

IT COOLING

CHILLERS

NR²Z **G02**
G06

**AIR COOLED CHILLERS FOR
OUTDOOR INSTALLATION,
FROM 167 TO 367 kW**

r **R410A**

r **R454B**



NR²Z

G02
G06



QUIETER. GREENER. COOLER.

**Air cooled chillers with scroll compressors and low GWP refrigerant.
From 167 to 367 kW.**



NR2-G02-Z and NR2-G06-Z are air cooled chillers with scroll compressors designed for delivering the best efficiencies in comfort applications.

All the main hydraulic and mechanical components are integrated inside the unit, providing the ideal plug & play solution for HVAC plants.

Available with either R410A refrigerant or the low GWP R454B, the new range consists of units equipped with four compressors in tandem configuration on two independent refrigeration circuits.

The complete range is Eurovent certified and all the sizes are completely ErP2021 compliant.

IT COOLING APPLICATIONS

- ✓ Data centers
- ✓ Server Rooms

- ✓ Technological hubs
- ✓ Telecommunication installation

- ✓ Laboratories
- ✓ Technical rooms

PREMIUM EFFICIENCIES IN COOLING

OPERATING RANGE



COOLING

NR2-Z-G06 Air cooled chillers

UP TO



COOLING

EER

SEPR HT

4,57

6,59

▶ Standard efficiency

AIR

from -20°C up to 52°C

WATER

from -10°C up to 20°C

EER: 28/20°C, air 35°C

SEPR HT: Regulation (EU) N. 2016/2281

3 ACOUSTIC VERSIONS

HEAT RECOVERY CONFIGURATIONS

Standard

Low sound power levels already in the standard version.

Compressor sound proofing insulation

Additional compressor sound proofing insulation for even lower sound power levels.

-1 dB(A)

NR Kit

The highest level of noise reduction. No compromises in efficiency!

up to -5 dB(A)

Standard unit

Unit without heat recovery.

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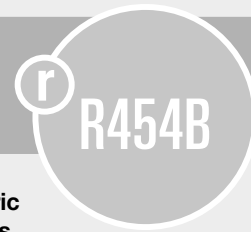
Partial heat recovery

A desuperheater on the compressor discharge line recovers approximately 20% of the unit's capacity.

60°C

Suitable for DHW production or other secondary uses, such as the integration of an existing boiler.

NEW GENERATION GREEN REFRIGERANT



Fully committed to support the creation of a greener tomorrow, Mitsubishi Electric Hydronics & IT Cooling Systems presents the G06 series, chillers and heat pumps with reduced environmental impact.

Thanks to the new generation refrigerant R454B, the environmental impact of NR2-G06-Z is greatly reduced. Combining reduced refrigerant charge with a low GWP refrigerant, these units boast the lowest amount of CO₂eq in the scroll unit market, thus resulting as the perfect choice for any new forward looking installation.

R454B REFRIGERANT

High density, low **GWP refrigerant**. Its physical properties are **similar to R410A**, so the same type of equipment / components can be used.



REDUCED ENVIRONMENTAL IMPACT

- ▶ **Low GWP**, only 467
- ▶ **Reduced refrigerant charge** (-10% vs R410A)



RELIABILITY

- ▶ Use of **well-known components**
- ▶ Refrigerant circuit **reliability** is maintained



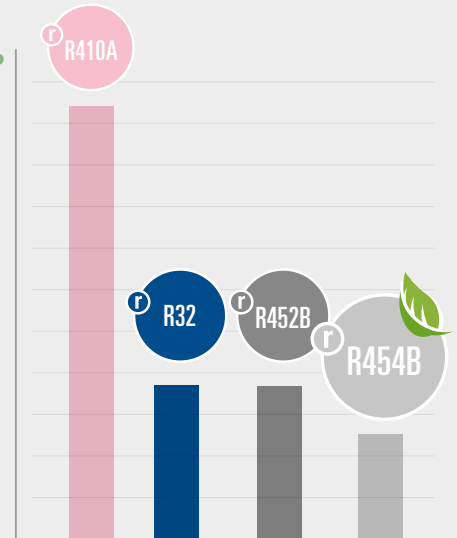
PERFORMANCE & ENVELOPE

- ▶ **Same operating limits** of R410A both in **cooling** and **heating**
- ▶ Higher efficiency (full load +3,5%, seasonal +2% vs R410A)

GWP: 467

-76% vs R410A
-31% vs R32

GWP



HIGHER EFFICIENCY IN LESS SPACE



+8% COOLING CAPACITY
+16% SEASONAL EFFICIENCY

The NR2-Z ranges have been designed to deliver increased cooling capacity and efficiencies compared to previous models, exceeding by far the most demanding efficiency thresholds. The integrated hydronic modules guarantee simplified installation and time-saving commissioning. The result is a ready-to-be-installed solution.

SUPER SILENT OPERATION



**THE MOST SILENT SCROLL
CHILLER ON THE MARKET**

The NR2-G02-Z and NR2-G06-Z ranges have been designed for perfect acoustical well-being.

Thanks to a specific design, the NR2 version with NR Kit achieves the minimum sound level while maintaining the same performance and footprint as the standard acoustical version.

TECHNOLOGICAL CHOICES

W3000+ CONTROL

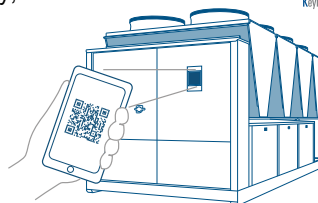
Management software developed fully in-house

- ▶ Proprietary settings for faster adaptive responses to different dynamics
- ▶ Enhanced diagnostics thanks to the black box function
- ▶ Connectivity with the most commonly used BMS protocols and M-Net Mitsubishi Electric proprietary protocol (Opt.)

KIPLink USER INTERFACE

An exclusive product of Mitsubishi Electric Hydronics & IT Cooling System

Based on Wi-Fi technology, KIPLink allows one to operate the unit directly from a mobile device (smartphone, tablet, or notebook) by simply scanning the QR code positioned on the unit.



Patent-pending solution which optimizes the thermodynamic cycle



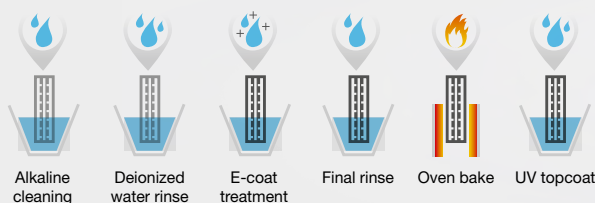
New generation full aluminum micro-channel coils for cooling only chillers

- ▶ Long Life Alloy (LLA) for higher corrosion resistance and longer life cycle
- ▶ Up to 30% of refrigerant charge reduction vs. traditional solutions
- ▶ Lower weight vs. traditional solutions

Al- E-coating treatment (opt.)

- 3120 h**
SWAAT test
(ASTM G85-G2 A3)
- ✓ Excellent resistance to UV rays.
 - ✓ **over 6000 h resistance** as per ASTM B117
 - ✓ **over 1000 h of surface protection against UV rays** as per ASTM G155-05a

E-coating process



R454B Refrigerant

High density, low GWP refrigerant

GWP: 467

-76% vs R410A
-31% vs R32

▶ **Composition:**
69% R32 + 31% R1234yf

▶ **Global Warming Potential:**
467 (IPCC AR5)

▶ **Safety classification:**
- A2L mildly flammable (ISO 817)
- Fluid Group 1 (PED)



BEST-IN-CLASS TECHNOLOGICAL CHOICES FOR HIGH-LEVEL PERFORMANCE AND SUPER SILENT OPERATION.

FANS

High performing, axial fans:

- ▶ External bell mouth for the highest efficiency and best-in-class sound power levels
- ▶ Variable Speed control as standard (DVVF), for large operating limits

UP TO +9% MORE SEASONAL EFFICIENCY



EC fans (opt. available for all versions)

- ▶ Continuous regulation of air flow
- ▶ Reduced power consumption and increased efficiencies at partial loads
- ▶ High ESP EC fan option for up to 150 Pa of available static pressure

Heat Exchangers

NR2 range is available with either Shell & Tube or Plates heat exchangers:

Shell & Tube Heat Exchanger



- ▶ Dry expansion, single pass **Shell & Tube evaporator, fully in-house developed**, with internally grooved copper tubes and **possibility of inspection and tubes cleaning**

Plate Heat Exchanger



- ▶ **Plate heat exchanger** made of AISI 316 steel plates, copper-brazed, **fully protected against ice formation** with closed-cell neoprene external lining

Scroll compressors

New generation scroll compressors, developed for the use of high density A2L refrigerants (Fluid Group 1 of PED Directive).



- ▶ **Tandem configuration** to benefit from **higher seasonal efficiency**
- ▶ **Specific oil management solution** for enhanced reliability

HYDRONIC MODULES

The **fully integrated hydronic module** (opt.) includes the pumps, the buffer tank, and all the main hydraulic components, **which optimize of the installation space, time, and costs.**

Pumps

- ▶ In-line configuration
- ▶ 2-pole motor
- ▶ Single or twin pumps
- ▶ Low or high head (approx. 100 or 200 kPa).

Pumps + Inverter

- ▶ External inverter to adjust the waterflow
- ▶ Reduced energy consumption through speed regulation
- ▶ Available flow control logics: Constant flow parameter-set, variable flow with VPF and VPFD systems

Pumps + Buffer tank

- ▶ Up to 700 liter buffer tank
- ▶ 20mm insulation lining
- ▶ Including: expansion vessel, safety valve, manometer.

ACCESSORIES AND FURTHER OPTIONS

FAST RESTART



Ensure immediate cooling start-up within 22"

Ensures a **faster return to the necessary cooling** levels in the shortest time possible, while maintaining the **reliability** of the chiller.



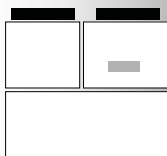
Have the unit running at full load in a shorter time

The units in standard working conditions delivers 100% of cooling capacity within 52" after power is restored.

DOUBLE POWER SUPPLY

Main Line ▶

Generator ▶



Redundancy increases uptime. NR2-G02-Z and NR2-G06-Z extends this concept also to the electrical supply: the unit, equipped with an ATS*, can be connected to two separate power lines to enhance the system's dependability.

In case of a main line power outage, the ATS* automatically switches over to the backup line, granting uninterrupted power supply to the unit. The double power supply makes NR2-Z chillers suitable for Uptime Institute's TIER III and TIER IV** design topologies, the highest standards of reliability.

* ATS: Automatic Transfer Switch

** The Tier Classification System provides the data center industry with a consistent method to compare typically unique facilities based on expected site infrastructure performance, or uptime.

MULTI MANAGER

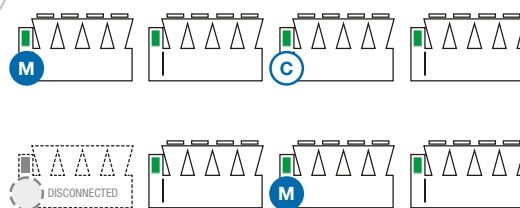
The NR2-Z ranges feature embedded LAN logics for an easy connection between a group of chillers.

- ▶ **Up to 8 chillers connected to the same group.**
- ▶ **Load sharing and Sequencing.**
Logics for the smart distribution of cooling loads among the units.
- ▶ **Selectable units' start-up sequence and group Fast Restart (with Fast Restart option).**
To avoid simultaneous start-ups of different unit's compressors in case of dangerous current peaks.
- ▶ **Stand by unit management with automatic unit rotation.**
- ▶ **Dynamic master with succession priority.**
One master unit is elected to coordinate the group and if it becomes disconnected the candidate unit takes full control.
- ▶ **Resource priority management.**
For a group of chillers, with different technologies, it is possible to set the usage priority of each unit, making the most of the available cooling resources.

SMART LAN FUNCTIONS

The entire cooling equipment works as one, with one master chiller that coordinates and optimizes the operation of the group.

MASTER SUCCESSION PRIORITY



M Master Unit C Candidate Master Unit

FURTHER OPTIONS

Set-point adjustment

4-20 mA: Enables remote set-point adjustments (analog input).

Double set-point: Enables the remote switch between 2 set-points (digital input).

Set-point compensation: Automatic adjustment of the set-point on the basis of the outdoor temperature.

Control functions

Night mode: Limits the unit sound level reducing the usage of the resources. Sound power reduction (with factory settings): -3 dB(A).

U.L.C. User Limit Control: Controls a mixing valve (not included) to ensure a safe start-up and operation of the unit even in critical conditions.

Remote probe: Controls the unit's and pump's activation on the base of the water temperature of the buffer tank or hydraulic decoupler.

Demand limit: Limits the unit's power absorption for safety reasons or in temporary situations (digital input).

Electrical

Compressor rephasing: The capacitors on the compressors' line increase the unit's power factor.

Soft-starter: Manages the inrush current enabling lower motor windings' mechanical wear, avoidance of mains voltage fluctuations during starting and favorable sizing for the electrical system.

Connectivity

Serial card interface module to allow integration with BMS protocols:

Modbus / LonWorks / BACnet MS/TP / BACnet over IP / Konnex / Modbus TCP/IP/ SNMP

M-Net interface kit: Interface module to allow the integration of the unit with Mitsubishi Electric proprietary communication protocol M-Net.

Multi Manager options to allow easy connection between a group of chillers

Energy Meter

Energy meter for BMS: Acquires electrical data and the power absorbed by the unit and sends them the BMS for energy metering (Modbus RS485).

Energy meter for W3000: The electrical data acquired is available directly on the unit's control.

Refrigerant circuit

Compressor suction and discharge valves: Installed for each compressor tandem or trio, the valves simplify maintenance activities. The user can work on the isolated valve for periodic maintenance or replacement, without removing the refrigerant from the circuit.

Dual pressure relief valves with switch: One valve is isolated from the refrigerant circuit while the other is in service.

The user can work on the isolated valve for periodic maintenance or replacement, without removing the refrigerant from the circuit.

Refrigerant leak detector

Leak detector: Factory installed device. In case of a gas leak detection it raises an alarm.

Leak detector + compressor off: Factory installed device. In case of a gas leak detection it raises an alarm and stops the units.

Hydraulic

Water flow switch: Designed to protect the unit when the water flow across the evaporator is not sufficient and falls outside of the operating parameters.

Structure

Anti-intrusion grilles: Perimeter metal grilles to protect against the intrusion of solid bodies into the unit structure.

Spring or rubber type anti-vibration mountings: Reduce vibrations, keeping noise transmission to a minimum.

Packing

Standard or nylon packing: The unit is provided with plastic supports, with or without a protective nylon layer.

Container slides or packing: The unit is provided with metal slides to load it in a container, with or without a protective nylon layer.

Wooden cage packing: The unit is provided with a robust wooden cage, with or without a protective nylon layer.

NR²Z

G02

0184P - 0374P

Air cooled chillers
for outdoor installation
(from 176 to 367 kW)

R410A



NR2-G02-Z

Model			0184P	0214P	0244P	0264P	0294P	0334P	0374P
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
PERFORMANCE									
COOLING ONLY (GROSS VALUE)									
28°C/20°C									
Cooling capacity	(1)	kW	248,7	288,3	327,2	359,6	406,4	455,8	504,2
Total power input	(1)	kW	55,51	66,62	79,74	90,74	93,80	108,2	123,6
EER	(1)	kW/kW	4,481	4,329	4,105	3,965	4,333	4,213	4,079
COOLING ONLY (EN14511 VALUE)									
Cooling capacity	(2)(3)	kW	177,6	207,4	237,0	262,2	292,7	329,6	366,0
EER	(2)(3)	kW/kW	3,300	3,260	3,140	3,090	3,300	3,250	3,170
SEPR HT	(4)(5)		5,83	5,79	5,91	5,88	5,92	5,82	5,84
COOLING ONLY (GROSS VALUE)									
16°C/10°C									
Cooling capacity	(6)	kW	194,2	226,3	258,2	285,1	319,3	359,1	398,5
Total power input	(6)	kW	53,83	63,98	76,07	85,67	89,47	102,6	116,6
EER	(6)	kW/kW	3,610	3,536	3,393	3,327	3,568	3,500	3,418
23°C/15°C									
Cooling capacity	(7)	kW	221,4	257,3	292,7	322,5	362,8	407,5	451,5
Total power input	(7)	kW	54,93	65,60	78,26	88,58	91,99	105,8	120,6
EER	(7)	kW/kW	4,033	3,922	3,738	3,640	3,943	3,852	3,744
EXCHANGERS									
HEAT EXCHANGER USER SIDE IN REFRIGERATION									
Water flow	(2)	l/s	8,511	9,935	11,35	12,55	14,02	15,78	17,53
Pressure drop at the heat exchanger	(2)(3)	kPa	47,7	49,0	51,4	51,1	46,9	44,2	54,5
REFRIGERANT CIRCUIT									
Compressors nr.		N°	4	4	4	4	4	4	4
No. Circuits		N°	2	2	2	2	2	2	2
Refrigerant charge		kg	33,4	35,4	41,7	41,8	52,8	57,6	57,7
NOISE LEVEL									
Sound Pressure	(8)	dB(A)	54	54	55	55	56	58	59
Sound power level in cooling	(9)(10)	dB(A)	86	86	87	87	88	90	91
SIZE AND WEIGHT									
A	(11)	mm	3160	3160	3160	3160	4335	4335	4335
B	(11)	mm	2250	2250	2250	2250	2250	2250	2250
H	(11)	mm	2290	2290	2290	2290	2290	2290	2290
Operating weight	(11)	kg	1620	1640	1850	1880	2230	2260	2470

NR2-G02-Z + NR kit



Model			0184P	0214P	0244P	0264P	0294P	0334P	0374P
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
PERFORMANCE									
COOLING ONLY (GROSS VALUE)									
28°C/20°C									
Cooling capacity	(1)	kW	244,6	283,0	320,4	362,9	399,3	447,2	508,0
Total power input	(1)	kW	56,71	69,15	83,25	89,87	96,12	112,5	123,1
EER	(1)	kW/kW	4,314	4,090	3,846	4,037	4,155	3,975	4,127
COOLING ONLY (EN14511 VALUE)									
Cooling capacity	(2)(3)	kW	175,6	204,9	233,8	258,4	289,4	325,7	361,7
EER	(2)(3)	kW/kW	3,240	3,140	2,990	2,930	3,220	3,120	3,030
SEPR HT	(4)(5)		5,84	5,74	5,87	5,72	5,97	5,76	5,76
COOLING ONLY (GROSS VALUE)									
16°C/10°C									
Cooling capacity	(6)	kW	191,8	223,2	254,2	280,4	315,2	354,2	393,0
Total power input	(6)	kW	54,46	65,87	78,94	89,48	90,84	105,8	120,9
EER	(6)	kW/kW	3,519	3,387	3,222	3,133	3,471	3,348	3,251
23°C/15°C									
Cooling capacity	(7)	kW	218,1	253,1	287,4	316,1	357,3	400,9	444,0
Total power input	(7)	kW	55,84	67,82	81,48	92,82	93,84	109,6	125,4
EER	(7)	kW/kW	3,909	3,733	3,526	3,406	3,809	3,658	3,541
EXCHANGERS									
HEAT EXCHANGER USER SIDE IN REFRIGERATION									
Water flow	(2)	l/s	8,415	9,815	11,20	12,37	13,86	15,59	17,32
Pressure drop at the heat exchanger	(2)(3)	kPa	46,6	47,8	50,1	49,6	45,8	43,2	53,3
REFRIGERANT CIRCUIT									
Compressors nr.		N°	4	4	4	4	4	4	4
No. Circuits		N°	2	2	2	2	2	2	2
Refrigerant charge		kg	33,4	35,4	41,7	41,8	52,8	57,6	57,7
NOISE LEVEL									
Sound Pressure	(8)	dB(A)	49	50	51	51	52	54	55
Sound power level in cooling	(9)(10)	dB(A)	81	82	83	83	84	86	87
SIZE AND WEIGHT									
A	(11)	mm	3160	3160	3160	3160	4335	4335	4335
B	(11)	mm	2250	2250	2250	2250	2250	2250	2250
H	(11)	mm	2290	2290	2290	2290	2290	2290	2290
Operating weight	(11)	kg	1620	1640	1850	1880	2230	2260	2470

Notes:

- Plant (side) cooling exchanger water (in/out) 28°C/20°C; Source (side) heat exchanger air (in) 35°C.
- Plant (side) cooling exchanger water (in/out) 12°C/7°C; Source (side) heat exchanger air (in) 35°C
- Values in compliance with EN14511.
- Seasonal energy efficiency ratio
- Seasonal energy efficiency of high temperature process cooling [REGULATION (EU) N. 2016/2281]
- Plant (side) cooling exchanger water (in/out) 16°C/ 10°C; Source (side) heat exchanger air (in) 35°C.
- Plant (side) cooling exchanger water (in/out) 23°C/ 15°C; Source (side) heat exchanger air (in) 35°C.

- 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.
- Sound power on the basis of measurements taken in compliance with ISO 9614.
- Sound power level in cooling, outdoors.
- Unit in standard configuration, without optional accessories.

The units highlighted in this publication contain R410A [GWP₁₀₀ 2088] fluorinated greenhouse gases.

Certified data in EUROVENT

NR²Z**G06****0184P - 0374P**Air cooled chillers
for outdoor installation
(from 167 to 345 kW)

R454B

GWP: 467**-76% vs R410A****-31% vs R32****NR2-G06-Z**

Model			0184P	0214P	0244P	0264P	0294P	0334P	0374P
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
PERFORMANCE									
COOLING ONLY (GROSS VALUE)									
28°C/20°C									
Cooling capacity	(1)	kW	233,8	273,8	312,6	344,9	389,7	434,2	478,0
Total power input	(1)	kW	52,00	62,42	74,65	84,26	86,85	100,3	114,8
EER	(1)	kW/kW	4,496	4,388	4,185	4,091	4,484	4,329	4,164
COOLING ONLY (EN14511 VALUE)									
Cooling capacity	(2)(3)	kW	168,1	197,2	225,8	250,4	279,7	312,8	345,4
EER	(2)(3)	kW/kW	3,350	3,340	3,240	3,200	3,380	3,300	3,200
SEPR HT	(4)(5)		5,97	5,91	6,01	6,00	5,98	5,89	5,92
COOLING ONLY (GROSS VALUE)									
16°C/10°C									
Cooling capacity	(6)	kW	183,5	215,1	246,2	272,6	305,3	341,0	376,2
Total power input	(6)	kW	50,31	59,51	70,39	79,32	83,22	95,68	109,1
EER	(6)	kW/kW	3,648	3,615	3,497	3,438	3,669	3,563	3,448
23°C/15°C									
Cooling capacity	(7)	kW	208,6	244,5	279,4	308,8	347,5	387,6	427,1
Total power input	(7)	kW	51,38	61,22	72,81	82,12	85,39	98,42	112,4
EER	(7)	kW/kW	4,058	3,995	3,838	3,761	4,069	3,939	3,800
EXCHANGERS									
HEAT EXCHANGER USER SIDE IN REFRIGERATION									
Water flow	(2)	l/s	8,052	9,444	10,81	11,99	13,39	14,97	16,54
Pressure drop at the heat exchanger	(2)(3)	kPa	42,7	44,3	46,7	46,6	42,8	39,8	48,5
REFRIGERANT CIRCUIT									
Compressors nr.		N°	4	4	4	4	4	4	4
No. Circuits		N°	2	2	2	2	2	2	2
Refrigerant charge		kg	30,1	31,9	37,5	37,6	47,5	51,8	51,9
NOISE LEVEL									
Sound Pressure	(8)	dB(A)	54	54	55	55	56	58	59
Sound power level in cooling	(9)(10)	dB(A)	86	86	87	87	88	90	91
SIZE AND WEIGHT									
A	(11)	mm	3160	3160	3160	3160	4335	4335	4335
B	(11)	mm	2250	2250	2250	2250	2250	2250	2250
H	(11)	mm	2290	2290	2290	2290	2290	2290	2290
Operating weight	(11)	kg	1620	1640	1850	1880	2230	2260	2470

NR2-G06-Z + NR kit

Model			0184P	0214P	0244P	0264P	0294P	0334P	0374P
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
PERFORMANCE									
COOLING ONLY (GROSS VALUE)									
28°C/20°C									
Cooling capacity	(1)	kW	231,4	270,2	307,4	347,7	385,1	428,3	471,6
Total power input	(1)	kW	53,15	64,83	77,99	83,60	88,75	104,1	119,6
EER	(1)	kW/kW	4,358	4,170	3,941	4,159	4,342	4,114	3,943
COOLING ONLY (EN14511 VALUE)									
Cooling capacity	(2)(3)	kW	167,1	195,7	223,7	247,5	277,9	310,2	342,6
EER	(2)(3)	kW/kW	3,300	3,230	3,110	3,040	3,330	3,190	3,080
SEPR HT	(4)(5)		6,01	5,87	5,95	5,81	6,07	5,86	5,85
COOLING ONLY (GROSS VALUE)									
16°C/10°C									
Cooling capacity	(6)	kW	182,2	213,2	243,4	268,9	302,9	337,8	372,7
Total power input	(6)	kW	50,88	61,21	72,94	82,73	84,27	98,48	112,7
EER	(6)	kW/kW	3,580	3,484	3,339	3,252	3,593	3,429	3,307
23°C/15°C									
Cooling capacity	(7)	kW	206,8	241,8	275,6	303,8	344,1	383,1	422,2
Total power input	(7)	kW	52,24	63,28	75,78	85,96	86,86	101,7	116,7
EER	(7)	kW/kW	3,962	3,820	3,636	3,533	3,960	3,767	3,618
EXCHANGERS									
HEAT EXCHANGER USER SIDE IN REFRIGERATION									
Water flow	(2)	l/s	8,006	9,375	10,71	11,85	13,31	14,85	16,41
Pressure drop at the heat exchanger	(2)(3)	kPa	42,2	43,6	45,8	45,5	42,2	39,2	47,8
REFRIGERANT CIRCUIT									
Compressors nr.		N°	4	4	4	4	4	4	4
No. Circuits		N°	2	2	2	2	2	2	2
Refrigerant charge		kg	30,1	31,9	37,5	37,6	47,5	51,8	51,9
NOISE LEVEL									
Sound Pressure	(8)	dB(A)	49	50	51	51	52	54	55
Sound power level in cooling	(9)(10)	dB(A)	81	82	83	83	84	86	87
SIZE AND WEIGHT									
A	(11)	mm	3160	3160	3160	3160	4335	4335	4335
B	(11)	mm	2250	2250	2250	2250	2250	2250	2250
H	(11)	mm	2290	2290	2290	2290	2290	2290	2290
Operating weight	(11)	kg	1620	1640	1850	1880	2230	2260	2470

Notes:

- Plant (side) cooling exchanger water (in/out) 28°C/20°C; Source (side) heat exchanger air (in) 35°C.
- Plant (side) cooling exchanger water (in/out) 12°C/7°C; Source (side) heat exchanger air (in) 35°C
- Values in compliance with EN14511.
- Seasonal energy efficiency ratio
- Seasonal energy efficiency of high temperature process cooling [REGULATION (EU) N. 2016/2281]
- Plant (side) cooling exchanger water (in/out) 16°C/ 10°C; Source (side) heat exchanger air (in) 35°C.
- Plant (side) cooling exchanger water (in/out) 23°C/ 15°C; Source (side) heat exchanger air (in) 35°C.

- 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.
- Sound power on the basis of measurements taken in compliance with ISO 9614.
- Sound power level in cooling, outdoors.
- Unit in standard configuration, without optional accessories.

The units highlighted in this publication contain R454B [GWP₁₀₀ 466] fluorinated greenhouse gases.

Certified data in EUROVENT

NR²Z

G02

0184T - 0374T

Air cooled chillers
for outdoor installation
(from 176 to 367 kW)

R410A



NR2-G02-Z

Model			0184T	0214T	0244T	0264T	0294T	0334T	0374T
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
PERFORMANCE									
COOLING ONLY (GROSS VALUE)									
28°C/20°C									
Cooling capacity	(1)	kW	248,7	288,3	327,2	359,6	406,4	455,8	504,2
Total power input	(1)	kW	55,51	66,62	79,74	90,74	93,80	108,2	123,6
EER	(1)	kW/kW	4,481	4,329	4,105	3,965	4,333	4,213	4,079
COOLING ONLY (EN14511 VALUE)									
Cooling capacity	(2)(3)	kW	177,7	207,4	237,0	262,2	292,7	329,6	366,1
EER	(2)(3)	kW/kW	3,320	3,270	3,140	3,100	3,290	3,250	3,170
SEPR HT	(4)(5)		5,88	5,83	5,90	5,89	5,90	5,82	5,85
COOLING ONLY (GROSS VALUE)									
16°C/10°C									
Cooling capacity	(6)	kW	194,2	226,3	258,2	285,1	319,3	359,1	398,5
Total power input	(6)	kW	53,83	63,98	76,07	85,67	89,47	102,6	116,6
EER	(6)	kW/kW	3,610	3,536	3,393	3,327	3,568	3,500	3,418
23°C/15°C									
Cooling capacity	(7)	kW	221,4	257,3	292,7	322,5	362,8	407,5	451,5
Total power input	(7)	kW	54,93	65,60	78,26	88,58	91,99	105,8	120,6
EER	(7)	kW/kW	4,033	3,922	3,738	3,640	3,943	3,852	3,744
EXCHANGERS									
HEAT EXCHANGER USER SIDE IN REFRIGERATION									
Water flow	(2)	l/s	8,511	9,935	11,35	12,55	14,02	15,78	17,53
Pressure drop at the heat exchanger	(2)(3)	kPa	27,2	37,1	58,1	46,2	57,6	43,6	53,7
REFRIGERANT CIRCUIT									
Compressors nr.		N°	4	4	4	4	4	4	4
No. Circuits		N°	2	2	2	2	2	2	2
Refrigerant charge		kg	37,4	41,5	42,6	42,7	56,0	58,7	59,3
NOISE LEVEL									
Sound Pressure	(8)	dB(A)	54	54	55	55	56	58	59
Sound power level in cooling	(9)(10)	dB(A)	86	86	87	87	88	90	91
SIZE AND WEIGHT									
A	(11)	mm	3160	3160	3160	3160	4335	4335	4335
B	(11)	mm	2250	2250	2250	2250	2250	2250	2250
H	(11)	mm	2290	2290	2290	2290	2290	2290	2290
Operating weight	(11)	kg	1770	1770	1970	1990	2310	2470	2680

NR2-G02-Z + NR kit



Model			0184T	0214T	0244T	0264T	0294T	0334T	0374T
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
PERFORMANCE									
COOLING ONLY (GROSS VALUE)									
28°C/20°C									
Cooling capacity	(1)	kW	244,6	283,0	320,4	362,9	399,3	447,2	508,0
Total power input	(1)	kW	56,71	69,15	83,25	89,87	96,12	112,5	123,1
EER	(1)	kW/kW	4,314	4,090	3,846	4,037	4,155	3,975	4,127
COOLING ONLY (EN14511 VALUE)									
Cooling capacity	(2)(3)	kW	175,7	204,9	233,8	258,4	289,4	325,7	361,7
EER	(2)(3)	kW/kW	3,260	3,150	2,990	2,930	3,210	3,120	3,030
SEPR HT	(4)(5)		5,89	5,76	5,86	5,73	5,95	5,76	5,76
COOLING ONLY (GROSS VALUE)									
16°C/10°C									
Cooling capacity	(6)	kW	191,8	223,2	254,2	280,4	315,2	354,2	393,0
Total power input	(6)	kW	54,46	65,87	78,94	89,48	90,84	105,8	120,9
EER	(6)	kW/kW	3,519	3,387	3,222	3,133	3,471	3,348	3,251
23°C/15°C									
Cooling capacity	(7)	kW	218,1	253,1	287,4	316,1	357,3	400,9	444,0
Total power input	(7)	kW	55,84	67,82	81,48	92,82	93,84	109,6	125,4
EER	(7)	kW/kW	3,909	3,733	3,526	3,406	3,809	3,658	3,541
EXCHANGERS									
HEAT EXCHANGER USER SIDE IN REFRIGERATION									
Water flow	(2)	l/s	8,415	9,815	11,20	12,37	13,86	15,59	17,32
Pressure drop at the heat exchanger	(2)(3)	kPa	26,6	36,2	56,6	44,8	56,3	42,5	52,5
REFRIGERANT CIRCUIT									
Compressors nr.		N°	4	4	4	4	4	4	4
No. Circuits		N°	2	2	2	2	2	2	2
Refrigerant charge		kg	37,4	41,5	42,6	42,7	56,0	58,7	59,3
NOISE LEVEL									
Sound Pressure	(8)	dB(A)	49	50	51	51	52	54	55
Sound power level in cooling	(9)(10)	dB(A)	81	82	83	83	84	86	87
SIZE AND WEIGHT									
A	(11)	mm	3160	3160	3160	3160	4335	4335	4335
B	(11)	mm	2250	2250	2250	2250	2250	2250	2250
H	(11)	mm	2290	2290	2290	2290	2290	2290	2290
Operating weight	(11)	kg	1770	1770	1970	1990	2310	2470	2680

Notes:

- Plant (side) cooling exchanger water (in/out) 28°C/20°C; Source (side) heat exchanger air (in) 35°C.
- Plant (side) cooling exchanger water (in/out) 12°C/7°C; Source (side) heat exchanger air (in) 35°C
- Values in compliance with EN14511.
- Seasonal energy efficiency ratio
- Seasonal energy efficiency of high temperature process cooling [REGULATION (EU) N. 2016/2281]
- Plant (side) cooling exchanger water (in/out) 16°C/ 10°C; Source (side) heat exchanger air (in) 35°C.
- Plant (side) cooling exchanger water (in/out) 23°C/ 15°C; Source (side) heat exchanger air (in) 35°C.

- 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.
- Sound power on the basis of measurements taken in compliance with ISO 9614.
- Sound power level in cooling, outdoors.
- Unit in standard configuration, without optional accessories.

The units highlighted in this publication contain R410A [GWP₁₀₀ 2088] fluorinated greenhouse gases.

Certified data in EUROVENT

NR²Z**G06****0184T - 0374T**Air cooled chillers
for outdoor installation
(from 167 to 345 kW)

R454B

GWP: 467**-76% vs R410A****-31% vs R32****NR2-G06-Z**

Model			0184T	0214T	0244T	0264T	0294T	0334T	0374T
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
PERFORMANCE									
COOLING ONLY (GROSS VALUE)									
28°C/20°C									
Cooling capacity	(1)	kW	233,8	273,8	312,6	344,9	389,7	434,2	478,0
Total power input	(1)	kW	52,00	62,42	74,65	84,26	86,85	100,3	114,8
EER	(1)	kW/kW	4,496	4,388	4,185	4,091	4,484	4,329	4,164
COOLING ONLY (EN14511 VALUE)									
Cooling capacity	(2)(3)	kW	168,1	197,2	225,8	250,4	279,6	312,8	345,4
EER	(2)(3)	kW/kW	3,370	3,350	3,240	3,200	3,380	3,300	3,200
SEPR HT	(4)(5)		6,02	5,94	6,00	6,00	5,96	5,89	5,92
COOLING ONLY (GROSS VALUE)									
16°C/10°C									
Cooling capacity	(6)	kW	183,5	215,1	246,2	272,6	305,3	341,0	376,2
Total power input	(6)	kW	50,31	59,51	70,39	79,32	83,22	95,68	109,1
EER	(6)	kW/kW	3,648	3,615	3,497	3,438	3,669	3,563	3,448
23°C/15°C									
Cooling capacity	(7)	kW	208,6	244,5	279,4	308,8	347,5	387,6	427,1
Total power input	(7)	kW	51,38	61,22	72,81	82,12	85,39	98,42	112,4
EER	(7)	kW/kW	4,058	3,995	3,838	3,761	4,069	3,939	3,800
EXCHANGERS									
HEAT EXCHANGER USER SIDE IN REFRIGERATION									
Water flow	(2)	l/s	8,052	9,444	10,81	11,99	13,39	14,97	16,54
Pressure drop at the heat exchanger	(2)(3)	kPa	24,4	33,5	52,8	42,1	52,5	39,2	47,8
REFRIGERANT CIRCUIT									
Compressors nr.		N°	4	4	4	4	4	4	4
No. Circuits		N°	2	2	2	2	2	2	2
Refrigerant charge		kg	33,7	37,4	38,3	38,4	50,4	52,8	53,3
NOISE LEVEL									
Sound Pressure	(8)	dB(A)	54	54	55	55	56	58	59
Sound power level in cooling	(9)(10)	dB(A)	86	86	87	87	88	90	91
SIZE AND WEIGHT									
A	(11)	mm	3160	3160	3160	3160	4335	4335	4335
B	(11)	mm	2250	2250	2250	2250	2250	2250	2250
H	(11)	mm	2290	2290	2290	2290	2290	2290	2290
Operating weight	(11)	kg	1770	1770	1970	1990	2310	2470	2680

NR2-G06-Z + NR kit

Model			0184T	0214T	0244T	0264T	0294T	0334T	0374T
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
PERFORMANCE									
COOLING ONLY (GROSS VALUE)									
28°C/20°C									
Cooling capacity	(1)	kW	231,4	270,2	307,4	347,7	385,1	428,3	471,6
Total power input	(1)	kW	53,15	64,83	77,99	83,60	88,75	104,1	119,6
EER	(1)	kW/kW	4,358	4,170	3,941	4,159	4,342	4,114	3,943
COOLING ONLY (EN14511 VALUE)									
Cooling capacity	(2)(3)	kW	167,2	195,7	223,7	247,5	277,8	310,2	342,6
EER	(2)(3)	kW/kW	3,320	3,240	3,110	3,040	3,320	3,190	3,080
SEPR HT	(4)(5)		6,07	5,90	5,94	5,82	6,05	5,86	5,85
COOLING ONLY (GROSS VALUE)									
16°C/10°C									
Cooling capacity	(6)	kW	182,2	213,2	243,4	268,9	302,9	337,8	372,7
Total power input	(6)	kW	50,88	61,21	72,94	82,73	84,27	98,48	112,7
EER	(6)	kW/kW	3,580	3,484	3,339	3,252	3,593	3,429	3,307
23°C/15°C									
Cooling capacity	(7)	kW	206,8	241,8	275,6	303,8	344,1	383,1	422,2
Total power input	(7)	kW	52,24	63,28	75,78	85,96	86,86	101,7	116,7
EER	(7)	kW/kW	3,962	3,820	3,636	3,533	3,960	3,767	3,618
EXCHANGERS									
HEAT EXCHANGER USER SIDE IN REFRIGERATION									
Water flow	(2)	l/s	8,006	9,375	10,71	11,85	13,31	14,85	16,41
Pressure drop at the heat exchanger	(2)(3)	kPa	24,1	33,0	51,8	41,1	51,9	38,6	47,1
REFRIGERANT CIRCUIT									
Compressors nr.		N°	4	4	4	4	4	4	4
No. Circuits		N°	2	2	2	2	2	2	2
Refrigerant charge		kg	33,7	37,4	38,3	38,4	50,4	52,8	53,3
NOISE LEVEL									
Sound Pressure	(8)	dB(A)	49	50	51	51	52	54	55
Sound power level in cooling	(9)(10)	dB(A)	81	82	83	83	84	86	87
SIZE AND WEIGHT									
A	(11)	mm	3160	3160	3160	3160	4335	4335	4335
B	(11)	mm	2250	2250	2250	2250	2250	2250	2250
H	(11)	mm	2290	2290	2290	2290	2290	2290	2290
Operating weight	(11)	kg	1770	1770	1970	1990	2310	2470	2680

Notes:

- 1 ▶ Plant (side) cooling exchanger water (in/out) 28°C/20°C; Source (side) heat exchanger air (in) 35°C.
- 2 ▶ Plant (side) cooling exchanger water (in/out) 12°C/7°C; Source (side) heat exchanger air (in) 35°C
- 3 ▶ Values in compliance with EN14511.
- 5 ▶ Seasonal energy efficiency ratio
- 6 ▶ Seasonal energy efficiency of high temperature process cooling [REGULATION (EU) N. 2016/2281]
- 6 ▶ Plant (side) cooling exchanger water (in/out) 16°C/ 10°C; Source (side) heat exchanger air (in) 35°C.
- 7 ▶ Plant (side) cooling exchanger water (in/out) 23°C/ 15°C; Source (side) heat exchanger air (in) 35°C.

- 8 ▶ 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.
- 9 ▶ Sound power on the basis of measurements taken in compliance with ISO 9614.
- 10 ▶ Sound power level in cooling, outdoors.
- 11 ▶ Unit in standard configuration, without optional accessories.

The units highlighted in this publication contain R454B [GWP₁₀₀ 466] fluorinated greenhouse gases.

Certified data in EUROVENT

“BY FAR THE BEST PROOF IS EXPERIENCE”

Sir Francis Bacon

British Philosopher (1561 - 1626)

TECNOPOLO BOLOGNA

2018-2019 Bologna – Italy

Application:

Residential buildings,
Data Center, Offices
Mixed-Use Development

Cooling capacity:

6490 kW

Heating capacity:

566 kW

Plant type:

Hydronic System, HPAC
System, Air to Air System

Air flow:

13005 m³/h

Installed units:

2x NECS-WQ 0904,
2x NX-WN 0252,
1x WIZARD 1720,
2x WIZARD 2080, 3x ClimaPRO,
9x i-FR-G05-Z/E/S 3602,
28x w-NEXT2 K E8 U 180

PROJECT

The real estate complex of the former tobacco factory, owned by the Emilia-Romagna Region, will become the headquarters of the new Tecnopolo in Bologna: a center for innovation and experimentation. It will host various institutions and the data center for the European Centre for Medium-range Weather Forecasts, setting up itself as a European climate change research hub.

CHALLENGE

The comfort in the ECMWF offices and the cooling of the ECMWF data center are managed by a single joint HVAC system, designed to ensure maximum efficiency with reduced environmental impact.

SOLUTION

The HVAC system consists of: 28 w-NEXT 2 K 180, RC branded hydronic close control units for the server rooms, 2 NR-W-Z/ N 0262 heat pumps, 2 NECS-W/ Q 0904 multipurpose heat pumps, 3 WZ-E air handling units, all of which are Climaveneta branded, for year-round conditioning of the offices, and 9 RC branded i-FR-G05-Z/E/S 3602 screw inverter air source chillers, dedicated to cooling the data center.

IKCO DATA CENTER

2017-2018 Tehran – Iran

Application:

Data Center

Cooling capacity:

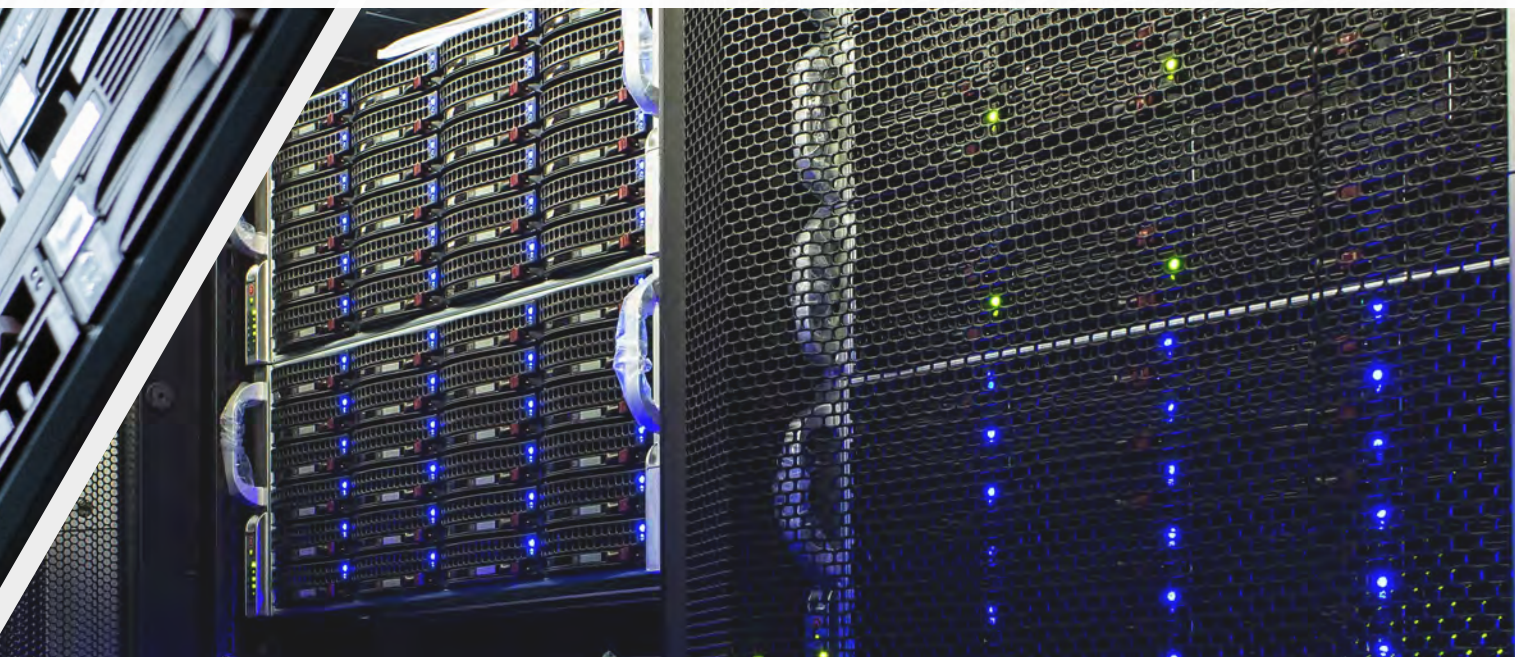
1280 kW

Plant type:

Hydronic System

Machine installate:

1x high efficiency scroll compressor chiller, 4x screw compressor chillers



2016-2018 Wysogotowo - Poland

Inea Data Centre

Application: Data Center

Plant type: Hydronic System

Cooling capacity: 1350 kW

Installed machines:

- 3x double section close control units,
- 3x full inverter close control units,
- 3x free cooling chillers,
- 3x remote condensers



MORE THAN 1000 PROJECTS ALL OVER THE WORLD

2019 Sydney - Australia

CDC Eastern Creek

Application: Data Center

Plant type: Hydronic System

Cooling capacity: 16751 kW

Installed machines:

12x high efficiency scroll compressor chillers,
6x screw compressor chillers



2015 Aubervilliers - France

Telecity

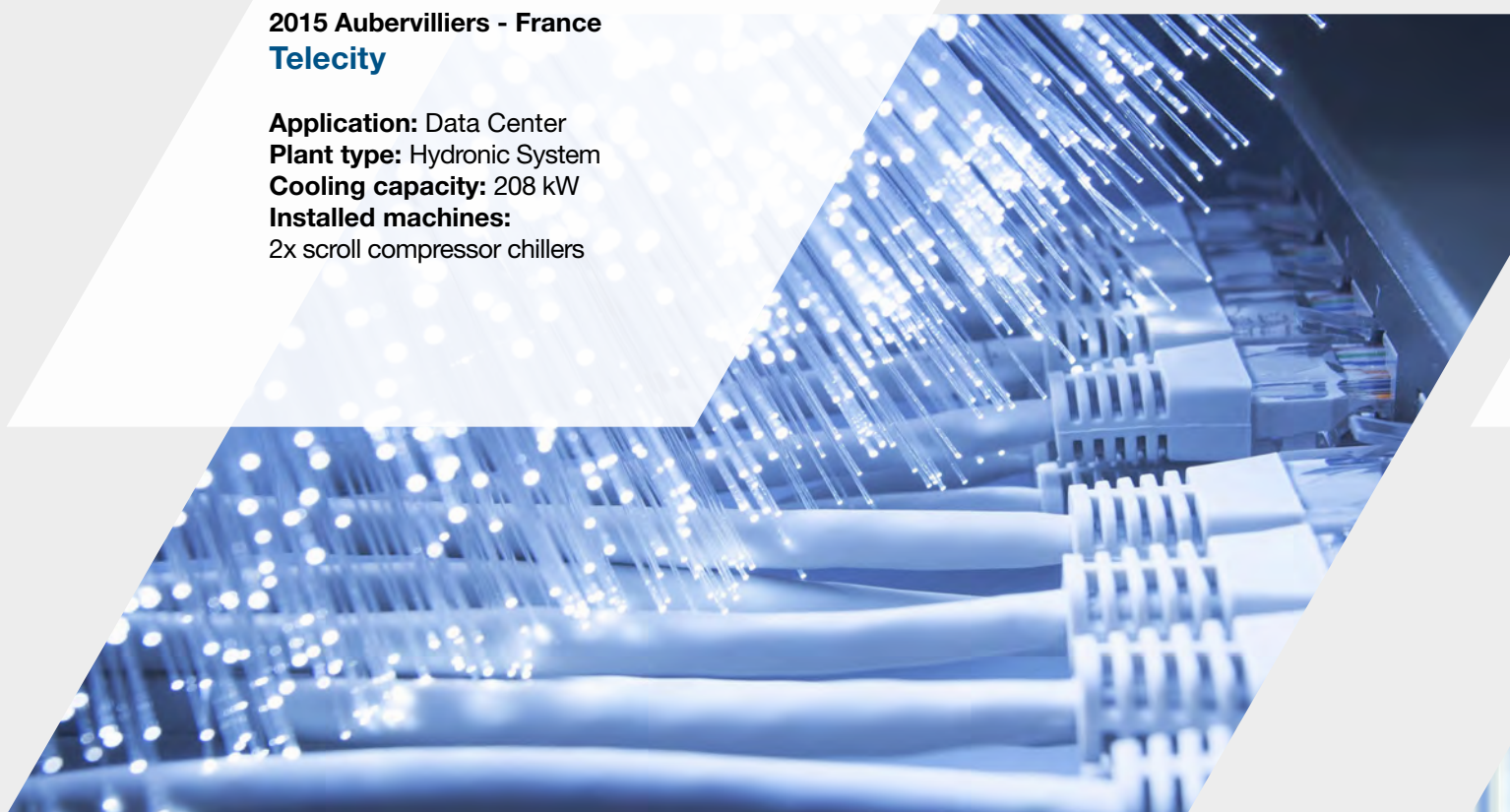
Application: Data Center

Plant type: Hydronic System

Cooling capacity: 208 kW

Installed machines:

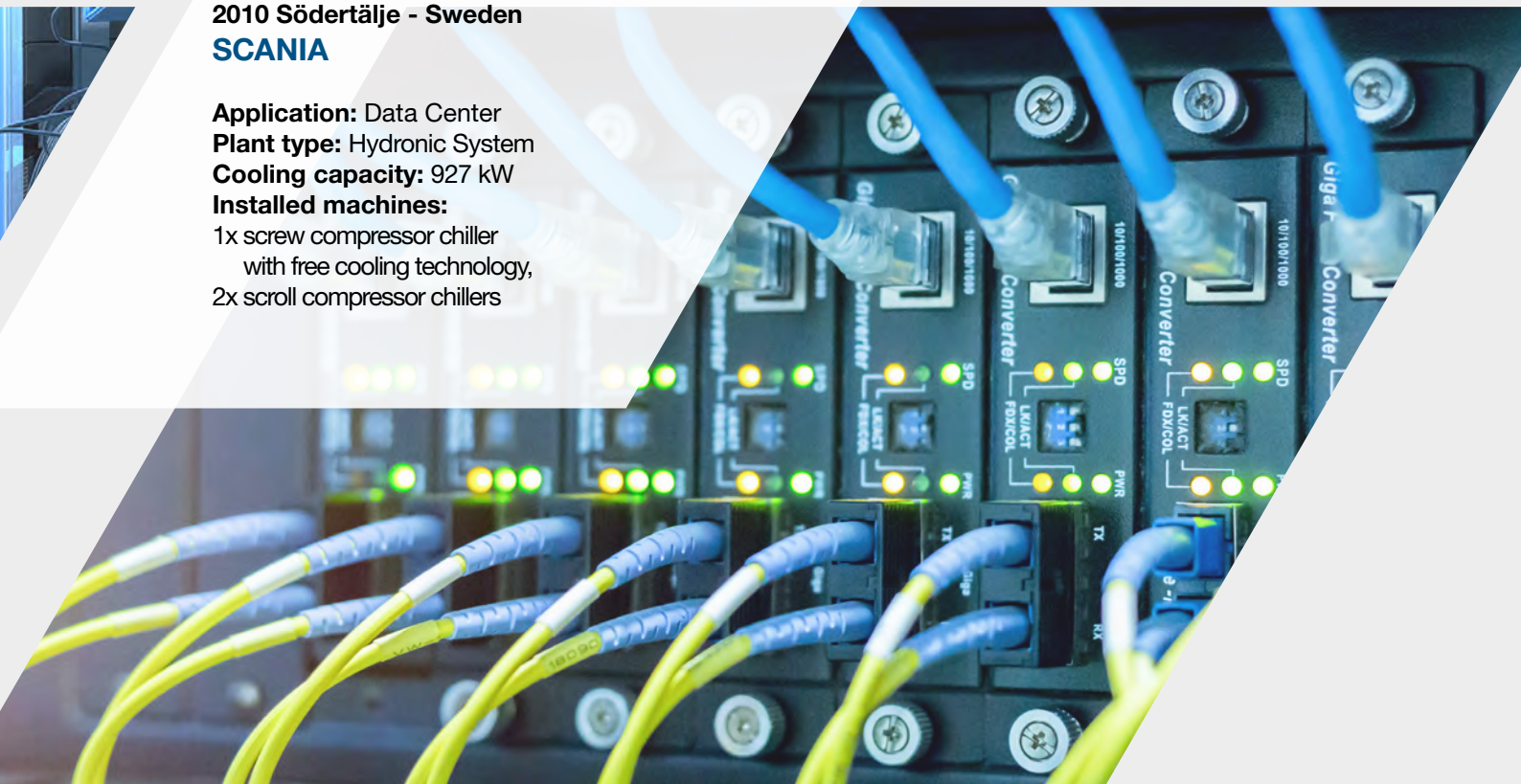
2x scroll compressor chillers



Every project is characterised by different needs and system specifications for various climates. All these projects share high energy efficiency, maximum integration, and total reliability resulting from the RC brand experience.

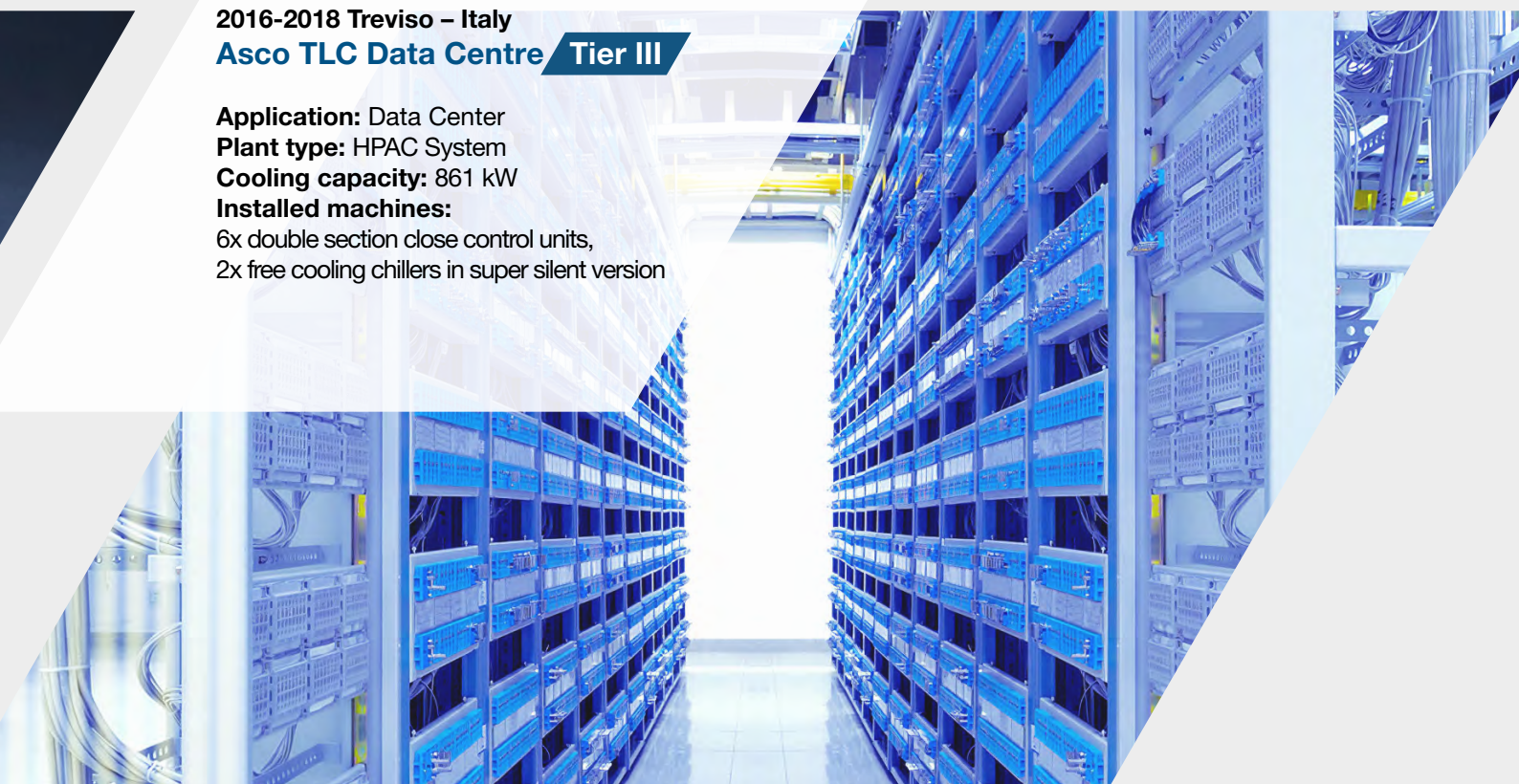
2010 Södertälje - Sweden **SCANIA**

Application: Data Center
Plant type: Hydronic System
Cooling capacity: 927 kW
Installed machines:
 1x screw compressor chiller
 with free cooling technology,
 2x scroll compressor chillers



2016-2018 Treviso - Italy **Asco TLC Data Centre Tier III**

Application: Data Center
Plant type: HPAC System
Cooling capacity: 861 kW
Installed machines:
 6x double section close control units,
 2x free cooling chillers in super silent version





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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