

# DURHAM GEO

## S-449 OPERATING INSTRUCTIONS

### DEAD WEIGHT CONSOLIDATION LOAD FRAME

#### SET-UP AND OPERATING INSTRUCTIONS

Inspect the contents of the carton(s) to make sure all of the components have been received. These should include:

- Load Frame with Lever Loading Arm
  - Adjustable Counter Balance Weight With Threaded Rod and two Nuts
  - Dial Indicator Support Rod – 3/4" dia. X 12" long
  - Dial Indicator Adjusting Bracket
  - Weight Hanger with Connecting Pin
  - Load Holding Screw with Adjusting Knob and Acorn Nut
  - 3/8-16 x 6" Anchor Bolts (2) with Nuts (4) and Washers (4)
  - Slotted Weights (as ordered)
  - Optional Dial Indicator (E-805)
  - Slotted Weights (as ordered)
  - Optional Stand (S-44909)
  - Optional Calibration Disc (S-454)
1. Place the Load Frame on a lab bench or other suitable mounting location and insert the Load Holding Screw into the tapered part of the base from the bottom so that the Acorn Nut will make contact with the bottom of the lever arm when changing to the next higher load. Attach the weight hanger with the pin provided. There are three (3) ratio positions for this hanger (9:1, 10:1 & 11:1). The chart that follows on the next page is set up for 10:1 ratio with a 2.5" diameter sample. Be sure you have sufficient clearance for the weight hanger with weights before securing the base to the tabletop using the (2) anchor bolts supplied.
  2. Attach the dial indicator support rod to the right rear of the base. Next, attach the dial indicator holder to the support rod. Finally, attach the dial indicator to the holder.
  3. Screw the counter weight threaded rod into the rear of the lever arm about 1" and tighten the nut. Adjust the counter weight until the lever balances at a level position with the top loading arm vertical and tighten the nut. Adjust the load holding screw up until the lever arm is approximately 5 times higher than the expected consolidation (for 0.020" consolidation – adjust the arm up 0.100" or 2 turns of the screw).
  4. Place the consolidometer with sample on the load platform and adjust the top cross arm adjusting screw until the acorn nut makes contact with the load pad in the consolidometer. Position the dial indicator over the cross arm screw and adjust the indicator to the desired setting. The seating load can now be applied by backing off on the load holding screw making sure there is sufficient clearance between the acorn nut and the lever arm.
  5. Refer to ASTM D-2435, D-4546 or AASHTO T-216 for additional information on specific test procedures.
  6. ASTM D-2435 requires that corrections for vertical deformations in the frame must be made by using a steel calibration disc the same height as the sample and 0.04" smaller in diameter.

## DEAD WEIGHT CONSOLIDATION LOAD FRAME LOAD CHART

2.5" DIAMETER SAMPLE

AREA = 4.9087 IN<sup>2</sup>

WEIGHTS ADDED		10:1 BEAM = SAMPLE LOAD	
QUANTITY	LB. WT.	TOTAL LBS.	TSF
1	.852	8.52 lbs.	1/8
1	.852	17.04 lbs.	1/4
1	1.704	34.09 lbs.	1/2
1	3.409	68.18 lbs.	1
1	6.818	136.35 lbs.	2
1	13.635	272.7 lbs.	4
1	27.27	545.4 lbs.	8
2	27.27	1090.8 lbs.	16
4	27.27	2181.6 lbs.	32