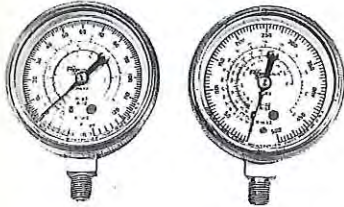


# GAUGES - PRESSURE AND COMPOUND FOR R12, R22, R502, AND R717 (AMMONIA)

## ROBINAIR & MARSH REFRIGERATION GAUGES



**2½" Diam. Dual Scale, Direct Mounted, Bottom Entry – 1/8" MPT**

| MAKE     | TYPE     | MODEL | CAT. NO. | RANGE                                    | TEMP./REFRIG. |
|----------|----------|-------|----------|--|---------------|
| ROBINAIR | Pressure | 14763 | 33074    | 0 - 3500 kPa<br>0 - 500 PSI              | °C R12,22,502 |
|          | Compound | 14762 | 33073    | -100 - 0 - 1700 kPa<br>30" - 0 - 250 PSI | °C R12,22,502 |
| MARSH    | Pressure | W0023 | 33070    | 0 - 3500 kPa<br>0 - 500 PSI              | °C R12,22,502 |
|          | Compound | W0011 | 33069    | -100 - 0 - 1700 kPa<br>30" - 0 - 250 PSI | °C R12,22,502 |

## BUDENBERG AMMONIA GAUGES



**4" (100mm) Diam. Steel Tube, Stainless Steel Movement**

| TYPE     | MOUNTING   | MODEL | CAT.NO. | RANGE           | TEMP.   |
|----------|------------|-------|---------|-----------------|---------|
| COMPOUND | Rear       | 56F   | 33063   | 30"-0-150 PSI   | °F R717 |
|          | Flange     | 56F   | 33053   | -100-0-1000 kPa | °C R717 |
|          | Surface    | 56F   | 33064   | 30"-0-200 PSI   | °F R717 |
|          | Mounted    | 56F   | 33054   | -100-0-1600 kPa | °C R717 |
|          | 3/8" BSP   | 56F   | 33065   | 30"-0-300 PSI   | °F R717 |
|          | Bott.Entry | 56F   | 33055   | -100-0-2500 kPa | °C R717 |

## PRESSURE GAUGES (NO TEMPERATURE SCALE)

| MAKE  | SIZE | TYPE     | MOUNTING & CONNECTIONS | MODEL | IMPERIAL - PSI |           | S.I.METRIC - kPa |           |
|-------|------|----------|------------------------|-------|----------------|-----------|------------------|-----------|
|       |      |          |                        |       | CAT. NO.       | RANGE PSI | CAT. NO.         | RANGE kPa |
| FLOYD | 2½"  | Pressure | DIRECT MOUNT           |       | 330126         | 0 - 5     |                  |           |
|       |      |          |                        |       | 330127         | 0 - 10    |                  |           |
|       |      |          |                        |       | 330128         | 0 - 15    |                  | 0 - 100   |
|       |      |          |                        |       | 330129         | 0 - 30    |                  | 0 - 160   |
|       |      |          |                        |       | 330130         | 0 - 50    |                  | 0 - 250   |
|       |      |          |                        |       | 330131         | 0 - 60    |                  | 0 - 400   |
|       |      |          |                        |       | 330132         | 0 - 80    |                  | 0 - 600   |
|       |      |          |                        |       | 330133         | 0 - 100   |                  | 0 - 800   |
|       |      |          |                        |       | 330134         | 0 - 150   |                  | 0 - 1000  |
|       |      |          |                        |       | 330135         | 0 - 160   |                  |           |
|       |      |          |                        |       | 330136         | 0 - 200   |                  | 0 - 1600  |
|       |      |          |                        |       | 330137         | 0 - 250   |                  |           |
|       |      |          |                        |       | 330138         | 0 - 300   |                  | 0 - 2500  |
|       |      |          |                        |       | 330139         | 0 - 400   |                  |           |
|       |      |          |                        |       | 330140         | 0 - 500   |                  |           |
|       |      |          |                        |       | 330141         | 0 - 600   |                  | 0 - 4000  |

6

IF IT IS NOT LISTED IN THIS CATALOGUE — ASK US ANYWAY  
WE HAVE MANY ITEMS AND ACCESSORIES, TOO NUMEROUS TO LIST  
WE CAN PROBABLY HELP YOU

# THERMOMETERS

| MAKE | CAT. NO. | P/N | RANGE | FILL | DESCRIPTION |
|------|----------|-----|-------|------|-------------|
|------|----------|-----|-------|------|-------------|

**POCKET THERMOMETERS**

|           |        |            |            |            |   |
|-----------|--------|------------|------------|------------|---|
| BACHARACH | 3317   | 12-5013C   | -45/+50°C  | Red Spirit | Glass Yellow b'ground, Metal Case & clip. |
|           | 3318   | 12-5013B   | -45/+50°C  | Mercury    | "   |
| ROBINAIR  | 3311   | 14781      | -30/+50°C  | Mercury    | Glass White b'ground, Pocket tube & clip. |
|           | 3312   | 14782      | -10/+110°C | Mercury    | "   |
|           | 3313   | 14681      | -30/+50°C  | Red Spirit | "   |
|           | 3314   | 14682      | -10/+110°C | Red Spirit | "   |
|           | 33174  | M10620     | -40/+60°C  | Red Spirit | Metal Case & Clip 135mm (5-5/16") long    |
| ZEAL      | 33175  | M10621     | 0/+60°C    | "          | "   |
|           | 33176  | M10622     | -10/+110°C | "          | "   |
|           | 33177  | M10623     | -40/+140°F | "          | "   |
|           | 33178  | M10624     | +30/+140°F | "          | "   |
|           | 33179  | M10625     | +30/+220°F | "          | "   |
|           | 33180  | P10620     | -40/+60°C  | "          | Plastic Case & Clip 135mm (5-5/16") long  |
|           | 33181  | P10621     | 0/60°C     | "          | "   |
|           | 33182  | P10622     | -10/+110°C | "          | "   |
|           | 33183  | P10623     | -40/+140°F | "          | "   |
|           | 33184  | P10624     | +30/+140°F | "          | "   |
|           | 33185  | P10625     | +30/+220°F | "          | "   |
|           | 33196  | M10630     | -30/+50°C  | Mercury    | Metal Case & Clip 135mm (5-5/16") long    |
|           | 33197  | M10631     | 0/+60°C    | "          | "   |
|           | 33198  | M10632     | -10/+110°C | "          | "   |
|           | 33199  | M10633     | -20/+120°F | "          | "   |
|           | 331100 | M10634     | +30/+140°F | "          | "   |
|           | 331101 | M10635     | +30/+220°F | "          | "   |
|           | 331103 | P10630     | -30/+50°C  | "          | Plastic Case & Clip 135mm (5-5/16") long  |
|           | 331104 | P10631     | 0/+60°C    | "          | "   |
|           | 331105 | P10632     | -10/+110°C | "          | "   |
| 331106    | P10633 | -20/+120°F | "          | "          |   |
| 331107    | P10634 | +30/+140°F | "          | "          |   |
| 331108    | P10635 | +30/+220°F | "          | "          |   |

**DIAL THERMOMETERS – POCKET TYPE**

|          |       |       |            |  |                                      |
|----------|-------|-------|------------|--|--------------------------------------|
| DOBBIE   | 33117 | PT50  | -40/+70°C  |  | 1" Dial 5" Stem. Pocket tube & Clip. |
| ROBINAIR | 33113 | 40859 | -40/+160°F |  | "                                    |
|          | 33114 | 10599 | 0/+220°F   |  | "                                    |
| ZEAL     | 33282 | MC25  | -10/+110°C |  | "                                    |

**DIAL THERMOMETER – WITH ADJUSTABLE CLAMP**

|        |       |       |          |  |                                       |
|--------|-------|-------|----------|--|---------------------------------------|
| DOBBIE | 33115 | GT100 | 0/+250°C |  | 1½" Dial. Tel-Tru.St. Steel. 8" Stem. |
|--------|-------|-------|----------|--|---------------------------------------|

**ROOM OR WALL MOUNTED THERMOMETERS**

|      |       |       |            |            |                                      |
|------|-------|-------|------------|------------|--------------------------------------|
| ZEAL | 33289 | 12283 | 0/+50°C    | Red Spirit | 222x51x19mm Plastic Frame.           |
|      | 33291 | 12083 | -40/+60°C  | "          | 200x35x10 Plastic Frame. Refrig. Use |
|      | 33286 | 12319 | +10/+220°C | Mercury    | Confectionery Application.           |

**GENERAL & SPECIAL PURPOSE THERMOMETERS**

|      |       |       |            |         |                                     |
|------|-------|-------|------------|---------|-------------------------------------|
| ZEAL | 33193 | 10530 | -10/+110°C | Mercury | Stirring Rod Type. 305mm (12") long |
|      | 33194 | 10531 | -10/+250°C | "       | "                                   |

NOTE : Where °F type Thermometers only are listed above, ask for °C type equivalents when ordering.

OTHER RANGES AND TYPES ALSO AVAILABLE ON REQUEST

Illustration Reference

1. Robinair Pocket Thermometer
2. Robinair Dial Pocket Thermometer
3. Zeal Pocket Thermometer Dial
4. Dobbie Adjustable Clamp for attaching to side of vessel or resting on flat surface
5. Zeal Wall Mounted Thermometer
6. Zeal Stirring Thermometer with reinforced tip

# HYGROMETERS & SLING PSYCHROMETERS

## BACHARACH SLING PSYCHROMETER

Indicates accurately the percent of relative humidity without reference to charts.

### Features

- Slide rule construction quickly converts temperature to R. H.
- Built-in water reservoir holds sufficient water for several hours testing.
- Thin-bulb design gives fast thermal response.
- Thermometers are made of shock-resistant glass; stems have deep-etched numerals and 1° scale divisions for easy reading.
- Designed for portability.

This unique Sling Psychrometer accurately determines percent relative humidity without necessity of consulting complex tables. A water reservoir eliminates the need to



wet the wick each time a reading is taken. It can be whirled freely. A built-in slide rule calculator correlates wet and dry bulb thermometer indications for direct reading of R. H. measurement. Thermometer case telescopes in to handle for protection when not in use.

### Applications

Measurement of comfort conditions in air conditioned environments, hospital operating rooms, etc.

Tests in industrial atmospheres where high or low humidity may be critical in manufacturing processes.

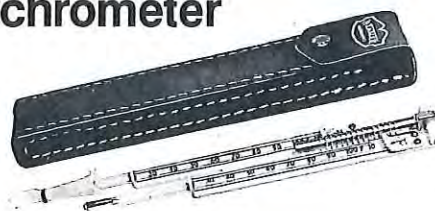
School Athletic Departments use it to determine safe conditions for practice.

| CAT. NO. | BACHARACH CODE NO. | TEMP. RANGE | FILL    | Spare Part — Thermometer |           |
|----------|--------------------|-------------|---------|--------------------------|-----------|
|          |                    |             |         | CAT. NO.                 | CODE NO.  |
| 33131    | 12 - 7013          | -5 to +50°C | MERCURY | 33129                    | 12 - 0265 |

# ROBINAIR®

Used to determine relative humidity. Has quality mercury thermometers with magnifying lenses. Leatherette case and complete instructions included.

## Weksler sling psychrometer



ROBINAIR NO. 12149

CAT. NO. 33123



## Kane-May

# KM450 The versatile, low cost, digital electronic thermometer.

**With a four probe choice for solids, semi-solids, gases, liquids, or powders.**

The new Kane-May KM450 with a low price that means good, accurate thermometers no longer have to be shared or restricted.

**POCKET SIZE**

The KM450 accepts four different probes —. Simply plug in the appropriate probe, switch on, and you can measure the temperature of gases, liquids, powders, solids or semi-solids. 12.5 mm high numbers ranging from -30°C to 450°C. With 1°C accuracy, resolution and repeatability. And automatic battery-life warning.



| CAT. NO. | TYPE   | DESCRIPTION                         |
|----------|--------|-------------------------------------|
| 33295    | KM450  | DIGITAL THERMOMETER                 |
| 33296    | KA1/45 | Air/Liquid Probe                    |
| 33297    | KS1/45 | Surface Probe                       |
| 33298    | KC1/45 | Chisel Probe                        |
| 33299    | KA5/45 | Smoke Probe                         |
| 332100   | KP1/45 | PTFE Thermocouple of 1 metre length |

| TEMPERATURE MEASUREMENT                                   |  |
|---|--|
| Range   | -30°C to 450°C   |
| Digital display   | High contrast 12.5 mm Liquid Crystal Display. Minus sign automatically indicates sub-zero temperature. |
| Resolution  | 1°C  |
| Instrument accuracy at ambient temperature of 23°C (±5°C) | Readings above -10°C ±0.7% of reading ±1°C<br>At -30°C x 1.5°C error (typical)                         |
| Repeatability   | ±1°C   |
| Ambient temperature operating range                       | 0°C to 45°C  |
| Typical temperature coefficient (of reading)              | ±0.015% per °C   |
| Accuracy of cold junction compensation                    | ±1°C   |
| Battery type  | 9 volt dry battery type PP3  |
| Battery life  | 160 hours  |
| Automatic battery test                                    | Warning symbols automatically displayed when battery replacement necessary.                            |
| Dimensions and weight                                     | 115 x 70 x 38 mm. 140 g with battery.  |

# HYGROMETERS & SLING PSYCHROMETERS

## BACHARACH SLING PSYCHROMETER

Indicates accurately the percent of relative humidity without reference to charts.

### Features

- Slide rule construction quickly converts temperature to R. H.
- Built-in water reservoir holds sufficient water for several hours testing.
- Thin-bulb design gives fast thermal response.
- Thermometers are made of shock-resistant glass; stems have deep-etched numerals and 1° scale divisions for easy reading.
- Designed for portability.

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wet the wick each time a reading is taken. It can be whirled freely. A built-in slide rule calculator correlates wet and dry bulb thermometer indications for direct reading of R. H. measurement. Thermometer case telescopes in to handle for protection when not in use.

### Applications

Measurement of comfort conditions in air conditioned environments, hospital operating rooms, etc.

Tests in industrial atmospheres where high or low humidity may be critical in manufacturing processes.

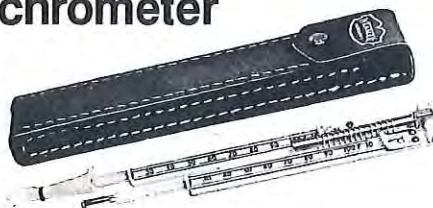
School Athletic Departments use it to determine safe conditions for practice.

| CAT. NO. | BACHARACH CODE NO. | TEMP. RANGE | FILL    | Spare Part — Thermometer |           |
|----------|--------------------|-------------|---------|--------------------------|-----------|
|          |                    |             |         | CAT. NO.                 | CODE NO.  |
| 33131    | 12 - 7013          | -5 to +50°C | MERCURY | 33129                    | 12 - 0265 |



Used to determine relative humidity. Has quality mercury thermometers with magnifying lenses. Leatherette case and complete instructions included.

## Weksler sling psychrometer



ROBINAIR NO. 12149

CAT. NO. 33123



Kane-May

## KM450 The versatile, low cost, digital electronic thermometer.

**With a four probe choice for solids, semi-solids, gases, liquids, or powders.**

The new Kane-May KM450 with a low price that means good, accurate thermometers no longer have to be shared or restricted. **POCKET SIZE**

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| CAT. NO. | TYPE   | DESCRIPTION                         |
|----------|--------|-------------------------------------|
| 33295    | KM450  | DIGITAL THERMOMETER                 |
| 33296    | KA1/45 | Air/Liquid Probe                    |
| 33297    | KS1/45 | Surface Probe                       |
| 33298    | KC1/45 | Chisel Probe                        |
| 33299    | KA5/45 | Smoke Probe                         |
| 332100   | KP1/45 | PTFE Thermocouple of 1 metre length |

| TEMPERATURE MEASUREMENT                                   |  |
|---|--|
| Range   | -30°C to 450°C   |
| Digital display   | High contrast 12.5 mm Liquid Crystal Display. Minus sign automatically indicates sub-zero temperature. |
| Resolution  | 1°C  |
| Instrument accuracy at ambient temperature of 23°C (±5°C) | Readings above -10°C ±0.7% of reading ±1°C<br>At -30°C x 1.5°C error (typical)                         |
| Repeatability   | ±1°C   |
| Ambient temperature operating range                       | 0°C to 45°C  |
| Typical temperature coefficient (of reading)              | ±0.015% per °C   |
| Accuracy of cold junction compensation                    | ±1°C   |
| Battery type  | 9 volt dry battery type PP3  |
| Battery life  | 160 hours  |
| Automatic battery test                                    | Warning symbols automatically displayed when battery replacement necessary.                            |
| Dimensions and weight                                     | 115 x 70 x 38 mm. 140 g with battery.  |

# THERMOMETERS

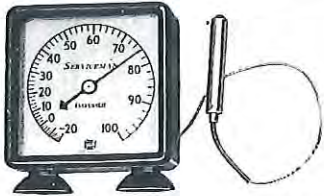
## FLOYD



### SPECIFICATION

**ACTUATION :** Vapour Pressure system. **CASE :** Metal.  
**FINISH :** Satin Black - Chrome Bezel. **DIAL :** White - Black Figures.  
**BOURDON :** Phosphor Bronze. **MOVEMENT :** Brass.  
**FITTINGS :** Plain Bulb - N.P. **CAPILLARY :** Copper - N.P.  
**ACCURACY :** ± 1% for final 2/3 scale. ± 2% for first 1/3 scale.

| CAT. No. | SIZE        | MOUNTING    | RANGE        | CAP. LENGTH    |
|----------|-------------|-------------|--------------|----------------|
| 33235    | 2" (50 mm)  | Flush Dial  | -40 to +30°C | 6 ft. (1.8 m)  |
| 33236    | 4" (100 mm) | Flush Dial  |              | 6 ft. (1.8 m)  |
| 33237    | 2" (50 mm)  | Rear Flange |              | 6 ft. (1.8 m)  |
| 33238    | 4" (100 mm) | Rear Flange |              | 10 ft. (3 m)   |
| 33239    | 4" (100 mm) | Rear Flange |              | 25 ft. (7.6 m) |



## ROBINAIR SERVICEMAN TYPE THERMOMETER

This expansion bulb thermometer is used to take remote temperature readings from -25 to +35°C. Its features include a 1.5 m (5 ft.) flexible lead and 2 3/4" dial.

Robinair P/N 12078

CAT. NO. 33219



## TEDDINGTON ALL CHROME THERMOMETER

4" diam. Dial - Range -40 to +40°C. Chrome plated case, back flange mounting, 3 m (10 ft.) capillary with bottom entry.

Type No. KDA/B/22

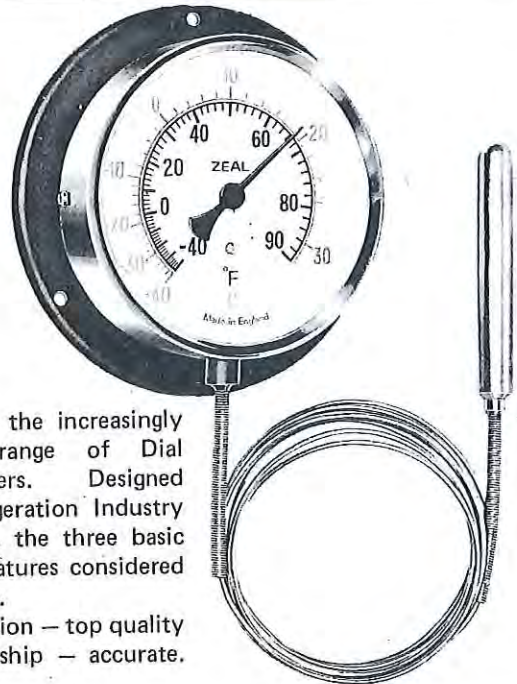
CAT. NO. 33215

## ZEAL Slim-Line VAPOUR PRESSURE

### REFRIGERATION DIAL THERMOMETERS DUAL SCALE

#### SPECIFICATIONS

**CASE :** Pressed steel, finished matt black.  
**BEZEL :** Chromium plated brass.  
**DIAL :** White - inner °F Scale Black, outer °C Scale Red.  
**CAPILLARY :** 3 m (10 ft.)  
**BULB :** Bright finish brass 83mm (3 1/4") long x 13mm (1/2") diam.  
**SCALES :** -40 to +90°F and -40 to +30°C.



The latest addition to the increasingly popular 'Slim-Line' range of Dial Indicating Thermometers. Designed specially for the Refrigeration Industry after intensive research, the three basic patterns incorporate features considered essential by the Industry. Strong, robust construction - top quality materials and workmanship - accurate.

| CAT. NO. | PART No. | DIAL SIZE   | TYPE OF CASE        |
|----------|----------|-------------|---------------------|
| 33274    | RV50PF   | 51 mm (2")  | Flush mounting case |
| 33275    | RV100PF  | 102 mm (4") | Flush mounting case |
| 33276    | RV100FB  | 102 mm (4") | Flanged back case   |

# ZEAL BEER AND WINE HYDROMETER

## FOR THE AMATEUR BREWER AND WINE MAKER

These designs, developed specially for the Amateur Brewer and Wine Maker after exhaustive laboratory tests and field trials, are ideally suited for use in the very popular hobby of Home Brewing and Wine Making. The bold, clear scales makes the taking of readings simplicity itself and, although not unbreakable, their plastic construction makes them more robust than the traditional glass hydrometers.



### BEER HYDROMETER SPECIFICATIONS

|                      |   |
|----------------------|---|
| Hydrometer Body      | Blue polystyrene.   |
| Scale                | White polystyrene with black figures and graduations.   |
| Range                | 0.990/1.100° Specific Gravity. Sub-divided every 0.005°, figured every 0.050° and 0/13% Potential Alcohol by Volume, sub-divided every 1% figured every 5%. Calibrated every 15.6°C (60°F). |
| Container            | Packed in individual cylindrical translucent blue plastic containers.   |
| Instructions         | Full instructions for use are supplied with each instrument.  |
| Dimensions (approx.) |   |
| Hydrometer length    | 232 mm (9-1/8")   |
| Hydrometer width     | 19 mm (3/4")  |
| Scale length         | 110 mm (4-5/16")  |
| Body length          | 122 mm (4-3/16")  |
| Container length     | 248 mm (9-3/4")   |
| Container diameter   | 25 mm (1")  |
| Weight (approx.)     |   |
| Hydrometer           | 22 g (3/4 oz.)  |
| In carton            | 44 g (1-1/2 ozs.)   |

ZEAL  
PART NO.  
15463  
CAT. NO.  
33287

### WINE HYDROMETER SPECIFICATIONS

|                      |  |
|----------------------|--|
| Hydrometer Body      | Red polystyrene.   |
| Scale                | White polystyrene with black figures and graduations.  |
| Range                | 0.990/1.150° Specific Gravity. Sub-divided every 0.005°, figured every 0.050° and 0/20% Potential Alcohol by Volume, sub-divided every 1% figured every 5%. Calibrated at 15.6°C (60°F). |
| Container            | Packed in individual cylindrical translucent blue plastic containers.  |
| Instructions         | Full instructions for use are supplied with each instrument.   |
| Dimensions (approx.) |  |
| Hydrometer length    | 232 mm (9-1/8")  |
| Hydrometer width     | 19 mm (3/4")   |
| Scale length         | 110 mm (4-5/16")   |
| Body length          | 122 mm (4-3/16")   |
| Container length     | 248 mm (9-3/4")  |
| Container diameter   | 25 mm (1")   |
| Weight (approx.)     |  |
| Hydrometer           | 22 g (3/4 oz.)   |
| In carton            | 44 g (1-1/2 ozs.)  |

ZEAL  
PART NO.  
15461  
CAT. NO.  
33288

6

# 333 AMPERE, VOLTAGE & RESISTANCE METERS 50 CYCLE A.C.

## KEW SNAP 4 AC Volt-Ohm-Ammeter



The instrument can measure leakage current as it is especially designed for measurement of AC current from 2mA to 300A.

Model 2401  
Model 2411

|                 | Model 2411                | Model 2401                     |
|-----------------|---------------------------|--------------------------------|
| Ranges:         | AC Current                | 100/600mA/3/15/60/300A         |
|                 | AC Voltage                | 600V                           |
|                 | Resistance                | 1 kΩ (25Ω at mid-scale)        |
| Accuracy:       | AC Current                | Within ±3% of full scale value |
|                 | AC Voltage                | Within ±3% of full scale value |
|                 | Resistance                | Within ±3% of scale length     |
| Dimensions:     | 209(L) × 67(W) × 30(D) mm | 205(L) × 67(W) × 30(D) mm      |
|                 | Weight:                   | Approx. 440g                   |
| Conductor Size: | 42mm max.                 | 45mm max.                      |

## KEW SNAP 5 AC Volt-Ammeter



Clamp meter with the meter compartment that snaps into five different positions for a 360 degree rotation.

Model 2501  
Model 2505

|                 | Model 2501<br>(formerly Snap-5 A) | Model 2505               |            |
|-----------------|-----------------------------------|--------------------------|------------|
| Ranges:         | AC Current                        | 5/25A                    |            |
|                 | AC Voltage                        | 150/300/600V             | 15/60/300A |
|                 | Resistance                        | 150/300/600V             | 150/600V   |
| Accuracy:       | AC Current                        | Within ±3% of full scale |            |
|                 | AC Voltage                        | Within ±3% of full scale |            |
|                 | Resistance                        | Within ±3% of full scale |            |
| Dimensions:     | 165(L) × 60(W) × 30(D) mm         |                          |            |
| Weight:         | Approx. 240g                      |                          |            |
| Conductor Size: | 20mm max. outside diameter        |                          |            |

## KEW SNAP 8 AC Volt-Ohm-Ammeter

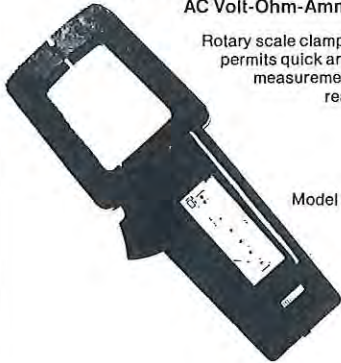


Rotary scale clamp meters that permit quick and accurate measurements without reading error.

Model 2803

|                 | Model 2803 (formerly 830)  |   |
|-----------------|----------------------------|---|
| Ranges:         | AC Current                 | 5/15/40/100/300A<br>(Up to 1,000A maximum with KEW Multi-Tran.) |
|                 | AC Voltage                 | 150/300/600V  |
|                 | Resistance                 | 2kΩ (25Ω at mid-scale)  |
| Accuracy:       | AC Current                 | Within ±3% of full scale  |
|                 | AC Voltage                 | Within ±3% of full scale  |
|                 | Resistance                 | Within ±3% of scale length                                      |
| Dimensions:     | 214(L) × 69(W) × 38(D) mm  |   |
| Weight:         | Approx. 440g               |   |
| Conductor Size: | 30mm max. outside diameter |   |

## KEW SNAP 10 AC Volt-Ohm-Ammeter



Rotary scale clamp meter that permits quick and accurate measurements without reading error.

Model 2103

|                 | Model 2103 (formerly 1030) |                            |
|-----------------|----------------------------|----------------------------|
| Ranges:         | AC Current                 | 10/30/100/300/1,000A       |
|                 | AC Voltage                 | 150/300/750V               |
|                 | Resistance                 | 2kΩ (25Ω at mid-scale)     |
| Accuracy:       | AC Current                 | Within ±3% of full scale   |
|                 | AC Voltage                 | Within ±3% of full scale   |
|                 | Resistance                 | Within ±3% of scale length |
| Dimensions:     | 290(L) × 81(W) × 46(D) mm  |                            |
| Weight:         | Approx. 680g               |                            |
| Conductor Size: | 60mm max. outside diameter |                            |

## KEW SNAP 9 Volt-Ohm-Ammeter



Rotary scale clamp meters that permit quick and accurate measurements without reading error. Readings are presented on one scale only at a time reducing the possibility of error.

Model 2904

Model 2903

|                 | Model 2904                 | Model 2903<br>(formerly Model 930) |
|-----------------|----------------------------|------------------------------------|
| Ranges:         | AC Current                 | 10/30/100/300/900A                 |
|                 | AC Voltage                 | 150/300/750V                       |
|                 | Resistance                 | 2kΩ (25Ω at mid-scale)             |
| Accuracy:       | AC Current                 | Within ±3% of full scale           |
|                 | AC Voltage                 | Within ±3% of full scale           |
|                 | Resistance                 | Within ±3% of scale length         |
| Dimensions:     | 227(L) × 73(W) × 33(D) mm  | 230(L) × 77(W) × 45(D) mm          |
| Weight:         | Approx. 460g               | Approx. 560g                       |
| Conductor Size: | 52mm max. outside diameter | 40mm max. outside diameter         |

## KEW SNAP 777 AC Volt-Ohm-Ammeter



Digital Clamp Meter

Model 2001

|                 | Model 2001  |   |
|-----------------|---|---|
| Ranges:         | AC Current  | 1,000A (200/1,000A, 2 ranges, automatic)  |
|                 | AC Voltage  | 750V (200/750V, 2 ranges, automatic)  |
|                 | Resistance  | 2,000Ω (200/2,000Ω, 2 ranges, automatic)  |
| Accuracy:       | AC Current  | Within ±1.5% of full scale (200A & 1,000A)<br>Within ±2% of full scale (1,000A) between 750A and 1,000A |
|                 | AC Voltage  | Within ±1% of full scale (200V & 750V)  |
|                 | Resistance  | Within ±1.5% of full scale (200Ω & 2,000Ω)  |
| Peak Hold:      | Within ±3% of full scale on all ranges except for ohm ranges (accuracy guaranteed for 30 seconds) |   |
| Dimensions:     | 242(L) × 71(W) × 36(D) mm   |   |
| Weight:         | Approx. 500g  |   |
| Conductor Size: | 52mm max. outside diameter  |   |

## KEW SNAP 6 AC Volt-Ohm-Ammeter



Model 2606 and 2607 have tear-drop shaped transformer jaws for maximum ease of use in tight places or crowded switch boxes.

Model 2606



Clamp meter with a swivel meter compartment that snaps into five different positions for a 360 degree rotation.

Model 2605

|                 | Model 2606  | Model 2607   | Model 2605<br>(formerly Model 630) | Model 2604<br>(formerly Model 625) |
|-----------------|---|--|------------------------------------|------------------------------------|
| Ranges:         | AC Current  | 6/15/60/300A   | 15/60/300/600A                     | 15/60/300A                         |
|                 | AC Voltage  | 150/300/600V   |                                    | 150/300V or 300/600V               |
|                 | Resistance  | 10 kΩ (25Ω at mid-scale)   |                                    | 300Ω (25Ω at mid-scale)            |
|                 | Temperature   | -20°C—+150°C (Model 2605, 2607 only)<br>(Optional temperature probe Model 7041 required) |                                    | —                                  |
| Accuracy:       | AC Current  | Within ±3% of full scale   |                                    | —                                  |
|                 | AC Voltage  | Within ±3% of full scale   |                                    | —                                  |
|                 | Resistance  | Within ±3% of scale length   |                                    | —                                  |
| Temperature     | Within ±5°C (+20°C—+100°C)<br>Within ±10°C (other ranges) |  | —                                  | —                                  |
| Dimensions:     | 182(L) × 65(W) × 27(D) mm                                 |  | 185(L) × 62(W) × 35(D) mm          |                                    |
| Weight:         | Approx. 250g  |  | Approx. 285g                       |                                    |
| Conductor Size: | 33mm max. outside diameter                                |  | 20mm max. outside diameter         |                                    |

## KEW SNAP

| CAT. NO. | SIZE | MODEL |
|----------|------|-------|
| 3331     | 4    | 2401  |
|          |      | 2411  |
| 3332     | 5    | 2501  |
|          |      | 2505  |
|          |      | 2606  |
| 33325    | 6    | 2607  |
|          |      | 2605  |
|          |      | 2604  |
| 3333     | 8    | 2803  |
|          |      | 2903  |
| 33324    | 9    | 2904  |
|          |      | 2103  |
| 33323    | 10   | 2103  |
|          |      | 2103  |
| 33322    | 777  | 2001  |

### ACCESSORIES

| CAT. NO. | DESCRIPTION                |
|----------|----------------------------|
| 33313    | Fuse Carrier               |
| 33314    | Test Lead                  |
| 33315    | Fuse/Battery & Carrier Kit |
| 33316    | Leather Case (Size 8)      |

# ANNIE ANALYSERS AND TESTERS



A-12X



A-2X



A20



A-8X



A14

| CAT. NO. | DESCRIPTION/SPECIFICATIONS   |
|----------|--|
| 3343     | <b>MODEL A-12X COMPLETE HERMETIC UNIT &amp; ELECTRICAL SYSTEMS ANALYSER — AMP/VOLT/OHM METER — 220/250 VOLT</b><br>Rocks free stuck or frozen units by reversing motor rotation. Functions as auxiliary capacitor, checks windings for shorts, opens, continuity and grounds. Has bank of starting capacitors, 3 ranges 75 to 380 MFD. Ammeter: 0 — 25 Amps, Dual scale. Voltmeter: 0 — 350V, Dual scale. Capacitor Analyser: 0 — 550 MFD, Dual scale. Ohmmeter: 1/2 — 200 ohms. Relay Analyser: 0 — 350 potential volts. Polyethylene Case: 12" x 12" x 5 1/2". Weight: 3.9 kg (8 1/2 lbs). Other Features: Neon power indicator, panel mounted breaker.  |
| 33421    | <b>MODEL A-2X HERMETIC ANALYSER — 220/250 VOLT</b><br>Economical Hermetic Analyser — Rocks free frozen or stuck units by reversing motor rotation. Checks windings for shorts, opens, continuity and grounds. Functions as auxiliary capacitor, with bank of starting capacitors, 3 Ranges 75 to 380 MFD. Three independent testing circuits. Polyethylene case: 11" x 9" x 5 1/2". Light Weight: 2.3kg (5 lbs). Other Features: Neon power indicator, panel mounted breaker.  |
| 33422    | <b>MODEL A3 HERMETIC UNIT &amp; CAPACITOR ANALYSER — 240 VOLT</b><br>Rocks free stuck or frozen units by reversing motor rotation. Checks windings for shorts, opens, continuity and grounds. Functions as auxiliary capacitor, with bank of starting capacitors, 3 ranges 75 — 380 MFD. Ammeter: 0 — 25 Amps, Dual scale. Capacitor Analyser: 0 — 550 MFD Dual scale. Voltmeter: 0 — 350V Dual scale. Polyethylene case: 11" x 9" x 5 1/2". Lightweight: 2.4 kg (5 1/4 lbs). Other Features: Neon power indicator, panel mounted breaker.   |
| 33418    | <b>MODEL A-20 HIGH CAPACITY MULTI-PHASE HERMETIC ANALYSER</b><br><b>FEATURES:</b> Heavy duty reversing switch manually starts, reverses and runs hermetic units up to 15 HP. Stuck or frozen units can be rocked free. Low range battery operated ohmmeter identifies hermetic terminals for start, run and common. Also checks winding resistance and tests for shorts, opens, continuity and grounds. Bank of starting capacitors 50 — 350 MFD. Auxiliary test leads. High capacity 4 wire power cord with large clips. Three line indicating lamps identify hot legs for correct hook-up. Electrical Capacity: 1 Phase 50 Amps 7 1/2 HP, 3 Phase 50 Amps 15 HP, 110 — 277 Volts AC 50/60 Cycle. Polyethylene Case: 12" x 12" x 5 1/2". Weight: 5 kg (11 lbs). |
| 3341     | <b>MODEL A-4X CAPACITOR TESTER — 220/250 VOLT 50 Hz.</b><br><b>FEATURES:</b> Checks capacitors for opens, shorts, leaks and grounds. Dual Scale Ranges, 0 — 60 MFD and 0 — 600 MFD. Can be used as continuity checker, and immediately identifies unmarked capacitors. Panel mounted fuse. Discharges at end of test. Polyethylene Case: 11" x 8" x 4 1/2". Lightweight: 1.25 kg (2 3/4 lbs).  |
| 3342     | <b>MODEL A-8X FOUR LOCATION ELECTRONIC THERMOMETER</b><br><b>FEATURES:</b> Used extensively for air conditioning/refrigeration service work. Thermistor controlled dual range, 4 locations, —45°C to 40°C and 40°C to 120°C. Complete with 2 general purpose probes with 4.5 m (15 ft.) lead. 4 input jacks for measuring temperature at 4 locations simultaneously. Polyethylene Case: 11" x 8" x 4 1/2". Lightweight: 1.5 kg (3 1/4 lbs).  |
| 33419    | <b>MODEL A-15X HIGH TEMPERATURE ELECTRONIC THERMOMETER.</b><br><b>FEATURES:</b> Thermocouple probe —20°C to 700°C — 1.2 m (4 ft.). Probe easily used in self-cleaning ovens — easily detachable for multiple readings. Polyethylene Case: Compact, will fit in tool box.   |
| 33417    | <b>MODEL A-14 MICRON VACUUM GAUGE</b><br><b>FEATURES:</b> Temperature compensation control from 4°C to 50°C. Meter reads from atmosphere down to 10 microns — Relates microns and inches to 29.92" Hg. Graduations in inches, millimetres and microns. Range: Inches to 10 microns. Polyethylene Case: 11" x 8" x 4 1/2". Lightweight: 1.4 kg (3 lbs).   |

| ACCESSORIES |            |                                     |          |          |                                 |
|-------------|------------|-------------------------------------|----------|----------|---------------------------------|
| CAT. NO.    | PART NO.   | DESCRIPTION — USED IN MODELS        | CAT. NO. | PART NO. | DESCRIPTION — USED IN MODELS    |
| 33424       | 2G051      | Master Switch A2, 3, 12.            | 33436    | PJ-1     | Phono Jack A8                   |
|             | HD-1       | Master Switch A20                   | 33461    | CAP108   | Capacitor 108 MFD A2, 3, 12, 20 |
| 33425       | GH281      | Capacitor Switch All Hermetic Units |          | CAP189   | Capacitor 189 MFD A2, 3, 12, 20 |
| 33423       | 100-S      | Start Switch A2, 3, 12              | 33441    | M1-A     | Amp Meter A3, 12                |
|             | 100-L      | Start or Test Switch A4             | 33442    | M1-O     | Ohm Meter A3, 12                |
|             | 2FC63      | Selector Switch A4                  | 33443    | M1-V     | Volt Meter A3, 12               |
|             | 2GGP50     | Function Switch A12                 |          | A-15     | Hi-Temp Meter A15               |
|             | 2GM60      | Volt Scale Switch A12               |          | M3-T     | Temp. Meter A8                  |
| 33429       | R56-2      | Rotary Switch A8                    |          | M3-V     | Vacuum Meter A14                |
| 33426       | RA8-2      | Rocker Assembly Board               | 33440    | M4-O     | Ohm Meter A4, 20                |
| 33427       | OHM-1      | Ohms Control                        | 33439    | M5-TC    | Temp. Meter 3 Volt A8           |
| 33430       | MG70K      | Voltage Control A12                 | 3345     | P-1      | 15' General Purpose Probe       |
| 33449       | TR-120/240 | Transformer-Relay A12               | 3347     | P-2      | 30' " " " "                     |
| 33448       | TR-10      | Transformer - Current A4,12         | 3348     | P-3      | 15' Air Probe                   |
|             | CB-1       | Circuit Breaker A2, 3, 12           | 3349     | P-4      | 30' " " " "                     |
|             | BG70-R     | Neon Lamps, Red, Amber, A or C      |          | P-30x    | 30' Probe Extension Cable       |
|             | TS-4       | Diode. All Models                   |          | HT-3     | 3' Disposable Probe A15         |
| 33455       | PC1-2      | Power Cord A4                       | 33414    | HT-4     | 4' Standard Probe A15           |
|             | PC2-3      | Power Cord A2, 3, 12                | 33410    | S1       | Sensor Element A14              |
| 33456       | LC1-2      | Lead Cable A14                      | 3344     | ABC-30   | Fuses (box 5) A3, 12            |
|             | CA-220     | Cord Adaptor A2, 3, 12              | 33413    | ABC-20   | Fuses (box 5) All other Mods.   |
| 33437       | B175       | Battery Holder A8, 12               |          | HKP      | Fuse Holder All Models          |
|             | B176       | Battery Holder A14                  |          |          |                                 |

6



# BACHARACH PORTABLE INSTRUMENTS

## TEMPSCRIBE RECORDERS

CATALOGUE NUMBER SUMMARY PAGE FOR ORDERING PURPOSES

| REMOTE TEMP. RECORDING<br>With Bulb Type Element |          | TIME OPERATION RECORDING<br>With Electro-Magnet Element |          | ON LOCATION TEMP. RECORDING<br>With Bi-Metal Element |          | TEMP. & TIME RECORDER<br>With Bulb Type Element & Electro-Magnet Element |          |
|--|----------|---|----------|--|----------|--|----------|
| BACH. CODE NO.                                   | CAT. NO. | BACH. CODE NO.  | CAT. NO. | BACH. CODE NO.                                       | CAT. NO. | BACH. CODE NO.   | CAT. NO. |

### COMPLETE RECORDERS

|           |        |         |  |         |        |         |  |
|-----------|--------|---------|--|---------|--------|---------|--|
| 14-2211 * | 335314 | 14-3611 |  | 14-1011 | 335337 | 14-3311 |  |
| 14-2311 * | 335315 |         |  | 14-1211 | 335338 | 14-3211 |  |
| 14-2411 * | 335316 |         |  | 14-1511 | 335339 | 14-3011 |  |
| 14-2511 * | 335317 |         |  | 14-1711 | 335340 | 14-2911 |  |
| 14-2611   | 335318 |         |  | 14-2011 | 335341 |         |  |
| 14-2711   | 335319 |         |  | 14-2111 | 335342 |         |  |
| 14-2791   | 335320 |         |  | 14-2191 | 335343 |         |  |
| 14-2210 * | 335321 |         |  | 14-1010 | 335344 |         |  |
| 14-2410 * | 335322 |         |  | 14-1201 | 335345 |         |  |
| 14-2610   | 335323 |         |  | 14-1501 | 335346 |         |  |
| 14-2710   | 335324 |         |  | 14-1910 | 335347 |         |  |
| 14-2790   | 335325 |         |  |         |        |         |  |
| 14-4005   | 33511  |         |  |         |        |         |  |

### DOOR WITH ELEMENT

|           |        |         |  |         |        |         |  |
|-----------|--------|---------|--|---------|--------|---------|--|
| 14-7025 * | 335302 | 14-7033 |  | 14-7015 | 335326 | 14-7038 |  |
| 14-7019 * | 335303 |         |  | 14-7006 | 335327 | 14-7039 |  |
| 14-7020 * | 335304 |         |  | 14-7008 | 335328 | 14-7040 |  |
| 14-7021 * | 335305 |         |  | 14-7010 | 335329 | 14-7041 |  |
| 14-7022   | 335306 |         |  | 14-7012 | 335330 |         |  |
| 14-7023   | 335307 |         |  | 14-7013 | 335331 |         |  |
| 14-7067   | 335308 |         |  | 14-7016 | 335332 |         |  |
| 14-7024   | 335309 |         |  |         |        |         |  |

### CHART DRIVE CASE

|         |        |         |        |         |        |         |        |
|---------|--------|---------|--------|---------|--------|---------|--------|
| 14-7031 | 335300 | 14-7031 | 335300 | 14-7031 | 335300 | 14-7031 | 335300 |
| 14-7030 | 335301 |         |        | 14-7030 | 335301 |         |        |

### CHARTS (BOX OF 100)

|            |        |         |  |         |        |         |  |
|------------|--------|---------|--|---------|--------|---------|--|
| 14-0075 ** | 335351 | 14-0062 |  | 14-0045 | 335363 | 14-0082 |  |
| 14-0070 ** | 335352 |         |  | 14-0048 | 335364 | 14-0083 |  |
| 14-0069 ** | 335353 |         |  | 14-0051 | 335365 |         |  |
| 14-0071 ** | 335354 |         |  | 14-0054 | 335366 |         |  |
| 14-0091    | 335355 |         |  | 14-0057 | 335367 |         |  |
| 14-0090    | 335356 |         |  | 14-0058 | 335368 |         |  |
| 14-0088    | 335357 |         |  | 14-0089 | 335369 |         |  |
| 14-0068 ** | 335358 |         |  | 14-0044 | 335370 |         |  |
| 14-0080 ** | 335359 |         |  | 14-0047 | 335371 |         |  |
| 14-0101    | 335360 |         |  | 14-0050 | 335372 |         |  |
| 14-0207    | 335361 |         |  | 14-0066 | 335373 |         |  |
| 14-0092    | 335362 |         |  |         |        |         |  |
| 14-0076    |        |         |  |         |        |         |  |

### ACCESSORIES

| CODE NO. | CAT. NO. | DESCRIPTION        | MANOMETER FLUID        |
|----------|----------|--------------------|------------------------|
| 14-0009  | 33529    | Bottle of Red Ink. | Bottle Manometer Fluid |
| 14-4065  |          | Carrying Case.     | Dwyer Red Gauge Fluid  |
| 14-0016  | 33550    | Replacement Pens.  | 40z. Jars.             |

TEMPSCRIBE RECORDERS — For Selection and Technical Details Refer Pages 335-a & 335-b.

\* °F units available ex overseas on special application.  
 \*\* Some °F Charts are still available ex stock. Non stock °F Charts can be supplied against a minimum order quantity of 500.  
 To obtain this service you must supply an unused sample chart in FLAT (not folded) condition.

OUR COMPLETE INVENTORY ASSURES PROMPT SERVICE

# BACHARACH PORTABLE INSTRUMENTS TEMPSCRIBE CHART RECORDER

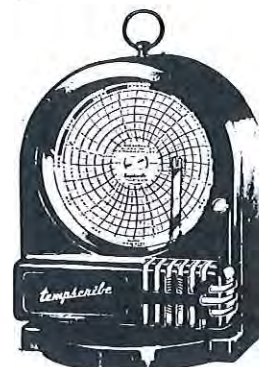
Interchangeable chart drives and measuring elements  
for 26 standard combinations.

## FEATURES

- \* Convenient size.
- \* Measures temperatures between  $-30^{\circ}\text{C}$  and  $+50^{\circ}\text{C}$  ( $-30^{\circ}\text{F}$  and  $130^{\circ}\text{F}$ ).
- \* Styled for portable use or wall mounting.
- \* Accurate, dependable and reasonably priced.
- \* Modular design; chart drives and measuring elements completely interchangeable.
- \* Self-contained; all chart drives powered by spring-wound clocks.

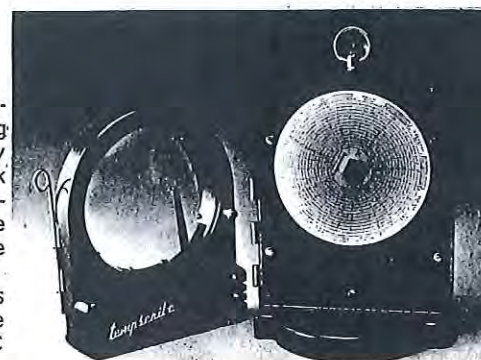
## APPLICATION

Tempscribe Recorders make permanent, accurate chart records of temperatures or operation of electrical equipment. The chart records are written automatically and continuously without requiring the presence of an observer; they provide facts which will lead to product improvement, economical operation, greater safety and better service.



## 19 INTERCHANGEABLE MEASURING ELEMENTS 2 INTERCHANGEABLE CHART DRIVES

The Tempscribe Recorder consists of two basic assemblies: the back case containing the chart drive; and the front case, or door, containing the measuring element. The door is hinged to the back case, and removal of the door merely requires lifting out the hinge pin. Any door may be assembled with any back case. This unique design enables the user to transfer or interchange the measuring elements in the various types of Tempscribe Recorders. Thus it is possible to replace any temperature element with another or to interchange a temperature element with the electro-magnet element for time-operation records. Tempscribes are now available in 26 popular combinations of measuring elements and chart drives for time-operation records and temperature records. These combinations include various temperature spans within limits of  $-30^{\circ}\text{C}$  to  $+50^{\circ}\text{C}$  and  $-30^{\circ}\text{F}$  to  $130^{\circ}\text{F}$  and time spans of 24 hours or 7 days for one chart rotation,



**BI-METAL ELEMENT**  
for on-location  
temperature records



**BULB ELEMENT**  
for remote  
temperature records



**TWO-PEN-ELEMENT**  
for temperature  
and operation records



**ELECTRO-MAGNET  
ELEMENT**  
for time-operation records

6

**TEMPSCRIBE RECORDER WITH BULB-TYPE ELEMENT**  
Recommended for remote temperature recording  
Element comprises temperature-sensitive bulb and 6 ft. capillary tubing which transmits temperature impulse from

bulb to recorder. Place recorder at any convenient viewing point. Makes 7-day or 24-hour temperature time record showing occurrence and duration of temp. fluctuations. Standard capillary tube is 6 ft.

## TEMPERATURE RECORDER WITH BULB-TYPE ELEMENT

| Chart Rotation | Case With Spring Chart Drive Including Bottle of Ink | Time Division | Chart          |                                  |               | Bacharach Code Door With Bulb-Type Element, 6' Capillary Tubing and Mounting Reel | Bacharach Code Nos. for Complete Kit including Case, Door, Mounting Reel, 100 Charts, Bottle of Ink | CAT. NO. Complete Kit. |
|----------------|--|---------------|----------------|----------------------------------|---------------|---|---|------------------------|
|                |  |               | Temp. Division | Bacharach Code Box of 100 Charts | Range         |   |   |                        |
| 24 Hours       | 14-7031  | 15 Minutes    | 5°F            | 14-0075**                        | -30 to +120°F | 14-7025*  | 14-2211*  | 335314                 |
|                |  |               | 2°F            | 14-0070**                        | -30 to + 50°F | 14-7019*  | 14-2311*  | 335315                 |
|                |  |               | 2°F            | 14-0069**                        | +10 to + 90°F | 14-7020*  | 14-2411*  | 335316                 |
|                |  |               | 2°F            | 14-0071**                        | +50 to +130°F | 14-7021*  | 14-2511*  | 335317                 |
|                |  |               | 1°C            | 14-0091                          | -35 to + 10°C | 14-7022   | 14-2611   | 335318                 |
|                |  |               | 1°C            | 14-0090                          | + 5 to + 50°C | 14-7023   | 14-2711   | 335319                 |
| 7 Days         | 14-7030  | 3 Hours       | 2°C            | 14-0088                          | -30 to + 50°C | 14-7067   | 14-2791   | 335320                 |
|                |  |               | 5°F            | 14-0068**                        | -30 to +120°F | 14-7025*  | 14-2210*  | 335321                 |
|                |  |               | 2°F            | 14-0080**                        | +10 to + 90°F | 14-7020*  | 14-2410*  | 335322                 |
|                |  |               | 1°C            | 14-0101                          | -35 to + 10°C | 14-7022   | 14-2610   | 335323                 |
|                |  |               | 1°C            | 14-0207                          | + 5 to + 50°C | 14-7023   | 14-2710   | 335324                 |
|                |  |               | 2°C            | 14-0092                          | -30 to + 50°C | 14-7067   | 14-2790   | 335325                 |

\* °F units available ex overseas on special application.

\*\* Some °F Charts are still available ex stock. Non stock °F Charts can be supplied against a minimum order quantity of 500. To obtain this service you must supply an unused sample chart in FLAT (not folded) condition.

# BACHARACH PORTABLE INSTRUMENTS

TEMPSCRIBE RECORDER WITH BULB-TYPE ELEMENT - Cont'd.

BIOLOGICAL REFRIGERATION RECORDER; PLASMA & WHOLE BLOOD STORAGE MODELS

| Chart Rotation | Case With Spring Chart Drive Including Bottle of Ink | Chart         |                |                                  | Range       | Bacharach Code Door with Bulb-Type Element, and 10' Capillary Tubing | Bacharach Code Nos. for Complete Kit Including Case, Door, 100 Charts, Bottle Ink | CAT. NO.<br>Complete Kit |
|----------------|--|---------------|----------------|----------------------------------|-------------|--|---|--------------------------|
|                |  | Time Division | Temp. Division | Bacharach Code Box of 100 Charts |             |  |   |                          |
| 7 Days         | 14-7030  | 3 Hours       | 1°C            | 14-0076                          | -5 to +15°C | 14-7024  | 14-4005   |                          |

See also Code Nos. 14-2610 and 14-2611 previous page.

Accessories for all Tempscribe Instruments: Extra Bottle of Red Ink (14-0009). Optional Carrying Case (14-4065).

## TEMPSCRIBE RECORDER WITH ELECTRO - MAGNET ELEMENT\*

Recommended for recording electrical operation.

This time-operation Recorder is suitable for recording operation carried out by interrupting an electric circuit. When the circuit to the magnet is closed, the pen arm connected to the magnet is actuated and moves the pen across the chart about 1/4" to the "on" position on the chart. It remains there as long as the circuit is energized. When the current is cut off, the spring-loaded pen arm returns to its "off"

position. The chart record produced shows time, frequency and duration of electrical operation.

Leads are provided for connection in parallel with the load across the line to the electrical unit under test. This style has two separate connections - for 110/220 volts AC/DC and for 25-volts AC/DC.

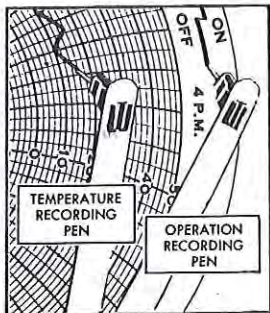
| Electrical Connection | Chart Rotation | BACHARACH CODE     |                                  |                       |                   | Chart Time Division | Parallel Connection Voltage Rating AC/DC   |
|-----------------------|----------------|--------------------|----------------------------------|-----------------------|-------------------|---------------------|--|
|                       |                | Complete Recorder  | Door with Electro-Magnet Element | Case with Chart Drive | Box of 100 Charts |                     |  |
| Parallel              | 24 Hours       | 14-3611<br>CAT.NO. | 14-7033                          | 14-7031               | 14-0062           | 15 Minutes          | 110/220 Volt Plug: 80 V. Min.<br>230 V. Max.<br>12/25 Volt Plug: 8.5 V. Min.<br>25 V. Max. |

## ON LOCATION TEMPERATURE RECORDING - TEMPSCRIBE RECORDER WITH BI-METAL ELEMENT

Recommended for on-location temperature recording.

A bi-metallic coil directly exposed to surrounding air permits up to 7-day temperature-time record. This record shows highest and lowest temperature, duration of extremes, frequency and spread of fluctuations. Thermal response is fast and dependable.

| Chart Rotation | Case With Spring Chart Drive | Chart         |                |                                  | Range         | Bacharach Code Door With Bi-Metal Element | Bacharach Code for Complete Recorder Including Case, Door, 100 Charts Bottle of Ink | CAT. NO.<br>Complete Kit |
|----------------|------------------------------|---------------|----------------|----------------------------------|---------------|---|---|--------------------------|
|                |                              | Time Division | Temp. Division | Bacharach Code Box of 100 Charts |               |   |   |                          |
| 24 Hours       | 14-7031                      | 15 Minutes    | 5°F            | 14-0045**                        | -30 to +120°F | 14-7015*                                  | 14-1011*  | 335337                   |
|                |                              |               | 2°F            | 14-0048**                        | -10 to + 50°F | 14-7006*                                  | 14-1211*  | 335338                   |
|                |                              |               | 2°F            | 14-0051**                        | +40 to +100°F | 14-7008*                                  | 14-1511*  | 335339                   |
|                |                              |               | 2°F            | 14-0054**                        | +70 to +130°F | 14-7010*                                  | 14-1711*  | 335340                   |
|                |                              |               | 1°C            | 14-0057                          | -25 to + 10°C | 14-7012                                   | 14-2011   | 335341                   |
|                |                              |               | 1°C            | 14-0058                          | + 5 to + 40°C | 14-7013                                   | 14-2111   | 335342                   |
|                |                              |               | 2°C            | 14-0089                          | -30 to + 50°C | 14-7016                                   | 14-2191   | 335343                   |
| 7 Days         | 14-7030                      | 3 Hours       | 5°F            | 14-0044**                        | -30 to +120°F | 14-7015*                                  | 14-1010*  | 335344                   |
|                |                              |               | 2°F            | 14-0047**                        | -10 to + 50°F | 14-7006*                                  | 14-1210*  | 335345                   |
|                |                              |               | 2°F            | 14-0050**                        | +40 to +100°F | 14-7008*                                  | 14-1510*  | 335346                   |
|                |                              |               | 2°C            | 14-0066                          | -30 to + 50°C | 14-7016                                   | 14-1910   | 335347                   |



## TEMPSCRIBE RECORDER WITH BULB-TYPE ELEMENT & ELECTRO-MAGNET ELEMENT

Recommended for recording temperatures & electrical operation simultaneously.

This Tempscribe Recorder writes records of temperatures and electrical operation simultaneously on the same chart. Construction and design of the two measuring systems are identical to those of the respective single pen recorders. Two styles are available; the electrical operation element can be obtained in either series or parallel connection.

| Electrical Connection | Chart Rotation | Case With Spring Chart Drive | Chart         |                |                                  | Range         | Bacharach Code Door With Bulb Type and Electro-Magnet Element and 6' Capillary Tubing and Mounting Reel | Bacharach Code Complete Recorder Including Case, Door, Mounting Reel 100 Charts Bottle of Ink | CAT. NO.<br>Complete Kit. |
|-----------------------|----------------|------------------------------|---------------|----------------|----------------------------------|---------------|---|---|---------------------------|
|                       |                |                              | Time Division | Temp. Division | Bacharach Code Box of 100 Charts |               |   |   |                           |
| Parallel              | 24 Hours       | 14-7031                      | 15 Minutes    | 2°F            | 14-0082                          | -30 to + 50°F | 14-7038   | 14-3311   |                           |
|                       |                |                              |               |                | 14-0083                          | -30 to +120°F | 14-7039   | 14-3211   |                           |
| Series                | 24 Hours       | 14-7031                      | 15 Minutes    | 2°F            | 14-0082                          | -30 to + 50°F | 14-7040   | 14-3011   |                           |
|                       |                |                              |               |                | 14-0083                          | -30 to +120°F | 14-7041   | 14-2911   |                           |

\* °F units available ex overseas on special application.

\*\* Some °F Charts are still available ex stock. Non stock °F Charts can be supplied against a minimum order quantity of 500. To obtain this service you must supply an unused sample chart in FLAT (not folded) condition.

ORDERING PROCEDURE : REFER TO PAGE 335 AND QUOTE CATALOGUE NO. OF ITEM REQUIRED

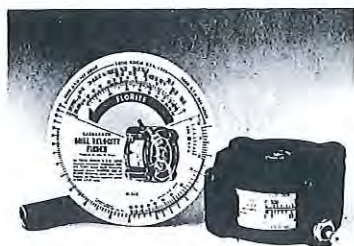
# BACHARACH PORTABLE INSTRUMENTS

## FLORITE AIR VELOCITY METER MODELS MRF AND MLD

Obtains accurate air velocity readings almost anywhere.

### Features

- Instantaneous, direct readings of air velocity without timing or calculations.
- Scale lock holds reading until lock is released.
- Magnetic damping levels out insignificant variations in air velocity.
- The longest scale of any mechanical velocity meter.
- Chart converts air velocity readings to cubic feet per minute without calculations.



This instrument is simply held in the air stream, either in an open area or against the face of a flat-surfaced register, so that the air current is flowing directly into the face of the instrument. No stop watch, curves or calculations of any kind are necessary.

Model MRF features the longest scale (8") available on any mechanical air velocity meter. For added accuracy and recheck, a built-in scale lock retains readings when necessary. Florite automatically averages air velocity over an



area of 3" in diameter or square.

Model MLD is identical to Model MRF except for its scale range and "air scoop" inlet. Designed for measuring air flow from round or square ceiling diffusers having discharge openings of at least 1/4 x 3 inches.

### Applications

- Measurement of grill velocities on heating and cooling installations to balance air distribution.
- Measure air flow in experiments and lab work.
- Measure air flow in connection with ceramics, textile and other manufacturing processes.
- Measurement of surface wind velocities.
- Measurement of velocity of cooling air through generators, motors, and electronic machinery.
- Measurement of air velocities in testing ventilating systems in schools, hospitals, mines and factories.
- Checking flow conditions of exhaust hoods and other fume removal equipment.

### HOW TO ORDER :

| CAT. NO. | Bacharach Code Complete Kit | Model                            | Range  | Kit Includes           |               |
|----------|-----------------------------|----------------------------------|--|------------------------|---------------|
|          |                             |                                  |  | Grille Velocity Finder | Carrying Case |
| 33512    | 16-7001                     | Florite MRF                      | 0-1000 fpm   | 16-0107                | 16-0005       |
| 335376   | 16-7002                     |                                  | Dual Scale<br>0-3000 fpm<br>0-35 mph                         |                        |               |
| 335377   | 16-7003                     |                                  | Dual Scale<br>0-300 meters per min.<br>0-5 meters per sec.   |                        |               |
| 335378   | 16-7004                     |                                  | Dual Scale<br>0-1000 meters per min.<br>0-16 meters per sec. |                        |               |
| 33513    | 16-7005                     | Florite with Air Inlet Scoop MLD | 0-2500 fpm   |                        | 16-0006       |
| 335380   | 16-7006                     |                                  | 0-750 meters per min.  |                        |               |

## FLORET AIR VELOCITY INDICATOR

### Features

- Can be used on floors and baseboard registers and diffusers, side wall registers or any other air discharge opening.
- Instant readings from any held position.
- Entirely self-contained . . . needs no hose, probe or other auxiliary parts for measuring air velocity.
- Readings are in feet per minute or meters per second.

The Floret is the ideal pocket size air flow indicator for applications where readability to 50 ft./min. is adequate. It has many specific uses including checking air flow in clean rooms, fume hoods, refrigeration units, or any other air discharge opening. Can be used for checking air flow through openings as small as 1/4" diameter.

Pocket size air flow indicator.



The Floret can be held in any position while making a test. It gives direct readings instantly; no leveling or "zero balancing" required. Scale range: 0-1000 ft./min. Instrument size: 4 1/2" high x 2 1/2" wide x 1" deep. Supplied in pocket case.

### Applications

- Reach-in refrigerators, display cases, walk-in coolers, other types refrigeration units, spotting objectionable air movements in rooms, detecting leaks around doors and windows, checking air flow at registers, grills, diffusers and convectors, checking air flow over and through electronic equipment.

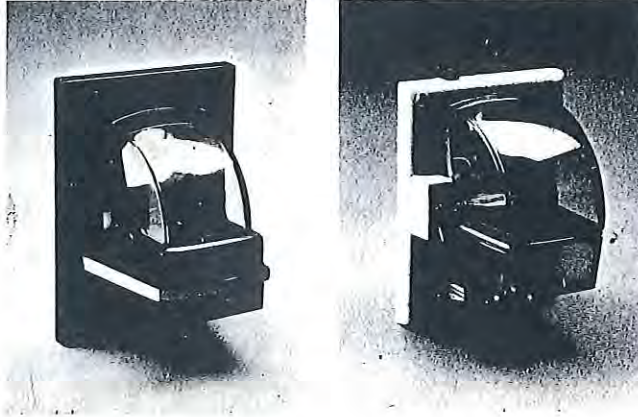
### HOW TO ORDER :

| CAT.NO. | Bacharach Code (Including Case) | Range                 |
|---------|---------------------------------|-----------------------|
| 335381  | 16-7009                         | 0-1000 fpm            |
| 33514   | 16-7010                         | 0-300 meters per min. |

# BACHARACH PORTABLE INSTRUMENTS

## AIR FILTER SERVICE INDICATORS

Monitors the performance of air filters to assure clean air and efficient operation of air conditioning equipment.



**Features**

- Maintains high air filtering efficiency.
- Reduces inspection and service costs.
- Dependable, trouble-free operation.
- Easy to install.
- Assures top performance of air conditioning systems.
- Field adjustable.
- Used in ships, aircraft and railroad cars.

Bacharach Air Filter Indicators are easy to install. They are particularly suitable for central heating and cooling systems, packaged air conditioners in stores and office buildings, room conditioners, unit ventilators and similar cooling and ventilating appliances.

A variety of models are available. Some with a visual

mechanical signal and others with both mechanical signal and electrical contacts for connection to remote circuits.

**Applications**

Use of these indicators guards the operating efficiency of an installation. They accurately sense and automatically signal when it is time to change the air filter. Filter replacement costs are minimized—washing of permanent-type filters is done only when necessary; replace-ment-type filters are never discarded too soon.

Bacharach Air Filter Indicator Model MRD is also used to assure minimum air velocity to comply with OSHA Regulations Part 1910.107 covering spray finishing using flammable and combustible materials.

| CAT. NO. | Bach. Code Nos. | Model | Visual Mechanical | Signal Reset |            | Type of Mounting |                                    | Electrical Switch Contact Ratings                                 |   |   | Application |
|----------|-----------------|-------|-------------------|--------------|------------|------------------|------------------------------------|---|---|---|-------------|
|          |                 |       |                   | Manual       | Auto-matic | Unit Source      | Cast Alum. Housing                 | Contact Ratings of Mechanical Switches—Normally Open Amps         | Contact Ratings of Models with Magnetic Mercury Bulb Switches |   |             |
|          |                 |       |                   |              |            |                  |                                    |   | Normally Open Amps  | Normally Closed Amps                                  |             |
| 335385   | 18-7017         | MDF   | ✓                 | ✓            |            | ✓                |                                    | No Contacts   |   |   | Note 1      |
| 33518    | 18-7016         | MEF   | ✓                 |              | ✓          | ✓                | 26 VAC or DC Single Pole 0.25 amps |   |   |   |             |
| 335386   | 18-7015         | MBF   | ✓                 | ✓            |            | ✓                |                                    |   |   |   |             |
| 33515    | 18-7004         | MED   | ✓                 | ✓            |            | ✓                |                                    | No Contacts   |   |   | Note 2      |
| 33516    | 18-7006         | MND   | ✓                 | ✓            |            |                  | ✓                                  | No Contacts   |   |   | Note 3      |
| 335387   | 18-7005         | MXE   | ✓                 | ✓            |            |                  | ✓                                  | 115VAC 4 amps.<br>230VAC 2 amps.<br>115VDC 2 amps.<br>Single Pole |   |   | Note 4      |
| 33517    | 18-7009         | MFD   | ✓                 | ✓            |            |                  | ✓                                  |   | 115VAC 0.30<br>115VDC 0.15<br>230VAC 0.15<br>230VDC 0.07      |   | Note 5      |
| 335388   | 18-7013         | MRD   | ✓                 | ✓            |            |                  | ✓                                  |   |   | 115VAC 1.0<br>115VDC 0.5<br>230VAC 0.5<br>230VDC 0.25 | Note 6      |

**APPLICATION NOTES**

- NOTE 1: Domestic heating and air conditioning applications. May be single connected or differentially connected across filter. See tabulation for self resetting features and remote signal capability. Range of adjustment : 0.10" to 1.0" W.
- NOTE 2: Domestic heating and airconditioning applications. Single connection downstream of filters only.
- NOTE 3: General applications. Adjustable for suction pressure differentials between 0.06 and 3.5" W.
- NOTE 4: Industrial and commercial applications. Adjustable over suction differential press. range of .06 to 3.5"W.
- NOTE 5: Industrial and commercial applications requiring remote signal. Adjustable over suction differential pressure range of .12" to 3.5"W.
- NOTE 6: Normally closed signal feature used in conjunction with paint spray booth applications where air to spray gun is cut off when booth filters fail to meet minimum air passage required.

THE BITTERNESS OF POOR QUALITY REMAINS LONG AFTER THE SWEETNESS OF LOW PRICE IS FORGOTTEN

# BACHARACH PORTABLE INSTRUMENTS

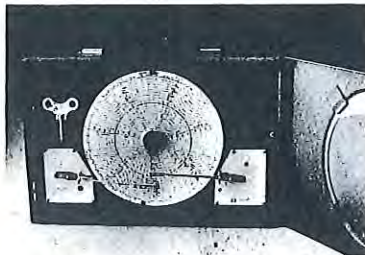
## SERDEX HUMIDITY/TEMPERATURE RECORDER

Circular chart recorder for providing permanent record of humidity and temperatures.

### Features

- Rapid response to humidity changes.
- Wide temperature tolerances from 0°F to +130°F (-18°C to +54.5°C).
- Completely self-contained.

The recorder incorporates the patented Serdex conically-shaped membrane diaphragm humidity element. The temperature sensing element is a precision bi-metal coil. The Serdex recorder is self-contained and equipped with a spring-wound chart drive. The 6"



diameter chart has 2% R.H. and 2°F divisions for 24-hour rotation models. The circular chart recorder is also available for recording relative humidity only, and correction charts for R.H. can be provided for temperatures below +32°F.

### Applications

Monitors humidity where it is important to preserve materials and prevent deterioration. Extremely valuable when installed in computer rooms, labs, etc.

| CAT. NO. | Bacharach Code Complete Recorder Includes One Box of Charts and Ink | Serdex Recorder Type              | Specifications |              |          | Chart     |       |     |                   | Ink (One Bottle) |         |
|----------|---|-----------------------------------|----------------|--------------|----------|-----------|-------|-----|-------------------|------------------|---------|
|          |   |                                   | Scale Range    | Temp. Range  | Rotation | Divisions |       |     | Box of 100 Charts | Red              | Purple  |
|          |   |                                   |                |              |          | Time      | Temp. | R/H |                   |                  |         |
| 33523    | 22-7042   | Relative Humidity and Temperature | 0-100% R.H.    | 0 to +100°F  | 24 Hr.   | 15 Min.   | 2°F   | 2%  | 22-0082           | 22-0077          | 22-0079 |
| 335390   | 22-7078   |                                   |                | 0 to +100°F  | 7 Day    | 3 Hr.     | 5°F   | 5%  | 22-0419           |                  |         |
| 335391   | 22-7018   |                                   |                | -10 to +90°F | 7 Day    | 3 Hr.     | 5°F   | 5%  | 22-0063           |                  |         |
| 335392   | 22-7052   |                                   |                | -16 to +40°C | 7 Day    | 3 Hr.     | 2°C   | 5%  | 22-0285           |                  |         |
| 33520    | 22-7015   | Relative Humidity Only            |                | None         | 24 Hr.   | 15 Min.   |       | 2%  | 22-0083           | None             | 22-0079 |
| 335393   | 22-7017   |                                   |                | None         | 7 Day    | 3 Hr.     |       | 2%  | 22-0081           |                  |         |

## SERDEX HUMIDITY/TEMPERATURE INDICATORS

Two-pointer instrument for simultaneous indication of relative humidity and temperature.



### Features

- Completely self-contained, no piping or external power source is required.
- Rapid response to humidity changes.
- Wide temperature tolerances from 0°F to +130°F (-18°C to +54.5°C).
- Easy to read scale.

The Serdex Indicator is furnished as a portable instrument, or with a flanged case for surface mounting. Completely self-contained, no piping or external power source is required. The sensing element is a highly-sensitive, conically-shaped membrane diaphragm. It gives almost instant re-

sponse to humidity changes. Its reliable operating characteristics are retained in ambient temperatures from 0°F to +130°F (-18°C to +54.5°C). Lag constant is less than 4 sec. for 63% of indicated range covered in an air stream velocity of 800 ft./min. (approx. 260 m./

min.). Serdex Indicators are available for measuring humidity in the range of 15 to 95% R.H.

### Applications

Checking and adjusting ventilating, refrigeration, humidification, dehumidification systems.

| CAT. NO. | Bacharach Code | Serdex Indicator Type                              | Scale Width (Inches). | Specifications Scale Range | Temperature Range |
|----------|----------------|--|-----------------------|----------------------------|-------------------|
| 33524    | *22-7056       | Relative Humidity and Temperature, Precision Model | 3½                    | 0-100% R.H.                | 0 to +130°F       |
|          | *22-7076       |  |                       |                            | -5 to +55°C       |
| 33521    | *22-7059       | Relative Humidity Only, Precision Model            |                       |                            |                   |
| 33522    | **22-7006      | Relative Humidity Only, Utility Model              | 2½                    |                            |                   |

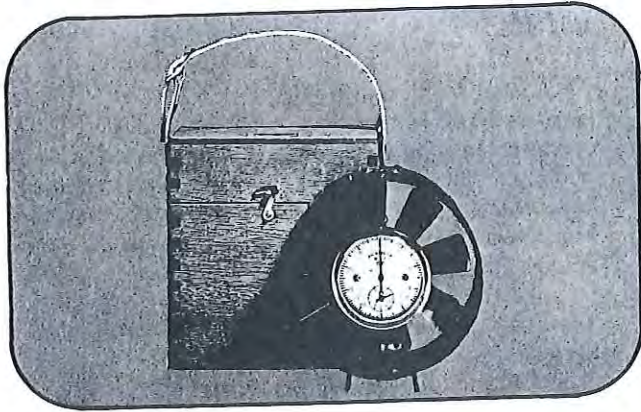
\* Precision Model Flange Mtg. Kit 22-0237 fits openings 5-1/8" x 4-3/8".

\*\* Not illustrated.

6

# ZEAL AIR VELOCITY METERS & BAROMETERS

CAT. NO. 33564

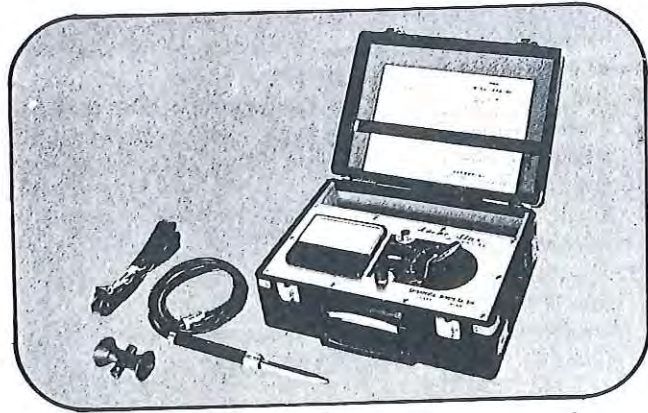


**No 770  
BIRAM AIRMETER (Vane Anemometer)**

This instrument is most useful for accurate measurements of wind speed, 0-1000 meters max. It can be used to record air movement for mine shafts, tunnels, air conditioning systems, micrometeorological studies, etc.

**Specifications**

- Major Dial: 1 to 100 meters
  - Minor Dial: 1000 meters
  - Minimum Indication: 1 meter
  - Size: 110 long X 50 wide X 120mm high
  - Weight: 0.5 kgs.
- IN WOODEN BOX FOR PORTABILITY



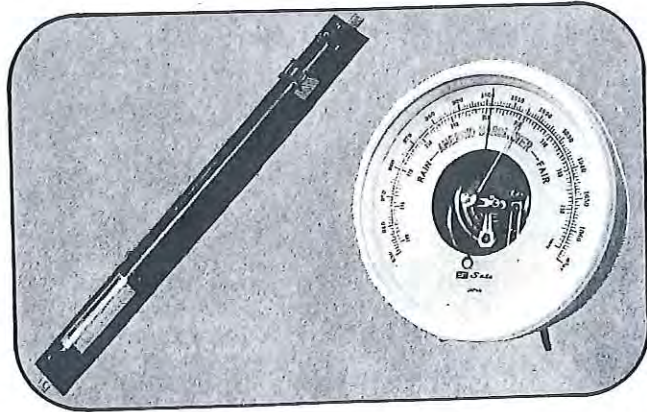
**PORTABLE ELECTRONIC ANEMOMETER  
TYPE SAV-22A**

Ideally suited to all heating, ventilating and air conditioning applications such as measurement of air velocity in ducts or grill exit velocities. Also ideal for meteorological and engineering studies of air movement in the open.

- Standard Ranges: 0-5, 0-40 meters/sec.
- 0-10, 0-500mm Aq

- Temperature Compensation: 0-120 C.
- Battery: DC9V
- Size: 160 wide X 325 long X 100mm high
- Weight: 4.3 kgs.

CAT. NO.



**No 314  
Fortin MERCURY BAROMETER**

CAT. NO.

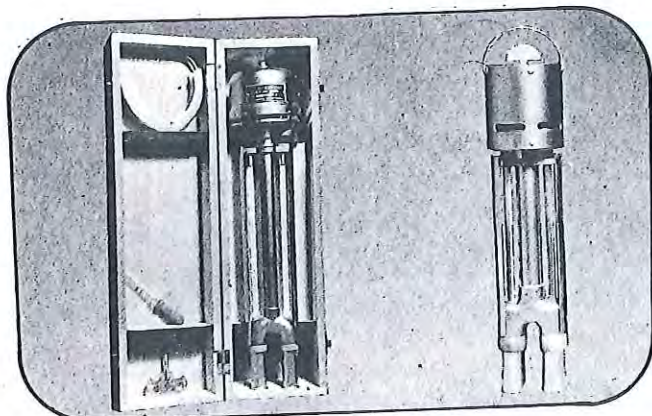
Standard Fortin Mercury Barometer for precise measurement of atmospheric pressure.  
\*Officially tested with certificate, Accuracy, within 0.5 mmHg. 115 cm in overall length.  
\*Fit for official test. Accuracy within 0.5 mmHg.  
Available two sizes; 115 cm and 105 cm long.

**NO 312  
ANEROID BAROMETER**

CAT. NO.

Actual pressure can be measured from sea level to 1,500 feet.  
Dual or triple scale of mbar and mmHG, plus temperature  
Range: -20 to 50°C  
Size: 5" (12.5 cm) and 6" (15 cm)  
Also available in Metric reading.

CAT. NO.



**Assmann's ASPIRATION PSYCHROMETER**

For most precise measurement of humidity. Mercury filled wet and dry bulb thermometers are placed in ventilator with spring wound or battery operated fan. Boxed with fittings and table for determination of humidity in ventilation.

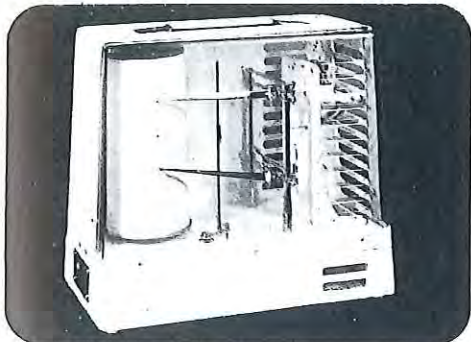
- Cat No: 121 - Battery op. 123: Spring Wound
- Temperature range -30 to 50°C in 1/5° divs.
- Size: 450 long X 125 wide X 115 mm high
- Weight: 3.5 kgs.

Junior type (smaller Psychrometer) is also available spring-wound (Cat No. 122) or battery operated (Cat No. 125) Thermometer Refill tubes available in matched pairs.

**MICROMECH RECORDING WEATHER INSTRUMENTS**

RECORDS AIR TEMPERATURE, PRESSURE &amp; RELATIVE HUMIDITY

- FEATURES: ★ MODERN STREAMLINED STYLING  
 ★ WHITE ENAMEL AESTHETIC APPEARANCE  
 ★ DURABLE PERSPEX FRONT  
 ★ SIMPLIFIED ADJUSTMENT CONTROLS SIDE BY SIDE  
 ★ EASY, CONVENIENT HANDLE FOR PORTABILITY  
 ★ COMPLETELY REMOVABLE COVER

■ **MM-01 THERMOHYGROGRAPH**

Air temperature and relative humidity are simultaneously recorded on the same chart.

**Temperature Sensor**

Sensor: Aged bimetallic strip

Temperature Scales:  $-15+40^{\circ}\text{C}$ . or  $-10+50^{\circ}\text{C}$ . or  $-40/20^{\circ}\text{C}$ .

Accuracy:  $\pm 1\%$

**Humidity Sensor**

Sensor: Human Hair

Range: 0 to 100%

Accuracy:  $\pm 1\%$  between 20 to 80% approximately 3% at extremes

Chart Drive: Spring-wound clock

Drum Rotation: 7-day or 24-hour by alternative gear provided

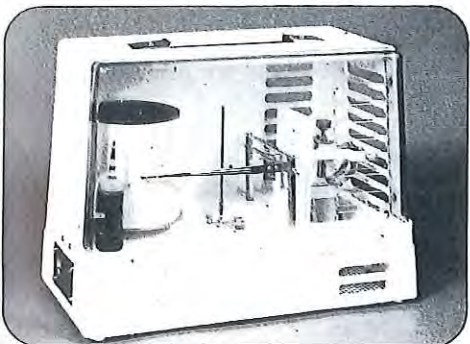
Size: 320 long X 150 wide X 280mm high

Weight: 4 kgs (Instrument only)

Charts and ink for one year's use supplied

SPARE CHART PAPER, BOTH 7 DAY AND 24 HOUR AVAILABLE

**CAT. NO. 33575**

■ **MM-02 THERMOGRAPH**

Temperature is recorded on the chart by means of a sensitive curved bimetallic strip.

**Specifications**

Sensing Element: Aged bimetallic strip

Scales available:  $-15+40^{\circ}\text{C}$ . or  $-10+50^{\circ}\text{C}$ .

Accuracy:  $\pm 1\%$

Clock Drive: Spring-wound Clock

Drum Rotation: 7-day or 24-hour by alternative gear provided

Size: 320 long X 150 wide X 280mm high

Weight: 4 kgs. (Instrument only)

Charts and ink for one year's use supplied

SPARE CHART PAPER, BOTH 7 DAY AND 24 HOUR AVAILABLE

**CAT. NO. 33576**

■ **MM-03 HYGROGRAPH**

This model uses the human hair as the sensor for relative humidity.

**Specifications**

Range: 0-100%

Sensor: Human hair

Accuracy:  $\pm 1\%$  between 20 and 80% approximately 3% at extremes

Chart Drive: Spring-wound Clock

Drum Rotation: 7-day or 24-hour by alternative gear provided

Size: 320 long X 150 wide X 280mm high

Weight: 4 kgs. (Instrument only)

Charts and ink for one year's use supplied

SPARE CHART PAPER, BOTH 7 DAY AND 24 HOUR AVAILABLE

**CAT. NO. 33577**

■ **MM-04 BAROGRAPH**

This Barograph is a precision recording instrument.

**Specifications**

Sensor: 14-cell, 2 in. diameter aneroid

Accuracy:  $\pm 0.2\%$  of range

Sensitivity:  $\pm 0.2$  millibar

Operating range: Sea Level to 3,600 metres

Lag Time: 0.1 sec.

Chart Scales: 940 to 1045 millibars

Temperature Compensation: Bimetallic strip

Chart Drive: Spring-wound clock

Drum Rotation: 7-day or 24-hour by alternative gear provided

Size: 320 long X 150 wide X 280mm high

Weight: 4 kgs. (Instrument only)

Charts and Ink for one year's use supplied

SPARE CHART PAPER, BOTH 7 DAY AND 24 HOUR AVAILABLE

**CAT. NO. 33578**

6



# ANALYSERS AND TESTERS

## PALEC POWER ANALYSER A True Dynamometer Instrument

**for INDUSTRIAL MAINTENANCE, SERVICE & PRODUCTION**

AN INVALUABLE AID IN —

**POWER FACTOR CORRECTION** — LOW POWER FACTOR IS ELECTRICAL ENEMY NO.1. FIND AND CORRECT THIS COSTLY ELECTRICAL WASTE.

**PLANT MAINTENANCE & TROUBLE SHOOTING** — REFRIGERATORS, AIR CONDIT — IONERS, WASHING MACHINES AND ALL MOTORISED EQUIPMENT.

**MEASURES** — VOLTS, AMPS, WATTS. **POWER FACTOR** — KVA & KVAR (REACTIVE).



| CAT. NO. | MODEL NO.      | RANGES  |            |                                     | DIMS. (INS) |
|----------|----------------|---|------------|-------------------------------------|-------------|
|          |                | VOLTS A.C.  | AMPS. A.C. | WATTS A.C.                          |             |
| 3381     | PA2            | 0-125/250/500   | 0-2/5/20   | 9 RANGES (3 FOR EACH VOLTAGE RANGE) | 9x7½x4      |
| 3382     | PA2 Power Lead | EXTRAS AVAILABLE TO SPECIAL ORDER :-<br>A. STAR RESISTANCE BOX FOR 3 PHASE TESTING.<br>B. CURRENT & POTENTIAL TRANSFORMERS FOR RANGE EXTENTION. |            |                                     |             |

## PALEC OHMMETER 4 RANGE UNIVERSAL

**APPLICATIONS** — RESISTANCE TESTING OF MOTOR & TRANSFORMER WINDINGS, HEATING ELEMENTS, ETC. EARTH CONTINUITY TESTING OF ELECTRICAL APPLIANCES, HOUSE WIRING, ETC. THE UNIT HAS INTEGRALLY MOUNTED BATTERY.

**METER** — 4½" RECTANGULAR TYPE WITH SCALE COLOUR CODED WITH PANEL MARKINGS.

COMPLETE WITH TEST LEADS AND INTEGRALLY MOUNTED BATTERY LEATHER CARRYING CASE AVAILABLE AS OPTIONAL EXTRA.



| CAT. NO. | MODEL NO. | RANGES   | HALF SCALE                                | FULL SCALE   | DIMENSIONS (INS.) |
|----------|-----------|--|---|--|-------------------|
| 3383     | OM2       | LOW OHMS x 1<br>LOW OHMS x 10<br>HIGH OHMS x 1<br>HIGH OHMS x 10 | 1 OHM<br>10 OHMS<br>100 OHMS<br>1000 OHMS | 10 OHMS<br>100 OHMS<br>10,000 OHMS<br>100,000 OHMS | 7½ x 6 x 2½       |

## KEWMEG-500 INSULATION TESTER & VOLTMETER

CAT. NO. 3388

This rugged, self-contained instrument has been designed for convenient and independent trouble-free operation, particularly in the field. Housed in a durable, shock-proof plastic case, the KEWMEG 500 needs no external power—stabilised high voltage for insulation measurement is provided by the rectified output of a transistorised oscillator. The taut band suspension type movement is friction free and shock proof.

### OTHER FEATURES

**PUSH BUTTON RANGE SELECTION.** . . . any of the three voltmeter ranges of the resistance range can be selected by depressing the appropriate push-button.  
**ON-OFF INDICATION.** . . . a neon lamp indicator lights when the instrument is switched on, preventing battery wastage by reminding the user to switch off after use.

**BATTERY CHECK BUTTON.** . . . gives immediate indication when battery should be replaced.

### SPECIFICATIONS

#### MEASURING RANGE

- : Insulation Tester: 500 volts/100 megohms.
- : Effective Measurement Range: 0.1-100 megohms (Mid-scale 2 megohms)
- : AC Voltage: 0-150/300/600V

#### ACCURACY

- : Insulation Tester: Effective measuring range 0.1-50 megohms; Better than ± 5% of the indicated value. At the other points: Better than ± 10% of the indicated value. AC Voltage: Better than ± 3% of full scale value.

#### DIELECTRIC STRENGTH

- : Between the circuit and the housing: 2200V AC (1 min. Eveready 815 or equivalent (8 required)

#### POWER SOURCE

- : 210 x 110 x 60mm

#### OUTSIDE DIMENSIONS

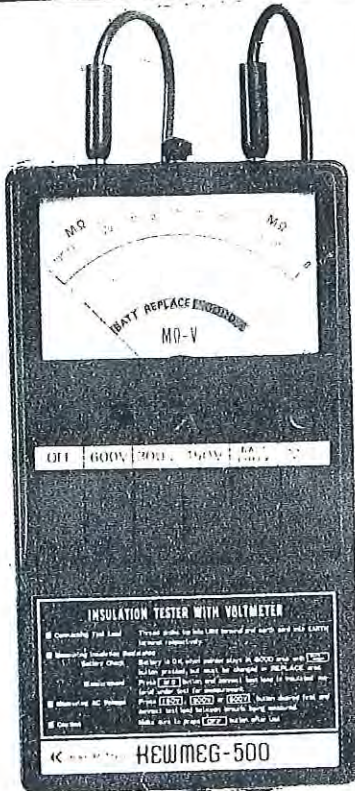
- : 750g

#### WEIGHT

- : One set of measuring leads (Line Probe: Earth lead).

#### ACCESSORIES

- : Carrying case.
- : Operation Manual.



## CIRCUIT TESTER

### A FAST ACCURATE TESTER

*For Checking Non-Energized Equipment*

**MODEL CT2** - Designed for testing continuity, shorts, opens. Signal light at point of contact makes it unnecessary for operator to move eyes from point of contact to determine defect. Accelerates speed in point to point testing.

10 ohm, two battery type especially recommended for testing of diodes such as used in electronic circuits and automobile alternators but not necessarily limited to this application only; excellent for testing wire assemblies, switches, relays, fuses, circuit breakers, armatures, thermostats, etc.

Typical test for alternator diodes would be as follows:

**SHORTS AND OPENS:** Connect tester across diode. Then reverse tester connections. If light glows both ways, diode is shorted. If no light appears, diode is open.

**POLARITY CHECK:** Light glows only when probe touches negative (-) lead and alligator is clipped to positive (+) lead. (For convenience in production testing, battery polarity can be reversed so light glows when probe touches positive lead.)

**CONTINUITY TESTING:** Circuit wiring, light glows when resistance is less than 10 ohms. No light if resistance exceeds 10 ohms.

Bulb No. 222, Battery Size AA.

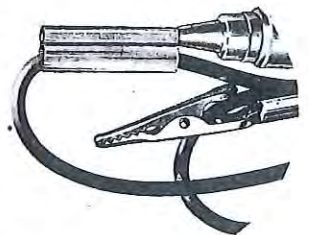
| CAT. NO. | MODEL | DESCRIPTION                             | OHMS |
|----------|-------|---|------|
| 33811    | CT2   | Double Battery Type * with Bulb No. 222 | 10   |

\* Batteries NOT included. Use standard size AA penlight battery.

6

#### PROBE-PROTECTOR INCLUDED.

New! Vinyl extrusion Probe-Protector slips over Probe when circuit tester is not being used. This prevents accidental contact with metal that could create a circuit and minimizing unnecessary battery burn-out.



NOTE : FIRST 3 NUMERALS OF CAT. No. INDICATES PAGE No.

WE BELIEVE IN GOOD QUALITY PARTS AND EQUIPMENT, RELIABLE SERVICE, BACKED BY LARGE STOCK HOLDINGS SUPPLIED BY REPUTABLE AND TRUSTWORTHY COMPANIES



Model CT2  
Convenient  
3-Foot  
Cord.

338-b

# ROBINAIR® TEST INSTRUMENTS

## UNIVERSAL THERMOCOUPLE TEMP-TESTER

FOR THE APPLIANCE SERVICEMAN AND FOR SHOPS REPAIRING AND SERVICING REFRIGERATORS, AIR CONDITIONERS, HEATERS, DRYERS AND ALL TYPES OF APPLIANCES AUTOMATICALLY ADJUSTS FOR ROOM TEMPERATURE

12850 **CAT. NO. 33818**

A tester providing fine accuracy in high temperature ranges. Furnished in rugged Texon case with one general lead.

Optional surface leads and liquid leads also available.

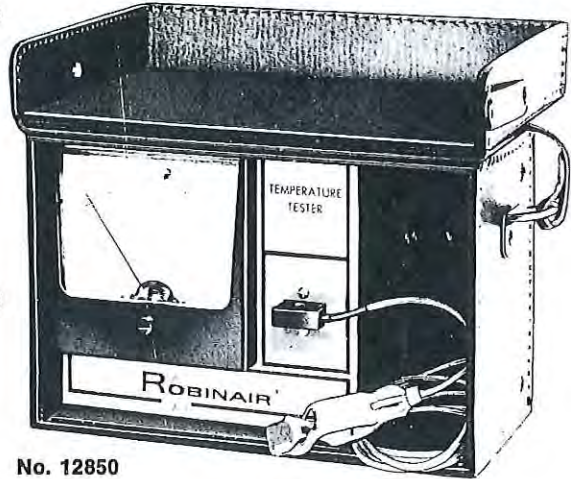
ACCURACY :  $\pm 2\%$  of full scale.

METER : 3½" Dual Scale.  
0° to 650°F and 0° to 340°C.

No. 43897  
(was 12850-2)



No. 43898  
(was 12850-3)



No. 12850

| CAT.NO. | PART NO. | DESCRIPTION  |
|---------|----------|--------------|
| 33924   | 43896    | General Lead |
| 33925   | 43897    | Surface Lead |
| -       | 43898    | Liquid Lead  |

# ROBINAIR®

## Volt/Amp/Wattmeter

14865 **CAT. NO. 33819**

Normal and peak switch setting enables servicemen to read both normal and peak conditions. comes in durable black plastic case and can be hung from a hook for easy handling. Capable of holding peak current readings.

### SPECIFICATIONS

#### Voltmeter

Dual Range Voltage: 120/240 AC

Accuracy:  $\pm 1\%$   $\pm 1$  digit

#### Ammeter

Dual Range: Low 0-9.9 Amps Resolution 10 milliamps  
High 0-99.9 Amps Resolution 100 Milliamps

Accuracy:  $\pm 1\%$   $\pm 1$  digit

#### Wattmeter

Dual Range: Low 0-999 Watts Resolution 1 Watt  
High 0-9.99 Kilowatts

Accuracy:  $\pm 2\%$   $\pm 1$  digit



IF IT IS NOT LISTED IN THIS CATALOGUE — ASK US ANYWAY  
WE HAVE MANY ITEMS AND ACCESSORIES, TOO NUMEROUS TO LIST  
WE CAN PROBABLY HELP YOU

# JEMCO MULTITESTERS

- FEATURES :
1. Meter Overload Protection.
  2. Meter Shock Proof Device.
  3. Stable indication due to special circuit applied to the rotary switch.
  4. Excellent frequency characteristics.
  5. D.C. Polarity reversing switch.
  6. Large Zero adjuster.
  7. Serviceable at an angle of 30° or 40° utilizing carrying handle as a stand.
  8. 10A DC and AC Range.
  9. 50M Ohms Max. resistance range.



CARRYING CASE  
US-TYPE  
CAT. NO. 33839



## MODEL US-100 20K $\Omega/V$ CAT. NO. 33836

Meter overload protection, shock-proof device  
Color of Cabinet & Panel : Black or Grey  
For laboratories schools and servicemen

MEASUREMENT RANGES :

DC Voltage : 0-0.25, 1, 2.5, 10, 50, 250, 1,000V (20K  $\Omega/V$ )  
AC Voltage : 0-2.5, 10, 50, 250, 1,000V (5K  $\Omega/V$ )  
DC Microamp. : 0-50 $\mu$ A (250mV drop)  
DC Milliamp. : 0-1, 25, 500mA (250mV drop)  
DC Ampere : 0-10A (250mV drop)  
AC Ampere : 0-10A (250mV drop)  
Resistance : 0-5, 50, 500K  $\Omega$ , 5, 50M  $\Omega$  (Center scale 50)  
R $\times$ 1, R $\times$ 10, R $\times$ 100, R $\times$ 1K, R $\times$ 10K  
Decibels : -20 - +10, +22, +36, +50dB (0dB 1mW 600 $\Omega$ )  
Batteries : 1.5V (UM-3) $\times$ 2, 22.5V (BL-015) $\times$ 1  
Net weight : 500g



## MODEL US-105 50K $\Omega/V$ CAT. NO. 33837

Fuse for all circuit protection except 500mA, 10A at terminal  
Meter overload protection, shock-proof device  
Color Cabinet Panel : Black or Grey  
For laboratories schools and servicemen

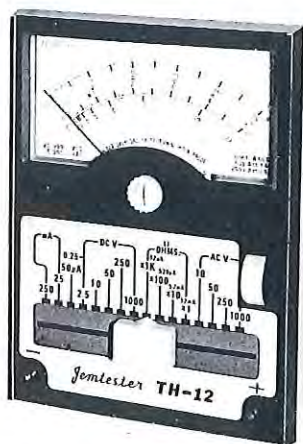
MEASUREMENT RANGES :

DC Voltage : 0-0.25, 1, 2.5, 10, 50, 250V (50K  $\Omega/V$ ), 1,000V (20K  $\Omega/V$ )  
AC Voltage : 0-2.5, 10, 50, 250, 1,000V (10K  $\Omega/V$ )  
DC Microamp. : 0-25 $\mu$ A (250mV drop)  
DC Milliamp. : 0-1, 25, 500mA (250mV drop)  
DC Ampere : 0-10A (250mV drop)  
AC Ampere : 0-10A (250mV drop)  
Resistance : 0-20, 200K  $\Omega$ , 2, 20, 200M  $\Omega$  (Center scale 100)  
R $\times$ 1, R $\times$ 10, R $\times$ 100, R $\times$ 1K, R $\times$ 10K  
Decibels : -20 - +10, +22, +36, +50dB (0dB 1mW 600 $\Omega$ )  
Batteries : 1.5V (UM-3) $\times$ 2, 22.5V (BL-015) $\times$ 1  
Net weight : 550g

6



CARRYING CASE  
TH-12  
CAT. NO. 33840



## MODEL TH-12 20K $\Omega/V$ CAT. NO. 33838

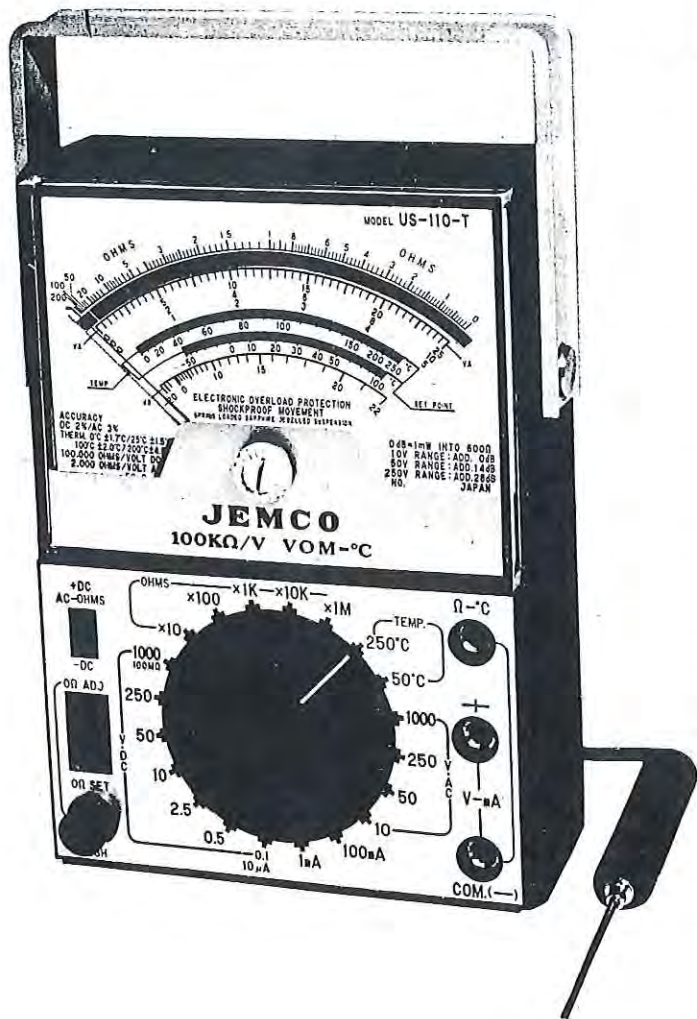
Slide switch operated  
Meter overload protection, shock-proof device  
Color of Cabinet & Panel : Grey  
For schools and amateurs

MEASUREMENT RANGES :

DC Voltage : 0-0.25, 2.5, 10, 50, 250, 1,000V (20K  $\Omega/V$ )  
AC Voltage : 0-10, 50, 250, 1,000V (5K  $\Omega/V$ )  
DC Microamp. : 0-50 $\mu$ A (250mV drop)  
DC Milliamp. : 0-25, 250mA (250mV drop)  
Resistance : 0-3, 30, 300K  $\Omega$ , 3M  $\Omega$  (Center scale 25)  
 $\times$ 1,  $\times$ 10,  $\times$ 100,  $\times$ 1K  
LI : 52mA, 5.2mA, 520 $\mu$ A, 52 $\mu$ A  
LV : 1.5V  
Decibels : -20 - +22, +36, +50dB (0dB 1mW 600 $\Omega$ )  
Batteries : 1.5V (UM-3) $\times$ 1  
Dimensions : 132 $\times$ 100 $\times$ 38mm  
Net weight : 280g

# JEMCO MULTITESTERS

## JEMCO MULTITESTER WITH INBUILT THERMOMETER



### MODEL US-110-T 100KΩ/V

#### FEATURES

CAT. NO. 33841

1. A thermometer is included.  
This tester, by use of an accessory probe (TP-11) that is attached to it, can directly measure and indicate any temperature between  $-50^{\circ}\text{C}$  and  $250^{\circ}\text{C}$  on the private scale of two exclusive ranges. The scale is prepared in special color, so that it may be discerned from the others and the measured values can easily be read. The thermometer is very convenient for the measurement of, for example, the internal temperature of various electrical equipments, temperature of liquids, and surface temperature or even internal temperature of solids.
2. Zero adjustment of OHMS range.  
An exclusive PUSH SWITCH is newly adopted for the purpose of  $0\Omega$  adjustment of OHMS range. This push switch, in conjunction with a volume control, enables the zero adjustment to be done very easily, and the set point adjustment of the TEMPERATURE range as well.
3. Extent of measurement by OHMS range.  
Five ranges plus 1.  
Capable of fine and broad range measurement from  $0.1\Omega$  to  $200\text{M}\Omega$ , and further, by use of extra power source of  $1,000\text{V DC}$ , up to  $20,000\text{M}\Omega$ .
4. Meter scales of DC VOLT/CURRENT and AC VOLT.  
Both DC VOLT/CURRENT and AC VOLT measurements can be made on a single scale.  
You need no more care about the proper selection of scales as were necessary in former types of similar tester.
5. The tester is provided with the means for protecting it against overload or impulse.  
All ranges are equipped with fuses in order to avoid the burn-out of internal circuit due to the misuse of the tester.
6. A  $100\text{mV}/10\mu\text{A}$  range is added, which makes a measurement of very small value ( $2\text{mV}/0.2\mu\text{A}$  at least) possible. Further, a thermistor is equipped in the meter to minimize the error resulted from the variation of ambient temperature.
7. Convenient for carrying, with a handle attached.  
By turning this handle to the back, this multimeter can be used in its slant position.
8. The scale length is  $82\text{mm}$  on the DC scale, which is near to a large type of a tester.
9. A switch is added to change the polarity of DC range. This switch can change the polarity, without the reconnection of TESTLEADS, immediately when the pointer deflects in opposite direction during use. This function is very useful in checking such as TV & FM electronic circuits.
10. Resistors of tolerance 1% are used.

#### SPECIFICATIONS

##### \*SENSITIVITIES

DC 100,000 OHMS/VOLT  
AC 2,000 OHMS/VOLT

##### \*RANGES

DC VOLTAGES :  $0\sim\pm 0.1/0.5/2.5/10/50/250/1,000\text{V}$   
AC VOLTAGES :  $0\sim 10/50/250/1,000\text{V}$   
DC CURRENTS :  $0\sim\pm 10\mu\text{A}/0\sim\pm 1/100\text{mA}$   
OHMS :

| Range        | X10                             | X100                           | X1K                              | X10K                            | X1M                                      |
|--------------|---------------------------------|--------------------------------|----------------------------------|---------------------------------|--|
| Meas. area   | $0.1\Omega\sim 2\text{K}\Omega$ | $1\Omega\sim 20\text{K}\Omega$ | $10\Omega\sim 200\text{K}\Omega$ | $100\Omega\sim 2\text{M}\Omega$ | $10\text{K}\Omega\sim 200\text{M}\Omega$ |
| Center scale | $10\Omega$                      | $100\Omega$                    | $1\text{K}\Omega$                | $10\text{K}\Omega$              | $1\text{M}\Omega$                        |

TEMPERATURES :  $-50^{\circ}\text{C}\sim 250^{\circ}\text{C}$   
TIME RESPONSE : Within 15 seconds (in water)  
NON POLARITY :  
DECIBELS :  $-20\sim +22/-6\sim +36/+8\sim +50\text{dB}$   
 $0\text{ dB}=1\text{mW } 600\Omega$

##### \*ACCURACY

DC RANGES :  $\pm 2\%$   
AC RANGES :  $\pm 3\%$   
OHMS RANGES :  $\pm 3\%$  (scale length)  
TEMP. RANGES : At  $0^{\circ}\text{C} \pm 1.7^{\circ}\text{C}/25^{\circ}\text{C} \pm 1.5^{\circ}\text{C}/100^{\circ}\text{C} \pm 2.0^{\circ}\text{C}/200^{\circ}\text{C} \pm 4.8^{\circ}\text{C}$

##### \*SIZE & WEIGHT

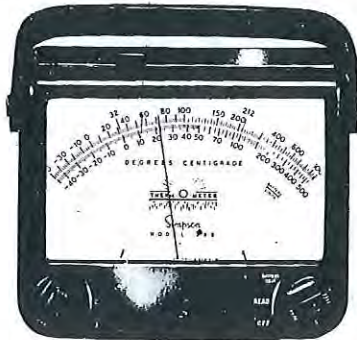
$148(175)\times 105\times 52\text{mm}$  550g

# SIMPSON

## TEMPERATURE MEASURING INSTRUMENTS



Model 385-3L For Three Probes



Model 388-3L For Three Probes



Model 389-3L For Three Probes



Model 387 Appliance Tester

**MODEL 385-3L TEMPERATURE METER**  
 Model 385-3L is ideal for those fast, accurate temperature checks from  $-50^{\circ}\text{F}$  to  $+70^{\circ}\text{F}$ . Light weight, portable, fits easily in your hand. Three lead model. Takes temperature readings in three different locations with a simple flick of the selector knob. Standard Model has Fahrenheit scale. Supplied with one No. 0010, 15 ft. thermistor lead and operator's manual.  
 Size:  $3'' \times 5\frac{1}{8}'' \times 2\frac{1}{2}''$ .

**RANGE & ACCURACY**  
 $-50^{\circ}\text{F. to } +70^{\circ}\text{F.}$   
 $\pm 1^{\circ}\text{F. @ Center Scale}$   
 $\pm 2^{\circ}\text{F. @ Either End}$

| PROBES, LEADS AND CARRYING CASES |        |          |
|----------------------------------|--------|----------|
| DESCRIPTION                      | P/N    | CAT. NO. |
| TEMPERATURE METER                | 385-3L | 3391     |
| Surface Temperature Probe        | 0790   | 33915    |
| Free Air Temperature Probe       | 0789   | 33911    |
| Additional Thermistor Lead       | 0010   | 3394     |
| 30 Ft. Thermistor Lead           | 0216   | 33912    |
| 50 Ft. Thermistor Lead           | 0415   | 33913    |
| 100 Ft. Thermistor Lead          | 0416   | 33914    |
| 150 Ft. Thermistor Lead          | 0417   | 33917    |
| Ever-Redy Leather Carrying Case  | 7034-1 | 3395     |

**MODEL 388-3L THERM-O-METER®**  
 Simpson's popular wide range Therm-O-Meter tester measures the temperature of practically anything within  $-50^{\circ}\text{F}$  to  $+1000^{\circ}\text{F}$ . Standard model has combination  $^{\circ}\text{C}$  and  $^{\circ}\text{F}$  scale. Sensing Element: Thermocouple (Iron-Constantan). Supplied with internal battery and one 8' general purpose probe No. 0190 and operator's manual. Order additional probes as required.  
 Size:  $7\text{-}15/16'' \times 6'' \times 2\text{-}15/16''$

**RANGE & ACCURACY**  
 $-50^{\circ}\text{F. to } +1000^{\circ}\text{F.}$   
 $\pm 1\frac{1}{2}$  Scale Divisions

| THERM-O-METER                                 |        |          |
|---|--------|----------|
| DESCRIPTION                                   | P/N    | CAT. NO. |
| THERM-O-METER                                 | 388-3L | 3392     |
| General Purpose Type                          | 0190   | 33918    |
| Surface Temperature Probe Type (1000°F. Max.) | 0187   | 33910    |
| Rugged Service Lead (8 ft.)                   | 0496   | 33916    |
| Ever-Redy Vinyl Carrying Case                 | 6936-B | 3396     |

**MODEL 389-3L DUAL RANGE THERM-O-METER®**  
 Model 389-3L temperature tester, using three leads, makes temperature readings in three different locations at the same time; i.e., in a refrigerator, one lead could be connected to the evaporator plate, another to the wall of the food compartment and the third in the center of the food compartment. Readings are made quickly in 15 to 30 seconds depending on the medium being checked. Supplied with  $^{\circ}\text{C}$  and  $^{\circ}\text{F}$  scale.  
 Supplied with one general purpose thermistor lead No. 0010 and operator's manual. Order additional leads as required.  
 Size:  $7\text{-}15/16'' \times 6'' \times 2\text{-}15/16''$ .

**RANGE & ACCURACY**  
 $-50^{\circ}\text{F. to } +100^{\circ}\text{F.}$   
 $+100^{\circ}\text{F. to } +250^{\circ}\text{F.}$   
 Within  $\pm 2^{\circ}\text{F.}$

| D.R. THERM-O-METER            |        |          |
|-------------------------------|--------|----------|
| DESCRIPTION                   | P/N    | CAT. NO. |
| D.R. THERM-O-METER            | 389-3L | 3393     |
| Surface Temperature Probe     | 0790   | 33915    |
| Free Air Temperature Probe    | 0789   | 33911    |
| Additional Thermistor Lead    | 0010   | 3394     |
| 30 Ft. Thermistor Lead        | 0216   | 33912    |
| 50 Ft. Thermistor Lead        | 0415   | 33913    |
| 100 Ft. Thermistor Lead       | 0416   | 33914    |
| 150 Ft. Thermistor Lead       | 0417   | 33917    |
| Ever-Redy Vinyl Carrying Case | 6936-A | 3397     |

**APPLIANCE TESTER**  
**MODEL 387 MILLIVOLTMETER**  
 Make gas unit servicing faster, more accurate. Use Simpson's Millivoltmeter. Simply place the probe across the thermocouple terminals and test for the correct value. Checks Safety Thermocouples on Gas-Fired Units.  
 • Furnaces • Boilers • Heaters  
 • Hot Water Heaters • Dryers • Refrigerators  
 Size:  $3'' \times 5\frac{1}{8}'' \times 2\frac{1}{2}''$ .

**RANGE & ACCURACY**  
 0-10, 0-30, 0-100,  
 0-300, 0-1000 Millivolts  
 $\pm 3\%$  of Full Scale

| MILLIVOLT METER                     |      |          |
|-------------------------------------|------|----------|
| DESCRIPTION                         | P/N  | CAT. NO. |
| MILLIVOLT METER                     | 387  | —        |
| Test Prods and Spade Terminals      | 8379 | —        |
| Alligator Clips and Spade Terminals | 8376 | —        |
| Ever-Redy Vinyl Carrying Case       | 8073 | —        |

339-a

**ROBINAIR®**

# TEST INSTRUMENTS

## Four jack-dual range temperature tester for all refrigerator servicemen 14845

Range: -45.6°C to 37.8°C Low  
37.8°C to 148.9°C High

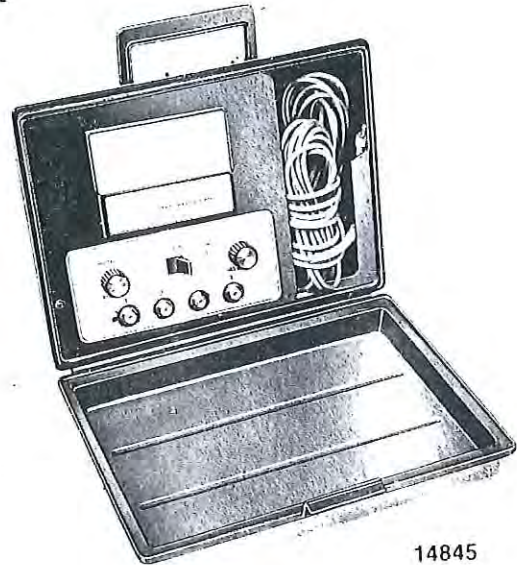
Accuracy: -17°C to +93°C ±1°  
Balance of scale ±2°C

Display: Large 4 1/4" x 3 3/8" meter

Size: 10" x 7 1/2" x 3 3/8"

Leads: Has 4 jacks for detachable leads. Unit is supplied with two 43913 15-ft. general purpose leads. Additional leads available, Part Nos. 43913 through 43918.

Operates on 1 "D" cell alkaline battery (not included). Unit is self-contained in portable carrying case.



14845



43914 Surface Lead



43915 Free Air Lead

| CAT. NO. | PART No. | DESCRIPTION                           |
|----------|----------|---------------------------------------|
| 3399     | 14845    | TEMPERATURE TESTER                    |
| 33921    | 43914    | Surface Lead                          |
| 33922    | 43915    | Free Air Lead                         |
| 33923    | 43913    | 4.6 m (15 ft.) General Purpose Lead   |
|          | 43916    | 9.1 m (30 ft.) General Purpose Lead   |
|          | 43917    | 15.2 m (50 ft.) General Purpose Lead  |
|          | 43918    | 30.5 m (100 ft.) General Purpose Lead |

## Capacitor analyzer

No. 13015 **CAT. NO. 33919**

Read Microfarads Direct on Three Scales: .1-20; 21-49 and 50-2000 Mfd.

**SPECIFICATIONS:** Three Scale: .1-20 Mfd., 21-49 Mfd., 50-2000 Mfd.

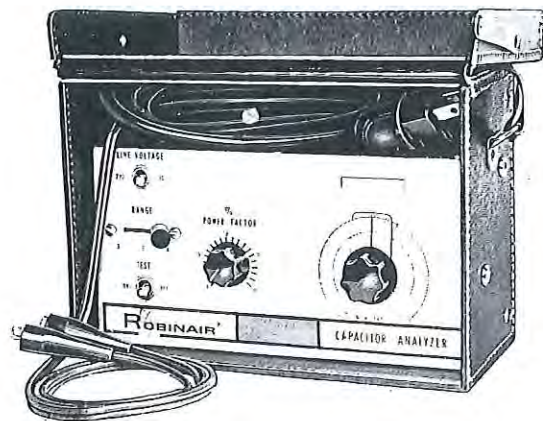
Power Factor % Selector Range: 0-20

Volts: 115 VAC or 230 VAC 50-60 Cycle (toggle switch option)

Wt: 5 lbs., Size: 9" x 6" x 4".

Case: Durable Texon

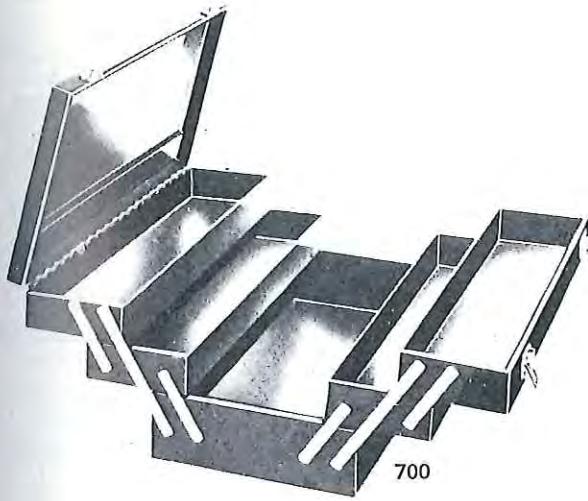
Accurately measures both capacitance and power factor. Performance of any electrolytic capacitor changes with shelf or use life and should be analyzed for sufficient capacitance and related power factor. Incorporates a "solid state" rectifier resulting in an instrument built for rugged use. Each capacitor tested is automatically discharged when the spring return toggle switch is returned to the "off" position. Checks capacitors for being shorted, open, or intermittent.



### GET THE RIGHT PRODUCT

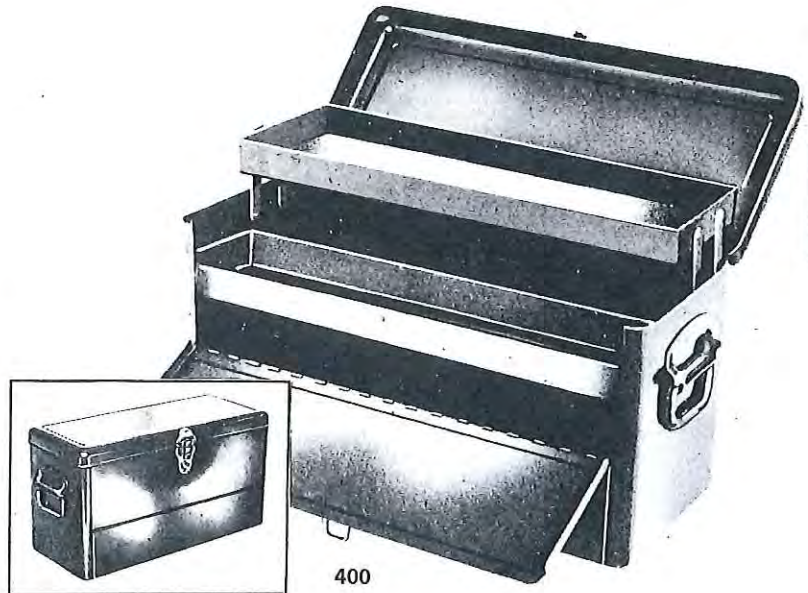
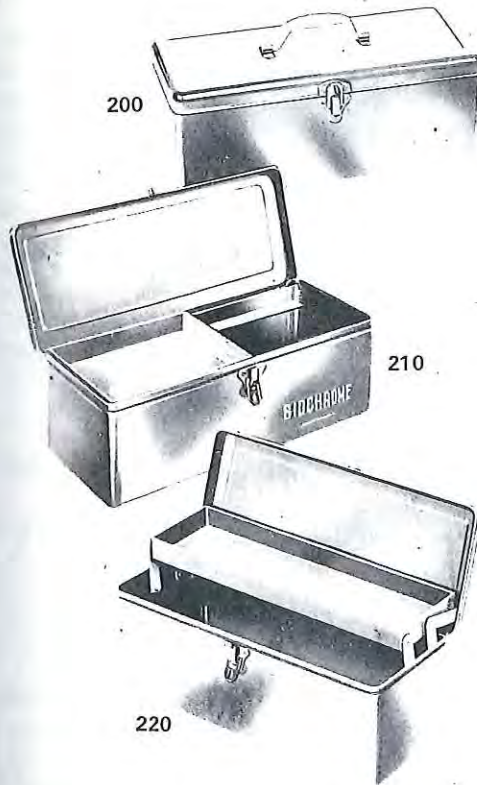
NO SENSE ACCEPTING A SUBSTITUTE PART INSTEAD OF ONE THAT YOU WANT TO BUY BUT WHICH IS NOT CARRIED IN STOCK BY MOST SUPPLY HOUSES. THE PART THAT YOU THINK "WILL DO" MAY ULTIMATELY COST YOU YOUR PROFIT ON THE JOB AS WELL AS A LOST CUSTOMER. PICK OUT THE RIGHT PART YOU WANT FROM THIS CATALOGUE AND CHANCES ARE GOOD THAT WE'LL HAVE IT. IF NOT, WE WILL GET IT FOR YOU AS QUICKLY AS POSSIBLE.

# TOOL BOXES



| CAT. NO. | MFG. P/N     | SIZE L x W x Ht. mm (ins)     | DESCRIPTION  |
|----------|--------------|-------------------------------|--|
| 34621    | 200          | 425 x 170 x 165 (16½x6¾x6½)   | Box without Tray   |
| 34622    | 210          | 425 x 170 x 165 (16½x6¾x6½)   | With removable half-sliding Tray.  |
| 34625    | 220          | 425 x 170 x 165 (16½x6¾x6½)   | With cantilever Tray.  |
| 34623    | 310          | 445 x 210 x 175 (17½x8¼x7)    | With removable half-sliding Tray.  |
| 34624    | 320          | 445 x 210 x 175 (17½x8¼x7)    | With cantilever Tray.  |
| 34629    | 400          | 495 x 210 x 260 (19½x8¼x10¼)  | Heavy duty tool box with ample tool and accessory storage space. With cantilever Tray, removable sliding Tray and drop front. Lockable latch, sturdy carrying handles. |
| 34630    | 510          | 490 x 205 x 210 (19¼x8x8¼)    | With removable half-sliding Tray.  |
| 34631    | 520          | 490 x 205 x 210 (19¼x8x8¼)    | With cantilever tray.  |
| 34632    | 700          | 530 x 255 x 230 (21 x 10 x 9) | Large capacity with fixed base compartment and 4 double cantilever Trays. H.D. carrying handle.  |
| 34634    | Daytek Small | 381 x 171 x 140 (15x6¾x5½)    | Small size Tool Box. No Tray.  |
| 34635    | Daytek Med.  | 400 x 241 x 165 (15¾x9½x6½)   | Med. size Tool Box. Including Tray.  |
| 34636    | Daytek Large | 483 x 241 x 197 (19x9½x7¾)    | Large size Tool Box. Including Tray.   |

OTHER SIZES & TYPES AVAILABLE ON APPLICATION



6

### USE ONLY GOOD TOOLS

CHEAP TOOLS ARE A POOR INVESTMENT AND CAN CAUSE ENDLESS GRIEF AND STRIFE ON THE JOB. IN COMPARING OUR PRICES ON TOOLS AND EQUIPMENT, REMEMBER WE DO NOT SELL CHEAP AND SHODDY TOOLS. OUR TOOLS ALL CARRY NATIONAL AND INTERNATIONAL BRAND NAMES AND ARE THE VERY "FINEST".



# EQUIPMENT AND TOOLS

## CHUX\* industrial wipes

### REGULAR - WHITE

CHUX No. 9751

The clean, hygienic look of this CHUX cloth makes it ideal for cleaning tasks in laboratories, food and drink manufacturing, hospitals, offices and the catering industry. The unique fabric of CHUX wipes ensures that dirt and liquid are rapidly and effectively absorbed. They can be used wet or dry to wipe, mop or polish. CHUX wipes can be washed and rinsed. Or their low cost makes it practical to discard them and use a fresh clean one for each job.

Pre-cut 60 cm x 34 cm. 250 per Carton

**CAT. NO. 3471**

### REGULAR

CHUX No. 9686

The clean, consistent quality of this medium weight CHUX wipe with its distinctive green striped pattern is ideal for a wide variety of cleaning tasks. It quickly soaks up oils and fluids. It wipes, mops and polishes more effectively than rags in general. They can be washed or laundered to use again and again. Or when their job is done, CHUX wipes are readily disposed of. Their low cost makes it economical to reach for a new one more often.

Pre-cut 60 cm x 45 cm. 400 per Carton

**CAT. NO. 3472**

OTHER CHUX PRODUCTS INCLUDING ROLLS, DISPENSERS ETC. AVAILABLE ON APPLICATION

## FIN COMBS



### For Straightening and Cleaning Evaporator and Condenser Fins

Made of tough durable nylon, the tooth depth and slant is an integrated feature that aids in straightening the most stubborn fins.

A simple combing action does the job. Fin-Comb also removes the matted accumulation of lint and dirt.

Available are four combs covering heat exchangers with fin spacings ranging from 4 thru 15 fins per inch.

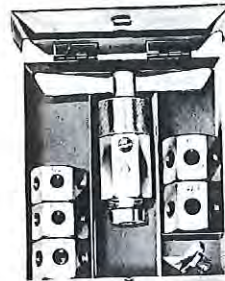
EACH SIZE IS A DIFFERENT COLOR, THUS MAKING THEM EASILY DISTINGUISHABLE.



| Cat.No. | Part No. | Colour   | Application                           |
|---------|----------|----------|---------------------------------------|
| 3473    | P 8      | (Orange) | for units with 4,5,8 & 10 fins/inch.  |
| 3474    | P 9      | (Yellow) | for units with 9 & 15 fins per Inch.  |
| 3475    | P11      | (Blue)   | for units with 11 & 13 fins/inch.     |
| 3476    | P12      | (Green)  | for units with 6,7,12 & 14 fins/inch. |

## (45°) REFACING TOOL

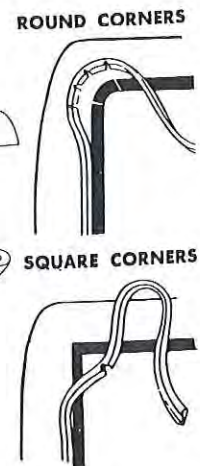
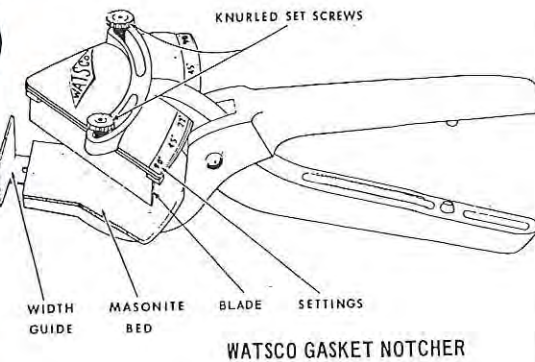
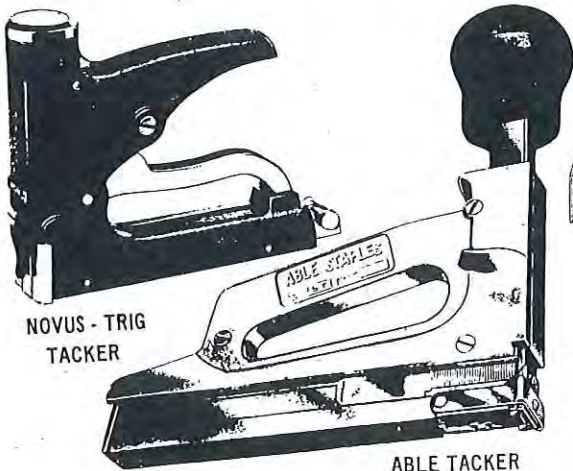
No. 345-FA • 1/4" to 5/8" O.D.



Makes nicked or marred seats on brass and other non-ferrous fittings and valves as good as new. Precision feed. Replaceable cutter. Kit furnished in steel case. - Refacing Tool with cutter and adapters for 1/4", 5/16", 3/8", 1/2" and 5/8" fittings.

**CAT. NO. 34724**

## GASKET NOTCHES AND TACKERS



| MAKE          | CAT. NO. | MFG. P/N  | DESCRIPTION   |
|---------------|----------|-----------|---|
| NOVUS - TRIG. | 34716    | 3 - 8N    | Gasket Tacker.  |
|               | 34718    | NT 6 MM   | 6mm Staples to suit (Box of 5000).                          |
|               | 34721    | NT 8 MM   | 8mm " " " " ( " " " ).                                      |
| ABLE          | 34717    | XRT       | Gasket Tacker with 1/2" Extended Nose.                      |
|               | 34719    | T12 - 5DP | Staples to suit (Box of 5000).                              |
| WATSCO        | 34720    | GNC - 1   | Gasket Notcher. Adjustable for all corners from 20° to 90°. |
|               | 34722    |           | Spare/Replacement Notcher Blades to suit.                   |

# EQUIPMENT AND TOOLS

## FLARING SWAGING AND PINCH-OFF TOOLS

### WISE-GRIP Locking Hand Tools

#### 1 VISE-GRIP Pinch-Off Tool.

Jaws are designed to pinch-off and lock onto copper tubing or rubber fuel, refrigerant or coolant hoses. A perfect temporary "shut-off" valve. The Model RR Pinch-Off Tool is 8" long — jaws open to 1".



#### 2 Straight jaw models.

Modern versions of the original VISE-GRIP locking pliers.

Straight jaws for most nuts and many "clamping" jobs. Jaws on 10" Model 10R open to 1½" — jaws on the 7" Model 7R open to 1-1/8".



#### 2 Curved jaw models without wire cutters.

Four-point contact on any size nut. Jaws on 10" Model 10CR open to 1-7/8" and to 1-5/8" on 7" Model 7CR.

#### 3 Curved jaw models with wire cutters.

The built-in wire cutters will cut anything up to a ¼" bolt. Jaw adjustments: 1-7/8" for 10" Model 10WR, 1-5/8" for 7" Model 7WR and 1-1/4" for 5" Model 5WR.

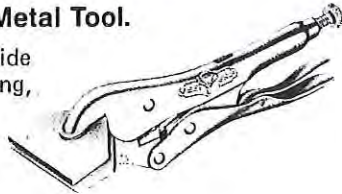
#### 3 Fast-locking "C" Clamps.

One hand squeeze can apply more pressure than you can get with an ordinary "C" Clamp. Jaws open to 2" for 6" Model 6R, 3¾" for 11" Model 11R and 7" for 18" long-reach Model 18R.



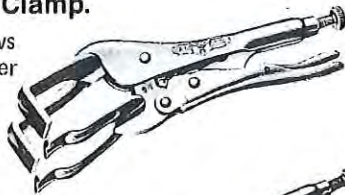
#### 1 VISE-GRIP Sheet Metal Tool.

Special jaws are over 3" wide to make all kinds of bending, forming, clamping and crimping quick and easy. Model 8R is 8" long and jaws open to 1¾".



#### 1 VISE-GRIP Welding Clamp.

Deep-throated U-shaped jaws lock and hold work in proper alignment — even when material is not identical in thickness. Model 9R is 9" long, jaws open to 1-5/8".



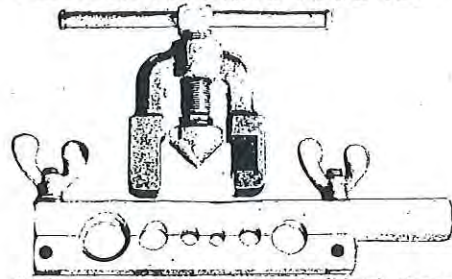
#### 1 VISE-GRIP Chain Clamp.

Locks and holds anything chain can be wrapped around. Model 20R is 9" long with 19" chain. 18" extension chain available.



| CAT. NO. | PART No.                                | DESCRIPTION                                    |
|----------|---|--|
| 3486     | RR                                      | Pinch-Off Tool                                 |
| 34815    | 7R                                      | Straight Jaw Locking Pliers                    |
| 348126   | 10R                                     |  |
| 348129   | 7CR                                     | Curved Jaw Locking Pliers Without Wire Cutters |
| 348128   | 10CR                                    |  |
| 348132   | 5WR                                     | Curved Jaw Locking Pliers With Wire Cutters    |
| 348131   | 7WR                                     |  |
| 348130   | 10WR                                    |  |
| 348137   | 6R                                      | Fast Locking "C" Clamps                        |
| 348136   | 11R                                     |  |
| 348135   | 18R                                     |  |
| 348133   | 8R                                      | Sheet Metal Tool                               |
| 348134   | 9R                                      | Welding Clamp                                  |
| 348138   | 20R                                     | Chain Clamp                                    |
| 348140   | 18" Extension Chain for 20R Chain Clamp |  |

#### HELDON FLARING TOOL 45°



Forged steel yoke, Hardened block, Hard chrome flaring cone.

SIX SIZES IN THE ONE TOOL —  
1/4" — 5/16" — 3/8" — 1/2" — 5/8" — 3/4" O.D.

Part No. 1162

CAT. NO. 3481

#### RIGID FLARING TOOL 45°



Part No. 459

9 SIZES IN THE ONE TOOL

1/8" — 3/16" — 1/4" — 5/16" — 3/8" — 7/16" — 1/2" — 5/8" — 3/4" O.D.

CAT. NO. 3482

#### ROBINAIR SWAGING TOOL



Made of fatigue-proof steel with precision ground bright chrome finish.

EXPANDS—3/16", 1/4", 5/16", 3/8", 1/2" and 5/8" Tube.

P/N 12479

CAT. NO. 34813

#### ROBINAIR SWAGING KIT WITH INTERCHANGEABLE TIPS



This kit of tools was designed for convenience and ease of use. It has interchangeable tips in the 4 most widely used sizes, 1/4", 3/8", 1/2" and 5/8".

Light, tough plastic handle will take a lot of hard use.

Part No. 14311 Kit consists of handle and 4 interchangeable tips.

CAT. No. 34814

#### IMPERIAL PINCH-OFF TOOL WITH RE-ROUNDING HOLES



For temporary closing of tubing. This tool will also open up the tubing and round it back into shape after the job is completed.

Part No. 105-FF for 1/4", 5/16", 3/8" and 1/2" O.D. Tubing.

CAT. NO. 34845

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