Application:

Turbine Bypass

Location:

Power Generation, Combined Cycle Power Plants

Turbine Bypass Systems (TBS) must reliably and efficiently reduce the pressure and temperature of incoming steam to match downstream conditions, be it in the cold reheat line or the condenser. The system includes a steam control valve, a desuperheater, and a spraywater control valve.

In cycling plants, TBS are used during start-up and shutdown, and must operate with low noise and vibration while under large thermal stresses. Tight shutoff is required for plant efficiency, as any leakage wastes usable steam, and can lead to wet steam erosion, which causes plant shutdowns.

IMI Insyt identifies leakage and makes actionable recommendations to improve system shutoff in TBS. This end-to-end prescriptive engineering service determines the root causes of plant issues and helps prevent problems before they happen, protecting the plant's process.

It also searches for wet steam operation and isolates the critical data signatures that lead to thermal stresses and cracking in system desuperheater and downstream piping. IMI Insyt makes actionable recommendations to operation and hardware to significantly improve equipment life.

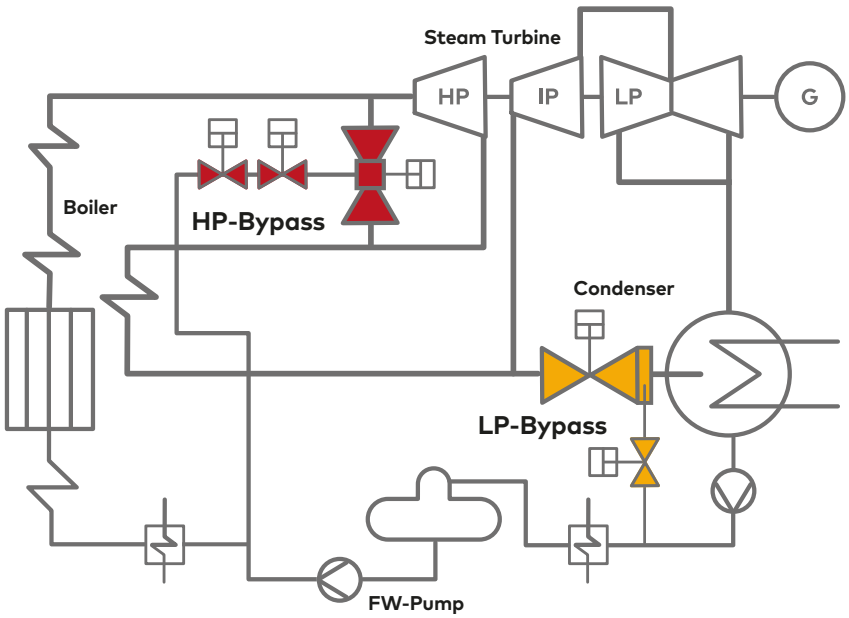

Figure 1: Typical Turbine Bypass System

Application challenge	Potential issues	IMI Insyt solution
Repeatable Tight Shutoff	Leakage wastes usable steam	IMI Insyt identifies leakage and makes actionable recommendations to improve system shutoff
Wet Steam Erosion	Excessive leakage causing plant shutdowns	IMI Insyt looks for wet steam operation and makes actionable recommendations to operation and hardware to significantly improve component life
High temperature differentials	Thermal stresses and cracking in system desuperheater and downstream piping	IMI Insyt isolates critical data signatures that lead to cracking and provides actionable recommendations to change operation and increase equipment life

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