

NSH

Reversible air/water heat pump

Cooling capacity 251 ÷ 731 kW – Heating capacity 281 ÷ 786 kW



- High efficiency also at partial loads
- Electronic expansion valve



DESCRIPTION

Reversible outdoor heat pumps for the production of chilled/heated water designed to satisfy the needs of residential and commercial buildings, or for industrial applications.

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 -10 °C outside air temperature in winter, and up to 48°C in summer. Hot water production up to 55°C (for more details refer to the technical documentation).

Bi-tri circuit unit

The units are mono or dual-circuit, to ensure maximum efficiency both at full load and at partial load.

Electronic expansion valve

The possibility to use electronic expansion valve, offers significant benefits, especially when the chiller is working with partial loads, increasing the energy efficiency of the unit.

Integrated hydronic kit

Integrated hydronic kit containing the main hydraulic components; available with various configurations with one or two pumps, high or low head, to obtain a solution that allows you to save money and to facilitate installation.

CONTROL

Microprocessor adjustment, with keyboard and LCD display, for easy access on the unit is a menu available in several languages.

- 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

AER485P1: RS-485 interface for supervision systems with MODBUS protocol.

AER485P1 x n° 2: RS-485 interface for supervision systems with MODBUS protocol.

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

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 datas in the personal terminal for post analysis.

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.

PRV3: Allows you to control the chiller at a distance.

DCPX: Device for condensation temperature control, with continuous speed modulation of fans by using a pressure transducer.

GP_M: Anti-intrusion grid.

AVX: Spring anti-vibration supports.

FACTORY FITTED ACCESSORIES

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

KRS: Electric heater for the heat exchanger

AK: Acoustic kit that lowers the noise level even further, thanks to the special coating on the panelling or on those components that produce the most noise in the unit. Available for the low noise version only.

ACCESSORIES COMPATIBILITY

Model	Ver	1251	1401	1402	1601	1602	1801	1802	2002	2202	2352	2502	2652	2802	3002	3202	3402	3602
AER485P1	A,E	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
AER485P1 x n° 2 (1)	A,E	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
AERBACP	A,E	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
AERNET	A,E	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
MULTICHILLER_EVO	A,E	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
PRV3	A,E	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.

(1) x Indicates the quantity of accessories to match.

Condensation control temperature

Ver	1251	1401	1402	1601	1602	1801	1802	2002	2202
A	DCPX69	DCPX69	DCPX68	DCPX69	DCPX68	DCPX69	DCPX68	DCPX73	DCPX73
E	As standard	As standard	As standard	As standard	As standard	As standard	As standard	As standard	As standard

Ver	2352	2502	2652	2802	3002	3202	3402	3602
A	DCPX73	DCPX73	DCPX73	DCPX73	DCPX73	DCPX73	DCPX73	DCPX73
E	As standard	As standard	As standard	As standard	As standard	As standard	As standard	As standard

Anti-intrusion grid

Ver	1251	1401	1402	1601	1602	1801	1802	2002	2202
A, E	GP300M	GP300M	GP300B	GP300M	GP300B	GP400M	GP400B	GP500B	GP500B

Ver	2352	2502	2652	2802	3002	3202	3402	3602
A, E	GP500B	GP500B	GP500B	GP500B	GP300M+300M	GP300M+300M	GP300M+400M	GP400M+400M

Antivibration

Ver	1251	1401	1402	1601	1602	1801	1802	2002	2202	2352	2502	2652	2802	3002	3202	3402	3602
Integrated hydronic kit: 00																	
A, E	AVX536	AVX536	AVX537	AVX536	AVX538	AVX540	AVX541	AVX543	AVX543	AVX545	AVX549	AVX551	AVX551	AVX554	AVX556	AVX557	AVX559
Integrated hydronic kit: PA																	
A, E	AVX536	AVX536	AVX537	AVX536	AVX538	AVX540	AVX541	AVX543	AVX543	AVX545	AVX550	AVX551	AVX551	AVX553	AVX553	AVX557	AVX559
Integrated hydronic kit: PC, PE, PG, PJ																	
A, E	AVX536	AVX536	AVX538	AVX536	AVX538	AVX540	AVX541	AVX543	AVX543	AVX545	AVX550	AVX551	AVX551	AVX553	AVX555	AVX557	AVX559

Heater exchangers

Ver	1251	1401	1402	1601	1602	1801	1802	2002	2202	2352	2502	2652	2802	3002	3202	3402	3602
A, E	KRS11	KRS11	KRS19	KRS11	KRS19	KRS11	KRS19	KRS19	KRS19	KRS19	KRS19	KRS19	KRS19	KRS14	KRS14	KRS14	KRS14

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

Power factor correction

Ver	1251	1401	1402	1601	1602	1801	1802	2002	2202
A, E	RIFNSH1251	RIFNSH1401	RIFNSH1402	RIFNSH1601	RIFNSH1602	RIFNSH1801	RIFNSH1802	RIFNSH2002	RIFNSH2202

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

Ver	2352	2502	2652	2802	3002	3202	3402	3602
A, E	RIFNSH2352	RIFNSH2502	RIFNSH2652	RIFNSH2802	RIFNSH3002	RIFNSH3202	RIFNSH3402	RIFNSH3602

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

Acoustic kit

Ver	1251	1401	1402	1601	1602	1801	1802	2002	2202	2352	2502	2652	2802	3002	3202	3402	3602
A, E	AK (1)	AK (1)	AK (1)	AK (1)	AK (1)	AK (1)	AK (1)	AK (1)	AK (1)	AK (1)	AK (1)	AK (1)	AK (1)	AK (1)	AK (1)	AK (1)	AK (1)

(1) Available only in low noise version

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

CONFIGURATOR

Field	Description
1,2,3	NSH
4,5,6,7	Size 1251, 1401, 1402, 1601, 1602, 1801, 1802, 2002, 2202, 2352, 2502, 2652, 2802, 3002, 3202, 3402, 3602
8	Operating field
X	Electronic thermostatic expansion valve
9	Model
H	Heat pump
10	Heat recovery
°	Without heat recovery
D	With desuperheater
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
J	Inverter
14	Power supply
°	400V~3 50Hz with fuses
2	230V~3 50Hz with fuses (1)
4	230V~3 50Hz with magnet circuit breakers (1)
8	400V~3 50Hz with magnet circuit breakers
15,16	Integrated hydronic kit
	Without hydronic kit
00	Without hydronic kit
	Kit with n° 1 pump
PA	Pump A
PC	Pump C
PE	Pump E
PG	Pump G
PJ	Pump J (2)

(1) Not available for size from 1251 to 1801 and from 2352 to 3602

(2) For all configurations including pump J please contact the factory.

PERFORMANCE SPECIFICATIONS

NS - HA

Size		1251	1401	1402	1601	1602	1801	1802	2002	2202
Cooling performance 12 °C / 7 °C (1)										
Cooling capacity	kW	262,7	281,7	257,7	309,7	315,6	365,6	365,6	384,6	414,5
Input power	kW	86,9	95,0	94,9	107,8	108,3	128,3	125,3	132,5	138,8
Cooling total input current	A	149,0	164,0	168,0	185,0	186,0	215,0	216,0	227,0	233,0
EER	W/W	3,02	2,96	2,72	2,87	2,91	2,85	2,92	2,90	2,99
Water flow rate system side	l/h	45186	48451	44327	53262	54292	62883	62883	66147	71302
Pressure drop system side	kPa	38	41	36	27	50	43	43	47	53
Heating performance 40 °C / 45 °C (2)										
Heating capacity	kW	281,4	297,4	281,4	332,3	342,5	393,5	395,5	412,5	450,6
Input power	kW	88,2	94,2	93,2	104,0	106,8	126,7	123,7	133,9	141,3
Heating total input current	A	150,0	163,0	165,0	180,0	182,0	212,0	213,0	229,0	236,0
COP	W/W	3,19	3,16	3,02	3,20	3,21	3,11	3,20	3,08	3,19
Water flow rate system side	l/h	48838	51618	48838	57701	59439	68303	68651	71605	78210
Pressure drop system side	kPa	47	49	47	33	64	54	54	58	67

(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.

Size		2352	2502	2652	2802	3002	3202	3402	3602
Cooling performance 12 °C / 7 °C (1)									
Cooling capacity	kW	454,6	499,5	524,5	547,5	591,5	619,6	675,5	731,4
Input power	kW	158,4	173,5	186,7	195,9	202,6	215,4	235,9	256,4
Cooling total input current	A	268,0	295,0	318,0	335,0	349,0	370,0	400,0	430,0
EER	W/W	2,87	2,88	2,81	2,80	2,92	2,88	2,86	2,85
Water flow rate system side	l/h	78174	85906	90201	94153	101712	106523	116144	125766
Pressure drop system side	kPa	37	38	40	43	34	27	35	43
Heating performance 40 °C / 45 °C (2)									
Heating capacity	kW	502,5	541,5	563,6	585,6	629,5	664,5	725,6	786,7
Input power	kW	157,9	171,0	177,1	185,4	198,0	207,8	230,4	253,1
Heating total input current	A	267,0	292,0	303,0	318,0	342,0	359,0	391,0	423,0
COP	W/W	3,18	3,17	3,18	3,16	3,18	3,20	3,15	3,11
Water flow rate system side	l/h	87247	94025	97849	101673	109320	115403	126004	136606
Pressure drop system side	kPa	49	47	49	53	41	33	43	54

(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.

NS - HE

Size		1251	1401	1402	1601	1602	1801	1802	2002	2202
Cooling performance 12 °C / 7 °C (1)										
Cooling capacity	kW	250,7	266,7	242,7	292,7	301,6	343,6	349,6	366,6	394,5
Input power	kW	91,8	101,9	100,8	115,7	116,2	136,1	132,2	140,3	146,5
Cooling total input current	A	161,0	178,0	181,0	202,0	202,0	234,0	233,0	246,0	254,0
EER	W/W	2,73	2,62	2,41	2,53	2,60	2,52	2,65	2,61	2,69
Water flow rate system side	l/h	43125	45874	41750	50341	51887	59103	60134	63055	67865
Pressure drop system side	kPa	32	37	33	24	46	38	39	43	48
Heating performance 40 °C / 45 °C (2)										
Heating capacity	kW	281,4	297,4	281,4	332,3	342,5	393,5	395,5	412,5	450,6
Input power	kW	88,2	94,2	93,2	104,0	106,8	126,7	123,7	133,9	141,3
Heating total input current	A	150,0	163,0	165,0	180,0	182,0	212,0	213,0	229,0	236,0
COP	W/W	3,19	3,16	3,02	3,20	3,21	3,11	3,20	3,08	3,19
Water flow rate system side	l/h	48838	51618	48838	57701	59439	68303	68651	71605	78210
Pressure drop system side	kPa	47	49	47	33	64	54	54	58	67

(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.

Size		2352	2502	2652	2802	3002	3202	3402	3602
Cooling performance 12 °C / 7 °C (1)									
Cooling capacity	kW	435,6	487,6	506,5	517,5	559,6	585,6	636,5	687,5
Input power	kW	169,3	192,4	202,5	210,6	217,4	231,2	251,6	272,0
Cooling total input current	A	293,0	333,0	349,0	365,0	380,0	403,0	436,0	468,0
EER	W/W	2,57	2,53	2,50	2,46	2,57	2,53	2,53	2,53
Water flow rate system side	l/h	74910	83844	87108	88998	96214	100681	109444	118206
Pressure drop system side	kPa	34	35	37	39	30	24	31	38
Heating performance 40 °C / 45 °C (2)									
Heating capacity	kW	502,5	541,5	563,6	585,6	629,5	664,5	725,6	786,7
Input power	kW	157,9	171,0	177,1	185,4	198,0	207,8	230,4	253,1
Heating total input current	A	267,0	292,0	303,0	318,0	342,0	359,0	391,0	423,0
COP	W/W	3,18	3,17	3,18	3,16	3,18	3,20	3,15	3,11
Water flow rate system side	l/h	87247	94025	97849	101673	109320	115403	126004	136606
Pressure drop system side	kPa	49	47	49	53	41	33	43	54

(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.

ENERGY DATA

Size		1251	1401	1402	1601	1602	1801	1802	2002	2202	2352	2502	2652	2802	3002	3202	3402	3602	
UE 813/2013 performance in average ambient conditions (average) - 35 °C - Pdesignh ≤ 400 kW (1)																			
Pdesignh	A,E	kW	185	195	185	218	225	259	260	271	297	330	356	370	385	325	342	374	400
SCOP	A,E	W/W	3,33	3,28	3,23	3,33	3,33	3,23	3,33	3,20	3,30	3,30	3,33	3,30	3,35	3,40	3,33	3,28	
ηsh	A,E	%	130.0%	128.0%	126.0%	130.0%	130.0%	126.0%	130.0%	125.0%	129.0%	129.0%	129.0%	129.0%	131.0%	133.0%	130.0%	128.0%	
SEER - 12/7 (EN14825:2018) with standard fans (2)																			
SEER	A	W/W	3,88	3,81	3,46	3,76	3,68	3,71	3,73	3,70	3,80	3,72	3,74	3,66	3,64	3,81	3,76	3,73	3,72
	E	W/W	3,41	3,28	3,00	3,19	3,23	3,19	3,32	3,28	3,37	3,28	3,23	3,18	3,12	3,30	3,25	3,23	3,23
Seasonal efficiency	A	%	152.1%	149.4%	135.2%	147.4%	144.2%	145.2%	146.0%	145.0%	149.0%	145.7%	146.6%	143.5%	142.5%	149.5%	147.5%	146.1%	145.8%
	E	%	133.4%	128.1%	116.8%	124.4%	126.2%	124.7%	129.7%	128.2%	131.8%	128.1%	126.3%	124.3%	121.7%	129.1%	126.9%	126.1%	126.2%

(1) Efficiencies for low temperature applications (35 °C)
(2) Calculation performed with FIXED water flow rate and VARIABLE outlet temperature.

ELECTRIC DATA

Size			1251	1401	1402	1601	1602	1801	1802	2002	2202
Electric data											
Maximum current (FLA)	A,E	A	209,0	242,0	276,0	258,0	276,0	316,0	325,0	352,0	370,0
Peak current (LRA)	A,E	A	327,0	387,0	251,0	431,0	251,0	472,0	305,0	313,0	350,0

Size			2352	2502	2652	2802	3002	3202	3402	3602
Electric data										
Maximum current (FLA)	A,E	A	390,0	410,0	443,0	476,0	500,0	516,0	574,0	631,0
Peak current (LRA)	A,E	A	365,0	436,0	461,0	521,0	534,0	578,0	612,0	653,0

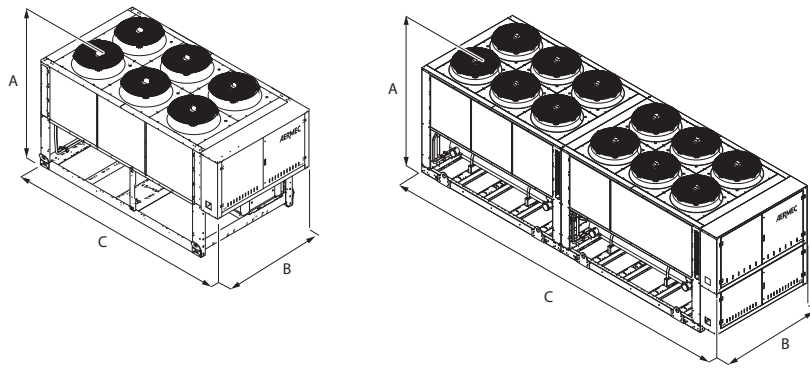
GENERAL TECHNICAL DATA

Size			1251	1401	1402	1601	1602	1801	1802	2002	2202	2352	2502	2652	2802	3002	3202	3402	3602	
Compressor																				
Type	A,E	type	Screw																	
Compressor regulation	A,E	Type	On/Off																	
Number	A,E	no.	1	1	2	1	2	1	2	2	2	2	2	2	2	2	2	2	2	2
Circuits	A,E	no.	1	1	2	1	2	1	2	2	2	2	2	2	2	2	2	2	2	2
Partialisation of the unit with electronic thermostatic expansion valve	A	%	40-100	40-100	20-100	40-100	20-100	40-100	20-100	20-100	20-100	20-100	20-100	20-100	20-100	20-100	20-100	20-100	20-100	20-100
Refrigerant	A,E	type	R134a																	
Refrigerant load circuit 1 (1)	A	kg	90,0	92,0	43,0	100,0	57,0	138,0	57,0	55,0	80,0	80,0	85,0	-	97,0	92,0	-	110,0	138,0	
	E	kg	90,0	92,0	43,0	118,0	57,0	138,0	57,0	55,0	80,0	80,0	85,0	-	97,0	92,0	118,0	110,0	138,0	
Refrigerant load circuit 2 (1)	A	kg	-	-	45,0	-	57,0	-	57,0	75,0	102,0	85,0	85,0	-	97,0	100,0	-	145,0	138,0	
	E	kg	-	-	45,0	-	57,0	-	57,0	75,0	102,0	85,0	85,0	-	97,0	118,0	118,0	145,0	138,0	
Total oil charge	A,E	kg	22,0	19,0	30,0	19,0	30,0	35,0	30,0	30,0	30,0	37,0	44,0	41,0	38,0	38,0	38,0	54,0	70,0	
System side heat exchanger																				
Type	A,E	type	Shell and tube																	
Number	A,E	no.	1	1	2	1	2	1	2	2	1	1	1	1	1	2	2	2	2	
Minimum water flow rate	A	l/h	22593	24226	22164	26631	27146	31442	31442	33074	35651	39087	42953	45101	47077	50856	53262	58072	62883	
	E	l/h	21563	22937	20875	25171	25944	29552	30067	31528	33933	37455	41922	43554	44499	48107	50341	54722	59103	
Maximum water flow rate	A	l/h	75310	80752	73878	88770	90487	104805	104805	110245	118837	130290	143177	150335	156922	169520	177538	193573	209610	
	E	l/h	71875	76457	69583	83902	86478	98505	100223	105092	113108	124850	139740	145180	148330	160357	167802	182407	197010	
Water content	A,E	l	96,0	101,2	96,0	98,1	101,2	132,9	132,9	132,9	159,8	159,8	149,9	220,7	220,7	199,3	196,2	231,0	265,8	
System side hydraulic connections																				
Connections (in/out)	A,E	Type	Grooved joints																	
Sizes (in/out)	A,E	Ø	6"																	
Sound data calculated in cooling mode (2)																				
Sound power level	A	dB(A)	93,5	93,5	94,0	94,5	95,0	96,0	96,0	96,5	96,5	97,0	97,0	97,0	97,0	97,0	97,5	98,3	99,0	
	E	dB(A)	88,5	88,5	89,0	89,5	90,0	91,0	91,0	91,5	91,5	91,5	92,0	92,0	92,0	92,0	92,5	93,3	94,0	
Sound pressure level (10 m)	A	dB(A)	61,3	61,3	61,8	62,3	62,8	63,6	63,6	64,0	64,0	64,0	64,5	64,5	64,4	64,9	65,6	66,2		
	E	dB(A)	56,3	56,3	56,8	57,3	57,8	58,6	58,6	59,0	59,0	59,0	59,5	59,5	57,4	59,9	60,6	61,2		
Sound pressure level (1 m)	A	dB(A)	73,8	73,8	74,3	74,8	75,3	75,8	75,8	75,9	75,9	76,4	76,4	76,4	75,8	76,3	76,8	77,2		
	E	dB(A)	68,8	68,8	69,3	69,8	70,3	70,8	70,8	70,9	70,9	71,4	71,4	71,4	70,8	71,3	71,8	72,2		

(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			1251	1401	1402	1601	1602	1801	1802	2002	2202	2352	2502	2652	2802	3002	3202	3402	3602
Dimensions and weights																			
A	A,E	mm	2450	2450	2450	2450	2450	2450	2450	2450	2450	2450	2450	2450	2450	2450	2450	2450	2450
B	A,E	mm	2200	2200	2200	2200	2200	2200	2200	2200	2200	2200	2200	2200	2200	2200	2200	2200	2200
C	A,E	mm	3780	3780	3780	3780	3780	4770	4770	5750	5750	5750	5750	5750	5750	7160	7160	8150	9140
Integrated hydronic kit: 00																			
Dimensions and weights																			
Empty weight	A,E	kg	3245	3280	3570	3435	3835	4115	4005	4385	4570	4940	5265	5470	5610	6540	6745	7425	8105
Weight functioning	A,E	kg	3340	3380	3665	3535	3935	4250	4140	4520	4730	5100	5415	5690	5830	6740	6940	7655	8370

Aermec reserves the right to make any modifications deemed necessary.
All data is subject to change without notice. Aermec does not assume
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