Air Cooled Heat Pump AQVH 85–140

81–129 kW | 92–146 kW | HFC 410A | Scroll

Technical feature

- 6 sizes.
- Cooling capacity from 81 to 137 kW.
- Heating capacity from 92 to 146 kW.
- 4 versions:
  STD (Standard);
  HSE (High Seasonal Efficiency);
  HT (High Temperature);
  HPF (High Pressure Fans).
- 2 acoustic versions:
  BLN (Basic Low Noise) and ELN (Extra Low Noise).
- Two refrigerant circuit.
- Scroll compressors.
- Microprocessor control.
- Low operating water content in the plant.
- Electronic expansion valve as standard.

Accessories and options

- Hydrokit with 1 or 2 pumps with ot without buffer tank.
- Desuperheater.
- Coils treatments.
- Unit protection grilles.
- Sofstart.
- BMS interface.
- Overload protection for compressors.
- Automatic circuit breaker.
- Fan speed control.
- Flow switch (standard).
- Mechanical gauges kit.
- Pressure switch.
- Water filter.
- Power factor corrector capacitors.
- Compressors acoustic box as standard.
- Sequence phases control as standard.
- Compressors jackets.
- Electric heater inside buffer tank for additional heating.

Operating limit

AQVH			Min	Max
Leaving water temperature (cooling)	Water	°C	+5	+18
	Water with glycol	°C	-8	+18
Leaving water temperature (heating)		°C	+20	+55
Air temperature (heating)		°C	-15	+20
Air temperature (cooling)	BLN	°C	+5	+47
	ELN	°C	-18	+44
	HT	°C	-18	+50 (85-115) +47 (125-140)
External static pressure	Standard fans	Pa	0	
	High Pressure Fans (HPF)	Pa	< 120	

Technical feature AQVH 85–140 BLN

Model AQVH BLN		85	95	115	125	140	160
Cooling capacity (1)	kW	81,2	90,2	99,2	107,2	116,2	129,6
Power input (2)	kW	25,1	29,1	31,8	34,5	38,0	42,6
GROSS EER		2,99	2,89	2,93	2,93	2,8	2,82
GROSS ESEER		4,18	4,04	4,10	4,10	3,93	3,95
GROSS EER HSE		3,09	2,97	3,01	3,00	2,87	2,88
GROSS ESEER HSE		4,54	4,37	4,42	4,41	4,22	4,23
EER		2,95	2,85	2,89	2,90	2,78	2,78
ESEER		3,78	3,81	3,86	3,96	3,69	3,77
EER HSE		3,05	2,94	2,97	2,96	2,84	2,84
ESEER HSE		4,21	4,14	4,27	4,28	3,96	4,03
Heating capacity (3)	kW	91,5	102,4	110,7	118,6	133,9	146,3
Power input	kW	24,4	28,0	30,0	32,7	37,1	40,8
GROSS COP		3,45	3,40	3,45	3,41	3,31	3,31
GROSS COP HSE		3,57	3,50	3,55	3,50	3,39	3,39
COP		3,39	3,23	3,29	3,26	3,13	3,14
COP HSE		3,54	3,47	3,52	3,47	3,36	3,36
Number of refrigerant circuits		2	2	2	2	2	2
Part load steps	%	0-25-50-75-100	0-25-50-75-100	0-24-47-74-100	0-25-50-75-100	0-22-43-72-100	0-25-50-75-100
Power supply	V/ph/Hz	400/3/50					
Startup type		Direct					
Refrigerant							
Type		HFC 410A					
Charge	kW	21,1	23,4	25,8	27,9	30,2	33,7
Compressor							
Qty		4	4	4	4	4	4
Type		Scroll					
Crankcase heater	W	90	90	90	90	90	90
Evaporator							
Qty		1	1	1	1	1	1
Type		Plate exchanger AISI 316					
Water flow	l/h	13.967	15.508	17.060	18.431	19.987	22.288
Antifreeze heater	W	130	130	130	130	130	130
Connection type		Male gas threaded					
Inlet/outlet diameter	inch	2½"	2½"	2½"	2½"	2½"	2½"
Condenser							
Qty		2	2	2	2	2	2
Frontal surface	mm	2.000x1.200	2.000x1.200	2.000x1.200	2.000x1.200	2.600x1.200	2.600x1.200
Fan							
Qty		2	2	2	2	2	2
Air flow	m³/h	34.700	34.700	34.050	33.400	44.500	43.200
Speed	rpm/min	690	690	690	690	900	900
Power input	kW	2,1	2,1	2,1	2,1	3,4	3,4
Weight							
Shipping	kg	1.065	1.080	1.122	1.153	1.196	1.270
Operating	kg	1.090	1.105	1.149	1.180	1.227	1.301
Dimension							
Length	mm	2.555	2.555	2.555	2.555	3.155	3.155
Width	mm	1.095	1.095	1.095	1.095	1.095	1.095
Height	mm	2.185	2.185	2.185	2.185	2.185	2.185
Acoustical data							
Sound power level (4)	dB(A)	85	85	85	85	89	89
Sound pressure level (5)	dB(A)	53	53	53	53	57	57
Sound power level HSE (3)	dB(A)	92	92	92	92	95	95
Sound pressure level HSE (4)	dB(A)	60	60	60	60	63	63

(1) Data based on 7°C leaving chilled water temperature and 35°C ambient air temperature.
(2) Compressors only.
(3) Data based on 45°C leaving hot water temperature and 7°C ambient air temperature.
(4) Sound power values in accordance with ISO 3744.
(5) The sound pressure is calculated from a distance of 10 m.
GROSS EER: efficiency in cooling mode without considering the available head of the pump or the pressure drop of the heat exchanger.
EER: efficiency in cooling unit according to EN14511-2011.

Technical feature AQVH 85–140 ELN

Model AQVH ELN		85	95	115	125	140	160
Cooling capacity (1)	kW	78,5	86,8	95,1	102,5	112,5	125,0
Power input (2)	kW	26,6	31,2	34,1	37,1	40,8	45,1
GROSS EER		2,76	2,63	2,65	2,64	2,62	2,65
GROSS ESEER		3,87	3,69	3,71	3,69	3,67	3,71
GROSS EER HSE		2,88	2,73	2,74	2,72	2,68	2,70
GROSS ESEER HSE		4,24	4,02	4,03	4,00	3,94	3,97
EER		2,73	2,60	2,62	2,61	2,59	2,62
ESEER		3,57	3,57	3,61	3,52	3,50	3,59
EER HSE		2,84	2,70	2,71	2,69	2,65	2,67
ESEER HSE		4,07	3,94	3,94	3,97	3,72	3,85
Heating capacity (3)	kW	89,5	99,9	107,8	115,3	129,4	142,0
Power input	kW	24,4	28,0	29,9	32,6	36,8	40,4
GROSS COP		3,42	3,35	3,40	3,35	3,33	3,34
COP		3,37	3,20	3,24	3,20	3,18	3,17
COP HSE		3,55	3,46	3,50	3,45	3,38	3,38
Number of refrigerant circuits		2	2	2	2	2	2
Part load steps	%	0-25-50-75-100	0-25-50-75-100	0-24-47-74-100	0-25-50-75-100	0-22-43-72-100	0-25-50-75-100
Power supply	V/ph/Hz	400/3/50					
Startup type		Direct					
Refrigerant							
Type		HFC 410A					
Charge	kW	20,4	22,6	24,7	26,7	29,2	32,5
Compressor							
Qty		4	4	4	4	4	4
Type		Scroll					
Crankcase heater	W	90	90	90	90	90	90
Evaporator							
Qty		1	1	1	1	1	1
Type		Plate exchanger AISI 316					
Water flow	l/h	13.496	14.924	16.355	17.632	19.349	21.508
Antifreeze heater	W	130	130	130	130	130	130
Connection type		Male gas threaded					
Inlet/outlet diameter	inch	2½"	2½"	2½"	2½"	2½"	2½"
Condenser							
Qty		2	2	2	2	2	2
Frontal surface	mm	2.000x1.200	2.000x1.200	2.000x1.200	2.000x1.200	2.600x1.200	2.600x1.200
Fan							
Qty		2	2	2	2	2	2
Air flow	m^3/h	25.800	25.800	25.300	24.800	36.900	35.800
Speed	rpm/min	500	500	500	500	690	690
Power input	kW	1,8	1,8	1,8	1,8	2,1	2,1
Weight							
Shipping	kg	1.095	1.110	1.152	1.183	1.226	1.300
Operating	kg	1.120	1.135	1.179	1.210	1.257	1.331
Dimensions							
Length	mm	2.555	2.555	2.555	2.555	3.155	3.155
Width	mm	1.095	1.095	1.095	1.095	1.095	1.095
Height	mm	2.185	2.185	2.185	2.185	2.185	2.185
Acoustical data							
Sound power level (4)	dB(A)	82	82	82	82	86	86
Sound pressure level (5)	dB(A)	50	50	50	50	54	54

(1) Data based on 7°C leaving chilled water temperature and 35°C ambient air temperature.
(2) Compressors only.
(3) Data based on 45°C leaving hot water temperature and 7°C ambient air temperature.
(4) Sound power values in accordance with ISO 3744.
(5) The sound pressure is calculated from a distance of 10 m.
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 AQVH 85–140 HT

Modello AQVH HT		85	95	115	125	140	160
Cooling capacity (1)	kW	83,6	93,4	103,8	111,7	118,0	132,1
Power input (2)	kW	23,6	27,2	29,5	32,0	37,0	41,2
GROSS EER		2,96	2,94	3,04	3,05	2,83	2,88
GROSS ESEER		4,14	4,12	4,25	4,27	3,97	4,03
Heating capacity (3)	kW	93,5	104,9	113,7	121,9	135,6	148,3
Power input	kW	24,5	28,1	30,1	32,8	37,2	40,9
GROSS COP		3,22	3,21	3,28	3,26	3,25	3,26
Number of refrigerant circuits		2	2	2	2	2	2
Part load steps	%	0-25-50-75-100	0-25-50-75-100	0-24-47-74-100	0-25-50-75-100	0-22-43-72-100	0-25-50-75-100
Power supply	V/ph/Hz	400/3/50					
Startup type		Direct					
Refrigerant							
Type		HFC 410A					
Charge	kW	22	24	27	29	31	34
Compressor							
Qty		4	4	4	4	4	4
Type		Scroll					
Crankcase heater	W	90	90	90	90	90	90
Evaporator							
Qty		1	1	1	1	1	1
Type		Plate exchanger AISI 316					
Water flow	l/h	14.371	16.073	17.847	19.219	20.291	22.718
Antifreeze heater	W	130	130	130	130	130	130
Connection type		Male gas threaded					
Inlet/outlet diameter	inch	2½"	2½"	2½"	2½"	2½"	2½"
Condenser							
Qty		2	2	2	2	2	2
Frontal surface	mm	2.000x1.200	2.000x1.200	2.000x1.200	2.000x1.200	2.600x1.200	2.600x1.200
Fan							
Qty		2	2	2	2	2	2
Air flow	m^3/h	50.700	50.700	49.700	48.700	52.700	51.700
Speed	rpm/min	1.130	1.130	1.130	1.130	1.130	1.130
Power input	kW	4,6	4,6	4,6	4,6	4,6	4,6
Weight							
Shipping	kg	1.065	1.080	1.122	1.153	1.196	1.270
Operating	kg	1.090	1.105	1.149	1.180	1.227	1.301
Dimensions							
Length	mm	2.555	2.555	2.555	2.555	3.155	3.155
Width	mm	1.095	1.095	1.095	1.095	1.095	1.095
Height	mm	2.185	2.185	2.185	2.185	2.185	2.185
Acoustical data							
Sound power level (4)	dB(A)	95	95	95	95	95	95
Sound pressure level (5)	dB(A)	63	63	63	63	63	63

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