CHILLERS

FX 0751 - 1801

Chiller, air source for outdoor installation 140-396 kW

Outdoor unit for the production of chilled water with semi-hermetic screw compressor optimized for R134a, 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. (brazed plate evaporator for sizes 0751 and 0851) 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

K	Standard efficiency
SL-K	Super low noise, standard efficiency

Configurations

-	Basic function
D	Partial condensing heat recovery function
R	Total condensing heat recovery function

Features

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.

COMPACTNESS

Compactness in terms of overall size and weight, helping installation and working on site

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 (-20°C with accessories) to 46°C (50°C with accessories) of outdoor air temperature and from -8°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. It is available with 1 or 2 pumps, 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 alluminium 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 /K			0751	0851	0951	0961	1101
Power supply		V/ph/Hz	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50
PERFORMANCE							
COOLING ONLY (GROSS VALUE)							
Cooling capacity	(1)	kW	145	160	203	222	238
Total power input	(1)	kW	50,0	58,6	63,7	73,3	85,2
EER	(1)	kW/kW	2,91	2,73	3,18	3,03	2,79
ESEER	(1)	kW/kW					
COOLING ONLY (EN14511 VALUE)							
Cooling capacity	(1)(2)	kW	145	160	202	221	237
EER	(1)(2)	kW/kW	2,88	2,70	3,14	2,98	2,75
ESEER	(1)(2)	kW/kW	-	-	-	-	-
Cooling energy class			C	C	A	B	C
ENERGY EFFICIENCY							
SEASONAL EFFICIENCY IN COOLING (Reg. EU 2016/2281)							
Ambient refrigeration							
Prated,c	(7)	kW	145	160	202	221	237
SEER	(7)(8)		3,86	3,88	3,95	3,95	3,91
Performance ηs	(7)(9)	%	152	152	155	155	153
EXCHANGERS							
HEAT EXCHANGER USER SIDE IN REFRIGERATION							
Water flow	(1)	l/s	6,96	7,65	9,70	10,61	11,38
Pressure drop	(1)	kPa	20,6	20,1	30,2	36,2	41,6
REFRIGERANT CIRCUIT							
Compressors nr.		N°	1	1	1	1	1
No. Circuits		N°	1	1	1	1	1
Refrigerant charge		kg	20,0	22,0	28,0	31,0	33,0
NOISE LEVEL							
Sound Pressure	(3)	dB(A)	62	62	62	62	64
Sound power level in cooling	(4)(5)	dB(A)	94	94	94	94	96
SIZE AND WEIGHT							
A	(6)	mm	1500	1500	2750	2750	2750
B	(6)	mm	2260	2260	2260	2260	2260
H	(6)	mm	2500	2500	2500	2500	2500
Operating weight	(6)	kg	1480	1510	2150	2180	2510

FX /K			1301	1401	1421	1431	1801
Power supply		V/ph/Hz	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50
PERFORMANCE							
COOLING ONLY (GROSS VALUE)							
Cooling capacity	(1)	kW	275	299	329	348	396
Total power input	(1)	kW	88,0	103	119	112	135
EER	(1)	kW/kW	3,12	2,92	2,77	3,12	2,93
ESEER	(1)	kW/kW					
COOLING ONLY (EN14511 VALUE)							
Cooling capacity	(1)(2)	kW	274	298	328	347	394
EER	(1)(2)	kW/kW	3,07	2,87	2,73	3,08	2,89
ESEER	(1)(2)	kW/kW	-	-	-	-	-
Cooling energy class			B	C	C	B	C
ENERGY EFFICIENCY							
SEASONAL EFFICIENCY IN COOLING (Reg. EU 2016/2281)							
Ambient refrigeration							
Prated,c	(7)	kW	274	298	328	347	394
SEER	(7)(8)		3,91	3,88	3,91	3,96	3,95
Performance ηs	(7)(9)	%	154	152	153	155	155
EXCHANGERS							
HEAT EXCHANGER USER SIDE IN REFRIGERATION							
Water flow	(1)	l/s	13,14	14,30	15,73	16,63	18,92
Pressure drop	(1)	kPa	42,5	50,4	44,9	29,5	38,2
REFRIGERANT CIRCUIT							
Compressors nr.		N°	1	1	1	1	1
No. Circuits		N°	1	1	1	1	1
Refrigerant charge		kg	38,0	42,0	46,0	49,0	55,0
NOISE LEVEL							
Sound Pressure	(3)	dB(A)	64	65	66	66	66
Sound power level in cooling	(4)(5)	dB(A)	96	97	98	98	98
SIZE AND WEIGHT							
A	(6)	mm	2750	2750	2750	4000	4000
B	(6)	mm	2260	2260	2260	2260	2260
H	(6)	mm	2500	2500	2500	2500	2500
Operating weight	(6)	kg	2510	2540	3030	3160	3590

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 R134a [GWP_{100} 1430] fluorinated greenhouse gases.
Certified data in EUROVENT

FX /SL-K			0751	0851	0951	0961	1101
Power supply		V/ph/Hz	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50
PERFORMANCE							
COOLING ONLY (GROSS VALUE)							
Cooling capacity	(1)	kW	140	170	196	215	246
Total power input	(1)	kW	50,4	53,9	64,3	74,8	80,1
EER	(1)	kW/kW	2,78	3,14	3,04	2,87	3,07
ESEER	(1)	kW/kW					
COOLING ONLY (EN14511 VALUE)							
Cooling capacity	(1)(2)	kW	140	169	195	214	245
EER	(1)(2)	kW/kW	2,75	3,11	3,00	2,83	3,02
ESEER	(1)(2)	kW/kW	-	-	-	-	-
Cooling energy class			C	A	B	C	B
ENERGY EFFICIENCY							
SEASONAL EFFICIENCY IN COOLING (Reg. EU 2016/2281)							
Ambient refrigeration							
Prated,c	(7)	kW	140	169	195	214	245
SEER	(7)(8)		3,82	4,09	3,93	3,93	4,00
Performance ηs	(7)(9)	%	150	161	154	154	157
EXCHANGERS							
HEAT EXCHANGER USER SIDE IN REFRIGERATION							
Water flow	(1)	l/s	6,70	8,11	9,35	10,27	11,76
Pressure drop	(1)	kPa	19,1	22,6	28,1	33,9	44,4
REFRIGERANT CIRCUIT							
Compressors nr.		N°	1	1	1	1	1
No. Circuits		N°	1	1	1	1	1
Refrigerant charge		kg	21,0	25,0	29,0	32,0	37,0
NOISE LEVEL							
Sound Pressure	(3)	dB(A)	52	52	53	53	55
Sound power level in cooling	(4)(5)	dB(A)	84	84	85	85	87
SIZE AND WEIGHT							
A	(6)	mm	1500	2750	2750	2750	2750
B	(6)	mm	2260	2260	2260	2260	2260
H	(6)	mm	2500	2500	2500	2500	2500
Operating weight	(6)	kg	1640	2090	2310	2340	2770

FX /SL-K			1301	1401	1421	1431	1801
Power supply		V/ph/Hz	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50
PERFORMANCE							
COOLING ONLY (GROSS VALUE)							
Cooling capacity	(1)	kW	265	288	332	346	395
Total power input	(1)	kW	89,1	105	113	108	130
EER	(1)	kW/kW	2,97	2,75	2,95	3,21	3,04
ESEER	(1)	kW/kW					
COOLING ONLY (EN14511 VALUE)							
Cooling capacity	(1)(2)	kW	264	287	330	346	394
EER	(1)(2)	kW/kW	2,93	2,71	2,90	3,18	3,00
ESEER	(1)(2)	kW/kW	-	-	-	-	-
Cooling energy class			B	C	B	A	B
ENERGY EFFICIENCY							
SEASONAL EFFICIENCY IN COOLING (Reg. EU 2016/2281)							
Ambient refrigeration							
Prated,c	(7)	kW	264	287	330	346	394
SEER	(7)(8)		3,89	3,85	4,10	4,29	4,02
Performance ηs	(7)(9)	%	152	151	161	168	158
EXCHANGERS							
HEAT EXCHANGER USER SIDE IN REFRIGERATION							
Water flow	(1)	l/s	12,67	13,76	15,86	16,57	18,89
Pressure drop	(1)	kPa	39,5	46,6	45,7	29,3	38,1
REFRIGERANT CIRCUIT							
Compressors nr.		N°	1	1	1	1	1
No. Circuits		N°	1	1	1	1	1
Refrigerant charge		kg	40,0	43,0	50,0	52,0	59,0
NOISE LEVEL							
Sound Pressure	(3)	dB(A)	55	56	57	57	57
Sound power level in cooling	(4)(5)	dB(A)	87	88	89	89	89
SIZE AND WEIGHT							
A	(6)	mm	2750	2750	4000	4000	4000
B	(6)	mm	2260	2260	2260	2260	2260
H	(6)	mm	2500	2500	2500	2500	2500
Operating weight	(6)	kg	2770	3250	3300	3410	3880

Notes:
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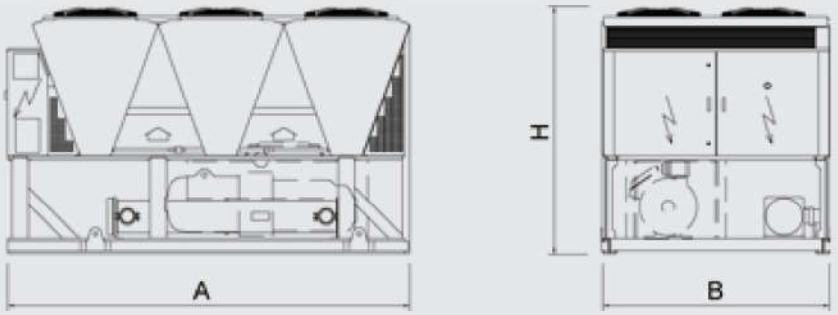
A
H
B