

COMFORT

HEAT PUMPS

i-BX-N

**AIR COOLED HEAT PUMP
FOR OUTDOOR INSTALLATION
FROM 4,2 TO 35,1 kW**



i-BX-N

PERFECT COMFORT AND MAXIMUM EFFICIENCY



Air to water heat pump for outdoor installation, from 4,2 to 35,1 kW



Outdoor unit for cold / hot water and domestic hot water production, with hermetic rotary compressors with variable speed (Inverter Driven) in a single-circuit configuration using R410A refrigerant, air side heat exchanger with copper tubes and aluminum fins, water side steel brazed plate heat exchanger. The unit is equipped with electronic expansion

valve and integrated hydraulic module as standard.

i-BX-N adapts to the most diverse load conditions thanks to the accurate temperature control combined with the use of inverter technology, ensuring a high level of energy efficiency both at full and partial loads.

THE HEAT PUMP FOR EVERY NEED

System efficiency

The unit is designed with a system approach: all components are set in synergy according to a proprietary logic to maximise the efficiency of the unit.

High efficiency at partial loads

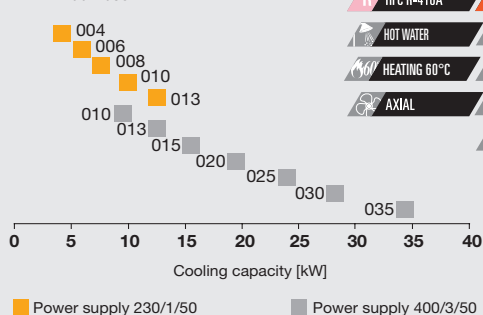
High values of seasonal efficiency thanks to the modulation of the compressor with DC inverter technology so that the unit provides the exact thermal power in correspondence with the actual needs of the building. High efficiency which translates into reduced energy consumption throughout the unit's working period.

COMFORT APPLICATIONS

- ✓ Residential buildings
- ✓ Commercial premises
- ✓ Infrastructure for entertainment
- ✓ Offices
- ✓ Hotels and Resorts
- ✓ Health facilities
- ✓ Centralized systems that can be implemented with cascade systems

A WIDE RANGE FOR EVERY NEED

i-BX-N 004-035



ErP READY



Most of the time, the heat pump works to meet half the building's energy demand. In fact, only one working point is no longer an expression of the efficiency of the unit, the focus is on seasonal efficiency.

SCOP LT35°C 3,80*

SCOP MT55°C 2,95*

SEER 4,40*

i-BX-N, thanks to inverter technology, complies with the ErP directive, exceeding the minimum seasonal heating energy efficiency requirements, SCOP, for both low temperature and medium temperature applications.

*average values

SILENT OPERATION

Noise levels are reduced by modulating the fan speed and the frequency of the compressor.



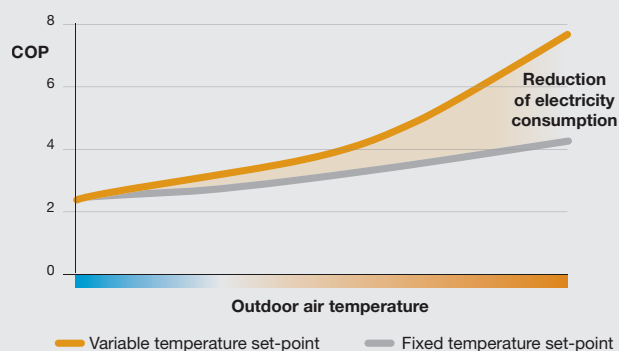
DOMESTIC HOT WATER



Production of domestic hot water guaranteed all year. The controller manages the production of domestic hot water through a 3-way valve to be installed externally to the unit.

REDUCED ENERGY CONSUMPTION

The dynamic control of the water supply temperature according to the outdoor air temperature greatly increases the comfort and energy efficiency of the system.



EASY INSTALLATION

The i-BX-N are packaged mono-block heat pumps that are particularly easy to install.

The hydraulic components are all contained inside the unit and the pipe connections are hydraulic, therefore it is not necessary to carry out the typical procedures of direct expansion air-conditioning systems (vacuum, refrigerant topping up, etc.).

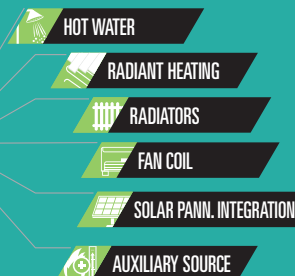


INTELLIGENT MANAGEMENT OF YOUR PLANT

Nadisystem guarantees a centralized regulation of the plant ensuring:

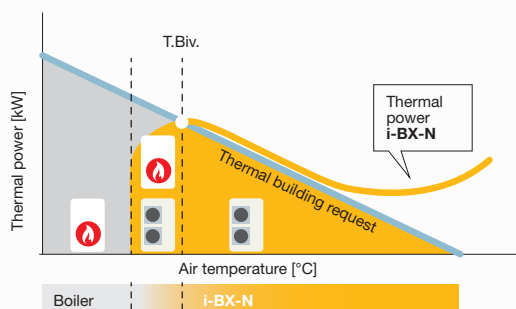
- ✓ Easy communication between the different components
- ✓ Simplified installation
- ✓ Reduced number of checks

nadisystem



INTEGRATION AMONG DIFFERENT SOURCES

Nadisystem integrates different energy sources based on availability, performance and costs of their use, always favoring renewable sources.



The auxiliary sources are used to meet the building needs at low outdoor temperatures by integrating the heating capacity of the heat pump.

CUSTOMIZATION OF THE SYSTEM

Nadisystem has several special functions that allow you to customize the system for every need.

The controller is able to regulate two zones both in heating and cooling and with different delivery temperatures, making the i-BX-N heat pump compatible with different types of systems with different water temperature levels.

CASCADE MANAGEMENT OF UNITS

Up to 4 units with the same power can be connected in cascade to cover high thermal requirements (optional configuration). The configuration is managed in master/slave mode, with the master unit that takes care of processing the information and transmits it to the slave units.

TECHNOLOGICAL CHOICES

Structure

Structure consisting of a base and self-supporting hot galvanized steel panels, painted with RAL 7035 polyester powders.

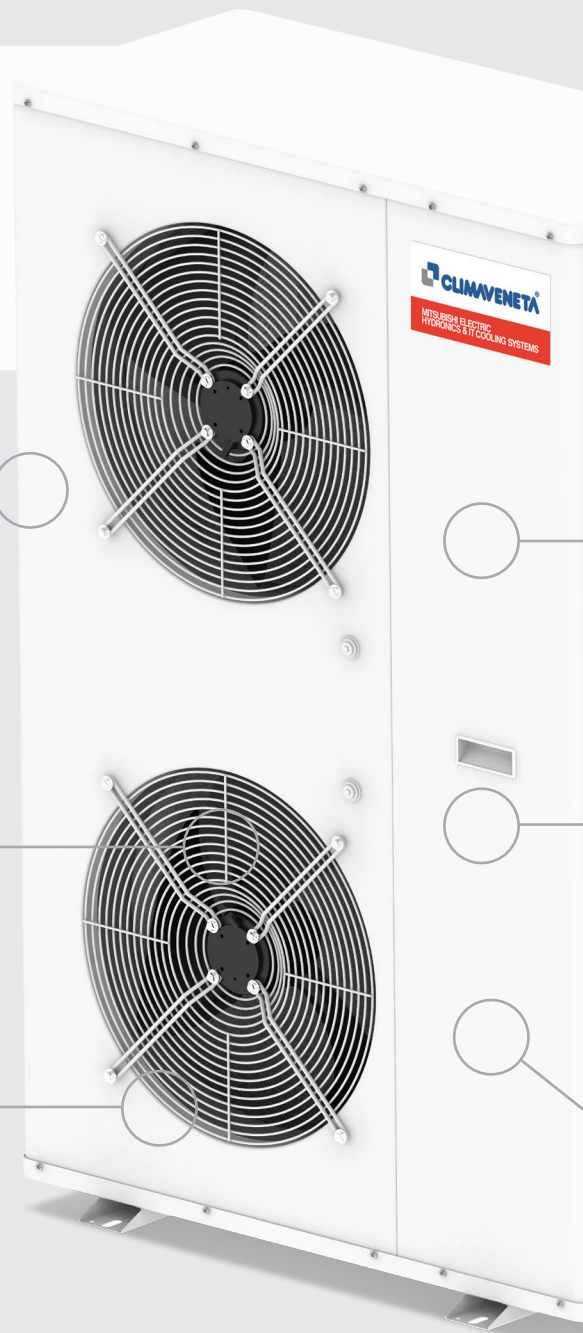
- ▶ Solidity and robustness.
- ▶ Maximum accessibility for service and maintenance operations.

Fans

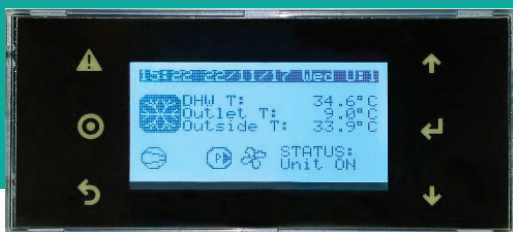
Axial fans with continuous regulation of the speed optimise the air flow obtaining low consumption and minimizing the sound level.

Coil

- ▶ Condenser with copper pipes and aluminum fins.
- ▶ Coil protection grids as standard up to size 015.



nadisystem



NADICompact

- ▶ Functional buttons
- ▶ Graphic display and icons

Allows quick and easy consultation and intervention on the unit by means of a multi-level menu.

NADISYSTEM control

- ▶ Setting the water set point with fixed or dynamic value with the Climatic curve.
- ▶ Antifreeze protection depending on the water temperature and outside air temperature.
- ▶ Production of domestic hot water.
- ▶ Management of external auxiliary sources.
- ▶ Two zones with different water temperature distribution.
- ▶ Weekly programming up to 6 timeslots.
- ▶ Digital input for night function (Night mode).
- ▶ Remote connectivity to BMS systems via serial card (accessory).

▼ Cascade systems management

In the event that the thermal requirements are high, up to 4 units (of the same power) can be connected in cascade.

- Managed in master slave mode, with the master unit that takes care of processing the information and then transmitting it to the slave units.
- High degree of partialization of the power supplied, without decreasing performance, and a timely sizing of the system.
- Possibility to dedicate only one or all the units for the production of domestic hot water.

INTEGRATED HYDRONIC UNIT



EC PUMP

All the hydraulic components for the installation of the unit are already included without increasing its size.

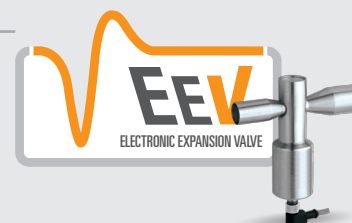
- ▶ EC pump, brushless motor with electronic switching to guarantee low consumption and high system efficiency.
- ▶ Water flow switch, to protect the exchanger for low water flows.
- ▶ Safety valve.
- ▶ Expansion vessel.
- ▶ Air release valve.
- ▶ Net type filter, not mounted but supplied with the unit.

Evaporator

- ▶ Brazed plate heat exchanger made of AISI 316 stainless steel, externally coated with an anti-condensation mat in closed cell neoprene (CFC and HCFC-free).
- ▶ Thermostatic electric heater to protect against ice formation on the inside.
- ▶ Low pressure drops and optimized heat transfer.

Refrigerant circuit

- ▶ **Electronic expansion valve as standard:**
 - optimized refrigerant flow;
 - effective temperature control;
 - fast regulation and high efficiency.



Compressor

Mitsubishi Electric compressors, synonymous with quality, reliability and high performance at partial loads.

Compressor installed on rubber anti-vibration mounts and soundproofed by special sound-absorbing material.



SPECIAL ANTIFREEZE FUNCTION

Dedicated algorithms prevent the formation of ice by:

- ▶ activating the electrical resistance on the plate heat exchanger.
- ▶ activating the pump according to the outdoor air temperature.
- ▶ enabling the inside of the flow switch due to lack of flow.

The unit is also designed to work with brine-free mixtures up to a leaving temperature of -8 °C.





i-BX-N

Air to water heat pump for outdoor installation 4,2 - 35,1 kW



i-BX-N		004	006	008	010	013	010	013	015	020	025	030	035
Power supply	V/ph/Hz	230/1/50	230/1/50	230/1/50	230/1/50	230/1/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50
COOLING ONLY (GROSS VALUE)													
Cooling capacity	(1) kW	4,2	5,9	7,5	9,9	12,4	10,5	12,8	14,7	18,7	24,7	29,4	35,1
Total power input	(1) kW	1,55	2,08	2,72	3,64	4,54	3,64	4,54	5,24	7	8,99	10,5	12,7
EER	(1) kW/kW	2,71	2,84	2,76	2,72	2,73	2,88	2,82	2,81	2,67	2,75	2,8	2,76
ESEER	(1) kW/kW	4,24	4,32	4,45	4,21	4,24	4,24	4,49	4,31	3,88	3,93	3,89	3,93
COOLING ONLY (EN14511 VALUE)													
Cooling capacity	(1)(2) kW	4,2	5,9	7,51	9,91	12,4	10,5	12,8	14,7	18,7	24,7	29,5	35,2
EER	(1)(2) kW/kW	2,76	2,88	2,81	2,73	2,75	2,89	2,84	2,82	2,7	2,77	2,83	2,78
ESEER	(1)(2) kW/kW	4,61	4,56	4,83	4,26	4,37	4,29	4,58	4,38	3,99	4,03	4	4,01
Cooling energy class		C	C	C	C	C	C	C	C	C	C	C	C
HEATING ONLY (GROSS VALUE)													
Total heating capacity	(3) kW	4,63	6,36	8,51	11	14,3	11,4	14,7	17,2	21,7	26,1	32,3	38,1
Total power input	(3) kW	1,51	2,03	2,65	3,65	4,53	3,66	4,55	5,15	6,9	8,31	10,3	12
COP	(3) kW/kW	3,07	3,13	3,21	3,01	3,16	3,11	3,23	3,34	3,14	3,14	3,14	3,17
HEATING ONLY (EN14511 VALUE)													
Total heating capacity	(3)(2) kW	4,62	6,37	8,5	11	14,3	11,4	14,7	17,2	21,7	26,1	32,2	38
COP	(3)(2) kW/kW	3,12	3,19	3,26	3,02	3,19	3,12	3,24	3,36	3,16	3,16	3,13	3,19
Cooling energy class	(3)(2)	B	B	A	B	B	B	A	A	B	B	B	B
ENERGY EFFICIENCY													
SEASONAL EFFICIENCY IN COOLING (Reg. EU 2016/2281)													
SPACE COOLING													
Prated,c	(11) kW	4,2	5,9	7,51	9,91	10,5	12,4	12,8	14,7	18,7	24,7	29,5	35,2
SEER	(11)(12)	4,42	4,44	4,71	4,37	4,33	4,46	4,65	4,53	4,14	4,22	4,22	4,2
Performance ηs	(11)(13)	174	175	185	172	170	175	183	178	163	166	166	165
SEASONAL EFFICIENCY IN HEATING (Reg. EU 813/2013)													
PDesign	(4) kW	3,4	4,8	6,02	8,18	10,4	8,48	10,9	12,3	16,5	21,9	24,7	28,1
SCOP	(4)(14)	3,59	3,89	4,15	3,54	3,81	3,64	3,99	3,67	3,56	3,77	3,8	3,7
Performance ηs	(4)(15)	140	153	163	139	149	142	157	144	139	148	149	145
Classe di efficienza stagionale	(4)	A+	A++	A++	A+	A+	A+	A++	A+	A+	A+	A+	A+
PDesign	(5) kW	3,67	5,32	7,02	8,54	10,61	9,07	11,42	13,82	17,31	21,37	24,92	31,97
SCOP	(5)(14)	2,81	3,12	3,23	2,82	2,93	2,92	3,01	2,98	2,91	2,95	2,97	3,01
Performance ηs	(5)(15)	110	122	126	110	114	114	117	116	113	115	113	117
Seasonal efficiency class	(5)	A+	A+	A++	A+	A+	A+	A+	A+	A+	A+	A+	A+
EXCHANGERS													
HEAT EXCHANGER USER SIDE IN REFRIGERATION													
Water flow	(1) m³/h	0,2	0,28	0,36	0,47	0,59	0,5	0,61	0,7	0,89	1,18	1,41	1,68
Available unit's head	(1) kPa	51,4	39,8	66,5	57,7	56,6	53,3	53	78,7	74,6	61,5	91,3	73,5
HEAT EXCHANGER USER SIDE IN HEATING													
Water flow	(3) m³/h	0,22	0,31	0,41	0,53	0,69	0,55	0,71	0,83	1,05	1,26	1,56	1,84
Available unit's head	(3) kPa	47,9	35,4	57,9	54,1	51,1	50,2	47,1	71,5	60,3	55	80,5	61,8
REFRIGERANT CIRCUIT													
Compressors nr.	N°	1	1	1	1	1	1	1	1	1	1	1	1
No. Circuits	N°	1	1	1	1	1	1	1	1	1	1	1	1
Refrigerant charge	kg	1,47	2,2	3,7	3,95	4,45	3,95	4,45	5,1	7,3	7,55	8,5	9,1
NOISE LEVEL													
Sound power level in cooling	(7)(8) dB(A)	64	65	66	69	70	69	70	74	74	75	76	77
Sound power level in heating	(7)(9) dB(A)	64	65	66	69	70	69	70	74	74	75	76	77
Sound Pressure	(6) dB(A)	50	51	51	54	55	54	55	59	59	59	60	61
SIZE AND WEIGHT													
A	(10) mm	900	900	900	900	900	900	900	1450	1450	1450	1450	1700
B	(10) mm	370	370	420	420	420	420	420	550	550	550	550	650
H	(10) mm	940	940	1240	1240	1390	1240	1390	1200	1200	1700	1700	1700
Operating weight	(10) kg	80	85	100	115	135	115	135	180	205	265	290	325

Notes:

- Plant (side) cooling exchanger water (in/out) 12°C/7°C; Source (side) heat exchanger air (in) 35°C.
- Values in compliance with EN14511-3:2013.
- Plant (side) heat exchanger water (in/out) 40°C/45°C; Source (side) heat exchanger air (in) 7°C - 87% R.H.
- Seasonal space heating energy efficiency class LOW TEMPERATURE in AVERAGE climate conditions [REGULATION (EU) N. 813/2013]
- Seasonal space heating energy efficiency class MEDIUM TEMPERATURE in AVERAGE climate conditions [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, outdoors.
- Sound power level in heating, outdoors.

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

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

12 Seasonal space energy index

13 Seasonal energy efficiency of the space cooling

14 Seasonal performance coefficient

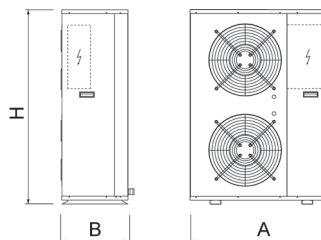
15 Seasonal space heating energy efficiency

The units highlighted in this publication contain HFC R410A [GWP₁₀₀ 2088] fluorinated greenhouse gases.

Certified data in EUROVENT

Accessory:

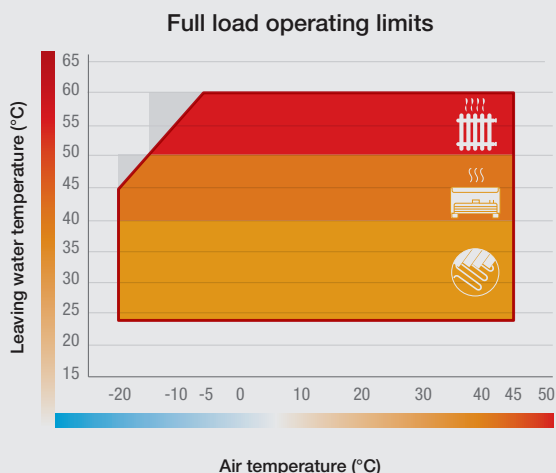
- ▶ Remote keyboard
- ▶ Wired room terminal with backlit display, and with temperature and umidity probe
- ▶ Cascade management kit
- ▶ DHW temperature probe and Buffer temperature probe
- ▶ Copper-Aluminum heat exchanger coils with epoxy treatment
- ▶ Copper-Copper heat exchanger coils
- ▶ Buffer tank
- ▶ Domestic hot water storage tank and 3 way valve for DHW production
- ▶ Electric heater for the base and for condensate collecting tray to avoid freezing
- ▶ Serial card RS485 for ModBus
- ▶ Rubber anti-vibration mounting kit



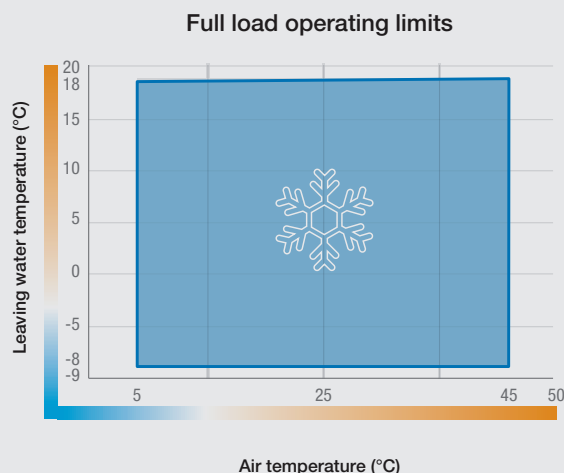


EXTENDED OPERATING LIMITS

Particular attention was paid to winter operation, which thanks to inverter technology is guaranteed beyond the normal limits of traditional units.



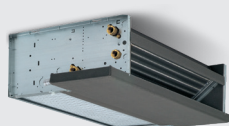
The water can be heated up to 60°C and up to -20°C of outdoor air temperature to satisfy a wide range of heating systems and to produce domestic hot water all year round without the need of external auxiliary sources.



i-BX-N is also an excellent solution for summer cooling, which is guaranteed at full load with outdoor air temperature up to 45°C.

HYDRONIC TERMINALS

i-BX-N series is compatible with all hydronic terminals of Climaveneta, a brand of Mitsubishi Electric Hydronics & IT Cooling Systems.



a-LIFE HP



a-CND



a-CHD



i-CND



i-CHD



MHD



a-LIFE



i-LIFE



i-LIFE2 Slim



Black Diamond Technologies

For more information, visit www.mitsubishi-electric.co.nz
or call our Customer Service Team on **0800 784 382**

Exclusively distributed by BDT



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.



MITSUBISHI ELECTRIC HYDRONICS & IT COOLING SYSTEMS S.p.A.

Head Office: Via Caduti di Cefalonia 1 - 36061 Bassano del Grappa (VI) - Italy
Tel (+39) 0424 509 500 - Fax (+39) 0424 509 509

www.climaveneta.com
www.melcohit.com

