Mustang Sampling®

Heat Trace Tube Bundle Installation

Mustang® Sample Conditioning System, Mustang® P53® Sample Conditioning System, & Pony® Heated Probe Enclosure

TABLE OF CONTENTS

SAFETY WARNINGS

Failure to abide by any of the safety warnings
could result in serious injury or death.

- Electrical power must be "OFF" before and during installation and maintenance or personal injury may result.
- Do not exceed any equipment pressure ratings.
- Prolonged and/or repeated contact with the sealing compound may result in skin irritation. If contact occurs wash immediately and thoroughly.
- The hazardous location information specifying class and group listing of each instrument en-closure is marked on the nameplate of each enclosure.
- All unused conduit openings must be plugged. Plugs must be a minimum of 1/8" thick and engage a inimum of 5 full threads.
- Do not use Teflon® tape or pipe dope on gland connection to the hazardous area rated en-closures.

PRODUCT DESCRIPTION

Mustang Sampling's Heat Trace Tube Bundle is the patented power connection that provides power to the sample conditioning system and transports the Analytically Accurate heated gas sample to an analyzer. This unique dual functionality eliminates the need for additional power at the sample point and helps avoid Joule-Thomson cooling.

APPLICATION

Small diameter lines are heated for many reasons including freeze protection (winterization), reduced viscosity, and keeping gas samples above their dew point. These can be critical for process accuracy, emissions compliance, and even plant operation.

Mustang Sampling's cut-to-length constant watt electric heat trace tube bundle is designed to provide freeze protection and temperature maintenance. The construction of heat trace tube bundle makes it exceptionally durable and suitable for process analyzer applications within Natural Gas, Natural Gas Liquid and Biogas Sample Conditioning Systems. The heat trace tube bundle runs from the Analyzer building to Mustang Sampling's Systems and enclosures which are close couple to one another at the source.

FEATURES

- Long circuit lengths
- Multi-Component Bundle
- Insulated heat trace
- Consistent watt density per unit length
- Not subject to high inrush current on start-up
- Integral 1/4" OD x 0.035" wall 316/316L SS Seamless tubing
- Maximum Pressure: 5100 psig

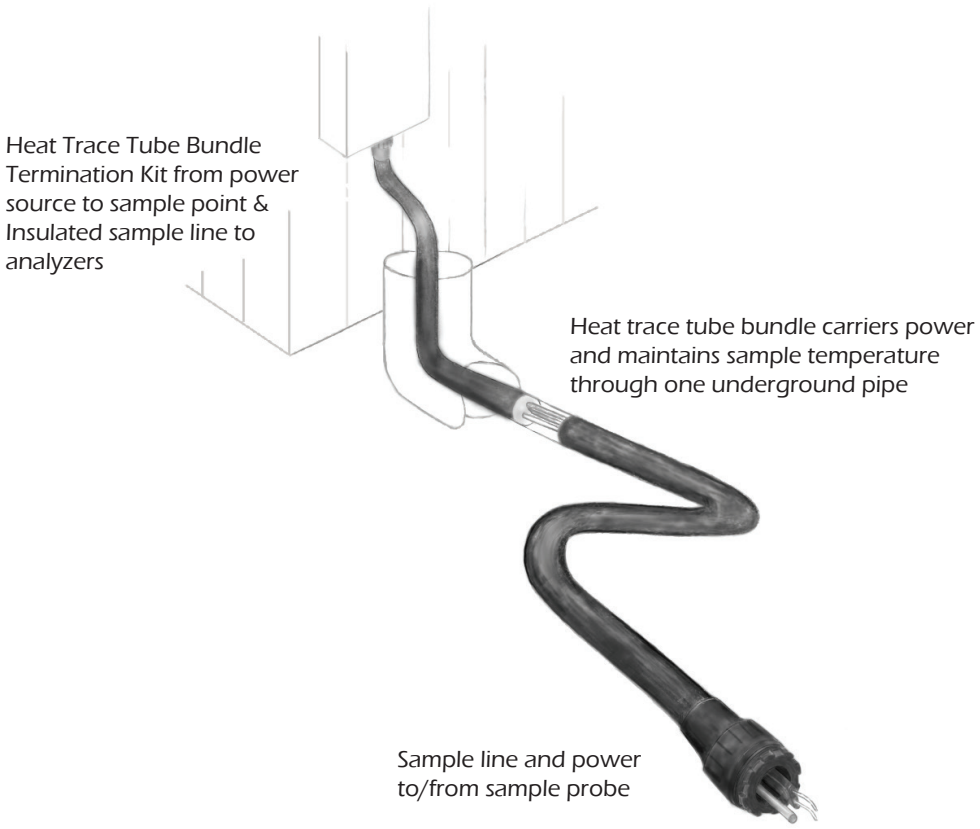
BENEFITS

- Keeps gas samples above their dew point, helps prevent the Joule-Thomson effect
- Certified Electrical Heat-Tracing
  - Class 1, Division 1, Groups A, B, C, D
  - FM and CSA approved for use in hazardous areas
- Process tubing is MR0175; Petroleum and natural gas industries - Materials for use in H2S containing environments in oil and gas production
- Conforms to API 14.1 Guidelines
- Freeze protection
- No steam cleaning
- Excellent means of maintaining very long, continuous lengths of impulse lines and piping at consistent temperatures end-to-end
- Reduces installation and maintenance requirements

HEAT SHRINK ENTRY SEAL AND HEAT SHRINK BOOTS

The heat-shrinkable entry seal provides a waterproof fitting where Mustang Sampling's heat trace tube bundle enters an enclosure such as a Pony® Heated Probe Enclosure, Mustang® P53® Sample Conditioning System, Pony® Sample Conditioning System or a Mustang NGL Sample Conditioning System. The thermally stabilized, modified polyolefin entry seal and boot combination consist of a threaded assembly that seals at the enclosure and a heat-shrinkable nose that seals to the heat trace tube bundle. Using a heat shrink end seal boot is suggested for all exposed ends. This installation will provide an ideal weather seal protection for gas sample conditioning systems.

PATENTED POWER CONNECTION



MAXIMUM HEAT TRACE TUBE BUNDLE LENGTHS IN FEET

		120 V				240 V			
	Ambient Temperature Start-up	**15 A**	**20 A**	**30 A**	**40 A**	**15 A**	**20 A**	**30 A**	**40 A**
5 Watts	50°F (10°C)	230	270	270	270	460	540	540	540
	0°F (-18°C)	140	190	270	270	285	380	540	540
	-20°F (-29°C)	125	165	250	270	250	330	500	540
	-40°F (-40°C)	110	145	220	270	220	295	440	540
8 Watts	50°F (10°C)	150	200	210	210	300	400	420	420
	0°F (-18°C)	100	130	200	210	200	265	400	420
	-20°F (-29°C)	85	115	175	210	175	235	350	420
	-40°F (-40°C)	80	105	155	210	155	210	315	420

TERMINATION KIT PARTS

HEAT TRACE TUBE BUNDLE POWER CONNECTION TERMINATION KITS

End Seal Kit

End Seal Kit with Bracket Strap

Item Number	Description
1	Termination Enclosure
2	Packing Compound
3	Conduit Seal
4	Packing Fiber
5	Conduit Nipple
6	Conduit Union
7	Grommet Holder
8	Corrugated Tubing
9	Terminal Block
10	SS Hose Clip
11	2-Hole Heat Shrink Boot
12	Heat Shrink Tube for Ground
13	Grommet
14	Grommet
15	Grommet
16	Grommet
17	Grommet
18	Wire Lead Cover with Dielectric Grease
19	Termination Enclosure Bracket
20	Mounting Bracket Hose

PONY® PROBE ENCLOSURE TERMINATION KIT

Item Number	Description
1	1.60 Heat Shrink Boot
2	Grommet Holder
3	2-Hole Heat Shrink Boot
4	Split Washer for Mounting Pony® Heated Probe Enclosure
5	Terminal Block
6	Grommet
7	Crimp Connectors
8	SS Bolts for Mounting Pony Heated Probe Enclosure
9	Heat Shrink Tube for Ground
10	Wire Lead Cover w/ Dielectric Grease

MUSTANG® P53™ SAMPLE CONDITIONING SYSTEM TERMINATION KIT

Item Number	Description
1	1.60 Heat Shrink Boot
2	Wire Lead Cover with Dielectric Grease
3	Heat Shrink Tube for Ground
4	Grommet Holder
5	2-Hole Heat Shrink Boot
6	Grommet
7	Crimp Connectors

INSTALLATION INSTRUCTIONS

TOOLS REQUIRED

- Standard Hand Tools
- 1/2″ drive ratchet
- Diagonal cutters
- Needle nose pliers
- 3/16″ slotted screwdriver
- 1/4″ hex key
- 1/16″ hex key
- 5/16″ hex key
- 2500 vdc insulation resistance tester
- Tape Measure
- Utility Knife
- Marker
- Pipe wrenches
- Wire strippers
- Heat gun

ATTACHING THE MUSTANG® P53® SAMPLE CONDITIONING SYSTEM TO THE PIPELINE WITH HEAT TRACE TUBE BUNDLE

Power is derived from the building and delivered to the P53 through the Heat Trace Tube Bundle. The power then leaves the P53 and powers the Pony Heated Probe Enclosure. The inlet from the Probe or Pony Heated Probe Enclosure is on the left and marked inlet from probe. The right side is the outlet and goes to the Gas Chromatograph or analyzer.

1. Attach the Mustang P53 Sample Conditioning System with a rigid 2″ conduit to a 2″ pipe using the supplied bracket.
2. Drill holes and secure the heat shrink boots.
3. Bring in the Heat Trace Tube Bundle into the P53 Sample Conditioning System.
4. Open the controller cover and safely leave the wires hanging.
5. Switch the multimeter to Volt AC and safely apply power to the P53 Sample Conditioning System.
6. Put the black lead on the chassis ground. Test both wires with the orange lead and take note which wire is live.
7. Turn the power off for safety and test again to make sure the power is off.
8. The terminal box alternates hot and neutral. Make sure you are on a hot terminal and secure the hot wire. Secure the neutral wire to the neutral terminal. Blue wires are for the heaters. Tighten everything up.
9. Energize the system to make sure it is working.
10. De-energize the system.
11. Pour and pack the seals.
12. Shrink the boots with a heat gun.

INTRODUCING PRESSURE TO FEED DOWNSTREAM GC OR ANALYZER

1. Turn on the probe valve in the Pony® Heated Probe Enclosure. Make sure the inlet alves in the P53 Sample Conditioning System are closed.
2. Crack open the valve on the liquid membrane separator.
3. Barely open the inlet gas valve to begin a purge and make sure you have gas traveling.
4. Once gas is traveling, turn the liquid membrane separator off.
5. Completely open the inlet gas valve. If you hear a leak, shut-off the inlet valve immediately.

INSTALLATION OF THE PONY HEATED PROBE ENCLOSURE TO THE PIPELINE

1. Remove the lid and remove the loose items shipped within the Pony Heated Probe Enclosure including the mounting kit and bolts.
2. Thread the Mustang Certicollar onto the probe.

HEAT TRACE TUBE BUNDLE INSTALLATION TO THE PONY HEATED ENCLOSURE

1. Define where you would like the entry of the Heat Trace Tube Bundle; typically at the back of the enclosure.
2. Drill a hole that matches the internal part of the heat trace boot through the enclosure.
3. Attach and tighten the heat shrink boot to the enclosure.
4. Run heat trace through the seal fitting prepped for the heat trace.
5. Connect the heat trace wiring to the wires in the explosion proof crock.
6. Install the valve and terminate the tubing.
7. Secure and tighten, you are ready t apply power.

Analytically Accurate®
TECHNOLOGY

About Mustang Sampling

Mustang Sampling, LLC is the innovator of Analytically Accurate® solutions within sample conditioning systems. We provide custom solutions of products and services globally to the Natural Gas, Natural Gas Liquids (NGL), and Liquefied Natural Gas (LNG) industries. Mustang Sampling continues to pioneer integrated control systems, allowing our customers to maintain phase stability from sample extraction at the source through sample analysis. Our products are continuously improved and subjected to the highest quality standards which provides our customers with the best sample conditioning solutions.

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U.S. Patent 7,162,933 B2

MS-IOMHTT.v1-EN-P June 2019
Supersedes: MIOM-MHTTK 1