

PSV Plus Calculation Report - Control Valve Failure Scenario



Valve General Data

Item: 001 PSV 010 A

Scenario Data

Scenario Description: PV-001 fails open and causes excess flow to low pressure side

Contr. Valve CV Calculated: True Contr. Valve CV Available: False

CV Calculated for Gas: True CV Calculated for Liquid: False

Control Valve CV Calculation

Cntrl. Valve Designed for Gas / Vapor

Cntrl. Valve Des. Rate: 14000 kg/h
Mol. Weight: 65
Inlet Temp: 135 °C
Inlet Press: 25 bar G
Cntrl. Valve Diff. Press: 5 bar
Gas Compress (Z): 0.85
Coeficient Kv: 0.75
F_{Low} through Cntrl. Valve Subcritical
Calculated CV: 31.57

Cntrl. Valve Designed for Liquid

Cntrl. Valve Des. Rate: m3/h
Inlet Press: bar G
Cntrl. Valve Diff. Press: bar
Specific Gravity:
Vapor Pressure: bar G
Critical Pressure: bar G
Coeficient Kv:
F_{Low} through Cntrl. Valve
Calculated CV:

Calculation of Flow rate to be relieved for the scenario of Control Valve failing Open

Mol. Weight: 78.5 CV Sel / CV Calc ratio: 2.5
Inlet Temp: 190 °C CV @ 100% Opening 78.94
Inlet Press: 28 bar G Coeficient Kv: 0.75
Compressibility (Z): 0.65 F_{Low} through Cntrl. Valve Critical
PSV Set Press: 18 bar G Normal Flow to Process 1850 kg/h
PSV Overpressure: 10 % Relieving Rate: 49101.47 kg/h

