

# Vacuum density Testing Equipment



**Density tester :  
MARTECH – VTCM 0017**

# Vacuum density testing with the Martech-VTCM0017 related to the melt temperature

Heat up a crucible up to ca. 450° using melt, take a melt sample out of the smelter.

Immerse the heat detector in the melt and close the vacuum chambre. The vacuum pump sets the required vacuum of precisely 80 mbar within 7 sec., whereupon the pressure sensor closes the vacuum chamber via a solenoid valve.

The vacuum pump sucks the air out of an additional stainless steel container by achieving a vacuum of 30 mbar within 20 sec. Then the vacuum pump is switched off automatically.

Innovations:

- 1. Thanks to the heat detector we can keep track of the gas content ratio to the melt temperature, which corrects the measurement of the DI calibre immensely**
- 2.Because of the installed vacuum container, the pump need not run during the complete time of 4-6 minute test. This extends the operating life of the pump enormously.**



## Version I



**Elektronic precision scale with PC connection  
including software for density index calculation.**

## Version II



**Elektronic precision scale with portable density  
index calculator(*Formatic handy*) including memory  
for 750 measurings and PC compatibility**

## **Why should you test the gas content in aluminum melt?**

Not even modern casting technologies can prevent typical errors when casting aluminum. Before the modification of aluminum melt, additional changes are made, especially degassing. The gas is created by the absorption of hydrogen. It is the sole gas, which can dissolve in aluminum melt, and it does this in large quantities. Air bubbles, which are created when the melt hardens, affect the mechanical properties of the casting negatively. A vacuum density test is a tried-and-tested method to control this. Equipment for determining the density index, an internationally recognized measurement unit, should be available in every aluminum foundry.

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