

i-FX-Q2-G05 0502 - 1102

INTEGRA 4-PIPE AIR SOURCED HEAT PUMP CHILLERS



i-FX-Q₂ INTEGRA

**MITSUBISHI ELECTRIC
HYDRONICS & IT COOLING SYSTEMS**

INTEGRA 4-PIPE AIR SOURCED HEAT PUMP CHILLERS

For outdoor installation

Cooling Capacity: 442 – 1082kW

Heating Capacity: 439 – 1029kW

Full inverter multi-purpose air sourced outdoor unit for use in 4-pipe systems for the simultaneous production of heating and chilled water in two independent hydronic circuits.

These units are able to simultaneously satisfy the demand for heating and chilled water in a conventional 4-pipe system.

Each circuit includes a variable speed drive semi-hermetic screw compressor using R513A, two shell and tubes heat exchangers and a source side coil heat exchanger shared by both circuits. The source side auxiliary finned coil works as either condenser or evaporator as required by the loads.

High Efficiency Performance

**3.03
EER^{*1}**

**5.13
SEER^{*2}**

**3.39
COP^{*3}**

**4.25
SCOP^{*4}**

**7.67
TER^{*5}**

^{*1} i-FX-Q2-G05/CA 0902 EN14511.

^{*2} i-FX-Q2-G05/CA 0702. Regulation (EU) N.2016/ 2281.

^{*3} i-FX-Q2-G05/CA 802 EN14511.

^{*4} i-FX-Q2-G05/XL-CA 0602 Seasonal Coefficient of Performance EU 813/2013

^{*5} i-FX-Q2-G05/CA 1002 EN14511.

Key Features

VSD Screw Compressors

The i-FX-Q2-G05 utilises CSCV screw-compressors designed according to Mitsubishi Electric Hydronics & IT Cooling Systems S.p.A. specifications and for its exclusive use. Extremely compact compressors, with oil separator, frequency modulation inverter and inverter cooling system integrated in a single casing.

Low GWP Refrigerant

New generation refrigerant R513A, features reduced greenhouse effect in comparison with traditional HFC refrigerants (Global Warming Potential GWP of R513A = 573, GWP of R134A = 1300 as per IPCC rev. 5) and zero impact on the ozone layer. Non-flammable (ASHRAE 34, ISO 817: class A1).

Shell and Tube Heat Exchangers

Two Direct expansion type shell and tube heat exchangers. One as evaporator & the other as heat recovery. Fully developed and manufactured by Mitsubishi Electric Hydronics & IT Cooling Systems S.p.A., the heat exchangers is a single-step type to provide almost perfect countercurrent heat exchange.

Source Side Heat Exchanger

Air-refrigerant heat exchanger, working as a condenser or an evaporator depending to the specific operating mode. Made with copper tubes and aluminum fins. The aluminium fins are spaced to guarantee the best heat exchange efficiency. The lower part of the exchanger works as a subcooling circuit increasing the cooling capacity, when it is working as a condenser.

Electronic Expansion Valve

The use of the electronic expansion valve improves variable demand performance and guarantees energy savings due to efficiency optimisation in various different working conditions. This translates into a reduction in operating energy consumption, a faster start-up of the unit and a wider extension of the operating limits.

Wide Operating Range

Unit operation is guaranteed with external air temperature down to -12°C during winter and up to 46°C during summer. Production of hot water up to 60°C without accessories and chilled water from -8°C to +18°C is possible – providing a versatile solution for any application.

Unit and Plant Harmony

Low inrush current and a higher power factor than similar fixed speed units, provides an easy electrical installation with reduced starting current and superior power factor. The use of VSD technology allows the unit to modulate with reduced leaving water temperature fluctuations.

Capacity Range

VERSION		COOLING CAPACITY	HEATING CAPACITY
CA [†]	CLASS A EFFICIENCY	487 – 1082kW	463 – 1029kW
SL-CA	SUPER LOW NOISE VERSION	467 – 1038kW	459 – 1018kW
XL-CA	EXTRA LOW NOISE VERSION	442 – 912kW	439 – 898kW

† Performance data overleaf.

Specifications



i-FX-Q2-G05/CA

NOTE: Performance data of other versions are available upon request.

		0502	0532	0602	0652	0702	0802	0902	1002	1102
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 (EN14511 VALUE)										
Cooling capacity (1) (2) (11)	kW	487.0	530.8	569.5	626.3	688.4	786.9	914.4	984.6	1,082.0
EER (1) (2) (11)	kW/kW	2.99	2.99	2.99	2.99	2.99	2.99	3.03	3.01	2.86
HEATING ONLY (EN14511 VALUE)										
Total heating capacity (2) (3) (11)	kW	463.4	491.5	531.3	599.0	659.5	765.3	871.2	938.3	1,029.0
COP (2) (3) (11)	kW/kW	3.31	3.27	3.3	3.34	3.32	3.38	3.33	3.36	3.35
COOLING WITH TOTAL HEAT RECOVERY (EN14511 VALUE)										
Cooling capacity (5) (11)	kW	488.1	532.5	570.1	623.5	682.1	783.9	913.9	986.8	1,101.0
Total power input (5) (11)	kW	145.7	160.5	170.6	185.6	205.6	234.7	275.7	292.5	329.6
Recovery heat exchanger capacity (5) (11)	kW	623.1	681.2	728.8	795.2	872.3	1,002.0	1,168.0	1,257.0	1,405.0
TER (5) (11)	kW/kW	7.63	7.56	7.62	7.65	7.56	7.61	7.55	7.67	7.6
EXCHANGERS										
HEAT EXCHANGER USER SIDE IN COOLING										
Water flow (1) (11)	L/s	24.89	25.64	27.26	32.08	34.06	37.65	46.96	50.12	53.78
Pressure drop at the heat exchanger (1) (11)	kPa	40.8	51.6	32.5	40.5	45.4	29.0	39.7	42.3	51.4
HEAT EXCHANGER USER SIDE IN HEATING										
Water flow (3) (11)	L/s	23.98	23.98	25.63	31.08	33.06	36.92	45.37	47.73	51.68
Pressure drop at the heat exchanger (3) (11)	kPa	26.5	26.5	21.9	31.9	35.3	32.9	49.6	39.6	33.2
REFRIGERANT CIRCUIT										
Compressors nr.	No.	2	2	2	2	2	2	2	2	2
No. Circuits	No.	2	2	2	2	2	2	2	2	2
Regulation		STEPLESS	STEPLESS	STEPLESS	STEPLESS	STEPLESS	STEPLESS	STEPLESS	STEPLESS	STEPLESS
Refrigerant charge (Theoretical)	kg	255	255	300	305	370	460	475	420	425
NOISE LEVEL										
Total sound pressure (7) (11)	dB(A)	67	67	68	69	69	68	70	70	70
Total sound power level in cooling (8) (9) (11)	dB(A)	100	100	101	102	102	101	103	103	103
Total sound power level in heating (8) (10) (11)	dB(A)	100	100	101	102	102	101	103	103	103
SIZE AND WEIGHT										
A (12)	mm	8,150	8,150	8,900	9,650	10,400	10,400	10,750	12,250	12,250
B (12)	mm	2,260	2,260	2,260	2,260	2,260	2,260	2,260	2,260	2,260
H (12)	mm	2,530	2,530	2,530	2,530	2,530	2,530	2,530	2,530	2,530
Operating weight (12)	kg	8,350	8,380	9,080	9,590	10,060	11,010	12,490	14,170	14,210

- (1) Plant (side) cooling exchanger water (in/out) 12.00°C/7.00°C; Source (side) heat exchanger air (in) 35.0°C.
- (2) Values in compliance with EN14511.
- (3) Plant (side) heat exchanger water (in/out) 40.00°C/45.00°C; Source (side) heat exchanger air (in) 7.0°C - 87% R.H.
- (5) Plant (side) cooling exchanger water/7.00°C (same water flow rate found during the cooling mode); Plant (side) heat exchanger water/45.00°C (same water flow rate found during the heating mode).

- (7) 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.
- (8) Sound power on the basis of measurements taken in compliance with ISO 9614.
- (9) Sound power level in cooling, outdoors.
- (10) Sound power level in heating, outdoors.
- (11) Unit performance with inverter compressor at nominal speed.

- (12) Unit in standard configuration, without optional accessories.
Data highlighted in green are Eurovent Certified.

Optional Extras

- User Interface Versions including KIPLINK
- Corrosion Protection Coatings including Painted Fins and Blygold
- Integrated Hydronic Group
- Variable Primary Flow Control
- BMS Interface – such as Bacnet, ModBus
- Pressure Relief Valves
- LT Kit for Low Temperature Heating
- Refrigerant Leak Detector
- C4 Corrosion Classification
- Energy Meter
- Compressor Acoustical Enclosure
- Noise Reducer (only for non-silenced versions)
- For more options refer to Databook

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