

Air Cooled Heat Pumps AQWH 1404-2406

 360-602 kW

 418-702 kW

 410A

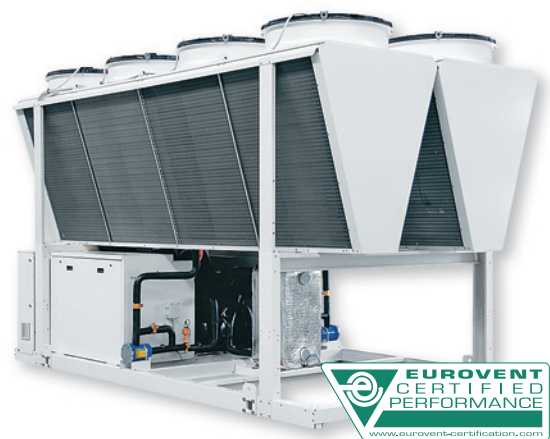
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Technical feature

- 5 sizes.
- Cooling capacity from 360 to 602 kW.
- Heating capacity from 418 to 702 kW.
- 4 versions:
 - STD (Standard);
 - HSE (High Seasonal Efficiency);
 - HT (High Temperature);
 - HPF (High Pressure Fans).
- 3 acoustic versions:
 - BLN (Basic Low Noise);
 - LN (Low Noise);
 - ELN (Extra Low Noise).
- Two refrigerant circuit.
- Scroll compressors.
- Electronic expansion valve.
- Inverter fans (standard HSE and HT).

Accessories and options

- Hydrokit with 1 or 2 pumps with or without buffer tank.
- Desuperheater and total heat recovery.
- Coils treatments.
- Unit protection grilles.
- Sofstart.
- BMS interface.
- Overload protection for compressors.
- Automatic circuit breaker.
- Flow switch.
- Differential pressure switch as standard.
- Water filter.
- Fan speed control (-18°C).
- Power factor corrector capacitors.
- Sequence phases control as standard.
- Mechanical gauges kit.
- Compressors acoustic box as standard.
- Compressors jackets.



Operating limit

AQWH			1404		1604		1806		2106		2406	
			Min	Max	Min	Max	Min	Max	Min	Max	Min	Max
Leaving water temperature (cooling)	Water	°C	from +6 to +15									
	Water + glycol	°C	from -8 to +15									
	Δ T	K	from 3 to 8									
Leaving water temperature (heating)		°C	from 30 to 50									
Air temperature	BLN	°C	from -5 to +44	from 0 to +44	from 0 to +44	from 0 to +44	from 0 to +44	from 0 to +44	from 0 to +44	from 0 to +44	from 0 to +44	
	LN	°C	from -5 to +42	from 0 to +42	from 0 to +42	from 0 to +42	from 0 to +42	from 0 to +42	from 0 to +42	from 0 to +42	from 0 to +42	
	ELN	°C	from -18 to +40	from -18 to +40	from -18 to +40	from -18 to +40	from -18 to +40	from -18 to +40	from -18 to +40	from -18 to +40	from -18 to +40	
	HT	°C	from -18 to +45	from -18 to +45	from -18 to +45	from -18 to +45	from -18 to +45	from -18 to +45	from -18 to +45	from -18 to +45	from -18 to +45	
	Heating	°C	from -10 to +20									
External static pressure	Standard fans	Pa	0									
	Inverter fans SIF	Pa	< 120									

Technical feature AQWH STD/HSE/HPF 1404-2406 BLN

Model AQWH STD/HSE/HPF BLN		1404	1604	1806	2106	2406
Cooling capacity (1)	kW	360,2	401,7	472,2	537,0	601,9
Power input (3)	kW	119,0	134,0	156,0	178,5	201,0
GROSS EER		2,77	2,71	2,77	2,71	2,70
GROSS ESEER		3,90	3,80	3,89	3,80	3,80
GROSS EER HSE		2,80	2,73	2,79	2,73	2,73
GROSS ESEER HSE		4,03	3,94	4,02	3,94	3,93
EER		2,66	2,67	2,68	2,68	2,68
ESEER		3,47	3,54	3,55	3,59	3,59
EER HSE		2,69	2,70	2,71	2,71	2,71
ESEER HSE		3,57	3,69	3,73	3,79	3,73
Heating capacity (2)	kW	418,1	467,6	545,7	623,9	702,0
Power input (3)	kW	116,0	130,0	151,8	173,4	195,0
GROSS COP		3,60	3,60	3,59	3,60	3,60
GROSS COP HSE		3,24	3,27	3,25	3,29	3,27
COP		3,17	3,21	3,18	3,23	3,18
COP HSE		3,21	3,24	3,22	3,26	3,22
Number of refrigerant circuits		2	2	2	2	2
Part load steps	%	21-50-71-100	25-50-75-100	17-33-50-67-83-100	15-29-43-62-81-100	17-33-50-67-83-100
Refrigerant						
Type		HFC 410A				
Charge	kg	47+47	52+52	61+61	78+61	78+78
Compressor						
Qty		4	4	6	6	6
Type		Scroll				
Evaporator						
Qty		1	1	1	1	1
Type		Plate exchanger AISI 316				
Water flow	l/h	61.950	69.092	81.210	92.371	103.532
Connection type		Victaulic				
Inlet/outlet diameter	inch	4"	4"	4"	4"	4"
Condenser						
Qty		4	4	4	4	4
Frontal surface	mm ²	4,4	4,4	5,6	6,7	6,7
Fan						
Qty		8	8	10	10	12
Speed	rpm/min	880	880	880	880	880
Air flow	m ³ /h	181.000	181.000	200.000	214.500	242.000
Power input	kW	14,4	14,4	18,0	18,0	21,6
Power input HSE	kW	13,0	13,0	16,3	16,3	19,6
Static head pressure	Pa	from 0 to 120**				
Weight						
Shipping	kg	2.896	3.018	3.967	4.083	4.465
Operating	kg	2.931	3.056	4.007	4.123	4.507
Dimensions						
Length	mm	4.000	4.000	5.000	6.000	6.000
Width	mm	2.200	2.200	2.200	2.200	2.200
Height	mm	2.550	2.550	2.550	2.550	2.550
Acoustical data						
Sound power level (4)	db(A)	97	97	98	98	99
Sound pressure level (5)	db(A)	65	65	66	66	67

** For version with High Pressure Fans (HPF).

(1) Data based on 7°C leaving chilled water temperature and 35°C ambient air temperature.

(2) Data based on 45°C leaving hot water temperature and 7°C ambient air temperature.

(3) Only compressors.

(4) Acoustic data are at full load. Sound power values in accordance with ISO 3744 and Eurovent 8/1.

(5) Pressure power values in accordance with ISO 3744.

GROSS EER-COP: efficiency in cooling-heating mode without considering the available head of the pump or the pressure drop of the heat exchanger.

EER-COP: efficiency in cooling-heating unit according to EN14511-2011.

Technical feature AQWH STD/HSE 1404-2406 LN

Model AQWH STD/HSE LN		1404	1604	1806	2106	2406
Cooling capacity (1)	kW	347,8	388,3	457,3	520,2	582,0
Power input (3)	kW	124,0	139,0	163,0	186,0	209,0
GROSS EER		2,65	2,61	2,65	2,61	2,60
GROSS ESEER		3,86	3,81	3,86	3,81	3,80
GROSS EER HSE		2,70	2,67	2,70	2,67	2,66
GROSS ESEER HSE		4,03	3,98	4,03	3,99	3,97
EER		2,57	2,58	2,58	2,59	-
ESEER		3,57	3,63	3,68	3,70	-
EER HSE		2,63	2,63	2,64	2,64	-
ESEER HSE		3,74	3,85	3,94	3,95	-
Heating capacity (2)	kW	396,4	443,9	517,1	591,2	665,4
Power input (3)	kW	115,0	130,0	152,0	173,0	194,0
GROSS COP		3,45	3,41	3,13	3,42	3,43
GROSS COP HSE		3,26	3,25	3,23	3,26	3,26
COP		3,15	3,15	3,13	3,16	3,13
COP HSE		3,22	3,22	3,20	3,23	3,22
Number of refrigerant circuits		2	2	2	2	2
Part load steps	%	21-50-71-100	25-50-75-100	17-33-50-67-83-100	15-29-43-62-81-100	17-33-50-67-83-100
Refrigerant						
Type		HFC 410A				
Charge	kg	47+47	52+52	61+61	78+61	78+78
Compressor						
Qty		4	4	6	6	6
Type		Scroll				
Evaporator						
Qty		1	1	1	1	1
Type		Plate exchanger AISI 316				
Water flow	l/h	59.821	66.787	78.655	89.474	100.104
Connection type		Victaulic				
Inlet/outlet diameter	inch	4"	4"	4"	4"	4"
Condenser						
Qty		4	4	4	4	4
Frontal surface	mm ²	4,4	4,4	5,6	6,7	6,7
Fan						
Qty		8	8	10	10	12
Speed	rpm/min	700	700	700	700	700
Air flow	m ³ /h	142.000	142.000	153.000	165.000	183.000
Power input	kW	9,6	9,6	12,0	12,0	14,4
Power input HSE	kW	6,6	6,6	8,2	8,2	9,8
Static head pressure	Pa	0				
Weight						
Shipping	kg	2.896	3.018	3.967	4.083	4.465
Operating	kg	2.931	3.056	4.007	4.123	4.507
Dimensions						
Length	mm	4.000	4.000	5.000	6.000	6.000
Width	mm	2.200	2.200	2.200	2.200	2.200
Height	mm	2.550	2.550	2.550	2.550	2.550
Acoustical data						
Sound power level (4)	db(A)	91	91	92	92	93
Sound pressure level (5)	db(A)	59	59	60	60	61

(1) Data based on 7°C leaving chilled water temperature and 35°C ambient air temperature.

(2) Data based on 45°C leaving hot water temperature and 7°C ambient air temperature.

(3) Only compressors.

(4) Acoustic data are at full load. Sound power values in accordance with ISO 3744 and Eurovent 8/1.

(5) Pressure power values in accordance with ISO 3744.

GROSS EER-COP: efficiency in cooling-heating mode without considering the available head of the pump or the pressure drop of the heat exchanger.

EER-COP: efficiency in cooling-heating unit according to EN14511-2011.

Technical feature AQWH STD/HSE 1404-2406 ELN

Model AQWH STD/HSE ELN		1404	1604	1806	2106	2406
Cooling capacity (1)	kW	330,2	367,7	433,6	492,3	551,1
Power input (3)	kW	132,0	148,0	174,0	198,0	222,0
GROSS EER		2,37	2,33	2,36	2,33	2,33
GROSS ESEER		3,59	3,53	3,57	3,52	3,52
GROSS EER HSE		2,47	2,44	2,46	2,44	2,44
GROSS ESEER HSE		3,82	3,78	3,80	3,78	3,78
EER		2,30	2,31	2,31	2,32	2,32
ESEER		3,28	3,38	3,48	3,49	3,49
EER HSE		2,42	2,42	2,42	2,42	2,42
ESEER HSE		3,51	3,61	3,69	3,67	3,67
Heating capacity (2)	kW	379,8	426,4	496,3	567,6	639,0
Power input (3)	kW	115,0	129,0	151,8	172,8	193,8
GROSS COP		3,30	3,31	3,05	3,28	3,30
GROSS COP HSE		3,23	3,24	3,20	3,23	3,23
COP		3,02	3,05	3,01	3,04	-
COP HSE		3,20	3,21	3,17	3,19	-
Number of refrigerant circuits		2	2	2	2	2
Part load steps	%	21-50-71-100	25-50-75-100	17-33-50-67-83-100	15-29-43-62-81-100	17-33-50-67-83-100
Refrigerant						
Type		HFC 410A				
Charge	kg	47+47	52+52	61+61	78+61	78+78
Compressor						
Qty		4	4	6	6	6
Type		Scroll				
Evaporator						
Qty		1	1	1	1	1
Type		A piastre AISI 316				
Water flow	l/h	56.794	63.244	74.579	84.675	94.789
Connection type		Victaulic				
Inlet/outlet diameter	inch	4"	4"	4"	4"	4"
Condenser						
Qty		4	4	4	4	4
Frontal surface	mm ²	4,4	4,4	5,6	6,7	6,7
Fan						
Qty		8	8	10	10	12
Speed	rpm/min	550	550	550	550	550
Air flow	m ³ /h	112.000	112.000	120.000	130.000	144.000
Power input	kW	9,6	9,6	12,0	12,0	14,4
Power input HSE	kW	2,6	2,6	3,2	3,2	3,8
Static head pressure	Pa	0				
Weight						
Shipping	kg	2.896	3.018	3.967	4.083	4.465
Operating	kg	2.931	3.056	4.007	4.123	4.507
Dimensions						
Length	mm	4.000	4.000	5.000	6.000	6.000
Width	mm	2.200	2.200	2.200	2.200	2.200
Height	mm	2.550	2.550	2.550	2.550	2.550
Acoustical data						
Sound power level (4)	db(A)	88	88	89	89	90
Sound pressure level (5)	db(A)	56	56	57	57	58

(1) Data based on 7°C leaving chilled water temperature and 35°C ambient air temperature.

(2) Data based on 45°C leaving hot water temperature and 7°C ambient air temperature.

(3) Only compressors.

(4) Acoustic data are at full load. Sound power values in accordance with ISO 3744 and Eurovent 8/1.

(5) Pressure power values in accordance with ISO 3744.

GROSS EER-COP: efficiency in cooling-heating mode without considering the available head of the pump or the pressure drop of the heat exchanger.

EER-COP: efficiency in cooling-heating unit according to EN14511-2011.

Technical feature AQWH HT 1404-2406

Model AQWH HT		1404	1604	1806	2106	2406
Cooling capacity (1)	kW	363,8	405,7	477,0	542,3	608,0
Power input (3)	kW	117,8	132,7	154,4	176,7	199,0
GROSS EER		2,73	2,64	2,72	2,64	2,64
Heating capacity (2)	kW	422,0	473,0	551,0	630,0	709,0
Power input (3)	kW	114,8	128,7	150,3	171,7	193,0
GROSS COP		3,11	3,16	3,13	3,19	3,16
Number of refrigerant circuits		2	2	2	2	2
Part load steps	%	21-50-71-100	25-50-75-100	17-33-50-67-83-100	15-29-43-62-81-100	17-33-50-67-83-100
Refrigerant						
Type		HFC 410A				
Charge	kg	47+47	52+52	61+61	78+61	78+78
Compressor						
Qty		4	4	6	6	6
Type		Scroll				
Evaporator						
Qty		1	1	1	1	1
Type		Plate exchanger AISI 316				
Water flow	l/h	62.573,6	69.780	82.044	93.275	104576
Connection type		Victaulic				
Inlet/outlet diameter	inch	4"	4"	4"	4"	4"
Condenser						
Qty		4	4	4	4	4
Frontal surface	mm ²	4,4	4,4	5,6	6,7	6,7
Fan						
Qty		8	8	10	10	12
Speed	rpm/min	1.100	1.100	1.100	1.100	1.100
Air flow	m ³ /h	220.000	220.000	244.000	278.000	295.000
Power input	kW	20,8	20,8	26,0	26,0	31,2
Static head pressure HSE	Pa	0				
Weight						
Shipping	kg	2.896	3.018	3.967	4.083	4.465
Operating	kg	2.931	3.056	4.007	4.123	4.507
Dimensions						
Length	mm	4.000	4.000	5.000	6.000	6.000
Width	mm	2.200	2.200	2.200	2.200	2.200
Height	mm	2.550	2.550	2.550	2.550	2.550
Acoustical data						
Sound power level (4)	db(A)	103	103	104	104	105
Sound pressure level (5)	db(A)	71	71	72	72	73

(1) Data based on 7°C leaving chilled water temperature and 35°C ambient air temperature.

(2) Data based on 45°C leaving hot water temperature and 7°C ambient air temperature.

(3) Only compressors.

(4) Acoustic data are at full load. Sound power values in accordance with ISO 3744 and Eurovent 8/1.

(5) Pressure power values in accordance with ISO 3744.

GROSS EER-COP: efficiency in cooling-heating mode without considering the available head of the pump or the pressure drop of the heat exchanger.

EER-COP: efficiency in cooling-heating unit according to EN14511-2011.