PRODUCT SPECIFICATIONS

POWERBLANKET/THERMON HTL1000

HEATED TRANSFER LINE

APPLICATION

In semiconductor fabrication, maintaining the thermal stability of process gases and precursors during transfer is critical to ensuring repeatability and yield. The HTL1000 Heated Transfer Line provides precise, uniform heating along gas delivery pathways, preventing condensation, adsorption, and phase instability of sensitive chemistries such as metalorganics, dopants, and etchants. By mitigating line deposition and particle generation, the HTL1000 enables consistent mass flow control and process uniformity across CVD, ALD, and etch applications, aligning with the stringent requirements of advanced device manufacturing.

GENERAL DESCRIPTION

The Powerblanket/Thermon HTL1000 is a highly flexible, heated transfer line designed for reliable delivery of process gases, with capability for temperature-sensitive fluids as required. Built with a durable Polyimide/Silicone-insulated alloy heating element, the HTL1000 provides excellent dielectric strength, thermal stability, and flexibility to prevent condensation and maintain gas phase integrity. With customizable lengths, insulation options, and end connections, the HTL1000 integrates seamlessly into demanding environments such as semiconductor, chemical, and composite manufacturing processes.

KEY FEATURES

- Custom Power Density & Lengths: Tailored wattage output 5–20 W/ft (16-65 W/m) and configurable line lengths from 3-100 ft. (0.5 to 30m).
- Polyimide/Silicone Composite Heater Tape: Provides excellent dielectric strength, durability, and precise thermal transfer.
- Temperature Control Ready: Integrated Type K thermocouple junction at key points for precise closed-loop control. Optional RTD or Thermistor sensor available.
- Flexible Construction: Maintains bend radius <100 mm even at low temperatures.
- Sample Integrity Protection: Maintains internal fluid or gas temperature between 0°C–200°C with ±1°C stability (with controller).
- Insulation: Meta Aramid High Temperature Felt (up to 1/2" thick) for energy retention and burn protection.
- Corrugated PVC exterior shell offers protection from the elements and is washdown ready. Braided Sleeving provides a slim body and protects the unit from abrasion, wear and damage.
- End Connections: Custom swaged fittings or compression-style, with optional quick connects, or raw tube ends.

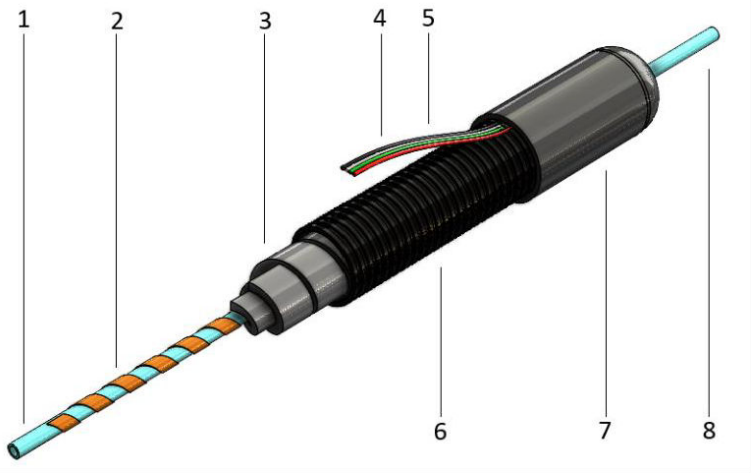
CERTIFICATIONS/APPROVALS

FM Approvals
Ordinary Locations
Hazardous (Classified) Locations
Class I, Division 2, Groups B, C and D
Class II, Division 2, Groups F and G
Class III, Divisions 1 and 2
Class I, Zones 1 and 2, AEx eb IIC, AEx tb IIIC

Canadian Standards Association
Ordinary Locations
Hazardous (Classified) Locations
Class I, Division 1, Groups A, B, C and D
Class II, Division 1, Groups E, F and G
Class I, Division 2, Groups A, B, C and D
Class II, Division 2, Groups E, F and G
Ex eb IIC, Ex tb IIIC

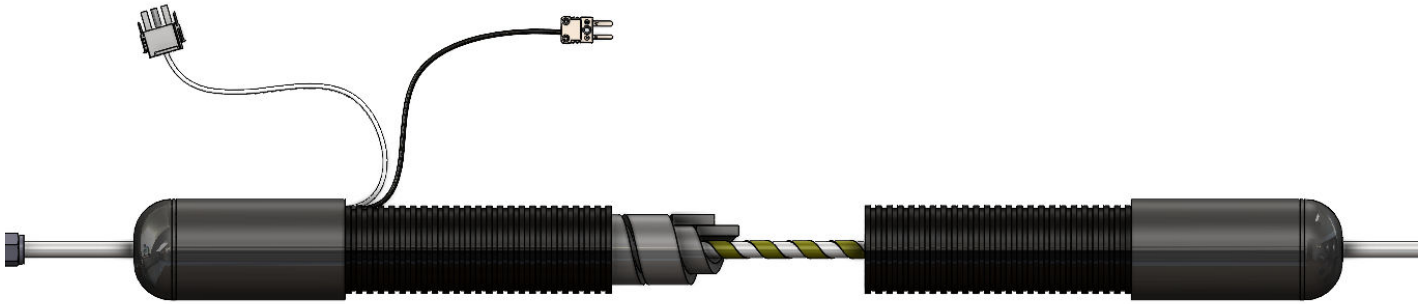
TECHNICAL SPECIFICATIONS

Parameter	Value/Range
Heating Element	Polyimide/Silicone Composite Heat Tape
Heater Jacket	Fluoropolymer Overjacket
Max Operating Temp	Maintain 200C (400F)
Min Bend Radius	100 mm (4 in)
Voltage	120/208/240/277 VAC
Heated Length	Typically 0.5 -30meters (1.5-100ft)
Optional Temp. Controller	GHT2002J, ExoTouch, PID
Sensor Options	RTD, Thermistor, Type K, Type J
Tube Material	Teflon Options
Insulation	1/2" Meta Aramid Felt
Outer Jacket	Corrogated Polyamid or Braided Sleeving



HEATER CONSTRUCTION

1. PROCESS TUBE
2. ALLOY HEATER WIRE ON POLYIMIDE SILICONE TAPE
3. META ARAMID FELT INSULATION
4. POWER LEADS
5. TEMPERATURE SENSOR
6. OUTER JACKET
7. END SEALS
8. OPTIONAL END CONNECTIONS



HSL | 300 | HS | T12 | A3 | P36/S36 | M1/K1 | 276 | 3C1/35 | 420/120 | RTD120 | AN | CP | HS | T12 | A3

- Line Type: HSL= Heated Sample Line
- Overall Length (in)
- Power End Termination: HS=Heat Shrink; HCO=heat shrink w/ cable outlet; X=Special
- Tube Lead Length (Power End): T#=tube (in.)
- Tube Fitting: 0= None; A= A fitting type; B= B fitting type; C= C fitting type; X= Special
- Power Wire Lead Length / Sensor Wire Lead Length: P#=Power lead (in.); S#=Sensor lead (in.)
- Power Cable Plug: 0 = None; L1= Leviton plug 515PA; M1= Molex plug Single Row 3CKT 428160312; A1= Amphenol plug MS3106A; X= Special
- Sensor Cable Plug: 0 = None; SA1= Amphenol plug MS3106A; SK1= TCK Flat Pin Connector; X= Special
- Heated Length (in)
- Process Tube OD: 1 = 1/8"; 2 = 1/4"; 3 = 3/8"; 4 = 1/2"; 6 = 3/4"; 8 = 1"
- Process Tube Material: C = PFA Teflon2; M = FEP Teflon; N = Nylon; P = Polyethylene; T = PTFE Teflon; X = Special
- Process Tube(s) Wall Thickness: 030 = .030"; 040 = .040"; 047 = .047"; 062 = .062"
- Max temp./Voltage
- Sensor Type & Length (in): RTD#= Resistance Temp. Detector (length in.); TCK#: Type K thermocouple (length in.); TCJ#: Type J thermocouple (length in.)
- Insulation Type: AN= Aramid Nomex; SIL=Silicon insulation
- Outer Jacket Type: CP= Corrugated Polyamide; WP= Weaved Polyamide; SIL= Siliconwrap
- End Termination (Non-Power End): HS=Heat Shrink; HCO=heat shrink w/ cable outlet; X=Special
- Tube Lead Length (Power End): T#=tube (in.)
- Tube Fitting: 0 = None; A= A fitting type; B= B fitting type; C= C fitting type; X= Special