THERMOCOUPLE WIRE Ceramic Fiber Insulated 2200°F (1204°C)

Applications

- · Heat Treatment
- Component Testing
- Steel and Aluminum
 Industry
- · Metals Production
- · Furnace Surveys
- Beaded Thermocouple
- ...Replacement

Available Options

- Colored Tracers for Polarity
 Identification
- Impregnated Insulation and Jackets
- · MICA/Glass Barrier Tape
- Stabilized Type K & ...Type E Conductors
- · Twisted Pair
- Metal Coverings
- Tighter Than Special Limit
- ...Accuracy Tolerances
- Calibration Test Reports

Product Features

- Continuous use up to ...2200F (1204C)
- Single exposure up to ...2400F (1316C)
- Heavy Build Version
- ... of CEFIRSFTM
- · Good Abrasion Resistance



Product Specifications

Conductors: Solid or stranded thermocouple wire per

ASTM E230 & ANSI MC96.1

Insulation: Braided ceramic fiber

Construction: Parallel conductors

Jacket: Braided ceramic fiber

Operating Temperature: +2200F (+1204C) continuous

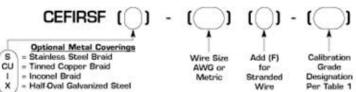
+2400F (+1316C) single exposure

Limits of Error: Conforms to ASTM E230, IEC 584

and ANSI MC 96.1

Color Code: Supplied white without saturants or colored

tracers



Conduc	tor Size	Insulation	Thickness	Jacket T	hickness	Outer D	iameter	Net '	Weight
AWG	(MM)	inches	(MM)	inches	(MM)	inches	(MM)	LB/MF	(KG/KM)
12	(2.06)	.018	(.46)	.018	(.46)	.153 x .270	(3.9×6.9)	50	(74)
14	(1.63)	.018	(.46)	.018	(.46)	.136 x .236	(3.5×6.0)	33	(49)
16	(1.29)	.018	(.46)	.018	(.46)	.123 x .210	(3.1×5.3)	24	(36)
16F*	(1.47)	.018	(.46)	.018	(.46)	.130 x .224	(3.3×5.7)	26	(39)
18	(1.02)	.018	(.46)	.018	(.46)	.112 x .188	(2.8×4.8)	18	(27)
18F*	(1.22)	.018	(.46)	.018	(.46)	.120 x .204	(3.0×5.2)	19	(28)
20	(0.81)	.018	(.46)	.018	(.46)	.104 x .172	(2.6×4.4)	14	(21)
20F*	(0.97)	.018	(.46)	.018	(.46)	.108 x .180	(2.7 x 4.6)	15	(22)
22	(0.64)	.018	(.46)	.018	(.46)	.097 x .158	(2.5 x 4.0)	12	(18)

22F*	(0.76)	.018	(.46)	.018	(.46)	.102 x .168	(2.6 x 4.3)	13	(19)	
24	(0.51)	.018	(.46)	.018	(.46)	.092 x .148	(2.3×3.8)	9.5	(14)	
24F*	(0.61)	.018	(.46)	.018	(.46)	.096 x .156	(2.4 x 4.0)	9.9	(15)	

MANY ITEMS AVAILABLE FROM STOCK WITHIN 24 HOURS

The products referenced above represent the most popular constructions. Other constructions can be manufactured to meet individual specification and application requirements. Contact factory for additional information.

Table 1
Initial Calibration Tolerances Per ASTM E230 and ANSI MC96.1

Tolerance-Reference Junction 32F (0C)

	Temperature Range	Grade	Standard Grade Limits F (C) whichever	Grade	Special Grade Limits F (C) whichever
Thermocouple Type	F(C)	Designation	is greater	Designation	is greater
Thermocouple Wire					
T	32 (0) to 700 (370)	T	± 1.8 (1) or $\pm 0.75\%$	TT	±0.9 (0.5) or 0.4%
J	32 (0) to 1400 (760)	J	±4 (2.2) or ±0.75%	JJ	±2 (1.1) or 0.4%
E	32 (0) to 1600 (870)	E	±3.1 (1.7) or ±0.50%	EE	±1.8 (1) or 0.4%
K or N	32 (0) to 2300 (1260)	K or N	±4 (2.2) or ±0.75%	KK or NN	±2 (1.1) or 0.4%
T*	-328 (-200) to 32 (0)	T	± 1.8 (1) or $\pm 1.5\%$	TT	±0.9 (0.5) or 0.8%**
E*	-328 (-200) to 32 (0)	E	± 3.1 (1.7) or $\pm 1\%$	EE	±1.8 (1) or 0.5%**
K*	-328 (-200) to 32 (0)	K	±4 (2.2) or ±2%	KK	**
Extension Wire	781 - 177 17-				
TX	32 (0) to 212 (100)	TX	$\pm 1.8 (1)$	TTX	±0.9 (0.5)
JX	32 (0) to 400 (200)	JX	±4 (2.2)	JJX	$\pm 2 (1.1)$
EX	32 (0) to 400 (200)	EX	$\pm 3.1 (1.7)$	EEX	$\pm 1.8(1)$
KX or NX	32 (0) to 400 (200)	KX or NX	±4 (2.2)	KKX or NNX	±2 (1.1)
RX or SX	32 (0) to 400 (200)	RX or SX	±9 (5)		
BX	32 (0) to 212 (100)	BX***	±7.6 (4.2)		
BX	32 (0) to 400 (200)	BX ALLOY***	±6.7 (3.7)		

^{*} Thermocouple material is normally supplied to meet tolerances above 0C (32F). If material is required to meet tolerances below 0C (32F), the purchase order must so state. Special selection of material is required.

 ^{**} Suggested initial calibration tolerance. Requirements should be discussed between purchaser and supplier.
 *** Copper vs. copper can be used as an extension for Type B thermocouples if the transition is below 100C (212F).
 Above 100C (212F), PCLW30-6 alloy should be used as the positive extension wire.

THERMOCOUPLE WIRE Ceramic Fiber Insulated 2200°F (1204°C)

Applications

- · Heat Treatment
- · Component Testing
- · Steel and Aluminum ... Industry
- · Metals Production
- · Furnace Surveys
- · Beaded Thermocouple
- ...Replacement

Available Options

- · Colored Tracers for Polarity ...Identification
- · Impregnated Insulation and Jackets
- MICA/Glass Barrier Tape
- · Stabilized Type K & ... Type E Conductors
- · Twisted Pair
- · Metal Coverings
- · Tighter Than Special Limit
- ...Accuracy Tolerances
- Calibration Test Reports

Product Features

- · Continuous use up to ...2200F (1204C)
- · Single exposure up to ...2400F (1316C)
- · Light Build Version ... of CEFIRSFTM
- · Good Abrasion Resistance



Product Specifications

Conductors: Solid or stranded thermocouple wire per

ASTM E230 & ANSI MC96.1

Insulation: Braided ceramic fiber

Construction: Parallel conductors

Jacket: Braided ceramic fiber

Operating Temperature: +2200F (+1204C) continuous

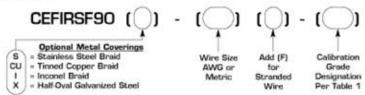
+2400F (+1316C) single exposure

Limits of Error: Conforms to ASTM E230, IEC 584

and ANSI MC 96.1

Color Code: Supplied white without saturants or

colored tracers



Conduc	tor Size	Insulation	Thickness	Jacket T	hickness	Outer D	iameter	Net \	Weight
AWG	(MM)	inches	(MM)	inches	(MM)	inches	(MM)	LB/MF	(KG/KM)
14	(1.63)	.014	(.36)	.018	(.46)	.128 x .220	(3.3×5.6)	33	(49)
16	(1.29)	.014	(.36)	.018	(.46)	.115 x .194	(2.9×4.9)	24	(36)
16F*	(1.47)	.014	(.36)	.018	(.46)	.122 x .208	(3.1×5.3)	26	(39)
18	(1.02)	.014	(.36)	.018	(.46)	.104 x .172	(2.6×4.4)	18	(27)
18F*	(1.22)	.014	(.36)	.018	(.46)	.112 x .188	(2.8×4.8)	19	(28)
20	(0.81)	.014	(.36)	.018	(.46)	.096 x .156	(2.4×4.0)	14	(21)
20F*	(0.97)	.014	(.36)	.018	(.46)	.100 x .164	(2.5 x 4.2)	15	(22)
22	(0.64)	.014	(.36)	.018	(.46)	.089 x .142	(2.3×3.6)	12	(18)
22F*	(0.76)	.014	(.36)	.018	(.46)	.094 x .152	(2.4 x 3.9)	13	(19)

24	(0.51)	.014	(.36)	.018	(.46)	.084 x .132	(2.1×3.4)	9.3	(14)
24F*	(0.61)	.014	(.36)	.018	(.46)	.088 x .140	(2.2×3.6)	9.7	(15)

MANY ITEMS AVAILABLE FROM STOCK WITHIN 24 HOURS

The products referenced above represent the most popular constructions. Other constructions can be manufactured to meet individual specification and application requirements. Contact factory for additional information.

Table 1
Initial Calibration Tolerances Per ASTM E230 and ANSI MC96.1

Tolerance-Reference Junction 32F (0C)

Thermocouple Type	Temperature Range F(C)	Grade Designation	Standard Grade Limits F (C) whichever is greater	Grade Designation	Special Grade Limits F (C) whichever is greater
Thermocouple Wire		30-000 H -0 3 COO.000000			
T	32 (0) to 700 (370)	T	±1.8 (1) or ±0.75%	TT	±0.9 (0.5) or 0.4%
J	32 (0) to 1400 (760)	J	±4 (2.2) or ±0.75%	JJ	±2 (1.1) or 0.4%
E	32 (0) to 1600 (870)	E	±3.1 (1.7) or ±0.50%	EE	±1.8 (1) or 0.4%
K or N	32 (0) to 2300 (1260)	K or N	±4 (2.2) or ±0.75%	KK or NN	±2 (1.1) or 0.4%
T*	-328 (-200) to 32 (0)	T	± 1.8 (1) or $\pm 1.5\%$	TT	±0.9 (0.5) or 0.8%**
E*	-328 (-200) to 32 (0)	E	± 3.1 (1.7) or $\pm 1\%$	EE	±1.8 (1) or 0.5%**
K*	-328 (-200) to 32 (0)	K	±4 (2.2) or ±2%	KK	**
Extension Wire			A Toring to		
TX	32 (0) to 212 (100)	TX	$\pm 1.8 (1)$	TTX	$\pm 0.9(0.5)$
JX	32 (0) to 400 (200)	JX	±4 (2.2)	JJX	$\pm 2(1.1)$
EX	32 (0) to 400 (200)	EX	±3.1 (1.7)	EEX	±1.8(1)
KX or NX	32 (0) to 400 (200)	KX or NX	±4 (2.2)	KKX or NNX	±2 (1.1)
RX or SX	32 (0) to 400 (200)	RX or SX	±9 (5)		
BX	32 (0) to 212 (100)	BX***	±7.6 (4.2)		
BX	32 (0) to 400 (200)	BX ALLOY***	±6.7 (3.7)		

^{*} Thermocouple material is normally supplied to meet tolerances above 0C (32F). If material is required to meet tolerances below 0C (32F), the purchase order must so state. Special selection of material is required.

Suggested initial calibration tolerance. Requirements should be discussed between purchaser and supplier.

Copper vs. copper can be used as an extension for Type B thermocouples if the transition is below 100C (212F). Above 100C (212F), PCLW30-6 alloy should be used as the positive extension wire.

THERMOCOUPLE WIRE Vitreous Silica Insulated 1800°F (982°C)

Applications

- · Heat Treatment
- · Component Testing
- Steel and Aluminum Industry
- · Metals Production
- · Furnace Surveys

Available Options

- No tracers
- · Impregnated Jacket
- Stabilized Type K & Type E Conductors
- · Metal Coverings
- Tighter Than Special Limit Accuracy Tolerances
- Calibration Test Reports

Product Features

- Continuous use up to 1800F (982C)
- Single exposure up to 2000F (1093C)
- Heavy Build Version of HG/HG
- Not Recommended for Abrasive Applications at High Temperatures

Product Specifications

Conductors: Solid or stranded thermocouple wire per

ASTM E230 & ANSI MC96.1

Insulation: Braided vitreous silica

Construction: Parallel conductors

Jacket: Braided vitreous silica

Operating Temperature: +1800F (+982C) continuous

+2000F (+1093C) single exposure

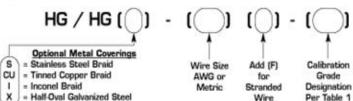
Limits of Error: Conforms to ASTM E230, IEC 584

and ANSI MC 96.1

Color Code: Supplied white without saturants

red tracer in negative leg





Conductor Size AWG (MM)		Insulation 7	Thickness J	acket This	ckness	Outer Diam	ieter	Net Weight		
	(MM)	inches	(MM)	inches	(MM)	inches	(MM)	LB/MF	(KG/KM)	
12	(2.05)	.020	(.51)	.020	(.51)	.161 x .282	(4.1 x 7.2)	57	(85)	
14	(1.63)	.015	(.38)	.015	(.38)	.124 x .218	(3.1 x 5.5)	34	(51)	
14F*	(1.80)	.015	(.38)	.015	(.38)	.132 x .234	(3.4 x 5.9)	38	(57)	
16	(1.29)	.015	(.38)	.015	(.38)	.111 x .192	(2.8 x 4.9)	24	(36)	
16F*	(1.47)	.015	(.38)	.015	(.38)		(3.0 x 5.2)	26	(39)	
18	(1.02)	.015	(.38)	.015	(.38)		(2.5 x 4.3)	17	(25)	
18F*	(1.22)	.015	(.38)	.015	(.38)		(2.7 x 4.7)	18	(27)	
20	(0.81)	.015	(.38)	.015	(.38)		(2.3 x 3.9)	14	(21)	
20F*	(0.97)	.015	(.38)	.015	(.38)		(2.4 x 4.1)	15	(22)	
22	(0.64)	.015	(.38)	.015	(.38)		(2.2 x 3.6)	8.1	(13)	
24	(0.51)	.015	(.38)	.015	(.38)		(2.0 x 3.3)	7.1	(11)	
24F*	(0.61)	.015	(.38)	.015	(.38)		(2.1 x 3.5)	7.6	(12)	
ole 1						ents. Contact factory fo	r aggittoriai informi	ation.		
al Calib	oration Tole	rances Per A	ASTM E230 and	d ANSI N	AC96.1		Tolerance-Referen	nce Junctio	on 32F (0C)	
						Standard Grade Limits	325 20		Special Grade Limits	
Thorns	ocouple Type	Tem	perature Range F (C)		rade gnation	F (C) whichever is greater	Grade Designation		(C) whichever is greater	
1 ner me	samuel Wilne		on and an artists of		900					
Thermo	ocoupie wire		m to 700 (270)		T	± 1.8 (1) or $\pm 0.75\%$	TT	+6	0.9 (0.5) or 0.4%	
7700000	T T		0110 /00 (3/0)		J					
	T J	32 (0) to 700 (370) 0) to 1400 (760)		3	$\pm 4 (2.2)$ or $\pm 0.75\%$	JJ			
	T J	32 (32 (0) to 1400 (760)			±4 (2.2) or ±0.75% ±3.1 (1.7) or ±0.509		±	2 (1.1) or 0.4%	
Thermo	T J E	32 (32 (32 (0) to 1400 (760) 0) to 1600 (870)		E	±3.1 (1.7) or ±0.50%	6 EE	± ±	2 (1.1) or 0.4% 1.8 (1) or 0.4%	
Thermo	T J E K or N	32 (32 (32 (32 (0) to 1400 (760) 0) to 1600 (870) 0) to 2300 (1260)	K	E or N	±3.1 (1.7) or ±0.50% ±4 (2.2) or ±0.75%	6 EE KK or NN	± ± ±	2 (1.1) or 0.4% 1.8 (1) or 0.4% 2 (1.1) or 0.4%	
Thermo	T J E C or N T*	32 (0 32 (0 32 (0 -328	0) to 1400 (760) 0) to 1600 (870) 0) to 2300 (1260) (-200) to 32 (0)	K	E or N T	±3.1 (1.7) or ±0.50% ±4 (2.2) or ±0.75% ±1.8 (1) or ±1.5%	6 EE KK or NN TT	± ± ±0.9	2 (1.1) or 0.4% 1.8 (1) or 0.4% 2 (1.1) or 0.4% 9 (0.5) or 0.8%**	
Thermo	T J E C or N T* E*	32 (32 (32 (32 (32 (-328 -328	0) to 1400 (760) 0) to 1600 (870) 0) to 2300 (1260) (-200) to 32 (0) (-200) to 32 (0)	K	E or N T E	±3.1 (1.7) or ±0.50% ±4 (2.2) or ±0.75% ±1.8 (1) or ±1.5% ±3.1 (1.7) or ±1%	6 EE KK or NN TT EE	± ± ±0.9	2 (1.1) or 0.4% 1.8 (1) or 0.4% 2 (1.1) or 0.4%	
Thermo	T J E C or N T* E* K*	32 (32 (32 (32 (32 (-328 -328	0) to 1400 (760) 0) to 1600 (870) 0) to 2300 (1260) (-200) to 32 (0)	K	E or N T	±3.1 (1.7) or ±0.50% ±4 (2.2) or ±0.75% ±1.8 (1) or ±1.5%	6 EE KK or NN TT	± ± ±0.9	2 (1.1) or 0.4% :1.8 (1) or 0.4% 2 (1.1) or 0.4% 9 (0.5) or 0.8%** .8 (1) or 0.5%**	
Thermo	T J E Cor N T* E* K*	32 (32 (32 (32 (32 (-328 -328	0) to 1400 (760) 0) to 1600 (870) 0) to 2300 (1260) (-200) to 32 (0) (-200) to 32 (0) (-200) to 32 (0)	K	E or N T E K	±3.1 (1.7) or ±0.509 ±4 (2.2) or ±0.75% ±1.8 (1) or ±1.5% ±3.1 (1.7) or ±1% ±4 (2.2) or ±2%	KK or NN TT EE KK	± ± ±0.9	2 (1.1) or 0.4% 1.8 (1) or 0.4% 2 (1.1) or 0.4% 9 (0.5) or 0.8%** .8 (1) or 0.5%**	
Thermo	T J E C or N T* E* K* asion Wire	32 (32 (32 (32 (32 (32 (32 (32 (0) to 1400 (760) 0) to 1600 (870) 0) to 2300 (1260) (-200) to 32 (0) (-200) to 32 (0) (-200) to 32 (0) (-200) to 32 (0) 0) to 212 (100)	K	E or N T E K	±3.1 (1.7) or ±0.509 ±4 (2.2) or ±0.75% ±1.8 (1) or ±1.5% ±3.1 (1.7) or ±1% ±4 (2.2) or ±2% ±1.8 (1)	KK or NN TT EE KK	± ± ±0.9	2 (1.1) or 0.4% 1.8 (1) or 0.4% 2 (1.1) or 0.4% 9 (0.5) or 0.8%** ** ±0.9 (0.5)	
Thermo	T J E Kor N T* E* K* asion Wire TX JX	32 (32 (32 (32 (32 (32 (32 (32 (0) to 1400 (760) 0) to 1600 (870) 0) to 2300 (1260) (-200) to 32 (0) (-200) to 32 (0) (-200) to 32 (0) (-200) to 32 (0) (0) to 212 (100) (0) to 400 (200)	K	E or N T E K IX	±3.1 (1.7) or ±0.50% ±4 (2.2) or ±0.75% ±1.8 (1) or ±1.5% ±3.1 (1.7) or ±1% ±4 (2.2) or ±2% ±1.8 (1) ±4 (2.2)	KK or NN TT EE KK TTX JJX	± ± ±0.9	2 (1.1) or 0.4% 1.8 (1) or 0.4% 2 (1.1) or 0.4% 9 (0.5) or 0.8%** ** ±0.9 (0.5) ±2 (1.1)	
Thermo	T J E C or N T* E* K* asion Wire	32 (32 (32 (32 (32 (32 (32 (32 (0) to 1400 (760) 0) to 1600 (870) 0) to 2300 (1260) (-200) to 32 (0) (-200) to 32 (0) (-200) to 32 (0) (-200) to 32 (0) 0) to 212 (100)	K i	E or N T E K	±3.1 (1.7) or ±0.509 ±4 (2.2) or ±0.75% ±1.8 (1) or ±1.5% ±3.1 (1.7) or ±1% ±4 (2.2) or ±2% ±1.8 (1)	KK or NN TT EE KK	± ± ± ± ± ± ± ± ± ± ± ± 1.	2 (1.1) or 0.4% 1.8 (1) or 0.4% 2 (1.1) or 0.4% 9 (0.5) or 0.8%** ** ±0.9 (0.5)	
Exter KX	T J E C or N T* E* K* asion Wire TX JX EX C or NX	32 (32 (32 (32 (32 (32 (32 (32 (0) to 1400 (760) 0) to 1600 (870) 0) to 2300 (1260) (-200) to 32 (0) (-200) to 32 (0) (-200) to 32 (0) (-200) to 32 (0) 0) to 212 (100) 0) to 400 (200) 0) to 400 (200) 0) to 400 (200)	K I KX	E or N T E K IX JX EX or NX	±3.1 (1.7) or ±0.50% ±4 (2.2) or ±0.75% ±1.8 (1) or ±1.5% ±3.1 (1.7) or ±1% ±4 (2.2) or ±2% ±1.8 (1) ±4 (2.2) ±3.1 (1.7) ±4 (2.2)	KK or NN TT EE KK TTX JJX EEX	± ± ± ± ± ± ± ± ± ± ± ± 1.	2 (1.1) or 0.4% 1.8 (1) or 0.4% 2 (1.1) or 0.4% 9 (0.5) or 0.8%** .8 (1) or 0.5%** ±0.9 (0.5) ±2 (1.1) ±1.8 (1)	
Exter	T J E C or N T* E* K* nsion Wire TX JX EX K or NX X or SX	32 (32 (32 (32 (32 (32 (32 (32 (0) to 1400 (760) 0) to 1600 (870) 0) to 2300 (1260) (-200) to 32 (0) (-200) to 32 (0) (-200) to 32 (0) (-200) to 32 (0) (0) to 400 (200) 0) to 400 (200) 0) to 400 (200) 0) to 400 (200)	K I KX RX	E or N T E K IX JX EX or NX or SX	±3.1 (1.7) or ±0.50% ±4 (2.2) or ±0.75% ±1.8 (1) or ±1.5% ±3.1 (1.7) or ±1% ±4 (2.2) or ±2% ±1.8 (1) ±4 (2.2) ±3.1 (1.7) ±4 (2.2) ±3.1 (1.7) ±4 (2.2)	KK or NN TT EE KK TTX JJX EEX	± ± ± ± ± ± ± ± ± ± ± ± ± 1	2 (1.1) or 0.4% 1.8 (1) or 0.4% 2 (1.1) or 0.4% 9 (0.5) or 0.8%** .8 (1) or 0.5%** ±0.9 (0.5) ±2 (1.1) ±1.8 (1)	
Exter KX	T J E Cor N T* E* K* asion Wire TX JX EX Cor NX X or SX BX	32 (32 (32 (32 (32 (32 (32 (32 (0) to 1400 (760) 0) to 1600 (870) 0) to 1600 (870) 0) to 2300 (1260) (-200) to 32 (0) (-200) to 32 (0) (-200) to 32 (0) (-200) to 32 (0) 0) to 212 (100) 0) to 400 (200) 0) to 212 (100)	K I KX RX BY	E or N T E K K IX JX EX Or NX or SX (***	±3.1 (1.7) or ±0.50% ±4 (2.2) or ±0.75% ±1.8 (1) or ±1.5% ±3.1 (1.7) or ±1% ±4 (2.2) or ±2% ±1.8 (1) ±4 (2.2) ±3.1 (1.7) ±4 (2.2) ±3.1 (1.7) ±4 (2.2)	KK or NN TT EE KK TTX JJX EEX	± ± ± ± ± ± ± ± ± ± ± ± ± 1	2 (1.1) or 0.4% 1.8 (1) or 0.4% 2 (1.1) or 0.4% 9 (0.5) or 0.8%** .8 (1) or 0.5%** ±0.9 (0.5) ±2 (1.1) ±1.8 (1)	
Thermo	T J E C or N T* E* K* nsion Wire TX JX EX K or NX X or SX	32 (32 (32 (32 (32 (32 (32 (32 (0) to 1400 (760) 0) to 1600 (870) 0) to 2300 (1260) (-200) to 32 (0) (-200) to 32 (0) (-200) to 32 (0) (-200) to 32 (0) (0) to 400 (200) 0) to 400 (200) 0) to 400 (200) 0) to 400 (200)	K I KX RX BY	E or N T E K IX JX EX or NX or SX	±3.1 (1.7) or ±0.50% ±4 (2.2) or ±0.75% ±1.8 (1) or ±1.5% ±3.1 (1.7) or ±1% ±4 (2.2) or ±2% ±1.8 (1) ±4 (2.2) ±3.1 (1.7) ±4 (2.2) ±3.1 (1.7) ±4 (2.2)	KK or NN TT EE KK TTX JJX EEX	± ± ± ± ± ± ± ± ± ± ± ± ± 1	2 (1.1) or 0.4% 1.8 (1) or 0.4% 2 (1.1) or 0.4% 9 (0.5) or 0.8%** .8 (1) or 0.5%** ±0.9 (0.5) ±2 (1.1) ±1.8 (1)	

THERMOCOUPLE WIRE Vitreous Silica Insulated 1800°F (982°C)

Applications

- Heat Treatment
- · Component Testing
- Steel and Aluminum
 Industry
- · Metals Production
- Furnace Surveys

Available Options

- · No tracers
- · Impregnated Jacket
- Stabilized Type K & ...Type E Conductors
- · Metal Coverings
- · Tighter Than Special Limit
- ...Accuracy Tolerances
- · Calibration Test Reports

Product Features

- Continuous use up to ...1800F (982C)
- Single exposure up to ...2000F (1093C)
- Light Build Version of HG/HG
- · Not Recommended
- ... for Abrasive Applications
- ...at High Temperatures



Product Specifications

Conductors: Solid or stranded thermocouple wire per

ASTM E230 & ANSI MC96.1

Insulation: Braided vitreous silica

Construction: Parallel conductors

Jacket: Braided vitreous silica

Operating Temperature: +1800F (+982C) continuous

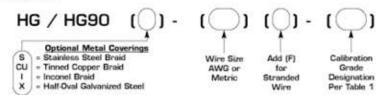
+2000F (+1093C) single exposure

Limits of Error: Conforms to ASTM E230, IEC 584

and ANSI MC 96.1

Color Code: Supplied white without saturants

red tracer in negative leg



Conduc	tor Size	Insulation	Thickness	Jacket T	hickness	Outer D	iameter	Net V	Veight
AWG	(MM)	inches	(MM)	inches	(MM)	inches	(MM)	LB/MF	(KG/KM)
14	(1.63)	.016	(.41)	.017	(.43)	.130 x .226	(3.3×5.7)	33	(49)
16	(1.29)	.016	(.41)	.017	(.43)	.117 x .200	(3.0×5.1)	24	(36)
16F*	(1.47)	.016	(.41)	.017	(.43)	.124 x .214	(3.1 x 5.4)	26	(39)
18	(1.02)	.016	(.41)	.017	(.43)	.106 x .178	(2.7×4.5)	18	(27)
18F*	(1.22)	.016	(.41)	.017	(.43)	.114 x .194	(2.9×4.9)	19	(28)
20	(0.81)	.016	(.41)	.017	(.43)	.098 x .162	(2.5×4.1)	14	(21)
20F*	(0.97)	.016	(.41)	.017	(.43)	.102 x .170	(2.6×4.3)	15	(22)
22	(0.64)	.016	(.41)	.017	(.43)	.091 x .148	(2.3×3.8)	12	(18)
22F*	(0.76)	.016	(.41)	.017	(.43)	.096 x .158	(2.4×4.0)	13	(19)

MANY ITEMS AVAILABLE FROM STOCK WITHIN 24 HOURS
The products referenced above represent the most popular constructions. Other constructions can be manufactured
to meet individual specification and application requirements. Contact factory for additional information.

(.43)

(.43)

.086 x .138

.090 x .146

 (2.2×3.5)

 (2.3×3.7)

Tolerance-Reference Junction 32F (0C)

9.3

9.7

(14)

(15)

.017

.017

Table 1 Initial Calibration Tolerances Per ASTM E230 and ANSI MC96.1

(.41)

(.41)

.016

.016

24

24F*

(0.51)

(0.61)

			I OICI AIICC-N	cici cuce sunctio	11 321 (00)
Thermocouple Type	Temperature Range F (C)	Grade Designation	Standard Grade Limits F (C) whichever is greater	Grade Designation	Special Grade Limits F (C) whichever is greater
Thermocouple Wire					
Τ .	32 (0) to 700 (370)	T	±1.8 (1) or ±0.75%	TT	±0.9 (0.5) or 0.4%
J	32 (0) to 1400 (760)	J	±4 (2.2) or ±0.75%	JJ	±2 (1.1) or 0.4%
E	32 (0) to 1600 (870)	E	±3.1 (1.7) or ±0.50%	EE	±1.8 (1) or 0.4%
K or N	32 (0) to 2300 (1260)	K or N	±4 (2.2) or ±0.75%	KK or NN	± 2 (1.1) or 0.4%
T*	-328 (-200) to 32 (0)	T	± 1.8 (1) or $\pm 1.5\%$	TT	±0.9 (0.5) or 0.8%**
E*	-328 (-200) to 32 (0)	E	±3.1 (1.7) or ±1%	EE	±1.8 (1) or 0.5%**
K*	-328 (-200) to 32 (0)	K	± 4 (2.2) or $\pm 2\%$	KK	**
Extension Wire	13. 15. 3.5.		3 3		
TX	32 (0) to 212 (100)	TX	$\pm 1.8 (1)$	TTX	$\pm 0.9 (0.5)$
JX	32 (0) to 400 (200)	JX	±4 (2.2)	JJX	$\pm 2(1.1)$
EX	32 (0) to 400 (200)	EX	±3.1 (1.7)	EEX	$\pm 1.8(1)$
KX or NX	32 (0) to 400 (200)	KX or NX	±4 (2.2)	KKX or NNX	±2(1.1)
RX or SX	32 (0) to 400 (200)	RX or SX	±9 (5)		
BX	32 (0) to 212 (100)	BX***	±7.6 (4.2)		
BX	32 (0) to 400 (200)	BX	±6.7 (3.7)		

ALLOY***

Thermocouple material is normally supplied to meet tolerances above 0C (32F). If material is required to meet tolerances below 0C (32F), the purchase order must so state. Special selection of material is required. Suggested initial calibration tolerance. Requirements should be discussed between purchaser and supplier. *** Copper vs. copper can be used as an extension for Type B thermocouples if the transition is below 100C (212F).

Above 100C (212F), PCLW30-6 alloy should be used as the positive extension wire.

THERMOCOUPLE WIRE Fiberglass Insulated 1300°F (704°C)

Applications

- · Heat Treatment
- Component Testing
- Steel and Aluminum
 Industry
- · Metals Production
- · Furnace Surveys
- Temperature Sensors

Available Options

- Reduced Itch TuffbondTM ...Impregnation on Singles
- Stabilized Type K & ...Type E Conductors
- Fused PTFE Tape Moisture
 Barrier
- · Twisted/Shielded Pair
- · Metal Coverings
- Tighter than Special Limit
 Accuracy Tolerances
- Special Color Codes
- Calibration Test Reports

Product Features

- Continuous use up to ...1300F (704C)
- Single Exposure up to ...1600F (871C)
- Good Moisture, Chemical ...and Abrasion Resistance
- · High Temperature Stability



Product Specifications

Conductors: Solid or stranded thermocouple wire per

ASTM E230 & ANSI MC96.1

Insulation: Braided fiberglass with high

temperature impregnation*

Construction: Parallel conductors

Jacket: Braided fiberglass with high

temperature impregnation*

Operating Temperature: +1300F (+704C) continuous

+1600F (+871C) single exposure

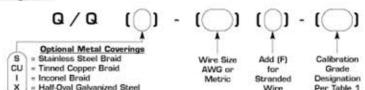
Limits of Error: Conforms to ASTM E230, IEC 584

and ANSI MC 96.1

Color Code: Conforms to ASTM E230 and ANSI MC

96.1 (International Color Codes Available)

*Impregnation maintained to +400F (+200C)



Conduc	tor Size	Insulation	Thickness	Jacket T	hickness	Outer D	iameter	Net	Weight
AWG	(MM)	inches	(MM)	inches	(MM)	inches	(MM)	LB/MF	(KG/KM)
12	(2.06)	.013	(.33)	.013	(.33)	.133 x .240	(3.4×6.1)	44	(65)
14	(1.63)	.013	(.33)	.013	(.33)	.116 x .206	(2.9×5.2)	31	(46)
16	(1.29)	.013	(.33)	.013	(.33)	.103 x .180	(2.6×4.6)	22	(33)
16F*	(1.47)	.013	(.33)	.013	(.33)	.110 x .194	(2.8×4.9)	23	(34)
18	(1.02)	.013	(.33)	.013	(.33)	.092 x .158	(2.3×4.0)	15	(22)
18F*	(1.22)	.013	(.33)	.013	(.33)	.100 x .174	(2.5×4.4)	16	(24)
20	(0.81)	.013	(.33)	.013	(.33)	.084 x .142	(2.1×3.6)	11	(16)
20F*	(0.97)	.013	(.33)	.013	(.33)	.088 x .150	(2.2×3.8)	12	(18)

22	(0.64)	.009	(.23)	.013	(.33)	.069 x .112	(1.8×2.8)	7.2	(11)
22F*	(0.76)	.009	(.23)	.013	(.33)	.074 x .122	(1.9×3.1)	7.8	(12)
24	(0.51)	.009	(.23)	.013	(.33)	.064 x .102	(1.6 x 2.6)	5.8	(8.6)
24F*	(0.61)	.009	(.23)	.013	(.33)	.068 x .110	(1.7 x 2.8)	6.2	(9.2)

MANY ITEMS AVAILABLE FROM STOCK WITHIN 24 HOURS

The products referenced above represent the most popular constructions. Other constructions can be manufactured to meet individual specification and application requirements. Contact factory for additional information.

Tolerance-Reference Junction 32F (0C)

Table 1 Initial Calibration Tolerances Per ASTM E230 and ANSI MC96.1

			Total and Activities Galletion 321 (oc					
Thermocouple Type	Temperature Range F (C)	Grade Designation	Standard Grade Limits F (C) whichever is greater	Grade Designation	Special Grade Limits F (C) whichever is greater			
Thermocouple Wire								
T	32 (0) to 700 (370)	T	±1.8 (1) or ±0.75%	TT	±0.9 (0.5) or 0.4%			
J	32 (0) to 1400 (760)	J	±4 (2.2) or ±0.75%	JJ	±2 (1.1) or 0.4%			
E	32 (0) to 1600 (870)	E	±3.1 (1.7) or ±0.50%	EE	±1.8 (1) or 0.4%			
K or N	32 (0) to 2300 (1260)	K or N	±4 (2.2) or ±0.75%	KK or NN	±2 (1.1) or 0.4%			
T*	-328 (-200) to 32 (0)	T	± 1.8 (1) or $\pm 1.5\%$	TT	±0.9 (0.5) or 0.8%**			
E*	-328 (-200) to 32 (0)	E	± 3.1 (1.7) or $\pm 1\%$	EE	±1.8 (1) or 0.5%**			
K*	-328 (-200) to 32 (0)	E K	± 4 (2.2) or $\pm 2\%$	KK	**			
Extension Wire								
TX	32 (0) to 212 (100)	TX	$\pm 1.8 (1)$	TTX	±0.9 (0.5)			
JX	32 (0) to 400 (200)	JX	±4(2.2)	JJX	±2(1.1)			
EX	32 (0) to 400 (200)	EX	$\pm 3.1 (1.7)$	EEX	$\pm 1.8(1)$			
KX or NX	32 (0) to 400 (200)	KX or NX	±4 (2.2)	KKX or NNX	±2 (1.1)			
RX or SX	32 (0) to 400 (200)	RX or SX	±9 (5)					
BX	32 (0) to 212 (100)	BX***	±7.6 (4.2)					
BX	32 (0) to 400 (200)	BX ALLOY***	±6.7 (3.7)					

Thermocouple material is normally supplied to meet tolerances above 0C (32F). If material is required to meet tolerances below 0C (32F), the purchase order must so state. Special selection of material is required. Suggested initial calibration tolerance. Requirements should be discussed between purchaser and supplier.

Copper vs. copper can be used as an extension for Type B thermocouples if the transition is below 100C (212F). Above 100C (212F), PCLW30-6 alloy should be used as the positive extension wire.

THERMOCOUPLE WIRE Fiberglass Insulated 1300°F (704°C)

Applications

- · Heat Treatment
- · Component Testing
- Steel and Aluminum
 Industry
- Metals Production
- · Furnace Surveys
- · Temperature Sensors

Available Options

- Reduced Itch TuffbondTM
 ...Impregnation on Singles
- Stabilized Type K & ...Type E Conductors
- Fused PTFE Tape Moisture
 Barrier
- · Multi-Pair Cables
- · Twisted/Shielded Pair
- Metal Coverings
- Tighter Than Special Limit
 Accuracy Tolerances
- · Special Color Codes
- Calibration Test Reports

Product Features

- Continuous use up to ...1300F (704C)
- Single exposure up to ...1600F (871C)
- Good Moisture, Chemical and Abrasion Resistance
- · High Temperature Stability



Product Specifications

Conductors: Solid or stranded thermocouple wire per

ASTM E230 & ANSI MC96.1

Insulation: Braided fiberglass with high

temperature impregnation*

Construction: Twisted conductors

Lay Length: 1-1/2" (38MM) to 3" (76MM)

Operating Temperature: +1300F (+704C) continuous

+1600F (+871C) single exposure

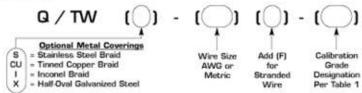
Limits of Error: Conforms to ASTM E230, IEC 584

and ANSI MC 96.1

Color Code: Conforms to ASTM E230 and ANSI MC

96.1 (International Color Codes Available)

*Impregnation maintained to +400F +(200C)



Conduc	tor Size	Insulation	Thickness	Jacket T	hickness	Outer D	diameter	Net	Weight
AWG	(MM)	inches	(MM)	inches	(MM)	inches	(MM)	LB/MF	(KG/KM)
12	(2.06)	.013	(.33)	3	(76)	.214	(5.4)	42	(62)
14	(1.63)	.013	(.33)	3	(76)	.180	(4.6)	29	(43)
16	(1.29)	.013	(.33)	2-1/2	(64)	.154	(3.9)	21	(31)
16F*	(1.47)	.013	(.33)	2-1/2	(64)	.168	(4.3)	22	(33)
18	(1.02)	.013	(.33)	2-1/2	(64)	.132	(3.4)	14	(21)
18F*	(1.22)	.013	(.33)	2-1/2	(64)	.148	(3.8)	15	(22)
20	(0.81)	.013	(.33)	2-1/2	(64)	.116	(3.0)	11	(16)

22	(0.64)	.009	(.25)	1-1/2 (5)	.086	(2.2)	0.8	(10)
22F*	(0.76)	.009	(.23)	1-1/2 (3)	.096	(2.4)	7.4	(11)
24	(0.51)			1-1/2 (33	8) .076	(1.9)	5.4	(8.0)
24F*	(0.61)	.009	(.23)	1-1/2 (3	.084	(2.1)	5.8	(8.6)
1	he products refe				ROM STOCK WITHI		be manufac	etured
	7				quirements. Contact fact			
able 1								
	libration Tole	rances P	er ASTM E23	30 and Al	NSI MC96.1			
					Tolera	ance-Reference Ju	unction 32	F (0C)
					Standard Gra Limits	de	:	Special Grade Limits
		Tempe	rature Range	Grad		er Grad	e F	(C) whichever
Therm	ocouple Type	- Sec. 10	F(C)	Designa	77)	Designa	tion	is greater
Therm	ocouple Wire							
	T	32 (0)	to 700 (370)	T	±1.8 (1) or ±0.7	75% TT	±(0.9 (0.5) or 0.4%
	J	32(0)	to 1400 (760)	J	±4 (2.2) or ±0.7	5% JJ		2 (1.1) or 0.4%
	E	32(0)	to 1600 (870)	E	$\pm 3.1 (1.7)$ or ± 0 .	50% EE	±	1.8 (1) or 0.4%
3	K or N	32 (0) 1	o 2300 (1260)	K or	N ±4 (2.2) or ±0.7	5% KK or 1	NN ±	2 (1.1) or 0.4%
	T*	-328 (-	200) to 32 (0)	T	±1.8 (1) or ±1.	5% TT	±0.	9 (0.5) or 0.8%
	E*		200) to 32 (0)	E	$\pm 3.1 (1.7)$ or \pm			.8 (1) or 0.5%*
	K*	-328 (-	200) to 32 (0)	K	±4 (2.2) or ±2	% KK		**
Exte	nsion Wire	1000000000			S- 258. A SOLMESS - 150.			
	TX	32 (0)	to 212 (100)	TX	$\pm 1.8 (1)$	TTX		±0.9 (0.5)
	JX		to 400 (200)	JX	±4(2.2)	JJX		±2(1.1)
	EX	32 (0)	to 400 (200)	EX	±3.1 (1.7)	EEX	lan de la companya de	±1.8(1)
K	X or NX	32 (0)	to 400 (200)	KX or	NX ±4 (2.2)	KKX or l	NNX	±2 (1.1)
R	X or SX	32 (0)	to 400 (200)	RX or	SX ±9 (5)			
	BX	32 (0)	to 212 (100)	BX**				
	BX		to 400 (200)	BX				
				ALLOY	***			
The	ermocouple mate	erial is nor	mally supplied t	o meet tole	rances above 0C (32F). I	f material is requi	red to meet	0
					ate. Special selection of			
tore								
		alibration to	olerance. Requir	ements sho	ould be discussed between	n purchaser and su	pplier.	

20F*

22

(0.97)

(0.64)

.013

.009

(.33)

(.23)

2-1/2

1-1/2

(64)

(38)

.124

.086

(3.1)

(2.2)

12

6.8

(18)

(10)

HERMOCOUPLE WIRE Fiberglass Insulated 950°F (510°C)

Applications

- · Heat Treatment
- · Temperature Sensors
- · Steel and Aluminum Industry
- · Plastic Processing ... Equipment
- · Furnace Surveys
- · Testing

Available Options

- Reduced Itch TuffbondTM ...Impregnation on Singles
- Stabilized Type K & ... Type E Conductors
- · Fused PTFE Tape Moisture
- · Double Glass Braid Insulation · Twisted/Shielded Pair
- · Metal Coverings
- · Tighter Than Special Limit ...Accuracy Tolerances
- Special Color Codes
- · Calibration Test Reports

Product Features

- · Continuous use up to ...950F (510C)
- · Single Exposure up to ...1200F (650C)
- · Good Moisture, Chemical ...and Abrasion Resistance
- · High Temperature Stability



Product Specifications

Conductors: Solid or stranded thermocouple wire per

ASTM E230 & ANSI MC96.1

Insulation: Braided fiberglass with high temperature impregnation*

(24 to 30 AWG Served Glass)

Construction: Parallel conductors

Jacket: Braided fiberglass with high

temperature impregnation*

Operating Temperature: +950F (+510C) continuous

+1200F (+650C) single exposure

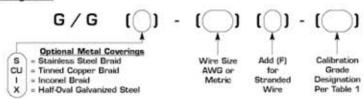
Limits of Error: Conforms to ASTM E230, IEC 584

and ANSI MC 96.1

Color Code: Conforms to ASTM E230 and ANSI MC

96.1 (International Color Codes Available)

*Impregnation maintained to +400F (+200C)



Conduc	tor Size	Insulation	Thickness	Jacket T	hickness	Outer D	iameter	Net '	Weight
AWG	(MM)	inches	(MM)	inches	(MM)	inches	(MM)	LB/MF	(KG/KM)
14	(1.63)	.007	(.18)	.010	(.25)	.100 x .180	(2.5×4.6)	29	(43)
16	(1.29)	.007	(.18)	.010	(.25)	.085 x .150	(2.2×3.8)	20	(30)
16F*	(1.47)	.007	(.18)	.010	(.25)	.094 x .168	(2.4×4.3)	22	(33)
18	(1.02)	.007	(.18)	.010	(.25)	.070 x .124	(1.8×3.2)	13	(19)
20	(0.81)	.006	(.15)	.006	(.15)	.056 x .100	(1.4×2.5)	7.7	(11)
20F*	(0.97)	.006	(.15)	.006	(.15)	.060 x .108	(1.5×2.7)	8.3	(12)
22	(0.64)	.006	(.15)	.006	(.15)	.049 x .086	(1.2×2.2)	5.4	(8.0)
24	(0.51)	.006	(.15)	.006	(.15)	.040 x .068	(1.0×1.7)	3.2	(4.8)

MANY ITEMS AVAILABLE FROM STOCK WITHIN 24 HOURS
The products referenced above represent the most popular constructions. Other constructions can be manufactured
to meet individual specification and application requirements. Contact factory for additional information.

(.15)

(.15)

(.15)

(.15)

.048 x .084

.036 x .060

.033 x .054

.030 x .048

 (1.2×2.1)

 (0.9×1.5)

 (0.8×1.4)

 (0.8×1.2)

Tolerance-Reference Junction 32F (0C)

(5.1)

(3.3)

(2.5)

(1.9)

3.4 2.2

1.7

1.3

.006

.006

.006

.006

Table 1 Initial Calibration Tolerances Per ASTM E230 and ANSI MC96.1

24F*

26

28

30

(0.61)

(0.41)

(0.32)

(0.25)

.006

.004

.004

.004

(.15)

(.11)

(.11)

(.11)

Thermocouple Type	Temperature Range F (C)	Grade Designation	Standard Grade Limits F (C) whichever is greater	Grade Designation	Special Grade Limits F (C) whichever is greater
Thermocouple Wire					
T	32 (0) to 700 (370)	T	±1.8 (1) or ±0.75%	TT	±0.9 (0.5) or 0.4%
J	32 (0) to 1400 (760)	l	±4 (2.2) or ±0.75%	JJ	±2 (1.1) or 0.4%
E	32 (0) to 1600 (870)	E	±3.1 (1.7) or ±0.50%	EE	±1.8 (1) or 0.4%
K or N	32 (0) to 2300 (1260)	K or N	±4 (2.2) or ±0.75%	KK or NN	±2 (1.1) or 0.4%
T*	-328 (-200) to 32 (0)	T	± 1.8 (1) or $\pm 1.5\%$	TT	±0.9 (0.5) or 0.8%**
E*	-328 (-200) to 32 (0)	E	±3.1 (1.7) or ±1%	EE	±1.8 (1) or 0.5%**
K*	-328 (-200) to 32 (0)	K	±4 (2.2) or ±2%	KK	**
Extension Wire					
TX	32 (0) to 212 (100)	TX	$\pm 1.8 (1)$	TTX	$\pm 0.9(0.5)$
JX	32 (0) to 400 (200)	JX	±4 (2.2)	JJX	$\pm 2(1.1)$
EX	32 (0) to 400 (200)	EX	±3.1 (1.7)	EEX	±1.8(1)
KX or NX	32 (0) to 400 (200)	KX or NX	±4 (2.2)	KKX or NNX	±2 (1.1)
RX or SX	32 (0) to 400 (200)	RX or SX	±9 (5)		
BX	32 (0) to 212 (100)	BX***	±7.6 (4.2)		
BX	32 (0) to 400 (200)	BX	±6.7 (3.7)		

 ^{*} Thermocouple material is normally supplied to meet tolerances above 0C (32F). If material is required to meet tolerances below 0C (32F), the purchase order must so state. Special selection of material is required.
 ** Suggested initial calibration tolerance. Requirements should be discussed between purchaser and supplier.
 *** Copper vs. copper can be used as an extension for Type B thermocouples if the transition is below 100C (212F). Above 100C (212F), PCLW30-6 alloy should be used as the positive extension wire.

ALLOY***

THERMOCOUPLE WIRE Polyimide Tape Insulated 500°F (260°C)

Applications

- Aerospace Industry
- · Power Generation
- · Laboratories
- · Petrochemical Plants
- · Cryogenic
- Applications
- · Pharmaceutical
- · Autoclaves

Available Options

- · Metal Overbraids
- · Galvanized Half-Oval Armor
- · Twisted/Shielded Pair
- · Small Diameter HF/D-

Overall

- ...Jacket One Insulated One
- ...Bare Conductor
- Special Color Codes
- · Calibration Test Reports

Product Features

- Continuous use up
- ...to 500F (260C)
- Unaffected by Extreme or ...Rapid Temperature

Variations

Excellent Solvent

Resistance

- · Flame Retardant
- · Resistant to Radiation
- · Does Not Burn



Product Specifications

Conductors: Solid or stranded thermocouple wire per

ASTM E230 & ANSI MC96.1

Insulation: Two layers of fused polyimide tape, color

coded with a polyimide coating

Construction: Parallel conductors

Jacket: Two layers of fused polyimide tape

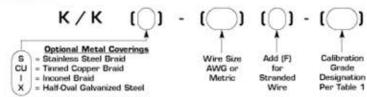
Operating Temperature: -400F (-240C) to +500F (+260C) continuous

Limits of Error: Conforms to ASTM E230, IEC 584

and ANSI MC 96.1

Color Code: Conforms to ASTM E230 and ANSI MC

96.1 (International Color Codes Available)



Conduc	tor Size	Insulation	Thickness	Jacket T	hickness	Outer D	iameter	Net '	Weight
AWG	(MM)	inches	(MM)	inches	(MM)	inches	(MM)	LB/MF	(KG/KM)
14	(1.63)	.005	(.13)	.005	(.13)	.086 x .160	(2.2×4.1)	28	(42)
16	(1.29)	.005	(.13)	.005	(.13)	.071 x .132	(1.8×3.4)	18	(27)
16F*	(1.47)	.005	(.13)	.005	(.13)	.080 x .150	(2.0×3.8)	20	(30)
18	(1.02)	.005	(.13)	.005	(.13)	.060 x .110	(1.5×2.8)	11	(16)
20	(0.81)	.005	(.13)	.005	(.13)	.052 x .094	(1.3×2.4)	7.9	(11)
20F*	(0.97)	.005	(.13)	.005	(.13)	.058 x .106	(1.5×2.7)	8.2	(12)
22	(0.64)	.005	(.13)	.005	(.13)	.045 x .080	(1.1×2.0)	5.4	(8.0)
24	(0.51)	.005	(.13)	.005	(.13)	.040 x .070	(1.0×1.8)	3.7	(5.5)
24F*	(0.61)	.005	(.13)	.005	(.13)	.044 x .078	(1.1×2.0)	4.2	(6.2)
26	(0.41)	.005	(.13)	.005	(.13)	.036 x .062	$(.91 \times 1.6)$	2.7	(4.0)

MANY ITEMS AVAILABLE FROM STOCK WITHIN 24 HOURS	
The products referenced above represent the most popular constructions. Other constructions can be manufact	ured

(.13)

(.13)

.033 x .056

.030 x .050

 $(.84 \times 1.4)$

 $(.76 \times 1.3)$

Tolerance-Reference Junction 32F (0C)

2.0

1.7

(3.0)

(2.5)

.005

.005

to meet individual specification and application requirements. Contact factory for additional information.

Table 1 Initial Calibration Tolerances Per ASTM E230 and ANSI MC96.1

(.13)

(.13)

.005

.005

28

30

(0.32)

(0.25)

			Standard Grade Limits		Special Grade Limits
Thermocouple Type	Temperature Range F (C)	Grade Designation	F (C) whichever is greater	Grade Designation	F (C) whichever is greater
Thermocouple Wire					
T	32 (0) to 700 (370)	T	±1.8 (1) or ±0.75%	TT	±0.9 (0.5) or 0.4%
J	32 (0) to 1400 (760)	J	±4 (2.2) or ±0.75%	JJ	±2 (1.1) or 0.4%
E	32 (0) to 1600 (870)	E	±3.1 (1.7) or ±0.50%	EE	±1.8 (1) or 0.4%
K or N	32 (0) to 2300 (1260)	K or N	±4 (2.2) or ±0.75%	KK or NN	±2 (1.1) or 0.4%
T*	-328 (-200) to 32 (0)	T	± 1.8 (1) or $\pm 1.5\%$	TT	±0.9 (0.5) or 0.8%**
E*	-328 (-200) to 32 (0)	E	± 3.1 (1.7) or $\pm 1\%$	EE	±1.8 (1) or 0.5%**
K*	-328 (-200) to 32 (0)	K	±4 (2.2) or ±2%	KK	**
Extension Wire					
TX	32 (0) to 212 (100)	TX	±1.8(1)	TTX	±0.9 (0.5)
JX	32 (0) to 400 (200)	JX	±4 (2.2)	JJX	$\pm 2(1.1)$
EX	32 (0) to 400 (200)	EX	±3.1 (1.7)	EEX	$\pm 1.8(1)$
KX or NX	32 (0) to 400 (200)	KX or NX	±4 (2.2)	KKX or NNX	±2 (1.1)
RX or SX	32 (0) to 400 (200)	RX or SX	±9 (5)		
BX	32 (0) to 212 (100)	BX***	±7.6 (4.2)		
BX	32 (0) to 400 (200)	BX ALLOY***	±6.7 (3.7)		

^{*} Thermocouple material is normally supplied to meet tolerances above 0C (32F). If material is required to meet tolerances below 0C (32F), the purchase order must so state. Special selection of material is required.

**Suggested initial calibration tolerance. Requirements should be discussed between purchaser and supplier.

Copper vs. copper can be used as an extension for Type B thermocouples if the transition is below 100C (212F). Above 100C (212F), PCLW30-6 alloy should be used as the positive extension wire.

THERMOCOUPLE WIRE PTFE Tape Insulated 500°F (260°C)

Applications

- · Aerospace
- · Power Generation
- · Laboratories
- · Petrochemical Plants
- Cryogenic Applications
- FDA Approved
 Applications
- · Composites

Available Options

- · Metal Overbraids
- Galvanized Half-Oval
- ...Armor
- · Twisted/Shielded Pair
- Special Color Codes
- · Calibration Test Reports

Product Features

- Continuous use up ...to 500F (260C)
- · Excellent Solvent

Resistance

- · Flame Retardant
- · Passes IEEE 383 Flame Test
- · Passes VW-1 Flame Test
- · Will Not Melt
- · Abrasion Resistant



Product Specifications

Conductors: Solid or stranded thermocouple wire per

ASTM E230 & ANSI MC96.1

Insulation: Two layers of fused fluoropolymer PTFE tape

Construction: Parallel conductors

Jacket: Two layers of fused fluoropolymer PTFE tape

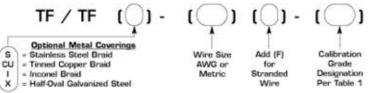
Operating Temperature: -328°F (-200°C) to +500F (+260C) continuous

Limits of Error: Conforms to ASTM E230, IEC 584

and ANSI MC 96.1

Color Code: Conforms to ASTM E230 and ANSI MC

96.1 (International Color Codes Available)



Conduc	tor Size	Insulation	Thickness	Jacket T	hickness	Outer D	iameter	Net V	Veight
AWG	(MM)	inches	(MM)	inches	(MM)	inches	(MM)	LB/MF	(KG/KM)
14	(1.63)	.012	(.30)	.012	(.30)	.112 x .200	(2.8×5.1)	33	(49)
16	(1.29)	.012	(.30)	.012	(.30)	.099 x .174	(2.5×4.4)	23	(34)
16F*	(1.47)	.012	(.30)	.012	(.30)	.106 x .188	(2.7×4.8)	25	(37)
18	(1.02)	.012	(.30)	.012	(.30)	.088 x .152	(2.2×3.9)	15	(22)
20	(0.81)	.008	(.20)	.012	(.30)	.072 x .120	(1.8×3.0)	10	(15)
20F*	(0.97)	.008	(.20)	.012	(.30)	.078 x .132	(2.0×3.4)	11	(16)
22	(0.64)	.008	(.20)	.012	(.30)	.065 x .106	(1.7×2.7)	7.4	(11)
24	(0.51)	.008	(.20)	.012	(.30)	.060 x .096	(1.5×2.4)	5.2	(7.7)
24F*	(0.61)	.008	(.20)	.012	(.30)	.064 x .104	(1.6×2.6)	6.0	(8.9)
26	(0.41)	.008	(.20)	.012	(.30)	.056 x .088	(1.4×2.2)	4.3	(6.4)

MANY ITEMS AVAILABLE FROM STOCK WITHIN 24 HOURS	

.012

.012

MANT TIEMS AVAILABLE PROM STOCK WITHIN 24 HOURS

.053 x .082

.050 x .076

 (1.3×2.1)

 (1.3×1.9)

Tolerance-Reference Junction 32F (0C)

3.2

2.8

(4.8)

(4.2)

(.30)

(.30)

The products referenced above represent the most popular constructions. Other constructions can be manufactured to meet individual specification and application requirements. Contact factory for additional information.

Table 1 Initial Calibration Tolerances Per ASTM E230 and ANSI MC96.1

(.20)

(.20)

800.

.008

28

30

(0.32)

(0.25)

			Standard Grade Limits		Special Grade Limits
Thermocouple Type	Temperature Range F(C)	Grade Designation	F (C) whichever is greater	Grade Designation	F (C) whichever is greater
Thermocouple Wire					
T	32 (0) to 700 (370)	T	±1.8 (1) or ±0.75%	TT	±0.9 (0.5) or 0.4%
J	32 (0) to 1400 (760)	J	±4 (2.2) or ±0.75%	JJ	±2 (1.1) or 0.4%
E	32 (0) to 1600 (870)	E	±3.1 (1.7) or ±0.50%	EE	±1.8 (1) or 0.4%
K or N	32 (0) to 2300 (1260)	K or N	±4 (2.2) or ±0.75%	KK or NN	±2 (1.1) or 0.4%
T*	-328 (-200) to 32 (0)	T	± 1.8 (1) or $\pm 1.5\%$	TT	±0.9 (0.5) or 0.8%**
E*	-328 (-200) to 32 (0)	E	± 3.1 (1.7) or $\pm 1\%$	EE	±1.8 (1) or 0.5%**
K*	-328 (-200) to 32 (0)	K	±4 (2.2) or ±2%	KK	**
Extension Wire					
TX	32 (0) to 212 (100)	TX	±1.8(1)	TTX	±0.9 (0.5)
JX	32 (0) to 400 (200)	JX	±4 (2.2)	JJX	±2(1.1)
EX	32 (0) to 400 (200)	EX	±3.1 (1.7)	EEX	$\pm 1.8(1)$
KX or NX	32 (0) to 400 (200)	KX or NX	±4 (2.2)	KKX or NNX	±2(1.1)
RX or SX	32 (0) to 400 (200)	RX or SX	±9 (5)		
BX	32 (0) to 212 (100)	BX***	±7.6 (4.2)		
BX	32 (0) to 400 (200)	BX ALLOY***	±6.7 (3.7)		

*** Suggested initial calibration tolerance. Requirements should be discussed between purchaser and supplier.

*** Copper vs. copper can be used as an extension for Type B thermocouples if the transition is below 100C (212F). Above 100C (212F), PCLW30-6 alloy should be used as the positive extension wire.

Thermocouple material is normally supplied to meet tolerances above 0C (32F). If material is required to meet tolerances below 0C (32F), the purchase order must so state. Special selection of material is required.
 Suggested initial calibration tolerance. Requirements should be discussed between purchaser and supplier.

THERMOCOUPLE WIRE PFA Insulated 500°F (260°C)

Applications

- · Temperature Sensors
- · Aerospace
- Transportation
- Cryogenies
- · Petrochemical Plants
- FDA Approved
- ... Applications
- · Composites

Available Options

- · Metal Overbraids
- · Galvanized Half-Oval Armor
- Twisted/Shielded Pair
- · Multi-Pair Cables
- · Fiberglass Overbraid
- ETFE Insulation and Jacket
- ...Rated to 300F (150C)
- · Special Color Codes
- Calibration Test Reports

Product Features

- Continuous use up to ...500F (260C)
- · Excellent Chemical

Resistance

· Excellent Electrical

Properties

- · Flame Retardant
- Passes IEEE 383 Flame Test
- · Passes VW-1 Flame Test



Product Specifications

Conductors: Solid or stranded thermocouple wire per

ASTM E230 & ANSI MC96.1

Insulation: Flame retardant extruded fluoropolymer PFA

Construction: Parallel conductors

Jacket: Flame retardant extruded fluoropolymer PFA

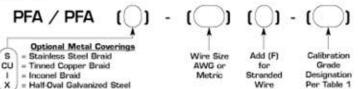
Operating Temperature: -328F (-200C) to +500F (+260C) continuous

Limits of Error: Conforms to ASTM E230, IEC 584

and ANSI MC 96.1

Color Code: Conforms to ASTM E230 and ANSI MC

96.1 (International Color Codes Available)



Conduc	ctor Size	Insulation	Thickness	Jacket T	hickness	Outer D	iameter	Net	Weight
AWG	(MM)	inches	(MM)	inches	(MM)	inches	(MM)	LB/MF	(KG/KM)
14	(1.63)	.008	(.20)	.010	(.25)	.104 x .188	(2.6×4.8)	34	(51)
16	(1.29)	.008	(.20)	.010	(.25)	.087 x .154	(2.2×3.9)	22	(33)
16F*	(1.47)	.008	(.20)	.010	(.25)	.094 x .168	(2.4×4.3)	24	(36)
18	(1.02)	.008	(.20)	.010	(.25)	.076 x .132	(1.9×3.4)	15	(22)
20	(0.81)	.008	(.20)	.010	(.25)	.068 x .116	(1.7×2.9)	11	(16)
20F*	(0.97)	.008	(.20)	.010	(.25)	.072 x .124	(1.8×3.1)	12	(18)
22	(0.64)	.008	(.20)	.010	(.25)	.061 x .102	(1.5×2.6)	7.6	(11)
24	(0.51)	.008	(.20)	.010	(.25)	.056 x .092	(1.4×2.3)	5.7	(8.5)
24F*	(0.61)	.008	(.20)	.010	(.25)	.060 x .100	(1.6×2.7)	6.2	(9.2)
26	(0.41)	.008	(.20)	.010	(.25)	.052 x .084	(1.3×2.1)	4.4	(6.5)

MANY ITEMS AVAILABLE FROM STOCK WITHIN 24 HOURS The products referenced above represent the most popular constructions. Other constructions can be manufactured to meet individual specification and application requirements. Contact factory for additional information.

(.25)

(.25)

.049 x .078

.046 x .072

 (1.2×2.0)

 (1.2×1.8)

Tolerance-Reference Junction 32F (0C)

3.7

3.0

(5.5)

(4.5)

Special Grade

.010

.010

Table 1 Initial Calibration Tolerances Per ASTM E230 and ANSI MC96.1

Standard Grade

(.20)

(.20)

.008

.008

28

30

(0.32)

(0.25)

Thermocouple Type	Temperature Range F (C)	Grade Designation	Limits F (C) whichever is greater	Grade Designation	Limits F (C) whichever is greater
Thermocouple Wire					
T T	32 (0) to 700 (370)	T	±1.8 (1) or ±0.75%	TT	±0.9 (0.5) or 0.4%
J	32 (0) to 1400 (760)	J	±4 (2.2) or ±0.75%	JJ	±2 (1.1) or 0.4%
E	32 (0) to 1600 (870)	E	±3.1 (1.7) or ±0.50%	EE	±1.8 (1) or 0.4%
K or N	32 (0) to 2300 (1260)	K or N	±4 (2.2) or ±0.75%	KK or NN	±2 (1.1) or 0.4%
T*	-328 (-200) to 32 (0)	T	± 1.8 (1) or $\pm 1.5\%$	TT	±0.9 (0.5) or 0.8%**
E*	-328 (-200) to 32 (0)	E	± 3.1 (1.7) or $\pm 1\%$	EE	±1.8 (1) or 0.5%**
K*	-328 (-200) to 32 (0)	K	±4 (2.2) or ±2%	KK	**
Extension Wire					
TX	32 (0) to 212 (100)	TX	$\pm 1.8 (1)$	TTX	$\pm 0.9(0.5)$
JX	32 (0) to 400 (200)	JX	±4(2.2)	JJX	$\pm 2 (1.1)$
EX	32 (0) to 400 (200)	EX	±3.1 (1.7)	EEX	$\pm 1.8(1)$
KX or NX	32 (0) to 400 (200)	KX or NX	±4 (2.2)	KKX or NNX	±2 (1.1)
RX or SX	32 (0) to 400 (200)	RX or SX	±9 (5)		
BX	32 (0) to 212 (100)	BX***	±7.6 (4.2)		
BX	32 (0) to 400 (200)	BX ALLOY***	±6.7 (3.7)		

Thermocouple material is normally supplied to meet tolerances above 0C (32F). If material is required to meet tolerances below 0C (32F), the purchase order must so state. Special selection of material is required. Suggested initial calibration tolerance. Requirements should be discussed between purchaser and supplier.

Copper vs. copper can be used as an extension for Type B thermocouples if the transition is below 100C (212F). Above 100C (212F), PCLW30-6 alloy should be used as the positive extension wire.

THERMOCOUPLE WIRE FEP Insulated 400°F (200°C)

Applications

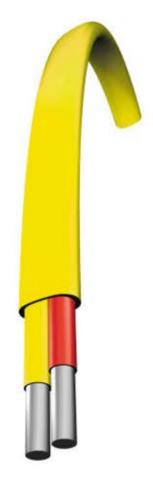
- Temperature Sensors
- · Aerospace
- Transportation
- Cryogenics
- · Petrochemical Plants
- FDA Approved
- · Composites
- ... Applications

Available Options

- · Metal Overbraids
- · Galvanized Half-Oval Armor
- Twisted/Shielded Pair
- · Multi-Pair Cables
- · Fiberglass Overbraid
- UL Listed Constructions
- ETFE Insulation and Jacket
- ...Rated to 300F (150C)
- Special Color Codes
- · Calibration Test Reports

Product Features

- Continuous use up ...to 400F (200C)
- · Excellent Chemical
- Resistance
- · Excellent Electrical
- Properties
- · Flame Retardant
- · Passes IEEE 383 Flame Test
- · Passes VW-1 Flame Test



Product Specifications

Conductors: Solid or stranded thermocouple wire per

ASTM E230 & ANSI MC96.1

Insulation: Flame retardant extruded fluoropolymer FEP

Construction: Parallel conductors

Jacket: Flame retardant extruded fluoropolymer FEP

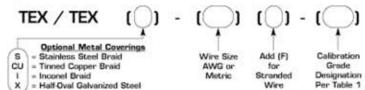
Operating Temperature: -328F (-200C) to +400F (+200C) continuous

Limits of Error: Conforms to ASTM E230, IEC 584

and ANSI MC 96.1

Color Code: Conforms to ASTM E230 and ANSI MC

96.1 (International Color Codes Available)



Conduc	tor Size	Insulation	Thickness	Jacket T	hickness	Outer D	iameter	Net	Weight
AWG	(MM)	inches	(MM)	inches	(MM)	inches	(MM)	LB/MF	(KG/KM)
14	(1.63)	.008	(.20)	.010	(.25)	.104 x .188	(2.6×4.8)	34	(51)
16	(1.29)	.008	(.20)	.010	(.25)	.087 x .154	(2.2×3.9)	22	(33)
16F*	(1.47)	.008	(.20)	.010	(.25)	.094 x .168	(2.4×4.3)	24	(36)
18	(1.02)	.008	(.20)	.010	(.25)	.076 x .132	(1.9×3.4)	15	(22)
20	(0.81)	.008	(.20)	.010	(.25)	.068 x .116	(1.7×2.9)	11	(16)
20F*	(0.97)	.008	(.20)	.010	(.25)	.072 x .124	(1.8×3.1)	12	(18)
22	(0.64)	.008	(.20)	.010	(.25)	.061 x .102	(1.5×2.6)	7.6	(11)
24	(0.51)	.008	(.20)	.010	(.25)	.056 x .092	(1.4×2.3)	5.7	(8.5)
24F*	(0.61)	.008	(.20)	.010	(.25)	.060 x .100	(1.6×2.7)	6.2	(9.2)
26	(0.41)	.008	(.20)	.010	(.25)	.052 x .084	(1.3×2.1)	4.4	(6.5)

MANY ITEMS AVAILABLE FROM STOCK WITHIN 24 HOURS

The products referenced above represent the most popular constructions. Other constructions can be manufactured to meet individual specification and application requirements. Contact factory for additional information.

(.25)

(.25)

.049 x .078

.046 x .072

 $\pm 7.6(4.2)$

 $\pm 6.7(3.7)$

 (1.2×2.0)

 (1.2×1.8)

3.7

3.0

(5.5)

(4.5)

.010

.010

Table 1

28

30

(0.32)

(0.25)

BX BX .008

.008

(.20)

(.20)

Initial Calibration Tolerances Per ASTM E230 and ANSI MC96.1

32 (0) to 212 (100)

32 (0) to 400 (200)

Tolerance-Reference Junction 32F (0C) Standard Grade Special Grade Limits Limits F(C) whichever F(C) whichever Grade Temperature Range Grade Thermocouple Type is greater Designation is greater Designation F(C) Thermocouple Wire 32 (0) to 700 (370) T ±1.8 (1) or ±0.75% TT ±0.9 (0.5) or 0.4% JJ 32 (0) to 1400 (760) J ±4 (2.2) or ±0.75% ±2 (1.1) or 0.4% E 32 (0) to 1600 (870) E ±3.1 (1.7) or ±0.50% EE ±1.8 (1) or 0.4% 32 (0) to 2300 (1260) K or N ±4 (2.2) or ±0.75% K or N KK or NN ±2 (1.1) or 0.4% ± 1.8 (1) or $\pm 1.5\%$ T* -328 (-200) to 32 (0) T TT ±0.9 (0.5) or 0.8%** E* E ±3.1 (1.7) or ±1% -328 (-200) to 32 (0) EE ±1.8 (1) or 0.5%** K* K -328 (-200) to 32 (0) ±4 (2.2) or ±2% KK **Extension Wire** TX 32 (0) to 212 (100) TX $\pm 1.8(1)$ TTX ±0.9 (0.5) JX 32 (0) to 400 (200) JX $\pm 4(2.2)$ JJX $\pm 2(1.1)$ EX 32 (0) to 400 (200) EX $\pm 3.1(1.7)$ EEX $\pm 1.8(1)$ KX or NX KX or NX KKX or NNX 32 (0) to 400 (200) ±4 (2.2) $\pm 2(1.1)$ RX or SX 32 (0) to 400 (200) RX or SX ±9 (5)

BX***

BX ALLOY***

Thermocouple material is normally supplied to meet tolerances above 0C (32F). If material is required to meet tolerances below 0C (32F), the purchase order must so state. Special selection of material is required.
 Suggested initial calibration tolerance. Requirements should be discussed between purchaser and supplier.
 Copper vs. copper can be used as an extension for Type B thermocouples if the transition is below 100C (212F). Above 100C (212F), PCLW30-6 alloy should be used as the positive extension wire.

THERMOCOUPLE WIRE Twisted FEP Insulated 400°F (200°C)

Applications

- Temperature Sensors
- · Aerospace
- Transportation
- · Cryogenics
- · Autoclaves · FDA Approved
- ... Applications
- · Composites

Available Options

- · Metal Overbraids
- Galvanized Half-Oval Armor
- · Tight Lav Lengths
- · Multi-Pair Cables ETFE Insulation
- ...Rated to 300F (150C)
- · Special Color Codes
- Calibration Test Reports

Product Features

- · Continuous use up
- ...to 400F (200C)
- Excellent Chemical
- Resistance · Excellent Electrical
- Properties
- · Flame Retardant
- Passes IEEE 383 Flame Test
- · Passes VW-1 Flame Test



Product Specifications

Conductors: Solid or stranded thermocouple wire per

ASTM E230 & ANSI MC96.1

Insulation: Flame retardant extruded fluoropolymer FEP

Construction: Twisted conductors

Lay Length: 1-1/2" (38MM) to 2-1/2" (64MM)

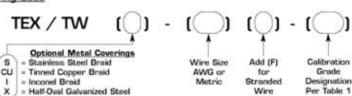
Operating Temperature: -328F (-200C) to +400F (+200C) continuous

Limits of Error: Conforms to ASTM E230, IEC 584

and ANSI MC 96.1

Color Code: Conforms to ASTM E230 and ANSI MC

96.1 (International Color Codes Available)



Conduc	tor Size	Insulation	Thickness	Jacket T	hickness	Outer D)iameter	Net	Weight
AWG	(MM)	inches	(MM)	inches	(MM)	inches	(MM)	LB/MF	(KG/KM)
16	(1.29)	.008	(.20)	2-1/2	(64)	.134	(3.4)	19	(28)
16F*	(1.47)	.008	(.20)	2-1/2	(64)	.148	(3.8)	21	(31)
18	(1.02)	.008	(.20)	2	(51)	.112	(2.8)	12	(18)
20	(0.81)	.008	(.20)	2	(51)	.096	(2.4)	8.3	(12)
20F*	(0.97)	.008	(.20)	2	(51)	.104	(2.6)	9.2	(14)
22	(0.64)	.008	(.20)	2	(51)	.082	(2.1)	5.6	(8.3)
24	(0.51)	.008	(.20)	1-1/2	(38)	.072	(1.8)	4.3	(6.4)
24F*	(0.61)	.008	(.20)	1-1/2	(38)	.080	(2.0)	4.8	(7.1)
26	(0.41)	.008	(.20)	1-1/2	(38)	.064	(1.6)	3.1	(4.6)

MANY ITEMS AVAILABLE FROM STOCK WITHIN 24 HOURS	
The products referenced above represent the most popular constructions. Other constructions can be manufacture	ed
to meet individual specification and application requirements. Contact factory for additional information.	

(38)

(38)

.058

.052

±6.7 (3.7)

(1.5)

(1.3)

Tolerance-Reference Junction 32F (0C)

2.0

1.5

(3.0)

(2.2)

1 - 1/2

1 - 1/2

Table 1 Initial Calibration Tolerances Per ASTM E230 and ANSI MC96.1

32 (0) to 400 (200)

(.20)

(.20)

28

30

(0.32)

(0.25)

BX BX .008

.008

Standard Grade Special Grade Limits Limits F(C) whichever F(C) whichever Grade **Temperature Range** Grade Thermocouple Type is greater Designation is greater Designation F(C) Thermocouple Wire 32 (0) to 700 (370) T ±1.8 (1) or ±0.75% TT ±0.9 (0.5) or 0.4% J 32 (0) to 1400 (760) J ±4 (2.2) or ±0.75% JJ ±2 (1.1) or 0.4% E 32 (0) to 1600 (870) E ±3.1 (1.7) or ±0.50% EE ±1.8 (1) or 0.4% K or N K or N ±4 (2.2) or ±0.75% 32 (0) to 2300 (1260) KK or NN ±2 (1.1) or 0.4% T* -328 (-200) to 32 (0) T ± 1.8 (1) or $\pm 1.5\%$ TT ±0.9 (0.5) or 0.8%** E* E ±3.1 (1.7) or ±1% -328 (-200) to 32 (0) EE ±1.8 (1) or 0.5%** K* -328 (-200) to 32 (0) K ±4 (2.2) or ±2% KK **Extension Wire** TX $\pm 1.8(1)$ TTX TX 32 (0) to 212 (100) $\pm 0.9(0.5)$ JX 32 (0) to 400 (200) JX JJX $\pm 2(1.1)$ $\pm 4(2.2)$ EX 32 (0) to 400 (200) EX ±3.1 (1.7) EEX $\pm 1.8(1)$ KX or NX 32 (0) to 400 (200) KX or NX ±4 (2.2) KKX or NNX $\pm 2(1.1)$ RX or SX RX or SX 32 (0) to 400 (200) ±9 (5) 32 (0) to 212 (100) BX*** ±7.6 (4.2)

BX

ALLOY***

 ^{*} Thermocouple material is normally supplied to meet tolerances above 0C (32F). If material is required to meet tolerances below 0C (32F), the purchase order must so state. Special selection of material is required.
 ** Suggested initial calibration tolerance. Requirements should be discussed between purchaser and supplier.
 *** Copper vs. copper can be used as an extension for Type B thermocouples if the transition is below 100C (212F). Above 100C (212F), PCLW30-6 alloy should be used as the positive extension wire.

THERMOCOUPLE WIRE Nylon Insulated 250°F (121°C)

Applications

- · Temperature Sensors
- · Testing
- Laboratories
- Heating and Air
- ... Conditioning
- · General Industry

Available Options

- · Metal Overbraids
- · Galvanized Half-Oval Armor
- Twisted/Shielded Pair
- · Multi-Pair Cables
- Special Color Codes
 Calibration Test Reports

Product Features

- Continuous use up to ...250F (121C)
- · Excellent Abrasion Resistance
- Good Chemical and Solvent Resistance
- · Excellent Dielectric Strength
- · Small Compact Size



Product Specifications

Conductors: Solid or stranded thermocouple wire per

ASTM E230 & ANSI MC96.1

Insulation: Nylon polyamide resin

Construction: Parallel conductors

Jacket: Nylon polyamide resin

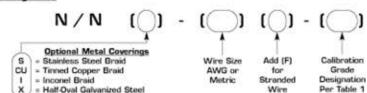
Operating Temperature: -85F (-65C) to +250F (+121C) continuous

Limits of Error: Conforms to ASTM E230, IEC 584

and ANSI MC 96.1

Color Code: Conforms to ASTM E230 and ANSI MC

96.1 (International Color Codes Available)



Conduc	tor Size	Insulation	Thickness	Jacket T	hickness	Outer D	iameter	Net	Weight
AWG	(MM)	inches	(MM)	inches	(MM)	inches	(MM)	LB/MF	(KG/KM)
12	(2.05)	.008	(.20)	.008	(.20)	.113 x .210	(2.9×5.3)	43	(64)
14	(1.63)	.006	(.15)	.008	(.20)	.092 x .168	(2.3 x 4.3)	29	(43)
14F*	(1.80)	.006	(.15)	.008	(.20)	.100 x .184	(2.5×4.7)	31	(46)
16	(1.29)	.006	(.15)	.008	(.20)	.079 x .142	(2.0×3.6)	18	(27)
16F*	(1.47)	.006	(.15)	.008	(.20)	.086 x .156	(2.2×4.0)	21	(31)
18	(1.02)	.006	(.15)	.008	(.20)	.068 x .120	(1.7×3.0)	12	(18)
18F*	(1.22)	.006	(.15)	.008	(.20)	.074 x .132	(1.9×3.4)	13	(19)
20	(0.81)	.005	(.13)	.008	(.20)	.058 x .100	(1.5 x 2.5)	7.8	(12)
20F*	(0.97)	.005	(.13)	.008	(.20)	.062 x .108	(1.6×2.7)	8.9	(13)
22	(0.64)	.005	(.13)	.006	(.15)	.048 x .084	(1.2×2.1)	5.0	(7.4)

MANY ITEMS AVAILABLE FROM STOCK WITHIN 24 HOURS

The products referenced above represent the most popular constructions. Other constructions can be manufactured to meet individual specification and application requirements. Contact factory for additional information.

(.15)

(.15)

.006

.006

 (1.1×1.8)

 (1.2×2.0)

3.3

3.7

(4.9)

(5.5)

.042 x .072

.046 x .080

 $\pm 6.7(3.7)$

Table 1 Initial Calibration Tolerances Per ASTM E230 and ANSI MC96.1

32 (0) to 400 (200)

(.13)

(.13)

24

24F*

(0.51)

(0.61)

BX

.005

.005

Tolerance-Reference Junction 32F (0C) Standard Grade Special Grade Limits Limits F(C) whichever F(C) whichever Grade Temperature Range Grade Thermocouple Type is greater Designation is greater Designation F(C) Thermocouple Wire 32 (0) to 700 (370) T ±1.8 (1) or ±0.75% TT ±0.9 (0.5) or 0.4% JJ 32 (0) to 1400 (760) J ±4 (2.2) or ±0.75% ±2 (1.1) or 0.4% E 32 (0) to 1600 (870) E ±3.1 (1.7) or ±0.50% EE ±1.8 (1) or 0.4% 32 (0) to 2300 (1260) K or N ±4 (2.2) or ±0.75% K or N KK or NN ±2 (1.1) or 0.4% ± 1.8 (1) or $\pm 1.5\%$ T* -328 (-200) to 32 (0) T TT ±0.9 (0.5) or 0.8%** E* E ±3.1 (1.7) or ±1% -328 (-200) to 32 (0) EE ±1.8 (1) or 0.5%** K* K ±4 (2.2) or ±2% -328 (-200) to 32 (0) KK **Extension Wire** TX 32 (0) to 212 (100) TX $\pm 1.8(1)$ TTX ±0.9 (0.5) JX 32 (0) to 400 (200) JX $\pm 4(2.2)$ JJX $\pm 2(1.1)$ EX 32 (0) to 400 (200) EX $\pm 3.1(1.7)$ EEX $\pm 1.8(1)$ KX or NX KX or NX KKX or NNX 32 (0) to 400 (200) ±4 (2.2) $\pm 2(1.1)$ RX or SX 32 (0) to 400 (200) RX or SX ±9 (5) BX*** 32 (0) to 212 (100) $\pm 7.6(4.2)$ BX

BX ALLOY***

 ^{*} Thermocouple material is normally supplied to meet tolerances above 0C (32F). If material is required to meet tolerances below 0C (32F), the purchase order must so state. Special selection of material is required.
 ** Suggested initial calibration tolerance. Requirements should be discussed between purchaser and supplier.
 *** Copper vs. copper can be used as an extension for Type B thermocouples if the transition is below 100C (212F). Above 100C (212F), PCLW30-6 alloy should be used as the positive extension wire.

THERMOCOUPLE WIRE PVC Insulated 221'F (105°C)

Applications

· Temperature Sensors

· Testing

Laboratories

Heating and Air
 Conditioning

General Industry

Available Options

Continuous use up to

...221F (105C)

· Flame Retardant

Good Moisture, Chemical

...and Solvent Resistance

· Excellent Dielectric Strength

Economical Construction

Product Features

· Metal Overbraids

· Galvanized Half-Oval

Armor

· Nylon Jackets

· Twisted/Shielded Pair

· Multi-Pair Cables

· Cotton Overbraid

TPE Insulation and Jacket

...Rated to 250F (125C)

Special Color Codes

Product Specifications

Conductors: Solid or stranded thermocouple wire per

ASTM E230 & ANSI MC96.1

Insulation: Flame retardant PVC

Construction: Parallel conductors

Jacket: Flame retardant PVC

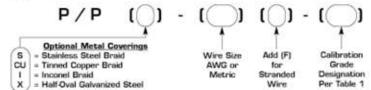
Operating Temperature: -15F (-26C) to +221F (+105C) continuous

Limits of Error: Conforms to ASTM E230, IEC 584

and ANSI MC 96.1

Color Code: Conforms to ASTM E230 and ANSI MC

96.1 (International Color Codes Available)



Conduc	ctor Size	Insulation	Thickness	Jacket T	hickness	Outer D	iameter	Net	Weight
AWG	(MM)	inches	(MM)	inches	(MM)	inches	(MM)	LB/MF	(KG/KM)
12	(2.05)	.020	(.51)	.020	(.51)	.161 x .282	(4.1×7.2)	57	(85)
14	(1.63)	.015	(.38)	.015	(.38)	.124 x .218	(3.1×5.5)	34	(51)
14F*	(1.80)	.015	(.38)	.015	(.38)	.132 x .234	(3.4×5.9)	38	(57)
16	(1.29)	.015	(.38)	.015	(.38)	.111 x .192	(2.8×4.9)	24	(36)
16F*	(1.47)	.015	(.38)	.015	(.38)	.118 x .206	(3.0×5.2)	26	(39)
18	(1.02)	.015	(.38)	.015	(.38)	.100 x .170	(2.5×4.3)	17	(25)
18F*	(1.22)	.015	(.38)	.015	(.38)	.108 x .186	(2.7×4.7)	18	(27)
20	(0.81)	.015	(.38)	.015	(.38)	.092 x .154	(2.3×3.9)	14	(21)
20F*	(0.97)	.015	(.38)	.015	(.38)	.096 x .162	(2.4×4.1)	15	(22)
22	(0.64)	.015	(.38)	.015	(.38)	.085 x .140	(2.2 x 3.6)	8.1	(13)

.015	(.38)	.015	(.38)	.084 X .138	(2.1 X 3.3)	7.6	(12)
152,0254		10 0 2 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		CTOCK WITH			

(11)

Tolerance-Reference Junction 32F (0C)

MANY ITEMS AVAILABLE FROM STOCK WITHIN 24 HOURS

The products referenced above represent the most popular constructions. Other constructions can be manufactured to meet individual specification and application requirements. Contact factory for additional information.

Table 1 Initial Calibration Tolerances Per ASTM E230 and ANSI MC96.1

(0.51)

(0.61)

24

24F*

			Standard Grade Limits		Special Grade Limits
Thermocouple Type	Temperature Range F(C)	Grade Designation	F (C) whichever is greater	Grade Designation	F (C) whichever is greater
Thermocouple Wire					
T	32 (0) to 700 (370)	T	±1.8 (1) or ±0.75%	TT	±0.9 (0.5) or 0.4%
J	32 (0) to 1400 (760)	J	±4 (2.2) or ±0.75%	JJ	±2 (1.1) or 0.4%
E	32 (0) to 1600 (870)	E	±3.1 (1.7) or ±0.50%	EE	±1.8 (1) or 0.4%
K or N	32 (0) to 2300 (1260)	K or N	±4 (2.2) or ±0.75%	KK or NN	±2 (1.1) or 0.4%
T*	-328 (-200) to 32 (0)	T	± 1.8 (1) or $\pm 1.5\%$	TT	±0.9 (0.5) or 0.8%**
E*	-328 (-200) to 32 (0)	E	± 3.1 (1.7) or $\pm 1\%$	EE	±1.8 (1) or 0.5%**
K*	-328 (-200) to 32 (0)	K	±4 (2.2) or ±2%	KK	**
Extension Wire					
TX	32 (0) to 212 (100)	TX	$\pm 1.8 (1)$	TTX	$\pm 0.9(0.5)$
JX	32 (0) to 400 (200)	JX	±4(2.2)	JJX	±2(1.1)
EX	32 (0) to 400 (200)	EX	±3.1 (1.7)	EEX	±1.8(1)
KX or NX	32 (0) to 400 (200)	KX or NX	±4 (2.2)	KKX or NNX	±2 (1.1)
RX or SX	32 (0) to 400 (200)	RX or SX	±9 (5)		
BX	32 (0) to 212 (100)	BX***	±7.6 (4.2)		
BX	32 (0) to 400 (200)	BX ALLOY***	±6.7 (3.7)		

** Suggested initial calibration tolerance. Requirements should be discussed between purchaser and supplier.
 *** Copper vs. copper can be used as an extension for Type B thermocouples if the transition is below 100C (212F). Above 100C (212F), PCLW30-6 alloy should be used as the positive extension wire.

Thermocouple material is normally supplied to meet tolerances above 0C (32F). If material is required to meet tolerances below 0C (32F), the purchase order must so state. Special selection of material is required.
 Suggested initial calibration tolerance. Requirements should be discussed between purchaser and supplier.

THERMOCOUPLE WIRE PVC Insulated Rip Cord 221°F (105°C)

Applications

- Temperature Sensors
- · Testing
- · Laboratories Transportation
- · Heating and
- ...Air Conditioning
- · Appliances
- Validation

Available Options

- · Tighter than Special Limit
- ...Accuracy Tolerances Special Color Codes
- Calibration Test Reports

Product Features

- · Continuous use up ... to 221F (105C)
- · Flame Retardant
- · Small Compact Size
- · Individual Insulation ... Color Coded
- · Economical Construction
- · Flexible
- · Rip Design for Easy
- ... Conductor Seperation



Product Specifications

Conductors: Solid or stranded thermocouple wire per

ASTM E230 & ANSI MC96.1

Insulation: Flame retardant PVC

Construction: Parallel conductors bonded together

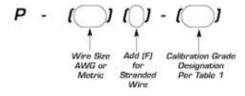
Operating Temperature: -15F (-26C) to +221F (+105C) continuous

Limits of Error: Conforms to ASTM E230, IEC 584

and ANSI MC 96.1

Color Code: Conforms to ASTM E230 and ANSI MC

96.1 (International Color Codes Available)



Conduc	tor Size	Insulation	Thickness	Outer D	iameter	Net V	Veight
AWG	(MM)	inches	(MM)	inches	(MM)	LB/MF	(KG/KM)
14	(1.63)	.012	(.30)	.088 x .176	(2.2 x 4.5)	29	(43)
14F*	(1.80)	.012	(.30)	.100 x .200	(2.5 x 5.1)	32	(48)
16	(1.29)	.012	(.30)	.075 x .150	(1.9×3.8)	19	(28)
16F*	(1.47)	.012	(.30)	.084 x .168	(2.1 x 4.2)	22	(33)
18	(1.02)	.012	(.30)	.064 x .128	(1.6×3.3)	12	(18)
18F*	(1.22)	.012	(.30)	.072 x .144	(1.8×3.7)	14	(21)
20	(0.81)	.010	(.25)	.052 x .104	(1.3 x 2.6)	7.8	(12)
20F*	(0.97)	.010	(.25)	.058 x .116	(1.5 x 2.9)	8.4	(13)
22	(0.64)	.010	(.25)	.045 x .090	(1.1×2.3)	5.3	(7.9)
24	(0.51)	.010	(.25)	.040 x .080	(1.0×2.0)	3.5	(5.2)
24F*	(0.61)	.010	(.25)	.044 x .088	(1.1×2.2)	3.8	(5.7)

(.25)

MANY ITEMS AVAILABLE FROM STOCK WITHIN 24 HOURS

.036 x .072 (.91 x 1.8)

2.5

Tolerance-Reference Junction 32F (0C)

(3.7)

The products referenced above represent the most popular constructions. Other constructions can be manufactured to meet individual specification and application requirements. Contact factory for additional information.

Table 1 Initial Calibration Tolerances Per ASTM E230 and ANSI MC96.1

.010

26

(0.41)

			Total mate iteles and the control of				
Thermocouple Type	Temperature Range F (C)	Grade Designation	Standard Grade Limits F (C) whichever is greater	Grade Designation	Special Grade Limits F (C) whichever is greater		
Thermocouple Wire							
T	32 (0) to 700 (370)	T	±1.8 (1) or ±0.75%	TT	±0.9 (0.5) or 0.4%		
J	32 (0) to 1400 (760)	J	±4 (2.2) or ±0.75%	JJ	±2 (1.1) or 0.4%		
E	32 (0) to 1600 (870)	E	±3.1 (1.7) or ±0.50%	EE	±1.8 (1) or 0.4%		
K or N	32 (0) to 2300 (1260)	K or N	±4 (2.2) or ±0.75%	KK or NN	±2 (1.1) or 0.4%		
T*	-328 (-200) to 32 (0)	T	± 1.8 (1) or $\pm 1.5\%$	TT	±0.9 (0.5) or 0.8%*		
E*	-328 (-200) to 32 (0)	E	±3.1 (1.7) or ±1%	EE	±1.8 (1) or 0.5%**		
K*	-328 (-200) to 32 (0)	K	±4 (2.2) or ±2%	KK	**		
Extension Wire							
TX	32 (0) to 212 (100)	TX	±1.8(1)	TTX	±0.9 (0.5)		
JX	32 (0) to 400 (200)	JX	±4 (2.2)	JJX	$\pm 2(1.1)$		
EX	32 (0) to 400 (200)	EX	±3.1 (1.7)	EEX	$\pm 1.8(1)$		
KX or NX	32 (0) to 400 (200)	KX or NX	±4 (2.2)	KKX or NNX	±2(1.1)		
RX or SX	32 (0) to 400 (200)	RX or SX	±9 (5)				
BX	32 (0) to 212 (100)	BX***	±7.6 (4.2)				
BX	32 (0) to 400 (200)	BX ALLOY***	±6.7 (3.7)				

Thermocouple material is normally supplied to meet tolerances above 0C (32F). If material is required to meet tolerances below 0C (32F), the purchase order must so state. Special selection of material is required. Suggested initial calibration tolerance. Requirements should be discussed between purchaser and supplier. ***

Copper vs. copper can be used as an extension for Type B thermocouples if the transition is below 100C (212F). Above 100C (212F), PCLW30-6 alloy should be used as the positive extension wire.

THERMOCOUPLE WIRE Shielded PVC Insulated 221°F (105°C)

Applications

- · Temperature Sensors
- · Testing
- · Laboratories
- New Plant Construction
- · General Industry

Available Options

- Metal Overbraids
- · Multi-Pair Cables
- UL Listed Constructions
- TPE Insulation and Jacket ...Rated to 250F (125C)
- Special Color Codes
- Calibration Test Reports

Product Features

- Continuous use up to ...221F (105C)
- · Flame Retardant
- Good Moisture, Chemical and Solvent Resistance
- Excellent Dielectric

Strength

- 100% Continuous
- ...Drain/Shield Contact
- · Economical Construction

Product Specifications

Conductors: Solid or stranded thermocouple wire per

ASTM E230 & ANSI MC96.1

Insulation: Flame retardant PVC

Construction: Single twisted pair

Pair Shield: .002"(.05MM) aluminum/polyester tape,

25% overlap

Pair Drain Wire: 7-strand tinned copper, 2 AWG sizes smaller

than conductor (24 AWG smallest drain)

Jacket: Flame retardant PVC with ripcord under jacket

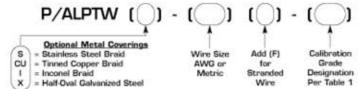
Operating Temperature: -15F (-26C) to +221F (+105C) continuous

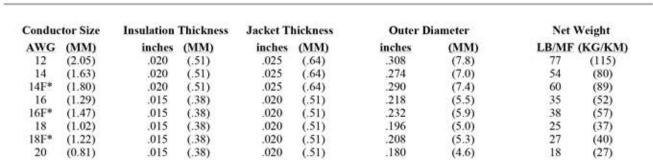
Limits of Error: Conforms to ASTM E230, IEC 584

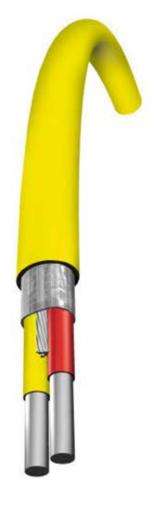
and ANSI MC 96.1

Color Code: Conforms to ASTM E230 and ANSI MC

96.1 (International Color Codes Available)







	MANY ITEMS AVAILABLE FROM STOCK WITHIN 24 HOURS
The pr	roducts referenced above represent the most popular constructions. Other constructions can be manufactured
to	meet individual specification and application requirements. Contact factory for additional information.

(.51)

(.51)

(.51)

(.51)

.188

.166

.156

.164

±7.6 (4.2)

 $\pm 6.7(3.7)$

(4.8)

(4.2)

(4.0)

(4.1)

Talamanas Dafananas Innation 22F (OC)

20

16

12

13

(30)

(24)

(18)

(19)

.020

.020

.020

.020

Table 1

Initial Calibration Tolerances Per ASTM E230 and ANSI MC96.1

32 (0) to 212 (100)

32 (0) to 400 (200)

(.38)

(.38)

(.38)

(.38)

.015

.015

.015

.015

20F*

22

24

24F*

(0.97)

(0.64)

(0.51)

(0.61)

BX BX

Thermocouple Type	Temperature Range F (C)	Grade Designation	Tolerance-Reference Junction 32F (0C)		
			Standard Grade Limits F (C) whichever is greater	Grade Designation	Special Grade Limits F (C) whichever is greater
Thermocouple Wire					
T	32 (0) to 700 (370)	T	±1.8 (1) or ±0.75%	TT	±0.9 (0.5) or 0.4%
J	32 (0) to 1400 (760)	J	±4 (2.2) or ±0.75%	JJ	±2 (1.1) or 0.4%
E	32 (0) to 1600 (870)	E	±3.1 (1.7) or ±0.50%	EE	±1.8 (1) or 0.4%
K or N	32 (0) to 2300 (1260)	K or N	±4 (2.2) or ±0.75%	KK or NN	±2 (1.1) or 0.4%
T*	-328 (-200) to 32 (0)	T	± 1.8 (1) or $\pm 1.5\%$	TT	±0.9 (0.5) or 0.8%**
E*	-328 (-200) to 32 (0)	E	± 3.1 (1.7) or $\pm 1\%$	EE	±1.8 (1) or 0.5%**
K*	-328 (-200) to 32 (0)	K	±4 (2.2) or ±2%	KK	**
Extension Wire					
TX	32 (0) to 212 (100)	TX	±1.8(1)	TTX	±0.9 (0.5)
JX	32 (0) to 400 (200)	JX	±4 (2.2)	JJX	±2(1.1)
EX	32 (0) to 400 (200)	EX	±3.1 (1.7)	EEX	$\pm 1.8(1)$
KX or NX	32 (0) to 400 (200)	KX or NX	±4 (2.2)	KKX or NNX	±2(1.1)
RX or SX	32 (0) to 400 (200)	RX or SX	±9 (5)		

BX***

BX

ALLOY***

 ^{*} Thermocouple material is normally supplied to meet tolerances above 0C (32F). If material is required to meet tolerances below 0C (32F), the purchase order must so state. Special selection of material is required.
 ** Suggested initial calibration tolerance. Requirements should be discussed between purchaser and supplier.
 *** Copper vs. copper can be used as an extension for Type B thermocouples if the transition is below 100C (212F). Above 100C (212F), PCLW30-6 alloy should be used as the positive extension wire.