



Centrifuge Extractor

## Product Description

The Asphalt Centrifuge Extractor is designed for use in the separation of asphaltic mixtures to determine bitumen percentage. Models H-1451A & H-1474A series deluxe Asphalt Centrifuge Extractor available in either 1,500 or 3,000 grams capacity are designed to conform to explosion-proof standards for the safety of operating personnel.

The bowl is variable from 0-3,600 rpm and the extractor is provided with a brake control for fast stopping. The aluminum bowl assembly is removable. A cup built into the housing cover allows easy pouring of the solvent into the bowl. The unit is supplied complete with 25 filter discs. Replacement filter discs are available from Humboldt Mfg. Company.

Instructions refer specifically to 1,500 grams, motor driven extractor. In general, they will also apply to the 3,000 grams model H-1474A. Proportionally larger samples and volume of solvent are used with the 3,000 grams bowl.

The machines are designed and built to provide many years of satisfactory services when properly used. Closely follow operating instructions to assure accurate test results and to avoid damage to the machines.

## Related User Documentation

These operating instructions do not contain all the necessary information on the specific test procedures. Please refer to ASTM D-2172 or AASHTO T-164 for additional testing information.

## Operation

1. Release clamps and remove upper housing cover (#10, Fig. 1 or 2).
2. Lift bowl assembly from spindle. Remove knurled nut (#5) and lid (#4).
3. Place approximately 1/3 of the extractor capacity of the bituminous sample in the bowl.

**NOTE:** To shorten the testing procedure time, pre-warm the sample to a soft consistency before placing in the bowl. Do not heat the bowl. Do not overheat the sample.

4. Distribute the sample evenly around the bowl taking care not to crush any individual particles. If sample is preheated allow it to cool before proceeding to the next step.
5. Weigh bowl and sample. Record weight.
6. Assure the bowl lip is clean and place filter disc (#3) on it. Place bowl lid (#4) on bowl and secure with knurled nut (#5). Turn nut snugly by hand.

**Caution:** Over tightening may distort the bowl lid.

7. Place the bowl assembly in the extractor with the shaft pin (#25, Fig. 1; #26, Fig.2) seated in the notch at the bottom of the bowl.

8. Replace the housing cover and secure the clamps.
9. Place a collection beaker under the discharge pipe (#11) at the left of the bowl housing.
10. Pour no more than 450 cubic centimeters of trichloroethylene solvent into the filter cup of the upper housing cover (#10).

**Caution:** Provide adequate ventilation when using solvents.

Do not exceed 450 cu. cm of trichloroethylene or flooding will occur causing damage to the motor and/or bearing and transformer. If sample has been preheated allow 2 or 3 minutes to digest. If not pre-heated allow 10 to 15 minutes to digest.

11. Start rotation slowly by turning knob on the speed control box in a clockwise direction. Increase speed gradually until fine stream of liquid is emitted from the discharge pipe. Maintain this speed until the discharge stops, and then gradually increase the speed until no further discharge is obtained.

**Caution:** A too-rapid rate of acceleration during this step may cause flooding which in turn can result in an inaccurate test and possible damage to the machine. Flooding maybe observed by a rapid and excessive discharged followed by seepage of liquid at the housing cover or the underside of the housing. Correct this condition by immediately reducing the speed.

12. Return the speed control knob to the zero position in order to apply the brake.
13. Pour in another 450 cu. cm. of solvent and repeat steps 3.11 and 3.12 in the same sequence. Continue this process until the discharging liquid appears pale amber in color. The extraction process is then complete.
14. Remove the housing cover and lift out the bowl. After removing the nut and bowl lid, wash with solvent the under surface of the lid into the beaker.
15. Carefully lift the filter disc from the bowl lip and brush any clinging particles into the bowl. The filter maybe burned over the sample for complete recovery of fines making allowances for ash correction.

## **Precautions**

### **A. Loss of Fines:**

- 4.1 Avoid excessive speed and acceleration especially at the beginning of a test cycle when a lot of solvent is present.
- 4.2 Do not over-tighten the bowl nut.
- 4.3 Use a heavier filter disc or two standard discs.
- 4.4 Burn the filter over the sample. Make ash correction.
- 4.5 When test is complete, carefully brush all dust from the bowl lip and underside of the bowl cover into the sample.

### **B. Warp age of Bowl and Lid**

Make the following check for possible warp age of bowl and lid.

- 4.6 Put the lid in place (no filter) and hand tighten the bowl nut.
- 4.7 Try to insert a 0.005" feeler gauge or shim at any point.
- 4.8 If the gauge passes through, the bowl or cover should be re-faced or replaced.

## Specifications

Control	Variable speed, 0-3,600 rpm; brake for fast stopping
Motor	1/8 hp
Cover gral	Precision-machined aluminum; removable, with inter- cup for adding solvent.
Housing	Cast aluminum; sealed
Bowl	Precision-machined aluminum; removable
Capacity	H-1451A: 1,500 gram H-1474A: 3,000 gram
Filter Discs	25 included
Dimensions	12"w x 22"d x 20"h (305mm x 559mm x 508mm)
Weight	H-1451A: Net 75 lbs. (34 kg.); Shipping 85 lbs. (38 kg) H-1474A: Net 103 lbs. (47 kg.); Shipping 140 lbs. (63 kg.)

## Warranty

Humboldt Mfg. Co. warrants its products to be free from defects in material or workmanship. The exclusive remedy for this warranty is Humboldt Mfg. Co., factory replacement of any part or parts of such product, for the warranty of this product please refer to Humboldt Mfg. Co. catalog on Terms and Conditions of Sale. The purchaser is responsible for the transportation charges. Humboldt Mfg. Co. shall not be responsible under this warranty if the goods have been improperly maintained, installed, operated or the goods have been altered or modified so as to adversely affect the operation, use performance or durability or so as to change their intended use. The Humboldt Mfg. Co. liability under the warranty contained in this clause is limited to the repair or replacement of defective goods and making good, defective workmanship.

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Testing Equipment for

Construction Materials

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