INTEGRA

Units for 4-pipe systems, air and water source, with scroll, screw and inverter screw compressors, from 36 to 1100 kW.

Highest Energy Efficiency

Self-adaptability with simultaneous loads

System Simplification

Reduction of on-site operations

CLIMAVENETA
SUSTAINABLE COMFORT

When combining perfect comfort and maximum efficiency is the greatest challenge

Modern multi-function buildings, shopping centres, large business centres, hotels, swimming pools, and wellness centres are characterized by increasingly complex comfort conditions.

Many years of experience in these applications has led Climaveneta to develop its own solution to the main challenges posed by these structures, without making any compromises:

Simultaneous heating and cooling

Due to the coexistence in the same building of areas dedicated to different functions, with very variable heat loads, enhanced by large glass surfaces, the simultaneous demand for heating and cooling during the year is increasingly common.

Growing attention to comfort

The need to guarantee ideal temperature, humidity and air quality conditions throughout the year means that system solutions must be provided in order to offer a no compromise answer to the comfort requirements of different users.

Challenging energy efficiency and sustainability targets

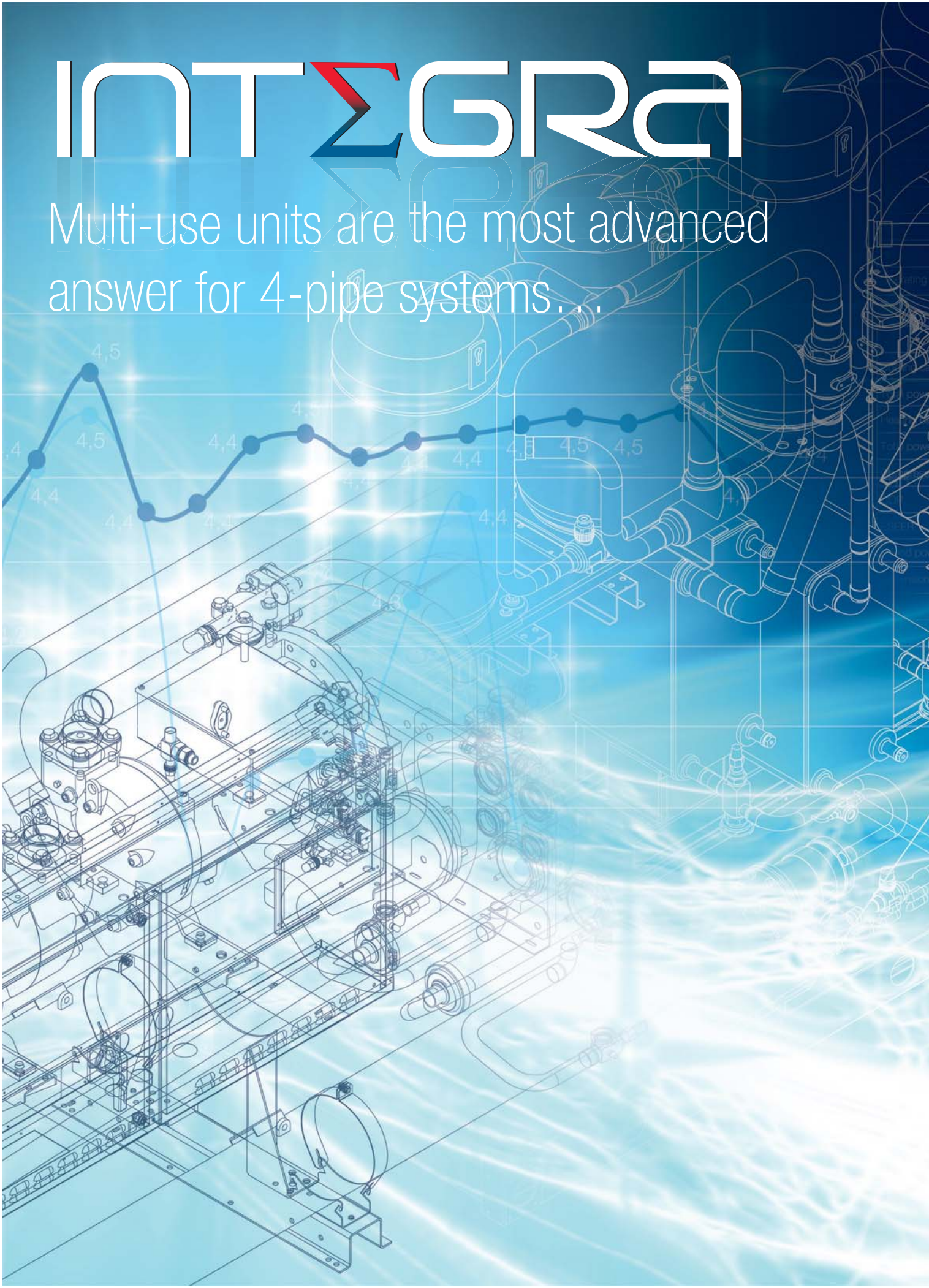
Reduced investment and operating costs, respect for progressively stricter regulatory restrictions, attention to environmental impact and use of renewables are increasingly vital factors not only for the value of the property but also for the actual possibility of carrying it out.

Ambitious architectural solutions

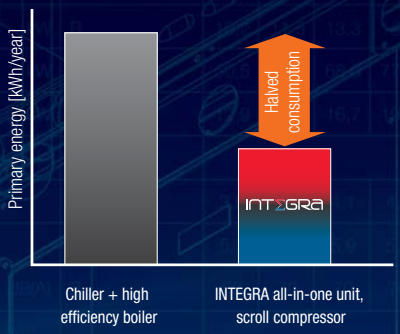
Innovative concepts and a systematic quest for excellence push technology and materials to the limit, in order to guarantee strong visual characterisation, with no compromise on the aesthetic front, as well as excellent usability of the building.

INTEGRA

Multi-use units are the most advanced answer for 4-pipe systems...



Maximum comfort, simultaneous hot and cold water production, unbeatable energy and system efficiency; the advantages of the INTEGRA all-in-one units installed in a 4-pipe system are infinite:



Maximum energy efficiency

The construction approach that characterises our multiuse units has been designed to maximise their useful effect. The maximum efficiency of the system is reached with simultaneous loads, when the energy produced is used to satisfy the hot and cold demands of the total system. In modern buildings, with opposite overlapping heat loads, the INTEGRA units are the most efficient and greenest solution compared to any other system.

◂ Primary Energy consumption referring to an office building in Paris. The electric units are units with water sources.

Self-adaptability with simultaneous loads

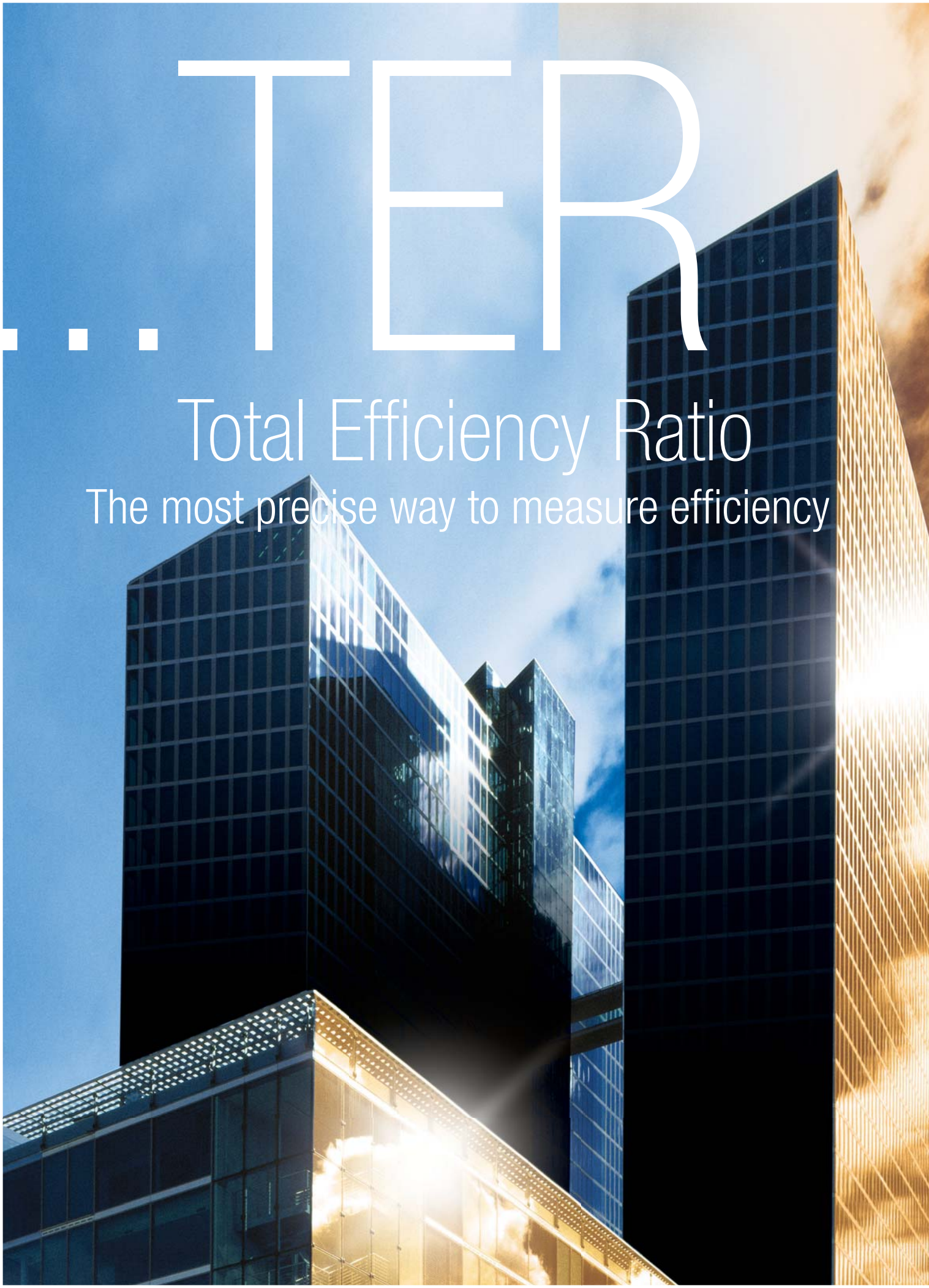
Thanks to their advanced control logic, multiuse units are always able to respond to building climate control requirements, especially if overlapping loads occur. The unit can independently produce cooling and heating simultaneously, according to real needs.

System simplification

The use of a unit that independently produces both heating and cooling eliminates the need for separate heating and cooling resources.
This significantly simplifies the system: plant areas are reduced, hydronic circuits are simplified, maintenance is reduced by half and control is rationalized.

Reduction of on-site operations

Simplified system results in a significant reduction in the operations to be carried out on site. In fact, it is no longer necessary to perform the connection to the gas network, install and commission auxiliary boilers or manage areas to be used for conventional heating units. This means substantial savings in terms of time and cost for the customer.


...TER
Total Efficiency Ratio
The most precise way to measure efficiency

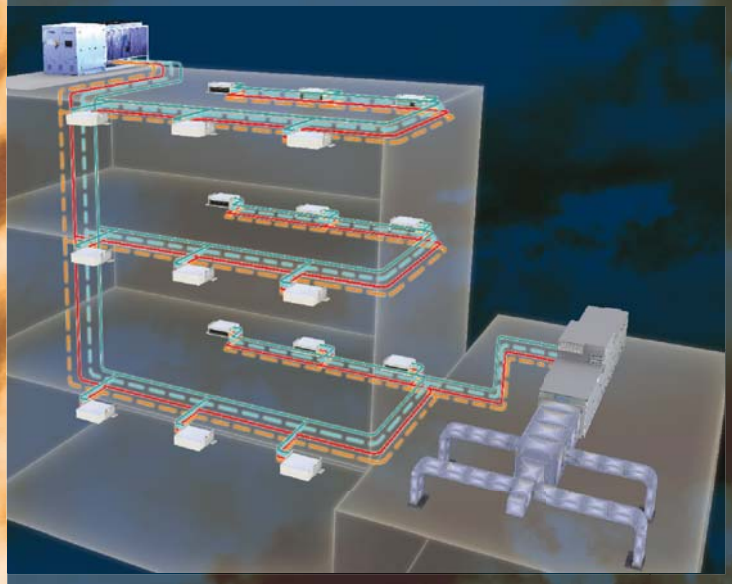
Completely integrated functions and maximum performance synergy require an advanced measurement rating for the total efficiency of the unit: TER - Total Efficiency Ratio.

If you have a unit that can provide for heating and cooling simultaneously, then measuring efficiency with the traditional ratings such as EER and COP would be limiting.

In all the cases in which INTEGRA produces hot and cold water simultaneously, the real efficiency of the unit is the sum of its performance in the hot and cold modes. To objectively measure performance under simultaneous load conditions, Climaveneta, a pioneer in the development of this technology, has conceived TER – total efficiency ratio.

The TER is calculated as the ratio between the sum of the delivered heating and cooling power and electrical power input.

The TER reaches its maximum value when the loads are completely balanced and is the most effective way of representing the real efficiency of the unit.



Focus on: 4-pipe systems

This type of system is suitable for air-conditioning in buildings that require separate areas to be heated and cooled at the same time.

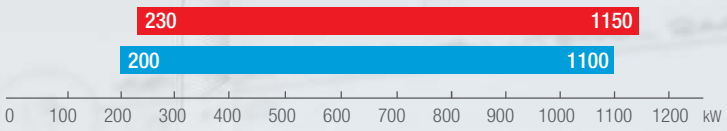
It is combined with centralised solutions capable of producing hot and cold water in the two hydronic circuits of the system, assuring maximum comfort in every room of the building, independently and in any period of the year.

From now on, a single intelligent unit is sufficient for the management of these complex systems: INTEGRA.

INTEGRA i-FX-Q_2

Challenging regulations, new incoming plant requirements, stronger environmental sustainability: Climaveneta turns these challenges into new opportunities with the new i-FX-Q_2 family.

4-pipe air source unit, inverter-driven screw compressors and EC fans. Cooling capacity from 200 to 1100 kW



A smart heat pump with full inverter technology

The new i-FX-Q_2 family employs inverter driven screw compressors and EC motor fans.

The use of variable speed technology in both compressors and fans leads to the achievement of unbeatable performances, especially at partial loads, which are the most common conditions during the entire year.

The units in fact can perfectly and continuously match the real demands of the plant and the external environmental conditions by dynamic adaptation of the rotational speed of compressors and fans, ensuring at the same time complete stability of the water temperature. This dynamic behaviour guarantees the maximum exploitation of the absorbed power, leading to minimum energy waste.

HFC R-134a

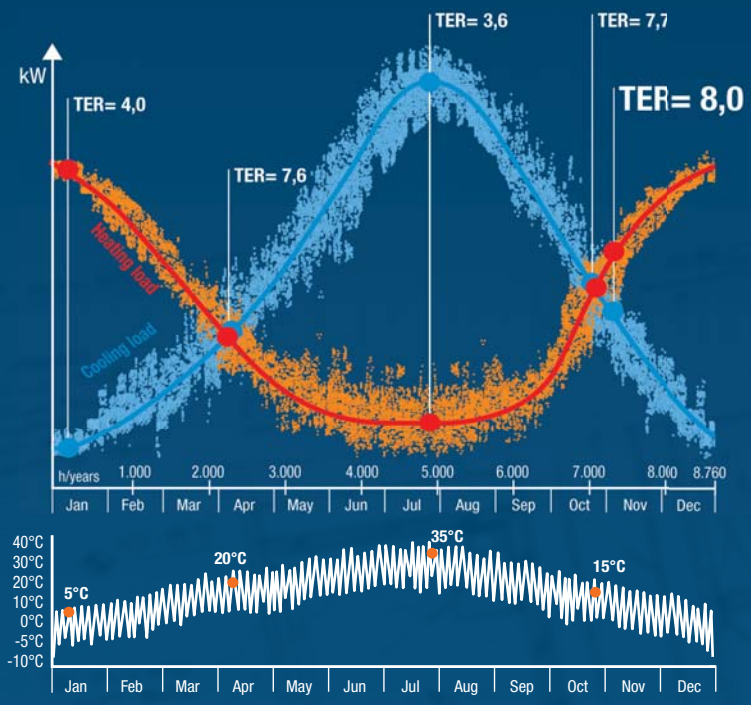
HFO 1234yf

EC AXIAL

SCREW INVERTER

AIR SOURCE

VSPEED Variable Speed Drive



Maximum efficiency. Always.

A multi-purpose unit is chosen in order to cover the maximum peak demand which, depending on the country where it is installed, may be in summer or in winter.

This implies that, for the rest of the year, the unit works at partial loads. And it is here that i-FX-Q_2 ensures maximum energy efficiency.

Primary energy consumption

-41%

Compared to a 'chiller + boiler' solution

The graph illustrates the heating and cooling load of an office building located in Milan. The total efficiency values have been calculated with the following conditions: 12/7 °C, 40/45 °C of external air temperature and the unit working in partialised mode.

SoftSTART

Minimum starting current. Maximum cos(phi)

A further element of differentiation is the absence of starting current, achieved thanks to the characteristics of the compressor and the inverter-controlled capacity modulation. This decisive advantage offers superior reliability and contributes towards reducing the cost of the system, making additional switching devices superfluous. Moreover, the use of continuous speed variation motors maximizes the power factor. Optimal electrical supply conditions are therefore guaranteed without the need for expensive additional rephasing components.

HFO 1234yf

HFO refrigerant: the eco-friendly alternative to HFCs

i-FX-Q_2 units are developed to satisfy the strictest requirements in terms of environmental sustainability. They are in fact the first multi-purpose units adopting the new generation HFO 1234yf low GWP refrigerant.

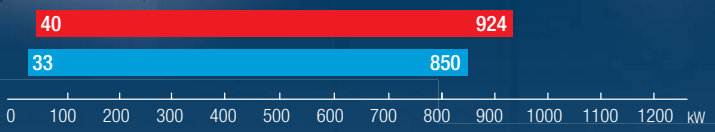
- ODP=0 and negligible GWP (GWP=4)
- Rapid molecule disintegration in the atmosphere (10 days)
- In line with EU F-Gas Regulation objectives
- Compatible with most common construction materials

Complete range

Air source units

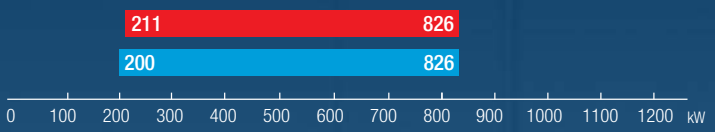
NECS-Q / ERACS2-Q / i-FX-Q_2

SCROLL



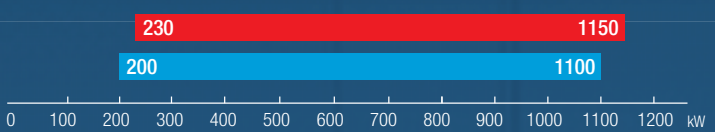
Acoustic versions
B: Base
LN: Low Noise
SL: Super low noise
CA: High efficiency
SL-CA: High efficiency Super Low Noise

SCREW



Acoustic versions
CA: High efficiency
LN-CA: Low Noise, High efficiency
SL-CA: Super Low Noise, High efficiency
XL-CA: Extra Low Noise, High efficiency
XL-CA-E: Extra Low Noise, High efficiency-Enhanced

SCREW INVERTER



Acoustic versions
CA: High efficiency
SL-CA: Super Low Noise, High efficiency
XL-CA: Extra Low Noise, High efficiency

SMART DEFROST

The INTEGRA air source units are characterized by their wide operating field, which is also due to efficient energy management during defrosting, based on special algorithms especially developed by Climaveneta.

Air and water source units

This is Climaveneta's exclusive solution for the most complex design challenges. INTEGRA units in special QI execution are designed and created to exchange heat, regardless of the air or water source.

and technology

Units with water source

NECS-WQ / ERACS2-WQ

SCROLL

Acoustic versions

B: Base + compressors' acoustic enclosure [up to -10 dB(A)]

SCREW

Acoustic versions

B: Base + compressors' acoustic enclosure 'Basic' [up to -10 dB(A)] + compressors' acoustic enclosure 'Plus' [up to -16 dB(A)]

PLUG & PLAY

These units are coupled with natural water sources (ground water or surface water) to which the unit may be directly connected, without using an intermediate heat exchanger, hence improving the overall efficiency.

WATER SAVE FUNCTION

For all applications with natural water source, it is fundamentally important to reduce the flow rates to a minimum. This makes it possible to cut the operating costs due to pumping and reduce the discharge costs of the drained water. With "Water Save" the water flow rate to the auxiliary heat exhanger is reduced in proportion to the unit's partialization, ensuring the maximum overall efficiency of the system.

Water is the heat source that can ensure maximum efficiency of the unit, especially in the winter and summer seasons. In the other seasons, it may be worthwhile exploiting air as the external source, which in these periods maintains a temperature between 10°C and 20°C.

In this way, for some periods of the year, it is possible to stop the pumps for draining the water from the well, reducing the impact both of pump consumption and the costs related to the use of public water. This evolved technology developed by Climaveneta can manage the operation with a double heat source in an optimal way.

Air source units

NECS-Q

ERACS2-Q

NECS-Q / B			0152	0182	0202	0252	0262	0302	0412	0512	0612	0604	0704	0804	0904	1004	1104	1204
Power supply		V/ph/Hz	400/3+N/50															
PERFORMANCE																		
COOLING ONLY (GROSS VALUE)																		
Cooling capacity	(1)	kW	36,6	43,2	48,5	55,8	61,2	73,3	94,8	120	151	150	166	189	211	240	277	311
Total power input	(1)	kW	14,2	15,4	18,8	21,3	24,2	27,6	35,5	44,0	58,9	58,9	69,0	75,8	85,2	95,6	107	120
EER	(1)	kW/kW	2,58	2,81	2,58	2,62	2,53	2,66	2,67	2,73	2,56	2,54	2,41	2,49	2,48	2,51	2,58	2,58
COOLING ONLY (EN14511 VALUE)																		
Cooling capacity	(1)(2)	kW	36,3	42,8	48,2	55,4	60,8	72,9	94,3	120	150	149	166	188	210	239	276	310
EER	(1)(2)	kW/kW	2,51	2,72	2,52	2,55	2,47	2,60	2,62	2,68	2,51	2,50	2,37	2,45	2,44	2,48	2,54	2,54
HEATING ONLY (GROSS VALUE)																		
Total heating capacity	(3)	kW	41,1	48,9	55,3	62,5	68,1	83,1	107	136	173	167	185	209	234	266	306	344
Total power input	(3)	kW	14,2	15,6	18,1	21,1	22,8	26,3	34,0	42,3	54,4	58,0	64,9	72,1	79,8	92,0	104	116
COP	(3)	kW/kW	2,89	3,13	3,06	2,96	2,99	3,16	3,16	3,21	3,17	2,88	2,86	2,90	2,93	2,90	2,94	2,96
HEATING ONLY (EN14511 VALUE)																		
Total heating capacity (2)(3) kW			41,4	49,4	55,7	63,0	68,6	83,7	108	136	174	168	186	210	235	268	308	346
COP	(2)(3)	kW/kW	2,85	3,07	3,01	2,91	2,95	3,11	3,12	3,17	3,13	2,86	2,83	2,88	2,91	2,87	2,91	2,93
COOLING WITH TOTAL HEAT RECOVERY																		
Cooling capacity	(4)	kW	37,2	43,6	50,6	57,2	64,1	76,3	97,7	123	160	151	173	194	220	246	280	317
Total power input	(4)	kW	12,8	14,2	16,6	18,9	21,0	24,5	31,9	39,6	51,3	49,8	57,1	64,5	72,1	79,8	92,8	105
Recovery heat exchanger capacity	(4)	kW	49,2	56,9	66,2	75,0	83,8	99,3	128	161	208	198	226	255	288	321	368	415
TER		kW/kW	6,75	7,08	7,04	6,99	7,04	7,16	7,07	7,18	7,19	7,00	6,99	6,96	7,04	7,10	6,98	6,99
SEASONAL EFFICIENCY IN HEATING (EN14825 VALUE)																		
PDesign	(5)	kW	31,0	35,0	39,7	47,9	51,1	60,5	76,2	98,1	132	127	143	156	171	205	231	255
SCOP	(5)		3,07	3,23	3,21	3,07	3,12	3,25	3,23	3,28	3,33	3,25	3,26	3,35	3,21	3,23	3,28	3,26
Performance ηs (Reg. 811/2013 UE)	(5)	%	120	126	125	120	122	127	126	128	130	127	127	131	126	126	128	128
Seasonal efficiency class (Regulation (UE) 811/2013)	(5)		A	A+	A+	A	A	A+	-	-	-	-	-	-	-	-	-	-
EXCHANGERS																		
HEAT EXCHANGER USER SIDE IN REFRIGERATION																		
Water flow	(1)	m³/h	6,29	7,44	8,35	9,61	10,5	12,6	16,3	20,7	25,9	25,8	28,6	32,5	36,3	41,3	47,7	53,5
Pressure drop	(1)	kPa	41,7	58,2	42,2	55,9	44,5	45,0	44,3	46,6	47,7	41,9	43,0	43,7	42,8	44,4	47,3	47,2
HEAT EXCHANGER USER SIDE IN HEATING																		
Water flow	(3)	m³/h	7,14	8,50	9,61	10,9	11,8	14,4	18,7	23,6	30,0	29,1	32,2	36,4	40,7	46,3	53,2	59,8
Pressure drop	(3)	kPa	53,6	75,9	55,9	71,3	56,1	59,1	57,9	60,6	63,8	53,1	54,5	54,8	53,7	55,8	58,9	58,9
COMPRESSORS																		
Compressors nr.		N°	2	2	2	2	2	2	2	2	2	4	4	4	4	4	4	4
No. Circuits		N°	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
NOISE LEVEL																		
Noise Pressure	(6)	dB(A)	52	52	52	52	52	53	54	55	55	60	60	60	61	62	63	63
Sound power level in cooling	(7)(8)	dB(A)	84	84	84	84	84	85	86	87	87	92	92	92	93	94	95	95
Sound power level in heating	(7)(9)	dB(A)	84	84	84	84	84	85	86	87	87	92	92	92	93	94	95	95
SIZE AND WEIGHT																		
A	(10)	mm	2038	2038	2038	2538	2538	2538	3088	3588	3588	3110	3110	3110	4110	4110	4110	4110
B	(10)	mm	1304	1304	1304	1304	1304	1304	1304	1304	1304	2220	2220	2220	2220	2220	2220	2220
H	(10)	mm	1695	1695	1695	1695	1695	1695	1695	1695	1695	2150	2150	2150	2150	2150	2150	2150
Operating weight	(10)	kg	585	615	635	700	720	770	1110	1270	1390	1600	1840	2120	2320	2480	2680	2860

Note
1 Plant (side) cooling exchanger water (in/out) 12°C/7°C; Source (side) heat exchanger air (in) 35°C.
2 Values in compliance with EN14511-3:2011.
3 Plant (side) heat exchanger water (in/out) 40°C/45°C; Source (side) heat exchanger air (in) 7°C - 87% R.H.
4 Plant (side) cooling exchanger water (in/out) 12°C/7°C; Plant (side) heat exchanger water (in/out) 40°C/45°C.
5 Seasonal space heating energy efficiency class LOW TEMPERATURE in AVERAGE climate conditions [REGULATION (UE) N. 811/2013]
6 Average sound pressure level at 10m distance, unit in a free field on a reflective surface; non-binding value calculated from the sound power level.
7 Sound power on the basis of measurements made in compliance with ISO 9614.
8 Sound power level in cooling, outdoors.
9 Sound power level in heating, outdoors.
10 Unit in standard configuration/execution, without optional accessories.

NECS-Q / CA			1314	1414	1614	1716	1816	2016	2116	2416	2418	2618	2818	3018	3218
Power supply		V/ph/Hz							400/3/50						
PERFORMANCE															
COOLING ONLY (GROSS VALUE)															
Cooling capacity	(1)	kW	362	387	425	471	524	559	581	637	680	724	775	813	850
Total power input	(1)	kW	122	128	145	157	173	185	192	217	230	244	256	272	289
EER	(1)	kW/kW	2,96	3,03	2,94	3,01	3,04	3,03	3,03	2,94	2,95	2,96	3,03	2,99	2,94
COOLING ONLY (EN14511 VALUE)															
Cooling capacity	(1)(2)	kW	361	385	423	470	522	557	579	635	677	720	773	810	846
EER	(1)(2)	kW/kW	2,91	2,98	2,89	2,97	2,99	2,99	2,99	2,89	2,91	2,91	2,99	2,94	2,89
HEATING ONLY (GROSS VALUE)															
Total heating capacity	(3)	kW	394	420	462	507	546	603	630	693	729	788	840	882	924
Total power input	(3)	kW	120	127	140	155	166	183	189	210	221	239	253	266	280
COP	(3)	kW/kW	3,30	3,31	3,30	3,28	3,29	3,30	3,32	3,30	3,29	3,29	3,33	3,31	3,30
HEATING ONLY (EN14511 VALUE)															
Total heating capacity	(2)(3)	kW	396	422	464	509	549	606	633	696	732	792	843	886	928
COP	(2)(3)	kW/kW	3,26	3,28	3,26	3,25	3,26	3,27	3,29	3,27	3,26	3,26	3,30	3,28	3,27
COOLING WITH TOTAL HEAT RECOVERY															
Cooling capacity	(4)	kW	355	379	423	460	500	547	568	636	667	711	758	802	848
Total power input	(4)	kW	107	113	126	139	150	163	170	189	200	213	226	240	252
Recovery heat exchanger capacity	(4)	kW	455	485	542	590	640	700	728	814	854	911	971	1027	1085
TER		kW/kW	7,55	7,66	7,64	7,55	7,63	7,67	7,64	7,68	7,62	7,61	7,63	7,63	7,67
SEASONAL EFFICIENCY IN HEATING (EN14825 VALUE)															
PDesign	(5)	kW	283	317	363	376	390	-	-	-	-	-	-	-	-
SCOP	(5)		3,75	3,86	3,73	3,86	3,77	-	-	-	-	-	-	-	-
Performance ηs (Reg. 811/2013 UE)	(5)	%	147	151	146	152	148	-	-	-	-	-	-	-	-
Seasonal efficiency class (Regulation (UE) 811/2013)	(5)		-	-	-	-	-	-	-	-	-	-	-	-	-
EXCHANGERS															
HEAT EXCHANGER USER SIDE IN REFRIGERATION															
Water flow	(1)	m³/h	62,4	66,6	73,2	81,1	90,2	96,3	100	110	117	125	133	140	146
Pressure drop	(1)	kPa	56,4	49,2	59,4	41,5	51,3	44,5	48,1	49,3	50,7	57,4	44,5	48,9	53,5
HEAT EXCHANGER USER SIDE IN HEATING															
Water flow	(3)	m³/h	68,5	73,0	80,3	88,1	95,0	105	109	120	127	137	146	153	161
Pressure drop	(3)	kPa	68,0	59,1	71,5	48,9	56,8	52,7	57,5	59,4	59,3	69,4	53,3	58,7	64,4
COMPRESSORS															
Compressors nr.	N°		4	4	4	6	6	6	6	6	8	8	8	8	8
No. Circuits	N°		2	2	2	3	3	3	3	3	4	4	4	4	4
NOISE LEVEL															
Noise Pressure	(6)	dB(A)	65	65	65	64	65	65	65	66	66	66	67	67	67
Sound power level in cooling	(7)(8)	dB(A)	97	97	97	97	98	98	98	99	99	99	100	100	100
Sound power level in heating	(7)(9)	dB(A)	97	97	97	97	98	0	0	0	0	0	0	0	0
SIZE AND WEIGHT															
A	(10)	mm	5080	5080	5080	6255	7430	7430	7430	7430	9780	9780	9780	9780	9780
B	(10)	mm	2260	2260	2260	2260	2260	2260	2260	2260	2260	2260	2260	2260	2260
H	(10)	mm	2450	2450	2450	2450	2450	2450	2450	2450	2450	2450	2450	2450	2450
Operating weight	(10)	kg	3850	3950	3980	5460	5740	5890	5970	6020	7350	7500	7700	7740	7770

ERACS2-Q / CA			1062	1162	1362	1562	1762	1962	2022	2222	2422	2622	2722	3222
Power supply		V/ph/Hz						400/3/50						
PERFORMANCE														
COOLING ONLY (GROSS VALUE)														
Cooling capacity	(1)	kW	210	248	302	329	380	425	483	525	554	624	701	826
Total power input	(1)	kW	72,1	84,8	101	109	129	144	156	167	176	201	222	264
EER	(1)	kW/kW	2,91	2,93	2,98	3,01	2,95	2,95	3,10	3,14	3,16	3,10	3,15	3,13
COOLING ONLY (EN14511 VALUE)														
Cooling capacity	(1)(2)	kW	209	247	301	328	379	424	485	527	556	628	704	828
EER	(1)(2)	kW/kW	2,88	2,89	2,94	2,97	2,91	2,92	3,08	3,11	3,12	3,07	3,14	3,11
HEATING ONLY (GROSS VALUE)														
Total heating capacity	(3)	kW	218	258	308	339	396	434	492	541	571	615	711	826
Total power input	(3)	kW	67,0	80,7	92,2	101	122	131	149	159	169	178	207	240
COP	(3)	kW/kW	3,25	3,20	3,35	3,35	3,25	3,32	3,31	3,41	3,38	3,46	3,43	3,44
HEATING ONLY (EN14511 VALUE)														
Total heating capacity	(2)(3)	kW	218	259	310	340	397	435	489	539	569	611	708	823
COP	(2)(3)	kW/kW	3,23	3,17	3,32	3,32	3,23	3,31	3,25	3,34	3,31	3,37	3,39	3,39
COOLING WITH TOTAL HEAT RECOVERY														
Cooling capacity	(4)	kW	209	248	305	329	381	428	484	522	550	631	701	826
Total power input	(4)	kW	60,6	72,2	87,1	92,5	111	122	134	145	153	170	193	228
Recovery heat exchanger capacity	(4)	kW	266	316	386	416	486	542	609	658	694	791	883	1041
TER		kW/kW	7,83	7,81	7,93	8,06	7,80	7,97	8,18	8,14	8,12	8,35	8,19	8,17
SEASONAL EFFICIENCY IN HEATING (EN14825 VALUE)														
PDesign	(5)	kW	155	210	219	241	282	311	354	383	-	-	-	-
SCOP	(5)		3,41	3,21	3,45	3,53	3,40	3,54	3,37	3,46	-	-	-	-
Performance ηs (Reg. 811/2013 UE)	(5)	%	133	125	135	138	133	139	132	136	-	-	-	-
Seasonal efficiency class (Regulation (UE) 811/2013)	(5)		-	-	-	-	-	-	-	-	-	-	-	-
EXCHANGERS														
HEAT EXCHANGER USER SIDE IN REFRIGERATION														
Water flow	(1)	m³/h	36,2	42,8	52,1	56,7	65,5	73,2	83,1	90,4	95,3	107	121	142
Pressure drop	(1)	kPa	28,8	40,2	36,6	43,4	40,3	27,9	26,7	29,0	32,3	23,1	30,5	30,9
HEAT EXCHANGER USER SIDE IN HEATING														
Water flow	(3)	m³/h	37,8	44,9	53,6	58,9	68,7	75,4	85,5	94,1	99,2	107	124	143
Pressure drop	(3)	kPa	31,5	44,3	38,8	46,9	44,4	29,6	28,2	31,4	34,9	22,8	31,9	31,5
COMPRESSORS														
Compressors nr.	N°		2	2	2	2	2	2	2	2	2	2	2	2
No. Circuits	N°		2	2	2	2	2	2	2	2	2	2	2	2
NOISE LEVEL														
Noise Pressure	(6)	dB(A)	65	65	65	66	66	66	66	68	68	68	68	69
Sound power level in cooling	(7)(8)	dB(A)	97	97	97	98	99	99	99	101	101	101	101	102
Sound power level in heating	(7)(9)	dB(A)	97	97	97	98	99	99	99	101	0	0	0	0
SIZE AND WEIGHT														
A	(10)	mm	4610	4610	5610	5610	6610	6610	6300	7200	7200	7200	8400	9700
B	(10)	mm	2220	2220	2220	2220	2220	2220	2260	2260	2260	2260	2260	2260
H	(10)	mm	2150	2420	2430	2430	2430	2430	2350	2350	2350	2350	2350	2350
Operating weight	(10)	kg	3600	3870	4620	5040	5520	5670	8650	9230	9330	9770	10310	12480

Water source units

NECS-WQ

NECS-WQ			0152	0182	0202	0252	0262	0302	0412	0512	0612	0604	0704	0804	0904	1004	1104	1204	1404	1604
Power supply		V/ph/Hz									400/3/50									
PERFORMANCE																				
COOLING ONLY (GROSS VALUE)																				
Cooling capacity	(1)	kW	48,4	55,6	64,6	73,4	82,8	97,0	127	158	205	193	224	254	284	315	363	412	466	520
Total power input	(1)	kW	8,56	9,73	11,2	13,2	14,7	17,4	22,8	28,2	36,6	34,7	40,1	45,5	50,9	56,4	64,8	73,0	84,8	96,5
EER	(1)	kW/kW	5,65	5,71	5,77	5,56	5,63	5,57	5,56	5,59	5,60	5,57	5,59	5,59	5,58	5,59	5,60	5,64	5,49	5,39
COOLING ONLY (EN14511 VALUE)																				
Cooling capacity	(1)(2)	kW	48,2	55,4	64,3	73,1	82,4	96,6	126	157	204	192	223	253	283	314	362	410	464	518
EER	(1)(2)	kW/kW	5,45	5,53	5,59	5,39	5,45	5,40	5,38	5,41	5,43	5,40	5,43	5,43	5,43	5,44	5,45	5,49	5,35	5,26
HEATING ONLY (GROSS VALUE)																				
Total heating capacity	(3)	kW	52,1	59,7	69,3	79,0	88,9	104	135	169	219	208	240	270	303	338	388	440	498	557
Total power input	(3)	kW	12,4	13,8	16,2	18,5	20,4	23,9	31,0	38,4	49,9	47,7	54,7	61,8	69,2	76,8	88,4	99,6	113	126
COP	(3)	kW/kW	4,20	4,33	4,28	4,27	4,36	4,37	4,35	4,40	4,39	4,36	4,38	4,37	4,38	4,40	4,39	4,41	4,41	4,42
HEATING ONLY (EN14511 VALUE)																				
Total heating capacity	(2)(3)	kW	52,4	60,0	69,6	79,4	89,3	105	136	170	220	209	241	271	305	339	390	442	500	559
COP	(2)(3)	kW/kW	4,10	4,23	4,19	4,18	4,26	4,27	4,25	4,30	4,29	4,27	4,29	4,28	4,30	4,31	4,31	4,33	4,33	4,34
COOLING WITH TOTAL HEAT RECOVERY																				
Cooling capacity	(4)	kW	40,4	46,7	54,1	61,7	69,7	82,0	106	133	172	163	188	212	238	266	305	346	392	438
Total power input	(4)	kW	12,4	13,8	16,2	18,5	20,4	23,9	31,0	38,4	49,9	47,7	54,7	61,8	69,2	76,8	88,4	99,6	113	126
Recovery heat exchanger capacity	(4)	kW	52,1	59,7	69,3	79,0	88,9	104	135	169	219	208	240	270	303	338	388	440	498	557
TER		kW/kW	7,46	7,71	7,62	7,61	7,77	7,80	7,75	7,85	7,83	7,79	7,82	7,80	7,83	7,86	7,84	7,89	7,88	7,90
SEASONAL EFFICIENCY IN HEATING (EN14825 VALUE)																				
PDesign	(5)	kW	62,2	71,1	82,8	94,4	106	125	162	202	262	248	289	325	360	-	-	-	-	-
SCOP	(5)		5,71	5,88	5,93	5,74	5,79	5,79	5,73	5,72	5,76	5,80	5,65	5,78	5,93	-	-	-	-	-
Performance ηs (Reg. 811/2013 UE)	(5)	%	220	227	229	222	224	224	221	221	222	224	218	223	229	-	-	-	-	-
Seasonal efficiency class (Regulation (UE) 811/2013)	(5)		A++	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
EXCHANGERS																				
HEAT EXCHANGER USER SIDE IN REFRIGERATION																				
Water flow	(1)	m³/h	8,33	9,57	11,1	12,6	14,2	16,7	21,8	27,2	35,2	33,3	38,6	43,8	48,9	54,3	62,5	70,9	80,1	89,5
Pressure drop	(1)		28,4	25,6	25,0	28,7	31,9	33,8	39,1	42,4	44,0	41,7	44,1	43,7	43,0	43,9	43,7	44,2	45,6	44,0
HEAT EXCHANGER SOURCE SIDE IN REFRIGERATION																				
Water flow	(1)	m³/h	3,04	3,49	4,05	4,63	5,21	6,12	7,99	9,94	12,9	12,2	14,1	16,0	17,9	19,9	22,9	25,9	29,4	32,9
Pressure drop	(1)	kPa	3,79	3,42	3,32	3,85	4,26	4,53	5,25	5,68	5,89	5,60	5,91	5,85	5,77	5,89	5,86	5,91	6,15	5,97
HEAT EXCHANGER SOURCE SIDE IN HEATING																				
Water flow	(3)	m³/h	4,97	5,75	6,66	7,59	8,58	10,1	13,0	16,3	21,2	20,1	23,1	26,1	29,3	32,7	37,5	42,6	48,2	53,9
Pressure drop	(3)	kPa	10,1	9,25	8,95	10,4	11,5	12,3	13,9	15,3	15,8	15,2	15,8	15,5	15,5	15,9	15,8	15,9	16,5	16,0
HEAT EXCHANGER USER SIDE IN HEATING																				
Water flow	(4)	m³/h	9,05	10,4	12,0	13,7	15,4	18,1	23,4	29,3	38,0	36,2	41,6	46,9	52,7	58,7	67,5	76,4	86,6	96,8
Pressure drop	(4)	kPa	33,5	30,1	29,3	34,0	37,5	39,8	45,1	49,5	51,2	49,3	51,3	50,2	50,0	51,3	51,0	51,4	53,2	51,5
COMPRESSORS																				
Compressors nr.		N°	2	2	2	2	2	2	2	2	2	4	4	4	4	4	4	4	4	4
No. Circuits		N°	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
NOISE LEVEL																				
Noise Pressure	(6)	dB(A)	42	43	43	43	44	45	46	47	48	54	55	56	57	58	59	59	59	59
Sound power level in cooling	(7)(8)	dB(A)	73	74	74	74	75	76	77	78	79	86	87	88	89	90	91	91	91	91
Sound power level in heating	(7)(9)	dB(A)	73	74	74	74	75	76	77	78	79	86	87	88	89	0	0	0	0	0
SIZE AND WEIGHT																				
A	(10)	mm	1220	1220	1220	1220	1220	1220	1220	1220	1220	2560	2560	2560	2560	2560	2560	2560	2560	2560
B	(10)	mm	877	877	877	877	877	877	877	877	877	891	891	891	891	891	891	891	891	891
H	(10)	mm	1496	1496	1496	1496	1496	1496	1496	1496	1496	1810	1810	1810	1810	1810	1810	1810	1810	1810
Operating weight	(10)	kg	450	470	490	505	525	550	745	825	910	975	1165	1365	1445	1610	1710	1810	1895	2000

Note
1 Plant (side) cooling exchanger water (in/out) 12°C/7°C; Source (side) heat exchanger water (in/out) 14°C/30°C.
2 Values in compliance with EN14511-3:2011.
3 Plant (side) heat exchanger water (in/out) 40°C/45°C; Source (side) heat exchanger water (in/out) 14°C/7°C.
4 Plant (side) cooling exchanger water (in/out) 12°C/7°C; Plant (side) heat exchanger water (in/out) 40°C/45°C.
5 Seasonal space heating energy efficiency class LOW TEMPERATURE in AVERAGE climate conditions [REGULATION (UE) N. 811/2013]
6 Average sound pressure level at 10m distance, unit in a free field on a reflective surface; non-binding value calculated from the sound power level.
7 Sound power on the basis of measurements made in compliance with ISO 9614.
8 Sound power level in cooling, indoors.
9 Sound power level in heating, indoors.
10 Unit in standard configuration/execution, without optional accessories.

Water source units

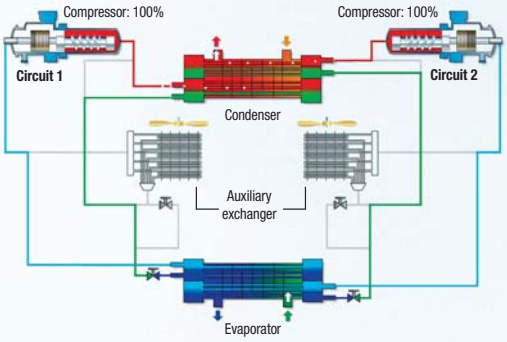
ERACS2-WQ

ERACS2-WQ			0802	1002	1102	1302	1502	1702	1902	2152	2502	2602	2702	3202
Power supply		V/ph/Hz						400/3/50						
PERFORMANCE														
COOLING ONLY (GROSS VALUE)														
Cooling capacity	(1)	kW	189	234	268	318	363	424	468	542	633	686	763	870
Total power input	(1)	kW	35,7	44,9	50,6	59,7	68,7	80,2	89,7	98,8	116	125	140	160
EER	(1)	kW/kW	5,31	5,22	5,30	5,32	5,29	5,29	5,21	5,48	5,46	5,48	5,44	5,44
COOLING ONLY (EN14511 VALUE)														
Cooling capacity	(1)(2)	kW	189	233	267	317	362	422	467	541	632	685	761	867
EER	(1)(2)	kW/kW	5,19	5,09	5,15	5,20	5,18	5,15	5,13	5,40	5,35	5,39	5,34	5,31
HEATING ONLY (GROSS VALUE)														
Total heating capacity	(3)	kW	205	255	291	344	393	459	514	589	686	738	831	941
Total power input	(3)	kW	45,7	56,9	65,8	76,3	86,9	103	117	128	148	158	180	205
COP	(3)	kW/kW	4,49	4,48	4,43	4,51	4,52	4,44	4,41	4,59	4,62	4,68	4,63	4,60
HEATING ONLY (EN14511 VALUE)														
Total heating capacity	(2)(3)	kW	206	256	293	346	394	461	515	590	688	740	834	944
COP	(2)(3)	kW/kW	4,42	4,40	4,33	4,42	4,44	4,35	4,35	4,54	4,55	4,62	4,56	4,52
COOLING WITH TOTAL HEAT RECOVERY														
Cooling capacity	(4)	kW	162	201	229	272	311	362	404	468	547	589	662	748
Total power input	(4)	kW	45,7	56,9	65,8	76,3	86,9	103	117	128	148	158	180	205
Recovery heat exchanger capacity	(4)	kW	205	255	291	344	393	459	514	589	686	738	831	941
TER		kW/kW	8,05	8,01	7,91	8,08	8,10	7,94	7,88	8,24	8,31	8,43	8,32	8,26
SEASONAL EFFICIENCY IN HEATING (EN14825 VALUE)														
PDesign	(5)	kW	249	309	353	418	-	-	-	-	-	-	-	-
SCOP	(5)		5,59	5,56	5,18	5,45	-	-	-	-	-	-	-	-
Performance ηs (Reg. 811/2013 UE)	(5)	%	216	214	199	210	-	-	-	-	-	-	-	-
Seasonal efficiency class (Regulation (UE) 811/2013)	(5)		-	-	-	-	-	-	-	-	-	-	-	-
PDesign	(6)	kW	-	-					-	-	-	-	-	-
SCOP	(6)		-	-	-	-	-	-	-	-	-	-	-	-
Performance ηs (Reg. 811/2013 UE)	(6)	%	-	-					-	-	-	-	-	-
Seasonal efficiency class (Regulation (UE) 811/2013)	(6)		-	-	-	-	-	-	-	-	-	-	-	-
EXCHANGERS														
HEAT EXCHANGER USER SIDE IN REFRIGERATION														
Water flow	(1)	m³/h	32,6	40,3	46,1	54,7	62,6	73,0	80,5	93,3	109	118	131	150
Pressure drop	(1)	kPa	27,6	34,9	46,8	40,4	36,5	47,1	27,2	25,5	34,8	29,0	35,9	46,7
HEAT EXCHANGER SOURCE SIDE IN REFRIGERATION														
Water flow	(1)	m³/h	12,0	14,9	17,0	20,2	23,1	26,9	29,8	34,3	40,1	43,4	48,3	55,1
Pressure drop	(1)	kPa	3,76	4,78	6,38	5,50	4,98	6,42	3,73	3,44	4,70	3,92	4,85	6,31
HEAT EXCHANGER SOURCE SIDE IN HEATING														
Water flow	(3)	m³/h	20,0	24,8	28,2	33,5	38,3	44,5	49,7	57,6	67,2	72,5	81,5	92,0
Pressure drop	(3)	kPa	10,4	13,2	17,5	15,2	13,7	17,5	10,4	9,72	13,2	10,9	13,8	17,6
HEAT EXCHANGER USER SIDE IN HEATING														
Water flow	(4)	m³/h	35,7	44,3	50,6	59,8	68,3	79,8	89,2	102	119	128	144	163
Pressure drop	(4)	kPa	33,1	42,1	56,3	48,3	43,5	56,3	33,4	30,7	41,6	34,2	43,4	55,6
COMPRESSORS														
Compressors nr.		N°	2	2	2	2	2	2	2	2	2	2	2	2
No. Circuits		N°	2	2	2	2	2	2	2	2	2	2	2	2
NOISE LEVEL														
Noise Pressure	(7)	dB(A)	62	63	65	65	65	65	65	66	67	67	67	67
Sound power level in cooling	(8)(9)	dB(A)	94	95	97	97	97	97	97	98	99	99	99	99
Sound power level in heating	(8)(10)	dB(A)	94	95	97	97	0	0	0	0	0	0	0	0
SIZE AND WEIGHT														
A	(11)	mm	3680	3680	3680	3680	3680	3680	3800	3800	3800	5000	5000	5000
B	(11)	mm	1170	1170	1170	1170	1170	1170	1490	1490	1490	1490	1490	1490
H	(11)	mm	1950	1950	1950	1950	1950	1950	1950	1950	1950	2050	2050	2050
Operating weight	(11)	kg	2420	2470	2880	3580	3690	3750	4920	5310	5730	6470	6590	7370

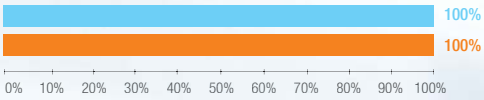
Note
1 Plant (side) cooling exchanger water (in/out) 12°C/7°C; Source (side) heat exchanger water (in/out) 14°C/30°C.
2 Values in compliance with EN14511-3:2011.
3 Plant (side) heat exchanger water (in/out) 40°C/45°C; Source (side) heat exchanger water (in/out) 14°C/7°C.
4 Plant (side) cooling exchanger water (in/out) 12°C/7°C; Plant (side) heat exchanger water (in/out) 40°C/45°C.
5 Seasonal space heating energy efficiency class LOW TEMPERATURE in AVERAGE climate conditions [REGULATION (UE) N. 811/2013]
6 Seasonal space heating energy efficiency class MEDIA TEMPERATURE in AVERAGE climate conditions [REGULATION (UE) N. 811/2013]
7 Average sound pressure level at 10m distance, unit in a free field on a reflective surface; non-binding value calculated from the sound power level.
8 Sound power on the basis of measurements made in compliance with ISO 9614.
9 Sound power level in cooling, indoors.
10 Sound power level in heating, indoors.
11 Unit in standard configuration/execution, without optional accessories.

INTEGRA

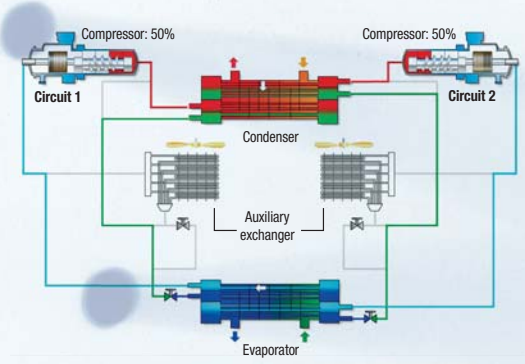
The main feature of INTEGRA units is the ability to manage the overall capacity of both the cooling and heating side, based on the actual load requirements of the total system. The operational flexibility is total: all the combinations of heating and cooling loads can be met.



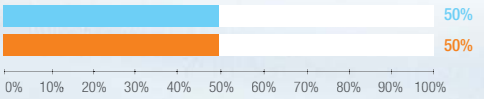
100% cold side / 100% hot side



The two circuits operate at maximum power, evaporating in the cold-side exchanger and condensing in the hot-side one. The source-side heat exchanger (air coil or water exchanger, depending on the unit type) is not used, which means that in these conditions there is no energy waste.

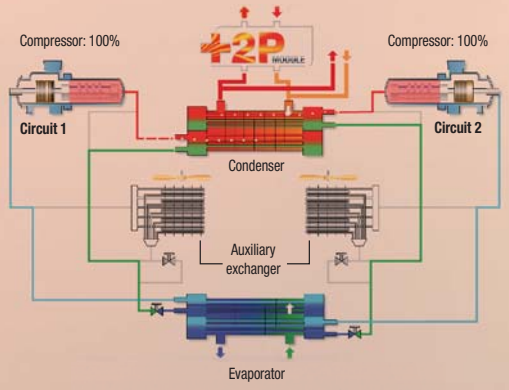


50% cold side / 50% hot side

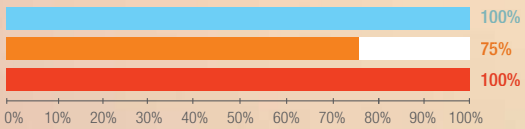


Also in this situation the unit operates like a water-water unit, as all the evaporating and condensing energy is used for the system. Since the system only requires 50% of the total energy, each circuit operates in partial load conditions. In this particular condition, the exchangers are oversized, thus achieving even higher efficiency.

Operating modes with +2P MODULE



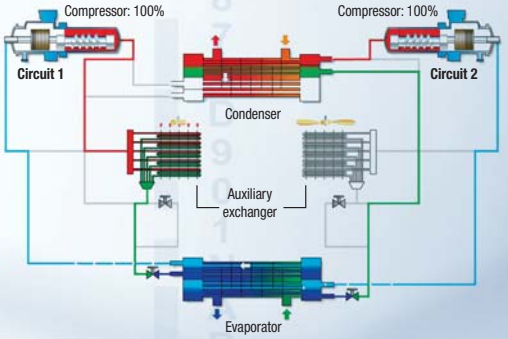
100% cold side
75% hot side
100% very hot side



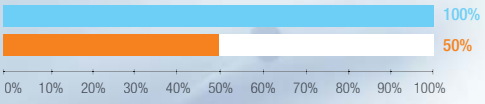
In this condition, both the compressors operate at full load in order to meet the demands of the plant. Both circuits evaporate all the refrigerant in the cold-side heat exchanger and condense in the hot-side one, so the auxiliary source-side heat exchanger is not used.
Part of the hot temperature water flow produced in the hot-side heat exchanger is used by the +2P module to produce very hot water (up to 78°C).

Operating Technology

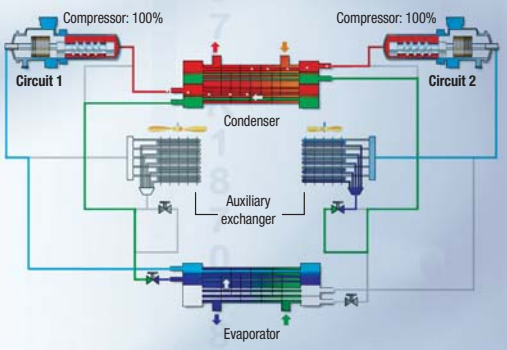
A smart heat pump is a simple and integrated response to all the applications requiring independent cooling and heating simultaneously, such as air-conditioning requirements for large plants with complex loads. Four operating modes for INTEGRA units are described below.



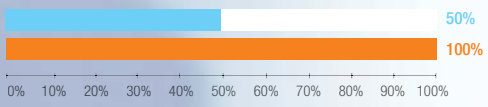
100% cold side / 50% hot side



Both the circuits operate to produce the amount of energy necessary for the cooling of the plant, evaporating all the refrigerant in the cold-side heat exchanger. While one circuit carries out the condensation on the hot-side heat exchanger, thus supplying the total energy necessary to heat the building, the other circuit exchanges the remaining heating energy in the external environment by using the auxiliary source-side heat exchanger (air coil or water exchanger, depending on the unit type).

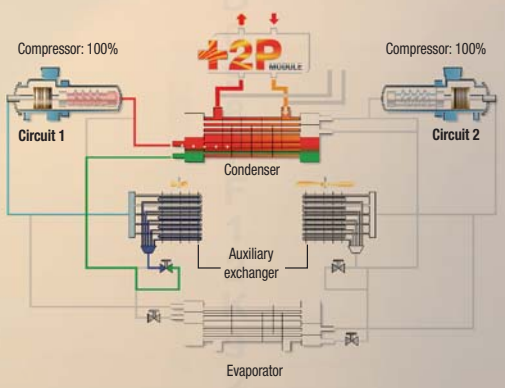


50% cold side / 100% hot side

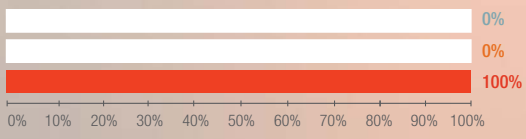


Just like the latter case, in this condition both circuits operate differently, to supply the system with the correct amount of required energy.
The unit uses two sources to produce the requested hot water flow: in fact one circuit evaporates the refrigerant in the cold-side heat exchanger, thus supplying the cold water demand, while the other uses the auxiliary source-side heat exchanger. In this way both circuits move energy in the hot-side heat exchanger, fulfilling the request for hot water flow.

With the +2P module option, INTEGRA units can simultaneously and independently fulfill 3 different thermal loads (cold, hot and very hot water). The following operating modes are two working examples of INTEGRA units with a +2P module fitted in.



0% cold side
0% hot side
100% very hot side



This particular condition shows the flexibility of the INTEGRA units with a +2P module: even in the case of no thermal loads (nor cooling, nor heating) requested by the plant, the unit can still provide the very hot water if necessary. In this case, only one circuit is operating partially in order to provide the right amount of hot water needed by the +2P module. A +2P module can produce very hot water (up to 78°C).

+2P MODULE

78° HEATING

+2P: the integrated module for the independent production of very hot water up to 78°C. From 70 to 279 kW.

+2P is the innovative solution for the production of very high temperature water (up to 78°C). Designed as a completely integrated module, **+2P** is installed inside the units and delivers very high temperature water by adding 2 more pipes to the standard INTEGRA units.

The smart heat pumps featuring this module can therefore fulfill 3 different thermal loads, each with a different temperature, without limitations in terms of operational flexibility. In fact, unlike the de-superheaters, this module can work independently from the unit in which it is installed and without any supplementary source.

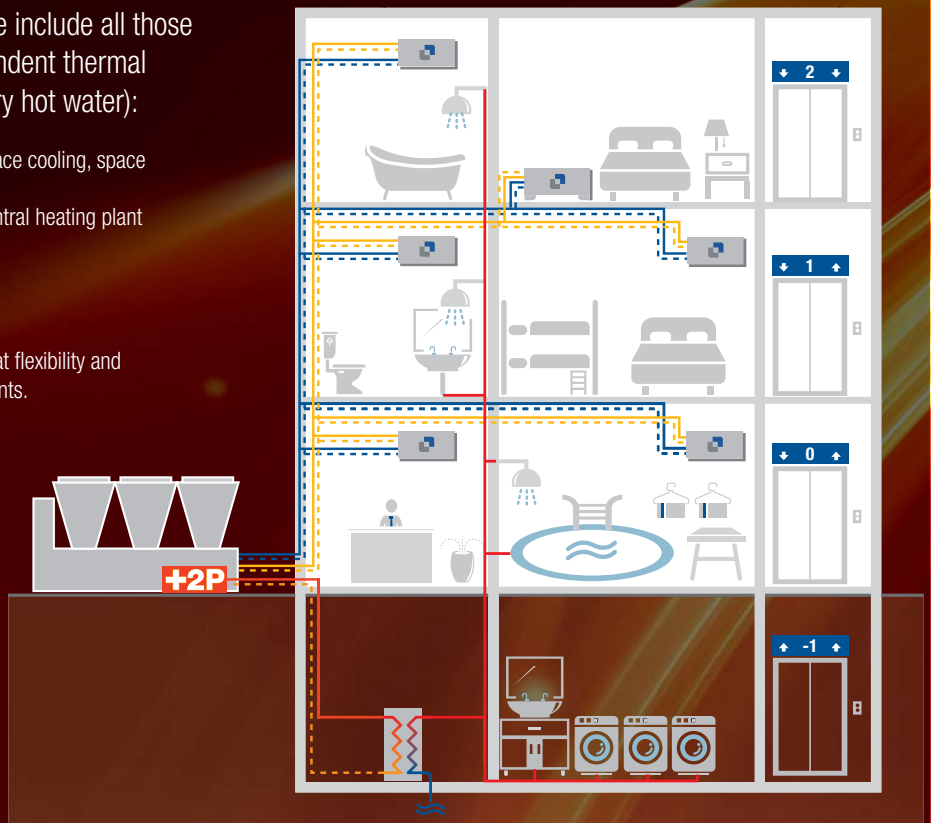
The applications of the **+2P** module include all those cases where 3 different and independent thermal loads are required (cold, hot and very hot water):

Residential and public applications requiring space cooling, space heating and DHW
- ✔ Residential and public applications with a central heating plant
- ✔ Hospitals
- ✔ Hotels with laundries and SPAs
- ✔ Industrial processes

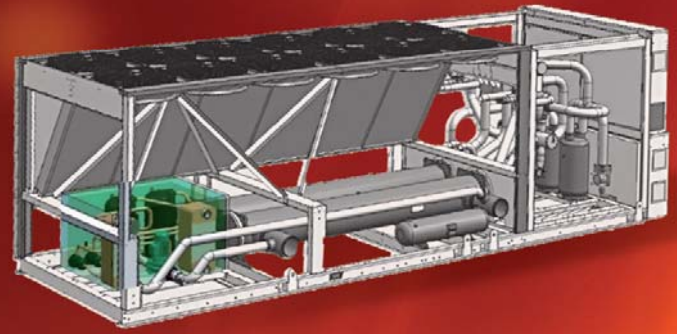
+2P is available in different sizes ensuring great flexibility and adaptability to the most diverse plant requirements.

12/7 °C
40/45 °C
70/78 °C

Completely independent heat flows for maximum operational flexibility



+2P MODULE is a double circuit system:
it ensures absolute reliability and service continuity.



INTEGRA ERACS2-Q/SL-CA 3222 with **+2P**	COP **+2P** 200 kW	COP **+2P** 285 kW
Cold 12-7°C Very Hot 65-75°C External air temperature 30°C	3,79	4,08
Hot 40-45°C Very Hot 65-75°C External air temperature 7°C	2,34	2,43
Cold 12-7°C Hot 40-45°C Very Hot 65-75°C	4,83	4,83
VERY HOT only 65-75°C External air temperature 7°C	1,83	1,95

Efficiency values of the +2P module are calculated considering the 200 kW size and the 285 kW size, combined with a INTEGRA unit ERACS2Q/SL-CA (size 3222, nominal cooling capacity = 790kW, nominal thermal capacity= 815 kW)

Case study

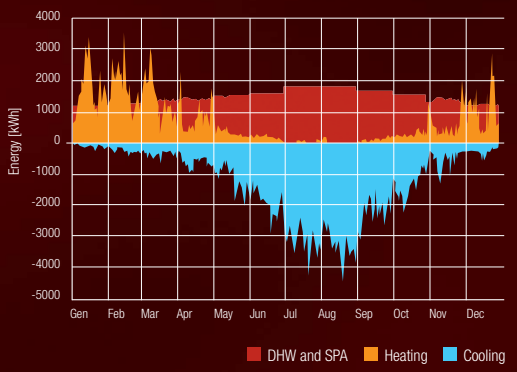
The combination of INTEGRA units with the **+2P** module enhances the efficiency of the whole plant when compared to traditional solutions.

Project

Plant refurbishment of a historical building used as a hotel in a seaside area of the Mediterranean Sea.

	Set	Actual	Retrofit
Space cooling	12/7°C	Air cooled chiller	INTEGRA +2P MODULE
Space heating	40/45°C	Diesel Fired Boiler	
DHW and SPA	60/65°C		

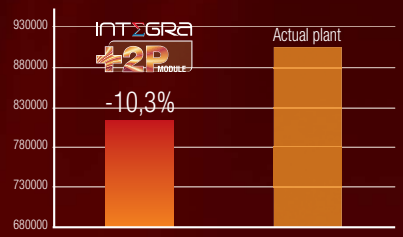
Thermal Loads



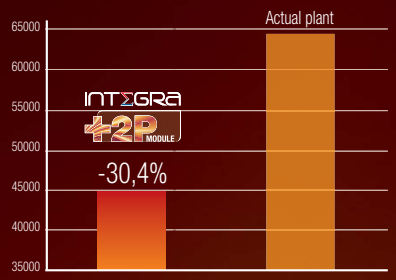
Results

An INTEGRA unit with the +2P module can fulfill all the thermal loads with a single unit in a much more efficient way, ensuring 30,4% cost savings and 10,3% global primary energy reduction compared to the current solution.

Global primary energy



Global annual cost



Conditions

Diesel Fired Boiler Seasonal Efficiency	85%
Diesel costs	0,77 /lt
Electric Energy costs	0,12 /kWh_el
Electricity Production Efficiency	46%

At a glance

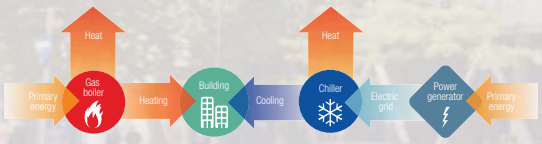
Primary Energy consumption	Global Annual Cost	Annual CO_2 emissions
-10,3%	-30,4%	-42,4%

CLIMAVENETA

“Experience is by far the best proof”

Sir Francis Bacon
British philosopher
(1561 - 1626)

Traditional system based on chiller+boiler

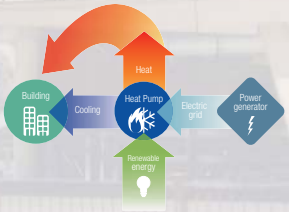


- 3 boilers for heating, total capacity 1380kW
- 2 air-cooled chillers, total capacity 2180 kW

VS

New system based on smart heat pumps with heat recovery

- 1 ERACS2-Q/SL-CA/S air source heat pump providing heating and cooling
- 1x TECS2/SL-CAE/S air cooled chiller with magnetic levitation compressors
- 1x ClimaPRO system



350 Euston Road

London - Great Britain
2015

Application: Office buildings

Plant type: Hydronic System
Cooling capacity: 1022 kW
Heating capacity: 541 kW
Installed machines: 1x ERACS2-Q/SL-CA/S 2222, 1x TECS2/SL-CAE/S 0512, 1x ClimaPRO

Project

350 Euston Road is a grade A seven-storey office building that forms part of Regent's Place, a 13 acre, fully managed estate in the heart of London. Owned by British Land and managed by Broadgate Estates, the building features latest sustainable design used to garnish a lively mix of retail, leisure and public spaces.
In this high-demanding context, the replacement of the previous HVAC system aimed at being in line with the energy targets established by the property owner.

Study

In order to investigate the advantages of replacing a traditional HVAC system based on existing boilers and chillers with smart heat pumps with heat recovery, an official case study was conducted.
Starting from the energy analysis of the current system, the data revealed that the building was characterised by a high cooling demand, even during the Winter, together with a considerable overlap of heating and cooling requirements, as is frequently the case in office buildings.

Solution

The units selected to serve the building's requirements were one Climaveneta ERACS2-Q SLCA 2722 unit, belonging to the INTEGRA range, and one TECS2/SL-CAE/S 0512 chiller with magnetic levitation compressors.
The selected
The results of the study revealed that replacing existing old chillers and boilers with heat recovery heat pumps leads to significant enhancements in terms of environmental, economic and energyrelated aspects. After one year the new system has resulted in 470 less tonnes of CO_2 emissions and a cut on primary energy consumption by 50%, thus leading to 84.000€ annual cost savings and a paypack time with one year.

01 Year payback
in replacement projects, for the additional investment needed to adapt exhisting distribution systems to new heat pump based designs

CO_2 Emission per year

-470 tonnes

Annual cost savings

84.000€

-50%
Energy consumption

-85%
Gas use

BNL Roma Tiburtina new headquarters

Rome - Italy
2015

Application: Office buildings
Plant type: Hydronic System
Cooling capacity: 5036 kW
Heating capacity: 4130 kW
Installed machines: 4x ERACS2-Q/SL-CA 3222 +2P MODULE, 1x ERACS2-Q/SL-CA 3222, 1x FOCS2/SL-CA 3902
Architect: 5+1AA Alfonso Femia Gianluca Peluffo

Project

The new BNL Headquarters, designed by 5+1AA Alfonso Femia Gianluca Peluffo, is located near the Rome Tiburtina high speed railroad station. The building - 67.000 sqm including 20.000 underground - is centred around employees well being. It will provide 3.800 ergonomic workplaces and a vast range of facilities for employees including a gym, a number of service centres, a nursery school and several restaurants.

Challenge

BNL Rome Tiburtina fits well in the urban context where the building is located, and everything outside and inside the structure has been designed to combine the values of environmental, economical and social sustainability. For the HVAC system, the main aim was to serve efficiently the heating and cooling building demands whilst ensuring high comfort levels in all the liveable spaces.

Solution

The premium cooling and heating system selected by the HVAC designer consists of 5 ERACS2-Q units, 4 of which are equipped with +2P MODULE (a patented solution with 2 additional pipes for hot water for domestic usage) and one Super Low noise version, Class A Efficiency FOCS2/SL-CA chiller. Thanks to the addition of the +2P MODULE, the system makes use of two additional pipes for providing very hot water up to 78°C.

Botswana Innovation Hub

Gaborone - Botswana
2015

Application: Office buildings
Cooling capacity: 2803 kW
Heating capacity: 2133 kW
Installed machines: 3x ERACS2-Q XL-CA 2722, 1x i-FX (1+i) CA 2722, 1x ClimaPRO

Project

The Botswana Innovation Hub is located strategically on a 57 hectares site, near the Sir Seretse Khama International Airport in Gaborone, the capital city of Botswana and the centre of the country's business activity. The facility will provide an attractive location for technology driven and knowledge intensive business to develop and compete in the global market.

Challenge

The building has been designed to save energy and be as many efficient as possible. The roof design of the Botswana Innovation Hub incorporates large overhangs to passively shade the building's interior volumes, mechanisms to collect and re-use water, and both passive and active photovoltaic systems to harness solar energy.

Solution

The air conditioning system is based on 3 INTEGRA multipurpose ERACS2-Q XL-CA 2722 and one high efficiency air cooled chiller i-FX (1+i) CA 2722, all supplied by Climaveneta. The 4-pipe HVAC system will be managed and optimised by ClimaPRO, the new Climaveneta system manager that actively optimises the entire chiller plant by managing and adjusting each component directly involved in the cooling production.

Stade de Bordeaux

Bordeaux - France
2015

Application: Sport facilities
Plant type: Hydronic System
Cooling capacity: 1090 kW
Heating capacity: 1182 kW
Installed machines: 1x NECS-Q/CA 1816, 1x NECS-N/CA 2416

Project

The Nouveau Stade de Bordeaux is a new generation multifunctional stadium dedicated to sports and culture. With an adaptable capacity of 42.000 seats, the Stadium is designed to accommodate a rich variety of programs: competitions, shows, concerts, and corporate events, following the recent philosophy to create futuristic stadiums dedicated not only to sport competitions but also to other public events.

Challenge

Mixed-use stadiums, thanks to the possibility of hosting more than one event a week, represent today the best option for getting a quicker ROI on such large investments. Main constraints imposed by the property owner were to deliver high comfort levels in terms of reduced humidity and ideal environmental temperature, whilst reducing operating costs of the devices.

Solution

The comfort in the offices, the dressing rooms, the corridors and the other rooms of the building is granted by two Climaveneta units, able to combine the best internal temperature and humidity level, reducing the energy consumption and therefore the operating costs. One NECS-N/CA reversible heat pump and one NECS-Q/CA multiuse unit grant the maximum comfort all year round with the highest energy efficiency in this futuristic and emblematic stadium in the heart of Bordeaux.

SKF Argentina

Tortuguitas - Argentina
2014

Application: Tools and machinery
Plant type: Hydronic System
Cooling capacity: 1042 kW
Heating capacity: 1056 kW
Installed machines: 2x NECS-Q 1816, 2x AX 26 Close Control Units, 9x WIZARD air handling units

Project

SKF was founded in Gothenburg in 1907 by the inventor of the double row self-aligning ball bearing. Today, the company is a global leader in bearings and units, seals, mechatronics, services and lubrication systems with 46.775 employees and 140 sites within 32 countries.

Challenge

SKF demonstrates the environmental care by adopting world leading sustainable design and construction standards for its new buildings, with 10 sites that have been LEED certified in recent years. The Group's aim is to reduce the environmental impact of also the existing buildings by renewing previous plants or by making use of renewable resources, if possible.

Solution

An example of this strategy is the latest HVAC system renovation made in the Tortuguitas plant. To combine perfect comfort in the factory with a substantial energy efficiency improvement of the plant, 2 Climaveneta NECS-Q 1816 INTEGRA units combined with 9 WIZARD air handling units were installed. The INTEGRA units are able to satisfy the demand for hot and cold water simultaneously through a system that does not require any switching, perfectly responding to the great temperature range typical of the Argentinean climate. In the same plant, 2 AX 26 Close Control Units have been installed to satisfy the cooling request of the local server room.

More than 1000 projects

All over the world

Campus New Velizy
2013 Vélizy - France

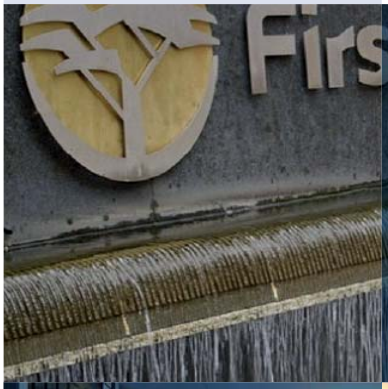
Application: Mixed-use buildings
Cooling capacity: 2338 kW
Heating capacity: 2225 kW
Machines installed: 1x ERACS2-Q/CA 1762, 1x ERACS2-Q/CA 2622, 2x FOCS-N/CA 2622, 3x NX/LN-K (0202,0502, 0152)

Inditex
Cabanillas del Campo - Spain
2014

Property owner: Inditex
Application: Industrial processes
Cooling capacity: 3030 kW
Heating capacity: 1084 kW
Machines installed: 1x ERACS2-Q/CA 1162, 1xERACS2-Q/CA 3222, 2xFOCS2/CA 4202

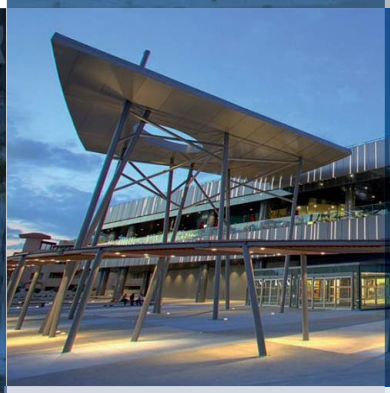
Kinetic
2015 Boulogne - France

Certifications: BREEAM Excellent
Application: Mixed-use buildings
Cooling capacity: 1200 kW
Machines installed:
2x ERACS-Q/SL 2722



FNB - First National Bank
2015 Ferndale - South Africa

Application: Financial buildings
Cooling capacity: 1421 kW
Heating capacity: 984 kW
Machines installed:
2x ERACS2-Q/SL-CA 2022,
1x FOCS2/SL-CA 1922



Kings Avenue Mall
2014 Paphos - Cyprus

Application: Shopping centre
Cooling capacity: 5082 kW
Heating capacity: 1082 kW
Machines installed:
2x ERACS2-Q/SL-CA 2222,
3x TECS2/SL-CA-E 1154, 2x i-AX0 29

CDC Canberra Data center
2015 Canberra - Australia

Application: Data Centers
Cooling capacity: 3975 kW
Heating capacity: 496 kW
Machines installed:
2x FX-FC-NG-SL 5204,
2x ERACS2-Q 1162 SL CA,
1x FX-FC-NG-SL 5402

Every project is characterised by different usage conditions and system specifications for many different latitudes. All these projects share high energy efficiency, maximum integration and total reliability due to the unique Climaveneta experience.

Shanghai Institute of
Technical Physics
2013 Shanghai - China

Application: Schools and Universities

Cooling capacity: 3880 kW

Heating capacity: 4250 kW

Machines installed:
3x smart heat pumps for heating and cooling,
3x reversible air cooled heat pumps

Amazon
2013 Piacenza - Italy

Property owner: Amazon

Application: Industrial processes

Cooling capacity: 3980 kW

Heating capacity: 4126 kW

Machines installed: 3x ERACS2-Q 3222,
2x FOCS-N/CA 3222, 1x ClimaPRO

IBM Headquarters - Chile
2009 Santiago - Chile

Investor: IBM

Application: Office buildings

Cooling capacity: 1687 kW

Heating capacity: 1821 kW

Machines installed: 2x ERACS-Q/B 1762,
3x ERACS-Q/B 1562

Palace of Europe
2013 Strasbourg - France

Application: Institutions

Cooling capacity: 9952 kW

Heating capacity: 3764 kW

Machines installed:
4x ERACS2-WQ 3202,
4x TECS2-W/HC H 1614

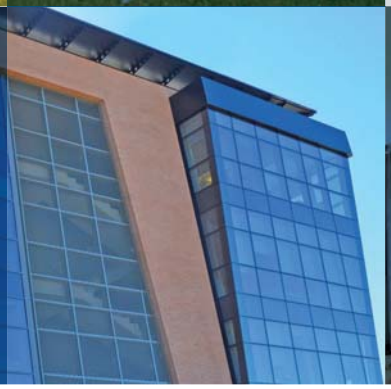
Cisco Systems Vimercate
2014 Milan - Italy

Application: Office buildings

Cooling capacity: 4505 kW

Heating capacity: 459 kW

Machines installed: AC close control units
1x TECS2/SL-CA-E 0712, 2x TECS-W HC 812,
1x ERACS2-WQ 1702, 1x ClimaPRO,
1x FX-FC NG 3402, 2x FOCS/SL-CA-E 1922



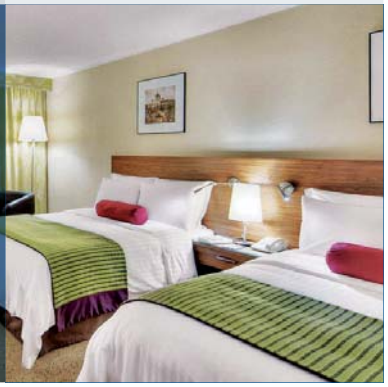
PCC Marriott Hotel
2015 Austria

Application: Leisure centres

Cooling capacity: 1672 kW

Heating capacity: 1175 kW

Machines installed: 1x ERACS2-WQ 2702,
1x NECS-WQ 1204, 1x FOCS3-W 2101



CLIMAVENETA
SUSTAINABLE COMFORT

A Group Company of MITSUBISHI ELECTRIC

INTEGRA_02-2016_EN
maingraf.it

Climaveneta S.p.A.

Via Sarson 57/c
36061 Bassano del Grappa (VI)
Italy
Tel +39 0424 509 500
Fax +39 0424 509 509
info@climaveneta.com
www.climaveneta.com

Subsidiaries

France
www.climaveneta.fr

Spain
www.climaveneta.es

Poland
www.climaveneta.pl

Germany
www.climaveneta.de

Great Britain
www.climaveneta.co.uk

Russia
ru.climaveneta.com

China
www.climaveneta.com.cn

India
www.climaveneta.in

Middle East
ae.climaveneta.com

Southeast Asia
www.climaveneta.com

Hong Kong
www.climaveneta.com

For more information:
www.climaveneta.com