

VCL

Refrigerant condensers



Key benefits

- Low height
- Easy installation
- Quiet

VCL characteristics

- Counter flow, centrifugal fan, forced draft
- PED 97/23/EC coil design

Capacity range

180 - 1380 kW
(for single cell models, nominal R22 kW's)

Typical applications

- Low height requirements
- Tight enclosures and installations requiring a single air inlet
- Indoor installations
- Sound critical installations
- Dry operation in winter time



Low height

- **Very low height:** fits perfectly on **roof tops** or tight enclosures.

Easy installation

- VCL condensers are factory-assembled. We ship in **one piece** for **easy on-site lifting and installation**.
- VCL offers high capacity and minimum operating weight. **Save on steel supports**, both underneath the equipment and in the building itself for rooftop installations.
- Single-side air inlet lets you install **next to solid walls**.
- Units housable **indoors** thanks to centrifugal fans allowing intake or discharge ductwork.

Ideal for a quiet operation

- VCL units include **quiet internal centrifugal fans** for minimal surrounding noise.
- Single-side air inlet, and a **quieter tower rear** for more noise-sensitive areas.
- Cut operation noise still further with factory-designed and tested **sound attenuators** or silencers.

Year-round reliable operation

- Various corrosion-resistant materials, including the [Baltiplus 810™ coating](#) for guaranteed long service life.
- **Optional Baltiguard Drive System** for energy savings and less noise during low load (night). A perfect stand-by system in case of motor failure

Interested in the VCL evaporative condenser for your industrial refrigeration application? Contact your local [BAC representative](#) for more information.

Downloads

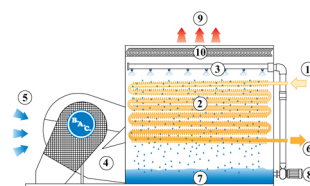
- [VCL refrigerant condenser](#)
- [Operating and Maintenance VCL](#)
- [Rigging and Installation VCL](#)

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Principle of operation

Vapor (1) enters through a **evaporative condensing coil (2)** and gets water sprayed on by the **spray system (3)** at the top of the condenser. At the same time the **centrifugal fan (4)** blows ambient **air upwards (5)** through the condenser. During operation, heat is transferred from the internal circuit coil to the water, and then to the atmosphere as a portion of the water that evaporates. The **condensed vapor (6)** then exits the unit. The tower **sump (7)** or basin collects the water. The spray water **pump (8)** recirculates the water up to the water spray system. The warm saturated **air (9)** leaves the tower through the **drift eliminators (10)**, which remove water droplets from the air.



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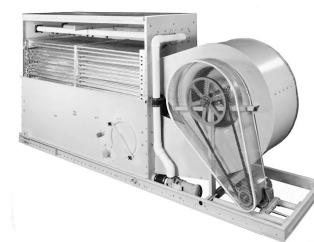
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Construction details

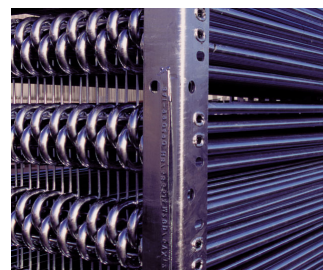
1. Material options

- Heavy-gauge hot-dip galvanized steel is used for external unit steel panels and structural elements featuring [Baltiplus 800™ Corrosion Protection](#).
- The [Baltiplus 810™ coating](#) is an optional extra. A hybrid polymer coating for longer service life, applied pre-assembly to all hot-dip galvanized steel components of the unit.
- Optional [stainless steel](#) panels and structural elements of type 304 or 316 for extreme applications.
- Or the economical alternative: a **water-contact stainless steel cold water basin**. Its key components and the basin itself are stainless steel.



2. Heat transfer media

- Our heat transfer media is a **condensing coil**. In comprehensive [lab thermal performance tests](#), it showed proved thermal cooler performance and offers you unrivalled system efficiency.
- The coil is constructed of continuous length of prime surface steel, hot-dip galvanized after fabrication. Designed for maximum 18 bar operating pressure according to PER. Pneumatically tested at 26.5 bar.



Try our VCL coil options:

- **Multiple circuit coils (split coils)** for your halo carbon refrigerants, maintaining individual compressor systems. Or use it for compressor jacket water or glycol cooling.
- **Stainless steel coils** are in type 304L or 316L.
- **High pressure coils** are designed for 28 bar operating pressure and pneumatically tested for 40 bar. Hot-dip galvanized after fabrication.

All coils are designed for low pressure drop with sloping tubes for free drainage of fluid.

3. Air movement system

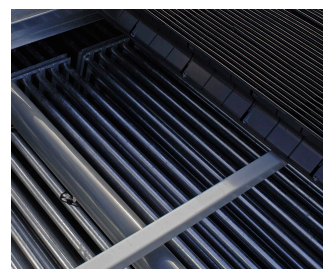
- With motor-driven centrifugal fan and a **V-belt drive**. You can easily remove the entire motor base for proper belt tensioning to ensure constantly correct belt alignment. Together with the **heavy duty fan shaft bearings** this guarantees optimal operational efficiency. Single- and multispeed **motors** available.
- **Centrifugal fan(s)** are forward-curved and nearly noiseless. Overcome external static pressure! Use [sound attenuators](#) and ductwork etc. for air intake/discharge with no loss of thermal performance!
- Our **drift eliminators** come in UV-resistant plastic, which will not rot, decay or decompose and their performance is tested and **certified by Eurovent**. They are assembled in **easily handled and removable sections**, for optimal internal access.
- Steel eliminators, protected with the [Baltiplus 810™ coating](#), for optimal corrosion protection, are also available for specific applications.



4. Water distribution system

These consist of:

- A **header** and **spray branches** with wide non-clog plastic **nozzles**, secured by rubber **grommets**. You can easily remove, clean and flush both nozzles and spray branches.
- A cold water basin with:
 - **strainers** which are easy to lift out and the anti-vortexing device also helps stop trapped air
 - mechanical **make up**
 - circular **access door**
- Close coupled, bronze fitted centrifugal **spray pump** with totally enclosed fan cooled (TEFC) motor. Bleed line with metering valve installed from pump discharge to overflow.



Like to know more about the VCL construction details? Contact your [local BAC representative](#).



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Options and accessories

Below is a listing of the main VCL options and accessories. If your required option or accessory is not listed, look no further than your [local BAC representative](#).



Sound attenuation

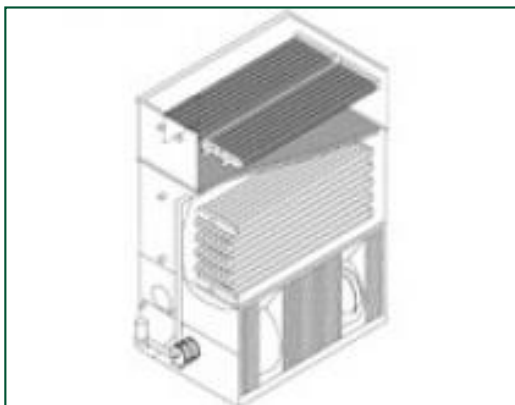
Reducing noise at air intake and discharge points brings us closer to silent cooling equipment.

- The sound reductions obtained by HS sound attenuation are perfect for **residential** sound requirements.
- Heavy noise reductions can be achieved with HD sound attenuation, making it ideal for **rural** requirements.



Pump relocation

Move the pump to the connection side and make it **more accessible** when using sound attenuation at the fan side.



Desuperheater

Boost capacity and reduce plume of ammonia reciprocating compressor systems with a desuperheater.



Baltiguard drive system

With this, operate your system like a dual-speed motor, but with standby reserve capacity **to cope with any failure**.



Steel drift eliminators

Steel drift eliminators are more **robust** than plastic alternatives.



Nitrogen filling of coil

Charge the condensing coil with nitrogen for **anti-corrosion protection** during long shipment periods (ocean freight) or on-site storage.



Remote sump connection

The best way to **prevent a sump freezing** is to use the auxiliary remote variety within a heated area. Shutting off the circulating pump allows all the water in the water distribution, as well as that in suspension and the sump to drain freely to the auxiliary sump.



Basin heater package

Thanks to our factory-installed heaters, the water stays at 4°C and **never freezes**, even during equipments downtime and however cold it gets outside.



Electric water level control package

For perfectly precise water level control, replace the standard mechanical valve with our electrical water level controller.



Discharge hood

Discharge hoods **reduce the risk of re-circulation** in tight enclosures by increasing discharge air velocity, and can be used to elevate the unit discharge above adjacent walls to comply with layout guidelines.



Water treatment equipment

Devices to control water treatment are needed to ensure proper **condenser water care**. Not only does this help protect the components and fill pack, controlling corrosion, scaling and fouling, it also avoids the proliferation of harmful bacteria, including **legionella**, in the recirculating water.



Standby pump

Install a standby **reserve spray pump** as failure backup!



Filter

Separators and media filters efficiently **remove suspended solids** in the recirculating water, reducing system cleaning costs and optimizing water treatment results. Filtration helps you keep the recirculating water clean.



Sump sweeper piping

Sump sweeper piping **prevents sediment collecting in the cold water basin** of the unit. A complete piping system, including nozzles, is installed in the basin of the condenser **for connection to side stream filtration** equipment.



Clean out port

Clean out port **makes it easy to eliminate silt and sludge** from the condenser basin when cleaning and flushing the sump.

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Engineering data

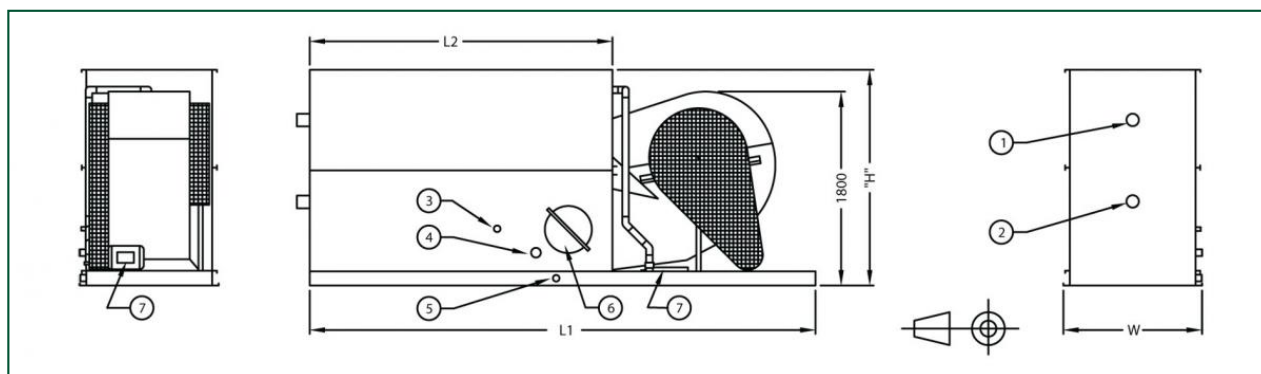
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6. Fan kW is at 0 Pa ESP. To operate against external static pressure up to 125 Pa, increase each fan motor one size.
7. Refrigerant charge listed is R 717 operating charge. To determine operating charge of R22 refrigerants, multiply by: 1,93. For R134A, multiply by: 1,98.
8. Refrigerant connections are standard bevelled for welding.

Last update: 23/07/2019

VCL 042H-159M



1. Refrigerant in ND100; 2. Refrigerant out ND100; 3. Access; 4. Make up ND25; 5. Overflow ND50 on VCL 042-119 & 133 - ND80 on VCL 131 & 140-159; 6. Drain ND50; 7. Spray pump; 8. Fan motor.

Model	Weights (kg)			Dimensions (mm)				Air Flow (m³/s)	Fan Motor (kW)	Water Flow (l/s)	Fluid Outlet ND (mm)	R717 charge (kg)
	Oper. Weight (kg)	Ship. Weight(kg)	Heaviest Section (kg)	L1	L2	W	H					
VCL 042-H	1610	1100	1100	3350	1820	1250	1585	7.9	(1x) 4.0	5.9	(1x) 0.55	20.0
VCL 048-G	1800	1270	1270	3350	1820	1250	1855	6.7	(1x) 2.2	5.9	(1x) 0.55	28.0
VCL 054-H	1810	1280	1280	3350	1820	1250	1855	7.6	(1x) 4.0	5.9	(1x) 0.55	28.0
VCL 058-G	1990	1440	1440	3350	1820	1250	2015	6.4	(1x) 2.2	5.9	(1x) 0.55	38.0
VCL 065-H	2005	1460	1460	3350	1820	1250	2015	7.4	(1x) 4.0	5.9	(1x) 0.55	38.0
VCL 071-J	2025	1490	1490	3350	1820	1250	2015	8.1	(1x) 5.5	5.9	(1x) 0.55	38.0
VCL 073-H	2190	1640	1640	3350	1820	1250	2230	7.2	(1x) 4.0	5.9	(1x) 0.55	46.0
VCL 079-J	2220	1670	1670	3350	1820	1250	2230	7.9	(1x) 5.5	5.9	(1x) 0.55	46.0
VCL 084-K	2530	1750	1750	4560	2730	1250	1855	11.4	(1x) 7.5	9.0	(1x) 0.75	42.0
VCL 096-J	2810	2010	2010	4560	2730	1250	2090	10.2	(1x) 5.5	9.0	(1x) 0.75	55.0
VCL 102-K	2820	2020	2020	4560	2730	1250	2090	11.2	(1x) 7.5	9.0	(1x) 0.75	55.0
VCL 111-L	2840	2080	2080	4560	2730	1250	2090	12.3	(1x) 11.0	9.0	(1x) 0.75	55.0
VCL 119-M	2845	2090	2090	4560	2730	1250	2090	12.4	(1x) 15.0	9.0	(1x) 0.75	55.0
VCL 115-K	3090	2280	2280	4560	2730	1250	2350	10.8	(1x) 7.5	9.0	(1x) 0.75	72.0
VCL 133-M	3120	2350	2350	4560	2730	1250	2350	13.0	(1x) 15.0	9.0	(1x) 0.75	72.0
VCL 131-L	3560	2490	2490	5480	3650	1250	2090	13.6	(1x) 11.0	12.1	(1x) 1.1	74.0
VCL 140-M	3570	2500	2500	5480	3650	1250	2090	14.8	(1x) 15.0	12.1	(1x) 1.1	74.0
VCL 148-L	3930	2830	2830	5480	3650	1250	2350	13.4	(1x) 11.0	12.1	(1x) 1.1	92.0
VCL 159-M	3940	2840	2840	5480	3650	1250	2350	14.6	(1x) 15.0	12.1	(1x) 1.1	92.0

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Engineering data

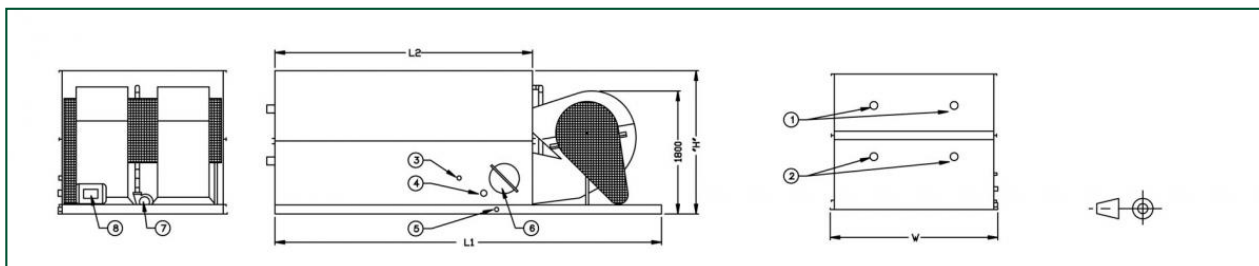
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6. Fan kW is at 0 Pa ESP. To operate against external static pressure up to 125 Pa, increase each fan motor one size.
7. Refrigerant charge listed is R 717 operating charge. To determine operating charge of R22 refrigerants, multiply by: 1,93. For R134A, multiply by: 1,98.
8. Refrigerant connections are standard bevelled for welding.

Last update: 23/07/2019

VCL 167K-321P



1. Refrigerant in ND100; 2. Refrigerant out ND100; 3. Access; 4. Make up ND40; 5. Overflow ND80; 6. Drain ND50; 7. Spray pump; 8. Fan motor.

Model	Weights (kg)			Dimensions (mm)				Air Flow (m³/s)	Fan Motor (kW)	Water Flow (l/s)	Fluid Outlet ND (mm)	R717 charge (kg)
	Oper. Weight (kg)	Ship. Weight(kg)	Heaviest Section (kg)	L1	L2	W	H					
VCL 171-N	4740	3170	3170	4560	2730	2400	1855	23.3	(1x) 18.5	17.9	(1x) 1.1	84.0
VCL 167-K	5260	3650	3650	4560	2730	2400	2090	17.4	(1x) 7.5	17.9	(1x) 1.1	110.0
VCL 185-L	5290	3680	3680	4560	2730	2400	2090	19.6	(1x) 11.0	17.9	(1x) 1.1	110.0
VCL 208-N	5310	3700	3700	4560	2730	2400	2090	22.8	(1x) 18.5	17.9	(1x) 1.1	110.0
VCL 209-L	5860	4210	4210	4560	2730	2400	2350	19.3	(1x) 11.0	17.9	(1x) 1.1	144.0
VCL 235-N	5880	4240	4240	4560	2730	2400	2350	22.3	(1x) 18.5	17.9	(1x) 1.1	144.0
VCL 219-L	6420	4750	4750	4560	2730	2400	2560	18.9	(1x) 11.0	17.9	(1x) 1.1	166.0
VCL 258-O	6570	4790	4790	4560	2730	2400	2560	23.0	(1x) 22.0	17.9	(1x) 1.1	166.0
VCL 239-L	7270	5030	5030	5480	3650	2400	2350	20.7	(1x) 11.0	24.2	(1x) 2.2	184.0
VCL 257-M	7280	5040	5040	5480	3650	2400	2350	22.6	(1x) 15.0	24.2	(1x) 2.2	184.0
VCL 285-O	7300	5060	5060	5480	3650	2400	2350	25.6	(1x) 22.0	24.2	(1x) 2.2	184.0
VCL 286-N	7990	5690	5690	5480	3650	2400	2560	23.9	(1x) 18.5	24.2	(1x) 2.2	220.0
VCL 299-O	8010	5710	5710	5480	3650	2400	2560	25.3	(1x) 22.0	24.2	(1x) 2.2	220.0
VCL 321-P	8110	5810	5810	5480	3650	2400	2560	27.5	(1x) 30.0	24.2	(1x) 2.2	220.0

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Engineering data

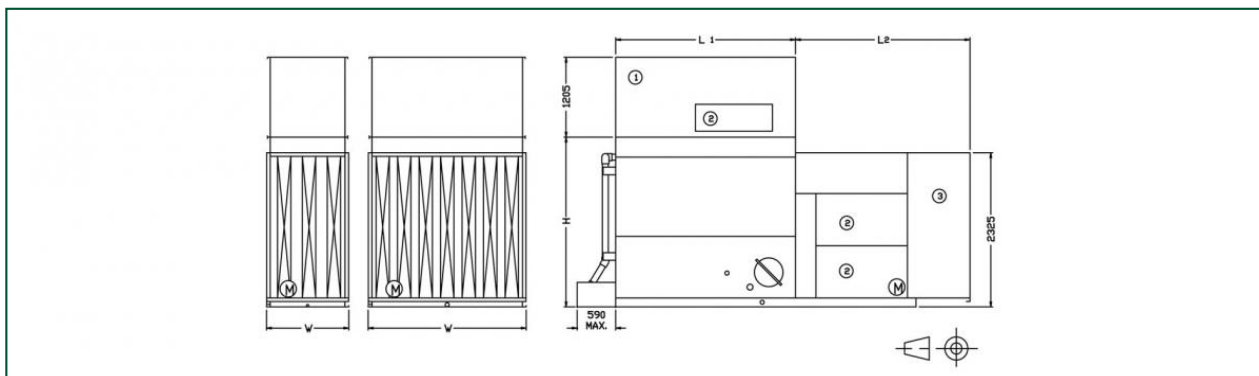
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6. Fan kW is at 0 Pa ESP. To operate against external static pressure up to 125 Pa, increase each fan motor one size.
7. Refrigerant charge listed is R 717 operating charge. To determine operating charge of R22 refrigerants, multiply by: 1,93. For R134A, multiply by: 1,98.
8. Refrigerant connections are standard bevelled for welding.

Last update: 23/07/2019

Sound attenuation HS



1. Discharge attenuator; 2. Access door; 3. Intake attenuator; W & H = Unit dimensions (see Engineering Data).



Model	Dimensions (mm)		Weights (kg)		
	L2	L	Intake	Discharge	Total
VCL 167-258	2640	2730	665	465	1130
VCL 084-133	2640	2730	465	295	760
VCL 239-321	2640	3650	665	565	1230
VCL 131-159	2640	3650	465	365	830
VCL 042-079	2390	1820	460	215	675

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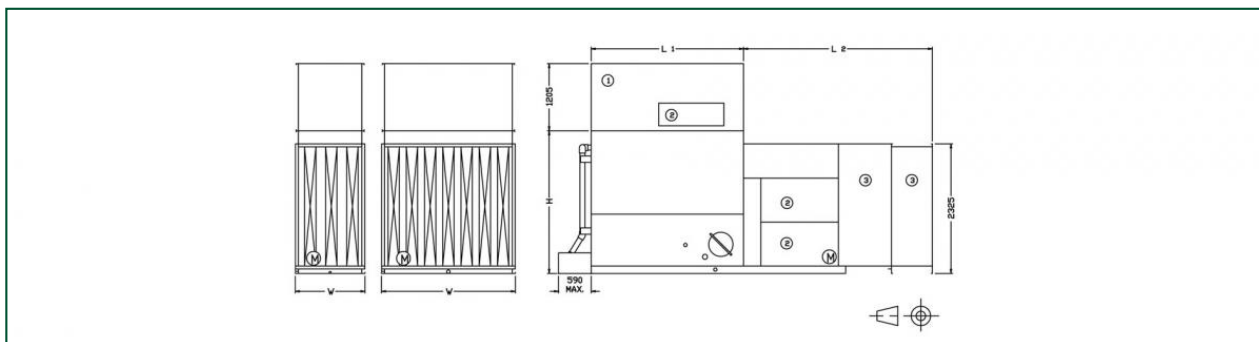
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Last update: 23/07/2019

Sound attenuation HD



1. Discharge attenuator; 2. Access door; 3. Intake attenuator; W & H = Unit dimensions (see Engineering Data).



Model	Dimensions (mm)		Weights (kg)		
	L2	L	Intake	Discharge	Total
VCL 167-258	3375	2730	980	500	1480
VCL 084-133	3375	2730	660	315	975
VCL 239-321	3375	3650	980	605	1585
VCL 131-159	3375	3650	660	385	1045
VCL 042-079	3125	1820	655	235	890

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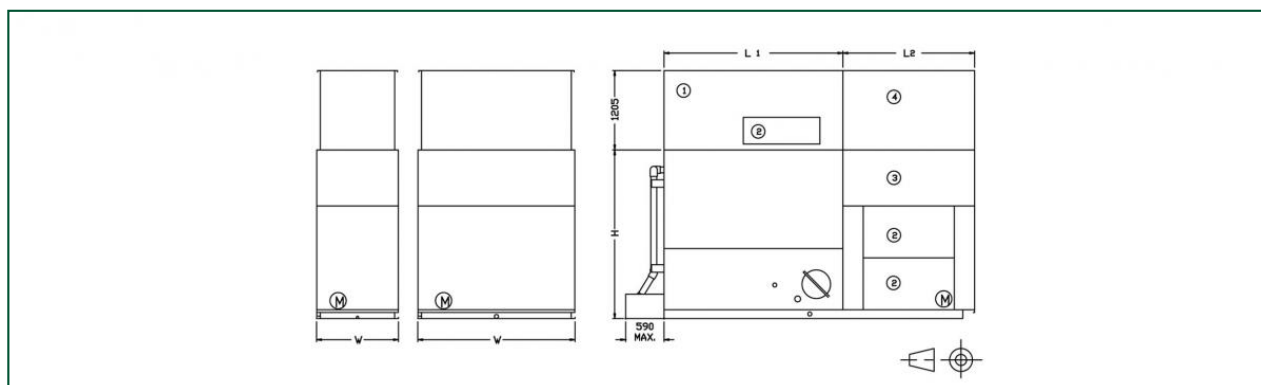
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Last update: 23/07/2019

Sound attenuation VS



1. Discharge attenuator; 2. Access door; 3. Intake attenuator; 4. Plenum; W & H = Unit dimensions (see Engineering Data).



Model	Dimensions (mm)		Weights (kg)		
	L2	L	Intake	Discharge	Total
VCL 042-079	2010	1820	N.A.	N.A.	725
VCL 167-258	2010	2730	756	419	1175
VCL 131-159	2010	3650	566	334	900
VCL 084-133	2010	2730	541	264	805
VCL 042-079	2010	1820	548	192	740
VCL 239-321	2010	3650	N.A.	N.A.	1310
VCL 167-258	2010	2730	N.A.	N.A.	1205
VCL 131-159	2010	3650	N.A.	N.A.	915
VCL 084-133	2010	2730	N.A.	N.A.	830
VCL 239-321	2010	3650	761	529	1290