

Description: The basic Hagan Flowmeter, Model 3001, is a differential pressure recorder without an integrator. Adding a '30 degrees' flow indicating scale changes the Model to 3002. The flow recorder together with the integrator is designated by Model 3003, which is illustrated in this circular. Addition of a '30 degrees' flow indicating scale changes it to Model 3004.

The basic principle of operation of all models is the same. Two flexible tubes feed the differential pressure to the hollow ring, made of metal tubing of suitable cross-section, which is divided at the top by a baffle plate into two separate compartments. The lower part of the ring is filled with a suitable liquid which provides sealing between the compartments. The ring assembly rests on inverted knife-edge bearings. Deflecting torque is produced by the differential pressure acting on the baffle plate and is independent of the quantity or type of sealing fluid. Restoring torque is provided by the tension of the range spring acting through a suitable push rod assembly which is supported by a knife edge at the lower part of the ring. Angular deflection of the ring is transmitted to the recording pen and integrating mechanism through a system of linkage and cam, the contour of the latter providing for uniform flow indications. The meter range depends on the internal cross-section of the ring and the type of sealing fluid used, and for a given ring, 2.5:1 range change is effected by varying the position of the clamping device on the range spring.

Dead weights, marked in height of water column, are provided for calibration by the serviceman, but in no case shall they be used by an inspector for verification purposes. Suitable calibration adjustments are provided.

The integrator has a '15 seconds' period time cycle. Pen deflection controls the point in time cycle where a clock-driven ratchet disengages the counter-drive gearing. Accumulated flow is registered on a six-digit counter. A separate clock provides the drive for the integrator mechanism. Standard count-up is 100 units per hour at full-scale indication. Meter drives may be either spring-wound or synchronous motors, 110 volts, 25, 50 or 60 cycles, and 220 volts, 60 cycles. Chart drives may be 7 days, 24 hours, 8 hours and 1 hour per revolution.

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