

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



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.



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
- ✓ Hotels and resorts
- ✓ Retail and department stores
- ✓ Office buildings
- ✓ Healthcare facilities
- ✓ 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



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 optimal 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).



-56% GWP
Vs R134a

Reduced GWP

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

Non-toxic, non-flammable

ASHRAE 34, ISO 817:A1 class



Non-flammable
Safety Class A1

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

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)

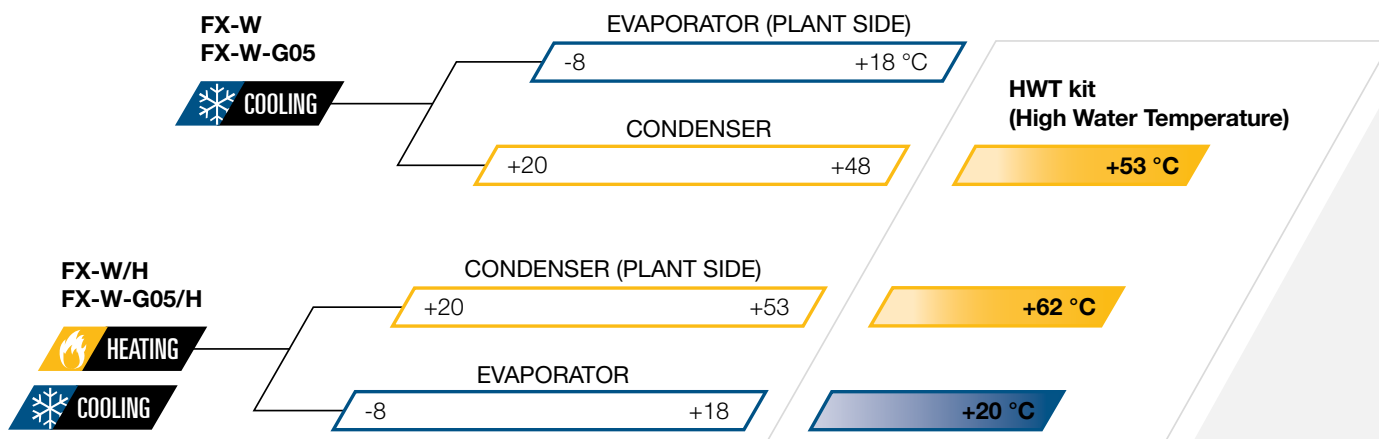
Dual circuit units

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



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



Electronic expansion valve

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

VPF control logic



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.

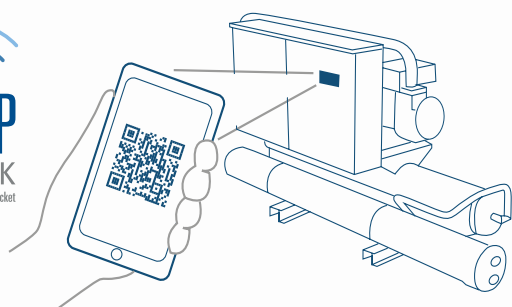
Dry expansion shell-and-tube evaporator fully developed by Mitsubishi Electric Hydronics & IT Cooling Systems

- ▶ 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).



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

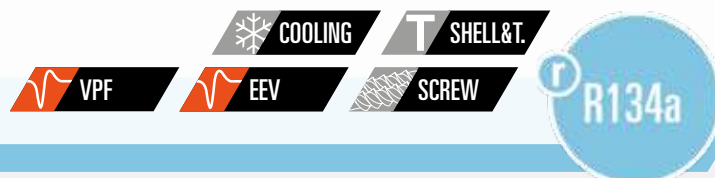
Real-time graphs and trends

Data logger function



FX-W 0551-1752

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



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:

- Plant (side) cooling exchanger water (in/out) 12°C/7°C;
Source (side) heat exchanger water (in/out) 30°C/35°C.
- Values in compliance with EN14511
- 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.
- Sound power on the basis of measurements made in compliance with ISO 9614.
- 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

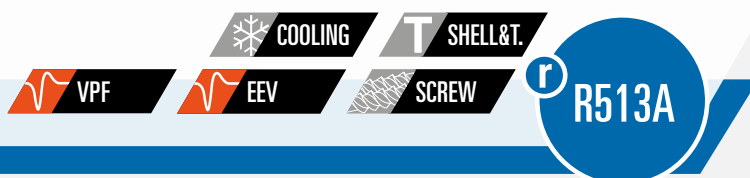
The units highlighted in this publication contain HFC R134a [GWP₁₀₀ 1430] fluorinated greenhouse gases.

Certified data in EUROVENT



FX-W-G05 0551-1752

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



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:

- Plant (side) cooling exchanger water (in/out) 12°C/7°C;
Source (side) heat exchanger water (in/out) 30°C/35°C.
- Values in compliance with EN14511-3:2013.
- 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.
- Sound power on the basis of measurements made in compliance with ISO 9614.
- 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) [GWP₁₀₀ 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.



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:

- Plant (side) cooling exchanger water (in/out) 12°C/7°C; Source (side) heat exchanger water (in/out) 30°C/35°C.
- Values in compliance with EN14511
- Plant (side) heating exchanger water (in/out) 40°C/45°C; Source (side) heat exchanger water (in/out) 10°C/7°C
- Parameter calculated for LOW-TEMPERATURE application in AVERAGE climate conditions according to [REGULATION (EU) N. 813/2013]
- 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.
- 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 [GWP₁₀₀ 1430] fluorinated greenhouse gases.

Certified data in EUROVENT



FX-W-G05/H 0551-1752

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



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:

- Plant (side) cooling exchanger water (in/out) 12°C/7°C; Source (side) heat exchanger water (in/out) 30°C/35°C.
- Values in compliance with EN14511
- Plant (side) heating exchanger water (in/out) 40°C/45°C; Source (side) heat exchanger water (in/out) 10°C/7°C
- Parameter calculated for LOW-TEMPERATURE application in AVERAGE climate conditions according to [REGULATION (EU) N. 813/2013]
- 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.
- Sound power on the basis of measurements made in compliance with ISO 9614.

- Sound power level in cooling, indoors.
 - Sound power level in heating, indoors.
 - Unit in standard configuration/execution, without optional accessories.
 - Parameter calculated according to [REGULATION (EU) N. 2016/2281]
 - Seasonal energy efficiency ratio
 - Seasonal space cooling energy efficiency
 - Seasonal coefficient of performance
 - Seasonal space heating energy efficiency
- The units highlighted in this publication contain R513A [GWP₁₀₀ 631] fluorinated greenhouse gases.**
- Certified data in EUROVENT**



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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