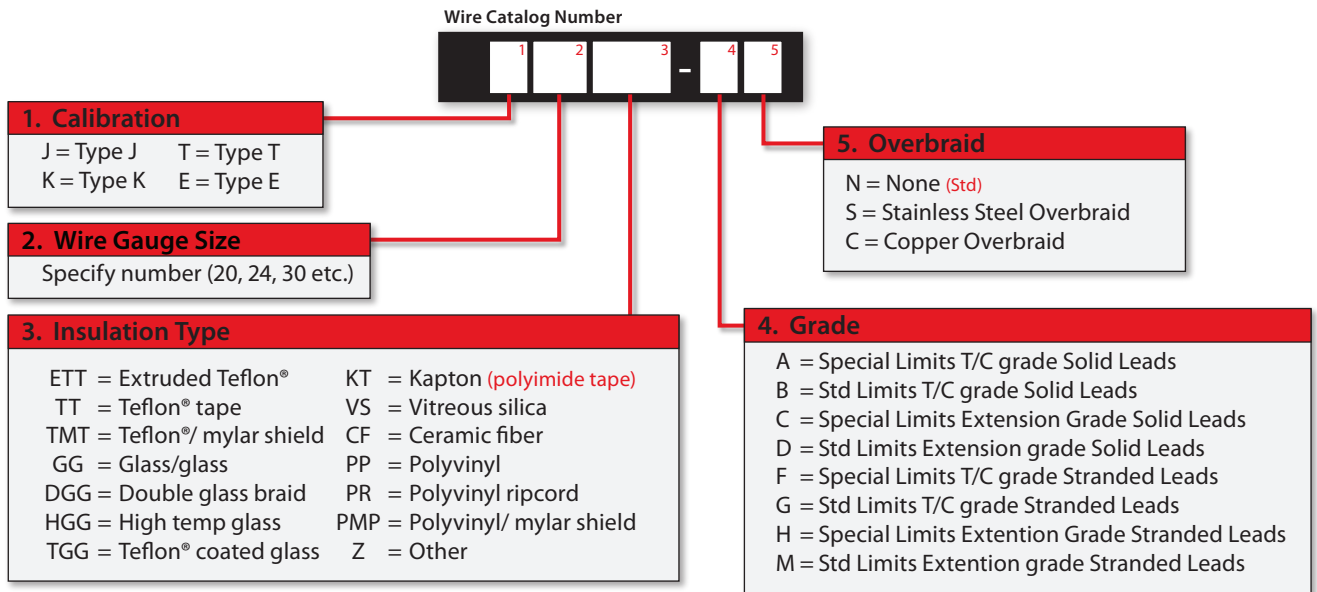


# Insulated Thermocouple & Extension Wire

GIC Thermodynamics offers thermocouple and thermocouple extension wire in many different gauge sizes and insulation materials designed to meet varied applications. Stranded or solid conductors in either Standard or Special limits of error accuracies are available. Thermocouple grade wire is recommended when it is being used as the sensor. If the requirement is to extend the signal at lower temperatures the extension grade is recommended.



For Multi-Pair Cable go to: [GICThermodynamics.com](http://GICThermodynamics.com)

## Insulation Characteristics

TYPE	SINGLE CONDUCTOR		DUPLEX CONDUCTOR		TEMP RATING		PHYSICAL PROPERTIES		
	INSULATION	IMPREGNATION	INSULATION	IMPREGNATION	CONTINUOUS	SINGLE	COLOR CODE	ABRASION RES.	MOISTURE RES.
CF	Ceramic Fiber yarn	-	Ceramic Fiber yarn	-	2200 F	2600 F	no	Good	Fair
VS	Vitreous Silica yarn	-	Vitreous Silica yarn	-	1800 F	2000 F	no	Fair	Fair
HGG	High Temp Glass braid	Impregnated resin	High Temp Glass braid	impregnated resin	1300 F	1600 F	yes	Good	Good
DGG	Double Glass Braid	Silicone Modified Resin	Glass Braid	Silicone Modified Resin	900 F	1000 F	yes	Good	Good
GG	Glass Braid	Silicone Modified Resin	Glass Braid	Silicone Modified Resin	900 F	1000 F	yes	Fair	Good
WGG	Double Glass Wrap	Impregnated Resin	Glass Braid	Silicone Modified Resin	+ 900 F	+ 1000 F		Fair	Good
TGG	TFE coated glass over Teflon® Tape	TFE	Teflon® Coated Fiberglass	TFE	900 F	1000 F	yes	Good	Excellent
KT	double polyimide tape layer	Impregnated	double fused polyimide tape	Impregnated	+ 600 F	+ 800 F	tracers	Excellent	Excellent
TT	TFE Tape	-	Fused TFE Tape	-	500 F	600 F	yes	Good	Excellent
ETT	Teflon® FEP Extr.	-	Teflon® FEP Extr.	-	+ 400 F	500 F		Excellent	Excellent
TMT	FEP aluminized mylar tape	-	FEP	-	400 F	500 F	yes	Excellent	Excellent
PMP	Polyvinyl alum/mylar shield	-	Polyvinyl	-	220 F	220 F	yes	Good	Excellent
PP	Polyvinyl	-	Polyvinyl	-	220 F	220 F		Excellent	Excellent
PR	Polyvinyl	-	-	-	220 F	220 F	yes	Good	Excellent

Most Thermocouples styles can be built with any of these wire choices. If you don't see the wire that you want listed under Lead-wire Options on the assembly page, simply choose Option "Z" for Other, and note the Wire Catalog Number that you prefer.

# Insulated Thermocouple & Extension Wire

## Conductor Characteristics: Temperature & Limits of Error

ISA CODE	CONDUCTOR & CHARACTERISTICS		TEMPERATURE RANGE (F)	LIMITS OF ERROR	
	POSITIVE	NEGATIVE		STANDARD	SPECIAL
J	Iron (magnetic)	Constantan (non-magnetic)	0 to 530 F 530 to 1400 F	+/- 4F +/- 3/4%	+/- 2F +/- 3/8%
T	Copper (non-magnetic)	Constantan (non-magnetic)	-75 to 200 F 200 to 700 F	+/- 2F +/- 3/4%	+/- 1F +/- 3/8%
K	Chromel (non-magnetic)	Alumel (magnetic)	0 to 530 F 530 to 2300 F	+/- 4F +/- 3/4%	+/- 2F +/- 3/8%
E	Chromel (non-magnetic)	Constantan (non-magnetic)	0 to 600 F 600 to 1600 F	+/- 3F +/- 1/2%	+/- 3/8%
N	Nicrosil (non-magnetic)	Nisil (non-magnetic)	0 to 530 F 530 to 2300 F	+/- 4F +/- 3/4%	+/- 2F +/- 3/8%
R	Platinum 13% Rhodium (non-magnetic)	Platinum (non-magnetic)	0 to 1200 F 1200 to 2700 F	+/- 3F +/- 1/4%	+/- 1F +/- 1/10%
S	Platinum 10% Rhodium (non-magnetic)	Platinum (non-magnetic)	0 to 1200 F 1200 to 2700 F	+/- 4F +/- 1/4%	+/- 4F +/- 1/10%
B	Platinum 30% Rhodium	Platinum	1000 to 3200 F	+/- 1/2%	+/- 1/2%

GIC offers a large variety of Insulated Wire. For in-depth specifications see our website

[www.GICThermodynamics.com](http://www.GICThermodynamics.com)

## Color Coding

ISA CODE	SINGLE CONDUCTOR COLOR CODE	CONDUCTOR COLOR CODE	OVERALL JACKET EXTENSION GRADE	OVERALL JACKET THERMOCOUPLE GRADE
J	JP JN	white red	black	brown
T	TP TN	blue red	blue	brown
K	KP KN	yellow red	yellow	brown
E	EP EN	purple red	purple	brown
N	NP NN	orange red	orange	brown
R, S	SP SN	black red	green	
B	BP BN	grey red	grey	

## Type K Wire Normally in Production inventory

CATALOG NUMBER	GAUGE	COND. SIZE	TYPE OF WIRE	SINGLE CONDUCTOR	OUTER JACKET	OVERALL	MAX REC. TEMP (F)
K16PMP-CN	16	0.060	Solid	PVC	PVC	mylar noise shield	220 F
K20PMP-CN	20	0.032	Solid	PVC	PVC	mylar noise shield	220 F
K20PP-CN	20	0.032	Solid	PVC	PVC		220 F
K20PP-HN	20	0.039	Stranded	PVC	PVC		220 F
K20ETT-FN	20	0.039	Stranded	Teflon® (FEP)	Teflon® (FEP)		500 F
K20ETT-AN	20	0.032	Solid	Teflon® (FEP)	Teflon® (FEP)		500 F
K20TMT-AN	20	0.032	Solid	Teflon® (FEP)	Teflon® (FEP)	mylar noise shield	500 F
K20KT-AN	20	0.032	Solid	Double fused polyimide tape	Double fused polyimide tape		800 F
K20KT-AS	20	0.032	Solid	Double fused polyimide tape	Double fused polyimide tape	SS overbraid	800 F
K20GG-AN	20	0.032	Solid	Impregnated fiberglass	Impregnated glass braid		1000 F
K20GG-AS	20	0.032	Solid	Impregnated fiberglass	Impregnated glass braid	SS overbraid	1000 F
K20DGG-FN	20	0.039	Stranded	Double fibrous glass braid	Impregnated glass braid		1000 F
K20DGG-FS	20	0.039	Stranded	Double fibrous glass braid	Impregnated glass braid	SSoverbraid	1000 F
K20WGG-AN	20	0.039	Solid	Double glass wrap	Impregnated glass braid		1000 F
K20HGG-AN	20	0.032	Solid	High temp. glass braid	High temp. fiberglass braid		1000 F
K20HGG-AS	20	0.032	Solid	High temp. glass braid	High temp. fiberglass braid	SSoverbraid	1000 F
K22ETT-FN	22	0.032	Stranded	Teflon® (FEP)	Teflon® (FEP)		500 F
K22TT-AN	22	0.030	Solid	Fused TFE tape	Fused TFE tape		600 F
K24ETT-FN	24	0.025	Stranded	Teflon® (FEP)	Teflon® (FEP)		500 F
K24ETT-AN	24	0.020	Solid	Teflon® (FEP)	Teflon® (FEP)		500 F
K24ETT-AS	24	0.020	Solid	Teflon® (FEP)	Teflon® (FEP)	SS overbraid	500 F
K24TT-AS	24	0.020	Solid	Fused Teflon® Tape	Fused Teflon® Tape	SS overbraid	600 F
K24GG-AN	24	0.020	Solid	Impregnated fiberglass	Impregnated fiberglass		1000 F
K24WGG-AN	24	0.020	Solid	Double Fiber glass wrap	Impregnated glass braid		1000 F
K24WGG-AS	24	0.020	Solid	Double Fiber glass wrap	Impregnated glass braid	SS overbraid	1000 F
K30WGG-AN	30	0.010	Solid	Double Fiber glass wrap	Impregnated glass braid		1000 F

## Type J Wire Normally in Production inventory

CATALOG NUMBER	GAUGE	COND. SIZE	TYPE OF WIRE	SINGLE CONDUCTOR	OUTER JACKET	OVERALL	MAX REC. TEMP (F)
J16PMP-CN	16	0.060	Solid	PVC	PVC	mylar noise shield	220 F
J16PP-CN	16	0.060	Solid	PVC	PVC		220 F
J20PMP-CN	20	0.032	Solid	PVC	PVC	mylar noise shield	220 F
J20PP-CN	20	0.032	Solid	PVC	PVC		220 F
J20PP-HN	20	0.039	Stranded	PVC	PVC		500 F
J20ETT-AN	20	0.032	Solid	Teflon® (FEP)	Teflon® (FEP)		500 F
J20ETT-FN	20	0.039	Stranded	Teflon® (FEP)	Teflon® (FEP)		500 F
J20TT-AN	20	0.032	Solid	Fused Teflon® Tape	Fused Teflon® Tape		600 F
J20TTS-AS	20	0.032	Solid	Fused Teflon® Tape	Fused Teflon® Tape	SS overbraid	600 F
J20KTS-FS	20	0.039	Stranded	Double fused polyvinyl tape	Double polyvinyl tape	SS overbraid	800 F
J20DGG-FN	20	0.039	Stranded	Double fibrous glass braid	Double fibrous glass braid		1000 F
J20DGG-FS	20	0.039	Stranded	Double fibrous glass braid	Double fibrous glass braid	SS overbraid	1000 F
J20GG-AN	20	0.032	Solid	Impregnated glass braid	Impregnated glass braid		1000 F
J20GG-AS	20	0.032	Solid	Impregnated glass braid	Impregnated glass braid	SS overbraid	1000 F
J22ETT-FN	22	0.030	Stranded	Teflon® (FEP)	Teflon® (FEP)		500 F
J24ETT-FN	24	0.024	Stranded	Teflon® (FEP)	Teflon® (FEP)		500 F
J24KT-AN	24	0.020	Solid	Double fused polyvinyl tape	Double polyvinyl tape		800 F
J24WGG-AN	24	0.020	Solid	Double Fiber glass wrap	Impregnated glass braid		1000 F
J24GG-FN	24	0.024	Stranded	Impregnated glass braid	Impregnated glass braid		1000 F
J24WGG-FN	24	0.024	Stranded	Double Fiber glass wrap	Impregnated glass braid		1000 F
J24GG-AN	24	0.020	Solid	Impregnated glass braid	Impregnated glass braid		1000 F
J24GG-AS	24	0.020	Solid	Impregnated glass braid	Impregnated glass braid	SS overbraid	1000 F
J30ETT-AN	30	0.010	Solid	Teflon® (FEP)	Teflon® (FEP)		500 F
J30KT-AN	30	0.010	Solid	Double Polyvinyl tape fused	Double polyvinyl tape		800 F
J30GG-AN	30	0.010	Solid	Impregnated glass braid	Impregnated glass braid		1000 F

## Type E Wire Normally in Production inventory

CATALOG NUMBER	GAUGE	COND. SIZE	TYPE OF WIRE	SINGLE CONDUCTOR	OUTER JACKET	OVERALL	MAX REC. TEMP (F)
E16PMP-FN	16	0.0600	Stranded	PVC	PVC	mylar noise shield	220 F
E20GG-AS	20	0.0390	Stranded	Impregnated glass braid	Impregnated glass braid	SS overbraid	1000 F
E20NR-AN	20	0.0320	Solid	Poly (xlpe)glass fillers	neoprene rubber	Cotton wrap (round)	195 F
E24ETT-AN	24	0.2010	Solid	FEP (Teflon®)	FEP (Teflon®)		500 F
E24GG-AN	24	0.2010	Solid	Impregnated glass braid	Impregnated glass braid		1000 F
E20PMP-CN	20	0.0320	Solid	PVC	PVC	mylar noise shield	220 F
T20TMT-AN	20	0.0320	Solid	Teflon® (FEP)	Teflon® (FEP)	mylar noise shield	500 F
T20PP-HN	20	0.0390	Stranded	PVC	PVC		220 F
T20ETT-AN	20	0.0320	Solid	Teflon® (FEP)	Teflon® (FEP)		500 F
T24ETT-FN	24	0.0250	Stranded	Teflon® (FEP)	Teflon® (FEP)		500 F
T24TGG-FN	24	0.0250	Stranded	TFE tape/ impregnated glass	TFE impregnated fiberglass	high temp moisture res.	1000 F
T24ETT-AN	24	0.0201	Solid	Teflon® (FEP)	Teflon® (FEP)		500 F
T24WGG-AN	24	0.0201	Solid	Double fiberglass wrap	Impregnated glass braid		1000 F
T28GG-AN	28	0.0126	Solid	Impregnated glass braid	Impregnated glass braid		1000 F

Production Wire inventory is what is normally on available for manufacturing quick delivery sensors.