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

COMFORT

HEAT PUMPS

EW-HT

WATER TO WATER HEAT PUMPS FOR VERY HIGH TEMPERATURE WATER PRODUCTION, CAPACITY FROM 70 TO 279 kW.

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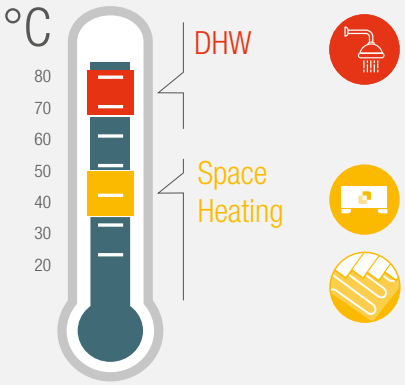
CLIMAVENETA®

EW-HT

Seeking high efficiency and sustainable heating equipment, able to achieve very high temperatures while perfectly integrating the overall system is the greatest challenge of today's modern buildings.

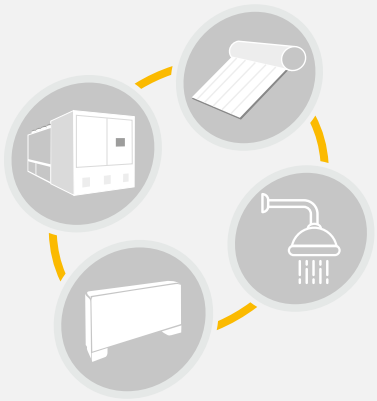
EFFICIENCY IN VERY HOT WATER PRODUCTION



Heating loads of residential and commercial buildings are typically aligned on two different temperature levels: one around 35-45°C, for space heating, and the other around 65-75°C for domestic hot water.

While the first load can be covered by efficient and sustainable equipment such as heat pumps, solar collectors, district heating systems, etc., a concrete and reliable alternative to gas boilers for the high temperature loads until now had not been found.

INTEGRATION AND SYNERGY



The knowledge that one gets the best results not by optimising the single component but the whole system itself, leads to an increase in the level of integration and synergy between different kinds of devices and technologies.

Flexibility and aptitude to synergy makes a good machine become the ideal solution for both new generation plants and refurbishment of already existing structures.

GAS NETWORK INDEPENDENCE

The most common means to produce very high-temperature water are gas boilers.

Nevertheless the gas network connection is not always dependable and sometimes it is not available at all.

Being dependent on an unreliable primary energy source is definitely risky, especially in the applications where the service needs to be uninterrupted.

INDOOR INSTALLATION

Plant rooms are usually located within the buildings. Narrow spaces and tangled unorganised pipes are huge obstacles for the installation and the maintenance operations of a machine.

Furthermore raised noise levels and vibrations may seriously compromise the usability of the adjacent rooms.

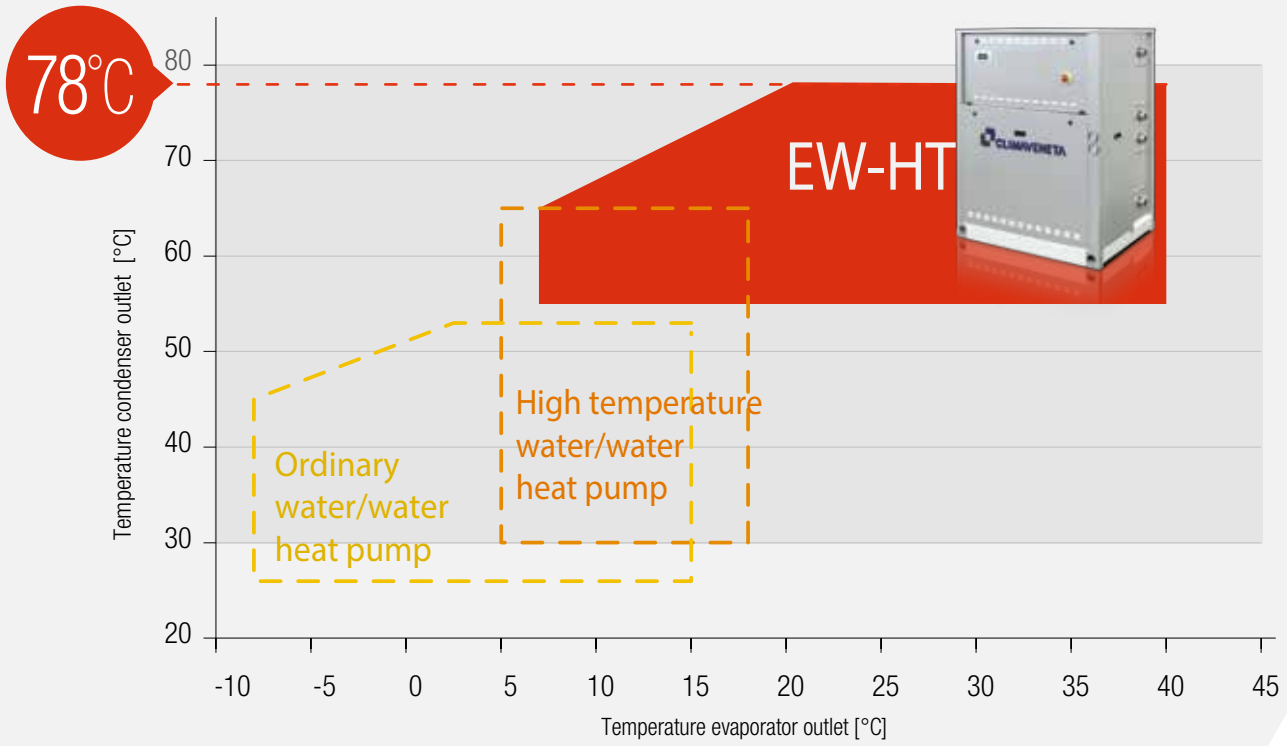
Today, reduced footprint, easy installation and quiet operation are crucial features for any technical unit.

EW-HT

The revolution in the hot water production

BEYOND ORDINARY OPERATING LIMITS

EW-HT redefines the heat pump operating limits: this unique heat pump exploits medium temperature water as a source to provide water up to 78°C. This incredibly extended operating range allows EW-HT to be perfectly integrated in any heating systems.



WHEN VERY HIGH TEMPERATURE WATER IS NEEDED, GAS BURNERS AND ELECTRIC HEATERS ARE NOT THE ONLY ANSWERS ANYMORE.

WHEN VERY HIGH TEMPERATURE WATER IS NEEDED, GAS BURNERS AND ELECTRIC HEATERS ARE NOT THE ONLY ANSWERS ANYMORE.

EW-HT makes it possible to have a very high temperature source without a gas burner, nor any electric heaters. It just needs an ordinary electric connection and a medium temperature water source.

The possibility to avoid fossil fuel is much more than a matter of energy saving and sustainability, it's also a matter of plant simplification: no gas network nor oversized electric connection are needed.

Energetic, environmental and economic advantages of heat pumps compared to traditional gas boilers are well known, but providing very high water temperature has always been the limit of these units.
EW-HT revolutionizes this condition and opens the doors to a brand new application category for heat pumps.

ONE SINGLE UNIT FOR MANY APPLICATIONS

EW-HT is the ideal solution for every application where very high temperature water is needed.

RESIDENTIAL AND COMMERCIAL APPLICATIONS

In the era of heat pump technology maturity, most of the time domestic hot water production is still provided by gas or electric boilers. EW-HT offers a smart alternative: thanks to its innovative operating range, it fills the gap between the medium temperature level required by space heating terminals, and the high temperature level needed for domestic hot water. EW-HT is the perfect water temperature 'upgrader'.

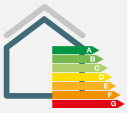
IT COOLING

The heat generated by powerful computer servers is usually considered as a waste product to be eliminated. EW-HT not only eliminates this heat, but also exploits it as a source to produce very high temperature water which can serve the heating requirements of the buildings located nearby.

INDUSTRIAL PROCESS

Industrial processes are characterised by many heat transfers: machines, motors, molds must be cooled, whereas material streams, air flows, working fluids must be heated or pre-heated. Medium/low temperature heat recovery is often not economical, so great amounts of thermal energy is simply lost. EW-HT represents the most important opportunity to recover and move this heat from one process to another, avoiding kWh waste.

LOW PRIMARY ENERGY CONSUMPTION



The heat pump technology is by far more efficient and sustainable than any fossil fuel combustion system and, all the more, than any electric heater. EW-HT achieves great performance, also at partial loads, where ordinary heat pumps don't even work.
COP = 4,2 (hot water production 70/78°C *)
COP = 6,0 (hot water production 60/65°C *)

* evaporation 45/40°C

SUPERIOR RELIABILITY

Developed to be the only source of high temperature water for a building, EW-HT represents a no-compromise solution in terms of reliability.
High quality components, accurate design, devoted control algorithms and redundancies grant uninterrupted unit operation in any conditions.

REDUCED SIZE AND NOISE LEVEL

This water to water heat pump is purposely designed to fit the requirement of indoor installation. The smart component disposal minimizes the footprint but still grants simple and safe access to the internal parts. Furthermore, as a result of a soundproofing oriented design and a dedicated acoustical enclosure, the units achieve a remarkable noise emission of only 70 dB(A).

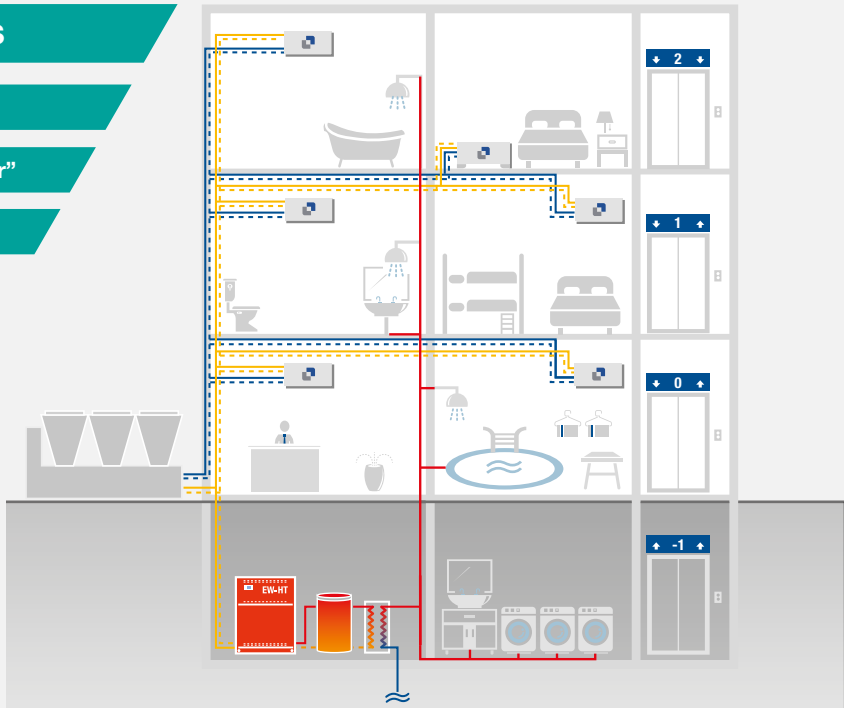
EW-HT

RESIDENTIAL AND COMMERCIAL APPLICATIONS

Unbeatable integration

The perfect water temperature “upgrader”

Enhancing overall system efficiency



Ideal for...
- Residential and commercial buildings
- Hotels, resorts
- Wellness centers, SPAs
- Hospitals, nursing homes, clinics
- Schools, office buildings

Perfect with...
- 4-pipe system units
- District heating systems
- Medium temperature heat recovery
- Water to water heat pumps
- Solar heat collectors

Excellent in...
- Domestic hot water production
- Legionella disinfection and prevention

Ensuring comfort in residential and commercial buildings means fulfilling three different thermal loads: space cooling, space heating and domestic hot water.
In the last few years, 4-pipe system units are gaining more and more attention because of their superior efficiency in matching independent and simultaneous space cooling and heating loads. The only thing these units lack is domestic hot water production.

EW-HT is purposely developed to complete 4-pipe systems with unbeatable integration.

This unique heat pump uses a part of the medium temperature water provided by the 4-pipe unit as a source to produce very high temperature water, up to 78°C.
The need for domestic hot water can be finally satisfied in an efficient and sustainable way, without worrying about legionella and saying goodbye to old boilers.

INDUSTRIAL PROCESS

New temperatures, new usage opportunities

Making heat recovery easy and profitable

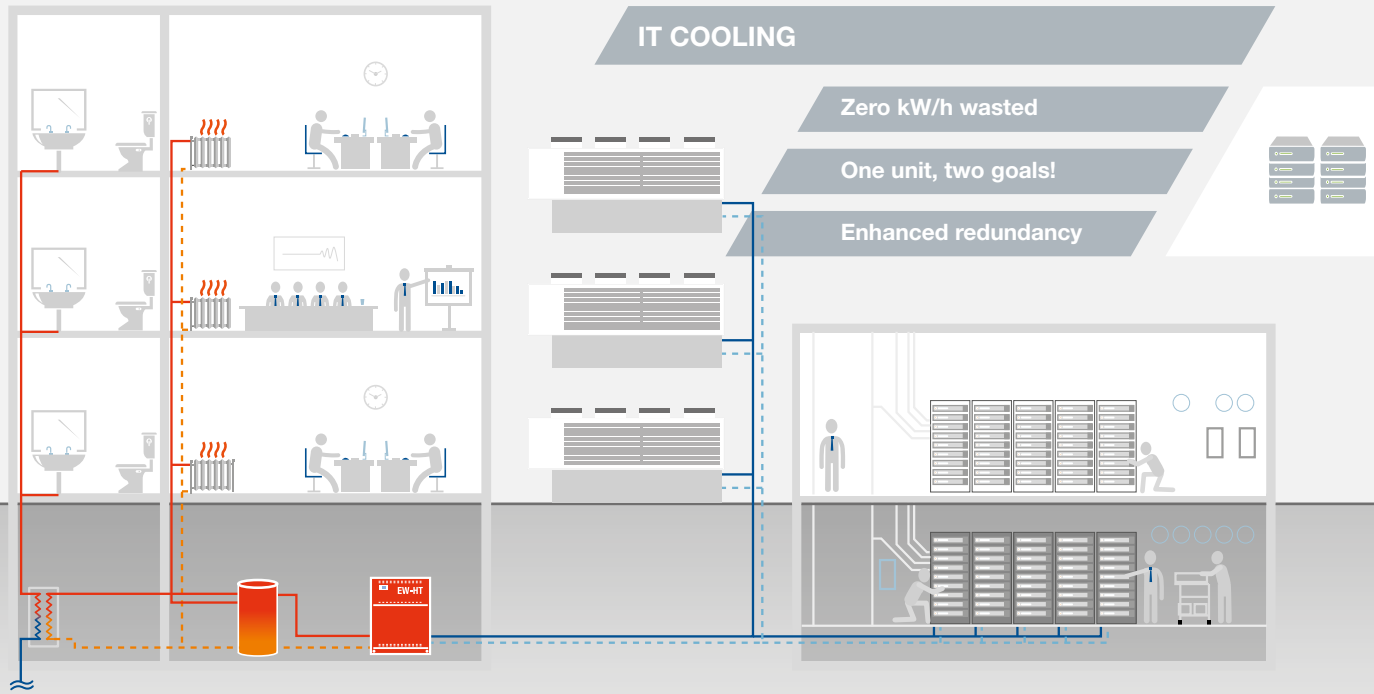
Adaptability to any kind of systems

Heat recovery is surely a recommended and cost-effective practice, especially in the industrial sector, where processes involve so many heat transfers between several different temperature levels. The ability to use any water stream up to 45°C as a source and the possibility to reach a water temperature production of 78°C is the key feature that makes EW-HT the perfect link between the different heat levels available. The heat removed from electrical motors or industrial machines is transferred from medium-low temperature levels, which make it not usable, to higher temperature levels, which make it attractive for several usages.

The extraordinary operating range of EW-HT opens the doors to an infinite number of recovered heat usages, till now impossible.

Some examples are plastic or food drying, material pre-heating processes or also facilities space heating through high temperature ceiling radiant panels.

For many applications: the flexible link that completes today's systems and creates new usage opportunities



Modern data centers require reliable and efficient cooling systems, able to ensure 24/7 operation whilst ensuring low energy expense. Free cooling units or regular chillers combined with close control air conditioners are the most common solution. But looking at the system from a wider point of view, a new great opportunity can be found: when server rooms are located near an office building, EW-HT makes the difference covering the entire heating demand of the offices while simultaneously contributing to the cooling of the data center.

Not a single kWh of energy is wasted while providing a enhanced redundancy to the IT cooling system.

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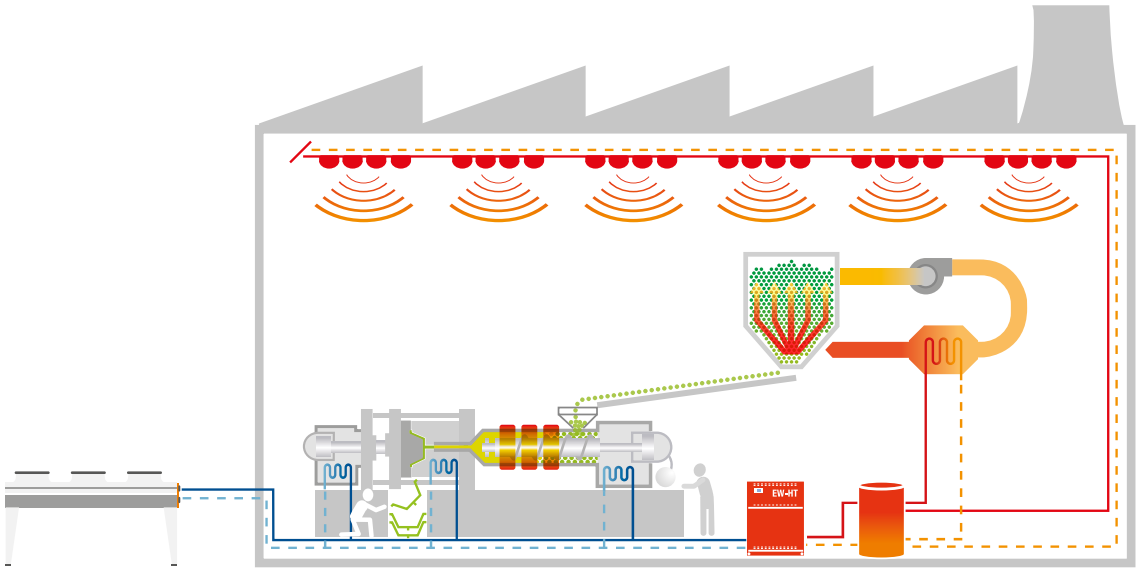


EW-HT

FOR DISTRICT HEATING: Bringing 6-pipe system benefits to a larger scale

In district energy plants, a network of insulated pipes delivers hot and cold water from one or more centralized generation sites to the nearby users. Efficiency gains and carbon savings explain the growing presence of district energy systems in urban planning. In these plants, the temperature of the water delivered depends on both consumers' needs and available heat sources. Usually the consumers are residential and commercial users, and the hot water, which is meant to cover both space heating and domestic hot water demands, is supplied at a very high temperature; however, lowering the water temperature can lead to further benefits.

ON THE ROAD TO SMART CITIES:

triggering renewables and cutting waste.

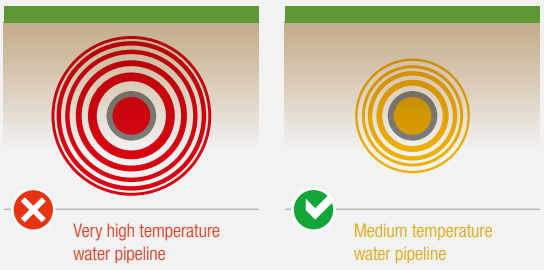
Favouring the development of systems based on medium temperature water loops, EW-HT unlocks attractive opportunities in district heating planning.

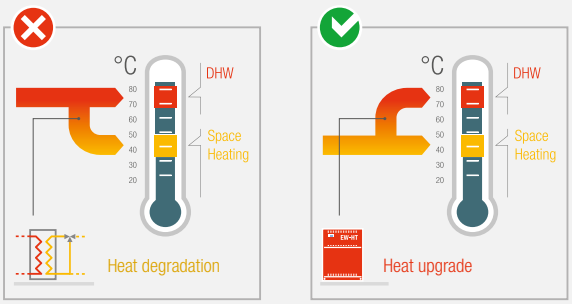
A medium temperature water network can successfully cover the space heating demand and, thanks to EW-HT, can also be the source to produce domestic hot water avoiding fossil fuels or electrical heaters.

EASIER RENEWABLES DEPLOYMENT

Aiming to feed a medium temperature water loop, many sustainable technologies producing medium temperature heat become suitable to be the leading sources of the entire system.

Heat pumps, geothermal energy, process heat recovery and solar collectors can significantly enhance the share of renewables in the network source mix and, due to their aptitude for being localised production, favour the transition towards smart cities, where "passive users" become "active players".





CUT OF PIPELINE HEAT LOSSES

Thermodynamics state that the rate of heat loss of a body is proportional to the temperature difference between the body and its surroundings. In other words, the higher the pipeline water temperature, the higher the heat losses.

In a district heating network, pipelines snake for several kilometres throughout a urban area or even an entire city. Lowering the city loop water temperature cuts heat losses and pipe insulation costs, really making a world of difference.

HIGHER HEAT DISTRIBUTION EFFICIENCY

Circulating water at very high temperature lowers heat distribution system efficiency and bind to "heat degradation": before serving medium temperature hydronic terminals (fan coils, heating floors) the water temperature must be reduced.

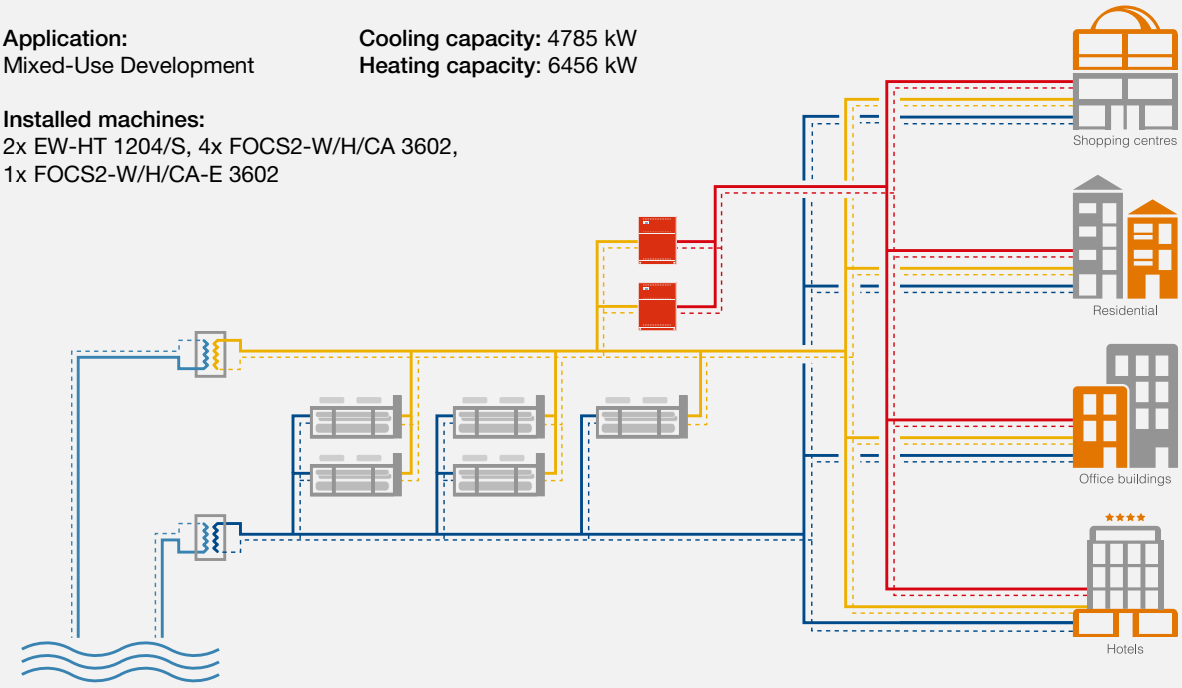
EW-HT produces very hot water only when and where it is needed, avoiding unnecessary very high temperature pipelines and switching from a "heat degradation" scheme to a "heat upgrade" one.

TIGNÈ POINT Valletta - Malta 2015

Application:
Mixed-Use Development

Cooling capacity: 4785 kW
Heating capacity: 6456 kW

Installed machines:
2x EW-HT 1204/S, 4x FOCS2-W/H/CA 3602,
1x FOCS2-W/H/CA-E 3602



PROJECT

The HVAC system at Tigné Point is a prime example of innovative technology providing economic solutions for corporate and residential applications alike. The district energy system supplies cooling heating and domestic hot water to 25.000m2 / 270.000ft2 of retail space and more than 200 luxury apartments. It will also cater for 14.000m2 / 150.700ft2 of office and commercial space that is currently under construction on the seafront side of Pjazza Tigné square.

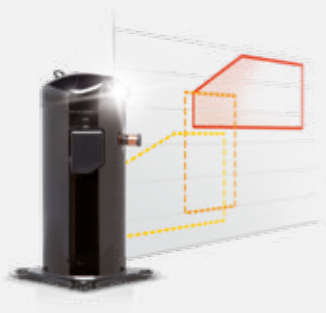
SOLUTION

FOCS2-W/H units produce hot water in the condensers and, at the same time, cold water in the evaporators, serving the whole development for space heating and cooling on the basis of a typical 4-pipe system. In case of loads mismatch (heating load is higher than cooling load or vice versa), the dissipation of the redundant output is made by external heat exchangers, exploiting sea water, widely available at a constant temperature all year round in Malta.

EW-HT heat pumps use a part of the water heated by the FOCS2-W/H as a “cold” source (evaporator) to produce water at 78°C (condenser). The capability of using water up to 45°C allows these heat pumps to be completely integrated into the system and to produce very high temperature water with unbeatable efficiency.
The 78°C water circulates in two additional pipes (the system is based on a total of 6 pipes), supplying domestic hot water to all the buildings, in accordance with anti-legionella regulation that in Malta imposes a domestic hot water production at a minimum of 70°C. Furthermore the very hot temperature water produced by EW-HT serve also the nearby Fortina Resort both for space heating and domestic hot water production. Thanks to the connection to the new plant, the hotel switched off its already existing gas boiler, achieving grate reductions in primary energy consumption and CO2 emissions.

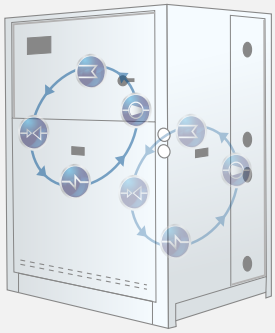
TECHNOLOGICAL CHOICES

The innovation of EW-HT is the result
of the best technology and the most accurate design.



DEDICATED SCROLL COMPRESSORS

EW-HT adopts the new generation compressors dedicated to heat pumps. They feature a special scroll design, which greatly extends the operating envelope towards both high evaporating and condensing pressures. Additionally, fewer moving parts, robust running gear and the low vibrations resulting from a balanced compression mechanism ensure perfect durability, safety and quietness.



DOUBLE REFRIGERANT CIRCUIT

Redundancy is the key to reliability. Two independent refrigerant circuits ensure continuous and dependable operation in all conditions or situations that may arise. This technical feature makes EW-HT suitable to be the sole source of high temperature heating.

ELECTRONIC EXPANSION VALVE

The electronic valve ensures ideal unit operation in all conditions. The fast processing of the acquired data allows a quick, fluctuating-free regulation, and therefore a highly accurate adjustment to the load swings. Due to an integrated design, the synergy among the expansion valve, the compressor and the compressor driver is complete.

ADVANCED CONTROL SYSTEM

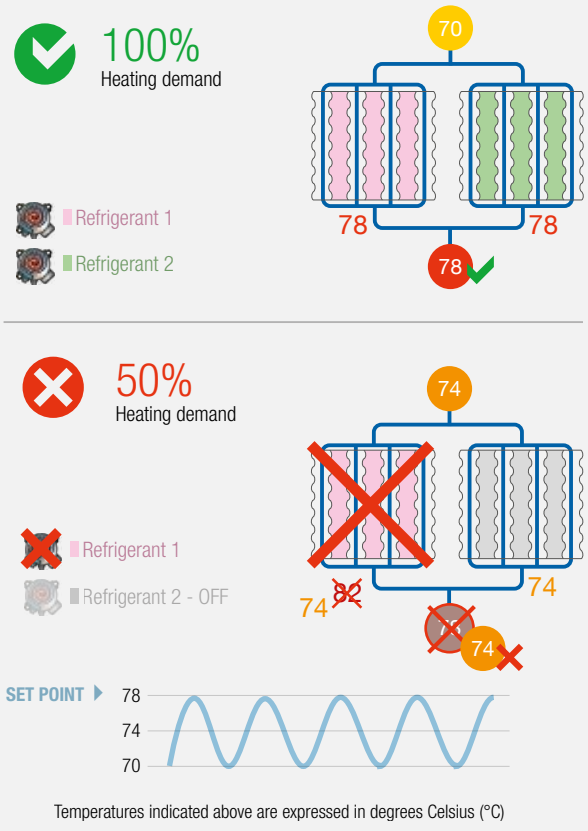
The W3000TE control, thanks to dedicated algorithms, ensures the optimised management of the units in every working condition. It features an LCD display and an easy-to-use interface. The internal clock allows the scheduling of a time frame to plan unit operations. The control is also available with a remote keyboard and is compatible with BMS.

DUAL CIRCUIT PLATE HEAT EXCHANGERS

The evaporator and the condenser are two high efficiency dual circuit plate heat exchangers, properly designed to be connected with two independent refrigerant circuits. The special design ensures that each refrigerant circuit is in contact with the entire water flow, therefore the partial load (only one circuit running) efficiency is maximized.

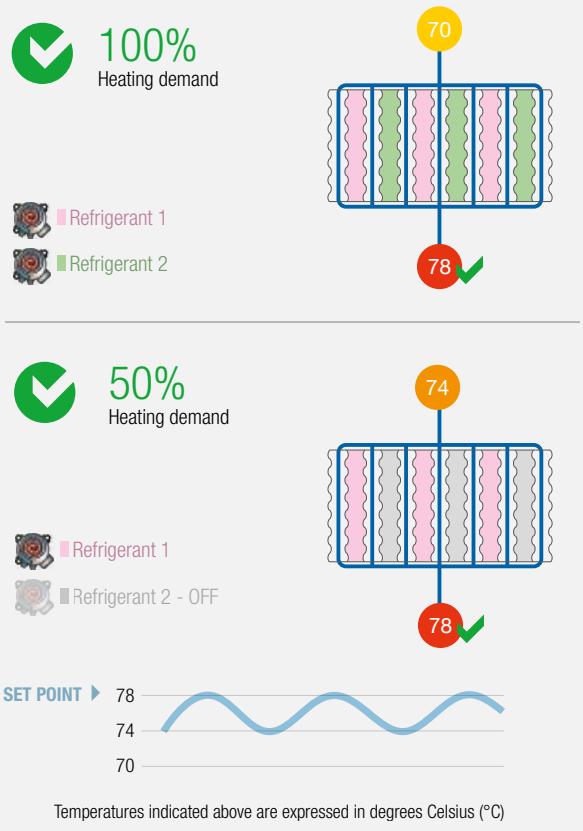
The second great benefit is that water heating is always uniform, also at partial loads, unlike in traditional configurations. This ensures to get the best advantage from the extended operating range of the compressors.

TRADITIONAL SOLUTION



Temperatures indicated above are expressed in degrees Celsius (°C)

DUAL CIRCUIT SOLUTION



Temperatures indicated above are expressed in degrees Celsius (°C)

Traditional solution vs dual circuit solution - set point 78°c, constant water flow rate

100% HEATING DEMAND (WATER INLET 70°C)
Both solutions fulfill the demand, heating the water up to 78°C.

50% HEATING DEMAND (WATER INLET 74°C)
With the traditional solution, in order to get a 78°C overall outlet, the water flow rates coming from the two independent PHEs should be 74°C (refrigerant circuit off) and 82°C (refrigerant circuit on). However, the maximum water condensing temperature allowed by the compressor envelope is 78°C. Therefore neither of the two refrigerant circuits are able to run. The water is not heated at all and the 78°C set point is not achieved. With the dual circuit PHE solution, when only one refrigerant circuit is running, the water is heated from 74°C to 78°C and the set point is met.

R HFC R-134a

REFRIGERANT R134A

Thanks to its physical characteristics, R134a is particularly suitable to work at high temperatures with an excellent heat exchange performance.

EW-HT

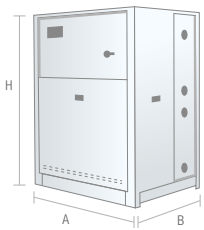
Water to water heat pumps for very high temperature water production, capacity from 70 to 279 kW.

			0152	0182	0202	0262	0302	0412	0512	0612
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
PERFORMANCE										
HEATING ONLY (GROSS VALUE)										
Total heating capacity	(1)	kW	70,2	79,3	92,5	113	139	181	225	279
Total power input	(1)	kW	17,0	18,9	22,0	27,9	34,2	43,7	55,1	67,6
COP	(1)	kW/kW	4,13	4,20	4,20	4,05	4,08	4,14	4,08	4,13
HEATING ONLY (EN14511 VALUE)										
Total heating capacity	(1)(2)	kW	70,4	79,5	92,7	113	140	181	225	280
COP	(1)(2)	kW/kW	4,01	4,07	4,08	3,94	3,98	4,04	4,01	4,06
ENERGY EFFICIENCY										
SEASONAL EFFICIENCY IN HEATING (Reg. EU 813/2013)										
PDesign	(3)	kW	38,6	43,6	50,0	61,6	78,1	104	128	157
SCOP	(3)(8)		3,27	3,39	3,45	3,30	3,30	3,25	3,27	3,30
Performance ηs	(3)(9)	%	123	128	130	124	124	122	123	124
Seasonal efficiency class	(3)		A+	A++	A++	A+	-	-	-	-
EXCHANGERS										
HEAT EXCHANGER USER SIDE IN HEATING										
Water flow	(1)	l/s	2,15	2,42	2,83	3,45	4,26	5,52	6,87	8,54
Pressure drop	(1)	kPa	23,9	25,0	24,2	24,2	19,7	19,8	19,8	20,1
HEAT EXCHANGER SOURCE SIDE IN HEATING										
Water flow	(1)	l/s	2,62	2,97	3,47	4,19	5,18	6,74	8,35	10,41
Pressure drop	(1)	kPa	45,4	46,7	51,8	53,8	49,7	50,1	37,6	37,7
REFRIGERANT CIRCUIT										
Compressors nr.		N°	2	2	2	2	2	2	2	2
No. Circuits		N°	2	2	2	2	2	2	2	2
Refrigerant charge		kg	6,00	7,00	8,00	9,00	10,0	11,0	12,0	13,0
NOISE LEVEL										
Sound Pressure	(4)	dB(A)	58	58	58	60	60	62	62	64
Sound power level in heating	(5)(6)	dB(A)	74	74	74	76	76	78	78	80
SIZE AND WEIGHT										
A	(7)	mm	1223	1223	1223	1223	1223	1223	1223	1223
B	(7)	mm	877	877	877	877	877	877	877	877
H	(7)	mm	1496	1496	1496	1496	1496	1496	1496	1496
Operating weight	(7)	kg	365	380	390	415	430	610	675	740

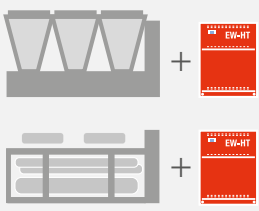
Notes:
1 Plant (side) heat exchanger water (in/out) 70°C/78°C; Source (side) heat exchanger water (in/out) 45°C/40°C.
2 Values in compliance with EN14511-3:2013.
3 Seasonal space heating energy efficiency class MEDIA TEMPERATURE in AVERAGE climate conditions [REGULATION (EU) N. 813/2013]
4 Average sound pressure level at 1m distance, unit in a free field on a reflective surface; non-binding value calculated from the sound power level.
5 Sound power on the basis of measurements made in compliance with ISO 9614.
6 Sound power level in heating, indoors.
7 Unit in standard configuration/execution, without optional accessories.
8 Seasonal performance coefficient
9 Seasonal space heating energy efficiency
The units highlighted in this publication contain HFC R134a [GWP_{100}1430] fluorinated greenhouse gases.

Main accessories:

- Phase sequence relay
- Numbered wiring on electrical board (std)
- Automatic circuit breakers on loads (std)
- Set-up for for remote connectivity (Modbus, Lonworks, Bacnet MS/TP RS485, Bacnet over IP)
- Remote signal for double set point
- Demand limit
- Touch screen interface
- Remote control keyboard with LCD display (distance up to 200m or 500m)
- Soft starters
- High pressure and low pressure gauges
- Compressor suction and discharge valves
- Acoustical enclosure: extra insulation on compressor section
- Rubber type anti-vibration mounting
- Grooved coupling kit with threaded pipe user side (std)



CONTROL INTEGRATION



W3000TE

Proprietary settings allow for the perfect integration of the EW-HT control with another Climaveneta smart heat pump equipped with W3000TE software or later. The integration provides several benefits in terms of equipment sequencing and management, delivering a complete 6-pipe system control.

Notes:
- Maximum distance between the units: 100 m.
- In the case of an older software version, please contact Mitsubishi Electric Hydronics and IT Cooling Systems Sales Dept.

HEATING | R HFC R134a | PLATES | 78° HEATING | HOT WATER | SCROLL

PLANT (SIDE) WATER (IN/OUT) 70°C/78°C

Source (side) water (in/out)				0152	0182	0202	0262	0302	0412	0512	0612
45°C/40°C	Heating capacity	kW		70,2	79,3	92,5	113	139	181	225	279
	Total power input	kW		17,0	18,9	22,0	27,9	34,2	43,7	55,1	67,6
	Cooling capacity	kW		54,2	61,5	71,8	86,8	107	140	173	215
	COP	-		4,13	4,20	4,20	4,05	4,06	4,14	4,08	4,13
40°C/35°C	Heating capacity	kW		63,4	71,5	83,4	102	123	160	199	247
	Total power input	kW		17,0	18,9	22,1	28	33,8	43,5	54,9	67,4
	Cooling capacity	kW		47,4	53,7	62,6	75,7	91,2	119	147	184
	COP	-		3,73	3,78	3,77	3,65	3,68	3,63	3,67	3,67
35°C/30°C	Heating capacity	kW		56,9	64,2	74,8	91,9	109	142	176	219
	Total power input	kW		17,0	18,9	22,1	28,0	33,6	43,5	54,9	67,3
	Cooling capacity	kW		40,9	46,4	54,0	65,6	77,4	101	124	156
	COP	-		3,35	3,40	3,38	3,28	3,25	3,26	3,21	3,26

PLANT (SIDE) WATER (IN/OUT) 60°C/65°C

Source (side) water (in/out)				0152	0182	0202	0262	0302	0412	0512	0612
45°C/40°C	Heating capacity	kW		72,1	81,5	94,9	116	151	195	242	300
	Total power input	kW		12,7	14,1	16,5	20,9	26,9	32,5	41,1	50,3
	Cooling capacity	kW		60,2	68,2	79,4	96,4	126	164	203	253
	COP	-		5,68	5,78	5,75	5,56	5,61	5,99	5,88	5,97
40°C/35°C	Heating capacity	kW		66,4	75,0	87,5	107	133	172	213	265
	Total power input	kW		12,9	14,4	16,8	21,2	26,4	32,1	40,5	49,6
	Cooling capacity	kW		54,3	61,5	71,7	87,1	108	142	175	218
	COP	-		5,15	5,21	5,21	5,05	5,05	5,34	5,26	5,34
35°C/30°C	Heating capacity	kW		60,5	68,3	79,8	97,7	118	151	187	233
	Total power input	kW		13,0	14,5	16,9	21,4	26,0	31,9	40,2	49,2
	Cooling capacity	kW		48,3	54,7	63,9	77,6	93,6	121	149	187
	COP	-		4,65	4,71	4,72	4,57	4,52	4,73	4,66	4,73

ClimaPRO

According to the units' actual efficiency curves, ClimaPRO continuously optimizes plant working conditions by promptly adjusting equipment staging and sequencing, managing operating set-points and controlling water flows throughout the entire system.
ClimaPRO can be interfaced with any BMS or it can successfully perform all functions on its own.

“EXPERIENCE IS BY FAR THE BEST PROOF”

Sir Francis Bacon
British Philosopher (1561-1626)

Fondazione Prada

2014 Milan - Italy

Application:
Office buildings
Cooling capacity:
3480 kW
Heating capacity:
3764 kW
Plant type:
Hydronic System
Installed machines:
4x ERACS2/WQ 3202,
1x EW-HT 0152,
2x NECS-W 0262,
1x ClimaPRO
Chiller Plant Control system

Compared to a modern gas boiler, EW-HT produces domestic hot water delivering great advantages in terms of:

+75% Energy efficiency

-53% CO_2 Emissions

-33% Overall costs on energy bill

PROJECT

Conceived by OMA Architecture Studio and led by Rem Koolhaas, the new Fondazione Prada venue is a new exhibition site located in Largo Isarco, an industrial area far from Milan's city centre. The new project involves a complex refurbishment where seven preexisting buildings of a former distillery from the 1910s will be linked by three new structures– an exhibition venue, an auditorium and a museum tower – occupying the courtyard spaces in between.
The complex will host Fondazione Prada's array of events, relating to disciplines including cinema, design, architecture, philosophy, fashion and performance.

CHALLENGE

The compound has a gross surface area of 19.000m2 / 205.000ft2, of which 11.000m2 / 118.000ft2 is dedicated to exhibition space.
The main challenge of the project was to face the complexity of combining the different heating and cooling requirements of the seven buildings, including the refurbished and new structures.

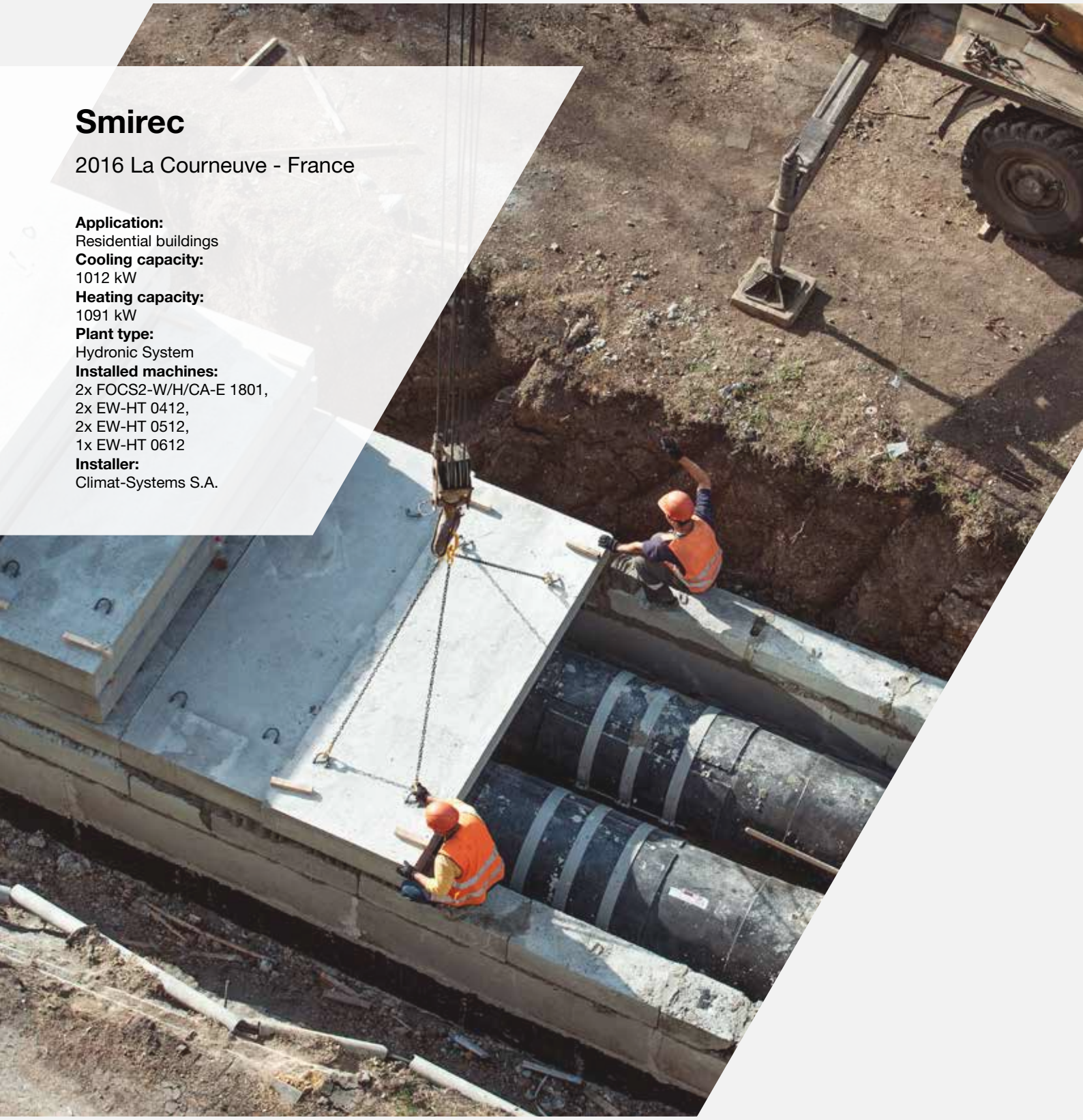
SOLUTION

The most suitable system for the museum was the installation of 4 ERACS2-WQ water to water INTEGRA units, integrated with 1 EW-HT water to water heat pump for very high temperature. While the ERACS2-WQ exploit the well water to produce simultaneous cold and hot water dedicated to space cooling and heating, the EW-HT was the key element for the production of domestic hot water.
Two additional NECS-W water cooled chillers were used to serve the air handling units.

Due to the complexity of the project and the building's different requirements, the HVAC system is managed by ClimaPRO, Climaveneta's advanced chiller plant optimisation system. Depending on the energy requests of the building and the external air temperature, the control system manages all the heat pumps, the pumps on the primary circuit and those for the ground water extraction, always activating the best combination of units in order to ensure the highest system performance all year round.

“EXPERIENCE IS BY FAR THE BEST PROOF”

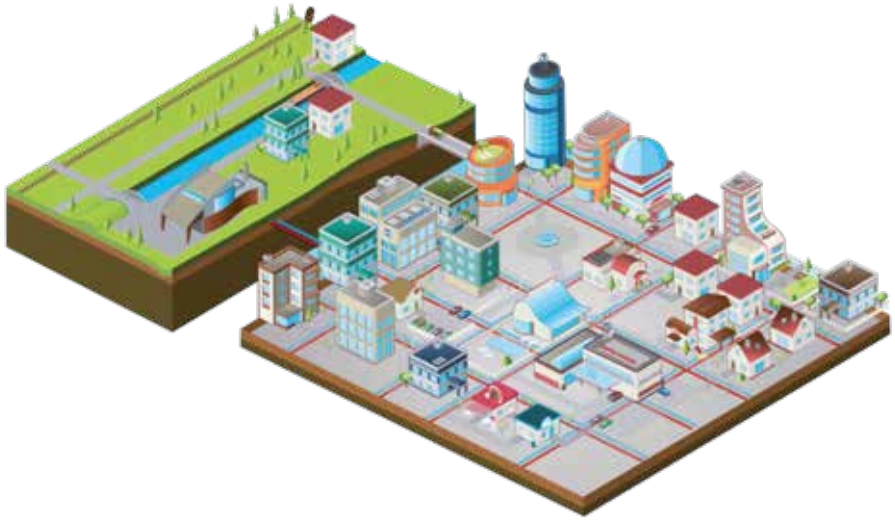
Sir Francis Bacon
British Philosopher (1561-1626)



Smirec

2016 La Courneuve - France

Application:
Residential buildings
Cooling capacity:
1012 kW
Heating capacity:
1091 kW
Plant type:
Hydronic System
Installed machines:
2x FOCS2-W/H/CA-E 1801,
2x EW-HT 0412,
2x EW-HT 0512,
1x EW-HT 0612
Installer:
Climat-Systems S.A.



PROJECT

The SMIREC district heating plant is based on a massive geothermal drilling, which involves a 1700 m deep well and provides 40 MWh of geothermal heat per year to the nearby cities. The whole plant belongs to the Plaine Commune Énergie, a huge project whose aim is to supply hot water to 40.000 homes in the Seine-Saint Denis area, just a few km from Paris. The plan will take full advantage of the widely available geothermal heat plus other sustainable heating equipment and renewables to cut up to 83.000 tons of CO2 a year.

SOLUTION

The old heat pumps were replaced with 5x EW-HT plus 2x FOCS2-W/H, installed in an independent building. The FOCS2-W/H units are connected to a low temperature part of the city pipeline network and serve 200 apartments for space heating through radiators. In another 3-building complex and 500 apartments, the EW-HT units brilliantly solve domestic hot water production inefficiency. Thanks to their ability to use medium temperature water up to 45°C as a source, these unique heat pumps deliver unbeatable COP in supplying very high temperature water, perfectly integrating themselves into the medium temperature district heating system.

CHALLENGE

In La Courneuve district heating, the energy is supplied through several kilometres of pipelines at medium temperature, around 35-45°C. With this temperature level, the heating network completely satisfies the users' space heating demand whilst keeping distribution heat losses to a minimum. However, in the domestic hot water production there were still possible energy savings to achieve: traditional water to water heat pumps were used to heat the water up to 65°C but unfortunately, their operating range forced a lowering of the city loop water temperature before using it as a source in the evaporator. As a result, efficiency was significantly reduced.

“EXPERIENCE IS BY FAR THE BEST PROOF”

Sir Francis Bacon
British Philosopher (1561-1626)

Darling Walk Theatre
Darling Harbour - Australia
2011

Application:
Theatres
Cooling capacity:
224 kW
Heating capacity:
240 kW

Installed machines:
1x NECS-WQ

GB ONE
Milan - Italy

Application:
Office buildings
Cooling capacity:
1231 kW
Heating capacity:
903 kW

Installed machines:
2x ERACS2-Q /SL-CA 2222,
1x EW-HT 182,
1x ClimaPRO

CEIBS - China Europe International Business School
Beijing China
2012

Application:
School/University
Cooling capacity:
4230 kW
Heating capacity:
4700 kW

Installed machines:
6x air cooled screw heat pumps with partial and total heat recovery

Samaranch Memorial Hall
Tianjin - China
2013

Application:
Institutions
Cooling capacity:
1580 kW
Heating capacity:
1400 kW

Installed machines:
2x ERACS-WQ 2602

50 Bolsover Street
London - Great Britain
2012

Application:
Mixed-Use Development, Residential buildings
Cooling capacity:
282,3 kW
Heating capacity:
240 kW

Installed machines:
1x NECS-WQ
Architect:
HOK Architects
Installer:
Manhattan Loft Corporation Ltd and Ridgeford Properties

Hospital De Talca
Talca - Chile
2012

Application:
Healthcare/Hospitals
Cooling capacity:
5800 kW
Heating capacity:
4800 kW

Installed machines:
4x RECS-W,
2x RECS-W,
2x FOCS2-W/CA H,
2x NECS-N-ST,
2x NECS-N-ST,
6x close control units,
3x HCAT

Coming from over 45-year experience in providing high efficiency and sustainable solutions for residential and commercial applications, EW-HT is just the latest Climaveneta brand innovation in the heat pump range. More than one thousand prestigious projects all over the world are the best evidence of the brand purpose in these kinds of applications.

B4E Boulogne Billancourt
Boulogne - France
2013

Application:
Mixed-Use Development
Cooling capacity:
1200 kW

Installed machines:
2x ERACS-Q/SL
Certifications:
BREEAM Excellent

Sheraton Mirage Resort
Gold Coast - Australia
2013

Investor:
Sheraton Hotel Group
Application:
Hotel and resorts
Cooling capacity:
3000 kW

Installed machines:
2x TECS2,
1x ERACS-WQ,
1x ClimaPRO

Porta Nuova Bosco Verticale
Milan - Italy
2011

Investor:
Hines
Application:
Office Buildings

Installed machines:
4x ERACS2-WQ 2152
Certifications:
LEED Gold

BNP Paribas
Nice - France
2013

Application:
Bank Offices
Investor:
BNP Paribas
Cooling capacity:
142 kW

Heating capacity:
159 kW
Installed machines:
2x NECS-Q/B 0604

CV_EW-HT_ENG_02-2018

CLIMAVENETA®

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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