

CapSnap Equipment



Bottle Leak Detection Systems – 5 Gallon Poly/PET

Basic Theory of Operation:

The goal with the Midbrook CapSnap leak detection system is to provide a reliable means of detecting small defects (currently down to 0.015" (0.38mm)) fast enough to keep up with standard water bottling systems. The CapSnap leak detectors use, wherever possible, standard fabricated components which are used on other CapSnap equipment, and purchased components that are industry standard and readily available worldwide. This philosophy reduces build time, holds down costs and simplifies maintenance in the field.

A leak detector consists of 2, 4, 6 or 8 test positions with a sealing head (similar to our standard fill head), a quick acting DC solenoid operated air valve and a 4-20ma pressure transducer for each position. An air accumulator is mounted on top of the frame and also has a pressure transducer. The pressure in the accumulator is regulated with a manually operated precision regulator which is monitored by the control system and allows testing only when the pressure is within range.

To perform the leak test, a test head is lowered on to the bottle and the high speed solenoid valve pulses to inflate the bottle with approximately 1.65PSI of air from the accumulator. After a short time delay to allow the bottle to normalize, the pressure in the bottle is recorded in the control system. The system then waits for approximately 2 seconds, and then records another pressure reading from the bottles. If the differential pressure is greater than the allowable pressure drop, the bottle fails the test and is rejected from the conveyor upon exiting the test station.

All of the parameters for the test, inflation pulse time, test hold time and allowable differential pressure are adjustable for each head. This allows for periodic calibration for each position.

There are 3 models of in-line leak detectors ranging from 700 to 1600 bottles per hour. These models perform the test all on the same bottle conveyor line. There are 2 models of side-shifting leak detectors, 2100 and 3000 bottle per hour that require slightly more floor space than the in-line style but significantly reduce the time between tests, creating greater throughput.

Leak Detector Bottle/Hour Ratings

1 Head Semi Automatic (Manual)	300 BPH
1 Head In-Line	400 BPH
2 Head In-Line	700 BPH
4 Head In-Line	1000 BPH
6 Head In-Line	1600 BPH
6 Head Side Shift	2100 BPH
8 Head Side Shift	3000 BPH

* 6-head side-shift, LH, Opposite model shown in pictures below



