



## EXACT TECHNICAL TIP: Secured Internals Key to Repeatability

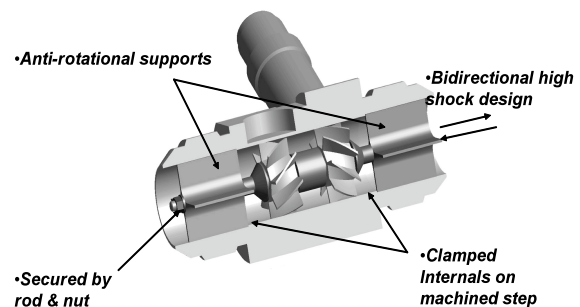
The repeatability of a turbine flowmeter not only requires high quality bearing systems, but the rotor and supports also need to be rigidly mounted into the housing. The internals contribute to the flow profile, which imparts a force on the rotor. It is imperative that the profile remains the same in the installation as it was at the time of calibration. Any change in the profile will have an impact on the rotor RPM or frequency output used to determine the volumetric flow rate.

Retainer rings can be problematic in securing internals, as they can allow movement of the supports, which changes the alignment of the front support in relation to the rear support. This will cause a shift in the output relative to the original calibration. In addition, the retainer ring can protrude into the flow path, causing unwanted turbulence that affects the flow stream and flow impact the rotor.

In bi-directional applications, it is important that the method of securing the internals prevents any movement that would vary the flow profile. This is best done with a rod-through clamping system that secures the internals on a machined step in the housing. By tightening the bolt on the end of the rod, the supports are drawn tightly against the step in the bore. This means of securing the internals makes a solid contact with the housing and the only moving

member remaining is the rotation of the rotor. The Exact flowmeter internal clamping system maintains a repeatability of  $\pm 0.02\%$ . This type of clamping system not only enhances bi-directional flow, but it also provides a solution for high-shock applications. Both Exact single- and dual-rotor designs incorporate this type of internal clamping system.

### Flow Straighteners/ Supports



Other additional performance features can be read in a white paper titled, ***Modern Turbine Flowmeter Enhancements.***

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