

NRL

0280/0750
free-cooling

R410A

Air/Water chillers for outdoor installation with free cooling
Scroll compressors, plate exchangers and axial fans
Cooling capacity from kW59÷194



- **HIGH EFFICIENCY VERSION**
- **HIGH EFFICIENCY ALSO AT PARTIAL LOADS**
- **SYSTEM SIDE INTEGRATED HYDRONIC KIT OPTION**

Features

The NRL free cooling are chillers, designed and manufactured to meet air conditioning requirements in residential/commercial buildings or to meet refrigeration requirements in industrial facilities.

They are outdoor units with scroll compressors, axial fans, external copper coils with aluminium fins and plate exchanger.

These chillers are also equipped with a Free cooling coil and are used when the refrigerant load request persists even during the winter months, or when the outdoor air temperature is below the temperature of the return liquid from the system.

In Free cooling operation (mixed Free cooling and compressors, or Free cooling only), the fluid is cooled directly by the outdoor air, allowing even the complete shutdown of compressors with a significant energy saving. It is also possible to have the Glycol free version for all those applications where the use of glycol is not allowed

Versions

NRL_FA High efficiency

NRL_FE Silenced

NRL_BA High efficiency without the use of glycol

NRL_BE Silenced without the use of glycol

Accessories

- **AER485P1:** RS-485 interface for supervising systems with MODBUS protocol.
- **PGD1:** Simplified remote panel. Allows performing the basic controls of the unit with alarm signals.
- **MULTICHILLER_PCO:** 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 exchangers.
- **AERWEB300:** the AERWEB device allows the remote control of a chiller by means of a common PC through Ethernet connection, via a common browser; 4 models available:
 - AERWEB300-6:** Web server for monitoring and controlling maximum 6 RS485 network devices;

Operating range: Work up to 44°C of outdoor air temperature at full load. For further details refer to the selection software/technical documentation.

- Unit with two refrigerant circuits designed to provide maximum efficiency at full load, ensuring high efficiency at partial loads also and ensuring continuity in case one of the two circuits stop.
- Flow switch, water filter and standard high and low pressure transducers
- Possibility of integrated hydronic kit that encloses the main hydraulic components; it is available in different configurations with or without storage, one or two high static pressure pumps
- Three-way valve located on the water side for water switching on the Free-Cooling coils
- Device for electronically controlling the series condensation, for operation even at low temperatures or in free cooling, which allows adjusting the air flow rate to actual system demand with resulting advantages in terms of consumption reduction.

- **AERWEB300-18:** Web server for monitoring and controlling maximum 18 RS485 network devices;
- **AERWEB300-6G:** Web server for monitoring and controlling maximum 6 RS485 network devices with integrated GPRS modem;
- **AERWEB300-18G:** Web server for monitoring and controlling maximum 18 RS485 network devices with integrated GPRS modem;

- **GP:** Protection grids for coils and cooling circuit.
- **VT:** Group of anti-vibration mounts.

- Microprocessor adjustment, that allows isolating the condenser coils to maximise the free cooling efficiency, even in mixed Free cooling and compressor operation
- Complete, with keyboard and LCD display, for easy consultation and intervention on the unit via a menu available in several languages.
- 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.

Accessories mounted in the factory;

- **DRE:** Peak current reduction electronic device. **Only available with 400V power supply.**
- **RIF:** power factor correction, connected in parallel to the motor, it allows a reduction of the input current (approx. 10%).
- **PRM1:** Manually-rearmed pressure switch, wired in series to the high pressure switch on the flow pipe of the compressor.

Accessories compatibility

Mod. NRL	Vers.	0280	0300	0330	0350	0500	0550	0600	0650	0700	0750
AER485P1		•	•	•	•	•	•	•	•	•	•
PGD1		•	•	•	•	•	•	•	•	•	•
MULTICHILLER_PCO		•	•	•	•	•	•	•	•	•	•
AERWEB300	All	•	•	•	•	•	•	•	•	•	•
GP	(1) All	4	4	4	4	2(x2)	2(x2)	2(x3)	2(x3)	2(x3)	10 (x3)
VT	(00-P3-P4)	17	17	17	17	13	13	22	22	22	23
	(03-04)	13	13	13	13	10	10	22	22	22	23
Accessories mounted in the factory;											
DRE	400V/3N	281	301	331	351	501	551	601	651	701	751
REF	All	50	50	50	51	52	52	53	53	53	53
PRM1	All	•	•	•	•	•	•	•	•	•	•

(1) (x2)(x3) indicates the number of kit to order

Choosing the unit

By appropriately combining the variety of options available, every model can be configured in order to meet all specific system requirements.

Field	Description
1,2,3	NRL
4,5,6,7	Sizes 0280-0300-0330-0350-0500-0550-0600-0650-0700-0750 (2)
8	Scope of application ° Standard (temperature of water produced up to +4 °C) Y Low temperature (temperature of water produced from +4°C to -8°C) X Electronic thermostatic valve (temperature of water produced up to +4 °C) for different temperatures, contact the supplier
9	Model F Chiller with Free cooling K Chiller with Free cooling and low pressure drops B Chiller with Free cooling glycol free
10	Heat recovery ° Without heat recovery
11	Version A High efficiency E Silenced high efficiency
12	Coils ° Aluminium R Copper S Tinned copper V Painted
13	Fans (3) ° Standard M Increased J Inverter
14	Power supply ° 400V/3N/50Hz with magnet circuit breakers 1 220V/3/50Hz with magnet circuit breakers
15-16	System side integrated hydronic kit (4) 00 Without hydronic kit 03 Storage tank with 1 high static pressure pump 04 Storage tank with 2 high static pressure pumps P3 1 High static pressure pump P4 2 High static pressure pumps

(2) Sizes 0280-0300-0330-0350 are only silenced E and are standard fitted with Inverter fans

(3) **Standard on/off fans** for sizes from 0500 to 0750

Increased on/off fans, option available for sizes from 0280 to 0650

Standard Inverter fans for sizes from 0280 to 0350, without useful static pressure

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

(4) the system side hydronic kit option is not available for the freecooling glycol free "B" models

Technical data

Freecooling Models			0280	0300	0330	0350	0500	0550	0600	0650	0700	0750
Cooling capacity	FA	kW	-	-	-	-	99	104	132	144	159	191
	FE	kW	59	65	74	82	91	95	119	130	147	177
Input power	FA	kW	-	-	-	-	33.7	37.3	44.5	51.7	60.8	69.6
	FE	kW	18.1	21.8	24.0	28.3	37.0	40.0	49.2	59.8	65.8	76.4
EER	FA	W/W	-	-	-	-	2.93	2.79	2.96	2.79	2.62	2.75
	FE	W/W	3.26	2.98	3.08	2.90	2.46	2.37	2.42	2.17	2.23	2.32
Water flow rate	FA	l/h	-	-	-	-	17030	17890	22700	24770	27350	32850
	FE	l/h	10150	11180	12730	14100	15650	16340	20470	22360	25280	30440
Total pressure drops	FA	kPa	-	-	-	-	60	69	78	73	87	103
	FE	kPa	63	53	66	58	51	58	63	60	74	89
Cooling capacity	FA/FE	kW	58.0	68.0	83.0	85.0	103.0	104.0	137.0	159.0	174.0	187
Input power	FA/FE	kW	1.05	1.05	1.35	1.35	2.65	2.65	3.9	3.9	5.4	5.4
EER	FA/FE	W/W	55.24	64.76	61.48	62.96	38.87	39.25	35.13	40.77	32.22	34.63
Water flow rate	FA	l/h	-	-	-	-	16006	16815	21342	23282	25707	32850
	FE	l/h	9539	10509	11964	13258	14713	15360	19240	21018	23767	30440
Total pressure drops	FA	kPa	-	-	-	-	70	80	95	95	110	156
	FE	kPa	85	61	76	73	59	66	78	77	94	134

Cooling mode

Evaporator water temperature (in/out) 12°C/7°C; Outdoor air temperature 35°C

Cooling in freecooling (100%)

Evaporator water temperature (in) 15 °C; Outdoor air temperature 2°C

Freecooling glycol free models			0280	0300	0330	0350	0500	0550	0600	0650	0700	0750	
Cooling capacity	(1)	BA/BE	kW	45	52	64	66	79	80	104	122	133	143
Input power		BA/BE	kW	1.85	1.85	2.35	2.35	3.65	3.65	5.2	5.7	7.7	7.7
EER		BA/BE	W/W	24.32	28.11	27.23	28.09	21.64	21.92	20.00	21.40	17.27	18.57
Water flow rate		BA	l/h	-	-	-	-	17030	17890	22700	24770	27350	32850
		BE	l/h	10150	11180	12730	14100	15650	16340	20470	22360	25280	30440
Total pressure drops		BA/BE	kPa	-	-	-	-	60	69	78	73	87	103
		BE	kPa	63	53	66	58	51	58	63	60	74	89

Cooling in freecooling glycol free (100%)

Evaporator water temperature (in) 15°C; Outdoor air temperature 2°C

(1) Performance in cooling, operation as chiller, are the same

Freecooling with low pressure loads models			0280	0300	0330	0350	0500	0550	0600	0650	0700	0750
Cooling capacity	KA	kW	-	-	-	-	101	106	135	147	162	194
	KE	kW	60	66	76	84	93	97	121	133	150	180
Input power	KA	kW	-	-	-	-	33.7	37.3	44.5	51.7	60.8	69.6
	KE	kW	18.1	21.8	24	28.3	37	40	49.2	59.8	65.8	76.4
EER	KA	W/W	-	-	-	-	3	2.84	3.03	2.84	2.67	2.80
	KE	W/W	3.32	3.04	3.15	2.96	2.51	2.42	2.47	2.22	2.28	2.36
Water flow rate	KA	l/h	-	-	-	-	17369	18246	23158	25264	27895	33509
	KE	l/h	10351	11404	12983	14386	15965	16667	20878	22807	25790	31053
Total pressure drops	KA	kPa	-	-	-	-	44	37	42	40	49	34
	KE	kPa	34	41	36	43	38	31	34	33	42	30
Cooling capacity	KA/KE	kW	56	66	81	83	98	99	121	139	153	165
Input power	KA/KE	kW	1.05	1.05	1.35	1.35	2.65	2.65	3.9	3.9	5.4	5.4
EER	KA/KE	W/W	53.6	62.8	59.6	61.1	37	37.3	31.1	35.7	28.2	30.6
Water flow rate	KA	l/h	-	-	-	-	16330	17154	21762	23751	26224	32169
	KE	l/h	9733	10720	12207	13516	15000	15667	19628	21439	24236	29811
Total pressure drops	KA	kPa	-	-	-	-	50	44	51	51	62	64
	KE	kPa	43	45	44	53	42	37	42	42	53	55

Cooling mode

Evaporator water temperature (in/out) 12°C/7°C; Outdoor air temperature 35°C

Cooling in freecooling (100%)

Evaporator water temperature (in) 15 °C; Outdoor air temperature 2°C

Technical data

GENERAL DATA			0280	0300	0330	0350	0500	0550	0600	0650	0700	0750	
Electrical data													
Total input current (Chiller)	(2)	FA	A	-	-	-	-	61	65	79	84	101	123
	(2)	FE	A	32	38	41	51	67	70	87	97	109	135
Total input current (freecooling)	(2)	FA/FE	A	4.6	4.6	5.9	5.9	5.9	5.9	8.7	8.7	11.6	11.6
	(2)	BA/BE	A	8.1	8.1	10.3	10.3	8.1	8.1	11.6	12.7	16.5	16.5
	(2)	KA/KE	A	4.6	4.6	5.9	5.9	5.9	5.9	8.7	8.7	11.6	11.6
Maximum current (FLA)				46	53	58	63	76	81	100	112	122	144
Peak current (LRA)			A	155	184	190	200	214	220	232	243	261	320
Compressors													
Compressors			type	scroll									
			n°	2	2	2	2	3	3	4	4	4	4
Circuits			n°	2	2	2	2	2	2	2	2	2	2
Refrigerant gas			type	R410A									
System side heat exchanger													
Heat exchanger			type	plates									
			n°	1	1	1	1	1	1	1	1	1	1
Hydraulic connections	(in/out)	Ø	2"½	2"½	2"½	2"½	2"½	2"½	2"½	2"½	2"½	2"½	2"½
Standard Fans													
fans			type	axial									
			A no.	-	-	-	-	2	2	2	2	3	3
		E no.	6	6	8	8	2	2	2	2	3	3	
Air flow rate in cooling mode		A	m³/h	-	-	-	-	32500	32500	50000	49000	56000	56000
		E	m³/h	20000	19000	25000	25000	23400	24100	33500	35300	47600	46500
System side integrated hydronic kit (3)													
Storage tank		I	300	300	300	300	300	300	300	300	300	700	
Useful static pressure		A	kPa	refer to the selection program or to the technical documentation									
Sound data													
Sound power			dB(A)	-	-	-	-	82	82	83	84	85	87
			dB(A)	74	74	75	76	76	76	76	77	77	82
Sound Pressure			dB(A)	-	-	-	-	50	50	51	52	53	55
			dB(A)	42	42	43	44	44	44	44	45	45	50
Electric power supply	(4)		V/ph/Hz	400V/3N/50Hz									

(2) The electric data is of the versions without integrated hydronic kit

(3) the system side hydronic kit option is not available for the freecooling glycol free "B" models

(4) 0750 = 400V/3/50Hz

Sound power

Aermec determines sound power values in agreement with the Standard UNI EN ISO 9614-2, in compliance with that requested by Eurovent certification.

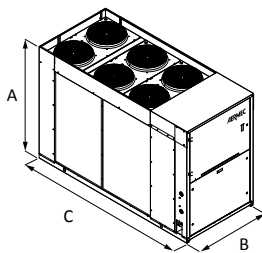
Sound Pressure

Sound pressure measured in free field, 10 m away from the unit external surface (in compliance with UNI EN ISO 3744).

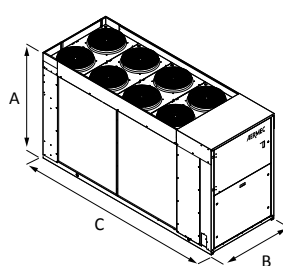
Note: For further information, refer to the selection program or to the technical documentation on www.aermec.com

Dimension and weight data

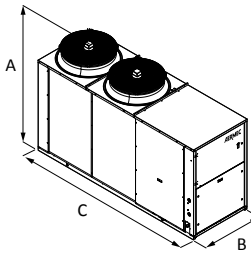
NRL 0280-0300



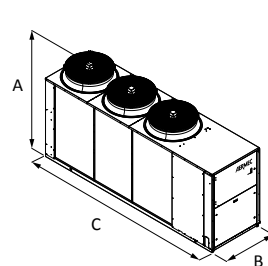
NRL 0330-0350



NRL 0500-0550-0600-0650



NRL 0700-0750



Mod. NRL	U.M.	Vers.	0280	0300	0330	0350	0500	0550	0600	0650	0700	0750
Height	A	(mm)	1606	1606	1606	1606	1875	1875	1875	1875	1875	1975
Width	B	(mm)	1100	1100	1100	1100	1100	1100	1100	1100	1100	1500
Length	C	A/E 00	2950	2950	2950	2950	3260	3260	4010	4010	4010	4350
		FA/FE										
		BA/BE										
Loadless weight	A	(kg)	838	908	913	922	1079	1083	1386	1460	1540	1889

Aermec reserves the right to make all the modifications deemed necessary for improving the product, including technical data.

Aermec S.p.A.

Via Roma, 996 - 37040 Bevilacqua (VR) - Italia
Tel. 039 0442633111 - Telefax +39 044293577
www.aermec.com