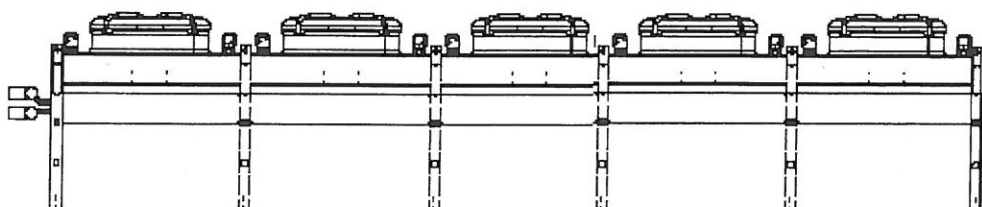
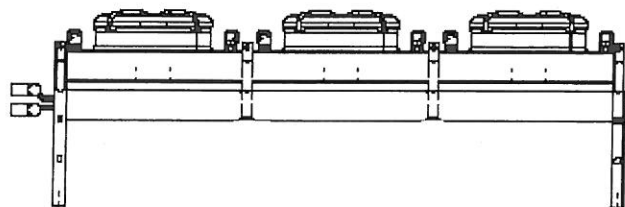
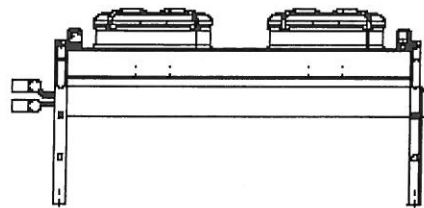
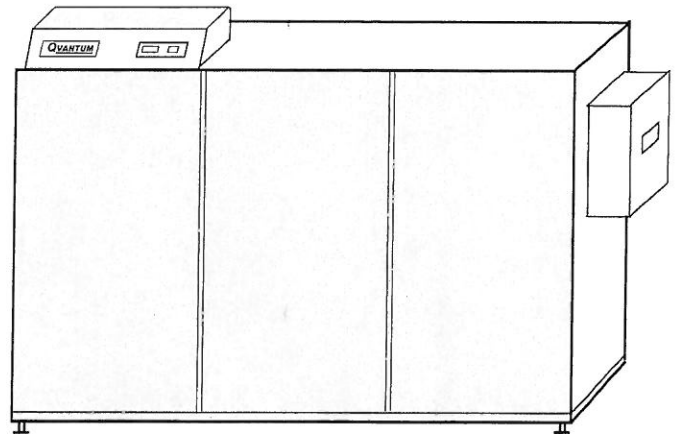
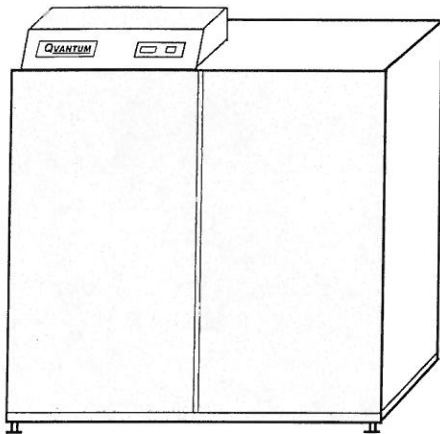


**QVANTUM HIGH-POWER
HEATPUMP AIR TO WATER**

**QVANTUM FREE OF LOSSES
DEFROSTING SYSTEM**

Heating power 83-195 kW
REFRIGERANT : R404A



**Air to water heatpump
with free of losses defrost system**

DESCRIPTION

QVANTUM SERIES LB/RLB, outside air/water heatpump, should be used with a conventionell boiler or Qvantum system boiler. The heating of the house is performed in three modes:

- 1) heatpump alone
- 2) heatpump and supplementary heat in parallell
- 3) supplementary heat

When the need for heat is moderate the house is heated by the heatpump alone. As the outside temperature gets lower at one point (the balance temperature) the heat from the heatpump will not be enough. The heatpump and the supplementary heater will then work in parallell. When the outside temperature falls very low about -10 to -20 °C the heatpump will stop. The house should in this situation be heated by the supplementary heater alone. The supplementary heater must be of suficciant power so that it can heat the house by it self .

UNIQUE DEFROST SYSTEM

QVANTUM SERIES LB/RLB uses an exeptional effective defrost system. This unique system makes it possible to defrost the air coil free of losses. The defrost system uses a accumulator to store "free" defrost energy. The defrost accumulator is internal up to heatpump size Q15 and external for the larger heatpumps. When a defosting cycle is initiated the energy stored in the defrosting accumulator is used to defrost the aircoil The defrosting system makes it possible to make use of the heatpump even when the temperature is low. The aircoil is specially designed with a fin thickness of 0,25 mm and fin pitch of 5 mm. The 5 mm fin pitch will allow long intervalls between defrosting.

HEATPUMP SELECTION

Prior to a **QVANTUM SERIES LB / RLB** installation the most appropriate heatpump size should be determind, calculated. The table below gives a approximative indication

FUNCTION

QVANTUM SERIES LB/RLB "collects" heat from the outside air via an air coil placed on the outside. The collected heat is tranfered to the inside heatpump via a brine liquide (indirect system). The liquide ia a mixture of water and anti-freeze liquide (brine). Normally a mixture of 40 % ethylen glycol and water is used. The inside heatpump transfer the heat to the heating water witch then is circulated to the radiators and also (pre)heats the hotwater boiler.

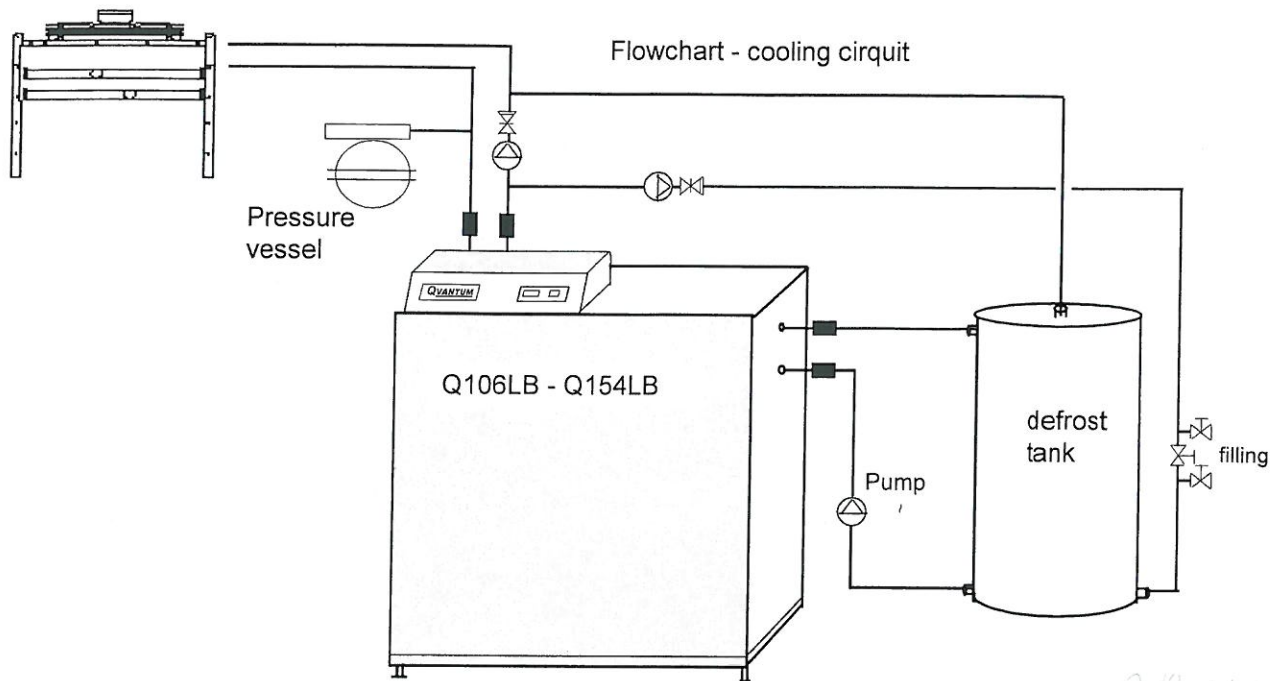
PLACEMENT

The outside aircoil can be placed where it is convenient. From the air coil there will be water condensate flowing especially in high outside temperatures. This condensate should be taken care of so that it won't effect the house or the environment. The coil also has one or two fans ,depending on model. Much attention has been made to reduce the sound pressure created by the fans. The evaporator has a very large area and slow rotating fan(s).

The heatpump unit is placed inside. The inside placement has several advantages compared to a heatpump entirely placed outside. All moving parts except for the fan is placed inside. This contributes to a longer lifespan and also makes service more effective and convinient. The maximun distance between the inside and outside unit is determined by the pressuredrop in the brine circuit and choosen brine pump. Normally up to 25 meters is acceptable if the recommended size of tubes is used. If it is necessary to have longer lines a calculation must be performed, contact Qvantum Energi AB.

Heatpump Model	heating power kW	Oil consumption suitable(80-60%)	Corresponding max heating power building
QVANTUM Q106LB	83,0	45 - 77	131 - 225 kW
QVANTUM Q126LB	94,7	51 - 88	149 - 257 kW
QVANTUM Q154LB	118,4	64 - 111	187 - 324 kW
QVANTUM Q187LB	145,2	78 - 136	228 - 397 kW
QVANTUM Q206LB	165,7	89 - 155	260 - 452 kW

+7/+45 °C



SERIES LB , REFRIGERANT R404A

Serie LB - R404A		Q106LB	Q126LB	Q154LB	Q187LB	Q206LB
Heating power	kW	85,9	99,6	119,0	145,1	165,5
Water flow $\Delta t=7^{\circ}\text{C}$	l/s	2,92	3,22	4,02	4,94	5,63
$\Delta P_{\text{condensor}}$	kPa	15	15	18	23	28
Max temp cond out	$^{\circ}\text{C}$	55	55	55	55	55
Cooling power	kW	61,1	71,3	83,6	101,7	116,0
Brine flow 35% EG	l/s	3,7/5,5	5,5/6,4	5,3/7,5	7,0/9,1	7,7/10,5
$\Delta P_{\text{evaporator}}$	kPa	30	32	42	54	59
Rated input	kW	24,8	28,3	35,4	43,4	49,5

Series LB		Q106LB	Q126LB	Q154LB	Q187LB	Q206LB
Connection brine	mm	50 FL	50 FL	50 FL	65 CFL	65 CFL
Connection water	mm	50 FL	50 FL	50 FL	65 CFL	65 CFL
Refrigerant approx.	kg	9	10	11	12	13
N ^o of compressors	st	1	1	1	1	1
Electrical supp.50Hz	v/f	400/3	400/3	400/3	400/3	400/3
Fuse size (C)	A	80	80	125	125	160
Max current.	A	60,4	65,6	95,0	103,0	117,2
Comp.unit.With	mm	1200	1200	1200	1800	1800
Depth	mm	640	640	640	640	640
Height	mm	1418	1418	1418	1418	1418
Internal defrost tank	nej	nej	nej	nej	nej	nej
Weight	kg	500	540	590	680	700
Aircoil Length	mm	3362	4862	4862	8156	8156
Depth	mm	2321	2321	2321	2321	2321
Height	mm	1580	1580	1580	1520	1520
Weight	kg	553	697	753	1327	1487
Soundpress 10 m	dB(A)	36	37	37	31	31
No of ventilators	st	4	6	6	10	10
Nom current/fan	A/st	1,25	1,25	1,25	1,25	1,25

Quantum air / water heatpump free of losses defrostsystem

STANDARD REFRIGERENT: R404A,
ALTERNATIVE: R134a, R407C

Capacity: See technical data

A complete unit consists of:

- 1) An outside air coil with ventilator(s)
- 2) An inside unit with: compressor, expansion valve, evaporator, condenser, subcooler, pressostat, safety valves/equipment, electrical cabinet, etc
- 3) internal or external defrost accumulator, 3 brine pumps

DESIGN THE INSIDE UNIT

The units are built on a frame of galvanized steel tubes, the housings are powder plated and have soundproof insulation. The top is made of aluminum. Top and bottom are also covered with soundproof insulation. The frame stands on adjustable legs of rubber. All connections are on top of the unit.

Dimensions : Q106-Q154LB : 1200x640x1573 mm (with depth x height)
Q212-Q308LB : 1800x640x1573 mm (with depth x height)

Weight: SEE TECHNICAL DATA
Color: white sides, galvanized frame, aluminium top

Compressor: semi-hermetic reciprocating compressor. Capacity control is optional (not recommended) rotalock valves, crankcase heater, overheat protection in the electrical motor internal differential pressure valve, oil level indicator, oil pressure protection
The compressor is mounted on rubber antivibrating mountings.

Condenser: Compact brazed plate heat exchanger, stainless steel

Evaporator: Compact brazed plate heat exchanger, stainless steel, armaflex insulated

Subcooler: Compact brazed plate heat exchanger, stainless steel, armaflex insulated

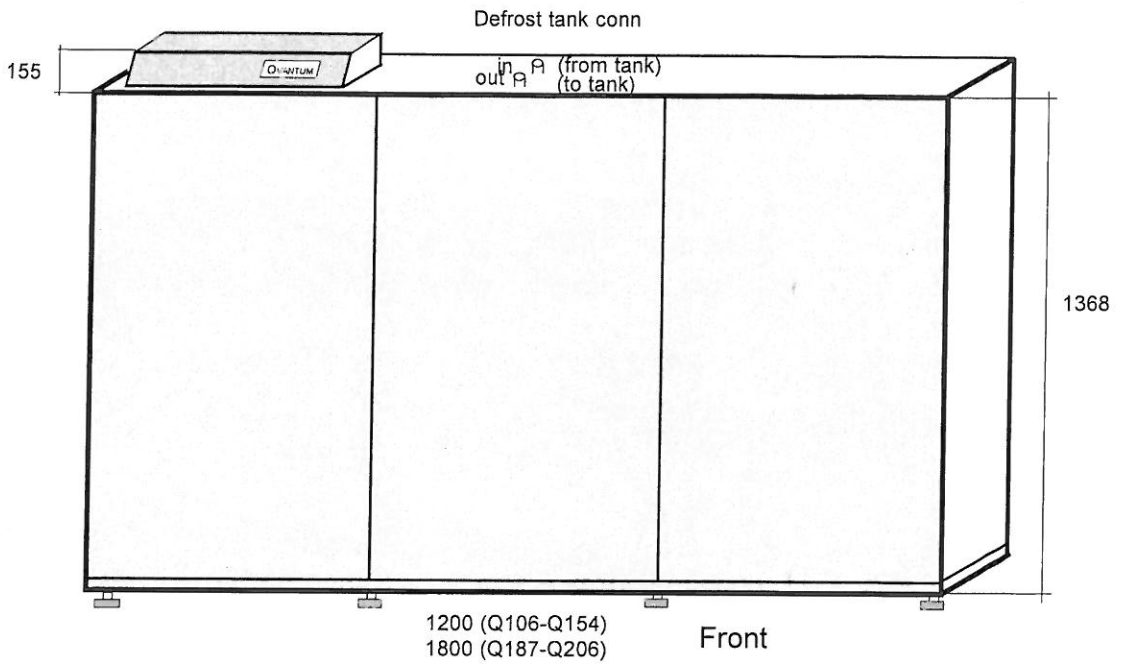
Defrost tank External steel, armaflex insulated

Refrigerant loop: filter dryer
sightglass with moisture indicator
thermostatic expansion valve with external pressure equalization
Dual pressure control with manual reset
service valves for pressure check
Safety equipment for suction and discharge pressure

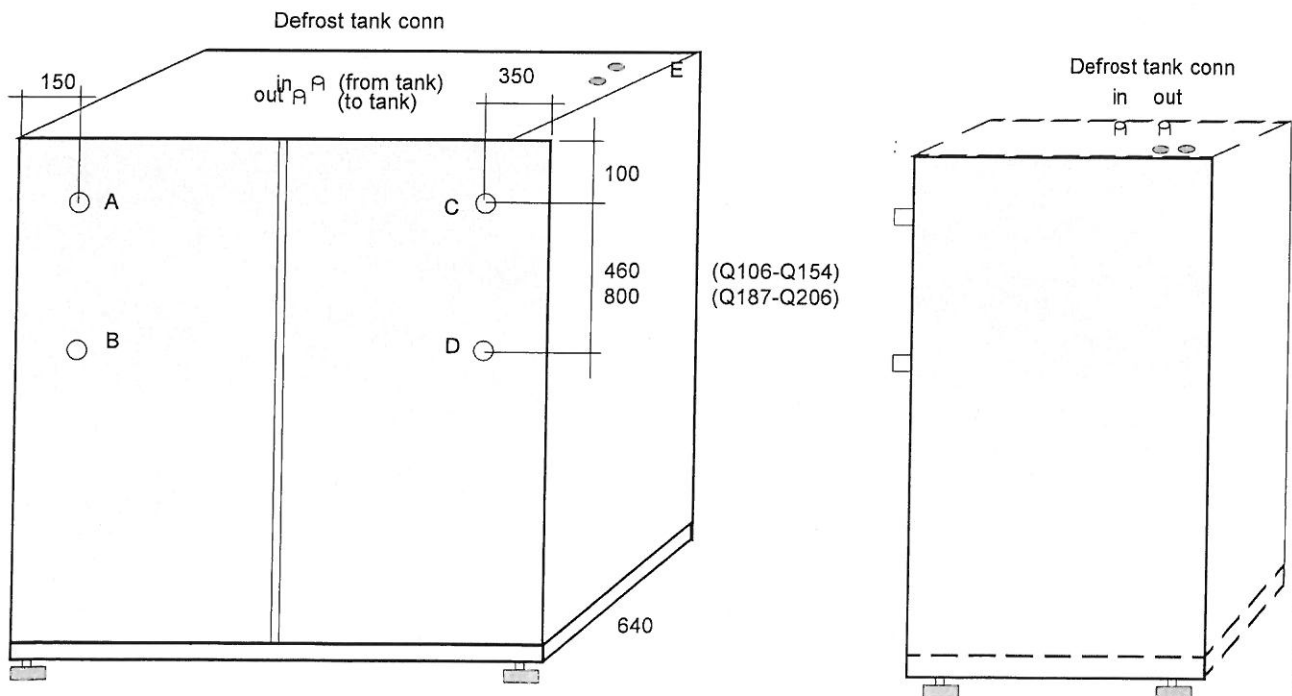
Electrical system: Built in with microprocessor control. Equipped with alarm- and safety functions

Aircoil design

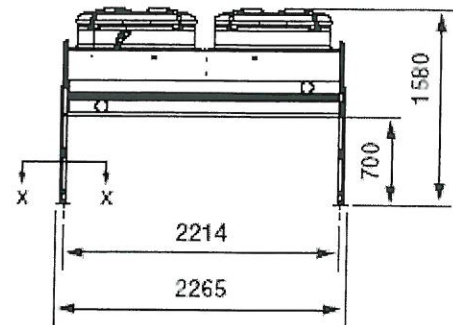
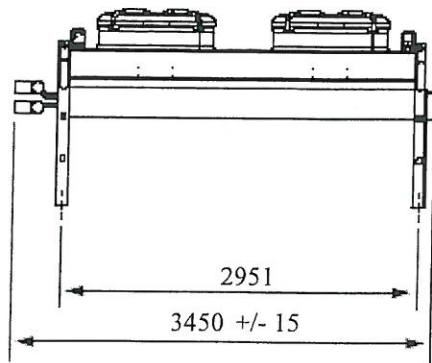
The aircoil is designed for outdoor placement and is designed for a brine indirect system. The airflow is vertical for all types and all sizes are of the same principal design. The aircoil and casing is made of aluminium. The stands and ventilator protection is made in galvanized steel. The heat exchanger is made of copper coil in aluminium fins. For extra protection, for example if the aircoil is placed in an aggressive environment, the fins can be made of epoxy coated aluminium. The fin thickness is 0,25 mm and the fin pitch is 5 mm. The ventilator motors are of a 3 phase design.



Nm	Description
A	Leaving cond
B	Enter cond
C	Enter evap
D	Leaving evap
E	El. conn

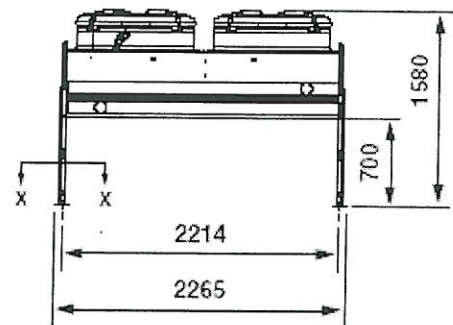
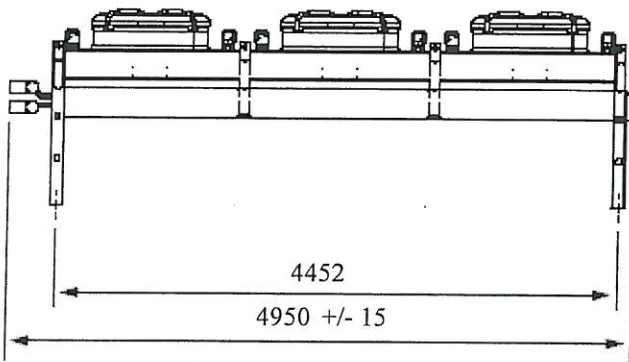


Quantum Q106LB



Quantum Q126LB
Quantum Q154LB

Q130LB (Kovi Model)



Quantum Q187LB
Quantum Q206LB

