

• European Patent Pending •  
**NEW**  
• Brevetto Europeo •

Waterless Cooled Plate RHVT

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**NO WATER**

**NO MECHANICAL PARTS IN MOVEMENT**

**ONLY COMPRESSED AIR**

**VOLUME, WEIGHT AND COSTS SAVING**



# Water Less Cooled Plate RHVT

We have reached a new frontier in cooling electronic equipment.

The new RHVT is a plate cooled ... just by air !!!!

This means to avoid the use of water inside an electronic equipment, a hydraulic circuit, a pump, a heat exchanger, having sometimes problems with assembly of all these parts, problems with volume/weight and other kinds of problems.

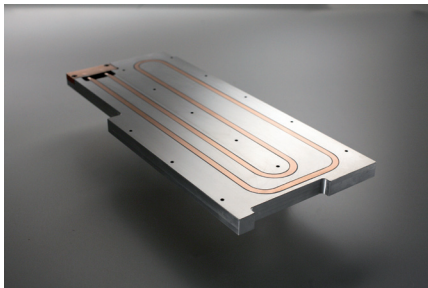
## General notes and technical data

RHVT Patent Technology is able to avoid hydraulic circuits as well as other components like pumps and heat exchangers.

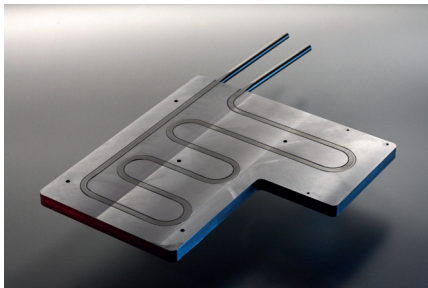
Waterless Cooled Plate is working just with compressed air and can be easily assembled in a typical cooling system.

The RHVT plate saves weight, volume and cost.

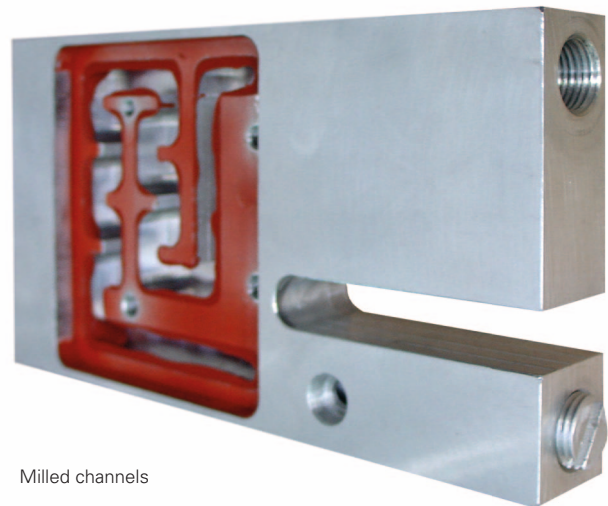
Plates can be produced according to well known standard technology: copper or steel pipes or deep holes inside aluminum or copper plates.



Copper pipe



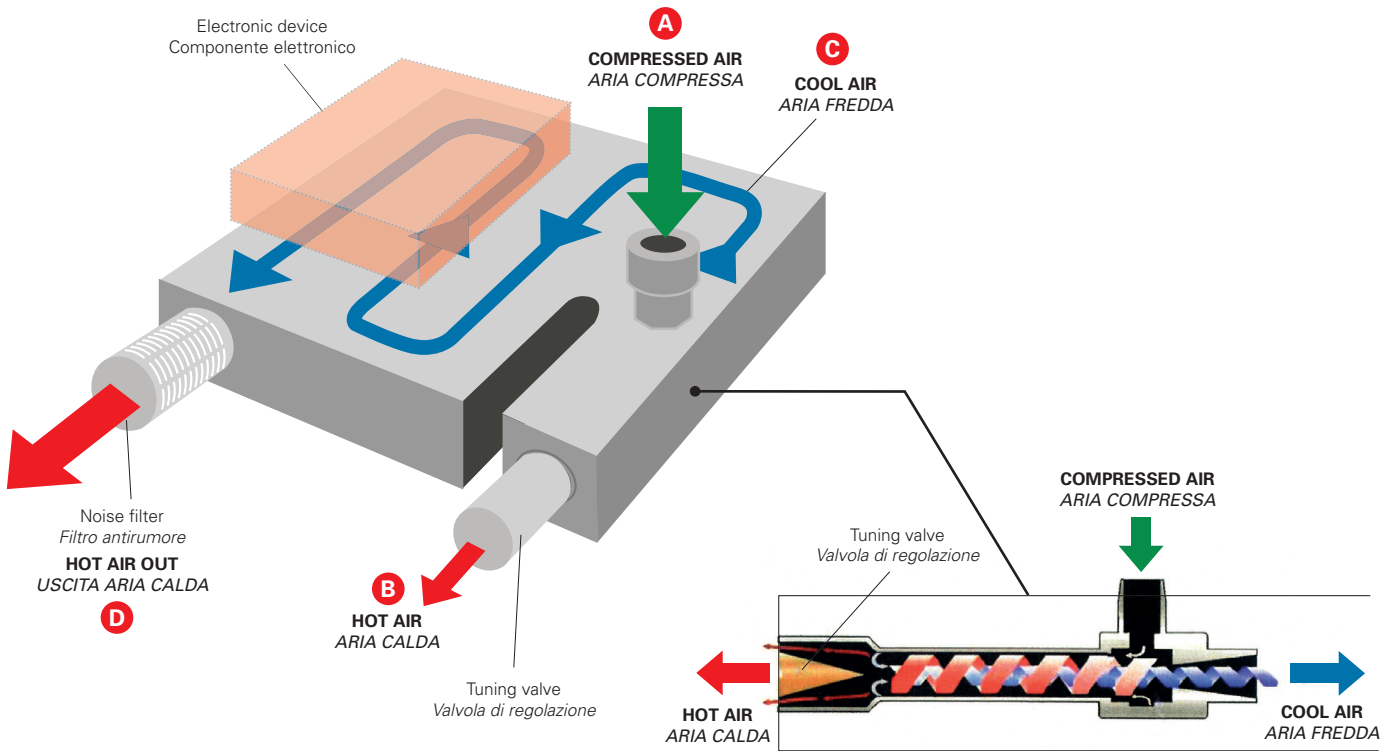
Steel pipe



Milled channels

Thermal specs are lower than the ones obtained by water cooling. This European patent pending new range of products are already available for your use.

**Working sketch**



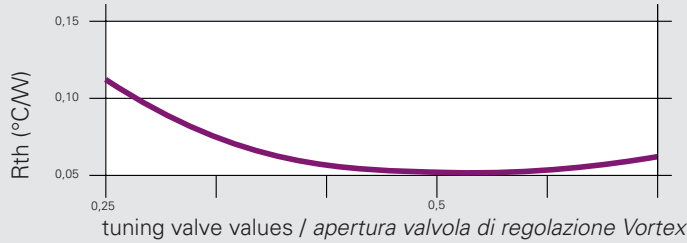
**Vortex Tube**

The RHVT is cooling near 0°C the outside inlet air (A) (with ambient temperature of 20°C): some of this air is pushed out as hot air (B), some is working as coolant fluid (C). Finally the hot air is pushed out from the plate (D).



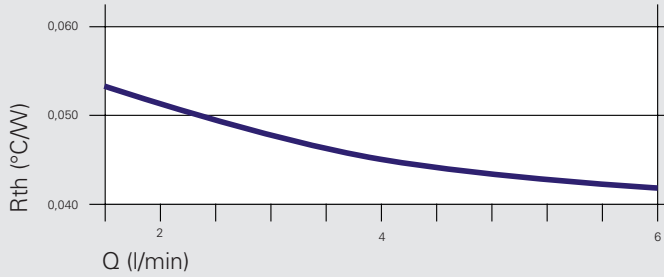
## Features table: some examples

### Vortex Tube (Water Less Cooled Plate RHVT)



Ptermica (W)		100
p (bar)	Valve vuning Regolazione valvola	Rth(°C/W)
6	0,00	0,20
6	0,50	0,05
6	0,75	0,25

### Water Cooled Plate



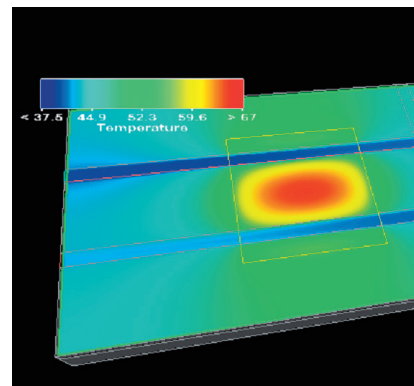
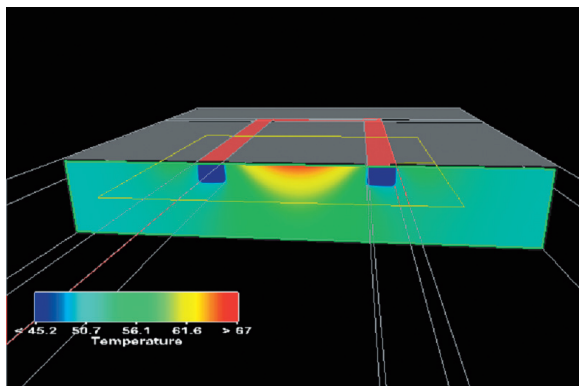
Ptermica (W)		100
Q (l/min)	DELTA p (bar)	Rth(°C/W)
2	0,016	0,053
4	0,061	0,045
6	0,129	0,042

Under specific conditions of the RHVT Plate it's possible to obtain thermal features similar to the standard water cooled plates.

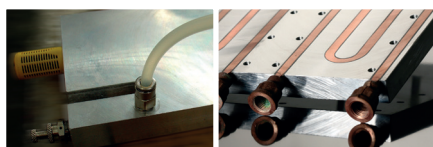
Best tuning position of the valve is to be set at 0,5 (the valve is half opened).

The above results are referred to a standard and simple configuration; but our R&D can design and develop an optimized product according to specific customer needs.

Thermal analyses are performed by means of Flotherm software in order to produce fast and very accurate values.



# Water Less Cooled Plate RHVT vs. standard water cooled plate



	A	B	
	<b>WATER LESS (RHVT)</b>	<b>WATER COOLED PLATE (SUPERPLATE)</b>	$\Delta\%$ A / B
<b>Costs/Costi</b>	0,8	1	-20
<b>Rth</b>	1,2	1	+20

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## List of components to be used

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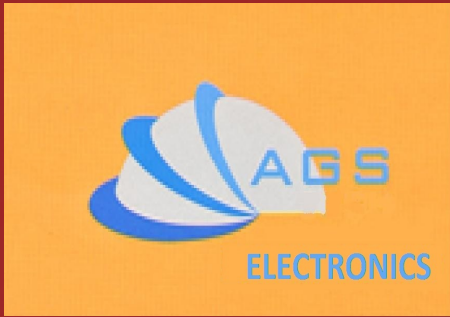
### RHVT

- Plate
- Connectors
- Rubbers tubes
- External air pipe or Compressor
- Average carachteristics of the compressor:
  - Overall dimensions  
410 mm x 180 mm x h 450 mm
  - Weight 16 Kg
  - 8 bar pressure
  - 8 m<sup>3</sup>/h
  - dB(A)=70

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### Water Cooled Plate

- Plate
- Connectors
- Rubbers tubes
- Cooling system for water cooled Plate
  - Overall dimensions  
300 mm x 300 mm x 450 mm
  - Weight 20 Kg
  - dB(A)=72



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*We produce heat sinks with the help of the sun, technology and quality respecting the environment. More than 80% of the necessary energy to produce heat sinks is provided by our photovoltaic equipment. We produce around 400.000 KW/h per year of totally clean energy. We are proud avoiding to release to environment around 80 Tons of CO2 per year.*

