

Electrical Resistance Heating Tape — Adhesive Backed

Engineering Example

A 10 ft. stainless steel braided hose, 1/2" O.D., needs to be heated to 400°F from 70°F. Insulation: 1/2". The voltage is 220V.

- Determine the Length.** To cover the hose completely would take $\pi \times 1/2" \times 120" = 188$ sq. in. A 12" length of 1/2" tape would cover 6 sq. in. of hose; therefore, 31 ft. of 1/2" tape would completely cover the hose, spiral wrapped edge to edge.
- Determine the Watts.** Total Power (T_p) = $P \times L \times \Delta T$
From the chart, $P = .09$ for a 1/2" hose with 1/2" insulation, therefore $T_p = .09 \times 10 \text{ ft.} \times (400-70) = 297$ Watts. For rapid start-up and to compensate for colder material flowing through the hose, increase the wattage by 25% to 400W.
- Calculate the Ohms per Foot.** The ohms/ft. = $E^2 \div (T_p \times L)$
Therefore ohms/ft. = $220^2 \div (400W \times 31 \text{ ft.}) = 3.9$ ohms per ft.
- Calculate the Watts per Foot.** The Watts per ft. = $T_p \div L$
Therefore the watts/ft. = $400 \text{ watts} \div 31 \text{ ft.} = 12.9$ watts/ft.
- Choose Heat Tape Material from the Table.** From the table, the FTP00035, 1/2" tape with four conductors and silicone adhesive in the parallel/series connection at 4.0 ohm/ft. would fill the requirements. The required 12.9 watts/ft. is well under the maximum rating of 62 watts/ft.

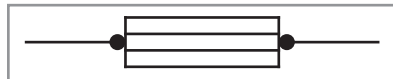


Bulk roll of Heat Tape

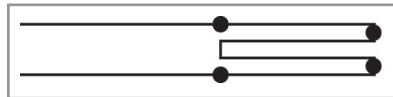
CHART NOTES

Resistance Wiring

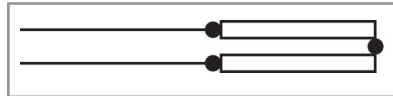
Type 1. Ohms per foot, with all conductors in a *Parallel Connection*.



Type 2. Ohms per foot, with all conductors in a *Series Connection*.



Type 3. Ohms per foot, with all conductors in a *Parallel - Series Pair Connection*.



Max. Watts/ft. in Ohms-Per-Foot Table

The maximum wattage per lineal foot is when the heat tape is applied to a metal heat sink at room temperature. Reduce these ratings linearly to zero watts output at 500°F. Adhesion to heat sink along entire length is important to prevent burnout when tape is used near maximum wattage rating.

Example: A tape that is 70W/ft. maximum watt density at 74°F, would derate to about 35W/ft. maximum watt density at 250°F.

Heating Tape — Ohms-Per-Foot Table

Width		1/8" (4.2 mm)		1/4" (6.3 mm)		1/2" (12.7 mm)					
Number of Conductors		1 conductor		2 conductors		4 conductors					
Part Number		Max.		Ohms/ft. see notes		Max.		Ohms/ft. see notes		Max.	
50 ft. roll	100 ft. roll	Ohms/ft.	Watts/ft.	(1)	(2)	Watts/ft.	(1)	(3)	(2)	Watts/ft.	
FTP0001	FTP1001	1.9	25	.9	3.8	40	.5	1.9	7.6	70	
FTP0002	FTP1002	3.2	25	1.6	6.4	40	.8	3.2	12.8	70	
FTP0003	FTP1003	4.0	23	2.0	8.0	35	1.0	4.0	16.0	62	
FTP0004	FTP1004	4.9	20	2.4	9.8	30	1.2	4.9	19.6	52	
FTP0005	FTP1005	7.0	25	3.5	14.0	40	1.7	7.0	28.0	70	
FTP0006	FTP1006	8.8	23	4.4	17.6	35	2.2	8.8	35.2	62	
FTP0007	FTP1007	10.8	20	5.4	21.6	30	2.7	10.8	43.2	52	
FTP0008	FTP1008	13.2	20	6.6	26.4	30	3.3	13.2	52.8	52	
FTP0009	FTP1009	21.3	13	10.6	42.6	20	5.3	21.3	85.2	32	
FTP0010	FTP1010	26.8	10	13.4	53.6	16	6.7	26.8	107.2	25	

Accessories

	16-20 Ga.	22-26 Ga.
*Terminal Kit for 1-wire	FTP00911	FTP00913
2-wire	FTP00912	FTP00914
Additional solderless crimps	FTP00920	FTP00921
Aluminum/Silicone Heat Transfer Tape	3/4" x 27 ft. FTP00930	1-1/4" x 27 ft. FTP00931

*Terminal Kits contain silicone – not for low out-gassing applications.

Terminal kits are required to terminate the bulk tape into a finished heater assembly. To determine 1-wire or 2-wire, refer to the number of wires being terminated at the end of the heater. For example, to complete the heater in a parallel connection, two 1-wire terminal kits would be required because one lead exits from each end of the heater assembly. The "solderless crimps" are used to complete the non-lead end of the heater. The Heat Transfer Tape is used to provide additional adhesion, placed over the heating tape.

Ordering Information — Bulk Heat Tape

Heat Tape can be ordered in **bulk in 50 or 100 ft. rolls** or in custom assemblies. The part number for each item is completed by filling in the with a number from the following table to detail adhesive type and tape width:

- | | | |
|---------------------------------|---------------------------------|---------------------------------|
| 1—silicone, 1/6" wide (1 cond.) | 2—acrylic, 1/6" wide (1 cond.) | 3—silicone, 1/4" wide (2 cond.) |
| 4—acrylic, 1/4" wide (2 cond.) | 5—silicone, 1/2" wide (4 cond.) | 6—acrylic, 1/2" wide (4 cond.) |

Custom Engineered/Manufactured Heaters

For a quote, **Please Specify** the following

- Application Information Wattage Requirements Lead Information:

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

(800) 323-6859 • Email: sales@tempco.com