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

COMFORT

CHILLERS

HEAT PUMPS

FX-W
FX-W/H

WATER SOURCE CHILLERS AND HEAT PUMPS WITH SCREW COMPRESSORS, FROM 124 kW TO 399 kW

R513A

R134a

climaveneta.com

CLIMAVENETA®

FX-W
FX-W/H

THE CHILLER AND HEAT PUMP RANGE FOR LONG-TERM SUCCESS

Water source chillers and heat pumps reversible on hydraulic side with screw compressors. From 124 kW to 399 kW.

EUROVENT CERTIFIED PERFORMANCE www.eurovent-certification.com

FX-W and FX-W/H are water source chiller and heat pump ranges attentively designed for providing premium efficiency levels and a reduced footprint.
Brilliantly engineered with selected components and a compact design, FX-W and FX-W/H units can be easily installed in indoor environments with narrow spaces, both for new plants and pre-existing ones.
Both the chiller and heat pump ranges are available in the G05 version featuring the R513A refrigerant, the low GWP units aimed at reducing the new global warming impact while ensuring premium level cooling performances.

COMFORT APPLICATIONS

- Commercial premises
- Office buildings
- Hotels and resorts
- Healthcare facilities
- Retail and department stores
- Sports and leisure installations

PREMIUM EFFICIENCIES IN HEATING AND COOLING

COOLING				HEATING			
FX-W		FX-W-G05		FX-W/H		FX-W-G05/H	
EER	SEER	EER	SEER	COP	SCOP	COP	SCOP
4,86	5,54	4,68	5,50	4,28	5,63	4,15	5,59

Average values (EN14511)
SEER: Regulation (EU) N. 2016/2281 / SCOP: Regulation (EU) N. 813/2013

ENERGY SAVING SOLUTIONS: HEAT RECOVERY SYSTEMS

HEAT RECOVERY

FX-W chillers will save money not only when the unit is producing cooling. It also offers the opportunity to recover heat when there is a simultaneous need for chilled and hot water by redirecting this heat from the chiller to various heating applications:

- **Restaurants, hotels, resorts, hospitals, residential buildings:** hot water can be used for the kitchen, laundry and bathrooms.
- **Schools, sports facilities and Spas:** showers, washrooms and swimming pool heating.
- **Offices or residential buildings:** radiant floor heating and restrooms.

HEAT RECOVERY CONFIGURATIONS

-	**Standard unit**	Unit for the production of chilled water.	**Baseline**
D	**Partial heat recovery**	A desuperheater on the compressor discharge line recovers approximately 20% of the unit's capacity.	**60°C**
R	**Total heat recovery**	A devoted refrigerant water heat exchanger recovers all the condensation heat.	**53°C**

FX-W and FX-W/H are built around operational reliability, best interior comfort, and quick-and-easy installation

PERFECT INDOOR COMFORT

FX-W and FX-W/H are designed to provide ottimal well-being indoors. For those projects where acoustical comfort plays a central role, an optional compressor enclosure cuts noise emissions by 5 dB(A).

An advanced control system keeps internal comfort constant, according to occupancy needs and variations.

ErP COMPLIANT

Engineered with selected components and careful design, all FX-W and FX-W /H units are compliant with the latest ErP efficiency targets.

REDUCED OPERATING COSTS

The latest technology for the compressors and top quality heat exchangers provide outstanding long-term reliability aimed at lowering maintenance costs.

COMPACT AND FLEXIBLE DESIGN

The compact structure results from a rationalized design and assembly of the components, ensuring high flexibility during the installation phase, both in case of new plants and existing ones.

G05 NEW GENERATION GREEN REFRIGERANT SERIES

New regulations like the EU F-gas and the Kigali Amendment to the Montreal Protocol, are driving the industry towards new eco-friendly refrigerants, with reduced greenhouse effect. Unfortunately, the majority of low GWP refrigerants raises another critical issue: flammability.

The new refrigerant R513A, chosen for FX-W-G05 and FX-W-G05/H, is a brilliant exception: it offers a -56% GWP reduction compared to R134a's while ensuring complete non-toxicity and non-flammability (Class A1 of ASHRAE 34, ISO 817).

R513A

-56% GWP
Vs R134a

Non-flammable
Safety Class A1

Reduced GWP

R513A $GWP_{100years}$=572
(R134a $GWP_{100years}$=1300)
GWP values according to IPGC AR5

Non-toxit, non-flammable

ASHRAE 34, ISO 817:A1 class

Favorable physical properties

Same cooling capacity delivered as R134a
Same operating pressures as R134a

In line with standard building codes

No special equipment
No need for flammable risk assessment
No extra costs

Compliant with eco regulation objectives

No future retrofit required
Reduced price volatility

TECHNOLOGICAL CHOICES

Dual circuit units

From 250 kW cooling capacity for increased reliability and easier maintenance operations.

Shell-and-tube condenser

- **2 (std) or 4 (opt.) passes condenser:** to provide the best flexibility for various types of cooling water sources
- **Cu/Ni 90/10 tubes condenser (opt.) for seawater:** to provide protection against corrosion and guarantee reliable operation and optimal condensation

PRECISE CONDENSATION CONTROL

FX-W and FX-W/H provide several solutions for managing the condenser water system.

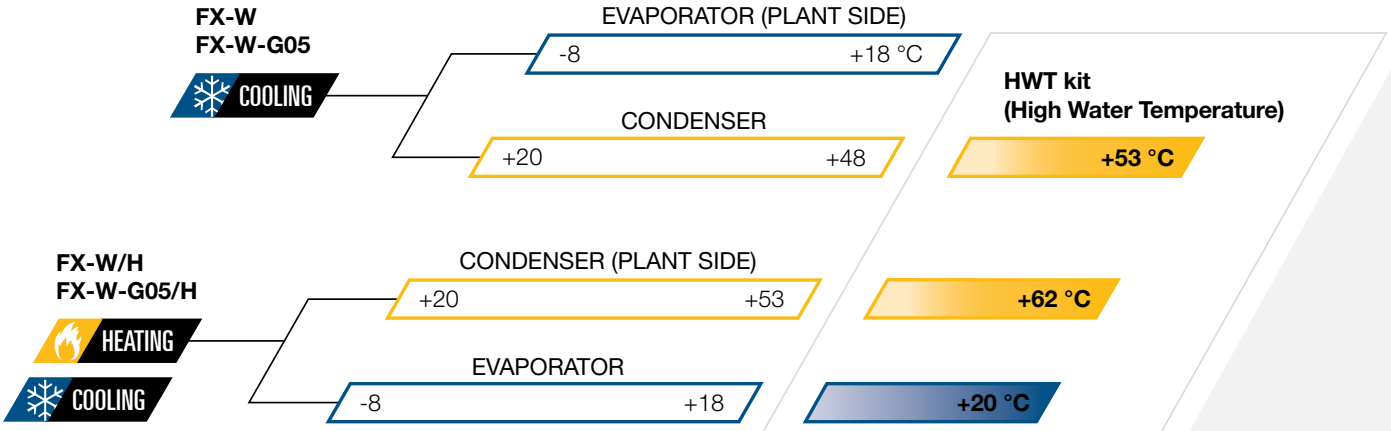
A 0-10V signal is provided as standard to control an external modulating valve or the dry-cooler EC fans. Additionally, 2-way modulating valves can be offered as an accessory to control the condenser water flow

Frame in polyester-painted galvanized steel

- Very easy maintenance thanks to the rationalized positioning of components
- Easy transport, lifting and handling
- Compact footprint (width < 950mm for single circuit units)

ONE UNIT FOR MANY APPLICATIONS

Dedicated heat exchangers and wide operating limits make FX-W and FX-W /H ranges suitable for a vast range of applications.



Trusted reliability, simplified installation, maximized performance: FX-W and FX-W/H have been designed to perfectly fit comfort applications needs.

Compressors enclosure (opt.)

Peraluman panels with 30mm polyester acoustic insulation (-5 dB(A)).

Compact screw compressors, optimized for low pressure ratio applications

- 25% minimum capacity step (opt. for two circuit units)
- Long-life bearings (more than 150.000h at full load)
- Part winding start
- Three-stage oil separator

VPF control logic

VPF VARIABLE PRIMARY FLOW

The VPF control series (Variable Primary Flow system) adjusts the pump speed on the basis of the plant's thermal load and dynamically optimizes the unit's thermoregulation for variable flow operation. This system ensures both the highest pump energy savings and stable chiller operation.

VPF: constant ΔP on the plant side
For systems with the primary circuit only.

VPF.D: constant ΔT on the plant side
For systems with primary and secondary circuits separated by a hydraulic decoupler.

Electronic expansion valve

Managed by dedicated proprietary logics, to guarantee an excellent flow control and a highly precise temperature control.

Dry expansion shell-and-tube evaporator fully developed by Mitsubishi Electric Hydronics & IT Cooling Systems

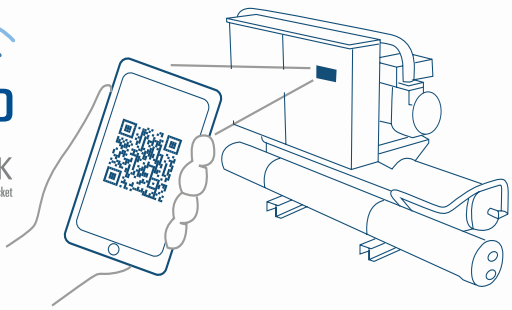
- Internally grooved copper tubes for enhanced heat exchange
- Low pressure drops
- Fully protected against ice formation

W3000TE CONTROL AND USER-FRIENDLY INTERFACE

The logic behind FX-W and FX-W/H is the W3000TE control software. Characterized by advanced functions and algorithms, **W3000TE proprietary settings** ensure faster adaptive responses to different dynamics, in all operating conditions:

- ✓ Efficient and reliable operation in all conditions
- ✓ Connectivity with the most commonly used BMS protocols (Opt.)
- ✓ Demand limit option (available for double circuit units).

KIP LINK
Keyboard In your Pocket



As an option, the direct control over the unit comes through the innovative **KIPlink interface**. Based on Wi-Fi technology, KIPlink gets rid of the standard keyboard and **allows one to operate on the unit directly from a mobile device** (smartphone, tablet, notebook).

Easier on-site operation

Real-time graphs and trends

Data logger function

FX-W 0551-1752

Water cooled chiller for indoor installation, from 124 kW to 399 kW.

COOLING | SHELL&T. | VPF | EEV | SCREW | R134a

FX-W			0551	0651	0751	0851	0951	1102	1302	1402	1502	1602	1752
Power supply		V/ph/Hz	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50
PERFORMANCE													
COOLING ONLY (GROSS VALUE)													
Cooling capacity	(1)	kW	124,3	140,5	166,3	198,2	221,7	252,4	285,1	311,9	345,2	366,2	400,6
Total power input	(1)	kW	24,47	27,27	34,14	38,89	44,24	48,99	54,57	61,46	68,38	72,99	83,17
EER	(1)	kW/kW	5,073	5,147	4,877	5,095	5,016	5,151	5,222	5,072	5,047	5,016	4,815
ESEER	(1)	kW/kW	5,980	6,020	5,950	6,010	5,940	6,340	6,310	6,300	6,190	6,120	6,090
COOLING ONLY (EN14511 VALUE)													
Cooling capacity	(1)(2)	kW	123,9	140,1	165,8	197,5	220,8	251,4	284,1	310,7	344,2	365,1	399,2
EER	(1)(2)	kW/kW	4,900	4,970	4,700	4,900	4,820	4,960	5,030	4,880	4,880	4,860	4,660
ESEER	(1)(2)	kW/kW	5,530	5,570	5,480	5,510	5,440	5,750	5,750	5,700	5,690	5,630	5,590
Cooling energy class			B	B	B	B	B	B	B	B	B	B	B
ENERGY EFFICIENCY													
SEASONAL EFFICIENCY IN COOLING (Reg. UE 2281/ 2016)													
Ambient refrigeration													
Prated,c	(7)	kW	124	140	166	198	221	251	284	311	344	365	399
SEER	(7)(8)		5,38	5,43	5,38	5,46	5,37	5,67	5,70	5,65	5,70	5,63	5,59
Performance ηs	(7)(9)	%	207	209	207	211	207	219	220	218	220	217	215
EXCHANGERS													
HEAT EXCHANGER USER SIDE IN REFRIGERATION													
Water flow	(1)	l/s	5,944	6,719	7,954	9,479	10,60	12,07	13,63	14,91	16,51	17,51	19,16
Pressure drop	(1)	kPa	19,8	19,7	27,6	33,0	41,2	41,0	38,5	46,1	32,0	36,0	43,0
HEAT EXCHANGER SOURCE SIDE IN REFRIGERATION													
Water flow	(1)	l/s	7,087	7,993	9,546	11,29	12,67	14,36	16,18	17,79	19,70	20,92	23,03
Pressure drop	(1)	kPa	21,8	25,6	30,6	26,6	26,2	22,4	26,3	28,9	32,5	28,5	24,5
REFRIGERANT CIRCUIT													
Compressors nr.		N°	1	1	1	1	1	2	2	2	2	2	2
No. Circuits		N°	1	1	1	1	1	2	2	2	2	2	2
Refrigerant charge		kg	22,0	32,0	30,0	56,0	54,0	44,0	64,0	62,0	60,0	86,0	110
NOISE LEVEL													
Sound Pressure	(3)	dB(A)	75	75	76	76	76	78	77	78	78	78	78
Sound power level in cooling	(4)(5)	dB(A)	92	92	93	93	93	95	95	96	96	96	96
SIZE AND WEIGHT													
Length	(6)	mm	2400	2600	2700	3000	3000	3000	3100	3100	3200	3200	3200
Width	(6)	mm	920	920	950	960	960	1100	1100	1100	1100	1200	1200
Height	(6)	mm	1500	1500	1500	1500	1500	1500	1500	1500	1600	1600	1600
Operating weight	(6)	kg	1050	1110	1280	1450	1460	1710	1820	1990	2280	2430	2590

Notes:
1 Plant (side) cooling exchanger water (in/out) 12°C/7°C;
Source (side) heat exchanger water (in/out) 30°C/35°C.
2 Values in compliance with EN14511
3 Average sound pressure level at 1m distance, unit in a free field on a reflective surface; non-binding value calculated from the sound power level.
4 Sound power on the basis of measurements made in compliance with ISO 9614.
5 Sound power level in cooling, indoors.
6 Unit in standard configuration/execution, without optional accessories.
7 Parameter calculated according to [REGULATION (EU) N. 2016/2281]
8 Seasonal energy efficiency ratio
9 Seasonal space cooling energy efficiency

The units highlighted in this publication contain HFC R134a [GWP_{100} 1430] fluorinated greenhouse gases.

Certified data in EUROVENT

FX-W-G05 0551-1752

Water cooled chiller for indoor installation, from 124 kW to 399 kW.

COOLING · SHELL&T. · VPF · EEV · SCREW · R513A

FX-W-G05			0551	0651	0751	0851	0951	1102	1302	1402	1502	1602	1752
Power supply		V/ph/Hz	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50
PERFORMANCE													
COOLING ONLY (GROSS VALUE)													
Cooling capacity	(1)	kW	124,3	140,5	166,3	198,2	221,7	252,4	285,1	311,9	345,2	366,2	400,6
Total power input	(1)	kW	25,50	28,41	35,57	40,52	46,10	51,04	56,86	64,04	71,26	76,05	86,66
EER	(1)	kW/kW	4,875	4,947	4,671	4,894	4,809	4,949	5,011	4,873	4,842	4,812	4,621
ESEER	(1)	kW/kW	5,970	5,950	5,960	5,940	5,930	6,320	6,240	6,220	6,120	6,110	6,090
COOLING ONLY (EN14511 VALUE)													
Cooling capacity	(1)(2)	kW	123,9	140,1	165,8	197,5	220,8	251,4	284,1	310,7	344,2	365,1	399,2
EER	(1)(2)	kW/kW	4,710	4,780	4,500	4,720	4,630	4,770	4,840	4,690	4,690	4,660	4,480
ESEER	(1)(2)	kW/kW	5,530	5,510	5,480	5,460	5,440	5,730	5,670	5,630	5,600	5,630	5,580
Cooling energy class			B	B	C	B	C	B	B	B	B	B	C
ENERGY EFFICIENCY													
SEASONAL EFFICIENCY IN COOLING (Reg. EU 2016/2281)													
Ambient refrigeration													
Prated,c	(7)	kW	124	140	166	198	221	251	284	311	344	365	399
SEER	(7)(8)		5,37	5,37	5,36	5,40	5,35	5,64	5,62	5,58	5,61	5,61	5,57
Performance ηs	(7)(9)	%	207	207	206	208	206	218	217	215	216	217	215
EXCHANGERS													
HEAT EXCHANGER USER SIDE IN REFRIGERATION													
Water flow	(1)	l/s	5,944	6,719	7,954	9,479	10,60	12,07	13,63	14,91	16,51	17,51	19,16
Pressure drop	(1)	kPa	19,8	19,7	27,6	33,0	41,2	41,0	38,5	46,1	32,0	36,0	43,0
HEAT EXCHANGER SOURCE SIDE IN REFRIGERATION													
Water flow	(1)	l/s	7,133	8,045	9,611	11,37	12,75	14,45	16,29	17,90	19,83	21,06	23,19
Pressure drop	(1)	kPa	22,1	25,9	31,0	27,0	26,5	22,7	26,6	29,3	33,0	28,9	24,8
REFRIGERANT CIRCUIT													
Compressors nr.		N°	1	1	1	1	1	2	2	2	2	2	2
No. Circuits		N°	1	1	1	1	1	2	2	2	2	2	2
Refrigerant charge		kg	24,0	34,0	32,0	59,0	57,0	47,0	68,0	66,0	63,0	91,0	116
NOISE LEVEL													
Sound Pressure	(3)	dB(A)	75	75	76	76	76	78	77	78	78	78	78
Sound power level in cooling	(4)(5)	dB(A)	92	92	93	93	93	95	95	96	96	96	96
SIZE AND WEIGHT													
Length	(6)	mm	2400	2600	2700	3000	3000	3000	3100	3100	3200	3200	3200
Width	(6)	mm	920	920	950	960	960	1100	1100	1100	1100	1200	1200
Height	(6)	mm	1500	1500	1500	1500	1500	1500	1500	1500	1600	1600	1600
Operating weight	(6)	kg	1050	1110	1280	1450	1460	1710	1820	1990	2280	2430	2590

Notes:
1 Plant (side) cooling exchanger water (in/out) 12°C/7°C;
Source (side) heat exchanger water (in/out) 30°C/35°C.
2 Values in compliance with EN14511-3:2013.
3 Average sound pressure level at 1m distance, unit in a free field on a reflective surface; non-binding value calculated from the sound power level.
4 Sound power on the basis of measurements made in compliance with ISO 9614.
5 Sound power level in cooling, indoors.
6 Unit in standard configuration/execution, without optional accessories.
7 Parameter calculated according to [REGULATION (EU) N. 2016/2281]
8 Seasonal energy efficiency ratio
9 Seasonal space cooling energy efficiency
The units highlighted in this publication contain HFC R513A (XP10) [GWP_{100} 631] fluorinated greenhouse gases.

Certified data in EUROVENT

FX-W/H 0551-1752

Water to water heat pump, reversible on hydraulic side from 124 kW to 399 kW.

EEV · COOLING · SHELL&T. · VPF · HEATING · SCREW · R134a

FX-W/H			0551	0651	0751	0851	0951	1102	1302	1402	1502	1602	1752
Power supply		V/ph/Hz	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50
PERFORMANCE													
COOLING ONLY (GROSS VALUE)													
Cooling capacity	(1)	kW	124,3	140,5	166,3	198,2	221,7	252,4	285,1	311,9	345,2	366,2	400,6
Total power input	(1)	kW	24,47	27,27	34,14	38,89	44,24	48,99	54,57	61,46	68,38	72,99	83,17
EER	(1)	kW/kW	5,073	5,147	4,877	5,095	5,016	5,151	5,222	5,072	5,047	5,016	4,815
ESEER	(1)	kW/kW											
COOLING ONLY (EN14511 VALUE)													
Cooling capacity	(1)(2)	kW	123,9	140,1	165,8	197,5	220,8	251,4	284,1	310,7	344,2	365,1	399,2
EER	(1)(2)	kW/kW	4,900	4,970	4,690	4,900	4,820	4,960	5,030	4,880	4,880	4,850	4,660
ESEER	(1)(2)	kW/kW	-	-	-	-	-	-	-	-	-	-	-
Cooling energy class			B	B	B	B	B	B	B	B	B	B	B
HEATING ONLY (GROSS VALUE)													
Total heating capacity	(3)	kW	141,1	160,4	189,9	223,6	251,3	285,4	324,2	354,5	390,4	414,9	456,0
Total power input	(3)	kW	31,90	35,66	43,29	49,25	56,10	63,84	71,36	79,03	86,75	92,48	105,3
COP		kW/kW	4,423	4,493	4,386	4,535	4,480	4,473	4,541	4,487	4,498	4,485	4,330
HEATING ONLY (EN14511 VALUE)													
Total heating capacity	(3)(2)	kW	141,5	160,9	190,5	224,2	252,0	286,1	325,0	355,4	391,4	415,9	456,9
COP	(3)(2)	kW/kW	4,270	4,340	4,210	4,340	4,270	4,270	4,340	4,270	4,320	4,300	4,170
Cooling energy class			B	B	B	B	B	B	B	B	B	B	B
ENERGY EFFICIENCY													
SEASONAL EFFICIENCY IN COOLING (Reg. EU 2016/2281)													
Ambient refrigeration													
Prated,c	(10)	kW	-	-	-	-	-	-	-	311	344	365	399
SEER	(10)(11)		-	-	-	-	-	-	-	5,65	5,70	5,63	5,59
Performance ηs	(10)(12)	%	-	-	-	-	-	-	-	218	220	217	215
SEASONAL EFFICIENCY IN HEATING (Reg. EU 813/2013)													
PDesign	(4)	kW	168	189	226	267	297	339	382	-	-	-	-
SCOP	(4)(13)		5,73	5,73	5,58	5,54	5,47	5,67	5,69	-	-	-	-
Performance ηs	(4)(14)	%	221	221	215	214	211	219	220	-	-	-	-
Seasonal efficiency class	(4)		-	-	-	-	-	-	-	-	-	-	-
EXCHANGERS													
HEAT EXCHANGER USER SIDE IN REFRIGERATION													
Water flow	(1)	l/s	5,944	6,719	7,954	9,478	10,60	12,07	13,63	14,91	16,51	17,51	19,16
Pressure drop	(1)	kPa	19,8	19,7	27,6	32,9	41,2	41,0	38,5	46,1	32,0	36,0	43,0
HEAT EXCHANGER USER SIDE IN HEATING													
Water flow	(3)	l/s	8,853	10,11	11,89	14,13	15,82	17,96	20,49	22,22	24,61	26,14	26,94
Pressure drop	(3)	kPa	44,0	44,6	61,7	73,2	91,8	90,7	87,1	102	71,0	80,1	85,1
HEAT EXCHANGER SOURCE SIDE IN REFRIGERATION													
Water flow	(1)	l/s	7,087	7,993	9,546	11,29	12,67	14,36	16,18	17,79	19,70	20,92	23,03
Pressure drop	(1)	kPa	21,8	25,6	30,6	26,6	26,2	22,4	26,3	28,9	32,5	28,5	24,5
HEAT EXCHANGER SOURCE SIDE IN HEATING													
Water flow	(3)	l/s	6,811	7,740	9,167	10,79	12,13	13,78	15,65	17,11	18,84	20,03	22,01
Pressure drop	(3)	kPa	20,1	24,0	28,2	24,3	24,0	20,6	24,6	26,7	29,8	26,2	22,4
REFRIGERANT CIRCUIT													
Compressors nr.		N°	1	1	1	1	1	2	2	2	2	2	2
No. Circuits		N°	1	1	1	1	1	2	2	2	2	2	2
Refrigerant charge		kg	22,0	32,0	30,0	56,0	54,0	44,0	64,0	62,0	60,0	86,0	110
NOISE LEVEL													
Sound Pressure	(5)	dB(A)	75	75	76	76	76	78	77	78	78	78	78
Sound power level in cooling	(4)(5)	dB(A)	92	92	93	93	93	95	95	96	96	96	96
Sound power level in heating	(6)(8)	dB(A)	92	92	93	93	93	95	95	96	96	96	96
SIZE AND WEIGHT													
Length	(9)	mm	2400	2600	2700	3000	3000	3000	3100	3100	3200	3200	3200
Width	(9)	mm	920	920	950	960	960	1100	1100	1100	1100	1200	1200
Height	(9)	mm	1500	1500	1500	1500	1500	1500	1500	1500	1600	1600	1600
Operating weight	(9)	kg	1050	1110	1280	1450	1460	1710	1820	1990	2280	2430	2590

Notes:

1 Plant (side) cooling exchanger water (in/out) 12°C/7°C; Source (side) heat exchanger water (in/out) 30°C/35°C.
2 Values in compliance with EN14511
3 Plant (side) heating exchanger water (in/out) 40°C/45°C; Source (side) heat exchanger water (in/out) 10°C/7°C
4 Parameter calculated for LOW-TEMPERATURE application in AVERAGE climate conditions according to [REGULATION (EU) N. 813/2013]
5 Average sound pressure level at 1m distance, unit in a free field on a reflective surface; non-binding value calculated from the sound power level.
6 Sound power on the basis of measurements made in compliance with ISO 9614.
7 Sound power level in cooling, indoors.
8 Sound power level in heating, indoors.
9 Unit in standard configuration/execution, without optional accessories.
10 Parameter calculated according to [REGULATION (EU) N. 2016/2281]
11 Seasonal energy efficiency ratio
12 Seasonal space cooling energy efficiency
13 Seasonal coefficient of performance
14 Seasonal space heating energy efficiency

The units highlighted in this publication contain R134a [GWP_{100} 1430] fluorinated greenhouse gases.

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FX-W-G05/H 0551-1752

Water to water heat pump, reversible on hydraulic side from 124 kW to 399 kW.

EEV · COOLING · SHELL&T. · VPF · HEATING · SCREW · R513A

FX-W-G05/H			0551	0651	0751	0851	0951	1102	1302	1402	1502	1602	1752
Power supply		V/ph/Hz	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50
PERFORMANCE													
COOLING ONLY (GROSS VALUE)													
Cooling capacity	(1)	kW	124,3	140,5	166,3	198,2	221,7	252,4	285,1	311,9	345,2	366,2	400,6
Total power input	(1)	kW	25,50	28,41	35,57	40,52	46,10	51,04	56,86	64,04	71,26	76,05	86,66
EER	(1)	kW/kW	4,875	4,947	4,671	4,894	4,809	4,949	5,011	4,873	4,842	4,812	4,621
ESEER	(1)	kW/kW											
COOLING ONLY (EN14511 VALUE)													
Cooling capacity	(1)(2)	kW	123,9	140,1	165,8	197,5	220,8	251,4	284,1	310,7	344,2	365,1	399,2
EER	(1)(2)	kW/kW	4,710	4,780	4,500	4,720	4,630	4,770	4,840	4,690	4,690	4,660	4,480
ESEER	(1)(2)	kW/kW	-	-	-	-	-	-	-	-	-	-	-
Cooling energy class			B	B	C	B	C	B	B	B	B	B	C
HEATING ONLY (GROSS VALUE)													
Total heating capacity	(3)	kW	142,4	161,8	191,6	225,6	253,5	287,9	327,0	357,6	393,8	418,6	460,2
Total power input	(3)	kW	33,24	37,16	45,11	51,32	58,46	66,52	74,35	82,35	90,39	96,36	109,7
COP		kW/kW	4,289	4,349	4,248	4,398	4,333	4,329	4,395	4,340	4,356	4,342	4,195
HEATING ONLY (EN14511 VALUE)													
Total heating capacity	(3)(2)	kW	142,8	162,3	192,2	226,2	254,2	288,6	327,8	358,5	394,9	419,6	461,1
COP	(3)(2)	kW/kW	4,150	4,210	4,090	4,220	4,130	4,140	4,200	4,130	4,190	4,170	4,040
Cooling energy class			B	B	C	B	C	C	B	C	B	B	C
ENERGY EFFICIENCY													
SEASONAL EFFICIENCY IN COOLING (Reg. EU 2016/2281)													
Ambient refrigeration													
Prated,c	(10)	kW	-	-	-	-	-	-	-	311	344	365	399
SEER	(10)(11)		-	-	-	-	-	-	-	5,58	5,61	5,61	5,57
Performance ηs	(10)(12)	%	-	-	-	-	-	-	-	215	216	217	215
SEASONAL EFFICIENCY IN HEATING (Reg. EU 813/2013)													
PDesign	(4)	kW	169	190	227	269	299	341	384	-	-	-	-
SCOP	(4)(13)		5,70	5,67	5,56	5,49	5,43	5,63	5,62	-	-	-	-
Performance ηs	(4)(14)	%	220	219	215	212	209	217	217	-	-	-	-
Seasonal efficiency class	(4)		-	-	-	-	-	-	-	-	-	-	-
EXCHANGERS													
HEAT EXCHANGER USER SIDE IN REFRIGERATION													
Water flow	(1)	l/s	5,944	6,719	7,954	9,478	10,60	12,07	13,63	14,91	16,51	17,51	19,16
Pressure drop	(1)	kPa	19,8	19,7	27,6	32,9	41,2	41,0	38,5	46,1	32,0	36,0	43,0
HEAT EXCHANGER USER SIDE IN HEATING													
Water flow	(3)	l/s	8,853	10,11	11,89	14,13	15,82	17,96	20,49	22,22	24,61	26,14	26,94
Pressure drop	(3)	kPa	44,0	44,6	61,7	73,2	91,8	90,7	87,1	102	71,0	80,1	85,1
HEAT EXCHANGER SOURCE SIDE IN REFRIGERATION													
Water flow	(1)	l/s	7,133	8,045	9,611	11,37	12,75	14,45	16,29	17,90	19,83	21,06	23,19
Pressure drop	(1)	kPa	22,1	25,9	31,0	27,0	26,5	22,7	26,6	29,3	33,0	28,9	24,8
HEAT EXCHANGER SOURCE SIDE IN HEATING													
Water flow	(3)	l/s	6,871	7,808	9,249	10,89	12,24	13,90	15,79	17,26	19,01	20,21	22,21
Pressure drop	(3)	kPa	20,5	24,4	28,7	24,7	24,5	21,0	25,0	27,2	30,3	26,6	22,8
REFRIGERANT CIRCUIT													
Compressors nr.		N°	1	1	1	1	1	2	2	2	2	2	2
No. Circuits		N°	1	1	1	1	1	2	2	2	2	2	2
Refrigerant charge		kg	23,1	33,6	31,5	58,8	56,7	46,2	67,2	65,1	63,0	90,3	116
NOISE LEVEL													
Sound Pressure	(5)	dB(A)	75	75	76	76	76	78	77	78	78	78	78
Sound power level in cooling	(4)(5)	dB(A)	92	92	93	93	93	95	95	96	96	96	96
Sound power level in heating	(6)(8)	dB(A)	92	92	93	93	93	95	95	96	96	96	96
SIZE AND WEIGHT													
Length	(9)	mm	2400	2600	2700	3000	3000	3000	3100	3100	3200	3200	3200
Width	(9)	mm	920	920	950	960	960	1100	1100	1100	1100	1200	1200
Height	(9)	mm	1500	1500	1500	1500	1500	1500	1500	1500	1600	1600	1600
Operating weight	(9)	kg	1050	1110	1280	1450	1460	1710	1820	1990	2280	2430	2590

Notes:

1 Plant (side) cooling exchanger water (in/out) 12°C/7°C; Source (side) heat exchanger water (in/out) 30°C/35°C.
2 Values in compliance with EN14511
3 Plant (side) heating exchanger water (in/out) 40°C/45°C; Source (side) heat exchanger water (in/out) 10°C/7°C
4 Parameter calculated for LOW-TEMPERATURE application in AVERAGE climate conditions according to [REGULATION (EU) N. 813/2013]
5 Average sound pressure level at 1m distance, unit in a free field on a reflective surface; non-binding value calculated from the sound power level.
6 Sound power on the basis of measurements made in compliance with ISO 9614.
7 Sound power level in cooling, indoors.
8 Sound power level in heating, indoors.
9 Unit in standard configuration/execution, without optional accessories.
10 Parameter calculated according to [REGULATION (EU) N. 2016/2281]
11 Seasonal energy efficiency ratio
12 Seasonal space cooling energy efficiency
13 Seasonal coefficient of performance
14 Seasonal space heating energy efficiency

The units highlighted in this publication contain R513A [GWP_{100} 631] fluorinated greenhouse gases.

Certified data in EUROVENT

All the flexibility you need to statisfy the most diverse application requirements

FURTHER OPTIONS

Electrical

Numbered wiring: Electrical board wires are identified by numbered labels also indicated in the unit's wiring scheme to facilitate maintenance of the electrical board connections.
Compressor rephasing: Capacitors installed on the compressors' power inlet line to increase the unit's average cos(phi).
Automatic circuit breakers: Over-current switches provided in place of standard fuses to protect the compressor from possible current peaks.
Soft-starter: Electronic device to manage the inrush current of the compressor.

Heat exchangers

Double insulation on the evaporator: 19 mm thick insulation layer on the evaporator.
4 Passes condenser: Source side heat exchanger compatible with water with high delta temperature.
Cu/Ni 90/10 water condenser: Source side heat exchanger with pipes made of copper nickel alloy for seawater applications.

Auxiliary input

Auxiliary signal 4-20 mA (Opt. 6161): Analog input signal that enables the main setpoint variation according to the value of current applied.
Remote signal double set-point: Analog input signal that allows to change the operating set-point switching only among 2 fixed set-points.
Remote Demand Limit: Voltage free digital input to temporarily limit the units' power consumption.

Refrigerant leak detector

Leak detector: Factory installed device. In case of a gas leak detection it raises an alarm.
Leak detector+migration: Factory installed device. In case of a gas leak detection, it raises an alarm and stores the remaining refrigerant inside the condenser.

Structure

Compressor acoustical enclosure: Soundproofing enclosure for compressor(s) section made of hot galvanised metal sheets and acoustic insulation.
Rubber type antivibration mountings: Reduce vibrations, keeping noise to a minimum.

Connectivity

M-Net interface kit: Interface module to allow the integration of the unit with Mitsubishi Electric proprietary communication protocol M-Net.

“BY FAR THE BEST PROOF IS EXPERIENCE”

Sir Francis Bacon
British philosopher
(1561 - 1626)

Every project is characterised by different needs and system specifications for various climates. All these projects share high energy efficiency, maximum integration, and total reliability resulting from the Climaveneta brand experience.

Acuario Club Hotel
2017 Havana - Cuba

Hotel and resorts

Cooling capacity: 651 kW
Installed machines:
3x FOCS-W

Generali Headquarters
2018 Milan - Italy

Office Buildings

Cooling capacity: 2513 kW
Heating capacity: 1806 kW
Installed machines: 2x FX-WQ/S 3202, 2x FOCS2-W/CA-E 2622

Bangladesh Betar Radio
2019 Dhaka - Bangladesh

Office

Cooling capacity: 665 kW
Installed machines:
1x i-FX-W (1+i)/CA 1752

Ajaccio Hospital
2016 - 2018 Corsica - France

Healthcare / Hospitals

Cooling capacity: 4000 kW
Air flow: 72000 m³/h
Installed machines:
4x i-FX-W (1+i) 3402, 640 fan coils, 83xWizard, 16x ACU, ClimaPRO

Portonovi
2017 - 2019 Novi - Montenegro

Residential buildings

Cooling capacity: 9312 kW
Heating capacity: 11084 kW
Installed machines:
4x FX-WQ/S 3202, 3x FOCS2-W/H/CA-E/S 6804, ClimaPRO

Boxer
2017 Harrismith - South Africa

Supermarket

Cooling capacity: 298kW
Installed machines:
FOCS-W

CV_FX-W / FX-W-H_07-19_ENG

CLIMAVENETA®

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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