

CORDIVARI®

VOLANO CUBE®

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**WALL-MOUNTED BUFFER TANK AND
PATENTED HYDRAULIC SEPARATOR
FOR HEAT PUMPS**



WALL MOUNTED BUFFER TANK WITH HYDRAULIC SEPARATOR

Volano CUBE is a compact, wall-mounted inertial tank designed specifically for heat pumps and hydronic heating/cooling systems. It can be used both as a thermal buffer and as a hydraulic separator, and is suitable for indoor or protected outdoor installation.

The hydraulic separation function decouples the primary and secondary circuits, so the flow rates of the heat pump (or boiler) and the distribution system are independent. This helps prevent interference between circuits, protects pumps, and simplifies balancing.

The thermal buffer function reduces on/off cycles of the heat pump and provides a small reserve of thermal energy for the system—for example, improving comfort and efficiency during defrost cycles.

Volano CUBE is built for wall installation. The tank is made of carbon steel (or stainless steel, depending on model) with a sheet-metal outer casing treated with a special anti-corrosion finish, making it ideal for exposed mechanical rooms or protected outdoor locations. Wall mounting is quick, safe, and stable thanks to the supplied bracket, which supports and locks the unit in place.

Available in two sizes: 50 L (≈13 gal) and 80 L (≈21 gal), in both mild steel and stainless steel versions.

SOLVES CONDENSATION PROBLEMS IN COOLING MODE

In summer, when the heat pump operates in cooling mode, cold buffer tanks can attract warm, humid air and create condensation on the tank surface.

Volano CUBE uses rigid polyurethane foam insulation that adheres closely to the tank walls. This prevents warm air from reaching the cold metal surface, providing reliable protection against condensation and helping keep the mechanical room clean and dry.

PERFECT THERMAL STRATIFICATION FOR HIGHER EFFICIENCY

The patented internal design of Volano CUBE ensures excellent thermal stratification of the water inside the tank. Hotter water stays at the top, cooler water at the bottom, creating well-defined temperature layers.

This stratification delivers important benefits: **Higher system efficiency** – Generators and terminals always “see” the appropriate temperature layer. **More flexibility** – The tank can serve both high-temperature circuits (e.g., panel radiators, fan coils) and low-temperature circuits (e.g., radiant floors) at the same time. **Stable operation** – Better temperature stability across the tank reduces short cycling and improves overall comfort.

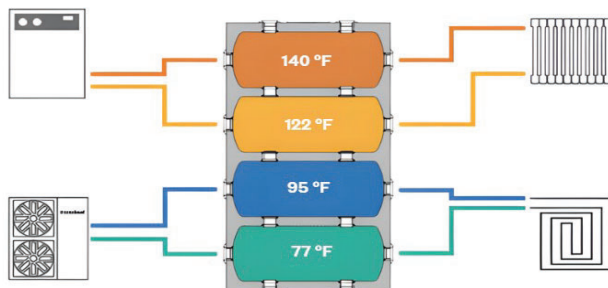
Volano CUBE is equipped with 8 lateral hydraulic connections, allowing the simultaneous use of two generators (for example, heat pump and boiler) and two types of terminal circuits (high and low temperature).

It also provides 4 dedicated service connections for sensors, gauges, and safety/control devices, giving maximum flexibility when installing system instrumentation.

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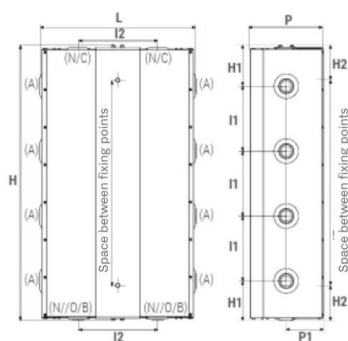
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VOLANO TERMICO CUBE			Tmin / Tmax		Energy Efficiency Class	
H	L	P				
Model	[Inch]		°F	Connection		
50 (13 gal)	37	21	10	14/203	1"1/4 (DN 32)	B
80 (21 gal)	42	23	11			C



Pressure	Temperature
Pmax	Tmin/Tmax
87 psi	14/203 °F



A Connection to System

B Instrumentation

C Drain

D Safety Valve

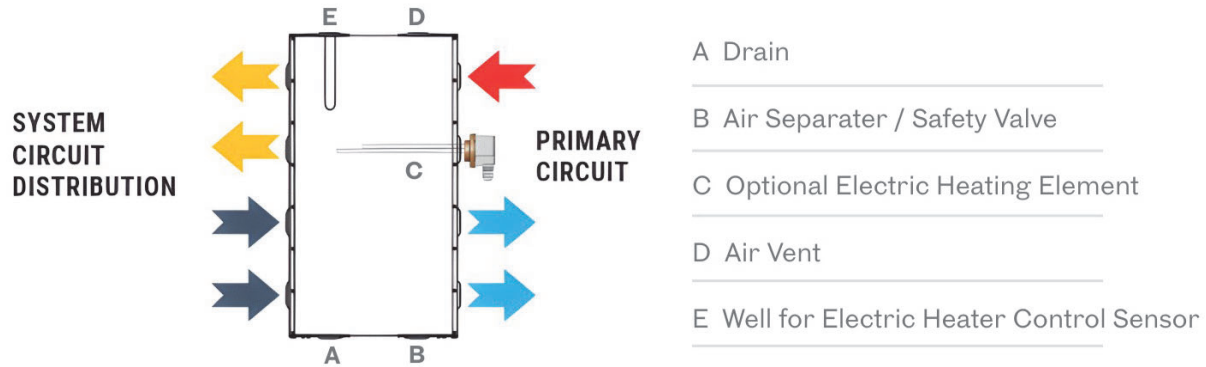
E Air Vent Valve

Model	Volume Gal	H	L	P	H1	H2	I1	I2	P1	IF	A N/O/B/C	
											Connection	F
50	13	37	21	10	5.5	4.75	8.75	10.5	5	27.5	1"1/4	1"
80	21	42	23	11	6	7.25	10	10.5	5.5	27.5	1"1/4	1"1/4



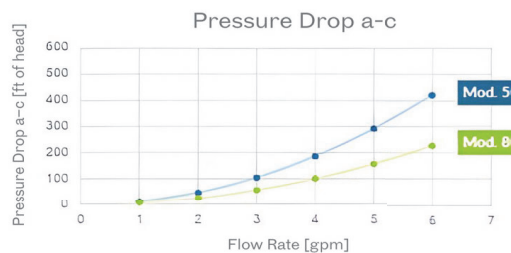
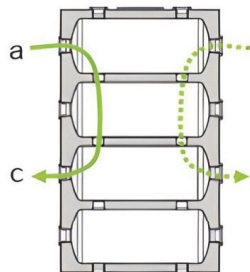
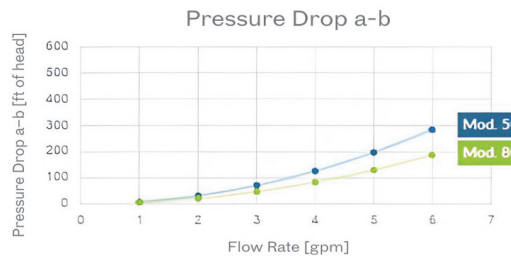
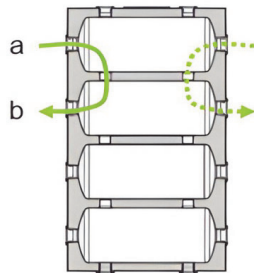
INTEGRATION WITH BOOST HEATER

Thanks to the patented design of the Volano Cube, it is possible to effectively use an electric **boost heater** which, when needed under particular operating conditions, helps bring the primary circuit up to temperature or restore it to normal operation.



PRESSURE DROPS

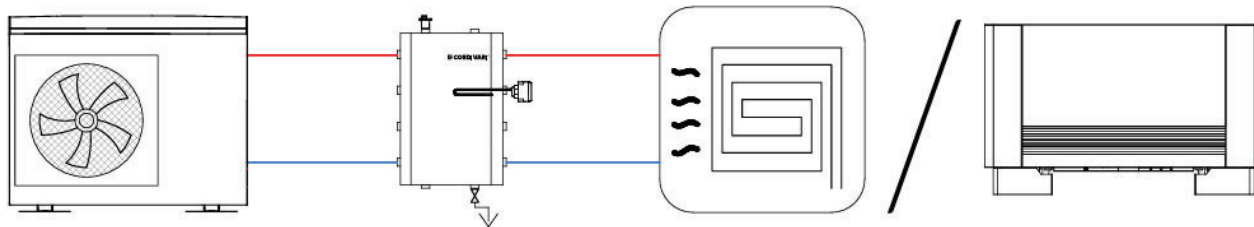
The following diagrams show the pressure drops of the Valno CUBE 50 and 80, in relation to the supply and return connection layout of the system.





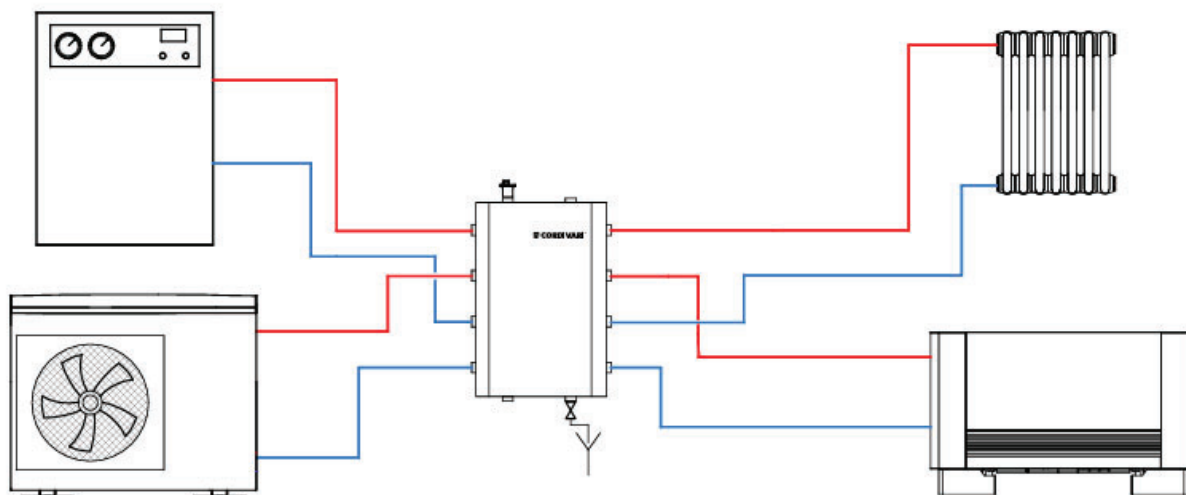
EXAMPLE DIAGRAM WITH BOOST HEATER

The diagram below shows an example system with a heat pump as the generator and low-temperature terminals such as a radiant system or fan coils. In this configuration an electric boost heater is added to support the primary circuit under certain operating conditions.



EXAMPLE DIAGRAM - HIGH / LOW TEMPERATURE SYSTEM

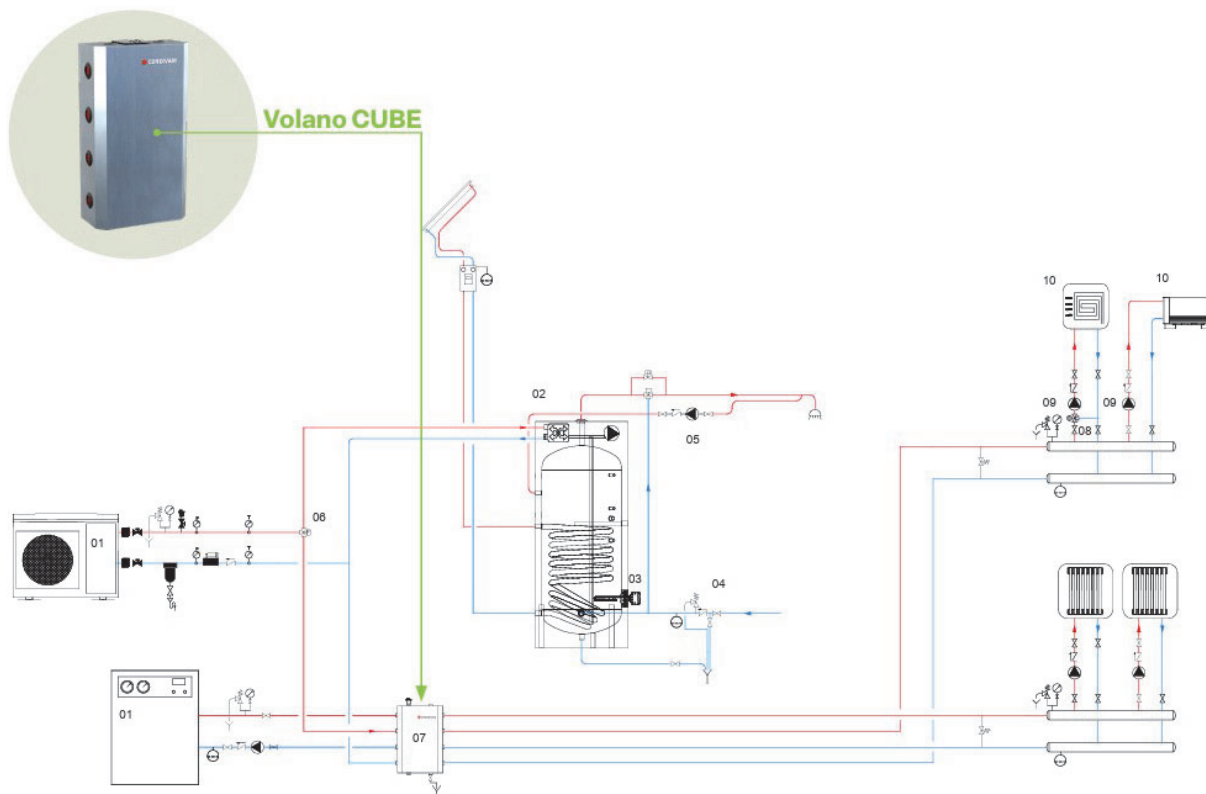
The diagram below shows an example system with two heat sources: a heat pump and a condensing boiler. Thanks to the strong thermal stratification and the 8 connections, the system can be arranged with two temperature zones, high and low. This very flexible solution is ideal for retrofits, allowing different types of terminals—such as radiators and fan coils—to be used on the same circuit for year-round conditioning of the building.



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01 Heat Source	04 Hydraulic safety group	07 Volano CUBE buffer tank	10 Emitters (radiators / fan coils / radiant floor)
02 Bolly® 2 PDC domestic hot water tank	05 Domestic hot water recirculation pump	08 Thermostatic mixing valve	
03 Electric Heater	06 Motorized three-way valve	09 Heating/cooling system circulator	

SPECIFICATION CONTENT

Wall-mounted thermal buffer tank / hydraulic separator in carbon steel, with external sheet-metal casing protected by an anticorrosion treatment. Insulated with rigid polyurethane foam with high thermal performance ($\lambda = 0.023 \text{ W/m}\cdot\text{K}$).

Volano CUBE has a rectangular (parallelepiped) shape with 4 female 1¼" connections on each long side and 2 female connections on each short side: 1" for the 50 L ($\approx 13 \text{ gal}$) model and 1¼" for the 80 L ($\approx 21 \text{ gal}$) model.

50 L model: heat loss 40 W ($\approx 137 \text{ BTU/h}$), $K_{\text{boll}} = 0.89 \text{ W/K}$ ($\approx 1.69 \text{ BTU/h}\cdot^\circ\text{F}$), energy efficiency class B.

80 L model: heat loss 52 W ($\approx 177 \text{ BTU/h}$), $K_{\text{boll}} = 1.15 \text{ W/K}$ ($\approx 2.18 \text{ BTU/h}\cdot^\circ\text{F}$), energy efficiency class C.

Maximum working pressure **6 bar ($\approx 87 \text{ psi}$)**.

Operating temperature range **-10 °C to 95 °C (14 °F to 203 °F)**.

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