



## COX TECHNICAL TIP: Understanding Helical Rotor Performance

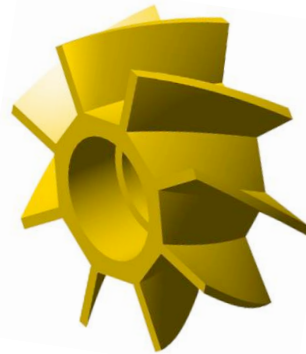
There are many reasons for selecting helical rotors over that of flat-bladed rotors. The helical blade transfers energy more efficiently from the flow stream to the rotor, producing a faster speed of response to flow changes (2-3 mS depending on the rotor mass and blade area).

Helical rotors also minimize rotor slip in flow startup or stop, representing more accurately the actual flow rate being measured. This is important if you have a fluid measurement requirement that is cyclic or involves short flow bursts, such as in hydraulic applications. Helical rotors have less fluid force on the bearing, which reduces friction and heat, extending the life of the bearing.

When using flat-bladed rotors, it is often a common practice to bend the tip of the support to “trim” the flowmeter. Trimming is a term meaning that the flow is directed to the rotor blade at an angle to achieve improved linearity in one direction. In addition, this will increase flow resistance and pressure

drop across the flowmeter. The bent support will also want to rotate if not properly clamped.

Helical rotors do not require bending the supports to enhance the linearity.



*Helical Rotor produces 2-3 mS  
speed-of-response to flow change.*

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

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