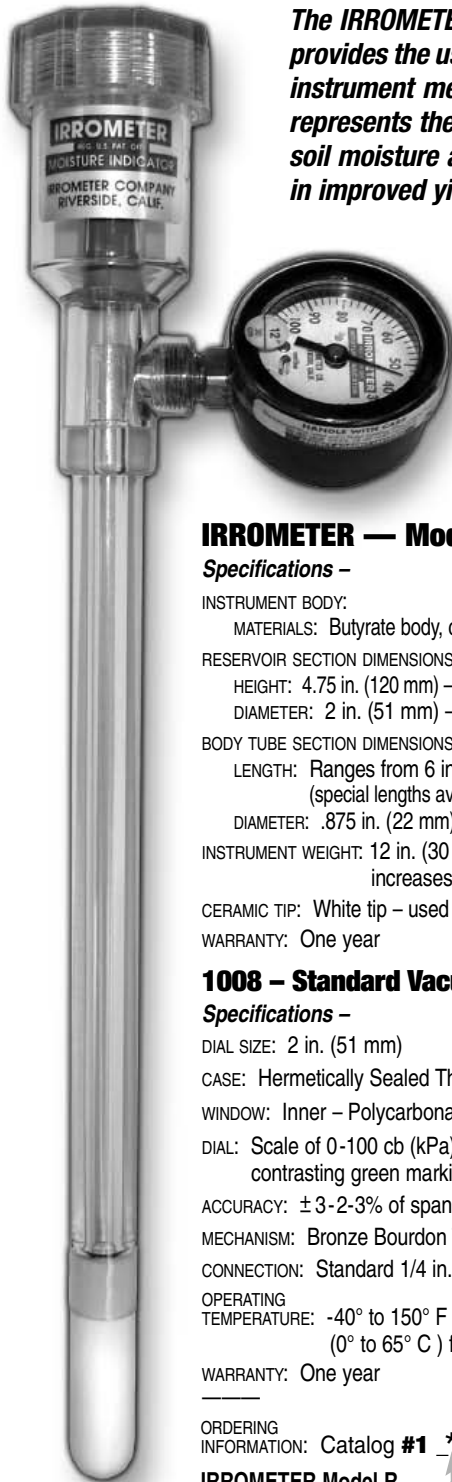


# IRROMETER®



*The IRROMETER was first developed in 1951 to help growers improve irrigation efficiency. It provides the user with accurate information on soil moisture status regardless of soil type. The instrument measures in centibars (cb) or kilopascals (kPa) of soil water tension. This value represents the energy a plant's root system uses to draw water from the soil. Understanding soil moisture activity helps the user make informed irrigation scheduling decisions resulting in improved yield and quality while reducing water, fertilizer, labor and energy costs.*

#### Features:

- 0-100 cb (kPa) range gauge
- Fixed ceramic tip (white)
- Air-free gauge gives accurate readings
- Large reservoir makes maintenance easy
- Hermetically sealed gauge designed for harsh environments

## IRROMETER — Model R

### Specifications –

#### INSTRUMENT BODY:

MATERIALS: Butyrate body, ceramic tip, neoprene stopper

#### RESERVOIR SECTION DIMENSIONS:

HEIGHT: 4.75 in. (120 mm) – 5.125 in. (130 mm) including cap

DIAMETER: 2 in. (51 mm) – 2.15 in. (55 mm) including cap

#### BODY TUBE SECTION DIMENSIONS:

LENGTH: Ranges from 6 in. to 60 in. (15 cm to 150 cm)  
(special lengths available)

DIAMETER: .875 in. (22 mm)

INSTRUMENT WEIGHT: 12 in. (30 cm) is .968 lb. (.439 kg) with  
increases of .252 lb. (.114 kg) per foot

CERAMIC TIP: White tip – used for most soil types

WARRANTY: One year

## 1008 – Standard Vacuum Gauge

### Specifications –

DIAL SIZE: 2 in. (51 mm)

CASE: Hermetically Sealed Thermo Plastic Rubber

WINDOW: Inner – Polycarbonate, Outer – Butyrate

DIAL: Scale of 0-100 cb (kPa), white with  
contrasting green markings

ACCURACY:  $\pm 3-2-3\%$  of span ASME B40.1 Grade B

MECHANISM: Bronze Bourdon Tube

CONNECTION: Standard 1/4 in. NPT – Brass Bottom Mount

#### OPERATING

TEMPERATURE: -40° to 150° F (-40° to 65° C), 32° to 150° F  
(0° to 65° C) for water service

WARRANTY: One year

#### ORDERING

INFORMATION: Catalog #1 \* – IRROMETER Model R

### IRROMETER Model R

includes reservoir, air-free gauge  
chamber and hermetically sealed  
IRROMETER vacuum gauge with dual  
scale of centibars (cb) and kilopascals  
(kPa) [0-100 cb (kPa) range].

\* 06 = 6" (15 cm)  
12 = 12" (30 cm)  
18 = 18" (45 cm)  
24 = 24" (60 cm)  
36 = 36" (90 cm)  
48 = 48" (120 cm)  
60 = 60" (150 cm)

**OPERATING PRINCIPLE:** The IRROMETER operates on the tensiometer principle, which measures soil water tension. Soil water tension is the energy (vacuum) applied to soil by the plant as it draws in water for nutrition. This force is measured in centibars (cb) or kilopascals (kPa) of tension with a high reading indicating the dry end of the scale and a low reading indicating the wet end of the scale. The IRROMETER instrument consists of a sealed, fluid filled tube that is equipped with a porous ceramic tip and a special vacuum gauge. They are installed in the ground with the tips placed at desired root zone depths. As the soil dries (increasing tension), fluid is drawn out of the instrument. This reduces the fluid volume in the IRROMETER, thus creating a partial vacuum which is registered on the gauge. The drier the soil, the higher the gauge reading. An irrigation application or rainfall event reverses this action. As water flows back into the soil (and the IRROMETER), tension is relieved in the soil and the instrument, resulting in a lower gauge reading (lower tension). In effect, the instrument is indicating how hard the roots are working. Due to the IRROMETER's unique principle of operation, no calibrations are necessary under normal operating conditions for different soil types. A gauge reading of 50 cb (kPa) indicates that the roots are extracting the same amount of moisture whether the crop is planted in sandy soil or clay soil.

**APPLICATIONS:** IRROMETERS can be used for manual measurement and tracking of soil moisture status for most soil types. When equipped with optional electronic output and data logging equipment, measurement and tracking can be done automatically. The standard vacuum gauge on this model can be replaced with electronic measurement options, or automatic switching devices which can activate peripheral equipment at desired soil water tension levels. See the "Automation and Output Options" specifications for more details. The Model R uses a fixed tip and is designed for general use with row, tree and field crops.

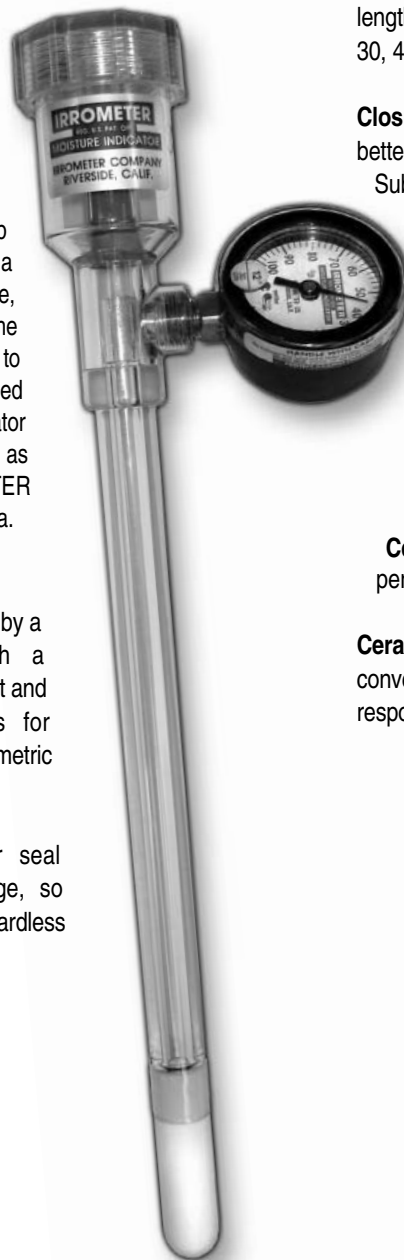
## MODEL R

**SPECIFICATION INFORMATION:** The irrigation system shall incorporate soil moisture indicators to aid in making irrigation scheduling decisions. The soil moisture indicator shall operate on the tensiometer principle and indicate soil water tension, displaying in units of centibars (cb) or kilopascals (kPa). It shall have a hermetically sealed gauge that remains full of fluid even if the instrument tube is completely drained. Tube shall be constructed of durable plastic that is impervious to attack by soil chemicals, with a ceramic sensing tip that is fixed in place. It shall include a fluid reservoir with a submerged valve, whereby fluid can be drained into the tube by turning the cap. All ceramic to plastic connections shall be guaranteed leak proof. The soil moisture indicator shall be an IRROMETER Model R as manufactured by the IRROMETER Company, Inc. of Riverside, California.

### Hermetically Sealed Gauge —

Accuracy and long life are ensured by a hermetically sealed cover with a molded-in diaphragm that keeps dirt and moisture out and compensates for variations in temperature and barometric pressure.

**Air-Free Gauge** — The water seal prevents air from entering gauge, so gauge and chamber remain full regardless of fluid level in instrument.



**The IRROMETER Body** — is constructed of tough durable plastic impervious to attack by soil chemicals or electrolysis.

**The IRROMETER** — is available in standard lengths of 6, 12, 18, 24, 36, 48 & 60 inches (15, 30, 45, 60, 90, 120 & 150 cm).

**Closure** — Large cap for easy operation and better control. Cap removes for filling reservoir.

Submerged valve gives a positive leak proof seal. Servicing is instantaneous with a twist of the wrist.

**Reservoir** — holds a reserve supply of fluid sufficient for several irrigation cycles under average operating conditions. Unscrewing cap part way releases air and fills tube to replace fluid lost by the action of drying soil.

**Ceramic to Plastic** — connections are permanently leak proof.

**Ceramic Tip** — has many times the strength of conventional tips. It is more porous to give quick response to variations in soil moisture.

**IRROMETER®**

**THE IRROMETER COMPANY, INC.**

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 **Irrigation**  
ASSOCIATION™  
Bronze Member