

Application Guide



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Clayborn Lab History

- 1963** - Vern Clayborn Pfanku, an M.I.T. graduate, invents precision heat tape
- 1965** - Low outgassing acrylic heat tape launches with early NASA satellite
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- 2013** - Introduction of innovative "Tuff Guard" outer sheathing. This high strength extremely durable exterior cover offers superior heated sample line protection with one third less weight, setting a new standard in the marketplace.
- 2019** - Ownership transition. Justin and Amy Horvath agree to terms with Bob and Maureen Horvath to purchase the company and keep it in the family.

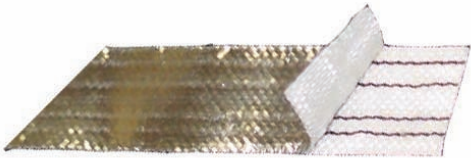
OEM Heater

Features:

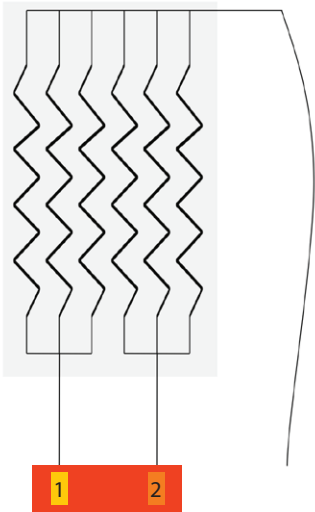
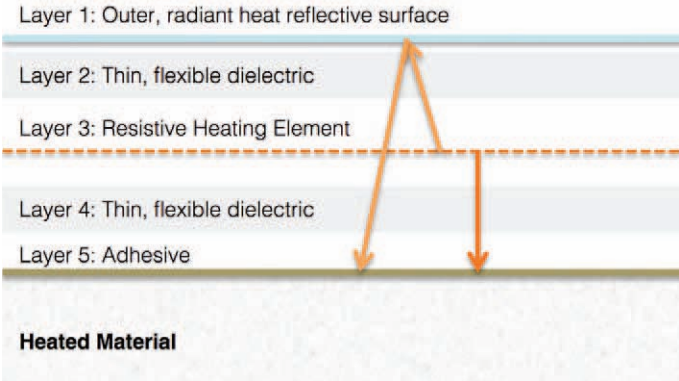
- AC or DC operation
- Input voltage from 1v - 277v
- Thickness less than 1/64"
- Temperatures up to 450 degrees F
- Efficient thermal

Configurable Circuitry Options:

- Manage input current
- Maintain wattage as temperature increases
- Reduced wattage holding circuit
- Over-temp protection
- One tape designed for multiple temperatures
- 3-phase operation



Thermal energy is transferred directly to the object through both conductive and radiant modes of heat. Additionally, radiant heat directed away from the tube is reflected back onto it. This ensures the most efficacious conversion of electrical energy to thermal energy directly to the tube being heated.



Multi-circuit example

- Circuit 1 achieves temperature 1
- Circuit 2 achieves temperature 2
- Circuit 1 & 2 achieves temp 3

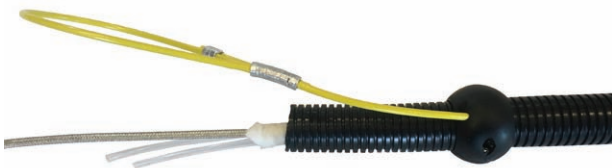
Natural Gas

Markets:

- Midstream (Transmission to processing)
- Chemical Processing
- Power Generation
- Refineries
- Utilities
- Transportation (Natural Gas Vehicles)
- Fertilizer Production
- Hydrogen Production
- Some Manufacturing (Fabrics, Glass, Steel, Plastics, Paint)

Features:

- Light weight
- Flexible
- Field replaceable tubing
- Temperature indicator lights
- High thermal efficiency
- Long life span
- Robust UV and chemical resistant outer cover



Optional strain relief



Optional armored end



Applications:

- Moisture Analysis
- Sample purity / quality monitoring

Available Accessories:

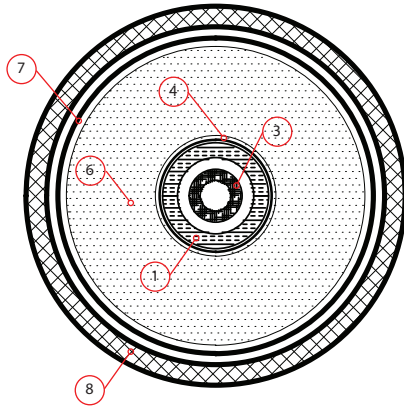
- Strain Relief at user defined locations
- Field replaceable moisture monitoring tube
- High performance insulation
- Pass through power
- Heated blanket accessory



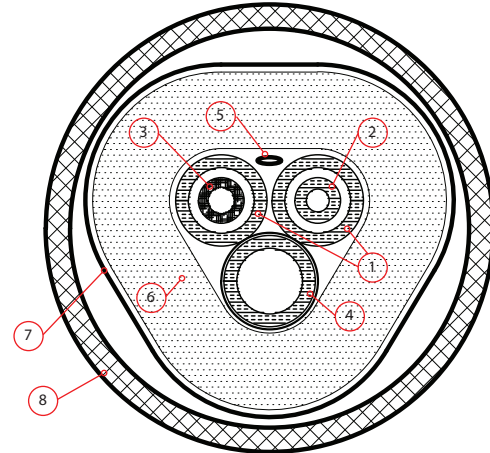
Optional Polyamide 12 cover



Optional firesleeve cover



Standard natural gas line



Natural gas line with moisture monitoring

- 1/4" OD FEP teflon tubing (carrier tubes) (1)
- Optional field replaceable 1/8" Teflon tubing for separate moisture monitoring (2)
- Field replaceable 1/8" OD stainless steel or Nylon 11 natural gas tube (3)
- Clayborn heat trace at nominal 7 watts per foot (4)
- Self-regulating to 120F with 175F over-temp protection
- Voltage options include 12, 24, 108, 120, 208 or 240
- End fittings available:
 - Full range of standard Parker end fittings
 - Robust "armored ends" with field replaceable stainless steel fittings
- Integrated thermocouple or RTD temperature monitor (5)
- Nomex felt insulation (6)
- Continuous internal nylon braid kelim grip (foundation for strain reliefs) (7)
- Outer cover options:
 - High temperature silicone firesleeve
 - Corrugated polyamide 12 (8)

Stack Emissions Monitoring

Markets:

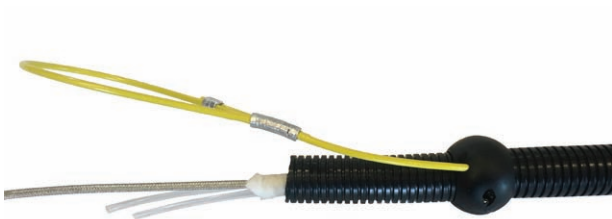
- Power Generation
- Chemical Processing
- Refineries
- Equipment / Machinery manufacturers
- Engine Testing

Applications:

- CEMS-Continuous Emission Monitoring
- RATA Testing – Mobile System Monitoring

Features:

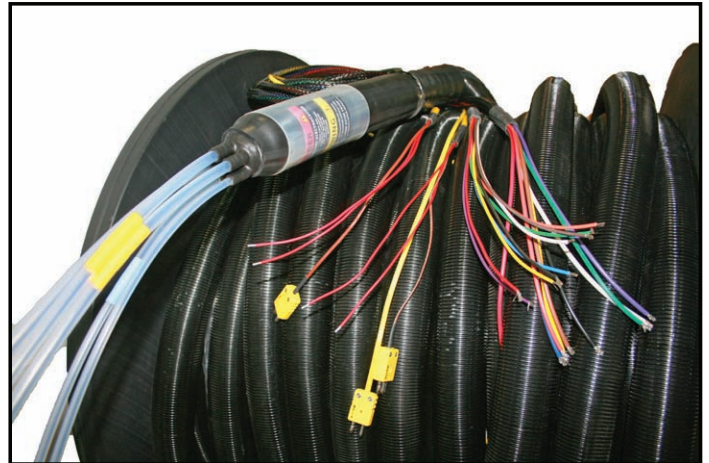
- Light weight
- Flexible
- High thermal efficiency
- Long life span
- UV and chemical resistant outer cover
- Unique heater wiring options allow for extensive electrical configurations



Optional strain relief



Optional controller

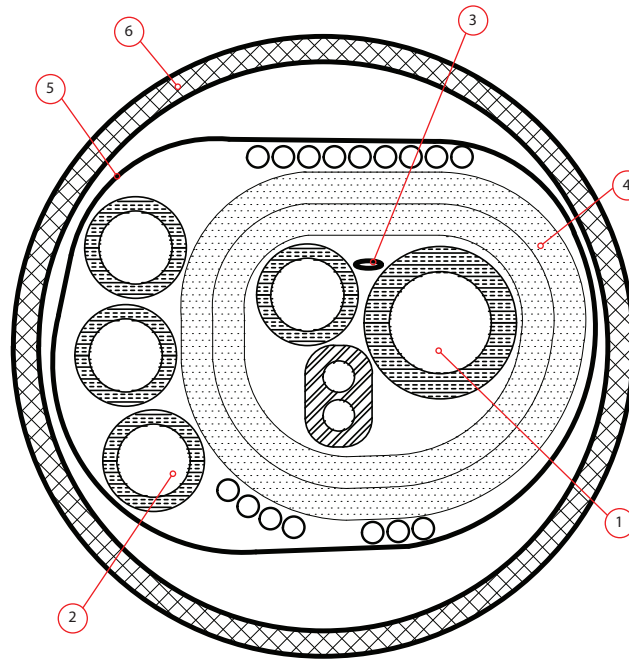


Available Accessories:

- Strain Relief(s) at user defined locations
- High performance insulation
- 15, 20 or 30 amp, 120v controllers
- Up to (22) Pass through power, control, or thermocouple wires
- Custom labeling
- Temperature indicator lights
- Early wire or tubing exit from outer cover



Optional Polyamide 12 cover



Standard CEMS

- Heated zone (1)
 - Up to (6) heated teflon tubes (PFA or PTFE)
 - OR - Up to (2) heated stainless steel tubes (304 or 316)
- Un-heated zone (2)
 - Up to (6) un-heated Teflon tubes (PFA or PTFE)
 - OR - Up to (1) un-heated stainless steel tube (304 or 316)
- Maintain Temperatures up to 400F (204C)
- Control options:
 - External control via integral thermocouple or RTD
 - Self regulated
- Voltage options: 120, 208, 240, 277
- End fittings available:
 - Full range of standard Parker end fittings
 - Robust "armored ends" with field replaceable stainless steel fittings
- Integrated thermocouple or RTD temperature monitor (3)
- Nomex felt insulation (4)
- Continuous internal nylon braid kelim grip (foundation for strain reliefs) (5)
- Corrugated polyamide 12 outer cover (6)

Chemical Analysis

Markets:

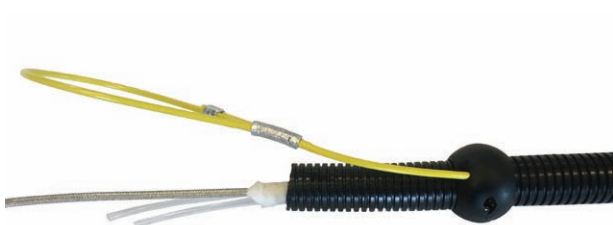
- Pharmaceutical manufacturers
- Analyzer manufacturers
- Testing laboratories

Applications:

- pH Analysis
- Partition Analysis
- Liquid Extraction
- Stability Testing

Features:

- Light weight
- Flexible
- Field replaceable tubing
- High thermal efficiency
- Long life span
- UV and chemical resistant outer cover



Optional strain relief



Optional controller



- Sample / Substance temperature maintenance
- Moisture analysis
- Tubes used integrally within analyzers

Available Accessories:

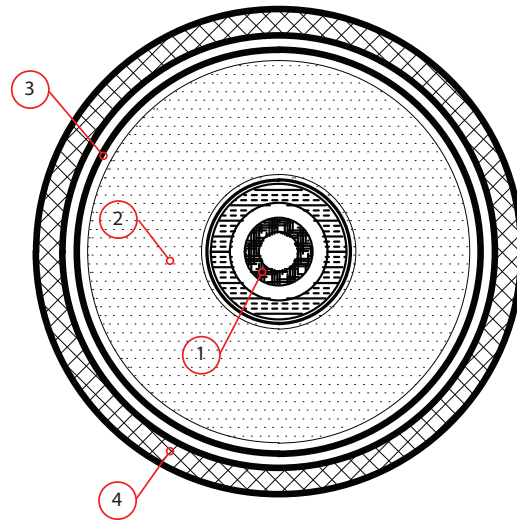
- Strain Relief at user defined locations
- High performance insulation
- Pass through power, control, or thermocouple wiring
- 15, 20 or 30 amp, 120v controllers available
- Ability to heat trace any tubing types including Teflon, Nylon, Stainless Steel, Titanium, Poly, Silicone



Optional Polyamide 12 cover



Optional firesleeve cover

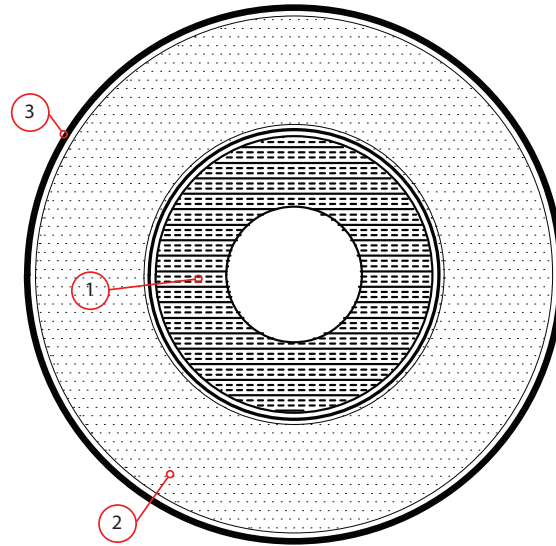


Standard CEMS

- Field replaceable 1/8" OD stainless steel carrier tube (larger OD if needed) (1)
- Control style:
 - Self-regulating to 120F with 175F over-temp protection
 - Externally controlled via integral thermocouple or RTD
- Voltage options include 12, 24, 120, 208 or 240
- End fittings available:
 - Full range of standard Parker end fittings
 - Robust "armored ends" with field replaceable stainless steel fittings
- Integrated thermocouple or RTD temperature monitor
- Nomex felt insulation (2)
- Continuous internal nylon braid kellum grip (foundation for strain reliefs) (3)
- Outer cover options:
 - High temperature silicone firesleeve
 - Corrugated polyamide 12 (4)
 - Nylon braid

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Standard Viscosity Control

- Parker 520N tubing of any size (1)
- Control options:
 - External control via integral thermocouple or RTD
 - Self-regulating to 175F
- Voltage options include 12, 24, 120, 208 or 240
- Full range of standard Parker end fittings
- Integrated thermocouple or RTD temperature monitor
- Nomex felt insulation (2)
- Continuous internal nylon braid kellum grip (foundation for strain reliefs)
- Outer cover options:
 - Nylon braid (3)
 - High temperature silicone firesleeve
 - Corrugated polyamide 12