Allied Valve Inc.™

METHOD 1: SIZING FOR TWO-PHASE FLASING OR NONFLASHING FLOW THROUGH A PRESSURE RELIEF VALVE

- ❑ Saturation Temperature at PRV inlet (°R)
- ❑ Saturation Pressure at PRV inlet (psia)
- ❑ v_o= specific volume of the two-phase system at the PRV inlet (ft^3/lb).
- ❑ v_9= specific volume evaluated at 90% of the PRV inlet pressure P_o (ft^3/lb)
- ❑ P_o = pressure at the PRV inlet (psia). This is the PRV set pressure (psig) plus the allowable overpressure (psi) plus atmospheric pressure.
- ❑ Q = combined vapor/liquid required relieving capacity (lb/hr).
- ❑ P_a = total backpressure (psia).
- ❑ T_o = *relieving temperature (°R).*
- ❑ Xo = Fluid Quality
- ❑ Maxflux Units Please select one (ft^2/lb) or (m^2/kgs)
- ❑ Omega

Six nearby locations are available to supply and service your needs. For more information, visit www.alliedvalveinc.com.

Illinois
1019 W. Grand Ave.
Chicago, IL 60642
(P) 312-226-1506
(F) 312-226-1197

Indiana
6575 Daniel Burnham Dr.
Suite D
Portage, IN 46368
(P) 219-764-3010
(F) 219-764-3084

Iowa
4419 State St.
Riverdale, IA 52722
(P) 563-359-8100
(F) 563-359-0857

Minnesota
6291 318th St. Way
Cannon Falls, MN 55009
(P) 507-263-2251
(F) 866-929-3719

North Dakota
1751 93rd St. NE
Bismarck, ND 58501
(P) 701-214-5502
(F) 701-557-7850

Wisconsin
3301 East Evergreen Dr.
Appleton, WI 54913
(P) 920-832-9778
(F) 920-832-9798

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METHOD 2: SIZING FOR SUBCOOLED LIQUID AT THE PRESSURE RELIEF VALVE INLET

- ❑ ρ_{lo} = liquid density at the PRV inlet (lb/ft^3). ☐
- ❑ ρ_9 = density evaluated at 90% of the saturation (vapor) pressure P_s corresponding to the PRV inlet temperature T_o (lb/ft$_3$). For multi component system, use the bubble point pressure corresponding to T_o for P_s. When determining ρ_9, the flash calculation should be carried out isentropically, but an insenthalpic (adiabatic) flash is sufficient. ☐
- ❑ P_o= pressure at the PRV inlet (psia). This is the set pressure (psig) plus the allowable overpressure (psi) plus atmospheric pressure. ☐
- ❑ P_a = saturation (vapor) pressure corresponding to T_o (psia). For multi component system use the bubble point pressure corresponding to T_o. ☐
- ❑ Q = volumetric flow rate (gal/min). ☐
- ❑ Pa = total backpressure (psig). ☐
- ❑ To = relieving temperature (°R). ☐
- ❑ Xo = Fluid Quality ☐
- ❑ Maxflux Units Please select one (ft2/lb) ☐ or (m2/kgs) ☐
- ❑ Omega ☐
- ❑ Saturated Fluid Please select one Yes ☐ or No ☐

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