



Test Loads for Broadcast and Science Application



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Ampegon test loads are designed for the continuous dissipation of RF power to allow system testing at full output power. Our test loads are designed to operate with continuous or pulsed power inputs, and ensure full radiation screening. They act as an important auxiliary system for transmitters and RF power amplifiers to allow quality measurements and performance validation following maintenance.

Test loads are designed in three versions, each with an appropriate secondary cooling circuit:

- Soda Water / Air Heat Exchanger
- Soda Water / Glycol Water / Air Heat Exchanger
- Soda Water / Water Heat Exchanger

Test Load Construction

Based on the principle of a closed loop circuit containing a soda-water solution, a test load consists of a broadband resistor element (a soda solution), reservoir, pump, automatic temperature control system, and measurement/safety elements. The resistor elements are available for an impedance of 50 unbalanced or 300 Ohms balanced.

In the primary cooling circuit, the soda solution acts as both the load and the heat transfer medium, circulating at a constant rate. The resistance of this solution varies with the temperature, which is monitored by thermostatic control. This process serves to keep the impedance at a constant value and simulate an antenna precisely.

The dissipated power is measured by means of the calorimetric power measuring unit, which monitors the soda-water flow rate as well as inlet and outlet temperatures. The total dissipated power is indicated on-screen, and via a communications interface to an external control system. The monitoring system also provides safety information, allowing the load to fail-safe in an emergency, by use of a daisy-chain interlock with the transmitter or the amplifier.

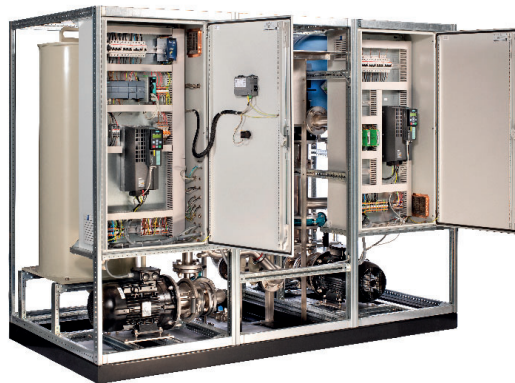
Secondary Cooling Circuit Options

Depending on local conditions, different methods of removing the dissipated heat are available, whereby the indoor water-cooled version is recommended only in case sufficient cooling water is available on site (see technical data chart)

- Air-cooled for Non-Freezing Ambient conditions
- Air-cooled for freezing conditions, featuring a glycol-water heat-exchanger circuit.
- Water-cooled for indoor installations

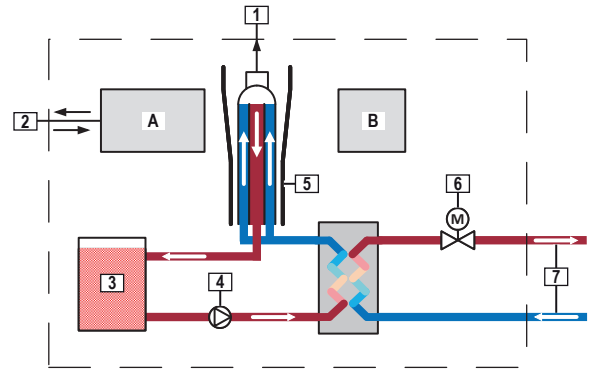
Preheating Device

All test loads are available with an optional preheating device mounted into the soda water reservoir. This device prevents low water temperatures causing low mismatching transmitter/antenna, potentially reflecting energy back into the transmitter/amplifier.

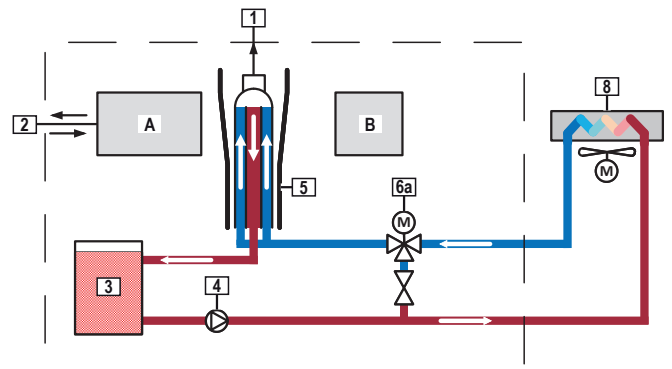


Functional Diagrams

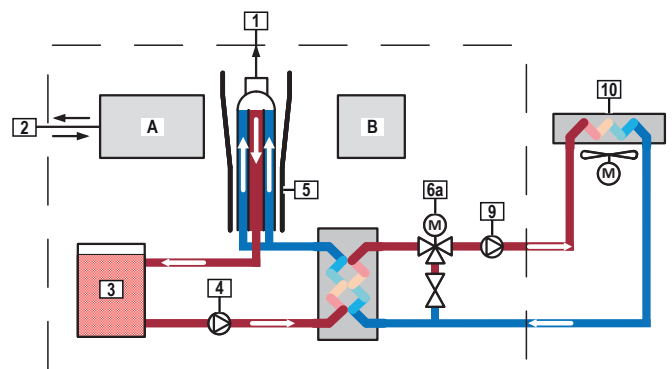
- A Control, Regulation, Measurement
- B Power Supplies
- 1 RF Input
- 2 Remote Control
- 3 Soda Water Tank
- 4 Soda Water Pump
- 5 Soda Water Resistor
- 6 Valve
- 7 External Secondary Cooling Circuit



- A Control, Regulation, Measurement
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- 4 Soda Water Pump
- 5 Soda Water Resistor
- 6a 3 Way Valve
- 8 Soda Water to Air Heat Exchanger



- A Control, Regulation, Measurement
- B Power Supplies
- 1 RF Input
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- 3 Soda Water Tank
- 4 Soda Water Pump
- 5 Soda Water Resistor
- 6a 3 Way Valve
- 9 Glycol Pump
- 10 Glycol to Air Heat Exchanger





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Technical Summary

Testload type	IE-TL-200 kW	IE-TL-750 kW
1. Resistance	50 Ω or 300 Ω	
2. Power rating	200 kW	750 kW
3. Frequency range	30 Hz - 30 MHz (other frequency ranges upon request)	
4. VSWR	≤ 1.35	
5. Method of resistor	soda solution	
6. Method of measurement	calorimetric	
7. RF connection	50 Ω: 6 1/8" EIA 300 Ω: box type (380 x 380mm)	50 Ω: 6 1/8" EIA or 9" 300 Ω: box type (600 x 600mm)
8. Dimension	2.4 x 1.4 x 2.2 m (w x d x h)	
9. Weight	1150 kg dry ≤ 1350kg with soda water	
10. Ambient temperature with additional glycol circuit	+1 to 45 °C -15°C to 45°C	

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Science



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