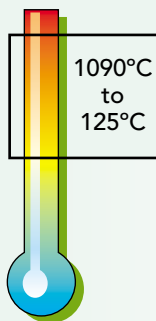


Heat Pipe

Furnaces



Heatpipes provide the ideal conditions for the creation and maintenance of freeze points from ITS-90.

1. The furnace core is an especially-designed stress-free isothermal heat pipe, which provides a very low thermal gradient along the core working length. The furnace heater is of the parallel-tube design used at NIST.

2. The heat pipe is designed so that the inner wall is not subject to thermal expansion stresses from the outer wall before the heat pipe reaches conduction temperature. The working fluid is permanently and safely sealed within the plasma-arc-welded enclosure.

3. Three temperature ranges are available

Low Temperature	125°C to 250°C	17702W	Water
High Temperature	400°C to 1000°C	17702P	Potassium
Very High Temperature	500°C to 1090°C	17702S	Sodium

Connections are provided for a water supply of 0.5 to 1 litre per minute to cool the top of the apparatus (not on 17702W). Water supply and waste connections may be ordinary garden hose. Use without cooling is not recommended above 700°C.

4. An advanced proportional electronic control system controls the furnace temperature. The control may be self-calibrated using Freeze Point Cells as references. Two entirely independent over-temperature safety circuits are provided. The active safety is a second (off-on) control circuit driven by a second thermocouple. The passive safety is a fusible link in the main power supply.

Model	ITL-M-17702W (Water) Low Temperature Heat Pipe Furnace ITL-M-17702P (Potassium) High Temperature Heat Pipe Furnace ITL-M-17702S (Sodium) Very High Temperature Heat Pipe Furnace
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Temperature Range	Low Temperature 125°C to 250°C High Temperature 400°C to 1000°C Very High Temperature 500°C to 1090°C
Accuracy	see page15 for details
Control	±0.1°C Resolution
Communications	Included as standard, see page 42 for details
Supply	110VAC, 3kw, 50/60Hz CTE (230VAC and 110VAC to 110VAC Isolating Transformers are available)
Dimensions	Height 960mm Width 600mm Depth 560mm
Weight	115kg

Options

411-01-11B	Annealing Adaptor
410-02-18	Aluminium Equalizing Block (17702W)
420-02-15	Inconel Equalizing Block (17702P + 17702S)
422-00-00	Special Blackbody Source with Gimbles
824-01-00	Fan Assembly (to cool the thermometer handle)
935-19-43	230/110v Transformer
935-19-48	110v/110v Transformer

How to order

ITL-M-17702W (Water)	Low Temperature Heat Pipe Furnace
ITL-M-17702P (Potassium)	High Temperature Heat Pipe Furnace
ITL-M-17702S (Sodium)	Very High Temperature Heat Pipe Furnace

*Gradient free
freezing and
melting of
In, Sn, Zn, Al,
Ag, Cu*

