

i-FX-N-G05 0472 - 1152

INVERTER REVERSIBLE 2-PIPE HEAT PUMP CHILLER



i-FX-N G05

**MITSUBISHI ELECTRIC
HYDRONICS & IT COOLING SYSTEMS**

INVERTER REVERSIBLE 2-PIPE HEAT PUMP CHILLER

For outdoor installation

Cooling Capacity: 444 – 1153kW

Heating Capacity: 449 – 1112kW

Air sourced outdoor heat pump unit for the production of chilled or heating water according to the selected operation mode with semi-hermetic variable-speed screw compressors optimised for R513A refrigerant.

The i-FX-N-G05 features EC fans, copper tube and aluminium fin condensing coils, an electronic expansion valve as well as shell and tubes evaporator designed by MEHITS. The screw compressors feature variable speed technology with integrated refrigerant cooled inverter, offering maximum compactness and operating flexibility. Due to the accurate sizing of all internal components and the use of variable speed technology, the unit ensures flexibility, reliability and maximum efficiency in every operating condition.

High Efficiency Performance

**2.93
EER^{*1}**

**4.84
SEER^{*2}**

**3.42
COP^{*3}**

**4.03
SCOP^{*4}**

^{*1} i-FX-N-G05/A 1152 EN14511.

^{*2} i-FX-N-G05/A 1152. Regulation (EU) 2016/2281.

^{*3} i-FX-N-G05SL/A 1002 EN14511.

^{*4} i-FX-N-G05SL/A 0512. Low Temperature Regulation (EU) N.813.

Key Features

VSD Screw Compressors

The i-FX-N-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 = 572, 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 Exchanger

Acts as an evaporator or condenser depending on unit's mode of operation; refrigerant flows in the pipe & water flows on the shell side. The tubes have asymmetrical flow that maintains correct speed of refrigerant in tubes during phase transition. The heat exchanger is fitted with pressure differential switch which controls the flow of water when the unit is working.

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 aluminum 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 Supplied as Standard

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 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 50°C during summer. Production of hot water up to 60°C without accessories and chilled water from -8°C to +20°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
A	HIGH EFFICIENCY	465 – 1153kW	453 – 1112kW
SL-A [†]	SUPER LOW NOISE, HIGH EFFICIENCY	444 – 1113kW	449 – 1101kW

[†] Performance data overleaf.

Specifications



i-FX-N-G05/SL-A

NOTE: i-FX-N-G05/A performance data is available upon request.

		0472	0512	0572	0602	0652	0772	0902	1002	1152
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)	kW	443.6	497.1	531.4	570.3	648.7	740.2	869.6	997.3	1,113.0
EER (1) (2)	kW/kW	2.62	2.77	2.67	2.61	2.67	2.74	2.73	2.79	2.79
HEATING ONLY (EN14511 VALUE)										
Total heating capacity (3) (2)	kW	448.6	500.4	542.4	568.3	657.9	740.6	863.2	997.3	1,101
COP (3) (2)	kW/kW	3.24	3.3	3.28	3.28	3.27	3.34	3.32	3.42	3.38
ENERGY EFFICIENCY										
SEASONAL EFFICIENCY IN COOLING (REG. EU 2016/2281)										
Ambient refrigeration										
Prated, c (10)	kW	444	497	531	570	649	740	870	997	1,113
SEER (10) (11)		4.71	4.77	4.81	4.80	4.74	4.80	4.82	4.78	4.82
Performance η_s (10) (12)	%	185	188	190	189	187	189	190	188	190
SEASONAL EFFICIENCY IN HEATING (REG. EU 813/2013) (LOW TEMPERATURE [35°C])										
PDesign (4)	kW	347	383							
SCOP (4) (13)		4.02	4.03							
Performance η_s (4) (14)	%	158	158							
EXCHANGERS										
HEAT EXCHANGER USER SIDE IN COOLING										
Water flow (1)	L/s	21.23	23.79	25.44	27.29	31.04	35.42	41.61	47.72	53.26
Pressure drop at the heat exchanger (1)	kPa	29.2	33.8	38.6	25.1	31.2	32.2	30.3	39.8	34.9
HEAT EXCHANGER USER SIDE IN HEATING										
Water flow (3)	L/s	21.64	24.14	26.16	27.41	31.74	35.73	41.64	48.11	53.12
Pressure drop at the heat exchanger (3)	kPa	30.3	34.7	40.8	25.3	32.6	32.8	30.3	40.5	34.7
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
Refrigerant charge	kg	243	271	285	307	317	391	541	536	598
NOISE LEVEL										
Total sound pressure (5)	dB(A)	72	73	73	73	73	73	73	74	74
Total sound power level in cooling (6) (7)	dB(A)	92	94	94	94	94	95	95	97	97
Total sound power level in heating (6) (8)	dB(A)	93	95	95	95	95	96	96	98	98
SIZE AND WEIGHT										
A (9)	mm	4,900	5,800	5,800	5,800	7,000	7,900	10,000	11,800	11,800
B (9)	mm	2,260	2,260	2,260	2,260	2,260	2,260	2,260	2,260	2,260
H (9)	mm	2,580	2,580	2,580	2,580	2,580	2,580	2,580	2,580	2,580
Operating weight (9)	kg	6,672	7,155	7,307	7,550	7,791	8,921	10,101	11,840	15,158

(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.

(4) Parameter calculated for LOW-TEMPERATURE applications 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-biding value calculated from the sound power level.

(6) Sound power on the basis of measurements taken in compliance with ISO 9614.

(7) Sound power level in cooling, outdoors.

(8) Sound power level in heating, outdoors.

(9) Unit in standard configuration, 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 fluorinated greenhouse gases.
Data highlighted in green are Eurovent Certified.

Optional Extras

- User Interface Versions including KIPLINK
- Corrosion Protection Coating including Painted Fins and Fin Guard Silver
- Integrated Hydronic Group – pumps
- Variable Primary Flow Control
- BMS Interface – such as Bacnet, ModBus
- Night Mode
- Pressure Relief Valves
- C4 Corrosion Classification
- Energy Meter
- Compressor Acoustical Enclosure
- Anti-intrusion Grilles
- Refrigerant Leak Detector
- Noise Reducer (only for non-silenced versions)
- Automatic Circuit Breakers
- For more options refer to Databook

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