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

IT COOLING

UNITS FOR SIMULTANEOUS AND INDEPENDENT PRODUCTION OF HOT AND COLD WATER

INTEGRA

NR-Q-G06-Z

AIR SOURCE UNITS FOR 4-PIPE SYSTEMS, WITH SCROLL COMPRESSORS, FROM 55,8 TO 298 kW

R454B

rcitcooling.com

INTEGRA

NR-Q-G06-Z

TURNING HEAT INTO PRECIOUS THERMAL ENERGY

ErP 2021 COMPLIANT

Air source units for 4-pipe systems, with scroll compressors and low GWP refrigerant. From 55,8 to 298 kW

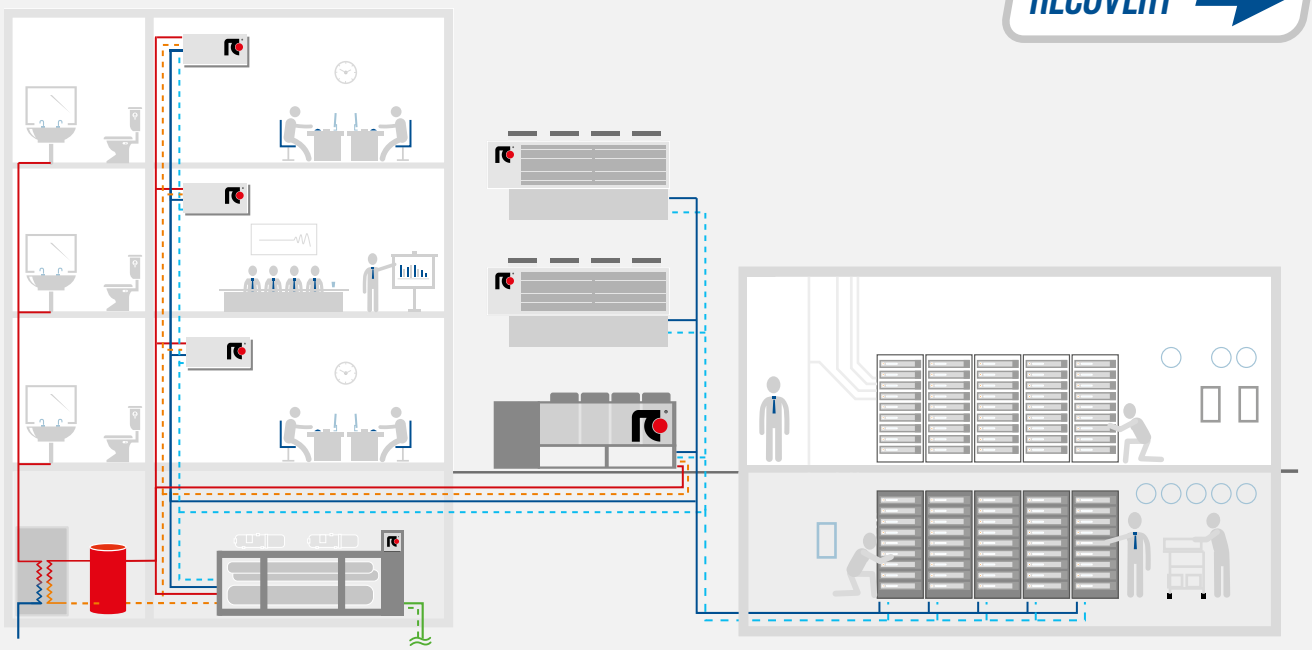
EUROVENT CERTIFIED PERFORMANCE www.eurovent-certification.com

NR-Q-G06-Z multi-purpose units produce hot and cold water simultaneously and independently, in any load combinations.

The new G06 range offers an ecofriendly approach: reduced refrigerant charge and R454B low GWP refrigerant ensure the lowest CO_2eq tons in the market.

SMART HEAT RECOVERY FOR IT COOLING APPLICATIONS

HEAT RECOVERY



The heat generated by powerful computer servers is a precious energy source; why do we waste it? This thermal energy can be recovered and reused if necessary, turning it into an economic asset.

Through innovative heat recovery, the Smart Thermal Energy Management System, RC IT Cooling products synergistically provide both the cooling for the data center and the heating needs inside the building, by moving the heat from the data center to other office areas.

A forward-looking system that combines perfect conditions with zero energy waste, improving the energy class rating of the building and providing large annual energy savings.

NEW GENERATION GREEN REFRIGERANT

R454B

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

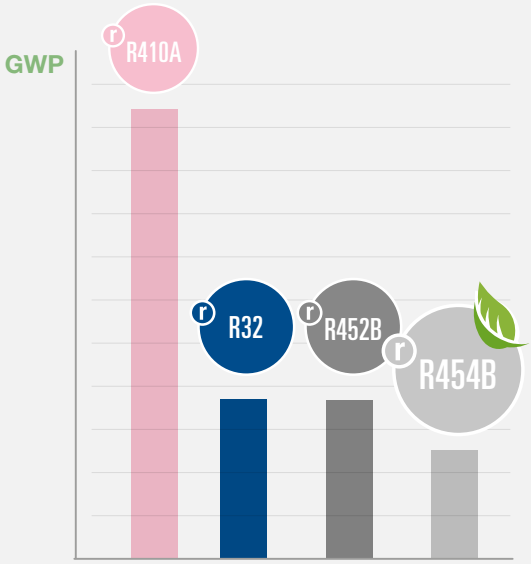
Thanks to the new generation refrigerant R454B, the environmental impact of NR-Q-G06-Z is greatly reduced. Combining reduced refrigerant charge with a low GWP refrigerant, these units boast the lowest amount of CO_2eq in the scroll unit market, thus resulting as the perfect choice for any new forward looking installation.

R454B REFRIGERANT

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

GWP: 466

-76% vs R410A
-31% vs R32



REDUCED ENVIRONMENTAL IMPACT

- **Low GWP**, only 466
- **Reduced refrigerant charge** (-10% vs R410A)

RELIABILITY

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

PERFORMANCE & ENVELOPE

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

SELF-ADAPTABILITY WITH SIMULTANEOUS LOADS

Thanks to their advanced control logics, multi-purpose units are always able to respond to building climate control requirements, especially if overlapping loads occur. The unit can independently produce heating and cooling simultaneously, according the actual needs.

SYSTEM SIMPLIFICATION

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

REDUCTION OF ON-SITE OPERATIONS

PLUG & PLAY

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

TOP-LEVEL EFFICIENCIES

COOLING HEATING

TER, Total Efficiency Ratio is the Mitsubishi Electric index calculated as the ratio between the sum of the delivered heating and cooling power and electrical power input.

TER, considered today the most effective way of representing the real efficiency of the 4-pipe unit, is calculated as the sum of the performance in hot and cold water production.

NR-Q-G06-Z multi-purpose units

	UP TO SCOP	COP	EER
NR-Q-G06-Z	3,88	3,61	3,41
NR-Q-G06-Z/SL	4,01	3,70	3,46

TER TOTAL EFFICIENCY RATIO

$$TER = \frac{\text{COOLING POWER} + \text{HEATING CAPACITY}}{\text{POWER CONSUMPTION}}$$

8,58

TECHNOLOGICAL CHOICES

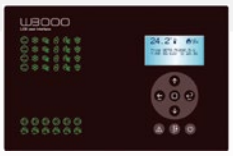
INTEGRA

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 (Opt.)

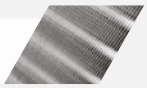
Large keyboard



- Large LCD display and functional keys
- Quick and easy parameter consultation and adjustment by means of a multi-level menu
- KIPlink, the innovative Wi-Fi interface, is available as an option.

Highly resistant finned coils

Copper and aluminum tube & fins coils



- Ideally designed to optimize airflow and heat transfer
- Protective coating available for harsh industrial and marine environments (Opt.)

Scroll compressors

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

- **Specific oil management solution** for enhanced reliability

OPERATING RANGE

HEATING

AIR down to **-15°C**

WATER up to **55°C** (2 cmpr units)

COOLING

AIR from **-10°C** up to **46°C**

WATER from -8°C up to 18°C (2 cmpr units)

R454B

R454B Refrigerant

GWP: 466

-76% vs R410A
-31% vs R32

High density, **low GWP refrigerant**

- **Composition:** 69% R32 + 31% R1234yf
- **Global Warming Potential:** 466 (IPCC AR5)
- **Safety classification:**
  - A2L midly flammable (ISO 817)
  - Fluid Group 1 (PED)

FANS

High performing, axial fans:

- Different sizes and speeds to perfectly fit the requirements of each unit model
- Speed control (DVV) based on refrigerant pressure

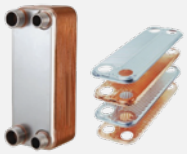
UP TO + 8% MORE SEASONAL EFFICIENCY

EC AXIAL

EC fans

- Continuous regulation of the air flow
- Reduced power consumption and increased efficiencies at partial loads

Plate heat exchanger



Compact and robust, made of AISI 316 steel plates, copper-brazed.

- Low pressure drops
- Fully protected against ice formation
- Closed-cell neoprene external lining

HYDRONIC MODULES

The **fully integrated hydronic module** (opt.) includes the pumps, and all the main hydraulic components, for the best **optimization of the installation space, time, and costs**.

Pumps

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

Pumps + Inverter

- In-line speed-controlled pumps in single or twin version
- Energy savings up to 50% compared to conventional pumps

Only terminals

- On/off control or 0-10V signal
- 1 or 2 external pumps

ADVANCED FUNCTIONS

NIGHT MODE

The advanced control system is engineered to maintain optimal comfort conditions according to occupancy needs and variations.

Thanks to the night mode function, the unit lowers its sound emissions leveraging on a reduced usage of its resources and offering excellent acoustic comfort during low load periods.

SMART DEFROST

Thanks to the extensive know-how in heat pump technology, a series of smart proprietary auto adaptive algorithms have been developed to manage the defrosting cycles in the smartest way.

- Reduction in defrosting time
- Minimum impact on leaving water temperature
- Reduction of energy required for defrosting
- Increase of COP

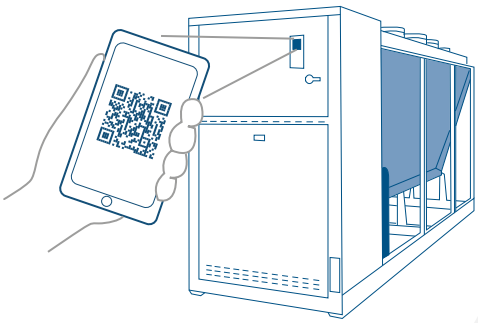
ACCESSORIES AND FURTHER OPTIONS

KIPlink user interface

KIP LINK
Keyboard In your Pocket

An exclusive product of
Mitsubishi Electric Hydronics & IT Cooling Systems.

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



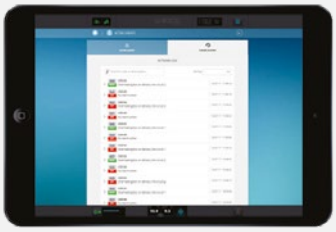
MAIN FEATURES

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” messages / 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.



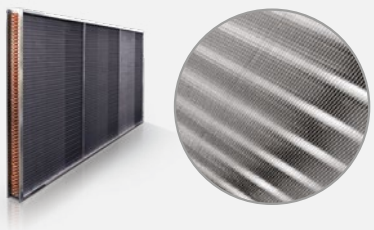
Data logger function

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.

TYPES OF COILS

TUBE & FINS COILS

Cu/Al - Regular



Cu/Al - Pre-painted fins

- Fins treated with protective polyester resin paint.
- 1000 h of salt spray protection as per ASTM B117.
- Excellent resistance to UV rays.

Cu/Al - Fin Guard Silver SB

- Polyurethane paint with metallic emulsion.
- 3000 h of salt spray protection as per ASTM B117.
- Excellent resistance to UV rays.

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.
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

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 directely on the unit's control.

Refrigerant circuit

Compressor suction and discharge valves: Installed for each compressor tandem or trio, the valves simplify maintenance activities.
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.
Water filter: Filters the water before the unit's inlet.

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

UNITS FOR SIMULTANEOUS AND INDEPENDENT PRODUCTION OF HOT AND COLD WATER

NR-Q-G06-Z 0202P - 0602P

INTEGRA

unit for 4-pipe systems,
air source for outdoor installation

EUROVENT CERTIFIED PERFORMANCE www.eurovent-certification.com

NR-Q-G06-Z			0202P	0252P	0262P	0302P	0402P	0502P	0602P
Power supply		V/ph/Hz	400/3+N/50	400/3+N/50	400/3+N/50	400/3+N/50	400/3+N/50	400/3+N/50	400/3+N/50
PERFORMANCE									
COOLING ONLY (GROSS VALUE)									
Cooling capacity	(1)	kW	55,80	61,47	68,70	82,11	106,2	132,3	161,8
Total power input	(1)	kW	16,44	17,86	20,70	23,86	31,12	39,38	52,53
EER	(1)	kW/kW	3.402	3.436	3.319	3.435	3.415	3.358	3.082
COOLING ONLY (EN14511 VALUE)									
Cooling capacity	(1)(2)	kW	55,70	61,40	68,60	82,00	106,1	132,1	161,5
EER	(1)(2)	kW/kW	3.370	3.410	3.290	3.410	3.380	3.320	3.040
COOLING ONLY									
16°C/10°C									
Cooling capacity	(5)	kW	60,87	67,04	74,74	89,42	116,1	144,4	175,9
Total power input	(5)	kW	16,81	18,24	21,22	24,41	31,91	40,34	54,08
EER	(5)	kW/kW	3.625	3.681	3.524	3.664	3.639	3.583	3.251
23°C/15°C									
Cooling capacity	(6)	kW	69,30	76,26	84,73	101,6	132,7	164,4	199,1
Total power input	(6)	kW	17,33	18,80	21,95	25,19	33,08	41,73	56,49
EER	(6)	kW/kW	4.006	4.059	3.850	4.032	4.009	3.942	3.524
HEATING ONLY (GROSS VALUE)									
Total heating capacity	(7)	kW	58,20	64,61	72,17	86,49	110,6	139,1	170,3
Total power input	(7)	kW	16,32	17,95	19,95	23,82	30,47	38,50	48,43
COP	(7)	kW/kW	3.571	3.609	3.610	3.634	3.626	3.613	3.519
HEATING ONLY (EN14511 VALUE)									
Total heating capacity	(2)(7)	kW	58,30	64,70	72,30	86,60	110,8	139,3	170,6
COP	(2)(7)	kW/kW	3.550	3.580	3.590	3.610	3.600	3.580	3.480
COOLING WITH TOTAL HEAT RECOVERY									
Cooling capacity	(8)	kW	56,56	61,69	70,15	83,41	107,4	134,1	169,4
Total power input	(8)	kW	14,56	16,02	18,34	21,68	28,18	36,55	46,89
Recovery heat exchanger capacity	(8)	kW	70,24	76,75	87,39	103,8	133,9	168,5	213,5
TER	(8)	kW/kW	8.685	8.650	8.607	8.627	8.557	8.290	8.164
ENERGY EFFICIENCY									
SEASONAL EFFICIENCY IN HEATING (Reg. EU 813/2013)									
PDesign	(11)	kW	41,7	47,2	53,1	62,9	79,5	102	129
SCOP	(11)(12)		3,74	3,86	3,88	3,82	3,78	3,76	3,73
Performance ηs	(11)(13)	%	147	151	152	150	148	147	146
Seasonal efficiency class	(11)		A+	A++	A++	A++	-	-	-
EXCHANGERS									
HEAT EXCHANGER USER SIDE IN REFRIGERATION									
Water flow	(1)	l/s	2.668	2.940	3.285	3.927	5.080	6.329	7.739
Pressure drop at the heat exchanger	(1)	kPa	14,6	17,7	15,8	17,9	20,5	24,1	29,3
HEAT EXCHANGER USER SIDE IN HEATING									
Water flow	(7)	l/s	2.809	3.119	3.484	4.175	5.340	6.712	8.218
Pressure drop at the heat exchanger	(7)	kPa	16,2	19,9	17,8	20,2	22,7	27,2	33,1
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	20,6	25,6	27,8	33,4	48,2	54,4	54,9
NOISE LEVEL									
Sound Pressure	(14)	dB(A)	53	53	53	54	55	56	56
Sound power level in cooling	(15)(16)	dB(A)	85	85	85	86	87	88	88
Sound power level in heating	(15)(17)	dB(A)	85	85	85	86	87	88	88
SIZE AND WEIGHT									
Length	(18)	mm	2625	2625	2625	3250	3875	4500	4500
Width	(18)	mm	1350	1350	1350	1350	1350	1350	1350
Height	(18)	mm	2070	2070	2070	2070	2070	2070	2070
Operating weight	(18)	kg	950	990	1000	1130	1310	1620	1650

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
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 Plant (side) heat exchanger water (in/out) 40°C/45°C; Source (side) heat exchanger air (in) 7°C - 87% R.H.
8 Plant (side) cooling exchanger water (in/out) 12°C/7°C; Plant (side) heat exchanger water (in/out) 40°C/45°C.
9 Seasonal energy efficiency of high temperature process cooling [REGULATION (EU) N. 2016/2281]
10 Seasonal energy efficiency ratio
11 Parameter calculated for LOW-TEMPERATURE application in AVERAGE climate conditions according to [REGULATION (EU) N. 813/2013]
12 Seasonal coefficient of performance
13 Seasonal space heating energy efficiency
14 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.
15 Sound power on the basis of measurements made in compliance with ISO 9614.
16 Sound power level in cooling, outdoors.
17 Sound power level in heating, outdoors.
18 Unit in standard configuration/execution, without optional accessories.

The units highlighted in this publication contain R454B [GW_{P100} 466] fluorinated greenhouse gases.

Certified data in EUROVENT

ACOUSTIC VERSIONS

-	**Standard**	Standard soundproofing equipment	**Baseline**
SL	**Super low noise**	The highest level of noise reduction. NO COMPROMISES IN EFFICIENCY!	**-9 dB(A)**

R R454B | P PLATES | 4 PIPE SYSTEM | AXIAL | SCROLL

NR-Q-G06-Z/SL			0202P	0252P	0262P	0302P	0402P	0502P	0602P
Power supply		V/ph/Hz	400/3+N/50	400/3+N/50	400/3+N/50	400/3+N/50	400/3+N/50	400/3+N/50	
PERFORMANCE									
COOLING ONLY (GROSS VALUE)									
Cooling capacity	(1)	kW	56,14	60,65	68,69	81,39	104,2	125,5	
Total power input	(1)	kW	16,08	18,03	20,50	23,76	31,12	41,15	
EER	(1)	kW/kW	3.484	3.367	3.351	3.420	3.350	3.046	
COOLING ONLY (EN14511 VALUE)									
Cooling capacity	(1)(2)	kW	56,10	60,60	68,60	81,30	104,0	125,3	
EER	(1)(2)	kW/kW	3.460	3.330	3.320	3.400	3.320	3.020	
COOLING ONLY									
16°C/10°C									
Cooling capacity	(5)	kW	61,26	66,09	74,74	88,58	113,7	136,5	
Total power input	(5)	kW	16,43	18,45	21,02	24,33	31,95	42,33	
EER	(5)	kW/kW	3.738	3.592	3.557	3.646	3.553	3.227	
23°C/15°C									
Cooling capacity	(6)	kW	69,79	75,10	84,72	100,5	129,7	154,6	
Total power input	(6)	kW	16,94	19,05	21,75	25,15	33,19	44,07	
EER	(6)	kW/kW	4.130	3.932	3.885	4.004	3.907	3.506	
HEATING ONLY (GROSS VALUE)									
Total heating capacity	(7)	kW	59,67	64,45	73,73	87,50	111,7	135,6	
Total power input	(7)	kW	16,15	17,74	19,81	23,46	30,07	37,19	
COP	(7)	kW/kW	3.685	3.644	3.722	3.723	3.711	3.645	
HEATING ONLY (EN14511 VALUE)									
Total heating capacity	(2)(7)	kW	59,80	64,50	73,80	87,60	111,8	135,8	
COP	(2)(7)	kW/kW	3.660	3.620	3.700	3.690	3.680	3.610	
COOLING WITH TOTAL HEAT RECOVERY									
Cooling capacity	(8)	kW	56,56	61,69	70,15	83,41	107,4	134,1	
Total power input	(8)	kW	14,56	16,02	18,34	21,68	28,18	36,55	
Recovery heat exchanger capacity	(8)	kW	70,24	76,75	87,39	103,8	133,9	168,5	
TER	(8)	kW/kW	8.685	8.650	8.607	8.627	8.557	8.290	
ENERGY EFFICIENCY									
SEASONAL EFFICIENCY IN HEATING (Reg. EU 813/2013)									
PDesign	(11)	kW	43,5	46,7	54,0	63,9	80,6	101	
SCOP	(11)(12)		3,91	3,90	4,01	3,97	3,90	3,86	
Performance ηs	(11)(13)	%	153	153	157	156	153	151	
Seasonal efficiency class	(11)		A++	A++	A++	A++	-	-	
EXCHANGERS									
HEAT EXCHANGER USER SIDE IN REFRIGERATION									
Water flow	(1)	l/s	2.685	2.900	3.285	3.892	4.981	6.002	
Pressure drop at the heat exchanger	(1)	kPa	14,8	17,2	15,8	17,6	19,7	21,7	
HEAT EXCHANGER USER SIDE IN HEATING									
Water flow	(7)	l/s	2.880	3.111	3.559	4.224	5.390	6.545	
Pressure drop at the heat exchanger	(7)	kPa	17,0	19,8	18,5	20,7	23,1	25,8	
REFRIGERANT CIRCUIT									
Compressors nr.		N°	2	2	2	2	2	2	
No. Circuits		N°	2	2	2	2	2	2	
Refrigerant charge		kg	25,9	26,9	37,8	44,0	49,7	53,5	
NOISE LEVEL									
Sound Pressure	(14)	dB(A)	48	48	48	49	50	52	
Sound power level in cooling	(15)(16)	dB(A)	80	80	80	81	82	84	
Sound power level in heating	(15)(17)	dB(A)	80	80	80	81	82	84	
SIZE AND WEIGHT									
Length	(18)	mm	3250	3250	3250	3875	4500	4500	
Width	(18)	mm	1350	1350	1350	1350	1350	1350	
Height	(18)	mm	2070	2070	2070	2070	2070	2070	
Operating weight	(18)	kg	1060	1060	1120	1270	1490	1630	

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
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 Plant (side) heat exchanger water (in/out) 40°C/45°C; Source (side) heat exchanger air (in) 7°C - 87% R.H.
8 Plant (side) cooling exchanger water (in/out) 12°C/7°C; Plant (side) heat exchanger water (in/out) 40°C/45°C.
9 Seasonal energy efficiency of high temperature process cooling [REGULATION (EU) N. 2016/2281]
10 Seasonal energy efficiency ratio
11 Parameter calculated for LOW-TEMPERATURE application in AVERAGE climate conditions according to [REGULATION (EU) N. 813/2013]
12 Seasonal coefficient of performance
13 Seasonal space heating energy efficiency
14 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.
15 Sound power on the basis of measurements made in compliance with ISO 9614.
16 Sound power level in cooling, outdoors.
17 Sound power level in heating, outdoors.
18 Unit in standard configuration/execution, without optional accessories.

The units highlighted in this publication contain R454B [GW_{P100} 466] fluorinated greenhouse gases.

Certified data in EUROVENT

UNITS FOR SIMULTANEOUS AND INDEPENDENT PRODUCTION OF HOT AND COLD WATER

NR-Q-G06-Z 0604 - 1204

INTEGRA

unit for 4-pipe systems,
air source for outdoor installation

EUROVENT CERTIFIED PERFORMANCE www.eurovent-certification.com

NR-Q-G06-Z			0604	0704	0804	0904	1004	1104	1204
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	143,9	159,6	181,2	202,6	230,4	266,0	298,3
Total power input	(1)	kW	54,98	64,32	70,66	79,45	89,22	100,2	112,3
EER	(1)	kW/kW	2.616	2.482	2.563	2.548	2.583	2.655	2.656
COOLING ONLY (EN14511 VALUE)									
Cooling capacity	(1)(2)	kW	143,5	159,3	180,9	202,3	230,1	265,6	298,0
EER	(1)(2)	kW/kW	2.580	2.450	2.530	2.520	2.550	2.620	2.630
COOLING ONLY									
16°C/10°C									
Cooling capacity	(5)	kW	155,8	173,2	197,4	219,8	249,7	288,5	323,6
Total power input	(5)	kW	56,29	66,17	72,85	81,71	91,36	102,7	115,4
EER	(5)	kW/kW	2.767	2.616	2.708	2.690	2.732	2.809	2.804
23°C/15°C									
Cooling capacity	(6)	kW	175,4	195,8	224,5	248,4	281,3	325,6	365,3
Total power input	(6)	kW	58,18	69,00	76,28	85,10	94,40	106,6	120,1
EER	(6)	kW/kW	3.014	2.838	2.942	2.919	2.980	3.054	3.042
HEATING ONLY (GROSS VALUE)									
Total heating capacity	(7)	kW	157,2	174,3	196,8	220,1	250,5	288,0	323,3
Total power input	(7)	kW	53,16	59,45	66,00	72,97	84,23	95,24	106,4
COP	(7)	kW/kW	2.955	2.934	2.982	3.015	2.975	3.025	3.039
HEATING ONLY (EN14511 VALUE)									
Total heating capacity	(2)(7)	kW	157,5	174,6	197,1	220,5	250,9	288,4	323,7
COP	(2)(7)	kW/kW	2.920	2.900	2.940	2.980	2.940	2.990	3.000
COOLING WITH TOTAL HEAT RECOVERY									
Cooling capacity	(8)	kW	144,9	165,8	186,3	211,1	236,1	269,2	304,0
Total power input	(8)	kW	46,30	53,06	59,97	67,08	74,20	86,31	97,26
Recovery heat exchanger capacity	(8)	kW	188,5	215,6	242,7	274,1	305,9	350,4	395,4
TER	(8)	kW/kW	7.201	7.183	7.150	7.231	7.305	7.180	7.188
ENERGY EFFICIENCY									
SEASONAL EFFICIENCY IN HEATING (Reg. EU 813/2013)									
PDesign	(11)	kW	120	134	148	163	194	219	241
SCOP	(11)(12)		3,53	3,54	3,65	3,49	3,49	3,57	3,54
Performance ηs	(11)(13)	%	138	139	143	136	137	140	139
Seasonal efficiency class	(11)		-	-	-	-	-	-	-
EXCHANGERS									
HEAT EXCHANGER USER SIDE IN REFRIGERATION									
Water flow	(1)	l/s	6.880	7.631	8.667	9.689	11,02	12,72	14,27
Pressure drop at the heat exchanger	(1)	kPa	38,6	39,6	40,3	39,4	40,9	43,6	43,5
HEAT EXCHANGER USER SIDE IN HEATING									
Water flow	(7)	l/s	7.589	8.413	9.498	10,63	12,09	13,90	15,60
Pressure drop at the heat exchanger	(7)	kPa	50,3	52,3	54,3	54,7	58,7	58,1	59,6
REFRIGERANT CIRCUIT									
Compressors nr.		N°	4	4	4	4	4	4	4
No. Circuits		N°	2	2	2	2	2	2	2
Refrigerant charge		kg	38,3	38,4	54,2	57,3	60,5	72,5	97,2
NOISE LEVEL									
Sound Pressure	(14)	dB(A)	60	60	60	61	62	63	63
Sound power level in cooling	(15)(16)	dB(A)	92	92	92	93	94	95	95
Sound power level in heating	(15)(17)	dB(A)	92	92	92	93	94	95	95
SIZE AND WEIGHT									
Length	(18)	mm	3110	3110	3110	4110	4110	4110	4110
Width	(18)	mm	2220	2220	2220	2220	2220	2220	2220
Height	(18)	mm	2150	2150	2150	2150	2150	2150	2150
Operating weight	(18)	kg	1660	1730	1850	2130	2370	2540	2680

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
5 Plant (side) cooling exchanger water (in/out) 16°C/ 10°C; Source (side) heat exchanger air (in) 35°C.
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10 Seasonal energy efficiency ratio
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Certified data in EUROVENT

ACOUSTIC VERSIONS

-	**Standard**	Standard soundproofing equipment	**Baseline**
LN	**Low noise**	Increased acoustic insulation, slower fan speed, larger heat exchange surface.	**-6 dB(A)**
SL	**Super low noise**	The highest level of noise reduction. NO COMPROMISES IN EFFICIENCY!	**-9 dB(A)**

R454B · PLATES · 4 PIPE SYSTEM · AXIAL · SCROLL

NR-Q-G06-Z /LN			0604	0704	0804	0904	1004	1104	1204
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	137,4	150,8	170,1	191,1	218,2	250,3	279,1
Total power input	(1)	kW	55,04	65,63	73,27	82,00	90,26	103,0	117,1
EER	(1)	kW/kW	2.498	2.299	2.321	2.330	2.416	2.430	2.383
COOLING ONLY (EN14511 VALUE)									
Cooling capacity	(1)(2)	kW	137,0	150,5	169,7	190,8	217,9	249,9	278,8
EER	(1)(2)	kW/kW	2.470	2.270	2.300	2.310	2.390	2.400	2.360
COOLING ONLY									
16°C/10°C									
Cooling capacity	(5)	kW	148,4						
Total power input	(5)	kW	56,55						
EER	(5)	kW/kW	2.622						
23°C/15°C									
Cooling capacity	(6)	kW							
Total power input	(6)	kW							
EER	(6)	kW/kW							
HEATING ONLY (GROSS VALUE)									
Total heating capacity	(7)	kW	149,9	165,5	186,1	211,9	238,3	272,8	304,4
Total power input	(7)	kW	49,58	55,74	62,19	69,31	78,76	89,73	100,8
COP	(7)	kW/kW	3.022	2.971	2.992	3.058	3.024	3.041	3.020
HEATING ONLY (EN14511 VALUE)									
Total heating capacity	(2)(7)	kW	150,2	165,8	186,4	212,2	238,7	273,2	304,9
COP	(2)(7)	kW/kW	2.980	2.940	2.960	3.020	2.990	3.000	2.980
COOLING WITH TOTAL HEAT RECOVERY									
Cooling capacity	(8)	kW	144,9	165,8	186,3	211,1	236,1	269,2	304,0
Total power input	(8)	kW	46,30	53,06	59,97	67,08	74,20	86,31	97,26
Recovery heat exchanger capacity	(8)	kW	188,5	215,6	242,7	274,1	305,9	350,4	395,4
TER	(8)	kW/kW	7.201	7.183	7.150	7.231	7.305	7.180	7.188
ENERGY EFFICIENCY									
SEASONAL EFFICIENCY IN HEATING (Reg. EU 813/2013)									
PDesign	(11)	kW	111	121	145	140	176	215	240
SCOP	(11)(12)		3,61	3,63	3,71	3,67	3,62	3,78	3,80
Performance ηs	(11)(13)	%	142	142	146	144	142	148	149
Seasonal efficiency class	(11)		-	-	-	-	-	-	-
EXCHANGERS									
HEAT EXCHANGER USER SIDE IN REFRIGERATION									
Water flow	(1)	l/s	6.568	7.213	8.134	9.141	10,44	11,97	13,35
Pressure drop at the heat exchanger	(1)	kPa	35,2	35,4	35,5	35,1	36,7	38,6	38,1
HEAT EXCHANGER USER SIDE IN HEATING									
Water flow	(7)	l/s	7.238	7.988	8.982	10,23	11,50	13,17	14,70
Pressure drop at the heat exchanger	(7)	kPa	45,8	47,1	48,5	50,7	53,2	52,1	52,9
REFRIGERANT CIRCUIT									
Compressors nr.		N°	4	4	4	4	4	4	4
No. Circuits		N°	2	2	2	2	2	2	2
Refrigerant charge		kg	38,3	38,4	54,2	57,3	60,5	72,5	97,2
NOISE LEVEL									
Sound Pressure	(14)	dB(A)	54	54	54	55	56	57	57
Sound power level in cooling	(15)(16)	dB(A)	86	86	86	87	88	89	89
Sound power level in heating	(15)(17)	dB(A)	87	87	87	88	89	90	90
SIZE AND WEIGHT									
Length	(18)	mm	3110	3110	3110	4110	4110	4110	4110
Width	(18)	mm	2220	2220	2220	2220	2220	2220	2220
Height	(18)	mm	2150	2150	2150	2150	2150	2150	2150
Operating weight	(18)	kg	1660	1730	1850	2130	2370	2540	2680

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
5 Plant (side) cooling exchanger water (in/out) 16°C/ 10°C; Source (side) heat exchanger air (in) 35°C.
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UNITS FOR SIMULTANEOUS AND INDEPENDENT PRODUCTION OF HOT AND COLD WATER

NR-Q-G06-Z 0604 - 1204

INTEGRA

unit for 4-pipe systems,
air source for outdoor installation

EUROVENT CERTIFIED PERFORMANCE www.eurovent-certification.com

NR-Q-G06-Z /SL			0604	0704	0804	0904	1004	1104	1204
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	136,3	153,3	176,0	192,7	216,3	250,3	282,1
Total power input	(1)	kW	54,37	63,13	70,74	81,80	89,41	101,2	115,5
EER	(1)	kW/kW	2.506	2.429	2.489	2.356	2.419	2.473	2.442
COOLING ONLY (EN14511 VALUE)									
Cooling capacity	(1)(2)	kW	136,0	153,0	175,7	192,4	216,0	250,0	281,8
EER	(1)(2)	kW/kW	2.480	2.400	2.460	2.330	2.390	2.450	2.420
COOLING ONLY									
16°C/10°C									
Cooling capacity	(5)	kW	153,3	173,7	191,6	218,0	244,9	284,0	319,2
Total power input	(5)	kW	54,26	62,76	73,18	81,79	88,62	99,95	115,0
EER	(5)	kW/kW	2.823	2.766	2.617	2.665	2.764	2.840	2.776
23°C/15°C									
Cooling capacity	(6)	kW	172,2	196,3	225,9	246,2	275,3	319,9	359,8
Total power input	(6)	kW	56,25	65,57	74,74	85,27	91,79	104,0	120,0
EER	(6)	kW/kW	3.059	2.992	3.024	2.886	2.999	3.076	2.998
HEATING ONLY (GROSS VALUE)									
Total heating capacity	(7)	kW	149,5	167,3	192,9	212,8	237,7	276,8	310,1
Total power input	(7)	kW	48,36	54,65	63,18	69,95	76,93	88,12	101,1
COP	(7)	kW/kW	3.089	3.064	3.052	3.040	3.091	3.142	3.067
HEATING ONLY (EN14511 VALUE)									
Total heating capacity	(2)(7)	kW	149,8	167,6	193,2	213,1	238,1	277,2	310,6
COP	(2)(7)	kW/kW	3.050	3.030	3.010	3.000	3.050	3.100	3.030
COOLING WITH TOTAL HEAT RECOVERY									
Cooling capacity	(8)	kW	144,9	165,8	186,3	211,1	236,1	269,2	304,0
Total power input	(8)	kW	46,30	53,06	59,97	67,08	74,20	86,31	97,26
Recovery heat exchanger capacity	(8)	kW	188,5	215,6	242,7	274,1	305,9	350,4	395,4
TER	(8)	kW/kW	7.201	7.183	7.150	7.231	7.305	7.180	7.188
ENERGY EFFICIENCY									
SEASONAL EFFICIENCY IN HEATING (Reg. EU 813/2013)									
PDesign	(11)	kW	117	133	132	143	188	215	242
SCOP	(11)(12)		3,85	3,92	3,62	3,62	3,86	4,00	3,84
Performance ηs	(11)(13)	%	151	154	142	142	151	157	151
Seasonal efficiency class	(11)		-	-	-	-	-	-	-
EXCHANGERS									
HEAT EXCHANGER USER SIDE IN REFRIGERATION									
Water flow	(1)	l/s	6.518	7.332	8.418	9.216	10,34	11,97	13,49
Pressure drop at the heat exchanger	(1)	kPa	34,6	36,6	38,0	35,7	36,0	38,6	38,9
HEAT EXCHANGER USER SIDE IN HEATING									
Water flow	(7)	l/s	7.214	8.075	9.312	10,27	11,47	13,36	14,97
Pressure drop at the heat exchanger	(7)	kPa	45,5	48,2	52,1	51,1	52,9	53,7	54,9
REFRIGERANT CIRCUIT									
Compressors nr.		N°	4	4	4	4	4	4	4
No. Circuits		N°	2	2	2	2	2	2	2
Refrigerant charge		kg	49,5	63,1	63,2	63,3	73,8	99,0	99,0
NOISE LEVEL									
Sound Pressure	(14)	dB(A)	50	50	51	51	51	53	54
Sound power level in cooling	(15)(16)	dB(A)	82	82	83	83	83	85	86
Sound power level in heating	(15)(17)	dB(A)	83	83	84	84	84	86	87
SIZE AND WEIGHT									
Length	(18)	mm	3110	3110	4110	4110	4110	5110	5110
Width	(18)	mm	2220	2220	2220	2220	2220	2220	2220
Height	(18)	mm	2150	2150	2150	2150	2150	2150	2150
Operating weight	(18)	kg	1750	1850	2070	2230	2480	2810	2930

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
5 Plant (side) cooling exchanger water (in/out) 16°C/ 10°C; Source (side) heat exchanger air (in) 35°C.
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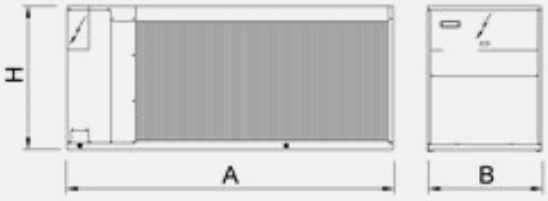
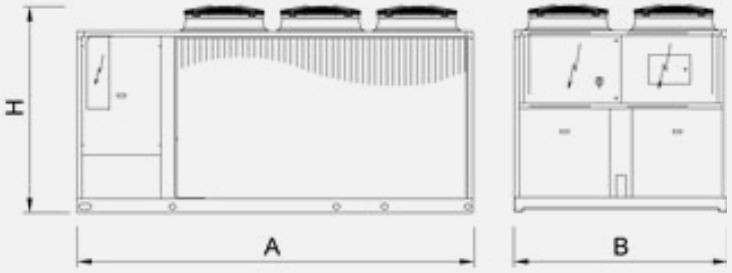
Certified data in EUROVENT

ACOUSTIC VERSIONS

-	**Standard**	Standard soundproofing equipment	**Baseline**
LN	**Low noise**	Increased acoustic insulation, slower fan speed, larger heat exchange surface.	**-6 dB(A)**
SL	**Super low noise**	The highest level of noise reduction. NO COMPROMISES IN EFFICIENCY!	**-9 dB(A)**

R R454B
PLATES
4 PIPE SYSTEM
AXIAL
SCROLL





“ BY FAR THE BEST PROOF IS EXPERIENCE”

Sir Francis Bacon
British Philosopher (1561 - 1626)

CDC CANBERRA DATA CENTER - FYSHWICK 2 CANBERRA - AUSTRALIA

Period: 2018
Application: Data Center
Plant type: Hydronic System
Cooling capacity: 1139 kW
Installed machines: 2x FR-FC-Z NG T+ 5402,
2x ERRCS2-Q-Z/SL-CA/S 1762

CDC CANBERRA DATA CENTER - FYSHWICK 1 CANBERRA - AUSTRALIA

Period: 2015
Application: Data Center
Plant type: Hydronic System
Cooling capacity: 3975 kW
Heating capacity: 496 kW
Installed machines: 3x FR-FC-Z/NG/T+/S 5204,
2x ERRCS2-Q-Z/SL-CA 1162,
1x FR-FC-Z/NG/T+/S 5402

REGGEBORGH GROUP
RIJSSEN - NETHERLANDS

Period: 2019
Application: Data Center
Plant type: Hydronic System
Cooling capacity: 195 kW
Heating capacity: 178 kW
Installed machines: 1x NRCS-Q-Z/SL 0704

ROLEX DATA CENTER
VERNIER - SWITZERLAND

Period: 2019
Application: Data Center
Plant type: Hydronic System
Cooling capacity: 269 kW
Heating capacity: 261 kW
Installed machines: 1x NR-Q-Z/SL 0152P,
1x ERRCS2-Q-Z/XL-CA-E 0162

RC_NM-0-G06-Z_EN_03-2020

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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