



Water Retention Apparatus

## Introduction

This apparatus consists of eight main components:

1. A perforated brass dish
2. A brass funnel
3. A glass stopcock
4. A glass flask
5. A vacuum dial gauge
6. A vacuum regulator
7. An aspirator pump
8. A wood stand
9. Filter paper, medium speed

**Note: The use of Mercury fluid is no longer necessary with this instrument, since the dial gauge and regulator replace the manometer and relief column of the previous models.**

## Specifications

### Dial Gauge

Accuracy:	+/-1.5% of Span, mid half
Range:	0 -70 mm Hg Vac
Case Size:	2.5"
Vacuum Safety:	120% of Span

### Vacuum Regulator

Range:	Regulates 0 to 20" Hg
Flow Condition:	up to 70 Liters per minute
Wetted Metal Parts:	Copper Alloy; Brass

The H-3630A meets specifications for the following tests:

ASTM C91, ASTM C207, ASTM C110, ASTM E149

**To verify operation a known testing cement, e.g., Portland S with silica sand should be used to compare the unit to established readings.**

## Unpacking

Your unit was thoroughly inspected before it was shipped and should be ready to operate as soon as you have completed the set-up procedure. Notify Humboldt Mfg. Co. or your local agent and file a claim with any carriers involved if you find any damage to the apparatus.

## Setup

Place the stand on a stable surface in close proximity to the vacuum source which can be the water connected aspirator pump or a mechanical vacuum pump. Attach a vacuum hose (user supplied) between the pump and the water retention apparatus regulator the hose should be capable of withstanding the full vacuum to be applied by the pump.

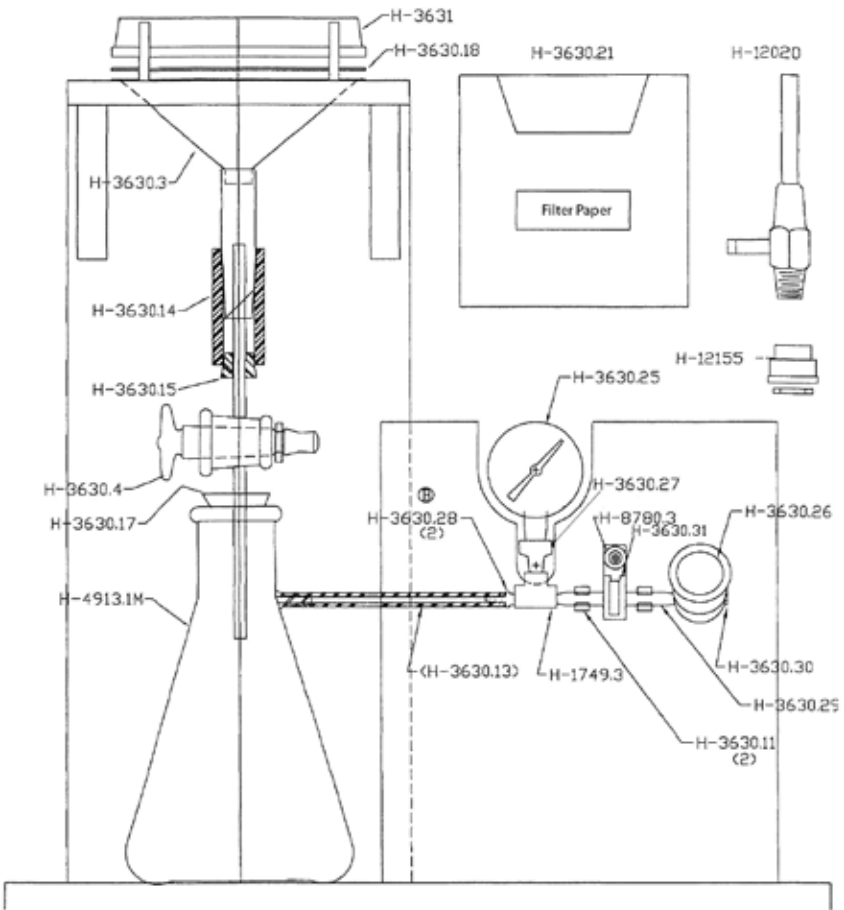
Orient the gauge and regulator to your preferred viewing angle by loosening the rubber-lined, tube clamp located between the gauge and regulator. Rotate the flow line(s), to accommodate, then retighten.

## Adjustment Procedure:

**IMPORTANT:** Turn the vacuum regulator adjustment knob clockwise until it is fully closed, then apply sufficient vacuum from your source pump to conduct a test. The regulator can withstand full vacuum, but the output must always be below the dial gage safe limit of 85mm Hg max, To adjust the vacuum to 51mm close the glass stopcock above the flask and back out the regulator adjustment knob by turning it counterclockwise and observing the dial gage. When you have reached the 51 mm band on the gage proceed to use the gasket seal, perforated dish and the correct wetted filter paper, and then open the stopcock valve applying vacuum to the funnel. Check for leaks by observing gasket and tubing seals and using a leak testing fluid if necessary. An adjustment in the regulator setting may done at this time to achieve the 51mm level under full flow conditions.

## Maintenance

Sealing connections and surfaces should not allow foreign material to enter the gage, regulator or pump. Pipe joint compound is recommended in place of Teflon tape. To facilitate easy re-assembly apply a light film of fluid compound to joints and fittings.



## 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.

### **Humboldt Mfg. Co.**

3801 North 25th Avenue  
Schiller Park, Illinois 60176 U.S.A.

U.S.A. Toll Free: 1.800.544.7220

Voice: 1.708.456.6300

Fax: 1.708.456.0137

Email: [hmc@humboldtmfg.com](mailto:hmc@humboldtmfg.com)

Testing Equipment for



Construction Materials

# HUMBOLDT

[www.humboldtmfg.com](http://www.humboldtmfg.com)