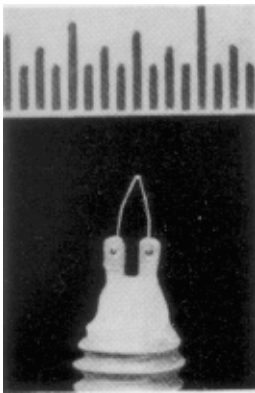
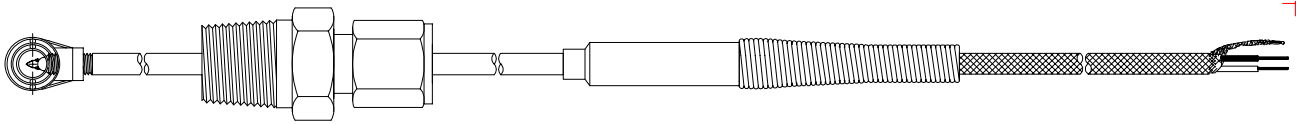


FINE WIRE THERMOCOUPLE PROBES

for Measuring Transient Gas Temperatures

FEATURING

- WIRE SIZES AS SMALL AS 0.0005 INCH
- MILLISECOND RESPONSE TO GAS TEMPERATURE
- RUGGED MOUNTING
- EXTENDED LIFE
- RADIATION SHIELD AND DIFFUSER ACCESSORIES
- CUSTOM DESIGNS AVAILABLE

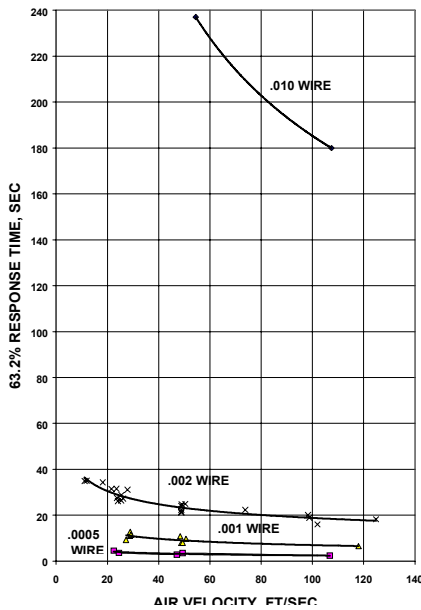


MEDTHERM fine wire thermocouple probes provide a rugged mounting method for inserting ultra-fine wire thermocouple junctions for precise rapid response gas temperature measurements. These probes are designed for applications such as air compressors, internal combustion engines, and wind tunnels where vibration, shock, or bending conditions in the environment preclude use of ordinary fine wire thermocouples.

Thermocouple wires as small as 0.0005 inch are made capable of extended life by use of a unique fine wire mounting technique. Large (.010 - .013 inch diameter) thermocouple wires are swaged with magnesium oxide insulation within a corrosion resistant metal sheath. The ends of the wires are flattened and 0.005 inch dia. holes are drilled through the flattened ends. Each fine wire is then welded to the appropriate large wire, coiled around it, passed through the drilled hole and fusion welded at the hot junction. The welds to the large wire are then encapsulated in high temperature ceramic cement. With this construction, the fine wires can be bent or vibrated without weakening the welded connection of the fine wire at its weld to the large wire. This feature assures a longer life for the fine wire thermocouple than would a conventional welded connection.

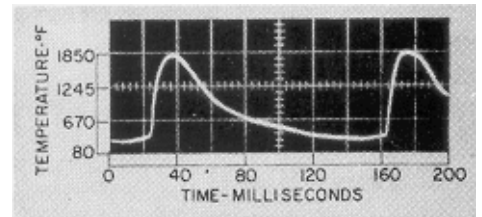
PERFORMANCE

RESPONSE TIME VS. AIR VELOCITY

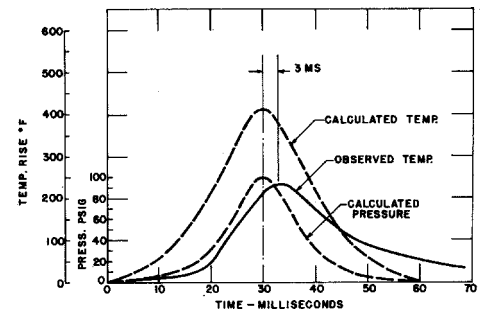


TIME CONSTANT, 63.2 % of STEP CHANGE IN GAS TEMPERATURE.

TYPICAL RECORD FROM GASOLINE ENGINE, 0.001" DIA FINE WIRE



TYPICAL RECORD FROM AIR COMPRESSOR, 0.001" DIA FINE WIRE



WIRE SIZE	LOW GAS FLOW	HIGH GAS FLOW
.0005" dia.	5 milliseconds	4 milliseconds
.001" dia.	10 milliseconds	7 milliseconds
.002" dia.	20 milliseconds	15 milliseconds
.003" dia.	50 milliseconds	35 milliseconds

MODELS

MEDTHERM fine wire probes are available in either 1/16" sheath diameter for minimum cross section or in 1/8" sheath diameter for sturdier mount or support of a radiation shield. The 1/16" sheath diameter probes can be ordered with 1/4" of #1-72 thread on the sheath end and the 1/8" sheath diameter probes may be ordered with 1/4" of #5-56 thread on the sheath end for mounting in close quarters or for attachment of radiation shields or diffusers. The probes may be bent to within 3/4" of the hot end.

The standard probes are supplied 5" long with 3 feet of fiberglass insulated lead wire. Other lengths may be specified. Probes may also be ordered with other terminations, such as a quick disconnect thermocouple plug attached directly to the sheath or a miniature thermocouple head with cover. Custom designs are available, including makeup of thermocouple rakes to customer specification.

Probe sheath diameter is 0.062" or 0.125".
Standard probe length is 5".

Standard transition piece is stainless steel, 1/4" diameter
1-1/4" long, epoxy filled, with strain relief spring.

Standard cable is 24 AWG solid conductor duplex,
three feet long with fiberglass insulation and
metallic overbraid.

Other terminations are available, such as standard size
or miniature thermocouple connectors,
smaller transitions, etc.



ASSEMBLY CATALOG NUMBERS

FINE WIRE DIAMETER	TYPE S (INCONEL SHEATH) SHEATH DIAMETER		TYPE K (INCONEL SHEATH) SHEATH DIAMETER		TYPE E (304 SS SHEATH) SHEATH DIAMETER		TYPE J (304 SS SHEATH) SHEATH DIAMETER	
	1/16"	1/8"	1/16"	1/8"	1/16"	1/8"	1/16"	1/8"
0.0005"	203-05S05	202-05S05	203-05K05	202-05K05	203-05E05	202-05E05	203-05J05	202-05J05
0.001"	203-05S10	202-05S10	203-05K10	202-05K10	203-05E10	202-05E10	203-05J10	202-05J10
0.002"	203-05S20	202-05S20	203-05K20	202-05K20	203-05E20	202-05E20	203-05J20	202-05J20
0.003"	203-05S30	202-05S30	203-05K30	202-05K30	203-05E30	202-05E30	203-05J30	202-05J30

- Specify catalog number.
- Specify probe length if other than 5".
- Specify lead wire length if other than 3 feet.
- Add suffix "C" if ceramic filled 540°C transition is desired.
- Specify special termination if required.
- Add suffix "T" if 1/4" of #1-72 thread is desired on 1/16" sheath diameter probe or if 1/4" of #5-56 thread is desired on 1/8" sheath diameter probe.
- Specify fine wire size if other than standard P/N callout.
- Copper/Constantan, Type T, can be supplied on request. (0.0005" dia. fine wire not available in Type T)

ACCESSORIES

RADIATION SHIELDS FIT "T" THREADS ON THE PROBE	RADIATION SHIELD 3 - LAYER			RADIATION SHIELD HALF - CYLINDER DIFFUSER			RADIATION SHIELD OPEN END DIFFUSER			RADIATION SHIELD CLOSED TIP		
	P/N	DIA	LENGTH	P/N	DIA	LENGTH	P/N	DIA	LENGTH	P/N	DIA	LENGTH
1/16"	10211	.25	.25	10210	.10	.50	10201	.10	.50	11109	.10	.50
1/8"	10630	.31	.25	10190	.16	.75	10191	.16	.75	11010	.16	.75

MALE NPT	NPT COMPRESSION FITTINGS, ADJUSTABLE, 304 SST		NPT COMPRESSION FITTINGS, NOT ADJUSTABLE, 304 SST	
	P/N, 1/16 DIA	P/N, 1/8 DIA	P/N, 1/16 DIA	P/N, 1/8 DIA
1/16"	50370	50371	50380	50381
1/8"	50372	50373	50382	50383
1/4"	50368	50369	50384	50385

NPT FIXED MOUNTING, 304 SST, BRAZED (500°C MAX)	
FITTING MALE NPT	P/N
1/16"	50390
1/8"	50391
1/4"	50392

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7/95