

# **SARGENT-WELCH**

# SARGENT-WELCH SCIENTIFIC CO.

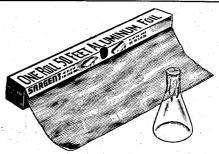
SCIENTIFIC LABORATORY INSTRUMENTS • APPARATUS

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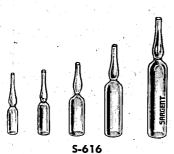
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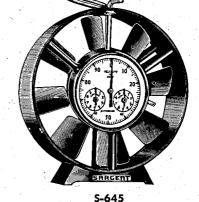




S-610

S-602	ADAPTER—Vacuum, F Grindings, Drip Tip, PYREX Bration assemblies using vacuum or reduced pressure to fa 24/40, outer part, at inlet and F grinding No. 24/40, innet tube for connection to vacuum or filter pump. Delivery to Included angle, 105°. Each*Per case of 6.	cilitate evaporation. er part, for connectio ube cut 20 mm below	With ₹ grinding No. n to receiver and side the joint and beveled
S-602-10	ADAPTER—Vacuum, \$ Grindings, Drip Tip, KIMAX, Kimax. Each	Kimble No. 45005. S	Similar to S-602 but <b>10.58</b>
S-608	ALARM ATTACHMENT—Burglar, for Fire Alarm. Attac string to door or window sets off burglar alarm. Does no	hes at the back of S-	33777 fire alarm and
S-610	ALUMINUM FOIL—In Rolls. For wrapping and closure.	In "tear off" carton.	
	Size	A	В
	Approximate thickness, mm (inches)	0.025 (0.001)	0.0381 (0.0015)
	Width, cm (inches)	30.5 (12)	55.7 (18)
	Length per roll, meters (feet)	7.63 (25)	15.25 (50)
	Each roll	.95	4.00





S-616 AMPOULES-Non-Corrosive, N-51A Glass, Kimble No. 12012. Formed of a special borosilicate glass with flat bottoms and constricted necks with enameled opening rings. Highly resistant to chemical attack.

Size	В	• с	~ D	E	F
Capacity, ml	1	2	5	10	20
Quantity per pkg	144	144	72	48	24
Quantity per case	1152	1152	864	576	288
Per pkg.		11.23	7.27	7.58	6.65
†Per case	80.64	80.64	78.62	81.79	72.00

S-645 ANEMOMETER—Taylor, Biram Pattern. For measurement of air velocities from 200 to 3000 feet per minute with three dials, one sweep and two integrating, with 10,000 feet total registration. The frame diameter is 102 mm (4 inches) and a disconnector and automatic zero setting attachment are provided. The movement is jeweled. With leather case and correction chart......230.00

\*Discounts: 20 cases—5%; 50 cases—10%; 100 cases—15%; 150 cases—20%. Assortable with items marked\*. See page X. †Discounts: 20 cases—5%; 50 cases—10%; 100 cases—15%; 150 cases—20%. Assortable with items marked†. See page X.

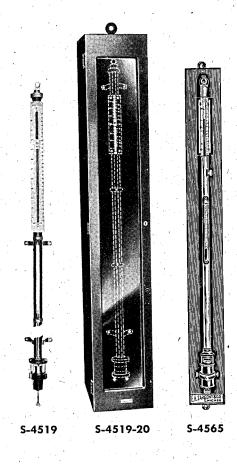
S-4519

#### **BAROMETERS**

BAROMETER—Mercurial, English and Metric Scales, Sargent-Welch. A sturdy, serviceable, mercurial barometer suitable for average use and featuring a mercury column a full 4 mm in diameter for ready visibility and negligible capillarity, both English and metric scales etched on a single stainless steel plate to ensure permanent agreement, a sliding vernier reading to 0.01 inch and 0.1 mm and provided with two sighting edges to eliminate parallax, a diffusely lighted background to facilitate setting the vernier accurately to the mercury meniscus, and a rigid metal V frame to house and protect the barometer tube.

The scales occupy both sides of the vernier slot and are graduated from 22 to 32 inches by 0.1 inch and from 55 to 83 cm by 1 mm, sufficient range for altitudes from 305 meters (1000 ft) below sea level to 2500 meters (8000 ft) above. A window cut in the frame behind the tube and vernier slot is backed with milk-white plastic to provide a contrasting background for reading the column. A transparent plastic cistern resists breakage and excludes dust and other soil. Zero adjustment of mercury level in the cistern is through displacement by means of a thumb screw; contact between the mercury surface and Monel metal zero index point being detected visually.

Length, 102 cm (40 in). Complete with suspension ring at top and attached Celsius-Fahrenheit thermometer.



S-4519-25 BAROMETER CONVERSION SCALE—Plastic, Sargent-Welch. For S-4519 barometer for interconversion of readings among millibars, pascals, millimeters and inches. Suitable for mounting. 2.00

S-4565 BAROMETER—Mercurial, English and Metric Scales, U.S. Army Signal Corps Type.

Similar to S-4519 but with vernier rack and pinion operated for greater precision in setting; tube and cistern metal cased with ivory zero index point and level adjustment in the form of a flexible bottom and an adjusting thumb screw which bears on it. Scales are graduated from 25.5 to 31 inches by 0.1 inch and 646 to 800 cm by 1 mm to provide an altitude range of use of

sea level to 915 meters (3000 ft). High altitude ranges can be supplied to order. Diameter of mercury column, 6 mm. Ultimate legibility is 0.01 inch and 0.1 mm. Mounted on a 9 x 107 cm plywood reinforced wood grained plastic panel with bracket and ring clamp for cistern. Complete with mounted Celsius-Fahrenheit thermometer. Supplied filled with mercury. 225.00

S-4585





S-4635

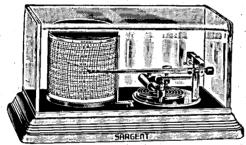
S-4640

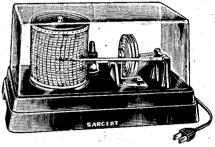
#### S-4635 BAROMETER—Aneroid, Compensated for Temperature.

In brass case 13.3 cm (5½ inches) in diameter with suspension ring and open enameled metal dial revealing mechanism and with high grade movement having automatic temperature compensation. An index hand is provided which may be adjusted by means of a knurled thumb-

screw projecting from the center of the glass dial cover. Graduated in millibar and inch scales. Range approximately 850 to 1045 millibars in 1 millibar subdivisions and approximately 25.1 to 31.1 inches in 0.02 inch subdivisions. For altitudes from sea level to 3500 feet....140.00

S-4640 BAROMETER—Aneroid, Compensated for Temperature, Flange Mounting. Similar to S-4635 except with brass case equipped with heavy mounting flange provided with three screw holes for attachment to vertical surfaces. Outside diameter of flange, 17.1 cm (634 inches); outside diameter at face, 13.3 cm (514 inches); depth, 5.7 cm (214 inches). Complete with three brass screws for mounting.





S-4655

5-4667-10

### S-4655 BAROGRAPH—Aneroid, Recording, Spring Driven, Taylor.

For continuous automatic recording of barometric variations and consisting of a temperature compensated diaphragm movement controlling a pen and a seven day spring driven clock movement for rotation of the chart. The charts have a seven day linear time coordinate divided in two hour intervals and a radial pressure coordinate with a range from 28 to 31 inches

S-4660

S-4665

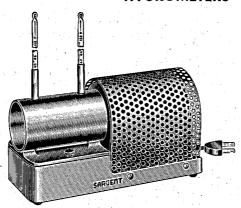
divided in intervals of 0.1 inch.

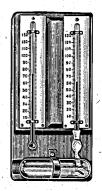
Enclosed in a plastic case with hardwood base. Range from sea level to 3500 feet. Length, 32.1 cm (125% inches); width, 18.7 cm (73% inches); height, 15.6 cm (61% inches). Complete with forecast cards, bottle of ink and weekly charts for a period of 1 year.

Each...:....300.00

S-4667-10 BAROGRAPH—Aneroid, Recording, Electric, Taylor. Similar to S-4655 except with range of 29 to 31 inches, 7-day chart driven by synchronous electric motor and with plastic case and cover. With unique movement providing greater sensitivity and permitting use at altitudes from sea level to 10,000 feet. Length, 32.7 cm (12 1/8 inches); width, 17.1 cm (6 1/4 inches); height, 16.5 cm (6 1/4 inches). Complete with 52 weekly charts S-4669-10, bottle of ink and instructions. For operation with 115 volt, 60 Hz A.C.

#### **HYGROMETERS**





S-42610

S-42635

5-42610 HYGROMETER—Wet and Dry Bulb, Motor Ventilated, Precision Model, Continuous Indicating, Electric, Sargent-Welch.

> A continuous indicating wet and dry bulb instrument with the precision of a sling psychrometer provided by an ample continuous supply of air across the bulbs. This hygrometer is recommended as preferable to any other type of humidity indicator for laboratory use since it requires no manipulation to secure a reading and is self-contained with respect to both air supply and water supply.

> It consists of a cast aluminum base with rubber feet, containing a water reservoir with a capacity of 200 ml, and supporting a silent shaded pole induction motor driving a ventilating fan and an aluminum wind tunnel in which are inserted a pair of precision thermometers 300 mm long, graduated from 0° to 120°F in intervals of 0.5°. Thermometers are held in rubber sleeves and are easily removable and replaceable.

Water is fed from the reservoir to the wet bulb by means of a replaceable cotton wick.

Due to a correct adjustment of ventilating speed, which is between 183 and 305 meters per minute, and a large reservoir capacity, the motor may be kept in continuous twenty-four hour operation. Reservoir requires refilling under these circumstances only at intervals of approximately one week. A line switch permits intermittent operation if continuous operation is not desired. The motor and fan are protected by a removable perforated metal guard. All exterior metal parts are chromium plated.

Length, 23.5 cm; width, 10.5 cm; total height, including thermometers, approximately 38.1 cm.

Complete with thermometers, wick, relative humidity table and cord and plug for attachment to standard outlets. For operation with 115 volt, 50 or 60 Hz A.C.....135.00

S-42615 Thermometer, Only. Of S-42610 hygrometer, for use either as wet or dry bulb thermometer. Pre-

Wick, Only, Cotton. Of S-42610 hygrometer, for replacement. Length, 127 mm; diameter, 7 mm. S-42625 

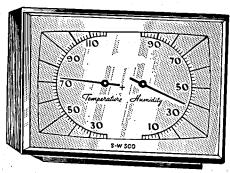
HYGROMETER—Wet and Dry Bulb, Mason. Consisting of two thermometers with water reservoir S-42635 and scales mounted on a mahogany colored plastic panel suitable for suspension on a wall. The thermometers have magnifying fronts and are graduated from approximately 30° to 120°F in intervals of 2°. The water reservoir is supported in spring clips to permit convenient refilling. Thermometers are mercury filled and mounted on engraved metal scales accurately fixed in position and insulated from the panel. The panel is 22 cm in height and 11 cm wide and is provided with suspension eyelet. Complete with extra wick and chart for determining relative humidity .......17.95

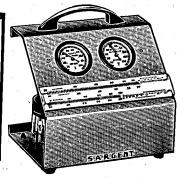
Thermometer, Only. Of S-42635 hygrometer, for replacement of either the wet bulb or the dry S-42645 

S-42655 

S-42665 Wick, Only, Cotton. For wet bulb of S-42635 and S-42675 hygrometers. Length, 100 mm; diameter, 8 mm. Per dozen.....







S-42675

S-42710

S-42721

#### S-42675 HYGROMETER—Wet and Dry Bulb, Comfortguide®, Taylor.

A convenient wet and dry bulb hygrometer equipped with an integral revolving computation table for direct reading of relative humidities from observed temperature differences without reference to separate tables. Adjustment of the knob to show observed wet bulb depression at the left of the chart brings the correct relative humidity figure on the chart directly opposite the observed dry bulb temperature.

The thermometers are red liquid filled and

equipped with magnifying lens fronts and attached to metal scales with a range from 40° to 110°F in intervals of 2°. The mounting is of molded plastic.

The reservoir is an integral plastic trough with an attached, pivoting cover to minimize evaporation losses.

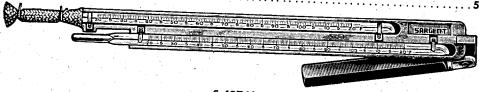
Overall dimensions, 178x127x35 mm. For replacement wicks, see S-42665. Complete with extra wick and set of instructions..... 16.95

S-42710

HYGROMETER-THERMOMETER—Dial Type, Direct Reading, Desk Type. A convenient temperature and humidity indicator in a molded plastic case with transparent plastic crystal and dial graduated from 20° to 120°F in intervals of 2° and from 0% to 100% relative humidity in intervals of 2%. Both active elements are spiral, the temperature element being bi-metallic while the humidity element is coated composition. Reliable for approximate readings. Outside dimensions (h x w x d), 95x133x64 mm......5.95

S-42721

HYGROMETER—Portable, Bi-Metallic. A compact wet and dry bulb instrument using matched bi-metallic thermometers and incorporating a water reservoir and slide calculator in an open anodized aluminum case, which can be permanently mounted or carried by hand and swung to produce ventilation of the wet bulb. The dial thermometers are graduated from 0° to 140°F in intervals of 2°. The upper and lower scales on the slide calculator cover relative humidity range of 10 to 100% and temperature range of 20° to 100°F, respectively. Depth, 120 mm; width, 168 mm; 



S-42740

S-42740

## HYGROMETER—Sling Psychrometer.

The standard instrument for accurate determination of water concentration in air or relative humidity by means of wet and dry bulb temperature difference. It consists of an enameled metal frame in which are rigidly mounted two matched 229 mm thermometers graduated from  $20^{\circ}$  to  $120^{\circ}$  F in intervals of  $1.0^{\circ}$ , one of which

is equipped with a tubular cotton wick S-42775.

The frame is attached by a folding swiveled handle in such a way as to permit its rapid rotation about the handle as a pivot, so providing ventilation for the wet bulb.

Complete with protective plastic case, six extra wicks and calculating tables......28.00

42744

S-42775

Thermometer, Only. For replacement either as wet or dry bulb thermometer in S-42740 sling 

Wick, Only, Cotton. For use with S-42740 sling psychrometer. Length, 55 mm; diameter, 8 mm. Per dozen....



S-42810 with S-42810-20



S-42830-A

#### S-42810 HYGROMETER—Portable, Probe Type, Direct Reading, Lab-Line.

A portable, probe type of hygrometer, line operated and direct meter reading from 30%-100% R.H. with an accuracy of  $\pm 5\%$  R.H.

S-42810-20 probes employ a wire mesh guarded humidity sensor of the variable resistance type, comprising a sulfonated polystyrene strip imprinted with a platinum grid and coated with a hygroscopic layer, which equilibrates rapidly with atmospheric moisture. Corresponding probe resistance is converted to

relative humidity by an A.C. bridge.

Temperature range of use, 32°-180°F with ±0.2% correction of reading for each degree F above or below 82°F.

Height, 15.2 cm (6 inches); width, 10.2 cm (4 inches); depth, 5.1 cm (2 inches); net weight, .57 kg ( $1\frac{1}{4}$  pounds).

Without probe, which should be ordered with the hygrometer for calibration as a unit. For operation with 115 volt, 50 or 60 Hz A.C. 94.00

# S-42810-20 PROBES — Direct Reading Hygrometer, Lab-Line. For S-42810 hygrometer, with which they should be ordered for calibration as a unit.

Size	Α	. В	C '
Cable length, cm	152	305	762
Cable length, feet	5	10	25
Each	112.00	113.00	116.00

#### S-42830 HYGROMETERS—Dew Point, Probe Type, YSI Model 91.

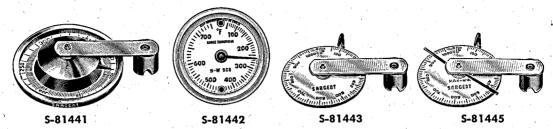
Essentially a thermistor thermometer with temperature and vapor pressure (2-60 mm mercury) scales for use in the determination of dew point and vapor pressure with S-42830-20 and S-42830-22 probes. The latter establish a moisture equilibrium with the atmosphere with a corresponding resistance between two integral electrodes between which there is a fixed voltage. Inter-electrode current sets up a temperature moisture equilibrium, the temperature being

sensed by a thermistor and converted to dew point and vapor pressure in the instrument. With S-42830-25 probe, ambient temperature can be read. Accuracy (ambient and dew point), better than  $\pm 0.9^{\circ}$ C ( $\pm 1.6^{\circ}$ F) at meter,  $\pm 0.4^{\circ}$ C ( $\pm 0.75^{\circ}$ F) at 0-10 mv recorder output terminals. Height, 19.7 cm (7¾ inches); width, 25.4 cm (10 inches); depth, 13.3 cm (5¼ inches); net weight, 3 kg (6½ pounds). For operation from 115 volt, 50 or 60 Hz A.C.

No	A	В .
Temperature range	-12° to +42°C	11° to 107°F
Each	315.00	315.00

S-42830-25 PROBE—Ambient Temperature. For use with S-42830 in ambient temperature measurements.24.00

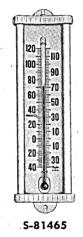
#### **Surface Temperature Thermometers**

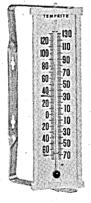


5-81441 THERMOMETERS—Bimetallic, Surface, Fully Enclosed. Designed to measure temperatures of flat surfaces. For any horizontal surface, measurement can be made by simply placing the instrument on that surface. For non-horizontal locations, two methods assure quick and easy installation. For ferrous surfaces, a magnetic clamp, in the form of a leaf spring attached to a permanent magnet, is supplied. Thermometer can also be attached by coating the bottom with silicone grease (see S-77323) which will hold securely throughout specified temperature ranges. Units are sealed for protection against corrosive atmospheres. Accuracy, ±2% of full scale; subdivisions, 2°; diameter, 50 mm. Without silicone grease.

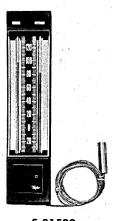
No		C	D	E	·
Range, degrees	-10 to 150C	20 to 180C	-50 to 250F	0 to 300F	70 to 370F
Each	11.28	11.28	11.28	11.28	11.28

S-81445 THERMOMETER—Bimetallic, Surface, Maximum and Minimum Indicating. Identical with S-81443 but registers maximum and minimum temperatures with two manually reset pointers.....8.70





S-81475







S-81500 S-8

5-8156







S-81565



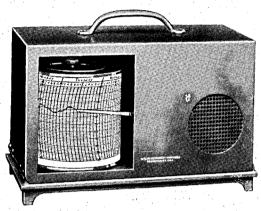
S-81567

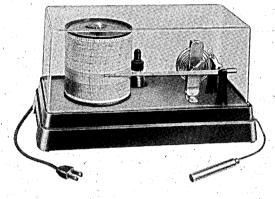
S-81563 READING LENS—Thermometer and Buret, Wide Field, Sargent-Welch. With 30 mm lens providing a 5/3X magnification and 20 mm field of view. Wide field allows observer to follow relatively large changes in level without moving lens, leaving both hands free for operating equipment or recording data. The lens is set in a cast aluminum tube with V grooves and a stainless steel spring for clamping to tubes up to 15 mm in O.D.

S-81567 READING LENS—Thermometer and Buret, Double Lens. With adjustable clamp and two lenses providing multiplications of 5X, 7X or 10X. Attachable to tubes 3 to 26 mm in diameter. 18.50

FOR THERMOCOUPLES AND PYROMETERS, SEE S-71845-20 AND FOLLOWING.

#### **Recording Thermometers**





S-81580

S-81580-50

#### S-81580 THERMOMETER—Recording, Spring Wound, Thermograph, Taylor.

Portable instrument provides a continuous record of temperature variations over a weekly or daily period. Thermometer may be placed at any desired location since no electrical connection is required. Any changes in temperature are sensed by the excellent bi-metallic thermometer element which is attached to a long indicating arm and ink stylus. The stylus continuously records the temperature on a chart mounted on a revolving drum. The drum, which is rotated by an eight-day, spring driven jewelled, clock mechanism, makes one complete revolution per

week. Time, temperature and pen arm adjustments may be easily made to ensure maximum accuracy. The chart, to be changed once a week, is divided horizontally into 2-hour intervals and vertically into 2°F intervals from 0° to 100°F.

All parts are enclosed in a gray enameled metal case,  $26 \times 13 \times 16$  cm high. The cover is hinged, has a carrying handle on top and a window in front, and is equipped with a padlock and duplicate keys. One year's supply of charts, a bottle of ink and instructions are supplied.

S-81580-10 Charts, Only. Of S-81580. Package of 52 charts (one-year supply) for replacement.........9.95

#### S-81580-50THERMOMETER—Recording, Electric, Thermograph, Taylor.

A continuous record of outdoor temperature is traced on an indoor chart by this electrically operated remote-reading instrument. The system consists of a Bourdon spring, connected by an eight-foot armored capillary tube to the temperature sensing tube. The system is liquid filled and movement of the spring, caused by expansion or contraction of the liquid, actuates a pen arm which traces the record of the temperature changes on the chart. The seven-day chart is divided horizontally into five significant temperature zones, distinguished by color bands for

convenience in reading. The range of the chart is minus 40° to 120°F with 2° divisions. The record traced by the pen shows present temperature, as well as all changes which have occurred during the week to date and the hours at which the changes took place.

S-81580-60 Charts, Only. Of S-81580-50. Package of 52 charts (one-year supply) for replacement......9.95