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

Climaveneta **Technical Documentation**
FX-W/H_0551_1752_201911_ML

REGULATION (EU) N. 813/2013

Ecodesign requirements for space heaters

WATER TO WATER HEAT PUMPS, REVERSIBLE ON HYDRAULIC SIDE

FX-W/H 0551 - 1752

Heating Capacity Range 148 - 337 [kW] - (EN14511 VALUE)
Nominal Heating Capacity at TdesignH Range 168 - 382 [kW]

IT
EN
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1. REGULATION (EU) N. 813/2013

1.1 Scope of the document

This documenti is compliant with the Commission Regulation (EU) N. 813/2013 reguarding “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 ≤ 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 (ηs): 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. CLIMAVENETA CONTENTS UNIT

2.1 Table index

WATER TO WATER HEAT PUMPS, REVERSIBLE ON HYDRAULIC SIDE

FX-W/H 0551 - 1752

Heating Capacity Range 148 - 337 [kW]

Nominal Heating Capacity at TdesignH Range 168 - 382 [kW]

FX-W /H /0551			
Air-to-water heat pump:	yes / no		no
Water-to-water heat pump:	yes / no		yes
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
Rated heat output at Tdesignh	**Prated = Pdesignh**	**[kW]**	**168**
Seasonal space heating energy efficiency	**ηs**	**[%]**	**221**
Seasonal space heating energy efficiency class	**-**	**-**	
Declared capacity for heating for part load at indoor temperature 20 °C and outdoor temperature Tj			
Declared capacity for heating with outdoor temperature Tj = – 7 °C	Pdh	[kW]	148
Declared capacity for heating with outdoor temperature Tj = +2 °C	Pdh	[kW]	90,2
Declared capacity for heating with outdoor temperature Tj = +7 °C	Pdh	[kW]	60,1
Declared capacity for heating with outdoor temperature Tj = +12 °C	Pdh	[kW]	60,1
Declared capacity for heating with outdoor temperature Tj = Bivalent temperature	Pdh	[kW]	148
Declared capacity for heating with outdoor temperature Tj = Operation limit temperature	Pdh	[kW]	148
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
Declared coefficient of performance or primary energy ratio for part load at indoor temperature 20 °C and outdoor temperature Tj			
Declared coefficient of performance with outdoor temperature Tj = – 7 °C	COPd	-	5,87
Declared coefficient of performance with outdoor temperature Tj = +2 °C	COPd	-	5,95
Declared coefficient of performance with outdoor temperature Tj = +7 °C	COPd	-	5,65
Declared coefficient of performance with outdoor temperature Tj = +12 °C	COPd	-	6,15
Declared coefficient of performance with outdoor temperature Tj = Bivalent temperature	COPd	-	5,87
Declared coefficient of performance with outdoor temperature Tj = Operation limit temperature	COPd	-	5,69
For air-to-water heat pumps: Tj = – 15 °C (if TOL < – 20 °C)	COPd	-	-
For air-to-water HP : Operation limit temperature	TOL	[°C]	-
Heating water operating limit temperature	WTOL	[°C]	53
Power consumption in modes other than active mode			
Off mode	POFF	[kW]	0,000
Thermostat-off mode	PTO	[kW]	1,442
Standby mode	PSB	[kW]	0,036
Crankcase heater mode	PCK	[kW]	0,200
Supplementary heater			
Nominal heating capacity	Psup	[kW]	19,8
Other items			
Capacity control	fixed / variable		variable
Sound power level, indoors	LWA	[dB(A)]	92
Sound power level, outdoors	LWA	[dB(A)]	-
Annual electricity consumption for heating	QHE	[kWh]	60413
Outdoor heat exchanger			
For air-to-water HP: Rated air flow rate, outdoors	Qairsource	[m³/h]	-
For water-/brine-to-water heat pumps: Rated brine or water flow rate, outdoor heat exchanger	Qwater/brine source	[m³/h]	36

Contact details: Mitsubishi Electric Hydronics & IT Cooling Systems S.p.A., via Caduti di Cefalonia 1 - 36061 Bassano del Grappa (VI) - Italy

(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.

FX-W /H /0651			
Air-to-water heat pump:	yes / no		no
Water-to-water heat pump:	yes / no		yes
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
Rated heat output at Tdesignh	**Prated = Pdesignh**	**[kW]**	**189**
Seasonal space heating energy efficiency	**ηs**	**[%]**	**221**
Seasonal space heating energy efficiency class	**-**	**-**	
Declared capacity for heating for part load at indoor temperature 20 °C and outdoor temperature Tj			
Declared capacity for heating with outdoor temperature Tj = – 7 °C	Pdh	[kW]	167
Declared capacity for heating with outdoor temperature Tj = +2 °C	Pdh	[kW]	102
Declared capacity for heating with outdoor temperature Tj = +7 °C	Pdh	[kW]	67,7
Declared capacity for heating with outdoor temperature Tj = +12 °C	Pdh	[kW]	68,2
Declared capacity for heating with outdoor temperature Tj = Bivalent temperature	Pdh	[kW]	167
Declared capacity for heating with outdoor temperature Tj = Operation limit temperature	Pdh	[kW]	167
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
Declared coefficient of performance or primary energy ratio for part load at indoor temperature 20 °C and outdoor temperature Tj			
Declared coefficient of performance with outdoor temperature Tj = – 7 °C	COPd	-	5,92
Declared coefficient of performance with outdoor temperature Tj = +2 °C	COPd	-	5,91
Declared coefficient of performance with outdoor temperature Tj = +7 °C	COPd	-	5,67
Declared coefficient of performance with outdoor temperature Tj = +12 °C	COPd	-	6,22
Declared coefficient of performance with outdoor temperature Tj = Bivalent temperature	COPd	-	5,92
Declared coefficient of performance with outdoor temperature Tj = Operation limit temperature	COPd	-	5,76
For air-to-water heat pumps: Tj = – 15 °C (if TOL < – 20 °C)	COPd	-	-
For air-to-water HP : Operation limit temperature	TOL	[°C]	-
Heating water operating limit temperature	WTOL	[°C]	53
Power consumption in modes other than active mode			
Off mode	POFF	[kW]	0,000
Thermostat-off mode	PTO	[kW]	1,636
Standby mode	PSB	[kW]	0,036
Crankcase heater mode	PCK	[kW]	0,200
Supplementary heater			
Nominal heating capacity	Psup	[kW]	22,4
Other items			
Capacity control	fixed / variable		variable
Sound power level, indoors	LWA	[dB(A)]	92
Sound power level, outdoors	LWA	[dB(A)]	-
Annual electricity consumption for heating	QHE	[kWh]	68135
Outdoor heat exchanger			
For air-to-water HP: Rated air flow rate, outdoors	Qairsource	[m³/h]	-
For water-/brine-to-water heat pumps: Rated brine or water flow rate, outdoor heat exchanger	Qwater/brine source	[m³/h]	40

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(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.

FX-W /H /0751			
Air-to-water heat pump:	yes / no		no
Water-to-water heat pump:	yes / no		yes
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
Rated heat output at Tdesignh	**Prated = Pdesignh**	**[kW]**	**226**
Seasonal space heating energy efficiency	**ηs**	**[%]**	**215**
Seasonal space heating energy efficiency class	**-**	**-**	
Declared capacity for heating for part load at indoor temperature 20 °C and outdoor temperature Tj			
Declared capacity for heating with outdoor temperature Tj = – 7 °C	Pdh	[kW]	200
Declared capacity for heating with outdoor temperature Tj = +2 °C	Pdh	[kW]	122
Declared capacity for heating with outdoor temperature Tj = +7 °C	Pdh	[kW]	86,8
Declared capacity for heating with outdoor temperature Tj = +12 °C	Pdh	[kW]	87,0
Declared capacity for heating with outdoor temperature Tj = Bivalent temperature	Pdh	[kW]	200
Declared capacity for heating with outdoor temperature Tj = Operation limit temperature	Pdh	[kW]	199
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
Declared coefficient of performance or primary energy ratio for part load at indoor temperature 20 °C and outdoor temperature Tj			
Declared coefficient of performance with outdoor temperature Tj = – 7 °C	COPd	-	5,60
Declared coefficient of performance with outdoor temperature Tj = +2 °C	COPd	-	5,84
Declared coefficient of performance with outdoor temperature Tj = +7 °C	COPd	-	5,57
Declared coefficient of performance with outdoor temperature Tj = +12 °C	COPd	-	6,09
Declared coefficient of performance with outdoor temperature Tj = Bivalent temperature	COPd	-	5,60
Declared coefficient of performance with outdoor temperature Tj = Operation limit temperature	COPd	-	5,46
For air-to-water heat pumps: Tj = – 15 °C (if TOL < – 20 °C)	COPd	-	-
For air-to-water HP : Operation limit temperature	TOL	[°C]	-
Heating water operating limit temperature	WTOL	[°C]	53
Power consumption in modes other than active mode			
Off mode	POFF	[kW]	0,000
Thermostat-off mode	PTO	[kW]	2,369
Standby mode	PSB	[kW]	0,036
Crankcase heater mode	PCK	[kW]	0,200
Supplementary heater			
Nominal heating capacity	Psup	[kW]	26,8
Other items			
Capacity control	fixed / variable		variable
Sound power level, indoors	LWA	[dB(A)]	93
Sound power level, outdoors	LWA	[dB(A)]	-
Annual electricity consumption for heating	QHE	[kWh]	83613
Outdoor heat exchanger			
For air-to-water HP: Rated air flow rate, outdoors	Qairsource	[m³/h]	-
For water-/brine-to-water heat pumps: Rated brine or water flow rate, outdoor heat exchanger	Qwater/brine source	[m³/h]	48

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(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.

FX-W /H /0851			
Air-to-water heat pump:	yes / no		no
Water-to-water heat pump:	yes / no		yes
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
Rated heat output at Tdesignh	**Prated = Pdesignh**	**[kW]**	**267**
Seasonal space heating energy efficiency	**ηs**	**[%]**	**214**
Seasonal space heating energy efficiency class	**-**	**-**	
Declared capacity for heating for part load at indoor temperature 20 °C and outdoor temperature Tj			
Declared capacity for heating with outdoor temperature Tj = – 7 °C	Pdh	[kW]	236
Declared capacity for heating with outdoor temperature Tj = +2 °C	Pdh	[kW]	144
Declared capacity for heating with outdoor temperature Tj = +7 °C	Pdh	[kW]	95,4
Declared capacity for heating with outdoor temperature Tj = +12 °C	Pdh	[kW]	95,6
Declared capacity for heating with outdoor temperature Tj = Bivalent temperature	Pdh	[kW]	236
Declared capacity for heating with outdoor temperature Tj = Operation limit temperature	Pdh	[kW]	235
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
Declared coefficient of performance or primary energy ratio for part load at indoor temperature 20 °C and outdoor temperature Tj			
Declared coefficient of performance with outdoor temperature Tj = – 7 °C	COPd	-	5,78
Declared coefficient of performance with outdoor temperature Tj = +2 °C	COPd	-	5,77
Declared coefficient of performance with outdoor temperature Tj = +7 °C	COPd	-	5,43
Declared coefficient of performance with outdoor temperature Tj = +12 °C	COPd	-	5,95
Declared coefficient of performance with outdoor temperature Tj = Bivalent temperature	COPd	-	5,78
Declared coefficient of performance with outdoor temperature Tj = Operation limit temperature	COPd	-	5,62
For air-to-water heat pumps: Tj = – 15 °C (if TOL < – 20 °C)	COPd	-	-
For air-to-water HP : Operation limit temperature	TOL	[°C]	-
Heating water operating limit temperature	WTOL	[°C]	53
Power consumption in modes other than active mode			
Off mode	POFF	[kW]	0,000
Thermostat-off mode	PTO	[kW]	2,974
Standby mode	PSB	[kW]	0,036
Crankcase heater mode	PCK	[kW]	0,200
Supplementary heater			
Nominal heating capacity	Psup	[kW]	31,7
Other items			
Capacity control	fixed / variable		variable
Sound power level, indoors	LWA	[dB(A)]	93
Sound power level, outdoors	LWA	[dB(A)]	-
Annual electricity consumption for heating	QHE	[kWh]	99541
Outdoor heat exchanger			
For air-to-water HP: Rated air flow rate, outdoors	Qairsource	[m³/h]	-
For water-/brine-to-water heat pumps: Rated brine or water flow rate, outdoor heat exchanger	Qwater/brine source	[m³/h]	57

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(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.

FX-W /H /0951			
Air-to-water heat pump:	yes / no		no
Water-to-water heat pump:	yes / no		yes
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
Rated heat output at Tdesignh	**Prated = Pdesignh**	**[kW]**	**297**
Seasonal space heating energy efficiency	**ηs**	**[%]**	**211**
Seasonal space heating energy efficiency class	**-**	**-**	
Declared capacity for heating for part load at indoor temperature 20 °C and outdoor temperature Tj			
Declared capacity for heating with outdoor temperature Tj = – 7 °C	Pdh	[kW]	263
Declared capacity for heating with outdoor temperature Tj = +2 °C	Pdh	[kW]	160
Declared capacity for heating with outdoor temperature Tj = +7 °C	Pdh	[kW]	104
Declared capacity for heating with outdoor temperature Tj = +12 °C	Pdh	[kW]	104
Declared capacity for heating with outdoor temperature Tj = Bivalent temperature	Pdh	[kW]	263
Declared capacity for heating with outdoor temperature Tj = Operation limit temperature	Pdh	[kW]	262
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
Declared coefficient of performance or primary energy ratio for part load at indoor temperature 20 °C and outdoor temperature Tj			
Declared coefficient of performance with outdoor temperature Tj = – 7 °C	COPd	-	5,68
Declared coefficient of performance with outdoor temperature Tj = +2 °C	COPd	-	5,70
Declared coefficient of performance with outdoor temperature Tj = +7 °C	COPd	-	5,30
Declared coefficient of performance with outdoor temperature Tj = +12 °C	COPd	-	5,82
Declared coefficient of performance with outdoor temperature Tj = Bivalent temperature	COPd	-	5,68
Declared coefficient of performance with outdoor temperature Tj = Operation limit temperature	COPd	-	5,53
For air-to-water heat pumps: Tj = – 15 °C (if TOL < – 20 °C)	COPd	-	-
For air-to-water HP : Operation limit temperature	TOL	[°C]	-
Heating water operating limit temperature	WTOL	[°C]	53
Power consumption in modes other than active mode			
Off mode	POFF	[kW]	0,000
Thermostat-off mode	PTO	[kW]	3,242
Standby mode	PSB	[kW]	0,036
Crankcase heater mode	PCK	[kW]	0,200
Supplementary heater			
Nominal heating capacity	Psup	[kW]	35,1
Other items			
Capacity control	fixed / variable		variable
Sound power level, indoors	LWA	[dB(A)]	93
Sound power level, outdoors	LWA	[dB(A)]	-
Annual electricity consumption for heating	QHE	[kWh]	112406
Outdoor heat exchanger			
For air-to-water HP: Rated air flow rate, outdoors	Qairsource	[m³/h]	-
For water-/brine-to-water heat pumps: Rated brine or water flow rate, outdoor heat exchanger	Qwater/brine source	[m³/h]	59

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(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.

FX-W /H /1102			
Air-to-water heat pump:	yes / no		no
Water-to-water heat pump:	yes / no		yes
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
Rated heat output at Tdesignh	**Prated = Pdesignh**	**[kW]**	**339**
Seasonal space heating energy efficiency	**ηs**	**[%]**	**219**
Seasonal space heating energy efficiency class	**-**	**-**	
Declared capacity for heating for part load at indoor temperature 20 °C and outdoor temperature Tj			
Declared capacity for heating with outdoor temperature Tj = – 7 °C	Pdh	[kW]	300
Declared capacity for heating with outdoor temperature Tj = +2 °C	Pdh	[kW]	182
Declared capacity for heating with outdoor temperature Tj = +7 °C	Pdh	[kW]	117
Declared capacity for heating with outdoor temperature Tj = +12 °C	Pdh	[kW]	94,1
Declared capacity for heating with outdoor temperature Tj = Bivalent temperature	Pdh	[kW]	300
Declared capacity for heating with outdoor temperature Tj = Operation limit temperature	Pdh	[kW]	299
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
Declared coefficient of performance or primary energy ratio for part load at indoor temperature 20 °C and outdoor temperature Tj			
Declared coefficient of performance with outdoor temperature Tj = – 7 °C	COPd	-	5,80
Declared coefficient of performance with outdoor temperature Tj = +2 °C	COPd	-	5,62
Declared coefficient of performance with outdoor temperature Tj = +7 °C	COPd	-	5,91
Declared coefficient of performance with outdoor temperature Tj = +12 °C	COPd	-	6,25
Declared coefficient of performance with outdoor temperature Tj = Bivalent temperature	COPd	-	5,80
Declared coefficient of performance with outdoor temperature Tj = Operation limit temperature	COPd	-	5,64
For air-to-water heat pumps: Tj = – 15 °C (if TOL < – 20 °C)	COPd	-	-
For air-to-water HP : Operation limit temperature	TOL	[°C]	-
Heating water operating limit temperature	WTOL	[°C]	53
Power consumption in modes other than active mode			
Off mode	POFF	[kW]	0,000
Thermostat-off mode	PTO	[kW]	3,948
Standby mode	PSB	[kW]	0,047
Crankcase heater mode	PCK	[kW]	0,400
Supplementary heater			
Nominal heating capacity	Psup	[kW]	40,0
Other items			
Capacity control	fixed / variable		variable
Sound power level, indoors	LWA	[dB(A)]	95
Sound power level, outdoors	LWA	[dB(A)]	-
Annual electricity consumption for heating	QHE	[kWh]	123417
Outdoor heat exchanger			
For air-to-water HP: Rated air flow rate, outdoors	Qairsource	[m³/h]	-
For water-/brine-to-water heat pumps: Rated brine or water flow rate, outdoor heat exchanger	Qwater/brine source	[m³/h]	71

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(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.

FX-W /H /1302			
Air-to-water heat pump:	yes / no		no
Water-to-water heat pump:	yes / no		yes
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
Rated heat output at Tdesignh	**Prated = Pdesignh**	**[kW]**	**382**
Seasonal space heating energy efficiency	**ηs**	**[%]**	**220**
Seasonal space heating energy efficiency class	**-**	**-**	
Declared capacity for heating for part load at indoor temperature 20 °C and outdoor temperature Tj			
Declared capacity for heating with outdoor temperature Tj = – 7 °C	Pdh	[kW]	338
Declared capacity for heating with outdoor temperature Tj = +2 °C	Pdh	[kW]	206
Declared capacity for heating with outdoor temperature Tj = +7 °C	Pdh	[kW]	132
Declared capacity for heating with outdoor temperature Tj = +12 °C	Pdh	[kW]	105
Declared capacity for heating with outdoor temperature Tj = Bivalent temperature	Pdh	[kW]	338
Declared capacity for heating with outdoor temperature Tj = Operation limit temperature	Pdh	[kW]	337
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
Declared coefficient of performance or primary energy ratio for part load at indoor temperature 20 °C and outdoor temperature Tj			
Declared coefficient of performance with outdoor temperature Tj = – 7 °C	COPd	-	5,89
Declared coefficient of performance with outdoor temperature Tj = +2 °C	COPd	-	5,63
Declared coefficient of performance with outdoor temperature Tj = +7 °C	COPd	-	5,92
Declared coefficient of performance with outdoor temperature Tj = +12 °C	COPd	-	6,27
Declared coefficient of performance with outdoor temperature Tj = Bivalent temperature	COPd	-	5,89
Declared coefficient of performance with outdoor temperature Tj = Operation limit temperature	COPd	-	5,72
For air-to-water heat pumps: Tj = – 15 °C (if TOL < – 20 °C)	COPd	-	-
For air-to-water HP : Operation limit temperature	TOL	[°C]	-
Heating water operating limit temperature	WTOL	[°C]	53
Power consumption in modes other than active mode			
Off mode	POFF	[kW]	0,000
Thermostat-off mode	PTO	[kW]	4,248
Standby mode	PSB	[kW]	0,047
Crankcase heater mode	PCK	[kW]	0,400
Supplementary heater			
Nominal heating capacity	Psup	[kW]	45,3
Other items			
Capacity control	fixed / variable		variable
Sound power level, indoors	LWA	[dB(A)]	95
Sound power level, outdoors	LWA	[dB(A)]	-
Annual electricity consumption for heating	QHE	[kWh]	138515
Outdoor heat exchanger			
For air-to-water HP: Rated air flow rate, outdoors	Qairsource	[m³/h]	-
For water-/brine-to-water heat pumps: Rated brine or water flow rate, outdoor heat exchanger	Qwater/brine source	[m³/h]	80

Contact details: Mitsubishi Electric Hydronics & IT Cooling Systems S.p.A., via Caduti di Cefalonia 1 - 36061 Bassano del Grappa (VI) - Italy

(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.

ENGLISH	ITALIANO	FRANCAISE	DEUTSCH	ESPANOL
Air-to-water heat pump:	Pompa di calore aria/ acqua:	Pompes à chaleur air-eau:	Luft-Wasser-Wärmepumpe:	Bomba de calor aire-agua:
Water-to-water heat pump:	Pompa di calore acqua/ acqua:	Pompes à chaleur eau-eau:	Wasser-Wasser-Wärmepumpe:	Bomba de calor agua-agua:
Brine-to-water heat pump:	Pompa di calore salamoia/ acqua:	Pompe à chaleur eau glycolée-eau:	Sole-Wasser-Wärmepumpe:	Bomba de calor salmuera-agua:
Low-temperature heat pump:	Pompa di calore a bassa temperatura:	Pompes à chaleur basse température:	Niedertemperatur-Wärmepumpe:	Bomba de calor de baja temperatura:
With supplementary heater:	Con riscaldatore supplementare:	Equipée d'un dispositif de chauffage d'appoint:	Mit Zusatzheizgerät:	Equipado con un calefactor complementario:
Mixed unit with heat pump:	Apparecchio misto a pompa di calore:	Dispositif de chauffage mixte par pompe à chaleur:	Kombiheizgerät mit Wärmepumpe:	Calefactor combinado con bomba de calor:
Temperature application	Temperatura applicazione	Application à température	Temperatur Anwendung	Aplicación de temperatura
Water flow rate	Portata d'acqua	Débit fluide	Volumenstrom Wasser	Caudal agua
Outlet temperature	Temperatura di uscita	Température de sortie	Austrittstemperatur	Temperatura de salida
Parameters are declared for average/warmer/colder climate conditions	I parametri sono dichiarati per condizioni climatiche medie/ alte/ basse	Les paramètres sont déclarés pour les conditions climatiques moyennes/chaud/basse	Die Parameter sind für eine Mitteltemperaturanwendung anzugeben	Los parámetros se indicarán para condiciones climáticas medias/ alta/ baja
Rated heat output at Tdesignh	Potenza termica nominale a Tdesign	Puissance thermique nominale Tdesignh	Wärmenennleistung Tdesignh	Potencia calorífica nominal Tdesignh
Seasonal space heating energy efficiency	Efficienza energetica stagionale del riscaldamento d'ambiente	Efficacité énergétique saisonnière pour le chauffage des locaux	Jahreszeitbedingte Raumheizungs-Energieeffizienz	Eficiencia energética estacional de calefacción
Seasonal space heating energy efficiency class	Classe di efficienza energetica stagionale del riscaldamento d'ambiente	Efficacité énergétique saisonnière pour le chauffage des locaux	Jahreszeitbedingte Raumheizungs-Energieeffizienz	Eficiencia energética estacional de calefacción
Declared capacity for heating for part load at indoor temperature 20 °C and outdoor temperature Tj	**Capacità di riscaldamento dichiarata a carico parziale, con temperatura interna pari a 20 °C e temperatura esterna Tj**	**Puissance calorifique déclarée à charge partielle pour une température intérieure de 20 °C et une température extérieure Tj**	**Angegebene Leistung für Teillast bei Raumlufttemperatur 20 °C und Außenlufttemperatur Tj**	**Capacidad de calefacción declarada para una carga parcial a una temperatura interior de 20 °C y una temperatura exterior Tj**
Declared capacity for heating with outdoor temperature Tj = – 7 °C	Capacità di riscaldamento con temperatura esterna Tj = – 7 °C	Puissance calorifique déclarée avec la température extérieure Tj = – 7 °C	Erklärt, Raumheizung mit Außenlufttemperatur Tj = – 7 °C	Capacidad de calefacción para una temperatura exterior Tj = – 7 °C
Declared capacity for heating with outdoor temperature Tj = +2 °C	Capacità di riscaldamento con temperatura esterna Tj = + 2 °C	Puissance calorifique déclarée avec la température extérieure Tj = +2 °C	Erklärt, Raumheizung mit Außenlufttemperatur Tj = +2 °C	Capacidad de calefacción para una temperatura exterior Tj = +2 °C
Declared capacity for heating with outdoor temperature Tj = +7 °C	Capacità di riscaldamento con temperatura esterna Tj = + 7 °C	Puissance calorifique déclarée avec la température extérieure Tj = +7 °C	Erklärt, Raumheizung mit Außenlufttemperatur Tj = +7 °C	Capacidad de calefacción para una temperatura exterior Tj = +7 °C
Declared capacity for heating with outdoor temperature Tj = +12 °C	Capacità di riscaldamento con temperatura esterna Tj = + 12 °C	Puissance calorifique déclarée avec la température extérieure Tj = +12 °C	Erklärt, Raumheizung mit Außenlufttemperatur Tj = +12 °C	Capacidad de calefacción para una temperatura exterior Tj = +12 °C
Declared capacity for heating with outdoor temperature Tj = Bivalent temperature	Capacità di riscaldamento con temperatura esterna Tj = temperatura bivalente	Puissance calorifique déclarée avec la température extérieure Tj = Température bivalente	Erklärt, Raumheizung mit Außenlufttemperatur Tj = Bivalenztemperatur	Capacidad de calefacción para una temperatura exterior Tj = Temperatura bivalente
Declared capacity for heating with outdoor temperature Tj = Operation limit temperature	Capacità di riscaldamento con temperatura esterna Tj = temperatura limite di esercizio	Puissance calorifique déclarée avec la température extérieure Tj = Température maximale de service	Erklärt, Raumheizung mit Außenlufttemperatur Tj = Betriebsgrenzwert-Temperatur	Capacidad de calefacción para una temperatura exterior Tj = Temperatura límite de funcionamiento
For air-to-water heat pumps: Tj = – 15 °C (if TOL < – 20 °C)	Per le pompe di calore aria/ acqua: Tj = – 15 °C (se TOL < – 20 °C)	Pour les pompes à chaleur air-eau: Tj = – 15 °C (si TOL < – 20 °C)	Für Luft-Wasser-Wärmepumpen: Tj = – 15 °C (wenn TOL < – 20 °C)	Para bombas de calor aire-agua: Tj = – 15 °C (si TOL < – 20 °C)
Bivalent temperature	Temperatura bivalente	Température bivalente	Bivalenztemperatur	Temperatura bivalente
Degradation coefficient	Coefficiente di degradazione	Coefficient de dégradation	Minderungsfaktor	Coeficiente de degradación
Declared coefficient of performance or primary energy ratio for part load at indoor temperature 20 °C and outdoor temperature Tj	**Coefficiente di prestazione dichiarato o indice di energia primaria per carico parziale, con temperatura interna pari a 20 °C e temperatura esterna Tj**	**Coefficient de performance déclaré ou coefficient sur énergie primaire déclaré à charge partielle pour une température intérieure de 20 °C et une température extérieure Tj**	**Angegebene Leistungszahl oder Heizzahl für Teillast bei Raumlufttemperatur 20 °C und Außenlufttemperatur Tj**	**Coeficiente de rendimiento declarado o factor energético primario para una carga parcial a una temperatura interior de 20 °C y una temperatura exterior Tj**
Declared coefficient of performance with outdoor temperature Tj = – 7 °C	Coefficiente di prestazione con temperatura esterna Tj = – 7 °C	Coefficient de performance déclaré avec la température extérieure Tj = – 7 °C	Erklärten Leistungszahl bei Außenlufttemperatur Tj = – 7 °C	Capacidad de calefacción para una temperatura exterior Tj = – 7 °C
Declared coefficient of performance with outdoor temperature Tj = +2 °C	Coefficiente di prestazione con temperatura esterna Tj = + 2 °C	Coefficient de performance déclaré avec la température extérieure Tj = +2 °C	Erklärten Leistungszahl bei Außenlufttemperatur Tj = +2 °C	Capacidad de calefacción para una temperatura exterior Tj = +2 °C
Declared coefficient of performance with outdoor temperature Tj = +7 °C	Coefficiente di prestazione con temperatura esterna Tj = + 7 °C	Coefficient de performance déclaré avec la température extérieure Tj = +7 °C	Erklärten Leistungszahl bei Außenlufttemperatur Tj = +7 °C	Capacidad de calefacción para una temperatura exterior Tj = +7 °C
Declared coefficient of performance with outdoor temperature Tj = +12 °C	Coefficiente di prestazione con temperatura esterna Tj = + 12 °C	Coefficient de performance déclaré avec la température extérieure Tj = +12 °C	Erklärten Leistungszahl bei Außenlufttemperatur Tj = +12 °C	Capacidad de calefacción para una temperatura exterior Tj = +12 °C

ENGLISH	ITALIANO	FRANCAISE	DEUTSCH	ESPANOL
Declared coefficient of	Coefficiente di prestazione con	Coefficient de performance	Erklärten Leistungszahl bei	Capacidad de calefacción para
Declared coefficient of performance with outdoor temperature Tj = Operation limit temperature	Coefficiente di prestazione con temperatura esterna Tj = temperatura limite di esercizio	Coefficient de performance déclaré avec la température extérieure Tj = Température maximale de service	Erklärten Leistungszahl bei Außenlufttemperatur Tj = Betriebsgrenzwert-Temperatur	Capacidad de calefacción para una temperatura exterior Tj = Temperatura límite de funcionamiento
For air-to-water heat pumps: Tj = – 15 °C (if TOL < – 20 °C)	Per le pompe di calore aria/acqua: Tj = – 15 °C (se TOL < – 20 °C)	Pour les pompes à chaleur air-eau: Tj = – 15 °C (si TOL < – 20 °C)	Für Luft-Wasser-Wärmepumpen: Tj = – 15 °C (wenn TOL < – 20 °C)	Para bombas de calor aire-agua: Tj = – 15 °C (si TOL < – 20 °C)
For air-to-water HP : Operation limit temperature	Per le pompe di calore aria/acqua: temperatura limite di esercizio	Pour les pompes à chaleur air-eau: Température limite de fonctionnemen	Für Luft-Wasser-Wärmepumpen: Betriebsgrenzwert-Temperatur	Para bombas de calor aire-agua: Temperatura límite de funcionamiento
Heating water operating limit temperature	Temperatura limite di esercizio di riscaldamento dell'acqua	Température maximale de service de l'eau de chauffage	Grenzwert der Betriebstemperatur des Heizwassers	Temperatura límite de calentamiento de agua
Power consumption in modes other than active mode	**Consumo energetico in modi diversi dal modo attivo**	**Consommation d'électricité dans les modes autres que le mode actif**	**Stromverbrauch in anderen Betriebsarten als dem Betriebszustand**	**Consumo de electricidad en modos distintos del activo**
Off mode	Modo spento	Mode arrêt	Aus-Zustand	Modo desactivado
Thermostat-off mode	Modo termostato spento	Mode arrêt par thermostat	Thermostat-aus-Zustand	Modo desactivado por termostato
Standby mode	Modo stand-by	Mode veille	Bereitschaftszustand	Modo de espera
Crankcase heater mode	Modo riscaldamento del carter	Mode résistance de carter active	Betriebszustand mit Kurbelgehäuseheizung	Modo riscaldamento del carter
Supplementary heater	**Riscaldatore supplementare**	**Dispositif de chauffage d'appoint**	**Zusatzheizgerät**	**Calefactor complementario**
Nominal heating capacity	Potenza termica nominale	Puissance thermique nominale	Heizleistung nominal	Potencia térmica nominal
Other items	**Altri elementi**	**Autres caractéristiques**	**Sonstige Elemente**	**Otros elementos**
Capacity control	Controllo della capacità	Régulation de la puissance	Leistungssteuerung	Control de capacidad
Sound power level, indoors	Livello della potenza sonora, all'interno	Niveau de puissance acoustique, à l'intérieur	Schallleistungspegel, innen	Nivel de potencia acústica (interior)
Sound power level, outdoors	Livello della potenza sonora, all'esterno	Niveau de puissance acoustique, à l'extérieur	Schallleistungspegel, außen	Nivel de potencia acústica (exterior)
Annual electricity consumption for heating	Consumo di elettricità annuale per il riscaldamento	Consommation annuelle d'électricité pour le chauffage	Jahresstromverbrauch für die Heizung	Consumo anual de electricidad para la calefacción
Outdoor heat exchanger	**Scambiatore di calore esterno**	**Echangeur de chaleur externe**	**Wärmetauscher äußere**	**Intercambiador de calor (exterior)**
For air-to-water HP: Rated air flow rate, outdoors	Per le pompe di calore aria/acqua: portata d'aria, all'esterno	Pour les pompes à chaleur air-eau: débit d'air nominal, à l'extérieur	Für Luft-Wasser-Wärmepumpen: Nenn-Luftdurchsatz, außen	Para bombas de calor aire-agua: Caudal de aire nominal (exterior)
For water-/brine-to-water heat pumps: Rated brine or water flow rate, outdoor heat exchanger	Per le pompe di calore acqua/acqua e salamoia/acqua: flusso di salamoia o acqua nominale, scambiatore di calore all'esterno	Pour les pompes à chaleur eau-eau ou eau glycolée-eau: débit nominal d'eau glycolée ou d'eau, échangeur thermique extérieur	Für Wasser/Sole-Wasser-Wärmepum Wasser- oder Sole-Nenndurchsatz	Para bombas de calor agua/salmuera a agua: Caudal de salmuera o de agua nominal, intercambiador de calor de exterior
Notes:	Note:	Remarques:	Hinweise:	Notas:
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.	I parametri sono dichiarati per l'applicazione a temperatura media, tranne per le pompe di calore a bassa temperatura. Per le pompe di calore a bassa temperatura, i parametri sono dichiarati per l'applicazione a bassa temperatura.	Les paramètres sont déclarés pour l'application à moyenne température, excepté pour les pompes à chaleur basse température. Pour les pompes à chaleur basse température, les paramètres sont déclarés pour l'application à basse température.	Die Parameter sind für eine Mitteltemperaturanwendung anzugeben, außer für Niedertemperatur-Wärmepumpen. Für Niedertemperatur-Wärmepumpen sind die Parameter für eine Niedertemperaturanwendung anzugeben.	Los parámetros se declararán para aplicaciones de media temperatura, excepto si se trata de bombas de calor de baja temperatura. En el caso de las bombas de calor de baja temperatura, los parámetros se declararán para aplicaciones de baja temperatura.
Unit in standard configuration/execution, without optional accessories.	Unità in configurazione ed esecuzione standard, priva di accessori opzionali.	Unité en configuration et exécution standard, sans accessoires optionnels.	Gerät mit Standard-Konfiguration und -Ausführung, ohne wunschweises Zubehör.	Unidad en configuración y ejecución estándar, sin accesorios opcionales.

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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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