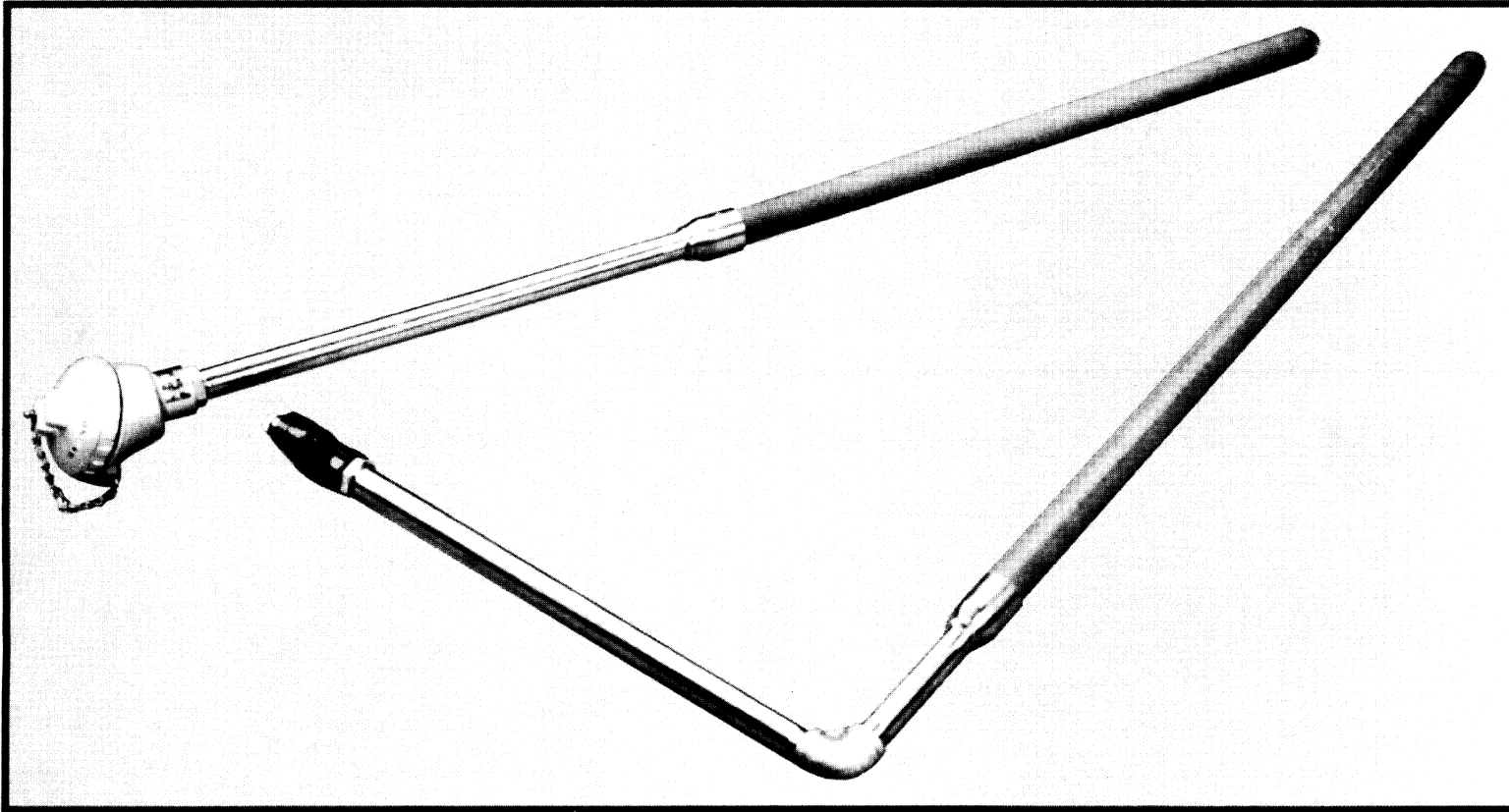


PermAmelt® Thermocouple



The short life of thermocouple protection tubes in molten aluminum service has always been a severe problem.

PermAmelt® a new approach to aluminum melt temperature sensing, has solved the problem of ceramic protection tube brittleness while retaining their heat, abrasion and corrosion resistance. Also, because of PermAmelt's® non-wetting and self-healing surface, these T/C's require no daily washing or coating, making them maintenance free over their entire life.

Easy to work with, PermAmelt® T/C's require no preheating due to their low thermal expansion coefficient and thermal impact resistance. Their low heat conductivity helps prevent temperature drops in the molten aluminum and contributes to energy conservation. Since the tubes are ceramic, there is no iron pickup to create inclusion in the aluminum.

ARi Industries Inc

BULLETIN 1.5

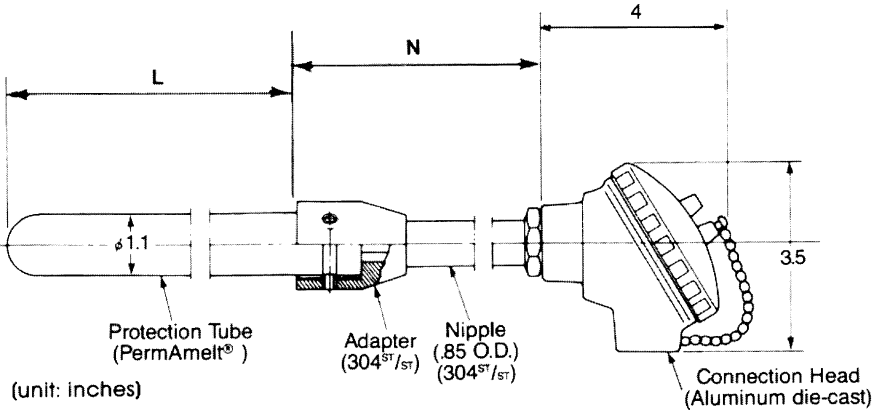
PermAmelt® THERMOCOUPLE

STYLE T-180

* - L - N

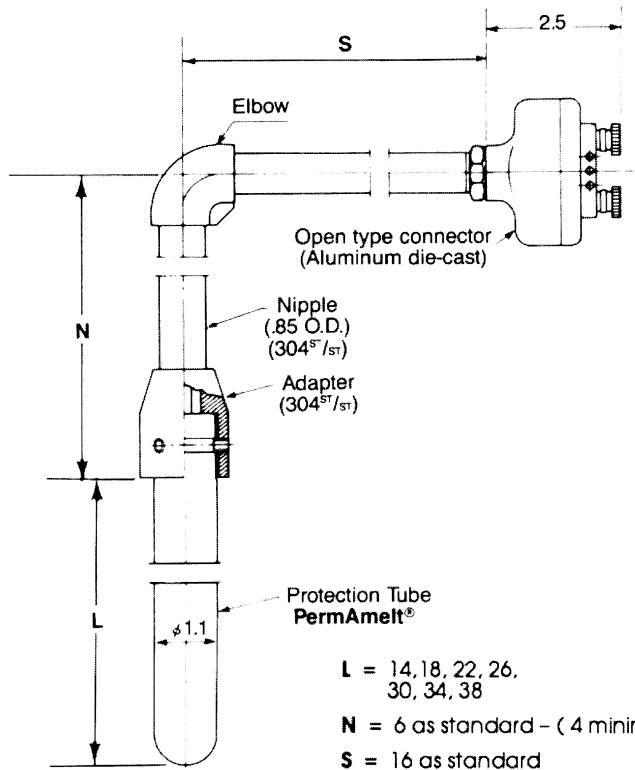
L = 14, 18, 22, 26,
30, 34, 38

N = 16 as standard



STYLE T-270

* - L - N - S



L = 14, 18, 22, 26,
30, 34, 38

N = 6 as standard - (4 minimum)

S = 16 as standard

ORDERING INFORMATION:

- 1) Select thermocouple element* (K, J, E), add its symbol after style number.

Note: Other thermocouple elements and styles available on special request.

- 2) Specify lengths of L, N, and S.

Bulk Density	-	3.2	
Water Absorption	%	0	
Vickers Hardness	Load 500g	HRA 91	
	R.T.	Kpsi 86 MPa 590	
Flexural Strength (4-Point Bending)	800°C	Kpsi 87 MPa 600	
	1000°C	Kpsi 74 MPa 510	
	1200°C	Kpsi 47 MPa 323	
	1300°C	Kpsi 17 MPa 117	
Fracture Toughness (K _{1C})/M.I.	MPa√m	5.7	
Young's Modulus	R.T.	× 10 ⁶ psi 43 GPa 294	
Poisson's Ratio	R.T.	-	0.28
Coefficient of Linear Thermal Expansion	40 to 400°C	× 10 ⁻⁶ /°C	2.6
	40 to 800°C		3.2
Thermal Conductivity	R.T.	cal/cm·sec·°C	0.05
		W/m·K	21
Specific Heat	R.T.	cal/g·°C	0.16
Heat Shock Resistance	ΔT	°C	600
Volume Resistivity	R.T.	Ω·cm	> 10 ¹⁴

UNIT CONVERSION TABLES

STRESS

MPa or N/mm ²	Kgf/mm ²	Kgf/cm ²	10 ³ lb/in ² (Kpsi)
1	1.0197 × 10 ⁻¹	1.0197 × 10	0.145
9.807	1	1 × 10 ²	1.422
9.807 × 10 ⁻²	1 × 10 ⁻²	1	1.422 × 10 ⁻²
6.985	0.703	70.3	1

THERMAL CONDUCTIVITY

W/m·K	Kcal/m·h·°C	cal/cm·sec·°C
1	0.86	2.39 × 10 ⁻³
1.163	1	2.78 × 10 ⁻³
418.7	360	1

TOLL FREE 1-800-237-6725

ARI Industries Inc

381 ARi Court, Addison, Illinois 60101, USA
Phone: 630-953-9100 Telefax: 630-953-0590

TOLL FREE 1-800-237-6725

E-mail: sales@ariindustries.com

Website: www.ariindustries.com

Contact your Local ARi Representative:

