

NSH 1251/2002 Heat pump

R134a



AERMEC participates in the EUROVENT programme for LCP. Check ongoing validity of certificate online: www.eurovent-certification.com

Reversible heat pumps
Air/Water outdoor installation
Axial fans and twin-rotor screw compressor
Cooling capacity 235 - 730kW
Heating capacity 276 - 789kW



- **STANDARD VERSION**
- **HIGH EFFICIENCY VERSION**
- **HIGH EFFICIENCY EVEN AT PART LOAD**
- **1/2 REFRIGERANT CIRCUIT**
- **OPTION VERSION WITH BUILT-IN HYDRONIC KIT**
- **ELECTRONIC EXPANSION VALVE**

Characteristics

- Reversible heat pumps
- Version**
 - NS_H** Standard version
 - NS_HL** Standard low noise version
 - NS_HA** High efficiency version
 - NS_HE** High efficiency low noise version
- **Operational limits (1)**
 - max. external air temperature 48°C in cooling mode
 - Maximum leaving water temperature 55°C in heating mode
- 1/2 refrigerant circuits
- High efficiency, low noise screw compressors with modulating capacity control from 25 to 100%.
- Electronic expansion valve as a standard
- Economiser circuit with plate heat exchanger for improved performance, particularly at high compression ratios, as experienced in heating mode at low ambients
- Generously sized refrigerant circuit for minimum pressure drop
- Shell and tube evaporator optimised for refrigerant R134a.
- Pressure switch as standard supply
- Option integrated hydronic module, it consists of 1 or 2 pumps and 2 expansion tanks (25l.)
- Axial fans for extremely quiet operation
- Modulating capacity control microprocessor system
- Multilingual display panel
- Compact sizes
- Metal control panel with anti-corrosion polyester paint
- Options for partial or total heat recovery
- The low noise version "L/E" is equipped:
 - Compressor acoustical enclosure
 - Fan speed control (DCPX)
 - Hot gas discharge muffler.

(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 supervision systems with MODBUS protocol.
- **AERWEB300:** Accessory AERWEB allows remote control of a chiller through a common PC and an ethernet connection over a common browser; 4 versions available:
 - AERWEB300-6:** Web server to monitor and remote control max. 6 units in RS485 network;
 - AERWEB300-18:** Web server to monitor and remote control max. 18 units in RS485 network;
 - AERWEB300-6G:** Web server to monitor and remote control max. 6 units in RS485 network with integrated GPRS modem;
 - AERWEB300-18G:** Web server to monitor and remote control max. 18 units in RS485 network with integrated GPRS modem;
- **PRV3:** Remote control of the chiller operating functions.
- **MULTICHILLER:** Control system for multiple parallel installed constant flow chillers providing individual chiller on/off and control capability.
- **DCPX:** Low ambient device for cooling operation below 20°C down to -10°C.
- **AVX:** Spring anti-vibration
- **GP:** Protective grille. Condenser coil external protection against accidental or hail damage.
- **AK: ACOUSTIC KIT (only for Versions L and E)**
This accessory allows further sound reduction. Must be requested at time of order and is available factory fitted only.

Accessories factory fitted only

- **KRS:** Evaporator trace heating.
- **KRSDS/KRSREC:** Evaporator and heat recovery exchangers trace heating.
- **RIFNS:** Power factor correction. Connected in parallel to the motor allowing about 10% reduction of input current.

Compatibility of accessories

Mod. NS	vers.	1251	1401	1601	1801	1402	1602	1802	2002	2202	2352	2502	2652	2802	3002	3202	3402	3602
AER485P1	All	•(x1)	•(x1)	•(x1)	•(x1)	•(x2)	•(x2)	•(x2)	•(x2)	•(x2)	•(x2)	•(x2)	•(x2)	•(x2)	•(x2)	•(x2)	•(x2)	•(x2)
AERWEB300	All	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
PRV3	All	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
MULTICHILLER	All	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
DCPX	(1) All	69	69	69	69	68	68	68	73	73	73	73	73	73	73	73	73	73

Spring antivibration for unit without Hydronic kit "00"

AVX	HA/HE	536	536	536	540	537	538	541	543	543	545	549	551	551	554	556	557	559
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Spring antivibration for unit with Hydronic kit

AVX	PA	HA/HE	536	536	536	540	537	538	541	543	543	545	550	551	551	553	553	557	559
AVX	PC	HA/HE	536	536	536	540	538	538	541	543	543	545	550	551	551	553	555	557	559
AVX	PE	HA/HE	536	536	536	540	538	538	541	543	543	545	550	551	551	553	555	557	559
AVX	PG	HA/HE	536	536	536	540	538	538	541	543	543	545	550	551	551	553	555	557	559
AVX	PJ	HA/HE	536	536	536	540	538	538	541	543	543	545	550	551	551	553	555	557	559

Accessories factory fitted only

KRS		KRS11	KRS11	KRS11	KRS11	KRS19	KRS19	KRS19	KRS19	KRS19	KRS19	KRS19	KRS19	KRS19	KRS19	KRS14	KRS14	KRS14	KRS14
KRS_DES	(2)	KRS11DES	KRS11DES	KRS11DES	KRS11DES	KRS19DES	KRS19DES	KRS19DES	KRS19DES	KRS19DES	KRS19DES	KRS19DES	KRS19DES	KRS19DES	KRS19DES	KRS14DES	KRS14DES	KRS14DES	KRS14DES
RIFNSH		1251	1401	1601	1801	1402	1602	1802	2002	2202	2352	2502	2652	2802	3002	3202	3402	3602	
GP300M		•	•	•															
GP400M					•														
GP300B						•	•												
GP400B								•											
GP500B									•	•	•	•	•	•					
GP300M+300M																•	•		
GP300M+400M																		•	
GP400M+400M																			•
AK	(3)	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•

(1) IDCPIX Accessory supplied as standard on Versions HE, and D

(2) Accessory comes standard with the electrical heater for evaporator and desuperheater

(3) Accessory is only available for the low noise version "L/E"

(x2) 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	13	Power supply
1,2	NS		° 400V/3/50Hz with fuses
3,4,5,6	Size		2 230V/3/50Hz with fuses (4)
	1251-1401-1601-1801		4 230V/3/50Hz with circuit breakers (4)
	1402-1602-1802-2002-2202-2352-2502-2652-2802		5 500V/3/50Hz with fuses (5)
	3002-3202-3402-3602		8 400V/3/50Hz with circuit breakers
7	Expansion valve:		9 500V/3/50Hz with circuit breakers (5)
	X Electronic expansion valve (leaving water temperature down to 4°C)	14-15	Hydronic kit
	contact head office for lower temperatures		00 Without hydronic kit
8	Model		PA Hydronic pump (Pump A)
	H Heat pumps		PC Hydronic pump (Pump C)
9	Heat recovery		PE Hydronic pump (Pump E)
	° Without recovery		PG Hydronic pump (Pump G)
	D With Desuperheater		PJ Hydronic pump (Pump J)
10	Version		
	A High efficiency		
	E High efficiency in low noise operation		
11	Coil		
	° In aluminium		
	R In copper		
	S In tinned copper		
	V In painted aluminium-copper (epoxy paint)		
12	Fans		
	° Standard		
	J Inverter		

The desuperheater can be used exclusively in the col operation

(4) 230V/3/50Hz is not available for size 1251+1801/2352+3602

(5) 500V/3/50Hz is not available for size 1801-3402-3602

Technical Data

NS - HA			1251	1401	1601	1801	1402	1602	1802	2002	2202	2352	2502	2652	2802	3002	3202	3402	3602
		V/Ph/Hz	400V/3/50Hz																
12°C / 7°C	Cooling capacity	(1) kW	262,0	281,0	309,0	365,0	257,0	315,0	365,0	384,0	413,0	454,0	498,0	523,0	546,0	590,0	619,0	674,0	730,0
	Total input power	(1) kW	87,0	95,0	108,0	128,0	95,0	108,0	125,0	132,0	139,0	158,0	173,0	187,0	196,0	203,0	215,0	236,0	256,0
	EER	(1)	3,01	2,96	2,86	2,85	2,71	2,92	2,92	2,91	2,97	2,87	2,88	2,80	2,79	2,91	2,88	2,86	2,85
	ESEER	(1)	3,51	3,44	3,31	3,30	3,23	3,48	3,49	3,48	3,56	3,41	3,44	3,36	3,33	3,37	3,31	3,31	3,30
	Cooling Energy Class Eurovent	(1)	B	B	C	C	C	B	B	B	B	C	C	C	C	B	C	C	C
	Water flow rate	(1) l/h	45236	48504	53320	62952	44376	54352	62952	66220	71380	78260	86000	90300	94256	101824	106640	116272	125904
40°C / 45°C	Pressure drop	(1) kPa	38	41	27	43	36	50	43	47	53	37	38	40	43	34	27	35	43
	Heating capacity	(2) kW	282,0	298,0	333,0	394,0	282,0	344,0	397,0	413,0	452,0	504,0	543,0	565,0	587,0	631,0	666,0	727,0	789,0
	Total input power	(2) kW	88,1	94,2	103,9	126,6	93,1	106,6	123,6	133,8	141,0	158,0	171,0	177,0	185,0	198,0	208,0	230,0	253,0
	COP	(2)	3,20	3,16	3,20	3,11	3,03	3,23	3,21	3,09	3,21	3,19	3,18	3,19	3,17	3,19	3,20	3,16	3,12
	Heating Energy Class Eurovent	(2)	A	B	A	B	B	A	A	B	A	B	B	B	B	B	A	B	B
	Water flow rate	(2) l/h	48332	51084	57104	67596	48332	58824	67940	70864	77400	86344	93052	96836	100620	108188	114208	124700	135192
Performance under average climatic conditions (Average)																			
Pdesignh		(3)	185	195	218	259	185	225	260	271	297	330	356	370	385	/	/	/	/
SCOP		(3)	3,33	3,28	3,33	3,23	3,23	3,33	3,33	3,20	3,30	3,30	3,30	3,33	3,30	/	/	/	/
ηs		(3)	130	128	130	126	126	130	130	125	129	129	129	130	129	/	/	/	/

NS - HE			1251	1401	1601	1801	1402	1602	1802	2002	2202	2352	2502	2652	2802	3002	3202	3402	3602
		V/Ph/Hz	400V/3/50Hz																
12°C / 7°C	Cooling capacity	(1) kW	250,0	266,0	291,0	343,0	242,0	301,0	349,0	366,0	393,0	435,0	486,0	505,0	516,0	559,0	585,0	635,0	686,0
	Total input power	(1) kW	92,0	102,0	116,0	136,0	101,0	116,0	132,0	140,0	146,0	169,0	192,0	202,0	211,0	217,0	231,0	252,0	272,0
	EER	(1)	2,72	2,61	2,51	2,52	2,40	2,59	2,64	2,61	2,69	2,57	2,53	2,50	2,45	2,58	2,53	2,52	2,52
	ESEER	(1)	3,36	3,21	3,09	3,10	3,05	3,29	3,33	3,30	3,40	3,25	3,18	3,15	3,11	3,15	3,09	3,08	3,09
	Cooling Energy Class Eurovent	(1)	C	D	D	D	E	D	D	D	D	D	D	D	E	D	D	D	D
	Water flow rate	(1) l/h	43172	45924	50224	59168	41796	51944	60200	63124	67940	74992	83936	87204	89096	96320	100792	109564	118336
40°C / 45°C	Pressure drop	(1) kPa	32	37	24	38	33	46	39	43	48	34	35	37	39	30	24	31	38
	Heating capacity	(2) kW	282,0	298,0	333,0	394,0	282,0	344,0	397,0	413,0	452,0	504,0	543,0	565,0	587,0	631,0	666,0	727,0	789,0
	Total input power	(2) kW	88,1	94,2	103,9	126,6	93,1	106,6	123,6	133,8	141,0	158,0	171,0	177,0	185,0	198,0	208,0	230,0	253,0
	COP	(2)	3,20	3,16	3,20	3,11	3,03	3,23	3,21	3,09	3,21	3,19	3,18	3,19	3,17	3,19	3,20	3,16	3,12
	Heating Energy Class Eurovent	(2)	A	B	A	B	B	A	A	B	A	B	B	B	B	B	A	B	B
	Water flow rate	(2) l/h	48332	51084	57104	67596	48332	58824	67940	70864	77400	86344	93052	96836	100620	108188	114208	124700	135192
Performance under average climatic conditions (Average)																			
Pdesignh		(3)	185	195	218	259	185	225	260	271	297	330	356	370	385	/	/	/	/
SCOP		(3)	3,33	3,28	3,33	3,23	3,23	3,33	3,33	3,20	3,30	3,30	3,30	3,33	3,30	/	/	/	/
ηs		(3)	130	128	130	126	126	130	130	125	129	129	129	130	129	/	/	/	/

			1251	1401	1601	1801	1402	1602	1802	2002	2202	2352	2502	2652	2802	3002	3202	3402	3602
Electrical data																			
Total input current (cooling)	HA	(4) A	149	164	185	215	168	186	216	227	233	268	295	318	335	349	370	400	430
Total input current (heating)	HA	(4) A	150	163	180	212	165	182	213	229	236	267	292	303	318	342	359	391	423
Total input current (cooling)	HE	(4) A	161	178	202	234	181	202	233	246	254	293	333	349	365	380	403	436	468
Total input current (heating)	HE	(4) A	150	163	180	212	165	182	213	229	236	267	292	303	318	342	359	391	423
Maximum current (FLA)		(4) A	209	242	258	316	276	276	325	352	370	390	410	443	476	500	516	574	631
Starting current (LRA)		(4) A	327	387	431	472	251	251	305	313	350	365	436	461	521	534	578	612	653
Screw Compressor																			
Compressor / circuit		n°	1/1	1/1	1/1	1/1	2/2	2/2	2/2	2/2	2/2	2/2	2/2	2/2	2/2	2/2	2/2	2/2	2/2
Refrigerant		Type	R134a																
Heat exchanger system side (Shell&Tube)																			
Exchanger		n°	1	1	1	1	2	2	2	2	1	1	1	1	1	2	2	2	2
hydraulic connections (In/Out)		Ø	6"	6"	6"	6"	6"	6"	6"	6"	6"	6"	6"	6"	6"	6"	6"	6"	6"
Axial Fan																			
Fan	HA	n°	6	6	6	8	6	6	8	10	10	10	10	10	10	12	12	14	16
Air flow rate (cooling)	HA	m³/h	117600	117600	112200	156000	117600	112200	153200	196000	196000	196000	196000	191500	187000	229800	224400	268200	312000
Fan	HE	n°	6	6	6	8	6	6	8	10	10	10	10	10	10	12	12	14	16
Air flow rate (cooling)	HE	m³/h	82320	117600	78540	109200	82320	78540	107240	137200	137200	137200	137200	134050	130900	196140	157080	187740	218400
Sound data (cooling)																			
Sound power level	HA	dB(A)	94	94	95	96	94	95	96	97	97	97	97	97	97	97	98	99	99
Sound pressure level	HA	dB(A)	62	62	63	64	62	63	64	64	64	64	65	65	65	64	65	66	66
Sound power level	HE	dB(A)	89	89	90	91	89	90	91	92	92	92	92	92	92	92	93	94	94
Sound pressure level	HE	dB(A)	57	57	58	59	57	58	59	59	59	59	60	60	60	59	60	61	61

Date (14511:2013)

(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.

(3) Efficiencies for low temperature Applications (35°C)

Efficiency Energy Class in according to regulation n°811/2013 Pdesignh ≤ 400kW

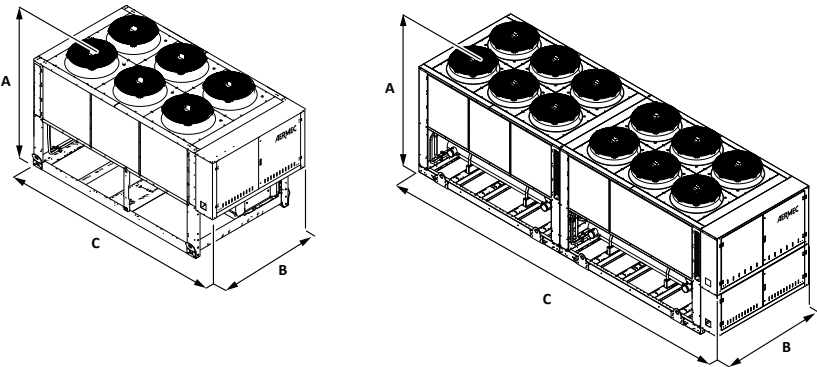
(4) Unit standar configuration without hydronic kit

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).

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

Dimensions (mm)



NS - H			0800	0900	1000	1100	1200	1400	1600	1800	2000	2200	2400	2600	2800	3000	3200	3400	3600
Height	A	mm	2450	2450	2450	2450	2450	2450	2450	2450	2450	2450	2450	2450	2450	2450	2450	2450	2450
Width	B	mm	2200	2200	2200	2200	2200	2200	2200	2200	2200	2200	2200	2200	2200	2200	2200	2200	2200
Depth	C	mm	3780	3780	3780	4770	3780	3780	4770	5750	5750	5750	5750	5750	5750	7160	7160	8150	9140
Weight	HA/HE	kg	3245	3280	3435	4115	3570	3835	4005	4385	4570	4940	5265	5470	5610	6540	6745	7425	8105