

MANUAL

Double Ring Infiltrometer



The Double-Ring Infiltrometer is designed to meet standards for conducting infiltration of water into soils in the field. It consists of two (2) stainless steel rings, measuring 12" and 24" diameter x 20" high. The rings incorporate a welded, double edge on the top for increased stability when driving them into the soil.

There are two (2) mariotte tubes, which provide a constant head of water for the test. The tubes are supported on a steel plate. Millimeter divisions on the side of the tubes are used for determining the flow rate.

Also included is a 1/2"-thick aluminum driving plate with centering pins, which ensure a simplified setup; two (2) 6" square neoprene splash guards and two (2) mariotte tubes with 3,000cc and 10,000cc capacities.

Contents

- (1) 12" stainless steel ring
- (1) 24" stainless steel ring
- (1) 3,000cc mariotte tube with base
- (1) 10,000cc mariotte tube with base
- (4) brass fittings with 1/4 NPTF and 3/8" ID tube connection. Brass barb tee for water source connection.
- (1) 30 ft. x 3/8" tubing (Cut to fit your setup for rings, marriotte tubes and water tank
- (1) aluminum cover/drive plate
- (2) splash pads (6" square neoprene material)

Assembly

- 1) Connect fittings to infiltrometer rings as shown in diagram 1.
- 2) Attach 3/8" ID tubing to fittings as shown in mariotte tube layout diagram after driving tubes into ground. A light amount of grease or oil on tubing connection will aid in attaching and removing the tubing
- 3) The 1/2" thick aluminum cover/drive plate has two (2) lifting handles on the top. You will note that the three (3) inner dowel pins protrude through the top. The 12" diameter tube is driven into the ground first and the drive plate is positioned with the inner pins facing down to align the inner tube. The inner ring can now be driven into the ground.

The outer ring can now be centered around the inner ring and the drive plate positioned to the outer ring with the handles facing up. The outer ring can now be driven into the ground.

- 4) Filling the Marriotte Tube:
Close the ring water fill valve. Open the vent valve at the top of the Marriotte Tube to allow air to escape during the filling operation. Open the

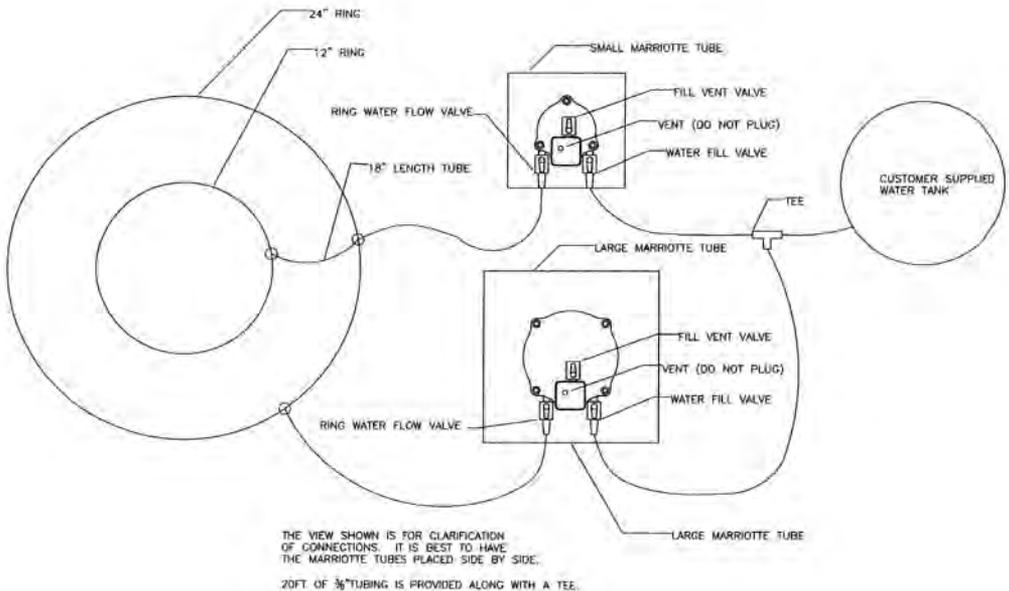
water fill valve that is connected to a water tank. Water enters the tank and when filled, will exit the vent valve. At this time, close the water fill valve. Next, close the vent valve. This seals the top of the water column. When the ring water fill valve is opened to the ring, a vacuum forms at the top of the water column. The constant head is maintained by a vent tube that starts at the top vent and ends at the 0 mark on the Marriotte Tube. Open the ring water flow valve and allow the water levels in the double rings to stabilize and maintain a constant head. This should occur when the water levels in the sight tubes begin to drop.

NOTE: Leaving the fill vent valve open will change the tube into a falling head manometer.

Test

Please refer to ASTM D-3385 for details on how to perform the test. ASTM documents are available for sale directly from the ASTM website:

<http://www.astm.org/Standard/index.shtml>



Double Ring Infiltrometer with Marriotte Tubes

SMALL VENT HOLE -DO NOT BLOCK

VENT VALVE
OPEN ONLY WHEN FILLING
MARRIOTTE TUBE WITH WATER

SIGHT TUBE FOR
WATER LEVEL

MARRIOTTE TUBE

MM SCALE USED TO
READ WATER FLOW

SMALL TANK 1 DIV = 5.352cc/DIV
LARGE TANK 1 DIV = 16.753cc/DIV

RISER PIPE

BASE PLATE
9" SQ FOR SMALL TUBE
12" SQ FOR LARGE TUBE

BALL VALVES WITH BARR FITTINGS
ATTACH ONE VALVE TO RING AND
OTHER VALVE TO FILLING
TANK (CUSTOMER SUPPLIED)

