

## Vortex Shedding Flowmeter

Another rugged flowmeter that can be used in very rugged and adverse conditions is the vortex shedding flowmeter shown diagrammatically in Figure 1. It is based on the principle that the frequency of vortex shedding from an object in a flow is nearly proportional to the fluid velocity as described in Section (Bmc) and demonstrated in Figure 4 of that section.

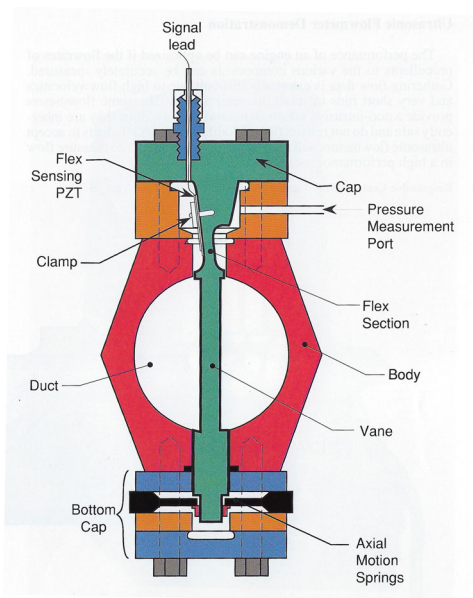


Figure 1: Vortex shedding flowmeter.

To take advantage of that property a vane is installed in the duct and supported in such a way that the vibration of the vane can be monitored. Then assuming a Strouhal frequency of vortex shedding from the vane of 0.2, the typical velocity of the flow can be estimated as  $5bf$  where  $b$  is the frontal projected width of the vane and  $f$  is the detected frequency of vibration of the vane. Clearly in situ calibration of the flowmeter is needed to ascertain its accuracy but it has potential for use in very rugged and adverse conditions. Such flowmeters have been deployed in cryogenic rocket engines.