

**MITSUBISHI ELECTRIC
HYDRONICS & IT COOLING SYSTEMS S.p.A.**

COMFORT

CHILLERS

TX-W

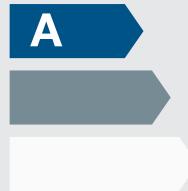
**HIGH EFFICIENCY WATER COOLED
CHILLER, WITH OIL-FREE CENTRIFUGAL
COMPRESSOR, FROM 246 TO 4549 KW**



**“LOGIC WILL GET YOU FROM A TO B.
IMAGINATION WILL TAKE
YOU EVERYWHERE.”**

Albert Einstein
Internationally
renowned physicist
(1879-1955)





NEGLIGIBLE INRUSH CURRENT

The start up in-rush current of water source chillers with oil-free centrifugal compressors is only 2 Amps! This provides for a more favourable selection of the line power systems.

SILENT OPERATION

Centrifugal oil-free are the most silent compressors available on the market; water source chillers with this technology feature extremely reduced vibration, with considerable advantages in any application.

UNRIValed EFFICIENCY

Water source chillers with centrifugal oil-free compressors show competitive full load and outstanding partial load efficiency, enabling them to reach and exceed any values of efficiency established by HVAC's most common protocols.

**ONLY IMAGINATION COULD LEAD TO IMPROVE
THE ALREADY BRILLIANT TECHNICAL FEATURES OF OIL-FREE
CENTRIFUGAL CHILLERS AND CONCEIVE:**

TX-W

THE SOLUTION BEYOND THE LIMITS OF TRADITIONAL DESIGN

Drawing on over 10 years of experience in units with oil-free centrifugal compressors, TX-W overcomes the limits of traditional design and presents itself as the right solution for any project and application requirements.

✓ Countless design combinations

to satisfy any specific project and application needs.

✓ Dedicated operating range

for the installation in low or high condensing temperature applications.

✓ Wide cooling capacity range

thanks to a coverage never seen before, from 246 kW to up to more than 4 MW.

✓ Bespoke selection software

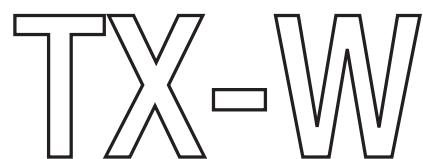
developed for the selection of the most competitive product, without sacrificing any demands.

✓ Flexible configuration

with the horizontal or diagonal layout of the exchangers.

✓ Brilliant full load and seasonal efficiencies

EER exceeding 6,6 and ESEER over 10,2 (gross values).



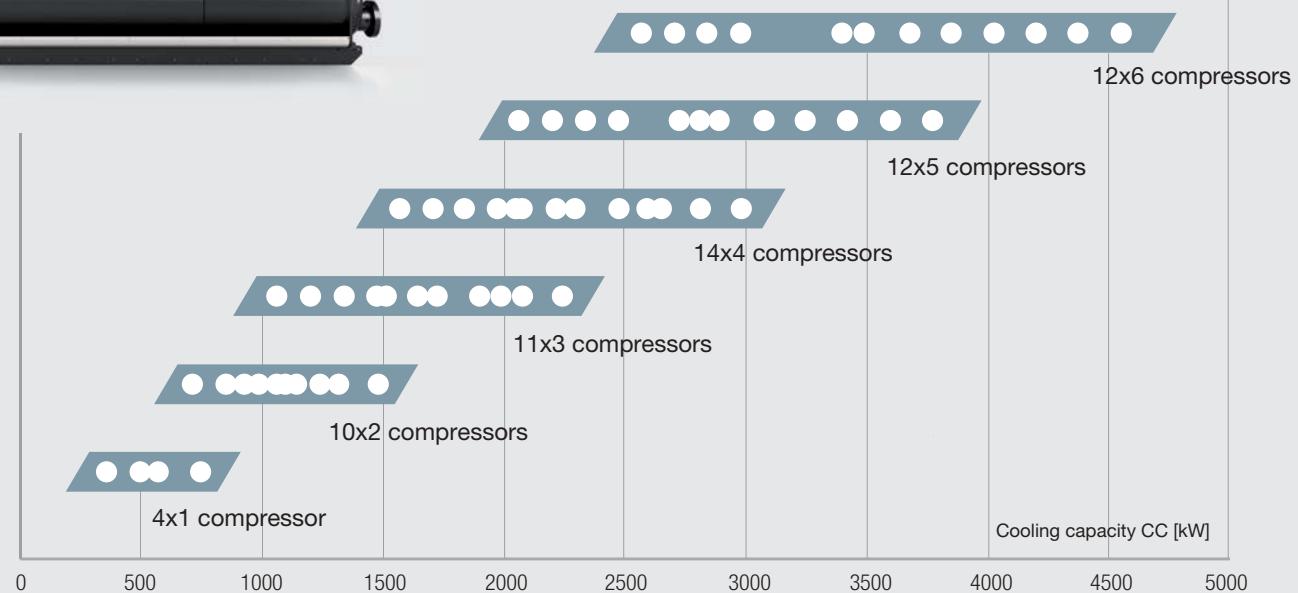
NO COMPROMISE. THE BEST SOLUTION FOR ANY PROJECT

COUNTLESS DESIGN COMBINATIONS

TX-W is designed to host from 1 to 6 centrifugal oil-free compressors, also allowing to combine different sizes of compressors. Each set of compressors matches one of the 6 new couples of heat exchangers (flooded evaporator and

shell and tube condenser) created exclusively for TX-W with the goal of reaching unequaled heat exchange performance. The result is a range of 63 possible combinations, able to meet any specific project and application needs.

63 SIZES



Data referred to the following working conditions: Evap. 12/7°C - Cond. 30/35°C (EN14511) - Max compr. Speed.

WIDEST RANGE OF COOLING CAPACITY

TX-W comes with a coverage never seen before:
from 246 kW to more than 4 MW.

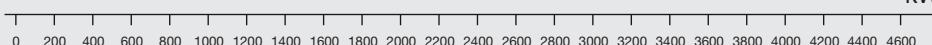
Whatever the demand for cooling capacity, this unit is the answer to all comfort, process and IT Cooling applications where utmost reliability and unbeatable performance are the key drivers.



246

4549

kW



FLEXIBLE CONFIGURATION

In TX-W you can choose between horizontal or diagonal layout of the heat exchangers, with dimensions that favor the overall compact size in height or in width.

The water connections of both heat exchangers can be deployed either on the right or left side, to fit the most diverse HVAC system requirements.



Heat exchangers with horizontal alignment

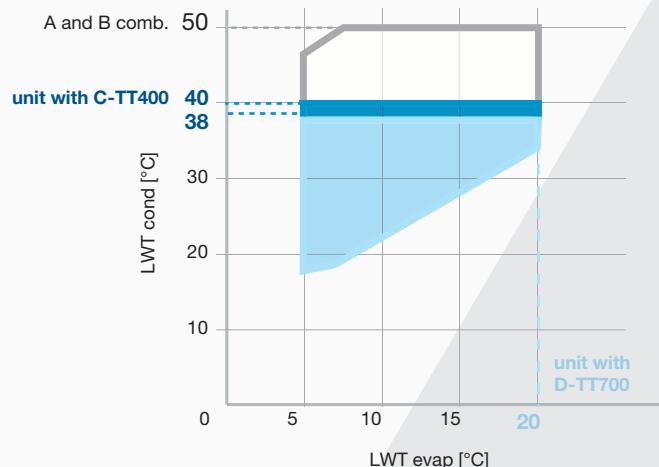


Heat exchangers with cross alignment

DEDICATED OPERATING RANGE

TX-W features several combinations of compressors to be installed both in applications working with a low condensing temperature (cooling towers, surface water) and in systems at the highest temperature involving the use of dry coolers.

Evaporator leaving water temperature up to 20°C makes the TX-W the most suitable solution for the needs of IT cooling systems and for industrial processes.



ELCASTUDIO

Your targeted product selection



Thanks to the exclusive ELCA STUDIO software, TX-W can be selected according to the specific customer requirements.

Whatever the cooling capacity requested, the software proposes several design alternatives:

- ✓ with a different number and type of compressor (i.e.: units with different initial investment value, different dimensions and different noise levels)
- ✓ with different capacities (from 100% meant as the maximum speed of the compressors down to 70%)
- ✓ with full load efficiency EER values greater than 6,6 *
- ✓ with seasonal efficiency ESEER values greater than 10,2 * (IPLV up to 11,2)

* gross values, @ 12/7 and 30/35°C

Whatever the value of cooling capacity, a choice of several proposals is available.

IPLV up to 11,2

The AHRAE 90.1-2013 regulation, which is usually close to the LEED protocol, establishes the minimum levels of efficiency (at full and seasonal loads) of chillers installed within the building.

The TX-W efficiency levels are so high to meet and overcome all the requirements set by the law, delivering better results (values in accordance with the 'path B', valid from January 2015):

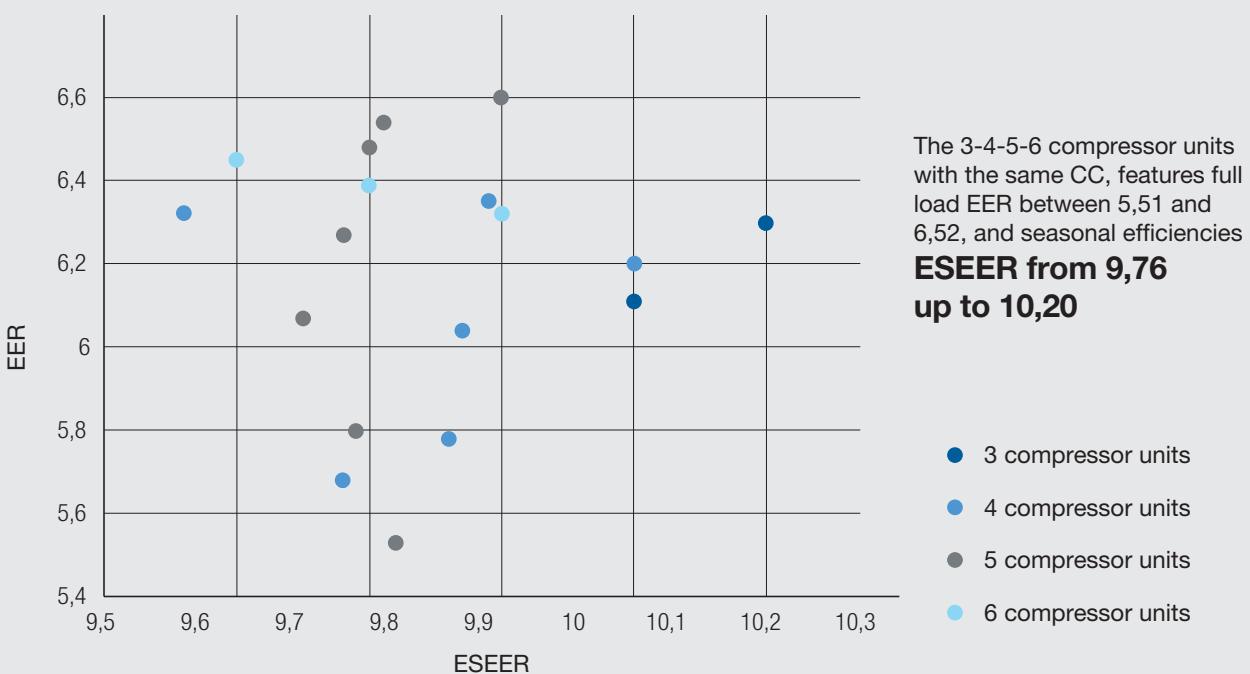
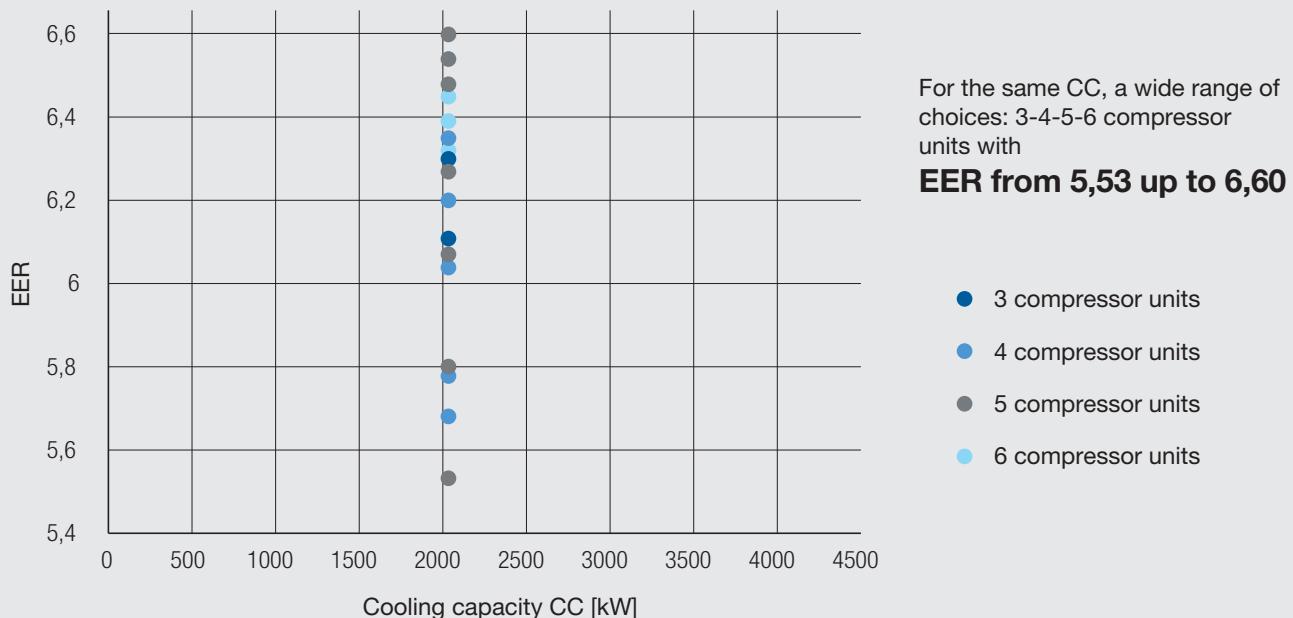
COP Full Load Efficiency up to 26% higher than AHRAE 90.1-2013

IPLV Seasonal Efficiency up to 36% higher than AHRAE 90.1-2013



Each project is different: some require top efficiency at full load while others the best initial investment, or an unrivaled seasonal performance.

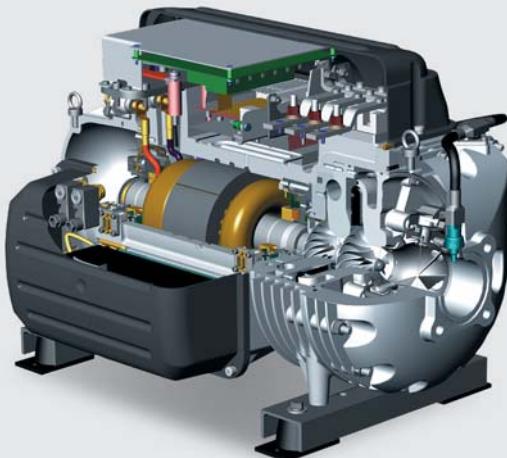
TX-W is designed to cater to any needs: among the countless combinations it is always possible to find the most competitive product, without sacrificing any demands.



TECHNOLOGICAL CHOICES

Negligible inrush current, quiet operation, unrivalled efficiency and extreme flexibility comes out from a definite choice: only cutting-edge technologies.

Centrifugal oil-free compressor



The expertise makes the difference

These top level technology compressors bring enormous benefits in terms of efficiency, adjustments, vibrations and weight. Magnetic levitation eliminates the need for lubricant, its delicate management and its heat exchange loss.

Soft start, integrated in the compressors, lowers the inrush current to only 2 Amps, making the selection of power line systems more favourable.

Thorough knowledge is necessary to harness such a concentration of technology and here is where Climaveneta brand really makes the difference thanks to its 10 years of experience in magnetic levitation compressor units and thousands of projects all over the world.

Innovative exchanger couples

Minimal approaches for maximum results

The excellent performance of oil-free centrifugal compressors are enhanced by matching them with 6 totally new heat exchanger couples (flooded evaporator and shell and tube condenser) designed to ensure the most minimal approach between the refrigerant phase changing and the water.

This allows the enhancement of the cooling capacity and the reduction of the compression work, with immediate benefit to overall efficiency.

The flooded evaporator is designed to ensure a perfect and uniform evaporation of refrigerant, without devoting any surface to the overheating (inside the shell, the boiling refrigerant finds a great amount of free room to eliminate even the minimum liquid entrainment). Generous size connections are selected, to minimize any penalization due to pressure drops.

The complete flooding of all the pipes is guaranteed, even during partialization, by the control algorithms on the expansion valve.

Even the condenser is designed for the minimum pressure drops, both in the water and refrigerant sides. The space is so well thought out that even inclined connections have been made to limit the length of the refrigerant discharge pipes.



Acoustic enclosure

The already minimal noise emissions of TX-W units can be further reduced by choosing the option "acoustic enclosure", available in two variants:

 Standard -14 dB(A)  Integral -18 dB(A)



Gas detector device



TX-W can be equipped with a gas detector to signal the presence of refrigerant in a closed environment. The detector has a double-threshold and can deactivate the compressors and disconnect the exchangers.

Fast restart

In some applications it is crucial to ensure the rapid restoration of cooling capacity after an interruption in power supply (black-out). The fast restart option allows for the restart of the compressors within 26" seconds after power is restored and the rapid re-entry into full operation (e.g.: unit mod. 2D00 comes back to provide 1300 kW in just 6 minutes after voltage dip).



Immediate cooling start-up

Accelerated cooling ramp-up
1300 kW are delivered within 6' after a voltage dip.

THDi and Power Factor



The careful design of electrical and electronic components and the use of specific solutions, such as compressor line reactors (std) and power factor correction capacitors (opt), reduce the THDi (Total Harmonic Distortion of current) and increase the unit's Power Factor. To fit even the most demanding requirements, modular active harmonic filters can be added to cut the THDi down to values below 5%.

HFO refrigerant

In line with the most severe environmental regulations, TX-W is also available with the new green HFO 1234ze refrigerant. A solution that complies with the highest efficiency targets required by the most prestigious projects, whilst offering an eco-friendly alternative to HFCs.

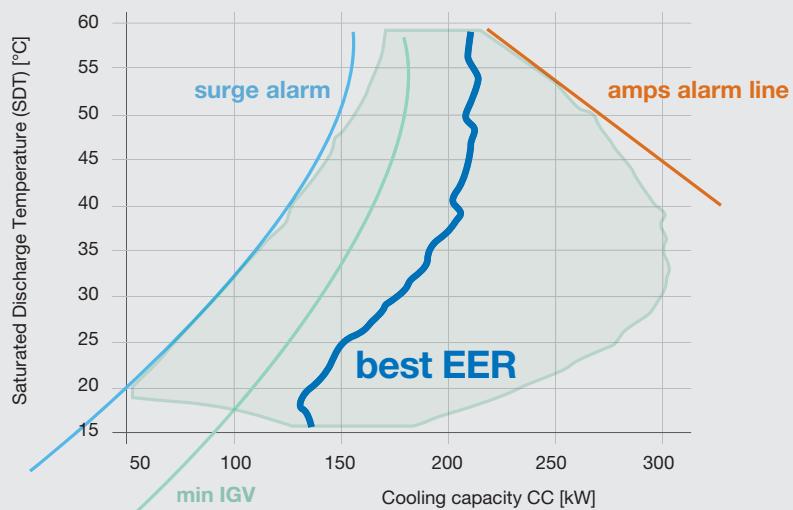


CX4

The evolution in the world of controls

TX-W can count on the brand-new CX4 controller with exclusive hardware and software optimally designed to master the magnetic levitation technology.

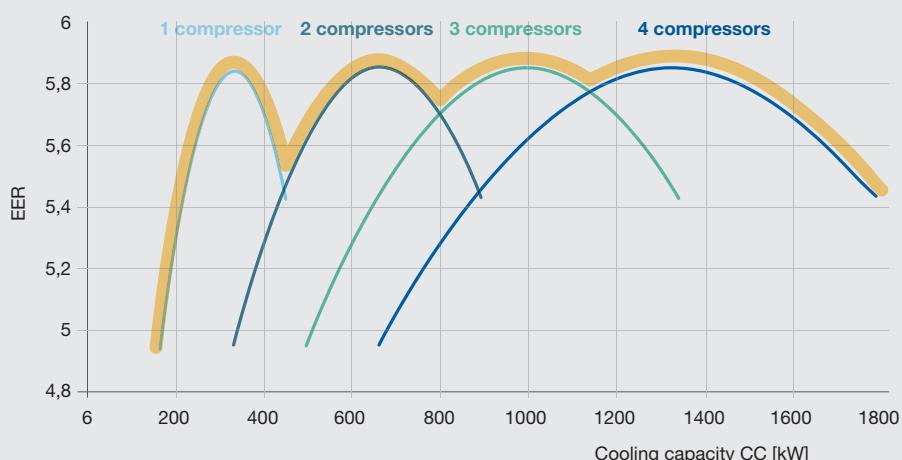
TOTAL RELIABILITY



The brand-new logic, created for CX4, optimally manages the correct compression ratio, the rotation speed, the position of IGV (Inlet Guide Vane) and the opening of the by-pass valve.

All this to ensure that the compressors are always - during start-up, in operation, in response to the thermoregulator and during shutdown - in a full safety work area (away from the limits of the "surge" and "amps").

SMART COMPRESSORS' MANAGEMENT



CX4 constantly monitors the compressor: the cooling capacity required by the thermoregulator is achieved by making the compressor work only in the envelope's area with the highest efficiency (curve "best EER").

In units with multiple compressors, CX4 employs the exclusive 'jumping staging' logic, enabling, during partialization, only the most efficient combination of compressors.

Always the best efficiency (Best EER)

CUSTOMIZED TOUCH SCREEN INTERFACE

CX4 comes with a highly personalized interface: a large color 13" touch screen, with interactive pages whose graphics have been created exclusively for TX-W.

The home page shows the immediate labor status of the units and of its main operating parameters, whereas every available function is accurately described by dedicated tooltip.



Specific detail screens allow:

- ✓ Deepening of the variables related to compressors, heat exchangers, the cooling circuit and water pumps.
- ✓ Dynamic view of the unit's operating point within the specified operating limits.



The interface allows for easy unit intervention (the safe access to data is ensured by three different password levels), and the graphic display of the monitored values. A dedicated section for the trouble shooting is also available.



KIPLink The keyboard in your pocket

KIPLink allows direct access to the CX4 controller: even possible without traditional interface, thanks to the wi-fi technology, the unit can be operated directly from any mobile device (tablet, smartphone, PC) that displays the same touch interface screens.



TX-W

1A00-6D00

High efficiency water cooled chiller,
with oil-free centrifugal compressors.
246-4549 kW



GREEN
CERTIFICATION
RELEVANT

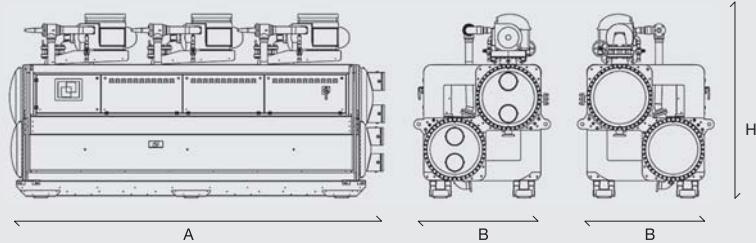


R HFC R134a CENTRIF. FL FLOODED A ENERG.CL.
 R HFO1234ze COOLING VPF VSPEED

TX-W	V/ph/Hz	1A00	1B00	1B1A	1B2A	1B3A	1C00	1C1A	1C1B	1C3B
Power supply		400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50
PERFORMANCE										
COOLING ONLY (GROSS VALUE)										
Cooling capacity range	(1) kW	246-357	346-494	587-850	829-1201	1096-1566	401-572	649-927	744-1063	1438-2054
EER (up to)	(1) kW/kW	6,22	6,31	6,25	6,08	6,26	6,45	6,34	6,36	6,38
ESEER (up to)	(1) kW/kW	9,80	9,42	9,99	9,57	9,84	9,92	9,97	9,96	9,84
COOLING ONLY (EN14511 VALUE)										
Cooling capacity	(1)(2) kW	246	367	586	827	1157	464	649	746	2045
EER	(1)(2) kW/kW	6,06	6,06	6,07	5,94	6,02	6,14	6,16	6,18	5,36
ESEER	(1)(2) kW/kW	8,85	8,46	8,88	8,68	8,67	8,84	8,86	8,84	-
Cooling energy class		A	A	A	A	A	A	A	A	-
ENERGY EFFICIENCY										
SEASONAL EFFICIENCY IN COOLING (Reg. EU 2016/2281)										
Ambient refrigeration										
Prated,c	(8) kW	246	367	586	827	1157	464	649	746	2045
SEER	(8)(9)	8,99	8,70	8,91	8,89	8,79	9,07	8,99	8,92	7,82
Performance ηs	(8)(10) %	352	340	348	348	343	355	352	349	305
EXCHANGERS										
HEAT EXCHANGER USER SIDE IN REFRIGERATION										
Water flow	(1) l/s	17,05	23,64	40,65	57,45	74,90	27,36	44,33	50,85	98,24
Pressure drop	(1) kPa	40,2	40,0	54,6	45,3	64,0	37,3	53,2	53,3	75,0
HEAT EXCHANGER SOURCE SIDE IN REFRIGERATION										
Water flow	(1) l/s	20,25	27,86	48,12	68,38	88,63	32,02	52,19	59,73	115,33
Pressure drop	(1) kPa	39,0	38,9	45,9	43,6	50,9	37,2	43,8	43,0	50,0
REFRIGERANT CIRCUIT										
Compressors nr.	N°	1	1	2	3	4	1	2	2	4
No. Circuits	N°	1	1	1	1	1	1	1	1	1
Refrigerant charge	kg	160	175	315	580	690	185	330	340	940
NOISE LEVEL										
Sound Pressure	(3) dB(A)	75	76	76	78	78	77	77	77	79
Sound power level in cooling	(4)(5) dB(A)	93	94	95	97	98	95	96	96	99
SIZE AND WEIGHT										
A	(6)(7) mm	2910	2910	3050	3710	4690	2910	3050	3050	4720
B	(6)(7) mm	1000	1000	1620	1710	1890	1000	1620	1620	1890
H	(6)(7) mm	1950	1950	2190	2260	2400	1950	2190	2190	2400
Operating weight	(6)(7) kg	2690	2800	5200	7590	9320	2880	5280	5410	11010

Accessories:

- ▶ Integral acoustic enclosure (type base or plus)
- ▶ VPF (Variable Primary Flow) system
- ▶ Set-up for remote connectivity with ModBus/Echelon protocol cards
- ▶ Several devices for condensation control
- ▶ Fast restart
- ▶ Filters kit for conformity to EN 61000-6-3 (residential environments)



TX-W		V/ph/Hz	1D00	1D1A	1D1B	1D1C	1D2C	1D3C	1D4C	1D5C	2A00
Power supply		400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50
PERFORMANCE											
COOLING ONLY (GROSS VALUE)											
Cooling capacity range	(1)	kW	596-744	758-1098	852-1235	1052-1315	1274-1901	1980-2475	2461-3076	2942-3677	499-713
EER (up to)	(1)	kW/kW	6,27	6,23	6,25	6,34	6,43	6,37	6,48	6,56	6,16
ESEER (up to)	(1)	kW/kW	9,59	9,88	9,91	10,20	10,20	10,10	10,30	10,40	10,00
COOLING ONLY (EN14511 VALUE)											
Cooling capacity	(1)(2)	kW	667	758	864	1077	1285	2463	3060	3659	526
EER	(1)(2)	kW/kW	5,97	5,97	6,04	6,04	6,20	5,57	5,60	5,67	5,94
ESEER	(1)(2)	kW/kW	8,12	8,57	8,71	8,70	8,94	-	-	-	8,87
Cooling energy class			A	A	A	A	A	-	-	-	A
ENERGY EFFICIENCY											
SEASONAL EFFICIENCY IN COOLING (Reg. EU 2016/2281)											
Ambient refrigeration											
Prated,c	(8)	kW	667	758	864	1077	1285	2463	3060	3659	526
SEER	(8)(9)		8,31	8,76	8,73	8,65	9,10	7,96	7,84	7,92	8,90
Performance ηs	(8)(10)	%	324	343	341	338	356	310	305	309	348
EXCHANGERS											
HEAT EXCHANGER USER SIDE IN REFRIGERATION											
Water flow	(1)	l/s	35,60	52,50	59,08	62,90	90,92	118,35	147,10	175,86	34,12
Pressure drop	(1)	kPa	49,3	61,8	63,3	61,5	67,5	79,9	92,5	84,2	44,5
HEAT EXCHANGER SOURCE SIDE IN REFRIGERATION											
Water flow	(1)	l/s	41,31	61,42	69,05	73,35	106,01	138,13	171,36	204,55	40,55
Pressure drop	(1)	kPa	48,7	51,3	51,3	49,5	56,8	51,9	60,9	70,5	47,9
REFRIGERANT CIRCUIT											
Compressors nr.	N°		1	2	2	2	3	4	5	6	2
No. Circuits	N°		1	1	1	1	1	1	1	1	1
Refrigerant charge	kg		190	340	350	360	685	975	1205	1510	230
NOISE LEVEL											
Sound Pressure	(3)	dB(A)	78	78	78	78	79	79	79	80	76
Sound power level in cooling	(4)(5)	dB(A)	96	97	97	97	99	99	100	101	95
SIZE AND WEIGHT											
A	(6)(7)	mm	2910	3050	3050	3050	4690	4720	5700	6610	2910
B	(6)(7)	mm	1000	1620	1620	1620	1660	1890	2350	2400	1560
H	(6)(7)	mm	1950	2190	2190	2190	2260	2400	2400	2450	2190
Operating weight	(6)(7)	kg	2950	5350	5340	5420	8810	11410	15330	20580	4070

TX-W		2B00	2B1A	2B2A	2B3A	2C00	2C1A	2C1B	2D00	2D1B	
Power supply	V/ph/Hz	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	
PERFORMANCE											
COOLING ONLY (GROSS VALUE)											
Cooling capacity range	(1)	kW	681-987	938-1341	938-1702	1444-2063	799-1141	1054-1506	1150-1642	995-1485	1451-1988
EER (up to)	(1)	kW/kW	6,29	6,10	6,30	6,33	6,42	6,44	6,46	6,22	6,35
ESEER (up to)	(1)	kW/kW	9,95	9,48	9,82	9,91	10,30	10,00	10,00	10,20	10,00
COOLING ONLY (EN14511 VALUE)											
Cooling capacity	(1)(2)	kW	685	987	1257	2052	925	1135	1237	993	1464
EER	(1)(2)	kW/kW	6,10	5,90	6,03	5,16	6,09	6,18	6,20	5,89	6,09
ESEER	(1)(2)	kW/kW	8,75	8,61	8,54	-	8,93	8,69	8,78	8,85	8,50
Cooling energy class			A	A	A	-	A	A	A	A	
ENERGY EFFICIENCY											
SEASONAL EFFICIENCY IN COOLING (Reg. EU 2016/2281)											
Ambient refrigeration											
Prated,c	(8)	kW	685	987	1257	2052	925	1135	1237	993	1464
SEER	(8)(9)		8,86	8,80	8,63	7,47	8,92	8,83	8,86	8,92	8,59
Performance ηs	(8)(10)	%	346	344	337	291	349	345	346	349	335
EXCHANGERS											
HEAT EXCHANGER USER SIDE IN REFRIGERATION											
Water flow	(1)	l/s	47,20	64,12	81,39	98,67	54,56	72,00	78,54	71,00	95,06
Pressure drop	(1)	kPa	54,6	43,2	75,5	92,1	52,1	63,2	62,4	67,9	77,3
HEAT EXCHANGER SOURCE SIDE IN REFRIGERATION											
Water flow	(1)	l/s	55,69	76,13	96,10	116,35	63,90	84,44	91,96	82,48	110,61
Pressure drop	(1)	kPa	44,6	42,1	51,5	59,6	41,8	50,8	49,3	56,4	61,8
REFRIGERANT CIRCUIT											
Compressors nr.	N°		2	3	4	5	2	3	3	2	3
No. Circuits	N°		1	1	1	1	1	1	1	1	1
Refrigerant charge	kg		330	610	900	1090	350	650	670	370	685
NOISE LEVEL											
Sound Pressure	(3)	dB(A)	77	78	78	78	78	78	78	79	79
Sound power level in cooling	(4)(5)	dB(A)	96	97	98	99	97	98	98	98	99
SIZE AND WEIGHT											
A	(6)(7)	mm	3050	3710	4720	5700	3050	4690	4690	3050	4690
B	(6)(7)	mm	1620	1710	1890	2350	1620	1660	1660	1620	1660
H	(6)(7)	mm	2190	2260	2400	2400	2190	2260	2260	2190	2260
Operating weight	(6)(7)	kg	5340	7750	10610	13850	5330	8470	8700	5310	8810

Notes:

1 Plant (side) cooling exchanger water (in/out) 12°C/7°C; Source (side) heat exchanger water (in/out) 30°C/35°C.

2 Values in compliance with EN14511-3:2013.

3 Average sound pressure level at 1m distance, unit in a free field on a reflective surface; non-binding value calculated from the sound power level.

4 Sound power on the basis of measurements made in compliance with ISO 9614.

5 Sound power level in cooling, indoors.

6 Unit in standard configuration/execution, without optional accessories.

7 Lay-out with diagonal exchangers in units with 1, 2, 3 and 4 compressors; lay-out with horizontal exchangers in units with 5 and 6 compressors.

8 Seasonal energy efficiency of the cooling environment in AVERAGE climatic conditions [REGULATION (EU) N. 2016/2281]

9 Seasonal space heating energy index

10 Seasonal energy efficiency of the space cooling

The units highlighted in this publication contain HFC R134a [GWP₁₀₀ 1430] fluorinated greenhouse gases.

Certified data in EUROVENT



TX-W 1A00-6D00

High efficiency water cooled chiller, with oil-free centrifugal compressors. 246-4549 kW

TX-W		2D1C	2D2B	2D2C	2D3C	2D4C	3A00	3B00	3B1A	3B2A
Power supply	V/ph/Hz	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50
PERFORMANCE										
COOLING ONLY (GROSS VALUE)										
Cooling capacity range	(1) kW	1656-2070	1984-2479	2117-2646	2599-3249	3081-3852	733-1062	1036-1480	1288-1839	1540-2200
EER (up to)	(1) kW/kW	6,37	6,33	6,39	6,49	6,58	6,06	6,13	6,32	6,36
ESEER (up to)	(1) kW/kW	10,00	9,91	10,10	10,30	10,40	9,67	9,63	9,78	9,91
COOLING ONLY (EN14511 VALUE)										
Cooling capacity	(1)(2) kW	2060	2467	2633	3231	3833	732	1091	1359	2188
EER	(1)(2) kW/kW	5,71	5,58	5,66	5,67	5,74	5,91	5,92	6,06	5,22
ESEER	(1)(2) kW/kW	-	-	-	-	-	8,77	8,70	8,53	-
Cooling energy class	-	-	-	-	-	A	A	A	-	-
ENERGY EFFICIENCY										
SEASONAL EFFICIENCY IN COOLING (Reg. EU 2016/2281)										
Ambient refrigeration										
Prated,c	(8) kW	2060	2467	2633	3231	3833	732	1091	1359	2188
SEER	(8)(9)	7,89	7,77	7,94	7,78	7,92	8,93	8,82	8,64	7,51
Performance ηs	(8)(10) %	308	303	310	303	309	349	345	338	293
EXCHANGERS										
HEAT EXCHANGER USER SIDE IN REFRIGERATION										
Water flow	(1) l/s	98,99	118,57	126,54	155,39	184,20	50,81	70,76	87,96	105,23
Pressure drop	(1) kPa	76,2	83,8	83,0	97,0	87,9	45,2	43,5	74,2	90,4
HEAT EXCHANGER SOURCE SIDE IN REFRIGERATION										
Water flow	(1) l/s	115,07	138,28	147,30	180,64	213,84	60,62	83,88	103,71	123,88
Pressure drop	(1) kPa	60,1	57,0	53,4	63,4	71,1	43,3	42,9	50,2	59,7
REFRIGERANT CIRCUIT										
Compressors nr.	N°	3	4	4	5	6	3	3	4	5
No. Circuits	N°	1	1	1	1	1	1	1	1	1
Refrigerant charge	kg	685	975	995	1220	1520	565	625	910	1105
NOISE LEVEL										
Sound Pressure	(3) dB(A)	79	79	80	79	80	77	78	78	78
Sound power level in cooling	(4)(5) dB(A)	99	99	100	100	101	96	97	98	99
SIZE AND WEIGHT										
A	(6)(7) mm	4690	4720	4720	5700	6610	3710	3710	4720	5700
B	(6)(7) mm	1660	1890	1890	2350	2400	1710	1710	1890	2350
H	(6)(7) mm	2260	2400	2400	2400	2450	2260	2260	2400	2400
Operating weight	(6)(7) kg	8880	11250	11450	15420	20750	7440	7370	10740	14050

TX-W		3B3A	3C00	3C1A	3C1B	3C2B	3D00	3D1A	3D1C	3D2C
Power supply	V/ph/Hz	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50
PERFORMANCE										
COOLING ONLY (GROSS VALUE)										
Cooling capacity range	(1) kW	1793-2562	1205-1721	1453-2076	1550-2214	1907-2724	1792-2240	2076-2594	2254-2817	2738-3423
EER (up to)	(1) kW/kW	6,42	6,49	6,45	6,47	6,54	6,33	6,32	6,37	6,49
ESEER (up to)	(1) kW/kW	10,10	10,20	9,99	9,98	10,10	10,20	9,96	10,10	10,30
COOLING ONLY (EN14511 VALUE)										
Cooling capacity	(1)(2) kW	2549	1310	2067	2204	2711	2229	2580	2803	3404
EER	(1)(2) kW/kW	5,28	6,23	5,42	5,48	5,49	5,80	5,67	5,74	5,73
ESEER	(1)(2) kW/kW	-	8,90	-	-	-	-	-	-	-
Cooling energy class	-	A	-	-	-	-	-	-	-	-
ENERGY EFFICIENCY										
SEASONAL EFFICIENCY IN COOLING (Reg. EU 2016/2281)										
Ambient refrigeration										
Prated,c	(8) kW	2549	1310	2067	2204	2711	2229	2580	2803	3404
SEER	(8)(9)	7,62	8,98	7,97	8,01	7,80	7,84	7,72	7,88	7,69
Performance ηs	(8)(10) %	297	351	311	312	304	306	301	307	300
EXCHANGERS										
HEAT EXCHANGER USER SIDE IN REFRIGERATION										
Water flow	(1) l/s	122,50	82,30	99,27	105,86	130,28	107,14	124,07	134,72	163,68
Pressure drop	(1) kPa	83,6	61,4	72,8	72,6	83,6	80,3	91,8	87,0	101
HEAT EXCHANGER SOURCE SIDE IN REFRIGERATION										
Water flow	(1) l/s	143,97	96,22	116,35	123,90	152,27	124,21	144,30	156,47	189,93
Pressure drop	(1) kPa	67,2	50,4	49,1	47,7	60,1	66,0	59,4	57,1	70,1
REFRIGERANT CIRCUIT										
Compressors nr.	N°	6	3	4	4	5	3	4	4	5
No. Circuits	N°	1	1	1	1	1	1	1	1	1
Refrigerant charge	kg	1390	670	940	965	1180	705	975	1015	1230
NOISE LEVEL										
Sound Pressure	(3) dB(A)	79	78	79	79	79	79	80	80	80
Sound power level in cooling	(4)(5) dB(A)	100	98	99	99	100	99	100	100	101
SIZE AND WEIGHT										
A	(6)(7) mm	6610	4690	4720	4720	5700	4690	4720	4720	5700
B	(6)(7) mm	2400	1660	1890	1890	2350	1660	1890	1890	2350
H	(6)(7) mm	2450	2260	2400	2400	2260	2400	2400	2400	2400
Operating weight	(6)(7) kg	18670	8700	11010	11210	14910	9010	11250	11580	15500



TX-W		3D3C	4B00	4B1A	4B2A	4C00	4C1B	4D00	4D1C	4D2C
Power supply	V/ph/Hz	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50
PERFORMANCE										
COOLING ONLY (GROSS VALUE)										
Cooling capacity range	(1) kW	3221-4026	1384-1978	1636-2337	1890-2700	1605-2294	1964-2806	2388-2985	2877-3596	3360-4200
EER (up to)	(1) kW/kW	6,59	6,35	6,39	6,45	6,50	6,56	6,32	6,48	6,60
ESEER (up to)	(1) kW/kW	10,40	9,85	9,92	10,10	10,10	10,10	10,10	10,30	10,40
COOLING ONLY (EN14511 VALUE)										
Cooling capacity	(1)(2) kW	4006	1462	2325	2687	2284	2792	2969	3575	4178
EER	(1)(2) kW/kW	5,81	6,09	5,28	5,34	5,52	5,52	5,78	5,81	5,86
ESEER	(1)(2) kW/kW	-	8,60	-	-	-	-	-	-	-
Cooling energy class	-	-	A	-	-	-	-	-	-	-
ENERGY EFFICIENCY										
SEASONAL EFFICIENCY IN COOLING (Reg. EU 2016/2281)										
Ambient refrigeration										
Prated,c	(8) kW	4006	1462	2325	2687	2284	2792	2969	3575	4178
SEER	(8)(9)	7,92	8,68	7,59	7,62	8,06	7,80	7,73	7,69	7,84
Performance ηs	(8)(10)	309	339	296	297	314	304	301	300	305
EXCHANGERS										
HEAT EXCHANGER USER SIDE IN REFRIGERATION										
Water flow	(1) l/s	192,54	94,58	111,77	129,13	109,68	134,20	142,74	171,96	200,86
Pressure drop	(1) kPa	91,3	73,0	87,4	84,3	71,7	86,4	95,1	107	94,1
HEAT EXCHANGER SOURCE SIDE IN REFRIGERATION										
Water flow	(1) l/s	223,13	111,34	131,38	151,51	128,23	156,71	165,52	199,16	232,41
Pressure drop	(1) kPa	71,0	49,8	58,2	68,4	49,0	60,5	63,9	66,8	77,0
REFRIGERANT CIRCUIT										
Compressors nr.	N°	6	4	5	6	4	5	4	5	6
No. Circuits	N°	1	1	1	1	1	1	1	1	1
Refrigerant charge	kg	1540	940	1125	1405	975	1185	1015	1235	1550
NOISE LEVEL										
Sound Pressure	(3) dB(A)	80	78	78	79	79	79	80	80	80
Sound power level in cooling	(4)(5) dB(A)	101	98	99	100	99	100	100	101	101
SIZE AND WEIGHT										
A	(6)(7) mm	6610	4720	5700	6610	4720	5700	4720	5700	6610
B	(6)(7) mm	2400	1890	2350	2400	1890	2350	1890	2350	2400
H	(6)(7) mm	2450	2400	2450	2450	2400	2400	2400	2450	2450
Operating weight	(6)(7) kg	21010	10920	14300	18880	11250	15000	11580	15730	21180

TX-W		5B00	5B1A	5C00	5C1B	5D00	5D1C	6B00	6C00	6D00
Power supply	V/ph/Hz	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50
PERFORMANCE										
COOLING ONLY (GROSS VALUE)										
Cooling capacity range	(1) kW	1732-2474	1986-2837	2021-2888	2381-3401	3016-3770	3500-4374	2082-2974	2440-3486	3639-4549
EER (up to)	(1) kW/kW	6,42	6,47	6,60	6,64	6,46	6,59	6,49	6,66	6,57
ESEER (up to)	(1) kW/kW	9,94	10,00	10,30	10,30	10,30	10,40	10,00	10,40	10,50
COOLING ONLY (EN14511 VALUE)										
Cooling capacity	(1)(2) kW	2461	2823	2873	3385	3747	4351	2960	3470	4525
EER	(1)(2) kW/kW	5,33	5,38	5,57	5,61	5,86	5,92	5,42	5,64	5,97
ESEER	(1)(2) kW/kW	-	-	-	-	-	-	-	-	-
Cooling energy class	-	-	-	-	-	-	-	-	-	-
ENERGY EFFICIENCY										
SEASONAL EFFICIENCY IN COOLING (Reg. EU 2016/2281)										
Ambient refrigeration										
Prated,c	(8) kW	2461	2823	2873	3385	3747	4351	2960	3470	4525
SEER	(8)(9)	7,62	7,64	7,92	7,92	7,63	7,85	7,65	8,00	7,81
Performance ηs	(8)(10)	297	298	309	309	297	306	298	312	304
EXCHANGERS										
HEAT EXCHANGER USER SIDE IN REFRIGERATION										
Water flow	(1) l/s	118,31	135,67	138,09	162,63	180,26	209,19	142,22	166,69	217,53
Pressure drop	(1) kPa	87,1	83,5	86,5	82,3	109	96,4	83,9	82,8	98,1
HEAT EXCHANGER SOURCE SIDE IN REFRIGERATION										
Water flow	(1) l/s	138,89	158,99	161,10	189,49	208,44	241,69	166,49	194,09	250,97
Pressure drop	(1) kPa	57,5	68,8	57,2	65,2	73,2	75,7	68,3	63,5	81,6
REFRIGERANT CIRCUIT										
Compressors nr.	N°	5	6	5	6	5	6	6	6	6
No. Circuits	N°	1	1	1	1	1	1	1	1	1
Refrigerant charge	kg	1145	1425	1195	1490	1250	1560	1440	1500	1575
NOISE LEVEL										
Sound Pressure	(3) dB(A)	78	79	79	80	80	81	79	80	81
Sound power level in cooling	(4)(5) dB(A)	99	100	100	101	101	102	100	101	102
SIZE AND WEIGHT										
A	(6)(7) mm	5700	6610	5700	6610	5700	6610	6610	6610	6610
B	(6)(7) mm	2350	2400	2350	2400	2350	2400	2400	2400	2400
H	(6)(7) mm	2400	2450	2400	2450	2400	2450	2450	2450	2450
Operating weight	(6)(7) kg	14550	19150	15180	20240	15890	21350	19400	20410	21560

“BY FAR THE BEST PROOF IS EXPERIENCE”

Sir Francis Bacon
British philosopher (1561 - 1626)



SINGAPORE SPORTS HUB

2012-2014 SINGAPORE

Application:
Sport structures

Plant type:
Hydronic System

Installed machines:
**8x TECS2-W/LC 1453,
8x FOCS2-W/D/CA-E 3602,
7x FOCS2-W/CA-E 3602, 2x ACU 41,
2x ACU 90, 2x AXU 39, 2x AXU 80**

PROJECT

A 35 hectare site, cutting-edge design, environmentally conscious construction and an inspirational location - Sports Hub opened in April, 2014. Situated at the edge of the Kallang Basin, it will offer elite and recreational sporting and entertainment facilities.

CHALLENGE

The complex includes the stadium, but also ancillary facilities such as the multi-purpose indoor arena, commercial spaces, an aquatic center and other areas, that count for nearly 50% of the project. All indoor facilities and the bowl cooling are air-conditioned thanks to an innovative HVAC system with plant rooms strategically located around the stadium.



SOLUTION

The HVAC system is based on 4 plant rooms serving different areas of the estate, for a total cooling capacity of 35,5 mW. Each plant room is composed by a variable number of Climaveneta screw chiller FOCS2-W/CA-E/S 3602 working as primary units and Climaveneta Turbocor TECS2-W-0251-1954, installed as secondary units downstream. In each plant room there is also a back up unit, just in case of exceptional need or of any malfunctioning.

MORE THAN 1000 PROJECTS ALL OVER THE WORLD

RTS Radio Television Suisse

2016-2017
Geneva - Switzerland



Application:
Telecommunications

Cooling capacity:
674 kW

Installed machines:
1x TECS2-W HFO/HC 0712

Cavotec

2017
Nova Milanese - Italy



Application:
Office Buildings

Plant type:
Hydronic System
Cooling capacity:
1303 kW

Heating capacity:
1605 kW

Installed machines:
2x TX-W HFO/H/S 1B00,
1x TX-W HFO/H/S 2B00

Airbus Military Tablada

2013
Sevilla - Spain



Application:
Airports/Military

Cooling capacity:
3531 kW

Installed machines:
3x TECS2/SL-CA-E 1054

Lismore Base Hospital

2016-2017
Lismore - Australia



Application:
Hospitals

Cooling capacity:
1235 kW

Installed machines:
1x TX-W 1C1A
1x TECS2-W/HC 0612

64-66 Wigmore Street

2015-2016
London - Great Britain



Application:
Offices

Plant type:
Hydronic System

Cooling capacity:
1172 kW

Installed machines:
4x TECS2-W/HC 0311

Alfa Romeo Museum

2015
Arese - Italy



Application:
Museums

Cooling capacity:
2570 kW

Installed machines:
2x TECS2-W HC 1213,
1x NECS-W H 0512

Every project is characterised by different usage conditions and system specifications for many different latitudes. All of them share high energy efficiency, lowest noise emissions and total reliability of the Climaveneta brand.

HSBC

2015
Various locations - Hong Kong



Application:
Financial institutes

Cooling capacity:
2235 kW

Installed machines:
3x TECS2/SL-CA-E,
2x TECS2/SL-CA-E 0552,
2x TECS2/SL-CA-E 0452

Bloomberg London

2014-2017
London - Great Britain



Application:
Mixed-use development

Cooling capacity:
7796 kW

Installed machines:
4x TECS2-W 1954

IGBMC Institute of Genetics and Molecular and Cellular Biology

2012 - Illkirch-Graffenstaden
Strasbourg - France



Application:
Office buildings

Cooling capacity:
2148 kW

Installed machines:
3x TECS2-W/HC/H/S 0712

Principal Place THE UN SQUARE MILE

2015
London - Great Britain



Application:
Mixed-use development

Cooling capacity:
9243 kW

Installed machines:
6x TECS2-W/LC 1453,
1x FOCS2-W/R/CA-E 1801

Heating capacity:
478 kW

Minster Court London

2015-2016
London - Great Britain



Application:
Office buildings

Cooling capacity:
5283 kW

Installed machines:
3x TEC2S-W/HC 0712,
3x TECS2-W/HC 1053

Cisco Systems Vimercate

2014
Milan - Italy



Application:
Office buildings

Cooling capacity:
4505 kW

Heating capacity:
459 kW

Installed machines:
1x TECS2/SL-CA-E 0712,
2x TECS2-W HC 812,
1x ERACS2-WQ 1702,
2x FOCS/SL-CA-E 1922,
1x FX-FC NG 3402,
1x ClimaPRO,
AC Close Control Units



for a greener tomorrow



Eco Changes is the Mitsubishi Electric Group's environmental statement, and expresses the Group's stance on environmental management. Through a wide range of businesses, we are helping contribute to the realization of a sustainable society.

MITSUBISHI ELECTRIC HYDRONICS & IT COOLING SYSTEMS S.p.A.

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