

# NRL 0280H-0750H

## Reversible air/water heat pump

Cooling capacity 51 ÷ 180 kW  
Heating capacity 58 ÷ 204 kW

- High efficiency also at partial loads
- Compact dimensions



### 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 steel treated with polyester paint RAL 9003.

### VERSIONS

- ° Standard
- A High efficiency
- E Silenced high efficiency
- L Standard silenced

### FEATURES

#### Operating field

Working at full load up to -15°C outside air temperature in winter, and up to 48°C in summer. Hot water production up to 55°C (for more information see the technical documentation).

#### Dual-circuit unit

The units are dual-circuit, to ensure maximum efficiency both at full load and at partial load.

#### Electronic expansion valve

The possibility to use electronic expansion valve, available to configurator, offers significant benefits, especially when the chiller is working with partial loads, increasing the energy efficiency of the unit.

#### Option integrated hydronic kit

Integrated hydronic kit containing the main hydraulic components; available with various configurations with one or two pumps, with high or low head and storage tank, to obtain a solution that allows you to save money and to facilitate installation.

### CONTROL

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

- 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.
- **Floating HP control:** the function can be activated with inverter fans or with DCPX which allows unit operation to be optimised at any operating point through continuous modulation of the fan speed. In addition, the use of inverter fans ensures an increase in energy efficiency at partial loads.
- **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.

### 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.

**DCPX:** Device for condensation temperature control, with continuous speed modulation of fans by using a pressure transducer.

**GP:** Anti-intrusion grid.

**VT:** Antivibration supports

### FACTORY FITTED ACCESSORIES

**DRE:** Electronic device for peak current reduction.

**RIF:** Power factor correction. Connected in parallel to the motor allowing about 10% reduction of input current.

**C-TOUCH:** 7", touch screen keyboard, which allows to navigate intuitively among the various screens, allowing to modify the operating parameters and graphically view the progress of some variables in real time.

## COMPATIBILITY WITH VMF SYSTEM

For more information about VMF system, refer to the dedicated documentation.

## ACCESSORIES COMPATIBILITY

### Accessories

Model	Ver	0280	0300	0330	0350	0500	0550	0600	0650	0700	0750
AER485P1	°A					*	*	*	*	*	*
	E,L	*	*	*	*	*	*	*	*	*	*
AERNET	°A					*	*	*	*	*	*
	E,L	*	*	*	*	*	*	*	*	*	*
MULTICHILLER_EVO	°A					*	*	*	*	*	*
	E,L	*	*	*	*	*	*	*	*	*	*
PGD1	°A					*	*	*	*	*	*
	E,L	*	*	*	*	*	*	*	*	*	*

Model	Ver	0280	0300	0330	0350	0500	0550	0600	0650	0700	0750
C-TOUCH	°A					*	*	*	*	*	*
	E,L	*	*	*	*	*	*	*	*	*	*

### Condensation control temperature

Ver	0280	0300	0330	0350	0500	0550	0600	0650	0700	0750
<b>Fans: °</b>										
°	-	-	-	-	DCPX64	DCPX64	DCPX64	DCPX64	DCPX64	DCPX64
A	-	-	-	-	DCPX64	DCPX64	DCPX64	DCPX64	DCPX65	DCPX65
E,L	Inverter	Inverter	Inverter	Inverter	As standard	As standard	As standard	As standard	As standard	As standard
<b>Fans: M</b>										
E,L	DCPX63	DCPX63	DCPX63	DCPX63	-	-	-	-	-	-

The accessory cannot be fitted on the configurations indicated with -

### Antivibration

Ver	0280	0300	0330	0350	0500	0550	0600	0650	0700	0750
<b>Integrated hydronic kit: 00</b>										
°	-	-	-	-	VT11	VT11	VT11	VT11	VT11	VT23
A	-	-	-	-	VT11	VT11	VT11	VT11	VT22	VT23
E,L	VT17	VT17	VT17	VT17	VT11	VT11	VT11	VT11	VT22	VT23
<b>Integrated hydronic kit: 01, 02, 03, 04, 05, 06, 07, 08, 09</b>										
°	-	-	-	-	VT11	VT11	VT11	VT11	VT11	VT23
A	-	-	-	-	VT11	VT11	VT11	VT11	VT22	VT23
E,L	VT13	VT13	VT13	VT13	VT11	VT11	VT11	VT11	VT22	VT23
<b>Integrated hydronic kit: P1, P2, P3, P4</b>										
°	-	-	-	-	VT11	VT11	VT11	VT11	VT11	VT23
A	-	-	-	-	VT11	VT11	VT11	VT11	VT22	VT23
E,L	VT17	VT17	VT17	VT17	VT11	VT11	VT11	VT11	VT22	VT23

The accessory cannot be fitted on the configurations indicated with -

### Anti-intrusion grid

Ver	0280	0300	0330	0350	0500	0550	0600	0650	0700	0750
°	-	-	-	-	GP2 x 2 (1)	GP2 x 2 (1)	GP2 x 2 (1)	GP2 x 2 (1)	GP2 x 2 (1)	GP10 x 3 (1)
A	-	-	-	-	GP2 x 2 (1)	GP2 x 2 (1)	GP2 x 2 (1)	GP2 x 2 (1)	GP2 x 3 (1)	GP10 x 3 (1)
E	GP3	GP4	GP4	GP4	GP2 x 2 (1)	GP2 x 2 (1)	GP2 x 2 (1)	GP2 x 2 (1)	GP2 x 3 (1)	GP10 x 3 (1)
L	GP3	GP3	GP3	GP3	GP2 x 2 (1)	GP2 x 2 (1)	GP2 x 2 (1)	GP2 x 2 (1)	GP2 x 2 (1)	GP10 x 3 (1)

(1) x \_ indica la quantità da acquistare

The accessory cannot be fitted on the configurations indicated with -

### Device for peak current reduction

Ver	0280	0300	0330	0350	0500	0550	0600	0650	0700	0750
°A	-	-	-	-	DRE501 (1)	DRE551 (1)	DRE601 (1)	DRE651 (1)	DRE701 (1)	DRE751 (1)
E,L	DRE281 (1)	DRE301 (1)	DRE331 (1)	DRE351 (1)	DRE501 (1)	DRE551 (1)	DRE601 (1)	DRE651 (1)	DRE701 (1)	DRE751 (1)

(1) Solo per alimentazioni 400V 3N ~ 50Hz e 400V 3 ~ 50Hz. Se è presente la dicitura x 2 o x 3 indica la quantità da ordinare.

The accessory cannot be fitted on the configurations indicated with -

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

### Power factor correction

Ver	0280	0300	0330	0350	0500	0550	0600	0650	0700	0750
°A	-	-	-	-	RIF52	RIF52	RIF53	RIF53	RIF53	RIF53
E,L	RIF50	RIF50	RIF50	RIF51	RIF52	RIF52	RIF53	RIF53	RIF53	RIF53

The accessory cannot be fitted on the configurations indicated with -

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

## CONFIGURATOR

Field	Description
1,2,3	<b>NRL</b>
4,5,6,7	<b>Size</b> 0280, 0300, 0330, 0350, 0500, 0550, 0600, 0650, 0700, 0750
8	<b>Operating field</b>
°	Standard mechanic thermostatic valve
X	Electronic thermostatic expansion valve
9	<b>Model</b>
H	Heat pump
10	<b>Heat recovery</b>
°	Without heat recovery
D	With desuperheater (1)
11	<b>Version (2)</b>
°	Standard
A	High efficiency
E	Silenced high efficiency
L	Standard silenced
12	<b>Coils</b>
°	Copper-aluminium
R	Copper-copper
S	Copper-Tinned copper
V	Copper-painted aluminium
13	<b>Fans</b>
°	Standard (3)
J	Inverter (4)
M	Oversized
14	<b>Power supply</b>
°	400V ~ 3 50Hz with magnet circuit breakers

Field	Description
1	220V~ 3 50Hz with magnet circuit breakers
15,16	<b>Integrated hydronic kit</b>
00	Without hydronic kit
	<b>Kit with storage tank and pump/s</b>
01	Storage tank with low head pump
02	Storage tank with low head pump + stand-by pump
03	Storage tank with high head pump
04	Storage tank with high head pump + stand-by pump
	<b>Kit with pump/s and storage tank with holes for heaters (5)</b>
05	Storage tank with holes for heaters and single low head pump
06	Storage tank with holes for heaters and pump low head + stand-by pump
07	Storage tank with holes for heaters and single high head pump
08	Storage tank with holes for heaters and pump high head + stand-by pump
	<b>Double loop</b>
09	Double loop
	<b>Kit with pump/s</b>
P1	Single pump low head
P2	Pump low head + stand-by pump
P3	Single pump high head
P4	Pump high head + stand-by pump

- (1) The desuperheater must be intercepted in heating mode. In cooling mode, a water temperature no lower than 35°C must always be guaranteed on the heat exchanger inlet.
- (2) The size 0280-0300-0330-0350 are only available in the silenced versions "HL/HE"
- (3) As standard in sizes from 0500 ÷ 0750
- (4) Standard for size 0280 ÷ 0350, without useful static pressure, option for other size with useful static pressure.
- (5) Storage tanks with holes for supplementary heaters (not provided) are sent from the factory with plastic protection caps. Before loading the system, if the installation of one or all resistances is not expected, all plastic caps must be replaced with the special caps, commonly commercially available.

## PERFORMANCE SPECIFICATIONS

### NRL H°

Size		0280	0300	0330	0350	0500	0550	0600	0650	0700	0750
<b>Cooling performance 12 °C / 7 °C (1)</b>											
Cooling capacity	kW	-	-	-	-	89,7	94,7	114,6	133,7	144,7	175,6
Input power	kW	-	-	-	-	36,9	41,0	49,8	54,1	63,8	71,2
Cooling total input current	A	-	-	-	-	63,0	67,0	81,0	88,0	100,0	122,0
EER	W/W	-	-	-	-	2,43	2,31	2,30	2,47	2,27	2,47
Water flow rate system side	l/h	-	-	-	-	15463	16322	19758	23023	24913	30239
Pressure drop system side	kPa	-	-	-	-	46	50	53	58	64	74
<b>Heating performance 40 °C / 45 °C (2)</b>											
Heating capacity	kW	-	-	-	-	99,3	106,3	129,3	150,3	165,4	201,5
Input power	kW	-	-	-	-	33,8	36,7	43,9	49,0	56,3	66,8
Heating total input current	A	-	-	-	-	60,0	63,0	76,0	82,0	95,0	113,0
COP	W/W	-	-	-	-	2,94	2,90	2,94	3,07	2,94	3,02
Water flow rate system side	l/h	-	-	-	-	17206	18423	22420	26070	28677	34934
Pressure drop system side	kPa	-	-	-	-	55	62	67	73	83	96

(1) Data 14511:2018; System side water heat exchanger 12 °C/7 °C; External air 35 °C

(2) Data 14511:2018; System side water heat exchanger 40 °C/ 45 °C; Outside air 7 °C d.b. / 6 °C w.b.

### NRL HL

Size		0280	0300	0330	0350	0500	0550	0600	0650	0700	0750
<b>Cooling performance 12 °C / 7 °C (1)</b>											
Cooling capacity	kW	50,8	60,8	65,9	72,8	82,8	89,7	109,7	123,6	139,7	164,7
Input power	kW	20,4	22,8	26,4	31,4	40,1	43,4	52,4	59,0	66,4	78,4
Cooling total input current	A	36,0	40,0	44,0	51,0	70,0	75,0	90,0	99,0	111,0	132,0
EER	W/W	2,49	2,67	2,49	2,32	2,07	2,07	2,09	2,10	2,10	2,10
Water flow rate system side	l/h	8762	10480	11340	12542	14260	15463	18899	21305	24054	28349
Pressure drop system side	kPa	47	43	29	45	39	45	49	50	60	65
<b>Heating performance 40 °C / 45 °C (2)</b>											
Heating capacity	kW	58,2	68,2	75,2	82,3	99,3	106,3	129,3	150,3	165,4	201,4
Input power	kW	19,0	21,7	24,6	28,3	33,8	36,7	43,9	49,0	56,3	66,6
Heating total input current	A	33,0	38,0	41,0	50,0	60,0	63,0	76,0	82,0	95,0	113,0
COP	W/W	3,06	3,14	3,05	2,91	2,94	2,90	2,94	3,07	2,94	3,03
Water flow rate system side	l/h	10080	11818	13035	14252	17206	18423	22420	26070	28677	34934
Pressure drop system side	kPa	61	54	36	56	55	62	67	73	83	82

(1) Data 14511:2018; System side water heat exchanger 12 °C/7 °C; External air 35 °C

(2) Data 14511:2018; System side water heat exchanger 40 °C/ 45 °C; Outside air 7 °C d.b. / 6 °C w.b.

**NRL HA**

Size		0280	0300	0330	0350	0500	0550	0600	0650	0700	0750
<b>Cooling performance 12 °C / 7 °C (1)</b>											
Cooling capacity	kW	-	-	-	-	93,8	99,8	121,7	137,6	149,7	179,7
Input power	kW	-	-	-	-	30,8	34,0	41,5	48,5	52,1	64,2
Cooling total input current	A	-	-	-	-	55,0	60,0	71,0	77,0	90,0	113,0
EER	W/W	-	-	-	-	3,05	2,93	2,93	2,84	2,88	2,80
Water flow rate system side	l/h	-	-	-	-	16150	17181	20961	23710	25772	30926
Pressure drop system side	kPa	-	-	-	-	33	36	36	43	49	64
<b>Heating performance 40 °C / 45 °C (2)</b>											
Heating capacity	kW	-	-	-	-	103,3	110,3	135,4	152,3	171,3	204,4
Input power	kW	-	-	-	-	31,7	34,3	40,8	45,7	53,1	62,7
Heating total input current	A	-	-	-	-	55,0	59,0	72,0	82,0	88,0	113,0
COP	W/W	-	-	-	-	3,26	3,21	3,32	3,33	3,23	3,26
Water flow rate system side	l/h	-	-	-	-	17901	19118	23463	26417	29720	35455
Pressure drop system side	kPa	-	-	-	-	40	44	44	52	64	82

(1) Data 14511:2018; System side water heat exchanger 12 °C/7 °C; External air 35 °C

(2) Data 14511:2018; System side water heat exchanger 40 °C/45 °C; Outside air 7 °C d.b. / 6 °C w.b.

**NRL HE**

Size		0280	0300	0330	0350	0500	0550	0600	0650	0700	0750
<b>Cooling performance 12 °C / 7 °C (1)</b>											
Cooling capacity	kW	52,9	61,9	68,8	76,8	89,8	94,8	113,8	127,7	142,7	174,7
Input power	kW	18,1	20,2	23,4	26,9	33,4	36,7	45,4	53,2	58,5	69,8
Cooling total input current	A	30,0	34,0	37,0	45,0	60,0	64,0	78,0	89,0	97,0	120,0
EER	W/W	2,93	3,06	2,94	2,86	2,69	2,58	2,51	2,40	2,44	2,50
Water flow rate system side	l/h	9106	10652	11855	13229	15463	16322	19586	21992	24569	30067
Pressure drop system side	kPa	27	27	51	29	30	32	31	37	45	60
<b>Heating performance 40 °C / 45 °C (2)</b>											
Heating capacity	kW	59,1	69,2	76,3	86,2	103,3	110,3	135,4	152,3	171,3	204,4
Input power	kW	17,5	20,6	23,1	26,1	31,7	34,3	40,8	45,7	53,1	62,7
Heating total input current	A	35,0	39,0	43,0	49,0	60,0	64,0	79,0	91,0	99,0	113,0
COP	W/W	3,38	3,36	3,31	3,30	3,26	3,21	3,32	3,33	3,23	3,26
Water flow rate system side	l/h	10254	11992	13209	14947	17901	19118	23463	26417	29720	35455
Pressure drop system side	kPa	25	34	66	34	40	44	44	52	64	82

(1) Data 14511:2018; System side water heat exchanger 12 °C/7 °C; External air 35 °C

(2) Data 14511:2018; System side water heat exchanger 40 °C/45 °C; Outside air 7 °C d.b. / 6 °C w.b.

**ELECTRIC DATA**

Size		0280	0300	0330	0350	0500	0550	0600	0650	0700	0750	
<b>Electric data</b>												
Maximum current (FLA)	°A	A	-	-	-	76,0	81,0	100,0	112,0	122,0	144,0	
	E	A	46,0	53,0	58,0	63,0	76,0	81,0	100,0	112,0	144,0	
	L	A	46,0	53,0	53,0	63,0	76,0	220,0	100,0	112,0	122,0	144,0
Peak current (LRA)	°A	A	-	-	-	214,0	220,0	232,0	243,0	261,0	320,0	
	E	A	155,0	184,0	190,0	200,0	214,0	220,0	232,0	243,0	261,0	320,0
	L	A	155,0	184,0	184,0	200,0	214,0	81,0	232,0	143,0	261,0	320,0

## ENERGY DATA

Size		0280	0300	0330	0350	0500	0550	0600	0650	0700	0750	
<b>Cooling capacity with low leaving water temp (UE n° 2016/2281)</b>												
SEER	°	W/W	-	-	-	3,17	3,07	3,49	3,30	3,37	3,54	
	A	W/W	-	-	-	3,59	3,94	3,94	3,92	3,85	3,85	
	E	W/W	3,74	3,71	3,80	3,71	3,55	3,36	3,77	3,74	3,69	3,76
	L	W/W	2,96	3,19	3,01	3,28	3,15	3,07	3,48	3,31	3,36	3,54
η <sub>SC</sub>	°	%	-	-	-	123,60	119,70	136,60	128,90	131,70	138,60	
	A	%	-	-	-	140,60	154,50	154,50	153,70	150,80	151,00	
	E	%	146,50	145,20	148,90	145,30	138,90	131,40	147,80	146,70	144,50	147,40
	L	%	115,30	124,40	117,30	128,30	122,80	119,60	136,20	129,40	131,50	138,50
<b>UE 811/2013 performance in average ambient conditions (average) - 35 °C - Pdesignh ≤ 70 kW (1)</b>												
Efficiency energy class	°A		-	-	-	-	-	-	-	-	-	
	E,L		A+	A+	A+	-	-	-	-	-	-	
P <sub>designh</sub>	°	kW	-	-	-	85	91	110	127	141	171	
	A	kW	-	-	-	87	93	114	129	145	173	
	E	kW	50	58	64	73	87	93	114	129	145	173
	L	kW	49	58	64	71	85	91	110	127	141	171
η <sub>sh</sub>	°	%	-	-	-	125,00	125,00	125,00	128,00	125,00	129,00	
	A	%	-	-	-	136,00	136,00	140,00	140,00	135,00	138,00	
	E	%	138,00	137,00	137,00	135,00	136,00	136,00	140,00	140,00	135,00	138,00
	L	%	125,00	128,00	125,00	125,00	125,00	125,00	125,00	128,00	125,00	129,00
SCOP	°		-	-	-	3,20	3,20	3,20	3,28	3,20	3,30	
	A		-	-	-	3,48	3,48	3,58	3,58	3,45	3,53	
	E		3,53	3,50	3,50	3,45	3,48	3,48	3,58	3,58	3,45	3,53
	L		3,20	3,28	3,20	3,20	3,20	3,20	3,20	3,28	3,20	3,30

(1) Efficiencies for low temperature applications (35 °C)

## GENERAL TECHNICAL DATA

Size		0280	0300	0330	0350	0500	0550	0600	0650	0700	0750
<b>Compressor</b>											
Type	°,A,E,L	type	Scroll								
Compressor regulation	°,A,E,L	Type	On-Off								
Number	°,A,E,L	no.	2	2	2	2	3	3	4	4	4
Circuits	°,A,E,L	no.	2	2	2	2	2	2	2	2	2
Refrigerant	°,A,E,L	type	R410A								
<b>System side heat exchanger</b>											
Type	°,A,E,L	type	Brazed plate								
Number	°,A,E,L	no.	1	1	1	1	1	1	1	1	1
<b>System side hydraulic connections</b>											
Connections (in/out)	°,A,E,L	Type	Grooved joints								
Sizes (in/out)	°,A,E,L	∅	2" 1/2	2" 1/2	2" 1/2	2" 1/2	2" 1/2	2" 1/2	2" 1/2	2" 1/2	3"
<b>Fan</b>											
Type	°,A,E,L	type	axials								
Fan motor	°A	type	-	-	-	-	Asynchronous				
	E,L	type	Inverter	Inverter	Inverter	Inverter	Asynchronous with phase cut				
Number	°	no.	-	-	-	-	2	2	2	2	3
	A	no.	-	-	-	-	2	2	2	2	3
	E	no.	6	8	8	8	2	2	2	2	3
	L	no.	4	6	6	6	2	2	2	2	3
Air flow rate	°	m <sup>3</sup> /h	-	-	-	-	39400	39400	39400	37500	37500
	A	m <sup>3</sup> /h	-	-	-	-	37000	37000	36500	36500	58000
	E	m <sup>3</sup> /h	20000	26000	26000	26000	20200	21100	21400	22400	31900
	L	m <sup>3</sup> /h	14000	20000	20000	20000	28400	28700	28700	27400	28100
<b>Sound data calculated in cooling mode (1)</b>											
Sound power level	°A	dB(A)	-	-	-	-	82,0	82,0	82,0	83,0	83,0
	E	dB(A)	74,0	75,0	75,0	76,0	74,0	74,0	74,0	75,0	77,0
	L	dB(A)	73,0	74,0	74,0	75,0	77,0	77,0	77,0	78,0	80,0
Sound pressure level (10 m)	°A	dB(A)	-	-	-	-	50,1	50,1	50,1	51,1	51,1
	E	dB(A)	42,3	43,2	43,2	44,2	42,1	42,1	42,1	43,1	45,0
	L	dB(A)	41,3	42,3	42,3	43,3	45,1	45,1	45,1	46,1	47,9

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

## DIMENSIONS

Size			0280	0300	0330	0350	0500	0550	0600	0650	0700	0750
<b>Dimensions and weights</b>												
A	°A	mm	-	-	-	-	1875	1875	1875	1875	1875	1975
	E,L	mm	1606	1606	1606	1606	1875	1875	1875	1875	1875	1975
B	°A	mm	-	-	-	-	1100	1100	1100	1100	1100	1100
	E,L	mm	1100	1100	1100	1100	1100	1100	1100	1100	1100	1500
C	°	mm	-	-	-	-	3010	3010	3010	3010	3010	4350
	A	mm	-	-	-	-	3010	3010	3010	3010	4010	4350
	E	mm	-	2950	2950	2950	3010	3010	3010	3010	4010	4010
	L	mm	2450	2450	2450	2450	3010	3010	3010	3010	3010	4350
<b>Weights</b>												
Without hydronic kit	°	kg	-	-	-	-	913	917	1016	1130	1142	1487
	A	kg	-	-	-	-	1099	1103	1204	1212	1390	1748
	E	kg	730	795	805	811	1099	1103	1204	1212	1390	1748
	L	kg	713	724	731	740	913	917	1016	1130	1142	1487