

Tycos INSTRUMENTS

for
Enclosed Spaces

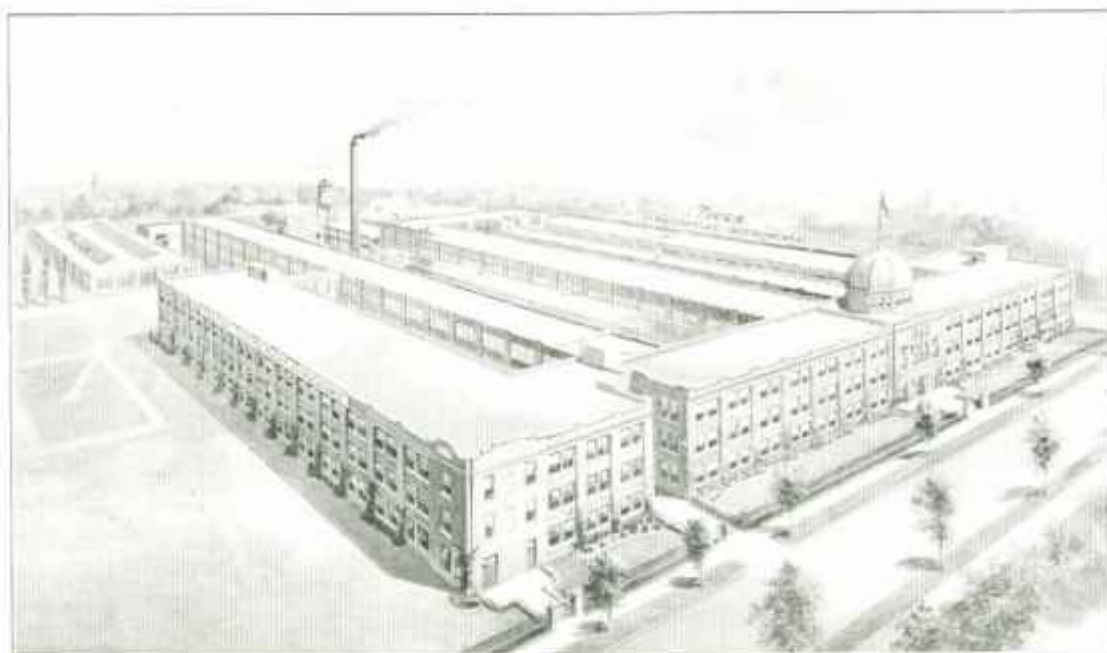


Taylor Instrument Companies

Rochester, N.Y. U.S.A.

Canadian Plant *Tycos* Building, Toronto, Canada.





The Home of *Tycos* Instruments

Largest Plant in the World Devoted Exclusively to the Manufacture of Instruments for Indicating, Recording and Controlling Temperature and Pressure.

Numerical Index

Of all numbers appearing in this catalog, arranged consecutively

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Some of the Enclosed-Space Applications for which *Tyco's* Instruments are Recommended

In most processes or operations involving the use of heat, the control of temperature is very important. If the temperature is too low the process is incomplete, whereas a too-high temperature results in damage to the product. It is, therefore, a self-evident fact that the temperature must be held as close as is mechanically possible.

This is accomplished by means of automatic temperature regulators. The use of these regulators results also in economy of fuel, as just enough heat is consumed to produce the desired results.

For the above reasons, following are some of the applications which require the use of *Tyco's* Temperature Regulators (*pages 41 to 53*) to control the temperature; *Tyco's* Recording Thermometers (*pages 9 to 27*) to give a record of how the temperatures are maintained and also the length of time of heating in the various processes; and *Tyco's* Industrial Thermometers (*pages 4 to 6*) as a positive indication and check for setting and adjusting the regulators and recorders:—

	Drying Rooms		
Laundries	Pharmaceutical Laboratories, etc.		Tanneries
Rubber Mills	Paper Mills		Textile Mills
	Dry Houses		
	Powder Mills		
	Cooled or Heated Air		
Ducts	Chambers		Boxes, etc.
	Dry Kilns		
	Lumber and Other Products		
	Air Ducts		
Malt Houses	Heating and Ventilating Systems, etc.		Cereal Mills
	Heaters or Ovens		
Patent or Enamel Leathers			Core Ovens
	Vacuum Driers		
Electrical Conductors	Dye Stuffs		Explosives, etc.
	Waste-Heat Driers and Drying Tunnels		
Brick	Tile		Pottery
	Dry-Heat Vulcanizers		
Rubber Shoes	Surfaced Goods, etc.		Clothing
	Driers		
Grain and Beet Pulp			Tobacco
	Japanning and Enameling Ovens		
Bicycle and Automobile Parts		Buttons, Shoe Eyelets, etc.	
Art-Metal Goods		Hardware	
	Tempering Ovens		
	Heat-Treating Steel Products		





Tyccos Thermometers for Enclosed Spaces

Angle Air-Duct Thermometers

For Heating and Ventilating Systems

	EACH
No. 800 Tyccos Angle Air-Duct Thermometer.....	\$34.00
With 12-inch scale; 6-inch stem; No. P580 3-inch union-connection flange; approximate temperature range, 0° to 160° F.	
No. 801 Same as No. 800, except with 12-inch stem.....	37.00
No. 802 Same as No. 800, except with 18-inch stem.....	39.75
No. 803 Same as No. 800, except with 24-inch stem.....	42.75

Angle Dry-Kiln Thermometers

For Lumber Kilns, Dry Rooms, Vacuum Driers, Patent-Leather Ovens, etc.

	EACH
No. 809 Tyccos Angle Dry-Kiln Thermometer.....	\$34.00
With 12-inch scale; 6-inch stem; No. P580 3-inch union-connection flange; approximate temperature range, 30° to 240° F.	
No. 810 Same as No. 809, except with 12-inch stem.....	37.00
No. 811 Same as No. 809, except with 18-inch stem.....	39.75
No. 812 Same as No. 809, except with 24-inch stem.....	42.75

Angle Oven Thermometers

For Japan and Enamel Baking Ovens, Tempering Ovens, Core Ovens, etc.

	EACH
No. 840 Tyccos Angle Oven Thermometer.....	\$34.00
With 12-inch scale; 6-inch stem; No. P580 3-inch union-connection flange; approximate temperature range, 100° to 750° F.	
No. 841 Same as No. 840, except with 12-inch stem.....	37.00
No. 842 Same as No. 840, except with 18-inch stem.....	39.75
No. 843 Same as No. 840, except with 24-inch stem.....	42.75

NOTE—Nos. 840 to 843 will be supplied if specified, without extra charge, with approximate temperature range 100° to 500° F.



SWIVEL NUT

BULB GUARD

Angle Thermometer, showing swivel-nut of union, and guard protecting thermometer bulb.



No. P580 3-inch union-connection flange for attaching thermometer to apparatus.

EXTRA: For each six inches or fraction thereof of stem, longer than listed, on any of above thermometers ADD TO LIST..... **\$2.90**

NOTE—Where space does not permit the use of a 12-inch-scale thermometer, one with 9-inch scale will be supplied, if specified, in which case DEDUCT FROM LIST **\$4.85**



Tyco's Thermometers for Enclosed Spaces

Straight Air-Duct Thermometers

For Heating and Ventilating Systems

	EACH
No. 850 Tyco's Straight Air-Duct Thermometer	\$29.25
With 12-inch scale; 6-inch stem; No. P580 3-inch union-connection flange; approximate temperature range, 0° to 100° F.	
No. 851 Same as No. 850, except with 12-inch stem	32.00
No. 852 Same as No. 850, except with 18-inch stem	35.00
No. 853 Same as No. 850, except with 24-inch stem	38.00

Straight Dry-Kiln Thermometers

For Lumber Kilns, Dry Rooms, Vacuum Driers, Patent-Leather Ovens, etc.

	EACH
No. 860 Tyco's Straight Dry-Kiln Thermometer	\$29.25
With 12-inch scale; 6-inch stem; No. P580 3-inch union-connection flange; approximate temperature range, 30° to 240° F.	
No. 861 Same as No. 860, except with 12-inch stem	32.00
No. 862 Same as No. 860, except with 18-inch stem	35.00
No. 863 Same as No. 860, except with 24-inch stem	38.00

Straight Oven Thermometers

For Japan and Enamel Baking Ovens, Tempering Ovens, Core Ovens, etc.

	EACH
No. 870 Tyco's Straight Oven Thermometer	\$29.25
With 12-inch scale; 6-inch stem; No. P580 3-inch union-connection flange; approximate temperature range, 100° to 750° F.	
No. 871 Same as No. 870, except with 12-inch stem	32.00
No. 872 Same as No. 870, except with 18-inch stem	35.00
No. 873 Same as No. 870, except with 24-inch stem	38.00

NOTE—Nos. 870 to 873 will be supplied if specified, without extra charge, with approximate temperature range 100° to 500° F.

EXTRA: For each six inches or fraction thereof of stem longer than listed, on any of above thermometers, ADD TO LIST . . . \$2.90

NOTE—Where space does not permit the use of a 12-inch-scale thermometer, one with 9-inch scale will be supplied, if specified, in which case DEDUCT FROM LIST \$4.85



No. P580 3-inch union-connection flange for attaching thermometer to apparatus



SWIVEL NUT

BULB GUARD

Straight Thermometer, showing swivel-nut of union, and guard protecting thermometer bulb



Forms of Connection for *Tycos* Thermometers for Enclosed Spaces

Union-Connection Flange

This union connection is a modification of the well-known pipe union. The flange is first secured in place, then the thermometer is inserted and tight connection made by turning the swivel-nut. As the latter is free to revolve on the stem, it is not necessary to turn the scale-case, and the thermometer is relieved, therefore, of all mechanical strain in attaching.

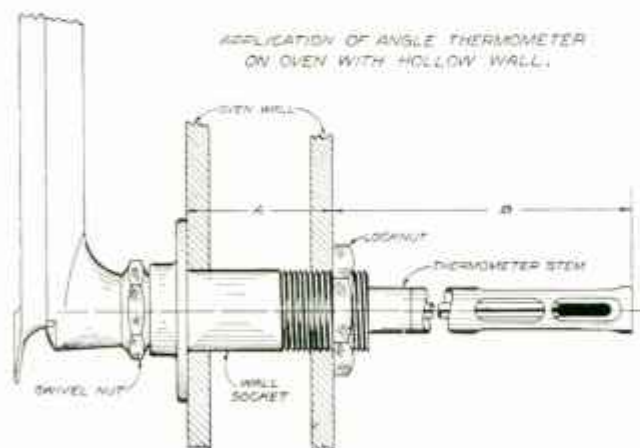
No. P580 3/4-inch union-connection flange.



No. P510 union-connection hub threaded for 1/2-inch pipe-tap



NOTE.—Hub No. P510 threaded for 1/2-inch pipe-tap will be supplied if specified in place of No. P580 flange regularly furnished with thermometers on pages 4 and 5.



Wall Socket

For attaching thermometers to hollow walls a No. P520 Wall Socket (*see drawing*) will be supplied if specified, without additional cost. The dimension "A" should always be given when ordering.

Extra-Heavy Guard

Thermometers listed on pages 4 and 5 are furnished regularly with bulbs protected by a slotted tubular guard. When the installation is such as to expose the bulb to more than ordinary danger of mechanical injury we recommend the additional protection of a *Tycos* Extra-Heavy Guard. This guard can be bolted to the inside wall of the apparatus, or can be screwed to the end of the wall socket when one is used. If the guard is ordered, always specify length of stem projecting inside of apparatus, (*dimension "B" on above drawing*).



No. P632A

No. P632A *Tycos* Extra-Heavy Guard..... EACH \$9.75

For stem projecting not less than six inches nor more than 12 inches.

Call Part 500—Page 6



Tycos Factory and General-Testing Thermometers



Copper-Case and Tin-Case Thermometers

USE	CASE	APPROXIMATE RANGE	DIVISIONS	LENGTH	NO.	COMPLETE PER DOZ.	EXTRA TUBE AND SCALE ONLY NO. PER DOZ.
General Testing	Japanned Tin	minus 30° to +120° F.	2°	12"	5400	\$26.00	5400A... \$21.00
		0° to 220° F.	2°	12"	5401	27.00	5401A... 22.00
		50° to 350° F.	2°	12"	5402	28.00	5402A... 23.00
	Copper	minus 30° to +120° F.	2°	12"	5400P	31.00	5400PA... 21.00
		0° to 220° F.	2°	12"	5401P	32.00	5401PA... 22.00
		50° to 350° F.	2°	12"	5402P	33.00	5402PA... 23.00

NOTE—Nos. 5400 to 5402P inclusive have mercury-filled tubes.

NOTE—The scale range of Nos. 5400 to 5402P inclusive will be furnished with minimum variations practicable, and as a rule will include the maximum figures given. If other than stock ranges are called for the thermometer must be considered special and charged for accordingly.

Auto-Circulation Thermometers

USE	CASE	APPROXIMATE RANGE	DIVISIONS	LENGTH	NO.	EACH
Factory Temperatures	Nickel-Plated Iron	0° to 120° F.	2°	9"	1103S	\$4.55
	Bronze	0° to 120° F.	2°	9"	1104S	6.15

Maximum-Registering Thermometers

USE	APPROXIMATE RANGE	DIVISIONS	LENGTH	SPECIAL FEATURES	COMPLETE NO. EACH	TUBE ONLY NO. EACH
General Testing	0° to 220° F.	2°	5 1/2"	In Pocket Case	1486... \$5.00	1486A... \$4.75
	100° to 300° F.	2°	5 1/2"	Brass Armor	1491... 5.00	1491A... 4.75
	200° to 400° F.	2°	5 1/2"	Brass Armor	1495... 5.00	1495A... 4.75
	0° to 220° F.	2°	5 1/2"	Brass Armor	1496... 5.00	1496A... 4.75

NOTE—Maximum Registering Thermometers will be furnished with equivalent range in Centigrade, if specified, without extra charge.

Six's Maximum-and-Minimum Registering Thermometers

USE	CASE	APPROXIMATE RANGE	DIVISIONS	LENGTH	NO.	PER DOZ.
Factory or Outdoor Temperatures	Polished Brass	minus 10° to 40° to +120° F.	2°	10"	5452	\$74.00
	Polished Brass	20° to 220° F.	2°	10"	5466	96.00



Tycos Draft Gauges

For Flues, Furnaces, etc.

Designed for measuring the draft at the furnace front, under the grate, or at the uptake. Can be used to measure gas pressures up to six inches of water. Made in two different types, and in 4-inch and 6-inch sizes, as follows:—

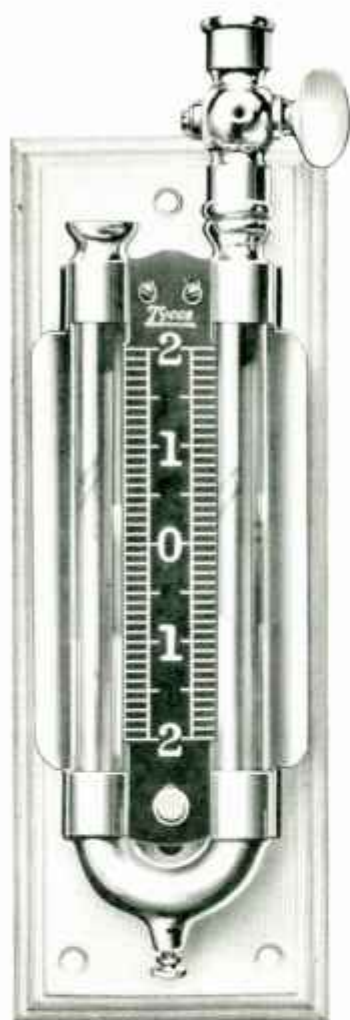
Portable, or Pocket, Type

For test purposes. Fitted with hose connecting-piece.

Panel Type

For permanent installation. Mounted on metal panel and fitted with three-way cock, which allows gauge to be open to draft and closed to atmosphere, or closed to draft and open to atmosphere.

The glass tubes are packed perfectly tight, without cement, and are removed easily. A red stripe in the tube gives a magnified red column, which is easy to read. The armor protects the tubes from mechanical injury. The water level can be adjusted easily by means of a pin-valve located in the U connecting-piece.



No. 1001
Metal-Panel Gauge



No. 1000
Pocket Gauge

NO.		EACH
1000	Tycos Pocket Draft Gauge	\$11.75
	Armored. Has 4-inch scale.	
1003	Same as No. 1000, except 6-inch scale	12.50
1002	Tycos Metal-Panel Draft Gauge . . .	15.50
	Without armor. Has 4-inch scale.	
1005	Same as No. 1002, except 6-inch scale	16.25
1001	Tycos Metal-Panel Draft Gauge . . .	16.50
	With armor. Has 4-inch scale.	
1004	Same as No. 1001, except 6-inch scale	17.25

Tycos Jeweled Anemometers

Biram's Pattern—Zero-Setting

For registering the velocity of currents of air in tunnels, furnace flues, etc., by means of a light fan the revolutions of which are recorded on dials in the center of the instrument. As supplied to the U. S. Department of Agriculture, U. S. Bureau of Mines, U. S. Naval Academy, etc.

NO.		EACH
3132	Tycos Biram's Anemometer	\$45.00

Jeweled movement, fitted with patented, instantaneous zero-setting device, 4-inch diameter; four dials reading to 100,000 feet; weight sixteen ounces. Each instrument is tested and a chart of corrections furnished for velocities from from 100 to 3,000 feet per minute. Not guaranteed to give correct results if used in temperatures exceeding 300° F.

Sole-Leather Carrying Case for No. 3132 . . . 6.50



No. 3132

Tycos and Taylor Recording and Index Thermometers

(How to Select the Type Best Suited to Your Requirements)

(Listed on pages 21 and 22)

Mercury-Actuated Tycos Capillary Recording, and Tycos and Taylor Index Thermometers: Recommended for applications where the length of flexible connecting tubing does not exceed 25 feet, where bulbs of relatively small dimensions are required and where accurate readings across practically the entire width of the chart are essential. They can be used for temperature ranges within the limits of 40° below zero and 1000° above zero, Fahr., covered by charts listed (pages 21 and 22). The copper-plated then nickel-plated steel bulbs, flexible connecting tubing and spiral springs, are welded together to constitute the tube system, which is filled solid with mercury under relatively high pressure. Since mercury has a uniform coefficient of expansion the degree divisions of the charts are of uniform width.

Vapor-Tension-Actuated Tycos and Taylor Capillary Recording and Index Thermometers: Recommended for applications where the working temperature range is within comparatively restricted limits and where bulbs of small dimensions are desirable. Can be supplied as standard with any length of connecting tubing to 75 feet. In most cases longer tubing is practicable, but complete details should be given when ordering. Can be used for any temperature range selected within the limits of 30° and 550° Fahr., covered by charts listed (page 25). They are constructed with steel, copper, monel or stainless-iron bulbs, copper flexible tubing with bronze protecting armor and spiral springs, brazed together to constitute the tube system, which is partially filled with a volatile liquid. The pressure in the tube system is created by vaporization of the liquid as heat is applied to the bulb, and since the temperature is not directly proportional to the pressure, obviously the degree graduations on the charts are not of uniform width.

Gas-Actuated Tycos and Taylor Capillary Recording and Index Thermometers: Recommended for applications where the length of connecting tubing exceeds 25 feet, where space is sufficient to accommodate bulbs of relatively large proportions (size varies from 11 inches by $\frac{3}{4}$ of an inch for 25 feet of connecting tubing to 36 inches by $\frac{3}{4}$ of an inch for 70 feet of connecting tubing, and special sizes will be furnished when conditions require them) and where accurate readings across practically the complete chart selected are essential. Can be used for temperature ranges within the limits of 40° below zero and 1000° above zero, Fahr., covered by charts listed (pages 21 and 24). The steel or copper bulbs, copper capillary connecting tubing, bronze protecting armor and spiral springs brazed or welded together constitute the tube system, which is filled with inert gas under pressure. The degree divisions on the charts are of uniform width.

Tycos Capillary Recording Thermometers

CASE: Dust-and-moisture-proof, pressed-metal, finished dull instrument-black, or white-enamel if so specified.

CHARTS: 9 $\frac{1}{2}$ inches in diameter, Temperature scale 3 $\frac{1}{2}$ inches wide.

TYPES: 1—Mercury-Actuated, 2—Vapor-Tension-Actuated, 3—Gas-Actuated.

Taylor Capillary Recording Thermometers

CASE: Dust-and-moisture-proof, cast-iron, finished black enamel; round; 10 $\frac{1}{2}$ inches in diameter.

CHARTS: 8 inches in diameter, Temperature scale 2 $\frac{1}{2}$ inches wide.

TYPES: 1—Vapor-Tension-Actuated, 2—Gas-Actuated.

Tycos Capillary Index Thermometers

CASE: Dust-and-moisture-proof, pressed-metal, 8 $\frac{1}{2}$ inches in diameter, round; finished dull instrument-black.

DIAL: Black-oxidized with silver-deposited figures and graduations; 7 inches in diameter.

TYPES: 1—Mercury-Actuated, 2—Vapor-Tension-Actuated, 3—Gas-Actuated.

Taylor Capillary Index Thermometers

CASE: Dust-and-moisture-proof, round-pressed metal, finished dull instrument-black; 5 inches in diameter.

DIAL: Black-oxidized with silver-deposited figures and graduations; 5 inches in diameter.

TYPES: 1—Mercury-Actuated, 2—Vapor-Tension-Actuated, 3—Gas-Actuated.

Tycos Self-Contained Recording Thermometers

(Page 30)

CASE: Round; pressed metal; finished white-enamel, with polished nickel-plated front ring; 11 inches in diameter.

CHARTS: 9 $\frac{1}{2}$ inches in diameter, Temperature scale 3 $\frac{1}{2}$ inches wide.

Tycos Suspended-Pen Capillary Recording Thermometers

(Page 16)

Both Tycos and Taylor Capillary Recording Thermometers will be furnished, if specified, with the pen suspended.

Catalog Part 500—Page 9



Construction and Operation of Tycoos Recording Thermometers

(Showing Revolving Chart Disc; Both the Chart Disc and Paper Chart Revolve)

Patented May 6, 1913; June 3, 1913

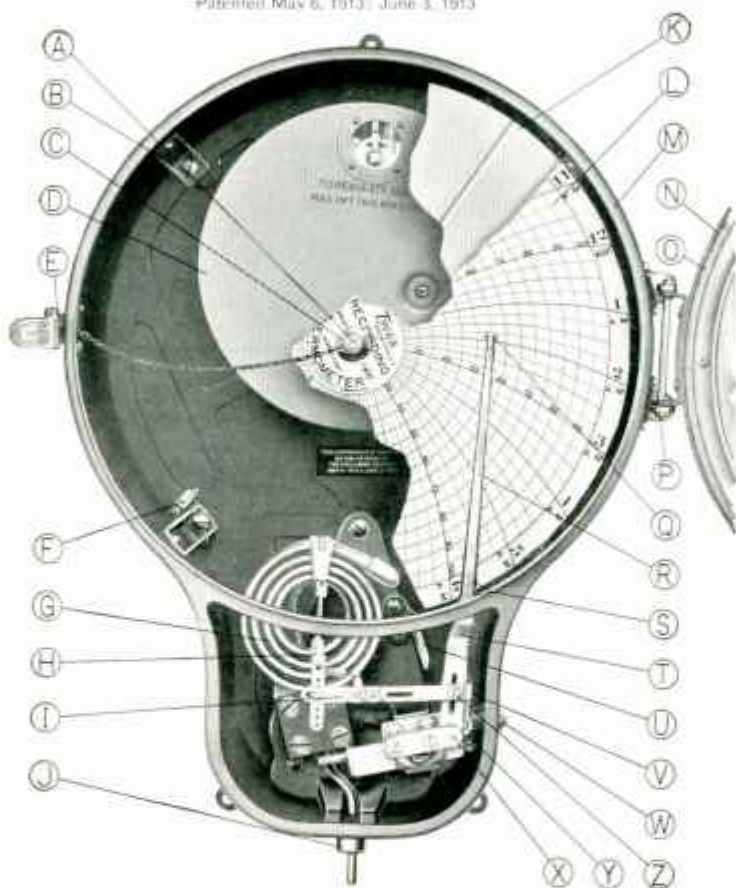


Illustration is of a Mercury-Actuated Tycoos Recording Thermometer (page 14) but applies equally to vapor-tension-actuated and gas-actuated instruments (page 15), except that the form of the coil is somewhat different, resulting in other minor changes in the details of the mechanism, but in no way affecting the general construction or principal of operation.

Operation: The movement of the coil "G," which opens or closes as the temperature at the bulb increases or decreases is transmitted to the pen-arm "R" and the pen "Q" is thus moved radially over the paper chart "L," which is revolved by the clock-movement "D." The link "H," is a bi-metallic strip which automatically compensates the mercury-actuated instrument against erroneous indications due to fluctuating temperature around the case.

This simple arrangement is a distinct improvement in the following respects over carrying the pen-arm directly on the coil:—

- 1st—The arm is always pivoted at the correct center "X" relative to the radial lines on the chart, thus insuring correct time reading.
- 2nd—The pen-point "Q" always has the same bearing-pressure on the chart, just sufficient to make the ink flow freely.
- 3rd—The pen is affected much less by vibration when the pen-arm is pivoted on a rigid support.

There is practically no friction in the movement, but even if it were increased many times it would have no effect on the accuracy of the indication, because, when the fluid in the bulb is heated the coil "G" must open, and when the bulb cools, the coil, being under a high tension, closes instantly. The power developed by the coil is greatly in excess of that required to actuate the pen "Q" against any small friction that may exist. A stop "U" prevents the pen from operating within the inner circle of the chart.

NOTE—Revolving chart disc (above) will be supplied unless fixed chart disc (page 12) is specified.

Continued Part 500—Page 10



Construction and Operation of Tyccs Recording Thermometers

(Continued from page 10)

Sealed Pen-Arm Adjustment: To adjust for slight errors, first cut and withdraw wire, then remove plug "W" and insert key, which then can be turned to the right or left, thereby moving the pen. This sealed wire is attached in our plant, after the final inspection of the instrument. Additional seals are furnished, for resealing.

Tamper-Proof: Tyccs Recording Thermometers are "tamper-proof" in that the seals safeguard the instrument against both malicious and unintentional interference with the mechanism.

Charts Easily Changed: To change the chart on instruments with revolving chart-disc the knurled-nut "C" is unscrewed, the pen-arm "R" is pulled slightly forward and the chart-disc "K" is lifted from the arbor "A." The used chart then can be removed easily and a new one attached. The chart is self-centering and cannot possibly get out of alignment. *(See page 12 for fixed chart-disc.)*

Pen-Arm: Constructed in two parts, "R" and "T," so that the upper part "R," if it becomes corroded can be replaced by loosening two small screws "S" without dismounting the case or affecting the accuracy of the instrument.

Clock: The clock "D" is designed especially for use with Tyccs Recording Thermometers and is much better adapted than a movement selected from the open market and altered slightly to meet the requirements.

Case: Made of pressed metal, finished dull instrument-black, or white enamel if so specified, with polished nickel-plated trimmings. Dust-and-moisture proof, to protect the working mechanism against wear and corrosion.

The front section "M" is drawn down by four screws "B" against a heavy felt packing ring imbedded in the cast-iron back. The door is mounted on a spring hinge, so that when closed and fastened the felt packing is compressed tightly against the edge "L." This construction eliminates the time-consuming task of fastening four or more wing-nuts, which commonly are used on moisture-proof cases. This feature of quick opening and closing becomes an important factor when a number of charts are to be changed each day. A stuffing box "J" is provided where the connecting tubing enters the bottom of the case.

Calibration: At times a recording thermometer may get slightly out of calibration, due to long-continued use or unusual strains. This means that the instrument does not record correct temperatures and the error is not constant at all points on the chart.

The Tyccs Recording Thermometer has a micrometer screw "Y," which permits moving the slide-plate "V" up or down in the slot of the pen-arm "T," thus furnishing a means of calibrating the instrument very easily. When the slide-plate "V" has been moved to the correct position, at which time the pen will record correctly at each point across the chart, the screw "Z" is tightened, thus insuring slide-plate "V" maintaining a fixed position.

This feature appeals to users of large quantities of recording thermometers and particularly to those having central testing laboratories, because this construction permits keeping instruments in perfect condition without the necessity of returning them to the manufacturer.

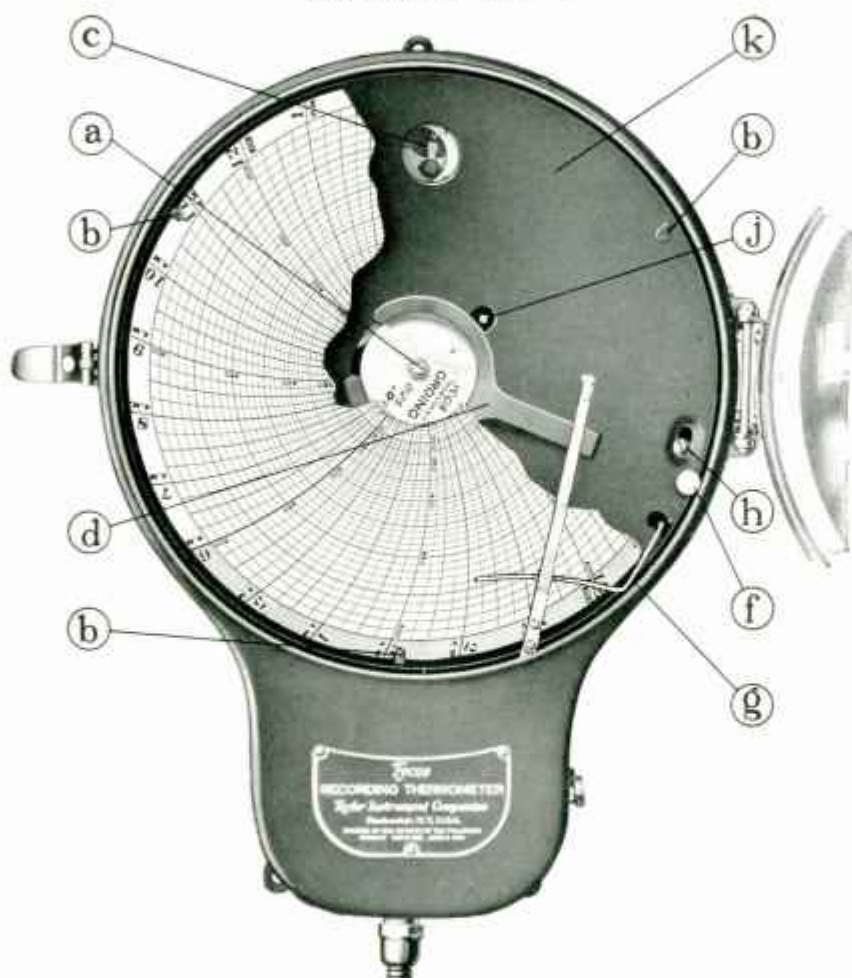


Construction and Operation of Tyccs Recording Thermometers

(Continued from page 11)

(Showing Fixed Chart Disc; Chart Disc Remains Stationary, the Paper Chart Revolves)

Patented May 6, 1913; June 3, 1913



Tyccs Chart Ejector: A splendid feature not found on any other make of recording thermometer. A convenience and real time saver when many charts have to be changed. Chart-disc "k" is fixed, and fastened by three screws "h." Central chart-arbor "a" is the same diameter as the center-hole in the chart.

To Remove Chart: Press push-button "f," when pen-lifter "g" automatically lifts the pen off the chart and simultaneously raises the forked ejector "d," which lifts the chart from the clips "b" "b" "b" and leaves the recorder free for clock winding and the insertion of a new chart.

To Insert Chart: Place chart in position, with arbor "a" through the center-hole and slip edge of chart under clips "b" "b" "b."

The removal and replacing of knurled nut, or other attaching device at the center, is done away with.

Clock-starting and adjustment stem at "c;" clock-winding at "j." Mechanism in other respects is similar to that described on pages 10 and 11.

NOTE:—Revolving chart disc (page 10) will be supplied, unless fixed chart disc (above) is specified. If fixed chart disc is desired add letter "F" to catalog number.

The Power Plant of Tyco's Recording and Index Thermometers

(Mercury-Actuated)

Tube System: (Illustration actual size).
Consists of Bulb "F",
Tubing "B" and Coil
"G"

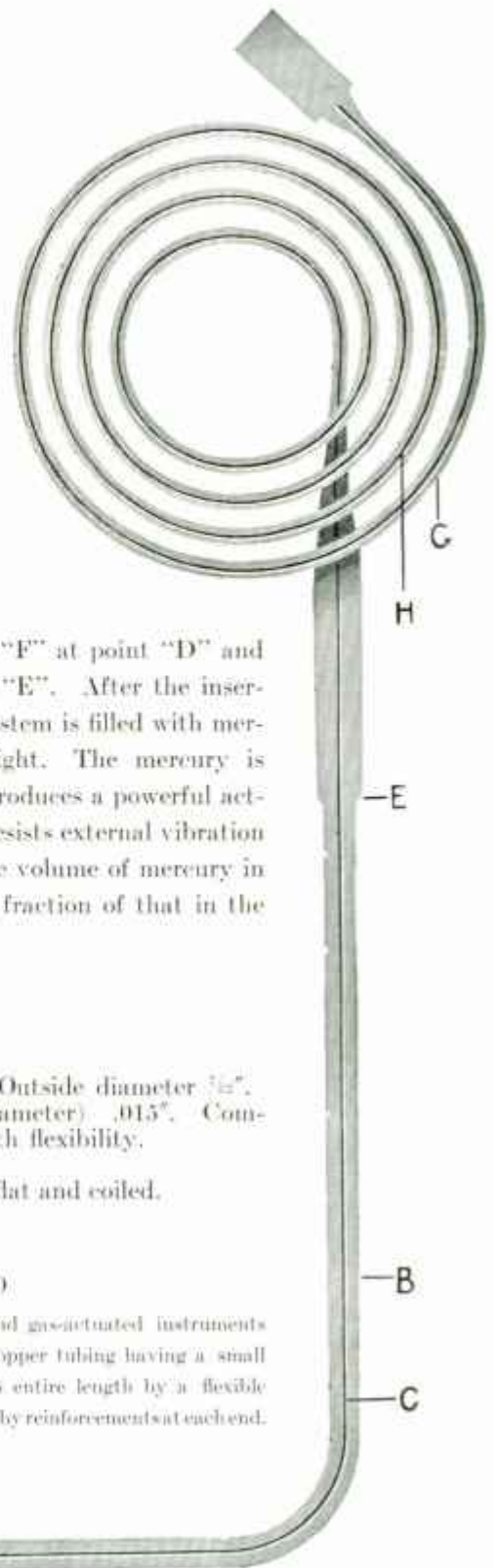
Assembly: Tubing "B" is welded to bulb "F" at point "D" and brazed to coil "G" at point "E". After the insertion of steel wire "C", the system is filled with mercury and the coil sealed tight. The mercury is under high pressure. This produces a powerful actuating system and one that resists external vibration to a remarkable degree. The volume of mercury in coil and tube is but a small fraction of that in the bulb.

Material:

}	Bulb:	Steel.
	Tubing:	Cold-drawn steel. Outside diameter $\frac{3}{16}$ ". Bore (inside diameter) .015". Combines strength with flexibility.
	Coil:	Steel tubing, rolled flat and coiled.

Operation: Explained in detail on page 10.

Note:—For vapor-tension-actuated and gas-actuated instruments the tube "B" is made of $\frac{1}{2}$ -inch copper tubing having a small bore and heavy wall, protected its entire length by a flexible bronze armor and further strengthened by reinforcements at each end. (see illustration on page 15).



Tyco's Mercury-Actuated Recording Thermometers

For Drying Rooms, Air Ducts, Enameling and Japanning Ovens, Core Ovens, Tempering Ovens, Pulp Driers, etc.



No. 8001
(Listed on page 21)

Applications: For conditions under which mercury-actuated instruments operate to the best advantage (see page 9).

Case: Pressed-metal, moisture-and-dust-proof.

Size: 14½" high, 11" in diameter and 4¼" deep.

Finish: Dull instrument-black with polished-nickel trimmings.

Charts: 9½" in diameter; temperature scale 3½" wide; (pages 23 and 24).

Tubing: Cold drawn steel, copper plated then nickel plated; has remarkable strength and flexibility; not recommended in lengths longer than 25 feet.

Fittings: Various types are listed with the instruments (pages 21 and 22).

Operation and Construction: (pages 10 to 13).

Bulbs: Steel, copper-plated then nickel-plated. Length depends on range (see page 26).

Tyccs Vapor-Tension-Actuated and Gas-Actuated Recording Thermometers

For Use on Drying Rooms, Air Ducts, Dry Kilns, Vacuum Driers, Dry-Heat Vulcanizers, Pulp Driers, etc.



No. 11004
(Listed on page 21)

Applications: If in doubt as to whether the vapor-tension-actuated or gas-actuated instruments will best meet your requirements (see page 9).

Case: Pressed-metal, moisture-and-dust-proof.

Size: 14½" high, 11" in diameter, and 4¼" deep.

Finish: Dull instrument-black with polished-nickel trimming.

Charts: 9½" in diameter, temperature scale 3½" wide; charts for vapor-tension-actuated instruments (page 25), gas-actuated instruments (pages 23 and 25).

Tubing: Heavy-walled copper tubing approximately ⅛" outside diameter, protected by flexible bronze or steel armor. Will be supplied in any length up to 75 feet, and even longer tubing usually is practicable.

Bulbs: Vapor-tension-actuated of copper, monel, steel or stainless-iron; gas-actuated of copper or steel, length of bulb depends on length of connecting tubing (see page 26).

Operation and Construction: (see pages 10 to 15).

Fittings: Various types are listed with instruments (pages 21 and 22).

Catalog Part 800—Page 15

Suspended-Pen *Tycos* Recording Thermometers



No. 8001 with Suspended-Pen

This is the same instrument as No. 8001 (illustrated on page 14), except that the pen is suspended.

Any *Tycos* or *Taylor* Recording Thermometer will be furnished in this form if specified, without extra charge.

If desired, signify by adding letter "S" to catalog number.

Taylor Vapor-Tension-Actuated and Gas-Actuated Recording Thermometers

For Drying Rooms, Air-Ducts, Dry Kilns, Vacuum Driers, Dry-Heat Vulcanizers, Pulp Driers, etc.



No. 12004
Listed on page 21

Applications: The Taylor Recording Thermometer has been designed for use on gaugeboards, or wherever a round-case instrument is preferred. If in doubt as to whether vapor-tension-actuated or gas-actuated instruments will best meet your requirements (see page 9).

Case and Front Ring: Cast-iron and dust-proof.

Size: Diameter 10½ inches.

Finish: Case is black-enameled. Ring is black-enameled or nickel-plated.

Chart Disc: Stationary and sealed.

Charts: Diameter 8 inches. Temperature scale 2½ inches wide (page 27).

Chart Ejector: A splendid feature not found on any other make of recorder. A real time saver and convenience when many charts have to be changed.

Pen Lifter: Works in conjunction with the chart ejector. A push of a button raises the chart and pen from the disc, simultaneously.

Clock: Specially designed for this recorder. Has friction-driven arbor, to carry and revolve chart. Can be wound, started, or adjusted without removing chart disc.

Pen Arm: Pivoted, same as in Tyccs Recorder.

Pen Adjustment: Protected against tampering, by a seal.

Tubing: Heavy-walled copper tubing, approximately ¼-inch outside diameter. Protected by flexible spiral armor of bronze or steel. Will be supplied as specified in lengths up to 75 feet, and even longer tubing usually is practicable.

Bulbs: Vapor-tension-actuated of copper, monel, steel or stainless-iron; gas-actuated of copper or steel.

Connections and Fittings: (See pages 21 and 22).

Tycoos Mercury-Actuated Index Thermometers

For Drying Rooms, Air Ducts, Enameling and Japanning Ovens,
Core Ovens, Tempering Ovens, Pulp Driers, etc.



No. 9001

(Listed on page 21)

**A Thermometer that Looks like a Steam Gauge and is as Easy to Read.
As Nearly Indestructible as an Instrument can be made.**

Applications: For conditions under which mercury-actuated instruments operate to the best advantage (see page 9).

Actuating Medium: Mercury under pressure (see page 13).

Case: One piece of pressed metal, mounted on a rigid cast base.

Size: Diameter $8\frac{1}{2}$ inches.

Finish: Dull instrument-black.

Dial: Black, with silver-deposited figures and graduations.

Temperature Scale: Dials for mercury-actuated instruments can be graduated for practically any of the temperature ranges given in list of charts (pages 23 and 24). We recommend, however, ordering instruments with standard stock ranges, as there must necessarily be a delay in delivery if a special dial is ordered. Dials are stocked in the following ranges:—minus 40° to 120°F. or C., in 1° divisions; 0° to 160°F. or C., in 1° divisions; 0° to 240°F. or C., in 2° divisions; 0° to 500°F. or C., in 5° divisions; 0° to 800°F., in 5° divisions.

Tubing: Cold-drawn steel, copper-plated then nickel-plated, has remarkable strength and ample flexibility. Not recommended longer than 25 feet.

Bulb: Steel, copper-plated then nickel-plated.

Connections and Fittings: (See pages 21 and 22).



Tycos Vapor-Tension-Actuated Recording and Index Thermometers

For Drying Rooms, Air Ducts, Dry Kilns, Vacuum Driers, Dry-Heat Vulcanizers, Pulp Driers, etc.



No. 11104
Listed on page 21

Applications: If in doubt as to whether the vapor-tension-actuated or gas-actuated instruments will best meet your requirements (see page 9).

Case: One piece pressed metal, mounted on a rigid cast base.

Size: Diameter $8\frac{1}{2}$ inches.

Finish: Dull instrument-black.

Dial: Black, with silver-deposited figures and graduations.

Temperature Scale: Dials for vapor-tension-actuated instruments can be graduated for practically any of the temperature ranges given in the list of charts (page 25), within limits of 30° and 550° F. Dials for gas-actuated instruments have uniform graduations and can be furnished for any temperature range covered by charts listed (pages 23 and 24). We recommend, however, ordering gas-actuated instruments with one of the standard stock ranges, as there must necessarily be a delay in delivery where a special dial is called for. Dials are stocked in the following ranges:—minus 40° to plus 120° F. or C., in 1° divisions; 0° to 160° F. or C., in 1° divisions; 0° to 240° F. or C. in 2° divisions; 0° to 500° F. or C., in 5° divisions; 0° to 800° F., in 5° divisions.

Tubing: Heavy-walled copper tubing, approximately $\frac{1}{8}$ -inch outside diameter. Protected by flexible spiral armor of bronze or steel. Will be supplied up to 75 feet, and even longer tubing usually is practicable.

Bulbs: Vapor-tension-actuated of copper, monel, steel, or stainless-iron; gas-actuated of copper or steel; bulb length depending on length of connecting tubing (see page 26).

Connections and Fittings: (See pages 21 and 22).

Directions for Ordering Recording and Index Thermometers

If the instrument ordered (*pages 21 and 22*) is to give satisfactory results the bulb must be of suitable construction, and so placed that it will receive proper heat contact, since the pen can record only the temperature of the medium which comes in actual contact with the bulb.

The materials used in *Tycoos* bulb-connections are selected to withstand the action of the medium with which they will come in contact. The threaded forms are built to stand heavy wrenching and to insure tight joints under high pressure. The stems can be of any length required to locate the bulb in a proper position.

Six feet of connecting tubing is included with each instrument; longer tubing must be ordered as an extra. Recording thermometers are furnished with 100 charts as selected (*pages 23 to 25, and 27*), supply of ink, and lock.

We do not in general recommend mercury-actuated instruments with flexible capillary connecting tubing longer than 25 feet. If longer lengths are required, give exact details of the installation, that we may submit recommendations. Standard vapor-tension-actuated and gas-actuated instruments are made with tubing of any length specified up to 75 feet over-all. Greater lengths often are practicable, but when specified, full details of the application should be furnished.

When possible, the recorder case should be attached to a wall or support near the point where the bulb is connected with the apparatus; but, on account of danger of injury to the clock, the case must be protected against radiated heat, or contact with heated surfaces.

When ordering, the following information must be given, to insure the filling of order promptly and satisfactorily:—

- 1—Catalog number.
- 2—Length of flexible capillary connecting tubing.
- 3—Distance that bulb should be inserted into the apparatus, in order to locate it at the point where it is desired to measure the temperature.
- 4—Number of chart (*pages 23 to 25, and 27*) for recording thermometers; total temperature scale for index thermometers (*pages 18 and 19*).
- 5—Working temperature range; i.e., the minimum and maximum operating temperatures. In selecting the temperature scale it is essential to allow a factor of safety above the maximum temperature.
- 6—Medium the temperature of which is to be measured; i.e., liquid, air, gas, vapor, etc. Also state whether this medium will have a corrosive action on steel; if so, what metal will most satisfactorily resist corrosion.
- 7—Process and name of apparatus in connection with which the instrument is to be used.
- 8—On vapor-tension instruments, give the vertical distance when installed, between the case and bulb, stating whether the case will be above or below the bulb.
- 9—*Tycoos* Recording Thermometers are furnished regularly with revolving chart-disk (*page 10*). If they are wanted with fixed chart disk (*page 12*) add letter "F" to catalog number.
- 10—*Tycoos* Recording Thermometers are supplied regularly with upright pen-arm (*page 14*). If suspended pen-arm (*page 16*) is desired signify by adding letter "S" to catalog number.
- 11—In ordering parts for *Tycoos* Instruments listed in this catalog, always refer to the serial number of the instrument, which number will be found in plain sight on the dial, or on the name plate attached to the instrument case.





Recording and Index Thermometers

(“Directions for Ordering,” page 20)

Plain Bulb and Clamp Flange



With six feet of plated-steel flexible tubing; plated-steel rigid bulb; (for length see page 26) 3" split clamp flange; for recorders, 100 charts as selected (pages 24 and 25); ink; lock, etc.

With six feet of bronze-armored flexible copper tubing; rigid copper, monel, steel or stainless-iron bulb; 3" split clamp flange; for recorders, 100 charts as selected (pages 24 and 25); ink; lock, etc.

With six feet of bronze-armored flexible copper tubing; rigid copper or steel bulb (for length see page 26); 3" split clamp flange; for recorders, 100 charts as selected (pages 24 and 25); ink; lock, etc.

Used with any of the three types of Recording or Index Thermometers, for application to enclosed spaces not under pressure or vacuum.

A 3" Split Clamp Flange is furnished, for attaching connecting tubing to apparatus.

The length of connecting tubing that will be immersed with the bulb should always be given, so that the instrument can be calibrated for the immersion specified.

Mercury-Actuated Instruments

NO.		EACH	
		TEMPERATURE C.P. TO 300°F.	TEMPERATURE C.P. TO 1000°F.
8001	<i>Tecoa</i> Recording Thermometer (illustrated page 14); 9 $\frac{1}{2}$ " chart	\$105.00	\$117.50
8061	<i>Tecoa</i> Bi-Record Recording Thermometer, 9 $\frac{1}{2}$ " chart	157.50	176.25
9001	<i>Tecoa</i> Index Thermometer, 7" dial (illustrated page 18)	84.00	96.50
10401	<i>Tinker</i> Index Thermometer, 3" dial	56.00	68.50

Vapor-Tension-Actuated Instruments

NO.		EACH	
		TEMPERATURE C.P. TO 300°F.	TEMPERATURE C.P. TO 500°F.
11001	<i>Tecoa</i> Recording Thermometer, 9 $\frac{1}{2}$ " chart	\$ 92.25	\$138.50
11061	<i>Tecoa</i> Bi-Record Recording Thermometer, 9 $\frac{1}{2}$ " chart		138.50
11101	<i>Tecoa</i> Index Thermometer, 7" dial		71.25
12001	<i>Tinker</i> Recording Thermometer, 8" chart		84.00
12061	<i>Tinker</i> Bi-Record Recording Thermometer, 8" chart		126.00
11401	<i>Tinker</i> Index Thermometer, 3" dial		42.00

Gas-Actuated Instruments

NO.		EACH	
		TEMPERATURE C.P. TO 300°F.	TEMPERATURE C.P. TO 1000°F.
13001	<i>Tecoa</i> Recording Thermometer, 9 $\frac{1}{2}$ " chart	\$ 92.25	\$104.75
13061	<i>Tecoa</i> Bi-Record Recording Thermometer, 9 $\frac{1}{2}$ " chart	138.50	157.25
13101	<i>Tecoa</i> Index Thermometer, 7" dial	71.25	83.75
12001G	<i>Tinker</i> Recording Thermometer, 8" chart	84.00	96.50
12061G	<i>Tinker</i> Bi-Record Recording Thermometer, 8" chart	126.00	144.75
13401	<i>Tinker</i> Index Thermometer, 3" dial	42.00	51.50

Union Connection



With six feet of plated-steel flexible tubing; plated-steel rigid bulb (for length see page 26); $\frac{3}{4}$ " pipe-threaded hub; for recorders, 100 charts as selected (pages 24 and 25); ink; lock, etc.

Used with any of the three types of Recording or Index Thermometers, for applications where a pressure-tight joint is required and the heat contact is good.

Mercury-Actuated Instruments

NO.		EACH	
		TEMPERATURE C.P. TO 300°F.	TEMPERATURE C.P. TO 1000°F.
8001	<i>Tecoa</i> Recording Thermometer, 9 $\frac{1}{2}$ " chart	\$110.25	\$122.75
8061	<i>Tecoa</i> Bi-Record Recording Thermometer, 9 $\frac{1}{2}$ " chart	165.75	184.50
9001	<i>Tecoa</i> Index Thermometer, 7" dial	89.25	101.75
10401	<i>Tinker</i> Index Thermometer, 3" dial	61.25	73.75

NOTE—3" bronze flange will be furnished in place of hub, if specified, without extra charge.

Vapor-Tension-Actuated Instruments

NO.		EACH	
		TEMPERATURE C.P. TO 300°F.	TEMPERATURE C.P. TO 500°F.
11001	<i>Tecoa</i> Recording Thermometer (illustrated page 15); 9 $\frac{1}{2}$ " chart	\$ 97.50	\$146.50
11061	<i>Tecoa</i> Bi-Record Recording Thermometer, 9 $\frac{1}{2}$ " chart		146.50
11101	<i>Tecoa</i> Index Thermometer, 7" dial (page 19)		76.50
12001	<i>Tinker</i> Recording Thermometer (illustrated page 17); 8" chart		89.25
12061	<i>Tinker</i> Bi-Record Recording Thermometer, 8" chart		133.75
11401	<i>Tinker</i> Index Thermometer, 3" dial		47.25

NOTE—3" bronze flange will be furnished in place of hub, if specified, without extra charge.

EXTRA—For each foot or fraction of a foot not including bulb of rigid extension stem. \$ 3.15

Gas-Actuated Instruments

NO.		EACH	
		TEMPERATURE C.P. TO 300°F.	TEMPERATURE C.P. TO 1000°F.
13001	<i>Tecoa</i> Recording Thermometer, 9 $\frac{1}{2}$ " chart	\$ 97.50	\$110.00
13061	<i>Tecoa</i> Bi-Record Recording Thermometer, 9 $\frac{1}{2}$ " chart	146.50	165.25
13101	<i>Tecoa</i> Index Thermometer, 7" dial	76.50	89.00
12001G	<i>Tinker</i> Recording Thermometer, 8" chart	89.25	101.75
12961G	<i>Tinker</i> Bi-Record Recording Thermometer, 8" chart	133.75	152.50
13401	<i>Tinker</i> Index Thermometer, 3" dial	47.25	59.75

NOTE—3-inch bronze flange will be furnished, if specified, without extra charge, instead of $\frac{3}{4}$ -inch pipe-threaded hub.

EXTRA—For each foot or fraction of a foot, not including bulb, of rigid extension stem more than regularly furnished. \$ 3.15

With six feet of bronze-armored tubing and $\frac{3}{4}$ " pipe-threaded hub; bulb of copper or steel (for length see page 26); for recorders, 100 charts as selected (pages 24 and 25); ink; lock, etc.





Recording and Index Thermometers

("Directions for Ordering", page 20)

Capillary Bulb and Clamp Flange



With six feet of plated-steel flexible tubing; plated-steel capillary bulb about 20 feet long. (For actual length see page 20.) 3" split clamp flange; for recorders, 100 charts as selected (pages 24 and 25); ink; lock, etc.

Used with any of the three types of Recording or Index Thermometers, on enclosed spaces not under pressure or vacuum, where it is desirable to expose a large surface to the heat medium.

The bulb is approximately 20 feet long and very sensitive to slight and rapid changes of temperature.

Mercury-Actuated Instruments

NO.	Type	Description	EACH	
			TEMPERATURE RANGE (°C TO 300°F, °F TO 1000°F)	TEMPERATURE RANGE (°C TO 300°F, °F TO 1000°F)
8001C	Tycos	Recording Thermometer, 9½" chart	\$110.00	\$122.50
8061C	Tycos	Bi-Record Recording Thermometer, 9½" chart	165.00	183.75
9001C	Tycos	Index Thermometer, 7" dial	89.00	101.50
10101C	Ticker	Index Thermometer, 5" dial	61.00	73.50

NOTE—State location of clamp flange and length of connecting tubing that will be immersed with the bulb, so the instrument can be calibrated for the immersion specified.

Vapor-Tension-Actuated Instruments

NO.	Type	Description	EACH	
			TEMPERATURE RANGE (°C TO 320°F)	TEMPERATURE RANGE (°C TO 320°F)
11001C	Tycos	Recording Thermometer, 9½" chart	\$ 92.25	\$104.75
11061C	Tycos	Bi-Record Recording Thermometer, 9½" chart	138.50	158.50
11101C	Tycos	Index Thermometer, 7" dial	71.25	81.25
12001C	Ticker	Recording Thermometer, 8" chart	84.00	96.00
12061C	Ticker	Bi-Record Recording Thermometer, 8" chart	126.00	144.00
11101C	Ticker	Index Thermometer, 5" dial	42.00	49.00

With six feet of bronze-armored flexible copper tubing; flexible copper capillary bulb about 20 ft. long; 3" split clamp flange; for recorders, 100 charts as selected (Tycos page 25, Ticker page 27); ink; lock, etc.

Gas-Actuated Instruments

NO.	Type	Description	EACH	
			TEMPERATURE RANGE (°C TO 300°F, °F TO 1000°F)	TEMPERATURE RANGE (°C TO 300°F, °F TO 1000°F)
13001C	Tycos	Recording Thermometer, 9½" chart	\$ 92.25	\$104.75
13061C	Tycos	Bi-Record Recording Thermometer, 9½" chart	138.50	157.25
13101C	Tycos	Index Thermometer, 7" dial	71.25	83.75
12001CG	Ticker	Recording Thermometer, 8" chart	84.00	96.50
12061CG	Ticker	Bi-Record Recording Thermometer, 8" chart	126.00	144.75
13101C	Ticker	Index Thermometer, 5" dial	42.00	54.50

Rigid Extension-Stem and Adjustable Connection



No. P725A
3-Prong
Adjustable
Clamp
Hook



Showing No. P727 4-inch Adjustable Clamp Flange

With six feet of plated-steel flexible tubing; plated-steel rigid bulb; (for length see page 26) 12 inches including bulb of rigid extension-stem; No. P727 clamp flange; for recorders, 100 charts as selected (pages 24 and 25); ink; lock, etc.

For use with any of the three types of Recording or Index Thermometers, on tanks and enclosed spaces not under pressure, where the bulb must be supported rigidly at a point some distance inside the apparatus in order to give it proper heat contact.

Mercury-Actuated Instruments

NO.	Type	Description	EACH	
			TEMPERATURE RANGE (°C TO 300°F, °F TO 1000°F)	TEMPERATURE RANGE (°C TO 300°F, °F TO 1000°F)
8020	Tycos	Recording Thermometer, 9½" chart	\$110.25	\$122.75
8080	Tycos	Bi-Record Recording Thermometer, 9½" chart	165.75	184.50
9020	Tycos	Index Thermometer, 7" dial	89.25	101.75
10120	Ticker	Index Thermometer, 5" dial	61.25	73.75

Vapor-Tension-Actuated Instruments

NO.	Type	Description	EACH	
			TEMPERATURE RANGE (°C TO 320°F)	TEMPERATURE RANGE (°C TO 320°F)
11020	Tycos	Recording Thermometer, 9½" chart	\$ 97.50	\$110.00
11080	Tycos	Bi-Record Recording Thermometer, 9½" chart	146.50	166.50
11120	Tycos	Index Thermometer, 7" dial	76.50	86.50
12020	Ticker	Recording Thermometer, 8" chart	89.25	101.75
12080	Ticker	Bi-Record Recording Thermometer, 8" chart	133.75	153.75
11120	Ticker	Index Thermometer, 5" dial	47.25	57.25

Gas-Actuated Instruments

NO.	Type	Description	EACH	
			TEMPERATURE RANGE (°C TO 300°F, °F TO 1000°F)	TEMPERATURE RANGE (°C TO 300°F, °F TO 1000°F)
13020	Tycos	Recording Thermometer, 9½" chart	\$ 97.50	\$110.00
13080	Tycos	Bi-Record Recording Thermometer, 9½" chart	146.50	165.25
13120	Tycos	Index Thermometer, 7" dial	76.50	89.00
12020G	Ticker	Recording Thermometer, 8" chart	89.25	101.75
12080G	Ticker	Bi-Record Recording Thermometer, 8" chart	133.75	152.50
13120	Ticker	Index Thermometer, 5" dial	47.25	59.75

With six feet of bronze-armored flexible tubing; 12" rigid extension-stem, in addition to bulb (for length see page 26); No. P727 adjustable clamp flange; bulbs and stems of copper or steel; for recorders, 100 charts as selected (Tycos page 25 and 27, Ticker page 27); ink; lock, etc.

NOTE—Since bulb lengths of Gas-Actuated Recording and Index Thermometers vary with different lengths of tubing, this must be taken into consideration when determining the proper overall length of extension-stem for any application.

NOTE—No. P725A clamp hook, middle prong adjustable to wall thickness up to ½ of an inch, will be furnished in place of No. P727 clamp flange, if specified, without extra charge.

NOTE—When ordering state length of extension-stem, including bulb, in feet and inch or fraction of a foot of rigid extension-stem, more than 12 inches.

APPROXIMATE
WEIGHT
8 3 1/2



ULTIMATE
VIRTUAL MUSEUM



Charts for Tycoos Mercury-Actuated and Gas-Actuated Recording Thermometers

(Instruments listed on pages 21 and 22)

Charts for Tycoos Recording Thermometers are printed on high-grade paper, in a subdued shade of blue ink, contrasting strongly with the red record line



(Actual-size facsimile of section of 24-hour chart)

Charts with Maximum Temperature Less Than 800° Fahrenheit

NO.	TEMPERATURE RANGE	GRADUATIONS	BULB NO.	PERIOD OF REVOLUTION
104	20° to 230° F.	5°	2	24 hours
106	80° to 330° F.	5°	3	
107	200° to 700° F.	10°	5A	
108	100° to 500° F.	10°	4A	
110	minus 40° to +120° F.	2°	2	
112	0° to 300° F.	5°	4A	
116	200° to 800° F.	10°	6A	
120	60° to 220° F.	2°	2	
124	minus 20° to +140° F.	2°	2	
128	100° to 800° F.	10°	7A	
131	50° to 400° F.	5°	4A	
132	20° to 180° F.	2°	2	
142	30° to 250° F.	2°	2	
154	0° to 500° F.	10°	5A	
159	80° to 240° F.	2°	2	
162	minus 40° to +240° F.	5°	3	
164	0° to 800° F.	10°	8A	
167	0° to 325° F.	5°	4A	
170	110° to 310° F.	5°	2	
171	150° to 750° F.	5°	6A	
173	100° to 600° F.	5°	5A	
174	0° to 250° F.	5°	3	
200	0° to 110° C.	2°	2	
201	10° to 120° C.	2°	2	
210	80° to 250° C.	2°	4A	
211	20° to 170° C.	2°	3	
213	minus 20° to + 0° C.	2°	1	
219	30° to 150° C.	2°	3	
220	60° to 220° C.	2°	3	
221	minus 20° to +110° C.	2°	3	
223	10° to 200° C.	2°	4A	
225	30° to 250° C.	5°	4A	
227	0° to 200° C.	5°	4A	
228	0° to 150° C.	2°	3	
230	0° to 250° C.	5°	5A	
231	50° to 400° C.	5°	6A	
233	minus 40° to + 50° C.	2°	2	
239	minus 10° to + 90° C.	2°	2	
241	10° to 200° C.	2°	4A	
242	0° to 115° C.	1°	3	
245	20° to 100° C.	1°	1	
709	200° to 750° F.	10°	6A	72
711	70° to 230° F.	2°	2	12 hours
713	20° to 230° F.	5°	2	0

For more complete list of available standard charts write for Catalog Part 8000.

Catalog Part 800—Page 25





Charts for Tyco Mercury-Actuated and Gas-Actuated Recording Thermometers

(Instruments listed on pages 21 and 22)

Charts with Maximum Temperature Less Than 800° Fahr.—Continued

NO.	TEMPERATURE RANGE	GRADUATIONS	PERIOD OF REVOLUTION	BULB NO.
716	100° to 800°F	10°	12 hours	7A
719	50° to 350°F	5°	" "	4A
722	70° to 230°F	2°	1 hour	2
729	100° to 450°F	5°	12 hours	4A
750	0° to 150°C	2°	" "	3
751	20° to 150°C	2°	" "	3
752	minus 30° to +150°C	5°	6 hours	4A
753	100° to 300°C	2°	72 hours	4A
1001	30° to 230°F	5°	7 days	2
1002	minus 40° to +120°F	2°	" "	2
1004	100° to 500°F	10°	" "	4A
1007	200° to 700°F	10°	" "	5A
1010	200° to 800°F	10°	" "	6A
1012	50° to 800°F	10°	" "	8A
1014	60° to 200°F	2°	" "	1
1016	20° to 260°F	5°	" "	3
1201	10° to 120°C	2°	" "	2
1202	30° to 140°C	2°	" "	2
1203	minus 40° to +120°C	2°	" "	3
1211	0° to 90°R	2°	" "	2

Charts with Maximum Temperature Greater Than 800°, but not Exceeding 1000° Fahr.

NO.	TEMPERATURE RANGE	GRADUATIONS	PERIOD OF REVOLUTION	BULB NO.
109	200° to 1000°F	20°	24 hours	8A
125	80° to 1000°F	20°	" "	9A
208	100° to 500°C	10°	" "	7A
1013	200° to 1000°F	10°	7 days	8A
1210	50° to 400°C	5°	" "	7A

Reverse-Reading Charts

The following reverse charts are arranged with the minimum temperature at the outside, instead of at the center. They are a decided advantage where the recording thermometer is used for cold-storage or similar applications, as the record is traced on that part of the chart having the widest time intervals.

NO.	TEMPERATURE RANGE	GRADUATIONS	PERIOD OF REVOLUTION	BULB NO.
601	30° to 230°F	5°	24 hours	2
604	60° to 220°F	2°	" "	2
606	20° to 180°F	2°	" "	2
608	80° to 330°F	5°	" "	3
611	minus 20° to +140°F	2°	" "	2
614	minus 20° to +100°F	2°	" "	1
650	10° to 120°C	2°	" "	2
653	0° to 200°C	5°	" "	4A
655	minus 20° to +60°C	1°	" "	2
692	minus 30° to +30°C	2°	6 hours	2
1376	10° to 120°C	2°	7 days	2

For more complete list of available standard charts write for Catalog Part 8000.

Catalog Part 8000—Page 25





Charts for Tyccos Vapor-Tension-Actuated Recording Thermometers

(Instruments listed on pages 21 and 22)

These charts are printed on high-grade paper, in subdued shade of blue ink, contrasting strongly with the red record lines. The following are available from regular stock.

CHART NO.	TEMPERATURE RANGE	WORKING RANGE	PERIOD OF REVOLUTIONS	
2100	100° to 360° F	240° to 320° F	24 hours	
2102	80° to 310° F	240° to 290° F		
2103	80° to 200° F	130° to 190° F		
2106	80° to 330° F	210° to 310° F		
2107	70° to 140° F	100° to 135° F		
2109	80° to 170° F	110° to 160° F		
2110	180° to 250° F	190° to 225° F		
2112	80° to 300° F	180° to 280° F		
2115	200° to 360° F	250° to 340° F		
2116	50° to 170° F	80° to 160° F		
2118	80° to 250° F	140° to 240° F		
2120	80° to 220° F	130° to 210° F		
2123	250° to 450° F	350° to 425° F		
2124	40° to 120° F	50° to 110° F		
2125	200° to 500° F	350° to 475° F		
2126	20° to 220° F	110° to 210° F		
2128	70° to 200° F	100° to 190° F		
2130	200° to 550° F	400° to 525° F		
2131	200° to 400° F	275° to 380° F		
2132	40° to 100° F	45° to 95° F		
2133	150° to 270° F	190° to 260° F		
2138	80° to 230° F	120° to 210° F		
2139	40° to 80° F	50° to 75° F		
2204	90° to 180° C	120° to 170° C		
2205	80° to 120° C	90° to 115° C		
2206	60° to 175° C	100° to 165° C		
2207	80° to 200° C	130° to 190° C		
2208	100° to 250° C	170° to 240° C		
2209	20° to 160° C	80° to 150° C		
2210	0° to 60° C	15° to 55° C		
2211	100° to 300° C	150° to 290° C		
2214	0° to 80° C	40° to 70° C		
2215	0° to 100° C	50° to 90° C		
2219	minus 18° to plus 38° C	0° to 30° C		
2300	200° to 360° F	250° to 340° F	12	
2301	80° to 300° F	180° to 280° F	6	
2302	80° to 310° F	210° to 300° F	6	
2303	80° to 250° F	150° to 240° F	6	
2304	150° to 270° F	190° to 260° F	12	
2305	180° to 230° F	190° to 225° F	12	
2307	120° to 220° F	150° to 210° F	12	
2308	100° to 220° F	140° to 210° F	8	
2309	80° to 270° F	100° to 250° F	12	
2314	80° to 310° F	220° to 290° F	8	
2315	100° to 350° F	220° to 350° F	12	
2402*Reverse	80° to 200° F	130° to 190° F	24	
2403*Reverse	100° to 210° F	140° to 200° F	24	
2405*Reverse	200° to 290° F	215° to 280° F	24	
2450*Reverse	50° to 170° F	60° to 160° F	48	
2501	80° to 240° F	140° to 220° F	24 hours	
2502	80° to 200° F	150° to 190° F		
2503	80° to 360° F	220° to 330° F		
2505	80° to 250° F	160° to 230° F		
2506	0° to 100° F	30° to 90° F		
2508	200° to 550° F	350° to 525° F		7 days
2509	80° to 170° F	110° to 160° F		
2510	90° to 210° F	120° to 200° F		
2511	80° to 240° F	120° to 225° F		
2513	100° to 220° F	130° to 210° F		
2800	60° to 130° F	70° to 120° F	24 hours	
2801	0° to 100° F	30° to 90° F		
2802	0° to 130° F	40° to 120° F		
2803	20° to 150° F	80° to 140° F		
2807	70° to 140° F	90° to 130° F		
2900	20° to 150° F	80° to 140° F		7 days
2901	60° to 180° F	80° to 170° F		

Reverse scale charts have the minimum of the temperature range at the circumference, instead of at the center of the chart.



Bulb Dimensions and Well Lengths for Mercury-Actuated and Gas-Actuated Recording and Index Thermometers

It is often desirable to know the dimensions of the bulbs or separable-wells supplied with instruments, particularly when the bulb or well is to be connected into a pipe line or other restricted space.

Mercury-Actuated Instruments (Bulb Lengths)

Rigid Bulbs for *Tycos* Mercury-Actuated Recording and Index Thermometers may be divided into two general classes, "short range" and "long range". The "short range" bulbs are used when the number of degrees Fahr. on the scale is 250 or less. The "long range" bulbs are used when the number of degrees Fahr. on the scale exceeds 250 and the maximum temperature is above 350. The following table gives the number, the capacity measured in degrees Fahr., and the dimensions of the bulb used. By referring to the list of charts (pages 23 and 25) it will be noted that the bulb number is given for each chart, and with this information the dimensions can be obtained readily from the table below. The dimensions given are close approximations, but it is understood that these will vary somewhat on account of the plating. Also, where the size of bulb given cannot be accommodated to the installation under consideration, provision usually can be made if full details concerning application are given us.

Capillary Bulbs vary in length according to the number of degrees of temperature (see table below). Other dimensions in the table do not apply to capillary bulbs.

RIGID BULB NO.	DEGREES OF TEMPERATURE FAHRENHEIT IN RANGE	SHORT-RANGE BULBS			LONG-RANGE BULBS				
		UNION CONNECTION TYPE, LENGTH UNDER WRENCH-HEAD IN INCHES	PLAIN-BULB TYPE, LENGTH IN INCHES	CAPILLARY BULB NO.	RIGID BULB NO.	DEGREES OF TEMPERATURE FAHRENHEIT IN RANGE	UNION CONNECTION TYPE, LENGTH UNDER WRENCH-HEAD IN INCHES	PLAIN-BULB TYPE, LENGTH IN INCHES	CAPILLARY BULB LENGTH IN FEET
6	50	7 $\frac{1}{8}$	7	37	4A	500 to 400	7	9 $\frac{1}{2}$	13
7	70	6 $\frac{1}{2}$	5 $\frac{3}{8}$	39	5A	400 to 300	6 $\frac{1}{4}$	5 $\frac{1}{2}$	15
1	150	5 $\frac{1}{8}$	4 $\frac{1}{4}$	21	6A	500 to 600	5 $\frac{1}{2}$	4 $\frac{1}{4}$	20
2	200	4 $\frac{1}{8}$	3 $\frac{1}{2}$	16	7A	600 to 700	4 $\frac{3}{4}$	4	18
3	250	3 $\frac{1}{8}$	3	39	8A	700 to 800	4	3 $\frac{1}{4}$	16
11B	150	---	16	20	9A	800 to 900	3 $\frac{1}{2}$	2 $\frac{1}{2}$	20
21B	200	---	12	16					
31B	250	---	10	39					
41B	70	---	22	16					

Mercury-Actuated Instruments (Separable-Well Lengths)

Wells with stems of standard lengths are proportioned to cover certain temperature ranges within limits given in the table. Measurements give length of well below wrench-head, for mercury-actuated instruments only.

NUMBER OF DEGREES FAHR. COVERED ON CHART	LENGTH OF WELL	NUMBER OF DEGREES FAHR. COVERED ON CHART	LENGTH OF WELL
100 to 150	5 $\frac{1}{8}$ inches	500 to 600	5 $\frac{1}{8}$ inches
150 to 200	4 $\frac{1}{8}$ inches	600 to 700	4 $\frac{1}{8}$ inches
200 to 250	4 $\frac{1}{8}$ inches	700 to 800	4 $\frac{1}{8}$ inches
300 to 400	7 $\frac{1}{8}$ inches	800 to 900	3 $\frac{1}{4}$ inches
400 to 500	6 $\frac{1}{8}$ inches		

Gas-Actuated Instruments (Bulb Lengths and Separable-Well Lengths)

Since length of bulbs varies with different lengths of connecting tubing, this must be taken into consideration when determining the proper over-all length of extension stem for any application. The following table gives actual bulb and separable-well dimensions for varying lengths of connecting tubing.

LENGTH OF TUBING FEET	LENGTH OF WELL INCHES	LENGTH OF BULB INCHES	DIAMETER OF BULB INCHES
0 to 15	9	8	2 $\frac{1}{4}$
15 to 25	12	11	2 $\frac{1}{4}$
25 to 35	16	15	2 $\frac{1}{4}$
35 to 50	21	20	2 $\frac{1}{4}$
50 to 70	26	26	2 $\frac{1}{4}$
70 to 100	36	36	2 $\frac{1}{4}$

Charts for use with *Taylor* Recording Thermometers

These charts are printed on high-grade paper, in a subdued shade of blue ink, contrasting strongly with the red record lines. They are eight inches in diameter, with temperature scale $2\frac{1}{2}$ inches wide and a center hole $\frac{1}{2}$ -inch in diameter. The following are available from regular stock:—

Full-size section of No. 8102 24-hour chart

Full-size section of No. 8105 24-hour chart

List of Charts Available from Stock for use with *Taylor* Vapor-Tension-Actuated Recording Thermometers

(Instruments listed on pages 21 and 22)

NO.	TEMPERATURE RANGE	WORKING RANGE	PERIOD OF REVOLUTION
8101	100° to 280° F.	220° to 300° F.	24 hours
8102	100° to 310° F.	150° to 300° F.	
8105	50° to 250° F.	150° to 230° F.	
8501	70° to 180° F.	100° to 170° F.	7 days
8502	70° to 200° F.	120° to 190° F.	
8503	80° to 250° F.	140° to 230° F.	
8504	90° to 210° F.	120° to 190° F.	

List of Charts Available from Stock for use with *Taylor* Gas-Actuated Recording Thermometers

(Instruments listed on pages 21 and 22)

NO.	TEMPERATURE RANGE	WORKING RANGE	PERIOD OF REVOLUTION
11000	-200° to 800° F.	10°	24 hours
11001	200° to 1000° F.	10°	
11002	100° to 600° F.	10°	
11003	100° to 500° F.	5°	
11004	0° to 400° F.	5°	
11005	0° to 225° F.	5°	
11006	minus 40° to +120° F.	4°	

Full-size section of No. 11000 24-hour chart





Tyccos Hygrometers

(Wet-and-Dry-Bulb Thermometers)

The use of these instruments is based on the principle that evaporation cannot take place without loss of heat, and the greater the evaporation the lower will be the temperature of the surface from which the evaporation takes place.

The "dry-bulb" thermometer is exposed to the temperature of the surrounding atmosphere. The "wet-bulb" thermometer has a wicking which ends in a cistern of water, or some other means of keeping the "wet bulb" constantly moist. Evaporation proportioned in volume to the dryness of the atmosphere takes place from this "wet bulb." The loss of heat occasioned by the evaporation of water from the "wet bulb" causes a difference in reading between the "dry-bulb" and "wet-bulb" thermometers, dependent entirely upon the dryness of the atmosphere. From this difference in thermometer readings at different temperatures of the air, tables have been prepared, by calculation and from exhaustive experiments, to determine the relation of such difference to the volume of aqueous vapor contained in the atmosphere.

The amount of moisture which can exist as vapor in the atmosphere depends entirely upon the temperature. The higher the temperature of the air the greater the volume of moisture it will carry without condensation; the lower the temperature the smaller the volume of aqueous vapor the air will contain. The varying relation of aqueous volume to percentage of saturation (relative humidity) at different temperatures, precludes the possibility of using a universal factor for determining relative humidity.

When the air contains all the moisture it can carry there will be no evaporation at the "wet bulb," and "wet-bulb" and "dry-bulb" thermometers will read alike. The temperature of the air is then at the "dew point" and "complete saturation" exists. This varying relation of volume of moisture which the air can sustain at different temperatures is best expressed by the following example: At 32° Fahr. the air will hold in suspension two grains of water per cubic foot, while at 68° Fahr. it will hold in suspension $7\frac{1}{2}$ grains. The air at 32° Fahr. then, carrying two grains of water, is at the "dew point," while at 68° Fahr. it requires $7\frac{1}{2}$ grains to reach the "dew point."

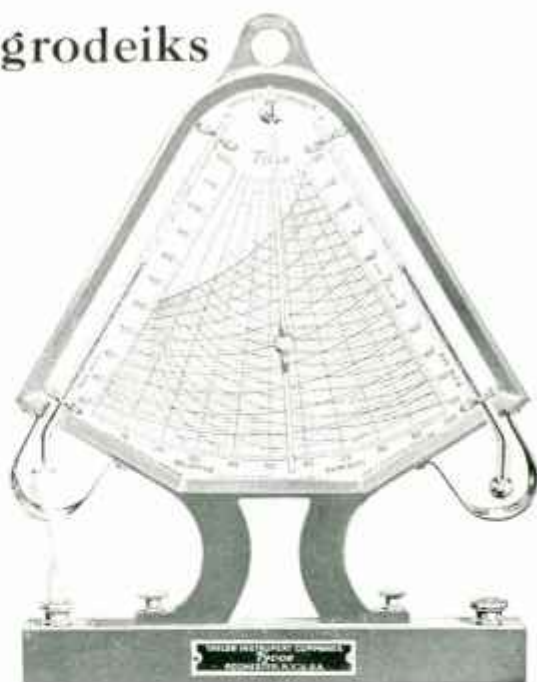
It is essential of course to the accurate reading of any hygrometer that nothing interfere with the source of supply of moisture to its "wet-bulb" thermometer. When wicks become hard they should be replaced at once by fresh ones and water bottles should be kept well filled and the feed of continuous-flow (*page 37*) system should be watched closely and kept in perfect condition.



Tycos Hygrodeiks



No. 1300A



No. 1305

The Tycos Hygrodeik consists of a "wet-bulb" and a "dry-bulb" thermometer mounted on a chart from which the humidity conditions can be determined without reference to tables.

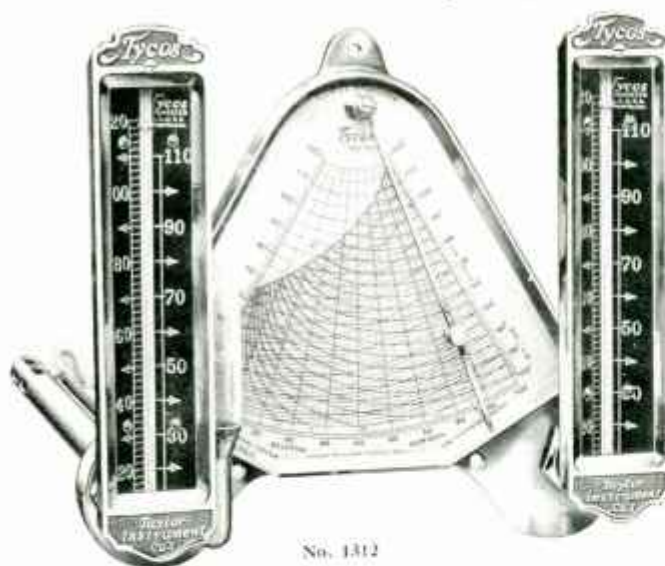
The scale on the left side of the chart corresponds to the "wet-bulb" temperature. The scale on the right corresponds to the "dry-bulb" temperature, and from it curved lines extend downward to the left. Swing the index hand to the scale at the left and set the sliding pointer at the "wet-bulb" temperature. Then swing the index hand to the right until the pointer intersects the curved line extending downward to the left, corresponding to the "dry-bulb" temperature. At this intersection the index hand will point to the relative humidity on the scale at the bottom of the chart.

	EACH
No. 1300A Tycos Standing-Form Hygrodeik	\$17.50
Engraved nickel-silver chart; gray-enameled frame, size 10 x 9 x 3 $\frac{1}{4}$ inches; engraved, magnifying, mercury-filled tubes; glass water cistern; temperature range of thermometers 20° to 120° F.	
No. 1301A Same as No. 1300A, except with temperature range of thermometers 80° to 180° F.	17.50
No. 1305 Tycos Hanging-Form Hygrodeik	19.50
Engraved nickel-silver chart; gray-enameled frame, size 11 x 9 x 1 $\frac{1}{4}$ inches; engraved, magnifying, mercury-filled tubes; brass water cistern; temperature range of thermometers 20° to 120° F.	
No. 1306 Same as No. 1305, except with temperature range of thermometers 80° to 180° F.	19.50
Extra: Engraved "wet-bulb" or "dry-bulb" thermometer for any of above hygrodeiks	3.25
NOTE—Always specify whether "wet-bulb" or "dry-bulb" thermometer is wanted and catalog number of hygrodeik on which it is to be used.	
Extra: Water cistern for No. 1300A or 1301A50
Extra: Wicks for Hygrodeiks (not furnished in less than dozen lots)	\$1.50
NOTE—Any of the above instruments will be furnished with Centigrade scales, if so specified on order.	No Extra

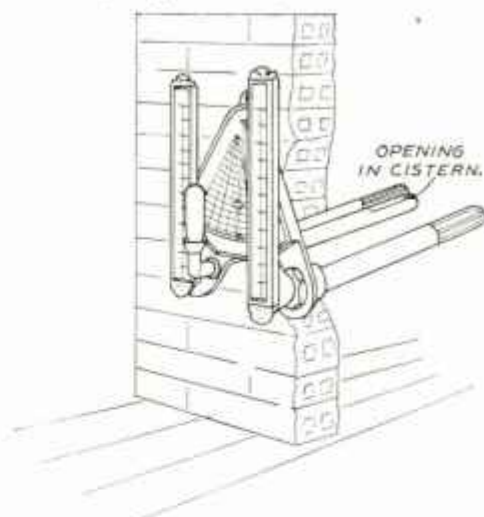


Tyco Angle Hygrodeiks (Hygrometers)

For Enclosed Spaces, such as Air Ducts, Dry Kilns, etc.



No. 1312



Showing Installation of Tyco Angle Hygrodeik
on Kiln with Cement-Block Wall

The instrument illustrated is designed for enclosed spaces, such as air-ducts, kilns, driers, etc. when a chart record is not required. It consists of the Tyco Hygrodeik chart-case, suitably modified for attaching to wall, and carrying two angle thermometers with seven-inch scales and with stem extending any desired length. These stems are fitted with swivel-nut unions, for connecting thermometers to chart-case.

A water reservoir of ample capacity extends parallel to the stem of the "wet-bulb" thermometer. This reservoir is suitably slotted at the inner end, to receive the wicking of the "wet-bulb," while the other end is fitted with a funnel-shaped opening for filling.

Tyco Hygrodeiks with angle thermometers have their chart scaled from 20° to 120° F. (No. 1312) for air-ducts, and from 80° to 180° F. (No. 1313) for kilns, driers, etc.

No. 1312 Tyco Angle Hygrodeik	EACH	\$75.00
Bronze chart-case; engraved nickel-silver chart; glass water-level indicator; two angle thermometers with seven-inch scales; union connection; 12-inch stem; 12-inch reservoir for "wet-bulb" thermometer; temperature range of chart and thermometer scales, 20° to 120° F.		
No. 1313 Same as No. 1312, except with temperature range of chart and thermometer scales 80° to 180° F.....	75.00	
Extra for each six inches or fraction thereof of thermometer and reservoir stems, more than the 12 inches regularly furnished.....	9.10	
Extra glass water-level indicator.....	EACH	.65
Extra wicks (not furnished in less than dozen lots).....	PER DOZ.	2.75

Directions for Attaching Angle Hygrodeiks

The two openings in the wall must be located properly with reference to the projecting hubs at the back of the chart-case, which should fit snugly against the wall to which the instrument is secured.

If it is not practicable to enter the enclosed space to insert the wicking in the slotted opening of the water reservoir, the "wet-bulb" thermometer can be secured to the chart-case before the latter is attached to the wall.

To insure continuous accurate readings of the "wet-bulb" thermometer, the wicking must be clean and should be renewed as frequently as operating conditions make necessary.

To fill the reservoir, remove the glass water-level indicator and pour water directly into the funnel. Then completely fill and replace the water-level indicator.

The water supply should be replenished before all the water in the water-level indicator disappears.

NOTE—If a record of the "wet-bulb" and "dry-bulb" temperatures is desired a Recording Hygrometer should be selected (pages 34 to 37).

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Tycoos Sling Psychrometers

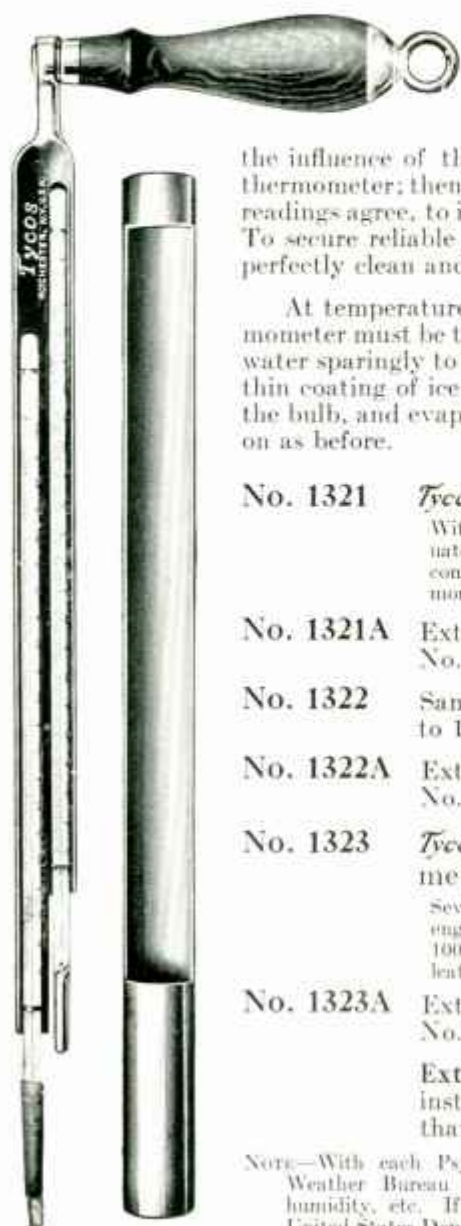
This instrument is a modification of the pattern developed by the U. S. Weather Bureau. The fact that our design has been generally copied is good evidence of its practicable features.

The advantage of this form of Wet-and-Dry-Bulb Hygrometer over the stationary form is the facility with which tests can be made and the accuracy of the readings obtainable, as in whirling the bulbs they are subjected to perfect circulation.

Directions for Use

Keep a glass of clean water in the room in which the test is to be made, with its temperature as near as possible to that of the room. Remove copper protecting case and saturate the fabric covering the extended bulb; then whirl the instrument for 15 or 20 seconds, holding it away from the influence of the body heat. Stop and note the indication of "wet-bulb" thermometer; then repeat the operation until two or more readings agree, to insure the lowest indication obtainable. To secure reliable indications the wicking must be kept perfectly clean and thoroughly saturated.

At temperatures below freezing the "wet-bulb" thermometer must be treated in the following manner: Apply water sparingly to the bulb, using a camel's-hair brush; a thin coating of ice will be formed on the fabric covering the bulb, and evaporation from the frozen surface will go on as before.



No. 1321

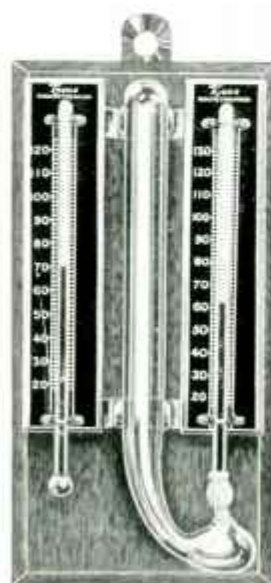


No. 1323

	EACH
No. 1321 Tycoos Sling Psychrometer . . .	\$11.50
With 12-inch engraved thermometers, graduated 30° to 200° Fahr. in 1° divisions; complete with copper case to protect thermometer tubes when not in use.	
No. 1321A Extra Engraved Thermometer for No. 1321	4.00
No. 1322 Same as No. 1321, except range 0° to 100° Fahr. in ½° divisions	11.50
No. 1322A Extra Engraved Thermometer for No. 1322	4.00
No. 1323 Tycoos Pocket Sling Psychrometer	13.50
Seven inches long, with chain-sling; 5-inch engraved thermometers, graduated 0° to 100° Fahr. in 1° divisions; complete with leather carrying case.	
No. 1323A Extra Engraved Thermometer for No. 1323	4.00
Extra: Wicks for any of the above instruments (not furnished in less than dozen lots)	PER DOZ. \$1.50

NOTE—With each Psychrometer we supply copy of U. S. Weather Bureau tables and directions for determining humidity, etc. If complete tables are desired, apply to United States Department of Agriculture, Weather Bureau, Washington, D. C., for Psychrometric Tables, W. B. No. 455. Price, 10 cents.

Tyco's Mason's-Form Hygrometers



No. 5532

The Tyco's Mason's-Form Hygrometer consists of a "wet-bulb" and a "dry-bulb" thermometer, suitably mounted and provided with a reservoir to supply water to the "wet bulb."

No. 5532	Tyco's Mason's-Form Hygrometer	EACH \$5.00
	Magnifying mercury-filled tubes; approximate temperature range 20° to 120° F.; black-oxidized brass scales with white-filled figures and graduations; glass siphon water bottle; mahogany-finish board, size 8½ inches by 4½ inches.	
No. 5532S	Same as No. 5532, except with tubes filled with red permacolor (non-fading and easy-reading)	4.50
No. 5533	Same as No. 5532, except temperature range 60° to 220° F., and mounted on metal panel	6.00
	Extra "wet-bulb" or "dry-bulb" tube and scale for No. 5532	2.00
	Extra "wet-bulb" or "dry-bulb" tube and scale for No. 5532S	1.75
	Extra "wet-bulb" or "dry-bulb" tube and scale for No. 5533	2.25
	Extra glass water cistern for Nos. 5532, 5532S, 553350
	Extra wicks for Nos. 5532, 5532S, 5533 (not furnished in less than dozen lots)	PER DOZ. \$1.50

NOTE—With each Mason's-Form Hygrometer we supply copy of U. S. Weather Bureau tables and directions for determining humidity, etc. If complete tables are desired, apply to United States Department of Agriculture, Weather Bureau, Washington, D. C., for Psychrometric Tables, W. B. No. 235. Price 10 cents.

Tyco's Hygro-Autometers

The Tyco's Hygro-Autometer has a revolving paper chart fitted between the "wet-bulb" and "dry-bulb" thermometers from which chart the humidity conditions can be determined without reference to tables.

To find the relative humidity, turn the roll until the number at the head of the column corresponds with the difference of the readings of the "wet-bulb" and "dry-bulb" thermometers, then follow down the first row to the number corresponding with the reading of the "dry bulb." The figures on the same line in the second row will indicate the "relative humidity" and in the third row the "dew point."

No. 5558 Tyco's Hygro-Autometer EACH **\$15.00**

Magnifying mercury-filled tubes; approximate temperature range 20° to 120° F.; black-oxidized brass scales with white-filled figures and graduations; glass cistern; gray-enamelled metal frame, size 9 by 7¾ by 3 inches.



No. 5558

Extra: "Wet-bulb" or "dry-bulb" tube and scale for No. 5558	EACH \$3.00
Extra: Water cistern for No. 555850
Extra: Wicks for No. 5558 (not furnished in less than dozen lots)	PER DOZ. \$1.50

Tyco Recording Hygrometers ("Wet-Bulb" and "Dry-Bulb" Recording Thermometers)

Tyco Recording Hygrometers are specialized recording thermometers. They operate and are constructed the same as any Tyco "Bi-Record Recording Thermometer" (see pages 9 to 15).

Applications:—These instruments are recommended for installation on enclosed spaces, such as lumber dry kilns, various types of driers, proofing rooms, etc., in preference to other types of hygrometers, because:—

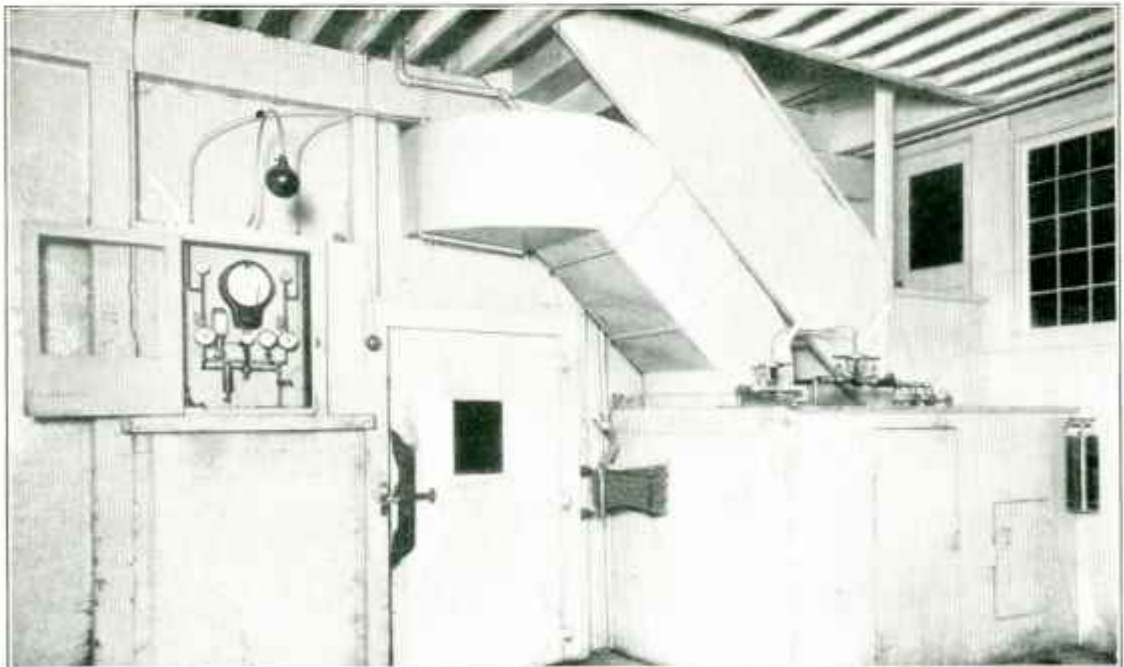
1—They supply a reliable chart record of the "wet-bulb" and the "dry-bulb" temperatures maintained in the apparatus, for every minute of operation.

2—The chart record affords a means of determining the percentage of humidity in the drier, etc. It is also used to check the efficiency of the temperature regulators, and as a check on the operators.

3—Charts when dated and filed give a permanent record of each day's output. They are invaluable when it becomes necessary to reproduce past results, because of the data which they supply.

Operation:—(See recording thermometers, page 10).

Types:—Mercury-actuated (described pages 9 and 14, listed pages 34 and 35); vapor-tension-actuated (described pages 9 and 15, listed pages 36 and 37).



Tyco "Type-P" Temperature Regulator (page 46) and Tyco Recording Hygrometer on a Bread-Proofing Room

Tycoos Wet-and-Dry-Bulb Recording Thermometers (Recording Hygrometers) With Motor-Driven Fan



No. 8034
With Motor-Driven Fan

Recommended for installations where the circulation of air is relatively poor, since the motor-driven fan draws the air through the tubes that house the "wet bulb" and "dry bulb" at a velocity of approximately 600 feet per minute, thereby creating the proper conditions at the bulbs for recording accurate temperatures. The air is drawn through the tube and over the bulbs, and is exhausted at the motor end. The temperature of the air that comes in contact with the bulbs is not influenced, therefore, by any slight heating that might result should it come in contact first with the motor.

This instrument is flexible in its construction, in that the air can be drawn either from the room in which the case is located, or, by closing the two front openings and opening two that extend through the panel, air can be drawn from an adjacent room and discharged back into the room, or outside.

The mechanism is housed in a black-enameled pressed-metal moisture-and-dust-proof case, with durable mercury-filled tube systems. The motor is of the universal type, driving a high-grade suction fan. The tubes over the bulbs and auxiliary equipment for conducting the air to the bulbs are designed so that the tube over the "wet bulb" can be opened readily for inspecting and changing the wick.

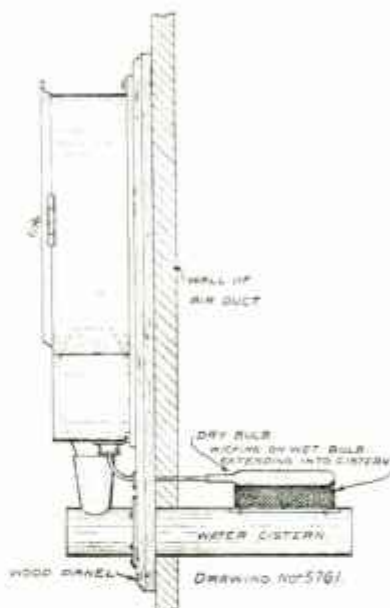
No.	EACH
8034 Tycoos Mercury-Actuated Wet-and-Dry-Bulb Recording Thermometer with Motor-Driven Fan	\$252.00

Black-enameled pressed-metal moisture-and-dust-proof case 10½ inches wide by 14½ inches high. On wood panel about 20 x 25 inches in size, with motor-driven suction fan, water cistern, etc. Equipment includes 100 charts as selected (pages 23 and 24), bottle of red and bottle of green ink, lock, six wicks and copy of U. S. Weather Bureau tables for determining humidity. When ordering, specify voltage and whether A. C. or D. C. circuit. If A. C., give number of cycles, as well as voltage. For installations where the air surrounding the instrument is still, or approximately so.

Tyccos Wet-and-Dry-Bulb Recording Thermometers (Recording Hygrometers) Without Motor-Driven Fan



No. 8035
Without Motor-Driven Fan



No. 8036
Applied to wall of air duct

This Recording Hygrometer is recommended for use where the circulation of air across the bulbs is very good and artificial circulation is unnecessary; therefore no fan is included in the equipment. In all other respects the instrument is the same as No. 8034 (*page 34*).

EACH

8035 Tyccos Mercury-Actuated Wet-and-Dry-Bulb Recording Thermometer (Recording Hygrometer) **\$210.00**

Black enameled pressed-metal moisture-and-dust-proof case 10½ inches wide by 14½ inches high; wood panel 20 x 20 inches on which the instrument is mounted with water cistern, etc., 100 charts as selected (*pages 23 and 24*); bottle of red ink and bottle of green ink; lock; six wicks and copy of U. S. Weather Bureau Tables for determining humidity.

For enclosed spaces, such as air ducts, drying ovens, etc., where by projecting bulbs through wall they will be subjected to good circulation and where the temperature inside apparatus is too high to permit locating case inside, No. 8036 listed below is recommended. This instrument is practically the same in all particulars as No. 8035, except that it is so constructed that the water cistern and bulbs project through the wall into the enclosed space the humidity of which is to be recorded. The glass water bottle is inverted in the cistern attached to the panel on which the instrument case is mounted, making it possible to keep a check on the water supply, that it may be replenished as required.

When used in an air duct, or other apparatus where there is not sufficient room to get inside to change the wick, a hole should be cut in the duct, sufficiently large so that the panel, which should be mounted on hinges, can be swung out, thus bringing the "wet bulb" into a position where the wick can be changed easily. Care should be exercised to make a tight joint around the opening in the air duct, so that air from the outside will not be drawn in.

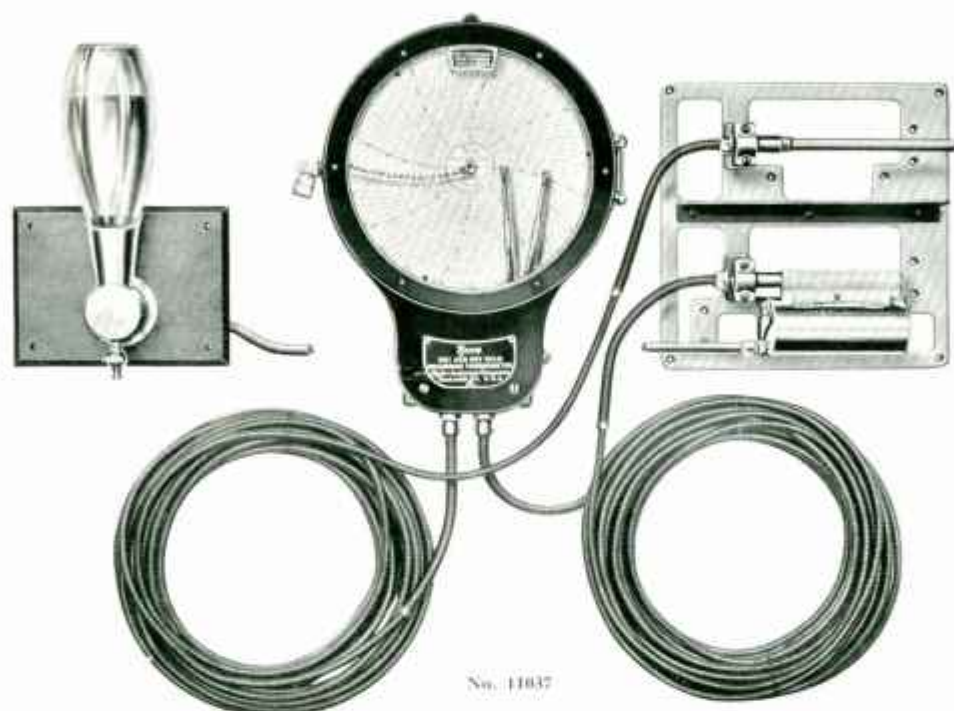
EACH

8036 Tyccos Mercury-Actuated Wet-and-Dry Bulb Recording Thermometer (Recording Hygrometer) **\$210.00**

Same as No. 8035, except with water cistern and bulbs arranged to project through a hole into the duct. Is intended for use in air ducts (*see illustration above*).



Tyco's Wet-and-Dry-Bulb Recording Thermometers with Cistern-Feed Water System



No. 11037

This instrument is recommended when it is necessary to carry the bulbs a considerable distance into the apparatus in order to subject them to average conditions of temperature and humidity. It is used extensively on lumber-drying kilns. A chart should be selected (page 25) with a working range the maximum and minimum limits of which will include the "wet-bulb" and "dry-bulb" operating temperatures.

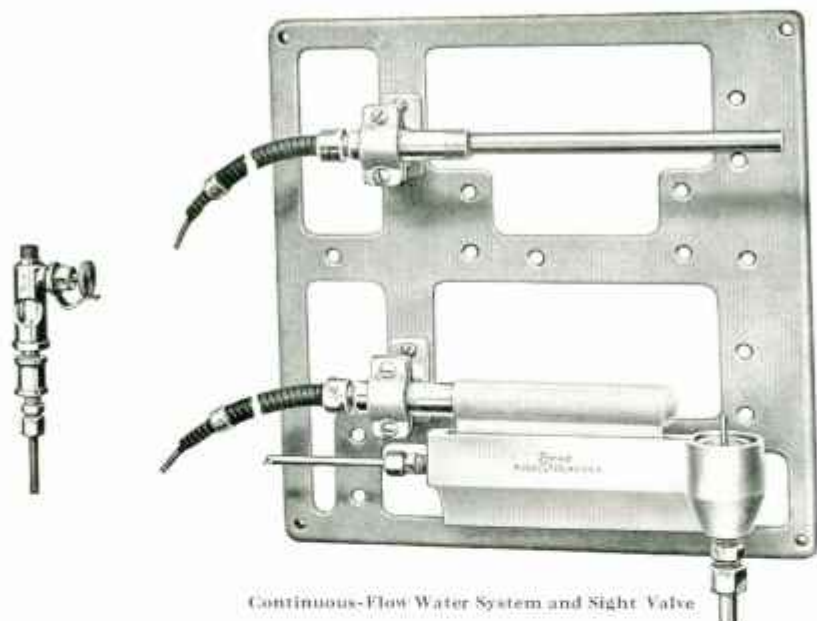
When it is not convenient to connect the instrument to a continuous source of water supply, No. 11037 should be ordered, the water cistern being fed from an inverted water bottle which has to be refilled from time to time, placed on the outside of apparatus. If a constant source of water supply is available No. 11038 (page 27) is recommended.

No.		EACH
11037	Tyco's Vapor-Tension-Actuated Wet-and-Dry-Bulb Recording Thermometer.....	\$163.50
	Black-enameled moisture-proof pressed-metal case; six feet of bronze-armored connecting tubing on each system; 6½-inch copper bulb on dry system; heavily-tinned copper bulb on wet system. Furnished with two panels carrying water bottle and mountings for bulbs and cistern, with six feet of water line between the two panels; complete with 100 charts as selected (page 25); bottle of red and bottle of green ink, lock, six wicks, and U. S. Weather Bureau humidity tables.	
12037	Taylor Vapor-Tension-Actuated Wet-and-Dry Bulb Recording Thermometer.....	151.00

Same as No. 11037, except that the Recording Thermometer is of the Taylor round-case type (illustrated and described on page 27). Supplied with 100 charts as selected (page 25).

Extra for each additional foot of bronze-armored connecting tubing, more than the six feet furnished regularly.....	.84
Extra for each additional foot of copper water tubing to be used between panels.....	.10

Tycos Wet-and-Dry-Bulb Recording Thermometers with Continuous-Flow Water System



Continuous-Flow Water System and Sight Valve

If a constant source of water supply is available the same wet-and-dry-bulb recording thermometers listed on page 36 as No. 11037 can be furnished, but supplied with the continuous-flow water system illustrated above.

The continuous-flow water system consists of the sight valve, inlet water tube, the cistern, and the bulbs, all mounted on a panel with brackets; and the outlet, or drain tube. The inlet water line is connected to some constant water supply, preferably distilled water, although where tap water is chemically pure it will answer equally as well. Outside of the apparatus a small sight valve is connected into the inlet-water line. Compression unions are used for connections at valve and cistern.

The cistern is connected to a constant source of water supply and the water in the cistern is kept at a uniform level by means of an overflow pipe which conducts the excess water to the outside of the kiln. As long as the overflow pipe is discharging water, the operator knows that there is sufficient water in the cistern for the "wet-bulb".

The wicking used on the "wet-bulb" is a special material selected after exhaustive tests made both in our laboratory and on outside installations.

NO.		EACH
11038	Tycos Vapor-Tension-Actuated Wet-and-Dry-Bulb Recording Thermometer	\$163.50

Black-enamelled moisture-and-dust-proof pressed-metal case; six feet of bronze-armored connecting tubing on each system; 6½-inch copper bulbs on dry system; heavily-tinned copper bulbs on wet system. With continuous-flow water system, consisting of needle sight-valve; six feet of copper water tubing; six feet of copper drain line, and metal panel with mountings for bulbs and continuous-flow water cistern. Complete with 100 charts as selected (page 25), bottle of red and bottle of green ink, lock, six wicks, and U. S. Weather Bureau humidity tables.

Extra for each foot of bronze-armored connecting tubing more than the six feet furnished regularly with No. 11038	.84
Extra for each additional foot of copper water tubing	.10



Tyco Recording Gauges for Pressure and Vacuum



No. 11900
Showing $\frac{1}{4}$ -inch Pipe, Bottom Connection

Tyco Recording Gauges are furnished with the same case, clock movement, etc., as Tyco Recording Thermometers (page 11).

The movement of the spring, or diaphragm, inside the case is transmitted by a link to the pivoted pen-arm. This construction gives great stability under vibration, and insures correct time readings and bearing pressure of the pen-point on the chart.

The pen-arm seal prevents adjustment of the pen by unauthorized persons. It is necessary to break a leaded wire seal before an adjustment can be made or the case removed from the base, to interfere with the mechanism which is housed in the lower part. Tyco Recording Gauges are therefore "tamper-proof."

The pressure scale of Tyco Recording-Gauge Charts (page 39) is $3\frac{1}{2}$ inches wide.

The spring inside the case, which opens and closes with the fluctuation of the pressure being measured, is the vital part of the instrument, since the accuracy and permanent reliability of the recorder depend upon it.

Bourdon, or spiral-form, springs, selected from the highest grade of material and carefully tested before calibration, are used for the higher pressures, while the diaphragm-form and float-type are used for low pressures.

Seventy-five years' experience in the manufacture of high-grade pressure instruments adopted by the U. S. Navy, U. S. Weather Bureau, British Admiralty and departments of other representative nations, is a guarantee of the superior quality of Tyco Recording Gauges.

These recorders have a $\frac{1}{4}$ -inch standard pipe-threaded connection extending through the bottom of the case, but will be furnished if so specified, without extra charge, with the threaded connection extending through the back of the case.

Instruments listed below are supplied with 100 charts as selected (page 39), bottle of ink and lock. When ordering, give number of chart wanted, operating pressure range, and application. It is especially important that the application be specified. An oil seal must be used to protect the pressure spring against damage, whenever the instrument is to record the pressure of corrosive fluids.

NO.		EACH
11900	Tyco Recording Pressure Gauge, for pressure from 10 to 1000 pounds.	\$63.00
11901	Tyco Recording Pressure Gauge, for pressure less than 10 pounds.	73.50
11902	Tyco Recording Pressure Gauge, for pressures more than 1000 pounds.	100.00
11910	Tyco Recording Vacuum Gauge.	73.50
11920	Tyco Recording Draft Gauge.	73.50
		EACH
11960	Tyco Bi-Record Recording Pressure Gauge, for pressures from 10 to 1000 pounds. Same as No. 11900, except with two pens and two tube systems, for recording on the same chart pressure at two points.	\$94.50
18049	Tyco Cast-Iron Oil Seal. Will stand working pressure to 500 lbs. but cannot be used on a lower range than 5 lbs. Should be ordered whenever the gauge is to be used in corrosive fluids, to protect the pressure spring.	10.50
18052	Tyco Lead Oil Seal. Same as No. 18049, except made of lead. Will stand working pressure to 100 lbs.	10.50



No. 18049 or 18052
Oil Seal

18052 Tyco Lead Oil Seal
Same as No. 18049, except made of lead. Will stand working pressure to 100 lbs.

Catalog Part 800—Page 38

Charts for Tyco's Recording Pressure and Vacuum Gauges

Tyco's Recording-Gauge Charts are printed on high-grade paper in a subdued shade of blue, to contrast strongly with red record line. They are the same size as Tyco's Recording Thermometer Charts (full-size section on page 24).

NO.	RANGE	INTERVAL	PERIOD OF REVOLUTION	
5001	0 to 200 pounds pressure.	5 pounds	24 hours	
5002	0 to 15 " "	1 1/2 " "		
5003	0 to 5 " "	1 1/2 " "		
5004	100 to 250 " "	2 " "		
5005	200 to 350 " "	2 " "		
5006	0 to 50 " "	1 " "		
5007	0 to 100 " "	2 " "		
5008	0 to 150 " "	2 " "		
5009	0 to 300 " "	5 " "		
5010	0 to 250 " "	5 " "		
5011	0 to 25 " "	1 1/2 " "		
5012	100 to 210 " "	2 " "		
5013	0 to 1000 " "	10 " "		
5014	0 to 350 " "	5 " "		
5015	0 to 30 " "	1 1/2 " "		
5016	0 to 2500 " "	50 " "		
5017	0 to 800 " "	10 " "		
5018	0 to 500 " "	10 " "		
5019	0 to 5000 " "	100 " "		
5021	150 to 400 " "	5 " "	6 hours	
5022	150 to 300 " "	10 " "		
5100	0 to 50 " "	1 " "		
5101	0 to 100 " "	2 " "		
5102	0 to 100 " "	1 " "		12 hours
5150	0 to 50 " "	1 " "		
5152	0 to 25 " "	1 " "		8 hours
5157	0 to 100 " "	2 " "		
5158	0 to 150 " "	2 " "		7 days
5200	0 to 80 ounces pressure.	1 ounce		
5201	0 to 25 " "	1 1/2 " "		
5250	0 to 250 ft. water pressure.	5 feet		
5300	0 to 5 in. water pressure.	1/10 inch	24 hours	
5301	0 to 50 " "	1 " "		
5302	0 to 12 " "	1/10 " "		
5303	0 to 8 " "	1/10 " "		
5304	0 to 30 " "	1/10 " "		
5305	20 to 120 " "	1 " "		
5325	0 to 5 " "	1/10 " "		7 days
5326	0 to 12 " "	1/10 " "		
5450	0 to 2 atmospheres.	1/10 atmospheres	24 hours	
5550	0 to 3 " merc. pressure.	1/10 inch		
5650	30 in. merc. vac. to 15 pound pressure	1 inch and 1 1/2 pound		
5651	2 " water vac. to 2 in. water pressure.	1/10 inch each		
5652	30 " merc. vac. to 150 pounds pressure.	5 inches and 2 pounds		
5653 Reverse	30 " " " " 80 " "	5 " " 2 " "		
5654	30 " " " " 60 " "	2 " " 1 " "		
5656	3 in. water vac. to 3 in. water pressure.	1/10 inch each		
5658	3 " " " " 4 " "	1/10 " "		
5660	1 " " " " 4 " "	1/10 " "		
5661	6 " " " " 8 " "	1/10 " "		
5662	30 in. merc. vac. to 400 pounds pressure.	10 " and 5 pounds	9 hours	
5665	30 " " " " 60 " "	2 inches and 2 pounds		
5676	minus 10 to plus 25 in. water pressure.	1/10 inch	7 days	
5700	0 to 4 in. water vacuum.	1/10 " "		
5701	0 to 5 " "	1/10 " "	24 hours	
5702	0 to 1 " "	1/100 " "		
5750	0 to 8 " "	1/10 " "	7 days	
5870	0 to 30 in. merc. vacuum.	1/10 " "		
5885	15 to 30 " "	1/10 " "	24 hours	
			7 days	





Tycoos Recording Thermometers

Tycoos Thermograph

An arm carrying the recording pen is connected directly with a bi-metallic coil which expands or contracts as the temperature rises or falls. This causes the arm with the recording pen attached to move vertically over the chart. The pen, filled with a prepared ink, traces the variations on the chart as it revolves, thus creating the record.

The charts are divided into days and two-hour subdivisions of each day. Horizontally the dividing lines are in degrees of temperature.

NO. **2350 Tycoos Thermograph** EACH **\$66.00**

Metal non-corrosive case, 10 inches long, 8 inches high, 5 inches wide; complete with year's supply of charts No. 84 (0° to 100° Fahr.), No. 85 (20° to 120° Fahr.) or No. 86 (minus 10° to plus 90° Fahr.), bottle of ink and full instructions. Weight about 8 pounds.



No. 2350

Tycoos Self-Contained Recording Thermometer

A superior instrument of handsome appearance and sturdy and practicable construction, approximately 11 inches in diameter. The body of the case is white-enamelled, while the solid-bronze hinged front is polished-nickel-plate finish. Makes an ink record on the 9½-inch paper chart, of the temperature in which the instrument is exposed. Is practicable for any temperatures between zero and 150°F.

NO. **8000 Tycoos Self-Contained Recording Thermometer** EACH **\$63.00**

With charts as selected from list below, and bottle of Tycoos Recorder Ink.



No. 8000

NO.	TEMPERATURE RANGE	GRADUATIONS	PERIOD OF REVOLUTION
1501	10° to 120° F	2°	24 hours
1503	0° to 100° F	2°	
1504	0° to 120° F	2°	
1505	20° to 150° F	2°	
1650	minus 25° to +30° R	1°	7 days
1660	0° to 80° F	1°	
1662 *Reverse	0° to 100° F	2°	
1701	0° to 100° F	2°	
1703	10° to 120° F	2°	7 days
1704	0° to 130° F	2°	
1705	20° to 150° F	2°	
1800	minus 20° to +50° C	1°	
1900 *Reverse	0° to 100° F	2°	7 days
1901 *Reverse	minus 20° to +80° F	2°	

*Reverse charts have the minimum of the temperature range at the circumference instead of at the center of the chart.

NOTE—For conditions to which the Self-Contained Recorder is not adapted we recommend a capillary recorder, which permits of chart-case being located for convenient observation, while the bulb can be carried to any desired location. (See pages 5 to 27).



Tyccos Temperature Regulators

Matters to be Considered in Connection with Automatic Temperature Regulation

Consulting: Take us into your confidence as much as your policy will permit, when ordering or asking for information about regulator equipment. Since many applications call for special consideration, we must know conditions if we are to handle your requirements intelligently. Information given to us or our representatives should be accurate. If conditions of application given when ordering (*see bottom of page*) are changed after installation we should be notified, so that we can advise whether the equipment as originally installed will have to be modified to continue to give satisfactory results.

Improper Application: A regulator may be placed so that its sensitive bulb, or stem, which is the "nerve center" of the instrument, is "pocketed" and subjected to poor circulation of the liquid, air, gas, or semi-solid to be controlled. Under such conditions the regulator would have "time lag" and close control would be impossible.

Capacity of Heating Source: If the source of heat to be controlled (steam, gas, oil, etc.) does not contain sufficient heat units to bring the product to the temperature desired, the regulator of course cannot supply the missing heat.

Directions for Ordering: The information given for each type of control should have careful consideration before a selection is made. If the instrument ordered is to give satisfactory results, the bulb must be of suitable construction and so placed that it will receive proper heat contact.

The materials regularly used in Tyccos bulb-connections are selected to withstand the action of the medium with which they will come in contact. The threaded forms are built to stand heavy wrenching and to insure tight joints under high pressure. The stems can be of any reasonable length required to locate the bulb in a proper position.

Six feet of connecting tubing is included with each capillary type of regulator. Longer tubing must be ordered as an extra. Standard vapor-tension-actuated and gas-actuated instruments are made with tubing up to 75 feet long. In some cases even greater lengths can be supplied, if full details are given.

The Following Information Should be Conveyed by Your Order or Inquiry

- 1—The application for the regulator.
- 2—The temperature to be maintained.
- 3—The highest and lowest temperatures to which the control will be subjected at any time.
- 4—If the instrument must control at various temperatures, what are they?
- 5—The permissible variations + and — from the temperature it is desired to maintain.
- 6—The medium with which the bulb will come in contact.
- 7—If chemical action exists in the apparatus to be controlled, what metals will successfully resist it?
- 8—The distance the bulb should extend into the apparatus.
- 9—The length of connecting tubing.
- 10—Form of bulb connection.
- 11—The size of pipe which carries the heating or cooling medium.
- 12—Maximum steam or other pressure passing through the diaphragm valves.
- 13—Minimum air pressure.





Tyccos Air-Operated Temperature Regulators

Tyccos Air-Operated Temperature Regulators are designed to control the supply of steam, gas, water, or other heating medium, by means of a diaphragm valve located in the heat-supply line.

Motive Power: Compressed air. We recommend 25 pounds. However, air pressure as high as 40 pounds can be used.

Principle of Operation: A fluid sealed in an air-tight, heavy copper tube-system "Z", when heated exerts pressure (vapor tension) on a small metal chamber "N" (hereafter referred to as the capsular chamber).

When the temperature in the apparatus reaches the desired point the expansion of the capsular chamber opens an air valve "H", thereby giving free passage to the compressed air, through the regulator to the diaphragm valve. This air inflates the diaphragm of the valve and shuts off just enough of the heating medium to maintain the temperature at the desired point.

If the temperature drops, the contraction of the capsular chamber closes the air valve "H" and the air is exhausted from the diaphragm through the air-leak "ZA", allowing the spring to open the diaphragm valve (see illustration of No. 18100, page 39) just enough to maintain the temperature.

Temperature Adjustment: Is made from the front by turning a pointer. This pointer is attached to a simple cam "O" which rests on top of the capsular chamber. The air plunger which controls the opening and closing of the air valve rests on a stud just back of the cam. Stud and cam move up or down with the expansion and contraction of the capsular chamber. Turning the cam changes the opening in the air valve. Thus the expansion and contraction of the capsular chamber acts on the air valve, controlling the amount of air going through the regulator to the diaphragm valve. As a result of this feature the opening or closing of the diaphragm valve becomes directly proportional to the change in temperature.

Capillary Tubing: Lengths up to 75 feet will be supplied as specified and even longer tubing usually is practicable. Made of $\frac{1}{8}$ -inch copper tubing, having a small passage and a heavy wall. Strong, yet flexible. Tubing is armored the entire length, with extra reinforcement at each end, to give added strength.

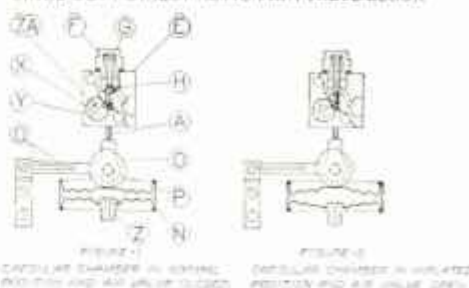
Forms of Bulbs and Connections: Conditions of application will determine the form of bulb and connection required.

Dust and Dirt-Proof: A dust-proof closure-cap on the glass front closes key opening and prevents dust and moisture from entering the regulator case.

Finish: Black dial with raised silvered letters and graduations. The metal case and front are finished in dull instrument-black.

Temperature Limits: Regulators are furnished to control temperature within the following standard ranges. The range desired must be specified at the time of ordering.

DIAGRAM SHOWING OPERATION OF SINGLE-DUTY DIRECT ACTION AIR VALVE BLOCK



PART LIST	
A	WATER VALVE ASSEMBLY
B	AIR VALVE BODY
C	AIR VALVE GEAR
D	AIR VALVE STUD
E	DIAPHRAGM CHAMBER
F	ADJUSTING SCREW
G	WATER VALVE ASSEMBLY
H	AIR VALVE BODY
I	AIR VALVE GEAR
J	AIR VALVE STUD
K	DIAPHRAGM CHAMBER
L	ADJUSTING SCREW
M	AIR LEAK
N	DIAPHRAGM CHAMBER
O	AIR LEAK

FAHRENHEIT	CENTIGRADE	FAHRENHEIT	CENTIGRADE	FAHRENHEIT	CENTIGRADE
10 to 100°	minus 12 to 38°	100 to 200°	71 to 127°	350 to 450°	166 to 232°
40 to 130°	4 to 54°	170 to 280°	77 to 138°	350 to 500°	166 to 260°
50 to 150°	10 to 66°	200 to 300°	93 to 149°	375 to 480°	191 to 249°
80 to 180°	27 to 82°	210 to 320°	99 to 160°	400 to 520°	204 to 271°
80 to 200°	27 to 93°	240 to 350°	116 to 177°	420 to 600°	216 to 316°
100 to 210°	38 to 99°	350 to 375°	121 to 191°	440 to 620°	227 to 327°
125 to 230°	52 to 110°	300 to 400°	149 to 204°	480 to 600°	249 to 349°

Tyccos "Singl-Duty" Air-Operated Temperature Regulators

For Drying Rooms, Air Ducts, Dry Kilns, Vacuum Driers,
Dry-Heat Vulcanizers, Paper Driers, etc.

Patented August 31, 1939



No. 15004, Exterior View

(Listed on page 44)

The Tyccos "Singl-Duty" Temperature Regulator is adapted to installations where it is desirable to locate the instrument case at a central easily-accessible control point, carrying the flexible tubing to the point of application of the bulb.

Where good circulation is maintained inside of the controlled apparatus the rigid bulb (*above*) is satisfactory, but where this circulation is not maintained, or where rapid changes in temperature occur, we recommend the capillary form of bulb (*see page 44*) which can be so distributed throughout the apparatus as to be affected by the various existing temperatures.

When the bulb is attached to apparatus under pressure or vacuum a threaded union, to insure a pressure-tight connection, can be provided with either of the above-mentioned bulbs.

One diaphragm valve (*see page 49*) installed on the heat supply line is required with this regulator.



Tycecs "Singl-Duty" Air-Operated Temperature Regulators

For Drying Rooms, Air-Ducts, Dry Kilns, Vacuum Driers, Dry-Heat Vulcanizers, Paper Driers, etc.

(When ordering give all information asked for on page 33)

Plain Bulb and Clamp Flange



With six feet of bronze-armored flexible copper tubing; 5 $\frac{1}{2}$ -inch rigid copper, monel, steel, or stainless-iron bulb; 3-inch split clamp-flange; No. 18025 air strainer; two air-pressure gauges; stop-cock; wrench and instruction card.

NO. 15002 Tycecs "Singl-Duty" Temperature Regulator EACH \$108.00

Union Connection



With six feet of bronze-armored flexible copper tubing; 5 $\frac{1}{2}$ -inch rigid copper, monel, steel, or stainless-iron bulb; union-connection hub threaded for $\frac{3}{4}$ -inch pipe-tap; No. 18025 air strainer; two air-pressure gauges, stop-cock; wrench and instruction card.

NO. 15001 Tycecs "Singl-Duty" Temperature Regulator EACH \$113.25

Capillary Bulb and Clamp Flange



With six feet of bronze-armored flexible copper tubing; 3-inch split clamp-flange; copper capillary bulb about 40 feet long; No. 18025 air strainer; two air-pressure gauges; stop-cock; wrench and instruction card.

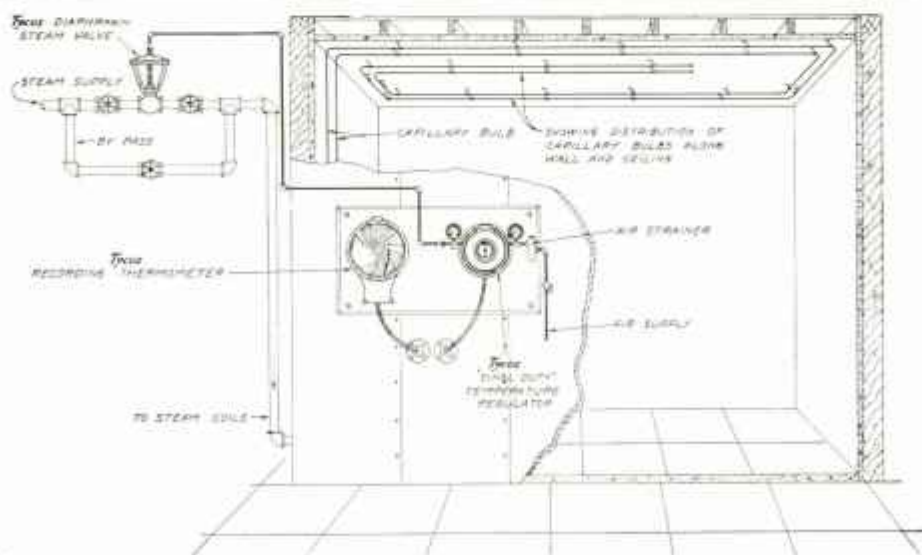
NO. 15001 Tycecs "Singl-Duty" Temperature Regulator EACH \$108.00

Capillary Bulb and Union-Connection Hub



With six feet of bronze-armored flexible copper tubing; union-connection hub threaded for $\frac{3}{4}$ -inch pipe-tap; copper capillary bulb about 40 feet long; No. 18025 air strainer; two air-pressure gauges; stop-cock; wrench and instruction card.

NO. 15001U Tycecs "Singl-Duty" Temperature Regulator EACH \$113.25



Tycecs "SINGL-DUTY" CAPILLARY BULB TEMPERATURE REGULATOR AND RECORDING THERMOMETER CONTROLLING THE TEMPERATURE OF ANY ENCLOSED SPACE HEATED WITH STEAM COILS.

(Drawing No. 220)

Tycoos "Type-P" Air-Operated Temperature Regulators

For Air-Ducts, Air-Washing Machines, Cooling Rooms,
Powder Driers, etc.

(Listed on page 36)

Tycoos "Type-P" Temperature Regulators are designed to control, by means of diaphragm valves (page 39), the supply of steam, water, or other heating or cooling mediums.

Motive Power: Compressed air. We recommend 25 lbs. per square inch. As high as 40 lbs. can be used, however.

Principle of Operation: Expansion or contraction due to temperature change of a brass tube called the expanding member.

Sensitiveness: In actual operation this regulator will open or close the diaphragm valve on a temperature change of from $\frac{1}{4}^{\circ}$ to $1\frac{1}{2}^{\circ}$ F.

Finish: Heavily nickel-plated and polished. The expanding stem can be plated with silver, gold, copper, etc. It can be protected with block-tin, cast-lead, or other materials to withstand chemical action.

Size of Thread: $\frac{3}{4}^{\circ}$ S. P.

Temperature Capacity of the Instrument: This regulator will operate at temperatures as low as 32° F. and as high as 250° F.

Range of Adjustment: Moving the pointer from its center position to the right or left as far as the stop screw, will change the temperature approximately 50° F. each way, or a total of 100° F. Each division on the dial is equivalent to approximately $3\frac{1}{2}^{\circ}$ F. A much greater range can be covered by loosening the pointer, so that it will not restrict the movement of the adjusting post.

Length of Stem (Expanding Member): Standard length is approximately 12 inches, exclusive of thread. We can also furnish 15-inch stems, and being more sensitive they are recommended for installations where they are to be immersed in a fluid which offers poor heat contact.

Dirt Proof: The construction is such as to keep dirt and other foreign substances away from the working parts. However, if the air supply is dirty, it should be strained, or filtered thoroughly, before passing through the regulator.

NOTE—No. 18923 Tycoos Air Strainer (listed on page 36) should be used if the air supply is not clean, but even this may be insufficient if conditions are very bad. If the air supply is unusually dirty the air should be washed before it leaves the air-supply tank.

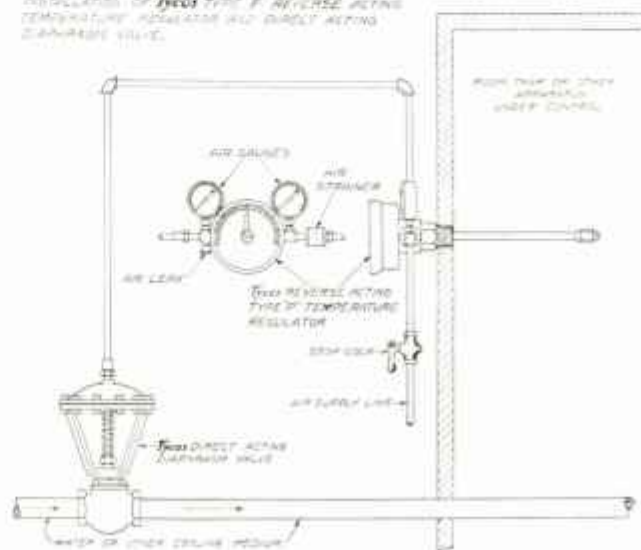
Direct-Acting and Reverse-Acting: In general, the direct-acting type is used where heat is being added to the apparatus and the reverse-acting type where heat is being removed from the apparatus.

The illustration represents a tank, or other apparatus which has to be maintained at a fixed temperature by cooling.

If the temperature tends to increase, cold water, brine, or other cooling medium, is admitted to the apparatus.

If the temperature decreases the slightest amount below the desired point, the regulator shuts down on the cooling source.

INSTALLATION OF TYCOOS TYPE P REVERSE ACTING TEMPERATURE REGULATOR AND DIRECT ACTING DIAPHRAGM VALVE.





Tyccos "Type-P" Air-Operated Temperature Regulators

For Air-Ducts, Air-Washing Machines, Cooling Rooms, Powder Driers, etc.

(Continued from page 55)



Front View



Nos. 17001-17001R

Side View

This regulator is adapted to installations where it is not essential to have the regulator case at a central control-point. Prices include two air-pressure gauges, a wrench and stop-cock with each regulator, but no diaphragm valves nor air compressors. (Page 50 for diaphragm valves; page 47 for air-compressors)

When ordering, always give the information requested on page 41.

- | | | |
|------------|--|------------------------|
| No. 17001 | Tyccos Direct-Acting "Type-P" Temperature Regulator..... | EACH
\$67.00 |
| | With stem approximately 12 inches long and No. 18067 3/4-inch pipe-threaded union-connection hub. For temperatures not exceeding 250° F. | |
| No. 17001R | Tyccos Reverse-Acting "Type-P" Temperature Regulator..... | 72.50 |
| | Same as No. 17001, except reverse-acting. | |

Extras for Above Instruments

- | | ADD TO LIST |
|--|----------------|
| For 15-inch stem, instead of 12-inch regularly furnished..... | \$ 5.40 |
| For heavily silver-plating stem..... | 3.60 |
| For protecting stem with block-tin..... | 12.50 |
| For protecting stem with cast-lead..... | 18.00 |
| For tin-plating stem..... | NO EXTRA |
| For lead-plating stem..... | NO EXTRA |
| No. 18025 Air Strainer..... | 6.00 |
| No. 18062 bracket for mounting regulator inside of room..... | 4.50 |
| No. 18069 3-inch pipe-threaded union-connection flange will be supplied instead of No. 18067 hub when specified..... | NO EXTRA |



No. 18062
Bracket



No. 18025
Air Strainer



No. 18069



Air Compressors for Use With *Tyco's* Air-Operated Temperature Regulators



No. 18200
Belt-Driven Air Compressor



No. 18210
Motor-Driven Air Compressor

No. 18210 Motor-Driven Air Compressor is used extensively to furnish compressed air for *Tyco's* temperature-regulating equipment. It is mounted with air-storage tank on brackets suitable for securing to shelf or other mounting. The motor is designed for continuous service and is provided with an automatic starting and stopping device which controls the pressure in the storage tank to within a few pounds. Either A. C. or D. C. $\frac{1}{4}$ -h.p. motors are furnished for either 110 or 220-volt circuit and in the case of A. C. motors for 25 or 60 cycles. Capacity, two regulators. The air compressor is designed especially to deliver air free from dirt or oil and extra precaution is taken by applying an air strainer at the outlet of the storage tank.

Where facilities are available, a No. 18200 Belt-Driven Air Compressor will fill the requirements satisfactorily. The panel carrying the pump and air tank can be screwed to a wall or other rigid support. It can be operated at 300 to 400 RPM, depending upon whether it is to supply one or two regulators, and it is adjusted for 25 pound pressure per square inch.

		EACH
No. 18200	Belt-Driven Air Compressor	\$ 60.00
	Mounted on panel as illustrated above. Suitable for 2 "Singl-Duty" or 2 "Type-P" Regulators.	
No. 18201	Belt-Driven Air Compressor	144.00
	Including storage tank, pressure gauge, automatic and hand unloader. Suitable for 4 "Singl-Duty" or 4 "Type-P" Regulators.	
No. 18210	Motor-Driven Air Compressor	190.00
	D. C. or A. C. Motor, 110 or 220 volt, 25 or 60 cycles. Suitable for 2 "Singl-Duty" or 2 "Type-P" Regulators.	
No. 18211	Motor-Driven Air Compressor	248.00
	D. C. or A. C. Motor, 110 or 220 volt, 25 or 60 cycles. Similar to 18210 but suitable for 4 "Singl-Duty" or 4 "Type-P" Regulators.	



Tycos "Type-A" Water-or-Air-Operated Temperature Regulators



No. 19000

EACH

NO. 19000 Tycos "Type-A" Temperature Regulator \$57.50

Prices do not include diaphragm valves (see page 19).

NOTE—When instrument is used with separable well, a graphite-grease lubricant should be used on the regulator stem.

Extras for "Type-A" Regulators

	ADD TO LIST
Steel Separable Well	\$17.50
Brass Separable Well	9.00
For heavily silver-plating the stem or separable well	3.60
For tin-plating stem or well	NO EXTRA
For lead-plating stem or well	NO EXTRA

Directions for Ordering "Type-A" Regulators

Always give the following information:

- 1.—Size of pipe which carries the heating medium (steam, gas, etc.)
- 2.—Maximum steam or other pressure passing through the diaphragm-valve body.
- 3.—Minimum water or air pressure.
- 4.—Operating temperature.
- 5.—Application.
- 6.—Thickness of wall or wood stave.
- 7.—Material of which walls are made.
- 8.—If separable well is desired, state whether
 | brass or steel.

Tycos Lever-Motors



Tycos Lever-Motors, in conjunction with Tycos "Type-A" Temperature Regulators, are used to open and close dampers, or to perform other similar operations.

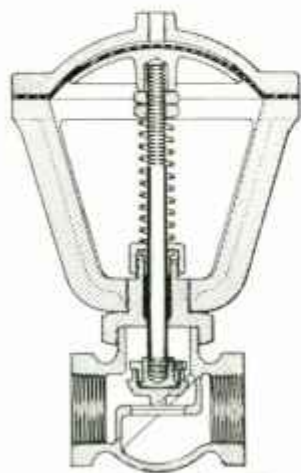
The air or water pressure on the diaphragm top causes the lever arm to move downward. When this pressure is released a strong spring forces the lever arm upward to its original position.

When ordering, state power needed (both upward and downward) to perform operation; also the distance lever arm must travel to function properly.

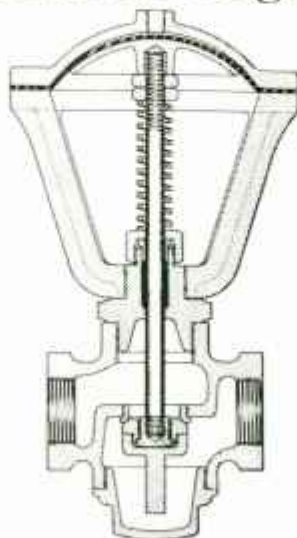
Catalog No.	Top No.	Pressure	Pounds Lift From Hole Farthest From Pivot. (Distance is 29" for 18064 and 41" for 18066)	Pounds Lift From Hole Nearest Pivot. (Distance is 17½" for 18064, and 29" for 18066)	Travel of Arm at Hole Farthest From Pivot	Travel of Arm at Hole Nearest Pivot	EACH
18064	4	25 lbs.	17 lbs.	25 lbs.	4½ inches	3½ inches	\$14.25
18066	7	25 lbs.	30 lbs.	80 lbs.	8½ inches	5¼ inches	24.00



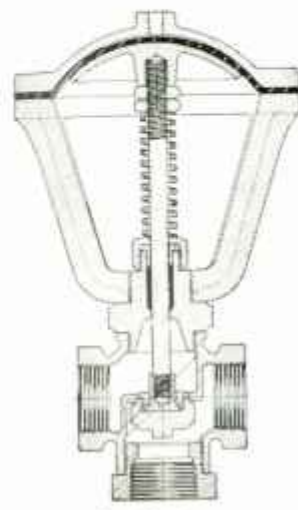
Diaphragm Valves for use with Tyco Temperature Regulators



No. 18100 and 18102
Direct-Acting Diaphragm
Valve



No. 18104
Reverse-Acting Diaphragm
Valve



No. 18105
Three-Way Diaphragm
Valve

Air pressure of 25 pounds to the square inch is recommended and all Tyco Diaphragm Valves are sold with this understanding unless we are advised to the contrary. Air pressure as high as 40 pounds to the square inch can be used, however. It is important that both the air pressure available for closing the valve, and the steam or other pressure passing through the valve, be given in ordering.

NOTE—All Tyco Diaphragm Valves have screw ends on sizes up to and including 2½-inches and all sizes above 2½-inches have flanged ends with companion flanges bolted on. The 2½-inch valves are furnished with either screw or flanged ends, except in the case of No. 18104 Reverse-Acting Valves, the 2½-inch size of which is furnished with screw end only.	SIZE VALVE	No. 18100 DIRECT- ACTING BRONZE SEAT AND DISC	No. 18101 DIRECT- ACTING VALVES WITH "T&T" DOUBLE DIAPHRAGMS	No. 18102 DIRECT- ACTING WITH MONEL DISC & SEAT- RING & IRON BODY	No. 18103 Direct- Acting Monel Trimmed "T & T" Diaphragm	No. 18104 Reverse- Acting	No. 18105 THREE- WAY	Maximum Pressure Through Valve, Lbs. Per Sq. In. With 25 Lbs. of air	
								STEAM	WATER
	½"	\$ 18.00	\$ 21.50	\$ 24.00 *	\$ 27.50†	—	—	200	250
	¾"	19.00	22.75	25.00 *	28.75*	—	—	200	250
	1"	20.25	24.00	26.25 *	30.00*	\$26.25*	\$36.00†	200	250
	1¼"	21.50	26.25	31.00 *	36.00*	30.00*	40.75†	200	250
	1½"	27.00	31.75	37.00 *	42.00*	34.75*	46.75†	200	250
	2"	39.00	45.00	51.00 *	57.00*	43.75*	60.00†	200	250
THIS NOTE APPLIES ONLY TO 2" AND 2½" VALVES: When the steam or other pressure going through valve is more than five times the air pressure, add 10% to price.	2½"	55.00	63.50	70.75	79.00	62.25	76.75†	150	250
	2½"	71.25 Flanged End	79.75 Flanged End	87.00 Flanged End	95.25 Flanged End	—	87.50† Flanged End	150	250
THIS NOTE APPLIES ONLY TO 3", 3½", 4", 4½" VALVES: When the steam or other pressure going through valve is more than three times the air pressure, add 20% to price.	3"	84.50	93.00	148.00	156.50	102.50	96.50†	150	250
	3½"	95.25	106.75	164.25	175.75	115.75	130.75†	150	250
	4"	108.00	119.25	182.25	193.75	128.25	145.00†	125	125
	4½"	118.75	—	—	—	—	175.00†	100	100

NOTE—Prices for larger sizes than listed above will be furnished on request.

*A maximum steam pressure of 150 pounds and water pressure of 250 pounds applies to these valves.

†A maximum steam pressure of 125 pounds and water pressure of 200 pounds applies to these valves.



Tyco Electric-Contact Direct-Set Indicating Temperature Controls

(Listed on page 52)



No. 8852

Mercury-Actuated Electric-Contact Control

This instrument combines in one case an indicating thermometer and an electrically-operated temperature control having the direct-set feature.

Applications: It is ideal for applications where, due to the nature of the process, it is necessary to operate at different predetermined temperatures, making it necessary to change the control point of the instrument easily and quickly. They are widely applied for controlling the temperature of apparatus heated or cooled by steam, water, brine, electricity, etc., by shutting off or turning on these various mediums by means of an electric contactor, or any electrically-operated device.

The Direct-Set Feature: This feature has been developed until we believe no similar instrument now on the market has a setting device to be compared with it for convenience and accuracy. To change the control points of the instrument it is necessary simply to move the direct-set pointer to the desired temperature on the graduated dial.

The Indicating Feature: The upper pointer shows at all times the temperature maintained, and therefore is a check on the operation of the control.

Made in Three Types: These controls are made in three types, known as Mercury-Actuated, Vapor-Tension-Actuated and Gas-Actuated. The electric-contact mechanism inside the case is the same for all three types.

Size and Finish: The diameter of the case across the front is $7\frac{1}{2}$ inches. Case is finished dull black-enamel. The scale is black, with silvered letters and figures.

Bulbs and Connections. Conditions of the installation will determine the form of bulb and connection to order (see page 52 for listing).

See Page Part 800—Page 50

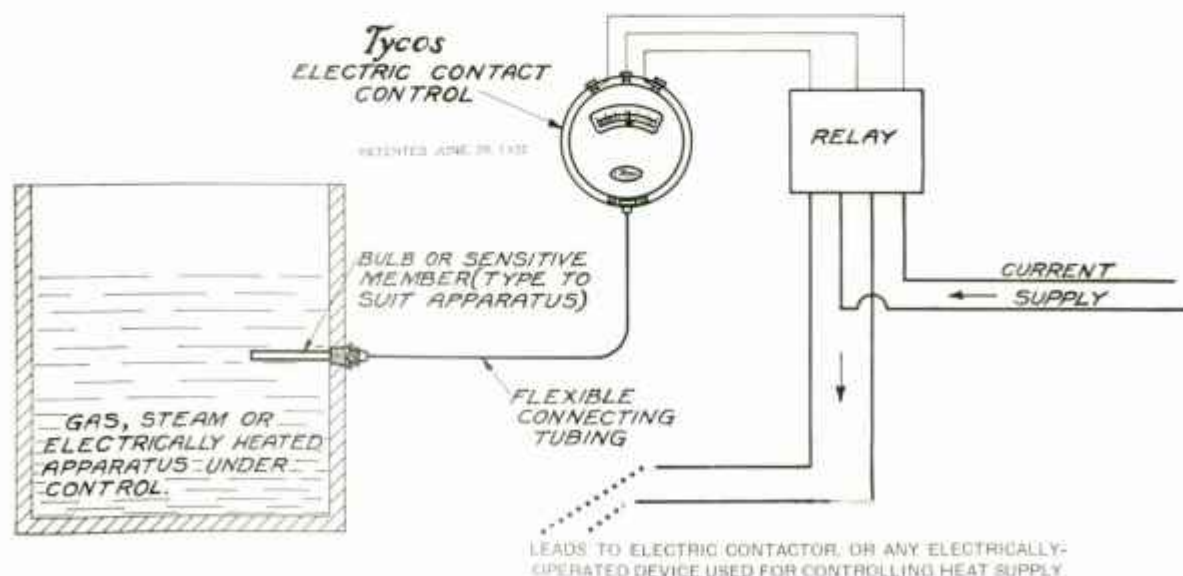
Tycos Electric-Contact Direct-Set Indicating Temperature Controls

(Continued from page 50)

Electrical Connections. The contacts are insulated to carry 220 volts, but the current consumed by the apparatus under control should not be broken across them. Connection to the line must be made through a magnetically-operated relay switch.

Connecting Tubing: The mercury-actuated instruments are supplied with six feet of 7.32"-diameter flexible connecting tubing, sufficiently strong to withstand rough usage without a protecting armor. Longer tubing is available as specified, but is not recommended under usual conditions in lengths greater than 25 feet. This tubing can be furnished in lengths specified up to 75 feet. In some cases even longer lengths can be supplied if full details are given. Vapor-tension-actuated and gas-actuated instruments are regularly supplied with six feet of flexible tubing protected by a bronze armor.

Standard Temperature Ranges: The standard approximate temperature ranges for each of the three types of instruments will be found where they are listed on page 52. The range desired should always be specified when ordering.





Tyco Electric-Contact Direct-Set Indicating Temperature Controls

(*Directions for Ordering,* page 15)

Vapor-Tension Actuated

Connecting tubing will be furnished any length specified up to 75 feet. This form is recommended therefore for installations which require long connecting tubing. The standard operating ranges are 80° to 180° F.; 150° to 350° F.; 300° to 550° F.; 400° to 650° F. Information on request regarding special ranges.

		EACH
No. 11851	Tyco Vapor-Tension-Actuated Electric-Contact Temperature Control	\$90.00
Has a 20-foot capillary bulb; six feet of armored connecting tubing with 3-inch split clamp-flange.		
No. 11851U	Same as No. 11851, except with union-connection hub threaded for 3/4-inch pipe-tap.	95.25
No. 11852	Same as No. 11851, except with 5 1/2-inch rigid bulb and 3-inch split clamp-flange	90.00
No. 11854	Same as No. 11851, except with 5 1/2-inch rigid bulb and union-connection hub threaded for 3/4-inch pipe-tap.	95.25

ADD
TO LIST
3.15

EXTRA—For each 12 inches or fraction thereof of rigid extension-stem with No. 11852 or 11854
NOTE—A 3-inch union-connection flange will be furnished if specified, in place of union-connection bulb on No. 11851U or No. 11854, without extra charge.

Other extras are the same as for Vapor-Tension-Actuated Recording Thermometers (pages 11 and 22).

Mercury-Actuated

Twenty-five feet is recommended as the maximum length of connecting tubing. The standard operating ranges are:—minus 20° to plus 100° F.; 50° to 250° F.; 100° to 500° F.; 450° to 950° F. Information on request regarding special ranges. Prices listed below are for instruments with ranges up to 800° F. For ranges above 800° and not exceeding 1000° F. add \$12.50.

		EACH
No. 8852	Tyco Mercury-Actuated Electric-Contact Temperature Control	\$90.00
Has rigid bulb ; six feet of flexible capillary connecting tubing; 3-inch split clamp-flange .		
No. 8854	Same as No. 8852, except with union-connection hub threaded for 3/4-inch pipe-tap.	95.25

ADD TO
LIST
3.15

EXTRA—For each 12 inches or fraction thereof of rigid extension-stem with No. 8852 or No. 8854.

NOTE—A 3-inch flange will be furnished, if specified, with No. 8854, instead of union-connection hub, without extra charge.

Other extras are same as for Mercury-Actuated Recording Thermometer (pages 11 and 22).

Gas-Actuated

Recommended for applications where the length of connecting tubing exceeds 25 feet, where space is sufficient to accommodate bulbs of relatively large proportions and where close control across practically the entire width of temperature range selected is essential. This type of instrument is particularly desirable on enameling ovens (*application photograph page 54*) and similar applications where a wider range of temperature adjustment is necessary than can be obtained with the vapor-tension-actuated control. For such purposes the gas-actuated instrument is equipped with a capillary bulb, which is approximately eight feet long and exposes a large surface to the medium the temperature of which is being controlled, making it very sensitive to slight and rapid changes of temperature. The standard operating ranges are: 0 to 700° F., 30 to 375° F., 100 to 500° F., 100 to 700° F. Information on request regarding special ranges.

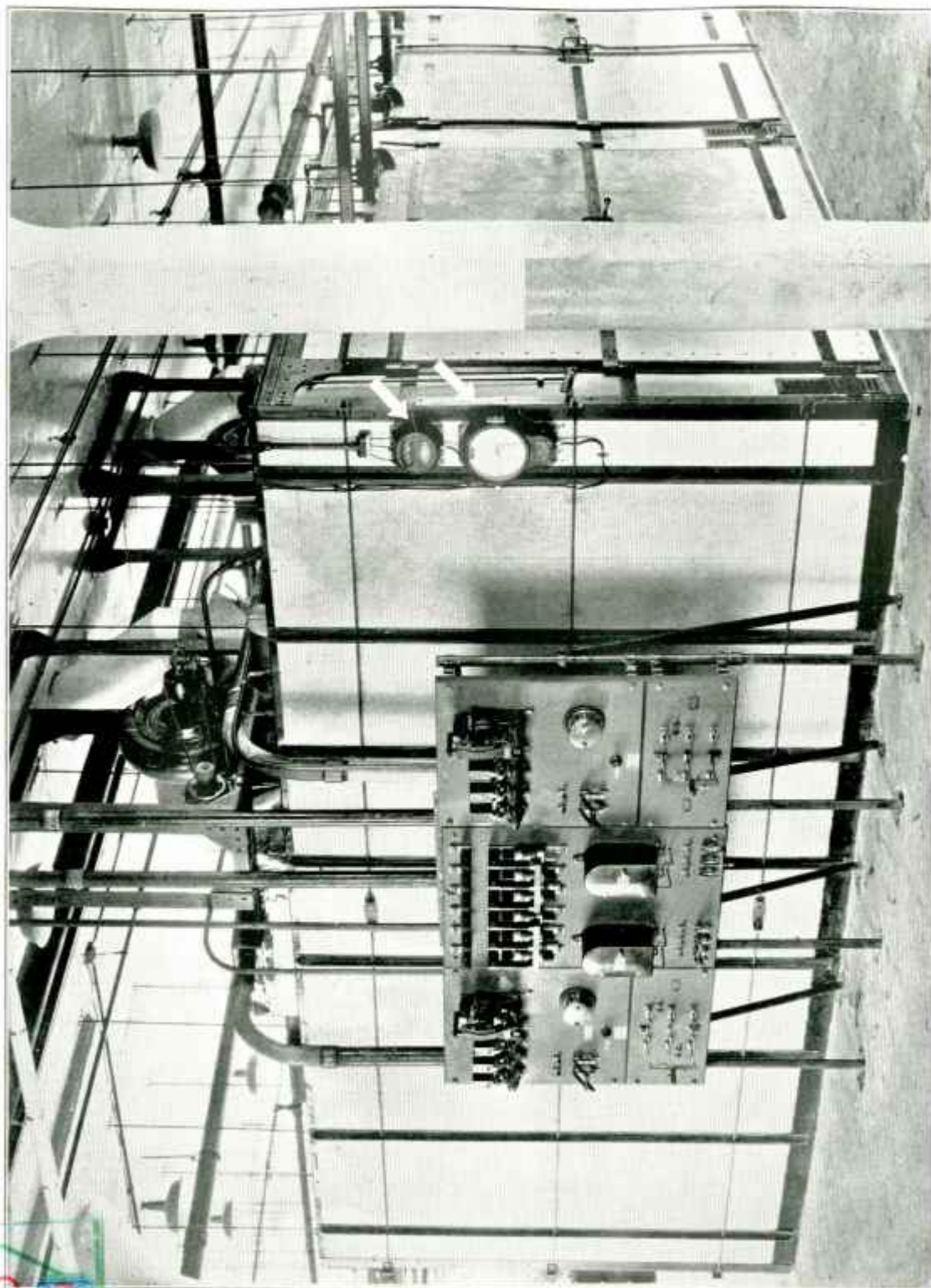
		EACH
No. 13851	Tyco Gas-Actuated Electric-Contact Temperature Control	\$90.00
Has copper capillary bulb about fifteen feet long; six feet of bronze-armored connecting tubing and 3-inch split clamp-flange .		

NOTE—Steel bulb will be furnished, if specified, without extra charge.

EXTRAS—For above same as for Gas-Actuated Recording Thermometers (pages 21 and 22).



Tyco's Electric-Contact Temperature Controls



Above Photograph Shows Tyco's Electric-Contact Temperature Control Installed on an Electrically-Heated Enameling Oven. Note also the Tyco's Recording Thermometer.

Tyco's Thermoelectric Pyrometers

For High-Temperature Applications to 3600° F.

For Brick, Tile, and Pottery Kilns, Tunnel Kilns, Vitreous Enameling, Heat Treating and Annealing Furnaces, Ovens, Stacks, Ducts, Passes, etc.

Thermoelectric Indicating or Recording Pyrometers in some form are everywhere acknowledged today as being the only practical instruments that can be employed in measuring temperatures above 950-1000°F. (537°C.) or as high as 3632°F. (1500°C.).

Applications are unlimited, but should be studied carefully. When it is necessary to record temperature or get indications from 50-1000 feet from the source of heat, an electric pyrometer best meets the requirements.

Pyrometer systems are simple and allow much flexibility in application and installation, because they are electrical in principle. Fittings can be supplied for the highest temperature ranges. Pyrometer systems usually consist of three parts, i.e.—a thermocouple or fire-end, an indicating or recording instrument, and a length of duplex cable to connect the thermocouple and meter. No outside source of current, such as batteries, etc., is necessary. Multiple systems may be a combination of all of the above and with a simple switching device added to the circuit any number of points can be read on a single instrument.

The Thermocouple—Any two dissimilar metals joined together at one end with the opposite, or free, ends connected to a registering device or galvanometer will produce a feeble electric current (.001 volts) if the welded end is heated above the temperature of the rest of the circuit. A thermocouple therefore is two dissimilar metals selected for their ability to withstand the temperatures involved. These wires or measuring elements necessarily are protected from contamination of their chemical purity by furnace gases, with a suitable gas-tight protection tube. After long service at high temperature these parts oxidize, or burn off, making replacement necessary, usually at small cost.

The Lead Wires—These wires convey to the instrument the current generated in the thermocouple. When great accuracy is not required simple duplex copper conductors are employed. Where the greatest accuracy is necessary the lead wires consist of special alloy conductors having the same millivolt-temperature values as the measuring elements of the thermocouple described above.

Indicating and Recording Pyrometers—These instruments are sensitive millivoltmeters or galvanometers capable of registering the small current generated in the thermocouple. Instead of their scales being marked in electrical terms, or millivoltage, they are graduated directly in degrees temperature, as there is a fixed relation between them. All instruments must be accurate within $\frac{1}{2}$ of 1% or they are rejected in the test room before shipment. A few of the instruments and thermocouples are illustrated in this catalog.

For Complete Pyrometer Information Send for Catalog Part 4000

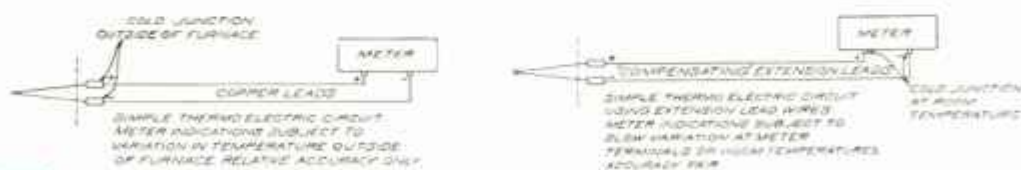


Diagram Showing Simple Thermoelectric Circuit



Tycos Pyrometers



High-Resistance Wall-Type Indicator



Portable-Type Indicating Pyrometer

Duplex-Record
Recording PyrometerNo. 4195N
ThermocoupleNos. 4155, 4195, 4195A
ThermocoupleNo. 4132
Thermocouple

1268-II	High-Resistance Wall-Type Indicator, range 1000, 2400, 3000° F.	EACH \$112.50
1288	High-Resistance Portable Wall-Type Indicator, range, 1000, 2400, 3000° F.	115.00
1366-M	High-Resistance Recording Pyrometer, Single Record, 2400° F.	300.00
1459	High-Resistance Recording Pyrometer, Double Record, 2400-2400° F.	400.00
4155-39"	Base-Metal Thermocouple, length 39 inches, 1000° F.	16.00
4195-39"	Base-Metal Thermocouple, length 39 inches, 1400° F.	22.50
4195-A-39"	Base-Metal Thermocouple, colorized stem, 1800° F.	25.00
4195-N-39-12"	Base-Metal Thermocouple, length 39 inches, 12-inch Nichrome tip, 2200° F.	28.00
4132-18	Platinum Thermocouple, length 18 inches, 10 inches under flange; porcelain stem, 3000° F.	75.00
4060	Tycos Radiation Pyrometer Outfit, range 3000° F.	357.50

Pyrometers can be supplied in various Centigrade or Fahrenheit ranges, also with automatic internal cold-junction compensation if desired. Thermocouples can be furnished also in practically any length specified and with suitable fittings.

For complete Pyrometer information send for Catalog Part 4000

Catalog Part 800—Page 55





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Available Catalogs of *Tycos* Instruments

We make a full line of instruments for indicating, recording and controlling temperature and pressure, aggregating several thousand types and styles. They are covered by the following catalogs, any of which will be sent on request.

- Part 1—Instruments for Steam-Power Plants.
- Part 2—Instruments for Rubber Plants.
- Part 3—Instruments for Textile Plants.
- Part 4—Regulators of Temperature, Time, Temperature and Time, and Pressure.
- Part 5—Instruments for Lumber Dry Kilns.
- Part 100—Industrial Thermometers.
- Part 200—Instruments for Sugar Plants.
- Part 300—Instruments for Refrigerating and Cold-Storage Plants.
- Part 500—Instruments for the Food-Preserving Industry.
- Part 500A—Instruments for the Milk and Ice-Cream Industry.
- Part 500B—Instruments for Condensed, Evaporated and Powdered Milk Processes.
- Part 500P—Instruments for the Meat-Packing Industry.
- Part 600—Instruments for Gas Plants.
- Part 700—Instruments for Varnish Making, Oil Boiling, Asphalt Melting, etc.
- Part 700A—Instruments for Oil Tempering, Metal Baths, Tempering Ovens, etc.
- Part 800—Instruments for Enclosed-Space Applications; Air Ducts, Ovens, Kilns, etc.
- Part 900B—Instruments for Bakers.
- Part 900C—Instruments for Confectioners.
- Part 1300—Hygrometers.
- Part 1400—Engraved Thermometers.
- Part 1500—Hydrometers.
- Part 1700—Instruments for the Oil Industry.
- Part 2000—General Catalog of Short & Mason Meteorological Instruments; Barometers, Pocket and Surveying Compasses, Rain Gauges, Wind Gauges, etc.
- Part 4000—Thermoelectric and Radiation Pyrometers.
- Part 5000—General Catalog of Tin-Case, Copper-Case, and Cabinet (Wood Back) Thermometers; Hydrometers, etc.
- Part 5000S—Instruments for Educational Institutions.
- Bulletin 11850—Electric-Contact Temperature Controls.
- Bulletin 15700—Self-Acting Temperature Regulators.
- Bulletin 17000—"Type-P" (Rigid Stem) Temperature Regulators.

