

# Installation, Operation and Maintenance Instructions



## DAVIS TUBE TESTER

**ERIEZ MAGNETICS** HEADQUARTERS: 2200 ASBURY ROAD, ERIE, PA 16506-1402 U.S.A.  
*WORLD AUTHORITY IN SEPARATION TECHNOLOGIES*

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# Introduction

This manual details the proper steps for installation, operation and maintenance of the Eriez Model EDT Davis Tube Tester.

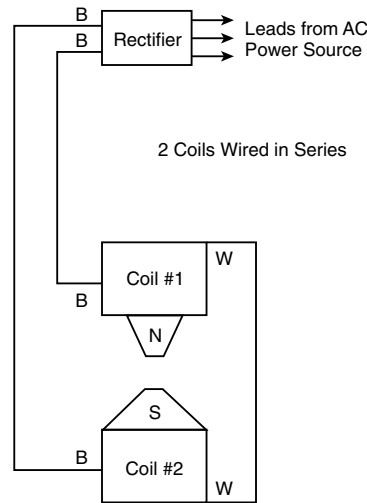
Careful attention to these requirements will assure the most efficient and dependable performance of this equipment.

If there are any questions or comments about the manual, please call Eriez Manufacturing at 814/835-6000 for Davis Tube Tester assistance.

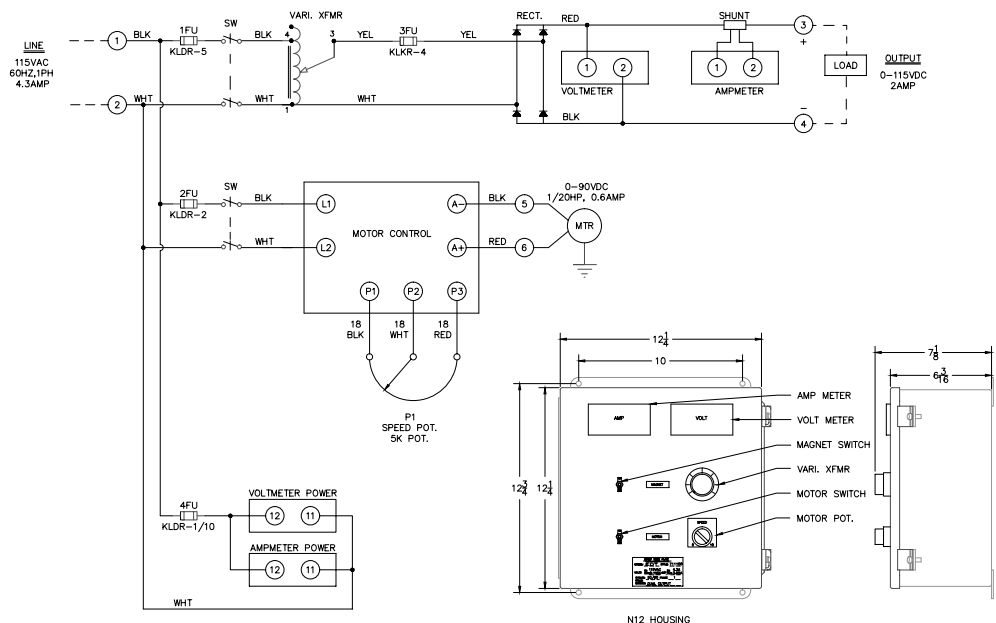
# Installation

The Davis Tube Tester is supplied with a control, which allows the Davis Tube Tester to operate under a variety of test conditions. In order to optimize the operation of the Davis Tube Tester, verify polarity of the poles after wiring is completed. Follow the steps below to verify polarity.

Each coil has two leads, white and black. Connect both white leads of coils together and the black leads to the rectifier. Turn on the electromagnet and verify one of the pointed poles is "N" and the other "S." It does not matter the polarity order as long as they are different poles. See Figures 1A and 1B for connection diagram.



**FIGURE 1A**



**FIGURE 1B**

# Preparation

## EQUIPMENT PREPARATION

1. Turn on Model EDT control and set current at 1.5 amp. Allow 20 minutes warm-up before using.
2. Check all accessories to make sure they are clean and available.
3. Accessories needed are:
  - a. Constant head water supply – preferably elevated tank or other suitable means which eliminates any possibility of surges (by others).
  - b. Spring type clamp for water inlet hose (by Eriez).
  - c. Water inlet hose (by Eriez).
  - d. Adjustable hose clamp for outlet to regulate flow (by Eriez).
  - e. Water outlet hose (by Eriez).
  - f. Pan to collect tailings if desired.
  - g. Beaker to collect magnetic concentrate.
  - h. Rubber stopper (by Eriez).

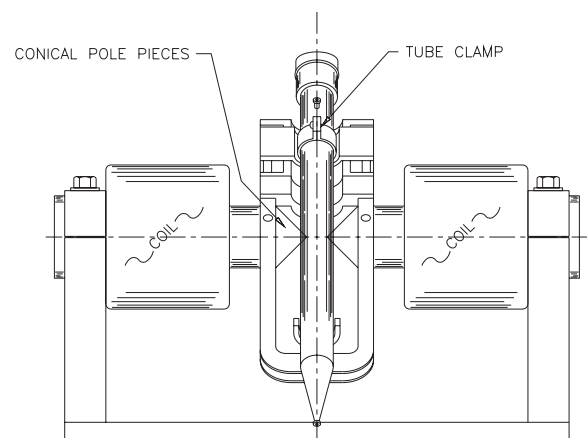
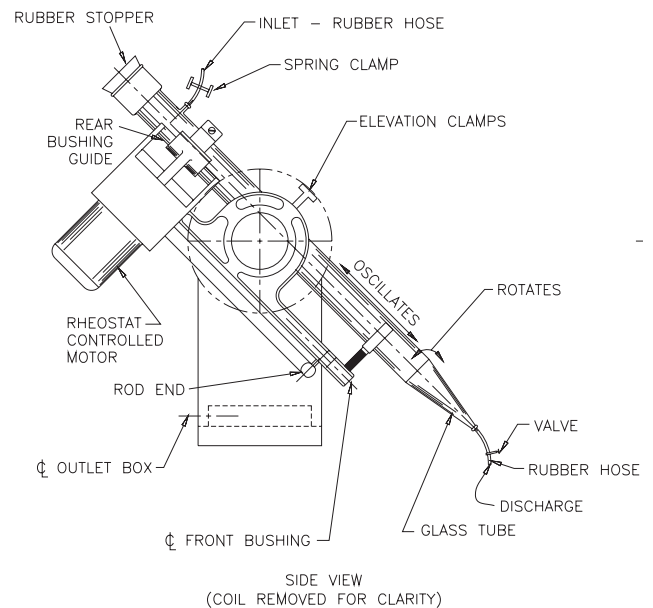
## SAMPLE PREPARATION

1. Pulverize sample to 100% passing 100 mesh.
2. Weigh out 10 grams using a balance scale. For a sample with less than 10% magnetics, use a maximum of 20 gram sample.
3. Dry sample for 1 hour at 221°F (105°C) if the sample has not been dried previously.
4. Place the sample in a container suitable for pouring.

## Operation (See Figure 2)

1. Attach feed hose from water supply to inlet nipple.
2. Attach outlet hose to outlet nipple.
3. Make sure clamps are in place.
4. Close off discharge clamp.
5. Loosen positioning clamps and elevate tube to about 45 degrees. Tighten clamps.
6. Open feed clamp and fill tube with water to about 1" (25mm) below the inlet orifice.
7. Start motor agitation (slowly at first), increase to approximately 90 strokes per minute.

8. Open inlet and discharge clamps, adjust discharge clamp to maintain rate of 13.5 oz (0.4 liters) per minute.
9. Check ammeter to be sure unit is set at 1.5 amps.
10. Introduce sample to be tested at large end of tube.
11. Wash sample clinging to sides toward middle with available water source.
12. Stopper larger end with rubber stopper.
13. Allow to operate for 10–12 minutes with setting per steps 7 and 8.



**FIGURE 2**

## Operation (cont.)

### AT CONCLUSION OF RUN

1. Shut OFF motor.
2. Pinch off inflowing water with clamp and drain tube by hand.
3. Remove rubber stopper and lift tube from unit.
4. Wash the magnetics into a beaker with an available water stream.
5. Decant the water from the beaker by positioning the beaker near one of the magnetic poles to lock the magnetics in while you pour the water off.
6. Dry the magnetic sample in the beaker.
7. Weigh magnetics to the nearest 0.01 gram.
8. Get an acid soluble iron on the magnetics. (If available use 0.50 grams.)
9. Obtain magnetic iron by multiplying percent weight in magnetics by acid-soluble % Fe.
10. Turn off Davis Tube Tester after use to prevent overheating.

## Repair and Alteration

Repair, alteration or disassembly of this magnetic equipment in the field without written authorization and instructions by Eriez nullifies the responsibility and guarantee of the manufacturer.

If further information or advice is required, consult our sales representative in your territory who is an expert on magnets and their applications.

## Maintenance

Both ends of the drive rod terminate with spherical rod end bearings. One drop of oil periodically on each bearing is sufficient.

The drive mechanism is suspended at three points by ball bearings that travel friction free in a linear motion. The suspension rods should be kept clean and covered with a light grease or heavy oil. The coating should be thin and consistent to insure long bearing life.

When the glass tube is removed, check the needle bearings on the bottom of the tube holder and lubricate if necessary.

### MOTOR

Instructions supplied by the motor manufacturer and attached to the motor at shipment should be followed.

Replacement parts are covered in bulletin ST602.

## Guarantee of Quality

Eriez unconditionally guarantees all Model EDT Davis Tube Testers to be free from defects on workmanship and materials for a period of one year from date of shipment. Should a failure occur which is not due to improper operation we will repair or replace the equipment at no charge F.O.B. our factory at Erie, Pennsylvania. For further information, please refer to Eriez standard warranty.



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