

NRK 0200-0700

Reversible air/water heat pump

Cooling capacity 35,5 ÷ 148 kW
Heating capacity 42,31 ÷ 175 kW

- Water produced up to +65 °C
- Heating operations with external temperatures down to -20 °C
- Optimized for operation in heating mode
- Night mode



DESCRIPTION

Reversible air/water heat pump for air conditioning systems with cold water production for cooling rooms and hot water for heating and/or domestic hot water services, suitable for connection with small or medium users.

It's optimised for use in heating mode, and can be combined not only with low-temperature emission systems such as floor heating or fan coils, but also conventional radiators.

Equipped with scroll compressors, axial fans, external coil with aluminum louvers, plate heat exchanger on the side.

The base, the structure and the panels are made of galvanized steel treated with polyester paint RAL 9003.

VERSIONS

A High efficiency
E Silenced high efficiency

FEATURES

Operating field

Working at full load up to -20 °C outside air temperature in winter, and up to 48 °C in summer. Hot water production up to 65 °C.

Version with Integrated hydronic kit

Integrated hydronic kit containing the main hydraulic components; available with various configurations to obtain a solution that allows you to facilitate installation.

Components

Water filter, flow switch, low and high pressure transducers as standard supply on all units.

Condensation control temperature

Fitted as standard with a device for electronic condensation control so that the unit can work even with low temperatures, adapting the air flow rate to the actual system request in order to reduce consumption.

CONTROL

pCO⁵ control type

Microprocessor adjustment, with keyboard and LCD display, for easy access on the unit is a menu available in several languages. Adjustment includes complete management of the alarms and their log.

Possibility to control two units in a Master-Slave configuration. The presence of a programmable timer allows functioning time periods and a possible second set-point to be set.

The temperature control takes place with the integral proportional logic, based on the water output temperature.

ACCESSORIES

AER48P1: RS-485 interface for supervision systems with MODBUS protocol.

AERBACP: Ethernet communication Interface for protocols Bacnet/IP, Modbus TCP/IP, SNMP

AERLINK: Wifi Gateway with an RS485 serial port that can be installed on all machines or on all controllers having an RS485 serial port themselves. The module is capable of simultaneously activating the AP WIFI (Access point) and WIFI Station functions, the latter making it possible to connect to the home or business LAN both with VMF-E5 and E6. To facilitate certain management and control operations of the unit, the AERAPP application is available both for Android and iOS systems.

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 data in the personal terminal for post analysis.

BMConverter: The BMConverter accessory consists of the FPC-N54 network device which allows units that communicate via the Modbus RTU protocol on RS485, to be controlled by a third-party BMS system via the BACNet TCP-IP protocol.

MULTICHILLER_EVO: 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 evaporators.

PGD1: Allows you to control the unit at a distance.

SGD: Electronic expansion that enables connecting to the photovoltaic system and heat pumps to accumulate heat in the DHW tank or in the heating system during the photovoltaic production phase and release it at times when heating demand is highest.

GP: Anti-intrusion grid.

VT: Anti-vibration supports.

FACTORY FITTED ACCESSORIES

DRE: Electronic device for peak current reduction.

RIF: Power factor correction. Connected in parallel to the motor allowing about 10% reduction of input current.

T6: Double safety valve with exchange cock, both on the high and low pressure branches.

PRM1: It is a manual pressure switch electrically wired in series with the existing automatic high pressure switch on the compressor discharge pipe.

ACCESSORIES COMPATIBILITY

Model	Ver	0200	0280	0300	0330	0350	0500	0550	0600	0650	0700
AER485P1	A					.	.	.	.	.	.
	E	.	.	.	.	.	.	.	.	.	.
AERBACP	A					.	.	.	.	.	.
	E	.	.	.	.	.	.	.	.	.	.
AERLINK	A					.	.	.	.	.	.
	E	.	.	.	.	.	.	.	.	.	.
AERNET	A					.	.	.	.	.	.
	E	.	.	.	.	.	.	.	.	.	.
BMConverter	A					.	.	.	.	.	.
	E	.	.	.	.	.	.	.	.	.	.
MULTICHLILLER_EVO	A					.	.	.	.	.	.
	E	.	.	.	.	.	.	.	.	.	.
PGD1	A					.	.	.	.	.	.
	E	.	.	.	.	.	.	.	.	.	.
SGD	A					.					
	E	.	.	.	.	.	.

GP: anti-intrusion grid

Ver	0200	0280	0300	0330	0350	0500	0550	0600	0650	0700
A	-	-	-	-	GP2x2 (1)	GP2x2 (1)	GP2x2 (1)	GP2x2 (1)	GP2x3 (1)	GP2x3 (1)
E	GP3	GP3	GP4	GP4	GP2x2 (1)	GP2x2 (1)	GP2x2 (1)	GP2x2 (1)	GP2x3 (1)	GP2x3 (1)

(1) x _ indicates the quantity to buy

VT: Antivibration

Ver	0200	0280	0300	0330	0350	0500	0550	0600	0650	0700
Integrated hydronic kit: 00, P1, P2, P3, P4										
A	-	-	-	-	VT11	VT11	VT11	VT11	VT22	VT22
E	VT17	VT17	VT17	VT17	VT11	VT11	VT11	VT11	VT22	VT22
Integrated hydronic kit: 01, 02, 03, 04, 05, 06, 07, 08										
A	-	-	-	-	VT11	VT11	VT11	VT11	VT22	VT22
E	VT13	VT13	VT13	VT13	VT11	VT11	VT11	VT11	VT22	VT22

DRE: Device for peak current reduction

Ver	0200	0280	0300	0330	0350	0500	0550	0600	0650	0700
A	-	-	-	-	DRE351 (1)	DRE501 (1)	DRE551 (1)	DRE601 (1)	DRE651 (1)	DRE701 (1)
E	DRE201 (1)	DRE281 (1)	DRE301 (1)	DRE331 (1)	DRE351 (1)	DRE501 (1)	DRE551 (1)	DRE601 (1)	DRE651 (1)	DRE701 (1)

(1) Only for supplies of 400V 3N ~ 50Hz and 400V 3 ~ 50Hz. x 2 or x 3 (if present) indicates the quantity to be ordered.
A grey background indicates the accessory must be assembled in the factory

RIF: Power factor correction

Ver	0200	0280	0300	0330	0350	0500	0550	0600	0650	0700
A	-	-	-	-	RIF65	RIF58	RIF59	RIF60	RIF61	RIF61
E	RIF55	RIF56	RIF54	RIF57	RIF65	RIF58	RIF59	RIF60	RIF61	RIF61

A grey background indicates the accessory must be assembled in the factory

Double safety valves

Ver	0200	0280	0300	0330	0350	0500	0550	0600	0650	0700
A	-	-	-	-	T6NRK1	T6NRK2	T6NRK3	T6NRK3	T6NRK3	T6NRK3
E	T6NRK1	T6NRK1	T6NRK1	T6NRK1	T6NRK1	T6NRK2	T6NRK3	T6NRK3	T6NRK3	T6NRK3

A grey background indicates the accessory must be assembled in the factory

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.

AERCALM: The aim of the accessory installed in the electric box of the unit is to provide a clean contact for commanding - on the basis of the outside air temperature - a boiler to replace the heat pump. Aercalm must be requested at the time of ordering, as it is installed in the factory.

COMPATIBILITY WITH VMF SYSTEM

For more information about VMF system, refer to the dedicated documentation.

PRM1: Manually reset pressure switch

Ver	0200	0280	0300	0330	0350	0500	0550	0600	0650	0700
A	-	-	-	-	PRM1	PRM1	PRM1	PRM1	PRM1	PRM1
E	PRM1									

A grey background indicates the accessory must be assembled in the factory

7", touch screen keyboard

Model	Ver	0200	0280	0300	0330	0350	0500	0550	0600	0650	0700
C-TOUCH	A	-	-	-	-	-	-	-	-	-	-
	E	-	-	-	-	-	-	-	-	-	-

Clean contact for controlling a boiler.

Model	Ver	0200	0280	0300	0330	0350	0500	0550	0600	0650	0700
AERCALM	A	-	-	-	-	-	-	-	-	-	-
	E	-	-	-	-	-	-	-	-	-	-

CONFIGURATOR

Field	Description
1,2,3	NRK
4,5,6,7	Size 0200, 0280, 0300, 0330, 0350, 0500, 0550, 0600, 0650, 0700
8	Operating field (1)
	◦ Standard mechanic thermostatic valve
9	Model
H	Heat pump
10	Heat recovery
	◦ Without heat recovery
D	With desuperheater (2)
11	Version
A	High efficiency
E	Silenced high efficiency
12	Coils
	◦ Copper-aluminium
R	Copper pipes-copper fins
S	Copper pipes-Tinned copper fins
V	Copper pipes-Coated aluminium fins
13	Fans
	◦ Standard (3)
J	Inverter (4)
M	Oversized (5)
14	Power supply

Field	Description
◦	400V 3N ~ 50Hz
15,16	Integrated hydronic kit
00	Without hydronic kit
01	Storage tank with low head pump
02	Storage tank with low head pump + stand-by pump
03	Storage tank with high head pump
04	Storage tank with high head pump + stand-by pump
05	Storage tank with holes for heaters and single low head pump (6)
06	Storage tank with holes for heaters and pump low head + stand-by pump (6)
07	Storage tank with holes for heaters and single high head pump (6)
08	Storage tank with holes for heaters and pump high head + stand-by pump (6)
P1	Single pump low head
P2	Pump low head + stand-by pump
P3	Single pump high head
P4	Pump high head + stand-by pump

(1) Water produced up to +4 °C

(2) The desuperheater must be isolated in heating mode. In cooling mode, a water temperature no lower than 35 °C must always be guaranteed on the heat exchanger inlet.

(3) As standard in size from 0350÷0700.

(4) Standard for size 0200÷0330, without useful static pressure. Option for size 0350÷0700 with useful static pressure.

(5) Option available only for size 0200÷0330.

(6) Storage tanks with holes for supplementary heaters (not provided) are sent from the factory with plastic protection caps. Before loading the system, if the installation of one or all resistances is not expected, all plastic caps must be replaced with the special caps, commonly commercially available.

PERFORMANCE SPECIFICATIONS 12 °C / 7 °C - 40 °C / 45 °C

NRK - A / 12/7 °C - 40/45 °C

Size	0200	0280	0300	0330	0350	0500	0550	0600	0650	0700	
Cooling performance 12°C / 7°C (1)											
Cooling capacity	kW	-	-	-	-	75,4	88,8	101,6	117,4	133,4	148,1
Input power	kW	-	-	-	-	25,4	29,5	34,4	41,0	45,0	52,6
Cooling total input current	A	-	-	-	-	55,0	61,0	66,0	72,0	87,0	107,0
EER	W/W	-	-	-	-	2,97	3,01	2,95	2,86	2,97	2,82
Water flow rate system side	l/h	-	-	-	-	12983	15278	17488	20211	22975	25516
Pressure drop system side	kPa	-	-	-	-	23	26	32	28	34	42
Heating performance 40 °C / 45 °C (2)											
Heating capacity	kW	-	-	-	-	87,9	103,9	118,9	136,6	155,6	174,4
Input power	kW	-	-	-	-	25,5	30,2	34,7	39,9	45,6	51,7
Heating total input current	A	-	-	-	-	54,0	59,0	64,0	70,0	85,0	106,0
COP	W/W	-	-	-	-	3,45	3,44	3,42	3,42	3,41	3,37
Water flow rate system side	l/h	-	-	-	-	15236	18010	20602	23680	26988	30254
Pressure drop system side	kPa	-	-	-	-	32	36	44	37	45	57

(1) Data EN 14511:2022; Heat exchanger water (services side) 12°C / 7°C; outside air 35°C

(2) Data EN 14511:2022; System side water heat exchanger 40 °C / 45 °C; Outside air 7 °C d.b. / 6 °C w.b.

NRK - E / 12/7 °C - 40/45 °C

Size	0200	0280	0300	0330	0350	0500	0550	0600	0650	0700
Cooling performance 12 °C / 7 °C(1)										
Cooling capacity	kW	35,6	50,4	59,5	66,1	74,4	87,4	99,8	114,5	130,8
Input power	kW	11,7	17,4	19,5	22,3	27,6	32,4	38,1	45,8	49,5
Cooling total input current	A	28,0	38,0	42,0	49,0	60,0	67,0	73,0	72,0	95,0
EER	W/W	3,05	2,90	3,05	2,96	2,69	2,70	2,62	2,50	2,50
Water flow rate system side	l/h	6131	8670	10235	11379	12801	15035	17175	19713	22512
Pressure drop system side	kPa	18	17	23	19	22	25	30	27	41
Heating performance 40 °C / 45 °C(2)										
Heating capacity	kW	42,2	59,7	69,4	78,2	87,9	103,9	118,9	136,6	155,6
Input power	kW	12,0	17,0	19,9	22,4	25,5	30,2	34,7	39,9	45,6
COP	W/W	3,50	3,50	3,49	3,49	3,45	3,44	3,42	3,42	3,37
Heating total input current	A	24,0	34,0	38,0	44,0	54,0	59,0	64,0	70,0	85,0
Water flow rate system side	l/h	7318	10355	12032	13569	15236	18010	20602	23680	26988
Pressure drop system side	kPa	24	22	30	25	32	36	44	37	57

(1) Data EN 14511:2022; Heat exchanger water (services side) 12°C / 7°C; outside air 35°C

(2) Data EN 14511:2022; System side water heat exchanger 40 °C / 45 °C; Outside air 7 °C d.b. / 6 °C w.b.

PERFORMANCE SPECIFICATIONS 23 °C / 18 °C - 30 °C / 35 °C

NRK - A / 23/18 °C - 30/35 °C

Size	0200	0280	0300	0330	0350	0500	0550	0600	0650	0700
Cooling performance 23 °C / 18 °C(1)										
Cooling capacity	kW	-	-	-	-	93,2	108,2	122,7	143,0	165,0
Input power	kW	-	-	-	-	26,4	30,7	35,9	43,3	47,0
Cooling total input current	A	-	-	-	-	57,0	63,0	69,0	75,0	90,0
EER	W/W	-	-	-	-	3,54	3,53	3,42	3,30	3,51
Water flow rate system side	l/h	-	-	-	-	16111	18705	21231	24719	28513
Pressure drop system side	kPa	-	-	-	-	35	39	47	42	63
Heating performance 30 °C / 35 °C(2)										
Heating capacity	kW	-	-	-	-	86,4	101,5	114,6	132,6	150,2
Input power	kW	-	-	-	-	20,6	24,5	27,8	31,7	37,0
Heating total input current	A	-	-	-	-	44,0	48,0	51,0	55,0	68,0
COP	W/W	-	-	-	-	4,19	4,15	4,13	4,19	4,06
Water flow rate system side	l/h	-	-	-	-	14931	17533	19787	22919	25938
Pressure drop system side	kPa	-	-	-	-	31	34	41	35	42

(1) Data EN 14511:2022; System side water heat exchanger 23 °C / 18 °C; External air 35 °C

(2) Data EN 14511:2022; System side water heat exchanger 30 °C / 35 °C; External air 7 °C d.b. / 6 °C w.b.

NRK - E / 23/18 °C - 30/35 °C

Size	0200	0280	0300	0330	0350	0500	0550	0600	0650	0700
Cooling performance 23 °C / 18 °C(1)										
Cooling capacity	kW	44,2	61,5	72,1	80,9	91,9	106,5	120,6	139,5	161,7
Input power	kW	12,2	18,2	20,4	23,5	28,7	33,6	39,7	48,3	51,7
Cooling total input current	A	29,0	40,0	44,0	51,0	62,0	69,0	76,0	75,0	99,0
EER	W/W	3,64	3,37	3,53	3,44	3,20	3,16	3,04	2,89	3,13
Water flow rate system side	l/h	7643	10631	12470	13977	15886	18408	20850	24110	27939
Pressure drop system side	kPa	28	26	34	29	34	37	44	40	49
Heating performance 30 °C / 35 °C(2)										
Heating capacity	kW	41,4	57,2	67,2	75,7	86,4	101,5	114,6	132,6	150,2
Input power	kW	9,4	13,3	15,8	18,1	20,6	24,5	27,8	31,7	37,0
Heating total input current	A	19,0	26,0	30,0	35,0	44,0	48,0	51,0	55,0	68,0
COP	W/W	4,41	4,31	4,26	4,18	4,19	4,15	4,13	4,19	4,06
Water flow rate system side	l/h	7156	9895	11628	13083	14931	17533	19787	22919	25938
Pressure drop system side	kPa	23	20	28	23	31	34	41	35	42

(1) Data EN 14511:2022; System side water heat exchanger 23 °C / 18 °C; External air 35 °C

(2) Data EN 14511:2022; System side water heat exchanger 30 °C / 35 °C; External air 7 °C d.b. / 6 °C w.b.

ELECTRIC DATA

Size	0200	0280	0300	0330	0350	0500	0550	0600	0650	0700
Electric data										
Maximum current (FLA)	A	A	-	-	-	75,0	85,0	94,0	114,0	144,0
	E	A	40,0	49,0	61,0	74,0	75,0	94,0	114,0	147,0
Peak current (LRA)	A	A	-	-	-	216,0	226,0	191,0	228,0	285,0
	E	A	124,0	146,0	175,0	215,0	216,0	191,0	228,0	288,0

ENERGY DATA

Size		0200	0280	0300	0330	0350	0500	0550	0600	0650	0700
Cooling capacity with low leaving water temp (UE n° 2016/2281)											
SEER	A	W/W	-	-	-	-	3,45	3,52	3,46	3,42	3,44
	E	W/W	3,40	3,30	3,48	3,39	3,35	3,42	3,34	3,29	3,35
ηsc	A	%	-	-	-	-	134,80	137,60	135,20	133,70	134,60
	E	%	133,00	128,80	136,10	132,50	130,90	133,70	130,60	128,70	130,90
Size											
			0200				0280			0300	
UE 811/2013 performance in average ambient conditions (average) - 35 °C - Pdesignh ≤ 70 kW (1)											
Efficiency energy class	A						-	-	-	-	-
	E						A++	A+	A+	A+	A+
Pdesignh	A	kW					-	-	-	-	-
	E	kW					42,00	58,00	67,00		
SCOP	A	W/W					-	-	-	-	-
	E	W/W					3,88	3,75	3,70		
ηsh	A	%					-	-	-	-	-
	E	%					152,00	147,00	145,00		
UE 811/2013 performance in average ambient conditions (average) - 55 °C - Pdesignh ≤ 70 kW (2)											
Efficiency energy class	A						-	-	-	-	-
	E						A+	A+	A+	A+	A+
Pdesignh	A	kW					-	-	-	-	-
	E	kW					44,00	62,00	70,00		
SCOP	A	W/W					-	-	-	-	-
	E	W/W					3,08	3,03	3,00		
ηsh	A	%					-	-	-	-	-
	E	%					120,00	118,00	117,00		
(1) Efficiencies for low temperature applications (35 °C)											
(2) Efficiencies for average temperature applications (55 °C)											
Size		0330	0350	0500	0550	0600	0650	0700			
UE 813/2013 performance in average ambient conditions (average) - 55 °C - Pdesignh ≤ 400 kW (1)											
Pdesignh	A	kW	-	89,00	106,00	121,00	137,00	157,00	178,00		
	E	kW	80,00	89,00	106,00	121,00	137,00	157,00	178,00		
SCOP	A	W/W	-	2,88	2,90	3,03	3,03	2,93	2,90		
	E	W/W	3,03	2,88	2,90	3,03	3,03	2,93	2,90		
ηsh	A	%	-	112,00	113,00	118,00	118,00	114,00	113,00		
	E	%	118,00	112,00	113,00	118,00	118,00	114,00	113,00		
UE 813/2013 performance in average ambient conditions (average) - 35 °C - Pdesignh ≤ 400 kW (2)											
Pdesignh	A	kW	-	84,00	99,00	113,00	131,00	149,00	168,00		
	E	kW	75,00	84,00	99,00	113,00	131,00	149,00	168,00		
SCOP	A	W/W	-	3,43	3,40	3,70	3,70	3,38	3,33		
	E	W/W	3,68	3,43	3,40	3,70	3,70	3,38	3,33		
ηsh	A	%	-	134,00	133,00	145,00	145,00	132,00	130,00		
	E	%	144,00	134,00	133,00	145,00	145,00	132,00	130,00		
(1) Efficiencies for average temperature applications (55 °C)											
(2) Efficiencies for low temperature applications (35 °C)											

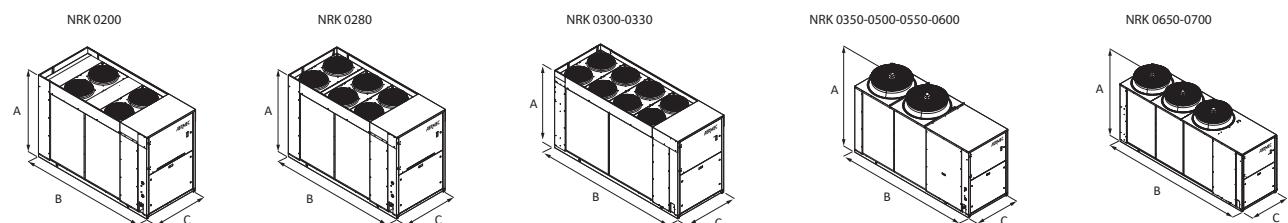
GENERAL TECHNICAL DATA

Size		0200	0280	0300	0330	0350	0500	0550	0600	0650	0700
Compressor											
Type	A,E	type					Scroll				
Compressor regulation	A,E	Type					On-Off				
Number	A,E	no.	2	2	2	2	2	3	4	4	4
Circuits	A,E	no.	2	2	2	2	2	2	2	2	2
Refrigerant	A,E	type					R410A				
Refrigerant charge (1)	A	kg	-	-	-	-	23,0	28,0	29,0	39,0	40,0
	E	kg	14,0	16,0	16,0	16,0	23,0	28,0	29,0	39,0	40,0
System side heat exchanger											
Type	A,E	type					Brazed plate				
Number	A,E	no.	1	1	1	1	1	1	1	1	1
Hydraulic connections											
Connections (in/out)	A,E	Type					Grooved joints				
Sizes (in/out)	A,E	Ø					2½"				
Fan											
Type	A,E	type					axials				
Number	A	no.	-	-	-	-	2	2	2	3	3
	E	no.	4	6	8	8	2	2	2	3	3
Air flow rate	A	m³/h	-	-	-	-	37000	36500	36500	58000	58000
	E	m³/h	14000	20000	26000	26000	21100	21400	22400	31900	31900
Sound data calculated in cooling mode (2)											
Sound power level	A	dB(A)	-	-	-	-	82,0	82,0	82,0	83,0	85,0
	E	dB(A)	74,0	74,0	75,0	75,0	74,0	74,0	75,0	77,0	77,0
Sound pressure level (10 m)	A	dB(A)	-	-	-	-	50,1	50,1	50,1	53,0	53,0
	E	dB(A)	42,3	42,3	43,2	43,2	42,1	42,1	43,1	45,0	45,0

(1) The load indicated in the table is an estimated and preliminary value. The final value of the refrigerant load is indicated on the unit's technical label. For further information contact the office.

(2) Sound power calculated on the basis of measurements made in accordance with UNI EN ISO 9614-2, as required for Eurovent certification. Sound pressure (cold functioning) measured in free field, 10m away from the unit external surface (in compliance with UNI EN ISO 3744).

DIMENSIONS



Size		0200	0280	0300	0330	0350	0500	0550	0600	0650	0700
Dimensions and weights											
A	A	mm	-	-	-	-	1875	1875	1875	1875	1875
	E	mm	1606	1606	1606	1606	1875	1875	1875	1875	1875
B	A	mm	-	-	-	-	3330	3330	3330	4330	4330
	E	mm	2700	2700	3200	3200	3330	3330	3330	4330	4330
C	A	mm	-	-	-	-	1100	1100	1100	1100	1100
	E	mm	1100	1100	1100	1100	1100	1100	1100	1100	1100
Dimensions and weights for transport											
A	A	mm	-	-	-	-	2027	2027	2027	2039	2039
	E	mm	1735	1735	1758	1758	2027	2027	2027	2039	2039
B	A	mm	-	-	-	-	3395	3395	3395	4387	4387
	E	mm	2760	2760	3260	3260	3395	3395	3395	4387	4387
C	A	mm	-	-	-	-	1170	1170	1170	1170	1170
	E	mm	1160	1160	1160	1160	1170	1170	1170	1170	1170
Size		0200	0280	0300	0330	0350	0500	0550	0600	0650	0700
Integrated hydronic kit: 00											
Weights											
Empty weight	A	kg	-	-	-	-	1067	1213	1274	1316	1495
	E	kg	761	833	913	920	1067	1213	1274	1316	1530

Aermec reserves the right to make any modifications deemed necessary.
All data is subject to change without notice. Aermec does not assume responsibility or liability for errors or omissions.

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