

## Reversible Air-Source Heat Pump For Outdoor Installation



**Air-Source Heat Pumps for outdoor installation, for the production of chilled or hot water. The units feature hermetic scroll compressors using R-410A refrigerant, axial fans, plate heat exchanger, condensing coils with copper tubes and aluminum fins and electronic expansion valve. The range is composed by units equipped with two compressors in a single-circuit configuration.**

### Electronic Controls



#### Electronic control W3000+

W3000+ features an easy-to-use interface and a complete LCD display that allows comprehensive access to the unit via a multi-language menu (19 languages are available). The diagnostics includes a complete alarm management system. With the "black-box" feature, the alarm history displays all parameters at the time of the alarm event for enhanced analysis and troubleshooting of system operation. The programmable timer manages a weekly schedule via time bands to optimize unit performance by minimizing power consumption during unoccupied periods. Up to 10 daily time bands can be associated with different operating set points. KIPLink - Keyboard In Your Pocket, is also available as an option. KIPLink is the innovative user interface based on Wi-Fi technology that allows an authorized user to interface with the unit directly from a smartphone, tablet or PC by scanning a QR Code.

The regulation is based on the patented "Quickmind" water temperature regulation logic, which uses self-adapting control logic to maintain temperature setpoints and optimizes performance even in low water volume systems. As an alternative, proportional or proportional-integral regulations are also available.

Optional proprietary Plant Control solutions can control the individual units and their respective parameters in applications with plants containing multiple heat pump units. Energy Consumption Metering and Performance Monitoring solutions are also available upon request.

System Supervision can be easily integrated via proprietary devices available, or via integration with third party control systems through common Building Automation Control Protocols such as Mitsubishi M-NET, ModBus, Bacnet, Bacnet-over-IP, LonWorks and Konnex. Communication protocols are also compatible with the remote keyboard (up to 8 units). Reversible Air-Source Heat Pumps include a defrost control which follows a proprietary self-adaptive control logic. The specialized control logic monitors several operational parameters and helps to reduce both the frequency and duration of defrost cycles, and improves the overall energy efficiency of the heat pump when operating in heating mode.

### Refrigerant



### Versions

- Basic

### Configurations

- Basic Function
- D Partial Condensing Heat Recovery function

### Features

#### HIGH EFFICIENCY

Very high efficiency at full and partial load, at the highest market levels, thanks to advanced technologies implemented in the Heat Pump. These units can contribute to a significant reduction in operating costs and can provide for highly attractive R.O.I.'s.

#### EXTREMELY SILENT OPERATION

The best balance between silence and efficiency, as a result of a systematic design process aimed to minimize sound levels.

#### WIDE OPERATING LIMITS

These units will operate at full load in heat pump mode down to -15 °C of outdoor air temperature. For temperatures lower than -15 °C, the control can easily manage control integration with an auxiliary heat source, to supplement the plant leaving water temperature. In chiller mode, full load operation is guaranteed from -10 °C up to 46 °C.

#### SMART DEFROST

The advanced self-adaptive proprietary Defrosting control logic takes into account all the operating parameters and the ambient temperature conditions. The frequency and duration of Defrost cycles are optimized and reduced to the minimum necessary, in order to ensure an increase in efficiency and net heating capacity of the units when operating in conditions that cause the formation of frost on the coil.

#### ELECTRONIC EXPANSION VALVE INCLUDED STANDARD

The use of the electronic expansion valve provides for significant benefits, especially in cases of varying external conditions. The EEV technology has been integrated into these units as a result of accurate design selections concerning the refrigerant circuit and the optimization of operation under various working conditions.

#### INTEGRATED HYDRONIC PACKAGE

Factory mounted, integrated hydronic modules are available with 1 or 2 pumps, high or low head.

#### AHRI CERTIFICATION

Certified in accordance with AHRI Air-Cooled Water-Chilling Packages Certification Program, which is based on AHRI Standard 550/590 (I-P). Certified units can be found in the AHRI directory at [www.ahridirectory.org](http://www.ahridirectory.org).

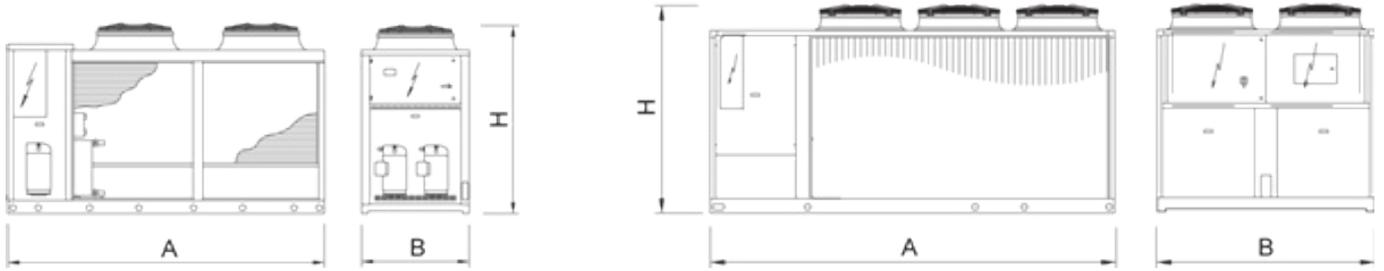
#### ASHRAE 90.1 COMPLIANT

The performance in cooling mode surpasses the minimum efficiency requirement as set by ASHRAE 90.1-2019. This makes the unit the perfect solution for any project intended to meet stringent building energy efficiency certifications.

### Accessories

- Soft Starters
- Traditional Condenser Coils available with pre-painted fins or fin guard Silver protective treatment upon request.
- Drain Pan with freeze-protection electric heater
- Set-up for remote connectivity with protocols: M-NET, ModBus, ModBus over IP (TCP/IP), Echelon, BacNet MS/TP RS485, Bacnet over IP, Konnex, SNMP
- Energy meter
- Auxiliary heat source management, to integrate and control additional heat generators in overall system
- 3-way Valve control for DHW production
- Night Mode is a system setting which limits the maximum Sound Level of the unit according to a specified schedule
- User Limit Control (ULC) allows the safe startup of the unit in critical conditions of water and air temperature.
- Outside Air temperature sensor for supply water set point compensation.
- Wired Remote Control Keypad (distance to 200m and to 500m)

**Dimensional Drawing**



**5.1 GENERAL TECHNICAL DATA**

**NX-N-G02-U**

[ Standard AHRI 550/590 - SI System ]

<b>NX-N-G02-U</b>		<b>0152P</b>	<b>0182P</b>	<b>0202P</b>	<b>0252P</b>	<b>0262P</b>	<b>0302P</b>	<b>0402P</b>	<b>0452P</b>	<b>0502P</b>	<b>0562P</b>	
Power supply		V/ph/Hz 575/3/60 575/3/60 575/3/60 575/3/60 575/3/60 575/3/60 575/3/60 575/3/60 575/3/60 575/3/60 575/3/60										
<b>PERFORMANCE</b>												
<b>COOLING ONLY</b>												
Cooling capacity	(1)(2)(10)	kW	<b>41.15</b>	<b>45.47</b>	<b>53.54</b>	<b>61.28</b>	<b>68.39</b>	<b>76.78</b>	<b>91.69</b>	<b>105.8</b>	<b>119.3</b>	<b>135.0</b>
Total power input	(1)(2)(10)	kW	14.28	15.75	18.27	20.95	23.78	26.77	30.52	36.01	41.63	46.58
COPr	(1)(2)(10)	kW/kW	2.881	2.880	2.923	2.919	2.874	2.866	3.007	2.939	2.868	2.897
IPLV, SI REFERENCE	(1)(2)(10)	kW/kW	4.740	4.700	4.680	4.690	4.740	4.800	4.700	4.740	4.710	4.690
Rc (ASHRAE)		kg/kW	0.35	0.32	0.28	0.25	0.23	0.35	0.40	0.35	0.32	0.31
<b>HEATING ONLY</b>												
Total heating capacity	(3)	kW	<b>48.84</b>	<b>53.71</b>	<b>60.78</b>	<b>70.76</b>	<b>76.77</b>	<b>89.76</b>	<b>106.1</b>	<b>119.6</b>	<b>133.6</b>	<b>152.2</b>
Total power input	(3)	kW	16.59	17.37	20.22	23.74	25.43	29.14	34.78	38.24	42.34	49.34
COP	(3)	kW/kW	2.940	3.086	3.010	2.987	3.024	3.086	3.049	3.131	3.158	3.087
<b>EXCHANGERS</b>												
<b>HEAT EXCHANGER USER SIDE IN REFRIGERATION</b>												
Water flow	(1)(2)	l/s	1.789	1.977	2.328	2.664	2.973	3.338	3.986	4.599	5.186	5.867
Pressure drop at the heat exchanger	(1)(2)	kPa	33.0	33.0	35.0	29.9	29.3	37.0	24.7	27.7	27.4	39.2
<b>HEAT EXCHANGER USER SIDE IN HEATING</b>												
Water flow	(3)	l/s	2.108	2.318	2.623	3.054	3.313	3.873	4.580	5.163	5.764	6.570
Pressure drop at the heat exchanger	(3)	kPa	45.8	45.4	44.4	39.3	36.4	49.8	32.6	34.9	33.8	49.2
<b>REFRIGERANT CIRCUIT</b>												
Compressors nr.		N°	2	2	2	2	2	2	2	2	2	2
Number of capacity steps		N°	2	2	2	2	2	2	2	2	2	2
No. Circuits		N°	1	1	1	1	1	1	1	1	1	1
Regulation			STEPS									
Min. capacity step		%	50	50	50	50	50	50	50	50	50	50
Refrigerant			R410A									
Refrigerant charge		kg	14.5	14.5	15.0	15.0	15.5	27.0	36.2	37.0	38.0	42.0
Oil charge		kg	3.50	3.50	5.00	5.00	6.50	6.50	6.50	7.90	9.30	11.5
<b>FANS</b>												
Quantity		N°	4	4	6	6	6	2	3	3	3	4
Air flow		m³/s	5.33	5.33	6.07	7.44	7.44	8.50	12.23	12.23	12.23	16.11
Fans power input		kW	0.31	0.31	0.29	0.31	0.31	1.05	1.05	1.05	1.05	1.05
<b>NOISE LEVEL</b>												
Sound Pressure	(4)	dB(A)	49	49	49	50	50	50	50	53	54	56
Sound power level in cooling	(5)(7)	dB(A)	81	81	81	82	82	82	82	85	86	88
Sound power level in heating	(6)(8)	dB(A)	81	81	81	82	82	82	82	85	86	88
<b>SIZE AND WEIGHT</b>												
A	(9)	mm	2395	2395	2395	2395	2395	3360	3980	3980	3980	4110
B	(9)	mm	1195	1195	1195	1195	1195	1195	1195	1195	1195	2220
H	(9)	mm	1865	1865	1865	1865	1865	1980	1980	1980	1980	2150
Operating weight	(9)	kg	670	680	710	730	770	960	1130	1220	1310	1900

Notes:

- 1 Rated in accordance with AHRI Standard 550/590
- 2 Plant (side) cooling exchanger water (out) 6.70°C, with water flow 0,043 l/s for kW; Source (side) heat exchanger air (in) 35.0°C.
- 3 Plant (side) heat exchanger water (in/out) 43.30°C/48.90°C; Source (side) heat exchanger air (in) 8.3°C - 87% R.H.
- 4 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.
- 5 Sound power on the basis of measurements made in compliance with ISO 3744.
- 6 Sound power on the basis of measurements made in compliance with ISO 9614.
- 7 Sound power level in cooling, outdoors.
- 8 Sound power level in heating, outdoors.
- 9 Unit in standard configuration/execution, without optional accessories.
- 10 Performance related to Altitude: 0 ft a.s.l.

**GENERAL TECHNICAL DATA**

**NX-N-G02-U**

[ Standard AHRI 550/590 - SI System ]

<b>NX-N-G02-U</b>		<b>0612P</b>	<b>0662P</b>	<b>0712P</b>	<b>0812P</b>	
Power supply		V/ph/Hz	575/3/60	575/3/60	575/3/60	
<b>PERFORMANCE</b>						
<b>COOLING ONLY</b>						
Cooling capacity	(1)(2)(10)	kW	154.0	180.2	205.6	225.6
Total power input	(1)(2)(10)	kW	50.95	59.88	66.05	76.38
COPr	(1)(2)(10)	kW/kW	3.026	3.008	3.115	2.953
IPLV, SI REFERENCE	(1)(2)(10)	kW/kW	4.690	4.680	4.700	4.700
Rc (ASHRAE)		kg/kW	0.35	0.30	0.44	0.40
<b>HEATING ONLY</b>						
Total heating capacity	(3)	kW	169.1	191.6	222.1	247.6
Total power input	(3)	kW	54.71	63.93	73.24	82.12
COP	(3)	kW/kW	3.091	2.998	3.034	3.016
<b>EXCHANGERS</b>						
<b>HEAT EXCHANGER USER SIDE IN REFRIGERATION</b>						
Water flow	(1)(2)	l/s	6.697	7.835	8.939	9.808
Pressure drop at the heat exchanger	(1)(2)	kPa	31.5	43.1	47.2	48.4
<b>HEAT EXCHANGER USER SIDE IN HEATING</b>						
Water flow	(3)	l/s	7.296	8.269	9.587	10.69
Pressure drop at the heat exchanger	(3)	kPa	37.4	48.0	54.3	57.4
<b>REFRIGERANT CIRCUIT</b>						
Compressors nr.		N°	2	2	2	2
Number of capacity steps		N°	2	2	2	2
No. Circuits		N°	1	1	1	1
Regulation			STEPS	STEPS	STEPS	STEPS
Min. capacity step		%	50	50	50	50
Refrigerant			R410A	R410A	R410A	R410A
Refrigerant charge		kg	53.9	54.1	89.5	91.0
Oil charge		kg	13.6	13.1	12.6	12.6
<b>FANS</b>						
Quantity		N°	4	4	6	6
Air flow		m³/s	15.51	16.91	22.52	22.52
Fans power input		kW	1.05	1.25	1.05	1.05
<b>NOISE LEVEL</b>						
Sound Pressure	(4)	dB(A)	57	57	57	58
Sound power level in cooling	(5)(7)	dB(A)	89	89	89	90
Sound power level in heating	(6)(8)	dB(A)	89	89	89	90
<b>SIZE AND WEIGHT</b>						
A	(9)	mm	4110	4110	5110	5110
B	(9)	mm	2220	2220	2220	2220
H	(9)	mm	2150	2150	2150	2150
Operating weight	(9)	kg	2080	2090	2500	2530

Notes:

- 1 Rated in accordance with AHRI Standard 550/590
- 2 Plant (side) cooling exchanger water (out) 6.70°C, with water flow 0.043 l/s for kW; Source (side) heat exchanger air (in) 35.0°C.
- 3 Plant (side) heat exchanger water (in/out) 43.30°C/48.90°C; Source (side) heat exchanger air (in) 8.3°C - 87% R.H.
- 4 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.
- 5 Sound power on the basis of measurements made in compliance with ISO 3744.
- 6 Sound power on the basis of measurements made in compliance with ISO 9614.
- 7 Sound power level in cooling, outdoors.
- 8 Sound power level in heating, outdoors.
- 9 Unit in standard configuration/execution, without optional accessories.
- 10 Performance related to Altitude: 0 ft a.s.l.

**GENERAL TECHNICAL DATA**

**NX-N-G02-U**

[ Standard AHRI 550/590 - I-P System ]

<b>NX-N-G02-U</b>		<b>0152P</b>	<b>0182P</b>	<b>0202P</b>	<b>0252P</b>	<b>0262P</b>	<b>0302P</b>	<b>0402P</b>	<b>0452P</b>	<b>0502P</b>	<b>0562P</b>	
Power supply		V/ph/Hz 575/3/60 575/3/60 575/3/60 575/3/60 575/3/60 575/3/60 575/3/60 575/3/60 575/3/60 575/3/60										
<b>PERFORMANCE</b>												
<b>COOLING ONLY</b>												
Cooling capacity	(1)(2)(10)	RT	11.70	12.93	15.22	17.43	19.45	21.83	26.07	30.08	33.92	38.38
Total power input	(1)(2)(10)	kW	14.28	15.75	18.27	20.95	23.78	26.77	30.52	36.01	41.63	46.58
COPr	(1)(2)(10)	Btu/hW	9.831	9.826	9.975	9.960	9.806	9.778	10.26	10.03	9.785	9.885
IPLV, SI REFERENCE	(1)(2)(10)	Btu/hW	16.17	16.04	15.97	16.00	16.17	16.38	16.04	16.17	16.07	16.00
Rc (ASHRAE)		lbs/RT	2.74	2.48	2.17	1.90	1.76	2.73	3.06	2.71	2.47	2.41
<b>HEATING ONLY</b>												
Total heating capacity	(3)	kBtu/h	166.7	183.2	207.4	241.5	261.9	306.3	362.2	408.2	455.7	519.5
Total power input	(3)	kW	16.59	17.37	20.22	23.74	25.43	29.14	34.78	38.24	42.34	49.34
COP	(3)	Btu/hW	10.03	10.53	10.27	10.19	10.32	10.53	10.40	10.68	10.78	10.53
<b>EXCHANGERS</b>												
<b>HEAT EXCHANGER USER SIDE IN REFRIGERATION</b>												
Water flow	(1)(2)	GPM	28.36	31.33	36.89	42.23	47.13	52.91	63.18	72.90	82.21	93.00
Pressure drop at the heat exchanger	(1)(2)	ft H2O	11.0	11.0	11.7	10.0	9.81	12.4	8.27	9.26	9.17	13.1
<b>HEAT EXCHANGER USER SIDE IN HEATING</b>												
Water flow	(3)	GPM	33.41	36.73	41.57	48.40	52.51	61.39	72.60	81.83	91.36	104.1
Pressure drop at the heat exchanger	(3)	ft H2O	15.3	15.2	14.9	13.1	12.2	16.7	10.9	11.7	11.3	16.5
<b>REFRIGERANT CIRCUIT</b>												
Compressors nr.		N°	2	2	2	2	2	2	2	2	2	2
Number of capacity steps		N°	2	2	2	2	2	2	2	2	2	2
No. Circuits		N°	1	1	1	1	1	1	1	1	1	1
Regulation			STEPS	STEPS								
Min. capacity step		%	50	50	50	50	50	50	50	50	50	50
Refrigerant			R410A	R410A								
Refrigerant charge		lb	32.0	32.0	33.1	33.1	34.2	59.5	79.8	81.6	83.8	92.6
Oil charge		lb	7.72	7.72	11.0	11.0	14.3	14.3	14.3	17.4	20.5	25.4
<b>FANS</b>												
Quantity		N°	4	4	6	6	6	2	3	3	3	4
Air flow		cfm	11294	11294	12862	15764	15764	18010	25914	25914	25914	34135
Fans power input		kW	0.31	0.31	0.29	0.31	0.31	1.05	1.05	1.05	1.05	1.05
<b>NOISE LEVEL</b>												
Sound Pressure	(4)	dB(A)	49	49	49	50	50	50	50	53	54	56
Sound power level in cooling	(5)(7)	dB(A)	81	81	81	82	82	82	82	85	86	88
Sound power level in heating	(6)(8)	dB(A)	81	81	81	82	82	82	82	85	86	88
<b>SIZE AND WEIGHT</b>												
A	(9)	in	94.3	94.3	94.3	94.3	94.3	132.3	156.7	156.7	156.7	161.8
B	(9)	in	47.0	47.0	47.0	47.0	47.0	47.0	47.0	47.0	47.0	87.4
H	(9)	in	73.4	73.4	73.4	73.4	73.4	78.0	78.0	78.0	78.0	84.6
Operating weight	(9)	lb	1477	1499	1565	1609	1698	2116	2491	2690	2888	4189

Notes:

- 1 Rated in accordance with AHRI Standard 550/590
- 2 Plant (side) cooling exchanger water (out) 44.06°F, with water flow 0.043 l/s for kW; Source (side) heat exchanger air (in) 95.0°F.
- 3 Plant (side) heat exchanger water (in/out) 109.94°F/120.02°F; Source (side) heat exchanger air (in) 46.9°F - 87% R.H.
- 4 Average sound pressure level at 32.8ft distance, unit in a free field on a reflective surface; non-binding value calculated from the sound power level.
- 5 Sound power on the basis of measurements made in compliance with ISO 3744.
- 6 Sound power on the basis of measurements made in compliance with ISO 9614.
- 7 Sound power level in cooling, outdoors.
- 8 Sound power level in heating, outdoors.
- 9 Unit in standard configuration/execution, without optional accessories.
- 10 Performance related to Altitude: 0 ft a.s.l.

**GENERAL TECHNICAL DATA**

**NX-N-G02-U**

[ Standard AHRI 550/590 - I-P System ]

<b>NX-N-G02-U</b>		<b>0612P</b>	<b>0662P</b>	<b>0712P</b>	<b>0812P</b>	
Power supply		V/ph/Hz 575/3/60 575/3/60 575/3/60 575/3/60				
<b>PERFORMANCE</b>						
<b>COOLING ONLY</b>						
Cooling capacity	(1)(2)(10)	RT	<b>43.80</b>	<b>51.25</b>	<b>58.47</b>	<b>64.15</b>
Total power input	(1)(2)(10)	kW	50.95	59.88	66.05	76.38
COPr	(1)(2)(10)	Btu/hW	10.32	10.26	10.63	10.08
IPLV, SI REFERENCE	(1)(2)(10)	Btu/hW	16.00	15.97	16.04	16.04
Rc (ASHRAE)		lbs/RT	2.72	2.33	3.38	3.13
<b>HEATING ONLY</b>						
Total heating capacity	(3)	kBtu/h	<b>576.9</b>	<b>653.8</b>	<b>758.0</b>	<b>845.0</b>
Total power input	(3)	kW	54.71	63.93	73.24	82.12
COP	(3)	Btu/hW	10.55	10.23	10.35	10.29
<b>EXCHANGERS</b>						
<b>HEAT EXCHANGER USER SIDE IN REFRIGERATION</b>						
Water flow	(1)(2)	GPM	106.1	124.2	141.7	155.5
Pressure drop at the heat exchanger	(1)(2)	ft H2O	10.5	14.4	15.8	16.2
<b>HEAT EXCHANGER USER SIDE IN HEATING</b>						
Water flow	(3)	GPM	115.6	131.1	152.0	169.4
Pressure drop at the heat exchanger	(3)	ft H2O	12.5	16.1	18.2	19.2
<b>REFRIGERANT CIRCUIT</b>						
Compressors nr.		N°	2	2	2	2
Number of capacity steps		N°	2	2	2	2
No. Circuits		N°	1	1	1	1
Regulation			STEPS	STEPS	STEPS	STEPS
Min. capacity step		%	50	50	50	50
Refrigerant			R410A	R410A	R410A	R410A
Refrigerant charge		lb	119	119	197	201
Oil charge		lb	30.0	28.9	27.8	27.8
<b>FANS</b>						
Quantity		N°	4	4	6	6
Air flow		cfm	32864	35830	47717	47717
Fans power input		kW	1.05	1.25	1.05	1.05
<b>NOISE LEVEL</b>						
Sound Pressure	(4)	dB(A)	57	57	57	58
Sound power level in cooling	(5)(7)	dB(A)	89	89	89	90
Sound power level in heating	(6)(8)	dB(A)	89	89	89	90
<b>SIZE AND WEIGHT</b>						
A	(9)	in	161.8	161.8	201.2	201.2
B	(9)	in	87.4	87.4	87.4	87.4
H	(9)	in	84.6	84.6	84.6	84.6
Operating weight	(9)	lb	4586	4608	5512	5578

Notes:

- 1 Rated in accordance with AHRI Standard 550/590
- 2 Plant (side) cooling exchanger water (out) 44.06°F, with water flow 0.043 l/s for kW; Source (side) heat exchanger air (in) 95.0°F.
- 3 Plant (side) heat exchanger water (in/out) 109.94°F/120.02°F; Source (side) heat exchanger air (in) 46.9°F - 87% R.H.
- 4 Average sound pressure level at 32.8ft distance, unit in a free field on a reflective surface; non-binding value calculated from the sound power level.
- 5 Sound power on the basis of measurements made in compliance with ISO 3744.
- 6 Sound power on the basis of measurements made in compliance with ISO 9614.
- 7 Sound power level in cooling, outdoors.
- 8 Sound power level in heating, outdoors.
- 9 Unit in standard configuration/execution, without optional accessories.
- 10 Performance related to Altitude: 0 ft a.s.l.