

Aqua⁴


Polyvalent air cooled heat pumps




R410A



AIR COOLED

 50 - 300 kW

 50 - 350 kW

- # **Simultaneous and independent** cooling and heating for air conditioning in the most efficient way.
- # Constantly balanced heating and cooling needs to obtain **maximum Total Efficiency Ratio**.
- # **100% heat recovery** at any condition.
- # 4-pipe version with two independent circuits that provides **hot and cold water at the same time**.
- # 2-pipe version with an independent **cooling or heating circuit** and a **dedicated hot sanitary water circuit**.

DEFROST WITHOUT IMPACTING COMFORT

- # Hydrophilic treatment on coil.
- # Dynamic control on defrost.
- # Circuits defrost completely independently.
- # Integrated water tank up to 765 litres.

SECURED OPERATING MAP

- # Winter cooling operation down to -15°C ambient.
- # Heating operation down to -10°C ambient with 45°C outlet water temperature.
- # Heat recovery or production of hot water temperature from 25°C to 55°C.

CASING & DESIGN

- # Casing and base frame made of powder coated galvanised steel.
- # Ventilated electrical control panel.
- # Victaulic connections.
- # Paddle water flow switch.
- # Fully accessible unit with removable panels.
- # All thermodynamic components installed inside the box.



CONTROL

- # eClimatic electronic controller and intelligent control parameters optimising part-load efficiency.
- # Integrated communication solutions offering flexibility (master/slave, Modbus or BACnet).
- # DC Advanced display, equipped with a graphic screen providing access to the main user parameters, with two optional displays:
 - Remote Display
 - Service Display

eCLIMATIC



DC Advanced



THERMODYNAMIC SYSTEM

- # High efficiency scroll compressors.
- # High efficiency brazed plate heat exchangers.
- # Copper tubes and aluminium fins coils with hydrophilic coating.
- # Axial fans with innovative hybrid structure of blades (EC version available as an option).
- # Insulated brazed plate heat exchangers made with austenitic stainless steel AISI 316, with AISI 316L connections.
- # Two independent circuits, each equipped with thermostatic expansion valves.



QUIETER UNIT

- # Standard version with 8 dB(A) noise level reduction vs traditional heat pumps.
- # Low noise version with additional noise level reduction of 12 dB(A).
- # Innovative hybrid structure of fan blades.
- # Sound proof cabinet enclosing all components to reduce radiated sound level.

A_(A) A_(B) H_(C) 08_(D) 1_(E) M_(F) S_(G)

- (A) **A** = Aqua⁴
- (B) **A** = Air cooled
- (C) **H** = Heat pump
- (D) **08** = Nominal cooling capacity x10 [kW] (ex.: 08 = 80kW)
- (E) **1** = 2 compressors / 2 circuits - **4** = 4 compressors / 2 circuits
- (F) **M** = 2 pipes - **P** = 4 pipes
- (G) **S** = Standard noise level - **L** = Low noise level



Air cooled version

Heat pump units

AQUA ⁴ - 2 pipes version		AAH041MS	AAH051MS	AAH061MS	AAH071MS	AAH081MS	AAH081MS	AAH104MS	AAH124MS
Nominal thermal performances - Cooling mode									
Cooling capacity ⁽¹⁾	kW	49,5	55,0	64,5	72,0	80,8	98,4	109,0	125,4
Total absorbed power ⁽¹⁾	kW	15,8	18,0	20,1	23,3	26,5	32,1	36,6	39,8
EER ⁽¹⁾		3,13	3,05	3,21	3,09	3,04	3,07	2,98	3,15
Nominal water flow rate	l/h	8499	9437	11075	12361	13875	16901	18716	21534
Nominal pressure drop	kPa	27	32	31	39	31	35	42	39
Nominal thermal performances - Heating mode									
Heating capacity ⁽¹⁾	kW	49,8	56,1	66,8	72,0	80,5	98,1	110,6	124,2
Total absorbed power ⁽¹⁾	kW	17,7	20,0	22,5	25,8	28,4	35,5	40,0	43,5
COP ⁽¹⁾		2,81	2,81	2,97	2,80	2,83	2,76	2,76	2,86
Nominal water flow rate	l/h	8648	9743	11612	12521	13982	17046	19214	21580
Nominal pressure drop	kPa	28	34	35	41	32	36	45	40
Seasonal Coefficient of Performance - SCOP ⁽²⁾		3,43	3,4	3,49	3,44	3,47	3,57	3,64	3,83
Seasonal energy efficiency - η_{s,h} ⁽³⁾	%	134,2	133,0	136,6	134,6	135,8	139,8	142,6	150,2
Seasonal efficiency class - L.T. Heat Pump ⁽⁴⁾		A+	A+	A+	A+	A+	A+	A+	A++
Nominal thermal performances - Cooling mode with Domestic Hot Water									
Cooling capacity ⁽⁵⁾	kW	47,3	52,9	61,4	69,3	79,6	94,9	106,5	122
Heating capacity ⁽⁵⁾	kW	61,8	69,3	79,5	90,3	103	123,8	139,3	158,3
Total absorbed power ⁽⁵⁾	kW	15,2	17,3	19	22,1	24,6	30,4	34,5	38,2
Nominal water flow rate - Cooling circuit	l/h	8128	9088	10546	11893	13662	16298	18295	20950
Nominal pressure drop - Cooling circuit	kPa	25	30	29	36	30	32	40	38
Nominal water flow rate - Heating circuit	l/h	10734	12051	13813	15685	17892	21511	24211	27515
Nominal pressure drop - Heating circuit	kPa	41	50	48	61	50	55	68	63
Total Efficiency Ratio - TER		7,18	7,07	7,41	7,22	7,41	7,19	7,12	7,33
Acoustic data									
Sound power level	dB(A)	80	80	81	81	81	82	82	79
Sound pressure level ⁽⁶⁾	dB(A)	48	48	49	49	49	50	50	47
Electrical data									
Maximum power	kW	25,0	27,0	32,0	36,0	40,0	49,0	55,0	63,0
Maximum current	A	41	44	51	55	66	81	87	96
Starting current	A	159	162	185	183	191	194	198	220
Short circuit current (automatic breakers / fuse)	kA	2,5 / 2,5	2,5 / 2,5	2,5 / 2,5	2,5 / 2,5	2,5 / 2,5	6 / 8	6 / 8	6 / 8
Refrigeration circuit									
Number of circuits		2	2	2	2	2	2	2	2
Number of compressors		2	2	2	2	2	4	4	4
Total refrigerant load - R410a	kg	23	23	25,2	26	26	37	38	60
Hydraulic connection									
Type		Victaulic							
Diameter		2"	2"	2"	2"	2"	2 1/2"	2 1/2"	3"

(1) EUROVENT certified data, in accordance with standard EN 14511.

Cooling mode: Evaporator water temperature = 12/7°C | Outdoor air temperature = 35°C / **Heating mode:** Condenser water temperature = 40/45°C | Outdoor air temperature = 7°C
 (2) SCOP in accordance with standard EN 14825. Heating mode performance is defined for average climate conditions. | (3) Following ecodesign regulation EU 813/2013 on space heaters, normalized leaving water temperature at 7°C, in accordance with standard EN 14825, average climate conditions. | (4) Following energy labelling regulation EU 811/2013 on space heaters. | (5) Cooling at 12/7°C and Heating at 40/45°C. | (6) Sound power level and sound pressure level at 10 m from the unit, in free field, conformity with ISO3744 norm.

A_(A) A_(B) H_(C) 08_(D) 1_(E) M_(F) S_(G)

- (A) **A** = Aqua⁴
 (B) **A** = Air cooled
 (C) **H** = Heat pump
 (D) **08** = Nominal cooling capacity x10 [kW] (ex.: 08 = 80kW)
 (E) **1** = 2 compressors / 2 circuits - **4** = 4 compressors / 2 circuits
 (F) **M** = 2 pipes - **P** = 4 pipes
 (G) **S** = Standard noise level - **L** = Low noise level



Air cooled version

Heat pump units

AQUA ⁴ - 2 pipes version		AAH144MS	AAH164MS	AAH194MS	AAH214MS	AAH244MS	AAH274MS	AAH294MS	AAH324MS
Nominal thermal performances - Cooling mode									
Cooling capacity ⁽¹⁾	kW	139,5	160,8	185,2	207,8	225,6	254,2	281,1	303,3
Total absorbed power ⁽¹⁾	kW	46,5	53,5	64,8	75,4	84,4	90,8	105,8	121,6
EER ⁽¹⁾		3,00	3,00	2,86	2,76	2,67	2,80	2,66	2,50
Nominal water flow rate	l/h	23957	27622	31808	35684	38742	43651	48273	52094
Nominal pressure drop	kPa	49	46	43	53	52	36	43	59
Nominal thermal performances - Heating mode									
Heating capacity ⁽¹⁾	kW	139,9	167,1	194,0	212,7	232,7	256,0	286,5	316,6
Total absorbed power ⁽¹⁾	kW	50,1	58,6	67,7	78,0	84,6	93,1	104,3	117,1
COP ⁽¹⁾		2,79	2,85	2,87	2,73	2,75	2,75	2,75	2,70
Nominal water flow rate	l/h	24306	29047	33719	36966	40439	44497	49796	55014
Nominal pressure drop	kPa	51	51	48	58	57	46	56	67
Seasonal Coefficient of Performance - SCOP ⁽²⁾		3,85	3,55	3,67	3,62	3,68	3,62	3,55	3,55
Seasonal energy efficiency - η_{s,h} ⁽³⁾	%	151,0	139,0	143,8	141,8	144,2	141,8	139,0	139,0
Seasonal efficiency class - L.T. Heat Pump ⁽⁴⁾		A++	A+	A+	A+	A+	A+	A+	A+
Nominal thermal performances - Cooling mode with Domestic Hot Water									
Cooling capacity ⁽⁵⁾	kW	137,4	157	185,9	211,1	234,3	258,9	293,8	324,5
Heating capacity ⁽⁵⁾	kW	179,6	204,2	241,5	275,9	305,3	335,9	381,5	423,8
Total absorbed power ⁽⁵⁾	kW	44,4	49,6	58,6	68,2	74,8	81	92,3	104,6
Nominal water flow rate - Cooling circuit	l/h	23599	26964	31921	36253	40230	44463	50449	55719
Nominal pressure drop - Cooling circuit	kPa	48	44	43	55	56	38	46	67
Nominal water flow rate - Heating circuit	l/h	31206	35480	41974	47944	53055	58376	66300	73660
Nominal pressure drop - Heating circuit	kPa	80	73	71	92	92	75	94	113
Total Efficiency Ratio - TER		7,15	7,28	7,3	7,14	7,22	7,34	7,31	7,15
Acoustic data									
Sound power level	dB(A)	79	85	85	86	86	86	87	87
Sound pressure level ⁽⁶⁾	dB(A)	47	53	53	54	54	54	55	55
Electrical data									
Maximum power	kW	70,0	78,0	91,0	101,7	113,7	128,0	138,8	149,7
Maximum current	A	105	126	148	167	190	215	229	242
Starting current	A	222	241	307	318	382	398	464	472
Short circuit current (automatic breakers / fuse)	kA	6 / 8	6 / 8	6 / 8	6 / 8	6 / 10	6 / 10	6 / 10	6 / 10
Refrigeration circuit									
Number of circuits		2	2	2	2	2	2	2	2
Number of compressors		4	4	4	4	4	4	4	4
Total refrigerant load - R410a	kg	60	63	69	76	76	86	81	76
Hydraulic connection									
Type		Victaulic							
Diameter		3"	3"	3"	4"	4"	4"	4"	4"

(1) EUROVENT certified data, in accordance with standard EN 14511.

Cooling mode: Evaporator water temperature = 12/7°C | Outdoor air temperature = 35°C / **Heating mode:** Condenser water temperature = 40/45°C | Outdoor air temperature = 7°C

(2) SCOP in accordance with standard EN 14825. Heating mode performance is defined for average climate conditions. | (3) Following ecodesign regulation EU 813/2013 on space heaters, normalized leaving water temperature at 7°C, in accordance with standard EN 14825, average climate conditions. | (4) Following energy labelling regulation EU 811/2013 on space heaters. | (5) Cooling at 12/7°C and Heating at 40/45°C. | (6) Sound power level and sound pressure level at 10 m from the unit, in free field, conformity with ISO3744 norm.

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- (D) **08** = Nominal cooling capacity x10 [kW] (ex.: 08 = 80kW)
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Air cooled version

Heat pump units

AQUA ⁴ - 4 pipes version		AAH041PS	AAH051PS	AAH061PS	AAH071PS	AAH081PS	AAH094PS	AAH104PS	AAH124PS
Nominal thermal performances - Cooling mode									
Cooling capacity ⁽¹⁾	kW	47,4	52,2	62,1	68,8	76,4	93,6	103	125,4
Total absorbed power ⁽¹⁾	kW	15,7	18,2	19,5	23,1	26,8	32	37,1	39,8
EER ⁽¹⁾		3,02	2,87	3,18	2,98	2,85	2,92	2,77	3,15
Nominal water flow rate	l/h	8136	8960	10673	11818	13117	16069	17689	21534
Nominal pressure drop	kPa	25	29	29	36	28	32	38	39
Nominal thermal performances - Heating mode									
Heating capacity ⁽¹⁾	kW	50,2	56,3	64,2	72,6	81	98,8	111,3	126,8
Total absorbed power ⁽¹⁾	kW	15,6	17,7	19,5	22,5	25	31	35,2	40,6
COP ⁽¹⁾		3,22	3,19	3,3	3,23	3,24	3,19	3,16	3,12
Nominal water flow rate	l/h	8717	9787	11159	12609	14083	17176	19339	22039
Nominal pressure drop	kPa	28	35	33	41	32	36	45	42
Seasonal Coefficient of Performance - SCOP ⁽²⁾		3,86	3,82	3,98	3,88	3,88	4,38	4,38	4,13
Seasonal energy efficiency - η_{s,h} ⁽³⁾	%	151,4	149,8	156,2	152,2	152,2	172,2	172,2	162,2
Seasonal efficiency class - L.T. Heat Pump ⁽⁴⁾		A++	A+	A++	A++	A++	A++	A++	A++
Nominal thermal performances - Cooling and Heating modes									
Cooling capacity ⁽⁵⁾	kW	47,3	52,9	61,4	69,3	79,6	94,9	106,5	122
Heating capacity ⁽⁵⁾	kW	61,8	69,3	79,5	90,3	103	123,8	139,3	158,3
Total absorbed power ⁽⁵⁾	kW	15,2	17,3	19	22,1	24,6	30,4	34,5	38,2
Nominal water flow rate - Cooling circuit	l/h	8128	9088	10546	11893	13662	16298	18295	20950
Nominal pressure drop - Cooling circuit	kPa	25	30	29	36	30	32	40	38
Nominal water flow rate - Heating circuit	l/h	10734	12051	13813	15685	17892	21511	24211	27515
Nominal pressure drop - Heating circuit	kPa	41	50	48	61	50	55	68	63
Total Efficiency Ratio - TER		7,18	7,07	7,41	7,22	7,41	7,19	7,12	7,33
Acoustic data									
Sound power level	dB(A)	80	80	81	81	81	82	82	84
Sound pressure level ⁽⁶⁾	dB(A)	48	48	49	49	49	50	50	47
Electrical data									
Maximum power	kW	25,0	27,0	32,0	36,0	40,0	49,0	55,0	63,0
Maximum current	A	41	44	51	55	66	81	87	96
Starting current	A	159	162	185	183	191	194	198	220
Short circuit current (automatic breakers / fuse)	kA	2,5 / 2,5	2,5 / 2,5	2,5 / 2,5	2,5 / 2,5	2,5 / 2,5	6 / 8	6 / 8	6 / 8
Refrigeration circuit									
Number of circuits		2	2	2	2	2	2	2	2
Number of compressors		2	2	2	2	2	4	4	4
Total refrigerant load - R410a	kg	21	21	26	28	27	36	37	62
Hydraulic connection									
Type		Victaulic							
Diameter		2"	2"	2"	2"	2"	2 1/2"	2 1/2"	3"

(1) EUROVENT certified data, in accordance with standard EN 14511.

Cooling mode: Evaporator water temperature = 12/7°C | Outdoor air temperature = 35°C / **Heating mode:** Condenser water temperature = 40/45°C | Outdoor air temperature = 7°C
 (2) SCOP in accordance with standard EN 14825. Heating mode performance is defined for average climate conditions. | (3) Following ecodesign regulation EU 813/2013 on space heaters, normalized leaving water temperature at 7°C, in accordance with standard EN 14825, average climate conditions. | (4) Following energy labelling regulation EU 811/2013 on space heaters. | (5) Cooling at 12/7°C and Heating at 40/45°C. | (6) Sound power level and sound pressure level at 10 m from the unit, in free field, conformity with ISO3744 norm.

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 (E) **1** = 2 compressors / 2 circuits - **4** = 4 compressors / 2 circuits
 (F) **M** = 2 pipes - **P** = 4 pipes
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Air cooled version

Heat pump units

AQUA ⁴ - 4 pipes version		AAH144PS	AAH164PS	AAH194PS	AAH214PS	AAH244PS	AAH274PS	AAH294PS	AAH324PS
Nominal thermal performances - Cooling mode									
Cooling capacity ⁽¹⁾	kW	139,5	157,4	179,9	202,8	220,1	249,1	274,2	295,7
Total absorbed power ⁽¹⁾	kW	46,5	52,7	64,8	75,1	84,7	89,5	105,6	122,1
EER ⁽¹⁾		3	2,99	2,78	2,7	2,6	2,78	2,6	2,42
Nominal water flow rate	l/h	23957	27033	30897	34835	37796	42773	47089	50783
Nominal pressure drop	kPa	49	44	41	51	50	35	41	56
Nominal thermal performances - Heating mode									
Heating capacity ⁽¹⁾	kW	143,1	169,9	196,8	216,6	236,5	260,3	291,7	320,7
Total absorbed power ⁽¹⁾	kW	46,7	52,2	60,7	70	76,2	83,5	94,2	105,8
COP ⁽¹⁾		3,07	3,25	3,24	3,09	3,1	3,12	3,1	3,03
Nominal water flow rate	l/h	24867	29527	34200	37650	41109	45245	50689	55739
Nominal pressure drop	kPa	53	53	49	60	58	48	58	68
Seasonal Coefficient of Performance - SCOP ⁽²⁾		4,16	4,19	4,22	4,14	4,16	4,2	4,01	4
Seasonal energy efficiency - η_{s,h} ⁽³⁾	%	163,4	164,6	165,8	162,6	163,4	165	157,4	157
Seasonal efficiency class - L.T. Heat Pump ⁽⁴⁾		A++	A++	A++	A++	A++	A++	A++	A++
Nominal thermal performances - Cooling and Heating modes									
Cooling capacity ⁽⁵⁾	kW	137,4	157	185,9	211,1	234,3	258,9	293,8	324,5
Heating capacity ⁽⁵⁾	kW	179,6	204,2	241,5	275,9	305,3	335,9	381,5	423,8
Total absorbed power ⁽⁵⁾	kW	44,4	49,6	58,6	68,2	74,8	81	92,3	104,6
Nominal water flow rate - Cooling circuit	l/h	23599	26964	31921	36253	40230	44463	50449	55719
Nominal pressure drop - Cooling circuit	kPa	48	44	43	55	56	38	46	67
Nominal water flow rate - Heating circuit	l/h	31206	35480	41974	47944	53055	58376	66300	73660
Nominal pressure drop - Heating circuit	kPa	80	73	71	92	92	75	94	113
Total Efficiency Ratio - TER		7,15	7,28	7,3	7,14	7,22	7,34	7,31	7,15
Acoustic data									
Sound power level	dB(A)	84	85	85	86	86	86	87	87
Sound pressure level ⁽⁶⁾	dB(A)	47	53	53	54	54	54	55	55
Electrical data									
Maximum power	kW	70,0	78,0	91,0	101,7	113,7	128,0	138,8	149,7
Maximum current	A	105	126	148	167	190	215	229	242
Starting current	A	222	241	307	318	382	398	464	472
Short circuit current (automatic breakers / fuse)	kA	6 / 8	6 / 8	6 / 8	6 / 8	6 / 10	6 / 10	6 / 10	6 / 10
Refrigeration circuit									
Number of circuits		2	2	2	2	2	2	2	2
Number of compressors		4	4	4	4	4	4	4	4
Total refrigerant load - R410a	kg	59	63	69	77	79	76	80	82
Hydraulic connection									
Type		Victaulic							
Diameter		3"	3"	3"	4"	4"	4"	4"	4"

(1) EUROVENT certified data, in accordance with standard EN 14511.

Cooling mode: Evaporator water temperature = 12/7°C | Outdoor air temperature = 35°C / **Heating mode:** Condenser water temperature = 40/45°C | Outdoor air temperature = 7°C

(2) SCOP in accordance with standard EN 14825. Heating mode performance is defined for average climate conditions. | (3) Following ecodesign regulation EU 813/2013 on space heaters, normalized leaving water temperature at 7°C, in accordance with standard EN 14825, average climate conditions. | (4) Following energy labelling regulation EU 811/2013 on space heaters. | (5) Cooling at 12/7°C and Heating at 40/45°C. | (6) Sound power level and sound pressure level at 10 m from the unit, in free field, conformity with ISO3744 norm.



Air cooled version

Heat pump units

AQUA ⁴		AAH041	AAH051	AAH061	AAH071	AAH081	AAH094	AAH104	AAH124	AAH144	AAH164
A	mm	2440		2792			3540		3538		
B		1183		1183			1183		1653		
C		1735		1735			1679		1846		
Weight of standard units											
Basic unit (2 pipes)	kg	680	690	800	810	850	1190	1210	1550	1570	1690
Basic unit (4 pipes)		690	700	810	820	860	1210	1230	1550	1570	1710

AQUA ⁴		AAH194	AAH214	AAH244	AAH274	AAH294	AAH324	
A	mm	3538			4206			
B		1653			1653			
C		2330			2330			
Weight of standard units								
Basic unit (2 pipes)	kg	1710	1890	1910	2260	2290	2320	
Basic unit (4 pipes)		1730	1920	1940	2290	2320	2350	

