

NRK 0280/0700 heat pumps

R410A



AERMEC

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Reversible heat pumps
Air/Water outdoor installation
Axial fans and scroll compressor
Cooling capacity 36÷148kW
Heating capacity 42÷175kW



- **PRODUCTION OF HOT WATER UP TO 65°C**
- **HEATING OPERATION WITH EXTERNAL TEMPERATURES DOWN TO -20°C**
- **OPTIMIZED FOR OPERATION IN HEATING MODE**
- **HIGH EFFICIENCY EVEN AT PART LOAD**
- **OPTION VERSION WITH BUILT-IN HYDRONIC KIT**

Characteristics

- Reversible heat pumps

Versions

NRK_HA High efficiency version

NRK_HE High efficiency Low noise version

- **Operational limits (1)**
 - max. external air temperature 48°C in cooling mode
 - Maximum leaving water temperature 65°C in heating mode
- 2 refrigerant circuits
- High efficiency scroll compressors with low power input, with steam injection
- Heat exchangers optimised to benefit from the excellent heat transfer characteristics of R410A.
- flow switch as standard supply
- Water filter

- Low and high pressure transducers
- The built-in hydronic kit already contains the main water circuit components; it is available with single or twin in line, for achieving both low or high head, and buffer tank.
- Axial fans for extremely quiet operation. Available fans high static pressure and equipped with inverter technology, with available high head
- Units fitted as standard with fan speed controller (DCPX).
- Microprocessor controls.
 - Control from the leaving water temperature, with the possibility of selecting control of the entering water temperature.
 - Condensing control in summer with a 0-10 V

- modulating signal based on pressure and compensated for external air temperature
- Automatic rotation of compressors and pumps based on operating hours
- Load limiting safety control
- Metallic protective cabinet with anti-corrosion polyester paint

(1) For more details on operating limits, refer to the technical documentation available on the website www.aermec.com

Accessories

- **AER485P1:** RS-485 interface for supervising systems with MODBUS protocol.
- **AERWEB300:** The AERWEB option allows remote control of a chiller through a standard PC and an ethernet connection with a standard browser; 4 versions available:
 - AERWEB300-6:** Web server to monitor and remote control maximum 6 units on RS485 network;
 - AERWEB300-18:** Web server to monitor and remote control maximum 18 units on RS485 network;
 - AERWEB300-6G:** Web server to monitor and remote control maximum 6 units on RS485 network with integrated GPRS modem;
 - AERWEB300-18G:** Web server to monitor and

- remote control maximum 18 units on RS485 network with integrated GPRS modem.
- **PGD1:** Simplified remote panel. Allows control of basic unit functions and alarm notification.
- **MULTICHILLER_PCO:** 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.
- **GP:** Protection grille protects the external coil from accidental damage.
- **VT** Anti-vibration mounts to be installed under the base of the unit.

Accessories factory fitted only

- **DRE:** Electronic soft starter which reduces

- starting current by about 26%.
- **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. NRK	Vers.	0200	0280	0300	0330	0350	0500	0550	0600	0650	0700
AER485P1	All	•	•	•	•	•	•	•	•	•	•
AERWEB300	All	•	•	•	•	•	•	•	•	•	•
PGD1	All	•	•	•	•	•	•	•	•	•	•
MULTICHILLER_PCO	All	•	•	•	•	•	•	•	•	•	•
GP	(1)	All	3	3	4	4	2(x2)	2(x2)	2(x2)	2(x2)	2(x3)
VT (00)	All	17	17	17	17	17	13	13	13	13	22
VT (-P1-P2-P3-P4)		17	17	17	17	13	13	13	13	22	22
VT (01-02-03-04-05-06-07-08-09-10)	All	13	13	13	13	10	10	10	10	22	22
Accessories factory fitted only											
DRE	All	201	281	301	331	351	501	551	601	651	701
RIF	All	55	56	54	57	65	58	59	60	61	61
PRM1	All	•	•	•	•	•	•	•	•	•	•

(1) (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
1,2,3	NRK
4,5,6,7	Size
	0200-0280-0300-0330-0350-0500-0550-0600-0650-0700 ⁽²⁾
8	Field of application
	° Thermostatic expansion valve ⁽³⁾
9	Model
	H Heat pumps
10	Heat recovery
	° Without recovery
	D With Desuperheater
11	Version
	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)
13	Fans ⁽⁴⁾
	° Standard
	M Increased
	J High static pressure Inverter
14	Alimentation
	° 400V/3N/50Hz with circuit breakers
15-16	System integrated hydronic module ⁽⁵⁾
	00 without pumps or buffer tank
	01 Buffer tank and n° 1 low head static pressure pump
	02 Buffer tank and n° 2 low head static pressure pump
	03 Buffer tank and n° 1 high head static pressure pump
	04 Buffer tank and n° 2 high head static pressure pump
	05 n°1 low head static pressure pump and buffer tank (with holes for immersion heaters)
	06 n°2 low head static pressure pump and buffer tank (with holes for immersion heaters)
	07 n°1 high head static pressure pump and buffer tank (with holes for immersion heaters)
	08 n°2 high head static pressure pump and buffer tank (with holes for immersion heaters)
	P1 n° 1 low head static pressure pump
	P2 n° 2 low head static pressure pump
	P3 n° 1 high head static pressure pump
	P4 n° 2 high head static pressure pump

(2) The size 0200-0280-0300-0330 only available in low noise version "HL" and equipped with inverter fans as standard

(3) Leaving water temperature down to 4°C

(4) **Standard on/off fans** for sizes from 0350 to 0700

Increased on/off fans, option for sizes from 0200 to 0330

Standard Inverter fans for sizes from 0200 to 0330, without useful static pressure

Inverter fan, option for sizes from 0350 to 0700 with useful static pressure

(5) 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

Technical Data

NRK - HA			0200	0280	0300	0330	0350	0500	0550	0600	0650	0700		
			V/ph/Hz				400V/3N/50Hz							
12°C / 7°C	Cooling capacity	(1)	kW	/	/	/	/	75,3	88,6	101,0	117,0	133,0	148,0	
	Total input power	(1)	kW	/	/	/	/	25,4	29,6	34,0	41,0	45,0	53,0	
	EER	(1)		/	/	/	/	2,96	2,99	2,97	2,85	2,96	2,79	
	ESEER	(1)		/	/	/	/	3,30	3,19	3,69	3,42	3,50	3,66	
	Cooling Energy Class Eurovent	(1)		/	/	/	/	B	B	B	C	B	C	
	Water flow rate	(1)	l/h	/	/	/	/	12981	15275	17485	20208	22972	25512	
40°C / 45°C	Pressure drop	(1)	kPa	/	/	/	/	23	26	32	28	34	42	
	Heating capacity	(2)	kW	/	/	/	/	88,0	104,0	119,0	137,0	156,0	175,0	
	Total input power	(2)	kW	/	/	/	/	25,5	30,0	35,0	40,0	46,0	52,0	
	COP	(2)		/	/	/	/	3,45	3,47	3,40	3,43	3,39	3,37	
	Heating Energy Class Eurovent	(2)		/	/	/	/	A	A	A	A	A	A	
	Water flow rate	(2)	l/h	/	/	/	/	15506	18160	20577	23211	26704	29661	
Pressure drop			(2)	kPa	/	/	/	/	32	36	44	37	45	57
Performance under average climatic conditions (Average)														
Pdesignh			(3)	/	/	/	/	89	106	121	137	157	178	
SCOP			(3)	/	/	/	/	2,88	2,90	3,03	3,03	2,93	2,90	
ηs			(3)	/	/	/	/	112	113	118	118	114	113	

NRK - HE			0200	0280	0300	0330	0350	0500	0550	0600	0650	0700
12°C / 7°C	Cooling capacity	(1) kW	35,5	50,3	59,3	66,0	74,2	87,2	99,6	114,3	130,5	145,0
	Total input power	(1) kW	11,7	17,5	19,6	22,4	27,7	32,5	38,1	45,8	49,5	58,1
	EER	(1)	3,03	2,88	3,03	2,95	2,68	2,68	2,61	2,49	2,64	2,50
	ESEER	(1)	3,61	3,52	3,62	3,54	3,47	3,54	3,51	3,42	3,49	3,40
	Cooling Energy Class Eurovent	(1)	B	C	B	B	D	D	D	E	D	E
	Water flow rate	(1) l/h	6128	8666	10231	11374	12796	15028	17167	19705	22503	25022
	Pressure drop	(1) kPa	18	17	23	19	22	25	30	27	32	41
40°C / 45°C	Heating capacity	(2) kW	42,31	59,82	69,56	78,40	88,1	104,1	119,1	136,9	156,0	175,0
	Total input power	(2) kW	12,12	17,13	19,98	22,53	25,5	30,3	34,8	39,9	45,6	51,7
	COP	(2)	3,49	3,49	3,48	3,48	3,45	3,44	3,43	3,43	3,42	3,38
	Heating Energy Class Eurovent	(2)	A	A	A	A	A	A	A	A	A	A
	Water flow rate	(2) l/h	7320	10357	12034	13571	15239	18013	20606	23684	26993	30260
	Pressure drop	(2) kPa	25	23	32	27	31	35	44	39	46	59
	Performance under average climatic conditions (Average)											
Pdesignh		(3)	44	62	70	/	/	/	/	/	/	/
SCOP		(3)	3,08	3,03	3,00	/	/	/	/	/	/	/
ηs		(3)	120	118	117	/	/	/	/	/	/	/
Efficiency Energy Class		(5)	A+	A+	A+	/	/	/	/	/	/	/
Pdesignh		(4)	42	58	67	80	89	106	121	137	157	178
SCOP		(4)	3,88	3,75	3,70	3,03	2,88	2,90	3,03	3,03	2,93	2,90
ηs		(4)	152	147	145	118	112	113	118	118	114	113
Efficiency Energy Class		(5)	A++	A+	A+	/	/	/	/	/	/	/

			0200	0280	0300	0330	0350	0500	0550	0600	0650	0700
Electrical data												
Total input current (cooling)	HA	(6) A	/	/	/	/	55	61	66	72	86	107
Total input current (heating)	HA	(6) A	/	/	/	/	54	59	64	70	85	106
Total input current (cooling)	HE	(6) A	28	38	42	49	60	67	73	80	95	119
Total input current (heating)	HE	(6) A	24	34	38	44	54	59	64	70	85	106
Maximum current (FLA)	HE	(6) A	40	49	61	74	75	85	94	114	144	147
Starting current (LRA)	HE	(6) A	124	146	175	215	216	226	191	228	285	288
Scroll Compressor												
Compressors / Circuit	n°		2/2	2/2	2/2	2/2	2/2	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	HA	Type/n°	/	/	/	/	std/2	std/2	std/2	std/2	std/3	std/3
Air flow rate (cooling)	HA	m³/h	/	/	/	/	37000	37000	36500	36500	58000	48000
Fans	HE	Type/n°	Inverter/4	Inverter/6	Inverter/8	Inverter/8	std/2	std/2	std/2	std/2	std/3	std/3
Air flow rate (heating)	HE	m³/h	20000	26000	26000	26000	20200	21100	21400	22400	31900	34600
Sound data (cooling mode)												
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	74	75	75	74	74	74	75	77	77
Sound pressure level	HE	dB(A)	42	42	43	43	42	42	42	43	45	45

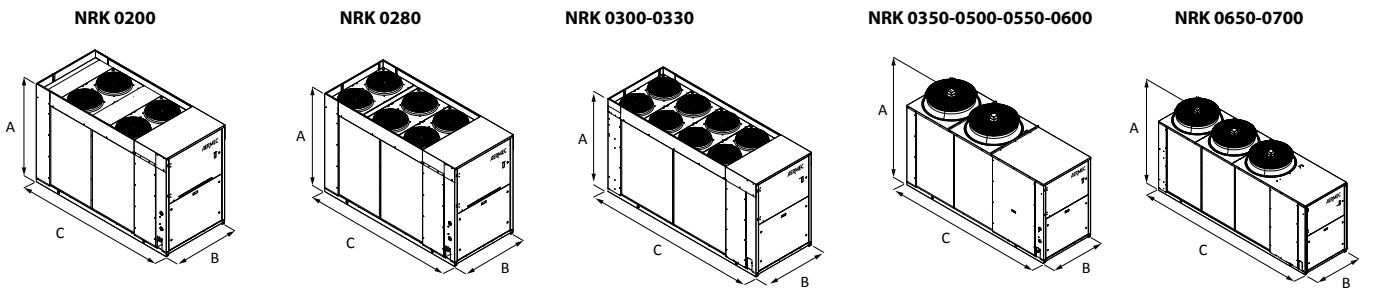
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- (1) Water evaporator 12°C/7°C, External air 35°C
- (2) Water condenser 40°C/45°C, External air 7°C b.s./6°C b.u.
- (5) Efficiencies for average temperature Applications (55°C)
- (6) Efficiencies for low temperature Applications (35°C)
- (5) Efficiency Energy Class in according to regulation n°811/2013 Pdesignh ≤ 70kW
- (6) 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).

Dimensions (mm)



NRK		Vers.		0200	0280	0300	0330	0350	0500	0550	0600	0650	0700
Height	(mm)	A	All	1606	1606	1606	1606	1875	1875	1875	1875	1875	1875
Width	(mm)	B	All	1100	1100	1100	1100	1100	1100	1100	1100	1100	1100
Depth	(mm)	C	All	2700	2700	3250	3250	3330	3330	3330	3330	4330	4330
Weight when empty	(kg)			804	876	960	967	1118	1264	1325	1367	1562	1597