



NEWSLETTER 4

PENNDel, PENNSYLVANIA 19047

215-757-3704

PRODUCT:

Pycopack Thermocouple Assemblies and Elements.

PRODUCT INFORMATION:

Pycopack is a magnesium oxide (MGO) insulated, metal sheathed thermocouple. Sheath material may be of stainless steel or Inconel. Other sheath materials are available upon request.

Pycopack thermocouples are available in diameters from .020" to .375". Lengths are available to suit most applications. Pycopack swaged thermocouples have been supplied in lengths from fractions of an inch to 150 feet long.

ADVANTAGES OF PYCOPACK:

Due to the swaging process (diameter reduction) the thermocouples are tightly sheathed with compacted, inert magnesium oxide insulation which protects them from the deteriorating effects of the environment. The outer sheath of stainless steel or inconel insures relatively long life, and resistance to oxidizing, reducing or otherwise corrosive atmospheres.

Pycopack type thermocouples are ideal for spring-loading. When thermocouples are inserted into a thermowell they should always be spring-loaded to insure contact of the measuring junction with the bottom of the well. Without this contact speed of response will be significantly reduced. For spring-loaded assemblies and elements of Pycopack, additional information is available on Product Sheet #202-P or Newsletter #3.

Pycopack is available in diameters up to .375" in .062" diameter increments. It can be made rugged enough for most applications by proper selection of diameter. Wall thickness and wire gauge increase with diameter. Along with type of junction, diameter also affects response to temperature change. The flexibility of this thermocouple allows curving to a radius bend of twice the sheath diameter while allowing optional hardware to be silver soldered or welded on.

Pycopack may be supplied in simplex, duplex and triplex construction with a single sheath. Thus one sheath may contain multiple thermocouple elements for separate functions or redundant thermocouples as spares.

POTENTIAL CUSTOMERS:

Metals Industry, Power Plants, Refineries, Chemical Plants, Research & Development, Aerospace. Labs, Architect/Engineering Firms, Glass, Vitreous China and OEMs.

STANDARD PYCOPACK THERMOCOUPLES

"Easy To Specify"

① Calibration

- J Iron Constantan
- K Chromel-Alumel
- T Copper-Constantan
- E Chromel-Constantan
- R Platinum-Pt 13% Rhodium
- S Platinum-Pt 10% Rhodium

② Sheath Diameter

- .020
- .040
- .062
- .125
- .187
- .250
- .312
- .375

⑥ Junction

- A Grounded
- B Ungrounded
- C Exposed

③ Sheath Material

- 304 Stainless Steel
- INC Inconel
- Other Sheath Materials Are Available.

⑤ Length In Inches

④ Form

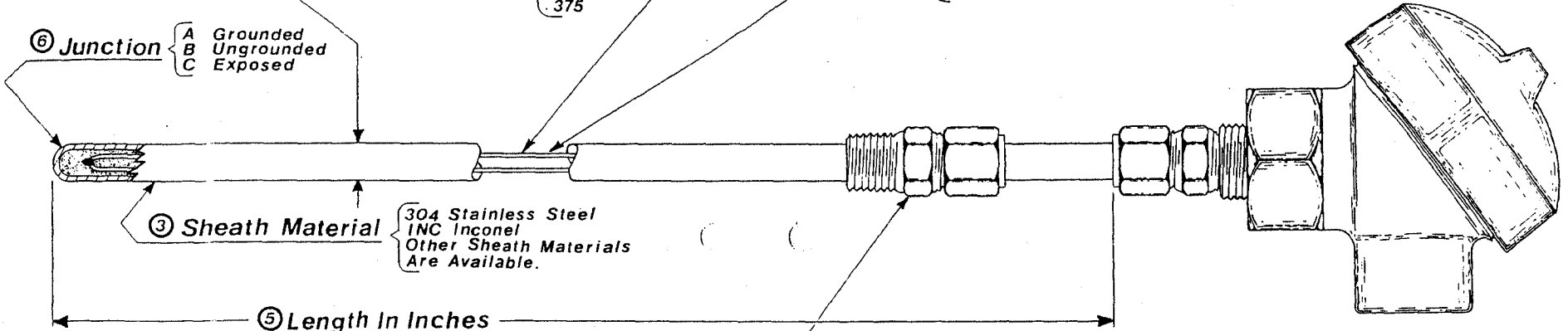
- S Simplex
- D Duplex
- T Triplex

⑧ Compression Fitting

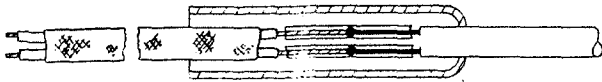
- Y Stainless Steel
- Z Brass

⑦ Termination Options

- 1 Quick Connect Plug
- 2 Screw Cover Head
- 3 Open Terminal Block
- 4 Miniature Head
- 5 1/2 x 1/2 Mounting Fitting
- 6 High Temperature Plug (1000° F)
- 7 General Purpose Head
- 8 Potting Adaptor
- 9 Relief Spring with Option 8
- 10 Two Inches Of Exposed Wire
- 11 Miniature Plastic Head
- 13 Aluminum Head With Compression Fitting



Termination - Option 8
Potting Adaptor



Specify Leadwire And
Length Required

HOW TO SPECIFY PYCOPACK

Example: Assembly Shown Above

① Calibration	② Diameter	③ Sheath	④ Form	⑤ Length	⑥ Junction	⑦ Termination	⑧ Comp. Ftg.
J	375	304	S	10	B	13	Y
Iron-Constantan	1/8 Inch	304 Stainless Steel	Single Thermocouple	10 Inches	Insulated Junction	Aluminum Head With Compression Fitting	Compression Fitting On Sheath

Response Data For Pycopack

Type of Junction	Sheath Diameter (in.)	Speed of Response (Seconds)		
		From Room Temp. to Boiling Water	From Room Temp. to Salt Bath at 800°F	From Still Air at 200°F to Still Air at 1500°F
Integral (Grounded)	1/8	0.2	0.3	9.0
	1/4	0.7	1.1	16.0
	3/8	1.5	3.0	23.0
	1/2	1.7	3.8	32.3
	5/8	2.8	7.3	44.5
Remote (Insulated)	1/8	0.8	0.8	9.7
	1/4	2.2	2.8	22.0
	3/8	4.8	7.8	31.5
	1/2	7.8	9.5	42.0
	5/8	13.5	17.6	76.0
Exposed	1/8	0.1	0.1	8.3
	1/4	0.1	0.1	13.0
	3/8	0.1	0.2	21.0
	1/2	0.1	0.2	27.0
	5/8	0.1	0.2	27.5

APPLICATION NOTES ON PYCOPACK:

When a compression fitting is used to mount the PYCOPACK element or assembly to the process connection, be sure that there is sufficient length *below* the fitting thread for proper immersion. Overall length of most compression fittings will not exceed 2 1/2".

Many variations are available on PYCOPACK elements and assemblies which are not covered in this sheet. Among those commonly ordered are bayonet, spring loaded, multiple probe (bundle), coiled, bent/angle type and super-heater, pad type thermocouples. Consult PYCO for further information and part numbers.

SHEATH OUTSIDE DIAMETER	CONDUCTOR SIZE:*			Minimum Wall Thickness	Type "J" Iron-Constantan	Type "K" Chromel-Alumel	Type "T" Copper-Constantan	Type "E" Chromel-Constantan	Type "R" Type "S" Type "B"
	single	duplex	triplex						
.025"	35	---	---	.004"	700°F	1600°F	400°F	800°F	---
.040"	33	---	---	.007"	700	1600	400	800	---
.062"	28	28	---	.009"	1100	1600	400	1200	2100°F
.125"	22*	24*	---	.015"	1100	1800	500	1200	2200
.187"	20*	20*	24	.025"	1100	1800	500	1400	2200
.250"	18*	19*	20	.030"	1300	2000	700	1600	2200
250 Hevi-wall	22	24	---	.095"	1300	2000	700	1600	2200
.312"	16	16	20	.040"	1300	2000	700	1600	---
.375"	15	16	20	.065"	1300	2000	700	1600	---

*24 Gage supplied w/noble metal calibrations B, S, or R.

The above recommended maximum temperature per calibration wire size/sheath OD can be extended with intermittent use by approximately 40% of the values shown.



PYCO
600 E. LINCOLN HWY.
PENNDL, PA. 19047
215/757-3704