

RC Technical Documentation  
i-FR-Q2-G05-Z\_0502\_1102\_201811\_EN

# REGULATION (EU) N. 813/2013

## Ecodesign requirements for space heaters

MULTIFUNCTION UNITS AIR SOURCE

**i-FR-Q2-G05-Z 0502 - 1102**

Heating Capacity Range 450 - 544 [kW] - (EN14511 VALUE)  
Nominal Heating Capacity at TdesignH Range 319 - 389 [kW]

EN



<b>1. REGULATION (EU) N. 813/2013</b>	
1.1 Scope of the document	3
1.2 REGULATION (EU) N. 813/2013 description	3
1.3 Description of the data declared by Mitsubishi Electric Hydronics & IT Cooling Systems	3
<b>2. RC CONTENTS UNIT</b>	
2.1 Table index	4
<b>3. TECHNICAL PARAMETERS</b>	
3.1 i-FR-Q2-G05-Z /CA	5
3.2 i-FR-Q2-G05-Z /SL-CA	8
3.3 i-FR-Q2-G05-Z /XL-CA	11



## 1. REGULATION (EU) N. 813/2013

### 1.1 Scope of the document

This document is compliant with the Commission Regulation (EU) N. 813/2013 regarding "REQUIREMENTS FOR PRODUCT INFORMATION" (Annex II, Point 5) and it is made by the required information set out of the Table 2, Annex II of the Regulation called "Information requirements for heat pump space heaters and heat pump combination heaters".

### 1.2 REGULATION (EU) N. 813/2013 description

The COMMISSION REGULATION (EU) N. 813/2013 of 2 August 2013, implementing Directive 2009/125/EC of the European Parliament and of the Council, establishes ecodesign requirements for the placing on the market and/or putting into service of space heaters and combination heaters with a rated heat output  $\leq 400$  kW, including those integrated in packages of space heater, temperature control and solar device or packages of combination heater, temperature control and solar device as defined in Article 2 of Commission Delegated Regulation (EU) N. 811/2013.

### 1.3 Description of the data declared by Mitsubishi Electric Hydronics & IT Cooling Systems

- Heat pump combination heater: heat pump space heater that is designed to also provide heat to deliver hot drinking.
- Low-temperature application: application where the heat pump space heater delivers its declared capacity for heating at an indoor heat exchanger outlet temperature of 35 °C.
- Medium-temperature application: application where the heat pump space heater or heat pump combination heater delivers its declared capacity for heating at an indoor heat exchanger outlet temperature of 55 °C.
- TdesignH: temperature at reference design conditions.
- PdesignH , Design load for heating: the rated heat output of a heat pump space heater or heat pump combination heater at the reference design temperature, whereby the design load for heating is equal to the part load for heating with outdoor temperature equal to reference design temperature, expressed in kW.
- Seasonal space heating energy efficiency ( $\eta_s$ ): ratio between the space heating demand for a designated heating season, supplied by a heater and the annual energy consumption required to meet this demand, expressed in %.
- Seasonal space heating energy efficiency class: efficiency class determined on the basis of its seasonal space heating energy efficiency with a difference distribution between heaters and low temperature heat pumps.
- Low-temperature heat pump: heat pump space heater that is specifically designed for low-temperature application, and that cannot deliver heating water with an outlet temperature of 52 °C at an inlet dry (wet) bulb temperature of - 7 °C (- 8 °C) in the reference design conditions for average climate.
- Bivalent temperature: the outdoor temperature declared by the manufacturer for heating at which the declared capacity for heating equals the part load for heating and below which the declared capacity for heating requires supplementary capacity for heating to meet the part load for heating.
- Operation limit temperature: the outdoor temperature declared by the manufacturer for heating, below which the air-to-water heat pump space heater or air-to-water heat pump combination heater will not be able to deliver any heating capacity and the declared capacity for heating is equal to zero.
- Degradation coefficient: measure of efficiency loss due to cycling of heat pump space heaters or heat pump combination heaters.
- Off mode: a condition in which the heat pump space heater or heat pump combination heater is connected to the mains power source and is not providing any function.
- Thermostat-off mode: condition corresponding to the hours with no heating load and activated heating function, whereby the heating function is switched on but the heat pump space heater or heat pump combination heater is not operational.
- Standby mode: condition where the heater is connected to the mains power source, depends on energy input from the mains power source to work as intended and provides only the following functions, which may persist for an indefinite time: reactivation function, or reactivation function and only an indication of enabled reactivation function, and/or information or status display.
- Crankcase heater mode: condition in which a heating device is activated to avoid the refrigerant migrating to the compressor so as to limit the refrigerant concentration in oil when the compressor is started.
- Seasonal coefficient of performance (SCOP): the overall coefficient of performance of a heat pump heater representative of the designated heating season, calculated as the reference annual heating demand divided by the annual energy consumption.
- Supplementary capacity for heating: rated heat output of a supplementary heater that supplements the declared capacity for heating to meet the part

load for heating, if the declared capacity for heating is less than the part load for heating.

- Capacity control: ability of a heat pump space heater or heat pump combination heater to change its capacity by changing the volumetric flow rate of at least one of the fluids needed to operate the refrigeration cycle.
- Annual energy consumption: means the energy consumption required to meet the reference annual heating demand for a designated heating season.
- Sound power level (LWA): the A-weighted sound power level, indoors and/or outdoors, expressed in dB.

## 2. RC CONTENTS UNIT

### 2.1 Table index

MULTIFUNCTION UNITS AIR SOURCE

#### i-FR-Q2-G05-Z 0502 - 1102

Heating Capacity Range 450 - 544 [kW]

Nominal Heating Capacity at TdesignH Range 319 - 389 [kW]

Units	Version	Size				Pag.
i-FR-Q2-G05-Z	CA	0502	0532	0602		5
i-FR-Q2-G05-Z	SL-CA	0502	0532	0602		8
i-FR-Q2-G05-Z	XL-CA	0502	0532	0602		11

i-FR-Q2-G05-Z /CA /0502			
Air-to-water heat pump:	yes / no		yes
Water-to-water heat pump:	yes / no		no
Brine-to-water heat pump:	yes / no		no
Low-temperature heat pump:	yes / no		yes
With supplementary heater:	yes / no		no
Mixed unit with heat pump:	yes / no		no
Temperature application (1)	(low 35°C/ medium 55°C)		low 35°C
Water flow rate	fixed / variable		fixed
Outlet temperature	fixed / variable		variable
Parameters are declared for average/warmer/colder climate conditions (1)	average / warmer / colder		average
<b>Rated heat output at Tdesignh</b>	<b>Prated = Pdesignh</b>	<b>[kW]</b>	<b>369</b>
<b>Seasonal space heating energy efficiency</b>	<b>ηs</b>	<b>[%]</b>	<b>151</b>
<b>Seasonal space heating energy efficiency class</b>	-	-	-
<b>Declared capacity for heating for part load at indoor temperature 20 °C and outdoor temperature Tj</b>			
Declared capacity for heating with outdoor temperature Tj = - 7 °C	Pdh	[kW]	326
Declared capacity for heating with outdoor temperature Tj = +2 °C	Pdh	[kW]	223
Declared capacity for heating with outdoor temperature Tj = +7 °C	Pdh	[kW]	135
Declared capacity for heating with outdoor temperature Tj = +12 °C	Pdh	[kW]	137
Declared capacity for heating with outdoor temperature Tj = Bivalent temperature	Pdh	[kW]	326
Declared capacity for heating with outdoor temperature Tj = Operation limit temperature	Pdh	[kW]	312
For air-to-water heat pumps: Tj = - 15 °C (if TOL < - 20 °C)	Pdh	[kW]	-
Bivalent temperature	Tbiv	[°C]	-7
Degradation coefficient	Cdh	-	0,90
<b>Declared coefficient of performance or primary energy ratio for part load at indoor temperature 20 °C and outdoor temperature Tj</b>			
Declared coefficient of performance with outdoor temperature Tj = - 7 °C	COPd	-	2,84
Declared coefficient of performance with outdoor temperature Tj = +2 °C	COPd	-	3,89
Declared coefficient of performance with outdoor temperature Tj = +7 °C	COPd	-	4,44
Declared coefficient of performance with outdoor temperature Tj = +12 °C	COPd	-	5,89
Declared coefficient of performance with outdoor temperature Tj = Bivalent temperature	COPd	-	2,84
Declared coefficient of performance with outdoor temperature Tj = Operation limit temperature	COPd	-	2,68
For air-to-water heat pumps: Tj = - 15 °C (if TOL < - 20 °C)	COPd	-	-
For air-to-water HP : Operation limit temperature	TOL	[°C]	-10
Heating water operating limit temperature at TOL	WTOL	[°C]	50
<b>Power consumption in modes other than active mode</b>			
Off mode	POFF	[kW]	0,000
Thermostat-off mode	PTO	[kW]	1,185
Standby mode	PSB	[kW]	0,216
Crankcase heater mode	PCK	[kW]	0,200
<b>Supplementary heater</b>			
Nominal heating capacity	Psup	[kW]	56,8
<b>Other items</b>			
Capacity control	fixed / variable		variable
Sound power level, indoors	LWA	[dB(A)]	-
Sound power level, outdoors	LWA	[dB(A)]	100
Annual electricity consumption for heating	QHE	[kWh]	197746
<b>Outdoor heat exchanger</b>			
For air-to-water HP: Rated air flow rate, outdoors	Qairsorce	[m³/h]	45,10
For water-/brine-to-water heat pumps: Rated brine or water flow rate, outdoor heat exchanger	Qwater/brine source	[m³/h]	-

(1) The parameters are declared for application at medium temperature, except in the case of low temperature heat pumps. For low temperature heat pumps, the parameters are declared for application at low temperature.

Unit in standard configuration/execution, without optional accessories.

i-FR-Q2-G05-Z /CA /0532			
Air-to-water heat pump:	yes / no		yes
Water-to-water heat pump:	yes / no		no
Brine-to-water heat pump:	yes / no		no
Low-temperature heat pump:	yes / no		yes
With supplementary heater:	yes / no		no
Mixed unit with heat pump:	yes / no		no
Temperature application (1)	(low 35°C/ medium 55°C)		low 35°C
Water flow rate	fixed / variable		fixed
Outlet temperature	fixed / variable		variable
Parameters are declared for average/warmer/colder climate conditions (1)	average / warmer / colder		average
<b>Rated heat output at Tdesignh</b>	<b>Prated = Pdesignh</b>	<b>[kW]</b>	<b>369</b>
<b>Seasonal space heating energy efficiency</b>	<b>ηs</b>	<b>[%]</b>	<b>151</b>
<b>Seasonal space heating energy efficiency class</b>	-	-	-
<b>Declared capacity for heating for part load at indoor temperature 20 °C and outdoor temperature Tj</b>			
Declared capacity for heating with outdoor temperature Tj = - 7 °C	Pdh	[kW]	326
Declared capacity for heating with outdoor temperature Tj = +2 °C	Pdh	[kW]	222
Declared capacity for heating with outdoor temperature Tj = +7 °C	Pdh	[kW]	148
Declared capacity for heating with outdoor temperature Tj = +12 °C	Pdh	[kW]	137
Declared capacity for heating with outdoor temperature Tj = Bivalent temperature	Pdh	[kW]	326
Declared capacity for heating with outdoor temperature Tj = Operation limit temperature	Pdh	[kW]	312
For air-to-water heat pumps: Tj = - 15 °C (if TOL < - 20 °C)	Pdh	[kW]	-
Bivalent temperature	Tbiv	[°C]	-7
Degradation coefficient	Cdh	-	0,90
<b>Declared coefficient of performance or primary energy ratio for part load at indoor temperature 20 °C and outdoor temperature Tj</b>			
Declared coefficient of performance with outdoor temperature Tj = - 7 °C	COPd	-	2,84
Declared coefficient of performance with outdoor temperature Tj = +2 °C	COPd	-	3,88
Declared coefficient of performance with outdoor temperature Tj = +7 °C	COPd	-	4,51
Declared coefficient of performance with outdoor temperature Tj = +12 °C	COPd	-	5,89
Declared coefficient of performance with outdoor temperature Tj = Bivalent temperature	COPd	-	2,84
Declared coefficient of performance with outdoor temperature Tj = Operation limit temperature	COPd	-	2,68
For air-to-water heat pumps: Tj = - 15 °C (if TOL < - 20 °C)	COPd	-	-
For air-to-water HP : Operation limit temperature	TOL	[°C]	-10
Heating water operating limit temperature at TOL	WTOL	[°C]	50
<b>Power consumption in modes other than active mode</b>			
Off mode	POFF	[kW]	0,000
Thermostat-off mode	PTO	[kW]	1,185
Standby mode	PSB	[kW]	0,216
Crankcase heater mode	PCK	[kW]	0,200
<b>Supplementary heater</b>			
Nominal heating capacity	Psup	[kW]	56,8
<b>Other items</b>			
Capacity control	fixed / variable		variable
Sound power level, indoors	LWA	[dB(A)]	-
Sound power level, outdoors	LWA	[dB(A)]	100
Annual electricity consumption for heating	QHE	[kWh]	197780
<b>Outdoor heat exchanger</b>			
For air-to-water HP: Rated air flow rate, outdoors	Qairsorce	[m³/h]	45,10
For water-/brine-to-water heat pumps: Rated brine or water flow rate, outdoor heat exchanger	Qwater/brine source	[m³/h]	-

(1) The parameters are declared for application at medium temperature, except in the case of low temperature heat pumps. For low temperature heat pumps, the parameters are declared for application at low temperature.

Unit in standard configuration/execution, without optional accessories.

i-FR-Q2-G05-Z /CA /0602			
Air-to-water heat pump:	yes / no		yes
Water-to-water heat pump:	yes / no		no
Brine-to-water heat pump:	yes / no		no
Low-temperature heat pump:	yes / no		yes
With supplementary heater:	yes / no		no
Mixed unit with heat pump:	yes / no		no
Temperature application (1)	(low 35°C/ medium 55°C)		low 35°C
Water flow rate	fixed / variable		fixed
Outlet temperature	fixed / variable		variable
Parameters are declared for average/warmer/colder climate conditions (1)	average / warmer / colder		average
<b>Rated heat output at Tdesignh</b>	<b>Prated = Pdesignh</b>	<b>[kW]</b>	<b>389</b>
<b>Seasonal space heating energy efficiency</b>	<b>ηs</b>	<b>[%]</b>	<b>150</b>
<b>Seasonal space heating energy efficiency class</b>	-	-	-
<b>Declared capacity for heating for part load at indoor temperature 20 °C and outdoor temperature Tj</b>			
Declared capacity for heating with outdoor temperature Tj = - 7 °C	Pdh	[kW]	344
Declared capacity for heating with outdoor temperature Tj = +2 °C	Pdh	[kW]	222
Declared capacity for heating with outdoor temperature Tj = +7 °C	Pdh	[kW]	160
Declared capacity for heating with outdoor temperature Tj = +12 °C	Pdh	[kW]	158
Declared capacity for heating with outdoor temperature Tj = Bivalent temperature	Pdh	[kW]	344
Declared capacity for heating with outdoor temperature Tj = Operation limit temperature	Pdh	[kW]	326
For air-to-water heat pumps: Tj = - 15 °C (if TOL < - 20 °C)	Pdh	[kW]	-
Bivalent temperature	Tbiv	[°C]	-7
Degradation coefficient	Cdh	-	0,90
<b>Declared coefficient of performance or primary energy ratio for part load at indoor temperature 20 °C and outdoor temperature Tj</b>			
Declared coefficient of performance with outdoor temperature Tj = - 7 °C	COPd	-	2,82
Declared coefficient of performance with outdoor temperature Tj = +2 °C	COPd	-	3,78
Declared coefficient of performance with outdoor temperature Tj = +7 °C	COPd	-	4,67
Declared coefficient of performance with outdoor temperature Tj = +12 °C	COPd	-	5,95
Declared coefficient of performance with outdoor temperature Tj = Bivalent temperature	COPd	-	2,82
Declared coefficient of performance with outdoor temperature Tj = Operation limit temperature	COPd	-	2,64
For air-to-water heat pumps: Tj = - 15 °C (if TOL < - 20 °C)	COPd	-	-
For air-to-water HP : Operation limit temperature	TOL	[°C]	-10
Heating water operating limit temperature at TOL	WTOL	[°C]	50
<b>Power consumption in modes other than active mode</b>			
Off mode	POFF	[kW]	0,000
Thermostat-off mode	PTO	[kW]	1,083
Standby mode	PSB	[kW]	0,222
Crankcase heater mode	PCK	[kW]	0,200
<b>Supplementary heater</b>			
Nominal heating capacity	Psup	[kW]	62,8
<b>Other items</b>			
Capacity control	fixed / variable		variable
Sound power level, indoors	LWA	[dB(A)]	-
Sound power level, outdoors	LWA	[dB(A)]	101
Annual electricity consumption for heating	QHE	[kWh]	209924
<b>Outdoor heat exchanger</b>			
For air-to-water HP: Rated air flow rate, outdoors	Qairsorce	[m³/h]	53,41
For water-/brine-to-water heat pumps: Rated brine or water flow rate, outdoor heat exchanger	Qwater/brine source	[m³/h]	-

(1) The parameters are declared for application at medium temperature, except in the case of low temperature heat pumps. For low temperature heat pumps, the parameters are declared for application at low temperature.

Unit in standard configuration/execution, without optional accessories.

i-FR-Q2-G05-Z /SL-CA /0502			
Air-to-water heat pump:	yes / no		yes
Water-to-water heat pump:	yes / no		no
Brine-to-water heat pump:	yes / no		no
Low-temperature heat pump:	yes / no		yes
With supplementary heater:	yes / no		no
Mixed unit with heat pump:	yes / no		no
Temperature application (1)	(low 35°C/ medium 55°C)		low 35°C
Water flow rate	fixed / variable		fixed
Outlet temperature	fixed / variable		variable
Parameters are declared for average/warmer/colder climate conditions (1)	average / warmer / colder		average
<b>Rated heat output at Tdesignh</b>	<b>Prated = Pdesignh</b>	<b>[kW]</b>	<b>367</b>
<b>Seasonal space heating energy efficiency</b>	<b>ηs</b>	<b>[%]</b>	<b>154</b>
<b>Seasonal space heating energy efficiency class</b>	-	-	-
<b>Declared capacity for heating for part load at indoor temperature 20 °C and outdoor temperature Tj</b>			
Declared capacity for heating with outdoor temperature Tj = - 7 °C	Pdh	[kW]	325
Declared capacity for heating with outdoor temperature Tj = +2 °C	Pdh	[kW]	220
Declared capacity for heating with outdoor temperature Tj = +7 °C	Pdh	[kW]	133
Declared capacity for heating with outdoor temperature Tj = +12 °C	Pdh	[kW]	137
Declared capacity for heating with outdoor temperature Tj = Bivalent temperature	Pdh	[kW]	325
Declared capacity for heating with outdoor temperature Tj = Operation limit temperature	Pdh	[kW]	311
For air-to-water heat pumps: Tj = - 15 °C (if TOL < - 20 °C)	Pdh	[kW]	-
Bivalent temperature	Tbiv	[°C]	-7
Degradation coefficient	Cdh	-	0,90
<b>Declared coefficient of performance or primary energy ratio for part load at indoor temperature 20 °C and outdoor temperature Tj</b>			
Declared coefficient of performance with outdoor temperature Tj = - 7 °C	COPd	-	2,87
Declared coefficient of performance with outdoor temperature Tj = +2 °C	COPd	-	3,94
Declared coefficient of performance with outdoor temperature Tj = +7 °C	COPd	-	4,64
Declared coefficient of performance with outdoor temperature Tj = +12 °C	COPd	-	5,89
Declared coefficient of performance with outdoor temperature Tj = Bivalent temperature	COPd	-	2,87
Declared coefficient of performance with outdoor temperature Tj = Operation limit temperature	COPd	-	2,71
For air-to-water heat pumps: Tj = - 15 °C (if TOL < - 20 °C)	COPd	-	-
For air-to-water HP : Operation limit temperature	TOL	[°C]	-10
Heating water operating limit temperature at TOL	WTOL	[°C]	50
<b>Power consumption in modes other than active mode</b>			
Off mode	POFF	[kW]	0,000
Thermostat-off mode	PTO	[kW]	1,155
Standby mode	PSB	[kW]	0,216
Crankcase heater mode	PCK	[kW]	0,200
<b>Supplementary heater</b>			
Nominal heating capacity	Psup	[kW]	55,7
<b>Other items</b>			
Capacity control	fixed / variable		variable
Sound power level, indoors	LWA	[dB(A)]	-
Sound power level, outdoors	LWA	[dB(A)]	90
Annual electricity consumption for heating	QHE	[kWh]	193218
<b>Outdoor heat exchanger</b>			
For air-to-water HP: Rated air flow rate, outdoors	Qairsorce	[m³/h]	41,76
For water-/brine-to-water heat pumps: Rated brine or water flow rate, outdoor heat exchanger	Qwater/brine source	[m³/h]	-

(1) The parameters are declared for application at medium temperature, except in the case of low temperature heat pumps. For low temperature heat pumps, the parameters are declared for application at low temperature.

Unit in standard configuration/execution, without optional accessories.



i-FR-Q2-G05-Z /SL-CA /0532			
Air-to-water heat pump:	yes / no		yes
Water-to-water heat pump:	yes / no		no
Brine-to-water heat pump:	yes / no		no
Low-temperature heat pump:	yes / no		yes
With supplementary heater:	yes / no		no
Mixed unit with heat pump:	yes / no		no
Temperature application (1)	(low 35°C/ medium 55°C)		low 35°C
Water flow rate	fixed / variable		fixed
Outlet temperature	fixed / variable		variable
Parameters are declared for average/warmer/colder climate conditions (1)	average / warmer / colder		average
<b>Rated heat output at Tdesignh</b>	<b>Prated = Pdesignh</b>	<b>[kW]</b>	<b>367</b>
<b>Seasonal space heating energy efficiency</b>	<b>ηs</b>	<b>[%]</b>	<b>151</b>
<b>Seasonal space heating energy efficiency class</b>	-	-	-
<b>Declared capacity for heating for part load at indoor temperature 20 °C and outdoor temperature Tj</b>			
Declared capacity for heating with outdoor temperature Tj = - 7 °C	Pdh	[kW]	325
Declared capacity for heating with outdoor temperature Tj = +2 °C	Pdh	[kW]	220
Declared capacity for heating with outdoor temperature Tj = +7 °C	Pdh	[kW]	135
Declared capacity for heating with outdoor temperature Tj = +12 °C	Pdh	[kW]	137
Declared capacity for heating with outdoor temperature Tj = Bivalent temperature	Pdh	[kW]	325
Declared capacity for heating with outdoor temperature Tj = Operation limit temperature	Pdh	[kW]	311
For air-to-water heat pumps: Tj = - 15 °C (if TOL < - 20 °C)	Pdh	[kW]	-
Bivalent temperature	Tbiv	[°C]	-7
Degradation coefficient	Cdh	-	0,90
<b>Declared coefficient of performance or primary energy ratio for part load at indoor temperature 20 °C and outdoor temperature Tj</b>			
Declared coefficient of performance with outdoor temperature Tj = - 7 °C	COPd	-	2,87
Declared coefficient of performance with outdoor temperature Tj = +2 °C	COPd	-	3,94
Declared coefficient of performance with outdoor temperature Tj = +7 °C	COPd	-	4,30
Declared coefficient of performance with outdoor temperature Tj = +12 °C	COPd	-	5,89
Declared coefficient of performance with outdoor temperature Tj = Bivalent temperature	COPd	-	2,87
Declared coefficient of performance with outdoor temperature Tj = Operation limit temperature	COPd	-	2,71
For air-to-water heat pumps: Tj = - 15 °C (if TOL < - 20 °C)	COPd	-	-
For air-to-water HP : Operation limit temperature	TOL	[°C]	-10
Heating water operating limit temperature at TOL	WTOL	[°C]	50
<b>Power consumption in modes other than active mode</b>			
Off mode	POFF	[kW]	0,000
Thermostat-off mode	PTO	[kW]	1,155
Standby mode	PSB	[kW]	0,216
Crankcase heater mode	PCK	[kW]	0,200
<b>Supplementary heater</b>			
Nominal heating capacity	Psup	[kW]	55,7
<b>Other items</b>			
Capacity control	fixed / variable		variable
Sound power level, indoors	LWA	[dB(A)]	-
Sound power level, outdoors	LWA	[dB(A)]	91
Annual electricity consumption for heating	QHE	[kWh]	196982
<b>Outdoor heat exchanger</b>			
For air-to-water HP: Rated air flow rate, outdoors	Qairsorce	[m³/h]	41,76
For water-/brine-to-water heat pumps: Rated brine or water flow rate, outdoor heat exchanger	Qwater/brine source	[m³/h]	-

(1) The parameters are declared for application at medium temperature, except in the case of low temperature heat pumps. For low temperature heat pumps, the parameters are declared for application at low temperature.

Unit in standard configuration/execution, without optional accessories.

i-FR-Q2-G05-Z /SL-CA /0602			
Air-to-water heat pump:	yes / no		yes
Water-to-water heat pump:	yes / no		no
Brine-to-water heat pump:	yes / no		no
Low-temperature heat pump:	yes / no		yes
With supplementary heater:	yes / no		no
Mixed unit with heat pump:	yes / no		no
Temperature application (1)	(low 35°C/ medium 55°C)		low 35°C
Water flow rate	fixed / variable		fixed
Outlet temperature	fixed / variable		variable
Parameters are declared for average/warmer/colder climate conditions (1)	average / warmer / colder		average
<b>Rated heat output at Tdesignh</b>	<b>Prated = Pdesignh</b>	<b>[kW]</b>	<b>389</b>
<b>Seasonal space heating energy efficiency</b>	<b>ηs</b>	<b>[%]</b>	<b>154</b>
<b>Seasonal space heating energy efficiency class</b>	-	-	-
<b>Declared capacity for heating for part load at indoor temperature 20 °C and outdoor temperature Tj</b>			
Declared capacity for heating with outdoor temperature Tj = - 7 °C	Pdh	[kW]	344
Declared capacity for heating with outdoor temperature Tj = +2 °C	Pdh	[kW]	225
Declared capacity for heating with outdoor temperature Tj = +7 °C	Pdh	[kW]	151
Declared capacity for heating with outdoor temperature Tj = +12 °C	Pdh	[kW]	158
Declared capacity for heating with outdoor temperature Tj = Bivalent temperature	Pdh	[kW]	344
Declared capacity for heating with outdoor temperature Tj = Operation limit temperature	Pdh	[kW]	328
For air-to-water heat pumps: Tj = - 15 °C (if TOL < - 20 °C)	Pdh	[kW]	-
Bivalent temperature	Tbiv	[°C]	-7
Degradation coefficient	Cdh	-	0,90
<b>Declared coefficient of performance or primary energy ratio for part load at indoor temperature 20 °C and outdoor temperature Tj</b>			
Declared coefficient of performance with outdoor temperature Tj = - 7 °C	COPd	-	2,85
Declared coefficient of performance with outdoor temperature Tj = +2 °C	COPd	-	3,98
Declared coefficient of performance with outdoor temperature Tj = +7 °C	COPd	-	4,64
Declared coefficient of performance with outdoor temperature Tj = +12 °C	COPd	-	5,96
Declared coefficient of performance with outdoor temperature Tj = Bivalent temperature	COPd	-	2,85
Declared coefficient of performance with outdoor temperature Tj = Operation limit temperature	COPd	-	2,69
For air-to-water heat pumps: Tj = - 15 °C (if TOL < - 20 °C)	COPd	-	-
For air-to-water HP : Operation limit temperature	TOL	[°C]	-10
Heating water operating limit temperature at TOL	WTOL	[°C]	50
<b>Power consumption in modes other than active mode</b>			
Off mode	POFF	[kW]	0,000
Thermostat-off mode	PTO	[kW]	1,056
Standby mode	PSB	[kW]	0,222
Crankcase heater mode	PCK	[kW]	0,200
<b>Supplementary heater</b>			
Nominal heating capacity	Psup	[kW]	61,3
<b>Other items</b>			
Capacity control	fixed / variable		variable
Sound power level, indoors	LWA	[dB(A)]	-
Sound power level, outdoors	LWA	[dB(A)]	91
Annual electricity consumption for heating	QHE	[kWh]	204170
<b>Outdoor heat exchanger</b>			
For air-to-water HP: Rated air flow rate, outdoors	Qairsorce	[m³/h]	49,42
For water-/brine-to-water heat pumps: Rated brine or water flow rate, outdoor heat exchanger	Qwater/brine source	[m³/h]	-

(1) The parameters are declared for application at medium temperature, except in the case of low temperature heat pumps. For low temperature heat pumps, the parameters are declared for application at low temperature.

Unit in standard configuration/execution, without optional accessories.

i-FR-Q2-G05-Z /XL-CA /0502			
Air-to-water heat pump:	yes / no		yes
Water-to-water heat pump:	yes / no		no
Brine-to-water heat pump:	yes / no		no
Low-temperature heat pump:	yes / no		yes
With supplementary heater:	yes / no		no
Mixed unit with heat pump:	yes / no		no
Temperature application (1)	(low 35°C/ medium 55°C)		low 35°C
Water flow rate	fixed / variable		fixed
Outlet temperature	fixed / variable		variable
Parameters are declared for average/warmer/colder climate conditions (1)	average / warmer / colder		average
<b>Rated heat output at Tdesignh</b>	<b>Prated = Pdesignh</b>	<b>[kW]</b>	<b>319</b>
<b>Seasonal space heating energy efficiency</b>	<b>ηs</b>	<b>[%]</b>	<b>164</b>
<b>Seasonal space heating energy efficiency class</b>	-	-	-
<b>Declared capacity for heating for part load at indoor temperature 20 °C and outdoor temperature Tj</b>			
Declared capacity for heating with outdoor temperature Tj = - 7 °C	Pdh	[kW]	282
Declared capacity for heating with outdoor temperature Tj = +2 °C	Pdh	[kW]	172
Declared capacity for heating with outdoor temperature Tj = +7 °C	Pdh	[kW]	118
Declared capacity for heating with outdoor temperature Tj = +12 °C	Pdh	[kW]	137
Declared capacity for heating with outdoor temperature Tj = Bivalent temperature	Pdh	[kW]	282
Declared capacity for heating with outdoor temperature Tj = Operation limit temperature	Pdh	[kW]	267
For air-to-water heat pumps: Tj = - 15 °C (if TOL < - 20 °C)	Pdh	[kW]	-
Bivalent temperature	Tbiv	[°C]	-7
Degradation coefficient	Cdh	-	0,90
<b>Declared coefficient of performance or primary energy ratio for part load at indoor temperature 20 °C and outdoor temperature Tj</b>			
Declared coefficient of performance with outdoor temperature Tj = - 7 °C	COPd	-	2,91
Declared coefficient of performance with outdoor temperature Tj = +2 °C	COPd	-	3,95
Declared coefficient of performance with outdoor temperature Tj = +7 °C	COPd	-	5,57
Declared coefficient of performance with outdoor temperature Tj = +12 °C	COPd	-	6,67
Declared coefficient of performance with outdoor temperature Tj = Bivalent temperature	COPd	-	2,91
Declared coefficient of performance with outdoor temperature Tj = Operation limit temperature	COPd	-	2,73
For air-to-water heat pumps: Tj = - 15 °C (if TOL < - 20 °C)	COPd	-	-
For air-to-water HP : Operation limit temperature	TOL	[°C]	-10
Heating water operating limit temperature at TOL	WTOL	[°C]	50
<b>Power consumption in modes other than active mode</b>			
Off mode	POFF	[kW]	0,000
Thermostat-off mode	PTO	[kW]	0,914
Standby mode	PSB	[kW]	0,216
Crankcase heater mode	PCK	[kW]	0,200
<b>Supplementary heater</b>			
Nominal heating capacity	Psup	[kW]	52,0
<b>Other items</b>			
Capacity control	fixed / variable		variable
Sound power level, indoors	LWA	[dB(A)]	-
Sound power level, outdoors	LWA	[dB(A)]	87
Annual electricity consumption for heating	QHE	[kWh]	158409
<b>Outdoor heat exchanger</b>			
For air-to-water HP: Rated air flow rate, outdoors	Qairsorce	[m³/h]	41,76
For water-/brine-to-water heat pumps: Rated brine or water flow rate, outdoor heat exchanger	Qwater/brine source	[m³/h]	-

(1) The parameters are declared for application at medium temperature, except in the case of low temperature heat pumps. For low temperature heat pumps, the parameters are declared for application at low temperature.

Unit in standard configuration/execution, without optional accessories.

i-FR-Q2-G05-Z /XL-CA /0532			
Air-to-water heat pump:	yes / no		yes
Water-to-water heat pump:	yes / no		no
Brine-to-water heat pump:	yes / no		no
Low-temperature heat pump:	yes / no		yes
With supplementary heater:	yes / no		no
Mixed unit with heat pump:	yes / no		no
Temperature application (1)	(low 35°C/ medium 55°C)		low 35°C
Water flow rate	fixed / variable		fixed
Outlet temperature	fixed / variable		variable
Parameters are declared for average/warmer/colder climate conditions (1)	average / warmer / colder		average
<b>Rated heat output at Tdesignh</b>	<b>Prated = Pdesignh</b>	<b>[kW]</b>	<b>347</b>
<b>Seasonal space heating energy efficiency</b>	<b>ηs</b>	<b>[%]</b>	<b>162</b>
<b>Seasonal space heating energy efficiency class</b>	-	-	-
<b>Declared capacity for heating for part load at indoor temperature 20 °C and outdoor temperature Tj</b>			
Declared capacity for heating with outdoor temperature Tj = - 7 °C	Pdh	[kW]	307
Declared capacity for heating with outdoor temperature Tj = +2 °C	Pdh	[kW]	187
Declared capacity for heating with outdoor temperature Tj = +7 °C	Pdh	[kW]	120
Declared capacity for heating with outdoor temperature Tj = +12 °C	Pdh	[kW]	137
Declared capacity for heating with outdoor temperature Tj = Bivalent temperature	Pdh	[kW]	307
Declared capacity for heating with outdoor temperature Tj = Operation limit temperature	Pdh	[kW]	293
For air-to-water heat pumps: Tj = - 15 °C (if TOL < - 20 °C)	Pdh	[kW]	-
Bivalent temperature	Tbiv	[°C]	-7
Degradation coefficient	Cdh	-	0,90
<b>Declared coefficient of performance or primary energy ratio for part load at indoor temperature 20 °C and outdoor temperature Tj</b>			
Declared coefficient of performance with outdoor temperature Tj = - 7 °C	COPd	-	2,91
Declared coefficient of performance with outdoor temperature Tj = +2 °C	COPd	-	3,89
Declared coefficient of performance with outdoor temperature Tj = +7 °C	COPd	-	5,46
Declared coefficient of performance with outdoor temperature Tj = +12 °C	COPd	-	6,64
Declared coefficient of performance with outdoor temperature Tj = Bivalent temperature	COPd	-	2,91
Declared coefficient of performance with outdoor temperature Tj = Operation limit temperature	COPd	-	2,75
For air-to-water heat pumps: Tj = - 15 °C (if TOL < - 20 °C)	COPd	-	-
For air-to-water HP : Operation limit temperature	TOL	[°C]	-10
Heating water operating limit temperature at TOL	WTOL	[°C]	50
<b>Power consumption in modes other than active mode</b>			
Off mode	POFF	[kW]	0,000
Thermostat-off mode	PTO	[kW]	1,029
Standby mode	PSB	[kW]	0,216
Crankcase heater mode	PCK	[kW]	0,200
<b>Supplementary heater</b>			
Nominal heating capacity	Psup	[kW]	54,0
<b>Other items</b>			
Capacity control	fixed / variable		variable
Sound power level, indoors	LWA	[dB(A)]	-
Sound power level, outdoors	LWA	[dB(A)]	88
Annual electricity consumption for heating	QHE	[kWh]	173795
<b>Outdoor heat exchanger</b>			
For air-to-water HP: Rated air flow rate, outdoors	Qairsorce	[m³/h]	41,76
For water-/brine-to-water heat pumps: Rated brine or water flow rate, outdoor heat exchanger	Qwater/brine source	[m³/h]	-

(1) The parameters are declared for application at medium temperature, except in the case of low temperature heat pumps. For low temperature heat pumps, the parameters are declared for application at low temperature.

Unit in standard configuration/execution, without optional accessories.

i-FR-Q2-G05-Z /XL-CA /0602			
Air-to-water heat pump:	yes / no		yes
Water-to-water heat pump:	yes / no		no
Brine-to-water heat pump:	yes / no		no
Low-temperature heat pump:	yes / no		yes
With supplementary heater:	yes / no		no
Mixed unit with heat pump:	yes / no		no
Temperature application (1)	(low 35°C/ medium 55°C)		low 35°C
Water flow rate	fixed / variable		fixed
Outlet temperature	fixed / variable		variable
Parameters are declared for average/warmer/colder climate conditions (1)	average / warmer / colder		average
<b>Rated heat output at Tdesignh</b>	<b>Prated = Pdesignh</b>	<b>[kW]</b>	<b>372</b>
<b>Seasonal space heating energy efficiency</b>	<b>ηs</b>	<b>[%]</b>	<b>164</b>
<b>Seasonal space heating energy efficiency class</b>	-	-	-
<b>Declared capacity for heating for part load at indoor temperature 20 °C and outdoor temperature Tj</b>			
Declared capacity for heating with outdoor temperature Tj = - 7 °C	Pdh	[kW]	329
Declared capacity for heating with outdoor temperature Tj = +2 °C	Pdh	[kW]	200
Declared capacity for heating with outdoor temperature Tj = +7 °C	Pdh	[kW]	137
Declared capacity for heating with outdoor temperature Tj = +12 °C	Pdh	[kW]	158
Declared capacity for heating with outdoor temperature Tj = Bivalent temperature	Pdh	[kW]	329
Declared capacity for heating with outdoor temperature Tj = Operation limit temperature	Pdh	[kW]	312
For air-to-water heat pumps: Tj = - 15 °C (if TOL < - 20 °C)	Pdh	[kW]	-
Bivalent temperature	Tbiv	[°C]	-7
Degradation coefficient	Cdh	-	0,90
<b>Declared coefficient of performance or primary energy ratio for part load at indoor temperature 20 °C and outdoor temperature Tj</b>			
Declared coefficient of performance with outdoor temperature Tj = - 7 °C	COPd	-	2,87
Declared coefficient of performance with outdoor temperature Tj = +2 °C	COPd	-	3,97
Declared coefficient of performance with outdoor temperature Tj = +7 °C	COPd	-	5,67
Declared coefficient of performance with outdoor temperature Tj = +12 °C	COPd	-	6,74
Declared coefficient of performance with outdoor temperature Tj = Bivalent temperature	COPd	-	2,87
Declared coefficient of performance with outdoor temperature Tj = Operation limit temperature	COPd	-	2,69
For air-to-water heat pumps: Tj = - 15 °C (if TOL < - 20 °C)	COPd	-	-
For air-to-water HP : Operation limit temperature	TOL	[°C]	-10
Heating water operating limit temperature at TOL	WTOL	[°C]	50
<b>Power consumption in modes other than active mode</b>			
Off mode	POFF	[kW]	0,000
Thermostat-off mode	PTO	[kW]	0,970
Standby mode	PSB	[kW]	0,222
Crankcase heater mode	PCK	[kW]	0,200
<b>Supplementary heater</b>			
Nominal heating capacity	Psup	[kW]	60,0
<b>Other items</b>			
Capacity control	fixed / variable		variable
Sound power level, indoors	LWA	[dB(A)]	-
Sound power level, outdoors	LWA	[dB(A)]	89
Annual electricity consumption for heating	QHE	[kWh]	183682
<b>Outdoor heat exchanger</b>			
For air-to-water HP: Rated air flow rate, outdoors	Qairsorce	[m³/h]	49,42
For water-/brine-to-water heat pumps: Rated brine or water flow rate, outdoor heat exchanger	Qwater/brine source	[m³/h]	-

(1) The parameters are declared for application at medium temperature, except in the case of low temperature heat pumps. For low temperature heat pumps, the parameters are declared for application at low temperature.

Unit in standard configuration/execution, without optional accessories.



**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.**

Head Office: Via Roma 5 - 27010 Valle Salimbene (PV) - Italy

Tel +39 (0) 382 433 811 - Fax +39 (0) 382 587 148

[www.rcitcooling.com](http://www.rcitcooling.com)

[www.melcohit.com](http://www.melcohit.com)