

NRL Free Cooling

Chillers, air-cooled with axial flow fans
Cooling capacity from 58 kW to 174 kW

R410A



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The products concerned appear in the EUROVENT Certified Products Guide.



- **HIGH EFFICIENCY VERSION**
- **SILENCED HIGH EFFICIENCY VERSION**
- **VERSION WITH CIRCULATION PUMP**
- **2 COOLING CIRCUITS**
- **VERSION WITH CIRCULATION PUMP AND ACCUMULATOR TANK**

Characteristics

- Available in 9 different 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 anticorrosion painted finish
- Cooling mode up to 44° C
- Operation modes:
 - Free-Cooling only: is the most economical way to use the unit. Only the fans operate in modulation of speed, the cooling power is fully recovered from the external air
 - mixed Free-Cooling and compressors: the cooling power recovered from the external air is integrated with the total or partial operation of the compressors
- compressors only: the cooling capacity is provided entirely by the compressors (standard operation of a chiller)
- Versions available:
 - High efficiency
 - Silenced high efficiency
 - Glycol-free
 - With pumping assembly (high-head, with/without reserve pump)
 - Versions with pumping assembly and 300 litre tank (500 litres for the 750 size), complete with water filter, flow switch, expansion tank, charging unit and antifreeze electric heater
 - Electronic thermostatic valve
 - Enlarged fans
- Microprocessor control system of the compressors and fans for the management of the three operating modes (Free-Cooling only, mixed Free-Cooling and compressors and compressors only)
- Display of all operating parameters in 4 languages.
- Simplified remote control panel with shielded cable up to 50 m. Performs the basic checks of the unit with alarm warnings.
- High efficiency air-water exchanger (Free-Cooling) with smooth tubes and corrugated fins
- Three-way valve located on the water side for water switch-over on the Free-Cooling coils
- High and low pressure transducers (standard for all versions)
- Fan speed adjustment device for low air temperature operation. Manages the cooling capacity in the Free-Cooling mode

Accessories

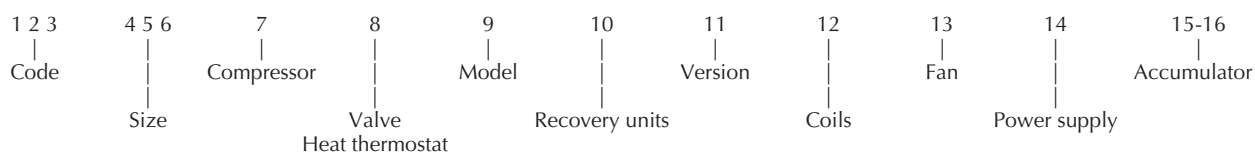
- **AER485:** RS-485 interface for supervision systems with MODBUS protocol.
- **VT:** anti-vibration support, to be fitted below the sheet metal base of the unit.
- **DRE:** Electronic starting current reduction device. **Can only be installed in the factory.**
- **GP:** Protection grille, protects the external coil 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.
- **PRM1-PRM2:** FACTORY FITTED ACCESSORY. It is a manual pressure switch electrically wired in series with the existing automatic high pressure switch on the compressor discharge pipe.

		Compatibility of accessories								
Mod. NRL	Vers.	280	300	330	350	500	550	600	650	700
AER485	All	✓	✓	✓	✓	✓	✓	✓	✓	✓
DUALCHILLER	All	✓	✓	✓	✓	✓	✓	✓	✓	✓
MULTICHILLER	All	✓	✓	✓	✓	✓	✓	✓	✓	✓
PGS	All	✓	✓	✓	✓	✓	✓	✓	✓	✓
AERWEB30	All	✓	✓	✓	✓	✓	✓	✓	✓	✓
VT	00 - P3 - P4	17	17	17	17	13	13	22	22	22
	03 - 04	13	13	13	13	10	10	22	22	22
DRE	All	281	301	331	351	501	551	601	651	701
GP	All	4	4	4	4	2(x2)	2(x2)	2(x3)	2(x3)	2(x3)
RIF	All	50	50	50	51	52	52	53	53	53
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:

028, 030, 033, 035, 050, 055, 060, 065, 070

Compressors:

0 - R410A standard compressors

Thermostatic valve:

- ° - Standard mechanical thermostatic valve
- Y - Mechanical thermostatic valve with processed water from +4°C down to -6 °C
- X - Electronic thermostatic valve also with processed water down to -6°C

Model:

- F - Free-cooling
- B - Free-cooling glycol free

Heat recovery units

- ° - Without recovery units

Version:

- A - High efficiency
- E - High efficiency, silenced version

Batteries:

- ° - Aluminium
- R - Copper
- S - Tinned copper
- V - In painted copper and aluminium (epoxy paint)

Fans:

- ° - Standard
- M - Enlarged

Power supply:

- ° - 400V 3N~ 50Hz with thermomagnetic switches
- 1 - 230V 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
- 03 - high-head accumulator and single pump
- 04 - high-head accumulator and reserve pump
- P3 - without accumulator, with high-head pump
- P4 - without accumulator, with high-head pump and reserve pump

Warning:

– the standard options are shown by the symbol °;

Example of the commercial code: **NRL0350°F°A°°°00**

This is a size 035 NRL unit with standard mechanical thermostatic valve, Free-cooling model, high efficiency, with aluminium condensing coils, standard fans, electrical panel for compressors with 400V 3N~ 50Hz motors and without accumulator.

Technical data

Mod. NRL Free Cooling		Vers.	280	300	330	350	500	550	600	650	700
Cooling capacity	(kW)	A	-	-	-	-	99.0	104.0	132.0	144.0	159.0
		E	59.0	65.0	74.0	82.0	91.0	95.0	119.0	130.0	147.0
Total power input	(kW)	A	-	-	-	-	33.7	37.3	44.5	51.7	60.8
		E	18.1	21.8	24.0	28.3	37.0	40.0	49.2	59.8	65.8
Water flow rate	(l/h)	A	-	-	-	-	17030	17890	22700	24770	27350
		E	10150	11180	12730	14100	15650	16340	20470	22360	25280
Total pressure drop	(kPa)	A	-	-	-	-	60	69	78	73	87
		E	63	53	66	58	51	58	63	60	74
EER	(W/W)	A	-	-	-	-	2.93	2.79	2.96	2.79	2.62
		E	3.26	2.98	3.08	2.90	2.46	2.37	2.42	2.17	2.23
Input current	(A)	A	-	-	-	-	61	65	79	84	101
		E	32	38	41	51	67	70	87	97	109
Cooling capacity	(kW)	A/E	58.0	68.0	83.0	85.0	103.0	104.0	137.0	159.0	174.0
Total power input	(kW)	A/E	1.05	1.05	1.35	1.35	2.65	2.65	3.9	3.9	5.4
Water flow rate	(l/h)	A	-	-	-	-	17030	17890	22700	24770	27350
		E	10150	11180	12730	14100	15650	16340	20470	22360	25280
Total pressure drop	(kPa)	A	-	-	-	-	79.2	90.1	107.9	107.2	124.1
		E	95.6	69.1	85.8	82.2	67	75	88	87	106
EER	(W/W)	A/E	55.24	64.76	61.48	62.96	38.87	39.25	35.13	40.77	32.22
Input current	(A)	A/E	4.6	4.6	5.9	5.9	5.9	5.9	8.7	8.7	11.6
Maximum current (FLA)	(A)	A/E	46	53	58	63	76	81	100	112	122
Starting current (LRA)	(A)	A/E	155	184	190	200	214	220	232	243	261
Compressors	(no./no.)	A/E	2/2	2/2	2/2	2/2	3/2	3/2	4/2	4/2	4/2
♪ Sound pressure	db(A)	A	-	-	-	-	50	50	51	52	55
		E	42	42	43	44	44	44	44	45	50
Plumbing connections	(Ø)	(00)	2"1/2	2"1/2	2"1/2	2"1/2	2"1/2	2"1/2	2"1/2	2"1/2	2"1/2
Motor input power	(kW)	A/E	0.9	0.9	1.2	1.2	2.5	2.5	3.75	3.75	5.25
Motor input current	(A)	A/E	3.9	3.9	5.2	5.2	5.6	5.6	8.4	8.4	11.3
Air flow rate	(m3/h)	A	-	-	-	-	32500	32500	50000	49000	56000
		E	20000	19000	25000	25000	23400	24100	33500	35300	47600
NRL Free Cooling hydronic kit											
Tank capacity	(l)	A/E	300	300	300	300	300	300	300	300	300
Input power pump motor	(kW)	A/E	1.5	1.5	1.5	1.5	1.85	1.85	3	3	3
Input current pump motor	(A)	A/E	3.6	3.6	3.6	3.6	5	5	5.7	5.7	5.7
Useful head	kPa	A	-	-	-	-	144	132	147	137	99
		E	124	132	110	118	160	151	174	169	131
Useful head	kPa	A	-	-	-	-	123	109	114	122	77
		E	88	115	88	91	142	131	147	156	115

Performance values refer to the following conditions:

■ Cooling:

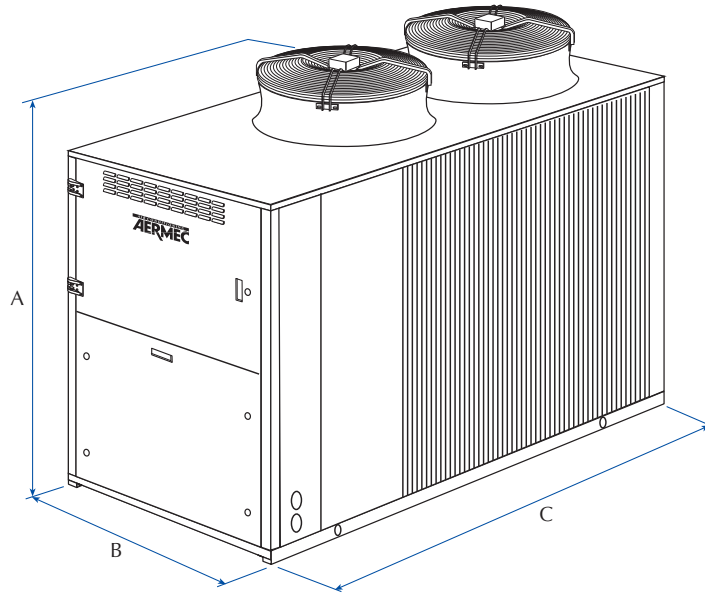
- water outlet temperature 7 °C
- outside air temp. 35 °C
- $\Delta t = 5$ °C.

■ Cooling in Free-Cooling mode:

- water inlet temperature 15°C;
- outside air temperature 2°C;
- nominal water flow rate;
- compressors off.

- ♪ 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 Free Cooling	Vers.	280	300	330	350	500	550	600	650	700
Height (mm) A	A/E	1606	1606	1606	1606	1875	1875	1875	1875	1875
Width (mm) B	A/E	1100	1100	1100	1100	1100	1100	1100	1100	1100
Depth (mm) C	A/E 00	2950	2950	2950	2950	3200	3200	3950	3950	3950
Depth (mm) C	A/E 03-04	2950	2950	2950	2950	3200	3200	3950	3950	3950
	A/E P3-P4	2950	2950	2950	2950	3200	3200	3950	3950	3950
Weight when empty (kg) A	A/E 00	838	908	913	922	1079	1083	1386	1460	1540