

## Style "MMT" Miniature Molded Transition Thermocouples

Sensor accuracy and reliability are essential to the precise control of temperatures in multicomponent industrial processing systems. Our mineral insulated Style "MMT" thermocouples feature a high temperature molded thermoset lead transition. The durable and cost effective molded transition provides heat and moisture resistance for demanding applications. These high quality thermocouples are manufactured to stringent specifications and have gained a reputation for unsurpassed performance and reliability.

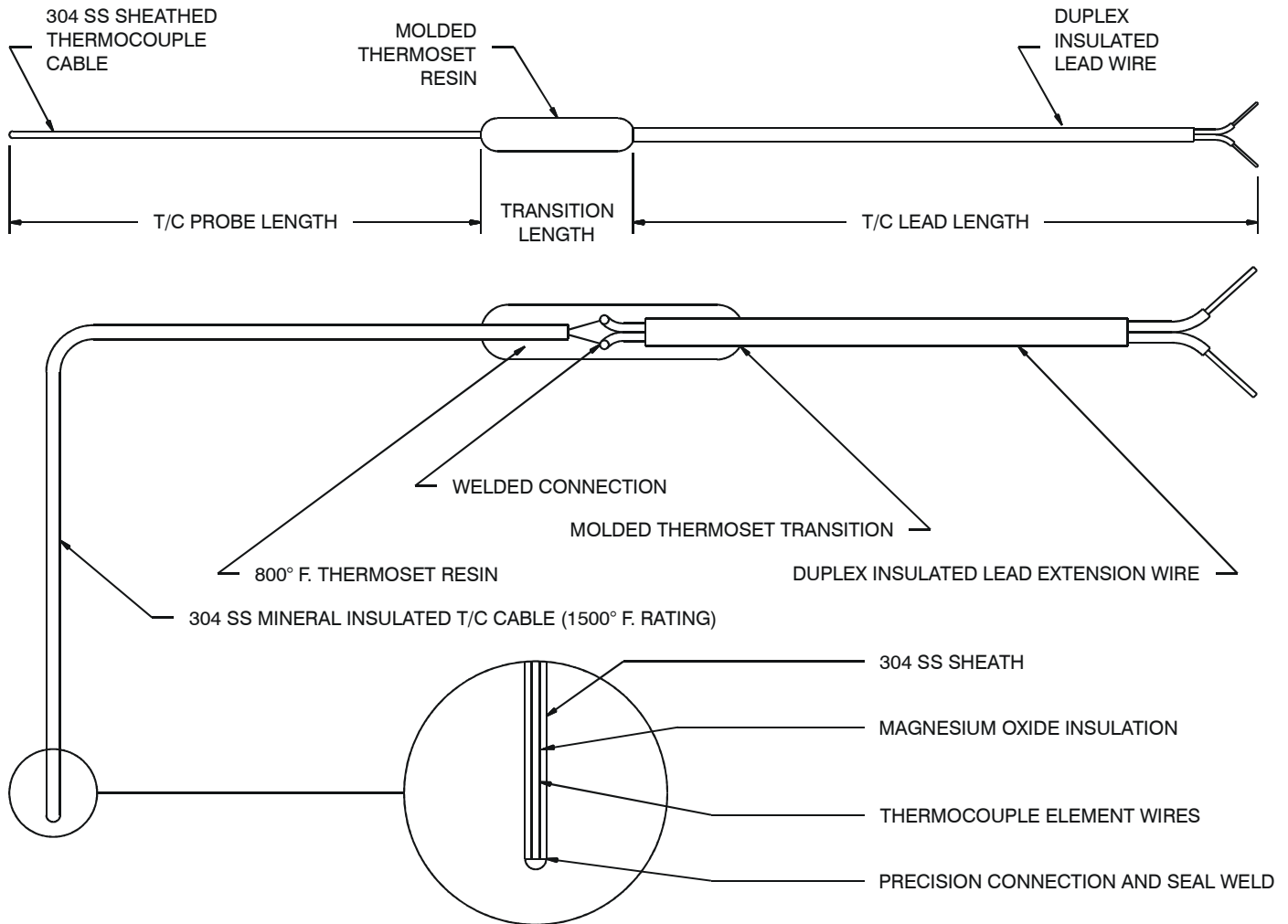
All alloys used in the cable and leads meet or exceed the ANSI specifications for thermocouple grade wire. A full range of lead insulation materials allows selection of leads based on application requirements. Lead options include Kapton, Teflon and fiberglass and all lead types can be supplied with lead protection for additional abuse resistance. The precision welded element and lead connections are totally encapsulated in a high temperature molded thermoset material. If very durable small diameter thermocouple transitions are required the style "MSMT" thermocouples which are molded into a protective stainless steel cover should be considered.

The molded transition provides the highest level of moisture resistance.

Most standard configurations of this high performance thermocouple feature cable diameters in the range of .020 to .125 inches and include a grounded junction configuration in a type "J" calibration. Common options include ungrounded junctions and type "K", type "T" and type "E" calibration. Additional special calibrations are also available .

The standard molded thermoset transition is rated at 800°F. An alternate thermoset resin rated at 900 °F. is also available as an option. If the area in the tool where the transition fitting and leads are located is subject to temperatures greater than this 800°F. limit, special lead materials can be supplied to further raise operating temperature capabilities. While not as resistant to abrasion as Kapton insulated leads, fiberglass insulated leads increase the maximum operating temperatures to 900°F. continuous. All lead styles are designed to accommodate a variety of lead protection systems including fiberglass sleeving and stainless steel wire braid.

These thermocouples can be readily installed into small diameter thermowells, drilled holes or grooves. When required, tabs, rings and other fastening devices can be induction brazed to the cable to simplify their attachment tool surfaces.



Style "MMT" Miniature Molded Transition Thermocouples

Features And Configurations

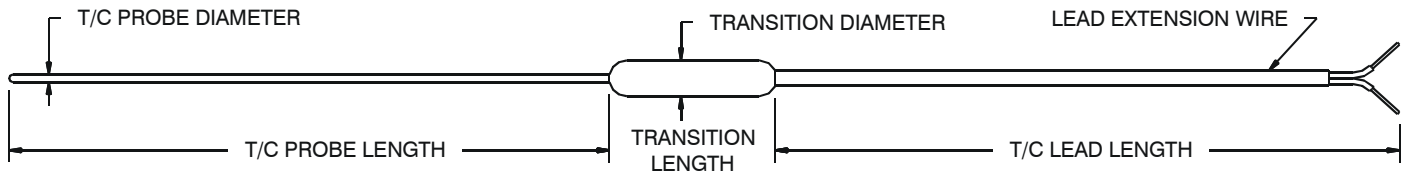
Standard transition dimensions and lead gauges for the most common thermocouple probe diameters are detailed in the table below. We recommend the use of the transitions and leads noted as standard whenever possible, but do offer optional transition sizes and lead gauges to accommodate those applications where tooling space limitations or lead requirements dictate their use.

Design options include stainless steel transition sleeve, special calibrations, ungrounded and exposed junctions and a selection of lead insulation types, lead protection systems and termination styles. A completed selection of fittings and tabs are available to secure single or multiple thermocouples to the desired component.

Selection And Ordering

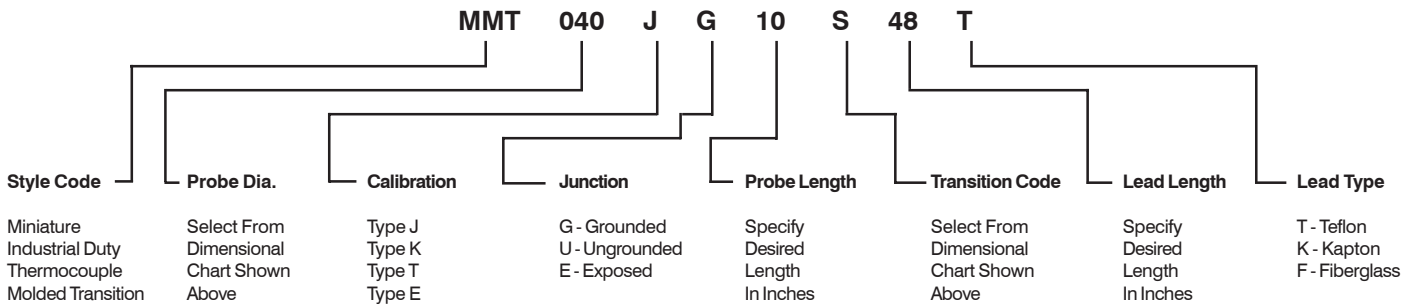
Standard versions of these industrial duty thermocouple assemblies include type "J" calibration, 304 series stainless steel sheathed mineral insulated cable and choice of grounded or ungrounded junction configuration. Stock lead systems include duplex Kapton and Teflon insulated thermocouple grade wire.

The most popular thermocouples are stocked as complete assemblies minus the junction and include 14" probe length with 48" and 72" leads. These assemblies, designated "Stock" in the table below, can be cut and junctioned to customer specifications for same day shipment. To order by product number, replace the codes in the product number example below with your desired specifications.



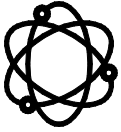
* Probe * Diameter	Transition		Transition Length	Maximum Lead Gauge	Available As	* Probe * Diameter	Transition		Transition Length	Maximum Lead Gauge	Available As
	Dia.	Code					Dia.	Code			
.020"/.5MM	.135"	O	.625	#26 Gauge	Option	.031"	.188"	L	.750"	#24 Gauge	Stock
.020"/.5MM	.165"	S	.750"	#24 Gauge	Stock	.040"/1.0MM	.165"	O	.750"	#24 Gauge	Option
.020"/.5MM	.188"	L	.750"	#24 Gauge	Stock	.040"/1.0MM	.188"	S	.750"	#24 Gauge	Stock
.025"	.135"	O	.625	#26 Gauge	Option	.063"/1.5MM	.188"	O	.750"	#24 Gauge	Option
.025"	.165"	S	.750"	#24 Gauge	Stock	.063"/1.5MM	.204"	S	.750"	#24 Gauge	Stock
.025"	.188"	L	.750"	#24 Gauge	Stock	.093"	.188"	O	.875"	#24 Gauge	Option
.031"	.135"	O	.625	#26 Gauge	Option	.093"	.250"	S	.875"	#20 Gauge	Stock
.031"	.165"	S	.750"	#24 Gauge	Stock	.125"	.250"	S	.875"	#20 Gauge	Stock

Style "MMT" Thermocouple Product Number Definition



The product code example shown above defines a Style "MIDM" thermocouple with a probe diameter of .040 inches in a type "J" calibration with grounded junction and 10 inch probe length. A stock transition diameter was selected. A 48 inch lead length was specified in the standard Teflon insulated construction.

The standard lead termination for the Style "MMT" thermocouple features 2 inch split leads with 1/2 inch stripped ends. Alternate termination requirements must be noted on your order. If fastening devices or fittings are required please provide details or contact our engineering department for assistance.



## Style "MSMT" Miniature Sleeve Molded Transition Thermocouples

Sensor accuracy and reliability are essential to the precise control of temperatures in multicomponent industrial processing systems. Our mineral insulated Style "MSMT" thermocouples feature a metal sleeved high temperature molded thermoset lead transition. The durable and cost effective molded transition provides maximum strength, heat resistance and moisture resistance for demanding applications. These high quality thermocouples are manufactured to stringent specifications and have gained a reputation for unsurpassed performance and reliability.

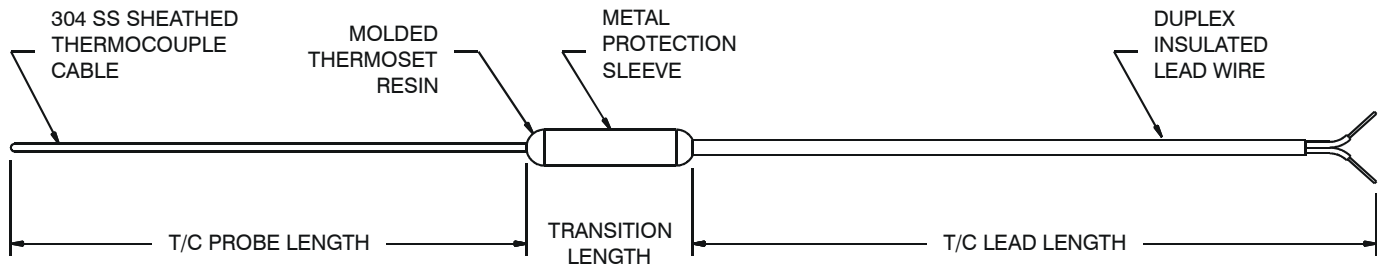
All alloys used in the cable and leads meet or exceed the ANSI specifications for thermocouple grade wire. A full range of lead insulation materials allows selection of leads based on application requirements. Lead options include Kapton, Teflon and fiberglass and all lead types can be supplied with lead protection for additional abuse resistance. The precision welded element and lead connections are totally encapsulated in a high temperature thermoset material molded directly into a protective stainless steel cover.

The metal sleeved, molded transition provides the highest level of moisture resistance and durability.

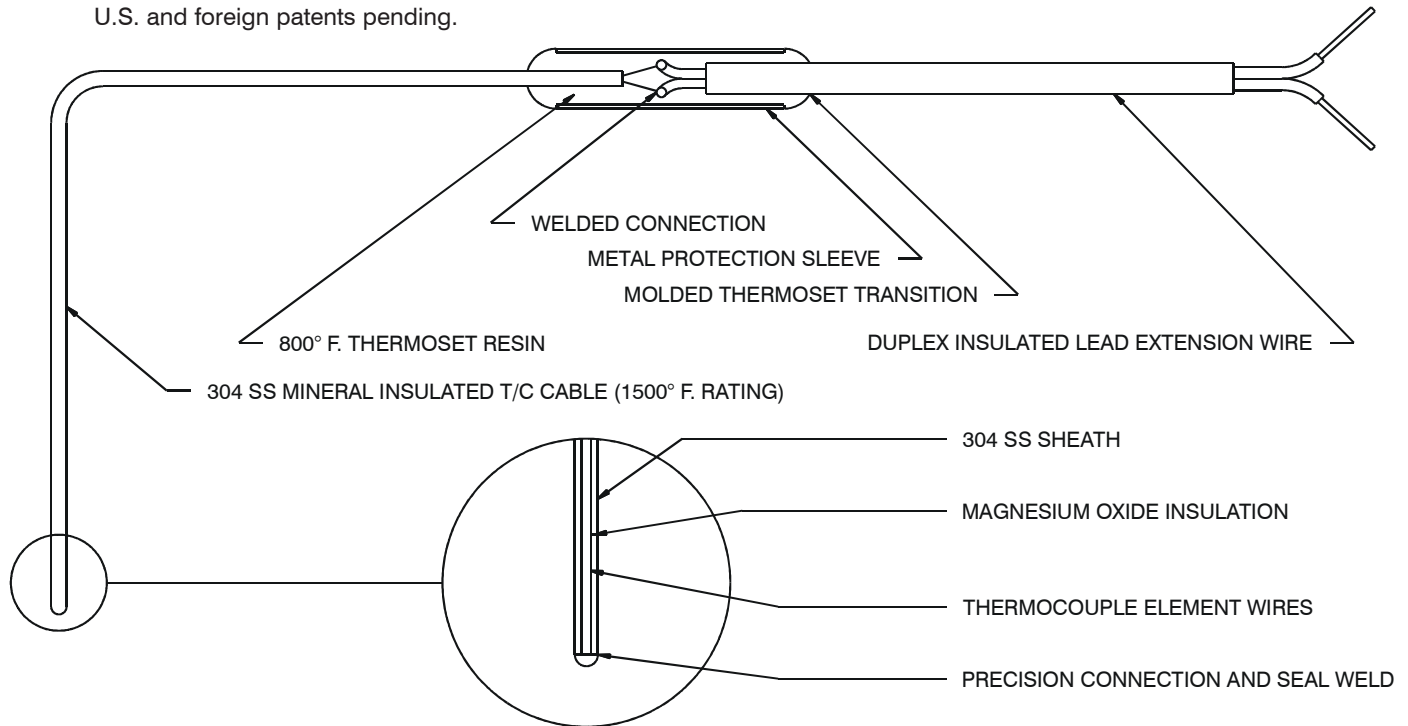
Most standard configurations of this high performance thermocouple feature cable diameters in the range of .020 to .125 inches and include a grounded junction configuration in a type "J" calibration. Common options include ungrounded junctions and type "K", type "T" and type "E" calibration. Additional special calibrations are also available .

The standard metal sleeved style molded thermoset transition is rated at 800°F. An alternate thermoset resin rated at 900 °F. is also available as an option. If the area in the tool where the transition fitting and leads are located is subject to temperatures greater than this 800°F. limit, special lead materials can be supplied to further raise operating temperature capabilities. While not as resistant to abrasion as Kapton insulated leads, fiberglass insulated leads increase the maximum operating temperatures to 900°F. continuous. All transitions are designed to accommodate a variety of lead protection systems including fiberglass sleeving and stainless steel wire braid.

These thermocouples can be readily installed into small diameter thermowells, drilled holes or grooves. Tabs, rings and other fastening devices can be molded in to the transition or attached to the metal sleeve by brazed or welding.



U.S. and foreign patents pending.



### Style "MSMT" Miniature Sleeve Molded Transition Thermocouples

#### Features And Configurations

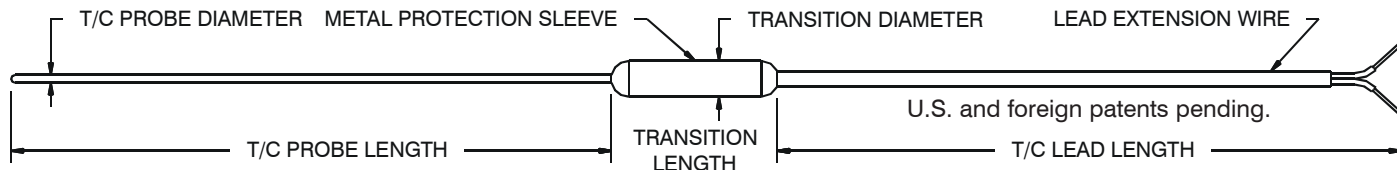
Standard transition dimensions and lead gauges for the most common thermocouple probe diameters are detailed in the table below. We recommend the use of the transitions and leads noted as standard whenever possible, but do offer optional transition sizes and lead gauges to accommodate those applications where tooling space limitations or lead requirements dictate their use.

All of the transitions below feature the protective stainless steel sleeve. Design options special calibrations, ungrounded and exposed junctions and a selection of lead insulation types, lead protection systems and termination styles. A completed selection of fittings and tabs are available to secure single or multiple thermocouples to application and component surfaces

#### Selection And Ordering

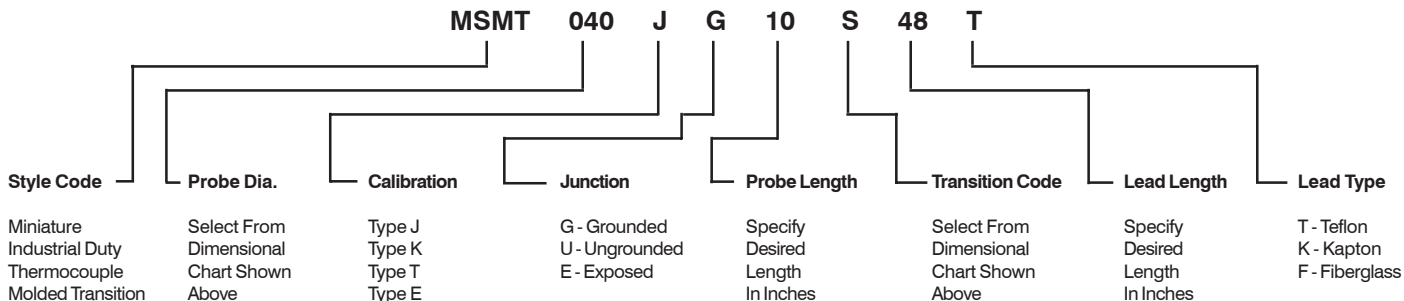
Standard versions of these industrial duty thermocouple assemblies include type "J" calibration, 304 series stainless steel sheathed mineral insulated cable and choice of grounded or ungrounded junction configuration. Stock lead systems include duplex Kapton and Teflon insulated thermocouple grade wire.

The most popular thermocouples are stocked as complete assemblies minus the junction and include 14" probe length with 48" and 72" leads. These assemblies, designated "Stock" in the table below, can be cut and junctioned to customer specifications for same day shipment. To order by product number, replace the codes in the product number example below with your desired specifications.



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.020"/.5MM	.135"	S	.750"	#24 Gauge	Stock	.040"/1.0MM	.188"	L	.750"	#20 Gauge	Option
.025"	.125"	O	.625	#26 Gauge	Option	.063"/1.5MM	.125"	O	.625"	#24 Gauge	Option
.025"	.135"	S	.750"	#24 Gauge	Stock	.063"/1.5MM	.165"	S	.750"	#20 Gauge	Stock
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.031"	.135"	S	.750"	#24 Gauge	Stock	.093"	.188"	S	.875"	#20 Gauge	Stock
.031"	.165"	L	.750"	#20 Gauge	Option	.093"	.250"	O	.875"	#20 Gauge	Option
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The standard lead termination for the Style "MSMT" thermocouple features 2 inch split leads with 1/2 inch stripped ends. Alternate termination requirements must be noted on your order. If fastening devices or fittings are required please provide details or contact our engineering department for assistance.