

IT COOLING

CHILLERS

FR-G05-Z

**AIR SOURCE CHILLERS WITH SCREW
COMPRESSORS, FROM 140 TO 1710 kW**

R513A



FR-G05-Z

THE ECO-FRIENDLY SOLUTION FOR IT COOLING.



Driven by exponential growth of data exchange and rising power densities, data center design is rapidly changing, always striving to reducing their running costs while ensuring complete infrastructure dependability.

The awareness of the most demanding mission critical application requirements and the commitment to improve their sustainability has led to the development of the new FR-G05-Z range.

Cooling dependability and extended lifetime



Designed for continuous operation, FR-G05-Z meets the needs of the uninterruptible industry. Devoted devices and functions maximize the unit's uptime even in case of emergency circumstances.

Reduced operating costs



FR-G05-Z is optimized to efficiently work with high temperature IT environments, delivering consistent cooling to the most advanced IT infrastructures. This, combined with the chiller's outstanding performance, brings a significant PUE reduction and helps to keep the OPEX (Operating Expenditure) under control.

COMPLETE RANGE OF CHILLERS

Low GWP from 140 to 1710 kW



E	Very high efficiency	EER: 3,35	SEPR HT: 5,42
CA	High efficiency	EER: 3,20	SEPR HT: 5,31
K	Key efficiency	EER: 2,88	SEPR HT: 5,19

Average values of FR-G05-Z 1502-7223.
EER conditions: water (in/out) 16/10°C, air 35°C, EN14511.
SEPR HT conditions: water (in/out) 12/7°C, EN14825.

ACOUSTIC VERSIONS

-	Standard	Unit with standard soundproofing equipment.	Baseline
		Unit with compressor acoustical enclosure (Opt. 2301).	-2 dB(A)
		Unit with noise reducer kit (Opt. 2315).	-7 dB(A)
SL	Super low noise	The highest level of noise reduction which cuts noise emissions by 10 to 12 dB(A), without compromising the unit's efficiency.	-12 dB(A)

HEAT RECOVERY CONFIGURATIONS

-	Standard unit	Unit for the production of chilled water.	Baseline
D	Partial heat recovery	A desuperheater on the compressor discharge line recovers approximately 20% of the unit's capacity.	60°C
R	Total heat recovery	A devoted refrigerant water heat exchanger recovers all the condensation heat.	55°C 60°C with HT kit

ALL-ROUND SUSTAINABILITY



FR-G05-Z is the result of Mitsubishi Electric Hydronics & IT Cooling Systems' extensive approach to sustainability.

Increasing concerns about the global warming impact of chillers and heat pumps is driving new regulatory policies to push towards even more efficient units with the lowest carbon footprint.

Today, an all-round approach is the only way to effectively reduce the Total Equivalent Warming Impact (TEWI).

Fully committed to support the creation of a greener tomorrow, Mitsubishi Electric Hydronics & IT Cooling Systems designed FR-G05-Z, a complete chiller range with reduced environmental impact, optimized for R513A refrigerant.

Combining brilliant annual efficiency with the use of a low GWP refrigerant, FR-G05-Z tackles both the indirect (due to primary energy consumption) and the direct global warming, thus resulting in the perfect choice for any new, forward-looking cooling system.



LOW GWP

-56% GWP vs R134a



Non-flammable

Safety Class A1

REFRIGERANT BENCHMARK

SCROLL			SCREW		
Refrigerant	GWP*	Flammability**	Refrigerant	GWP*	Flammability**
R410A	2088	NON flammable	R134a	1430	NON flammable
R32	675	MILDLY flammable	R513A	631	NON flammable
R454B	466	MILDLY flammable	R1234ze	7	MILDLY flammable
R452B	698	MILDLY flammable	R1234yf	4	MILDLY flammable

*IPCC AR4 **ASHRAE 34 - ISO 817

New regulations like the EU F-gas and the Kigali Amendment to the Montreal Protocol, are driving the industry towards new eco-friendly refrigerants, with reduced greenhouse effect.

Unfortunately, the majority of low GWP refrigerants raises another critical issue: flammability.

The new refrigerant R513A, chosen for FR-G05-Z, is a brilliant exception: it offers a -56% GWP reduction compared to R134a's while ensuring complete non-toxicity and non-flammability (Class A1 of ASHRAE 34, ISO 817).

PROFOUND EXPERTISE



With thousands of units installed worldwide since 2003, RC air-cooled screw chillers have evolved into the third generation: FR-G05-Z series. The highest manufacturing quality, proven reliability, and full configurability are the reasons behind the success of this range. Today FR-G05-Z combines extensive expertise with the latest technology to deliver you the best value.

TOP-LEVEL PERFORMANCE



Fully customizable with a range of versions and accessories, FR-G05-Z allows custom-made application design for individual projects. Thanks to devoted technological solutions and accurate design, each FR-G05-Z configuration brings high full load performance and brilliant part load efficiency together, thus helping individuals and businesses reduce the energy consumption of their HVAC systems and cut their running costs.

TECHNOLOGICAL CHOICES

W3000TE CONTROL

Fully in-house developed management software.

- ▶ Efficient and reliable operation in all conditions
- ▶ Connectivity with the most commonly used BMS protocols (Opt.)

KIPLink USER INTERFACE

Innovative Wi-Fi interface for an easy and enhanced unit management.



Communication based on Wi-Fi technology (no internet connection needed)



An exclusive product of Mitsubishi Electric Hydraulics & IT Cooling Systems

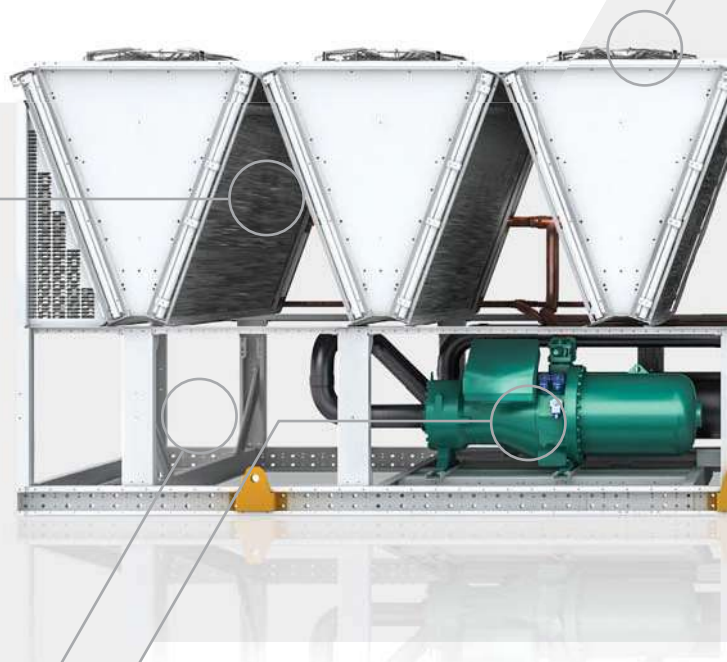


Industrial hardware characteristics, tolerates temperatures from -20 to +65°C

Micro-channel coils

New generation full aluminum micro-channel coils, ideally positioned on a "V" block structure to optimize airflow and heat transfer.

- ▶ Up to 30% of refrigerant charge reduction vs. traditional tube and fin coils.
- ▶ Long Life Alloy (LLA) for higher corrosion resistance and longer life cycle
- ▶ Protective coating available for harsh industrial and marine environments (Opt.)



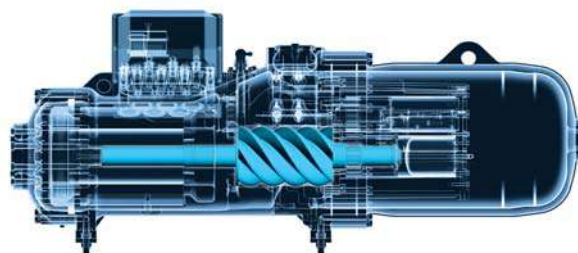
Built-in pump group (Opt.)

Factory-mounted pumps and pre-plumbed hydraulic components, for the minimum on-site installation time, work and cost.

- ▶ Fix speed and variable speed pumps available, with low or high head
- ▶ Electronic primary flow controls for constant pressure or constant temperature

CSC screw compressors

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



FR-G05-Z brings advanced technology and know-how together in customizable packages to aid design, specification, installation, and on-going operations.



Variable speed fans

High performing axial fans equipped with autotransformer for speed adjustment.

- ▶ Precise air-flow management, reduced power consumption and lower sound levels at part load
- ▶ Totally independent ventilation system for each refrigerant circuit
- ▶ EC fans available with proprietary algorithm for energy savings and very low ambient operation (Opt.)

Low GWP refrigerant

New generation refrigerant with reduced greenhouse effect. Non-flammable.

Reduced GWP

R513A GWP_{100 year} = 572
(R134a GWP_{100 year} = 1300)
GWP values according to IPCC AR5

Non-toxic, non-flammable

ASHRAE 34, ISO 817: A1 class

Favorable physical properties

Same cooling capacity delivered as R134a
Same operating pressures as R134a

In line with standard building codes

No special equipment
No need for flammable risk assesment
No extra costs

Compliant with eco regulation objectives

No future retrofit required
Reduced price volatility



Shell and tube evaporator

Dry expansion, single pass shell and tube evaporator, fully developed by Mitsubishi Electric Hydronics & IT Cooling Systems.

- ▶ Internally grooved copper tubes for enhanced heat exchange
- ▶ Low pressure drops
- ▶ Fully protected against ice formation

Brazed plate evaporator for small sizes (<200 kW)

Innovative internal geometry

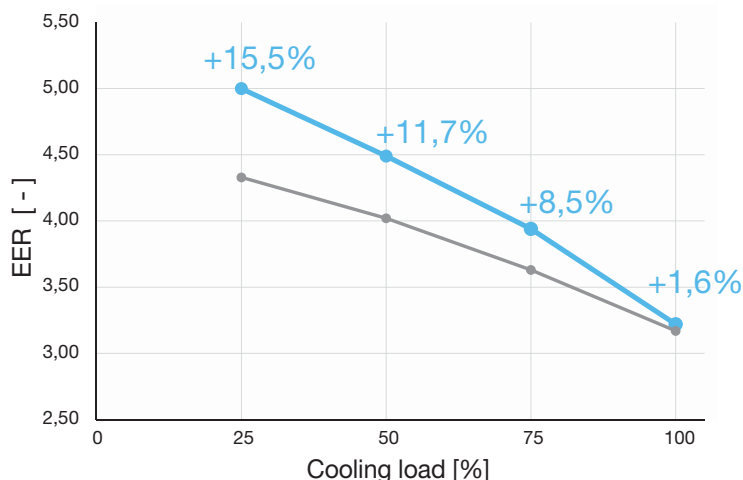
Thanks to its specific design, aimed at optimizing the internal volumes for partial load operation, the CSC compressors deliver excellent performance in all the different operating conditions.

Enhanced lubrication system

A special oil management valve calibrates the oil circulation and delivers a remarkable increase of the compressor efficiency at partial loads.

Extreme durability

The brilliantly engineered mechanics include carbon steel bearings guaranteed for a lifetime of 150.000 hours.



—●— Chiller with CSC screw compressors —●— Chiller with traditional screw compressors

The graph shows the chiller efficiency with the variation of the load rate and air temperature (ESEER operating conditions).

CORE FEATURES FOR ALL YOUR EQUIPMENT NEEDS

W3000TE control and KIPlink innovative interface

The logic behind FR-G05-Z is the W3000TE control software. Characterized by advanced functions and algorithms, **W3000TE features proprietary settings** that ensure faster adaptive responses to different dynamics, in all operating modes. Direct control over the unit comes through the innovative KIPlink interface.

Based on Wi-Fi technology, **KIPlink** gets rid of the standard keyboard and **allows one to operate on the unit directly from a mobile device** (smartphone, tablet, notebook).



Easier on-site operation

Monitor each component while moving around the unit for maintenance operations. View and change all parameters with easy-to-understand screenshots and dedicated tooltips. Get devoted "help" message for alarm reset and trouble shooting.



Real-time graphs and trends

Monitor the immediate labor status of the compressors, heat exchangers, cooling circuits and pumps. View the real-time graphs of the key operating variable trends.



Data logger function

View history of events and use the filter for a simple search. Enhance diagnostics with data and graphs of 10 minutes before and after each alarm. Download all the data for detailed analysis.



How to access the unit with KIPlink

Direct access to the W3000TE control is achieved by scanning the QR-code positioned on the front side of the FR-G05-Z unit.



LED switch

The three-colour LED button positioned on the electrical board allows the user to switch the unit on/off and visualize the general status of the equipment without using any mobile device.

In addition (Opt. 1442, 1444) or in substitution (Opt. 6194, 6195) to the KIPlink, FR-G05-Z can be provided with: a 7" color touch screen interface or with a keyboard with large display and LED icons. In these cases, the LED switch is not provided. Remote keyboard is possible (Opt. C9261063, C9261064, C926108911, C926108913).

Witness Testing

Test your chiller before its installation and make its performance totally reliable.

Performance WITNESS TEST

Performance Witness testing is available as additional service in order to allow the final user to see the unit being tested under specific conditions. Carried out within modern and sophisticated facilities, this service gives the customer the possibility to choose among different witness test options in order to:

- ▶ Verify unit operation under severe conditions
- ▶ Detect sound emissions
- ▶ Check performance, both at full and partial loads
- ▶ Test the unit with low outdoor air temperature operation
- ▶ Time the fast restart



Hydronic modules and flow controls

The FR-G05-Z units can be equipped with a factory-mounted complete pump group, which **optimizes hydraulic and electrical installation** space, time and costs, or simply with terminals to control the external pumps with the unit control logic.



Close-coupled pumps by Grundfos

SiC/SiC (silicon carbide) primary seal pairing, extremely resistant against wear, abrasive particles and wear.

EPDM bellows seal prevent the risk of deposits, such as rust, on the shaft.

Pull-out design: during maintenance the power head can be pulled out without removing the pump housing from the pipework.

In-line or end-suction models were chosen based on dimensions and performances

Factory-mounted pump group

2 pumps (duty/standby) provide low or high head (available head approx. 100 or 200 kPa).
1 pump available for single compressor units.

Fixed speed pumps

1 pump	LH	2-poles: Opt. 4706
	HH	2-poles: Opt. 4707
2 pumps	LH	2-poles: Opt. 4711 / 4-poles: Opt. 4708
	HH	2-poles: Opt. 4712 / 4-poles: Opt. 4709

Variable speed pumps

1 pump	LH	2-poles: Opt. 4717
	HH	2-poles: Opt. 4718
2 pumps	LH	2-poles: Opt. 4722 / 4-poles: Opt. 4719
	HH	2-poles: Opt. 4723 / 4-poles: Opt. 4721

Terminals for external pump control

The unit controls the activation or the activation and speed of 1 or 2 external pumps.

ON/OFF signal

1 pump	Opt. 4702
2 pumps	Opt. 4703

Modulating signal

1 pump	Opt. 4713
2 pumps	Opt. 4714



VPF control logic

The VPF control series (Variable Primary Flow) doesn't only **adjust the pump speed on the basis of the plant's thermal load**, but also **dynamically optimizes the unit's thermoregulation** for variable flow operation, thus ensuring both the highest pump energy savings and chiller stable operation.

VPF: constant ΔP on the plant side

For systems with only the primary circuit.
Opt. 4864 or 4865 for single unit system
Opt. 4866 for multi-unit system

VPF.D: constant ΔT on the plant side

For systems with primary and secondary circuits separated by a hydraulic decoupler.
Opt. 4867 for single unit system
Opt. 4868 for multi-unit system

For quick and easy commissioning, it is possible to adjust the pump speed directly from the unit control (Opt. 4862).

Operating limits

□ Standard unit

■ Required: Kit HT (Opt. 1955)

■ Required: EC fans (Opt. 808)

■ Required: DBA device (coil flooding) (Opt. 813)
EC fans (Opt. 808)

Air temp. < -10°C: Double insulation on heat exchangers (Opt. 2631)

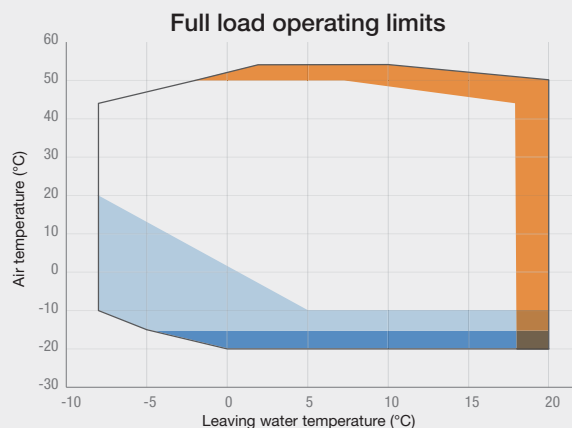
LWT < 0°C: Compressor liquid injection (Opt. 871)

Partial load operating limits

In case of higher outdoor air temperature, FR-G05-Z automatically partializes its resources to ensure uninterrupted operation (HPTC function).

Operating limits when working partialized (water ΔT 7°C):

/K, /SL-K	53°C
/E, SL-E	55°C
/CA, SL-CA	55°C
+kit HT (all versions)	57°C



The diagram shows the operating limits of versions /E, /SL-E
For versions /K, /SL-K, the max outdoor temperature is lowered by 4°C
For versions /CA, /SL-CA, the max outdoor temperature is lowered by 2°C

ACCESSORIES

EC fans

EC fans (Opt. 808): Electronically commutated fans with brushless motor to continuously adjust the speed in order to minimise energy consumption and noise emissions, especially at part loads (+1% of EER, +3% of SEPR HT).

+3%
SEPR HT

Noise reduction

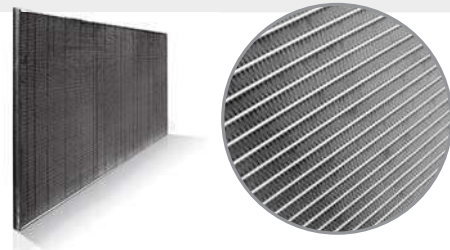
Compressor acoustical enclosure (Opt. 2301):
Enclosure realised with painted sheet metal panels lined with an acoustic insulation.
Sound power reduction: -2 dB(A).

Noise Reducer kit (Opt. 2315):
The kit includes dedicated fans' speed calibration together with the soundproofing of the most critical components.
Sound power reduction: -7 dB(A).



Coils and coatings

MICROCHANNEL COILS

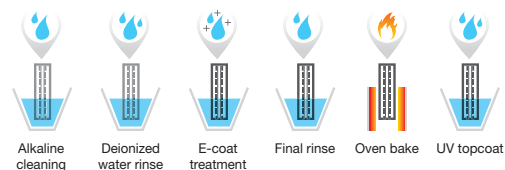


Al - Regular (std)

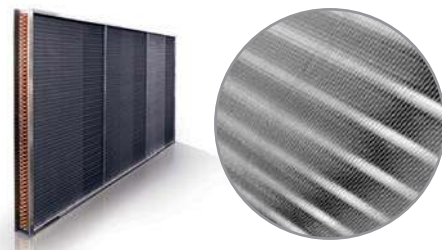
Al - E-coating (Opt. 876)



E-coating process



TUBE & FIN COILS



Cu/Al - Regular (Opt. 879)

Cu/Al - Pre-painted fins (Opt. 894)

Cu/Al - High pressure spray coating (Opt. 895 / RFQ)

Fin Guard Silver SB * Opt. 895

Polyurethane resin with aluminum fillers

- ✓ 3000 h ASTM B117
- ✓ UV rays - excellent

* Thermoguard

PoluAl XT * RFQ

Polyurethane resin with aluminum fillers

- ✓ 4000 h ASTM B117
- ✓ UV rays - excellent

* Blygold

Heresite P-413C * RFQ

Phenolic resin

- ✓ 6000 h ASTM B117
- ✓ UV rays - good

* Heresite Protective Coating, LLC

Cu/Cu - Tube & fin coil (Opt. 881)

EQUIPMENT FOR MISSION CRITICAL APPLICATIONS

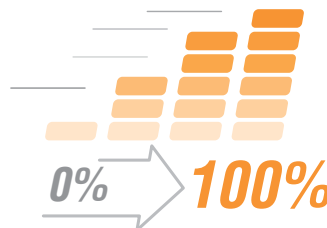
Committed to ensure the highest standards of reliability, FR-G05-Z includes a full range of devices and functions that maximize unit's uptime in case of emergency circumstances.

FAST RESTART

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



Ensure 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.

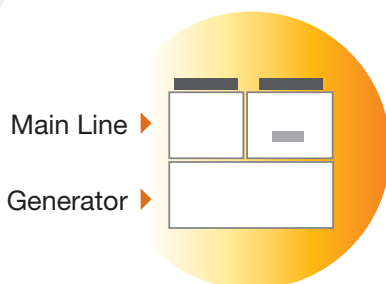
Fast restart - UPS excluded (Opt.4501)

This option requires an external 230V AC UPS, not supplied with the unit, to keep the on-board controller functional and ensure fast restart after a power outage.

Fast restart - UPS included (Opt. 4502)

This option includes an electric device capable of keeping the controller power supply uninterrupted during a power failure. The capacity of this device is selected on the basis of the needs of a specific project.

DOUBLE POWER SUPPLY



Redundancy increases uptime. FR-G05-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 FR-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.

Double power supply (ATS) (Opt. 1561)

The ATS, installed within the electrical board, automatically senses if one of the sources has lost or gained power. The switching is completely automatic (line priority and frequency of checking are selectable).

Double power supply (Motorized changeover) (Opt. 1562)

The motorized changeover, installed within the electrical board, is with remote control (i.e. signal of generator start-up).

ENERGY METER

You can't manage what you don't measure.

PUE (Power usage effectiveness) is the ratio that determines how energy efficient data centers are comparing the power currently used for the IT equipment with the power used by the infrastructure which keeps that IT equipment working, including the cooling system. Energy meter option allows to acquire the electrical data and the power absorbed by the unit and send them to the supervisor for energy metering.



**FR-G05-Z 0751 - 1801**

Chiller, air source for outdoor installation,
from 140 to 396 kW.



FR-G05-Z /K			0751	0851	0951	0961	1101
Power supply		V/ph/Hz	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50
PERFORMANCE							
COOLING ONLY (GROSS VALUE)							
Cooling capacity	(1)	kW	145,5	160,1	202,8	221,9	238,0
Total power input	(1)	kW	52,12	61,09	66,27	76,37	88,76
EER	(1)	kW/kW	2,793	2,620	3,059	2,904	2,680
COOLING ONLY (EN14511 VALUE)							
Cooling capacity	(1)(2)	kW	145,1	159,7	202,1	221,1	237,1
EER	(1)(2)	kW/kW	2,760	2,600	3,020	2,860	2,640
Cooling energy class			C	D	B	C	D
SEPR	(3)(4)		5,00	5,24	5,01	5,00	5,25
COOLING ONLY (GROSS VALUE)							
16°C/10°C							
Cooling capacity	(5)	kW	159,1	174,6	222,8	241,5	259,6
Total power input	(5)	kW	54,41	63,90	69,07	79,56	92,93
EER	(5)	kW/kW	2,925	2,732	3,224	3,034	2,794
23°C/15°C							
Cooling capacity	(6)	kW	182,0	198,8	256,6	274,0	295,3
Total power input	(6)	kW	58,04	68,35	73,50	84,53	99,74
EER	(6)	kW/kW	3,138	2,911	3,491	3,243	2,962
EXCHANGERS							
HEAT EXCHANGER USER SIDE IN REFRIGERATION							
Water flow	(1)	l/s	6,957	7,654	9,696	10,61	11,38
Pressure drop	(1)(2)	kPa	20,6	20,1	30,2	36,2	41,6
REFRIGERANT CIRCUIT							
Compressors nr.		N°	1	1	1	1	1
No. Circuits		N°	1	1	1	1	1
Refrigerant charge		kg	23,0	25,0	32,0	36,0	38,0
NOISE LEVEL							
Sound Pressure	(7)	dB(A)	62	62	62	62	64
Sound power level in cooling	(8)(9)	dB(A)	94	94	94	94	96
SIZE AND WEIGHT							
Length	(10)	mm	1500	1500	2750	2750	2750
Width	(10)	mm	2260	2260	2260	2260	2260
Height	(10)	mm	2500	2500	2500	2500	2500
Operating weight	(10)	kg	1480	1510	2100	2130	2460

FR-G05-Z /K			1301	1401	1421	1431	1801
Power supply		V/ph/Hz	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50
PERFORMANCE							
COOLING ONLY (GROSS VALUE)							
Cooling capacity	(1)	kW	274,7	299,1	329,0	347,7	395,7
Total power input	(1)	kW	91,61	106,9	123,7	116,2	140,9
EER	(1)	kW/kW	2,999	2,798	2,660	2,992	2,808
COOLING ONLY (EN14511 VALUE)							
Cooling capacity	(1)(2)	kW	273,7	297,8	327,7	346,8	394,4
EER	(1)(2)	kW/kW	2,950	2,750	2,620	2,960	2,770
Cooling energy class			B	C	D	B	C
SEPR	(3)(4)		5,00	5,01	5,00	5,00	5,14
COOLING ONLY (GROSS VALUE)							
16°C/10°C							
Cooling capacity	(5)	kW	301,4	327,3	357,6	379,3	431,3
Total power input	(5)	kW	95,53	111,7	129,5	121,0	146,8
EER	(5)	kW/kW	3,156	2,930	2,761	3,135	2,938
23°C/15°C							
Cooling capacity	(6)	kW	346,5	374,7	380,7	431,9	490,1
Total power input	(6)	kW	101,9	119,6	120,6	128,6	156,4
EER	(6)	kW/kW	3,400	3,133	3,157	3,358	3,134
EXCHANGERS							
HEAT EXCHANGER USER SIDE IN REFRIGERATION							
Water flow	(1)	l/s	13,14	14,30	15,73	16,63	18,92
Pressure drop	(1)(2)	kPa	42,5	50,4	44,9	29,5	38,2
REFRIGERANT CIRCUIT							
Compressors nr.		N°	1	1	1	1	1
No. Circuits		N°	1	1	1	1	1
Refrigerant charge		kg	44,0	48,0	53,0	56,0	63,0
NOISE LEVEL							
Sound Pressure	(7)	dB(A)	64	65	66	66	66
Sound power level in cooling	(8)(9)	dB(A)	96	97	98	98	98
SIZE AND WEIGHT							
Length	(10)	mm	2750	2750	2750	4000	4000
Width	(10)	mm	2260	2260	2260	2260	2260
Height	(10)	mm	2500	2500	2500	2500	2500
Operating weight	(10)	kg	2510	2540	2580	3110	3540

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 EN14511-3:2013.
- 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.



FR-G05-Z /SL-K			0751	0851	0951	0961	1101
Power supply		V/ph/Hz	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50
PERFORMANCE							
COOLING ONLY (GROSS VALUE)							
Cooling capacity	(1)	kW	140,1	169,5	195,5	214,7	245,9
Total power input	(1)	kW	52,54	56,12	66,96	78,02	83,46
EER	(1)	kW/kW	2,669	3,021	2,918	2,753	2,945
COOLING ONLY (EN14511 VALUE)							
Cooling capacity	(1)(2)	kW	139,7	169,0	194,9	214,0	244,9
EER	(1)(2)	kW/kW	2,640	2,990	2,880	2,720	2,900
Cooling energy class			D	B	C	C	B
SEPR	(3)(4)		5,06	5,68	5,04	5,01	5,40
COOLING ONLY (GROSS VALUE)							
16°C/10°C							
Cooling capacity	(5)	kW	153,0	186,0	214,5	233,3	269,3
Total power input	(5)	kW	54,93	58,41	69,92	81,45	87,04
EER	(5)	kW/kW	2,787	3,185	3,069	2,863	3,095
23°C/15°C							
Cooling capacity	(6)	kW	174,6	213,9	246,6	263,7	308,6
Total power input	(6)	kW	58,74	62,03	74,61	86,81	92,84
EER	(6)	kW/kW	2,974	3,450	3,306	3,038	3,325
EXCHANGERS							
HEAT EXCHANGER USER SIDE IN REFRIGERATION							
Water flow	(1)	l/s	6,698	8,107	9,351	10,27	11,76
Pressure drop	(1)(2)	kPa	19,1	22,6	28,1	33,9	44,4
REFRIGERANT CIRCUIT							
Compressors nr.		N°	1	1	1	1	1
No. Circuits		N°	1	1	1	1	1
Refrigerant charge		kg	24,0	29,0	33,0	37,0	43,0
NOISE LEVEL							
Sound Pressure	(7)	dB(A)	52	52	53	53	55
Sound power level in cooling	(8)(9)	dB(A)	84	84	85	85	87
SIZE AND WEIGHT							
Length	(10)	mm	1500	2750	2750	2750	2750
Width	(10)	mm	2260	2260	2260	2260	2260
Height	(10)	mm	2500	2500	2500	2500	2500
Operating weight	(10)	kg	1640	2050	2270	2290	2770

FR-G05-Z /SL-K			1301	1401	1421	1431	1801
Power supply		V/ph/Hz	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50
PERFORMANCE							
COOLING ONLY (GROSS VALUE)							
Cooling capacity	(1)	kW	265,0	287,8	331,8	346,5	395,0
Total power input	(1)	kW	92,83	109,0	117,3	112,3	135,5
EER	(1)	kW/kW	2,856	2,640	2,829	3,085	2,915
COOLING ONLY (EN14511 VALUE)							
Cooling capacity	(1)(2)	kW	264,1	286,6	330,5	345,6	393,7
EER	(1)(2)	kW/kW	2,820	2,600	2,790	3,050	2,880
Cooling energy class			C	D	C	B	C
SEPR	(3)(4)		5,00	5,04	5,19	5,38	5,22
COOLING ONLY (GROSS VALUE)							
16°C/10°C							
Cooling capacity	(5)	kW	290,4	314,5	361,3	378,3	431,8
Total power input	(5)	kW	97,03	114,2	122,4	116,7	141,1
EER	(5)	kW/kW	2,994	2,754	2,952	3,242	3,060
23°C/15°C							
Cooling capacity	(6)	kW	333,2	367,9	410,3	431,6	493,0
Total power input	(6)	kW	103,9	120,7	130,6	123,7	150,1
EER	(6)	kW/kW	3,207	3,048	3,142	3,489	3,284
EXCHANGERS							
HEAT EXCHANGER USER SIDE IN REFRIGERATION							
Water flow	(1)	l/s	12,67	13,76	15,86	16,57	18,89
Pressure drop	(1)(2)	kPa	39,5	46,6	45,7	29,3	38,1
REFRIGERANT CIRCUIT							
Compressors nr.		N°	1	1	1	1	1
No. Circuits		N°	1	1	1	1	1
Refrigerant charge		kg	46,0	49,0	58,0	60,0	68,0
NOISE LEVEL							
Sound Pressure	(7)	dB(A)	55	56	57	57	57
Sound power level in cooling	(8)(9)	dB(A)	87	88	89	89	89
SIZE AND WEIGHT							
Length	(10)	mm	2750	2750	4000	4000	4000
Width	(10)	mm	2260	2260	2260	2260	2260
Height	(10)	mm	2500	2500	2500	2500	2500
Operating weight	(10)	kg	2770	2790	3250	3410	3880

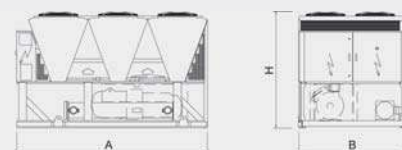
8 Sound power on the basis of measurements made in compliance with ISO 9614.

9 Sound power level in cooling, outdoors.

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

The units highlighted in this publication contain R513A [GWP₁₀₀ 631] fluorinated greenhouse gases.

Certified data in EUROVENT



**FR-G05-Z 1502 - 7823**

Chiller, air source for outdoor installation,
from 289 to 1710 kW.



FR-G05-Z /K			1502	1702	1902	1922	2202	2602	2652	2702	2722
Power supply		V/ph/Hz	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50
PERFORMANCE											
COOLING ONLY (GROSS VALUE)											
Cooling capacity	(1)	kW	299,6	325,8	383,2	432,0	480,6	533,4	558,7	600,7	658,3
Total power input	(1)	kW	104,7	122,0	136,1	149,4	176,5	192,9	202,0	212,1	244,6
EER	(1)	kW/kW	2,862	2,670	2,816	2,892	2,723	2,765	2,766	2,832	2,691
COOLING ONLY (EN14511 VALUE)											
Cooling capacity	(1)(2)	kW	298,9	324,9	382,1	430,5	479,3	531,7	557,1	598,8	656,3
EER	(1)(2)	kW/kW	2,830	2,640	2,780	2,850	2,700	2,730	2,740	2,800	2,660
Cooling energy class		C	D	C	C	C	C	C	C	C	D
SEPR	(3)(4)		5,08	5,30	5,18	5,09	5,27	5,28	5,27	5,17	5,03
COOLING ONLY (GROSS VALUE)											
16°C/10°C											
Cooling capacity	(5)	kW	328,2	355,7	417,7	470,0	524,5	582,9	611,1	657,6	715,5
Total power input	(5)	kW	109,4	127,6	142,0	155,5	184,7	201,5	211,5	221,6	256,0
EER	(5)	kW/kW	3,000	2,788	2,942	3,023	2,840	2,893	2,889	2,968	2,795
23°C/15°C											
Cooling capacity	(6)	kW	376,3	405,7	475,1	532,8	597,3	665,5	698,8	753,1	762,6
Total power input	(6)	kW	116,7	136,4	151,3	165,0	198,2	215,7	226,8	237,1	238,6
EER	(6)	kW/kW	3,225	2,974	3,140	3,229	3,014	3,085	3,081	3,176	3,196
EXCHANGERS											
HEAT EXCHANGER USER SIDE IN REFRIGERATION											
Water flow	(1)	l/s	14,33	15,58	18,32	20,66	22,98	25,51	26,72	28,73	31,48
Pressure drop	(1)(2)	kPa	23,9	28,3	33,6	42,7	32,3	39,8	34,9	40,3	38,5
REFRIGERANT CIRCUIT											
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	51,0	54,0	63,0	72,0	79,0	87,0	92,0	101	108
NOISE LEVEL											
Sound Pressure	(7)	dB(A)	67	67	67	68	68	68	68	68	70
Sound power level in cooling	(8)(9)	dB(A)	99	99	99	100	100	100	100	100	102
SIZE AND WEIGHT											
Length	(10)	mm	2750	2750	4000	4000	4000	5250	5250	5250	5250
Width	(10)	mm	2260	2260	2260	2260	2260	2260	2260	2260	2260
Height	(10)	mm	2500	2500	2500	2500	2500	2500	2500	2500	2500
Operating weight	(10)	kg	3160	3170	3720	3810	4610	5060	5060	5130	5520

FR-G05-Z /K			3152	3602	3902	4202	4502	4802	4812	4822	5412
Power supply		V/ph/Hz	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50
PERFORMANCE											
COOLING ONLY (GROSS VALUE)											
Cooling capacity	(1)	kW	725,4	802,7	871,9	926,5	982,4	1021	1059	1146	1176
Total power input	(1)	kW	260,4	278,6	301,8	322,7	351,1	377,8	362,3	405,4	433,0
EER	(1)	kW/kW	2,786	2,881	2,889	2,871	2,798	2,702	2,923	2,827	2,716
COOLING ONLY (EN14511 VALUE)											
Cooling capacity	(1)(2)	kW	722,9	800,2	869,2	923,3	979,4	1018	1055	1142	1172
EER	(1)(2)	kW/kW	2,750	2,850	2,850	2,830	2,770	2,670	2,880	2,790	2,690
Cooling energy class		C	C	C	C	C	C	D	C	C	D
SEPR	(3)(4)		5,14	5,24	5,23	5,21	5,24	5,23	5,24	5,15	5,25
COOLING ONLY (GROSS VALUE)											
16°C/10°C											
Cooling capacity	(5)	kW	789,7	875,3	952,3	1013	1073	1114	1158	1247	1282
Total power input	(5)	kW	271,8	290,3	314,7	336,4	366,7	395,2	377,6	423,3	452,6
EER	(5)	kW/kW	2,905	3,015	3,026	3,011	2,926	2,819	3,067	2,946	2,833
23°C/15°C											
Cooling capacity	(6)	kW	895,8	995,2	1087	1157	1225	1269	1324	1353	1428
Total power input	(6)	kW	290,0	308,9	335,2	358,4	391,9	423,1	401,8	406,1	460,3
EER	(6)	kW/kW	3,089	3,222	3,243	3,228	3,126	2,999	3,295	3,332	3,102
EXCHANGERS											
HEAT EXCHANGER USER SIDE IN REFRIGERATION											
Water flow	(1)	l/s	34,69	38,39	41,70	44,31	46,98	48,82	50,65	54,81	56,25
Pressure drop	(1)(2)	kPa	46,8	40,9	42,6	48,1	41,8	45,1	48,5	53,3	42,2
REFRIGERANT CIRCUIT											
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	120	135	146	155	161	168	174	189	193
NOISE LEVEL											
Sound Pressure	(7)	dB(A)	69	69	70	70	71	71	71	71	72
Sound power level in cooling	(8)(9)	dB(A)	102	102	103	103	104	104	104	104	105
SIZE AND WEIGHT											
Length	(10)	mm	6500	6500	7750	7750	7750	7750	9000	9000	9150
Width	(10)	mm	2260	2260	2260	2260	2260	2260	2260	2260	2260
Height	(10)	mm	2500	2500	2500	2500	2500	2500	2500	2500	2500
Operating weight	(10)	kg	6450	6940	7440	7560	7790	7820	8250	8370	8660

Notes:

- Plant (side) cooling exchanger water (in/out) 12°C/7°C; Source (side) heat exchanger air (in) 35°C.
- Values in compliance with EN14511-3:2013.
- 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.



R R513A

A ENERGY CLASS

COOLING

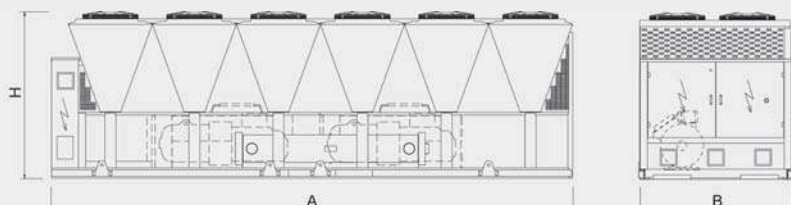
SCREW

VPF VAR.PRIM.FLOW

T SHELL & TUBES

AXIAL

FR-G05-Z /K			6002	6022	6303	6903	7203	7213	7223
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)									
Cooling capacity	(1)	kW	1239	1303	1401	1481	1547	1654	1710
Total power input	(1)	kW	443,8	485,7	485,8	535,1	569,7	593,7	619,2
EER	(1)	kW/kW	2,792	2,683	2,884	2,768	2,715	2,786	2,762
COOLING ONLY (EN14511 VALUE)									
Cooling capacity	(1)(2)	kW	1235	1298	1397	1476	1543	1649	1704
EER	(1)(2)	kW/kW	2,760	2,650	2,850	2,730	2,690	2,750	2,730
Cooling energy class			C	D	C	C	D	C	C
SEPR	(3)(4)		5,27	5,15	5,19	5,20	5,26	5,14	5,13
COOLING ONLY (GROSS VALUE)									
16°C/10°C									
Cooling capacity	(5)	kW	1355	1417	1532	1616	1689	1801	1860
Total power input	(5)	kW	462,9	507,6	506,7	559,0	596,1	620,3	647,8
EER	(5)	kW/kW	2,927	2,792	3,023	2,891	2,833	2,903	2,871
23°C/15°C									
Cooling capacity	(6)	kW	1550	1550	1752	1843	1925	1985	2015
Total power input	(6)	kW	494,0	494,0	540,0	597,4	638,6	615,7	620,3
EER	(6)	kW/kW	3,138	3,138	3,244	3,085	3,014	3,224	3,248
EXCHANGERS									
HEAT EXCHANGER USER SIDE IN REFRIGERATION									
Water flow	(1)	l/s	59,26	62,29	67,01	70,81	74,00	79,11	81,79
Pressure drop	(1)(2)	kPa	46,9	51,8	45,4	50,7	39,0	44,6	51,2
REFRIGERANT CIRCUIT									
Compressors nr.		N°	2	2	3	3	3	3	3
No. Circuits		N°	2	2	3	3	3	3	3
Refrigerant charge		kg	208	214	236	244	254	273	288
NOISE LEVEL									
Sound Pressure	(7)	dB(A)	73	73	73	73	73	73	73
Sound power level in cooling	(8)(9)	dB(A)	106	106	106	106	106	106	106
SIZE AND WEIGHT									
Length	(10)	mm	10400	10400	11650	11650	11650	12900	12900
Width	(10)	mm	2260	2260	2260	2260	2260	2260	2260
Height	(10)	mm	2500	2500	2500	2500	2500	2500	2500
Operating weight	(10)	kg	9200	9310	11880	11940	11950	12490	12570



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

9 Sound power level in cooling, outdoors.

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

The units highlighted in this publication contain R513A [GWP₁₀₀ 631] fluorinated greenhouse gases.

Certified data in EUROVENT

**FR-G05-Z 1502 - 7823**

Chiller, air source for outdoor installation,
from 289 to 1710 kW.



FR-G05-Z /SL-K			1502	1702	1902	1922	2202	2602	2652	2702	2722
Power supply		V/ph/Hz	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50
PERFORMANCE											
COOLING ONLY (GROSS VALUE)											
Cooling capacity	(1)	kW	288,5	333,4	381,6	418,7	476,0	518,6	556,0	578,5	663,2
Total power input	(1)	kW	105,5	117,7	131,2	152,3	168,2	182,0	199,9	216,1	232,1
EER	(1)	kW/kW	2,735	2,833	2,909	2,749	2,830	2,849	2,781	2,677	2,857
COOLING ONLY (EN14511 VALUE)											
Cooling capacity	(1)(2)	kW	287,8	332,5	380,5	417,3	474,7	517,0	554,4	576,8	661,2
EER	(1)(2)	kW/kW	2,710	2,800	2,880	2,720	2,800	2,820	2,750	2,650	2,820
Cooling energy class		C	C	C	C	C	C	C	C	D	C
SEPR	(3)(4)		5,07	5,17	5,29	5,11	5,09	5,11	5,16	5,23	5,11
COOLING ONLY (GROSS VALUE)											
16°C/10°C											
Cooling capacity	(5)	kW	315,6	365,0	418,2	454,8	519,7	567,8	608,7	632,5	722,4
Total power input	(5)	kW	110,3	123,0	136,9	158,9	175,6	190,0	209,1	226,3	242,1
EER	(5)	kW/kW	2,861	2,967	3,055	2,862	2,960	2,988	2,911	2,795	2,984
23°C/15°C											
Cooling capacity	(6)	kW	360,9	418,1	480,0	514,2	592,7	650,6	697,2	739,4	820,5
Total power input	(6)	kW	118,0	131,2	145,8	169,1	187,4	202,9	224,1	239,3	258,0
EER	(6)	kW/kW	3,058	3,187	3,292	3,041	3,163	3,207	3,111	3,090	3,180
EXCHANGERS											
HEAT EXCHANGER USER SIDE IN REFRIGERATION											
Water flow	(1)	l/s	13,80	15,94	18,25	20,02	22,76	24,80	26,59	27,66	31,72
Pressure drop	(1)(2)	kPa	22,2	29,6	33,3	40,1	31,7	37,6	34,5	37,4	39,1
REFRIGERANT CIRCUIT											
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	51,0	59,0	67,0	72,0	83,0	91,0	97,0	101	116
NOISE LEVEL											
Sound Pressure	(7)	dB(A)	55	55	56	56	57	57	57	57	57
Sound power level in cooling	(8)(9)	dB(A)	87	87	88	88	89	89	89	89	90
SIZE AND WEIGHT											
Length	(10)	mm	2750	4000	4000	4000	5250	5250	5250	5250	6500
Width	(10)	mm	2260	2260	2260	2260	2260	2260	2260	2260	2260
Height	(10)	mm	2500	2500	2500	2500	2500	2500	2500	2500	2500
Operating weight	(10)	kg	3420	4160	4230	4230	5200	5560	5580	5620	6610

FR-G05-Z /SL-K			3152	3602	3902	4202	4502	4802	4812	4822	5412
Power supply		V/ph/Hz	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50
PERFORMANCE											
COOLING ONLY (GROSS VALUE)											
Cooling capacity	(1)	kW	716,6	770,8	838,7	892,9	964,9	1021	1052	1137	1169
Total power input	(1)	kW	257,3	283,3	307,1	328,4	349,6	368,2	355,4	396,9	424,6
EER	(1)	kW/kW	2,785	2,721	2,731	2,719	2,760	2,773	2,960	2,865	2,753
COOLING ONLY (EN14511 VALUE)											
Cooling capacity	(1)(2)	kW	714,1	768,6	836,2	890,0	962,1	1018	1048	1133	1166
EER	(1)(2)	kW/kW	2,750	2,690	2,700	2,690	2,730	2,740	2,920	2,820	2,720
Cooling energy class		C	C	D	C	D	C	C	B	C	C
SEPR	(3)(4)		5,16	5,25	5,26	5,24	5,23	5,22	5,21	5,14	5,19
COOLING ONLY (GROSS VALUE)											
16°C/10°C											
Cooling capacity	(5)	kW	780,6	838,5	914,5	974,8	1054	1116	1151	1238	1275
Total power input	(5)	kW	268,6	295,7	320,9	343,3	365,5	384,7	370,1	414,1	443,5
EER	(5)	kW/kW	2,906	2,836	2,850	2,839	2,884	2,901	3,110	2,990	2,875
23°C/15°C											
Cooling capacity	(6)	kW	886,4	977,1	1067	1136	1229	1300	1317	1405	1452
Total power input	(6)	kW	286,6	311,8	338,4	361,8	385,4	405,6	393,4	441,2	446,8
EER	(6)	kW/kW	3,093	3,134	3,153	3,140	3,189	3,205	3,348	3,184	3,250
EXCHANGERS											
HEAT EXCHANGER USER SIDE IN REFRIGERATION											
Water flow	(1)	l/s	34,27	36,86	40,11	42,70	46,14	48,85	50,30	54,38	55,91
Pressure drop	(1)(2)	kPa	45,7	37,7	39,4	44,7	40,3	45,2	47,9	52,5	41,7
REFRIGERANT CIRCUIT											
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	125	135	146	155	168	178	183	198	204
NOISE LEVEL											
Sound Pressure	(7)	dB(A)	58	58	59	59	60	60	61	61	61
Sound power level in cooling	(8)(9)	dB(A)	91	91	92	92	93	93	94	94	94
SIZE AND WEIGHT											
Length	(10)	mm	6500	6500	7750	7750	9000	9000	10250	10250	10400
Width	(10)	mm	2260	2260	2260	2260	2260	2260	2260	2260	2260
Height	(10)	mm	2500	2500	2500	2500	2500	2500	2500	2500	2500
Operating weight	(10)	kg	7080	7550	8090	8200	9000	8870	9360	9470	9780

Notes:

- Plant (side) cooling exchanger water (in/out) 12°C/7°C; Source (side) heat exchanger air (in) 35°C.
- Values in compliance with EN14511-3:2013.
- 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.



R R513A

A ENERGY CLASS

COOLING

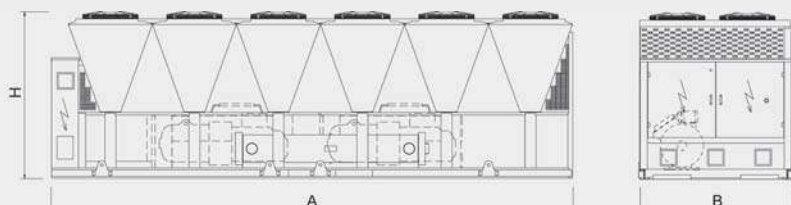
SCREW

VPF VAR.PRIM.FLOW

T SHELL & TUBES

AXIAL

FR-G05-Z /SL-K			6002	6022	6303	6903	7203	7213	7223
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)									
Cooling capacity	(1)	kW	1194	1289	1350	1463	1530	1595	1649
Total power input	(1)	kW	451,2	478,6	494,5	531,6	563,4	607,6	635,5
EER	(1)	kW/kW	2,646	2,693	2,730	2,752	2,716	2,625	2,595
COOLING ONLY (EN14511 VALUE)									
Cooling capacity	(1)(2)	kW	1190	1285	1346	1458	1526	1590	1644
EER	(1)(2)	kW/kW	2,620	2,660	2,700	2,720	2,690	2,600	2,570
Cooling energy class		D	D	D	C	C	D	D	D
SEPR	(3)(4)		5,27	5,20	5,22	5,21	5,24	5,17	5,15
COOLING ONLY (GROSS VALUE)									
16°C/10°C									
Cooling capacity	(5)	kW	1305	1403	1474	1598	1671	1735	1729
Total power input	(5)	kW	471,6	500,0	517,1	555,3	589,5	636,7	586,5
EER	(5)	kW/kW	2,767	2,806	2,851	2,878	2,835	2,725	2,948
23°C/15°C									
Cooling capacity	(6)	kW	1522	1593	1720	1861	1949	1949	1978
Total power input	(6)	kW	498,7	535,1	545,1	585,4	621,5	621,5	626,2
EER	(6)	kW/kW	3,052	2,977	3,155	3,179	3,136	3,136	3,159
EXCHANGERS									
HEAT EXCHANGER USER SIDE IN REFRIGERATION									
Water flow	(1)	l/s	57,11	61,64	64,56	69,97	73,16	76,27	78,86
Pressure drop	(1)(2)	kPa	43,5	50,7	42,1	49,5	38,2	41,5	47,6
REFRIGERANT CIRCUIT									
Compressors nr.		N°	2	2	3	3	3	3	3
No. Circuits		N°	2	2	3	3	3	3	3
Refrigerant charge		kg	208	224	236	255	267	278	288
NOISE LEVEL									
Sound Pressure	(7)	dB(A)	61	61	61	61	61	61	62
Sound power level in cooling	(8)(9)	dB(A)	94	94	94	94	94	94	95
SIZE AND WEIGHT									
Length	(10)	mm	10400	11650	11650	12900	12900	12900	12900
Width	(10)	mm	2260	2260	2260	2260	2260	2260	2260
Height	(10)	mm	2500	2500	2500	2500	2500	2500	2500
Operating weight	(10)	kg	9860	10420	12810	13340	13340	13420	13500



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

9 Sound power level in cooling, outdoors.

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

The units highlighted in this publication contain R513A [GWP₁₀₀ 631] fluorinated greenhouse gases.

Certified data in EUROVENT

**FR-G05-Z 1502 - 7823**

Chiller, air source for outdoor installation,
from 289 to 1710 kW.



FR-G05-Z /CA			1502	1702	1902	1922	2202	2602	2652
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)									
Cooling capacity	(1)	kW	302,4	349,6	395,0	461,7	513,2	551,4	590,7
Total power input	(1)	kW	99,27	112,9	130,0	149,8	166,3	182,0	191,9
EER	(1)	kW/kW	3,045	3,097	3,038	3,082	3,086	3,030	3,078
COOLING ONLY (EN14511 VALUE)									
Cooling capacity	(1)(2)	kW	301,6	348,6	393,8	460,5	511,7	549,9	588,9
EER	(1)(2)	kW/kW	3,010	3,060	3,000	3,050	3,050	3,000	3,040
Cooling energy class			B	B	B	B	B	B	B
SEPR	(3)(4)		5,27	5,36	5,40	5,40	5,37	5,22	5,26
COOLING ONLY (GROSS VALUE)									
16°C/10°C									
Cooling capacity	(5)	kW	332,6	384,3	433,5	507,0	563,0	605,2	648,4
Total power input	(5)	kW	103,2	117,3	135,4	156,0	173,0	189,7	199,8
EER	(5)	kW/kW	3,223	3,276	3,202	3,250	3,254	3,190	3,245
23°C/15°C									
Cooling capacity	(6)	kW	384,0	443,3	498,5	583,7	647,2	696,0	746,1
Total power input	(6)	kW	109,6	124,3	143,9	165,9	183,8	202,2	212,5
EER	(6)	kW/kW	3,504	3,566	3,464	3,518	3,521	3,442	3,511
EXCHANGERS									
HEAT EXCHANGER USER SIDE IN REFRIGERATION									
Water flow	(1)	l/s	14,46	16,72	18,89	22,08	24,54	26,37	28,25
Pressure drop	(1)(2)	kPa	24,4	32,6	35,7	29,8	36,8	34,0	39,0
REFRIGERANT CIRCUIT									
Compressors nr.		N°	2	2	2	2	2	2	2
No. Circuits		N°	2	2	2	2	2	2	2
Refrigerant charge		kg	55,0	62,0	67,0	78,0	91,0	93,0	100
NOISE LEVEL									
Sound Pressure	(7)	dB(A)	66	66	67	67	68	68	68
Sound power level in cooling	(8)(9)	dB(A)	98	98	99	99	100	100	101
SIZE AND WEIGHT									
Length	(10)	mm	4000	4000	4000	5250	5250	5250	6500
Width	(10)	mm	2260	2260	2260	2260	2260	2260	2260
Height	(10)	mm	2500	2500	2500	2500	2500	2500	2500
Operating weight	(10)	kg	3660	3720	3760	4660	5040	5090	5830

FR-G05-Z /CA			2702	2722	3152	3602	3902	4202	4502
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)									
Cooling capacity	(1)	kW	628,7	683,7	766,2	837,8	904,7	956,0	1031
Total power input	(1)	kW	203,9	226,5	251,5	270,8	291,1	311,7	333,0
EER	(1)	kW/kW	3,083	3,019	3,047	3,094	3,108	3,067	3,096
COOLING ONLY (EN14511 VALUE)									
Cooling capacity	(1)(2)	kW	626,6	681,5	764,0	835,0	901,7	952,5	1028
EER	(1)(2)	kW/kW	3,040	2,980	3,010	3,050	3,070	3,020	3,050
Cooling energy class			B	B	B	B	B	B	B
SEPR	(3)(4)		5,27	5,18	5,26	5,34	5,32	5,31	5,32
COOLING ONLY (GROSS VALUE)									
16°C/10°C									
Cooling capacity	(5)	kW	690,2	745,3	837,7	917,2	991,0	1047	1129
Total power input	(5)	kW	212,0	235,5	261,5	281,3	302,4	323,9	346,1
EER	(5)	kW/kW	3,256	3,165	3,203	3,261	3,277	3,232	3,262
23°C/15°C									
Cooling capacity	(6)	kW	794,3	847,9	957,4	1051	1136	1200	1295
Total power input	(6)	kW	225,1	249,9	277,4	298,0	320,5	343,0	366,6
EER	(6)	kW/kW	3,529	3,393	3,451	3,527	3,544	3,499	3,532
EXCHANGERS									
HEAT EXCHANGER USER SIDE IN REFRIGERATION									
Water flow	(1)	l/s	30,07	32,70	36,64	40,06	43,26	45,72	49,29
Pressure drop	(1)(2)	kPa	44,2	41,6	37,2	44,5	45,8	51,2	46,0
REFRIGERANT CIRCUIT									
Compressors nr.		N°	2	2	2	2	2	2	2
No. Circuits		N°	2	2	2	2	2	2	2
Refrigerant charge		kg	106	115	130	141	153	162	174
NOISE LEVEL									
Sound Pressure	(7)	dB(A)	68	68	68	69	69	70	70
Sound power level in cooling	(8)(9)	dB(A)	101	101	101	102	102	103	103
SIZE AND WEIGHT									
Length	(10)	mm	6500	6500	7750	7750	9000	9000	10400
Width	(10)	mm	2260	2260	2260	2260	2260	2260	2260
Height	(10)	mm	2500	2500	2500	2500	2500	2500	2500
Operating weight	(10)	kg	5690	6110	6970	7440	7890	8000	8700

Notes:

- Plant (side) cooling exchanger water (in/out) 12°C/7°C;
Source (side) heat exchanger air (in) 35°C.
- Values in compliance with EN14511-3:2013.
- 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.



R R513A

A ENERGY CLASS

COOLING

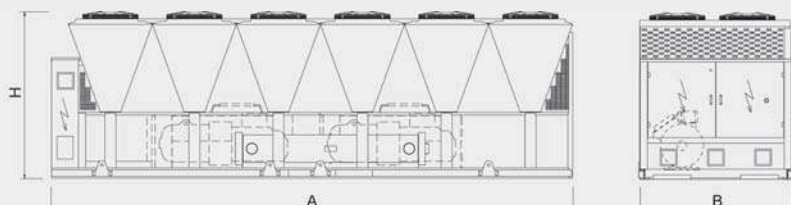
SCREW

VPF VAR.PRIM.FLOW

T SHELL & TUBES

AXIAL

FR-G05-Z /CA			4802	4822	5412	5703	6303	6603
Power supply		V/ph/Hz	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50
PERFORMANCE								
COOLING ONLY (GROSS VALUE)								
Cooling capacity	(1)	kW	1098	1177	1236	1342	1460	1521
Total power input	(1)	kW	353,4	390,4	406,9	431,5	477,7	504,8
EER	(1)	kW/kW	3,107	3,015	3,038	3,110	3,056	3,013
COOLING ONLY (EN14511 VALUE)								
Cooling capacity	(1)(2)	kW	1094	1173	1232	1338	1456	1517
EER	(1)(2)	kW/kW	3,060	2,980	3,000	3,070	3,030	2,980
Cooling energy class			B	B	B	B	B	B
SEPR	(3)(4)		5,32	5,30	5,33	5,31	5,30	5,30
COOLING ONLY (GROSS VALUE)								
16°C/10°C								
Cooling capacity	(5)	kW	1203	1283	1352	1471	1600	1666
Total power input	(5)	kW	367,2	406,0	422,9	448,6	497,3	526,2
EER	(5)	kW/kW	3,276	3,160	3,197	3,279	3,217	3,166
23°C/15°C								
Cooling capacity	(6)	kW	1381	1458	1545	1687	1836	1911
Total power input	(6)	kW	389,1	430,7	448,4	475,7	528,4	560,2
EER	(6)	kW/kW	3,549	3,385	3,446	3,546	3,475	3,411
EXCHANGERS								
HEAT EXCHANGER USER SIDE IN REFRIGERATION								
Water flow	(1)	l/s	52,53	56,31	59,13	64,17	69,81	72,73
Pressure drop	(1)(2)	kPa	50,1	42,3	46,7	41,6	34,7	37,7
REFRIGERANT CIRCUIT								
Compressors nr.		N°	2	2	2	3	3	3
No. Circuits		N°	2	2	2	3	3	3
Refrigerant charge		kg	185	199	209	227	260	258
NOISE LEVEL								
Sound Pressure	(7)	dB(A)	70	70	71	71	71	71
Sound power level in cooling	(8)(9)	dB(A)	103	103	104	104	104	104
SIZE AND WEIGHT								
Length	(10)	mm	10400	10400	11650	12900	12900	12900
Width	(10)	mm	2260	2260	2260	2260	2260	2260
Height	(10)	mm	2500	2500	2500	2500	2500	2500
Operating weight	(10)	kg	8780	9040	10120	12160	12330	12640



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

9 Sound power level in cooling, outdoors.

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

The units highlighted in this publication contain R513A [GWP₁₀₀ 631] fluorinated greenhouse gases.

Certified data in EUROVENT

**FR-G05-Z 1502 - 7823**

Chiller, air source for outdoor installation,
from 289 to 1710 kW.



FR-G05-Z /SL-CA			1502	1702	1902	1922	2202	2602	2652
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)									
Cooling capacity	(1)	kW	304,2	344,9	394,3	450,1	500,7	560,7	582,8
Total power input	(1)	kW	98,67	112,2	126,9	149,7	166,1	185,7	189,1
EER	(1)	kW/kW	3,082	3,074	3,107	3,007	3,014	3,019	3,082
COOLING ONLY (EN14511 VALUE)									
Cooling capacity	(1)(2)	kW	303,4	343,9	393,1	449,0	499,3	559,1	581,0
EER	(1)(2)	kW/kW	3,050	3,040	3,070	2,980	2,990	2,990	3,040
Cooling energy class			B	B	B	B	B	B	B
SEPR	(3)(4)		5,35	5,42	5,35	5,41	5,36	5,33	5,25
COOLING ONLY (GROSS VALUE)									
16°C/10°C									
Cooling capacity	(5)	kW	334,3	378,7	431,6	493,7	548,6	615,1	640,0
Total power input	(5)	kW	102,8	116,8	131,8	156,2	173,1	193,7	196,9
EER	(5)	kW/kW	3,252	3,242	3,275	3,161	3,169	3,176	3,250
23°C/15°C									
Cooling capacity	(6)	kW	385,3	436,1	494,5	567,1	629,3	706,9	736,8
Total power input	(6)	kW	109,5	124,0	139,6	166,7	184,6	206,6	209,5
EER	(6)	kW/kW	3,519	3,517	3,542	3,402	3,409	3,422	3,517
EXCHANGERS									
HEAT EXCHANGER USER SIDE IN REFRIGERATION									
Water flow	(1)	l/s	14,55	16,49	18,85	21,53	23,94	26,81	27,87
Pressure drop	(1)(2)	kPa	24,7	31,7	35,6	28,3	35,1	35,1	38,0
REFRIGERANT CIRCUIT									
Compressors nr.		N°	2	2	2	2	2	2	2
No. Circuits		N°	2	2	2	2	2	2	2
Refrigerant charge		kg	55,0	62,0	71,0	82,0	91,0	101	112
NOISE LEVEL									
Sound Pressure	(7)	dB(A)	55	56	56	57	57	57	58
Sound power level in cooling	(8)(9)	dB(A)	87	88	88	89	89	90	91
SIZE AND WEIGHT									
Length	(10)	mm	4000	4000	5250	5250	5250	6500	6500
Width	(10)	mm	2260	2260	2260	2260	2260	2260	2260
Height	(10)	mm	2500	2500	2500	2500	2500	2500	2500
Operating weight	(10)	kg	4130	4190	4680	5140	5520	6140	6390

FR-G05-Z /SL-CA			2702	2722	3152	3602	3902	4202	4502
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)									
Cooling capacity	(1)	kW	615,6	680,7	754,1	819,3	899,1	947,9	1020
Total power input	(1)	kW	204,4	221,1	246,8	262,5	285,1	305,7	327,1
EER	(1)	kW/kW	3,012	3,079	3,056	3,121	3,154	3,101	3,118
COOLING ONLY (EN14511 VALUE)									
Cooling capacity	(1)(2)	kW	613,9	678,5	752,0	816,7	896,1	944,5	1017
EER	(1)(2)	kW/kW	2,980	3,040	3,020	3,080	3,110	3,060	3,080
Cooling energy class			B	B	B	B	A	B	B
SEPR	(3)(4)		5,29	5,17	5,24	5,34	5,34	5,31	5,31
COOLING ONLY (GROSS VALUE)									
16°C/10°C									
Cooling capacity	(5)	kW	675,5	742,7	824,6	898,2	985,7	1038	1118
Total power input	(5)	kW	213,2	229,5	256,7	272,5	296,1	317,5	339,8
EER	(5)	kW/kW	3,168	3,236	3,212	3,296	3,329	3,269	3,290
23°C/15°C									
Cooling capacity	(6)	kW	776,9	846,4	942,6	1031	1132	1191	1284
Total power input	(6)	kW	227,4	242,8	272,6	288,4	313,4	335,9	359,8
EER	(6)	kW/kW	3,416	3,486	3,458	3,575	3,612	3,546	3,569
EXCHANGERS									
HEAT EXCHANGER USER SIDE IN REFRIGERATION									
Water flow	(1)	l/s	29,44	32,55	36,06	39,18	43,00	45,33	48,80
Pressure drop	(1)(2)	kPa	33,7	41,2	36,1	42,6	45,3	50,3	45,1
REFRIGERANT CIRCUIT									
Compressors nr.		N°	2	2	2	2	2	2	2
No. Circuits		N°	2	2	2	2	2	2	2
Refrigerant charge		kg	123	136	148	162	171	184	197
NOISE LEVEL									
Sound Pressure	(7)	dB(A)	58	59	59	59	59	60	60
Sound power level in cooling	(8)(9)	dB(A)	91	92	92	92	92	93	93
SIZE AND WEIGHT									
Length	(10)	mm	6500	7750	7750	9000	10250	10250	11650
Width	(10)	mm	2260	2260	2260	2260	2260	2260	2260
Height	(10)	mm	2500	2500	2500	2500	2500	2500	2500
Operating weight	(10)	kg	6520	7150	7610	8500	8990	9280	9810

Notes:

- Plant (side) cooling exchanger water (in/out) 12°C/7°C;
Source (side) heat exchanger air (in) 35°C.
- Values in compliance with EN14511-3:2013.
- 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.



R R513A

A ENERGY CLASS

COOLING

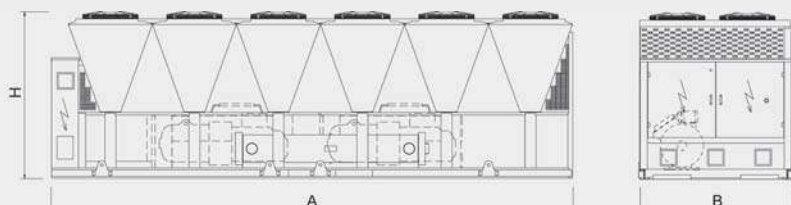
SCREW

VPF VAR.PRIM.FLOW

T SHELL & TUBES

AXIAL

FR-G05-Z /SL-CA			4802	4822	5412	5703	6303
Power supply		V/ph/Hz	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50
PERFORMANCE							
COOLING ONLY (GROSS VALUE)							
Cooling capacity	(1)	kW	1086	1163	1219	1310	1442
Total power input	(1)	kW	347,6	384,6	401,4	426,7	479,4
EER	(1)	kW/kW	3,124	3,024	3,037	3,070	3,008
COOLING ONLY (EN14511 VALUE)							
Cooling capacity	(1)(2)	kW	1082	1160	1215	1306	1439
EER	(1)(2)	kW/kW	3,080	2,990	3,000	3,040	2,980
Cooling energy class			B	B	B	B	B
SEPR	(3)(4)		5,34	5,30	5,33	5,31	5,36
COOLING ONLY (GROSS VALUE)							
16°C/10°C							
Cooling capacity	(5)	kW	1190	1268	1333	1435	1579
Total power input	(5)	kW	361,2	399,9	417,2	444,1	500,4
EER	(5)	kW/kW	3,295	3,171	3,195	3,231	3,155
23°C/15°C							
Cooling capacity	(6)	kW	1367	1442	1525	1645	1809
Total power input	(6)	kW	382,6	423,7	442,4	471,7	533,7
EER	(6)	kW/kW	3,573	3,403	3,447	3,487	3,390
EXCHANGERS							
HEAT EXCHANGER USER SIDE IN REFRIGERATION							
Water flow	(1)	l/s	51,94	55,63	58,31	62,64	68,95
Pressure drop	(1)(2)	kPa	48,9	41,3	45,4	39,7	33,9
REFRIGERANT CIRCUIT							
Compressors nr.		N°	2	2	2	3	3
No. Circuits		N°	2	2	2	3	3
Refrigerant charge		kg	210	220	237	260	226
NOISE LEVEL							
Sound Pressure	(7)	dB(A)	60	60	62	62	62
Sound power level in cooling	(8)(9)	dB(A)	93	93	95	95	95
SIZE AND WEIGHT							
Length	(10)	mm	11650	11650	12900	12900	12900
Width	(10)	mm	2260	2260	2260	2260	2260
Height	(10)	mm	2500	2500	2500	2500	2500
Operating weight	(10)	kg	9890	10230	10760	13130	13260



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

9 Sound power level in cooling, outdoors.

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

The units highlighted in this publication contain R513A [GWP₁₀₀ 631] fluorinated greenhouse gases.

Certified data in EUROVENT

**FR-G05-Z 1502 - 7823**

Chiller, air source for outdoor installation,
from 289 to 1710 kW.



FR-G05-Z / E			1502	1702	1902	1922	2202	2602	2652	2702	2722
Power supply		V/ph/Hz	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50
PERFORMANCE											
COOLING ONLY (GROSS VALUE)											
Cooling capacity	(1)	kW	316,5	362,6	413,8	451,2	530,5	575,8	612,9	649,8	703,3
Total power input	(1)	kW	98,32	112,6	128,0	142,3	162,6	177,5	188,6	199,6	221,8
EER	(1)	kW/kW	3,220	3,220	3,233	3,171	3,263	3,244	3,250	3,256	3,171
COOLING ONLY (EN14511 VALUE)											
Cooling capacity	(1)(2)	kW	315,8	361,6	412,9	450,1	529,0	574,4	611,2	647,9	701,5
EER	(1)(2)	kW/kW	3,190	3,180	3,200	3,140	3,220	3,210	3,210	3,220	3,140
Cooling energy class			A	A	A	A	A	A	A	A	A
SEPR	(3)(4)		5,29	5,40	5,41	5,43	5,39	5,25	5,28	5,29	5,26
COOLING ONLY (GROSS VALUE)											
16°C/10°C											
Cooling capacity	(5)	kW	348,8	400,0	456,5	493,5	584,4	633,9	674,6	715,0	768,4
Total power input	(5)	kW	102,1	116,6	132,8	147,4	168,6	184,3	195,6	206,9	229,8
EER	(5)	kW/kW	3,416	3,431	3,438	3,348	3,466	3,440	3,449	3,456	3,344
23°C/15°C											
Cooling capacity	(6)	kW	403,8	464,0	529,5	564,5	676,2	732,8	779,7	826,2	877,3
Total power input	(6)	kW	108,2	122,8	140,5	155,2	178,1	195,3	207,0	218,7	242,3
EER	(6)	kW/kW	3,732	3,779	3,769	3,637	3,797	3,752	3,767	3,778	3,621
EXCHANGERS											
HEAT EXCHANGER USER SIDE IN REFRIGERATION											
Water flow	(1)	l/s	15,14	17,34	19,79	21,58	25,37	27,54	29,31	31,07	33,63
Pressure drop	(1)(2)	kPa	22,9	30,1	24,0	28,5	35,8	29,5	33,4	37,5	31,4
REFRIGERANT CIRCUIT											
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	56,0	64,0	74,0	82,0	94,0	102	109	116	125
NOISE LEVEL											
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
SIZE AND WEIGHT											
Length	(10)	mm	4000	5250	5250	5250	6500	6500	7750	7750	7750
Width	(10)	mm	2260	2260	2260	2260	2260	2260	2260	2260	2260
Height	(10)	mm	2500	2500	2500	2500	2500	2500	2500	2500	2500
Operating weight	(10)	kg	3720	4240	4360	4420	5590	5920	6400	6490	6600

FR-G05-Z / E			3152	3602	3902	4202	4502	4802	4822	5412
Power supply		V/ph/Hz	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50
PERFORMANCE										
COOLING ONLY (GROSS VALUE)										
Cooling capacity	(1)	kW	785,8	854,0	931,3	986,6	1054	1123	1219	1277
Total power input	(1)	kW	245,6	266,4	288,3	309,5	330,1	350,9	388,4	407,4
EER	(1)	kW/kW	3,200	3,206	3,230	3,188	3,193	3,200	3,139	3,135
COOLING ONLY (EN14511 VALUE)										
Cooling capacity	(1)(2)	kW	783,7	851,4	927,8	983,6	1051	1119	1216	1274
EER	(1)(2)	kW/kW	3,160	3,170	3,180	3,150	3,150	3,150	3,110	3,100
Cooling energy class			A	A	A	A	A	A	A	A
SEPR	(3)(4)		5,32	5,35	5,34	5,33	5,36	5,36	5,35	5,37
COOLING ONLY (GROSS VALUE)										
16°C/10°C										
Cooling capacity	(5)	kW	861,8	938,3	1023	1083	1156	1232	1332	1399
Total power input	(5)	kW	254,7	276,2	298,9	320,8	342,2	363,8	403,0	423,0
EER	(5)	kW/kW	3,384	3,397	3,423	3,376	3,378	3,386	3,305	3,307
23°C/15°C										
Cooling capacity	(6)	kW	989,9	1081	1178	1246	1330	1418	1519	1606
Total power input	(6)	kW	269,0	291,7	315,5	338,5	361,1	384,1	425,7	447,6
EER	(6)	kW/kW	3,680	3,706	3,734	3,681	3,683	3,692	3,568	3,588
EXCHANGERS										
HEAT EXCHANGER USER SIDE IN REFRIGERATION										
Water flow	(1)	l/s	37,58	40,84	44,54	47,18	50,39	53,70	58,31	61,05
Pressure drop	(1)(2)	kPa	34,6	40,9	53,0	42,1	46,1	51,2	34,4	37,7
REFRIGERANT CIRCUIT										
Compressors nr.		N°	2	2	2	2	2	2	2	2
No. Circuits		N°	2	2	2	2	2	2	2	2
Refrigerant charge		kg	140	152	166	176	187	200	217	228
NOISE LEVEL										
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
SIZE AND WEIGHT										
Length	(10)	mm	9000	9000	10250	10250	11650	11650	11650	12900
Width	(10)	mm	2260	2260	2260	2260	2260	2260	2260	2260
Height	(10)	mm	2500	2500	2500	2500	2500	2500	2500	2500
Operating weight	(10)	kg	7400	7880	8420	8660	9190	9270	10330	11170

Notes:

- Plant (side) cooling exchanger water (in/out) 12°C/7°C;
Source (side) heat exchanger air (in) 35°C.
- Values in compliance with EN14511-3:2013.
- 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.



R R513A

A ENERGY CLASS

COOLING

SCREW

VPF VAR.PRIM.FLOW

T SHELL & TUBES

AXIAL

FR-G05-Z /SL-E			1502	1702	1902	1922	2202	2602	2652	2702	2722
Power supply		V/ph/Hz	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50
PERFORMANCE											
COOLING ONLY (GROSS VALUE)											
Cooling capacity	(1)	kW	312,8	359,1	409,0	447,3	524,1	568,3	605,2	641,9	696,6
Total power input	(1)	kW	97,03	110,3	126,2	141,4	160,5	176,0	186,6	197,3	220,9
EER	(1)	kW/kW	3,225	3,256	3,241	3,163	3,265	3,229	3,243	3,253	3,153
COOLING ONLY (EN14511 VALUE)											
Cooling capacity	(1)(2)	kW	312,1	358,1	408,1	446,2	522,6	566,9	603,6	640,0	694,9
EER	(1)(2)	kW/kW	3,190	3,220	3,210	3,130	3,230	3,200	3,210	3,210	3,120
Cooling energy class			A	A	A	A	A	A	A	A	A
SEPR	(3)(4)		5,39	5,50	5,51	5,50	5,50	5,51	5,50	5,50	5,50
COOLING ONLY (GROSS VALUE)											
16°C/10°C											
Cooling capacity	(5)	kW	344,4	395,9	450,8	488,8	576,7	625,1	665,7	705,9	760,6
Total power input	(5)	kW	101,0	114,3	131,2	146,8	166,8	183,2	194,1	205,0	229,4
EER	(5)	kW/kW	3,410	3,464	3,436	3,330	3,457	3,412	3,430	3,443	3,316
23°C/15°C											
Cooling capacity	(6)	kW	398,2	458,8	522,1	558,3	666,3	721,6	768,3	814,6	867,4
Total power input	(6)	kW	107,3	120,8	139,1	155,2	176,8	194,7	206,0	217,4	242,9
EER	(6)	kW/kW	3,711	3,798	3,753	3,597	3,769	3,706	3,730	3,747	3,571
EXCHANGERS											
HEAT EXCHANGER USER SIDE IN REFRIGERATION											
Water flow	(1)	l/s	14,96	17,17	19,56	21,39	25,06	27,18	28,94	30,70	33,31
Pressure drop	(1)(2)	kPa	22,4	29,5	23,4	28,0	34,9	28,7	32,6	36,6	30,8
REFRIGERANT CIRCUIT											
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	56,0	64,0	74,0	82,0	94,0	102	109	116	125
NOISE LEVEL											
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
SIZE AND WEIGHT											
Length	(10)	mm	4000	5250	5250	5250	6500	6500	7750	7750	7750
Width	(10)	mm	2260	2260	2260	2260	2260	2260	2260	2260	2260
Height	(10)	mm	2500	2500	2500	2500	2500	2500	2500	2500	2500
Operating weight	(10)	kg	3960	4460	4620	4680	6120	6460	6940	7040	7140

FR-G05-Z /SL-E			3152	3602	3902	4202	4502	4802	4822	5412
Power supply		V/ph/Hz	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50
PERFORMANCE										
COOLING ONLY (GROSS VALUE)										
Cooling capacity	(1)	kW	776,1	841,9	918,4	973,5	1040	1108	1205	1260
Total power input	(1)	kW	244,2	264,3	286,4	307,9	328,4	349,1	389,0	406,2
EER	(1)	kW/kW	3,178	3,185	3,207	3,162	3,167	3,174	3,098	3,102
COOLING ONLY (EN14511 VALUE)										
Cooling capacity	(1)(2)	kW	774,1	839,4	915,0	970,6	1037	1104	1202	1257
EER	(1)(2)	kW/kW	3,140	3,150	3,160	3,120	3,130	3,130	3,070	3,070
Cooling energy class			A	A	A	A	A	A	B	B
SEPR	(3)(4)		5,50	5,50	5,51	5,50	5,50	5,51	5,51	5,51
COOLING ONLY (GROSS VALUE)										
16°C/10°C										
Cooling capacity	(5)	kW	850,2	923,7	1008	1067	1140	1215	1315	1380
Total power input	(5)	kW	253,8	274,6	297,6	319,9	341,2	362,9	404,8	422,7
EER	(5)	kW/kW	3,350	3,364	3,387	3,335	3,341	3,348	3,249	3,265
23°C/15°C										
Cooling capacity	(6)	kW	974,9	1062	1158	1227	1310	1396	1499	1582
Total power input	(6)	kW	269,0	290,9	315,3	338,7	361,5	384,6	429,6	449,1
EER	(6)	kW/kW	3,624	3,651	3,673	3,623	3,624	3,630	3,489	3,523
EXCHANGERS										
HEAT EXCHANGER USER SIDE IN REFRIGERATION										
Water flow	(1)	l/s	37,11	40,26	43,92	46,55	49,72	52,98	57,62	60,28
Pressure drop	(1)(2)	kPa	33,7	39,7	51,5	41,0	44,9	49,8	33,6	36,7
REFRIGERANT CIRCUIT										
Compressors nr.		N°	2	2	2	2	2	2	2	2
No. Circuits		N°	2	2	2	2	2	2	2	2
Refrigerant charge		kg	140	152	166	176	187	200	217	228
NOISE LEVEL										
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
SIZE AND WEIGHT										
Length	(10)	mm	9000	9000	10250	10250	11650	11650	11650	12900
Width	(10)	mm	2260	2260	2260	2260	2260	2260	2260	2260
Height	(10)	mm	2500	2500	2500	2500	2500	2500	2500	2500
Operating weight	(10)	kg	7990	8500	8990	9290	9830	9910	10900	11530

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

9 Sound power level in cooling, outdoors.

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

The units highlighted in this publication contain R513A [GWP₁₀₀ 631] fluorinated greenhouse gases.

Certified data in EUROVENT

FURTHER OPTIONS

Auxiliary input

4-20 mA (Opt. 6161): Enables remote set-point adjustments (analog input).

Double set-point (Opt. 6162): Enables the remote switch between 2 set-points (digital input).

Demand limit (Opt. 6171): Limits the unit's power absorption for safety reasons or in temporary situations (digital input).

Electrical

Compressor rephasing (Opt. 3301): The capacitors on the compressors' line increase the unit's power factor.

Automatic circuit breakers for compressors (Opt. 3411) or all major electrical loads (Opt. 3412): Protects the compressors or the compressors and fans from possible current peaks, over-current switches are provided in place of the standard fuses.

Soft-starter (Opt. 1511) or 3-phase soft-starter (Opt. 1513): 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

BMS connection: Serial card interface module to allow integration with BMS protocols:

Modbus (Opt. 4181) / LonWorks (Opt. 4182) / BACnet MS/TP (Opt. 4184) / BACnet over IP (Opt. 4185).

M-Net interface kit (Opt. 4187): Interface module to allow the integration of the unit with Mitsubishi Electric proprietary communication protocol M-Net.

Energy Meter

Energy meter for BMS (Opt. 5924): Acquires electrical data and the power absorbed by the unit and send them the BMS for energy metering (Modbus RS485).

Refrigerant circuit

Dual pressure relief valves with switch (Opt. 1961): 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.

Compressor suction valve (Opt. 1901): Installed on each compressor suction line, it simplifies maintenance activity (discharge valves are present as per standard).

Refrigerant leak detector

Leak detector (Opt. 3431): Factory installed device. In case of a gas leak detection it raises an alarm.

Leak detector + compressor off (Opt. 3433): Factory installed device. In case of a gas leak detection it raises an alarm and stops the units.

Hydraulic

Water flow switch (Opt. 1801): Designed to protect the unit where the water flow across the evaporator is not sufficient and falls outside of the operating parameters.

Delta T > 8°C (Opt. 2881): Evaporator designed to operate with low primary circuit water flow.

Flanged hydraulic connections (Opt. 2911): Grooved coupling with flanged counter-pipe.

Structure

Anti-intrusion grilles (Opt. 2021): Perimeter metal grilles to protect against the intrusion of solid bodies into the unit structure.

Rubber type (Opt. 2101) or spring type (Opt. 2102) anti-vibration mountings: Reduce vibrations, keeping noise transmission to a minimum.

Packing

Reinforcing bars (Opt. 1971): Steel brackets used to strengthen the unit structure. Suggested in case of long truck transport.

Nylon packing (Opt. 9966): FR-G05-Z is covered with a protective nylon layer and provided with the lifting eye-plates, to load the unit into a truck.

Container packing (Opt. 9979): FR-G05-Z is covered with a protective nylon layer, provided with structural reinforcing bars and equipped with both lifting eye-plates and handling devices to load it on a container (metal slides, front handling bar).

“BY FAR THE BEST PROOF IS EXPERIENCE”

Sir Francis Bacon

British philosopher (1561-1626)

CDC Canberra Data Center Fyshwick 1

2015 Canberra – Australia

Data Center

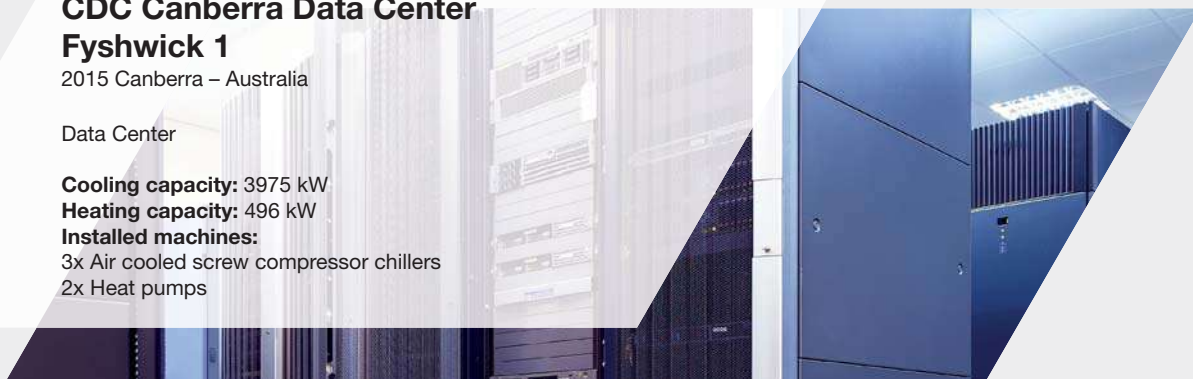
Cooling capacity: 3975 kW

Heating capacity: 496 kW

Installed machines:

3x Air cooled screw compressor chillers

2x Heat pumps



Range International Information Group Data center

2013 Langfang - Hebei Province – China

Data Center

Cooling capacity: 12700 kW

Installed machines:

5x Air cooled screw compressor chillers

42x Chilled water close control units



BNP Paribas

2015 Bailly Romainvilliers - France

Data Center

Cooling capacity: 12208 kW

Installed machines:

2x Air cooled screw compressor chillers

10x Water cooled screw compressors chillers

30x Chilled water close control units



Telecom Data Center Acilia, Tier IV

2016 Rome - Italy

Data Center

Cooling capacity: 7804 kW

Installed machines:

5x Air cooled screw compressor chillers

3x Air cooled chillers with oil-free centrifugal

Compressors





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.



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