

TUBE HEAT TRANSFER MICRO DEVICE

THTMD

03



Tube Heat Transfer Micro Device

Principle

The Tubular Heat Transfer Micro Device is a microstructured heat exchanger, designed for electrical heating of gases and liquids. The optimized size of this device allows a very fast heating up as well as fast changes of temperatures. Being offered in two sizes, the maximum power rate to be transferred can be up to 800 W with a thermal efficiency > 90% (depending on operation conditions).

Several options can be offered:

- THTMD solely
- THTMD plus suitable heat cartridge (if suitable electronic control unit is at hand)
- Full package, comprising THTMD plus heat cartridge, two thermocouples and electronic control unit

In the latter case, the temperature of the heating process is basically controlled by a thermocouple in the THTMD-outlet as well as an additional thermocouple to avoid overheating is integrated within the heating cartridge itself.

Operation conditions are tested for maximum 300°C and 45 bars.



Technical detail of heat exchanger structure



THTMD in parts before laser-welding



Explosion drawing of THTMD



Heat control system for THTMD

Technical Data

Name	Tube Heat Transfer Micro Device
Order number	THTMD
Size (L x B x H)	120 x 100 x 15
Connectors (Inlet/Outlet)	1/4" / 1/4"
Material	1.4571
Number of heating channels	60
Width of heating channels (µm)	400
Options	Other materials like Hastelloy, Monell or Titan on request

Operating Conditions

Temperature (°C)	up to 500
Pressure stability (bar)	45
Flowrate (l/h) liquid	1.0 – 20.0
Power rate (W)	800
Thermal efficiency	> 90%
Leakage Class	L _{0.1}