HYDROELECTRIC POWER GENERATION

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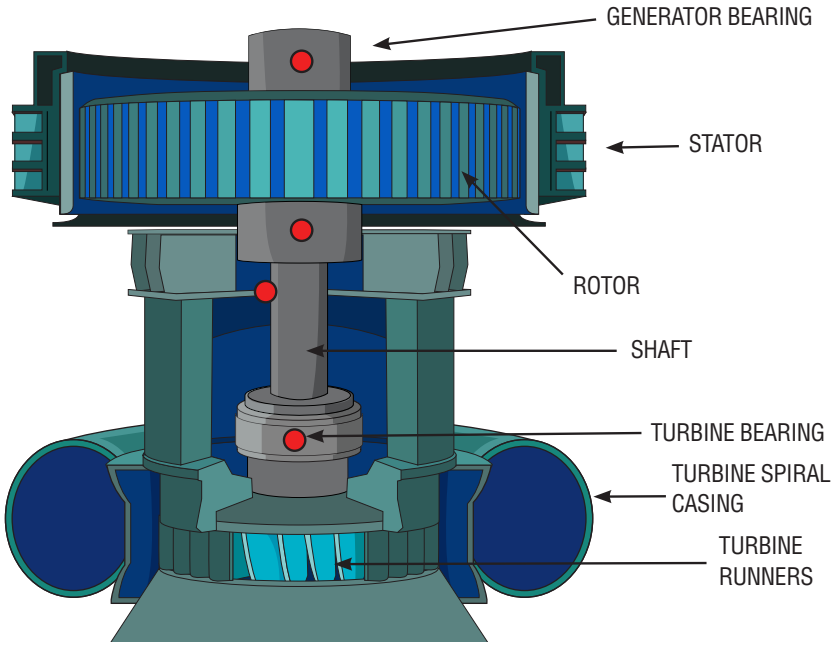
HYDROELECTRIC POWER GENERATION

The core of a typical hydroelectric power plant is the turbine. As water runs through the penstock on its way from the reservoir to the outflow, it circulates past the turbine runner. The water flow causes the runner blades to rotate, thereby turning the turbine shaft. The turbine shaft subsequently turns the generator shaft, creating electricity.

Hydro turbines rotate slowly, typically at an operating speed of 75 to 1000 rpm. Turbines are often required to operate at partial load in order to meet fluctuating electricity demands. This part load operation can increase the potential for water pressure pulsations, turbulence and cavitation. Runner components are prone to fatigue and damage because of the errant vibration caused by these fluctuations. In addition to runner components, turbine and generator shafts and bearings are also prone to vibration. Those vibrations can be faults including unbalance, misalignment, bearing fatigue and/or overload and insufficient bearing lubrication.



ICP®
ACCELEROMETERS

PROCESS MONITORING & PROTECTION

LOW COST ICP® ACCELEROMETERS
MODELS 602D01 & 603C01

- Easy installation in tight spaces
- General purpose, hermetically sealed
- M12 connector version available

PRECISION ACCELEROMETERS WITH VELOCITY OUTPUT
MODELS VO622B01 & VO625B01

- 100 mV/ips sensitivity
- Low frequency response ideal for monitoring of slower speed equipment

PRECISION TRIAXIAL ACCELEROMETER
MODEL 639A91

- 13 kHz high frequency response on all three axes
- Extremely small footprint (0.95" x 0.95" excluding the side exit connector)

4-20 mA
TRANSMITTERS

VIBRATION TRANSMITTER
MODEL 682C03

- Outputs 4-20 mA signal proportional to acceleration, velocity, or displacement
- ICP® accelerometer input
- Analog vibration output via front BNC

BEARING FAULT DETECTOR
MODEL 682C05

- Provides early warning of bearing and gear faults
- Operates with PLC, DCS, SCADA, alarm and control systems
- Outputs 4-20 mA signals for peak acceleration and overall vibration

4-20 MA OUTPUT DISPLACEMENT SENSOR
MODEL 653A01

- Outputs 4-20 mA signal proportional to displacement
- 2 to 40 mil pk-pk measurement range
- 1.5 to 300 Hz frequency range

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IMI Sensors offers a wide range of industrial vibration sensors, bearing fault detectors, mechanical vibration switches, panel meters, cables, and accessories for predictive maintenance and equipment protection. For power generation and energy applications requiring precision measurements, IMI also offers pressure sensors and accelerometers.

IMI-HydroPowerGen-1121