

## Dead-Weight Consolidation Load Frame HM-353

### INTRODUCTION:

The Dead-Weight Consolidation Load Frame is a compact table top unit with 48tsf (4597kPa) capacity for application of loads in stress-controlled consolidation testing of soil specimens. The Load Frame is simple and efficient to use and the advanced design allows instantaneous loading with minimal impact. Vertical rods and beam support rods are made from stainless steel. Rugged anodized aluminum plate is used for corrosion resistance in harsh laboratory environments. A counterbalanced beam assembly allows 9:1, 10:1 or 11:1 beam ratios for wider selection of loads with weight sets. Locating pins on the top platform precisely center the Consolidometer for loading. The loading platform has vertical x horizontal clearance of 5.25x6.38in (133x161mm) and accepts Consolidometers for specimen sizes up to 3in (76.2mm).

Weight Set, Consolidometer (fixed or floating ring) and Dial Indicator (mechanical or digital) or LVDT are required to perform testing and are sold separately. Consolidometer includes loading pad, cutting sample ring, top and bottom porous stones, acrylic inundation ring and load-bearing ball.

Consolidation Load Frame Stand (Part no. HMA-89) and Calibration Discs (optional accessories) are sold separately.

### FEATURES:

- Meets ASTM D2435, ASTM D4546 and AASHTO T 216 standards
- Stainless-steel vertical and beam support rods
- Corrosion-resistant anodized aluminum frame
- Counterbalanced beam assembly
- Instantaneous loading with minimal impact



HM-353 shown with HMA-83

### REQUIRED ACCESSORIES *(Purchased Separately):*

- Weight Set (refer to weight charts below)
- Consolidometer – fixed or floating ring (refer to Consolidometer chart below)
- Dial Indicator – mechanical (MA-333) or digital (MA-363) OR
- Displacement Transducer (HMA-738, HMA-729)

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Pound Weight Sets								
Model	Total Mass	Total Load at 10:1 Beam Ratio¹	Included Weight Sets					
			0.852lb (1/8tsf)	1.704lb (1/4tsf)	3.409lb (1/2tsf)	6.818lb (1 tsf)	13.635lb (2tsf)	27.270lb (4tsf)
HMA-727	54.5lb	545lbf (8tsf)	2	1	1	1	1	1
HMA-732	109.1lb	1,091lbf (16tsf)	2	1	1	1	1	3
HMA-729	218.2lb	2,182lbf (32tsf)	2	1	1	1	1	7

<sup>1</sup>tsf values indicate force applied to a 2.50in diameter specimen using a 10:1 beam ratio.

Kilogram Weight Sets					
Model	Total Mass	Total Load at 10:1 Beam Ratio	Included Weight Sets		
			1kg	4kg	8kg
HMA-730	32kg	320kg	4	3	2
HMA-725	64kg	640kg	4	5	5
HMA-731	88kg	880kg	4	5	8

Description	Consolidometer	Calibration Disc
50mm (1.969in) Fixed Ring Consolidometer	HMA-83A	HMA-88A
2in (50.8mm) Fixed Ring Consolidometer	HMA-83B	HMA-88B
60mm (2.36in) Fixed Ring Consolidometer	HMA-83C	HMA-88C
2.42in (61.5mm) Fixed Ring Consolidometer	HMA-83D	HMA-88D
2.5in (63.5mm) Fixed Ring Consolidometer	HMA-83E	HMA-88E
70mm (2.756in) Fixed Ring Consolidometer	HMA-83F	HMA-88F
75mm (2.95in) Fixed Ring Consolidometer	HMA-83G	HMA-88G
3in (76.2mm) Fixed Ring Consolidometer	HMA-83H	HMA-88H
50mm (1.97in) Floating Ring Consolidometer	HMA-84A	HMA-88A
2in (50.8mm) Floating Ring Consolidometer	HMA-84B	HMA-88B
2.42in (61.47mm) Floating Ring Consolidometer	HMA-84D	HMA-88D
2.5in (63.5mm) Floating Ring Consolidometer	HMA-84E	HMA-88E
70mm (2.76in) Floating Ring Consolidometer	HMA-84F	HMA-88F

## OPTIONAL ACCESSORIES (Purchased Separately):

- Consolidation Load Frame Stand (HMA-89)
- Calibration Discs (refer to Consolidometer chart above)

## UNPACKING & SETUP:

1. Inspect the HM-353 for damage, remove it from the pallet.
2. Ensure the following items are included:
  - Adjustable counterbalance weight with threaded rod and nuts (x2)
  - Dial Indicator support rod
  - Dial Indicator adjusting bracket
  - Weight hanger with connecting pin
  - Load-holding screw with adjusting knob
  - Anchor bolts (x2), nuts (x4) and washers (x4)
3. Unpack the required accessories (ordered separately):
  - Weight Set(s)
  - Consolidometer(s)
  - Dial Indicator or LVDT
4. Fasten the Load Frame to a sturdy table by inserting the load-holding screw and ensuring the ball end of the screw makes contact with the lever arm.

## OPERATING INSTRUCTIONS:

1. Read all safety and operating instructions before operating the unit.
2. Consult ASTM D2435, ASTM D4546 or AASHTO T 216 for specific instructions on the testing procedures.
3. Fasten the weight hanger to the unit and adjust using the connecting pin.
4. Secure the Dial Indicator support rod toward the back of the base, fasten the Dial Indicator holder to the rod and then connect the Dial Indicator or LVDT to the holder.
5. Insert the counterbalance weight with threaded rod approximately 1" and tighten the jam nut.
6. Balance the lever with the top loading arm by adjusting the counterweight and tighten the nut.
7. Set the Consolidometer (with sample) on the platform and turn the adjusting screw until contact is made with the load pad in the Consolidometer.
8. Adjust the Dial Indicator or LVDT to the desired setting.