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

Climaveneta **Technical Documentation**
i-FX-W_(1+i)-G05/H_1402_4652_201810_ML

REGULATION (EU) N. 2016/2281 FOR COMFORT CHILLERS

Ecodesign requirements for cooling products

WATER TO WATER REVERSIBLE HEAT PUMPS

i-FX-W (1+i)-G05/H 1402 - 4652

Cooling Capacity Range 487 - 1632 [kW] - (EN14511 VALUE)
Nominal Cooling Capacity at TdesignC Range 487 - 1632 [kW]

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1. REGULATION (EU) N. 2016/2281 FOR COMFORT CHILLERS

1.1 Scope of the document

This document is compliant with the Commission Regulation (EU) N. 2016/2281 regarding “REQUIREMENTS FOR PRODUCT INFORMATION” (Annex II, Point 5). In particular, it deals with comfort chillers and contains information required by Table 10 of the above-mentioned regulation, which is entitled “Information requirements for comfort chillers”.

1.2 REGULATION (UE) N. 2016/2281 description

The COMMISSION REGULATION (EU) N. 2016/2281 of 30 November 2016, implementing Directive 2009/125/EC of the European Parliament and of the Council, establishes eco-design requirements for the placing on the market and/or putting into service of: air heating products with a rated heating capacity which does not exceed 1MW, cooling products and high temperature process chillers with a rated cooling capacity which do not exceed 2 MW, and all fan coil units. All these energy-related products are defined in Article 2 of the Regulation in question.

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

- Comfort chiller: a cooling product designed with the aim of attaining and maintaining the desired indoor temperature for the thermal comfort of human beings, whose evaporator extracts heat from a water-based cooling system designed to operate at leaving chilled water temperatures greater than or equal to +2°C.
- Rated cooling capacity (Prated,c): the cooling capacity of a comfort chiller when providing space cooling at standard rating conditions, expressed in kW.
- Low temperature application: application where the comfort chiller delivers its declared capacity for cooling at an indoor heat exchanger outlet temperature of 7°C.
- Medium temperature application: application where the comfort chiller delivers its declared capacity for cooling at an indoor heat exchanger outlet temperature of 18°C.
- Seasonal energy efficiency of the space cooling (ηs,c): ratio between the space cooling demand pertaining to the designated cooling season, and the annual energy consumption required to meet this demand, expressed in %.
- Seasonal Energy Efficiency Ratio (SEER): the overall energy efficiency ratio of the comfort chiller, representative for the cooling season, calculated as the reference annual cooling demand divided by the annual energy consumption for cooling.
- Degradation coefficient for chillers: measure of efficiency loss due to cycling of the chiller.
- Off mode: a condition in which the chiller is connected to the main power source and is not providing any function.
- Thermostat off-mode: condition corresponding to the hours with no cooling load and activated cooling function, whereby the cooling function is switched on but the chiller is not operational.
- 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.
- Standby mode: condition where the chiller is connected to the mains power source and depends on energy input from the mains power source to work as intended. The unit 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.
- Capacity control: the ability of a chiller to change its cooling capacity by changing the volumetric flow rate of at least one of the fluids needed to operate the refrigeration cycle.
- Sound power level (LWA): the A-weighted sound power level, indoors and/or outdoors, expressed in dB.
- Global warming potential (GWP) of the refrigerant: the 100-year climatic warming potential of one kilogram of a greenhouse gas relative to one kilogram of dioxide (CO2).

2. CLIMAVENETA CONTENTS UNIT

2.1 Table index

WATER TO WATER REVERSIBLE HEAT PUMPS

i-FX-W (1+i)-G05/H 1402 - 4652

Cooling Capacity Range 487 - 1632 [kW]

Nominal Cooling Capacity at TdesignC Range 487 - 1632 [kW]

i-FX-W (1+i)-G05 /H /CA /1402 -			
Outdoor side heat exchanger of chiller	air or water/brine		Water/brine
Indoor side heat exchanger chiller	water		Water
Type	compressor driven vapour compression or sorption process		Compressor driven vapour compression
Driver of compressor	electric motor or fuel driven, gaseous or liquid fuel, internal or external combustion engine		Electric motor
Rated cooling capacity	Prated,c	[kW]	486,7
Seasonal energy efficiency of the space cooling	ηs,c	[%]	279,0
Declared cooling capacity for part load at given outdoor temperatures Tj			
Declared cooling capacity at given outdoor temperatures Tj = 35°C	Pdc	[kW]	487
Declared cooling capacity at given outdoor temperatures Tj = 30°C	Pdc	[kW]	359
Declared cooling capacity at given outdoor temperatures Tj = 25°C	Pdc	[kW]	231
Declared cooling capacity at given outdoor temperatures Tj = 20°C	Pdc	[kW]	146
Degradation coefficient for chillers	Cdc		0,9
Declared energy efficiency ratio or gas utilisation efficiency/auxiliary energy factor for part load at given outdoor temperatures Tj			
Declared energy efficiency ratio at given outdoor temperatures Tj = 35°C	EERd	[%]	5,16
Declared energy efficiency ratio at given outdoor temperatures Tj = 30°C	EERd	[%]	6,62
Declared energy efficiency ratio at given outdoor temperatures Tj = 25°C	EERd	[%]	8,95
Declared energy efficiency ratio at given outdoor temperatures Tj = 20°C	EERd	[%]	9,39
Power consumption in modes other than "active mode"			
Off mode	POFF	[kW]	0,000
Thermostat-off mode	PTO	[kW]	3,004
Crankcase heater mode	PCK	[kW]	0,493
Standby mode	PSB	[kW]	0,493
Other items			
Capacity control	fixed/staged/variable		Variable
Sound power level, outdoor	LWA	[dB(A)]	98,0
GWP of the refrigerant		[Kg CO2eq]	631
For air-to-water comfort chillers: air flow rate, outdoor measured		[m³/h]	-
For water/brine-to-water chillers: Rated brine or water flow rate, outdoor side heat exchanger		[m³/h]	99
Standard rating conditions used:	low temperature application/medium temperature application		Low temperature application

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

i-FX-W (1+i)-G05 /H /CA /1752 -			
Outdoor side heat exchanger of chiller	air or water/brine		Water/brine
Indoor side heat exchanger chiller	water		Water
Type	compressor driven vapour compression or sorption process		Compressor driven vapour compression
Driver of compressor	electric motor or fuel driven, gaseous or liquid fuel, internal or external combustion engine		Electric motor
Rated cooling capacity	Prated,c	[kW]	608,1
Seasonal energy efficiency of the space cooling	ηs,c	[%]	277,0
Declared cooling capacity for part load at given outdoor temperatures Tj			
Declared cooling capacity at given outdoor temperatures Tj = 35°C	Pdc	[kW]	608
Declared cooling capacity at given outdoor temperatures Tj = 30°C	Pdc	[kW]	448
Declared cooling capacity at given outdoor temperatures Tj = 25°C	Pdc	[kW]	288
Declared cooling capacity at given outdoor temperatures Tj = 20°C	Pdc	[kW]	176
Degradation coefficient for chillers	Cdc		0,9
Declared energy efficiency ratio or gas utilisation efficiency/auxiliary energy factor for part load at given outdoor temperatures Tj			
Declared energy efficiency ratio at given outdoor temperatures Tj = 35°C	EERd	[%]	5,28
Declared energy efficiency ratio at given outdoor temperatures Tj = 30°C	EERd	[%]	6,61
Declared energy efficiency ratio at given outdoor temperatures Tj = 25°C	EERd	[%]	8,85
Declared energy efficiency ratio at given outdoor temperatures Tj = 20°C	EERd	[%]	9,28
Power consumption in modes other than "active mode"			
Off mode	POFF	[kW]	0,000
Thermostat-off mode	PTO	[kW]	3,703
Crankcase heater mode	PCK	[kW]	0,705
Standby mode	PSB	[kW]	0,705
Other items			
Capacity control	fixed/staged/variable		Variable
Sound power level, outdoor	LWA	[dB(A)]	98,0
GWP of the refrigerant		[Kg CO2eq]	631
For air-to-water comfort chillers: air flow rate, outdoor measured		[m³/h]	-
For water/brine-to-water chillers: Rated brine or water flow rate, outdoor side heat exchanger		[m³/h]	124
Standard rating conditions used:	low temperature application/medium temperature application		Low temperature application

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i-FX-W (1+i)-G05 /H /CA /1902 -			
Outdoor side heat exchanger of chiller	air or water/brine		Water/brine
Indoor side heat exchanger chiller	water		Water
Type	compressor driven vapour compression or sorption process		Compressor driven vapour compression
Driver of compressor	electric motor or fuel driven, gaseous or liquid fuel, internal or external combustion engine		Electric motor
Rated cooling capacity	Prated,c	[kW]	659,4
Seasonal energy efficiency of the space cooling	ηs,c	[%]	273,0
Declared cooling capacity for part load at given outdoor temperatures Tj			
Declared cooling capacity at given outdoor temperatures Tj = 35°C	Pdc	[kW]	659
Declared cooling capacity at given outdoor temperatures Tj = 30°C	Pdc	[kW]	486
Declared cooling capacity at given outdoor temperatures Tj = 25°C	Pdc	[kW]	312
Declared cooling capacity at given outdoor temperatures Tj = 20°C	Pdc	[kW]	195
Degradation coefficient for chillers	Cdc		0,9
Declared energy efficiency ratio or gas utilisation efficiency/auxiliary energy factor for part load at given outdoor temperatures Tj			
Declared energy efficiency ratio at given outdoor temperatures Tj = 35°C	EERd	[%]	5,26
Declared energy efficiency ratio at given outdoor temperatures Tj = 30°C	EERd	[%]	6,62
Declared energy efficiency ratio at given outdoor temperatures Tj = 25°C	EERd	[%]	8,75
Declared energy efficiency ratio at given outdoor temperatures Tj = 20°C	EERd	[%]	9,11
Power consumption in modes other than "active mode"			
Off mode	POFF	[kW]	0,000
Thermostat-off mode	PTO	[kW]	4,247
Crankcase heater mode	PCK	[kW]	0,775
Standby mode	PSB	[kW]	0,775
Other items			
Capacity control	fixed/staged/variable		Variable
Sound power level, outdoor	LWA	[dB(A)]	98,0
GWP of the refrigerant		[Kg CO2eq]	631
For air-to-water comfort chillers: air flow rate, outdoor measured		[m³/h]	-
For water/brine-to-water chillers: Rated brine or water flow rate, outdoor side heat exchanger		[m³/h]	134
Standard rating conditions used:	low temperature application/medium temperature application		Low temperature application

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i-FX-W (1+i)-G05 /H /CA /2152 -			
Outdoor side heat exchanger of chiller	air or water/brine		Water/brine
Indoor side heat exchanger chiller	water		Water
Type	compressor driven vapour compression or sorption process		Compressor driven vapour compression
Driver of compressor	electric motor or fuel driven, gaseous or liquid fuel, internal or external combustion engine		Electric motor
Rated cooling capacity	Prated,c	[kW]	750,0
Seasonal energy efficiency of the space cooling	ηs,c	[%]	279,0
Declared cooling capacity for part load at given outdoor temperatures Tj			
Declared cooling capacity at given outdoor temperatures Tj = 35°C	Pdc	[kW]	750
Declared cooling capacity at given outdoor temperatures Tj = 30°C	Pdc	[kW]	553
Declared cooling capacity at given outdoor temperatures Tj = 25°C	Pdc	[kW]	355
Declared cooling capacity at given outdoor temperatures Tj = 20°C	Pdc	[kW]	223
Degradation coefficient for chillers	Cdc		0,9
Declared energy efficiency ratio or gas utilisation efficiency/auxiliary energy factor for part load at given outdoor temperatures Tj			
Declared energy efficiency ratio at given outdoor temperatures Tj = 35°C	EERd	[%]	5,26
Declared energy efficiency ratio at given outdoor temperatures Tj = 30°C	EERd	[%]	6,66
Declared energy efficiency ratio at given outdoor temperatures Tj = 25°C	EERd	[%]	8,90
Declared energy efficiency ratio at given outdoor temperatures Tj = 20°C	EERd	[%]	9,40
Power consumption in modes other than "active mode"			
Off mode	POFF	[kW]	0,000
Thermostat-off mode	PTO	[kW]	4,697
Crankcase heater mode	PCK	[kW]	0,775
Standby mode	PSB	[kW]	0,775
Other items			
Capacity control	fixed/staged/variable		Variable
Sound power level, outdoor	LWA	[dB(A)]	100,0
GWP of the refrigerant		[Kg CO2eq]	631
For air-to-water comfort chillers: air flow rate, outdoor measured		[m³/h]	-
For water/brine-to-water chillers: Rated brine or water flow rate, outdoor side heat exchanger		[m³/h]	153
Standard rating conditions used:	low temperature application/medium temperature application		Low temperature application

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i-FX-W (1+i)-G05 /H /CA /2602 -			
Outdoor side heat exchanger of chiller	air or water/brine		Water/brine
Indoor side heat exchanger chiller	water		Water
Type	compressor driven vapour compression or sorption process		Compressor driven vapour compression
Driver of compressor	electric motor or fuel driven, gaseous or liquid fuel, internal or external combustion engine		Electric motor
Rated cooling capacity	Prated,c	[kW]	914,3
Seasonal energy efficiency of the space cooling	ηs,c	[%]	284,0
Declared cooling capacity for part load at given outdoor temperatures Tj			
Declared cooling capacity at given outdoor temperatures Tj = 35°C	Pdc	[kW]	914
Declared cooling capacity at given outdoor temperatures Tj = 30°C	Pdc	[kW]	674
Declared cooling capacity at given outdoor temperatures Tj = 25°C	Pdc	[kW]	433
Declared cooling capacity at given outdoor temperatures Tj = 20°C	Pdc	[kW]	273
Degradation coefficient for chillers	Cdc		0,9
Declared energy efficiency ratio or gas utilisation efficiency/auxiliary energy factor for part load at given outdoor temperatures Tj			
Declared energy efficiency ratio at given outdoor temperatures Tj = 35°C	EERd	[%]	5,26
Declared energy efficiency ratio at given outdoor temperatures Tj = 30°C	EERd	[%]	6,57
Declared energy efficiency ratio at given outdoor temperatures Tj = 25°C	EERd	[%]	9,12
Declared energy efficiency ratio at given outdoor temperatures Tj = 20°C	EERd	[%]	9,52
Power consumption in modes other than "active mode"			
Off mode	POFF	[kW]	0,000
Thermostat-off mode	PTO	[kW]	5,611
Crankcase heater mode	PCK	[kW]	0,778
Standby mode	PSB	[kW]	0,778
Other items			
Capacity control	fixed/staged/variable		Variable
Sound power level, outdoor	LWA	[dB(A)]	100,0
GWP of the refrigerant		[Kg CO2eq]	631
For air-to-water comfort chillers: air flow rate, outdoor measured		[m³/h]	-
For water/brine-to-water chillers: Rated brine or water flow rate, outdoor side heat exchanger		[m³/h]	186
Standard rating conditions used:	low temperature application/medium temperature application		Low temperature application

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i-FX-W (1+i)-G05 /H /CA /3002 -			
Outdoor side heat exchanger of chiller	air or water/brine		Water/brine
Indoor side heat exchanger chiller	water		Water
Type	compressor driven vapour compression or sorption process		Compressor driven vapour compression
Driver of compressor	electric motor or fuel driven, gaseous or liquid fuel, internal or external combustion engine		Electric motor
Rated cooling capacity	Prated,c	[kW]	1046,0
Seasonal energy efficiency of the space cooling	ηs,c	[%]	290,0
Declared cooling capacity for part load at given outdoor temperatures Tj			
Declared cooling capacity at given outdoor temperatures Tj = 35°C	Pdc	[kW]	1046
Declared cooling capacity at given outdoor temperatures Tj = 30°C	Pdc	[kW]	771
Declared cooling capacity at given outdoor temperatures Tj = 25°C	Pdc	[kW]	495
Declared cooling capacity at given outdoor temperatures Tj = 20°C	Pdc	[kW]	312
Degradation coefficient for chillers	Cdc		0,9
Declared energy efficiency ratio or gas utilisation efficiency/auxiliary energy factor for part load at given outdoor temperatures Tj			
Declared energy efficiency ratio at given outdoor temperatures Tj = 35°C	EERd	[%]	5,31
Declared energy efficiency ratio at given outdoor temperatures Tj = 30°C	EERd	[%]	6,80
Declared energy efficiency ratio at given outdoor temperatures Tj = 25°C	EERd	[%]	9,02
Declared energy efficiency ratio at given outdoor temperatures Tj = 20°C	EERd	[%]	9,63
Power consumption in modes other than "active mode"			
Off mode	POFF	[kW]	0,000
Thermostat-off mode	PTO	[kW]	5,641
Crankcase heater mode	PCK	[kW]	0,778
Standby mode	PSB	[kW]	0,778
Other items			
Capacity control	fixed/staged/variable		Variable
Sound power level, outdoor	LWA	[dB(A)]	100,0
GWP of the refrigerant		[Kg CO2eq]	631
For air-to-water comfort chillers: air flow rate, outdoor measured		[m³/h]	-
For water/brine-to-water chillers: Rated brine or water flow rate, outdoor side heat exchanger		[m³/h]	213
Standard rating conditions used:	low temperature application/medium temperature application		Low temperature application

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i-FX-W (1+i)-G05 /H /CA /3402 -			
Outdoor side heat exchanger of chiller	air or water/brine		Water/brine
Indoor side heat exchanger chiller	water		Water
Type	compressor driven vapour compression or sorption process		Compressor driven vapour compression
Driver of compressor	electric motor or fuel driven, gaseous or liquid fuel, internal or external combustion engine		Electric motor
Rated cooling capacity	Prated,c	[kW]	1186,0
Seasonal energy efficiency of the space cooling	ηs,c	[%]	288,0
Declared cooling capacity for part load at given outdoor temperatures Tj			
Declared cooling capacity at given outdoor temperatures Tj = 35°C	Pdc	[kW]	1186
Declared cooling capacity at given outdoor temperatures Tj = 30°C	Pdc	[kW]	874
Declared cooling capacity at given outdoor temperatures Tj = 25°C	Pdc	[kW]	562
Declared cooling capacity at given outdoor temperatures Tj = 20°C	Pdc	[kW]	353
Degradation coefficient for chillers	Cdc		0,9
Declared energy efficiency ratio or gas utilisation efficiency/auxiliary energy factor for part load at given outdoor temperatures Tj			
Declared energy efficiency ratio at given outdoor temperatures Tj = 35°C	EERd	[%]	5,36
Declared energy efficiency ratio at given outdoor temperatures Tj = 30°C	EERd	[%]	6,76
Declared energy efficiency ratio at given outdoor temperatures Tj = 25°C	EERd	[%]	8,87
Declared energy efficiency ratio at given outdoor temperatures Tj = 20°C	EERd	[%]	9,48
Power consumption in modes other than "active mode"			
Off mode	POFF	[kW]	0,000
Thermostat-off mode	PTO	[kW]	6,156
Crankcase heater mode	PCK	[kW]	0,778
Standby mode	PSB	[kW]	0,778
Other items			
Capacity control	fixed/staged/variable		Variable
Sound power level, outdoor	LWA	[dB(A)]	100,0
GWP of the refrigerant		[Kg CO2eq]	631
For air-to-water comfort chillers: air flow rate, outdoor measured		[m³/h]	-
For water/brine-to-water chillers: Rated brine or water flow rate, outdoor side heat exchanger		[m³/h]	241
Standard rating conditions used:	low temperature application/medium temperature application		Low temperature application

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i-FX-W (1+i)-G05 /H /CA /3852 -			
Outdoor side heat exchanger of chiller	air or water/brine		Water/brine
Indoor side heat exchanger chiller	water		Water
Type	compressor driven vapour compression or sorption process		Compressor driven vapour compression
Driver of compressor	electric motor or fuel driven, gaseous or liquid fuel, internal or external combustion engine		Electric motor
Rated cooling capacity	Prated,c	[kW]	1348,0
Seasonal energy efficiency of the space cooling	ηs,c	[%]	293,0
Declared cooling capacity for part load at given outdoor temperatures Tj			
Declared cooling capacity at given outdoor temperatures Tj = 35°C	Pdc	[kW]	1348
Declared cooling capacity at given outdoor temperatures Tj = 30°C	Pdc	[kW]	993
Declared cooling capacity at given outdoor temperatures Tj = 25°C	Pdc	[kW]	639
Declared cooling capacity at given outdoor temperatures Tj = 20°C	Pdc	[kW]	402
Degradation coefficient for chillers	Cdc		0,9
Declared energy efficiency ratio or gas utilisation efficiency/auxiliary energy factor for part load at given outdoor temperatures Tj			
Declared energy efficiency ratio at given outdoor temperatures Tj = 35°C	EERd	[%]	5,40
Declared energy efficiency ratio at given outdoor temperatures Tj = 30°C	EERd	[%]	6,82
Declared energy efficiency ratio at given outdoor temperatures Tj = 25°C	EERd	[%]	9,00
Declared energy efficiency ratio at given outdoor temperatures Tj = 20°C	EERd	[%]	9,60
Power consumption in modes other than "active mode"			
Off mode	POFF	[kW]	0,000
Thermostat-off mode	PTO	[kW]	6,421
Crankcase heater mode	PCK	[kW]	0,838
Standby mode	PSB	[kW]	0,838
Other items			
Capacity control	fixed/staged/variable		Variable
Sound power level, outdoor	LWA	[dB(A)]	100,0
GWP of the refrigerant		[Kg CO2eq]	631
For air-to-water comfort chillers: air flow rate, outdoor measured		[m³/h]	-
For water/brine-to-water chillers: Rated brine or water flow rate, outdoor side heat exchanger		[m³/h]	274
Standard rating conditions used:	low temperature application/medium temperature application		Low temperature application

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i-FX-W (1+i)-G05 /H /CA /4252 -			
Outdoor side heat exchanger of chiller	air or water/brine		Water/brine
Indoor side heat exchanger chiller	water		Water
Type	compressor driven vapour compression or sorption process		Compressor driven vapour compression
Driver of compressor	electric motor or fuel driven, gaseous or liquid fuel, internal or external combustion engine		Electric motor
Rated cooling capacity	Prated,c	[kW]	1482,0
Seasonal energy efficiency of the space cooling	ηs,c	[%]	281,0
Declared cooling capacity for part load at given outdoor temperatures Tj			
Declared cooling capacity at given outdoor temperatures Tj = 35°C	Pdc	[kW]	1482
Declared cooling capacity at given outdoor temperatures Tj = 30°C	Pdc	[kW]	1092
Declared cooling capacity at given outdoor temperatures Tj = 25°C	Pdc	[kW]	702
Declared cooling capacity at given outdoor temperatures Tj = 20°C	Pdc	[kW]	401
Degradation coefficient for chillers	Cdc		0,9
Declared energy efficiency ratio or gas utilisation efficiency/auxiliary energy factor for part load at given outdoor temperatures Tj			
Declared energy efficiency ratio at given outdoor temperatures Tj = 35°C	EERd	[%]	5,30
Declared energy efficiency ratio at given outdoor temperatures Tj = 30°C	EERd	[%]	6,54
Declared energy efficiency ratio at given outdoor temperatures Tj = 25°C	EERd	[%]	8,65
Declared energy efficiency ratio at given outdoor temperatures Tj = 20°C	EERd	[%]	9,10
Power consumption in modes other than "active mode"			
Off mode	POFF	[kW]	0,000
Thermostat-off mode	PTO	[kW]	8,237
Crankcase heater mode	PCK	[kW]	0,838
Standby mode	PSB	[kW]	0,838
Other items			
Capacity control	fixed/staged/variable		Variable
Sound power level, outdoor	LWA	[dB(A)]	102,0
GWP of the refrigerant		[Kg CO2eq]	631
For air-to-water comfort chillers: air flow rate, outdoor measured		[m³/h]	-
For water/brine-to-water chillers: Rated brine or water flow rate, outdoor side heat exchanger		[m³/h]	302
Standard rating conditions used:	low temperature application/medium temperature application		Low temperature application

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

i-FX-W (1+i)-G05 /H /CA /4652 -			
Outdoor side heat exchanger of chiller	air or water/brine		Water/brine
Indoor side heat exchanger chiller	water		Water
Type	compressor driven vapour compression or sorption process		Compressor driven vapour compression
Driver of compressor	electric motor or fuel driven, gaseous or liquid fuel, internal or external combustion engine		Electric motor
Rated cooling capacity	Prated,c	[kW]	1632,0
Seasonal energy efficiency of the space cooling	ηs,c	[%]	284,0
Declared cooling capacity for part load at given outdoor temperatures Tj			
Declared cooling capacity at given outdoor temperatures Tj = 35°C	Pdc	[kW]	1632
Declared cooling capacity at given outdoor temperatures Tj = 30°C	Pdc	[kW]	1203
Declared cooling capacity at given outdoor temperatures Tj = 25°C	Pdc	[kW]	773
Declared cooling capacity at given outdoor temperatures Tj = 20°C	Pdc	[kW]	482
Degradation coefficient for chillers	Cdc		0,9
Declared energy efficiency ratio or gas utilisation efficiency/auxiliary energy factor for part load at given outdoor temperatures Tj			
Declared energy efficiency ratio at given outdoor temperatures Tj = 35°C	EERd	[%]	5,26
Declared energy efficiency ratio at given outdoor temperatures Tj = 30°C	EERd	[%]	6,49
Declared energy efficiency ratio at given outdoor temperatures Tj = 25°C	EERd	[%]	8,80
Declared energy efficiency ratio at given outdoor temperatures Tj = 20°C	EERd	[%]	9,32
Power consumption in modes other than "active mode"			
Off mode	POFF	[kW]	0,000
Thermostat-off mode	PTO	[kW]	8,993
Crankcase heater mode	PCK	[kW]	0,838
Standby mode	PSB	[kW]	0,838
Other items			
Capacity control	fixed/staged/variable		Variable
Sound power level, outdoor	LWA	[dB(A)]	102,0
GWP of the refrigerant		[Kg CO2eq]	631
For air-to-water comfort chillers: air flow rate, outdoor measured		[m³/h]	-
For water/brine-to-water chillers: Rated brine or water flow rate, outdoor side heat exchanger		[m³/h]	333
Standard rating conditions used:	low temperature application/medium temperature application		Low temperature application

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

ENGLISH	ITALIANO	FRANCAISE	DEUTSCH	ESPANOL
Outdoor side heat exchanger of chiller	Refrigeratore a scambiatore di calore esterno	Echangeur de chaleur côté extérieur du refroidisseur	Wärmetauscher des Kühlers (außen)	Intercambiador de calor de exterior de la enfriadora
Indoor side heat exchanger chiller	Refrigeratore a scambiatore di calore interno	Echangeur de chaleur côté intérieur du refroidisseur	Wärmetauscher des Kühlers (innen)	Intercambiador de calor de interior de la enfriadora
Type	Tipo	Type	Bauart	Tipo
Driver of compressor	Tipo di azionamento del compressore	Type d'entraînement du compresseur	Antrieb des Verdichters	Accionamiento del compresor
Rated cooling capacity	Capacità di raffreddamento nominale	Puissance frigorifique nominale	Nennkühlleistung	Potencia nominal de refrigeración
Seasonal energy efficiency of the space cooling	Efficienza energetica stagionale del raffreddamento d'ambiente	Efficacité énergétique saisonnière pour le refroidissement des locaux	Raumkühlungs-Jahresnutzungsgrad	Eficiencia energética estacional de refrigeración de espacios
Declared cooling capacity for part load at given outdoor temperatures Tj	**Capacità di raffreddamento dichiarata a carico parziale a temperature esterne date Tj**	**Puissance frigorifique déclarée à charge partielle pour des températures extérieures données Tj**	**Angegebene Kühlleistung bei Teillast und bestimmten Außentemperaturen Tj**	**Potencia de refrigeración declarada para carga parcial a las temperaturas exteriores dadas Tj**
Declared cooling capacity at given outdoor temperatures Tj = 35°C	Capacità di raffreddamento dichiarata a temperatura esterna Tj = 35°C	Puissance frigorifique déclarée à la température extérieure Tj = 35°C	Angegebene Kühlleistung bei Teillast und einer Außentemperatur Tj = 35°C	Potencia de refrigeración declarada para carga parcial a la temperatura exterior Tj = 35°C
Declared cooling capacity at given outdoor temperatures Tj = 30°C	Capacità di raffreddamento dichiarata a temperatura esterna Tj = 30°C	Puissance frigorifique déclarée à la température extérieure Tj = 30°C	Angegebene Kühlleistung bei Teillast und einer Außentemperatur Tj =30°C	Potencia de refrigeración declarada para carga parcial a la temperatura exterior Tj = 30°C
Declared cooling capacity at given outdoor temperatures Tj = 25°C	Capacità di raffreddamento dichiarata a temperatura esterna Tj = 25°C	Puissance frigorifique déclarée à la température extérieure Tj = 25°C	Angegebene Kühlleistung bei Teillast und einer Außentemperatur Tj =25°C	Potencia de refrigeración declarada para carga parcial a la temperatura exterior Tj = 25°C
Declared cooling capacity at given outdoor temperatures Tj = 20°C	Capacità di raffreddamento dichiarata a temperatura esterna Tj = 20°C	Puissance frigorifique déclarée à la température extérieure Tj = 20°C	Angegebene Kühlleistung bei Teillast und einer Außentemperatur Tj =20°C	Potencia de refrigeración declarada para carga parcial a la temperatura exterior Tj = 20°C
Degradation coefficient for chillers	Coefficiente di degradazione per i refrigeratori	Coefficient de dégradation pour les refroidisseurs	Minderungsfaktor von Kühlern	Coeficiente de degradación de las enfriadoras
Declared energy efficiency ratio or gas utilisation efficiency/auxiliary energy factor for part load at given outdoor temperatures Tj	**Indice di efficienza energetica dichiarato o efficienza dell'uso del gas/fattore di energia ausiliaria a carico parziale alle temperature esterne date Tj**	**Coefficient d'efficacité énergétique déclaré ou rendement de la consommation de gaz/indice énergétique auxiliaire à charge partielle pour des températures extérieures données Tj**	**Angegebene Leistungszahl oder Gaswirkungsgrad/Hilfsenergiefa bei Teillast und bestimmten Außentemperaturen Tj**	**Factor de eficiencia energética declarado o eficiencia del uso de gas o factor de energía auxiliar para carga parcial a las temperaturas exteriores dadas Tj**
Declared energy efficiency ratio at given outdoor temperatures Tj = 35°C	Indice di efficienza energetica dichiarato con temperatura esterna Tj = 35°C	Coefficient d'efficacité énergétique déclaré à la température extérieure Tj = 35°C	Angegebene Leistungszahl bei Teillast und einer Außentemperatur Tj = 35°C	Factor de eficiencia energética declarado a la temperatura exterior Tj = 35°C
Declared energy efficiency ratio at given outdoor temperatures Tj = 30°C	Indice di efficienza energetica dichiarato con temperatura esterna Tj = 30°C	Coefficient d'efficacité énergétique déclaré à la température extérieure Tj = 30°C	Angegebene Leistungszahl bei Teillast und einer Außentemperatur Tj = 30°C	Factor de eficiencia energética declarado a la temperatura exterior Tj = 30°C
Declared energy efficiency ratio at given outdoor temperatures Tj = 25°C	Indice di efficienza energetica dichiarato con temperatura esterna Tj = 25°C	Coefficient d'efficacité énergétique déclaré à la température extérieure Tj = 25°C	Angegebene Leistungszahl bei Teillast und einer Außentemperatur Tj = 25°C	Factor de eficiencia energética declarado a la temperatura exterior Tj = 25°C
Declared energy efficiency ratio at given outdoor temperatures Tj = 20°C	Indice di efficienza energetica dichiarato con temperatura esterna Tj = 20°C	Coefficient d'efficacité énergétique déclaré à la température extérieure Tj = 20°C	Angegebene Leistungszahl bei Teillast und einer Außentemperatur Tj = 20°C	Factor de eficiencia energética declarado a la temperatura exterior Tj = 20°C
Power consumption in modes other than "active mode"	**Consumo di energia in modi diversi dal «modo attivo»**	**Consommation d'énergie dans les modes autres que le mode actif**	**Stromverbrauch in anderen Betriebsarten als dem „aktiven Betrieb“**	**Consumo de energía en modos distintos del modo 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
Crankcase heater mode	Modo «riscaldamento del carter»	Mode résistance de carter active	Betriebszustand mit Kurbelwannenheizung	Modo de calentador del cárter activado
Standby mode	Modo «stand-by»	Mode veille	Bereitschaftszustand	Modo de espera
Other items	**Altri elementi**	**Autres caractéristiques**	**Sonstige Produktdaten**	**Otros elementos**
Capacity control	Dispositivo di controllo della capacità	Régulation de la puissance	Leistungsregelung	Control de la potencia
Sound power level, outdoor	Livello di potenza sonora esterno	Niveau de puissance acoustique, à l'extérieur	Schallleistungspegel, außen	Nivel de potencia acústica (exterior)
GWP of the refrigerant	GWP del refrigerante	PRP du fluide frigorigène	Treibhausgaspotenzial des Kältemittels	PCA del refrigerante
For air-to-water comfort chillers: air flow rate, outdoor measured	Per i refrigeratori d'ambiente aria-acqua: flusso d'aria, misurato all'esterno	Pour les refroidisseurs de confort air-eau: débit d'air, mesuré à l'extérieur	Bei Luft-Wasser- Komfortkühlern: Luftdurchsatz, außen gemessen	Enfriadoras de confort aire-agua: caudal de aire (exterior)
For water/brine-to-water chillers: Rated brine or water flow rate, outdoor side heat exchanger	Per i refrigeratori acqua/salamoia-acqua: flusso d'acqua o salamoia nominale, scambiatore di calore esterno	Pour les refroidisseurs eau/eau glycolée-eau: débit nominal d'eau glycolée ou d'eau,	Bei Wasser/Sole-Wasser-Kühlern: Wasser- oder Sole- Nenndurchsatz, Wärmetauscher außen	Enfriadoras agua-agua/ salmuera-agua: caudal nominal de salmuera o agua, intercambiador de calor de exterior

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Standard rating conditions used:	Condizioni nominali standard	Conditions de perfomance	Norm-Prüfbedingungen:	Condiciones estándar utilizadas:
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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