

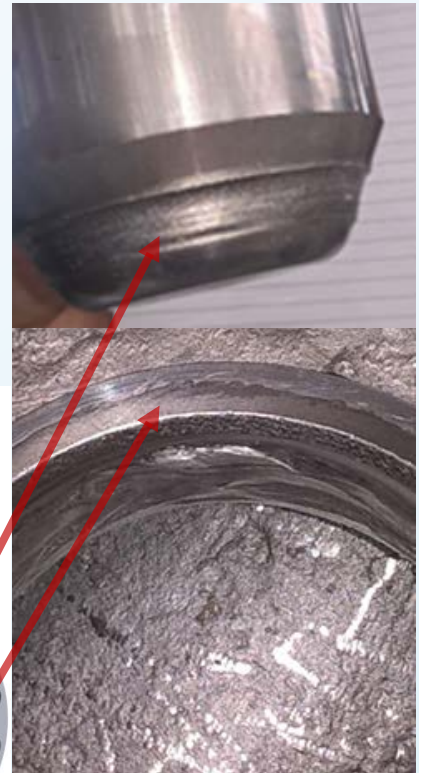
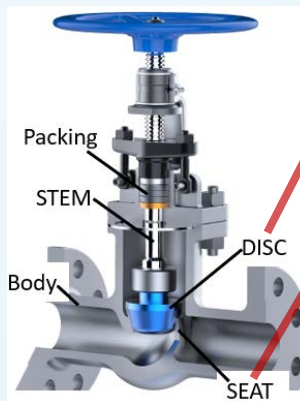
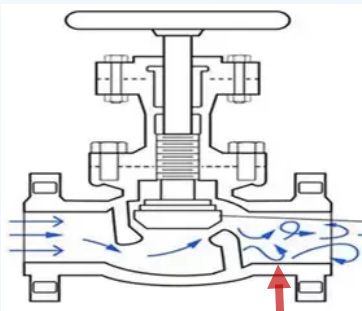
Throttling Valve

EPSC Learning Sheet March 2022



What Happened:

A ball valve was replaced by a globe valve to throttle an ethylene flow from 80 to 30 bar. The throttled valve caused heavy vibrations in the connected 3-inch pipeline that could have caused fatigue rupture. Vibrations were discovered betimes before leakage.



Aspects:

- When a valve is partially closed to below 20% of its original opening, vortex induced vibrations can cause damage to valve seating, disc, packing and stem.
- Throttling a valve to reduce flow and pressure requires analysis, good valve design and operation (see API-615)
- Strong support and anchoring are required, to protect equipment and piping.
- Ethylene pressure reduction can result in brittle carbon steel due to low temperature; control is required.
- Assess vibration and erosion when choosing a valve that might be used in a partially closed position.

Be careful when reducing pressure by throttling valve