



HUMBOLDT

**H-1456, H-1466,
H-1471 & H-1473
Instruction Manual**

CENTRIFUGE EXTRACTOR

Manufactured by:

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1. Introduction

The Centrifuge Extractor is designed for use in the AASHTO Designation T58 & ASTM D2172 (Method A), determination of Bitumen Percentage in Bituminous Mixtures. It has a capacity of 1,500 grams.

For quantitative determination of bitumen content in paving mixtures, centrifuge extractor operation requires relatively short time. Sample is weighed, heated slightly until starts crumbling, cooled, placed in rotor bowl and solvent is added. Centrifugal action forces liquid through a filter paper ring at bowl's periphery and process is repeated until expelled solvent is clear color. Aggregates are weighed and graded. Weight before and after extraction determines constituent proportions.

All motorized units have accurate, dependable electronic solid-state speed control; rotation speed adjusts up and down. Electric brake stops rotation in less than 10 seconds.

Explosion-proof motorized units offer same features along with greater safety. Hand-driven unit is ideal for field application or labs with light duty. Units are corrosion-resistant lightweight cast aluminum. Includes 10 filter rings. Extra bowls recommended to speed multiple batching; order separately.

2. Installation & Operation

Mount the Extractor in a convenient location on a substantial table or bench to prevent undue vibration caused by unbalanced specimen loads and also to reduce the noise of operation.

The current should be obtained direct from the power source.

The Extractors are designed with a special speed control that has a "stop" set for maximum operating speed. It is very important to increase the speed slowly. Increasing the speed too fast will "blow" a fuse. The fuse is located in the control box. By removing 4 screws and the cover, the fuse is easily accessible. A spare fuse is also enclosed. Replace cover before operating.

To stop the Extractor, turn control knob to the left (counter clockwise) as far as possible so the dial knob points to zero, pushing the brake-handle to the right slowly, (brake-handle is the lever above the speed control) the Extractor can be brought to a full stop without disturbing the aggregate.

3. Procedure

3.1 Loosen clamps and remove cover.

3.2 Remove knurled nut, extraction bowl cover and extraction bowl from the unit.

- 3.3 Place between 1500 or 3000 grams (determined by size of unit) of bituminous sample to be tested in the rotor bowl. Heat the sample of asphalt sufficiently to separate particles. Less solvent is required and results are obtained in a shorter time if the sample is thoroughly heated as more surface is exposed to the action of the solvent. Weigh and distribute the heated sample as evenly as possible in the rotor bowl.
- 3.4 Allow the sample to be cooled before placing rotor bowl in the extractor.
- 3.5 Place bowl in the extractor, cover the sample in the rotor bowl with solvent, position filter paper ring in place, set cover on bowl and tighten with knurled nut.
- 3.6 Set extraction cover in place, making sure cover clamps are tight.
- 3.7 Place a beaker or other receptacles under the spout provided for collection of recovered bituminous binder or asphalt.
- 3.8 Start rotation slowly and gradually increase and speed control, forcing the solvent through the filter paper. The solvent is drained through the spout on the lower edge of the Extractor bowl until the solvent ceases to flow.
- 3.9 Repeat this extraction process by adding a measured amount of solvent through the recessed openings on top of the Extractor. The speed control and power switch should be turned off when adding solvent.
- 3.10 The procedure of rotation and extraction should be repeated a minimum of three times or until the extracted solvent is clear and not darker than a light straw color.
- 3.11 When the last addition of solvent has been drained, remove the cover and the rotor cover.
- 3.12 Remove filter paper ring and dry in air, brush the mineral matter adhering to the ring into the aggregate in the bowl.
- 3.13 Air-dry sample in rotor bowl for a few minutes. When dry, sample should be brushed into a pan. Burn the filter paper and add the ash to the pan also.
- 3.14 Sample should be dried for a few minutes in an oven before weighing.
- 3.15 Subtract dry weight of sample from original weight of sample before extraction.
- 3.16 The difference of these weights is the sum total of binder material in the sample.

3. 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.

CAUTION: Keep hands, clothing and other objects away from moving parts when the machine is in operation.

4. Drawing



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