A. Turbine Flowmeter

A turbine flowmeter uses the moving fluid or gas to turn a turbine rotor (Figure 8). The rotational speed of the rotor varies with the flow rate. When a steady rotational speed is obtained, the speed is proportional to the fluid velocity. Flow quantity data is supplied via a precisely known number of pulses for a given volume for fluid displaced between two adjacent rotor blades. The relationship is linear within given limits for flow rate and fluid viscosity.

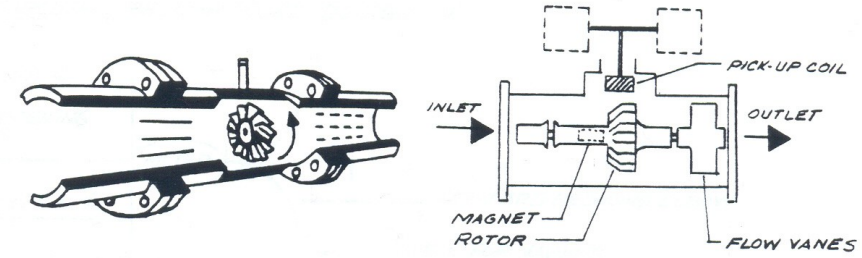

Figure 8 – Cut-Away of a Turbine Flowmeter

Advantages of turbine meters include:

- high accuracy and repeatability
- wide flow ranges
- many materials of construction available
- low pressure drop

Turbine flowmeters are primarily used for flow totalizing for inventory control and custody transfer, precision automatic batching for loading and batch mixing.

Turbine meters should be selected with 30% to 50% excess capacity above the maximum flow rate. Turbine meters operating below the maximum capacity provide greater reliability.

B. Vortex Flowmeter

Vortex flowmeters measure flow via a natural phenomenon known as vortex shedding (Figure 9).