NXHP

THE COMFORT OF THE FUTURE

Air-to-water monobloc heat pump in R290

archiproducts AWARDS 2023 WINNER SUSTAINABILITY

NATURAL REFRIGERANT R290

RIELLO
Energy For Life

A Carrier Company

www.riello.com

NXHP

RIELLO INTRODUCES NXHP, THE NEW RANGE OF AIR-TO-WATER MONOBLOC HEAT PUMPS WITH R290 REFRIGERANT, A COMBINATION OF INNOVATION AND ENVIRONMENTAL STEWARDSHIP FOR A HIGH LEVEL OF COMFORT ALL YEAR ROUND.

Designed to provide heating, cooling and domestic hot water, the new NXHP heat pump **uses R290 gas**, the natural refrigerant that boasts near-zero environmental impact (GWP 100=0,02*), while offering high performance and high energy efficiency.

The new range stands out in the reference segment for **its compact size and low weight** (starting from 79,3 kg), which facilitate handling during installation.
At only 946 mm wide, NXHP can be installed even in small spaces, making it a winning solution not only for **new construction** but also **for renovation**.

The flow temperature of up to 75°C is another distinctive feature of NXHP, which offers high comfort in all seasons of the year, in domestic hot water as well as in heating and cooling.

Its **low noise operation** is a further strenght that completes the high-end profile of the new heat pump, which will be appreciated even by the most demanding users.

The new NXHP heat pump **can be integrated into factory-made hybrid systems** with condensing generators.

* According to Regulation (EU) 2024/573

THE RANGE

NXHP consists of
6 single-phase and
2 three-phase, from 4 to 14 kW.

NATURAL REFRIGERANT
R290

NXHP,
THE NEW DIMENSION OF COMFORT

FEATURES AND BENEFITSOF NXHP

FOR END USER

NATURAL REFRIGERANT

NXHP helps to minimize environmental impact, in fact, it uses the natural refrigerant R290 (Propane), with GWP 100=0,02, i.e., environmental impact close to zero.
NXHP also offers high energy efficiency throughout the working range.

ALL-SEASONS COMFORT

NXHP provides high comfort over a wide range of outdoor air temperatures.
In fact, the product can operate in heating from -20°C outdoor temperature and in cooling up to +46°C.
It can also operate in DHW mode from -20°C to +40°C outdoor air temperature.

REDUCED SIZE AND WEIGHT

NXHP stands out in the market for its compact size and low weight. At only 946 mm wide, the new heat pump can be installed with ease even in small spaces.

FLOW TEMPERATURE UP TO 75°C

NXHP is compatible with terminals for low, medium and high temperatures (fan coils, floor system, radiators). Flow temperature up to 75°C allows for shorter DHW recovery times. In addition, it allows DHW to be stored at a higher temperature, avoiding the need for electrical resistance to run the anti-legionella cycle.

LOW NOISE OPERATION

NXHP is a quiet product, with sound pressure as low as 24db(A)*.

HIGH EFFICIENCY

NXHP achieves Energy Class A++(35°C)** and A++(55°C)**, offering high efficiency against energy savings.

INTEGRABLE INTO HYBRID SYSTEMS

NXHP can be integrated into factory-made hybrid systems with condensing generators, for additional energy efficiency.

CERTIFIED PERFORMANCE

NXHP has obtained HP KEYMARK certification.

* Sound pressure measured at 5m distance (outdoor air +7°C, water +47-55°C), in accordance with EN 12102-1, at ErP conditions.
** The energy efficiency class range of this product category is from D up to A+++.

FOR THE INSTALLER

WIDE RANGE

The NHXP range consists of 6 single-phase and 2 three-phase models, from 4 kW to 14 kW, to meet different application needs.

SAFETY

The low refrigerant charge, together with its hermetically sealed circuit, help minimize leakage potential.
In addition, an external gas separator, installed on the leaving water pipe, further prevents any potential gas leakage from being released into the house.

EASE OF INSTALLATION

The layout and structure of the product are optimized to allow quick and easy connections and easy access to components.

EASY HANDLING

Due to the compactness and low weight in the reference segment, handling and movement of NXHP are facilitated.

CASCADE APPLICATION

NXHP can be applied in cascade up to 4 units, even of different sizes, to meet light commercial applications.

INNOVATION AND **ENVIRONMENTAL STEWARDSHIP**

Riello, increasingly focused on designing comfort solutions respecting the environment, with NXHP offers the highest contribution of its heat pump offering in terms of environmental and climate awareness. In fact, the new range uses the natural refrigerant R290 (Propane), currently the most sustainable refrigerant on the market in its target segment, offering high energy efficiency over the entire operating range.

WHY NATURAL REFRIGERANT R290 (PROPANE)

- The R290 refrigerant boasts a very low global warming potential (GWP100=0,02), which currently places it at the top of the refrigerant category in terms of environmental respect.
- It is a highly energy-efficient refrigerant, which means less energy expenditure to achieve the same cooling or heating capacity compared to other refrigerants.
- R290 reduces CO_2 equivalents by 99,999% when compared to conventional R410A gas.
- The required charge of R290 refrigerant is significantly lower than other traditional gases, e.g., R410A or R32.
- Its ODP (Ozone Depletion Potential) Index is zero, meaning it has no impact on the ozone layer.

MADE IN **EUROPE**

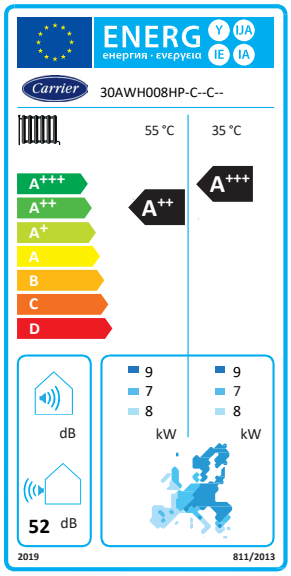
The NXHP range is designed and manufactured in Europe in Carrier factories. Each unit undergoes multiple tests during the production stages before packaging to offer a high level of quality and reliability.

EFFICIENCY AND ENERGY SAVING

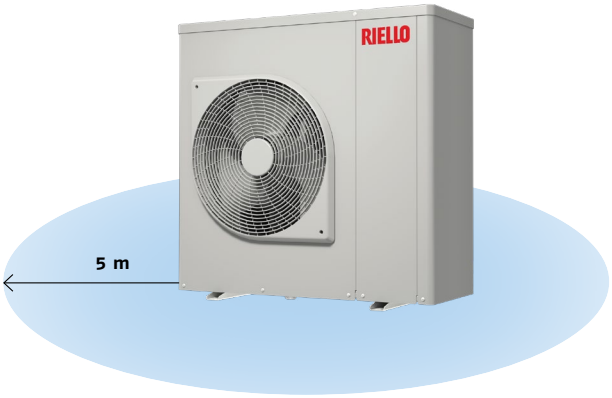
The new NXHP range features high energy efficiency, resulting in energy savings that benefit the environment and the user:

- All sizes in the range achieve Energy Class A+++ (35°C)* and A++ (55°C)*;
- Thanks to the natural refrigerant R290, NXHP features high SCOP (up to 4,82) and SEER (up to 5,34).

* The energy efficiency class range of this product category is from D up to A+++.

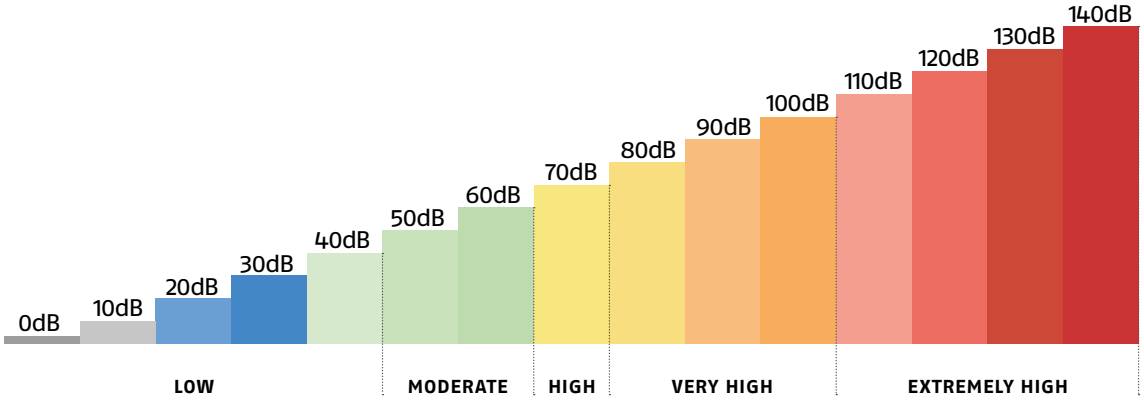


LOW NOISE OPERATION



Riello's NXHP offers low-noise operation without sacrificing high performance under standard operating conditions. From a distance of 5m, it boasts sound pressure as low as 24dB(A)* for the lowest power model.

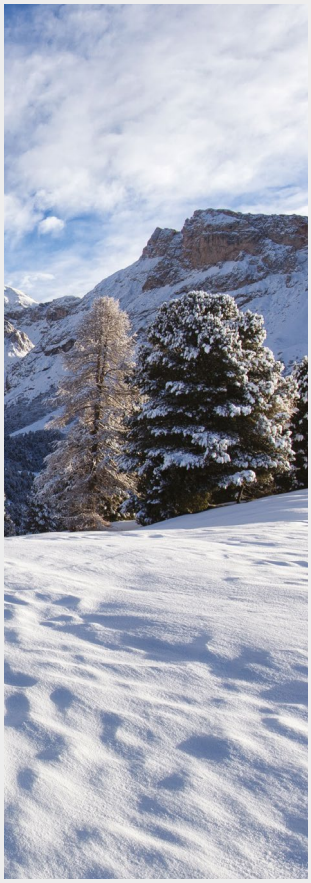
* Sound pressure measured at 5m distance (outdoor air +7°C, water +47-55°C), in accordance with EN 12102-1, under ErP conditions.

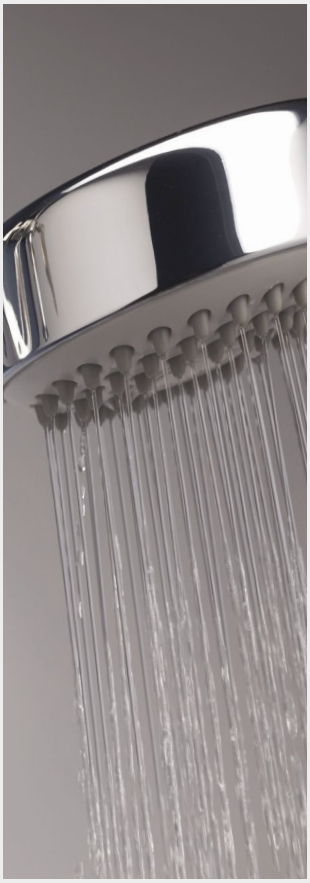


Scale of perceived sound emissions in dB with examples of levels between 0 and 140 dB.

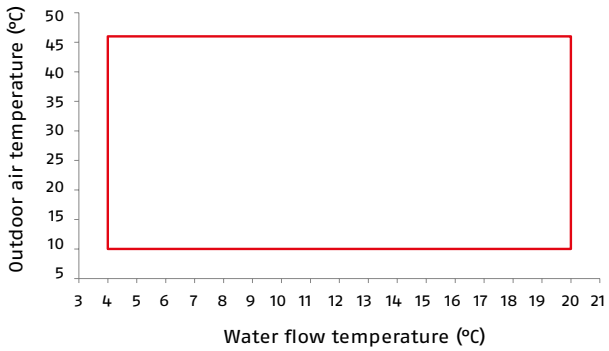
HIGH COMFORT
FOR ALL SEASONS

NXHP offers high comfort in all seasons of the year, satisfying different climatic zones.
In fact, the product can operate in heating mode from -20°C outdoor temperature and in cooling mode up to +46°C, reaching a water flow temperature of up to 75°C.
It can also operate in DHW mode from -20°C up to +40°C outdoor air temperature.

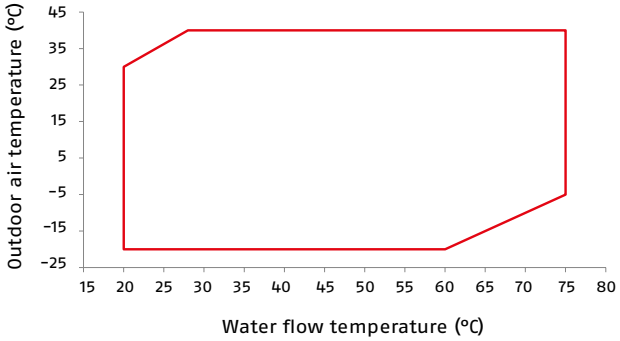




COOLING MODE



HEATING AND DHW MODE



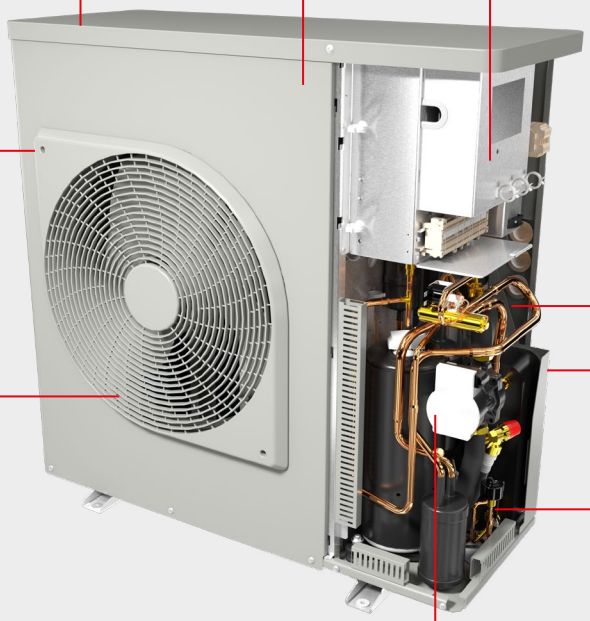
TECHNOLOGY AND INNOVATION

EXCHANGE COIL
consisting of a coil-wound circular tube, with hydrophilic and anti-corrosive Blue-Fin treatment, to promote product longevity and efficiency

ACOUSTICALLY INSULATED METAL PANELS
to reduce noise levels

ELECTRONIC CONTROL BOARD
easy to access

TWIN ROTARY DC INVERTER COMPRESSOR with wide operating range



PRESSURE SENSOR
with R290 gas leak detection function and alarm code activation on the controller

GAS SEPARATOR
Installed on the leaving water pipe, further prevents any potential gas leakage from being released into the house.

FAN WITH DC MOTOR
and speed control to optimize energy efficiency

PLATE EXCHANGER
optimized for NXHP

VARIABLE SPEED CIRCULATOR
with high efficiency

IDEAL FOR BUILDING UPGRADING AND NEW CONSTRUCTION

RECORD-BREAKING COMPACTNESS

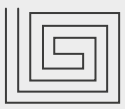
NXHP stands out for its compactness, which together with its low weight puts Riello's new heat pump among the best of its segment.
In particular, the width of less than 1 m facilitates the installation of NXHP even in small spaces.

ONLY 946 MM
WIDTH!

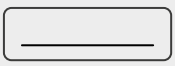
FLOW TEMPERATURE UP TO 75°C

Another distinctive feature of NXHP, which makes it suitable for both upgrading and new construction, is the flow temperature, which can reach up to 75°C. Therefore, the new range offers high performance in combination with different terminals for low, medium and high temperatures: from underfloor heating to fan coils and cassettes to radiators (including pre-existing) and mixed systems.
In addition, the high flow temperature allows NXHP to deliver and store more hot water and faster, avoiding the need for electrical resistance to sterilize the water, protecting against legionella.

TERMINAL UNITS



FLOOR HEATING



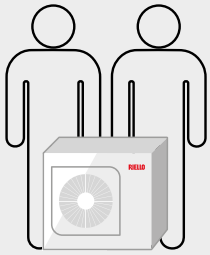
FAN COILS

RADIATORS

EASY TO INSTALL AND MAINTAIN

WEIGHT
FROM ONLY 79,3 KG!

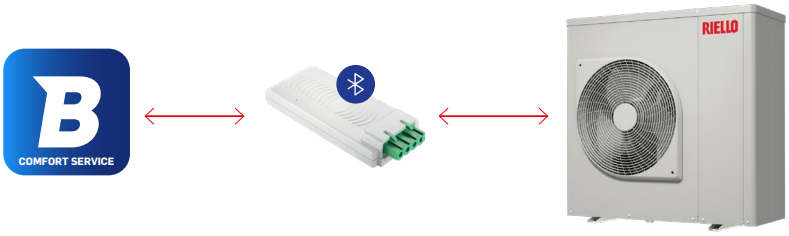
NXHP's compactness and low weight, in comparison to most heat pumps in the same segment, result in better handling and ease of transport during installation.

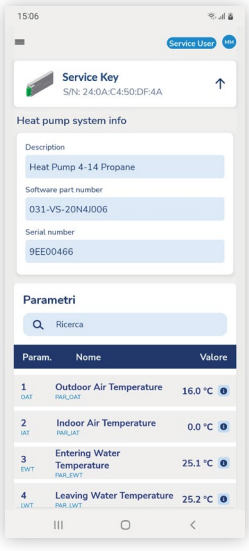


NXHP is designed for easy connections and immediate access to components.

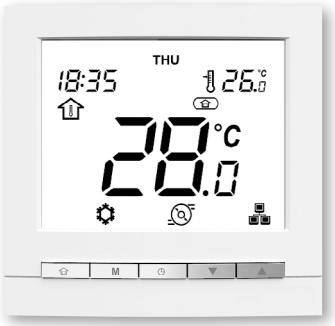
BLUEDGE COMFORT SERVICE APP

Through the BluEdge Comfort Service App, Riello Authorized Services technicians can perform commissioning, diagnostics, and troubleshooting of NHXP in a simple and intuitive way. An added benefit for even greater peace of mind.





MANAGING COMFORT WITH **SIMPLICITY**



WUI MULTIFUNCTION WIRED CONTROL

WUI is the wired control NXHP is equipped with the complete management of the heating/cooling and domestic hot water system. The main features and functions are as follows:

- control provided as standard, for immediate startup and use of the unit itself;
- intuitive icons to avoid language barriers;
- selectable usage mode (Home, Night, Holiday);
- simple and intuitive comfort control through air or water temperature setting, depending on system configuration;
- weekly timer;
- two access levels: user and technician;
- management of a cascade system of up to 4 units.

HI, COMFORT T300

Hi Comfort T300 is an advanced room control, featuring a stylish and modern design, that thanks to the built-in gateway allows the remote management of home comfort via Hi, Comfort App. Hi, Comfort T300 can operate as a true System Manager for the heating and cooling generation system (intuitive management of the heat pump and full-electric system operation, as well as hybrid distribution). Its screen graphics are easy to read and contain self-explanatory icons allowing an intuitive use.

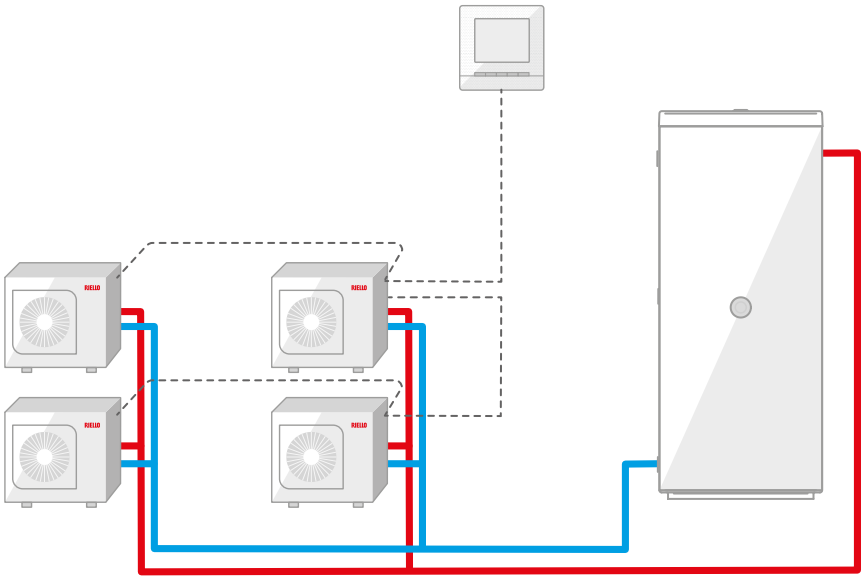
SAFETY

NXHP is a safe product.

- The low refrigerant charge and the hermetically sealed refrigerant circuit minimize the risk of leakage. Thanks to its monobloc design, the system does not require the refrigerant circuit to be put on operation.
- The robust design of the components offers maximum protection and prevention against any risk of R290 leakage.
- In the extremely unlikely event of a refrigerant leak, the fluid pressure sensor immediately detects the problem and displays an alarm code on the wired control.
- It is possible to install NXHP at a distance of only 1 meter from any triggers (e.g., electrical sockets).
- A gas separator, installed on the leaving water pipe, further prevents any potential gas leakage from being released into the house.

CASCADE
APPLICATION

The new NXHP heat pump can be installed in cascade up to 4 units, even of different sizes, for heating, cooling and domestic hot water in light commercial applications. Each unit individually meets the requirements of the space in which it is installed.

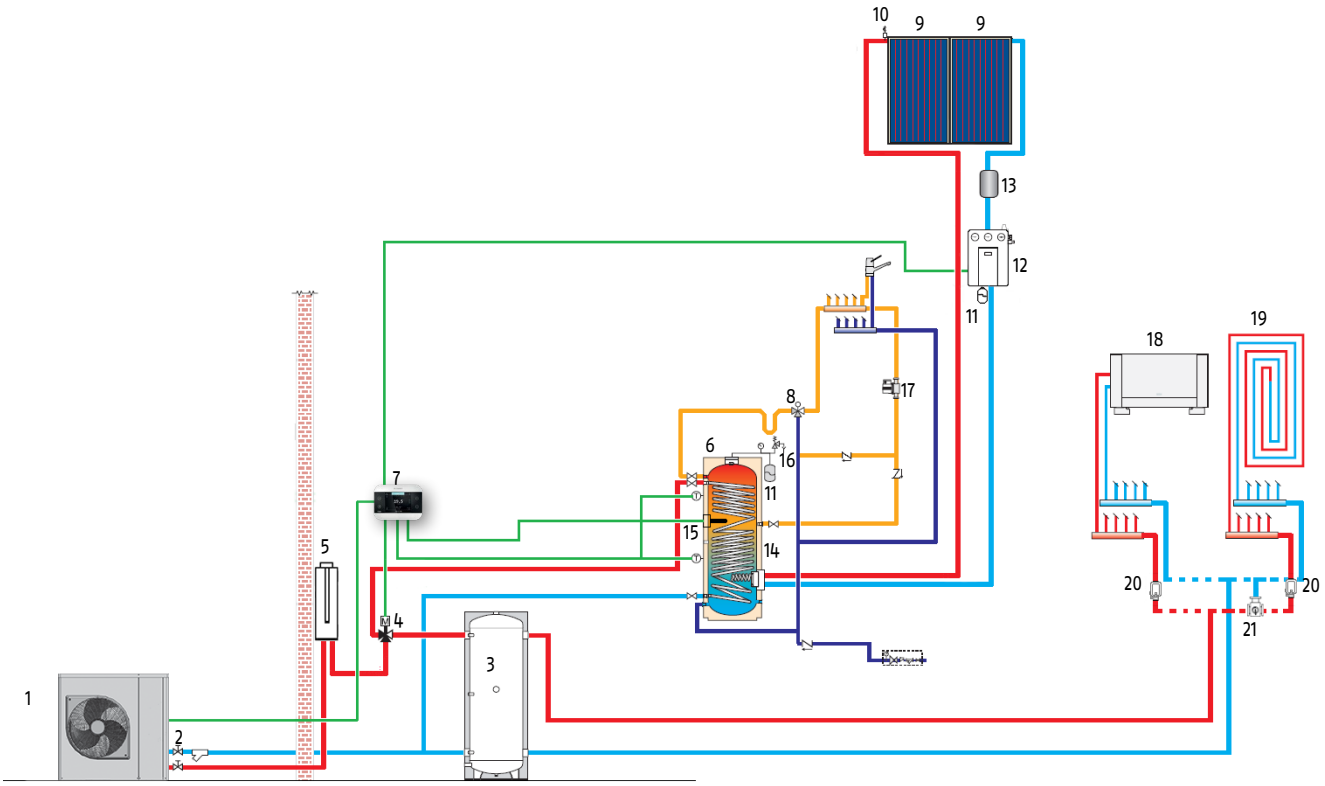


APPLICATIONS

There are several applications of NXHP for domestic and small commercial uses. Find below two application schemes, exemplifying the flexibility of this range.

DIAGRAM 1: MONOVALENT HEATING, COOLING AND DHW PRODUCTION SYSTEM (FULL-ELECTRIC VERSION)

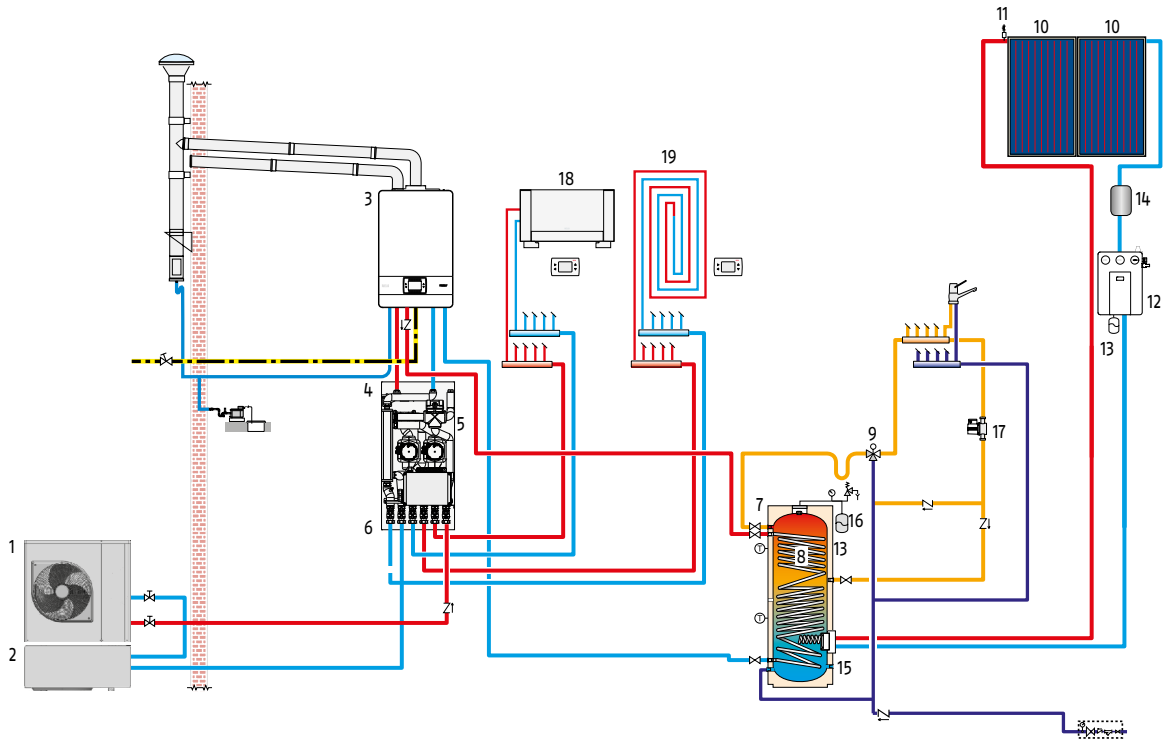
The following diagram represents an example of an installation in which the heat pump is the only heat generator and is capable of meeting the heating, cooling and DHW production needs typical of a single-family household. The Hi, Comfort T300 remote control coordinates the operation of the system to provide high comfort for people and low power consumption.



1	NXHP heat pump	8	¾" thermostatic mixer	15	DHW cylinder heater
2	Water filter	9	Solar collector	16	Safety valve
3	Hot/cold buffer tank kit	10	Manual solar air vent kit	17	DHW recirculation pump
4	DHW diverter valve kit	11	Expansion vessel	18	Fan coil
5	System integration heater	12	Solar hydraulic unit	19	Floor heating system
6	DHW Cylinder	13	Safety tank	20	Zone pump
7	Hi, Comfort T300 control panel	14	Solar exchanger	21	Zone mixing valve

DIAGRAM 2: BIVALENT HEATING, COOLING AND DHW PRODUCTION SYSTEM (RESIDENTIAL HYBRID VERSION)

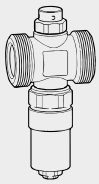
The diagram below represents one of the possible installation versions of a pump and boiler to meet the heating, cooling and DHW production needs of a typical single-family household. There are many hybrid solutions, but all are designed to minimize consumption without sacrificing user comfort.



1	NXHP heat pump	**7**	DHW Cylinder	**14**	Safety tank
2	Hot/cold buffer tank kit	**8**	DHW tank coil	**15**	Solar exchanger
3	Wall-hung boiler	**9**	¾" thermostatic mixer	**16**	Safety valve
4	BAG^3 HYBRID	**10**	Solar collector	**17**	DHW recirculation pump
5	BAG^3 HYBRID diverter valve kit	**11**	Manual solar air vent kit	**18**	Fan coil
6	Taps kit for BAG^3 HYBRID for system and heat pump	**12**	Solar hydraulic unit	**19**	Floor heating system
		13	Expansion vessel		

A WIDE RANGE OF ACCESSORIES

ANTIFREEZE VALVE

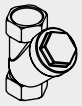


The antifreeze valve is designed to drain water by preventing ice formation in the heat pump circuit due to unexpected interruption of the power supply.

1" THREE WAYS DIVERTER VALVE AND STORAGE TANK SENSOR

Also available in the storage tank resistance kit.

Y-FILTER



Y water filter to retain circuit impurities in the water that could damage the heat exchanger.

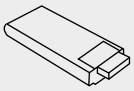
SENSOR

Outdoor temperature sensor to better read the outside air temperature.

ANTI-VIBRATION KIT

Anti-vibration kit, for installation under the unit, to reduce vibration transmission.

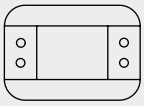
SERVICE KEY



Service Key for BluEdge Comfort Service App.

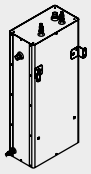
See the complete range of accessories in the Riello Product Catalog.

T300 CONTROL



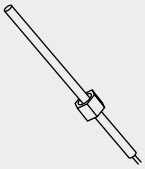
For complete management of residential full-electric and hybrid systems.

INERTIAL STORAGE TANK OF 50 L AND 100 L



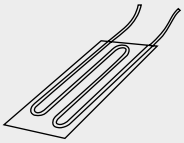
Designed for installation with NXHP heat pump.

PRIMARY/SECONDARY SENSOR FOR CASCADE SYSTEM



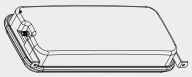
Additional flow water temperature sensor kit for primary/secondary operation of up to 4 units, connected in a cascade system.

DRAIN PAN HEATER



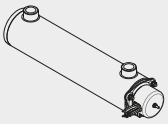
Electric heater to prevent condensate freezing (base panel and drain duct) for cold climate.

EXPANSION VESSEL



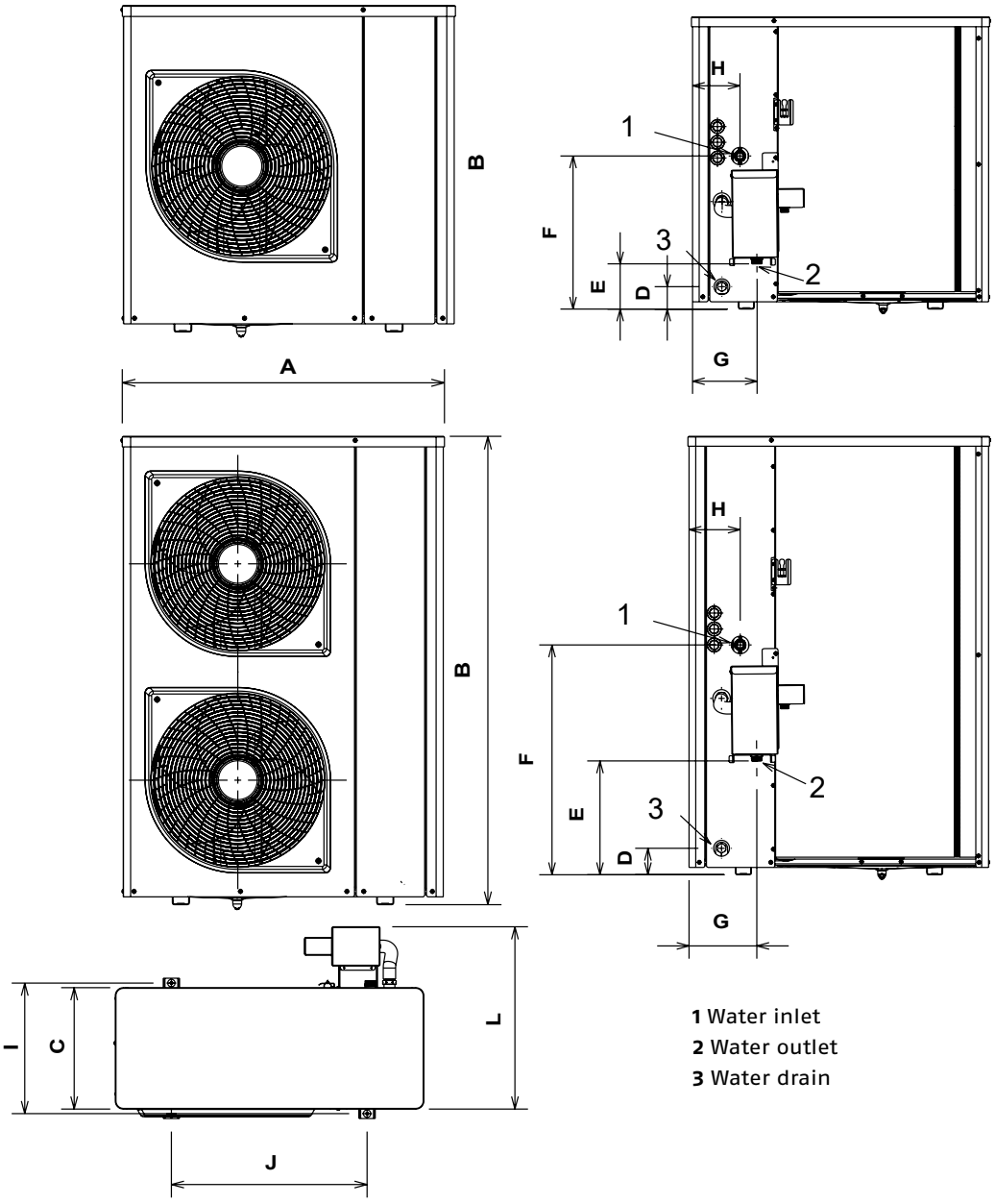
External expansion vessel to maintain the right level of pressure in the heating system.

BACK-UP HEATER



External electric back-up heater (configurable for 2, 4 or 6 kW) to provide supplementary heatingcapacity for cold climate.

TECHNICAL DRAWINGS



1 Water inlet
2 Water outlet
3 Water drain

MODEL	uom	A	B	C	D	E	F	G	H	I	J	L
004	mm	946	927	372	71	143	485	201	150	400	600	560
006	mm	946	927	372	71	143	485	201	150	400	600	560
008	mm	946	927	372	71	143	485	201	150	400	600	560
010	mm	946	927	372	71	143	485	201	150	400	600	560
012	mm	946	1375	372	83	357	720	210	160	400	600	560
014	mm	946	1375	372	83	357	720	210	160	400	600	560

TECHNICAL DATA

			NXHP							
	Notes	UoM	004	006	008	010	012	014	012T	014T
HEATING PERFORMANCE DATA										
HEATING PERFORMANCE (A7°C DB; W35°C)										
Nominal heat output	1	kW	3,95	5,80	7,60	9,60	11,40	13,80	11,40	13,80
COP	1	kW/kW	4,90	4,90	4,80	4,35	4,55	4,30	4,65	4,40
SCOP	2	kW/kW	4,70	4,82	4,72	4,69	4,48	4,48	4,48	4,48
ηs	2	%	185	190	185	185	176	176	176	176
Energy efficiency class	2	D → A+++(*)	A+++	A+++	A+++	A+++	A+++	A+++	A+++	A+++
HEATING PERFORMANCE (A7°C DB; W45°C)										
Nominal heat output	3	kW	3,85	5,50	7,80	9,50	10,80	13,60	10,80	13,60
COP	3	kW/kW	3,65	3,65	3,75	3,55	3,65	3,40	3,75	3,50
HEATING PERFORMANCE (A7°C DB; W55°C)										
Nominal heat output	4	kW	3,75	5,25	7,55	9,40	10,95	13,25	10,95	13,25
COP	4	kW/kW	2,95	2,95	3,15	2,95	3,10	2,90	3,15	2,95
SCOP	5	kW/kW	3,34	3,34	3,6	3,34	3,67	3,67	3,67	3,67
ηs	5	%	131	131	141	131	144	144	144	144
Energy efficiency class	6	D → A+++(*)	A++	A++	A++	A++	A++	A++	A++	A++
COOLING PERFORMANCE DATA										
COOLING PERFORMANCE (A35°C; W18°C)										
Cooling performance data	7	kW	4,00	6,15	8,00	8,90	12,00	14,50	12,00	14,50
EER	7	kW/kW	4,15	3,90	4,00	3,70	4,30	3,70	4,35	3,75
COOLING PERFORMANCE DATA (A35°C; W7°C)										
Cooling performance data	8	kW	3,35	4,60	6,50	7,40	9,70	10,70	9,70	10,70
EER	8	kW/kW	3,15	3,15	3,05	2,90	3,05	2,95	3,10	3,00
SEER	9	kW/kW	4,93	5,34	5,27	5,14	5,33	5,16	5,33	5,16
ηs	9	%	194	211	208	203	210	203	210	203
SOUND LEVELS										
Sound power level, ErP condition A7°C/W55°C	10	dB(A)	49	50	52	51	54	54	54	54
Sound pressure level at 5 m, ErP condition A7°C/W55°C	11	dB(A)	24	25	26	26	28	28	28	28
NET WEIGHT										
Standard unit without gas separator		kg	78	84	91	93	126	126	128	128
Standard unit with gas separator		kg	79,3	85,3	92,3	94,3	127,3	127,3	129,3	129,3
REFRIGERANT										
Type of refrigerant			R290 (GWP100=0.02)							
Refrigerant charge		Kg	0,39	0,58	0,76	0,76	1,07	1,07	1,07	1,07
ELECTRICAL DATA										
Electrical supply		V/ph/Hz	230/1+N/50						400/3+N/50	

(*) The energy efficiency classrange of this product category is from D up to A+++.
(1) Outdoor air DB +7°C/ WB +6°C, water 30-35°C. Values in accordance with EN 14511-3: 2022
(2) Value referred to the average climate profile for flow temperature of 35°C. Values in accordance with EN 14825: 2022
(3) Outdoor air DB +7°C/ WB +6°C, water 40-45°C. Values in accordance with EN 14511-3: 2022
(4) Outdoor air DB +7°C/ WB +6°C, water 47-55°C. Values in accordance with EN 14511-3: 2022
(5) Value referred to the average climate profile for flow temperature of 55°C. Values in accordance with EcodesignRegulation (EU) No. 813/2013 for heating application
(6) Value referred to the average climate profile for flow temperature of 55°C. Values in accordance with EN 14825: 2022
(7) Outdoor air DB +35°C/ WB +24°C, water 23-18°C. Values in accordance with EN 14511-3: 2022
(8) Outdoor air DB +35°C/ WB +24°C, water 12-7°C. Values in accordance with EN 14511-3: 2022
(9) Value referred to the average climate profile for flow temperature of 7°C. Values in accordance with EN 14825: 2022
(10) Declared value in accordance with EN 12102-1 (with an associated uncertainty of +/-2dB(A)), as required by the Ecodesign standard. Measured in accordance with ISO 9614-1
(11) Value calculated from the sound power level Lw(A). Declared value in accordance with EN 12102-1, (with an associated uncertainty of +/-2dB(A)), at ErP conditions.

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Carrier