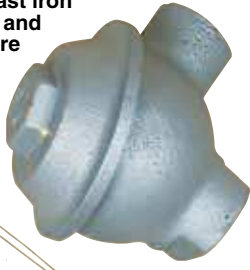


# Thermocouple Assemblies



## High-Temperature Platinum Thermocouples and Ceramic Protection Tubes

NB1-2 rugged cast iron protection head and terminal block are included with the probe.

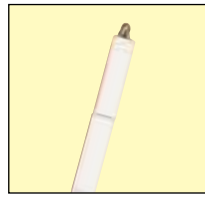
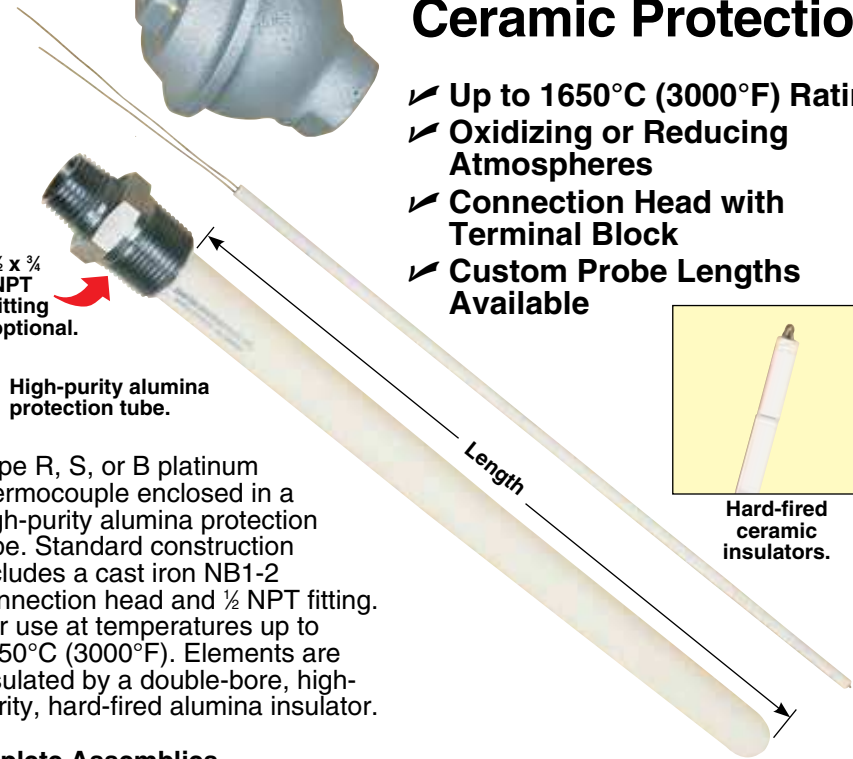


- ✓ Up to 1650°C (3000°F) Rating
- ✓ Oxidizing or Reducing Atmospheres
- ✓ Connection Head with Terminal Block
- ✓ Custom Probe Lengths Available

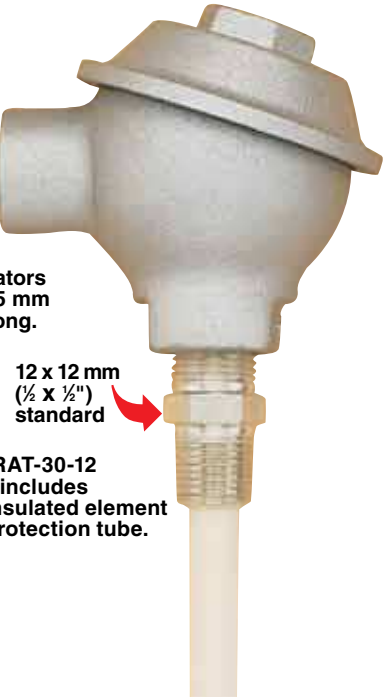
½ x ¾ NPT fitting optional.

High-purity alumina protection tube.

Type R, S, or B platinum thermocouple enclosed in a high-purity alumina protection tube. Standard construction includes a cast iron NB1-2 connection head and ½ NPT fitting. For use at temperatures up to 1650°C (3000°F). Elements are insulated by a double-bore, high-purity, hard-fired alumina insulator.



Insulators are 25 mm (1") long.



12 x 12 mm (½ x ½) standard  
RAT-30-12 includes head, insulated element and protection tube.

### Complete Assemblies

To Order Visit [newportUS.com/RAT\\_XDH](http://newportUS.com/RAT_XDH) for Pricing and Details

Model Number	Thermocouple Calibration	AWG Wire Size	Protection Tube OD mm (inch)	Insulator OD mm (inch)
RAT-30-12	Pt vs Pt 13% Rh	30	6.0 (¼)	3.0 (⅙)
RAT-24-12	Pt vs Pt 13% Rh	24	6.0 (¼)	3.0 (⅙)
RAT-20-12	Pt vs Pt 13%Rh	20	9.5 (⅜)	4.5 (⅜)
SAT-30-12	Pt vs Pt 10% Rh	30	6.0 (¼)	3.0 (⅙)
SAT-24-12	Pt vs Pt 10% Rh	24	6.0 (¼)	3.0 (⅙)
SAT-20-12	Pt vs Pt 10% Rh	20	9.5 (⅜)	4.5 (⅜)
BAT-30-12	Pt 6% Rh vs Pt 30% Rh	30	6.0 (¼)	3.0 (⅙)
BAT-24-12	Pt 6% Rh vs Pt 30% Rh	24	6.0 (¼)	3.0 (⅙)
BAT-20-12	Pt 6% Rh vs Pt 30% Rh	20	9.5 (⅜)	4.5 (⅜)

Wire Size Conversion	
AWG	Actual Diameter
6	4.1 mm (0.162")
8	3.2 mm (0.128")
10	2.5 mm (0.102")
12	2.0 mm (0.081")
14	1.6 mm (0.064")
16	1.2 mm (0.051")
18	1.0 mm (0.040")
20	0.8 mm (0.032")
22	0.6 mm (0.0253")
24	0.5 mm (0.0201")
26	0.41 mm (0.0159")
30	0.25 mm (0.0100")

Note: Alumina tube shipped separately to avoid breakage. Shipped unassembled.

Ordering Example: RAT-30-12, 30 AWG Type R thermocouple in a 300 mm (12") high-purity aluminum protection tube and a cast iron head.

### Replacement Elements for Assemblies Shown Above

Type of Element	AWG Wire Size	Insulator 99.7% + Al <sub>2</sub> O <sub>3</sub>	Type S PT-PT/10%Rh	Type R PT-PT/13%Rh	Type B PT/6%Rh-PT/30%Rh
Bare wires (No Insulators)	20	N/A	Bare-20-S-12	Bare-20-R-12	Bare-20-B-12
	24	N/A	Bare-24-S-12	Bare-24-R-12	Bare-24-B-12
	30	N/A	Bare-30-S-12	Bare-30-R-12	Bare-30-B-12
Double-Hole Round Insulators	20	XDH-20	XDH-20-S-12	XDH-20-R-12	XDH-20-B-12
	24	XDH-24	XDH-24-S-12	XDH-24-R-12	XDH-24-B-12
	30	XDH-30	XDH-30-S-12	XDH-30-R-12	XDH-30-B-12

\* Replacement elements include leads of sufficient length to reach terminals in head.

Note: Published price is based on market value at time of printing and is subject to change (more or less) due to precious-metal market fluctuations.

Replacement protection tubes available; see PTR Series. For 300 mm (12") probe length: add 48 mm (1 7/8") to length of tube to accommodate fitting.  
PTR-31614-137/8-1 [for 6 mm (¼") OD]  
PTR-1438-137/8-1 [for 9.5 mm (⅜") OD]

# Temperature and Pressure Test Plugs

## Self-Sealing Insert

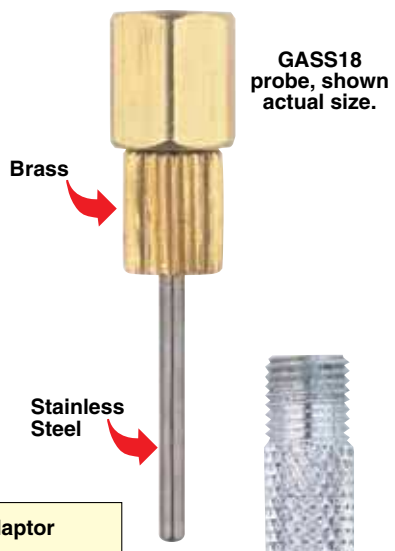
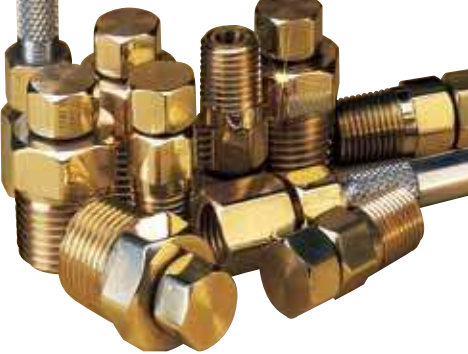
- ✓ 3 mm (1/8") Diameter Probe
- ✓ Up to 1000 psig Between -30 and 60°C (-20 and 140°F)
- ✓ Up to 135°C (275°F)
- ✓ Two Self-Closing Valves
- ✓ Heavy-Duty Design

NEWPORT® self-sealing plugs will allow you to take pressure and temperature readings quickly and eliminate the need for leaving costly gages or temperature indicators on the line. The NEWPORT® plug is permanently installed in the line at recommended test points. The cap protects the valve and provides an additional positive seal. After the cap has been removed, either a test thermometer or a gage adaptor with the proper pressure gage attached can be inserted through the two self-closing valves in the plug. Readings are taken, adjustments or tests can be made, and when the probes are withdrawn, the two valves close. The protective cap is then reinstalled.

Neoprene is resistant to deterioration from waxes, oils, greases, fats, petroleum products, and most refrigerants. It can be operated at a maximum temperature of 95°C (200°F) at 500 psig.

Nordel gives excellent service in hot or cold water and in some applications of low pressure steam. Nordel is resistant to detergents, phosphates, esters, ketones, alcohols, and glycols. It is not suitable for petroleum products. It can be operated at a maximum temperature of 135°C (275°F) at 500 psig.

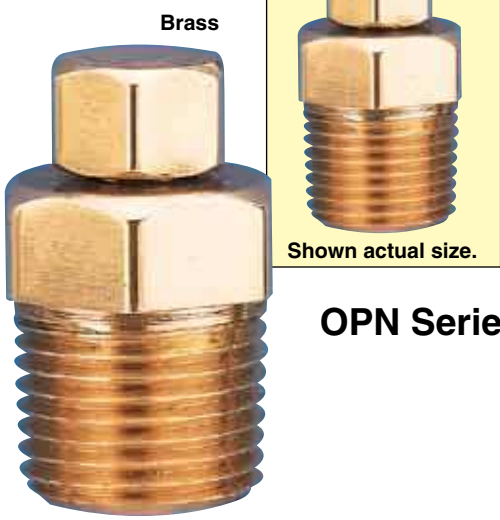
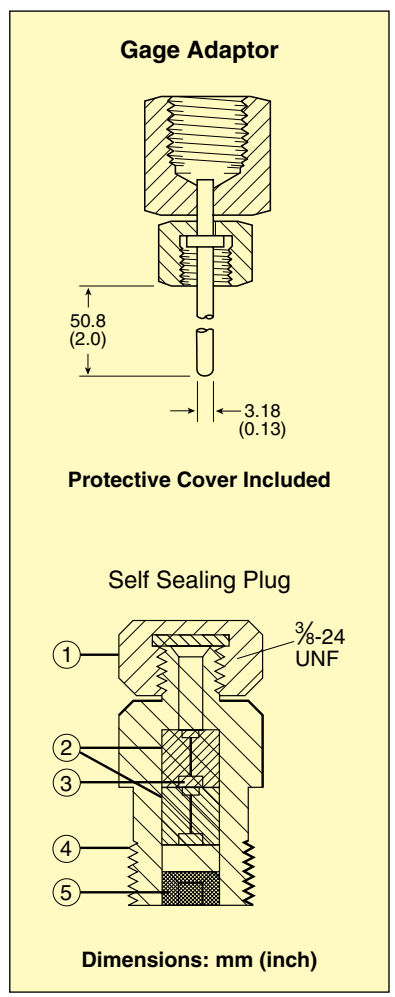
- ✓ Any Size Plug Accepts up to a 3 mm (1/8 in) Dia. Probe



GASS18 probe, shown actual size.

## GASS18

**Gage Adaptor**  
 THE PRESSURE GAGE ADAPTOR HAS A 3 mm (1/8") DIAMETER PROBE OF 304 STAINLESS STEEL WITH UNION NUT. SIMPLY ATTACH YOUR GAGE/ TRANSDUCER AND INSERT THE PROBE THROUGH AN NEWPORT PLUG TO TAKE A READING.



## OPN Series

1. CAP & GASKET
2. TWO NEOPRENE OR NORDEL SELF-CLOSING VALVES
3. VALVE POCKET FOR ADDED PRESSURE PROTECTION
4. PROCESS THREAD
5. VALVE RETAINER

To Order Visit [newportUS.com/RAT\\_XDH](http://newportUS.com/RAT_XDH) for Pricing and Details

NEWPORT Plug		
Model No.	Fitting	Valve Core Material
OPNE14	1/4 NPT male	NEOPRENE®
OPNO14	1/4 NPT male	NORDEL®
OPNE12	1/2 NPT male	NEOPRENE®
OPNO12	1/2 NPT male	NORDEL®
Gage Adaptor		
Model No.	Fitting	Probe Diameter
GASS18	1/4 NPT female	3.2 mm (1/8")

Ordering Example: OPNE14, 1/4 NPT male fitting with Neoprene core and GASS18, probe/gage adaptor.