

Chiller, air source for outdoor installation
235-1463 kW



Outdoor unit for the production of chilled water with semi-hermetic screw compressors optimized for HFO refrigerant R1234ze, axial-flow fans, micro-channel full-aluminum condensing coils, single-pass shell and tubes evaporator designed by Mitsubishi Electric Hydronics & IT Cooling Systems S.p.A. and electronic expansion valve.

Base and supporting structure and panels are of galvanized epoxy powder coated steel with increased thickness. Eurovent certification.

Flexible and reliable unit; it easily adapts itself to different thermal load conditions thanks to the precise thermoregulation and the accurate sizing of all internal components. The compressors feature an enhanced lubrication system, an innovative internal geometry and a different control of capacity steps. Innovations that grant a remarkable performance improvement especially at partial loads.

Version

A	High efficiency
SL-A	Super low noise, high efficiency

Configurations

-	Basic function
D	Partial condensing heat recovery function

Features

HFO REFRIGERANT

4th generation refrigerant HFO 1234ze, with negligible greenhouse effect in comparison with traditional HFC refrigerants (Global Warming Potential GWP of HFO 1234ze < 1, GWP of R134a = 1300 as per IPCC rev. 5th) and zero impact on the ozone layer.

HIGH EFFICIENCY

Very high efficiency at full and partial load, at the highest market levels, thanks to the adopted technological solutions. These units ensure low operating costs and therefore a quick payback time.

EXTREMELY SILENT OPERATION

As the result of a systematic design oriented to minimize the noise level, the silenced version units give the best combination of quietness and efficiency on the market.

FLEXIBILITY

Flexibility in the applications thanks to the many configurations and versions available.

WIDE OPERATING RANGE

The accurate condensation control (variable fan speed regulation as per standard on every model) and devoted kits allow unit's operation from -10°C (-15°C with accessories) to 48°C (52°C with accessories) of outdoor air temperature and from -2°C to 18°C (20°C with accessories) of evaporator leaving water temperature.

ALUMINIUM MICRO-CHANNEL HEAT EXCHANGERS

The full aluminium micro-channel condenser coils deliver high efficiency whilst ensuring a reduced refrigerant volume and a lower unit weight. The e-coating protection (optional) grants the highest level of resistance to corrosion in any condition, even in the most aggressive environments.

INTEGRATED HYDRONIC GROUP

The built-in hydronic group (optional) includes the main water circuit components. The 2 pumps are in twin configuration and available with 2 or 4-pole motor, fixed or variable speed, high or low head to satisfy all the different industrial and comfort application requirements.

Accessory

- Noise reducer (only on not silenced versions)
- EC fans with electronic DC brushless motor
- Microchannel coils with e-coating protection
- Traditional coils with copper tubes and aluminium fins, also available with prepainted fins or Fin Guard Silver protective treatment.
- Compressor enclosure (standard on silenced versions)
- Leak detector
- Kit HT to increase the unit operating conditions range
- Compressor power factor correction
- Soft start
- Hydronic group
- VPF (Variable Primary Flow) system
- Set-up for remote connectivity with ModBus, Echelon, Bacnet, Bacnet over-IP.
- Remote control keyboard (distance to 200m and to 500m)

Controls

W3000TE

The W3000TE controller offers advanced functions and algorithms.

KIPLink - Keyboard In Your Pocket - is the innovative user interface based on WiFi technology that allows one to operate on the unit directly from the smartphone or tablet. Using KIPLink, it is possible to turn the unit on and off, adjust the set-point, plot the main operating variables, monitor in detail the status of the refrigerant circuits, the compressors, the fans and the pumps (if present) and display and reset the possible alarms. In addition to or as an alternative, the Touch interface, with a 7" WVGA colour display and a front USB port, or the Large keyboard, with a wide LCD display and led icons, are available. The temperature control is characterized by the continuous capacity modulation, based on PID algorithms with dynamic neutral zone related to the leaving water temperature. The diagnostics comprises a complete alarm management system, with the "black-box" (via PC) and the alarm history display (via user interface or also PC) for enhanced analysis of the unit operation.

Optional proprietary devices can perform the adjustment of the resources in systems made of several units. Consumption metering and performance measurement are possible as well. Supervision can be easily developed via proprietary devices or the integration in third party systems by means of the most common protocols as ModBus, Bacnet, Bacnet-over-IP, LonWorks. Compatibility with the remote keyboard (up to 8 units). The programmable timer manages a weekly schedule organized into time bands to optimise unit performance by minimising power consumption during periods of inactivity. Up to 10 daily time bands can be associated with different operating set points. As an option (VPF package), the modulation of capacity is integrated with the modulation of the water flow, by means of inverter and dedicated resources for the hydraulic circuit.



FX HFO /A		1502	1702	1802	1922	2202	2602	2702	2722	3602
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
PERFORMANCE										
COOLING ONLY (GROSS VALUE)										
Cooling capacity	(1) kW	238	270	293	340	377	415	483	533	632
Total power input	(1) kW	74,0	85,0	92,0	104	118	132	153	168	199
EER	(1) kW/kW	3,21	3,17	3,19	3,27	3,18	3,15	3,17	3,18	3,17
ESEER	(1) kW/kW	4,31	4,27	4,34	4,25	4,27	4,36	4,30	4,34	4,31
COOLING ONLY (EN14511 VALUE)										
Cooling capacity	(1)(2) kW	237	269	292	339	376	413	482	532	630
EER	(1)(2) kW/kW	3,17	3,13	3,16	3,23	3,14	3,11	3,13	3,14	3,12
ESEER	(1)(2) kW/kW	4,14	4,12	4,21	4,12	4,12	4,18	4,17	4,18	4,13
Cooling energy class		A	A	A	A	A	A	A	A	A
ENERGY EFFICIENCY										
SEASONAL EFFICIENCY IN COOLING (Reg. EU 2016/2281)										
Ambient refrigeration										
Prated,c	(7) kW	237	269	292	339	376	413	482	532	630
SEER	(7)(8)	4,14	4,15	4,25	4,17	4,16	4,17	4,22	4,24	4,20
Performance ηs	(7)(9) %	163	163	167	164	163	164	166	166	165
EXCHANGERS										
HEAT EXCHANGER USER SIDE IN REFRIGERATION										
Water flow	(1) l/s	11,36	12,90	14,02	16,24	18,04	19,84	23,12	25,51	30,21
Pressure drop	(1) kPa	33,0	31,4	20,7	27,8	34,3	41,5	29,7	36,2	44,6
REFRIGERANT CIRCUIT										
Compressors nr.	N°	2	2	2	2	2	2	2	2	2
No. Circuits	N°	2	2	2	2	2	2	2	2	2
Refrigerant charge	kg	43,0	47,0	51,0	58,0	63,0	70,0	81,0	86,0	108
NOISE LEVEL										
Sound Pressure	(3) dB(A)	66	67	67	68	68	68	68	70	69
Sound power level in cooling	(4)(5) dB(A)	98	99	99	100	100	100	100	102	102
SIZE AND WEIGHT										
A	(6) mm	4000	4000	4000	4000	4000	5250	5250	5250	6500
B	(6) mm	2260	2260	2260	2260	2260	2260	2260	2260	2260
H	(6) mm	2500	2500	2500	2500	2500	2500	2500	2500	2500
Operating weight	(6) kg	3640	3665	3740	3980	4610	5060	5120	5120	6760

FX HFO /A		4202	4802	4822	6002	6022	6603	7203	7223	7823
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
PERFORMANCE										
COOLING ONLY (GROSS VALUE)										
Cooling capacity	(1) kW	727	840	900	984	1065	1152	1271	1384	1452
Total power input	(1) kW	229	269	280	311	335	363	405	434	461
EER	(1) kW/kW	3,17	3,13	3,22	3,16	3,18	3,17	3,14	3,19	3,15
ESEER	(1) kW/kW	4,32	4,31	4,30	4,36	4,39	4,33	4,34	4,36	4,37
COOLING ONLY (EN14511 VALUE)										
Cooling capacity	(1)(2) kW	724	838	897	981	1062	1149	1267	1379	1447
EER	(1)(2) kW/kW	3,12	3,10	3,18	3,12	3,14	3,13	3,10	3,14	3,11
ESEER	(1)(2) kW/kW	4,13	4,19	4,13	4,20	4,22	4,18	4,19	4,19	4,19
Cooling energy class		A	A	A	A	A	A	A	A	A
ENERGY EFFICIENCY										
SEASONAL EFFICIENCY IN COOLING (Reg. EU 2016/2281)										
Ambient refrigeration										
Prated,c	(7) kW	724	838	897	981	1062	1149	1267	1379	1447
SEER	(7)(8)	4,23	4,29	4,24	4,29	4,31	4,27	4,25	4,30	4,30
Performance ηs	(7)(9) %	166	169	167	169	169	168	167	169	169
EXCHANGERS										
HEAT EXCHANGER USER SIDE IN REFRIGERATION										
Water flow	(1) l/s	34,77	40,19	43,05	47,05	50,95	55,11	60,78	66,17	69,44
Pressure drop	(1) kPa	47,0	30,6	45,4	41,9	46,1	40,5	40,2	47,7	52,5
REFRIGERANT CIRCUIT										
Compressors nr.	N°	2	2	2	2	2	3	3	3	3
No. Circuits	N°	2	2	2	2	2	3	3	3	3
Refrigerant charge	kg	124	134	139	167	171	189	195	203	218
NOISE LEVEL										
Sound Pressure	(3) dB(A)	70	71	71	73	73	73	73	73	73
Sound power level in cooling	(4)(5) dB(A)	103	104	104	106	106	106	106	106	106
SIZE AND WEIGHT										
A	(6) mm	7750	7750	9000	10400	10400	11650	11650	12900	12900
B	(6) mm	2260	2260	2260	2260	2260	2260	2260	2260	2260
H	(6) mm	2500	2500	2500	2500	2500	2500	2500	2500	2500
Operating weight	(6) kg	7535	7820	8145	9040	9044	11932	11950	12600	12750

Notes:

1 Plant (side) cooling exchanger water (in/out) 12°C/7°C; Source (side) heat exchanger air (in) 35°C.

2 Values in compliance with EN14511-3:2013.

3 Average sound pressure level at 10m 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, outdoors.

6 Unit in standard configuration/execution, without optional accessories.

7 Seasonal energy efficiency of the cooling environment [REGULATION (EU) N. 2016/2281]

8 Seasonal space heating energy index

9 Seasonal energy efficiency of the space cooling

The units highlighted in this publication contain HFC HFO-1234ze [GWP₁₀₀ 7] fluorinated greenhouse gases.

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FX HFO /SL-A		1502	1702	1802	1922	2202	2602	2702	2722	3602	
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	
PERFORMANCE											
COOLING ONLY (GROSS VALUE)											
Cooling capacity	(1)	kW	235	266	289	337	372	415	477	528	623
Total power input	(1)	kW	72,7	84,1	91,3	103	118	129	152	168	198
EER	(1)	kW/kW	3,23	3,17	3,17	3,26	3,15	3,21	3,14	3,14	3,14
ESEER	(1)	kW/kW	4,33	4,29	4,34	4,28	4,27	4,40	4,31	4,36	4,31
COOLING ONLY (EN14511 VALUE)											
Cooling capacity	(1)(2)	kW	234	265	288	336	370	413	475	527	621
EER	(1)(2)	kW/kW	3,18	3,13	3,14	3,23	3,11	3,17	3,11	3,10	3,10
ESEER	(1)(2)	kW/kW	4,17	4,14	4,24	4,15	4,13	4,22	4,18	4,20	4,14
Cooling energy class			A	A	A	A	A	A	A	A	A
ENERGY EFFICIENCY											
SEASONAL EFFICIENCY IN COOLING (Reg. EU 2016/2281)											
Ambient refrigeration											
Prated,c	(7)	kW	234	265	288	336	370	413	475	527	621
SEER	(7)(8)		4,16	4,16	4,27	4,18	4,16	4,21	4,23	4,25	4,20
Performance ηs	(7)(9)	%	163	163	168	164	163	165	166	167	165
EXCHANGERS											
HEAT EXCHANGER USER SIDE IN REFRIGERATION											
Water flow	(1)	l/s	11,22	12,73	13,82	16,11	17,77	19,83	22,79	25,25	29,78
Pressure drop	(1)	kPa	32,2	30,6	20,1	27,4	33,3	41,5	28,9	35,5	43,3
REFRIGERANT CIRCUIT											
Compressors nr.		N°	2	2	2	2	2	2	2	2	2
No. Circuits		N°	2	2	2	2	2	2	2	2	2
Refrigerant charge		kg	43,0	47,0	51,0	58,0	63,0	73,0	81,0	86,0	108
NOISE LEVEL											
Sound Pressure	(3)	dB(A)	55	55	55	56	57	57	57	58	58
Sound power level in cooling	(4)(5)	dB(A)	87	87	87	88	89	89	89	90	91
SIZE AND WEIGHT											
A	(6)	mm	4000	4000	4000	4000	4000	5250	5250	5250	6500
B	(6)	mm	2260	2260	2260	2260	2260	2260	2260	2260	2260
H	(6)	mm	2500	2500	2500	2500	2500	2500	2500	2500	2500
Operating weight	(6)	kg	3640	3665	3740	3980	4610	5050	5120	5120	6760

FX HFO /SL-A		4202	4802	4822	6002	6022	6603	7203	7223	7823	
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	
PERFORMANCE											
COOLING ONLY (GROSS VALUE)											
Cooling capacity	(1)	kW	718	831	892	971	1054	1137	1261	1379	1463
Total power input	(1)	kW	228	258	280	310	335	363	400	431	467
EER	(1)	kW/kW	3,14	3,22	3,18	3,14	3,15	3,13	3,15	3,20	3,13
ESEER	(1)	kW/kW	4,33	4,31	4,31	4,36	4,41	4,33	4,37	4,42	4,42
COOLING ONLY (EN14511 VALUE)											
Cooling capacity	(1)(2)	kW	715	829	889	968	1051	1134	1257	1375	1460
EER	(1)(2)	kW/kW	3,10	3,18	3,14	3,10	3,10	3,10	3,11	3,16	3,11
ESEER	(1)(2)	kW/kW	4,15	4,16	4,15	4,21	4,23	4,19	4,22	4,24	4,29
Cooling energy class			A	A	A	A	A	A	A	A	A
ENERGY EFFICIENCY											
SEASONAL EFFICIENCY IN COOLING (Reg. EU 2016/2281)											
Ambient refrigeration											
Prated,c	(7)	kW	715	829	889	968	1051	1134	1257	1375	1460
SEER	(7)(8)		4,23	4,26	4,25	4,29	4,32	4,27	4,27	4,35	4,44
Performance ηs	(7)(9)	%	166	167	167	169	170	168	168	171	175
EXCHANGERS											
HEAT EXCHANGER USER SIDE IN REFRIGERATION											
Water flow	(1)	l/s	34,33	39,74	42,66	46,44	50,42	54,36	60,32	65,92	69,95
Pressure drop	(1)	kPa	45,8	38,7	44,6	40,8	45,1	39,4	39,6	47,3	31,1
REFRIGERANT CIRCUIT											
Compressors nr.		N°	2	2	2	2	3	3	3	3	3
No. Circuits		N°	2	2	2	2	3	3	3	3	3
Refrigerant charge		kg	124	134	139	167	171	189	204	213	223
NOISE LEVEL											
Sound Pressure	(3)	dB(A)	59	60	61	61	61	61	61	62	62
Sound power level in cooling	(4)(5)	dB(A)	92	93	94	94	94	94	94	95	95
SIZE AND WEIGHT											
A	(6)	mm	7750	9000	9000	10400	10400	11650	12900	12900	12900
B	(6)	mm	2260	2260	2260	2260	2260	2260	2260	2260	2260
H	(6)	mm	2500	2500	2500	2500	2500	2500	2500	2500	2500
Operating weight	(6)	kg	7535	8100	8145	9040	9044	11932	12500	12700	12800

Notes:

1 Plant (side) cooling exchanger water (in/out) 12°C/7°C; Source (side) heat exchanger air (in) 35°C.

2 Values in compliance with EN14511-3:2013.

3 Average sound pressure level at 10m 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, outdoors.

6 Unit in standard configuration/execution, without optional accessories.

7 Seasonal energy efficiency of the cooling environment [REGULATION (EU) N. 2016/2281]

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