TRERICE
TEMPERATURE • PRESSURE • CONTROL

Specification Guide

For
Selection Of Temperature
and
Pressure Instruments,
Regulators and Control Valves

Prepared For Use
by Consulting Engineers And Specification Writers

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Specification Guide

Temperature Instruments

Liquid-In-Glass Industrial Thermometers

For pipeline, duct or tank mounting

BX9 Series	Thermometers will be a blue reading liquid-in-glass adjustable angle type, 9" scale, cast aluminum case with cured polyester powder coating, clear acrylic window and brass separable thermowell. Thermometers will be TRERICE BX9 Series or approved equal. (For 7" scale case use AX9 Series and for 12" scale use CX9 Series.)
Econo-Therm Series	Thermometers will be a blue reading liquid-in-glass fixed straight or 90 degree back angle type, 5½" scale, cast aluminum case with cured polyester powder coating, clear lexan window and brass separable thermowell. Thermometers will be TRERICE Econo-Therm Series 4350 (straight) or 4352 (angle), or approved equal.

Light Powered Digital Industrial Thermometer

For pipeline, duct or tank mounting

SX9 Series	Thermometers shall be rated NEMA 4X (IP 65) and be suitable for applications where splashing water and hose directed water may be present. Case shall be adjustable angle type, 7" cast aluminum (plastic not acceptable), blue epoxy finished, with 9/16" LCD display digits, switchable between °F/°C, push-button minimum and maximum readings with reset. Thermometer shall require no batteries or external power source and operate at a minimum of 10 Lux (one foot candle), and have a resolution of 1/10 with full 4-digit display and an update interval of 10 seconds. Thermometer accuracy shall be 1% of reading or 1º, whichever is greater. Temperature range shall be –40 to 300º F (-40 to 150º C). Thermometer shall include a brass separable thermowell. Thermometers will be TRERICE SX9 Series or approved equal.

Liquid-In-Glass Industrial Thermometers With Integrated RTD Sensor

For pipeline, duct or tank mounting

BX Plus Series	Thermometers will be a blue reading liquid-in-glass adjustable angle or fixed stem type, 9" scale, cast aluminum case with cured polyester powder coating, clear acrylic window and brass separable well. Thermometers will have an internal 100 or 1000 ohm, platinum, 3-wire resistance temperature detector for the purpose of remote temperature sensing. Electrical connection will be a molded cordset with coupling nut. Connector body will be of oil resistant polyurethane, and contain gold-plated brass contacts to ensure a positive connection. Cable will be of oil resistant, black PUR jacketing, 4.5 mm in diameter, and 6 meters in length. Thermometers will be TRERICE BX Plus Series or approved equal. (For 7" scale case use AX9 Series and for 12" scale use CX9 Series.)

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Specification Guide

Temperature Instruments

Add to each specification:

The proper range will be selected so that the operating temperature of the material being measured will fall approximately in the middle of the scale.

Where insulation thickness exceeds 2", a longer stem thermometer will be used with an extension neck lead free brass (PBF) for drinking water applications or stainless steel separable thermowell. The extension neck will be at least 2" long. For an Econo-Therm thermometer well the extension neck will be 1¾" long.

Thermometers for measuring fluid temperatures will have stems with insertion lengths of roughly half of the pipe diameter; minimum insertion length will be 2". Thermometers installed on tanks will have a minimum insertion length of 5".

Thermometers for measuring air temperatures will be the same as above with the exception of having a perforated guard stem and a mounting flange instead of a brass separable thermowell.

Dial Thermometers – Vapor Or Liquid Actuated

For pipeline, duct, tank or panel mounting

V80445 Series (Direct Mount only, 4½" dial size)	Thermometers will be of the vapor actuated, adjustable angle, direct mounted type, 4½" dial size with cured polyester powder coated cast aluminum case, stainless steel ring and glass window. Movement will be brass with bronze bushings. Bourdon tube will be phosphor bronze with a brass socket. Dial face will be white with black figures; pointer will be friction adjustable type. Thermometers will be installed with brass separable thermowells. Thermometers will be TRERICE No. V80445 or approved equal.
80700 Series 80300 Series (4½" or 6" dial size)	Thermometers will be of the dial type with vapor or liquid fill, 4½" or 6" dial size with cured polyester powder coated cast aluminum case, stainless steel friction ring and glass window. Movement will be brass with bronze bushings. Bourdon tube will be phosphor bronze with a brass socket. LIQUID filled thermometers will have a steel bourdon tube. Dial face will be white with black figures; pointer will be friction adjustable type. Dial thermometers will be universal adjustable angle type (80700 Series) or, when the thermometer bulb is located 7 feet in height or above, it will be the remote type (80300 Series) with flexible capillary tubing and surface mounted case or flush mounted case so that the thermometer may be easily read at eye level. Thermometers will be TRERICE Series 80700, 80300 or approved equal.
80000 Series (3½" dial size)	Thermometers will be of the dial type with vapor or liquid fill, 3½" dial size with stainless steel case and O-ring sealed acrylic window. Dial face will be white with black figures. Pointer will be friction adjustable type. Dial thermometers will be direct mounted adjustable angle type or, when the thermometer bulb is located 7 feet in height or above, it will be the remote type with flexible capillary tubing and surface mounted case, flush mounted case or adjustable angle mounting bracket case so that the thermometer may be easily read at eye level. Thermometers will be TRERICE Series 80000 or approved equal.

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Specification Guide

Temperature Instruments

Add to each specification:

The proper range will be selected so that the operating temperature of the material being measured will fall approximately in the middle of the scale.

Thermometers for pipeline or tank mounting will have a brass or stainless steel separable thermowell. Where insulation thickness exceeds 2", a longer bulb will be used with an extension neck separable thermowell. The extension neck will be at least 2" long.

Thermometers for measuring fluid temperatures will have a sensing bulb with an insertion length of roughly half of the pipe diameter; minimum insertion length will be 2". Thermometers installed on tanks will have a minimum insertion length of 5".

Thermometers for measuring air temperatures will have a flange mounted coil type air sensitive bulb instead of a separable thermowell.

Dial Thermometers - Bimetallic Type

B80000 Series (Fixed back or bottom stem)	Thermometers will be bimetallic dial type, 3" or 5" dial size with 300 stainless steel case and stem, hermetically sealed, silicone dampened, fixed back or bottom connection, with external recalibrator screw and a ½" NPT connection. Thermometers will be TRERICE B80000 Series or approved equal.
B80600 Series (Adjustable angle)	Thermometers will be bimetallic dial type, 3" or 5" dial size with 300 stainless steel case and stem, hermetically sealed, silicone dampened, universal adjustable angle style, with external recalibrator screw and a ½" NPT connection. Thermometers will be TRERICE B80600 Series or approved equal.

Dial Thermometers With Integrated Thermocouple Or RTD Sensor - Bimetallic Type

Bimetal Plus	Thermometers will be bimetallic dial type, 3" or 5" dial size with 300 series stainless steel case and stem, hermetically sealed, silicone dampened, universal adjustable angle or rear connected style, with external recalibrator screw and a ½" NPT connection. Thermometers will have a thermocouple or RTD located inside the sensitive portion of the thermometer stem. Thermometers with a thermocouple will have a Type J or K sensor. Electrical connection will be a color coded female plug and include a mating jack. Thermometers with an RTD will have a 100 or 1000 ohm, platinum, 3-wire resistance temperature detector for the purpose of remote temperature sensing. Electrical connection will be a molded cordset with coupling nut. Connector body will be of oil resistant polyurethane, and contain gold plated brass contacts to ensure a positive connection. Cable will be of oil resistant, black PUR jacketing, 4.5 mm in diameter, and 6 meters in length. Thermometers will be TRERICE Bimetal Plus or approved equal.

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Specification Guide

Temperature Instruments

Add to each specification:

The proper range will be selected so that the operating temperature of the material being measured will fall approximately in the middle of the scale.

Thermometers for pipeline or tank mounting will have a brass or stainless steel separable thermowell.

Where insulation thickness exceeds 2", a longer stem will be used with an extension neck separable thermowell. The extension neck will be at least 2" long.

Thermometers for measuring fluid temperatures will have stems with insertion lengths of roughly half of the pipe diameter; minimum insertion length will be 2". Thermometers installed on tanks will have a minimum insertion length of 4½".

Thermometers for measuring air temperatures will have a duct flange connection instead of a separable thermowell.

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Specification Guide

Pressure Instruments

Dry Gauges

High Quality - High Accuracy - Process And Industrial Applications

450 Series — Pressure gauges will be 4½" dial size with a fiberglass reinforced polypropylene case, threaded ring, solid front, blow-out back and molded acrylic window. Movement will be 300 series stainless steel rotary type with stainless steel bushings. Bourdon tube will be bronze or 316 stainless steel with brass or 316 stainless steel socket. Dial face will be white with black figures; pointer will be micrometer adjustable type. Accuracy will be ±0.5% of scale range, ASME B40.1 Grade 2A. Pressure gauges will be TRERICE No. 450 or approved equal.

500X Series — Pressure gauges will be 4½" or 6" dial size with a cast aluminum case, stainless steel friction type ring and glass window. Movement will be 300 series stainless steel rotary type with stainless steel bushings. Bourdon tube will be bronze or 316 stainless steel with a brass or 316 stainless steel socket. Dial face will be white with black figures; pointer will be micrometer adjustable type. Accuracy will be ±0.5% of scale range, ASME B40.1 Grade 2A. Pressure gauges will be TRERICE No. 500X or approved equal.

High Quality - Good Accuracy - Process And Industrial Applications

750 Series — Pressure gauges will be 4" dial size with a stainless steel, solid front, blow-out back case and stainless steel bayonet ring. Window will be laminated glass. Movement will be stainless steel. Bourdon tube will be 316 stainless steel with a 316 stainless steel socket. Dial face will be white with black figures; pointer will be micrometer adjustable type. Accuracy will be ±1% of scale range, ASME B40.1 Grade 1A. Pressure gauges will be TRERICE No. 750 or approved equal.

700 Series — Pressure gauges will be 2½", 4" or 6" dial size with a stainless steel case, bayonet ring and laminated glass window. Movement will be stainless steel for all configurations except in the 2½" size with a bronze tube and brass socket the movement is brass. Bourdon tube will be bronze or 316 stainless steel with a brass or 316 stainless steel socket. Dial face will be white with black figures; pointer will be micrometer adjustable type. Accuracy will be ±1% of scale range, ASME B40.1 Grade 1A. Pressure gauges will be TRERICE No. 700 or approved equal.

Commercial Design Quality - Good Accuracy - Contractor Type Applications

600C Series — Pressure gauges will be 3½" or 4½" dial size with a flangeless cast aluminum case, stainless steel friction ring and glass window. Movement will be brass with a bronze bourdon tube and brass socket. Dial face will be white with black figures; pointer will be friction adjustable type. Accuracy will be ±1% of scale range, ASME B40.1 Grade 1A. Pressure gauges will be TRERICE No. 600C or approved equal.

620 Series — Pressure gauges will be 4½" dial size with a flangeless stainless steel case, stainless steel friction ring and acrylic window. Movement will be brass with a bronze bourdon tube and brass socket. Dial face will be white with black figures; pointer will have zero adjustment screw. Accuracy will be ±1% of scale range, ASME B40.1 Grade 1A. Pressure gauges will be TRERICE No. 620 or approved equal.

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Specification Guide

Pressure Instruments

Utility Design Quality - Commercial Accuracy - Light Applications

800 Series — Pressure gauges will be 1½", 2", 2½" or 4" dial size with a drawn steel case. The gauge will have a one-piece styrene-acrylonitrile window. Movement will be brass with a bronze bourdon tube and brass socket. Dial face will be white, corrosion resistant ABS with black figures and black, corrosion resistant ABS pointer. Accuracy will be ±1.6% of scale range. Pressure gauges will be TRERICE No. 800 or approved equal.

Liquid Filled Gauges For Vibration, Corrosive Or Dusty Environments

High Quality - High Accuracy - Process And Industrial Applications

450LF Series — Pressure gauges will be 4½" dial size with a fiberglass reinforced polypropylene case, threaded ring, solid front, blow-out back and molded acrylic window. Movement will be 300 series stainless steel rotary type with stainless steel bushings. Bourdon tube will be bronze or 316 stainless steel with brass or 316 stainless steel socket. Dial face will be white with black figures; pointer will be micrometer adjustable type. Accuracy will be ±0.5% of scale range, ASME B40.1 Grade 2A. Gauges will be filled with glycerin or silicone according to ambient temperature requirements or severity of vibration expected. Pressure gauges will be TRERICE No. 450LF or approved equal.

High Quality - Good Accuracy - Process And Industrial Applications

750LF Series — Pressure gauges will be 4" dial size with a stainless steel, solid front, blow-out back case and stainless steel bayonet ring. Window will be laminated glass. Movement will be stainless steel. Bourdon tube will be 316 stainless steel with a 316 stainless steel socket. Dial face will be white with black figures; pointer will be micrometer adjustable type. Accuracy will be ±1% of scale range, ASME B40.1 Grade 1A. Gauges will be filled with glycerin or silicone according to ambient temperature requirements or severity of vibration expected. Pressure gauges will be TRERICE No. 750LF or approved equal.

700LF Series — Pressure gauges will be 2½", 4" or 6" dial size with a stainless steel case, bayonet ring and laminated glass window. Movement will be stainless steel for all configurations except in the 2½" size with a bronze tube and brass socket the movement is brass. Bourdon tube will be bronze or 316 stainless steel with a brass or 316 stainless steel socket. Dial face will be white with black figures; pointer will be micrometer adjustable type. Accuracy will be ±1% of scale range, ASME B40.1 Grade 1A. Gauges will be filled with glycerin or silicone according to ambient temperature requirements or severity of vibration expected. Pressure gauges will be TRERICE No. 700LF or approved equal.

Utility Quality And Accuracy - Most Applications

800LF Series — Pressure gauges will be 2", 2½" or 3½" dial size with an ABS plastic or nylon case. Window of 2" and 2½" dial size will be styrene-acrylonitrile with a crimped aluminum ring and for the 3½" dial size will be acrylic with a molded nylon ring. Movement will be brass with a bronze bourdon tube and brass socket. Dial face will be white with black figures and pointer. Accuracy for the 2" and 2½" size will be ±1.6% full scale,and for the 3½" size will be ±1% of scale range, ASME B40.1 Grade 1A. Gauge cases will be glycerin filled. Gauges will be TRERICE No. 800LF or approved equal.

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D80 Series — Pressure gauges will be 2", 2½" or 4" dial size with a stainless steel case and a crimped aluminum ring. Window for the 2" and 4" dial size will be grilamid and for the 2½" dial size will be styrene-acrylonitrile. Movement will be brass with a bronze bourdon tube and brass socket. Movement will be stainless steel with a 316 stainless steel bourdon tube and socket. Dial face will be white with black figures and pointer. Accuracy will be ±1.5% of scale range, ASME B40.1. Gauge cases will be glycerin filled. Pressure gauges will be TRERICE No. D821 for bronze/brass internals or D831 for 316 stainless internals, or approved equal.

Gauges For Specialized Applications

High Quality - Good Accuracy - Low Pressure Applications

760 Series — Pressure gauges will be 2", 2½" or 4" dial size with a drawn steel case. The gauge will have a one piece polycarbonate snap-in window. Movement will be brass with a 316L stainless steel diaphragm capsule and brass socket. Dial face will be white with black figures and pointer. Accuracy will be ±1.6% scale range. Gauges will be TRERICE No. 760 or approved equal.

High Quality - Good Accuracy - Sanitary Applications

700TA Series — Pressure gauges will be 2½" or 4" dial size with a highly polished 304 stainless steel case and bayonet ring, and include a polycarbonate window. Movement will be stainless steel with a 316 stainless steel bourdon tube and 316 stainless steel socket. Dial face will be white with black figures; pointer will be micrometer adjustable type. Connection will include an integrated diaphragm seal that is welded to the socket of the gauge. Accuracy will be ±1.6% of scale range or +/-1% of scale range, ASME B40.1 Grade 1A, dependent upon the pressure range and diaphragm size of the gauge. Pressure gauges will be TRERICE No. 700TA or approved equal.

High Quality - Good Accuracy - Integrated Pressure Transmitter

700 Plus Series — Pressure gauges will be 4" dial size with a stainless steel case and bayonet ring and a glass window. Movement will be stainless steel with a 316L stainless steel bourdon tube and socket. Dial face will be white with black figures; pointer will be micrometer adjustable type. Pressure gauge will include a pressure transmitter that is integrated directly to the socket of the gauge. Transmitter will have ceramic wetted parts. Gauge accuracy will be ±1% of scale range, ASME B40.1 Grade 1A. Transmitter accuracy will be ±0.3% of scale range. Pressure Gauges will be TRERICE No. 703 or approved equal.

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Specification Guide

Pressure Instruments

Add to each specification:

The proper range will be selected so that the average operating pressure falls approximately in the middle of the scale selected.

All pressure gauges will be equipped with TRERICE brass or stainless steel needle valves.

Gauges on steam service will have TRERICE No. 885 steel coil siphons.

Gauges on any service where pressure surges or pulsations are possible will be provided with TRERICE No. 872 pressure snubbers.

Diaphragm Protection Seals - for Protection of Pressure and Vacuum Sensing Devices

5 and 6 Series (Standard and Large Diaphragm)	Diaphragm protection seals will be continuous operation type for safety. All seals will be a two-piece design with the diaphragm attachment suitable for removal of the upper housing to facilitate clean out without the loss of the fill fluid. When required by the service, the lower housing will have a ¼" NPT flushing connection. The process flange and diaphragm material will be compatible with the process fluid. A Series 5 seal will be used for most pressure and vacuum requirements. A Series 6 seal has twice the effective diaphragm area and will be used on low pressure or high vacuum applications where extra accuracy or sensitivity is required. Diaphragm protection seals will be TRERICE Series 5 or 6 or approved equal.

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Self-Operating Temperature Regulators

91000 Series (Non-Indicating)	Regulators will be self-operating, requiring no external power for operation, and include a separable actuator and valve assembly. Actuator housing will be of die cast aluminum with a corrosion resistant finish. Bellows will be of high pressure brass, with a corrosion resistant finish. Adjustment screw will be of brass, and include a lubricant-impregnated, sintered bronze bushing. Actuator will include over-range protection to allow the sensing bulb to be heated 100° Fahrenheit above the control point. Valve will be of bronze, stainless steel or cast iron construction. Bronze two-way valves will include malleable iron union ends for ease of installation and be a field reversible design with a top and bottom guided valve plug, which will prolong life of the valve. Valve trim will be stainless steel and include brazed-in seats. Bronze 3-way valves will have bronze trim. Iron valves will have flanged connections. Regulators will be TRERICE 91000 Series or approved equal.
91400 Series (Indicating)	Regulators will be self-operating, requiring no external power for operation, and include a separable actuator and valve assembly. Actuator housing will be of die cast aluminum with a corrosion resistant finish and include a 3½" dial temperature indicator. Indicator will have a stainless steel case and be capable of 340 degree rotation and 90 degree adjustment to be positioned for easy readability. Bellows will be of high pressure brass, with a corrosion resistant finish. Adjustment screw will be of brass, and include a lubricant-impregnated, sintered bronze bushing. Actuator will include over-range protection to allow the sensing bulb to be heated 100° Fahrenheit above the control point. Valve will be of bronze, stainless steel or cast iron construction. Bronze two-way valves will include malleable iron union ends for ease of installation and be a field reversible design with a top and bottom guided valve plug, which will prolong life of the valve. Valve trim will be stainless steel and include brazed-in seats. Bronze 3-way valves will have bronze trim. Iron valves will have flanged connections. Regulators will be TRERICE 91400 Series or approved equal.

Add to each specification:

The valve will have the appropriate number of seats, be of the proper action, and be of the correct size, dependent upon the service conditions of the application. Valve will be installed downstream from a TRERICE Series 1100 Pipeline Strainer. Strainer will have a perforated stainless steel screen to remove particulates that may cause damage to the valve.

The proper range will be selected so that the control point will fall into the working temperature span as per TRERICE Catalog #CC-3.

Regulators for pipeline or tank mounting will have a brass or stainless steel separable thermowell.

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Specification Guide

Regulator and Control Valves

Air Operated Control Valves

Medium Duty – Compact Construction

910 Series — Control Valve will include a separable actuator and valve assembly. Actuator housing will be of die cast aluminum with a corrosion resistant finish and will include a ¼ NPT air pressure connection. Pressure plate will be of aluminum. Adjustment screw will be of brass, and include a lubricant impregnated, sintered bronze bushing. Diaphragm will be of nylon reinforced EDPM. Valve will be of bronze, stainless steel or cast iron construction. Bronze valves will include malleable iron union ends for ease of installation. Valve will be of a field reversible design and the plug will be top and bottom guided to prolong life of the valve. The valve trim will be stainless steel and include brazed-in seats. Iron valves will have flanged connections. Control Valves will be TRERICE 910 Series or approved equal.

Heavy Duty - Rugged Construction

940 Series — Control Valve will include a separable actuator and valve assembly. Diaphragm chamber will be of die cast aluminum or steel construction with acrylic enamel finish and will include a ¼ NPT air pressure connection. Yoke will be of iron construction with acrylic enamel finish. Pressure plate will be of aluminum. Diaphragm will be of nylon reinforced Buna-N. Valve will be of bronze, steel, stainless steel or cast iron construction. Valve trim will be stainless steel or bronze. Bronze, steel or stainless steel valves will have threaded connections. Iron valves will have flanged connections. A pneumatic or electro-pneumatic valve positioner will be added if required by the service conditions of the application. Control Valves will be TRERICE 940 Series or approved equal.

Add to each specification:

The valve will have the appropriate number of seats, be of the proper action, and be of the correct size, dependent upon the service conditions of the application. Valve will be installed downstream from a TRERICE Series 1100 Pipeline Strainer. Strainer will have a perforated stainless steel screen to remove particulates that may cause damage to the valve.

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