

## ▶ Air Cooled Condensing Units

# VLC 504 to 1204



135 to 329 kW



### Technical Brochure

TM VLC-W.2GB

Date : July 2006

Supersedes : TM VLC-W.1GB/06.05

# Wesper<sup>®</sup>

# Technical Features

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## General characteristics

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The **VLC** air cooled condensing units have been designed to operate with **HFC 407C** refrigerant.

Based on a compact design using a V-shape condenser coils, the VLC units have a rigid structure conceived in such a way that their "footprint" is optimised.

They are complete with **two independent refrigerant circuits**, a tandem high efficiency and low vibration level Scroll compressors for each circuit and a ventilating unit comprising finned coils and quiet fans.

The VLC range, composed of **9 sizes**, is available in **4 versions : STD (Standard), LN (Low Noise), ELN (Extra Low Noise) and HE (High Efficiency)**.

**VLC STD** : These units are designed to be located outside on the roof of a building or at ground level.

They are equipped with fans located in high efficiency and low noise housing. Units are supplied without any fan speed controller, nor soundproof jacket on compressors.

The 9 sizes of the STD units are covering a nominal cooling capacity range from 135 to 329 kW.

**VLC LN** : These units have the same equipment as the STD units, except that they are equipped with low speed fans and soundproof jackets on all compressors.

The 9 sizes of the LN units are covering a nominal cooling capacity range from 128 to 315 kW.

**VLC ELN** : These units are equipped with more fans (on sizes 504 to 804) than the STD units.

They are complete with a stepless fan speed controller, very low speed fans, greater surface area condenser coils and soundproof boxes on all compressors.

The 9 sizes of the ELN units are covering a nominal cooling capacity range from 131 to 304 kW.

**VLC HE** : These units have the same equipment as the ELN units; except that the fans are operating at full speed and that the fan speed controller and compressors soundproof equipment are not supplied.

They are suitable for operation at high ambient temperatures (up to +49 °C).

The 7 sizes of the HE units are covering a nominal cooling capacity range from 145 to 281 kW (VLC 1104 HE and 1204 HE are not available).

## Reference standards

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The following applies to all the sizes and versions belonging to the VLC units :

- ✓ Machine Directive EEC 98/37 (EN 292/1, EN 292/2)
- ✓ Low Voltage Directive EEC 73/23 (EN 60204-1, EN 60439-1)
- ✓ Electromagnetic Compatibility Directive EEC 89/336 as modified by Directive EEC 92/31 (EN 50081-1, EN 50082-2)
- ✓ Pressure Equipment Directive 97/23/CE

## Cabinet and structure

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The unit cabinet and structure are made of heavy gauge galvanized steel coated with polyester powder based painting (RAL 9001). All parts of the structure are fastened totally with non-corrosive screws and bolts.

## Compressors

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Each unit is equipped with four compressors arranged in two tandems to suit the two refrigerant circuits.

The compressors are of hermetic scroll type and fitted with an electronic control system ensuring :

- protection against high temperature and excessive load,
- correct direction of rotation for greater power only compressors of VLC 704, 804 & 904 and for all compressors of VLC 1004, 1104 & 1204.

All compressors have direct-on-line starting and are mounted on rubber vibration isolators in order to minimize noise and vibration transmission.

## Condenser coils

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The condenser coils shall be seamless copper tubes, arranged in staggered rows, mechanically expanded into corrugated aluminum fins.

Design working pressure of the coils shall be 28 bar.

## Condenser coil fans

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Fans are of a direct drive axial type. Each of them is fitted with a painted steel protective guard.

Fans are equipped with externally mounted nozzle profile housing which generates low sound levels.

## Fan controls

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Each unit can be equipped with an optional stepless fan speed controller, operating on the basis of condensing pressure, to keep fan rpm under control in order to operate in cooling mode at a low ambient temperature (-18 °C).

This fan speed controller is supplied as standard on the ELN units.

## Refrigerant circuits

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All the units are composed of two independent and separate refrigerant circuits.

Each refrigerant circuit is equipped with suction and liquid line shut-off valves to permit the connection of the unit to the external evaporator.

The functional diagram of each circuit is shown in the section "Refrigerant flow diagram".

## Power and control panel

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All operating and safety controls as well as the motor starting equipment, necessary for full unit operation, are centrally located in a metal box having IP 54 weather protection.

# Technical Features (continued)

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## Control and safety devices

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Each VLC unit is fitted with the following devices :

### Safety :

- Power disconnect switch with an emergency stop function.
- Double HP switches, set to 28 bar : automatic reset and manual reset from the control panel.
- LP switches (one for each circuit), set to 1.7 bar : automatic reset and manual reset from the control panel.
- Safety valve on discharge piping , set to 30 bar.

### Control :

- HP transducers (one for each circuit).
- Ambient air temperature sensor.

## Controls

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The VLC units are supplied with a microprocessor-based electronic control and management system ensuring the following functions :

- Management of the operation of compressors :
  - a) Power on/off
  - b) Anticycle management
  - c) Management of delays at start-up
  - d) Tandem unloading for high pressure ( $P_c > 26$  bar)
- Management of high and low pressure alarms.
- Management of the remote control :
  - e) Unit power on/off
  - f) Summary alarm signals
- Remote signalling of unit information, by dry contacts :
  - g) Voltage presence
  - h) Compressors in operation
  - i) Alarm, circuit 1
  - j) Alarm, circuit 2

The unit controller can also clearly show all control parameters of the machine on a liquid crystal display, such as :

- Display of the ambient air temperature.
- Display of the circuit 1 and circuit 2 discharge pressure.

- Display of the set point.
- Display of the various alarm and operation status :
  - k) Compressor start-up alarm (discharge pressure check)
  - l) Low / High pressure
  - m) Control of the compressor operating hours
  - n) Compressors in operation
  - o) Thermal protection of compressors
  - p) Thermal protection of fans
  - q) Faulty sensor

## Factory installed options

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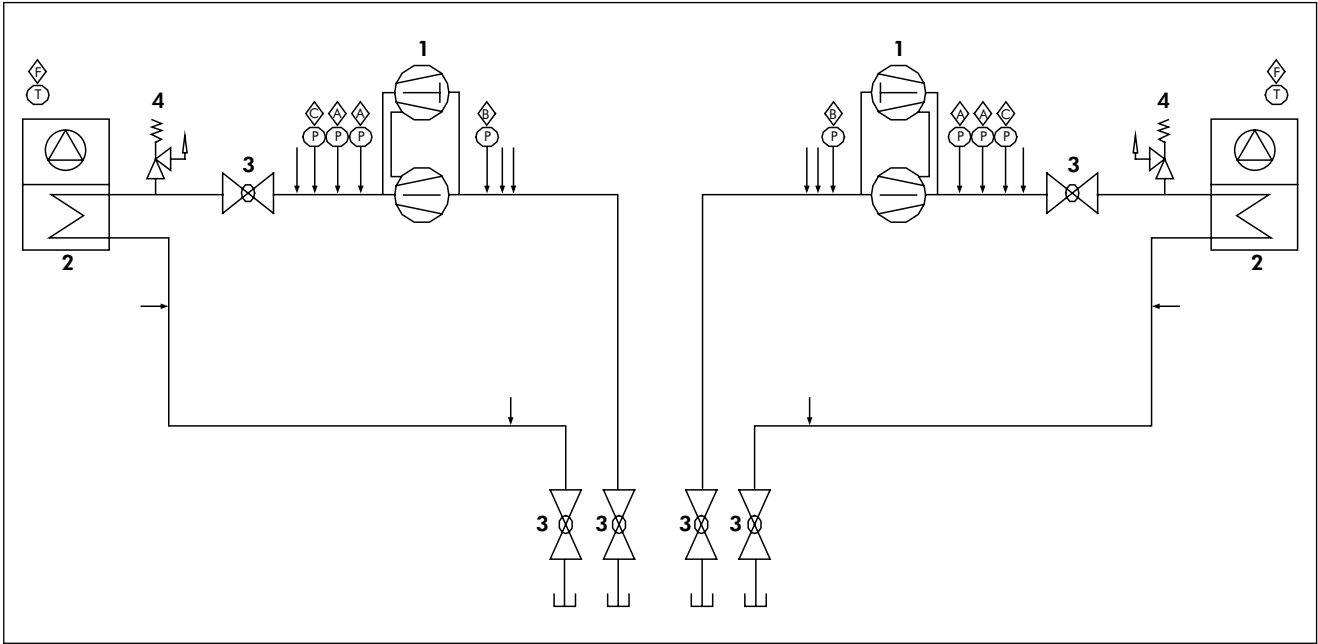
- ✓ Coils with blue fins covered with a coating easing the flowing of water.
- ✓ Coils with "Silverguard" (polyurethane) coated fins.
- ✓ Coils with copper fins.
- ✓ Stepless fan speed controller (STD, LN & HE versions).
- ✓ LP & HP manometers.
- ✓ Chiller grilles.
- ✓ Special inverter fans (SIF) for 120 Pa external static pressure.
- ✓ Compressor thermal protection.
- ✓ Compressor soft starter.
- ✓ Phase monitor.
- ✓ Power factor correction capacitors.

## Field-installed accessories

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- ✓ Remote wire control (max. 50 m).
- ✓ Spring anti-vibration mounts.
- ✓ Clock/Memory board (STD & LN versions only).
- ✓ Wall remote terminal (max. 400 m).
- ✓ Chiller-Net control.
- ✓ ModBus protocol kit for BMS.
- ✓ Bacnet protocol kit for BMS.
- ✓ Airconet protocol kit for BMS.

# Refrigerant Flow Diagram



COMPONENTS	
1	Tandem Scroll type compressor
2	Air cooled condenser
3	Globe valve
4	Safety valve

SAFETY / CONTROL DEVICES	
	High pressure switch
	Low pressure switch
	High pressure transducer
	Air temperature sensor
	Pipe connection with Schrader valve

# Operating Limits and Correction Factors

## Operating limits - VLC 504 to 804

VLC			504		554		604		704		804	
			Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.
Evaporating temperature			°C		+3 to +13							
Ambient air	Air entering temperature	Cooling - STD	°C		0 to +47 (1)	0 to +47 (1)	0 to +45 (1)	-5 to +46 (1)	-5 to +46 (1)			
		Cooling - LN	°C		0 to +44 (1)	0 to +43 (1)	-5 to +45 (1)	-5 to +45 (1)	0 to +44 (1)			
		Cooling - ELN	°C		-18 to +46 (1)	-18 to +47 (1)	-18 to +45 (1)	-18 to +45 (1)	-18 to +44 (1)			
		Cooling - HE	°C		-5 to +49 (1)	-5 to +49 (1)	-5 to +48 (1)	0 to +49 (1)	0 to +49 (1)			
	External static pressure	Standard fans	Pa		0							
Special inverter fans		Pa		120								
Power supply voltage (2)			400 V / 3 Ph / 50 Hz (nominal)									

(1) High pressure switch at 28 bar.

(2) Voltage : 400 V ± 10 %

## Operating limits - VLC 904 to 1204

VLC			904		1004		1104		1204		
			Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	
Ambient air	Air entering temperature	Cooling - STD	°C		0 to +46 (1)	0 to +46 (1)	0 to +46 (1)	0 to +46 (1)	0 to +46 (1)		
		Cooling - LN	°C		0 to +45 (1)	0 to +45 (1)	0 to +43 (1)	0 to +43 (1)	0 to +43 (1)		
		Cooling - ELN	°C		-18 to +44 (1)	-18 to +44 (1)	-18 to +40 (1)	-18 to +40 (1)	-18 to +40 (1)		
		Cooling - HE	°C		0 to +49 (1)	0 to +49 (1)	-	-	-		
	External static pressure	Standard fans	Pa		0						
Special inverter fans		Pa		120							
Power supply voltage (2)			400 V / 3 Ph / 50 Hz (nominal)								

(1) High pressure switch at 28 bar.

(2) Voltage : 400 V ± 10 %

## Altitude correction factors

Altitude (m)	Cooling capacity correction factors	Power consumption correction factors
0	1.000	1.000
600	0.987	1.010
1200	0.973	1.020
1800	0.958	1.029
2400	0.943	1.038

## Condenser fouling factors

Fouling factors (m <sup>2</sup> .°C/kW)	Cooling capacity correction factors	Power consumption correction factors
0.044	1.000	1.000
0.088	0.987	1.023
0.176	0.955	1.068
0.352	0.910	1.135

# Physical Data - VLC STD

VLC STD models		504	554	604	704	804	904	1004	1104	1204
Nominal cooling capacity (1)	kW	134.5	148.0	156.2	189.9	214.1	246.7	276.5	304.8	329.0
Input cooling (2)	kW	47.0	53.0	58.9	70.3	79.3	90.3	99.8	102.3	115.9
EER		2.9	2.8	2.7	2.7	2.7	2.7	2.8	3.0	2.8
Number of refrigerant circuits		2	2	2	2	2	2	2	2	2
Total unit capacity steps	%	20 - 40 - 70 - 100	23 - 46 - 73 - 100	25 - 50 - 75 - 100	20 - 50 - 70 - 100	20 - 50 - 70 - 100	15 - 45 - 70 - 100	25 - 50 - 75 - 100	23 - 45 - 73 - 100	25 - 50 - 75 - 100
<b>COMPRESSORS</b>										
Number		4	4	4	4	4	4	4	4	4
Type		Scroll	Scroll	Scroll	Scroll	Scroll	Scroll	Scroll	Scroll	Scroll
<b>AIR COOLED CONDENSERS</b>										
Number		2	2	2	2	2	2	2	2	2
Total coil face area per coil	m <sup>2</sup>	4.1	4.1	4.1	5.6	5.6	5.6	5.6	5.6	5.6
Number of rows		3	3	3	2	3	3	4	5	5
<b>FANS</b>										
Number		2	2	2	3	3	4	4	4	4
Nominal speed	rpm	900	900	900	900	900	900	900	900	900
Total air flow	m <sup>3</sup> /h	40 000	40 000	40 000	72 000	69 000	86 800	81 700	82 500	82 500
Total power	kW	2.80	2.80	2.80	6.00	6.00	8.00	8.00	8.00	8.00
<b>WEIGHT</b>										
Shipping	kg	1111	1142	1143	1433	1540	1653	1817	2037	2062
<b>SOUND LEVELS</b>										
Sound power levels (3)	dB(A)	89	90	90	94	94	95	96	96	96
Sound pressure levels at 10 m (3)	dB(A)	57	58	58	62	62	63	64	64	64
<b>DIMENSIONS</b>										
Length	mm	3300	3300	3300	4250	4250	4250	4250	4250	4250
Width	mm	1100	1100	1100	1100	1100	1100	1100	1100	1100
Height	mm	2254	2254	2254	2280	2280	2280	2280	2280	2280

(1) Data based on 7 °C evaporating temperature and 35 °C ambient air temperature.

(2) Compressors only.

(3) Sound levels are at fully loaded conditions. Sound power level values refer to ISO standard 3744 and Eurovent 8/1.

# Physical Data - VLC LN

VLC LN models		504	554	604	704	804	904	1004	1104	1204
Nominal cooling capacity (1)	kW	127.8	139.9	155.7	183.8	206.9	239.6	266.3	292.5	315.3
Input cooling (2)	kW	50.4	57.2	59.2	69.2	81.0	88.6	101.1	109.3	124.3
EER		2.5	2.4	2.6	2.7	2.6	2.7	2.6	2.7	2.5
Number of refrigerant circuits		2	2	2	2	2	2	2	2	2
Total unit capacity steps	%	20 - 40 - 70 - 100	23 - 46 - 73 - 100	25 - 50 - 75 - 100	20 - 50 - 70 - 100	20 - 50 - 70 - 100	15 - 45 - 70 - 100	25 - 50 - 75 - 100	23 - 45 - 73 - 100	25 - 50 - 75 - 100
<b>COMPRESSORS</b>										
Number		4	4	4	4	4	4	4	4	4
Type		Scroll	Scroll	Scroll	Scroll	Scroll	Scroll	Scroll	Scroll	Scroll
<b>AIR COOLED CONDENSERS</b>										
Number		2	2	2	2	2	2	2	2	2
Total coil face area per coil	m <sup>2</sup>	4.1	4.1	4.1	5.6	5.6	5.6	5.6	5.6	5.6
Number of rows		3	3	3	2	3	3	4	5	5
<b>FANS</b>										
Number		2	2	3	3	3	4	4	4	4
Nominal speed	rpm	700	700	700	700	700	700	700	700	700
Total air flow	m <sup>3</sup> /h	29 000	29 000	39 000	55 400	52 700	65 000	60 600	61 250	61 250
Total power	kW	1.90	1.90	2.80	3.90	3.90	5.20	5.20	5.20	5.20
<b>WEIGHT</b>										
Shipping	kg	1125	1153	1157	1474	1578	1693	1857	2052	2077
<b>SOUND LEVELS</b>										
Sound power levels (3)	dB(A)	85	85	86	90	90	91	92	92	92
Sound pressure levels at 10 m (3)	dB(A)	53	53	54	58	58	59	60	60	60
<b>DIMENSIONS</b>										
Length	mm	3300	3300	3300	4250	4250	4250	4250	4250	4250
Width	mm	1100	1100	1100	1100	1100	1100	1100	1100	1100
Height	mm	2254	2254	2254	2280	2280	2280	2280	2280	2280

(1) Data based on 7 °C evaporating temperature and 35 °C ambient air temperature.

(2) Compressors only.

(3) Sound levels are at fully loaded conditions. Sound power level values refer to ISO standard 3744 and Eurovent 8/1.

# Physical Data - VLC ELN

VLC ELN models		504	554	604	704	804	904	1004	1104	1204
Nominal cooling capacity (1)	kW	131.0	147.3	155.3	184.6	204.9	245.3	263.8	282.4	304.0
Input cooling (2)	kW	48.8	53.4	59.4	70.3	80.0	87.4	100.0	115.0	131.2
EER		2.5	2.5	2.5	2.5	2.5	2.7	2.5	2.5	2.3
Number of refrigerant circuits		2	2	2	2	2	2	2	2	2
Total unit capacity steps	%	20 - 40 - 70 - 100	23 - 46 - 73 - 100	25 - 50 - 75 - 100	20 - 50 - 70-100	20 - 50 - 70-100	15 - 45 - 70-100	25 - 50 - 75-100	23 - 45 - 73 - 100	25 - 50 - 75 - 100
<b>COMPRESSORS</b>										
Number		4	4	4	4	4	4	4	4	4
Type		Scroll	Scroll	Scroll	Scroll	Scroll	Scroll	Scroll	Scroll	Scroll
<b>AIR COOLED CONDENSERS</b>										
Number		2	2	2	2	2	2	2	2	2
Total coil face area per coil	m <sup>2</sup>	4.1	4.1	4.1	5.6	5.6	5.6	5.6	5.6	5.6
Number of rows		3	4	4	3	4	5	5	5	5
<b>FANS</b>										
Number		3	3	3	4	4	4	4	4	4
Nominal speed	rpm	550	550	550	550	550	650	650	600	600
Total air flow	m <sup>3</sup> /h	30 200	30 200	30 200	47 700	45 000	50 000	50 000	50 625	50 625
Total power	kW	2.80	2.80	2.80	5.20	5.20	5.20	5.20	5.20	5.20
<b>WEIGHT</b>										
Shipping	kg	1149	1264	1275	1615	1709	1847	1938	2083	2108
<b>SOUND LEVELS</b>										
Sound power levels (3)	dB(A)	82	83	83	84	84	85 (4)	86 (4)	86	86
Sound pressure levels at 10 m (3)	dB(A)	50	51	51	51	51	52 (4)	54 (4)	54	54
<b>DIMENSIONS</b>										
Length	mm	3300	3300	3300	4250	4250	4250	4250	4250	4250
Width	mm	1100	1100	1100	1100	1100	1100	1100	1100	1100
Height	mm	2254	2254	2254	2280	2280	2280	2280	2280	2280

(1) Data based on 7 °C evaporating temperature and 35 °C ambient air temperature.

(2) Compressors only.

(3) Sound levels are at fully loaded conditions. Sound power level values refer to ISO standard 3744 and Eurovent 8/1.

(4) Data refers to 32 °C ambient temperature.

# Physical Data - VLC HE

VLC HE models		504	554	604	704	804	904	1004
Nominal cooling capacity (1)	kW	145.4	163.1	173.2	197.5	221.8	261.2	280.9
Input cooling (2)	kW	43.4	47.9	52.8	63.1	71.0	79.6	91.0
EER		3.4	3.4	3.3	3.1	3.1	3.3	3.1
Number of refrigerant circuits		2	2	2	2	2	2	2
Total unit capacity steps	%	20 - 40 - 70 - 100	23 - 46 - 73 - 100	25 - 50 - 75 - 100	20 - 50 - 70 - 100	20 - 50 - 70 - 100	15 - 45 - 70 - 100	25 - 50 - 75 - 100
<b>COMPRESSORS</b>								
Number		4	4	4	4	4	4	4
Type		Scroll	Scroll	Scroll	Scroll	Scroll	Scroll	Scroll
<b>AIR COOLED CONDENSERS</b>								
Number		2	2	2	2	2	2	2
Total coil face area per coil	m <sup>2</sup>	4.1	4.1	4.1	5.6	5.6	5.6	5.6
Number of rows		3	4	4	3	4	5	5
<b>FANS</b>								
Number		3	3	3	4	4	4	4
Nominal speed	rpm	900	900	900	900	900	900	900
Total air flow	m <sup>3</sup> /h	57 500	54 000	54 000	86 800	81 700	77 800	77 800
Total power	kW	4.2	4.2	4.2	8	8	8	8
<b>WEIGHT</b>								
Shipping	kg	1119	1234	1245	1585	1678.5	1817	1908
<b>SOUND LEVELS</b>								
Sound power levels (3)	dB(A)	91	92	92	95	95	95	96
Sound pressure levels at 10 m (3)	dB(A)	59	60	60	63	63	63	64
<b>DIMENSIONS</b>								
Length	mm	3300	3300	3300	4250	4250	4250	4250
Width	mm	1100	1100	1100	1100	1100	1100	1100
Height	mm	2254	2254	2254	2280	2280	2280	2280

(1) Data based on 7 °C evaporating temperature and 35 °C ambient air temperature.

(2) Compressors only.

(3) Sound levels are at fully loaded conditions. Sound power level values refer to ISO standard 3744 and Eurovent 8/1.

# Electrical Data

## Compressors @ 400 V / 3 Ph / 50 Hz

VLC models		Power input at nominal conditions per compressor (kW)	Current at nominal conditions per compressor (A)	Power input at max. conditions per compressor (kW)	Current at max. conditions per compressor FLA (A)	Start up current LRA (A)	Power factor at nominal conditions	Unit fuse size (A)	Cable section (mm <sup>2</sup> )
504	Circuit 1	9.0	15.8	11.0	19.0	120.0	0.8	160	70
		13.7	24.3	17.3	29.2	175.0	0.8		
	Circuit 2	9.0	15.8	11.0	19.0	120.0	0.8		
		13.7	24.3	17.3	29.2	175.0	0.8		
554	Circuit 1	12.0	20.0	15.0	24.0	150.0	0.9	160	70
		13.7	24.3	17.3	29.2	175.0	0.8		
	Circuit 2	12.0	20.0	15.0	24.0	150.0	0.9		
		13.7	24.3	17.3	29.2	175.0	0.8		
604	Circuit 1	13.7	24.3	17.3	29.2	175.0	0.8	160	70
		13.7	24.3	17.3	29.2	175.0	0.8		
	Circuit 2	13.7	24.3	17.3	29.2	175.0	0.8		
		13.7	24.3	17.3	29.2	175.0	0.8		
704	Circuit 1	13.7	24.3	17.3	29.2	175.0	0.8	200	3 x 95
		18.6	31.4	23.8	38.5	215.0	0.9		
	Circuit 2	13.7	24.3	17.3	29.2	175.0	0.8		
		18.6	31.4	23.8	38.5	215.0	0.9		
804	Circuit 1	13.7	24.3	17.3	29.2	175.0	0.8	200	3 x 95
		23.0	38.5	29.0	47.2	270.0	0.9		
	Circuit 2	13.7	24.3	17.3	29.2	175.0	0.8		
		23.0	38.5	29.0	47.2	270.0	0.9		
904	Circuit 1	13.7	24.3	17.3	29.2	175.0	0.8	250	3 x 120
		23.0	38.5	29.0	47.2	270.0	0.9		
	Circuit 2	23.0	38.5	29.0	47.2	270.0	0.9		
		23.0	38.5	29.0	47.2	270.0	0.9		
1004	Circuit 1	20.3	34.3	28.1	47.5	272	0.84	250	3 x 120
		20.3	34.3	28.1	47.5	272	0.84		
	Circuit 2	20.3	34.3	28.1	47.5	272	0.84		
		20.3	34.3	28.1	47.5	272	0.84		
1104	Circuit 1	25.3	44.2	35.2	62.0	320.0	0.8	250	3 x 185
		25.3	44.2	35.2	62.0	320.0	0.8		
	Circuit 2	20.3	34.3	28.1	47.5	272.0	0.8		
		20.3	34.3	28.1	47.5	272.0	0.8		
1204	Circuit 1	25.3	44.2	35.2	62.0	320.0	0.8	315	3 x 185
		25.3	44.2	35.2	62.0	320.0	0.8		
	Circuit 2	25.3	44.2	35.2	62.0	320.0	0.8		
		25.3	44.2	35.2	62.0	320.0	0.8		

## Fans - 400 V / 3 Ph / 50 Hz

VLC STD models		504	554	604	704	804	904	1004	1104	1204
Number of fans		2	2	2	3	3	4	4	4	4
Nominal power per fan	kW	1.4	1.4	1.4	2.0	2.0	2.0	2.0	2.0	2.0
Max. running current per fan	A	2.7	2.7	2.7	4.0	4.0	4.0	4.0	4.0	4.0
Total fan power	kW	2.8	2.8	2.8	6.0	6.0	8.0	8.0	8.0	8.0
Total max. fan current	A	5.4	5.4	5.4	12.0	12.0	16.0	16.0	16.0	16.0

VLC LN models		504	554	604	704	804	904	1004	1104	1204
Number of fans		2	2	3	3	3	4	4	4	4
Nominal power per fan	kW	0.94	0.94	0.94	1.30	1.30	1.30	1.30	1.30	1.30
Max. running current per fan	A	1.7	1.7	1.7	2.3	2.3	2.3	2.3	2.3	2.3
Total fan power	kW	1.88	1.88	2.82	3.9	3.9	5.2	5.2	5.2	5.2
Total max. fan current	A	3.4	3.4	5.1	6.9	6.9	9.2	9.2	9.2	9.2

# Electrical Data (continued)

## Fans - 400 V / 3 Ph / 50 Hz (continued)

VLC ELN models		504	554	604	704	804	904	1004	1104	1204
Number of fans		3	3	3	4	4	4	4	4	4
Nominal power per fan	kW	0.94	0.94	0.94	1.30	1.30	1.30	1.30	1.30	1.30
Max. running current per fan	A	1.7	1.7	1.7	2.3	2.3	2.3	2.3	2.3	2.3
Total fan power	kW	2.82	2.82	2.82	5.20	5.20	5.20	5.20	5.20	5.20
Total max. fan current	A	5.1	5.1	5.1	9.2	9.2	9.2	9.2	9.2	9.2

VLC HE models		504	554	604	704	804	904	1004
Number of fans		3	3	3	4	4	4	4
Nominal power per fan	kW	1.4	1.4	1.4	2.0	2.0	2.0	2.0
Max. running current per fan	A	2.7	2.7	2.7	4.0	4.0	4.0	4.0
Total fan power	kW	4.2	4.2	4.2	8.0	8.0	8.0	8.0
Total max. fan current	A	8.1	8.1	8.1	16.0	16.0	16.0	16.0

## Units - 400 V / 3 Ph / 50 Hz

VLC STD models		504	554	604	704	804	904	1004	1104	1204
Maximum power input	kW	59.4	67.4	72.0	86.0	97.0	110.0	120.0	135.0	149.0
Maximum current input	A	101.8	111.8	122.2	144.0	161.0	182.0	206.0	235.0	264.0
Start-up current	A	248	258	268	320	384	404	431	493	522

VLC LN models		504	554	604	704	804	904	1004	1104	1204
Maximum power input	kW	58.5	66.5	72.0	86.0	96.0	109.0	117.0	132.0	146.0
Maximum current input	A	99.8	109.8	121.9	142.0	160.0	180.0	199.0	228.0	257.0
Start-up current	A	246	256	268	319	383	403	424	486	515

VLC ELN models		504	554	604	704	804	904	1004	1104	1204
Maximum power input	kW	59.4	67.4	72.0	87.0	98.0	108.0	117.0	132.0	146.0
Maximum current input	A	101.5	111.5	121.9	145.0	162.0	178.0	199.0	228.0	257.0
Start-up current	A	247	257	268	321	385	400	424	486	515

VLC HE models		504	554	604	704	804	904	1004
Maximum power input	kW	60.8	68.8	73.4	90.0	101.0	112.0	120.0
Maximum current input	A	104.5	114.5	124.9	151.0	169.0	187.0	206.0
Start-up current	A	250	260	271	328	392	410	431

# Sound Levels

## VLC 504 to 1204 - STD Version

VLC STD models	Frequency (Hz)							Lw global dB(A)	Lp global dB(A) (1)
	125	250	500	1000	2000	4000	8000		
504 STD	81.3	77.6	80.9	83.1	81.6	77.8	68.1	<b>89</b>	<b>57</b>
554 STD	82.3	78.6	81.9	84.1	82.6	78.8	69.1	<b>90</b>	<b>58</b>
604 STD	82.3	78.6	81.9	84.1	82.6	78.8	69.1	<b>90</b>	<b>58</b>
704 STD	89.8	88.0	90.5	88.8	86.8	85.0	74.8	<b>94</b>	<b>62</b>
804 STD	89.8	88.0	90.5	88.8	86.8	85.0	74.8	<b>94</b>	<b>62</b>
904 STD	90.8	89.0	91.5	89.8	87.8	86.0	75.8	<b>95</b>	<b>63</b>
1004 STD	91.8	90.0	92.5	90.8	88.8	87.0	76.8	<b>96</b>	<b>64</b>
1104 STD	91.8	90.0	92.5	90.8	88.8	87.0	76.8	<b>96</b>	<b>64</b>
1204 STD	91.8	90.0	92.5	90.8	88.8	87.0	76.8	<b>96</b>	<b>64</b>

(1) Sound pressure levels given at 10 meters distance according to ISO standard 3744.

## VLC 504 to 1204 - LN Version

VLC LN models	Frequency (Hz)							Lw global dB(A)	Lp global dB(A) (1)
	125	250	500	1000	2000	4000	8000		
504 LN	64.1	70.8	77.4	79.4	80.4	77.1	69.6	<b>85</b>	<b>53</b>
554 LN	64.1	70.8	77.4	79.4	80.4	77.1	69.6	<b>85</b>	<b>53</b>
604 LN	65.1	71.8	78.4	80.4	81.4	78.1	70.6	<b>86</b>	<b>54</b>
704 LN	85.8	84.0	86.5	84.8	82.8	81.0	70.8	<b>90</b>	<b>58</b>
804 LN	85.8	84.0	86.5	84.8	82.8	81.0	70.8	<b>90</b>	<b>58</b>
904 LN	86.8	85.0	87.5	85.8	83.8	82.0	71.8	<b>91</b>	<b>59</b>
1004 LN	87.8	86.0	88.5	86.8	84.8	83.0	72.8	<b>92</b>	<b>60</b>
1104 LN	87.8	86.0	88.5	86.8	84.8	83.0	72.8	<b>92</b>	<b>60</b>
1204 LN	87.8	86.0	88.5	86.8	84.8	83.0	72.8	<b>92</b>	<b>60</b>

(1) Sound pressure levels given at 10 meters distance according to ISO standard 3744.

## VLC 504 to 1204 - ELN Version

VLC ELN models	Frequency (Hz)							Lw global dB(A)	Lp global dB(A) (1)
	125	250	500	1000	2000	4000	8000		
504 ELN	61.1	67.8	74.4	76.4	77.4	74.1	66.6	<b>82</b>	<b>50</b>
554 ELN	62.1	68.8	75.4	77.4	78.4	75.1	67.6	<b>83</b>	<b>51</b>
604 ELN	62.1	68.8	75.4	77.4	78.4	75.1	67.6	<b>83</b>	<b>51</b>
704 ELN	79.9	78.1	80.6	78.9	76.9	75.1	64.9	<b>84</b>	<b>52</b>
804 ELN	79.9	78.1	80.6	78.9	76.9	75.1	64.9	<b>84</b>	<b>52</b>
904 ELN	80.9	79.1	81.6	79.9	77.9	76.1	65.9	<b>85 (2)</b>	<b>53 (2)</b>
1004 ELN	81.9	80.1	82.6	80.9	78.9	77.1	66.9	<b>86 (2)</b>	<b>54 (2)</b>
1104 ELN	81.9	80.1	82.6	80.9	78.9	77.1	66.9	<b>86</b>	<b>54</b>
1204 ELN	81.9	80.1	82.6	80.9	78.9	77.1	66.9	<b>86</b>	<b>54</b>

(1) Sound pressure levels given at 10 meters distance according to ISO standard 3744.

(2) Sound pressure and sound power levels based on air temperature of 32 °C.

## VLC 504 to 1004 - HE Version

VLC HE models	Frequency (Hz)							Lw global dB(A)	Lp global dB(A) (1)
	125	250	500	1000	2000	4000	8000		
504 HE	83.3	79.6	82.9	85.1	83.6	79.8	70.1	<b>91</b>	<b>59</b>
554 HE	84.3	80.6	83.9	86.1	84.6	80.8	71.1	<b>92</b>	<b>60</b>
604 HE	84.3	80.6	83.9	86.1	84.6	80.8	71.1	<b>92</b>	<b>60</b>
704 HE	91.3	89.5	92.0	90.3	88.3	86.5	76.3	<b>95</b>	<b>63</b>
804 HE	91.3	89.5	92.0	90.3	88.3	86.5	76.3	<b>95</b>	<b>63</b>
904 HE	90.8	89.0	91.5	89.8	87.8	86.0	75.8	<b>95</b>	<b>63</b>
1004 HE	91.8	90.0	92.5	90.8	88.8	87.0	76.8	<b>96</b>	<b>64</b>

(1) Sound pressure levels given at 10 meters distance according to ISO standard 3744.

# Cooling Capacities - VLC STD

VLC MODELS	EVT (°C)	Condenser entering air temperature (°C)											
		25		30		32		35		40		46	
		Cool. cap. (kW)	Input power (kW)	Cool. cap. (kW)	Input power (kW)	Cool. cap. (kW)	Input power (kW)	Cool. cap. (kW)	Input power (kW)	Cool. cap. (kW)	Input power (kW)	Cool. cap. (kW)	Input power (kW)
504 STD	3	134.4	37.1	127.0	41.0	124.0	42.6	119.3	45.2	111.2	49.7	101.1	55.8
	4	138.6	37.5	131.0	41.4	127.8	43.0	123.1	45.6	114.7	50.2	104.4	56.2
	5	142.7	37.9	135.0	41.8	131.7	43.5	126.8	46.0	118.4	50.6	107.5	56.8
	6	147.1	38.3	139.0	42.2	135.7	43.9	130.7	46.5	121.9	51.2	110.9	57.3
	7	151.3	38.7	143.2	42.6	139.8	44.3	<b>134.5</b>	<b>47.0</b>	125.6	51.6	114.2	57.8
	8	155.7	39.1	147.3	43.1	143.8	44.8	138.4	47.4	129.2	52.1		
	9	160.1	39.5	151.4	43.5	147.8	45.3	142.4	47.9	132.9	52.6		
	10	164.6	39.9	155.7	44.0	152.1	45.7	146.5	48.3	136.7	53.1		
	13	178.2	41.3	168.6	45.4	164.7	47.1	158.7	49.8	148.2	54.7		
554 STD	3	148.0	42.1	140.1	46.3	136.8	48.1	131.8	50.8	123.2	55.6	112.4	61.7
	4	152.5	42.6	144.3	46.8	140.9	48.6	135.7	51.4	127.2	56.0	115.9	62.3
	5	157.0	43.1	148.6	47.3	145.2	49.1	139.8	51.9	130.8	56.7	119.3	62.9
	6	161.5	43.6	152.8	47.9	149.3	49.7	143.9	52.4	134.6	57.3		
	7	166.2	44.2	157.3	48.5	153.6	50.3	<b>148.0</b>	<b>53.0</b>	138.4	57.9		
	8	170.7	44.7	161.6	49.1	157.9	50.8	152.2	53.6	142.3	58.5		
	9	175.4	45.2	166.1	49.6	162.3	51.4	156.4	54.2	146.2	59.1		
	10	180.2	45.8	170.5	50.2	166.6	52.0	160.6	54.8	150.2	59.7		
	13	194.6	47.5	184.2	51.9	180.1	53.8	173.5	56.6	162.3	61.6		
604 STD	3	157.2	46.6	148.5	51.2	145.0	53.1	139.5	56.2	130.1	61.5		
	4	161.8	47.2	152.9	51.8	149.2	53.8	143.6	56.8	133.9	62.2		
	5	166.5	47.8	157.3	52.5	153.6	54.4	147.8	57.5	138.0	62.9		
	6	171.3	48.4	161.8	53.1	158.0	55.1	152.1	58.2	141.9	63.6		
	7	176.0	49.0	166.4	53.8	162.4	55.7	<b>156.2</b>	<b>58.9</b>	145.8	64.3		
	8	180.8	49.7	171.0	54.4	166.8	56.4	160.7	59.5	149.8	65.1		
	9	185.8	50.3	175.6	55.1	171.3	57.1	164.9	60.3	153.9	65.8		
	10	190.6	51.0	180.2	55.8	175.8	57.8	169.3	61.0	157.9	66.6		
	13	205.6	53.0	194.3	57.9	189.6	60.0	182.5	63.3	170.4	68.9		
704 STD	3	189.3	56.2	180.2	61.7	176.4	63.9	170.5	67.3	158.5	74.8	143.7	84.3
	4	195.0	56.8	185.4	62.4	181.6	64.6	175.5	68.1	163.2	75.6	147.9	85.2
	5	200.6	57.5	190.9	63.1	186.8	65.4	180.7	68.8	167.9	76.3	152.3	86.0
	6	205.7	58.2	195.7	63.8	191.6	66.1	185.2	69.6	172.2	77.1		
	7	210.8	58.9	200.6	64.5	196.2	66.8	<b>189.9</b>	<b>70.3</b>	176.5	77.8		
	8	215.8	59.6	205.4	65.2	201.0	67.6	194.4	71.1	180.5	78.6		
	9	220.9	60.4	210.4	66.0	205.8	68.4	199.0	71.9	185.0	79.5		
	10	226.1	61.1	215.1	66.8	210.6	69.1	203.6	72.6	189.2	80.3		
	13	241.5	63.4	229.9	69.1	225.1	71.5	217.4	75.1				
804 STD	3	213.5	63.4	203.2	69.6	198.9	72.1	192.2	75.9	178.7	84.3	162.0	95.1
	4	219.8	64.1	209.1	70.3	204.8	72.9	197.9	76.8	184.0	85.2	166.8	96.1
	5	226.2	64.8	215.2	71.1	210.7	73.7	203.7	77.6	189.3	86.1	171.7	97.0
	6	231.9	65.6	220.7	71.9	216.1	74.5	208.8	78.5	194.1	86.9	176.0	97.9
	7	237.7	66.4	226.1	72.8	221.3	75.4	<b>214.1</b>	<b>79.3</b>	199.0	87.8	180.4	98.8
	8	243.4	67.3	231.6	73.6	226.7	76.3	219.2	80.2	203.5	88.7		
	9	249.1	68.1	237.2	74.4	232.0	77.1	224.4	81.1	208.6	89.7		
	10	255.0	68.9	242.6	75.4	237.5	78.0	229.6	81.9	213.4	90.6		
	13	272.3	71.6	259.3	77.9	253.8	80.6	245.2	84.8	228.0	93.4		

Notes : - EVT : Evaporating temperature.  
 - Power input data are given for compressors only.

# Cooling Capacities - VLC STD (continued)

VLC MODELS	EVT (°C)	Condenser entering air temperature (°C)											
		25		30		32		35		40		46	
		Cool. cap. (kW)	Input power (kW)	Cool. cap. (kW)	Input power (kW)	Cool. cap. (kW)	Input power (kW)	Cool. cap. (kW)	Input power (kW)	Cool. cap. (kW)	Input power (kW)	Cool. cap. (kW)	Input power (kW)
904 STD	3	246.0	72.2	234.2	79.2	229.2	82.1	221.5	86.5	205.9	96.1	186.7	108.3
	4	253.3	73.0	240.9	80.1	236.0	83.0	228.0	87.5	212.1	97.1	192.2	109.5
	5	260.7	73.9	248.0	81.0	242.8	84.0	234.7	88.4	218.1	98.1	197.8	110.5
	6	267.2	74.8	254.3	81.9	249.0	84.9	240.6	89.4	223.7	99.0	202.8	111.5
	7	273.9	75.6	260.6	82.9	255.0	85.9	<b>246.7</b>	<b>90.3</b>	229.4	100.0	207.9	112.6
	8	280.4	76.6	266.9	83.8	261.2	86.9	252.6	91.4	234.6	101.0	212.8	113.7
	9	287.0	77.6	273.3	84.8	267.4	87.8	258.6	92.3	240.4	102.1	217.9	114.8
	10	293.8	78.5	279.5	85.8	273.7	88.8	264.6	93.3	245.9	103.2		
	13	313.8	81.5	298.8	88.8	292.4	91.9	282.5	96.6	262.8	106.4		
1004 STD	3	275.7	79.8	262.4	87.6	256.8	90.8	248.3	95.6	230.8	106.2	209.2	119.7
	4	283.9	80.7	270.0	88.6	264.4	91.8	255.6	96.7	237.7	107.3	215.4	121.0
	5	292.1	81.6	278.0	89.5	272.0	92.8	263.1	97.7	244.5	108.4	221.7	122.1
	6	299.5	82.6	285.0	90.5	279.0	93.8	269.6	98.8	250.7	109.4	227.3	123.3
	7	307.0	83.6	292.0	91.6	285.7	94.9	<b>276.5</b>	<b>99.8</b>	257.0	110.5	233.0	124.4
	8	314.3	84.7	299.1	92.6	292.7	96.0	283.1	101.0	262.9	111.7	238.5	125.7
	9	321.6	85.8	306.3	93.7	299.6	97.1	289.8	102.1	269.4	112.9	244.2	126.9
	10	329.3	86.8	313.2	94.9	306.7	98.2	296.5	103.1	275.6	114.1		
	13	351.7	90.1	334.8	98.1	327.7	101.5	316.6	106.7	294.5	117.6		
1104 STD	3	303.9	81.8	289.3	89.8	283.1	93.1	273.7	98.1	254.4	108.9	230.7	122.8
	4	313.0	82.7	297.7	90.8	291.5	94.1	281.7	99.2	262.0	110.0	237.5	124.1
	5	322.1	83.7	306.4	91.8	299.9	95.2	290.0	100.2	269.5	111.2	244.4	125.3
	6	330.1	84.7	314.2	92.8	307.6	96.2	297.3	101.3	276.4	112.2		
	7	338.4	85.7	321.9	94.0	315.0	97.3	<b>304.8</b>	<b>102.3</b>	283.4	113.4		
	8	346.4	86.9	329.7	95.0	322.7	98.5	312.1	103.6	289.8	114.5		
	9	354.6	88.0	337.7	96.1	330.3	99.6	319.5	104.7	297.0	115.8		
	10	363.0	89.0	345.3	97.3	338.1	100.7	326.9	105.8	303.8	117.0		
	13	387.7	92.4	369.1	100.6	361.3	104.1	349.0	109.4				
1204 STD	3	328.0	92.7	312.2	101.7	305.6	105.4	295.4	111.1	274.6	123.4	249.0	139.1
	4	337.8	93.7	321.3	102.9	314.6	106.6	304.1	112.3	282.8	124.6	256.3	140.6
	5	347.6	94.8	330.7	104.0	323.7	107.9	313.0	113.5	290.9	125.9	263.8	141.9
	6	356.3	96.0	339.1	105.2	332.0	109.0	320.8	114.8	298.3	127.1		
	7	365.2	97.1	347.5	106.4	340.0	110.3	<b>329.0</b>	<b>115.9</b>	305.8	128.4		
	8	373.9	98.4	355.9	107.6	348.3	111.5	336.8	117.3	312.8	129.7		
	9	382.7	99.6	364.4	108.8	356.5	112.8	344.9	118.6	320.5	131.1		
	10	391.8	100.8	372.7	110.2	364.9	114.1	352.8	119.8	327.9	132.5		
	13	418.4	104.7	398.4	114.0	389.9	118.0	376.7	124.0				

Notes : - EVT : Evaporating temperature.  
 - Power input data are given for compressors only.

# Cooling Capacities - VLC LN

VLC MODELS	EVT (°C)	Condenser entering air temperature (°C)											
		25		30		32		35		40		46	
		Cool. cap. (kW)	Input power (kW)	Cool. cap. (kW)	Input power (kW)	Cool. cap. (kW)	Input power (kW)	Cool. cap. (kW)	Input power (kW)	Cool. cap. (kW)	Input power (kW)	Cool. cap. (kW)	Input power (kW)
504 LN	3	129.1	39.9	121.7	43.9	118.6	45.6	113.9	48.2	105.9	52.9		
	4	133.0	40.3	125.2	44.4	122.2	46.1	117.3	48.8	109.0	53.5		
	5	136.8	40.8	129.0	44.9	125.8	46.6	120.7	49.3	112.3	54.0		
	6	140.7	41.4	132.7	45.5	129.3	47.2	124.2	49.9	115.6	54.6		
	7	144.7	41.9	136.4	46.0	133.0	47.8	<b>127.8</b>	<b>50.4</b>	118.8	55.2		
	8	148.7	42.4	140.1	46.6	136.6	48.3	131.2	51.1	122.2	55.9		
	9	152.6	43.0	143.9	47.2	140.3	48.9	134.9	51.6	125.5	56.5		
	10	156.7	43.5	147.7	47.7	144.0	49.5	138.4	52.3	128.7	57.1		
	13	169.0	45.2	159.4	49.5	155.4	51.3	149.3	54.1				
554 LN	3	141.7	45.5	133.6	49.8	130.3	51.6	125.4	54.4	116.8	59.2		
	4	145.7	46.1	137.4	50.5	134.0	52.3	129.0	55.1	120.2	59.9		
	5	149.7	46.8	141.3	51.1	137.9	53.0	132.6	55.7	123.5	60.6		
	6	153.9	47.4	145.2	51.8	141.6	53.6	136.2	56.4	126.9	61.3		
	7	158.1	48.1	149.1	52.5	145.5	54.3	<b>139.9</b>	<b>57.2</b>	130.3	62.0		
	8	162.2	48.8	153.1	53.2	149.3	55.0	143.5	57.9	133.7	62.8		
	9	166.5	49.4	157.1	53.9	153.1	55.7	147.3	58.6	137.2	63.5		
	10	170.6	50.1	160.9	54.6	157.1	56.5	151.0	59.3				
	13	183.5	52.3	173.1	56.8	168.8	58.7	162.4	61.5				
604 LN	3	156.6	46.8	148.0	51.5	144.3	53.4	139.0	56.4	129.6	61.8		
	4	161.3	47.4	152.3	52.1	148.7	54.1	143.1	57.1	133.4	62.5		
	5	165.9	48.1	156.7	52.8	152.9	54.7	147.2	57.8	137.2	63.3		
	6	170.6	48.7	161.2	53.4	157.3	55.4	151.4	58.5	141.3	63.9		
	7	175.4	49.3	165.8	54.1	161.7	56.1	<b>155.7</b>	<b>59.2</b>	145.1	64.7		
	8	180.2	50.0	170.3	54.7	166.2	56.8	159.9	59.9	149.1	65.5		
	9	185.1	50.6	174.8	55.5	170.6	57.5	164.2	60.6	153.1	66.2		
	10	189.9	51.3	179.4	56.1	175.1	58.2	168.4	61.4	157.3	66.9		
	13	204.7	53.4	193.3	58.4	188.8	60.4	181.7	63.6				
704 LN	3	183.3	55.4	174.5	60.8	170.7	63.0	165.1	66.4	153.4	73.7		
	4	188.7	56.0	179.5	61.5	175.8	63.7	169.9	67.1	158.0	74.5		
	5	194.2	56.7	184.8	62.1	180.9	64.4	174.9	67.8	162.5	75.2		
	6	199.1	57.3	189.5	62.8	185.5	65.1	179.3	68.6	166.7	75.9		
	7	204.1	58.0	194.1	63.6	190.0	65.9	<b>183.8</b>	<b>69.2</b>	170.9	76.7		
	8	208.9	58.8	198.8	64.3	194.6	66.6	188.2	70.1	174.8	77.5		
	9	213.8	59.5	203.6	65.0	199.2	67.4	192.7	70.8	179.1	78.3		
	10	218.9	60.2	208.3	65.8	203.9	68.1	197.1	71.6	183.2	79.2		
	13	233.8	62.5	222.6	68.1	217.9	70.5	210.5	74.1	195.8	81.6		
804 LN	3	206.2	64.7	196.3	71.1	192.1	73.7	185.7	77.6	172.6	86.2		
	4	212.4	65.5	202.0	71.9	197.8	74.5	191.2	78.5	177.8	87.1		
	5	218.6	66.3	207.9	72.7	203.5	75.4	196.8	79.3	182.9	88.0		
	6	224.0	67.1	213.2	73.5	208.7	76.2	201.7	80.2	187.6	88.8		
	7	229.6	67.9	218.5	74.4	213.8	77.0	<b>206.9</b>	<b>81.0</b>	192.3	89.7		
	8	235.1	68.7	223.7	75.2	219.0	77.9	211.8	82.0	196.7	90.6		
	9	240.6	69.6	229.1	76.0	224.2	78.8	216.8	82.8	201.5	91.6		
	10	246.3	70.4	234.3	77.0	229.5	79.7	221.8	83.7	206.1	92.6		
	13	263.1	73.1	250.5	79.7	245.2	82.4	236.9	86.6	220.3	95.5		

Notes : - EVT : Evaporating temperature.  
 - Power input data are given for compressors only.

# Cooling Capacities - VLC LN (continued)

VLC MODELS	EVT (°C)	Condenser entering air temperature (°C)											
		25		30		32		35		40		46	
		Cool. cap. (kW)	Input power (kW)	Cool. cap. (kW)	Input power (kW)	Cool. cap. (kW)	Input power (kW)	Cool. cap. (kW)	Input power (kW)	Cool. cap. (kW)	Input power (kW)	Cool. cap. (kW)	Input power (kW)
904 LN	3	238.9	70.9	227.4	77.8	222.5	80.6	215.1	85.0	200.0	94.3		
	4	246.0	71.7	234.0	78.7	229.1	81.5	221.4	85.9	205.9	95.3		
	5	253.1	72.5	240.8	79.6	235.7	82.5	227.9	86.8	211.8	96.3		
	6	259.5	73.4	247.0	80.4	241.8	83.4	233.6	87.8	217.2	97.2		
	7	266.0	74.3	253.0	81.4	247.6	84.3	<b>239.6</b>	<b>88.6</b>	222.7	98.2		
	8	272.3	75.2	259.1	82.3	253.6	85.3	245.3	89.7	227.8	99.2		
	9	278.7	76.2	265.4	83.2	259.6	86.3	251.1	90.7	233.4	100.3		
	10	285.3	77.1	271.4	84.3	265.8	87.2	256.9	91.6	238.8	101.4		
	13	304.7	80.0	290.1	87.2	284.0	90.2	274.3	94.8	255.2	104.5		
1004 LN	3	265.5	80.8	252.8	88.7	247.4	92.0	239.1	96.9	222.3	107.6		
	4	273.5	81.7	260.1	89.7	254.7	93.0	246.1	98.0	228.9	108.7		
	5	281.4	82.7	267.7	90.7	262.0	94.1	253.4	99.0	235.5	109.9		
	6	288.4	83.7	274.5	91.7	268.8	95.1	259.7	100.1	241.5	110.9		
	7	295.7	84.7	281.3	92.8	275.2	96.2	<b>266.3</b>	<b>101.1</b>	247.6	112.0		
	8	302.7	85.8	288.1	93.8	281.9	97.3	272.7	102.3	253.2	113.1		
	9	309.8	86.9	295.0	94.9	288.6	98.4	279.2	103.4	259.5	114.4		
	10	317.1	87.9	301.7	96.1	295.4	99.5	285.6	104.5	265.4	115.6		
	13	338.7	91.3	322.5	99.4	315.7	102.9	305.0	108.1	283.6	119.2		
1104 LN	3	291.6	87.4	277.6	95.9	271.7	99.4	262.6	104.7	244.1	116.3		
	4	300.3	88.3	285.7	97.0	279.8	100.5	270.4	105.9	251.4	117.5		
	5	309.1	89.4	294.1	98.1	287.8	101.7	278.3	107.0	258.6	118.7		
	6	316.8	90.5	301.5	99.1	295.2	102.8	285.3	108.2	265.2	119.8		
	7	324.7	91.6	308.9	100.3	302.3	103.9	<b>292.5</b>	<b>109.3</b>	271.9	121.1		
	8	332.5	92.7	316.4	101.4	309.7	105.1	299.5	110.6	278.1	122.3		
	9	340.3	93.9	324.0	102.6	317.0	106.3	306.6	111.8	285.0	123.6		
	10	348.3	95.0	331.4	103.9	324.5	107.5	313.7	113.0	291.5	125.0		
	13	372.0	98.7	354.2	107.5	346.7	111.2	335.0	116.9				
1204 LN	3	314.4	99.4	299.3	109.1	292.9	113.1	283.1	119.1	263.2	132.3		
	4	323.8	100.5	307.9	110.3	301.6	114.3	291.4	120.5	271.1	133.7		
	5	333.2	101.7	317.0	111.5	310.2	115.6	300.0	121.7	278.8	135.0		
	6	341.5	102.9	325.0	112.8	318.2	116.9	307.5	123.1	285.9	136.3		
	7	350.1	104.1	333.0	114.1	325.9	118.2	<b>315.3</b>	<b>124.3</b>	293.1	137.7		
	8	358.4	105.5	341.1	115.4	333.8	119.6	322.8	125.8	299.8	139.1		
	9	366.8	106.8	349.3	116.7	341.7	120.9	330.5	127.1	307.2	140.6		
	10	375.5	108.1	357.2	118.2	349.8	122.3	338.2	128.5	314.3	142.1		
	13	401.0	112.2	381.8	122.2	373.7	126.5	361.1	132.9				

Notes : - EVT : Evaporating temperature.  
 - Power input data are given for compressors only.

# Cooling Capacities - VLC ELN

VLC models	EVT (°C)	Condenser entering air temperature (°C)											
		25		30		32		35		40		46	
		Cool. cap. (kW)	Input power (kW)	Cool. cap. (kW)	Input power (kW)	Cool. cap. (kW)	Input power (kW)	Cool. cap. (kW)	Input power (kW)	Cool. cap. (kW)	Input power (kW)	Cool. cap. (kW)	Input power (kW)
504 ELN	3	131.8	38.4	124.5	42.3	121.5	44.0	116.9	46.5	108.9	51.1	98.9	57.1
	4	135.7	38.9	128.2	42.8	125.0	44.5	120.4	47.1	112.2	51.7	101.9	57.7
	5	139.7	39.4	131.9	43.4	128.7	45.0	123.8	47.6	115.5	52.3		
	6	143.6	39.9	135.7	43.9	132.5	45.6	127.4	48.2	118.8	52.9		
	7	147.6	40.5	139.6	44.4	136.2	46.1	<b>131.0</b>	<b>48.8</b>	122.2	53.5		
	8	151.8	41.0	143.3	45.0	139.9	46.7	134.6	49.4	125.6	54.0		
	9	155.8	41.5	147.2	45.6	143.7	47.3	138.2	50.0	128.9	54.7		
	10	160.0	42.0	151.1	46.1	147.4	47.9	142.0	50.5	132.4	55.3		
	13	172.4	43.7	162.9	47.9	159.0	49.7	153.0	52.4	142.6	57.3		
554 ELN	3	147.5	42.4	139.6	46.6	136.4	48.3	131.4	51.0	122.8	55.8	112.2	61.9
	4	151.9	42.9	143.8	47.1	140.4	48.9	135.3	51.6	126.5	56.4	115.6	62.5
	5	156.3	43.5	147.9	47.7	144.5	49.5	139.0	52.2	130.2	57.0	119.0	63.1
	6	160.8	44.0	152.2	48.3	148.7	50.1	143.3	52.8	133.9	57.6		
	7	165.2	44.6	156.4	48.9	152.8	50.6	<b>147.3</b>	<b>53.4</b>	137.7	58.2		
	8	169.9	45.1	160.8	49.5	157.1	51.3	151.3	54.0	141.6	58.9		
	9	174.3	45.7	165.1	50.1	161.3	51.9	155.4	54.7	145.4	59.5		
	10	179.0	46.3	169.5	50.7	165.5	52.5	159.5	55.3	149.2	60.2		
	13	193.0	48.2	182.7	52.6	178.5	54.4	172.0	57.3	161.0	62.2		
604 ELN	3	156.5	46.9	147.8	51.5	144.3	53.5	138.9	56.5	129.6	61.8		
	4	161.1	47.6	152.2	52.2	148.6	54.2	143.0	57.2	133.4	62.5		
	5	165.7	48.2	156.5	52.9	152.8	54.8	146.8	57.9	137.2	63.3		
	6	170.3	48.9	160.9	53.6	157.1	55.5	151.1	58.6	141.0	64.0		
	7	175.0	49.5	165.3	54.3	161.3	56.3	<b>155.3</b>	<b>59.4</b>	145.0	64.8		
	8	179.6	50.2	169.8	55.0	165.7	57.0	159.5	60.1	148.9	65.6		
	9	184.4	50.9	174.2	55.7	170.1	57.7	163.8	60.8	152.8	66.4		
	10	189.3	51.6	178.8	56.5	174.5	58.5	168.0	61.6	156.7	67.2		
	13	203.7	53.8	192.4	58.8	187.8	60.8	180.8	64.0				
704 ELN	3	185.4	55.7	175.1	61.1	171.1	63.3	164.9	66.8	154.1	72.9		
	4	190.7	56.5	180.4	61.9	176.2	64.2	169.7	67.7	158.8	73.8		
	5	196.3	57.3	185.6	62.7	181.3	65.0	174.7	68.5	163.4	74.6		
	6	201.7	58.1	190.9	63.5	186.3	65.9	179.6	69.4	168.1	75.6		
	7	207.3	58.9	196.1	64.5	191.5	66.7	<b>184.6</b>	<b>70.3</b>	172.7	76.5		
	8	212.9	59.8	201.5	65.3	196.8	67.6	189.6	71.2	177.4	77.5		
	9	218.7	60.6	206.9	66.2	202.0	68.5	194.7	72.1	182.2	78.4		
	10	224.4	61.4	212.2	67.1	207.4	69.4	199.9	73.0	187.0	79.3		
	13	241.8	64.1	228.7	69.8	223.3	72.2	215.0	75.9	201.2	82.2		
804 ELN	3	205.6	63.5	194.7	69.6	190.2	72.2	183.2	76.1	171.4	82.8		
	4	211.6	64.3	200.3	70.5	195.6	73.1	188.6	77.0	176.3	83.7		
	5	217.7	65.3	206.0	71.5	201.3	74.1	193.9	78.0	181.3	84.7		
	6	223.8	66.2	211.9	72.4	207.0	75.0	199.4	79.0	186.5	85.7		
	7	230.0	67.2	217.8	73.4	212.6	76.0	<b>204.9</b>	<b>80.0</b>	191.7	86.7		
	8	236.1	68.2	223.7	74.4	218.4	77.0	210.5	80.9	196.9	87.7		
	9	242.6	69.1	229.6	75.4	224.2	78.0	216.1	82.0	202.0	88.8		
	10	248.9	70.1	235.5	76.4	230.1	79.0	221.7	83.0	207.3	89.8		
	13	268.3	73.1	253.7	79.5	247.8	82.2	238.7	86.2				

Notes : - EVT : Evaporating temperature.  
 - Power input data are given for compressors only.

# Cooling Capacities - VLC ELN (continued)

VLC MODELS	EVT (°C)	Condenser entering air temperature (°C)											
		25		30		32		35		40		46	
		Cool. cap. (kW)	Input power (kW)	Cool. cap. (kW)	Input power (kW)	Cool. cap. (kW)	Input power (kW)	Cool. cap. (kW)	Input power (kW)	Cool. cap. (kW)	Input power (kW)	Cool. cap. (kW)	Input power (kW)
904 ELN	3	239.1	72.7	226.4	79.5	221.3	82.3	219.9	83.0	206.1	90.4		
	4	245.7	73.8	232.7	80.7	227.3	83.5	226.1	84.1	212.0	91.4		
	5	252.4	75.0	239.0	81.9	233.5	84.7	232.4	85.1	217.9	92.6		
	6	259.1	76.1	245.4	83.0	239.8	85.9	238.8	86.3	223.9	93.6		
	7	265.9	77.4	251.7	84.3	245.8	87.1	<b>245.3</b>	<b>87.4</b>	229.9	94.9		
	8	272.8	78.6	258.2	85.5	252.2	88.4	251.8	88.6	236.0	96.0		
	9	279.7	79.9	264.5	86.8	258.5	89.6	258.2	89.7	242.0	97.2		
	10	286.5	81.1	271.0	88.1	264.8	90.9	264.8	90.9	248.1	98.4		
	13	307.4	85.0	290.6	92.0	283.8	94.9	284.7	94.6				
1004 ELN	3	257.6	83.6	276.3	91.1	238.3	94.1	237.3	94.6	222.4	102.7		
	4	264.5	85.0	250.5	92.5	244.6	95.5	243.8	96.0	228.5	104.0		
	5	271.6	86.3	257.0	93.9	250.8	97.0	250.5	97.2	234.7	105.3		
	6	278.5	87.8	263.5	95.4	257.4	98.4	257.3	98.6	241.0	106.6		
	7	285.6	89.2	270.2	96.8	263.8	100.0	<b>263.8</b>	<b>100.0</b>	247.2	108.0		
	8	292.7	90.7	276.8	98.3	270.3	101.4	270.5	101.3	253.3	109.5		
	9	299.8	92.2	283.5	99.8	276.6	103.0	277.3	102.7	259.8	110.9		
	10	306.8	93.7	290.1	101.4	283.1	104.5	284.0	104.2	266.2	112.3		
	13	328.2	98.4	310.3	106.1	302.8	109.3	304.7	108.5				
1104 ELN	3	281.6	91.9	268.0	100.9	262.3	104.6	253.6	110.2	235.7	122.4		
	4	290.0	93.0	275.8	102.1	270.1	105.7	261.0	111.5	242.8	123.7		
	5	298.4	94.1	283.9	103.2	277.9	107.0	268.7	112.6	249.7	124.9		
	6	305.9	95.2	291.1	104.3	285.0	108.1	275.4	113.9				
	7	313.5	96.4	298.3	105.6	291.9	109.4	<b>282.4</b>	<b>115.0</b>				
	8	321.0	97.6	305.5	106.7	299.0	110.6	289.2	116.4				
	9	328.5	98.9	312.9	108.0	306.1	111.9	296.0	117.6				
	10	336.3	100.0	320.0	109.3	313.3	113.1	302.9	118.9				
	13	359.2	103.8	342.0	113.1	334.7	117.0	323.4	123.0				
1204 ELN	3	303.0	104.9	288.5	115.2	282.3	119.4	272.9	125.8	253.7	139.7		
	4	312.1	106.1	296.9	116.5	290.7	120.7	280.9	127.2	261.3	141.1		
	5	321.2	107.4	305.6	117.8	299.1	122.1	289.2	128.5	268.8	142.6		
	6	329.2	108.7	313.3	119.1	306.7	123.4	296.4	129.9				
	7	337.5	110.0	321.0	120.5	314.1	124.8	<b>304.0</b>	<b>131.2</b>				
	8	345.5	111.4	328.8	121.8	321.8	126.3	311.2	132.8				
	9	353.6	112.8	336.7	123.2	329.4	127.7	318.6	134.2				
	10	362.0	114.1	344.4	124.8	337.2	129.1	326.0	135.7				
13	386.6	118.5	368.1	129.1	360.3	133.5	348.1	140.4					

Notes : - EVT : Evaporating temperature.  
 - Power input data are given for compressors only.

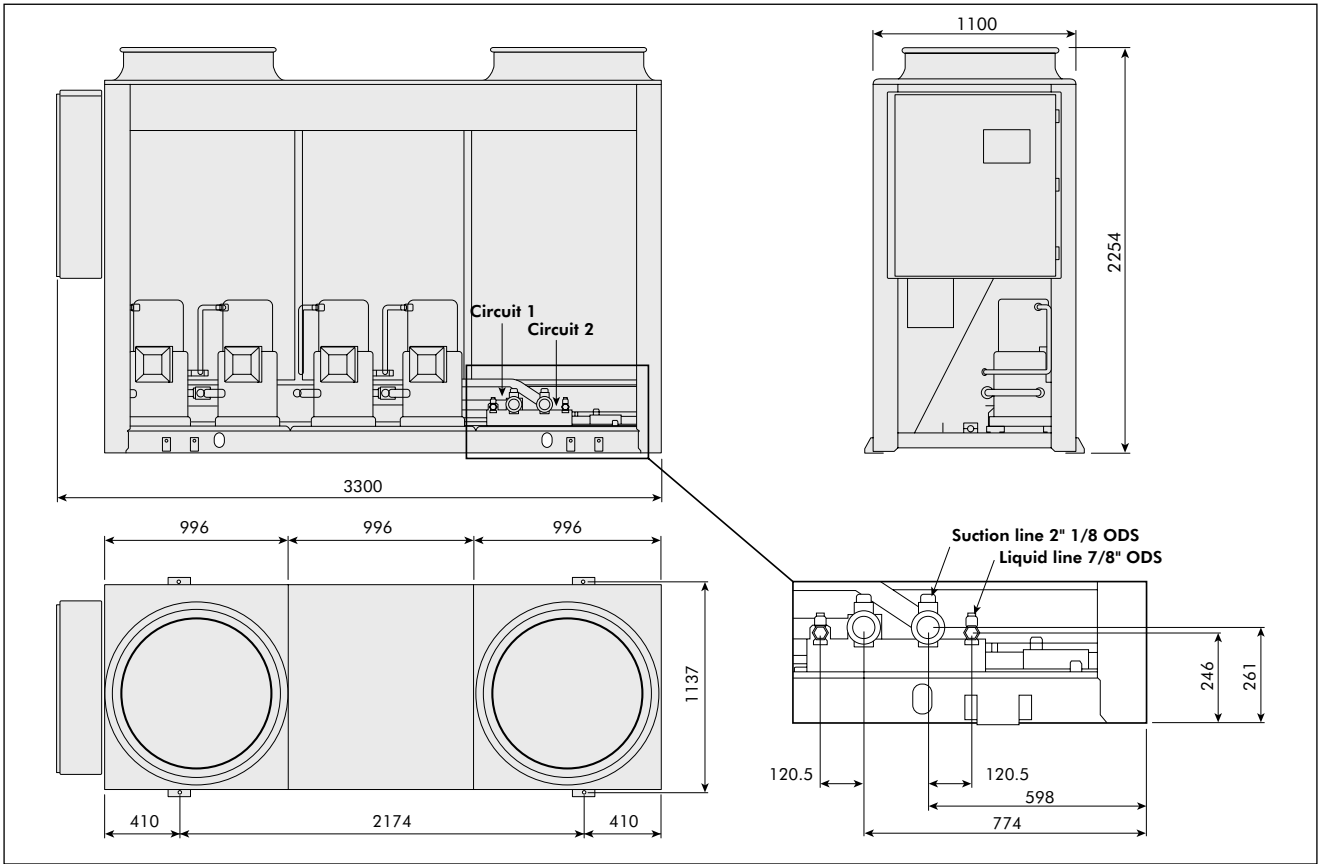
# Cooling Capacities - VLC HE

VLC MODELS	EVT (°C)	Condenser entering air temperature (°C)													
		25		30		32		35		40		46		49	
		Cool. cap. (kW)	Input power (kW)	Cool. cap. (kW)	Input power (kW)	Cool. cap. (kW)	Input power (kW)	Cool. cap. (kW)	Input power (kW)	Cool. cap. (kW)	Input power (kW)	Cool. cap. (kW)	Input power (kW)	Cool. cap. (kW)	Input power (kW)
504 HE	3	146.4	34.1	138.3	37.6	135.0	39.1	129.8	41.3	121.0	45.4	109.9	50.7	105.1	52.7
	4	150.7	34.6	142.4	38.0	138.9	39.5	133.7	41.9	124.6	45.9	113.2	51.3	108.2	53.3
	5	155.1	35.0	146.5	38.6	143.0	40.0	137.4	42.3	128.3	46.5	116.5	51.8	111.4	53.9
	6	159.5	35.5	150.7	39.0	147.1	40.5	141.4	42.8	131.9	47.0	119.9	52.3	114.7	54.4
	7	163.9	36.0	155.0	39.5	151.2	41.0	<b>145.4</b>	<b>43.4</b>	135.7	47.5	123.3	53.0		
	8	168.5	36.4	159.1	40.0	155.3	41.5	149.5	43.9	139.4	48.0	126.7	53.5		
	9	173.0	36.9	163.5	40.5	159.6	42.0	153.5	44.4	143.1	48.6	130.1	54.1		
	10	177.7	37.3	167.8	41.0	163.7	42.6	157.7	44.9	147.0	49.1	133.7	54.7		
	13	191.5	38.8	180.9	42.6	176.5	44.2	169.9	46.6	158.4	50.9				
554 HE	3	163.3	38.0	154.5	41.8	151.0	43.3	145.5	45.7	135.9	50.0	124.2	55.5	119.0	57.7
	4	168.1	38.5	159.2	42.2	155.4	43.8	149.8	46.3	140.1	50.6	128.0	56.0	122.6	58.2
	5	173.0	39.0	163.8	42.8	160.0	44.4	153.9	46.8	144.2	51.1	131.7	56.6		
	6	178.0	39.4	168.5	43.3	164.6	44.9	158.6	47.3	148.3	51.6	136.1	56.9		
	7	182.9	40.0	173.2	43.8	169.2	45.4	<b>163.1</b>	<b>47.9</b>	152.4	52.2	139.9	57.5		
	8	188.1	40.4	178.0	44.4	173.9	46.0	167.5	48.4	156.7	52.8	143.8	58.0		
	9	193.0	41.0	182.8	44.9	178.6	46.5	172.0	49.0	161.0	53.3	147.8	58.6		
	10	198.2	41.5	187.6	45.5	183.3	47.1	176.6	49.6	165.2	54.0				
	13	213.7	43.2	202.3	47.2	197.6	48.8	190.4	51.4	178.2	55.8				
604 HE	3	174.6	41.7	164.9	45.8	161.0	47.6	155.0	50.3	144.6	55.0	132.3	60.8		
	4	179.7	42.3	169.8	46.4	165.7	48.2	159.5	50.9	148.8	55.6	136.2	61.6		
	5	184.8	42.9	174.6	47.1	170.5	48.7	163.7	51.5	153.1	56.3	139.6	62.2		
	6	190.0	43.5	179.5	47.7	175.2	49.4	168.6	52.1	157.3	56.9	144.1	62.9		
	7	195.2	44.0	184.4	48.3	179.9	50.1	<b>173.2</b>	<b>52.8</b>	161.7	57.6	148.1	63.6		
	8	200.4	44.7	189.4	48.9	184.8	50.7	177.9	53.5	166.1	58.3				
	9	205.7	45.3	194.4	49.5	189.8	51.3	182.8	54.1	170.5	59.1				
	10	211.2	45.9	199.5	50.3	194.6	52.0	187.4	54.8	174.8	59.8				
	13	227.3	47.9	214.6	52.3	209.5	54.1	201.7	56.9	188.3	62.0				
704 HE	3	198.3	50.0	187.3	54.9	183.0	56.8	176.4	60.0	164.9	65.5	150.7	72.5	144.3	75.3
	4	204.0	50.7	193.0	55.6	188.5	57.6	181.5	60.8	169.8	66.3	155.4	73.3	148.8	76.1
	5	210.0	51.4	198.5	56.3	193.9	58.4	186.8	61.5	174.8	67.0	159.9	74.2	153.1	77.0
	6	215.8	52.2	204.2	57.0	199.3	59.2	192.2	62.3	179.8	67.9	164.5	75.0		
	7	221.8	52.9	209.7	57.9	204.9	59.9	<b>197.5</b>	<b>63.1</b>	184.8	68.7	169.0	75.9		
	8	227.8	53.7	215.5	58.6	210.6	60.7	202.8	63.9	189.7	69.6	173.7	76.7		
	9	233.9	54.4	221.3	59.4	216.1	61.5	208.2	64.7	194.9	70.4	178.3	77.6		
	10	240.1	55.1	227.0	60.2	221.9	62.3	213.8	65.5	200.0	71.2				
	13	258.7	57.5	244.7	62.7	238.9	64.8	230.0	68.1	215.2	73.8				
804 HE	3	222.6	56.3	210.8	61.7	205.9	64.1	198.4	67.5	185.6	73.5	169.4	80.9	162.4	84.1
	4	229.1	57.0	216.9	62.5	211.8	64.9	204.2	68.3	190.9	74.3	175.1	81.4	167.7	84.7
	5	235.7	57.9	223.1	63.4	218.0	65.7	210.0	69.2	196.4	75.1	180.0	82.3	172.4	85.6
	6	242.3	58.7	229.4	64.2	224.1	66.5	215.9	70.1	201.9	76.0	185.3	83.2	177.5	86.6
	7	249.0	59.6	235.8	65.1	230.2	67.4	<b>221.8</b>	<b>71.0</b>	207.6	76.9	190.6	84.1	182.5	87.4
	8	255.7	60.5	242.2	66.0	236.5	68.3	228.0	71.8	213.2	77.8	195.7	85.0		
	9	262.6	61.3	248.7	66.9	242.7	69.2	234.0	72.7	218.8	78.8	200.9	85.9		
	10	269.5	62.2	255.0	67.8	249.1	70.1	240.0	73.6	224.4	79.7	206.2	86.9		
	13	290.5	64.9	274.7	70.5	268.3	72.9	258.4	76.5	241.5	82.6				
904 HE	3	254.7	66.2	241.1	72.4	235.7	75.0	234.2	75.6	219.5	82.3	201.8	90.4	196.3	92.9
	4	261.7	67.2	247.9	73.5	242.1	76.0	240.9	76.6	225.8	83.2	207.6	91.3	202.0	93.8
	5	268.8	68.3	254.6	74.6	248.7	77.1	247.5	77.5	232.1	84.3	213.6	92.4	207.8	94.9
	6	276.0	69.3	261.4	75.6	255.4	78.2	254.3	78.6	238.4	85.2	219.3	93.4	213.5	95.9
	7	283.2	70.5	268.0	76.8	261.8	79.3	<b>261.2</b>	<b>79.6</b>	244.9	86.4	225.3	94.5	219.4	97.0
	8	290.5	71.6	275.0	77.9	268.6	80.5	268.2	80.7	251.3	87.4	231.3	95.6	225.3	98.0
	9	297.9	72.8	281.7	79.0	275.3	81.6	275.0	81.7	257.8	88.5	237.6	96.4		
	10	305.1	73.9	288.7	80.2	282.0	82.8	282.0	82.8	264.2	89.6	243.3	97.4		
	13	327.4	77.4	309.5	83.8	302.2	86.4	303.2	86.2	284.2	93.0				
1004 HE	3	274.4	76.1	294.3	82.9	253.7	85.7	252.7	86.1	236.8	93.5	218.2	102.1	251.9	91.1
	4	281.7	77.4	266.8	84.2	260.5	87.0	259.6	87.4	243.4	94.7	224.3	103.3	254.0	92.3
	5	289.2	78.6	273.7	85.5	267.1	88.3	266.8	88.5	249.9	95.9	230.4	104.4	260.8	93.5
	6	296.6	79.9	280.6	86.9	274.1	89.6	274.0	89.8	256.6	97.1	236.5	105.7	267.6	94.8
	7	304.2	81.2	287.7	88.1	280.9	91.0	<b>280.9</b>	<b>91.0</b>	263.3	98.3	242.7	107.0	274.5	96.1
	8	311.7	82.6	294.7	89.5	287.8	92.3	288.1	92.2	269.8	99.7	248.8	108.3	281.3	97.4
	9	319.3	83.9	301.9	90.9	294.6	93.8	295.3	93.5	276.7	101.0	255.0	109.5		
	10	326.8	85.3	308.9	92.3	301.5	95.1	302.5	94.9	283.5	102.2	261.5	110.8		
	13	349.6	89.6	330.5	96.6	322.5	99.5	324.5	98.8	303.8	106.3				

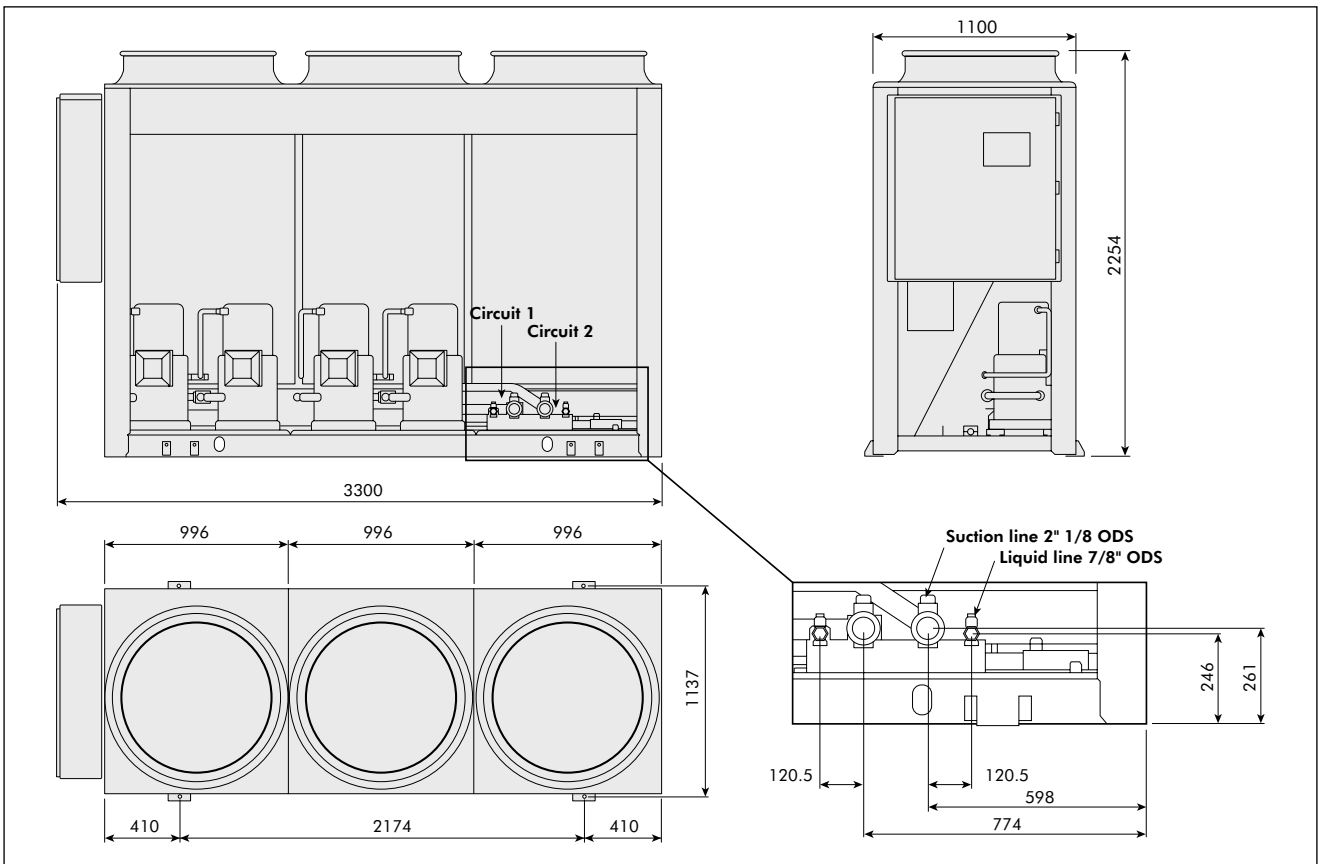
Notes : - EVT : Evaporating temperature.  
 - Power input data are given for compressors only.

# Dimensions

## Models VLC 504 - 554 STD/LN and 604 STD

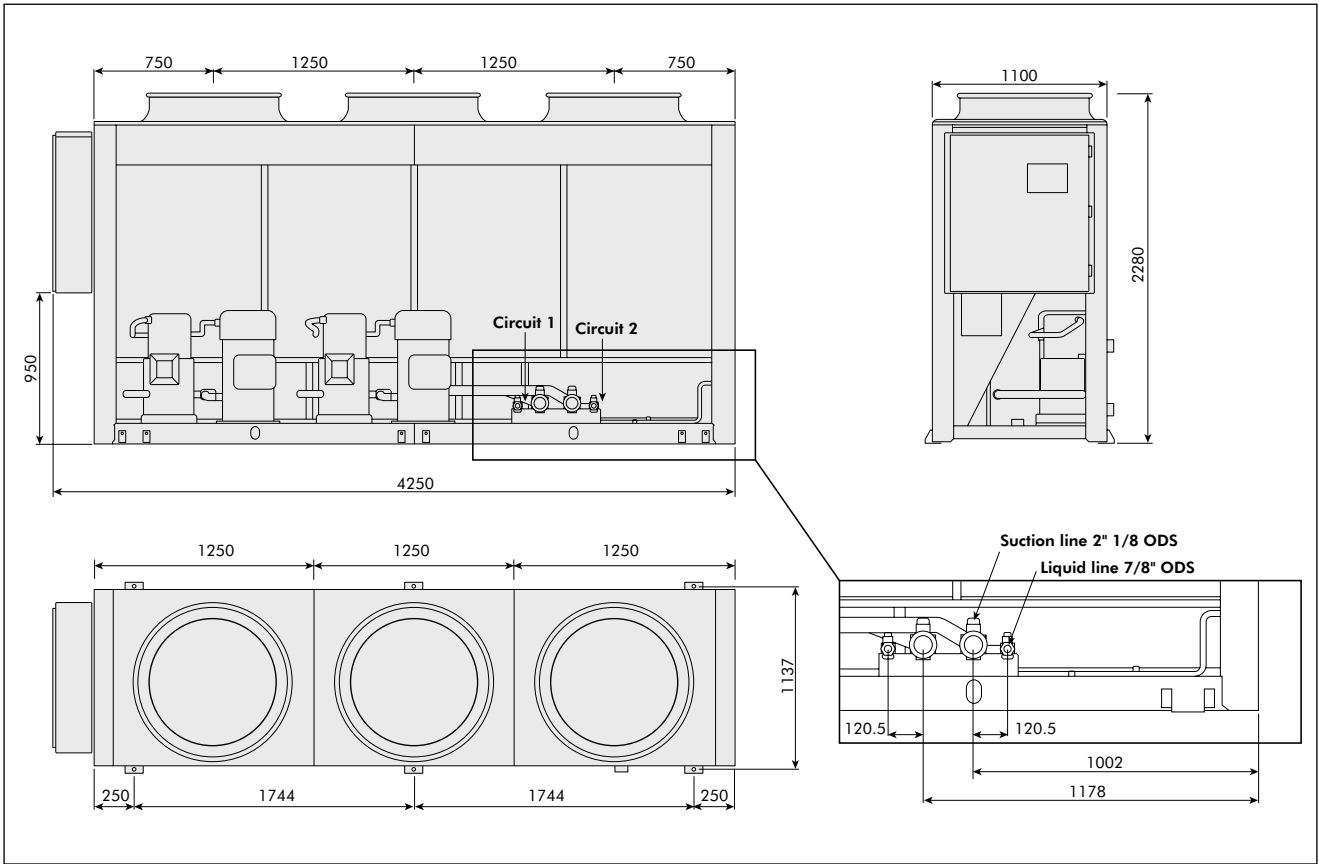


## Models VLC 504 - 554 ELN/HE and 604 LN/ELN/HE

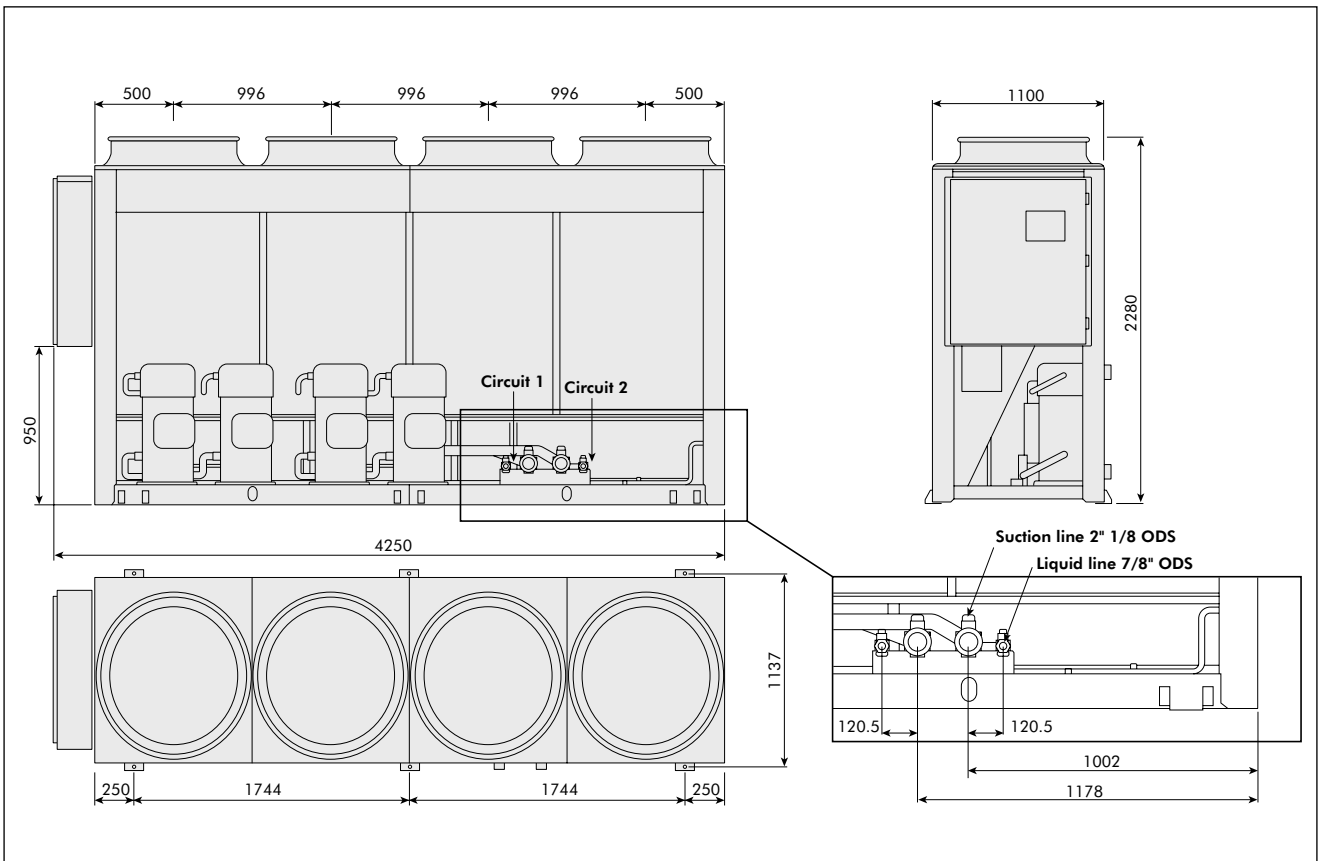


# Dimensions (continued)

## Models VLC 704 - 804 STD/LN

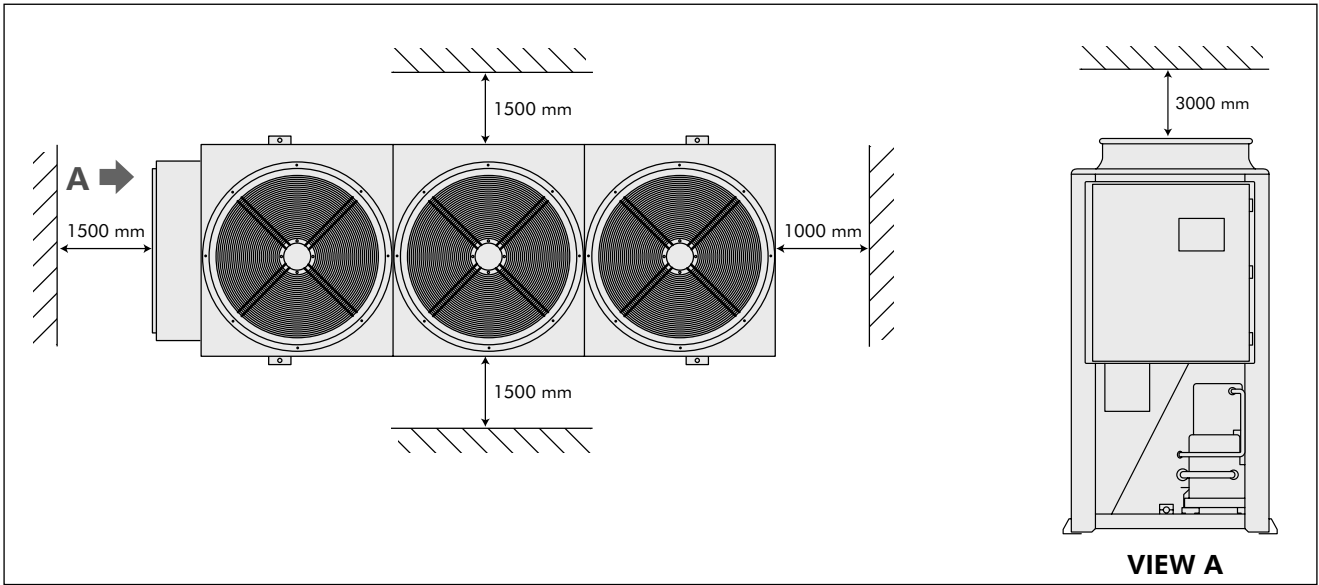


## Models VLC 704 - 804 ELN/HE, 904 - 1004 STD/LN/ELN/HE and 1104-1204 STD/LN/ELN

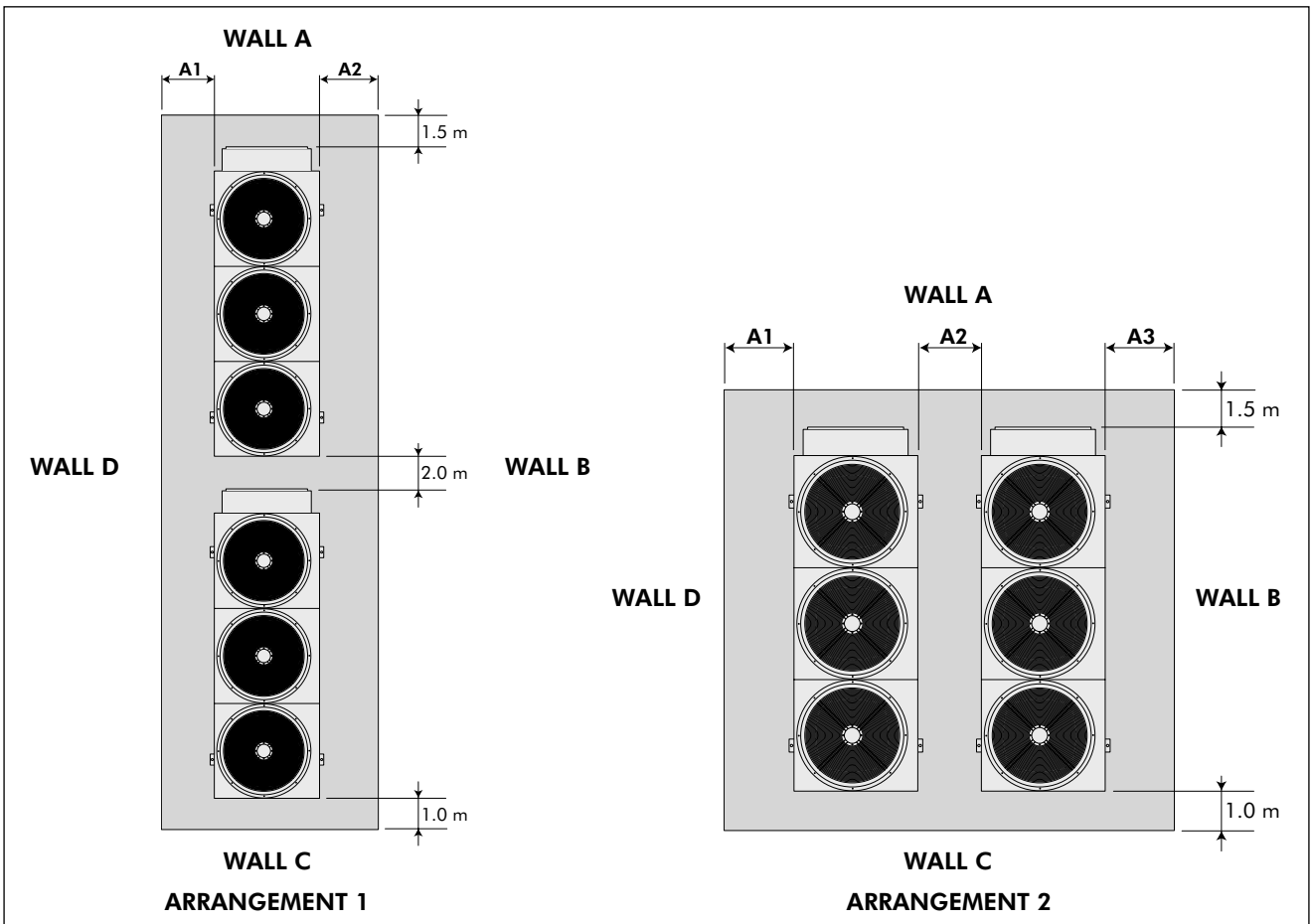


# Space Requirements

## Single unit applications



## Multi units applications

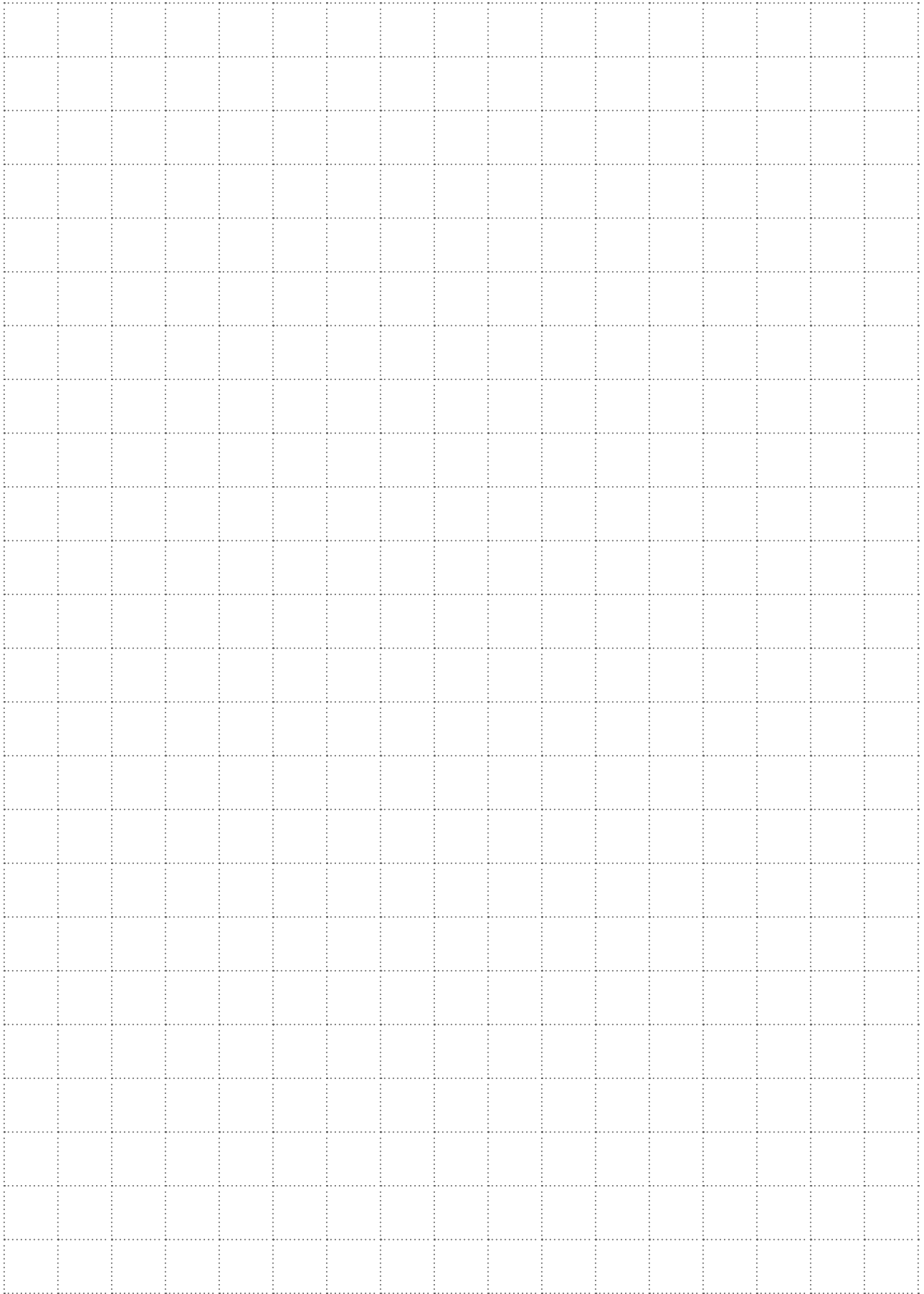


	LOUVRED A & C SOLID B & D			SOLID A & B SOLID C & D			SOLID A & C LOUVRED B & D			LOUVRED A & B SOLID C & D			LOUVRED A & D SOLID B & C		
	A1	A2	A3	A1	A2	A3	A1	A2	A3	A1	A2	A3	A1	A2	A3
<b>ARRANGEMENT 1</b>	1000	1000		1000	1000		800	800		1000	800		800	1000	
<b>ARRANGEMENT 2</b>	1000	1500	1000	1000	2000	1000	800	2000	800	1000	1500	800	800	1500	1000

**Note :** No more than one wall can be higher than the unit.  
The area enclosed by the wall must be kept clear of all obstructions that would impede air flow to the unit.  
Dimensions in mm.

# Notes

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# Wesper<sup>®</sup>

*As part of our ongoing product improvement programme, our products are subject to change without prior notice. Non contractual photos.*



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