

NRL

Chillers and air-cooled heat pumps with axial flow fans
Capacity from 165 to 523 kW

R410A



Aermec adheres to the EUROVENT Certification Programme. The products concerned appear in the EUROVENT Certified Products Guide.



- **HIGH EFFICIENCY VERSION**
- **SILENCED HIGH EFFICIENCY VERSION**
- **COMPACT VERSION**
- **SILENCED COMPACT VERSION**

- **2 COOLING CIRCUITS**
- **CIRCULATION PUMP**
- **CIRCULATION PUMP**
- **E ACCUMULATOR TANK**

Characteristics

- Available in 9 sizes.
- Refrigerant R410A.
- 2 Cooling circuits.
- High efficiency even with partial loads.
- Heat exchangers optimised to exploit the excellent heat transfer characteristics of the R410A.
- High-efficiency scroll compressors.
- Axial flow fans with reduced noise level.
- Solid construction with polyester anti-corrosion painted finish.
- Extended operating limits with heat pump functioning:
 - Max. processed water temperature 55° C.
 - Max. external air temperature 30° C. (42° C with speed regulator accessory for DCPX fans).
- Versions available:

- "H" Standard compact heat pump.
- "HL" Silenced compact heat pump.
- "HA" High efficiency heat pump.
- "HE" High-efficiency silenced heat pump.
- Thermostatic valve:
 - "o" standard mechanical thermostatic valve.
 - "x" electronic thermostatic valve, also for low water temperature (down to -6°C).
- Fan unit:
 - "o" Standard.
 - "J" Inverter.
- Versions with pumping assembly and tank complete with water filter, flow switch, expansion tank, a charging unit and antifreeze electric heater.
- Microprocessor control system:
 - Control of the inlet water temperature, with the possibility of selecting

- the control of the outlet water.
- Summer condensation control with 0-10V modulating signal depending on pressure, compensated according to the outside air temperature (with DCPX accessory).
- Evaporation control for the heat pump summer operation (with DCPX accessory).
- Rotation of compressors and pumps according to operating hours (manual rotation from 1400 to 1800).
- Safety capacity control.
- Low pressure transducers and high pressure transducer (standard for all versions)
- Automatic reset of alarms before total block.
- Messages in 4 languages.
- Alarm Log.

Accessories

- **AER485:** RS-485 interface for supervision systems with MODBUS protocol.
- **AVX:** Sprung anti-vibration supports. Select the AVX model from the compatibility table.
- **DCPX:** With this accessory correct operation is possible with outside temperatures below 10 °C and down to - 10 °C. It is made up of an electronic regulation card that varies the fan rpm on the basis of the condensation pressure, read by the high pressure transducer in order to keep it sufficiently high for the proper functioning of the unit. It also allows correct heating operation with outside temperatures greater than 30°C and up to 42°C.
- **DRE:** Electronic starting current reduction device. **Can only be installed in the factory.**
- **GP:** Protection grille, protects external coils from accidental knocks.
- **PGS:** Daily/Weekly Programmer. Allows you to programme two time bands per day (two switch on/off cycles) and to have

- differentiated programming for each day of the week.
- **RIF:** Current rephaser. Parallel connection with the motor makes the reduction of input current possible. **This can only be installed when the machine is being made and must therefore be specified when the order is placed.**
- **AERWEB30:** the AERWEB device allows remote control of a chiller via a serial link from a standard PC. Using additional modules, the device allows to control the chiller via the telephone network, using the **AER-MODEM** accessory; or via the GSM network, using the **AERMODEMGSM** accessory. AERWEB can pilot up to 9 chillers, but each of these **must** be equipped with the AER485 or AER485P2 accessory.
- **DUALCHILLER:** Simplified control system to switch on and off, and command, two chillers (using Aermec GR3 command) in a single

- system, as if they were a single unit.
- **MULTICHILLER:** 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.
- **TRX1:** Metal cap that replaces the plastic cap, mounted for protection in accumulators with holes for supplementary electric heaters.
- **VT:** anti-vibration support, to be fitted below the unit base.
- **PRM1-PRM2:** FACTORY FITTED ACCESSORY. It is a manual pressure switch electrically wired in series with the existing automatic highpressure switch on the compressor discharge pipe.

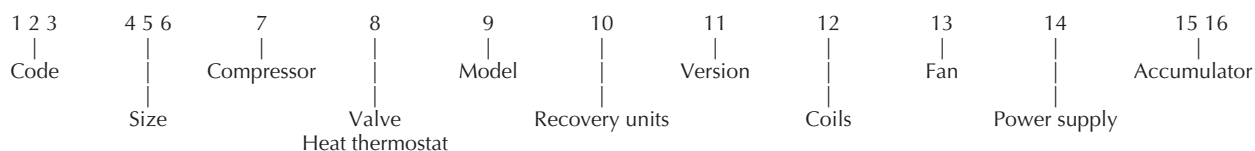
Compatibility of accessories

Mod. NRL	Vers.	750	800	900	1000	1250	1400	1500	1650	1800
AER485	All	✓	✓	✓	✓	✓	✓	✓	✓	✓
DUALCHILLER	All	✓	✓	✓	✓	✓	✓	✓	✓	✓
MULTICHILLER	All	✓	✓	✓	✓	✓	✓	✓	✓	✓
PGS	All	✓	✓	✓	✓	✓	✓	✓	✓	✓
AERWEB30	All	✓	✓	✓	✓	✓	✓	✓	✓	✓
TRX1	All	✓	✓	✓	✓	✓	✓	✓	✓	✓
AVX	All	-	✓	✓	✓	✓	✓	✓	✓	✓
VT	All	23	-	-	-	-	-	-	-	-
DCPX	H	64	65	65	65	65	66	66	68	68
	HL	standard	standard	standard	standard	standard	standard	standard	standard	standard
	HA	65	66	66	66	68	68	68	68	68
	HE	standard	standard	standard	standard	standard	standard	standard	standard	standard
DCPX vers. with enlarged fans	All	NOTE: DCPX not necessary. The fans are already equipped with rpm regulator.								
DRE	All	751	801	901	1001	1251	1401	1501	1651	1801
GP	H - HL	10 (x3)	10 (x3)	10 (x3)	10 (x4)	10 (x4)	350	350	350	350
	HA - HE	10 (x3)	260	260	260	350	350	350	500	500
RIF	H - HL	53	87	89	91	91	93	94	94	94
	HA - HE	53	88	90	92	92	93	94	94	94
PRM1/PRM2	Tutte	✓	✓	✓	✓	✓	✓	✓	✓	✓

Choice of Unit

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

Field configurator:



Code:

NRL

Size:

075, 080, 090, 100, 125, 140, 150, 165, 180

Compressors:

0 - R410A standard compressors

Thermostatic valve:

- ° - Standard mechanical thermostatic valve up to +4°C
- X - Electronic thermostatic valve also for low water temperature (down to -6°C)

Model:

H - Heat pump

Heat recovery units

- ° - Without recovery units
- D - With partial recovery (desuperheater)
- T - With total heat recovery

Version:

- H - Standard compact heat pump
- HL - Compact heat pump, silenced version
- HA - High efficiency heat pump
- HE - High-efficiency heat pump, silenced version

Batteries:

- ° - Aluminium
- R - Copper
- S - Tinned copper
- V - Varnished

Fans:

- ° - Standard
- J - Inverter

Warning:

- the standard options are shown by the symbol °;
- the XD and XT configurations are not available (for temperatures below 4°C only).

Example of the commercial code: **NRL1000°H°E°°04**

This is a size 1000 NRL unit with aluminium condensing coils, PED standard evaporator, electrical panel for compressors with 400V 3~ 50Hz motors and with high-head accumulator and reserve pump.

As you may have noticed, each option is represented in a unique way from all the others, so it is not necessary to indicate (within the commercial code) the standard options (identified by °).

Power supply:

- ° - 400V 3~ 50Hz with thermomagnetic switches
- 2 - 500V 3~ 50Hz with thermomagnetic switches (contact the company head office for versions with DCPX).

Accumulator:

- 00 - without accumulator
- 01 - low-head accumulator and single pump
- 02 - low-head accumulator and reserve pump
- 03 - high-head accumulator and single pump
- 04 - high-head accumulator and reserve pump
- 05 - accumulator (with holes for supplementary electric heaters) low-head and single pump
- 06 - accumulator (with holes for supplementary electric heaters) low-head and reserve pump
- 07 - accumulator (with holes for supplementary electric heaters) high-head and single pump
- 08 - accumulator (with holes for supplementary electric heaters) high-head and reserve pump
- 09 - double hydraulic ring
- 10 - double hydraulic ring with supplementary electric heater
- P1 - without accumulator, with low-head pump
- P2 - without accumulator, with low-head pump and reserve pump
- P3 - without accumulator, with high-head pump
- P4 - without accumulator, with high-head pump and reserve pump

Technical data

Mod. NRL	Vers.	750	800	900	1000	1250	1400	1500	1650	1800	
Cooling capacity	(kW)	H	176	201	222	262	300	333	367	423	454
		HL	165	184	200	237	265	302	332	373	397
		HA	180	211	239	261	315	351	388	437	472
		HE	175	194	213	231	284	319	355	398	426
Total power input	(kW)	H	70	81	94	101	120	140	159	166	179
		HL	77	90	105	112	136	154	174	187	204
		HA	63	73	82	94	109	126	143	151	162
		HE	69	81	94	107	122	140	158	168	182
Water flow rate	(l/h)	H	30270	34570	38180	45060	51600	57280	63120	72760	78090
		HL	28380	31650	34400	40760	45580	51940	57100	64160	68280
		HA	30960	36290	41110	44890	54180	60370	66740	75160	81180
		HE	30100	33370	36640	39730	48850	54870	61060	68460	73270
Pressure drop	(kPa)	H	74	46	45	50	57	40	40	47	46
		HL	65	39	37	41	45	33	34	37	36
		HA	64	55	56	54	61	48	49	54	54
		HE	60	47	45	43	51	40	41	45	44
EER	(W/W)	H	2.51	2.48	2.36	2.59	2.50	2.38	2.31	2.55	2.54
		HL	2.13	2.04	1.90	2.12	1.95	1.96	1.91	1.99	1.95
		HA	2.85	2.89	2.91	2.78	2.89	2.79	2.71	2.89	2.91
		HE	2.54	2.40	2.27	2.16	2.33	2.28	2.25	2.37	2.34
ESEER	(W/W)	H	3.87	3.98	3.77	3.78	3.76	3.57	3.50	3.53	3.60
		HL	3.85	3.90	3.75	3.75	3.65	3.47	3.43	3.44	3.41
		HA	4.19	4.17	4.06	3.96	4.13	3.91	3.82	3.85	3.82
		HE	4.05	4.06	3.99	3.88	4.06	3.85	3.74	3.81	3.82
Heating capacity	(kW)	H - HL	201	227	256	293	340	384	427	468	503
		HA - HE	204	233	263	293	344	388	433	484	523
Total power input	(kW)	H - HL	65	75	85	96	111	126	141	155	166
		HA - HE	61	74	83	93	110	124	139	153	163
Water flow rate	(l/h)	H - HL	34570	39040	44030	50400	58480	66050	73440	80500	86520
		HA - HE	35090	40080	45240	50400	59170	66740	74480	83250	89960
Pressure drop	(kPa)	H - HL	96	61	62	65	78	54	55	59	58
		HA - HE	82	68	69	69	76	58	60	66	66
COP	(W/W)	H - HL	3.08	3.03	3.01	3.05	3.06	3.05	3.03	3.02	3.03
		HA - HE	3.33	3.15	3.17	3.15	3.13	3.13	3.12	3.16	3.21
Power supply	All	400V-3-50Hz (*)									
Total input current	(A)	H - HL	113	136	156	179	193	227	261	279	290
		HA - HE	109	138	157	177	197	231	265	282	293
Maximum current (FLA)	(A)	H - HL	144	173	195	221	265	294	323	365	398
		HA - HE	144	177	199	221	274	303	332	373	406
Starting current (LRA)	(A)	H - HL	320	348	404	430	533	503	532	633	666
		HA - HE	320	352	408	430	542	512	541	641	674
Type of compressors	All	Scroll									
Compressors / no. circuit (no.)	All	4/2	4/2	4/2	4/2	4/2	5/2	6/2	6/2	6/2	
Type of fans	All	Axial									
Fan air flow rate	(m3/h)	H	50200	64500	63750	85600	80800	87400	86800	124200	122400
		HL	41700	45200	44600	59900	56600	65500	69400	86900	85700
		HA	48000	85600	84600	83600	126000	124200	122400	168000	165600
		HE	34600	59920	59220	60610	88200	90000	91800	117600	115920
Number of fans	(n°)	H	3	3	3	4	4	4	4	6	6
		HL	3	3	3	4	4	4	4	6	6
		HA	3	4	4	4	6	6	6	8	8
		HE	3	4	4	4	6	6	6	8	8
Evaporator	All	Plates									
Plumbing connections	All	Victaulic									
Dimension of plumbing connections (Ø)		H - HL	3"	3"	3"	3"	3"	4"	4"	4"	4"
		HA - HE	3"	3"	3"	3"	4"	4"	4"	4"	4"
Input power low-head pump	(kW)	All	3.0	3.4	3.4	3.4	4.6	4.6	5.9	5.9	5.9
Input power high-head pump	(kW)	All	5.5	5.7	5.7	5.7	8.3	8.3	8.3	10.5	10.5
Input current low-head pump	(A)	All	6.2	5.8	5.8	5.8	7.8	7.8	10.0	10.0	10.0
Input current high-head pump	(A)	All	11.0	9.7	9.7	9.7	14.1	14.1	14.1	17.8	17.8
Pump useful head low-head cooling mode	(kPa)	H	97	125	120	118	142	149	142	122	115
		HL	109	138	135	134	165	167	157	145	141
		HA	104	123	114	111	128	128	125	106	95
		HE	110	135	132	131	150	149	141	126	119
Pump useful head high-head cooling mode	(kPa)	H	211	243	237	233	285	290	274	257	251
		HL	235	257	253	250	309	310	297	280	276
		HA	224	240	230	225	269	266	246	241	232
		HE	231	252	249	247	293	289	272	261	255
Tank capacity	(l)	All	700	700	700	700	700	700	700	700	

(*) The power supply for the 075 size is: 400V-3N-50Hz.

Mod. NRL	Vers.	750	800	900	1000	1250	1400	1500	1650	1800	
♪ Sound power	dB(A)	H	85.0	88.5	88.5	90.5	93.5	91.0	90.5	92.0	94.0
		HL	80.0	85.5	85.5	87.5	90.5	88.0	87.5	89.0	91.0
		HA	85.0	88.5	88.5	88.5	91.5	91.0	91.5	92.0	94.0
		HE	77.0	83.0	83.0	83.5	86.0	85.5	85.0	86.5	88.5
♪ Sound pressure	dB(A)	H	53.0	56.5	56.5	58.5	61.5	59.0	58.5	60.0	62.0
		HL	48.0	53.5	53.5	55.5	58.5	56.0	55.5	57.0	59.0
		HA	53.0	56.5	56.5	56.5	59.5	59.0	58.5	60.0	62.0
		HE	45.0	51.0	51.0	51.0	54.0	53.5	53.0	54.5	56.5

Performance values refer to the following conditions:

■ Cooling:

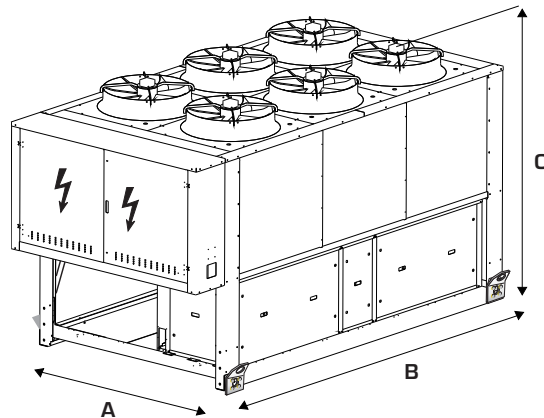
- water outlet temperature 7 °C
- outside air temp. 35 °C
- $\Delta t = 5$ °C.

■ Heating:

- water outlet temperature 45 °C
- outside air temp 7 °C D.B. 6 °C W.B.;
- $\Delta t = 5$ °C.

- ♪ Sound pressure measured in free field conditions, in cooling mode, at distance of 10m and direction factor = 2. In accordance with the ISO 3744 standard
- Power supply voltage: 400 V

Dimensions (mm)



Mod. NRL	Vers.	750	800	900	1000	1250	1400	1500	1650	1800	
Height (mm)	C	H - HL	1975	1975	1975	1975	1975	2450	2450	2450	2450
		HA - HE	1975	2450	2450	2450	2450	2450	2450	2450	2450
Width (mm)	A	H - HL	1500	1500	1500	1500	1500	2200	2200	2200	2200
		HA - HE	1500	2200	2200	2200	2200	2200	2200	2200	2200
Depth (mm)	B	H - HL	4350	4355	4355	5355	5355	4250	4250	4250	4250
		HA - HE	4350	3400	3400	3400	4250	4250	4250	5750	5750
Weight when empty (kg)		H	1487	1800	1940	2170	2320	2930	3140	3220	3330
		HL	1487	1800	1950	2180	2320	2940	3150	3230	3340
		HA	1748	2150	2300	2460	2750	2990	3190	3680	3800
		HE	1748	2160	2310	2470	2760	3000	3200	3690	3810

Warning: the weights refer to versions without accumulator and pump.

Selection AVX

Mod. NRL	Vers.	AVX	Mod. NRL	Vers.	AVX
NRL800H - HL	"00"	701	NRL1400H - HL	"00"	722
NRL800H - HL	"01-02-03-04"	702	NRL1400H - HL	"01-02-03-04"	723
NRL800H - HL	"P1-P2-P3-P4"	703	NRL1400H - HL	"P1-P2-P3-P4"	724
NRL800HA - HE	"00"	704	NRL1400HA - HE	"00"	722
NRL800HA - HE	"01-02-03-04"	705	NRL1400HA - HE	"01-02-03-04"	723
NRL800HA - HE	"P1-P2-P3-P4"	706	NRL1400HA - HE	"P1-P2-P3-P4"	724
NRL900H - HL	"00"	707	NRL1500H - HL	"00"	722
NRL900H - HL	"01-02-03-04"	708	NRL1500H - HL	"01-02-03-04"	728
NRL900H - HL	"P1-P2-P3-P4"	709	NRL1500H - HL	"P1-P2-P3-P4"	729
NRL900HA - HE	"00"	710	NRL1500HA - HE	"00"	730
NRL900HA - HE	"01-02-03-04"	711	NRL1500HA - HE	"01-02-03-04"	731
NRL900HA - HE	"P1-P2-P3-P4"	712	NRL1500HA - HE	"P1-P2-P3-P4"	732
NRL1000H - HL	"00"	713	NRL1650H - HL	"00"	733
NRL1000H - HL	"01-02-03-04"	714	NRL1650H - HL	"01-02-03-04"	728
NRL1000H - HL	"P1-P2-P3-P4"	715	NRL1650H - HL	"P1-P2-P3-P4"	729
NRL1000HA - HE	"00"	716	NRL1650HA - HE	"00"	734
NRL1000HA - HE	"01-02-03-04"	711	NRL1650HA - HE	"01-02-03-04"	735
NRL1000HA - HE	"P1-P2-P3-P4"	712	NRL1650HA - HE	"P1-P2-P3-P4"	736
NRL1250H - HL	"00"	713	NRL1800H - HL	"00"	730
NRL1250H - HL	"01-02-03-04"	717	NRL1800H - HL	"01-02-03-04"	728
NRL1250H - HL	"P1-P2-P3-P4"	718	NRL1800H - HL	"P1-P2-P3-P4"	732
NRL1250HA - HE	"00"	719	NRL1800HA - HE	"00"	737
NRL1250HA - HE	"01-02-03-04"	720	NRL1800HA - HE	"01-02-03-04"	738
NRL1250HA - HE	"P1-P2-P3-P4"	721	NRL1800HA - HE	"P1-P2-P3-P4"	736

The technical data in this document are not binding. Aermec S.p.A. shall have the right to introduce at any time whatever modifications deemed necessary for the improvement of the product.

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