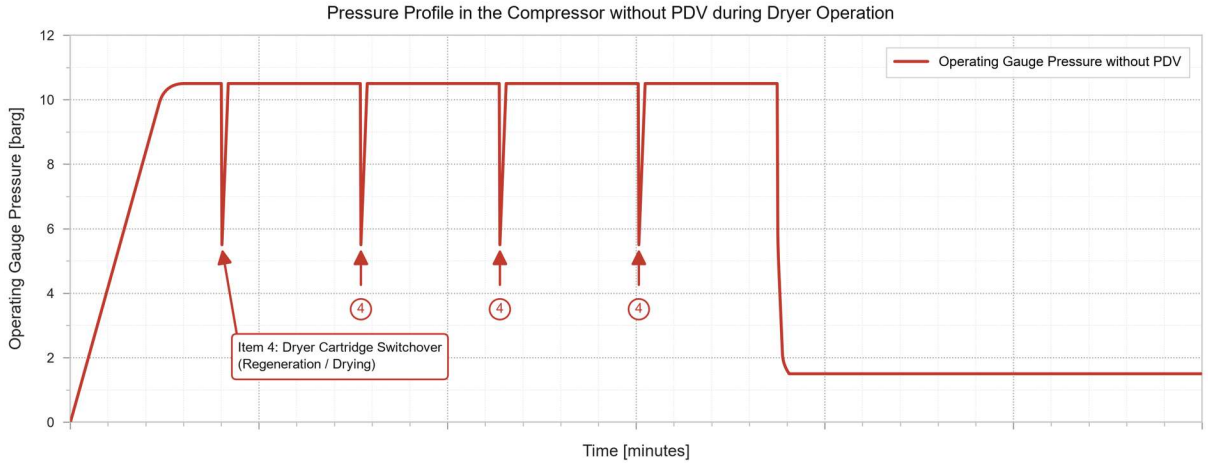
Pressure drops with and without pulsation damper valve (PDV) in compressed air systems

The diagrams illustrate the pressure levels (hold points) during sudden pressure drops in railway vehicle compressed air systems, caused by system-related dryer switchovers (regeneration/drying) with and without PDV.

Test setup:

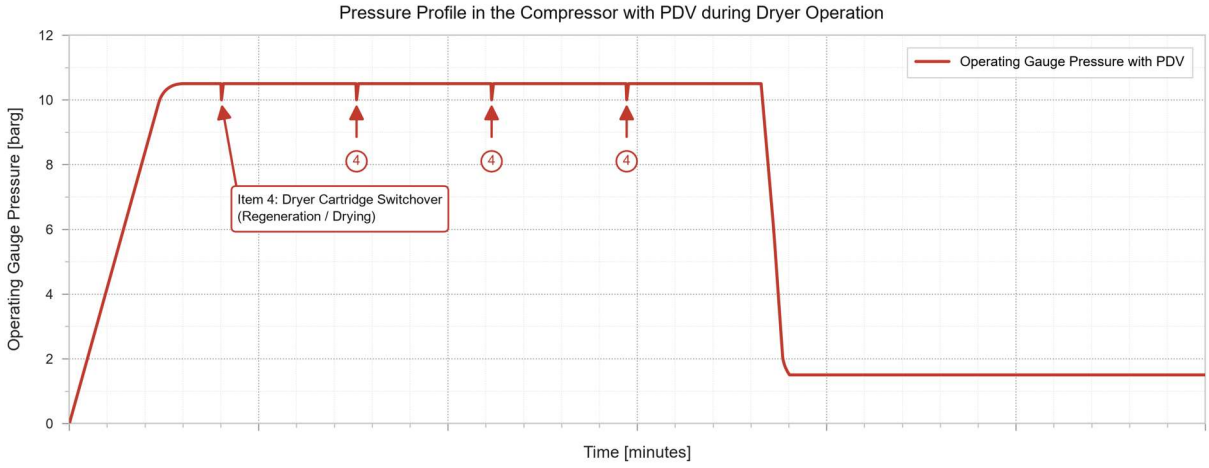
- Compressor: Screw compressor (2400 l/min)
- Twin-tower adsorption dryer with pressure equalization phase
- PDV 1"
- Measuring point: Inside the compressor housing (outlet side of oil separator / clean air side), pipe length approx. 2 m, pipe dimensions 28 x 1.5 mm
- Installation location of the PDV: Directly at the compressed air inlet of the dryer

a) Pressure drop without PDV:



Pressure drop to approx. 6 barg, depending on the set pressure level during the pressure equalization phase. For models without a pressure equalization phase, the pressure drop is significantly greater.
The depth of the pressure drop also depends on the buffer capacity (line volume, buffer tank) between the compressor and the dryer.

b) Pressure Dips with PDV



Pressure drop with PDV: Approx. 0.5 - 1 bar below operating pressure, independent of line volume.