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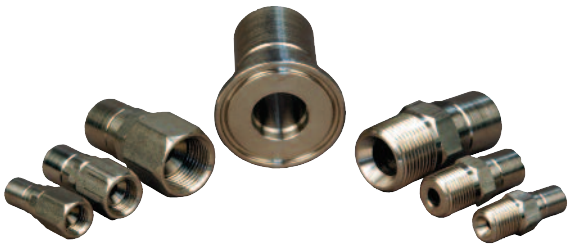
Electrically Heated Hose Assemblies

ITP's Electrically Heated Hose Assemblies are designed for optimum transfer of non-explosive liquids or gases. ITP's HEH Transfer Hoses are Teflon® lined stainless steel braid heated flexible assemblies. Style R (regular pressure) or Style H (high pressure) transfer hoses are used in a wide range of applications such as water (freeze protection), steam, wax, plastics and many others. Heated transfer hoses improve fluid transfer for many applications.

Design Features

- *Base Hose has a smooth bore Teflon® core with Stainless Steel overbraid.*
- *Self-vulcanizing Silicone TGL bedding tape at 50% overlap.*
- *Kapton® insulation wrapped stranded nichrome alloy heater element.*
- *2 layers of 1/8" Nomex® felt insulation.*
- *Layer of 2" wide black tape for final wrap.*
- *Heavy duty abrasive resistant outer covering, polyester braid; optional water resistant jacket is available upon request.*
- *Heat shrink tube end caps.*
- *Male NPT or 37° JIC female swivel fittings are standard; options include Tri-Clamp or Tubing/Pipe for compression fittings. Choice of Stainless Steel or plated carbon steel.*
- *Temperature range to 450°F/232°C.*
- *Overall length up to 600 inches.*
- *Temperature sensors such as thermocouples or RTDs can be built-in to the assembly.*
- *Snap action thermostats can be built in to the assembly to limit the maximum temperature.*
- *6 ft. power leads standard; length can vary upon request.*
- *Hose assemblies available in 120 and 240 Vac.*
- *Ground connection to the Stainless Steel overbraid.*



ITP's Control Consoles
Ideal for controlling process temperatures on heated hose assemblies. Complete information can be found on page 13-52.

Typical Applications

- *Hot Melt Systems*
- *Petroleum Products*
- *Food Products*
- *Hot Oil Lines*
- *Chemical Transfer*
- *Gas Analyzer Systems*
- *Steam Transfer*
- *Water & Waste Disposal*
- *Bulk Transfer*
- *Paint Systems*
- *Tar & Asphalt*
- *Waxes – Candle Making*
- *Adhesives*

Construction Characteristics

ITP's Heated Transfer Hoses are built to the most stringent standards. Each hose is hand assembled to exact physical and electrical specifications. The heated hose assembly starts with the highest quality Teflon® smooth bore core with Stainless Steel overbraid style hose. Over this is wrapped a layer of self-vulcanizing silicone TGL bedding tape at 50% overlap as a base for the resistance wire. The stranded resistance wire is pre-wrapped with Kapton® insulation before winding around the growing assembly in the precise pattern required for uniform heating. Next is wound two layers of Nomex® felt insulation, to maintain consistent heat and a safe cool-to-the-touch design, followed by a layer of 2" wide black tape. The standard hose outer cover is an abrasion resistant polyester braid for normally dry environments. An optional outer cover can be provided for water resistant protection.

The hose assembly is then finished with heat shrink end caps, specified hydraulic fittings and electrical connectors. Hoses are also manufactured with optional built-in sensors including RTDs or thermocouples.

HEH Heated Hose Assembly Length Definition

1. For Heated Hose Assemblies with 37° JIC Female Swivel fittings, the specified Length is defined as fitting seat to seat.
2. For Heated Hose Assemblies with other permanently attached fittings, such as Tri-Clamps, Rigid NPT or Tubing, regardless of fitting type or gender, the specified Length is measured from the outside edge to the outside edge of the fittings.
3. Fitting adapters such as male JIC to male NPT, are not included in the Length specification.
4. Length Tolerances are stated as follows:

17.99" or less: ±0.5"	10 feet to 20 feet: ±1.5"
18" to 36": ±0.75"	20 feet to 50 feet: ±2.5"
3 feet to 10 feet: ±1.0"	

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Specifications for Heated Hose Assemblies

Hose Size	Style R – Regular Pressure		Style H – High Pressure		Max. Rec. Watt Density (w/ft.)		Max. Working Pressure (PSI)		Minimum Bend Radius	Male NPT Fitting Size	JIC Fitting Size, SS
	Core ID in. / mm	Hose Assembly OD in. / mm	Core ID in. / mm	Hose Assembly OD in. / mm	R Style	H Style	R Style	H Style	in. / mm	SS	
#4	.187 / 4.75	1.40 / 35.6	.222 / 5.64	1.40 / 35.6	23	30	2250	4000	4 / 102	¼-18	7/16-20
#6	.312 / 7.92	1.50 / 38.1	.308 / 7.82	1.50 / 38.1	25	40	1875	4000	8 / 203	⅜-18	9/16-18
#8	.406 / 10.31	1.59 / 40.4	.401 / 10.19	1.59 / 40.4	30	50	1500	4000	10 / 254	½-14	¾-16
#10	.500 / 12.70	1.69 / 42.9	.495 / 12.57	1.69 / 42.9	35	55	1312	4000	13 / 330	½-14	⅞-14
#12	.625 / 15.87	1.79 / 45.5	.617 / 15.67	1.79 / 45.5	40	65	1125	4000	15 / 381	¾-14	1 1/16-12
#16	.875 / 22.22	2.10 / 53.3	.867 / 22.02	2.30 / 58.4	50	85	750	4000	18 / 457	1-11½	1 5/16-12
#20	1.12 / 28.57	2.60 / 66.0	1.118 / 28.40	2.70 / 68.6	65	95	500	4000	24 / 610	1¼-11½	1 5/8-12

Notes: Operating pressures are for non-impulsive applications only.
#20 and High Pressure can only be done for special applications, consult ITP.

Ordering Code:

HEH – [1] [2] [2] [3] [3] [4] [4] [4] [4] [5] [6] [7] [8] [9] [10] [11]

Hose Style *BOX 1*
R = Regular Pressure, Teflon®
H = High Pressure, Teflon®
X = Other

Length *BOX 2*
In 6" increments
From **006** to **600** inches

Trade Size *BOX 3*
04, 06, 08, 10, 12, 16, 20
XX = Other

Wattage *BOX 4*
Insert Required Wattage
Example: **0120** = 120 Watts

Note: Larger wattages are limited to 240V due to overall amperage requirements.

Voltage *BOX 5*
1 = 120 Vac
2 = 240 Vac
3 = 208 Vac
4 = 277 Vac
X = Other

Electrical Connectors *BOX 6*
A = Hubbell® #4720C, 15A, 120 Vac, locking plug (NEMA L5-15P)
B = Hubbell® #4570C, 15A, 240 Vac, locking plug (NEMA L6-15P)
C = Industry common, 9-pin Amp® connector
D = No connector, flying leads
E = Standard straight blade, 15A, 120 Vac, (NEMA 5-15P)
F = Standard straight blade, 15A, 240 Vac, (NEMA 6-15P)
X = Other

Temperature Sensor *BOX 7*
N = None
A = RTD, 100 ohms, platinum, 2-wire, leads only
B = Thermocouple, Type J, leads only
C = Thermocouple, Type K, leads only
D = RTD, 100 ohms, platinum, 3-wire, leads only
E = RTD, 100 ohms, platinum, 2-wire, Std. Plug
F = Thermocouple, Type J, Std. Plug
G = Thermocouple, Type K, Std. Plug
H = RTD, 100 ohms, platinum, 3-wire, Std. Plug
L = RTD, 100 ohms, platinum, 2-wire, Mini-Plug
M = Thermocouple, Type J, Mini-Plug
P = Thermocouple, Type K, Mini-Plug
Q = RTD, 100 ohms, platinum, 3-wire, Mini-Plug
X = Other

Hydraulic Fitting — Near Electrical Connection *BOX 8*
J = JIC 37° Female Swivel
N = JIC 37° Female Swivel and Male NPT adapter
Optional
T = Tri-Clamp
P = Tubing / Pipe (for compression fitting)
X = Other

Hydraulic Fitting — Opposite End *BOX 9*
J = JIC 37° Female Swivel
N = JIC 37° Female Swivel and Male NPT adapter
Optional
T = Tri-Clamp
P = Tubing / Pipe (for compression fitting)
X = Other

Hydraulic Fitting Material *BOX 10*
S = Stainless Steel
X = Other

External Covering *BOX 11*
P = Heavy duty polyester braid
Optional
N = Water resistant jacket (Available for limited sizes; consult Tempco)
X = Other

Ordering Information

Heated Hose Assemblies are offered with the features listed above. Create an ordering code by filling in the boxes with the appropriate number and/or letter designation for your requirements and a part number will be assigned.

Consult ITP with your requirements.

Standard lead time is 2 to 3 weeks.

Accessory Item (Optional)
9-pin mating connectors, includes 12" of pre-attached leads to crimp sockets and cable clamp/strain relief.

Part Number	Mounting	Heated Hose Sensor Type
EHDR-1115	Cable	Type J thermocouple
EHDR-1207	Cable	Type K thermocouple
EHDR-1208	Cable	2 or 3 wire RTD temperature sensor
EHDR-1116	Panel	Type J thermocouple
EHDR-1209	Panel	Type K thermocouple
EHDR-1210	Panel	2 or 3 wire RTD temperature sensor

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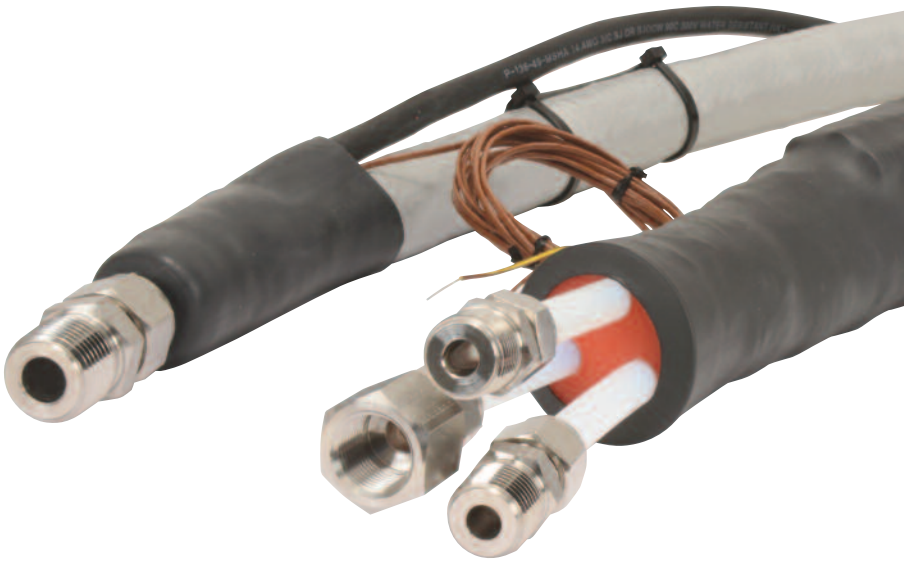
HET — Electrically Heated Tubing Assemblies

ITP's electrically heat-traced tubing assemblies are designed for optimum transfer of non-explosive liquids or gases. ITP's high purity PTFE Teflon® provides maximum flexibility for low pressure applications. Choose copper, aluminum or stainless steel tubing for high pressure applications.

We offer machine-wrapped heat tracing from 1/4" O.D. to 1-3/4" O.D., as well as hand-wrapped tracing of unusually small or large outer diameter tubing to meet a wide range of applications.

The key to ITP's flexible, energy efficient, heat-traced tubing is the powerful low-profile heat tape spirally wrapped around your choice of tubing. The heat tape is manufactured with a top reflective layer to direct heat into the tube. This reflective layer, combined with the heat tape applied directly to the surface of the tube, results in a highly efficient thermal transfer. The simplicity of the heater design allows for the heated assembly to be extremely lightweight and flexible for use in portable and stationary applications. Each tube is then insulated with one or two layers of Nomex felt, depending on the temperature to be maintained.



Typical Applications

- *Aerospace — Satellites, Vacuum Chambers, Testing, Laboratory*
- *Automotive — Fuel Cell Development, Cold Chamber Testing*
- *Composites — Adhesives, Epoxy Transfer, 2-Part Spray*
- *Environmental — EPA-Required Testing, Diesel Emissions*
- *Food Industry — Viscosity Control, Production Technology*
- *Gas Samples — Stack Samples, Analyzer Components*
- *Government — Meteorological Analysis*
- *Industrial — Machinery, Systems Engineering, Semiconductors*
- *Laboratory — Thermal Testing, Instrumentation*
- *Medical — Flow Control, Instrumentation, Scientific Research*
- *Pharmaceutical — Production Machinery, R&D, Testing*
- *Transportation — Aviation Freeze Protection, Heated Lines*
- *Universities — Mechanical, Chemical, Electrical Engineering*

Design Features

- *Base tubing can be Teflon®, Nylon®, Stainless Steel, Copper or Aluminum*
- *Machine-wrapped low-profile flexible heat-tape with multiple heat conductors provides efficient thermal transfer, resulting in even heating from end to end.*
- *Spirally wrapped Nomex® felt insulation bound in place with nylon braid.*
- *Outer layer from simple heat shrink to moisture/contaminant resistant durable outer silicone sleeve.*
- *Temperature range to 400°F / 200°C.*
- *Heated Length to 100 ft. available in 1ft. increments. 1ft. unheated section at each end, shipped bare or with fittings.*
- *Assembly can be designed with a replaceable inner tubing.*
- *Temperature sensors include Type J, K or T thermocouples and RTDs.*
- *Thermostats can be built in, eliminating the need for separate control.*
- *Standard power leads include flying leads, 6 ft. cordset with standard plug or industrial Hubbell Twist-Lock® plug.*
- *Up to 5 total Heated / Unheated tubes in the same bundle.*
- *Built-in indicator lamps for Power On, Heat On or Over Temperature.*
- *Voltage from 12VDC - 240 VAC.*

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HET — Electrically Heated Tubing Assemblies

Ordering Information

Heated Tubing Assemblies are very application specific; Tempco will design and manufacture a Heated Tubing Assembly to meet your process requirements.

To receive a quote send a completed copy of the following Quote Request Form to Tempco.

⚠ **WARNING:** Cancer and Reproductive Harm - www.P65Warnings.ca.gov.

Electrically Heated Tubing Assembly Quote Request

Application Information

Desired Operating Temperature _____
Ambient Condition (indoor, outdoor?)_____
Worst Case Ambient Temperature _____
Expected Pressure _____
Material in the Tubing _____
Comments _____
_____
_____

Tubing Information

Tubing Material _____
(PTFE Teflon®, Copper, 304 SS, Aluminum)
Outside Diameter _____
Wall Thickness if Known _____
Heated Length _____
Overall Length _____
# of tubes _____
How many heated _____
How many unheated_____
If replaceable inner tube required: __ Yes __ No
Replaceable inner tube OD _____
Comments _____
_____
_____

Electrical Information

Watts (total if Multi-Tube) _____
Volts _____ Phase: __ Single __ Three
If Multi-Tube: Watts per Tube _____
Comments _____
_____
_____

Lead Information

Style: ___ Teflon® ___ Industrial Cordage
___ 120VAC cordset w/ standard 5-15 plug
___ 240VAC cordset w/ standard 6-15 plug
___ High Temp Fiberglass
Length _____ Optional Plug _____
Comments _____
_____

Sensor & Control Information

Bult-in Temperature Sensor: __ Yes __ No
Thermocouple Type (J, K, T) _____
RTD (PT100) __ Yes __ No
Lead Length _____
Lead Type _____
Built-In Thermostat __ Yes __ No
Setpoint _____ (Choices limited to (°F): 40°, 77°, 86°, 98,° 104°, 120°, 140°, 176°, 212°, 248°, 302°, 356°)
Indicator Lamps: ___ Green, type _____
___ Red, type _____
Comments _____
_____

Fitting Hardware Information

Bare ____ Compression + NPT: Male ___ Female ___
Comments _____
_____
_____

External Covering Information

__ Bare Heat Trace Only __ Heat Shrink
__ Insulated Polyester Braid
__ Insulated Industrial Scuff Coat
Comments _____
_____