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

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

REGULATION (EU) N. 2015/1095 FOR MEDIUM TEMPERATURE PROCESS CHILLERS

Ecodesign requirements for process chillers

WATER TO WATER HEAT PUMPS, REVERSIBLE ON HYDRAULIC SIDE

FX-W-Y/H 0551 - 1752

Cooling Capacity Range 150 - 196 [kW] - (EN14511 VALUE)
Nominal Cooling Capacity at TdesignC Range 150 - 196 [kW]

IT
EN
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1. REGULATION (EU) N. 2015/1095 FOR MEDIUM TEMPERATURE PROCESS CHILLERS

1.1 Scope of the document

This document is compliant with the Commission Regulation (EU) N. 2015/1095 regarding “REQUIREMENTS FOR PRODUCT INFORMATION” (Annex VII, Point 2). In particular, it deals with medium temperature process chillers and contains information required by Table 7 of the above-mentioned regulation, which is entitled “Information requirements for process chillers”.

1.2 REGULATION (UE) N. 2015/1095 description

The COMMISSION REGULATION (EU) N. 2015/1095 of 5 May 2015, implementing Directive 2009/125/EC of the European Parliament and of the Council, establishes eco-design requirements for the placing on the market of: professional refrigerated storage cabinets and blast cabinets, condensing units operating at low or medium temperature or both and process chillers intended to operate at low or medium temperature. 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

- Medium temperature process chiller: a product designed to cool down and continuously maintain the temperature of a liquid to provide cooling to a refrigerated appliance or system, whose aim is not to provide cooling for the thermal comfort of human beings. It is capable of delivering its rated refrigeration capacity at an indoor side heat exchanger outlet temperature of
  -8°C, at standard rating conditions.
- Rated refrigeration capacity (P): the refrigeration capacity that the medium temperature process chiller is able to reach when operating at full load at a specific rating point, expressed in kW.
- Seasonal Energy Performance Ratio (SEPR): the efficiency ratio of a medium temperature process chiller at standard rating conditions, representative of the variations in load and ambient temperature throughout the year, and calculated as the ratio between the annual refrigeration demand and the annual electricity consumption.
- Annual electricity consumption: result of the sum of the ratios between each bin-specific cooling demand and the corresponding bin-specific energy efficiency ratio, multiplied by the corresponding number of bin hours.
- Degradation coefficient for chillers: measure of efficiency loss due to cycling of the chiller.
- 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.

2. CLIMAVENETA CONTENTS UNIT

2.1 Table index

WATER TO WATER HEAT PUMPS, REVERSIBLE ON HYDRAULIC SIDE

FX-W-Y/H 0551 - 1752

Cooling Capacity Range 150 - 196 [kW]

Nominal Cooling Capacity at TdesignC Range 150 - 196 [kW]

FX-W-Y /H /1402 -			
Type of condensing	Air cooled / Water cooled		
Refrigerant fluid(s)	Information to identify the refrigerant fluid(s) intended to be used with the condensing unit		-
Type	compressor driven vapour compression or sorption process		Compressor driven vapour compression
Operating temperature	t	[°C]	-8
Seasonal energy performance ratio	SEPR		3,67
Annual electricity consumption	Q	[kWh]	302962
Parameters at full load and reference ambient temperature at rating point A			
Rated refrigeration capacity	P_A	[kW]	149,87
Rated power input	D_A	[kW]	57,00
Nominal EER	EER_A		2,63
Parameters at rating point B			
Rated refrigeration capacity	P_B	[kW]	139,91
Rated power input	D_B	[kW]	43,70
Declared EER	EER_B		3,20
Parameters at rating point C			
Rated refrigeration capacity	P_C	[kW]	129,91
Rated power input	D_C	[kW]	33,80
Declared EER	EER_C		3,85
Parameters at rating point D			
Rated refrigeration capacity	P_D	[kW]	119,92
Rated power input	D_D	[kW]	32,30
Declared EER	EER_D		3,72
Other items			
Capacity control	fixed/staged/variable		Variable
Degradation coefficient for chillers	C_C		0,9

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

FX-W-Y /H /1502 -			
Type of condensing	Air cooled / Water cooled		
Refrigerant fluid(s)	Information to identify the refrigerant fluid(s) intended to be used with the condensing unit		-
Type	compressor driven vapour compression or sorption process		Compressor driven vapour compression
Operating temperature	t	[°C]	-8
Seasonal energy performance ratio	SEPR		3,60
Annual electricity consumption	Q	[kWh]	342641
Parameters at full load and reference ambient temperature at rating point A			
Rated refrigeration capacity	P_A	[kW]	166,36
Rated power input	D_A	[kW]	63,00
Nominal EER	EER_A		2,64
Parameters at rating point B			
Rated refrigeration capacity	P_B	[kW]	155,31
Rated power input	D_B	[kW]	49,10
Declared EER	EER_B		3,16
Parameters at rating point C			
Rated refrigeration capacity	P_C	[kW]	144,21
Rated power input	D_C	[kW]	38,20
Declared EER	EER_C		3,78
Parameters at rating point D			
Rated refrigeration capacity	P_D	[kW]	133,12
Rated power input	D_D	[kW]	36,50
Declared EER	EER_D		3,64
Other items			
Capacity control	fixed/staged/variable		Variable
Degradation coefficient for chillers	C_C		0,9

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FX-W-Y /H /1602 -			
Type of condensing	Air cooled / Water cooled		
Refrigerant fluid(s)	Information to identify the refrigerant fluid(s) intended to be used with the condensing unit		-
Type	compressor driven vapour compression or sorption process		Compressor driven vapour compression
Operating temperature	t	[°C]	-8
Seasonal energy performance ratio	SEPR		3,60
Annual electricity consumption	Q	[kWh]	365088
Parameters at full load and reference ambient temperature at rating point A			
Rated refrigeration capacity	P_A	[kW]	177,46
Rated power input	D_A	[kW]	67,20
Nominal EER	EER_A		2,64
Parameters at rating point B			
Rated refrigeration capacity	P_B	[kW]	165,67
Rated power input	D_B	[kW]	52,60
Declared EER	EER_B		3,15
Parameters at rating point C			
Rated refrigeration capacity	P_C	[kW]	153,83
Rated power input	D_C	[kW]	40,90
Declared EER	EER_C		3,76
Parameters at rating point D			
Rated refrigeration capacity	P_D	[kW]	142,00
Rated power input	D_D	[kW]	38,70
Declared EER	EER_D		3,67
Other items			
Capacity control	fixed/staged/variable		Variable
Degradation coefficient for chillers	C_C		0,9

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FX-W-Y /H /1752 -			
Type of condensing	Air cooled / Water cooled		
Refrigerant fluid(s)	Information to identify the refrigerant fluid(s) intended to be used with the condensing unit		-
Type	compressor driven vapour compression or sorption process		Compressor driven vapour compression
Operating temperature	t	[°C]	-8
Seasonal energy performance ratio	SEPR		3,64
Annual electricity consumption	Q	[kWh]	400242
Parameters at full load and reference ambient temperature at rating point A			
Rated refrigeration capacity	P_A	[kW]	196,46
Rated power input	D_A	[kW]	75,90
Nominal EER	EER_A		2,59
Parameters at rating point B			
Rated refrigeration capacity	P_B	[kW]	183,40
Rated power input	D_B	[kW]	58,60
Declared EER	EER_B		3,13
Parameters at rating point C			
Rated refrigeration capacity	P_C	[kW]	170,30
Rated power input	D_C	[kW]	44,60
Declared EER	EER_C		3,81
Parameters at rating point D			
Rated refrigeration capacity	P_D	[kW]	157,20
Rated power input	D_D	[kW]	42,20
Declared EER	EER_D		3,72
Other items			
Capacity control	fixed/staged/variable		Variable
Degradation coefficient for chillers	C_C		0,9

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ENGLISH	ITALIANO	FRANCAISE	DEUTSCH	ESPANOL
Type of condensing	Tipo di condensazione	Type de condensation	Art der Verflüssigung	Tipo de condensación
Refrigerant fluid(s)	Fluido(i) refrigerante(i)	Fluide(s) frigorigène(s)	Kältemittel	Fluido o fluidos refrigerantes
Type	Tipo	Type	Bauart	Tipo
Operating temperature	Temperatura di esercizio	Température de service	Betriebstemperatur	Temperatura de funcionamiento
Seasonal energy performance ratio	Indice di prestazione energetica stagionale	Ratio de performance énergétique saisonnier	Jahresarbeitszahl	Factor de rendimiento energético estacional
Annual electricity consumption	Consumo annuo di energia elettrica	Consommation annuelle d'électricité	Jahresstromverbrauch	Consumo anual de electricidad
Parameters at full load and reference ambient temperature at rating point A	**Parametri a pieno carico e alla temperatura ambiente al punto di valutazione A**	**Paramètres à pleine charge et à la température ambiante de référence au point d'évaluation A**	**Parameter bei Volllast und Bezugsumgebungstemperatur am Bewertungspunkt A**	**Parámetros a plena carga y a temperatura ambiente de referencia en el punto de clasificación A**
Rated refrigeration capacity	Capacità dichiarata di refrigerazione	Puissance de réfrigération nominale	Nennkälteleistung	Potencia nominal de refrigeración
Rated power input	Potenza nominale assorbita	Puissance absorbée nominale	Nennleistungsaufnahme	Potencia utilizada nominal
Nominal EER	EER nominale	Coefficient d'efficacité énergétique nominal	Nennleistungszahl	Factor de eficiencia energética nominal
Parameters at rating point B	**Parametri al punto di valutazione B**	**Paramètres au point d'évaluation B**	**Parameter am Bewertungspunkt B**	**Parámetros en el punto de clasificación B**
Rated refrigeration capacity	Capacità dichiarata di refrigerazione	Puissance de réfrigération nominale	Nennkälteleistung	Potencia nominal de refrigeración
Rated power input	Potenza nominale assorbita	Puissance absorbée nominale	Nennleistungsaufnahme	Potencia utilizada nominal
Declared EER	EER dichiarato	Coefficient d'efficacité énergétique declaré	Nennleistungszahl	Factor de eficiencia energética nominal
Parameters at rating point C	**Parametri al punto di valutazione C**	**Paramètres au point d'évaluation C**	**Parameter am Bewertungspunkt C**	**Parámetros en el punto de clasificación C**
Rated refrigeration capacity	Capacità dichiarata di refrigerazione	Puissance de réfrigération nominale	Nennkälteleistung	Potencia nominal de refrigeración
Rated power input	Potenza nominale assorbita	Puissance absorbée nominale	Nennleistungsaufnahme	Potencia utilizada nominal
Declared EER	EER dichiarato	Coefficient d'efficacité énergétique declaré	Nennleistungszahl	Factor de eficiencia energética nominal
Parameters at rating point D	**Parametri al punto di valutazione D**	**Paramètres au point d'évaluation D**	**Parameter am Bewertungspunkt D**	**Parámetros en el punto de clasificación D**
Rated refrigeration capacity	Capacità dichiarata di refrigerazione	Puissance de réfrigération nominale	Nennkälteleistung	Potencia nominal de refrigeración
Rated power input	Potenza nominale assorbita	Puissance absorbée nominale	Nennleistungsaufnahme	Potencia utilizada nominal
Declared EER	EER dichiarato	Coefficient d'efficacité énergétique declaré	Nennleistungszahl	Factor de eficiencia energética nominal
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
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**
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 for a greener tomorrow

Eco Changes is the Mitsubishi Electric Group's environmental statement, and expresses the Group's stance on environmental management. Through a wide range of businesses, we are helping contribute to the realization of a sustainable society.

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