



# Centrifuge Extractors



## Centrifuge Extractors

H-1466; H-1466.4F; H-1473; H-1473.4F; H-1456 and H-1471

## **Manual Covers the Following Models:**

**H-1466; H-1466.4F; H-1473; H-1473.4F; H-1456 and H-1471**

### **General**

The Centrifuge Extractor models listed above are designed for use in the AASHTO Designation T58 & ASTM D2172 (Method A), determination of Bitumen Percentage in Bituminous Mixtures. They are used for quantitative determination of bitumen content in paving mixtures. Samples are weighed, heated slightly until starts crumbling, cooled, placed in rotor bowl where 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.

Models H-1466 and H-1466.4F are designed for use with 1500g samples and H-1473 and H-1473.4F are designed for use with 3000g samples. These extractors conform to the explosion-proof standards for the safety of operating personnel. These models feature a removable aluminum bowl assembly, which quickly lifts out of the sealed housing for efficient specimen handling. A simple, control knob adjusts bowl speed. The heavy, cast-aluminum bowl cover latches securely in place and features an integral solvent dispensing cup for easy pouring of the solvent into the bowl.

Models H-1456 (1500g) and H-1471 (3000g) extractors are open-motor versions of the explosion-proof models described above. While they are safe to operate, they do not provide the added safety of the explosion-proof design. These extractors are a great economical choice for those who need an extractor, but may not use it extensively. Not available in 220V configurations.

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

Units are corrosion-resistant lightweight cast aluminum and include 25 filter discs. Extra bowls are recommended to speed multiple batching.

### **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. It is recommended that you bolt the machine to the table or bench.

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.

### **Procedure**

Loosen clamps and remove cover.

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

Place 1500 or 3000 grams (determined by size of unit) of bituminous sample in the rotor bowl. Heat the sample of asphalt sufficiently to separate particles. Less solvent is needed; and results are obtained in a shorter time,, if the sample is thoroughly heated. This allows more surface to be exposed to the action of the solvent. Weigh and distribute the heated sample as evenly as possible in the rotor bowl.

Allow the sample to cool before placing rotor bowl in the extractor.

Place the bowl in the extractor and cover the sample with solvent. Position the filter paper disc in place and set the cover on the bowl and tightening the knurled nut.

Set extraction cover in place, making sure cover clamps are tight.

Place a beaker or other receptacle under the spout provided for collection of recovered bituminous binder or asphalt.

Turn on extractor and start bowl rotation slowly, gradually increasing the speed, which forces the solvent through the filter paper. Solvent will drain through the spout on the lower edge of the extractor bowl.

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.

The procedure of rotation and extraction should be repeated a minimum of three (3) times or until the extracted solvent is clear and not darker than a light straw color.

When the last addition of solvent has been drained, remove the cover and the rotor cover.

Remove filter paper disc and dry in air, brush the mineral matter adhering to the filter disc into the aggregate in the bowl.

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.

Sample should be dried for a few minutes in an oven before weighing.

To determine the sum total of binder material in the sample, subtract the dry weight of the sample from the original sample weight determined before extraction.

## 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.

### Centrifuge Extractor Replacement Parts

| Description                | Model     |
|----------------------------|-----------|
| Bowl for H-1456, H-1466    | H-1456B   |
| Bowl for H-1471, H-1473    | H-1471B   |
| Bowl cover, H-1456, H-1466 | H-1456BC  |
| Bowl cover, H-1456, H-1466 | H-1471BC  |
| Cover nut                  | H-1471N   |
| Clamp, all models          | H-1471C   |
| O-Ring, all models         | H-1471RV  |
| Brake band, all models     | H-1456BB  |
| Brake band assembly, all   | H-1471BBA |

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