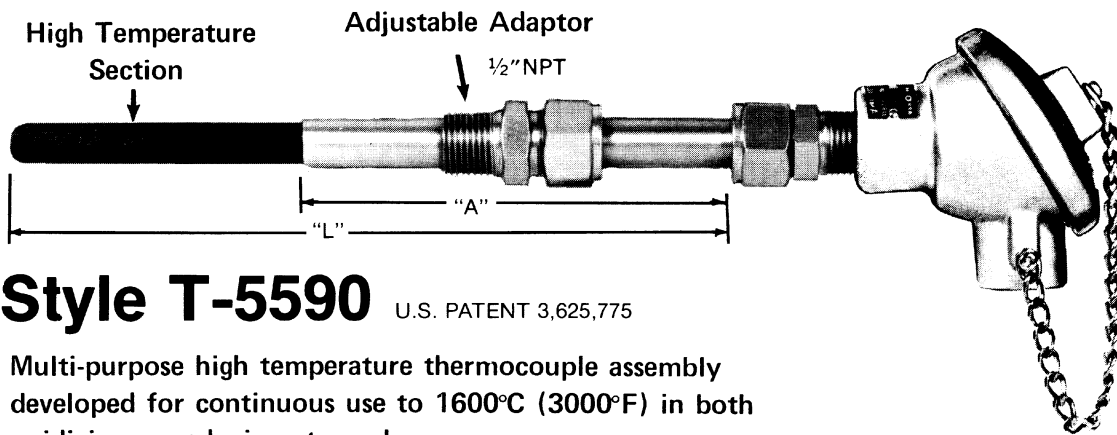




Industrial 1600°C thermocouple



Style T-5590 U.S. PATENT 3,625,775

Multi-purpose high temperature thermocouple assembly developed for continuous use to 1600°C (3000°F) in both oxidizing or reducing atmospheres—pressures to 70 Kg/cm² (1000 psi)

HIGH TEMPERATURE SECTION: 12.7 mm (0.5 in.) diameter
LENGTHS FROM 76.3 to 433 mm (3 to 17 in.)

SUPPORT SECTION "A": 15.9 mm (0.625 in.) diameter
LENGTHS FROM 102 to 1525 mm (4 to 60 in.)

TOTAL LENGTH "L": 178 mm (7 in.) minimum, 1960 mm (77 in.) maximum

This thermocouple may be used for temperatures above the Chromel/Alumel range in environments that either destroy or render Platinum-Rhodium thermocouples ineffective due to drift or ageing affects. The refractory Tungsten 5% Rhenium/Tungsten 26% Rhenium element is protected against contamination or oxidation thru the unique double insulation-double wall construction that selectively eliminates all but the beneficial diffusion of Hydrogen. Internal thermocouple junction reliability is maintained thru a new (patent pending) wire wrap/welding procedure to eliminate the problems associated with thermal cycling welded junctions on refractory wires. This sensor combines the stability and sensitivity (4.4 microvolts per ° C.) of the new refractory thermocouple combinations with the atmospheric resistance and strength of cermets.

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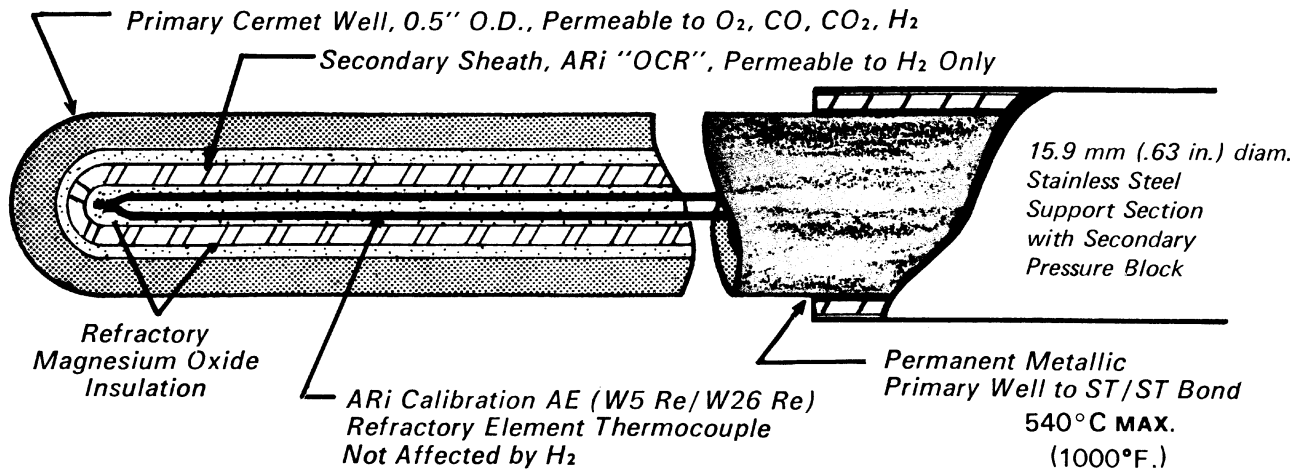
ARI Industries Inc



BULLETIN 2.2

JULY 1998

001



APPLICATION

- Gas generator temperature indication and control
- Metal annealing, hardening and deoxidizing furnaces
- Calcining and glazing Kiln temperature survey and control
- Temperature control for alternating oxidizing and reducing processes
- Ceramic firing systems
- Diffusion furnaces
- Commercial 816 to 1600°C (1500 to 3000°F) ovens
- Liquid steady state metal temperature surveys in Aluminum, Tin, Copper, Copper-Silver alloys, Lithium
- Long term temperature indication for baths with acid salts and corrosive acids (Cyanide salts and molten borax excluded)
- Sulfur Recovery Unit, refractory protection

INSTALLATION

Compression fitting (1/2" NPT) with metal ferrule supplied with each sensor for immersion control and pressure tight mounting to any pre-drilled and tapped chamber wall. Insert threaded end and wrench tighten using hex head adjacent to threads. Insert thermocouple thru hex head cap to desired immersion depth. Tighten cap 1/4 turn beyond finger tightness.

Note: Thermocouple head is supplied with the necessary compression fitting for attachment to probe. Attach wires, tighten compression fittings on thermocouple head prior to process installation.

HOW TO ORDER

Specify Part Number T-5590—"L" AE "A" giving variables such as "L" and "A" dimensions in inches.

EXAMPLE: T-5590 - 30AE15
L=30 in., A=15 in.

ARi Industries Inc

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

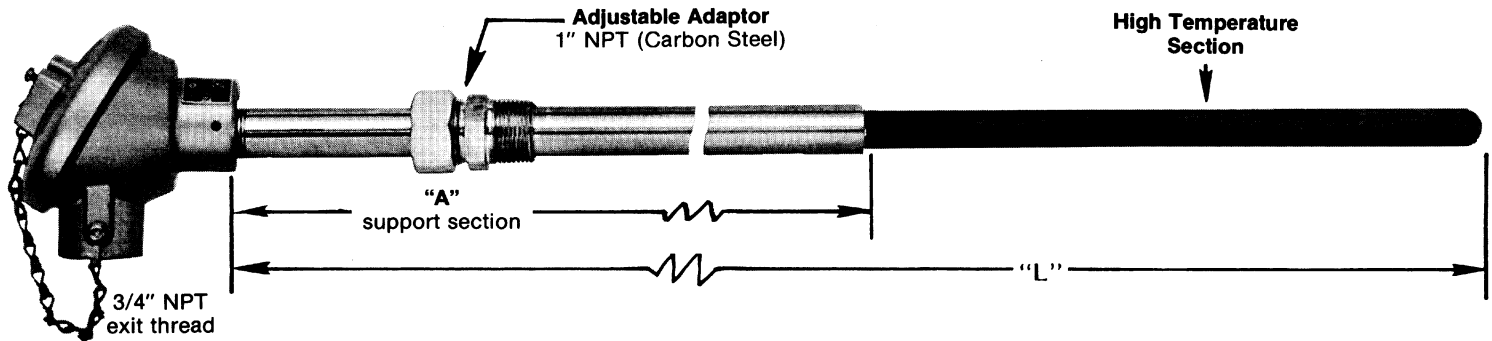
TOLL FREE: 1-800-AEROPAK
(1-800-237-6725)

In the UK:
Contact ARi Industries, (UK) Ltd.
Unit 2F Albany Park Frimley Road
Camberley, Surrey GU15 2PL England
Phone: 441-276692500
Telefax: 441-276692110

Contact your Local ARi Representative:

Industrial 1600°C thermocouple

Type E Head
shipped
separately



Style T-50230

U.S. PATENT 3,625,775

HIGH TEMPERATURE SECTION ("L"- "A"): 19mm (.75") diameter cermet well to 430mm (17") long on the standard design.

SUPPORT SECTION ("A"): 25.4mm (1") diameter stainless steel support section 50 to 1500mm long (2" to 60"). Bonded to High Temp. Section.

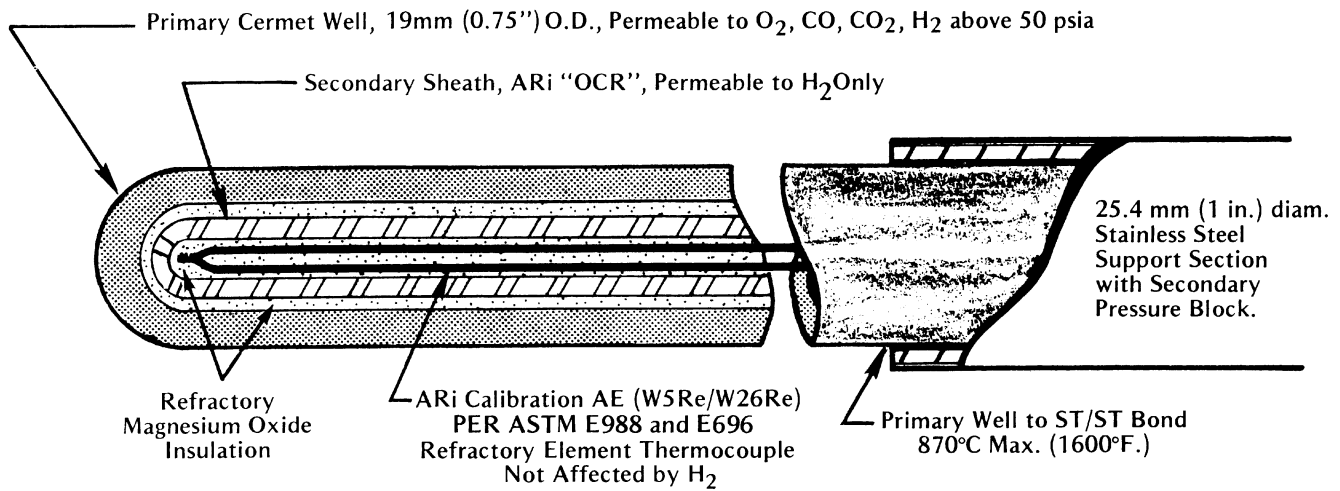
TOTAL LENGTH ("L"): 178mm (7") minimum, 1930mm (76") maximum.

The T-50230 thermocouple was developed as a more rugged version of the T-5590 thermocouple (ARi Bulletin 2.2) for the extreme environments found in sulfur recovery units and coal gasification reaction zones. It may be used in both oxidizing or reducing atmospheres and applications requiring resistance to H₂S or SO₂ that are destructive to platinum alloy and common base metal thermocouples. The Tungsten 5% Rhenium/Tungsten 26% Rhenium element is protected against contamination or oxidation thru the unique double insulation-double wall construction that selectively eliminates all but the beneficial diffusion of Hydrogen. Internal thermocouple junction reliability is maintained thru a new patented wire wrap/welding procedure to eliminate the problems associated with thermal cycling welded junctions with refractory wires. Toxic gas leakage or bypass flow thru the connection head is eliminated as a result of the unique double concentric well approach and secondary wire seal at connection head end.

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BULLETIN 2.3
FEBRUARY 1997



ACCESSORY EQUIPMENT

COMPENSATING LEAD WIRE

For conduit wiring: 427°C (800°F) max. use ARi part number 01-2AEX-G/G-24 with fiberglass insulation over each and over the pair. Note: Should not be used in conduit where standing water or steam are present. Use ARi part number 01-2AEX-T/T 20 flexible teflon leadwire to avoid the effects of moisture.

TRANSMITTER

Style T-50230 can be provided with a 4-20 ma DC two wire transmitter, ARi part number 47042-AE- (temperature range), to eliminate the need for thermocouple lead wire. The transmitter is mounted in the cast iron connection head in place of the ceramic terminal block. The assembly is designated as TX-50230-(L)AE(A). Zero and span trimpots allow adjustment to ± 10% minimum. Standard Ranges 0-1600°C or 0-3000°F available.

SELF-CONDUIT PERMANENT WIRING:

For 870°C (1600°F) max, use ARi part number 125-2M-B(AEX)-24 Aeropak mineral insulated cable, 3.2mm (0.125") diameter stainless steel sheath, compacted MgO insulation, AWG 24 compensating wires (Hoskins 405 and 426 alloy). Cable ends require epoxy sealing to prevent moisture entry. May be formed by hand as a replacement for conduit-lead wire approach. Max. length is 100 ft. See Bulletin 6 for PTM-D2SS compression fittings used for mounting.

DIGITAL THERMOMETER MODEL 640

Field selectable Fluke DTI, ARi part number 640 AE DTI, 100 to 2000°C or 200 to 4000°F digital (.56", 14mm character size) indication from ARi type "AE" W5Re/W26Re thermocouples. Accuracy (to AE temp/EMF table) ± 6°C with T/C break indication and 1° max. error due to common or series mode AC signal injection. Power requirement: 115/230V, 50/60 HZ, 10 watts. Panel mounted.

ORDERING INFORMATION —

PROBE: Specify T-50230-(L)AE(A) add (L) and (A) in inches.

LEAD WIRE: Specify part number, length of each piece, and quantity.

DIGITAL THERMOMETER: Specify model number and quantity.

ARi Industries Inc

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