

IT COOLING

CHILLERS

**FR<sup>2</sup>Z** **G01**  
**G05**

**AIR COOLED CHILLERS FOR  
OUTDOOR INSTALLATION,  
FROM 322 TO 1838 kW**

R134a

R513A



# FR<sup>2</sup>Z

G01

G05

## THE ECO-FRIENDLY SOLUTION FOR IT COOLING



Air cooled chillers with screw compressors and low GWP refrigerant. From 322 to 1838 kW.



FR2-G01-Z and FR2-G05-Z are air cooled chillers with screw compressors designed for delivering the best efficiencies in IT Cooling applications. Available with either R134a refrigerant or the low GWP R513A, the new range features 2 or 3 compressors in multi-circuit configuration.

All the main hydraulic and mechanic components are integrated inside the unit, providing installers the ideal plug & play solution for the cooling plant.

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

### A COMPLETE NEW GENERATION OF CHILLERS

#### EFFICIENCY VERSIONS



COOLING

FR2-G05-Z Air cooled chillers

UP TO

EER

SEPR HT

EER

SEPR HT

E

4,47

6,20

K

3,98

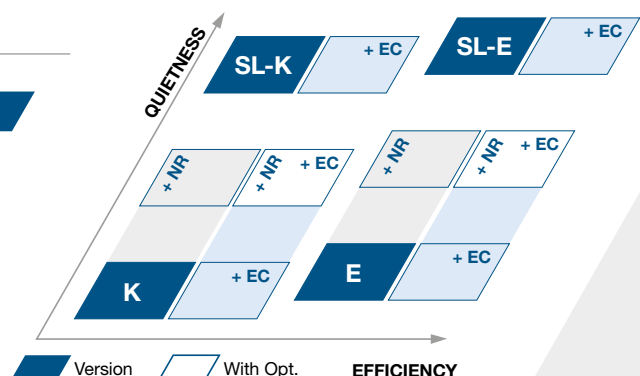
6,14

E ▶ Very high efficiency

K ▶ Key efficiency

EER: 28/20°C, air 35°C

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



#### ACOUSTIC VERSIONS

-

Standard

Unit with standard soundproofing equipment. **Baseline**Unit with compressor acoustical enclosure (Opt. 2301) **-2 dB(A)**Unit with Noise Reducer (NR) kit (Opt. 2315) **-7 dB(A)**

SL

Super low noise

The highest level of noise reduction without compromising the unit's efficiency.

**-12 dB(A)**

#### HEAT RECOVERY CONFIGURATIONS

Standard

Unit without heat recovery. -

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.**

# ALL-ROUND SUSTAINABILITY



Fully committed to supporting the creation of a greener tomorrow, FR2-G05-Z combines brilliant efficiency with the use of a low GWP refrigerant that tackles both the indirect (due to the primary energy consumption) and the direct global warming impact.

Low density and **low GWP** refrigerant, the R513A is an HFO refrigerant blend and the ideal substitute for R134a, with comparable physical and thermodynamic properties.



## REDUCED ENVIRONMENTAL IMPACT

- ▶ Low GWP, only 631 (-56% vs. 134a)

**GWP: 631**

**-56% vs R134a**



## SAFETY

- ▶ Complete non-toxicity
- ▶ Non-flammable with a safety classification of A1 (ASHRAE 34, ISO 817)



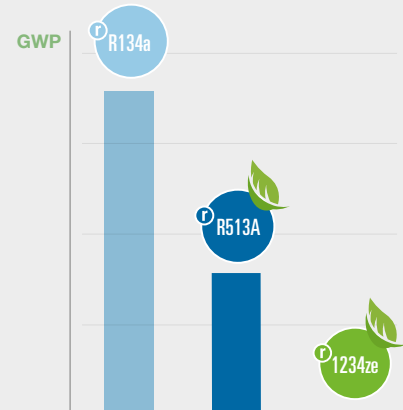
## PERFORMANCE & ENVELOPE

- ▶ Same operating limits of R134a
- ▶ Same performance of R134a



## RELIABILITY

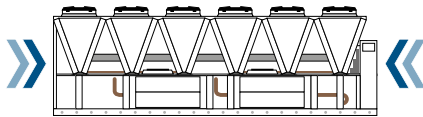
- ▶ Use of well-known components
- ▶ Refrigerant circuit reliability is maintained



## HIGHER EFFICIENCY IN LESS SPACE

**+8% COOLING CAPACITY**

**+10% EFFICIENCY**



FR2-Z delivers increased cooling capacity and efficiency compared to the previous generation, exceeding the most demanding efficiency thresholds.

## SUPER SILENT OPERATION

### THE MOST SILENT SCREW CHILLER ON THE MARKET



FR2-G01-Z and FR2-G05-Z ranges perfectly match IT Cooling applications.

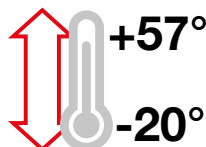
same performance and footprint as the standard version.

NR Kit is available for an outstanding sound levels while maintaining the

For the ultimate acoustical performance, FR2-Z is available in Super Low Noise configuration.

## UNYIELDING IN EXTREME CONDITIONS

### EXTENDED OPERATING LIMITS



Designed to ensure complete reliability, FR2-Z operates in all climates from -20°C to +57°C.

FR2-Z can be equipped with highly resistant coil coatings to withstand even the harshest industrial or coastal environmental conditions.

# 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 Hydraulics & 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

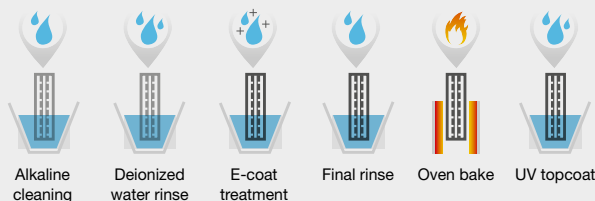
Al- E-coating treatment (opt.)



3120 h  
SWAAT test  
(ASTM G85-02 A3)

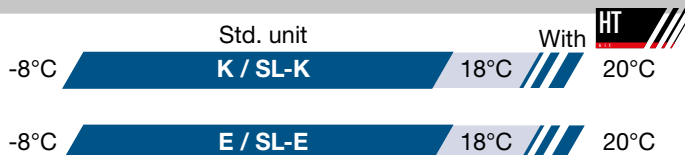
- ✓ Excellent resistance to UV rays.
- ✓ over 6000 h resistance as per ASTM B117
- ✓ over 1000 h of surface protection against UV rays as per ASTM G155-05a

### E-coating process

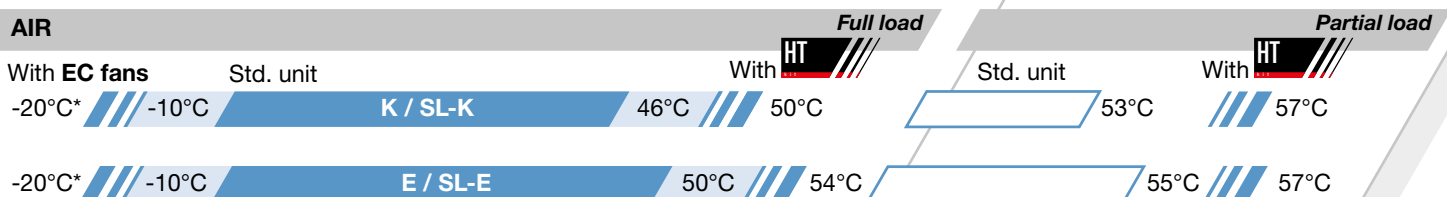


## OPERATING LIMITS

### WATER



### AIR



\*requires antifreeze and double insulation on heat exchanger, piping, pumps.



## 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

#### EXTENDED LIMITS UP TO -20°C

 EC AXIAL

#### EC fans (opt. available for all versions)

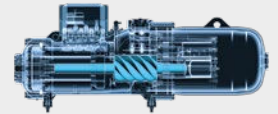
- ▶ Continuous regulation of air flow
- ▶ Reduced power consumption and increased efficiencies at partial loads
- ▶ Extended operating limits
- ▶ High ESP EC fan option for up to 150 Pa of available static pressure

### Shell&Tube heat exchanger

Dry expansion, single pass S&T evaporator, fully developed in-house.

- ▶ Internally grooved copper tubes
- ▶ Possibility of inspection and tube cleaning
- ▶ Low pressure drops

### Screw compressors



Dual rotor screw compressors designed according to Mitsubishi Electric Hydronics & IT Cooling Systems specifications and for its exclusive use.

- ▶ Innovative internal geometry enhancing efficiency at part load operations
- ▶ Controlled lubrication system
- ▶ Extreme durability, with carbon steel bearings guaranteed for more than 150.000 hours

### HYDRONIC MODULES

The units come with pump control relay + 0-10V modulating signal to control an external pump as per standard. The hydronic module (opt.) includes the Grundfos' pumps and all the main hydraulic components, which provides the best pairing with new FR2-Z range of chillers.



#### Pumps

- ▶ In-line configuration
- ▶ Twin pumps
- ▶ Fixed or variable speed
- ▶ 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 VPF.D systems

#### Grundfos' pumps

- ▶ SiC/SiC (silicon carbide) primary seal pairing
- ▶ EPDM bellows seal
- ▶ Pull-out design

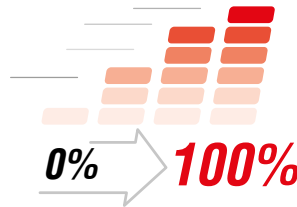
# EQUIPMENT FOR MISSION CRITICAL APPLICATIONS

## FAST RESTART

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



Ensures immediate cooling start-up within 25"

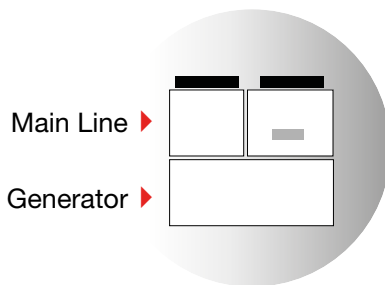


Have the unit running at full load in a shorter time

A 2-cpr unit in standard working conditions delivers 100% of cooling capacity within 180" after power is restored.

## DOUBLE POWER SUPPLY

Redundancy increases uptime. FR2-Z chillers also extend this concept 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 FR2-G05-Z 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

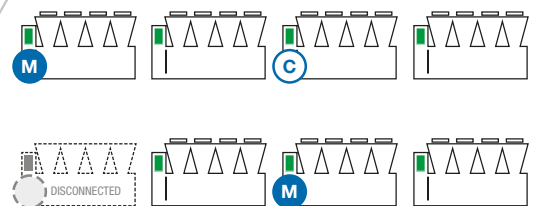
The FR2-Z ranges feature embedded LAN logics for an easy connection between a group of chillers.

- ▶ **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 packing:** The unit is provided with metal slides and protective nylon layer for container loading.

# FR<sup>2</sup>Z G01

## 0322 - 1883

Air cooled chillers  
for outdoor installation  
(from 398 to 921 kW)



### FR2-G01-Z /K

FR2-G01-Z /K		0322	0352	0402	0472	0512	0572	0652	0702
Power supply	V/ph/Hz	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50
<b>PERFORMANCE</b>									
<b>COOLING ONLY (GROSS VALUE)</b>									
Cooling capacity	(1) kW	322,1	350,2	411,9	464,4	516,7	573,4	645,8	707,6
Total power input	(1) kW	100,6	117,0	130,7	143,5	169,3	185,1	203,6	234,8
EER	(1) kW/kW	3,202	2,993	3,151	3,236	3,052	3,098	3,172	3,014
<b>COOLING ONLY (EN14511 VALUE)</b>									
Cooling capacity	(1)(2) kW	321,8	349,8	411,5	463,9	516,2	572,9	645,2	707,0
EER	(1)(2) kW/kW	3,170	2,960	3,120	3,190	3,020	3,060	3,130	2,980
Cooling energy class		-	-	-	-	-	-	-	-
SEPR HT	(3)(4)	5,70	6,01	5,88	5,74	5,92	5,89	5,79	5,65
<b>COOLING ONLY (GROSS VALUE)</b>									
<b>16°C/10°C</b>									
Cooling capacity	(5) kW	352,8	382,4	449,1	505,2	563,8	626,6	706,9	769,2
Total power input	(5) kW	105,0	122,4	136,3	149,3	177,2	193,4	212,7	245,6
EER	(5) kW/kW	3,360	3,124	3,295	3,384	3,182	3,240	3,323	3,132
<b>23°C/15°C</b>									
Cooling capacity	(6) kW	404,5	436,1	510,7	572,8	642,1	715,4	809,6	819,8
Total power input	(6) kW	112,0	130,9	145,2	158,4	190,1	207,0	227,5	229,0
EER	(6) kW/kW	3,612	3,332	3,517	3,616	3,378	3,456	3,559	3,580
<b>EXCHANGERS</b>									
<b>HEAT EXCHANGER USER SIDE IN REFRIGERATION</b>									
Water flow	(1) l/s	15,40	16,75	19,70	22,21	24,71	27,42	30,88	33,84
Pressure drop at the heat exchanger	(1)(2) kPa	27,7	32,7	38,8	49,4	37,3	46,0	46,6	44,5
<b>REFRIGERANT CIRCUIT</b>									
Compressors nr.	N°	2	2	2	2	2	2	2	2
No. Circuits	N°	2	2	2	2	2	2	2	2
Refrigerant charge	kg	50,0	53,0	63,0	72,0	78,0	87,0	100	106
<b>NOISE LEVEL</b>									
Sound Pressure	(7) dB(A)	67	67	67	68	68	68	68	70
Sound power level in cooling	(8)(9) dB(A)	99	99	99	100	100	100	100	102
<b>SIZE AND WEIGHT</b>									
A	(10) mm	2750	2750	4000	4000	4000	5250	5250	5250
B	(10) mm	2260	2260	2260	2260	2260	2260	2260	2260
H	(10) mm	2640	2640	2640	2640	2640	2640	2640	2640
Operating weight	(10) kg	3120	2950	3600	3730	4570	5060	5190	5550

FR2-G01-Z /K		0772	0852	0902	1002	1052	1102	1152	1222
Power supply	V/ph/Hz	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50
<b>PERFORMANCE</b>									
<b>COOLING ONLY (GROSS VALUE)</b>									
Cooling capacity	(1) kW	779,8	862,9	937,3	996,0	1056	1098	1139	1232
Total power input	(1) kW	249,9	267,4	289,7	309,8	336,9	362,5	347,9	389,1
EER	(1) kW/kW	3,120	3,227	3,235	3,215	3,134	3,029	3,274	3,166
<b>COOLING ONLY (EN14511 VALUE)</b>									
Cooling capacity	(1)(2) kW	779,1	862,3	936,6	995,2	1055	1097	1138	1231
EER	(1)(2) kW/kW	3,080	3,190	3,200	3,170	3,100	2,990	3,230	3,120
Cooling energy class		-	-	-	-	-	-	-	-
SEPR HT	(3)(4)	5,82	5,94	5,92	5,86	5,92	5,92	5,88	5,79
<b>COOLING ONLY (GROSS VALUE)</b>									
<b>16°C/10°C</b>									
Cooling capacity	(5) kW	848,9	940,9	1024	1088	1154	1197	1245	1340
Total power input	(5) kW	260,8	278,6	302,0	322,9	351,9	379,1	362,4	406,3
EER	(5) kW/kW	3,255	3,377	3,391	3,369	3,279	3,157	3,435	3,298
<b>23°C/15°C</b>									
Cooling capacity	(6) kW	963,0	1070	1168	1244	1317	1364	1423	1455
Total power input	(6) kW	278,3	296,4	321,7	343,9	376,0	405,8	385,6	389,7
EER	(6) kW/kW	3,460	3,610	3,631	3,617	3,503	3,361	3,690	3,734
<b>EXCHANGERS</b>									
<b>HEAT EXCHANGER USER SIDE IN REFRIGERATION</b>									
Water flow	(1) l/s	37,29	41,27	44,82	47,63	50,51	52,49	54,45	58,92
Pressure drop at the heat exchanger	(1)(2) kPa	54,1	47,2	49,2	55,6	48,3	52,1	56,1	61,6
<b>REFRIGERANT CIRCUIT</b>									
Compressors nr.	N°	2	2	2	2	2	2	2	2
No. Circuits	N°	2	2	2	2	2	2	2	2
Refrigerant charge	kg	118	132	144	153	158	164	172	185
<b>NOISE LEVEL</b>									
Sound Pressure	(7) dB(A)	69	69	70	70	71	71	71	71
Sound power level in cooling	(8)(9) dB(A)	102	102	103	103	104	104	104	104
<b>SIZE AND WEIGHT</b>									
A	(10) mm	6500	6500	7750	7750	7750	7750	9000	9000
B	(10) mm	2260	2260	2260	2260	2260	2260	2260	2260
H	(10) mm	2640	2640	2640	2640	2640	2640	2640	2640
Operating weight	(10) kg	6400	6980	7460	7620	7870	7900	8430	8500

#### Notes:

- 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 R134a [GWP<sub>100</sub> 1430] fluorinated greenhouse gases.

Certified data in EUROVENT





## FR2-G01-Z /K

FR2-G01-Z /K		1262	1322	1402	1503	1593	1663	1773	1883	
Power supply	V/ph/Hz	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	
<b>PERFORMANCE</b>										
<b>COOLING ONLY (GROSS VALUE)</b>										
Cooling capacity	(1)	kW	1264	1332	1400	1506	1592	1664	1778	1839
Total power input	(1)	kW	415,5	426,0	466,1	466,4	513,5	546,6	569,8	594,2
EER	(1)	kW/kW	3,042	3,127	3,004	3,229	3,100	3,044	3,120	3,095
<b>COOLING ONLY (EN14511 VALUE)</b>										
Cooling capacity	(1)(2)	kW	1264	1331	1399	1505	1591	1663	1777	1838
EER	(1)(2)	kW/kW	3,010	3,090	2,970	3,190	3,060	3,010	3,090	3,060
Cooling energy class			-	-	-	-	-	-	-	-
SEPR HT	(3)(4)		5,95	5,99	5,87	5,80	5,87	5,95	5,76	5,76
<b>COOLING ONLY (GROSS VALUE)</b>										
<b>16°C/10°C</b>										
Cooling capacity	(5)	kW	1378	1457	1524	1647	1737	1816	1936	2000
Total power input	(5)	kW	434,2	444,3	487,1	486,4	536,4	571,9	595,2	621,5
EER	(5)	kW/kW	3,174	3,279	3,129	3,386	3,238	3,175	3,253	3,218
<b>23°C/15°C</b>										
Cooling capacity	(6)	kW	1535	1666	1666	1883	1981	2070	2134	2166
Total power input	(6)	kW	441,6	474,0	474,0	518,2	573,2	612,6	590,8	595,3
EER	(6)	kW/kW	3,476	3,515	3,515	3,634	3,456	3,379	3,612	3,639
<b>EXCHANGERS</b>										
<b>HEAT EXCHANGER USER SIDE IN REFRIGERATION</b>										
Water flow	(1)	l/s	60,46	63,71	66,96	72,03	76,12	79,55	85,04	87,92
Pressure drop at the heat exchanger	(1)(2)	kPa	48,8	54,2	59,9	52,5	58,6	45,1	51,6	59,1
<b>REFRIGERANT CIRCUIT</b>										
Compressors nr.		N°	2	2	2	3	3	3	3	3
No. Circuits		N°	2	2	2	3	3	3	3	3
Refrigerant charge		kg	189	205	210	232	239	248	267	280
<b>NOISE LEVEL</b>										
Sound Pressure	(7)	dB(A)	72	73	73	73	73	73	73	73
Sound power level in cooling	(8)(9)	dB(A)	105	106	106	106	106	106	106	106
<b>SIZE AND WEIGHT</b>										
A	(10)	mm	9150	10400	10400	11650	11650	11650	12900	12900
B	(10)	mm	2260	2260	2260	2260	2260	2260	2260	2260
H	(10)	mm	2640	2640	2640	2640	2640	2640	2640	2640
Operating weight	(10)	kg	8860	9470	9610	12050	12110	12120	12710	12720

**Notes:**

- 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 ▶ Seasonal energy efficiency ratio
- 4 ▶ Seasonal energy efficiency of high temperature process cooling [REGULATION (EU) N. 2016/2281]
- 5 ▶ Plant (side) cooling exchanger water (in/out) 16°C/ 10°C; Source (side) heat exchanger air (in) 35°C.

- 6 ▶ Plant (side) cooling exchanger water (in/out) 23°C/ 15°C; Source (side) heat exchanger air (in) 35°C.
- 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 taken in compliance with ISO 9614.
- 9 ▶ Sound power level in cooling, outdoors.
- 10 ▶ Unit in standard configuration, without optional accessories.

The units highlighted in this publication contain R134a [GWP<sub>100</sub> 1430] fluorinated greenhouse gases.

Certified data in EUROVENT

# FR<sup>2</sup>Z G01

## 0322 - 1883

Air cooled chillers  
for outdoor installation  
(from 398 to 921 kW)



### FR2-G01-Z /SL-K

FR2-G01-Z /SL-K		0322	0352	0402	0472	0512	0572	0652	0702
Power supply	V/ph/Hz	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50
<b>PERFORMANCE</b>									
<b>COOLING ONLY (GROSS VALUE)</b>									
Cooling capacity	(1) kW	310,2	358,4	410,2	450,1	511,7	557,4	621,9	713,0
Total power input	(1) kW	101,2	113,0	125,9	146,1	161,4	174,6	207,2	222,7
EER	(1) kW/kW	3,065	3,172	3,258	3,081	3,170	3,192	3,001	3,202
<b>COOLING ONLY (EN14511 VALUE)</b>									
Cooling capacity	(1)(2) kW	309,8	358,0	409,8	449,7	511,2	556,9	621,3	712,4
EER	(1)(2) kW/kW	3,040	3,140	3,220	3,040	3,140	3,150	2,970	3,160
Cooling energy class		-	-	-	-	-	-	-	-
SEPR HT	(3)(4)	5,70	5,81	5,97	5,77	5,71	5,65	5,84	5,73
<b>COOLING ONLY (GROSS VALUE)</b>									
<b>16°C/10°C</b>									
Cooling capacity	(5) kW	339,3	392,4	449,6	488,9	558,7	610,4	679,9	776,5
Total power input	(5) kW	105,8	118,0	131,3	152,4	168,5	182,3	217,0	232,3
EER	(5) kW/kW	3,207	3,325	3,424	3,208	3,316	3,348	3,133	3,343
<b>23°C/15°C</b>									
Cooling capacity	(6) kW	388,0	449,5	516,0	552,7	637,2	699,4	794,8	882,1
Total power input	(6) kW	113,2	125,9	139,9	162,2	179,8	194,6	229,7	247,5
EER	(6) kW/kW	3,428	3,570	3,688	3,408	3,544	3,594	3,460	3,564
<b>EXCHANGERS</b>									
<b>HEAT EXCHANGER USER SIDE IN REFRIGERATION</b>									
Water flow	(1) l/s	14,83	17,14	19,62	21,53	24,47	26,66	29,74	34,10
Pressure drop at the heat exchanger	(1)(2) kPa	25,7	34,3	38,5	46,4	36,6	43,5	43,2	45,2
<b>REFRIGERANT CIRCUIT</b>									
Compressors nr.	N°	2	2	2	2	2	2	2	2
No. Circuits	N°	2	2	2	2	2	2	2	2
Refrigerant charge	kg	50,0	59,0	67,0	72,0	83,0	91,0	100	116
<b>NOISE LEVEL</b>									
Sound Pressure	(7) dB(A)	55	55	56	56	57	57	57	57
Sound power level in cooling	(8)(9) dB(A)	87	87	88	88	89	89	89	90
<b>SIZE AND WEIGHT</b>									
A	(10) mm	2750	4000	4000	4000	5250	5250	5250	6500
B	(10) mm	2260	2260	2260	2260	2260	2260	2260	2260
H	(10) mm	2640	2640	2640	2640	2640	2640	2640	2640
Operating weight	(10) kg	3380	3830	3960	4000	5270	5680	5720	6600

FR2-G01-Z /SL-K		0772	0852	0902	1002	1052	1102	1152	1222
Power supply	V/ph/Hz	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50
<b>PERFORMANCE</b>									
<b>COOLING ONLY (GROSS VALUE)</b>									
Cooling capacity	(1) kW	770,4	828,6	901,6	959,9	1037	1098	1131	1222
Total power input	(1) kW	246,8	271,7	294,5	315,0	335,4	353,2	341,0	380,8
EER	(1) kW/kW	3,122	3,050	3,061	3,047	3,092	3,109	3,317	3,209
<b>COOLING ONLY (EN14511 VALUE)</b>									
Cooling capacity	(1)(2) kW	769,7	828,0	901,0	959,1	1037	1097	1130	1222
EER	(1)(2) kW/kW	3,080	3,020	3,030	3,010	3,060	3,070	3,270	3,170
Cooling energy class		-	-	-	-	-	-	-	-
SEPR HT	(3)(4)	5,83	5,93	5,96	5,91	5,90	5,89	5,86	5,79
<b>COOLING ONLY (GROSS VALUE)</b>									
<b>16°C/10°C</b>									
Cooling capacity	(5) kW	839,1	901,4	983,1	1048	1133	1199	1237	1330
Total power input	(5) kW	257,6	283,6	307,7	329,2	350,5	369,0	355,1	397,2
EER	(5) kW/kW	3,257	3,178	3,195	3,183	3,233	3,249	3,484	3,348
<b>23°C/15°C</b>									
Cooling capacity	(6) kW	952,9	1050	1147	1221	1322	1397	1416	1510
Total power input	(6) kW	274,9	299,2	324,7	347,2	369,8	389,3	377,5	423,2
EER	(6) kW/kW	3,466	3,509	3,532	3,517	3,575	3,588	3,751	3,568
<b>EXCHANGERS</b>									
<b>HEAT EXCHANGER USER SIDE IN REFRIGERATION</b>									
Water flow	(1) l/s	36,84	39,63	43,12	45,90	49,60	52,51	54,08	58,46
Pressure drop at the heat exchanger	(1)(2) kPa	52,8	43,5	45,5	51,6	46,6	52,2	55,3	60,7
<b>REFRIGERANT CIRCUIT</b>									
Compressors nr.	N°	2	2	2	2	2	2	2	2
No. Circuits	N°	2	2	2	2	2	2	2	2
Refrigerant charge	kg	124	132	144	153	166	176	183	196
<b>NOISE LEVEL</b>									
Sound Pressure	(7) dB(A)	58	58	59	59	60	60	61	61
Sound power level in cooling	(8)(9) dB(A)	91	91	92	92	93	93	94	94
<b>SIZE AND WEIGHT</b>									
A	(10) mm	6500	6500	7750	7750	9000	9000	10250	10250
B	(10) mm	2260	2260	2260	2260	2260	2260	2260	2260
H	(10) mm	2640	2640	2640	2640	2640	2640	2640	2640
Operating weight	(10) kg	7090	7590	8100	8270	8920	9060	9640	9710

#### Notes:

- 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 R134a [GWP<sub>100</sub> 1430] fluorinated greenhouse gases.

Certified data in EUROVENT



## FR2-G01-Z /SL-K

FR2-G01-Z /SL-K		1262	1322	1402	1503	1593	1663	1773	1883	
Power supply	V/ph/Hz	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	
<b>PERFORMANCE</b>										
<b>COOLING ONLY (GROSS VALUE)</b>										
Cooling capacity	(1)	kW	1257	1284	1386	1451	1573	1645	1714	1773
Total power input	(1)	kW	407,3	432,8	459,1	474,3	509,9	540,4	582,7	609,3
EER	(1)	kW/kW	3,086	2,967	3,019	3,059	3,085	3,044	2,941	2,910
<b>COOLING ONLY (EN14511 VALUE)</b>										
Cooling capacity	(1)(2)	kW	1256	1283	1385	1451	1572	1644	1714	1772
EER	(1)(2)	kW/kW	3,050	2,930	2,980	3,030	3,050	3,010	2,910	2,880
Cooling energy class			-	-	-	-	-	-	-	-
SEPR HT	(3)(4)		5,87	6,02	5,92	5,84	5,88	5,92	5,84	5,81
<b>COOLING ONLY (GROSS VALUE)</b>										
<b>16°C/10°C</b>										
Cooling capacity	(5)	kW	1371	1402	1508	1585	1717	1796	1865	1859
Total power input	(5)	kW	425,4	452,2	479,6	495,9	532,6	565,3	610,5	562,8
EER	(5)	kW/kW	3,223	3,100	3,144	3,196	3,224	3,177	3,055	3,303
<b>23°C/15°C</b>										
Cooling capacity	(6)	kW	1561	1636	1712	1849	2001	2095	2095	2127
Total power input	(6)	kW	428,9	478,5	513,1	523,1	561,8	596,4	596,4	600,9
EER	(6)	kW/kW	3,640	3,419	3,337	3,535	3,562	3,513	3,513	3,540
<b>EXCHANGERS</b>										
<b>HEAT EXCHANGER USER SIDE IN REFRIGERATION</b>										
Water flow	(1)	l/s	60,10	61,40	66,26	69,40	75,22	78,65	81,99	84,78
Pressure drop at the heat exchanger	(1)(2)	kPa	48,2	50,3	58,6	48,7	57,2	44,1	47,9	55,0
<b>REFRIGERANT CIRCUIT</b>										
Compressors nr.		N°	2	2	2	3	3	3	3	3
No. Circuits		N°	2	2	2	3	3	3	3	3
Refrigerant charge		kg	201	205	222	232	252	262	272	280
<b>NOISE LEVEL</b>										
Sound Pressure	(7)	dB(A)	61	61	61	61	61	61	61	62
Sound power level in cooling	(8)(9)	dB(A)	94	94	94	94	94	94	94	95
<b>SIZE AND WEIGHT</b>										
A	(10)	mm	10400	10400	11650	11650	12900	12900	12900	12900
B	(10)	mm	2260	2260	2260	2260	2260	2260	2260	2260
H	(10)	mm	2640	2640	2640	2640	2640	2640	2640	2500
Operating weight	(10)	kg	10060	10150	10720	12980	13560	13560	13650	13670

### Notes:

- 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 ▶ Seasonal energy efficiency ratio
- 4 ▶ Seasonal energy efficiency of high temperature process cooling [REGULATION (EU) N. 2016/2281]
- 5 ▶ Plant (side) cooling exchanger water (in/out) 16°C/ 10°C; Source (side) heat exchanger air (in) 35°C.

- 6 ▶ Plant (side) cooling exchanger water (in/out) 23°C/ 15°C; Source (side) heat exchanger air (in) 35°C.
- 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 taken in compliance with ISO 9614.
- 9 ▶ Sound power level in cooling, outdoors.
- 10 ▶ Unit in standard configuration, without optional accessories.

The units highlighted in this publication contain R134a [GWP<sub>100</sub> 1430] fluorinated greenhouse gases.

Certified data in EUROVENT

# FR<sup>2</sup>Z G01

## 0322 - 1883

Air cooled chillers  
for outdoor installation  
(from 398 to 921 kW)



### FR2-G01-Z / E

FR2-G01-Z / E			0352	0402	0452	0472	0572	0602	0652	0702	0772
Power supply	V/ph/Hz		400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50
<b>PERFORMANCE</b>											
<b>COOLING ONLY (GROSS VALUE)</b>											
Cooling capacity	(1)	kW	340,3	389,8	444,9	485,0	570,3	619,0	658,9	698,5	756,1
Total power input	(1)	kW	97,07	111,2	126,4	140,5	160,5	175,2	186,1	197,1	219,0
EER	(1)	kW/kW	3,505	3,505	3,520	3,452	3,553	3,533	3,541	3,544	3,453
<b>COOLING ONLY (EN14511 VALUE)</b>											
Cooling capacity	(1)(2)	kW	339,9	389,4	444,5	484,6	569,8	618,5	658,4	697,9	755,5
EER	(1)(2)	kW/kW	3,470	3,470	3,490	3,420	3,510	3,500	3,500	3,500	3,420
Cooling energy class			-	-	-	-	-	-	-	-	-
SEPR HT	(3)(4)		5,84	5,98	6,01	5,99	5,97	5,77	5,83	5,86	5,81
<b>COOLING ONLY (GROSS VALUE)</b>											
<b>16°C/10°C</b>											
Cooling capacity	(5)	kW	375,0	430,0	490,7	530,5	628,2	681,5	725,2	768,7	826,0
Total power input	(5)	kW	100,8	115,1	131,1	145,5	166,4	181,9	193,1	204,3	226,8
EER	(5)	kW/kW	3,720	3,736	3,743	3,646	3,775	3,747	3,756	3,763	3,642
<b>23°C/15°C</b>											
Cooling capacity	(6)	kW	434,1	498,8	569,2	606,8	727,0	787,8	838,2	888,2	943,1
Total power input	(6)	kW	106,8	121,2	138,7	153,2	175,8	192,7	204,3	215,9	239,1
EER	(6)	kW/kW	4,065	4,116	4,104	3,961	4,135	4,088	4,103	4,114	3,944
<b>EXCHANGERS</b>											
<b>HEAT EXCHANGER USER SIDE IN REFRIGERATION</b>											
Water flow	(1)	l/s	16,27	18,64	21,27	23,20	27,27	29,60	31,51	33,40	36,16
Pressure drop at the heat exchanger	(1)(2)	kPa	26,5	34,8	27,7	32,9	41,4	34,1	38,6	43,4	36,3
<b>REFRIGERANT CIRCUIT</b>											
Compressors nr.		N°	2	2	2	2	2	2	2	2	2
No. Circuits		N°	2	2	2	2	2	2	2	2	2
Refrigerant charge		kg	58,0	68,0	76,0	83,0	97,0	104	112	119	127
<b>NOISE LEVEL</b>											
Sound Pressure	(7)	dB(A)	66	67	67	67	67	67	68	68	68
Sound power level in cooling	(8)(9)	dB(A)	98	99	99	99	100	100	101	101	101
<b>SIZE AND WEIGHT</b>											
A	(10)	mm	4000	5250	5250	5250	6500	6500	7750	7750	7750
B	(10)	mm	2260	2260	2260	2260	2260	2260	2260	2260	2260
H	(10)	mm	2640	2640	2640	2640	2640	2640	2640	2640	2640
Operating weight	(10)	kg	3660	4270	4390	4440	5660	5960	6420	6550	6640

FR2-G01-Z / E			0852	0902	1002	1052	1152	1222	1322	1402	
Power supply	V/ph/Hz		400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	
<b>PERFORMANCE</b>											
<b>COOLING ONLY (GROSS VALUE)</b>											
Cooling capacity	(1)	kW	844,7	918,1	1001	1061	1133	1207	1311	1372	
Total power input	(1)	kW	242,4	262,9	284,6	305,5	325,8	346,3	383,3	402,1	
EER	(1)	kW/kW	3,485	3,492	3,517	3,473	3,478	3,485	3,420	3,412	
<b>COOLING ONLY (EN14511 VALUE)</b>											
Cooling capacity	(1)(2)	kW	844,1	917,4	1000	1060	1132	1206	1310	1371	
EER	(1)(2)	kW/kW	3,450	3,450	3,460	3,430	3,430	3,440	3,390	3,380	
Cooling energy class			-	-	-	-	-	-	-	-	
SEPR HT	(3)(4)		5,91	5,98	5,97	5,94	5,98	5,99	5,96	6,01	
<b>COOLING ONLY (GROSS VALUE)</b>											
<b>16°C/10°C</b>											
Cooling capacity	(5)	kW	926,4	1009	1099	1164	1243	1325	1431	1504	
Total power input	(5)	kW	251,4	272,6	295,0	316,7	337,8	359,1	397,7	417,4	
EER	(5)	kW/kW	3,685	3,701	3,725	3,675	3,680	3,690	3,598	3,603	
<b>23°C/15°C</b>											
Cooling capacity	(6)	kW	1064	1162	1266	1339	1430	1524	1633	1726	
Total power input	(6)	kW	265,5	287,9	311,4	334,1	356,4	379,1	420,1	441,8	
EER	(6)	kW/kW	4,008	4,036	4,066	4,008	4,012	4,020	3,887	3,907	
<b>EXCHANGERS</b>											
<b>HEAT EXCHANGER USER SIDE IN REFRIGERATION</b>											
Water flow	(1)	l/s	40,40	43,90	47,88	50,72	54,17	57,73	62,68	65,62	
Pressure drop at the heat exchanger	(1)(2)	kPa	40,0	47,2	61,2	48,7	53,2	59,2	39,7	43,5	
<b>REFRIGERANT CIRCUIT</b>											
Compressors nr.		N°	2	2	2	2	2	2	2	2	
No. Circuits		N°	2	2	2	2	2	2	2	2	
Refrigerant charge		kg	142	153	167	177	189	201	216	228	
<b>NOISE LEVEL</b>											
Sound Pressure	(7)	dB(A)	68	69	69	70	70	70	70	71	
Sound power level in cooling	(8)(9)	dB(A)	101	102	102	103	103	103	103	104	
<b>SIZE AND WEIGHT</b>											
A	(10)	mm	9000	9000	10250	10250	11650	11650	11650	12900	
B	(10)	mm	2260	2260	2260	2260	2260	2260	2260	2260	
H	(10)	mm	2640	2640	2640	2640	2640	2640	2640	2640	
Operating weight	(10)	kg	7530	8060	8570	8920	9430	9550	10490	11150	

#### Notes:

- 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 R134a [GWP<sub>100</sub> 1430] fluorinated greenhouse gases.

Certified data in EUROVENT



## FR2-G01-Z /SL-E

FR2-G01-Z /SL-E			0352	0402	0452	0472	0572	0602	0652	0702	0772
Power supply	V/ph/Hz		400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50
<b>PERFORMANCE</b>											
<b>COOLING ONLY (GROSS VALUE)</b>											
Cooling capacity	(1)	kW	336,3	386,0	439,6	480,9	563,4	610,9	650,6	690,1	748,9
Total power input	(1)	kW	95,76	108,8	124,5	139,6	158,4	173,7	184,2	194,7	218,0
EER	(1)	kW/kW	3,510	3,548	3,531	3,445	3,557	3,517	3,532	3,544	3,435
<b>COOLING ONLY (EN14511 VALUE)</b>											
Cooling capacity	(1)(2)	kW	335,9	385,6	439,3	480,5	562,9	610,4	650,1	689,5	748,3
EER	(1)(2)	kW/kW	3,480	3,510	3,500	3,410	3,510	3,480	3,490	3,500	3,400
Cooling energy class			-	-	-	-	-	-	-	-	-
SEPR HT	(3)(4)		5,97	6,12	6,14	6,11	6,06	5,88	5,95	5,99	5,97
<b>COOLING ONLY (GROSS VALUE)</b>											
<b>16°C/10°C</b>											
Cooling capacity	(5)	kW	370,2	425,6	484,6	525,5	620,0	672,0	715,6	758,8	817,6
Total power input	(5)	kW	99,63	112,9	129,5	144,9	164,6	180,7	191,5	202,3	226,4
EER	(5)	kW/kW	3,717	3,770	3,742	3,627	3,767	3,719	3,737	3,751	3,611
<b>23°C/15°C</b>											
Cooling capacity	(6)	kW	428,1	493,2	561,3	600,2	716,3	775,7	826,0	875,7	932,5
Total power input	(6)	kW	105,8	119,2	137,3	153,1	174,5	192,1	203,3	214,5	239,6
EER	(6)	kW/kW	4,046	4,138	4,088	3,920	4,105	4,038	4,063	4,083	3,892
<b>EXCHANGERS</b>											
<b>HEAT EXCHANGER USER SIDE IN REFRIGERATION</b>											
Water flow	(1)	l/s	16,08	18,46	21,02	23,00	26,94	29,21	31,11	33,00	35,81
Pressure drop at the heat exchanger	(1)(2)	kPa	25,9	34,1	27,0	32,3	40,4	33,2	37,6	42,3	35,6
<b>REFRIGERANT CIRCUIT</b>											
Compressors nr.		N°	2	2	2	2	2	2	2	2	2
No. Circuits		N°	2	2	2	2	2	2	2	2	2
Refrigerant charge		kg	58,0	68,0	76,0	83,0	97,0	104	112	119	127
<b>NOISE LEVEL</b>											
Sound Pressure	(7)	dB(A)	56	57	57	57	57	58	58	59	59
Sound power level in cooling	(8)(9)	dB(A)	88	89	89	89	90	91	91	92	92
<b>SIZE AND WEIGHT</b>											
A	(10)	mm	4000	5250	5250	5250	6500	6500	7750	7750	7750
B	(10)	mm	2260	2260	2260	2260	2260	2260	2260	2260	2260
H	(10)	mm	2640	2640	2640	2640	2640	2640	2640	2640	2640
Operating weight	(10)	kg	3930	4540	4660	4720	6200	6500	6960	7100	7190

FR2-G01-Z /SL-E			0852	0902	1002	1052	1152	1222	1322	1402
Power supply	V/ph/Hz		400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50
<b>PERFORMANCE</b>										
<b>COOLING ONLY (GROSS VALUE)</b>										
Cooling capacity	(1)	kW	834,3	905,0	987,3	1046	1118	1191	1295	1355
Total power input	(1)	kW	240,9	260,8	282,6	303,8	324,0	344,5	383,8	400,7
EER	(1)	kW/kW	3,463	3,470	3,494	3,443	3,451	3,457	3,374	3,382
<b>COOLING ONLY (EN14511 VALUE)</b>										
Cooling capacity	(1)(2)	kW	833,7	904,3	986,6	1046	1117	1190	1294	1354
EER	(1)(2)	kW/kW	3,430	3,430	3,440	3,400	3,400	3,410	3,340	3,350
Cooling energy class			-	-	-	-	-	-	-	-
SEPR HT	(3)(4)		6,01	6,05	6,04	6,03	6,07	6,07	6,04	6,09
<b>COOLING ONLY (GROSS VALUE)</b>										
<b>16°C/10°C</b>										
Cooling capacity	(5)	kW	914,0	993,0	1083	1148	1226	1306	1413	1484
Total power input	(5)	kW	250,4	270,9	293,6	315,6	336,7	358,0	399,3	417,0
EER	(5)	kW/kW	3,650	3,666	3,689	3,638	3,641	3,648	3,539	3,559
<b>23°C/15°C</b>										
Cooling capacity	(6)	kW	1048	1141	1245	1319	1408	1501	1611	1701
Total power input	(6)	kW	265,4	287,0	311,0	334,2	356,6	379,4	423,8	443,0
EER	(6)	kW/kW	3,949	3,976	4,003	3,947	3,948	3,956	3,801	3,840
<b>EXCHANGERS</b>										
<b>HEAT EXCHANGER USER SIDE IN REFRIGERATION</b>										
Water flow	(1)	l/s	39,90	43,28	47,22	50,04	53,45	56,95	61,94	64,80
Pressure drop at the heat exchanger	(1)(2)	kPa	39,0	45,9	59,5	47,4	51,8	57,6	38,8	42,4
<b>REFRIGERANT CIRCUIT</b>										
Compressors nr.		N°	2	2	2	2	2	2	2	2
No. Circuits		N°	2	2	2	2	2	2	2	2
Refrigerant charge		kg	142	153	167	177	189	201	216	228
<b>NOISE LEVEL</b>										
Sound Pressure	(7)	dB(A)	59	59	59	60	60	60	60	62
Sound power level in cooling	(8)(9)	dB(A)	92	92	92	93	93	93	93	95
<b>SIZE AND WEIGHT</b>										
A	(10)	mm	9000	9000	10250	10250	11650	11650	11650	12900
B	(10)	mm	2260	2260	2260	2260	2260	2260	2260	2260
H	(10)	mm	2640	2640	2640	2640	2640	2640	2640	2640
Operating weight	(10)	kg	8120	8690	9210	9560	10080	10200	11140	11810

## Notes:

- 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 ▶ Seasonal energy efficiency ratio
- 4 ▶ Seasonal energy efficiency of high temperature process cooling [REGULATION (EU) N. 2016/2281]
- 5 ▶ Plant (side) cooling exchanger water (in/out) 16°C/10°C; Source (side) heat exchanger air (in) 35°C.

- 6 ▶ Plant (side) cooling exchanger water (in/out) 23°C/15°C; Source (side) heat exchanger air (in) 35°C.
- 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 taken in compliance with ISO 9614.
- 9 ▶ Sound power level in cooling, outdoors.
- 10 ▶ Unit in standard configuration, without optional accessories.

The units highlighted in this publication contain R134a [GWP<sub>100</sub> 1430] fluorinated greenhouse gases.

Certified data in EUROVENT

# FR<sup>2</sup>Z G05

## 0322 - 1883

Air cooled chillers  
for outdoor installation  
(from 398 to 921 kW)



### FR2-G05-Z /K

FR2-G05-Z /K		0322	0352	0402	0472	0512	0572	0652	0702
Power supply	V/ph/Hz	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50
<b>PERFORMANCE</b>									
<b>COOLING ONLY (GROSS VALUE)</b>									
Cooling capacity	(1) kW	322,1	350,2	411,9	464,4	516,7	573,4	645,8	707,6
Total power input	(1) kW	102,4	119,2	133,1	146,1	172,5	188,6	207,4	239,2
EER	(1) kW/kW	3,146	2,938	3,095	3,179	2,995	3,040	3,114	2,958
<b>COOLING ONLY (EN14511 VALUE)</b>									
Cooling capacity	(1)(2) kW	321,8	349,8	411,5	463,9	516,2	572,9	645,2	707,0
EER	(1)(2) kW/kW	3,120	2,910	3,060	3,140	2,970	3,010	3,080	2,930
Cooling energy class		-	-	-	-	-	-	-	-
SEPR HT	(3)(4)	5,69	6,01	5,88	5,74	5,92	5,87	5,78	5,64
<b>COOLING ONLY (GROSS VALUE)</b>									
<b>16°C/10°C</b>									
Cooling capacity	(5) kW	352,8	382,4	449,1	505,2	563,8	626,6	706,9	769,2
Total power input	(5) kW	106,9	124,7	138,8	152,0	180,6	197,0	216,7	250,2
EER	(5) kW/kW	3,300	3,067	3,236	3,324	3,122	3,181	3,262	3,074
<b>23°C/15°C</b>									
Cooling capacity	(6) kW	404,5	436,1	510,7	572,8	642,1	715,4	809,6	819,8
Total power input	(6) kW	114,1	133,4	147,9	161,3	193,7	210,8	231,8	233,3
EER	(6) kW/kW	3,545	3,269	3,453	3,551	3,315	3,394	3,493	3,514
<b>EXCHANGERS</b>									
<b>HEAT EXCHANGER USER SIDE IN REFRIGERATION</b>									
Water flow	(1) l/s	15,40	16,75	19,70	22,21	24,71	27,42	30,88	33,84
Pressure drop at the heat exchanger	(1)(2) kPa	27,7	32,7	38,8	49,4	37,3	46,0	46,6	44,5
<b>REFRIGERANT CIRCUIT</b>									
Compressors nr.	N°	2	2	2	2	2	2	2	2
No. Circuits	N°	2	2	2	2	2	2	2	2
Refrigerant charge	kg	57,0	60,0	71,0	81,0	88,0	98,0	113	120
<b>NOISE LEVEL</b>									
Sound Pressure	(7) dB(A)	67	67	67	68	68	68	68	70
Sound power level in cooling	(8)(9) dB(A)	99	99	99	100	100	100	100	102
<b>SIZE AND WEIGHT</b>									
A	(10) mm	2750	2750	4000	4000	4000	5250	5250	5250
B	(10) mm	2260	2260	2260	2260	2260	2260	2260	2260
H	(10) mm	2640	2640	2640	2640	2640	2640	2640	2640
Operating weight	(10) kg	3120	2950	3600	3730	4570	5060	5190	5550

FR2-G05-Z /K		0772	0852	0902	1002	1052	1102	1152	1222
Power supply	V/ph/Hz	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50
<b>PERFORMANCE</b>									
<b>COOLING ONLY (GROSS VALUE)</b>									
Cooling capacity	(1) kW	779,8	862,9	937,3	996,0	1056	1098	1139	1232
Total power input	(1) kW	254,6	272,4	295,1	315,5	343,2	369,3	354,3	396,3
EER	(1) kW/kW	3,063	3,168	3,176	3,157	3,077	2,973	3,215	3,109
<b>COOLING ONLY (EN14511 VALUE)</b>									
Cooling capacity	(1)(2) kW	779,1	862,3	936,6	995,2	1055	1097	1138	1231
EER	(1)(2) kW/kW	3,020	3,130	3,140	3,120	3,040	2,940	3,170	3,070
Cooling energy class		-	-	-	-	-	-	-	-
SEPR HT	(3)(4)	5,79	5,94	5,91	5,85	5,92	5,93	5,87	5,78
<b>COOLING ONLY (GROSS VALUE)</b>									
<b>16°C/10°C</b>									
Cooling capacity	(5) kW	848,9	940,9	1024	1088	1154	1197	1245	1340
Total power input	(5) kW	265,7	283,8	307,6	328,9	358,5	386,2	369,2	413,9
EER	(5) kW/kW	3,195	3,315	3,329	3,308	3,219	3,099	3,372	3,237
<b>23°C/15°C</b>									
Cooling capacity	(6) kW	963,0	1070	1168	1244	1317	1364	1423	1455
Total power input	(6) kW	283,5	301,9	327,7	350,3	383,0	413,5	392,8	397,0
EER	(6) kW/kW	3,397	3,544	3,564	3,551	3,439	3,299	3,623	3,665
<b>EXCHANGERS</b>									
<b>HEAT EXCHANGER USER SIDE IN REFRIGERATION</b>									
Water flow	(1) l/s	37,29	41,27	44,82	47,63	50,51	52,49	54,45	58,92
Pressure drop at the heat exchanger	(1)(2) kPa	54,1	47,2	49,2	55,6	48,3	52,1	56,1	61,6
<b>REFRIGERANT CIRCUIT</b>									
Compressors nr.	N°	2	2	2	2	2	2	2	2
No. Circuits	N°	2	2	2	2	2	2	2	2
Refrigerant charge	kg	133	150	163	173	179	186	195	210
<b>NOISE LEVEL</b>									
Sound Pressure	(7) dB(A)	69	69	70	70	71	71	71	71
Sound power level in cooling	(8)(9) dB(A)	102	102	103	103	104	104	104	104
<b>SIZE AND WEIGHT</b>									
A	(10) mm	6500	6500	7750	7750	7750	7750	9000	9000
B	(10) mm	2260	2260	2260	2260	2260	2260	2260	2260
H	(10) mm	2640	2640	2640	2640	2640	2640	2640	2640
Operating weight	(10) kg	6400	6980	7460	7620	7870	7900	8430	8500

#### Notes:

- 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 R513A [GWP<sub>100</sub> 631] fluorinated greenhouse gases.

Certified data in EUROVENT



## FR2-G05-Z /K

FR2-G05-Z /K		1262	1322	1402	1503	1593	1663	1773	1883	
Power supply	V/ph/Hz	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	
<b>PERFORMANCE</b>										
<b>COOLING ONLY (GROSS VALUE)</b>										
Cooling capacity	(1)	kW	1264	1332	1400	1506	1592	1664	1778	1839
Total power input	(1)	kW	423,2	433,9	474,8	475,0	523,1	556,9	580,4	605,3
EER	(1)	kW/kW	2,987	3,070	2,949	3,171	3,043	2,988	3,063	3,038
<b>COOLING ONLY (EN14511 VALUE)</b>										
Cooling capacity	(1)(2)	kW	1264	1331	1399	1505	1591	1663	1777	1838
EER	(1)(2)	kW/kW	2,960	3,030	2,910	3,130	3,010	2,960	3,030	3,000
Cooling energy class			-	-	-	-	-	-	-	-
SEPR HT	(3)(4)		5,94	5,99	5,86	5,80	5,87	5,95	5,77	5,76
<b>COOLING ONLY (GROSS VALUE)</b>										
<b>16°C/10°C</b>										
Cooling capacity	(5)	kW	1378	1457	1524	1647	1737	1816	1936	2000
Total power input (5)		kW	442,4	452,6	496,2	495,4	546,5	582,6	606,4	633,2
EER	(5)	kW/kW	3,115	3,219	3,071	3,325	3,178	3,117	3,193	3,159
<b>23°C/15°C</b>										
Cooling capacity	(6)	kW	1535	1666	1666	1883	1981	2070	2134	2166
Total power input	(6)	kW	449,9	482,9	482,9	527,9	583,9	624,1	601,9	606,4
EER	(6)	kW/kW	3,412	3,450	3,450	3,567	3,393	3,317	3,545	3,572
<b>EXCHANGERS</b>										
<b>HEAT EXCHANGER USER SIDE IN REFRIGERATION</b>										
Water flow	(1)	l/s	60,46	63,71	66,96	72,03	76,12	79,55	85,04	87,92
Pressure drop at the heat exchanger	(1)(2)	kPa	48,8	54,2	59,9	52,5	58,6	45,1	51,6	59,1
<b>REFRIGERANT CIRCUIT</b>										
Compressors nr.		N°	2	2	2	3	3	3	3	3
No. Circuits		N°	2	2	2	3	3	3	3	3
Refrigerant charge		kg	214	232	238	263	271	281	303	318
<b>NOISE LEVEL</b>										
Sound Pressure	(7)	dB(A)	72	73	73	73	73	73	73	73
Sound power level in cooling	(8)(9)	dB(A)	105	106	106	106	106	106	106	106
<b>SIZE AND WEIGHT</b>										
A	(10)	mm	9150	10400	10400	11650	11650	11650	12900	12900
B	(10)	mm	2260	2260	2260	2260	2260	2260	2260	2260
H	(10)	mm	2640	2640	2640	2640	2640	2640	2640	2640
Operating weight	(10)	kg	8860	9470	9610	12050	12110	12120	12710	12720

**Notes:**

- 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 ▶ Seasonal energy efficiency ratio
- 4 ▶ Seasonal energy efficiency of high temperature process cooling [REGULATION (EU) N. 2016/2281]
- 5 ▶ Plant (side) cooling exchanger water (in/out) 16°C/ 10°C; Source (side) heat exchanger air (in) 35°C.

The units highlighted in this publication contain R513A [GWP<sub>100</sub> 631] fluorinated greenhouse gases.

- 6 ▶ Plant (side) cooling exchanger water (in/out) 23°C/ 15°C; Source (side) heat exchanger air (in) 35°C.
- 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 taken in compliance with ISO 9614.
- 9 ▶ Sound power level in cooling, outdoors.
- 10 ▶ Unit in standard configuration, without optional accessories.

Certified data in EUROVENT

# FR<sup>2</sup>Z

**G05**
**0322 - 1883**

 Air cooled chillers  
 for outdoor installation  
 (from 398 to 921 kW)

**FR2-G05-Z /SL-K**

FR2-G05-Z /SL-K		0322	0352	0402	0472	0512	0572	0652	0702
Power supply	V/ph/Hz	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50
<b>PERFORMANCE</b>									
<b>COOLING ONLY (GROSS VALUE)</b>									
Cooling capacity	(1) kW	310,2	358,4	410,2	450,1	511,7	557,4	621,9	713,0
Total power input	(1) kW	103,1	115,1	128,2	148,9	164,4	177,9	211,2	226,9
EER	(1) kW/kW	3,009	3,114	3,200	3,023	3,113	3,133	2,945	3,142
<b>COOLING ONLY (EN14511 VALUE)</b>									
Cooling capacity	(1)(2) kW	309,8	358,0	409,8	449,7	511,2	556,9	621,3	712,4
EER	(1)(2) kW/kW	2,980	3,080	3,160	2,990	3,080	3,100	2,910	3,110
Cooling energy class		-	-	-	-	-	-	-	-
SEPR HT	(3)(4)	5,69	5,80	5,97	5,76	5,70	5,66	5,84	5,72
<b>COOLING ONLY (GROSS VALUE)</b>									
<b>16°C/10°C</b>									
Cooling capacity	(5) kW	339,3	392,4	449,6	488,9	558,7	610,4	679,9	776,5
Total power input	(5) kW	107,8	120,2	133,8	155,3	171,6	185,7	221,1	236,6
EER	(5) kW/kW	3,147	3,265	3,360	3,148	3,256	3,287	3,075	3,282
<b>23°C/15°C</b>									
Cooling capacity	(6) kW	388,0	449,5	516,0	552,7	637,2	699,4	794,8	882,1
Total power input	(6) kW	115,3	128,3	142,5	165,3	183,2	198,3	234,0	252,2
EER	(6) kW/kW	3,365	3,504	3,621	3,344	3,478	3,527	3,397	3,498
<b>EXCHANGERS</b>									
<b>HEAT EXCHANGER USER SIDE IN REFRIGERATION</b>									
Water flow	(1) l/s	14,83	17,14	19,62	21,53	24,47	26,66	29,74	34,10
Pressure drop at the heat exchanger	(1)(2) kPa	25,7	34,3	38,5	46,4	36,6	43,5	43,2	45,2
<b>REFRIGERANT CIRCUIT</b>									
Compressors nr.	N°	2	2	2	2	2	2	2	2
No. Circuits	N°	2	2	2	2	2	2	2	2
Refrigerant charge	kg	57,0	66,0	76,0	81,0	93,0	103	113	131
<b>NOISE LEVEL</b>									
Sound Pressure	(7) dB(A)	55	55	56	56	57	57	57	57
Sound power level in cooling	(8)(9) dB(A)	87	87	88	88	89	89	89	90
<b>SIZE AND WEIGHT</b>									
A	(10) mm	2750	4000	4000	4000	5250	5250	5250	6500
B	(10) mm	2260	2260	2260	2260	2260	2260	2260	2260
H	(10) mm	2640	2640	2640	2640	2640	2640	2640	2640
Operating weight	(10) kg	3380	3830	3960	4000	5270	5680	5720	6600

FR2-G05-Z /SL-K		0772	0852	0902	1002	1052	1102	1152	1222
Power supply	V/ph/Hz	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50
<b>PERFORMANCE</b>									
<b>COOLING ONLY (GROSS VALUE)</b>									
Cooling capacity	(1) kW	770,4	828,6	901,6	959,9	1037	1098	1131	1222
Total power input	(1) kW	251,5	276,9	300,1	321,0	341,7	359,9	347,4	388,0
EER	(1) kW/kW	3,063	2,992	3,004	2,990	3,035	3,051	3,256	3,149
<b>COOLING ONLY (EN14511 VALUE)</b>									
Cooling capacity	(1)(2) kW	769,7	828,0	901,0	959,1	1037	1097	1130	1222
EER	(1)(2) kW/kW	3,020	2,960	2,970	2,960	3,000	3,020	3,210	3,110
Cooling energy class		-	-	-	-	-	-	-	-
SEPR HT	(3)(4)	5,80	5,92	5,94	5,91	5,90	5,90	5,86	5,78
<b>COOLING ONLY (GROSS VALUE)</b>									
<b>16°C/10°C</b>									
Cooling capacity	(5) kW	839,1	901,4	983,1	1048	1133	1199	1237	1330
Total power input	(5) kW	262,5	289,0	313,6	335,5	357,1	375,9	361,8	404,7
EER	(5) kW/kW	3,197	3,119	3,135	3,124	3,173	3,190	3,419	3,286
<b>23°C/15°C</b>									
Cooling capacity	(6) kW	952,9	1050	1147	1221	1322	1397	1416	1510
Total power input	(6) kW	280,1	304,8	330,8	353,7	376,7	396,5	384,6	431,2
EER	(6) kW/kW	3,402	3,445	3,467	3,452	3,509	3,523	3,682	3,502
<b>EXCHANGERS</b>									
<b>HEAT EXCHANGER USER SIDE IN REFRIGERATION</b>									
Water flow	(1) l/s	36,84	39,63	43,12	45,90	49,60	52,51	54,08	58,46
Pressure drop at the heat exchanger	(1)(2) kPa	52,8	43,5	45,5	51,6	46,6	52,2	55,3	60,7
<b>REFRIGERANT CIRCUIT</b>									
Compressors nr.	N°	2	2	2	2	2	2	2	2
No. Circuits	N°	2	2	2	2	2	2	2	2
Refrigerant charge	kg	140	150	163	173	187	199	207	222
<b>NOISE LEVEL</b>									
Sound Pressure	(7) dB(A)	58	58	59	59	60	60	61	61
Sound power level in cooling	(8)(9) dB(A)	91	91	92	92	93	93	94	94
<b>SIZE AND WEIGHT</b>									
A	(10) mm	6500	6500	7750	7750	9000	9000	10250	10250
B	(10) mm	2260	2260	2260	2260	2260	2260	2260	2260
H	(10) mm	2640	2640	2640	2640	2640	2640	2640	2640
Operating weight	(10) kg	7090	7590	8100	8270	8920	9060	9640	9710

**Notes:**

- 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 R513A [GWP<sub>100</sub> 631] fluorinated greenhouse gases.

Certified data in EUROVENT





## FR2-G05-Z /SL-K

FR2-G05-Z /SL-K		1262	1322	1402	1503	1593	1663	1773	1883	
Power supply	V/ph/Hz	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	
<b>PERFORMANCE</b>										
<b>COOLING ONLY (GROSS VALUE)</b>										
Cooling capacity	(1)	kW	1257	1284	1386	1451	1573	1645	1714	1773
Total power input	(1)	kW	415,0	441,0	467,8	483,3	519,5	550,6	593,8	620,9
EER	(1)	kW/kW	3,029	2,912	2,963	3,002	3,028	2,988	2,886	2,856
<b>COOLING ONLY (EN14511 VALUE)</b>										
Cooling capacity	(1)(2)	kW	1256	1283	1385	1451	1572	1644	1714	1772
EER	(1)(2)	kW/kW	3,000	2,880	2,930	2,970	2,990	2,960	2,860	2,820
Cooling energy class			-	-	-	-	-	-	-	-
SEPR HT	(3)(4)		5,87	6,02	5,90	5,83	5,88	5,91	5,83	5,80
<b>COOLING ONLY (GROSS VALUE)</b>										
<b>16°C/10°C</b>										
Cooling capacity	(5)	kW	1371	1402	1508	1585	1717	1796	1865	1859
Total power input	(5)	kW	433,4	460,8	488,7	505,3	542,7	576,1	622,1	573,3
EER	(5)	kW/kW	3,163	3,043	3,086	3,137	3,164	3,118	2,998	3,243
<b>23°C/15°C</b>										
Cooling capacity	(6)	kW	1561	1636	1712	1849	2001	2095	2095	2127
Total power input	(6)	kW	436,8	487,5	522,9	532,9	572,3	607,6	607,6	612,1
EER	(6)	kW/kW	3,574	3,356	3,274	3,470	3,496	3,448	3,448	3,475
<b>EXCHANGERS</b>										
<b>HEAT EXCHANGER USER SIDE IN REFRIGERATION</b>										
Water flow	(1)	l/s	60,10	61,40	66,26	69,40	75,22	78,65	81,99	84,78
Pressure drop at the heat exchanger	(1)(2)	kPa	48,2	50,3	58,6	48,7	57,2	44,1	47,9	55,0
<b>REFRIGERANT CIRCUIT</b>										
Compressors nr.		N°	2	2	2	3	3	3	3	3
No. Circuits		N°	2	2	2	3	3	3	3	3
Refrigerant charge		kg	228	232	251	263	285	297	308	318
<b>NOISE LEVEL</b>										
Sound Pressure	(7)	dB(A)	61	61	61	61	61	61	61	62
Sound power level in cooling	(8)(9)	dB(A)	94	94	94	94	94	94	94	95
<b>SIZE AND WEIGHT</b>										
A	(10)	mm	10400	10400	11650	11650	12900	12900	12900	12900
B	(10)	mm	2260	2260	2260	2260	2260	2260	2260	2260
H	(10)	mm	2640	2640	2640	2640	2640	2640	2640	2640
Operating weight	(10)	kg	10060	10150	10720	12980	13560	13560	13650	13670

**Notes:**

- 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 ▶ Seasonal energy efficiency ratio
- 4 ▶ Seasonal energy efficiency of high temperature process cooling [REGULATION (EU) N. 2016/2281]
- 5 ▶ Plant (side) cooling exchanger water (in/out) 16°C/ 10°C; Source (side) heat exchanger air (in) 35°C.

The units highlighted in this publication contain R513A [GWP<sub>100</sub> 631] fluorinated greenhouse gases.

- 6 ▶ Plant (side) cooling exchanger water (in/out) 23°C/ 15°C; Source (side) heat exchanger air (in) 35°C.
- 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 taken in compliance with ISO 9614.
- 9 ▶ Sound power level in cooling, outdoors.
- 10 ▶ Unit in standard configuration, without optional accessories.

Certified data in EUROVENT

# FR<sup>2</sup>Z

**G05**
**0322 - 1883**

 Air cooled chillers  
 for outdoor installation  
 (from 398 to 921 kW)

**FR2-G05-Z / E**

FR2-G05-Z / E			0352	0402	0452	0472	0572	0602	0652	0702	0772
Power supply	V/ph/Hz		400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50
<b>PERFORMANCE</b>											
<b>COOLING ONLY (GROSS VALUE)</b>											
Cooling capacity	(1)	kW	340,3	389,8	444,9	485,0	570,3	619,0	658,9	698,5	756,1
Total power input	(1)	kW	98,73	113,1	128,5	142,9	163,3	178,3	189,4	200,5	222,8
EER	(1)	kW/kW	3,448	3,447	3,462	3,394	3,492	3,472	3,479	3,484	3,394
<b>COOLING ONLY (EN14511 VALUE)</b>											
Cooling capacity	(1)(2)	kW	339,9	389,4	444,5	484,6	569,8	618,5	658,4	697,9	755,5
EER	(1)(2)	kW/kW	3,410	3,410	3,430	3,360	3,450	3,440	3,440	3,440	3,360
Cooling energy class			-	-	-	-	-	-	-	-	-
SEPR HT	(3)(4)		5,82	5,96	5,99	5,97	5,95	5,75	5,81	5,84	5,79
<b>COOLING ONLY (GROSS VALUE)</b>											
<b>16°C/10°C</b>											
Cooling capacity	(5)	kW	375,0	430,0	490,7	530,5	628,2	681,5	725,2	768,7	826,0
Total power input	(5)	kW	102,5	117,0	133,4	148,0	169,3	185,1	196,4	207,8	230,8
EER	(5)	kW/kW	3,659	3,675	3,678	3,584	3,711	3,682	3,692	3,699	3,579
<b>23°C/15°C</b>											
Cooling capacity	(6)	kW	434,1	498,8	569,2	606,8	727,0	787,8	838,2	888,2	943,1
Total power input	(6)	kW	108,6	123,3	141,1	155,9	178,8	196,1	207,9	219,6	243,3
EER	(6)	kW/kW	3,997	4,045	4,034	3,892	4,066	4,017	4,032	4,045	3,876
<b>EXCHANGERS</b>											
<b>HEAT EXCHANGER USER SIDE IN REFRIGERATION</b>											
Water flow	(1)	l/s	16,27	18,64	21,27	23,20	27,27	29,60	31,51	33,40	36,16
Pressure drop at the heat exchanger	(1)(2)	kPa	26,5	34,8	27,7	32,9	41,4	34,1	38,6	43,4	36,3
<b>REFRIGERANT CIRCUIT</b>											
Compressors nr.		N°	2	2	2	2	2	2	2	2	2
No. Circuits		N°	2	2	2	2	2	2	2	2	2
Refrigerant charge		kg	65,0	76,0	86,0	94,0	109	117	126	134	143
<b>NOISE LEVEL</b>											
Sound Pressure	(7)	dB(A)	66	67	67	67	67	67	68	68	68
Sound power level in cooling	(8)(9)	dB(A)	98	99	99	99	100	100	101	101	101
<b>SIZE AND WEIGHT</b>											
A	(10)	mm	4000	5250	5250	5250	6500	6500	7750	7750	7750
B	(10)	mm	2260	2260	2260	2260	2260	2260	2260	2260	2260
H	(10)	mm	2640	2640	2640	2640	2640	2640	2640	2640	2640
Operating weight	(10)	kg	3660	4270	4390	4440	5660	5960	6420	6550	6640

FR2-G05-Z / E			0852	0902	1002	1052	1152	1222	1322	1402	
Power supply	V/ph/Hz		400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	
<b>PERFORMANCE</b>											
<b>COOLING ONLY (GROSS VALUE)</b>											
Cooling capacity	(1)	kW	844,7	918,1	1001	1061	1133	1207	1311	1372	
Total power input	(1)	kW	246,7	267,5	289,5	310,9	331,5	352,4	390,1	409,2	
EER	(1)	kW/kW	3,424	3,432	3,458	3,413	3,418	3,425	3,361	3,353	
<b>COOLING ONLY (EN14511 VALUE)</b>											
Cooling capacity	(1)(2)	kW	844,1	917,4	1000	1060	1132	1206	1310	1371	
EER	(1)(2)	kW/kW	3,390	3,390	3,410	3,370	3,370	3,380	3,330	3,320	
Cooling energy class			-	-	-	-	-	-	-	-	
SEPR HT	(3)(4)		5,89	5,96	5,95	5,92	5,96	5,97	5,94	5,99	
<b>COOLING ONLY (GROSS VALUE)</b>											
<b>16°C/10°C</b>											
Cooling capacity	(5)	kW	926,4	1009	1099	1164	1243	1325	1431	1504	
Total power input	(5)	kW	255,8	277,4	300,2	322,2	343,7	365,4	404,8	424,8	
EER	(5)	kW/kW	3,622	3,637	3,661	3,613	3,617	3,626	3,535	3,540	
<b>23°C/15°C</b>											
Cooling capacity	(6)	kW	1064	1162	1266	1339	1430	1524	1633	1726	
Total power input	(6)	kW	270,2	293,0	316,9	339,9	362,7	385,8	427,6	449,6	
EER	(6)	kW/kW	3,938	3,966	3,995	3,939	3,943	3,950	3,819	3,839	
<b>EXCHANGERS</b>											
<b>HEAT EXCHANGER USER SIDE IN REFRIGERATION</b>											
Water flow	(1)	l/s	40,40	43,90	47,88	50,72	54,17	57,73	62,68	65,62	
Pressure drop at the heat exchanger	(1)(2)	kPa	40,0	47,2	61,2	48,7	53,2	59,2	39,7	43,5	
<b>REFRIGERANT CIRCUIT</b>											
Compressors nr.		N°	2	2	2	2	2	2	2	2	
No. Circuits		N°	2	2	2	2	2	2	2	2	
Refrigerant charge		kg	160	173	188	200	213	227	244	258	
<b>NOISE LEVEL</b>											
Sound Pressure	(7)	dB(A)	68	69	69	70	70	70	70	71	
Sound power level in cooling	(8)(9)	dB(A)	101	102	102	103	103	103	103	104	
<b>SIZE AND WEIGHT</b>											
A	(10)	mm	9000	9000	10250	10250	11650	11650	11650	12900	
B	(10)	mm	2260	2260	2260	2260	2260	2260	2260	2260	
H	(10)	mm	2640	2640	2640	2640	2640	2640	2640	2640	
Operating weight	(10)	kg	7530	8060	8570	8920	9430	9550	10490	11150	

**Notes:**

- 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 R513A [GWP<sub>100</sub> 631] fluorinated greenhouse gases.

Certified data in EUROVENT



## FR2-G05-Z /SL-E

FR2-G05-Z /SL-E		0352	0402	0452	0472	0572	0602	0652	0702	0772
Power supply	V/ph/Hz	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50
<b>PERFORMANCE</b>										
<b>COOLING ONLY (GROSS VALUE)</b>										
Cooling capacity	(1) kW	336,3	386,0	439,6	480,9	563,4	610,9	650,6	690,1	748,9
Total power input	(1) kW	97,46	110,7	126,7	142,1	161,2	176,8	187,4	198,1	221,9
EER	(1) kW/kW	3,449	3,487	3,470	3,384	3,495	3,455	3,472	3,484	3,375
<b>COOLING ONLY (EN14511 VALUE)</b>										
Cooling capacity	(1)(2) kW	335,9	385,6	439,3	480,5	562,9	610,4	650,1	689,5	748,3
EER	(1)(2) kW/kW	3,420	3,450	3,440	3,350	3,450	3,420	3,430	3,440	3,340
Cooling energy class		-	-	-	-	-	-	-	-	-
SEPR HT	(3)(4)	5,94	6,10	6,12	6,08	6,04	5,86	5,93	5,97	5,95
<b>COOLING ONLY (GROSS VALUE)</b>										
<b>16°C/10°C</b>										
Cooling capacity	(5) kW	370,2	425,6	484,6	525,5	620,0	672,0	715,6	758,8	817,6
Total power input	(5) kW	101,4	114,8	131,8	147,5	167,5	184,0	194,9	205,9	230,4
EER	(5) kW/kW	3,651	3,707	3,677	3,563	3,701	3,652	3,672	3,685	3,549
<b>23°C/15°C</b>										
Cooling capacity	(6) kW	428,1	493,2	561,3	600,2	716,3	775,7	826,0	875,7	932,5
Total power input	(6) kW	107,7	121,3	139,7	155,8	177,6	195,6	207,0	218,4	243,9
EER	(6) kW/kW	3,975	4,066	4,018	3,852	4,033	3,966	3,990	4,010	3,823
<b>EXCHANGERS</b>										
<b>HEAT EXCHANGER USER SIDE IN REFRIGERATION</b>										
Water flow	(1) l/s	16,08	18,46	21,02	23,00	26,94	29,21	31,11	33,00	35,81
Pressure drop at the heat exchanger	(1)(2) kPa	25,9	34,1	27,0	32,3	40,4	33,2	37,6	42,3	35,6
<b>REFRIGERANT CIRCUIT</b>										
Compressors nr.	N°	2	2	2	2	2	2	2	2	2
No. Circuits	N°	2	2	2	2	2	2	2	2	2
Refrigerant charge	kg	65,0	76,0	86,0	94,0	109	117	126	134	143
<b>NOISE LEVEL</b>										
Sound Pressure	(7) dB(A)	56	57	57	57	57	58	58	59	59
Sound power level in cooling	(8)(9) dB(A)	88	89	89	89	90	91	91	92	92
<b>SIZE AND WEIGHT</b>										
A	(10) mm	4000	5250	5250	5250	6500	6500	7750	7750	7750
B	(10) mm	2260	2260	2260	2260	2260	2260	2260	2260	2260
H	(10) mm	2640	2640	2640	2640	2640	2640	2640	2640	2640
Operating weight	(10) kg	3930	4540	4660	4720	6200	6500	6960	7100	7190

FR2-G05-Z /SL-E		0852	0902	1002	1052	1152	1222	1322	1402
Power supply	V/ph/Hz	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50
<b>PERFORMANCE</b>									
<b>COOLING ONLY (GROSS VALUE)</b>									
Cooling capacity	(1) kW	834,3	905,0	987,3	1046	1118	1191	1295	1355
Total power input	(1) kW	245,3	265,5	287,7	309,2	329,8	350,7	390,7	408,0
EER	(1) kW/kW	3,401	3,409	3,432	3,383	3,390	3,396	3,315	3,321
<b>COOLING ONLY (EN14511 VALUE)</b>									
Cooling capacity	(1)(2) kW	833,7	904,3	986,6	1046	1117	1190	1294	1354
EER	(1)(2) kW/kW	3,370	3,370	3,380	3,340	3,350	3,350	3,280	3,290
Cooling energy class		-	-	-	-	-	-	-	-
SEPR HT	(3)(4)	5,99	6,03	6,03	6,00	6,05	6,05	6,02	6,07
<b>COOLING ONLY (GROSS VALUE)</b>									
<b>16°C/10°C</b>									
Cooling capacity	(5) kW	914,0	993,0	1083	1148	1226	1306	1413	1484
Total power input	(5) kW	254,9	275,8	298,9	321,3	342,8	364,5	406,6	424,6
EER	(5) kW/kW	3,586	3,600	3,623	3,573	3,576	3,583	3,475	3,495
<b>23°C/15°C</b>									
Cooling capacity	(6) kW	1048	1141	1245	1319	1408	1501	1611	1701
Total power input	(6) kW	270,2	292,2	316,7	340,2	363,1	386,3	431,5	451,1
EER	(6) kW/kW	3,879	3,905	3,931	3,877	3,878	3,886	3,733	3,771
<b>EXCHANGERS</b>									
<b>HEAT EXCHANGER USER SIDE IN REFRIGERATION</b>									
Water flow	(1) l/s	39,90	43,28	47,22	50,04	53,45	56,95	61,94	64,80
Pressure drop at the heat exchanger	(1)(2) kPa	39,0	45,9	59,5	47,4	51,8	57,6	38,8	42,4
<b>REFRIGERANT CIRCUIT</b>									
Compressors nr.	N°	2	2	2	2	2	2	2	2
No. Circuits	N°	2	2	2	2	2	2	2	2
Refrigerant charge	kg	160	173	188	200	213	227	244	258
<b>NOISE LEVEL</b>									
Sound Pressure	(7) dB(A)	59	59	59	60	60	60	60	62
Sound power level in cooling	(8)(9) dB(A)	92	92	92	93	93	93	93	95
<b>SIZE AND WEIGHT</b>									
A	(10) mm	9000	9000	10250	10250	11650	11650	11650	12900
B	(10) mm	2260	2260	2260	2260	2260	2260	2260	2260
H	(10) mm	2640	2640	2640	2640	2640	2640	2640	2640
Operating weight	(10) kg	8120	8690	9210	9560	10080	10200	11140	11810

## Notes:

- 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 ▶ Seasonal energy efficiency ratio
- 4 ▶ Seasonal energy efficiency of high temperature process cooling [REGULATION (EU) N. 2016/2281]
- 5 ▶ Plant (side) cooling exchanger water (in/out) 16°C/10°C; Source (side) heat exchanger air (in) 35°C.

- 6 ▶ Plant (side) cooling exchanger water (in/out) 23°C/15°C; Source (side) heat exchanger air (in) 35°C.
- 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 taken in compliance with ISO 9614.
- 9 ▶ Sound power level in cooling, outdoors.
- 10 ▶ Unit in standard configuration, without optional accessories.

The units highlighted in this publication contain R513A [GWP<sub>100</sub> 631] 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

**Plant type:** Hydronic System, Air to Air System, HPAC System

**Cooling capacity:** 6490

**Heating capacity:** 566

**Air flow:** 13005

**Installed machines:**

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

Specifically, there are 28 w-NEXT 2 K 180, RC branded hydronic close control units for the server rooms, 2 NX-W/ 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 supercomputer.



# MORE THAN 1000 PROJECTS ALL OVER THE WORLD

## CDC CANBERRA DATA CENTER- HUME 4

2019 Canberra - Australia

**Application:** Data Center  
**Plant type:** Hydronic System  
**Cooling capacity:** 9289 kW  
**Installed machines:**  
7x FX-Z/E/S 4822

## REN DATA CENTER

2017-2018 Vila Nova De Famalicao, Braga - Portugal

**Application:** Data Center  
**Plant type:** Hydronic System  
**Cooling capacity:** 1995 kW  
**Installed machines:**  
3x FX-FC/T+ 2702

## LEONARDO HELICOPTERS

2018-2019 Cascina Costa Samarate - Italy

**Application:** Office Buildings - Telecommunications  
**Plant type:** Hydronic System  
**Cooling capacity:** 565 kW  
**Installed machines:**  
1x FX-G05/SL-CA, 1x FX-G05/K 0961,  
1x FOCS-ME-B 1502, 1x i-NEXT DF DX E2 UNDER 018 M1 S,  
1x t-NEXT DX E6 UNDER 062 P2 D, 1x T-MATE DX-A/STD/M 30,  
2x T-MATE DX-A/STD/ M 45

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.

### POSTE ITALIANE DATA CENTER, TIER IV

2015-2016 Turin - Italy

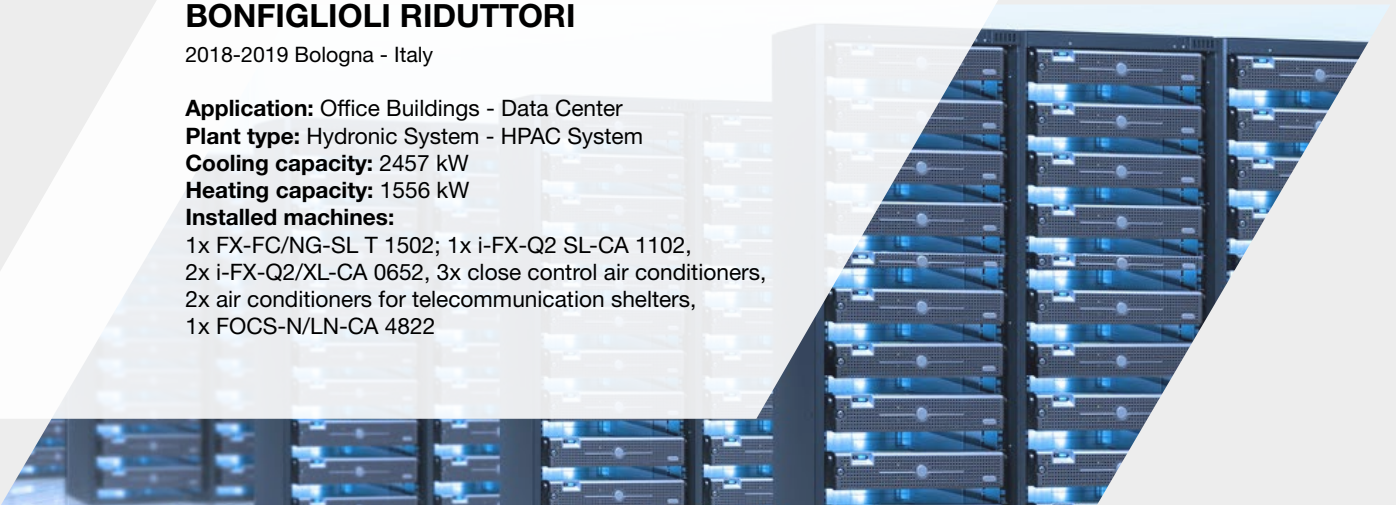
**Application:** Data Center  
**Plant type:** Hydronic System  
**Cooling capacity:** 2400 kW  
**Installed machines:**  
 2 x FX-FC/NG/T+/S 5402



### BONFIGLIOLI RIDUTTORI

2018-2019 Bologna - Italy

**Application:** Office Buildings - Data Center  
**Plant type:** Hydronic System - HPAC System  
**Cooling capacity:** 2457 kW  
**Heating capacity:** 1556 kW  
**Installed machines:**  
 1x FX-FC/NG-SL T 1502; 1x i-FX-Q2 SL-CA 1102,  
 2x i-FX-Q2/XL-CA 0652, 3x close control air conditioners,  
 2x air conditioners for telecommunication shelters,  
 1x FOCS-N/LN-CA 4822



### TELENOR DATA CENTRE

2016-2018 Karlskrona - Sweden

**Application:** Data Center  
**Plant type:** HPAC System  
**Cooling capacity:** 1866 kW  
**Installed machines:**  
 3x FX-FC/SL-T+ 2202,  
 6x ACU2\_0501





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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