NRL 0800H-1800H

Reversible air/water heat pump

Cooling capacity 183,7 ÷ 471,5 kW
Heating capacity 227,4 ÷ 523,6 kW

- **High efficiencies also at partial loads**
- **Fast and easy installation**
- **Night mode**

DESCRIPTION

Reversible heat pumps for external installation for the production of chilled/ heated water with high performance and low electric absorbtion scroll compressors , axial fans, external copper coils with aluminium fins, system-side plate heat exchanger.
In the units with desuperheater, but in cooling-only operation, it is possible to produce free hot water. The basement, the structure and the panelling are in steel treated with polyester anti-corrosion paint.

VERSIONS

H Standard
HL Standard in low noise operation
HA High efficiency
HE High efficiency in low noise operation

CHARACTERISTICS

Operating field

Work at full load down to -15°C external air temperature in winter season, up to 46°Cin summer season. Hot water production up to 55°C (for more details pleaserefer to the technical documentation).

Dual-circuit unit

Units with two refrigerant circuits designed to reach the maximum performance at full load, granting high efficiencies also at partial loads and assuring continuity in case of stop of one of the two circuits.

Hydraulic circuit

Water filter and high and low pressure transducers are standard supplied, The flow switch is standard in all the configurations for compact versions (0800-1200 H/HL), for the other sizes and configurations it is provided only with the hydronic-kit.

Option integrated hydronic kit

Possibility of integrated hydronic kit which includes the main hydraulic components; it is available in different configurations with or without buffer tank, one or two pumps high and low head.

CONTROL

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

- Adjustment includes complete management of the alarms and their log.
- The presence of a programmable timer allows setting time bands of operation and a possible second set-point
- The temperature control takes place with the integral proportional logic, based on the water output temperature.
- **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.
- **Night Mode is standard on all low noise versions. For all other versions either the DCPX accessory or "J" inverter fan must be specified to allow Night Mode to operate.**

ACCESSORIES

AER485P1: RS-485 interface for supervising systems with MODBUS protocol.
PGD1: Simplified remote panel. Allows control of basic unit functions and alarm notification.
C-TOUCH: Microprocessor adjustment, complete with a 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.
MULTICHILLER_EVO: Control system to switch the individual chillers on and off, and command them, in a system in which several units are installed in parallel, always ensuring a constant delivery to the evaporators.
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.
DCPX: Device for condensation temperature control, with continuous speed modulation of fans by using a pressure transducer.

GP: Protective grille. Condenser coil external protection against accidental or hail damage.
AVX: anti-vibration support, to be fitted below the sheet metal base of the unit.

ACCESSORIES FACTORY FITTED ONLY

DRE: Current soft starter device. **Available only with power supply 400V/3N.**

RIF: Power factor correction. Connected in parallel to the motor allowing about 10% reduction of input current
PRM1: It is a manual pressure switch electrically wired in series with the existing automatic high pressure switch on the compressor discharge pipe.

COMPATIBILITY WITH THE VMF SYSTEM

For more information on the system refer to the manual.

ACCESSORIES COMPATIBILITY

Size	Vers.	0800	0900	1000	1250	1404	1504	1655	1800
AER485P1	All	•	•	•	•	•	•	•	•
PGD1	All	•	•	•	•	•	•	•	•
C-TOUCH	All	•	•	•	•	•	•	•	•
MULTICHILLER_EVO	All	•	•	•	•	•	•	•	•
AERNET	All	•	•	•	•	•	•	•	•

Condensation control temperature

Version		0800	0900	1000	1250	1404	1504	1655	1800
H	(1)	DCPX65	DCPX65	DCPX65	DCPX65	DCPX66	DCPX66	DCPX68	DCPX68
HL	(1)	as standard	as standard	as standard	as standard	as standard	as standard	as standard	as standard
HA	(1)	DCPX66	DCPX66	DCPX66	DCPX68	DCPX68	DCPX68	DCPX68	DCPX68
HE	(1)	as standard	as standard	as standard	as standard	as standard	as standard	as standard	as standard

(1) DCPX Standard in the models with desuperheater; In the low noise versions; Not necessary fields with ventilarori inverter

Anti-intrusion grid

Version		0800	0900	1000	1250	1404	1504	1655	1800
H/HL	(2)	GP10 (x3)	GP10 (x3)	GP10 (x4)	GP10 (x4)	GP350	GP350	GP350	GP350
HA/HE		GP260	GP260	GP260	GP350	GP350	GP350	GP500	GP500

(2) (x3)(x4) the numbre in brackets indicates the quantity to order

Antivibration

Hydronic kit	Vers.	0800	0900	1000	1250	1404	1504	1655	1800
00	H/HL	AVX701	AVX707	AVX713	AVX713	AVX722	AVX722	AVX733	AVX730
	HA/HE	AVX704	AVX710	AVX716	AVX719	AVX725	AVX730	AVX734	AVX737
01,02,03,04,05,06,07,08,09	H/HL	AVX702	AVX708	AVX714	AVX717	AVX723	AVX728	AVX728	AVX728
	HA/HE	AVX705	AVX711	AVX711	AVX720	AVX726	AVX731	AVX735	AVX738
P1,P2,P3,P4	H/HL	AVX703	AVX709	AVX715	AVX718	AVX724	AVX729	AVX729	AVX732
	HA/HE	AVX706	AVX712	AVX712	AVX721	AVX727	AVX732	AVX736	AVX736

Device for peak current reduction

Vers.	0800	0900	1000	1250	1404	1504	1655	1800
All	DRE801	DRE901	DRE1001	DRE1251	DRE1404	DRE1504	DRE1655	DRE1801

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

Power factor correction

Vers.	0800	0900	1000	1250	1404	1504	1655	1800
H/HL	RIF87	RIF89	RIF91	RIF91	RIF92	RIF92	RIF93	RIF94
HA/HE	RIF88	RIF90	RIF92	RIF92	RIF92	RIF92	RIF93	RIF94

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

Manually reset pressure switch

Vers.	0800	0900	1000	1250	1404	1504	1655	1800
Tutte	PRM1	PRM1	PRM1	PRM1	PRM1	PRM1	PRM1	PRM1

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

CONFIGURATOR

Field		Description
1,2,3		**NRL**
4,5,6,7		**Size**
		0800-0900-1000-1250-1404-1504-1655-1800
8		**Operating field**
	°	Standard (leaving water temperature down to 4°C)
	X	Electronic expansion valve (leaving water temperature down to 4°C) contact head office for lower temperatures
9		**Model**
	H	Heat pumps
10		**Heat recovery**
	°	Without recovery
	D	With desuperheater (1)
11		**Version**
	°	Standard
	L	Standard in low noise operation
	A	High efficiency
	E	High efficiency in low noise operation
12		**Coil**
	°	In aluminium
	R	In copper
	S	In tinned copper
	V	In painted aluminium-copper (epoxy paint)

Field		Description
13		**Fans**
	°	Standard
	J	Inverter
14		**Power supply**
	°	400V/3/50Hz with circuit breakers
15-16		**Hydronic kit (2)**
	00	Without hydronic kit
	01	n°1 low head pump and buffer tank
	02	n°2 low head pump and buffer tank
	03	n°1 high head pump and buffer tank
	04	n°2 high head pump and buffer tank
	05	n°1 low head pump and buffer tank (with holes for immersion heaters)
	06	n°2 low head pump and buffer tank (with holes for immersion heaters)
	07	n°1 low high pump and buffer tank (with holes for immersion heaters)
	08	n°2 low high pump and buffer tank (with holes for immersion heaters)
	09	Double hydraulic circuit
	10	Double hydraulic circuit with immersion heater
	P1	n°1 low head pump
	P2	n°2 low head pump
	P3	n°1 high head pump
	P4	n°2 high head pump

(1) The desuperheater can be used exclusively in the cold operation. Warning: on the recovery side, a minimum input temperature of 35°C must always be guaranteed on the heat exchanger.
(2) The buffer tank with holes and supplementary electric heaters leave the factory with plastic protection caps. Before loading the system, if the installation of an electric heater is not envisaged it is compulsory to replace the plastic caps.

PERFORMANCE SPECIFICATIONS

NRL H°

Size		0800	0900	1000	1250	1404	1504	1655	1800
Cooling performances 12 °C / 7 °C (1)									
Cooling capacity	kW	200,7	221,7	261,6	299,6	332,6	366,6	422,5	453,5
Input power	kW	81,9	94,9	102,1	121,4	141,1	160,2	167,6	180,7
Cooling total input current	A	142	166	189	208	249	286	305	319
EER	W/W	2,45	2,34	2,56	2,47	2,36	2,29	2,52	2,51
Water flow rate system side	l/h	34534	38142	45015	51543	57213	63055	72676	78002
Pressure drop rate system side	kPa	46	45	50	57	40	40	47	46
Heating performances 40 °C / 45 °C (2)									
Heating capacity	kW	227,4	256,4	293,5	340,5	384,5	427,5	468,6	503,6
Input power	kW	76,2	86,3	97,6	113,1	127,7	142,9	157,1	168,2
Heating total input current	A	136	156	179	193	227	261	279	290
COP	W/W	2,98	2,97	3,01	3,01	3,01	2,99	2,98	2,99
Water flow rate system side	l/h	39452	44493	50923	59092	66739	74212	81338	87421
Pressure drop rate system side	kPa	61	62	65	78	54	55	59	58

(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; External air 7 °C b.s. / 6 °C b.u

NRL HL

Size		0800	0900	1000	1250	1404	1504	1655	1800
Cooling performances 12 °C / 7 °C (1)									
Cooling capacity	kW	183,7	199,7	236,7	264,6	301,7	331,7	372,6	396,6
Input power	kW	90,7	105,8	112,9	137,0	154,9	175,0	188,2	205,2
Cooling total input current	A	153	177	200	226	269	308	328	348
EER	W/W	2,02	1,89	2,10	1,93	1,95	1,90	1,98	1,93
Water flow rate system side	l/h	31613	34362	40719	45530	51887	57041	64086	68209
Pressure drop rate system side	kPa	39	37	41	45	33	34	37	36
Heating performances 40 °C / 45 °C (2)									
Heating capacity	kW	227,4	256,4	293,5	340,5	384,5	427,5	468,6	503,6
Input power	kW	76,2	86,3	97,6	113,1	127,7	142,9	157,1	168,2
Heating total input current	A	136	156	179	193	227	261	279	290
COP	W/W	2,98	2,97	3,01	3,01	3,01	2,99	2,98	2,99
Water flow rate system side	l/h	39452	44493	50923	59092	66739	74212	81338	87421
Pressure drop rate system side	kPa	61	62	65	78	54	55	59	58

(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; External air 7 °C b.s. / 6 °C b.u

NRL HA

Size		0800	0900	1000	1250	1404	1504	1655	1800
Cooling performances 12 °C / 7 °C (1)									
Cooling capacity	kW	210,7	238,6	260,6	314,5	350,6	387,5	436,5	471,5
Input power	kW	74,0	83,2	95,2	110,6	127,4	144,5	152,9	164,0
Cooling total input current	A	136	158	180	196	235	273	289	304
EER	W/W	2,85	2,87	2,74	2,84	2,75	2,68	2,86	2,88
Water flow rate system side	l/h	36252	41063	44843	54121	60306	66663	75082	81095
Pressure drop rate system side	kPa	55	56	53	61	48	49	54	53
Heating performances 40 °C / 45 °C (2)									
Heating capacity	kW	233,4	263,4	293,5	344,5	388,5	433,5	484,6	523,6
Input power	kW	75,3	84,5	94,6	112,0	125,8	141,0	155,4	165,6
Heating total input current	A	138	157	177	197	231	265	282	293
COP	W/W	3,10	3,12	3,10	3,07	3,09	3,07	3,12	3,16
Water flow rate system side	l/h	40495	45709	50923	59787	67434	75255	84119	90897
Pressure drop rate system side	kPa	68	69	69	76	58	60	66	66

(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; External air 7 °C b.s. / 6 °C b.u

NRL HE

Size		0800	0900	1000	1250	1404	1504	1655	1800
Cooling performances 12 °C / 7 °C (1)									
Cooling capacity	kW	193,7	212,7	230,7	283,6	318,6	354,6	397,6	425,5
Input power	kW	81,9	94,9	107,9	123,2	141,1	159,2	169,5	183,5
Cooling total input current	A	145	169	192	211	251	292	306	324
EER	W/W	2,37	2,24	2,14	2,30	2,26	2,23	2,35	2,32
Water flow rate system side	l/h	33331	36596	39688	48794	54808	60993	68381	73192
Pressure drop rate system side	kPa	47	45	43	51	40	41	45	44
Heating performances 40 °C / 45 °C (2)									
Heating capacity	kW	233,4	263,4	293,5	344,5	388,5	433,5	484,6	523,6
Input power	kW	75,3	84,5	94,6	112,0	125,8	141,0	155,4	165,6
Heating total input current	A	138	157	177	197	231	265	282	293
COP	W/W	3,10	3,12	3,10	3,07	3,09	3,07	3,12	3,16
Water flow rate system side	l/h	40495	45709	50923	59787	67434	75255	84119	90897
Pressure drop rate system side	kPa	68	69	69	76	58	60	66	66

(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; External air 7 °C b.s. / 6 °C b.u

ENERGY DATA

Size			0800	0900	1000	1250	1404	1504	1655	1800
Cooling capacity with low leaving water temp (UE n° 2016/2281)										
SEER	°	W/W	3,74	3,57	3,60	3,50	3,47	3,42	3,44	3,49
	L	W/W	3,65	3,53	3,56	3,44	3,36	3,34	3,31	3,28
	A	W/W	3,90	3,82	3,74	3,80	3,77	3,70	3,71	3,67
	E	W/W	3,78	3,74	3,66	3,79	3,73	3,61	3,67	3,63
ηsc	°	%	146,40	139,70	140,90	137,00	135,70	133,60	134,50	136,50
	L	%	142,90	138,20	139,20	134,50	131,50	130,70	129,40	128,30
	A	%	153,10	149,60	146,70	148,90	147,70	144,90	145,20	143,80
	E	%	148,30	146,50	143,30	148,70	146,10	141,40	143,60	142,30
UE 813/2013 low temperature - Pdesignh ≤ 400 kW (1)										
Pdesignh	°,L	kW	192	217	248	288	325	361	349	375
	A,E	kW	198	223	248	292	328	367	362	391
SCOP	°,L		3,40	3,38	3,43	3,43	3,45	3,43	3,23	3,25
	A,E		3,53	3,53	3,53	3,50	3,53	3,50	3,43	3,48
ηsh	°,L	%	133,00	132,00	134,00	134,00	135,00	134,00	126,00	127,00
	A,E	%	138,00	138,00	138,00	137,00	138,00	137,00	134,00	136,00

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

ELECTRIC DATA

Size			0800	0900	1000	1250	1404	1504	1655	1800
Electric data										
Maximum current (FLA)	°,L	A	173,0	195,0	221,0	265,0	294,0	323,0	365,0	398,0
	A,E	A	177,0	199,0	221,0	274,0	303,0	332,0	373,0	406,0
Peak current (LRA)	°,L	A	348,0	404,0	430,0	533,0	503,0	532,0	633,0	666,0
	A,E	A	352,0	408,0	430,0	542,0	512,0	541,0	641,0	674,0

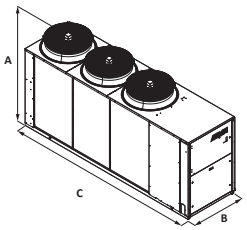
GENERAL TECHNICAL DATA

Size			0800	0900	1000	1250	1404	1504	1655	1800
Compressor										
Type	°,L,A,E	type				Scroll				
Compressor regulation	°,L,A,E	type				On-Off				
Number	°,L,A,E	n°	4	4	4	4	4	4	5	6
Circuits	°,L,A,E	n°	2	2	2	2	2	2	2	2
Refrigerant	°,L,A,E	type				R410A				
System side heat exchanger										
Type	°,L,A,E	type				Brazed plate				
Number	°,L,A,E	n°	1	1	1	1	1	1	1	1
Hydraulic connections										
Connection (in/out)	°,L,A,E	type				Grooved joints				
Size (in/out)	°,L,A,E	Ø	3"	3"	3"	3"	4"	4"	4"	4"
Fan										
Type		type	Axial	Axial	Axial	Axial	Axial	Axial	Axial	Axial
Fan motor		type	On-Off	On-Off	On-Off	On-Off	On-Off	On-Off	On-Off	On-Off
Number	°,L	n°	3	3	4	4	4	4	6	6
	A,E	n°	4	4	4	6	6	6	8	8
Air flow rate	°	m^3/h	64500	63750	85600	80800	87400	86800	124200	122400
	L	m^3/h	45200	44600	59900	56600	65500	69400	86900	85700
	A	m^3/h	85600	84600	83600	126000	124200	122400	168000	165600
	E	m^3/h	59920	59220	60610	88200	90000	91800	117600	115920
Sound data calculated in cooling mode (1)										
Sound power leve	°	dB(A)	88,5	88,5	90,5	93,5	91,0	90,5	92,0	94,0
	L	dB(A)	85,5	85,5	87,5	90,5	88,0	87,5	89,0	91,0
	A	dB(A)	88,5	88,5	88,5	91,5	91,0	91,5	92,0	94,0
	E	dB(A)	83,0	83,0	83,5	86,0	85,5	85,0	86,5	88,5
Sound pressure level (10 m)	°	dB(A)	56,4	56,4	58,3	61,3	58,7	58,2	59,7	61,7
	L	dB(A)	53,4	53,4	55,3	58,3	55,7	55,2	56,7	58,7
	A	dB(A)	56,3	56,3	56,3	59,2	58,7	59,2	59,5	61,5
	E	dB(A)	50,8	50,8	51,3	53,7	53,2	52,7	54,0	56,0

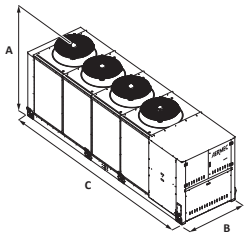
(1) Sound power calculated on the basis of measurements made in accordance with UNI EN ISO 9614-2, as required for Eurovent certification. Sound pressure (cold functioning) measured in free field, 10m away from the unit external surface (in compliance with UNI EN ISO 3744).

DIMENSIONS

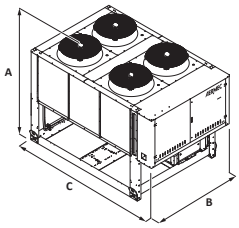
NRL/0800/0900 H-HL



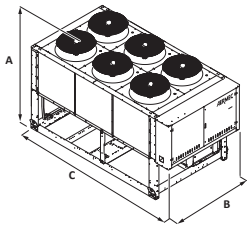
NRL_1000/1250 H-HL



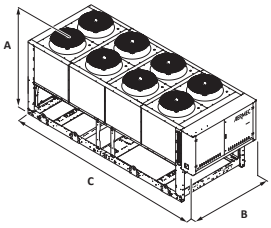
NRL_0800/0900/1000 HA-HE
NRL_1404/1504 H-HL



NRL_1250/1404/1504 HA-HE
1655/1800 H-HL



NRL_1655/1800 HA-HE



Size			Vers.	0800	0900	1000	1250	1404	1504	1655	1800
Dimensions and weights											
A	mm		°,L	1975	1975	1975	1975	2450	2450	2450	2450
			A,E	2450	2450	2450	2450	2450	2450	2450	2450
B	mm		°,L	1500	1500	1500	1500	2200	2200	2200	2200
			A,E	2200	2200	2200	2200	2200	2200	2200	2200
C	mm		°,L	4355	4355	5355	5355	4250	4250	4250	4250
			A,E	3400	3400	3400	4250	4250	4250	5750	5750
Empty weight	kg	(1)	°	1800	1940	2170	2320	2930	3140	3220	3330
			L	1800	1950	2180	2320	2940	3150	3230	3340
			A	2150	2300	2460	2750	2990	3190	3680	3800
			E	2160	2310	2470	2760	3000	3200	3690	3810

(1) The weights refer to versions without hydronic module integrated

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