

F70PR / F7000 / F8000 SERIES PILOT-OPERATED VALVES

Currently, Flow Safe offers four different pilot valves. The F70PR Series (Non-Code) utilizes the F100 pilot valve. The F7000/8000 Series (ASME Code) can use the F100, F200, F300, or F500 pilot valve. The chart below fully describes the normal operating characteristics of each pilot valve to enable a better understanding by our customers. Process operating limits that are close to the stated values should be reviewed with the factory. With the modulating pilots (except F100 non-Code), main valve lift will be initiated at set pressure and continue to full lift as necessary based on flow demand present at the valve inlet. Note that the operating characteristics of the F200 pilot valve are almost identical to those of the F80 Series spring-operated valve – both are snap-acting devices.

GAS OR VAPOR SERVICE

Pilot Valve	Pilot – 1st Bubble¹	Main Valve Lift	Main Valve Blowdown	Pilot Valve Min. Reseat Press.³
F100 (Non-Code) Modulating Flowing	Nameplate set pressure ²	105% Nameplate set pressure	0%	95% Nameplate set pressure ⁸
F100 (Code) Modulating Flowing	> 95% Nameplate set pressure	Nameplate set pressure ⁴	< 2% ⁸	90% Nameplate set pressure ⁸
F200 Snap-acting Non-flowing	Nameplate set pressure	Nameplate set pressure ⁴	Adjustable (5 – 20%)	Per blowdown setting
F300 Modulating Flowing	96-98% Nameplate set pressure	Nameplate set pressure ⁴	0%	94% Nameplate set pressure
F500 Modulating Non-flowing	96-98% Nameplate set pressure ⁶	Nameplate set pressure ⁴	0%	94% Nameplate set pressure

LIQUID SERVICE

Pilot Valve	Pilot – 1st Flow	Main Valve Lift	Main Valve Blowdown	Pilot Valve Min. Reseat Press.³
F100 (Code) Modulating Flowing	> 95% Nameplate set pressure	Nameplate set pressure ⁵	< 5%	90% Nameplate set pressure
F300 Modulating Flowing	96-98% Nameplate set pressure	Nameplate set pressure ⁵	0%	94% Nameplate set pressure
F500 Modulating Non-flowing	96-98% Nameplate set pressure ⁶	Nameplate set pressure ⁵	0%	94% Nameplate set pressure

- Inversely, "Nameplate set pressure" (NPSP) = 1st pilot valve bubble for F100 (See Note 2)
Initial main valve lift for F200, F300, F500 (See Note 4)
- F100 "non-Code" pilot can also be set per "Code" method if requested. Pilot valve reseat pressure will also change accordingly.
- "Pilot valve min. reseat" represents the pressure at which all pilot flow stops. System operating pressure must be less than this pressure; otherwise the pilot valve will never fully reseat.
- NB Red Book definition of set pressure (gas service): "initial audible discharge" (F100, F300, F500), "pop" (F200).
- NB Red Book definition of set pressure (liquid service): "first steady stream" (F100, F300, F500).
- Brief flow from F500 pilot during dome reduction; no continuous flow.
- F100 performance data shown above is based on use with a Buna-N pilot diaphragm.
- Performance shown for F100 pilot is for NPSPs greater than 20 psig. The following performance values pertain to NPSPs up to and including 20 psig:

Pilot Valve Minimum Reseat Pressure:	F100 (non-Code): 90% NPSP
	F100 (Code): 85% NPSP
Main Valve Blowdown:	F100 (Code): < 5%