

Thermocouples with Protecting Tubes

Specification

Description

These thermocouple assemblies include an element which consists of thermocouple wires, double bore ceramic insulators, terminal block, protecting tube and terminal head. Constructed of high quality materials to meet the high Honeywell standards, these thermocouples provide the solution to temperature sensing problems in applications worldwide.

Mounting Attachments

Terminal heads are available in two types: screw cover (weatherproof) shown in Figure 1 and general purpose. Both types have 1/2-inch conduit connection and the screw cover head is also available with 3/4-inch connection. Mounting bushings and adjustable flanges are also available.

Reference

For complete data on the Honeywell thermocouple line including ordering information, see Catalog 21-75-30-01

Straight Assemblies

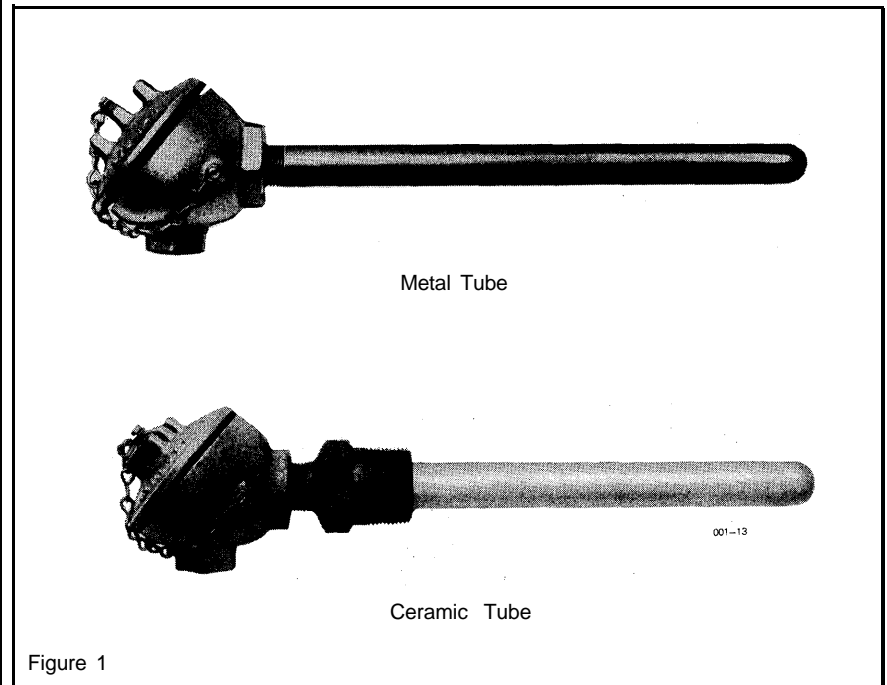


Figure 1

TABLE 1 - Thermocouple Accuracies

Type of Wire	Temperature Range	Limits of Error (Select whichever is greater)	
		Standard Grade	Premium Grade*
Type T	-200 to 0°C 0 to 350°C	±1°C or ±1.5% ±1°C or ±0.75%	— ±0.5°C or ±0.4%
	-300 to 32°F 32 to 700°F	±1.5°F or ±2% ±1.5°F or ±0.75%	±0.75° F or ±1% ±0.75°F or ±0.38%
Type J	0 to 750°C 32 to 1400°F	±2.2°C or ±0.5% ±4°F or ±0.5%	±1.1°C or ±0.4% ±2°F or ±0.38%
Type E	0 to 900°C 32 to 1600°F	±1.7°C or ±0.5% ±3°F or ±0.5%	±1°C or ±0.4% ±2°F or ±0.38%
Type K	0 to 1250°C 32 to 2300°F	±2.2°C or ±0.75% ±4°F or ±0.75%	±1.1°C or ±0.4% ±2°F or ±0.38%
Type R or Type S	0 to 1450°C 32 to 2700°F	±1.5°C or ±0.25% ±3°C or ±0.25%	— —

NOTE: When the limit of error is given in %, the percentage applies to the temperature being measured, not the range.

*Available at additional cost.

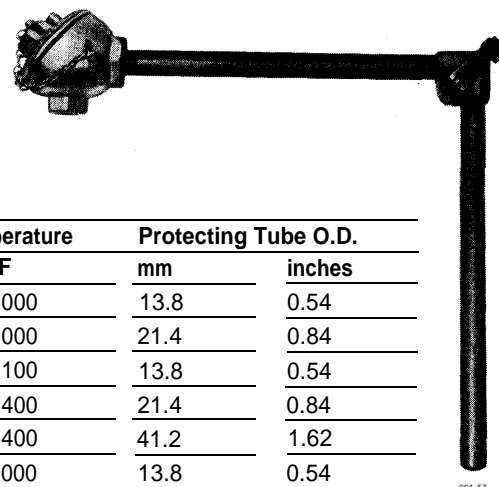
TABLE 2 — Straight Assemblies (see Figure 1)

Calibration	Model No.*	Protecting Tube Material	Maximum Temperature		Protecting Tube O.D.	
			°C	°F	mm	inches
Type T	1D10B	Carbon Steel	260	500	10.0	0.41
	1D10T	316 S.S.	260	500	10.0	0.41
Type J	3B10B	Carbon Steel	538	1000	13.8	0.54
	3D10B	Carbon Steel	482	900	10.0	0.41
	3A10W	Carbon Steel	538	1000	21.4	0.84
	3D10T	316 S.S.	593	1100	10.0	0.41
	3D10S	304 S.S.	482	900	13.8	0.54
	3B10S	304 S.S.	593	1100	13.8	0.54
	3A10PA	Resistat (446 S. S.)	760	1400	21.4	0.84
	3B10P	Resistat (446 S. S.)	593	1100	19.0	0.75
	3A10M	Inconel	760	1400	21.4	0.84
	3A10D	Cast Iron	760	1400	41.0	1.62
	3A10L	Nickel	760	1400	22.0	0.84
	3A15R	Sillramic	760	1400	23.8	0.94
	3B15R	Sillramic	593	1100	17.5	0.69
Type E	Y(3)D10B	Carbon Steel	538	1000	10.0	0.41
	Y(3)B10B	Carbon Steel	538	1000	13.8	0.54
	Y(3)A10W	Carbon Steel	538	1000	21.4	0.84
	Y(3)D10T	316 S.S.	538	1000	10.0	0.41
	Y(3)D10S	304 S.S.	538	1000	13.8	0.54
	Y(3)B10S	304 S.S.	649	1200	13.8	0.54
	Y(3)A10PA	Resistat (446 S. S.)	871	1600	21.4	0.84
	Y(3)B10P	Resistat (446 S. S.)	649	1200	19.0	0.75
	Y(3)A10M	Inconel	871	1600	21.4	0.84
	Y(3)A10D	Cast Iron	760	1400	41.0	1.62
	Y(3)A10L	Nickel	871	1600	22.0	0.84
Type K	5B10B	Carbon Steel	538	1000	13.8	0.54
	5A10W	Carbon Steel	538	1000	21.4	0.84
	5B10S	304 S.S.	982	1800	13.8	0.54
	5A10PA	Resistat (446 S. S.)	982	1800	21.4	0.84
	5A10P	Resistat (446 S. S.)	982	1800	25.4	1.00
	5B10P	Resistat (446 S. S.)	982	1800	19.0	0.75
	5A10M	Inconel	1204	2200	21.4	0.84
	5A10D	Cast Iron	760	1400	41.0	1.62
	5A10L	Nickel	982	1800	22.0	0.84
	5A10LA	Nickel	982	1800	32.0	1.25
	5B10LA	Nickel	982	1800	19.0	0.75
	5A10E	Cast T	1093	2000	26.6	1.05
	5A15R	Sillramic	1260	2300	23.8	0.94
	5B15R	Sillramic	1093	2000	17.5	0.68
Type R Platinum 13% Rhodium	6G15N	Quartz	1260	2300	12.7	0.50
	6G15R	Sillramic	1482	2700	17.5	0.68
Type S Platinum 10% Rhodium	7G15N	Quartz	1260	2300	12.7	0.50
	7G15R	Sillramic	1482	2700	17.5	0.68

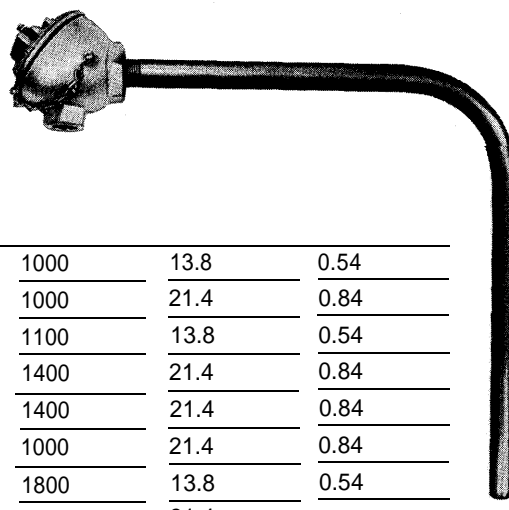
*Follow with tube length and terminal head type.

Angle Assemblies

These assemblies have a protecting tube of selected material, cast iron angle elbow and carbon steel extension tube connecting the angle fitting to the terminal head or with a full length protecting tube with a 90° bend.

**TABLE 3 — Assemblies with Angle Elbow**

Calibration	Model No.*	Protecting Tube Material	Maximum Temperature		Protecting Tube O.D.	
			°C	°F	mm	inches
Type J	3B50B	Carbon Steel	538	1000	13.8	0.54
	3A50W	Carbon Steel	538	1000	21.4	0.84
	3B50S	304 S.S.	593	1100	13.8	0.54
	3A50M	Inconel	760	1400	21.4	0.84
	3A50D	Cast Iron	760	1400	41.2	1.62
Type K	5B50B	Carbon Steel	538	1000	13.8	0.54
	5A50PA	Resistat (446 S.S.)	982	1800	21.4	0.84
	5A50P	Resistat (446 S.S.)	982	1800	25.4	1.00
	5B50P	Resistat (446 S.S.)	982	1800	19.0	0.75
	5B50S	304 S.S.	982	1800	13.8	0.54
	5A50M	Inconel	1204	2200	21.4	0.84
	5A50D	Cast Iron	871	1600	41.2	1.62
	5A50LA	Nickel	982	1800	32.0	1.25
	5A50L	Nickel	982	1800	22.2	0.84
	5B50LA	Nickel	982	1800	19.0	0.75
	5A50R	Sillramic	1260	2300	23.8	0.94
	5B50R	Sillramic	1093	2000	17.5	0.69
Type R	6G50R	Sillramic	1482	2700	17.5	0.69
Type S	7G50R	Sillramic	1482	2700	17.5	0.69

**Assemblies with 90° Bend**

Type J	3B56B	Carbon Steel	538	1000	13.8	0.54
	3A56W	Carbon Steel	538	1000	21.4	0.84
	3B56S	304 S.S.	593	1100	13.8	0.54
	3A56PA	Resistat (446 S.S.)	760	1400	21.4	0.84
	3A56M	Inconel	760	1400	21.4	0.84
Type K	5A56W	Carbon Steel	538	1000	21.4	0.84
	5B56S	304 S.S.	982	1800	13.8	0.54
	5A56PA	Resistat (446 S.S.)	982	1800	21.4	0.84
	5A56M	Inconel	1204	2200	21.4	0.84

*Follow with tube length, terminal head type and cold leg length.

Assemblies with Double Protecting Tubes

These assemblies have two protecting tubes to provide additional mechanical protection for the thermocouple. The primary (internal) tube is sillramic with the outer tube of various materials as listed in Table 4.

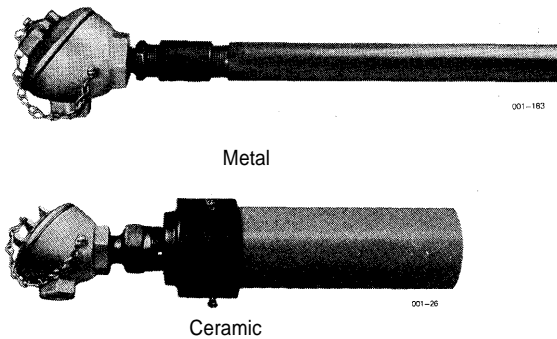


TABLE 4- Assemblies with Double Protecting Tubes

Calibration	Model No.*	Protecting Tube Material	Maximum Temperature		Protecting Tube O.D.	
			°C	°F	mm	inches
Type R Platinum 13% Rhodium	6G22E	Nickel	982	1800	32.0	1.25
	6G22M	Inconel	1204	2200	21.4	0.84
	6G25H	Silicon Carbide	1482	2700	44.4	1.75
	6G25D	Mullite	1482	2700	50.8	2.00
	6G25D	Mullite	1482	2700	76.2	3.00
Type S Platinum 10% Rhodium	7G22E	Nickel	982	1800	32.0	1.25
	7G22M	Inconel	1204	2200	21.4	0.84
	7G25H	Silicon Carbide	1482	2700	44.4	1.75
	7G25D	Mullite	1482	2700	50.8	2.00
	7G25D	Mullite	1482	2700	76.2	3.00

Assemblies with Extension Pipe

Pipe extended assemblies are designed for economical installations where a full length protecting tube is not required. The protecting tube and terminal head are connected by a carbon steel extension tube.

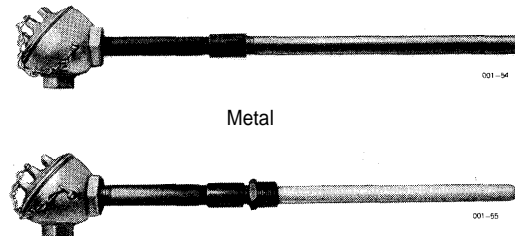


TABLE 5 — Pipe Extension Models

Calibration	Model No.*	Protecting Tube Material	Maximum Temperature		Protecting Tube O.D.	
			°C	°F	mm	inches
Type J	3B30S	304 S.S.	593	1100	13.8	0.54
	3A30P	Resistat (446 S.S.)	760	1400	25.4	1.00
	3B30P	Resistat (446 S.S.)	593	1100	19.0	0.75
	3A30M	Inconel	760	1400	21.4	0.84
	3B30R	Sillramic	593	1100	17.5	0.69
Type K	5B30S	304 S.S.	982	1800	13.8	0.54
	5A30P	Resistat (446 S.S.)	982	1800	25.4	1.00
	5B30P	Resistat (446 S.S.)	982	1800	19.0	0.75
	5A30M	Inconel	1204	2200	21.4	0.84
	5A30E	Cast T	1093	2000	26.6	1.05
	5A30L	Nickel	982	1800	22.0	0.84
	5A30LA	Nickel	982	1800	32.0	1.25
	5B30LA	Nickel	982	1800	19	0.75
	5B30R	Sillramic	1093	2000	17.5	0.69
Type R	6G30R	Sillramic	1482	2700	17.5	0.69
Type S	7G30R	Sillramic	1482	2700	17.5	0.69

*Follow with tube length, terminal head type and extension length.

Specifications are subject to change without notice.