

NRL 0280/0750 heat pumps

Air/Water Reversible heat pumps for external installation
Scroll compressors, plate heat exchangers and axial fans
Cooling capacity 50,8÷179,7 kW
Heating capacity 58,2÷204,4 kW



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- **EUROVENT EFFICIENCY'S CLASS "A" IN HEATING OPERATION**
- **HIGH EFFICIENCIES ALSO AT PARTIAL LOADS**
- **FAST AND EASY INSTALLATION**

Characteristics

Reversible heat pumps for external installation for the production of chilled/ heated water with high performance and low electric absorption 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.

Version

- NRL_H** Standard heat pumps
- NRL_HL** Standard heat pumps Low noise version
- NRL_HA** High efficiency version
- NRL_HE** High efficiency version Low noise version

Operating limits: Work at full load down to -15°C external air temperature in winter season, up to 46°C in summer season. Hot water production up to 55°C

(for more details please refer to the technical documentation)

- 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.
- Flow switch, water filter and high and low pressure transducer are standard supplied.
- 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.
- 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:** 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.
- **VT:** 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.

Compatibility of accessories

Mod. NRL	Vers.	0280	0300	0330	0350	0500	0550	0600	0650	0700	0750
AER485P1	all	•	•	•	•	•	•	•	•	•	•
PGD1	all	•	•	•	•	•	•	•	•	•	•
C-TOUCH	all	•	•	•	•	•	•	•	•	•	•
MULTICHILLER_EVO		•	•	•	•	•	•	•	•	•	•
AERNET	all	•	•	•	•	•	•	•	•	•	•
DCPX	(1) H	-	-	-	-	64	64	64	64	64	64
	(1) HL	inverter fans				standard	standard	standard	standard	standard	standard
	(1) HA	-	-	-	-	64	64	64	64	65	65
	(1) HE	inverter fans				standard	standard	standard	standard	standard	standard
DCPX - Increased fans (M)	(1) H	-	-	-	-	-	-	-	-	-	-
	(1) HL	63	63	63	63	-	-	-	-	-	-
	(1) HA	-	-	-	-	-	-	-	-	-	-
	(1) HE	63	63	63	63	-	-	-	-	-	-
GP	(2) H-HL	3	3	3	3	2 (x2)	2 (x2)	2 (x2)	2 (x2)	2 (x2)	10 (x3)
	(2) HA-HE	3	4	4	4	2 (x2)	2 (x2)	2 (x2)	2 (x2)	2 (x3)	10 (x3)
VT (00 / P1÷P4)	H	17	17	17	17	11	11	11	11	11	23
	HL-HA-HE	17	17	17	17	11	11	11	11	22	23
VT (01÷10)	H	13	13	13	13	11	11	11	11	11	23
	HL-HA-HE	13	13	13	13	11	11	11	11	22	23
Accessories factory fitted only											
DRE	400V/3N	281	301	331	351	501	551	601	651	701	751
RIF	all	50	50	50	51	52	52	53	53	53	53
PRM1	all	•	•	•	•	•	•	•	•	•	•

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

(2) (x2)(x3) the number in brackets indicates the quantity to order

Unit Configurator

By suitably combining the numerous options available it is possible to configure each model in such a way as to meet the most demanding of system requirements.

Field	Code	14	Power supply
1,2,3	NRL		° 400V/3N/50Hz with circuit breakers
4,5,6,7	Size	1	220V/3/50Hz with circuit breakers
	0280-0300-0330-0350-0500-0550-0600-0650-0700-750 (3)	15-16	Hydronic kit (6)
8	Expansion valve	00	Without hydronic kit
	° Standard (leaving water temperature down to 4°C)	01	n°1 low head pump and buffer tank
X	Electronic expansion valve (leaving water temperature down to 4°C) contact head office for lower temperatures	02	n°2 low head pump and buffer tank
9	Model	03	n°1 high head pump and buffer tank
H	Heat pumps	04	n°2 high head pump and buffer tank
10	Heat recovery	05	n°1 low head pump and buffer tank (with holes for immersion heaters)
	° Without recovery	06	n°2 low head pump and buffer tank (with holes for immersion heaters)
D	With Desuperheater (4)	07	n°1 low high pump and buffer tank (with holes for immersion heaters)
11	Version	08	n°2 low high pump and buffer tank (with holes for immersion heaters)
	° Compact	09	double hydraulic circuit
L	Compact low noise	10	double hydraulic circuit with holes for immersion heaters
A	High efficiency	P1	n°1 low head pump
E	High efficiency in low noise operation	P2	n°2 low head pump
12	Coil	P3	n°1 high head pump
	° In aluminium	P4	n°2 high head pump
R	In copper		
S	In tinned copper		
V	In painted aluminium-copper (epoxy paint)		
13	Fans (5)		
	° Standard		
M	Increased		
J	Inverter		

(3) The size 0280-0300-0330-0350 only available in low noise version "HL/HE" with inverter fans

(4) The desuperheater can be used exclusively in the cold operation

(5) **On / off fan Standard**, standard sizes up 0500 to 0750

On / off fan Increased, option for size up 0280 to 0350

Fans Inverter, standard sizes from 0280 to 0350, with no static pressure

Fans Inverter, option for sizes from 0500 to 0750 with static pressure

(6) Buffer tanks with holes for additional heaters are supplied from factory with plastics caps of protection, before system's loading, where the installation of one or all the heaters is not provided, it is mandatory to replace plastic caps with special caps, which are commonly available in the market.

Technical Data

NRL - H			0280	0300	0330	0350	0500	0550	0600	0650	0700	0750
		V/ph/Hz	400V	400V	400V	400V	400V	400V	400V	400V	400V	400V
12°C / 7°C	Cooling capacity	(1) kW	/	/	/	/	89,7	94,7	114,6	133,7	144,7	175,6
	Total input power	(1) kW	/	/	/	/	36,9	41,0	49,8	54,1	63,8	71,2
	EER	(1)	/	/	/	/	2,43	2,31	2,30	2,47	2,27	2,47
	Water flow rate	(1) l/h	/	/	/	/	15463	16322	19758	23022	24912	30238
	Pressure drop	(1) kPa	/	/	/	/	46	50	53	58	64	74
40°C / 45°C	Heating capacity	(2) kW	/	/	/	/	99,3	106,3	129,3	150,3	165,4	201,5
	Total input power	(2) kW	/	/	/	/	33,8	36,7	43,9	49,0	56,3	66,8
	COP	(2)	/	/	/	/	2,94	2,90	2,94	3,07	2,94	3,02
	Water flow rate	(2) l/h	/	/	/	/	17206	18422	22420	26069	28676	34933
	Pressure drop	(2) kPa	/	/	/	/	55	62	67	73	83	96
Performance under average climatic conditions (Average) UE n°813/2013 Pdesignh ≤ 400kW												
Pdesignh		(3)	/	/	/	/	85	91	110	127	141	171
SCOP		(3)	/	/	/	/	3,20	3,20	3,20	3,28	3,20	3,30
ηs		(3) %	/	/	/	/	125	125	125	128	125	129
Cooling mode for low temperature												
ηsc		%	/	/	/	/	123,6	119,7	136,6	128,9	131,7	138,6
SEER			/	/	/	/	3,17	3,07	3,49	3,30	3,37	3,54

NRL - HL			0280	0300	0330	0350	0500	0550	0600	0650	0700	0750
		V/ph/Hz	400V	400V	400V	400V	400V	400V	400V	400V	400V	400V
12°C / 7°C	Cooling capacity	(1) kW	50,8	60,8	65,9	72,8	82,8	89,7	109,7	123,6	139,7	164,7
	Total input power	(1) kW	20,4	22,8	26,4	31,4	40,1	43,4	52,4	59,0	66,4	78,4
	EER	(1)	2,49	2,67	2,49	2,32	2,07	2,07	2,09	2,10	2,10	2,10
	Water flow rate	(1) l/h	8762	10480	11339	12542	14260	15463	18899	21304	24053	28348
	Pressure drop	(1) kPa	47	43	29	45	39	45	49	50	60	65
40°C / 45°C	Heating capacity	(2) kW	58,2	68,2	75,2	82,3	99,3	106,3	129,3	150,3	165,4	201,4
	Total input power	(2) kW	19,0	21,7	24,6	28,3	33,8	36,7	43,9	49,0	56,3	66,6
	COP	(2)	3,06	3,14	3,05	2,91	2,94	2,90	2,94	3,07	2,94	3,03
	Water flow rate	(2) l/h	10080	11818	13034	14251	17206	18422	22420	26069	28676	34933
	Pressure drop	(2) kPa	61	54	36	56	55	62	67	73	83	82
Performance under average climatic conditions (Average) UE n°811/2013 Pdesignh ≤ 70kW												
Pdesignh		(3)	49	58	64	71	85	91	110	127	141	171
SCOP		(3)	3,20	3,28	3,20	3,20	3,20	3,20	3,20	3,28	3,20	3,30
ηs		(3) %	125	128	125	125	125	125	125	128	125	129
Efficiency Energy Class			A+	A+	A+	/	/	/	/	/	/	/
Cooling mode for low temperature												
ηsc		%	115,3	124,4	117,3	128,3	122,8	136,2	129,4	131,5	138,5	138,6
SEER			2,96	3,19	3,01	3,28	3,15	3,48	3,31	3,36	3,54	3,54

NRL - HA			0280	0300	0330	0350	0500	0550	0600	0650	0700	0750
		V/ph/Hz	400V	400V	400V	400V	400V	400V	400V	400V	400V	400V
12°C / 7°C	Cooling capacity	(1) kW	/	/	/	/	93,8	99,8	121,7	137,6	149,7	179,7
	Total input power	(1) kW	/	/	/	/	30,8	34,0	41,5	48,5	52,1	64,2
	EER	(1)	/	/	/	/	3,05	2,93	2,93	2,84	2,88	2,80
	Water flow rate	(1) l/h	/	/	/	/	16150	17181	20960	23709	25771	30926
	Pressure drop	(1) kPa	/	/	/	/	33	36	36	43	49	64
40°C / 45°C	Heating capacity	(2) kW	/	/	/	/	103,3	110,3	135,4	152,3	171,3	204,4
	Total input power	(2) kW	/	/	/	/	31,7	34,3	40,8	45,7	53,1	62,7
	COP	(2)	/	/	/	/	3,26	3,21	3,32	3,33	3,23	3,26
	Water flow rate	(2) l/h	/	/	/	/	17901	19117	23462	26417	29719	35455
	Pressure drop	(2) kPa	/	/	/	/	40	44	44	52	64	82
Performance under average climatic conditions (Average) UE n°813/2013 Pdesignh ≤ 400kW												
Pdesignh		(3)	/	/	/	/	87	93	114	129	145	173
SCOP		(3)	/	/	/	/	3,48	3,48	3,58	3,58	3,45	3,53
ηs		(3) %	/	/	/	/	136	136	140	140	135	138
Cooling mode for low temperature												
ηsc		%	/	/	/	/	140,6	154,5	153,7	150,8	151,0	138,6
SEER			/	/	/	/	3,59	3,94	3,92	3,85	3,85	3,54

NRL - HE			0280	0300	0330	0350	0500	0550	0600	0650	0700	0750
		V/ph/Hz	400V	400V	400V	400V	400V	400V	400V	400V	400V	400V
12°C / 7°C	Cooling capacity	(1) kW	52,9	61,9	68,8	76,8	89,8	94,8	113,8	127,7	142,7	174,7
	Total input power	(1) kW	18,1	20,2	23,4	26,9	33,4	36,7	45,4	53,2	58,5	69,8
	EER	(1)	2,93	3,06	2,94	2,86	2,69	2,58	2,51	2,40	2,44	2,50
	Water flow rate	(1) l/h	9106	10652	11854	13229	15463	16322	19586	21991	24569	30066
	Pressure drop	(1) kPa	27	27	51	29	30	32	31	37	45	60
40°C / 45°C	Heating capacity	(2) kW	59,1	69,2	76,3	86,2	103,3	110,3	135,4	152,3	171,3	204,4
	Total input power	(2) kW	17,5	20,6	23,1	26,1	31,7	34,3	40,8	45,7	53,1	62,7
	COP	(2)	3,38	3,36	3,31	3,30	3,26	3,21	3,32	3,33	3,23	3,26
	Water flow rate	(2) l/h	10254	11992	13208	14946	17901	19117	23462	26417	29719	35455
	Pressure drop	(2) kPa	25	34	66	34	40	44	44	52	64	82
Performance under average climatic conditions (Average) UE n°811/2013 Pdesignh ≤ 70kW												
Pdesignh		(3)	50	58	64	73	87	93	114	129	145	173
SCOP		(3)	3,53	3,50	3,50	3,45	3,48	3,48	3,58	3,58	3,45	3,53
ηs		(3) %	138	137	137	135	136	136	140	140	135	138
Efficiency Energy Class			A+	A+	A+	/	/	/	/	/	/	/
Cooling mode for low temperature												
ηsc		%	146,5	145,2	148,9	145,3	138,9	147,8	146,7	144,5	147,4	138,6
SEER			3,74	3,71	3,80	3,71	3,55	3,77	3,74	3,69	3,76	3,54

Date (14511:2018)

- (1) Water system side 12°C/7°C, External air 35°C
- (2) Water system side 40°C/45°C, External air 7°C b.s./6°C b.u.
- (3) Efficiencies for low temperature Applications (35°C)

Technical Data

			0280	0300	0330	0350	0500	0550	0600	0650	0700	0750	
Electrical data													
Total input current (cooling)	H	(4)	A	/	/	/	/	63	67	81	88	100	122
	HL	(4)	A	36	40	44	51	70	75	90	99	111	132
	HA	(4)	A	/	/	/	/	55	60	71	77	90	113
	HE	(4)	A	30	34	37	45	60	64	78	89	97	120
Total input current (heating)	H	(4)	A	/	/	/	/	60	63	76	82	95	113
	HL	(4)	A	33	38	41	50	60	63	76	82	95	113
	HA	(4)	A	/	/	/	/	55	59	72	82	88	113
	HE	(4)	A	35	39	43	49	60	64	79	91	99	113
Maximum current (FLA)		(4)	A	46	53	58	63	76	81	100	112	122	144
Starting current (LRA)		(4)	A	155	184	190	200	214	220	232	243	261	320
Scroll Compressor													
Compressors / Circuit		n°	2/2	2/2	2/2	2/2	3/2	3/2	4/2	4/2	4/2	4/2	
Refrigerant		Type	R410A										
Heat exchanger system side													
Exchanger		Type/n°	Plate/1										
Hydraulic connections (In/Out)		Ø	2"½	2"½	2"½	2"½	2"½	2"½	2"½	2"½	2"½	3"	
Axial fans													
Fans	H	Type/n°	/	/	/	/	std/2	std/2	std/2	std/2	std/2	std/2	std/3
	HL	Type/n°	Inverter/4	Inverter/6	Inverter/6	Inverter/6	std/2	std/2	std/2	std/2	std/2	std/2	std/3
	HA	Type/n°	/	/	/	/	std/2	std/2	std/2	std/2	std/2	std/3	std/3
	HE	Type/n°	Inverter/6	Inverter/8	Inverter/8	Inverter/8	std/2	std/2	std/2	std/2	std/2	std/3	std/3
Air flow rate (cooling)	H	m³/h	/	/	/	/	39400	39400	39400	37500	37500	50200	
	HL	m³/h	14000	20000	20000	20000	28400	28700	28700	27400	28100	41700	
	HA	m³/h	/	/	/	/	37000	37000	36500	36500	58000	48000	
	HE	m³/h	20000	26000	26000	26000	20200	21100	21400	22400	31900	34600	
Sound data (cooling mode)													
Sound power level		H	dB(A)	/	/	/	/	82	82	82	83	83	85
Sound pressure level		H	dB(A)	/	/	/	/	50	50	50	51	51	53
Sound power level		HL	dB(A)	73	74	74	75	77	77	77	78	78	80
Sound pressure level		HL	dB(A)	41	42	42	43	45	45	45	46	46	48
Sound power level		HA	dB(A)	/	/	/	/	82	82	82	83	85	85
Sound pressure level		HA	dB(A)	/	/	/	/	50	50	50	51	53	53
Sound power level		HE	dB(A)	74	75	75	76	74	74	74	75	77	77
Sound pressure level		HE	dB(A)	42	43	43	44	42	42	42	43	45	45

(4) Unit standar configuration without hydronic kit

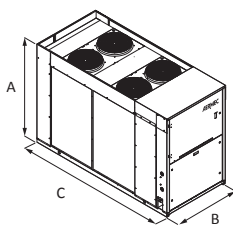
Sound power Aermec determines sound power values on the basis of measurements made in accordance with UNI EN ISO 9614-2, as required for Eurovent certification.

Sound pressure Sound pressure in free field, at 10 m distance from the external surface of the unit (in accordance with UNI EN ISO 3744).

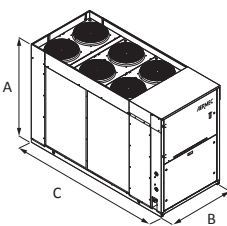
Note: For more information, refer to the selection program or the technical documentation available on the website www.aermec.com

Dimensions (mm)

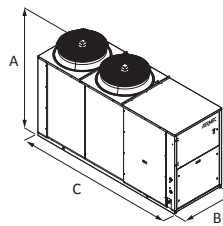
NRL 0280 HL



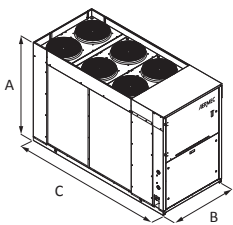
NRL 0300-0330-0350 HL



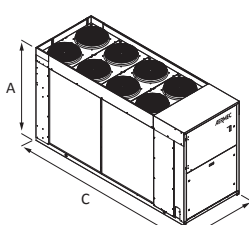
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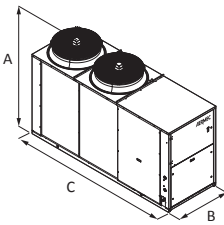
NRL 0280 HE



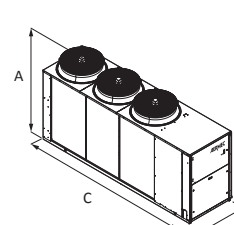
NRL 0300-0330-0350 HE



NRL 0500-0550-0600-0650 HA/HE



NRL 0700 HA/HE
NRL 0750 H/HL/HA/HE



Mod. NRL			Vers.	0280	0300	0330	0350	0500	0550	0600	0650	0700	0750
A	(mm)		Alls	1606	1606	1606	1606	1875	1875	1875	1875	1875	1975
B	(mm)		Alls	1100	1100	1100	1100	1100	1100	1100	1100	1100	1500
C	(mm)		H/HL	2450	2450	2450	2450	3010	3010	3010	3010	3010	4350
		HA/HE	2450	2950	2950	2950	3010	3010	3010	3010	4010	4350	
Weight empty	kg	(5)	H/HL	713	724	731	740	913	917	1016	1130	1142	1487
		HA/HE	730	795	805	811	1099	1103	1204	1212	1390	1748	

(5) Unit standar configuration without hydronic kit

Aermec reserves the right to make all modification deemed necessary for improving the product at any time with any modification of technical data.

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