

LINSEIS DILATOMETER L75/1800HV

High Temperature Dilatometer (1800°C up to 2400°C) for measurement of powders.



This dilatometer is a special combination of a tungsten high temperature furnace, with a maximum temperature of 2400°C and a measuring system made out of Tantalum, which can hold a powder sample.

The furnace that we use is made from Thermal Technology Corporation USA which is a leading manufacturer for Tungsten furnaces worldwide. The furnace is built into a floor mount chassis, with an opening on the top, to accept the Tantalum measuring system which can be lowered with an electric lift into the furnace.

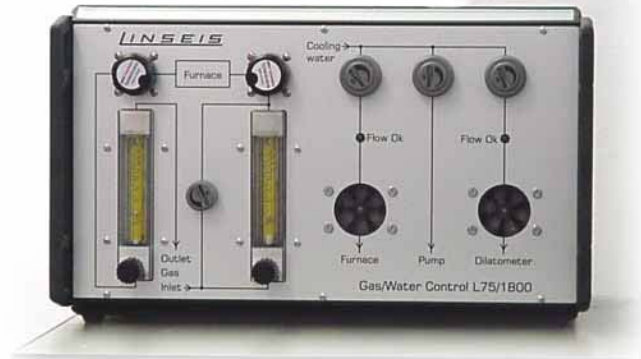


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The furnace has a very powerful thyristor supply unit with 230V / 100A (20kVA). The connection cables are water cooled due to the high currents. The heart of the furnace is a high tech Tungsten heating hose, made out of woven Tungsten threads.



The furnace can only be run with very clean atmospheres, so a turbo pump is necessary to evacuate the system and then Nitrogen gas is used in high purity to float the furnace and the measuring system.



For the gas control the Linseis gas control box is used. With this gas control box the incoming and outgoing gas quantity can be measured and also the water cooling activity of the furnace is monitored and in case of malfunction the system is automatically closed down.

Overall this system is a very powerful tool to measure the CTE behavior of powder samples for highest temperatures up to 2400°C.

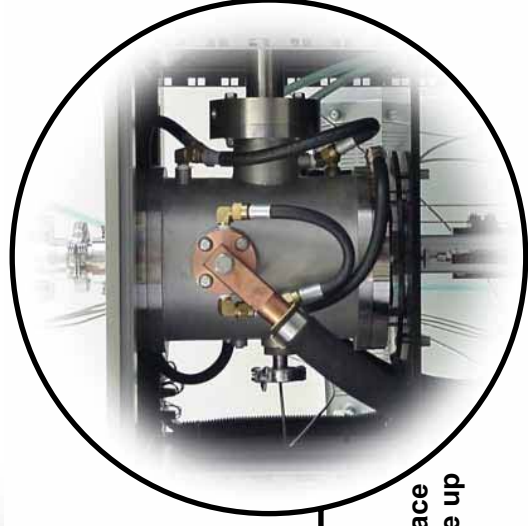
The measuring system is made out of a Tantalum crucible, which sits in a Tantalum measuring system, which is held by three bars on the measuring head. The push rod again out of Tantalum has a platen like end, and pushes onto the powder which is sitting in the crucible.

The push rod transmits the expanding or shrinking powder CTE signal into the measuring sensor. The heart of the measuring sensor is a LVDT (linear variable differential transformer) with a resolution of 10 nm. The enclosure of the measuring sensor is thermally stabilized with an electronically controlled water bath.





Tantal measuring system for temperature range up to 1800°C.



High temperature furnace with temperature range up to 2400°C.



2 times gas control with integrated 3 times water control, for furnace, dilatometer and pump.



Thyristor Powerunit.
Prim. 230 V / 100 A (20KVA)
Sec. 18 V / 1200 A

