed automatically. Device installed and wired built-in the unit.

#### REFRIGERANT LEAK DETECTOR WITH PUMP DOWN FUNCTION IN THE CASING

Leak detector device built-in installed and placed inside the compressor box. It detects leaks of the internal refrigeration circuit and automatically enables the "pump-down" function, storing the refrigerant inside the finned coil exchanger. During pump-down, cooling capacity is not produced by the unit. At the end of the operation the unit is switched off and a dedicated alarm signal is available directly inside the electrical panel. The device respects BREEAM regulations.

#### SERIAL COMMUNICATION MODULE FOR MODBUS SUPERVISOR

Module allows the serial connection of the supervision system, using Modbus as the communication protocol. It enables access to the complete list of operational variables, commands and alarms. Using this accessory every unit can dialogue with the main supervision systems. Device installed and wired built-in the unit. The total length of each serial line do not exceed 1000 meters and the line must be connected in bus typology (in/out).

#### POTENTIAL-FREE CONTACTS FOR COMPRESSOR STATUS

Free contacts in the electrical panel for remote viewing of compressors status, on or off.

#### ELECTRICAL PANEL VENTILATION

It includes a thermostatically controlled fan to protect the components of the electrical panel from overheating, from high outside temperatures and solar radiation.

#### CUTOFF VALVE ON COMPRESSOR SUPPLY AND RETURN

It includes a shut-off valve on the intake and one on discharge of compressor for emergency maintenance.

#### ELECTRONIC EXPANSION VALVES

Electronic expansion valve for quick and accurate regulation according to the actual load required for use, allowing a high efficiency unit and a longer compressor life. The device includes: control of overheating to prevent phenomena harmful for the compressor, like overtemperature and return of liquid, pressure transmitter and temperature sensor.

**ECONOMIC OFFER****MSRT-XSC3 90.4 Condenserless water chiller for outdoor or indoor installation (R410A-400T-PED-CREFB-IOM2--)**

<b>UNIT CONFIGURATION</b>		<b>Q.TY</b>
	Unit: MSRT-XSC3 90.4 (R-410A)	1
<b>R410A</b>	Refrigerant R-410A	1
<b>LIQW</b>	Handled fluid made of only water	1
<b>400T</b>	Supply voltage 400/3/50 without neutral	1
<b>EXC</b>	Excellence	1
<b>SC</b>	Acoustic configuration with compressor soundproofing	1
<b>MEN10G</b>	Minimum outdoor air temperature down to -10°C	1
<b>PED</b>	Heat exchangers certified CE = PED - according to European PED Directive	1
<b>CREFB</b>	Device for fan consumption reduction of the external section, ECOBREEZE type	1
<b>3PMV</b>	Hydropack user side with no.3 of inverter pumps	1
<b>PU22</b>	Pump 22	1
<b>IOM2</b>	English Installation and Operation Manual	1
<b>AMRX</b>	Rubber antivibration mounts (Accessory separately supplied)	1
<b>MF2</b>	Multi-function phase monitor	1
<b>RPRPDI</b>	Refrigerant leak detector with pump down function in the casing	1
<b>CMSC9</b>	Serial communication module for Modbus supervisor	1
<b>CFSC</b>	potential-free contacts for compressor status	1
<b>FANQE</b>	Electrical panel ventilation	1
<b>SDV</b>	cutoff valve on compressor supply and return	1
<b>EVE</b>	Electronic expansion valves	1
<b>AEG4</b>	Antifreeze protection with 40% ethylene glycol	1
<b>SST</b>	Standard shipping	1

**TECHNICAL DATA****MSRT-XSC3 90.4 Condenserless water chiller for outdoor or indoor installation (R410A-400T-PED-CREFB-IOM2--)****SELECTED OPERATION CONDITIONS**

<b>COOLING</b>		<b>SELECTED</b>
external exchanger air intake	°C	35.0
internal exchanger water outlet	°C	6.00
Internal exchanger thermal head	°C	6.00
<b>GENERAL</b>		<b>SELECTED</b>
glycol % internal exchanger	%	0.000
Equivalent length between indoor and outdoor unit (m)	m	20.0

**PERFORMANCE DATA**

<b>COOLING</b>		
Cooling capacity	kW	246
Compressor power input	kW	75.5
Total power input	kW	81.9
EER compressor	Nr	3.26
Water flow-rate (User Side)	l/s	9.74
Water flow-rate (User Side)	m³/h	35.1
Internal exchanger pressure drops	kPa	30.4

**THE TECHNICAL DATA ARE APPROXIMATE AND MAY BE MODIFIED BY THE MANUFACTURER WITH NO REQUIREMENT FOR ADVANCE NOTICE**

**TECHNICAL DATA REFER TO THE TECHNICAL BULLETIN**

<b>GENERAL</b>			
<b>COOLING</b>			
EER (EN 14511:2018)			3.17
SEER		Nr	4.73
Seasonal space cooling energy efficiency		%	186
Refrigeration circuits		Nr	2.00
<b>WEIGHT AND DIMENSIONS</b>			
Shipping length		mm	2350
Shipping depth		mm	1150
Shipping height		mm	2225
Shipping weight		kg	1385
Operating weight		kg	1447
<b>COMPRESSOR</b>			
No. of compressors		Nr	4.00
Type of compressors			Scroll
Std Capacity control steps		Nr	6.00
<b>EXTERNAL SECTION FANS</b>			
Type of fans			AX
Number of fans		Nr	4.00
Standard airflow		l/s	23553
<b>INTERNAL EXCHANGER</b>			
Water content		l	20.0
<b>CONNECTIONS</b>			
Water fittings			4"
<b>ELECTRICAL DATA</b>			
<b>F.L.A. - FULL LOAD CURRENT AT MAX ADMISSIBLE CONDITIONS</b>			
F.L.A. - Total		A	181
<b>F.L.I. - FULL LOAD POWER INPUT AT MAX ADMISSIBLE CONDITIONS</b>			
F.L.I. - Total		kW	106
<b>M.I.C. MAXIMUM INRUSH CURRENT</b>			
M.I.C. - Value		A	431
M.I.C. with soft start accessory		A	293

Voltage unbalance between phases: max 2 %  
Voltage variation: max +/- 10%

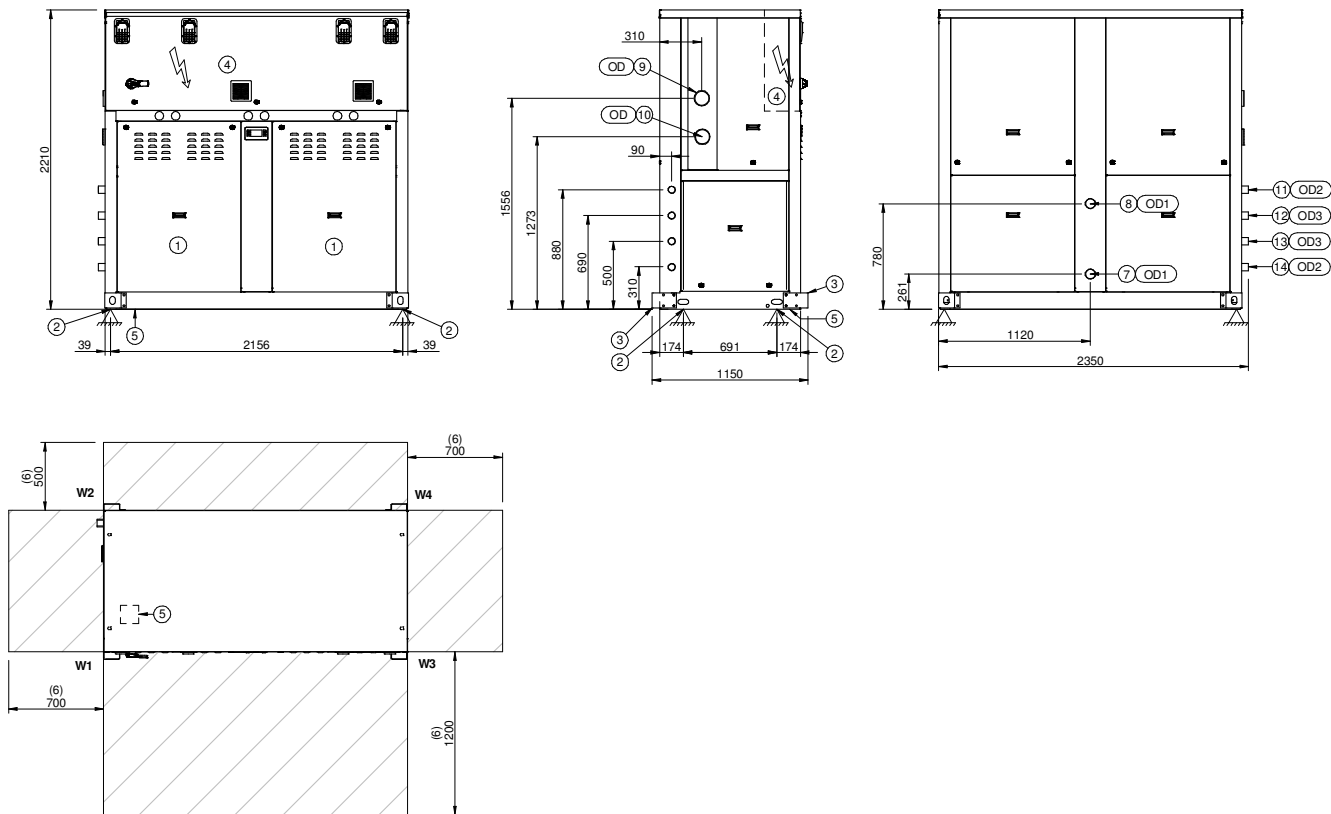
SOUND LEVELS									
Sound power level (dB)								Sound pressure level	Sound power level
Octave band (Hz)									
63	125	250	500	1000	2000	4000	8000	dB(A)	dB(A)
50	55	69	73	77	77	71	64	64	82

The sound levels are referred to unit operating at a full load in nominal conditions. The sound pressure level is referred at a distance of 1m. from the external unit surface, with fairing, fitted to a wall. Please note that when the unit is installed in conditions other than nominal test conditions /for example near walls or obstacles in general) the sound levels may undergo substantial variation. Measures are according to UNI EN ISO 9614-2 regulations, with respect to the EUROVENT 8/1 certification, which provides for a tolerance of 3 dB(A) on the sound power level, which is the only acoustic data to be considered binding.

Data referred to the following conditions:  
 internal exchanger water = 12/7°C  
 outdoor air temperature 35°C

DIMENSIONAL DRAWINGS

MSRT-XSC3 90.4 Condenserless water chiller for outdoor or indoor installation (R410A-400T-PED-CREFB-IOM2--)



- (1)COMPRESSOR COMPARTMENT
- (2)hole to hang unit
- (3)lifting brackets
- (4)GENERAL ELECTRICAL PANEL
- (5)Power input
- (6)suggested clearance
- (7)recovery side exchanger water inlet (optional)
- (8)recovery side exchanger water outlet (optional)
- (9)Water inlet user side of no pumps unit
- (9)Water outlet user side of unit with pumps (optional)
- (10)Water inlet user side of unit with pumps (optional)
- (10)Water outlet user side of no pumps unit
- (11)liquid line connection C1
- (12)discharge line C1
- (13)discharge line C2
- (14)liquid line connection C2

The presence of optional accessories may result in a substantial variation of the weights shown in the table.

DIMENSIONS (mm)					
A - Length		B - Width		C - Height	
2350.0		1150.0		2210.0	

WEIGHT DISTRIBUTION (Kg)					
W1 Supporting Point	W2 Supporting Point	W3 Supporting Point	W4 Supporting Point	Shipping weight	Operating weight
399	303	421	324	1385	1447

**ECONOMIC OFFER****CEV-XT 90.0 Remote air cooled condenser for outdoor installation (R410A-400T-CREFB)**

<b>UNIT CONFIGURATION</b>		<b>Q.TY</b>
	Unit: CEV-XT 90.0 (R-410A)	1
<b>R410A</b>	Refrigerant R-410A	1
<b>400T</b>	Supply voltage 400/3/50 without neutral	1
<b>EXC</b>	Excellence	1
<b>SC</b>	Acoustic configuration with compressor soundproofing	1
<b>MEN10G</b>	Minimum outdoor air temperature down to -10°C	1
<b>MEN25A</b>	Minimum outdoor air temperature with unit powered on but not operational down to -25°C	1
<b>MEN25S</b>	Minimum storage outdoor air temperature down to -25°C	1
<b>CREFB</b>	Device for fan consumption reduction of the external section, ECOBREEZE type	1
<b>AXI</b>	High efficiency diffuser for axial fan - AxiTop	1
<b>AMRX</b>	Rubber antivibration mounts (Accessory separately supplied)	1
<b>SST</b>	Standard shipping	1



**TECHNICAL DATA****CEV-XT 90.0 Remote air cooled condenser for outdoor installation (R410A-400T-CREFB)**

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**TECHNICAL DATA REFER TO THE TECHNICAL BULLETIN**

<b>WEIGHT AND DIMENSIONS</b>			
Shipping length		mm	2795
Shipping depth		mm	2230
Shipping height		mm	2420
Shipping weight		kg	825
Operating weight		kg	862
<b>EXTERNAL SECTION FANS</b>			
Type of fans			AX
Number of fans		Nr	4
Standard airflow		l/s	23553
<b>CONNECTIONS</b>			
Gas connection			28
Liquid connection			35
<b>ELECTRICAL DATA</b>			
<b>F.L.A. - FULL LOAD CURRENT AT MAX ADMISSIBLE CONDITIONS</b>			
F.L.A. - Total		A	15.6
<b>F.L.I. - FULL LOAD POWER INPUT AT MAX ADMISSIBLE CONDITIONS</b>			
F.L.I. - Total		kW	7.80
<b>M.I.C. MAXIMUM INRUSH CURRENT</b>			
M.I.C. - Value		A	33.8

Electrical data refer to standard units; according to the installed accessories, the data can suffer some variations.

Voltage unbalance between phases: max 2 %

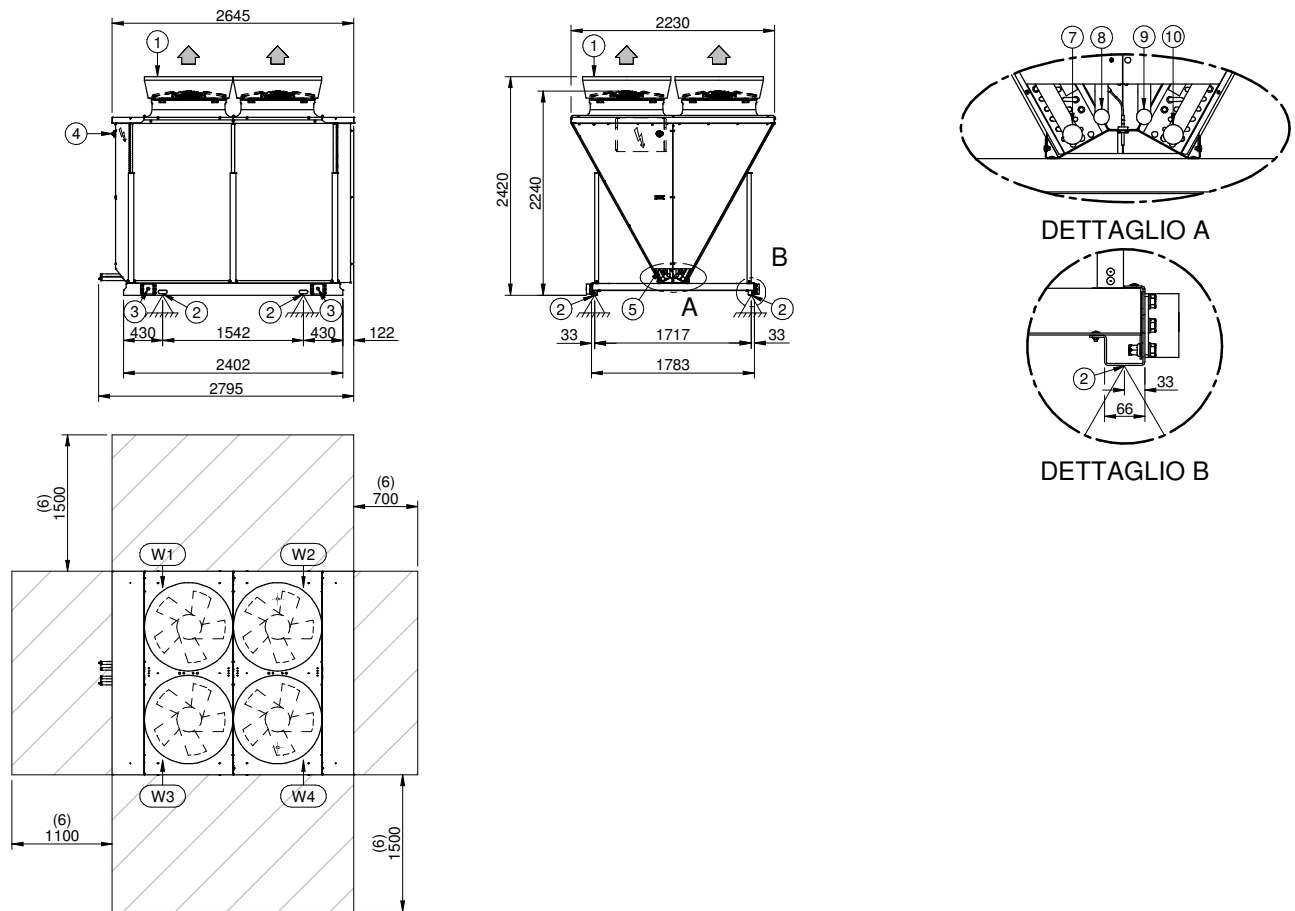
Voltage variation: max +/- 10%

SOUND LEVELS									
Sound power level (dB)								Sound pressure level	Sound power level
Octave band (Hz)									
63	125	250	500	1000	2000	4000	8000	dB(A)	dB(A)
92	80	81	79	76	74	73	69	50	82

Sound levels refer to units with full load under nominal test conditions. The sound pressure is measured at 10 m from the external surface of the unit in open field conditions.

Measures are according to UNI EN ISO 9614-2 regulations, with respect to the EUROVENT 8/1 certification, which provides for a tolerance of 3 dB(A) on the sound power level, which is the only acoustic data to be considered binding.

**DIMENSIONAL DRAWINGS**  
**CEV-XT 90.0 Remote air cooled condenser for outdoor installation (R410A-400T-CREFB)**



- (1)Axitop (removable)  
(2)hole to hang unit  
(3)lifting brackets  
(4)GENERAL ELECTRICAL PANEL  
(5)Power input  
(6)suggested clearance  
(7)liquid line connection C1  
(8)discharge line C1  
(9)discharge line C2  
(10)liquid line connection C2

The presence of optional accessories may result in a substantial variation of the weights shown in the table.

DIMENSIONS (mm)							
A - Length		B - Width		C - Height			
2795.0		2230.0		2420.0			

WEIGHT DISTRIBUTION (Kg)							
W1 Supporting Point	W2 Supporting Point	W3 Supporting Point	W4 Supporting Point	W5 Supporting Point	W6 Supporting Point	Shipping weight	Operating weight
218	213	218	213	-	-	825	862