

## NYK

## Air-cooled reversible modular heat pump

Cooling capacity 25.8 ton  
Heating capacity 345,991 BTU/h

- Water produced up to 149.0 °F
- Vapor injection compressors
- Easy and quick to install compact
- Reliability and modularity
- Performances exceeding the minimum efficiencies required by the ASHRAE 90.1 - 2019 regulation



### DESCRIPTION

Reversible outdoor heat pumps for the production of chilled/heated water designed to satisfy the needs of residential and commercial buildings, or for industrial applications.

The base, the structure and the panels are made of galvanized steel treated with polyester paint RAL 9003.

### FEATURES

#### Operating field

Working at full load up to -4.0 °F outside air temperature in winter, and up to 118.4 °F in summer. Possibility production technical hot water production up to 149.0 °F.

#### Modularity

It is possible to couple up to 9 units designed to reduce the overall unit dimensions to a minimum.

#### Silent

Silent at the highest levels thanks to the inverter fans used in both the standard (J) and oversized (M) options – the latter also offer high static pressure.

#### Flexibility

Modularity allows you to adapt installation to the actual development needs of the system. This way the capacity can be increased over time simply and affordably.

#### Reliability

- The electrical panel on each module and the management logic via the Multichiller\_EVO accessory, which allows the modules to work in synergy with each other, ensure continuity of service even if one unit malfunctions.
- Modularity is essential when component redundancy is required, as it allows for a safer system design and increased reliability.

- Possibility of using them in a system with fixed or variable flow rates.
- Possibility of excluding individual modules with valves on every unit in case of maintenance.

#### Also joint production of hot/cold water

Besides choosing the components carefully and the particular cooling configuration with vapor injection compressors, we decided to provide a plug and play unit to also manage the hydraulic circuit, allowing the type of unit for 2 or 4 pipe systems in the configurator to be chosen.

- **In the 2-pipe configuration**, the production of hot or cold water is alternated according to need.
- **In the 4-pipe configuration**, hot or cold water can also be produced simultaneously if several modules are installed. The throttle valves on each module, independent of each other, allow the water produced on the collector of the hot or cold circuit to be switched according to the operating mode of the single unit established by the Multichiller\_EVO, according to the cooling / heat load required by the system.

#### CONTROL PCO<sub>5</sub>

Microprocessor adjustment, with keyboard and LCD display, for easy access on the unit is a menu available in several languages.

Adjustment includes complete management of the alarms and their log.

The presence of a programmable timer allows functioning time periods and a possible second set-point to be set.

The temperature control takes place with the integral proportional logic, based on the water output temperature.

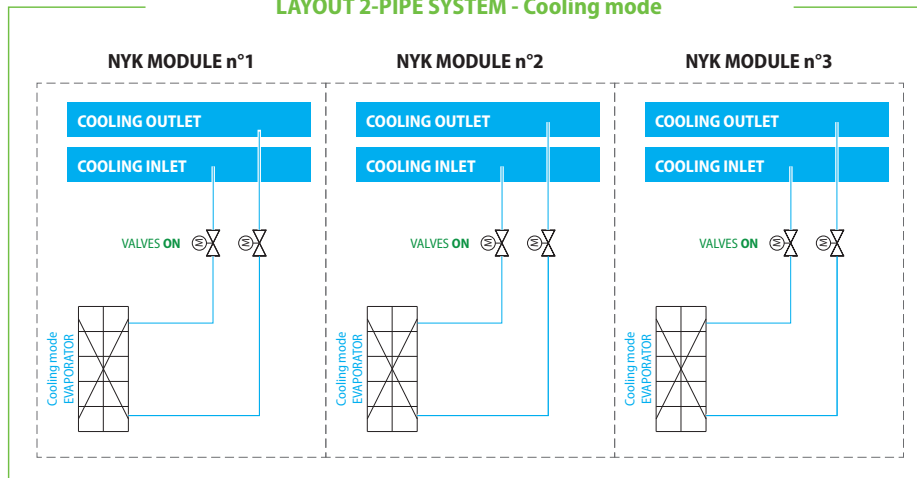
**Modalità Night Mode:** it is possible to set a silenced operation profile. Perfect for night operation since it guarantees greater acoustic comfort in the evenings, and a high efficiency in the time of greater load.

## POSSIBLE CONFIGURATIONS

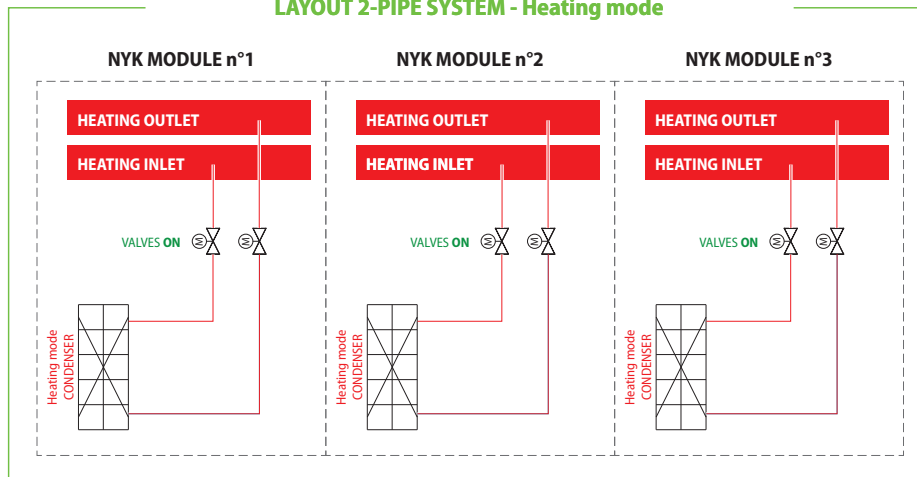
— 2-pipe system

— 4-pipe system

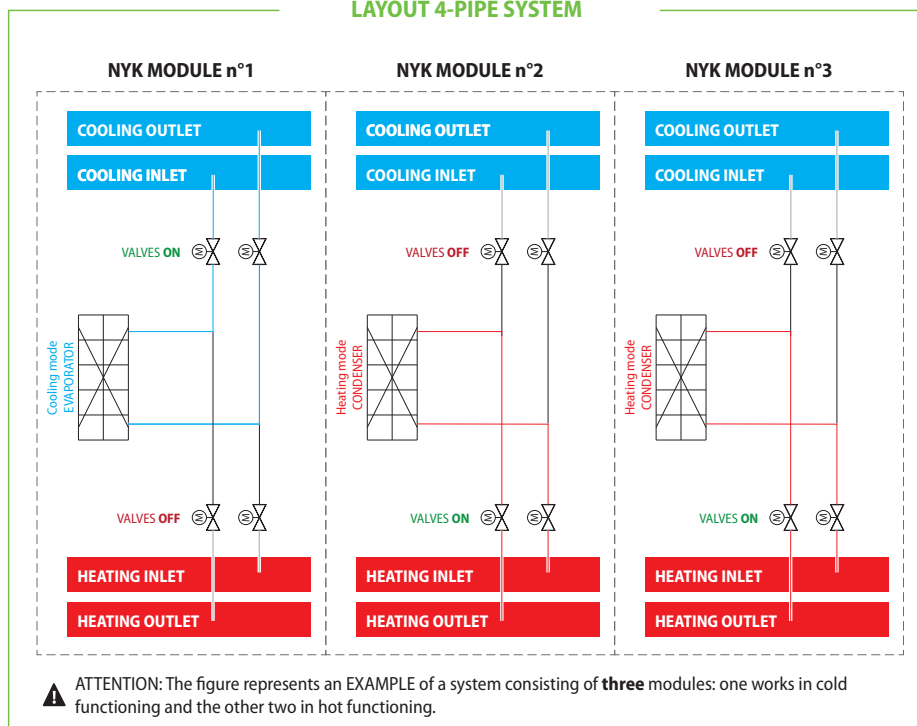
### LAYOUT 2-PIPE SYSTEM - Cooling mode



### LAYOUT 2-PIPE SYSTEM - Heating mode



### LAYOUT 4-PIPE SYSTEM



## ACCESSORIES

**AER485P1:** RS-485 interface for supervision systems with MODBUS protocol.

**AERNET:** The device allows the control, the management and the remote monitoring of a Chiller with a PC, smartphone or tablet using Cloud connection. AERNET works as Master while every unit connected is configured as Slave (max. 6 unit); also, with a simple click is possible to save a log file with all the connected unit datas in the personal terminal for post analysis.

**MULTICHILLER\_EVO:** Control, switch-on and switch-off system of the single chillers where multiple units are installed in parallel, always ensuring constant flow rate to the evaporators.

**PGD1:** Allows you to control the unit at a distance.

**CRATE:** Special crate for transport

## MANDATORY ACCESSORIES FOR ONLY THE 4-TUBE UNITS

**KCOLL00\_NYK4T:** Additional manifold kit (145 psi) removable for a separate shipment.

**KCOLL01\_NYK4T:** Additional manifold kit (300 psi) removable for a separate shipment.

**KCOLLPACK\_NYK4T:** Packaging for the manifold kits (2 kits per package)

## FACTORY FITTED ACCESSORIES

**KNYB:** Pair of caps with grooved joints assembled on the unit manifold.

## ACCESSORIES COMPATIBILITY

Model	500
AER485P1	•
AERNET	•
MULTICHILLER_EVO	•
PGD1	•

### Special crate for transport

500
CRATE_NYB

### Pair of caps with grooved joints assembled on the unit manifold

500
KNYB

A grey background indicates the accessory must be assembled in the factory

### Additional manifold kits

Accessory	NYK 500
KCOLL00_NYK4T	•
KCOLL01_NYK4T	•
KCOLLPACK_NYK4T	•

## CONFIGURATOR

Field	Description
1,2,3	NYK
4,5,6	Size 500
7	Model
H	Heat pump
8	Heat recovery
°	Without heat recovery
D	With desuperheater (1)
9	Coils
°	Copper-aluminium
R	Copper pipes-copper fins
S	Copper pipes-Tinned copper fins
V	Copper pipes-Coated aluminium fins
10	Fans
J	Inverter
M	Inverter surdimensionnés
11	Power supply
6	230V ~3/60Hz
7	460V ~ 3 60Hz
8	575V ~3/60Hz
9	208V ~3/60Hz
12,13	Integrated hydronic kit
00	145 psi nominal
01	300 psi nominal
14	System type
2	2-pipe system
4	4-pipe system

(1) The desuperheater must be intercepted in heating mode. In cooling mode, a water temperature no lower than 95 °F must always be guaranteed on the heat exchanger inlet.

## PERFORMANCE SPECIFICATIONS

Size			500
<b>Cooling performance 54.0 °F / 44.1 °F (1)</b>			
Cooling capacity	6,7,8,9	ton	25.8
Input power	6,7,8,9	kW	30.5
Cooling total input current	6	A	104.5
	7	A	52.3
	8	A	41.8
	9	A	115.6
EER	6,7,8,9	BTU/(Wh)	10.18
IPLV	6,7,8,9	BTU/(Wh)	13.68
Water flow rate system side	6,7,8,9	gpm	61.8
Pressure drop system side	6,7,8,9	ftH <sub>2</sub> O	6.02
<b>Heating performance * °F / 120.0 °F (2)</b>			
Heating capacity	6,7,8,9	BTU/h	345,991
Input power	6,7,8,9	kW	34.9
Heating total input current	6	A	107.0
	7	A	53.0
	8	A	43.0
	9	A	118.0
COP	6,7,8,9	kW/kW	2.90
Water flow rate system side	6,7,8,9	gpm	65.2
Pressure drop system side	6,7,8,9	ftH <sub>2</sub> O	6.69

(1) Data: System side water heat exchanger 54.0 °F / 44.1 °F; External air 95 °F

(2) Data: System side water heat exchanger \* °F / 120.0 °F; External air 47 °F

## PART LOAD IPLV

NYK 500		
<b>Part load IPLV</b>		
100 %	BTU/W	10.09
75 %	BTU/W	12.34
50 %	BTU/W	14.42
25 %	BTU/W	14.90

## ELECTRIC DATA

### FAN J

NYK 500		
<b>Power supply: 230V</b>		
Peak current (LRA)	A	444.0
Minimum circuit amperage (MCA)	A	175.0
Maximum overcurrent permitted by the protection device (MOP)	A	225.0
Cooling total input current	A	104.5
Heating total input current	A	106.6
<b>Power supply: 460V</b>		
Peak current (LRA)	A	222.0
Minimum circuit amperage (MCA)	A	90.0
Maximum overcurrent permitted by the protection device (MOP)	A	110.0
Cooling total input current	A	52.0
Heating total input current	A	53.0
<b>Power supply: 575V</b>		
Peak current (LRA)	A	178.0
Minimum circuit amperage (MCA)	A	70.0
Maximum overcurrent permitted by the protection device (MOP)	A	90.0
Cooling total input current	A	41.8
Heating total input current	A	42.6
<b>Power supply: 208V</b>		
Peak current (LRA)	A	491.0
Minimum circuit amperage (MCA)	A	200.0
Maximum overcurrent permitted by the protection device (MOP)	A	250.0
Cooling total input current	A	115.6
Heating total input current	A	117.9

## FAN M

NYK 500		
<b>Power supply: 230V</b>		
Peak current (LRA)	A	455.0
Minimum circuit amperage (MCA)	A	175.0
Maximum overcurrent permitted by the protection device (MOP)	A	225.0
Cooling total input current	A	104.5
Heating total input current	A	106.6
<b>Power supply: 460V</b>		
Peak current (LRA)	A	228.0
Minimum circuit amperage (MCA)	A	90.0
Maximum overcurrent permitted by the protection device (MOP)	A	110.0
Cooling total input current	A	52.0
Heating total input current	A	53.0
<b>Power supply: 575V</b>		
Peak current (LRA)	A	182.0
Minimum circuit amperage (MCA)	A	70.0
Maximum overcurrent permitted by the protection device (MOP)	A	90.0
Cooling total input current	A	41.8
Heating total input current	A	42.6
<b>Power supply: 208V</b>		
Peak current (LRA)	A	504.0
Minimum circuit amperage (MCA)	A	200.0
Maximum overcurrent permitted by the protection device (MOP)	A	250.0
Cooling total input current	A	115.6
Heating total input current	A	117.9

## GENERAL TECHNICAL DATA

NYK 500		
<b>Compressor</b>		
Type	type	Scroll
Number	no.	2
Circuits	no.	2
Refrigerant	type	R410A
<b>Compressor - Circuit (C1/C2)</b>		
Refrigerant load circuit 1	lbs	19.8
Refrigerant load circuit 2	lbs	19.8
<b>System side heat exchanger</b>		
Type	type	Brazed plate
Number	no.	1

## Fans data

<b>Size</b>			<b>500</b>
<b>Fan</b>			
Type	J,M	type	Axial
Fan motor	J,M	type	EC Inverter motors
Number	J,M	no.	2

## Sound data (without Static pressure)

<b>Size</b>			<b>500</b>
<b>Sound data calculated in cooling mode (1)</b>			
Sound power level	J	dB(A)	89,1
	M	dB(A)	86,2
<b>Sound data calculated in heating mode (1)</b>			
Sound power level	J	dB(A)	91,8
	M	dB(A)	89,4

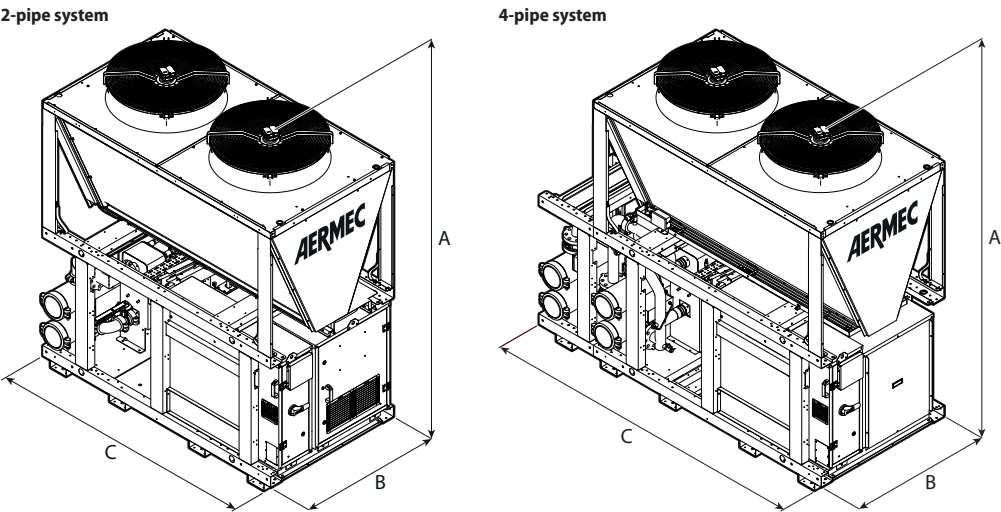
(1) Sound power calculated on the basis of measurements made in accordance with UNI EN ISO 9614-2. Sound pressure (cold functioning) measured in free field, 10 m / 33 ft away from the unit external surface (in compliance with UNI EN ISO 3744).

## Sound data (with Static pressure)

<b>Size</b>			<b>500</b>
<b>Sound data calculated in cooling mode (1)</b>			
Sound power level	J	dB(A)	-
	M	dB(A)	96,6
<b>Sound data calculated in heating mode (1)</b>			
Sound power level	J	dB(A)	-
	M	dB(A)	99,2

(1) Sound power calculated on the basis of measurements made in accordance with UNI EN ISO 9614-2. Sound pressure (cold functioning) measured in free field, 10 m / 33 ft away from the unit external surface (in compliance with UNI EN ISO 3744).

DIMENSIONS



<b>Size</b>			<b>500</b>
<b>Dimensions and weights</b>			
A	J	in	96.5
	M	in	99.5
B	J,M	in	46.9
<b>2-pipe system</b>			
C	J,M	in	86.6
<b>4-pipe system</b>			
C	J,M	in	107.3
<b>Size</b>			<b>500</b>
<b>2-pipe</b>			
Empty weight	6,8,9	lbs	3,571
	7	lbs	2,954
<b>4-pipe</b>			
Empty weight	6,8,9	lbs	3,968
	7	lbs	3,351

Aermec reserves the right to make any modifications deemed necessary.  
All data is subject to change without notice. Aermec does not assume  
responsibility or liability for errors or omissions.

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