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Welker Flow SCS Prover®



U.S. Patent applied for.

The Advantages of the SCS Prover design are:

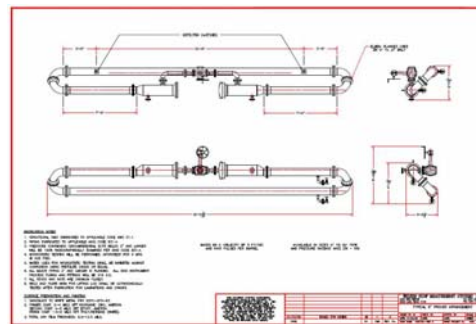
1. There are no Alignment Flanges in the Calibrated Section. Alignment Flanges are expensive and machining on the flange or installing pins reduce the integrity of the Alignment Flange.
2. There are no elbows in the Calibrated Section. There is a pressure and flow change as the ball moves through an elbow and there can be loss of fluid if the elbow is not perfectly formed in the inside diameter
3. The Calibrated Section can be Rolled out and Inspected without another water draw. This is a huge cost savings both in time and water draw cost.
4. Increasing the pipe size into and out of the Launchers from the 4-way reduces the velocity and lowers pressure drop and the damage to the ball as it is pulled in front of the grating on conventional provers.
5. It is Ideal for Coriolis and Ultrasonic liquid meters with manufactured pulses, because the flow is not disrupted by the ball passing through elbows and flange sets.
6. Since the flow through the Calibrated section is smooth the pulses from conventional PD and Turbines will be more evenly spaced giving better proves especially when pulse interpolation is used.
7. The cost is lower because special alignment flanges are not required.
8. The ball does not have to be over inflated to compensate for irregularities in elbows and flanges

Water draw Repeatability of 0.002% to 0.007% is being achieved with only 2% over inflation of the sphere

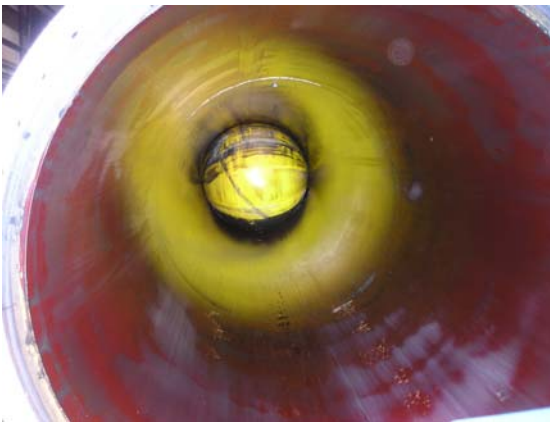
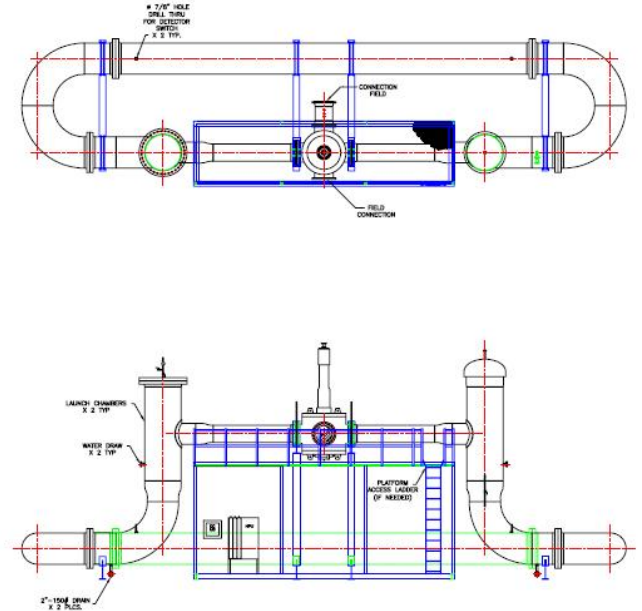
Available in Prover Barrel Sizes 4" to 42"

Flange Ratings ANSI 150 to ANSI 900

Available with Vertical or Horizontal Launchers



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With a WFMS SCS Prover it is possible to leak check the ball at normal inflation as it passes through the calibrated section by removing the 180 deg elbow on either end.

To the left is a photograph of a 36 inch sphere leak test moving down a 35 inch ID pipe. At one foot per minute the ball moved smoothly with zero leakage across the ball.

At 3% over size there will be 25% less pressure drop than the ball inflated to the 4% to 6% normally required for larger diameter prover balls.



Experiments were done using various size spheres with the same density as a prover ball to observe the balls response in the launcher to various flow rates and launcher position.

A new style Sphere Removal tool was also developed to allow the vacuum to be maintained between the suction cup and the prove ball as the ball is being raised out of a vertical launcher.

