Omega Method of 2-Phase PRV Sizing Information Sheet

MERCER VALVE CO., INC.®
AUTO SEAT TECHNOLOGY®

Contact Name: _____ **Phone:** _____

Company: _____ **Fax:** _____

Location: _____ **Email:** _____

Tag/PSV No.: _____ **Quantity:** _____

Please indicate the units used for each field.

1. Requested Connection Size and Type

The requested may not be available since it depends on orifice/valve sizing result.

- Threaded: _____
  - ☐ MNPT x FNPT
  - ☐ FNPT x FNPT
- Flanged: _____
  - ☐ RF x RF
  - ☐ RTJ x RF
  - ☐ RTJ x RTJ
- Lift Lever? ☐ None ☐ Open Lever ☐ Closed Lever

2. Operating Data

- Operating Pressure: _____
- Set Pressure: _____
- Atmospheric Pressure: _____
- Back Pressures:
  - Constant Superimposed: _____
  - Built-up: _____
  - Variable Superimposed: _____
- Allowable Overpressure: _____
- Known Inlet Pressure Drop: _____
- Operating Temperature: _____

3. Fluid Data

- Fluid Name: _____
- Does this Require Sour Service Trim?
  ☐ Yes ☐ No ☐ NACE MR0175
- Relieving Temperature at the PRV Inlet: _____
- Viscosity of the Fluid at the Relieving Conditions: _____

Fill out either option A or B based on which respective description matches the application.

A. C.2.2 Two-Phase Systems

i. A liquid mixtures, including saturated liquid, enters the PRV and flashes.
ii. A highly subcooled liquid and gas enters PRV and does not flash.
iii. A vapor at the inlet contains some non-condensable gas and the liquid is either saturated or subcooled enters PRV and flashes.

- Specific Volume at the PRV Inlet: _____
- Specific Volume at 90% of the PSV Inlet Pressure: _____
- Mass Flow Rate: _____

B. C.2.3 Subcooled Liquid Only

i. A subcooled liquid enters PRV and flashes.

- Liquid Density at the PRV Inlet: _____
- Density Evaluated at 90% of the Saturation (Vapor) Pressure: _____
- Saturation Pressure corresponding to the PRV Inlet Relieving Temperature: _____
- Volumetric Flow Rate: _____

Sizing will be done using the Homogeneous Equilibrium Method presented in Annex C of the 9th edition of "API STD 520 Part I" dated July 2014.

Mercer Valve Co., Inc.® AUTHORIZED BLUE TAG CENTER® "Auto Seat Technology"®

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