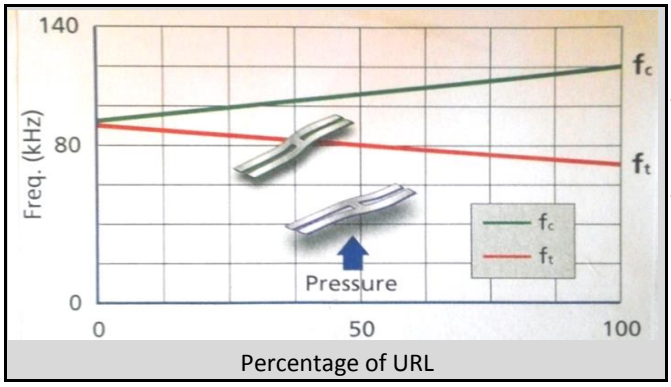
tekFab Multivariable DP02 + tekProbe

World's First All Digital Nano Technology DP Cell and True Static Averaging Pitot Flow Sensor

The **Tekflo** **tekFab DP02** Series brings the most advanced all-digital pressure (dp) sensing to **Tekflo's** insertion **tekProbe PR3** multivariable averaging Pitot flow sensors. This ideal Multivariable system is used for liquids, mass flow or density corrected volumetric flow measurement of gases, saturated or superheated steam in pipes and ducts 50 to 3000mm (2" - 120").

The flow computation is entirely digitally and accomplished within the **tekFab DP02** DP Cell. It is based on classical Bernoulli Theory, which defines a true static pressure input. Only the **Tekflo PR3** averaging Pitot produces such a noise free true static pressure. Other industrial Pitot types measure either a suction pressure, or an attempt at static pressure measured on the side of a costly profiled tube in the pipe line. Both these types result in a noisy, erroneous static pressure, resulting in erroneous flow measurement.

Besides all digital square root extraction and mass flow computation, the **Tekflo** **tekFab DP02** series uniquely accomplishes all-digital sensing. It embodies two nanomolecular crystal silicon resonators, protected behind silicon oil filled diaphragms. The resonators are caused to vibrate at their natural frequencies. These are shown by 2 elongated H shapes in the diagram below. The **tekProbe** produces a noise free dp across the H resonators. One vibrates in a +ve compression mode, while the other vibrates in a -ve tensional mode. The resultant dp signal, (fc - ft) in the diagram, together with tekProbe's noise free true static pressure input to the dp transmitter's computer, (fc + ft) in the diagram, provides unmatched total system mass flow accuracy, repeatability, and resolution, with virtually zero hysteresis. **tekFab DP02** Series is internationally certified for use in explosive atmosphere.



.+ve compressional frequency fc

.-ve tensional frequency ft

tekProbe differential pressure = fc - ft

tekProbe true static pressure = fc + ft

tekFab DP02 + *tekProbe*

Being entirely the **tekFab DP02** reduces the combined errors of temperature, overpressure, hysteresis, square root extraction, computation, static span and zero span to insignificance

- dp accuracy : .+/- 0.04% of span traceable to USA NIST
- static pressure : accuracy +/- 0.1% of span
- stability : .+/- 0.1% of URL over 10 years
- ambient temp : effects +/- 0.055% of dp URL per 28°C (50°F)
- dp pressure range : 0 - 10 to 1000mm wg, 0 - 0.4" to 40" wg
- max static pressure 169 barg (2300 psig)
- non isolated output : 4 x 4 - 20mA 2-wire for flow rate, dp, static pressure, temp, 0- 10kHz scaleable pulse
- HART supply : 10.5 - 42Vdc for general & flameproof application