

Palmer Temperature Elements and Ranges

Temperature Elements

Palmer Temperature Elements (or bulbs) must pass the same stringent quality control as the most precise scientific laboratory thermometers. All mercury filled systems conform to ASME 5B. Non-mercury systems conform to 1A over 30 feet and 1B under 30 feet. Each system is pressurized after filling for overrange capabilities above and below its specified range.

Rapid response to changes in temperature make it extremely accurate and reliable. The system is completely welded to prevent deterioration. Points most susceptible to physical damage are reinforced with added flexible armor.

Temperature elements are remote from the recorder case and offered in a choice of standard Mercury filled and Non-Mercury filled probes. Our engineering department can also custom design probes for a wide variety of applications.

- Accuracy ± 1 chart graduation.
- Heat treated coil provides superior spring action.
- Durable, low maintenance design: thermal system and other parts can be easily replaced by field technician.
- 300 Series stainless steel bulb, interconnection capillary, and armor available on certain designs.
- Standard case compensated system for uncompensated capillary lengths not exceeding 25 feet.
- Pre-calibrated temperature elements for field replacement are also available.

Temperature Ranges

Chart Recorder Standard Temperature Ranges	
°F Ranges	°C Ranges
-30° to 120°F	0° to 60°C
0° to 100°F	0° to 100°C
0° to 120°F	0° to 120°C
0° to 150°F	0° to 150°C
0° to 200°F	0° to 200°C
0° to 250°F	0° to 250°C
0° to 300°F	0° to 300°C
0° to 400°F	0° to 350°C
0° to 500°F	0° to 400°C
0° to 600°F	0° to 500°C
0° to 800°F	0° to 600°C
0° to 1,000°F	

We offer a wide variety of standard temperature ranges to meet the needs of many different applications. Each temperature element is precisely calibrated to the required range.

Note: Beige boxes denote ranges available in Non-Mercury filled and DP Recorder. White boxes denote ranges which come standard with mercury fill. (Mercury available for all ranges if requested. Please note that mercury may be restricted for sale in some states or countries.)

Call for more information.

Temperature System Capillary

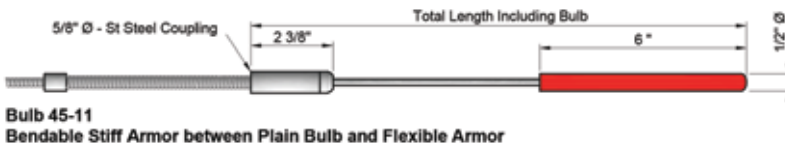
Standard capillary length for Recorders is 5 feet, for DP Recorders standard is 10 ft, both in 1/4" diameter flex armor. 3/16" diameter, Bendable stiff armor is optional for mercury filled systems only. Capillary for Mercury filled systems is 304SS, with optional lengths up to 25 feet*; non-mercury systems is 316SS, with optional lengths up to 99 feet.

*Lengths up to 50 feet are also available in applications where the ambient temperature remains consistent.

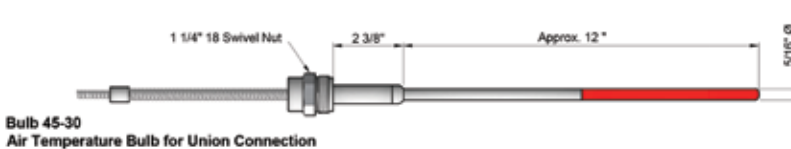
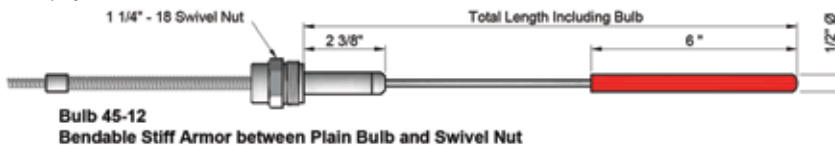
MERCURY AND NON-TOXIC LIQUID FILLED TEMPERATURE ELEMENTS

Models 45-5 and 45-11 are bulb and capillary systems designed to be dropped into a tank or bin and hung from the capillary. **Model 45-11** has a bendable section in the middle to expand possible insertion options.

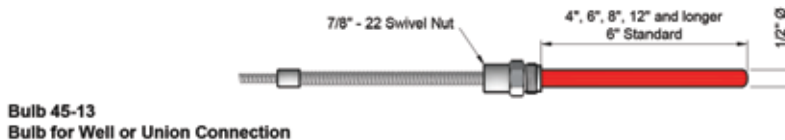
Model 45-29 is a bulb and capillary system designed to be hung by two mounting rings for air temperature measurement. For best results, bulb should be mounted in the center of the flow.



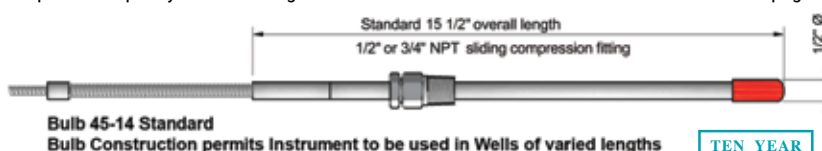
Models 45-12 and 45-30 are bulb and capillary systems designed to be hung from a threaded connection and dropped into a tank or bin. See compatible connectors listed in table on next page.



Model 45-13 is a bulb and capillary system designed to be inserted into a thermowell (closed receptacle) in the process or through a union hub (open end) directly into the process. See compatible connectors and thermowells listed in table on next page.



Model 45-14 is a bulb and capillary system designed to be inserted into thermowells of various lengths (closed receptacle) in the process or through a union hub (open end) directly into the process, or using the 1/2" NPT or 3/4" NPT probe sliding compression fitting directly into the process. Specify desired fitting. See connectors and thermowells listed in table on next page.



We build to order: if your process requires an option not shown here please call Customer Service.



Specifications subject to change without notice.

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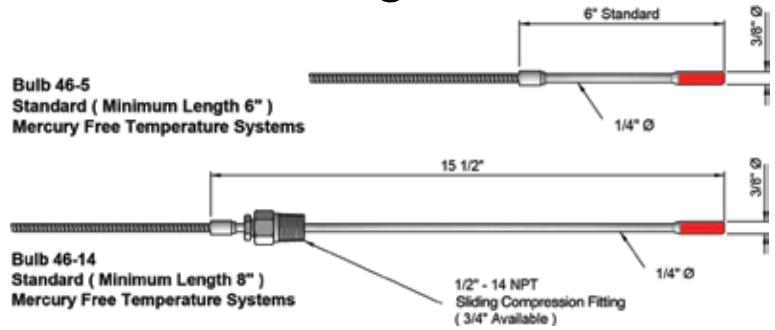
HYDROCARBON FILLED TEMPERATURE ELEMENTS

Model 46-5 is a bulb and capillary system designed for air temperature or to be dropped into a tank or bin and hung from the capillary.

Model 46-14 is a bulb and capillary system designed to be inserted into a thermowell (closed receptacle) in the process or through a union hub (open end) directly into the process or using the 1/2"



NPT or 3/4" NPT probe sliding compression fitting directly into the process. Specify desired fitting. See compatible connectors listed in the table below.



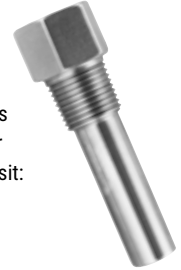
Palmer Connections and Thermowells

Palmer has manufactured a wide selection of thermowells and fittings since the 1940's. Our machined wells are built in our factory in Asheville, North Carolina for complete control of the production process. Our attention to detail allows us to produce precision products to meet your needs.

Below is a reference chart to help direct you to the correct connectors or thermowells compatible with our temperature bulbs.

If your application requires use of a flange, or other options not shown here please call our Customer Service department.

For a complete selection, dimensions and material options for all thermowells and connections please see the Palmer Thermowells and Fittings catalog, or visit: www.palmerwahl.com.



Thermowells • Union Connections • Flange Options for Temperature Bulbs

	Bulb Type	Mercury Filled Bulbs								Non-Mercury Bulbs	
		Bulb Model Number	45-12	45-13	45-14			45-30		46-14	
	Bulb Diameter	1/2"	1/2"	1/2"	1/2"	5/8"	5/8"	5/16"	3/8"	3/8"	3/8"
	Probe Connection	1-1/4"-18 Swivel Nut*	7/8"-22 Swivel Nut*	1/2" NPT	3/4" NPT	1/2" NPT	3/4" NPT	1-1/4"-18 Swivel Nut*	1-1/4"-18 Swivel Nut*	1/2" NPT	3/4" NPT
OPEN ENDED	Standard Union Connection 3/4" NPT*	1140-7	1150-7	1120-7	NA	1120-7	NA	1140-7	1140-7	1120-7	NA
	Standard Union Connection 1" NPT*	1140-8	1150-8	1120-8	NA	1120-8	NA	1140-8	1140-8	1120-8	NA
	Extension Neck Lagging Union Connection 3/4" NPT*	1141-7	1151-7	1121-7	NA	1121-7	NA	1141-7	1141-7	1121-7	NA
	Extension Neck Lagging Union Connection 1" NPT*	1141-8	1151-8	1121-8	NA	1121-8	NA	1141-8	1141-8	1121-8	NA
	Surface Mount Flanged Union Connection	1140-9	1150-9	1120-9	NA	1120-9	NA	1140-9	1140-9	1120-9	NA
CLOSED RECEPTACLE	Standard Thermowell	NA	1150	CP-2083	NA	CP-970	NA	NA	NA	1130	NA
	Extension Neck Lagging Thermowell	NA	1151	NA	NA	NA	NA	NA	NA	1131	NA
	Built-up Heavy Wall Thermowell	NA	1154	NA	NA	NA	NA	NA	NA	NA	NA
	Built-up Extension Neck Lagging Heavy Wall Thermowell	NA	1155	NA	NA	NA	NA	NA	NA	NA	NA
	Weld-in Thermowell	NA	1156	NA	NA	NA	NA	NA	NA	1136	NA
	Flanged Thermowell	NA	1157	NA	NA	NA	NA	NA	NA	1137	NA

* Requires use of Thermowell or Union Hub. See same column as desired Bulb.

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