

# Air Cooled Heat Pump

## AQVH 85-140



81-130 kW



Air cooled



Scroll



87-144 kW



Plate



HFC 410A

### Technical feature

- 6 sizes
- Cooling capacity from 81,0 to 129,6 kW
- Heating capacity from 87,0 to 143,6 kW
- 4 versions:
  - STD (Standard)
  - HSE (High Seasonal Efficiency)
  - HT (High Temperature)
  - HPF (High Pressure Fans)
- 2 acoustic versions:
  - BLN (Basic Low Noise)
  - ELN (Extra Low Noise)
- Two refrigerant circuit
- Scroll compressors
- Microprocessor control
- Low operating water content in the plant
- Electronic expansion valve as standard
- "Polar" version for extreme conditions



### Accessories and options

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



### Operating limit (to be confirmed following selection software issue)

AQVH 85-140			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	-10	+20
Air temperature (heating) Polar Version		°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		85	95	105	115	125	140
Cooling capacity <sup>1</sup>	kW	81,0	89,9	98,9	106,7	115,6	129,6
Power input <sup>1</sup>	kW	27,5	31,5	34,2	36,8	41,6	46,6
EER <sup>1</sup>		2,95	2,85	2,89	2,90	2,78	2,78
Energy efficiency class		B	C	B	C	C	C
ESEER		3,78	3,81	3,86	3,96	3,69	3,77
EER HSE <sup>1</sup>		3,05	2,94	2,97	2,96	2,84	2,84
Energy efficiency class		B	B	B	B	C	C
ESEER HSE <sup>1</sup>		4,21	4,14	4,27	4,28	3,96	4,03
Heating capacity <sup>2</sup>	kW	87,0	100,4	108,3	116,4	131,5	143,6
Power input <sup>2</sup>	kW	25,7	31,1	32,9	35,7	42,0	45,7
COP <sup>2</sup>		3,39	3,23	3,29	3,26	3,13	3,14
Energy efficiency class		A	A	A	A	B	B
COP HSE <sup>2</sup>		3,54	3,47	3,52	3,47	3,36	3,36
Energy efficiency class		A	A	A	A	A	A
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					
<b>Refrigerant</b>							
Type		HFC 410A					
Number of refrigerant circuits		2	2	2	2	2	2
<b>Compressor</b>							
Qty		4	4	4	4	4	4
Type		Scroll					
Crankcase heater	W	90	90	90	90	90	90
<b>Evaporator</b>							
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"
<b>Condenser</b>							
Qty		2	2	2	2	2	2
Total coil face area per coil	mm	2,4	2,4	2,4	2,4	3,1	3,1
<b>Fan</b>							
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
<b>Weight</b>							
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
<b>Dimension</b>							
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
<b>Acoustical data</b>							
Sound power level <sup>3</sup>	dB(A)	84	84	84	84	88	88
Sound pressure level <sup>4</sup>	dB(A)	52	52	52	52	56	56
Sound power level HPF <sup>3</sup>	dB(A)	92	92	92	92	95	95
Sound pressure level HPF <sup>4</sup>	dB(A)	60	60	60	60	63	63

<sup>1</sup> Data refers to 7°C leaving chilled water temperature and 35°C condenser air temperature, according EN14511 standard.

<sup>2</sup> Data refers to 45°C leaving warm water temperature and 7°C ambient coil air temperature with 87% R.H., according EN14511 standard.

<sup>3</sup> Sound levels are at fully loaded conditions. Sound power level values refers to ISO 3744 standard.

<sup>4</sup> Sound pressure levels refer to ISO 3744 standard, parallelepiped shape.

## Technical feature

AQVH 85-140 ELN		85	95	105	115	125	140
Cooling capacity <sup>1</sup>	kW	78,3	86,5	94,8	102,7	112,7	124,6
Power input <sup>1</sup>	kW	28,7	33,3	36,2	39,4	43,5	47,6
EER <sup>1</sup>		2,73	2,60	2,62	2,61	2,59	2,62
Energy Efficiency class		C	D	D	D	D	D
ESEER		3,57	3,57	3,61	3,52	3,50	3,59
EER HSE <sup>1</sup>		2,84	2,70	2,71	2,69	2,65	2,67
Energy Efficiency class		C	C	C	D	D	D
ESEER HSE <sup>1</sup>		4,07	3,94	3,94	3,97	3,72	3,85
Heating capacity <sup>2</sup>	kW	85,2	97,8	105,3	113,4	127,4	139,5
Power input <sup>2</sup>	kW	25,3	30,6	32,5	35,4	40,1	44,0
COP <sup>2</sup>		3,37	3,20	3,24	3,20	3,18	3,17
Energy Efficiency class		A	A	A	A	B	B
COP HSE <sup>2</sup>		3,55	3,46	3,50	3,45	3,38	3,38
Energy Efficiency class		A	A	A	A	A	A
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					
<b>Refrigerant</b>							
Type		HFC 410A					
Number of refrigerant circuits		2	2	2	2	2	2
<b>Compressor</b>							
Qty		4	4	4	4	4	4
Type		Scroll					
Crankcase heater	W	90	90	90	90	90	90
<b>Evaporator</b>							
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"
<b>Condenser</b>							
Qty		2	2	2	2	2	2
<b>Fan</b>							
Qty		2	2	2	2	2	2
Air flow	m³/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
<b>Weight</b>							
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
<b>Dimensions</b>							
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
<b>Acoustical data</b>							
Sound power level <sup>3</sup>	dB(A)	82	82	82	82	86	86
Sound pressure level <sup>4</sup>	dB(A)	50	50	50	50	54	54

<sup>1</sup> Data refers to 7°C leaving chilled water temperature and 35°C condenser air temperature, according EN14511 standard.

<sup>2</sup> Data refers to 45°C leaving warm water temperature and 7°C ambient coil air temperature with 87% R.H., according EN14511 standard.

<sup>3</sup> Sound levels are at fully loaded conditions. Sound power level values refers to ISO 3744 standard.

<sup>4</sup> Sound pressure levels refer to ISO 3744 standard, parallelepiped shape.

## Technical feature

AQVH 85-140 HT		85	95	105	115	125	140
Cooling capacity <sup>1</sup>	kW	83,6	93,4	103,8	111,7	118,0	132,1
Power input <sup>2</sup>	kW	23,6	27,2	29,5	32,0	37,0	41,2
EER		2,96	2,94	3,04	3,05	2,83	2,88
ESEER		4,14	4,12	4,25	4,27	3,97	4,03
Heating capacity <sup>3</sup>	kW	93,5	104,9	113,7	121,9	135,6	148,3
Power input <sup>2</sup>	kW	24,5	28,1	30,1	32,8	37,2	40,9
COP		3,22	3,21	3,28	3,26	3,25	3,26
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					
<b>Refrigerant</b>							
Type		HFC 410A					
Number of refrigerant circuits		2	2	2	2	2	2
<b>Compressor</b>							
Qty		4	4	4	4	4	4
Type		Scroll					
Crankcase heater	W	90	90	90	90	90	90
<b>Evaporator</b>							
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"
<b>Condenser</b>							
Qty		2	2	2	2	2	2
<b>Fan</b>							
Qty		2	2	2	2	2	2
Air flow	m³/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
<b>Weight</b>							
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
<b>Dimensions</b>							
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
<b>Acoustical data</b>							
Sound power level <sup>4</sup>	dB(A)	95	95	95	95	95	95
Sound pressure level <sup>5</sup>	dB(A)	63	63	63	63	63	63

<sup>1</sup> Data refers to 7°C leaving chilled water temperature and 35°C condenser air temperature.

<sup>2</sup> Input power (only compressors).

<sup>3</sup> Data refers to 45°C leaving warm water temperature and 7°C ambient coil air temperature with 87% R.H., according EN14511 standard.

<sup>4</sup> Sound levels are at fully loaded conditions. Sound power level values refers to ISO 3744 standard.

<sup>5</sup> Sound pressure levels refer to ISO 3744 standard, parallelepiped shape.