

# SKOFLO

## *HIGH TURNDOWN VALVE SERIES*

- ONLY ONE MOVING PART
- ADJUSTABLE FLOW RATES
- 500:1 TURN DOWN
- NO SCHEDULED MAINTENANCE
- WILL PASS .04 INCH PARTICLES
- CONSTANT FLOW REGARDLESS OF PRESSURE FLUCTUATIONS



Patents Pending

# SKOFLO INDUSTRIES, INC.

## WHY PRESSURE INDEPENDENT CONTROL VALVES?

SkoFlo pressure independent control valves allow one pump to be shared by several injection points, thereby reducing facility and maintenance costs. SkoFlo valves are maintenance-free, while pumps may require several seal changes over the life of the project.

## WHY USE HIGH TURNDOWN CONTROL VALVES?

SkoFlo high turndown valves maintain constant flow rate by governing the pressure drop across an internal restrictor. As of 2006, there are over 6,000 SkoFlo rate controllers operating using this principle, offering from 5:1 to 10:1 turndown. SkoFlo valves require access only to change the flow rate range, which requires changing an internal restrictor.

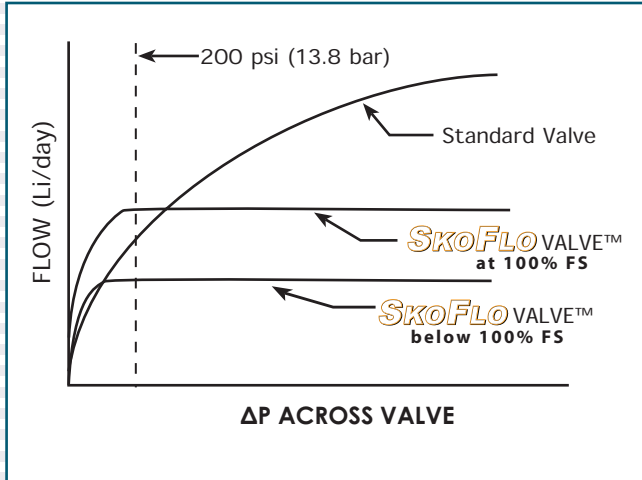
The internal restrictor in the high turndown series is made up of a series of cascading flow restrictors that are varied as the stem is adjusted to change flow rate set point. When the stem is fully open, the valve will pass up to .04 inch spheres, producing a robust flush-through design that does not require rate modification, as a 500:1 turndown flow will always be in range.

## QUESTIONS & ANSWERS

- Q. Why is this valve different from other flow control valves?
- A. This flow control valve maintains a constant flow through it regardless of pressure changes across it.
- Q. Does this valve have more than one setting?
- A. Yes, it operates within a pre-determined flow range. You just turn the rate adjustment handle to change the flow.
- Q. Can you supply valves to operate at less than 200 psi (13.8 bar) differential pressure?
- A. Yes, please contact the factory with your requirements.
- Q. What engineering principle does this valve use to give constant flow regardless of pressure fluctuations across it?
- A. This unit uses a unique spring system to maintain a constant differential pressure across an orifice.
- Q. What does the unit use for control power?
- A. The fluid passing through the unit provides the control power. The flow rate remains constant as long as the minimum differential pressure is maintained.
- Q. What is required to operate the unit?
- A. No hands-on operation or maintenance are required after initial start-up and calibration. No scheduled maintenance is required. You change the flow rate by turning the rate adjustment handle.
- Q. What can go wrong with the unit?
- A. It is possible to plug the orifice system. Fluid passing through the unit must be filtered. We recommend that a filter be installed at the inlet to each unit.
- Q. How many moving parts are in the unit?
- A. This unit has one moving part.
- Q. Is this unit leak free?
- A. Yes, static O-rings and high pressure seals are used to seal the unit. The unit is bolted together.
- Q. What flow rates can be provided?
- A. Range 1 - 0.5 to 500 gpd  
Range 2 - 15 to 1500 gpd
- Q. How many units can be installed on a single pump or supply header system?
- A. You can connect as many units as the pump or supply source will satisfy.

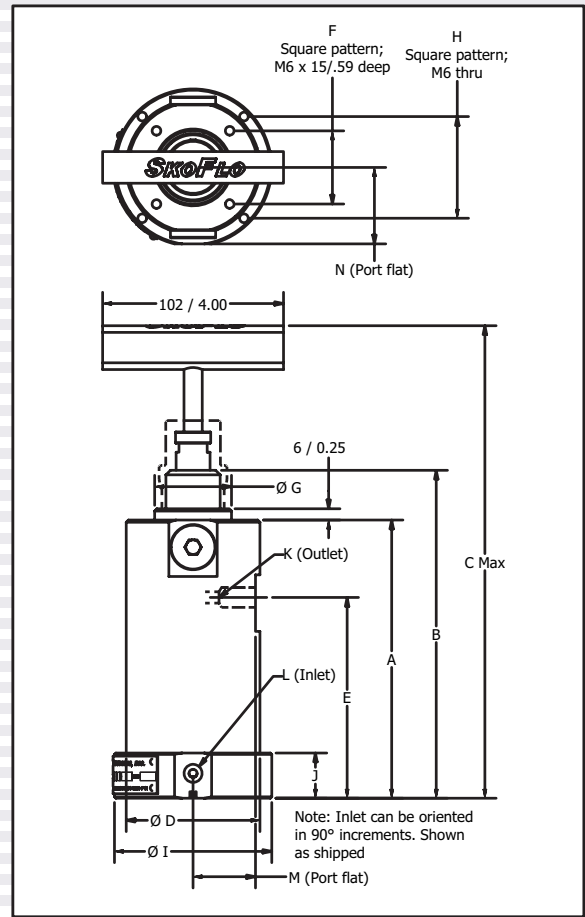
# THE VALVE

## Valve Performance Curve



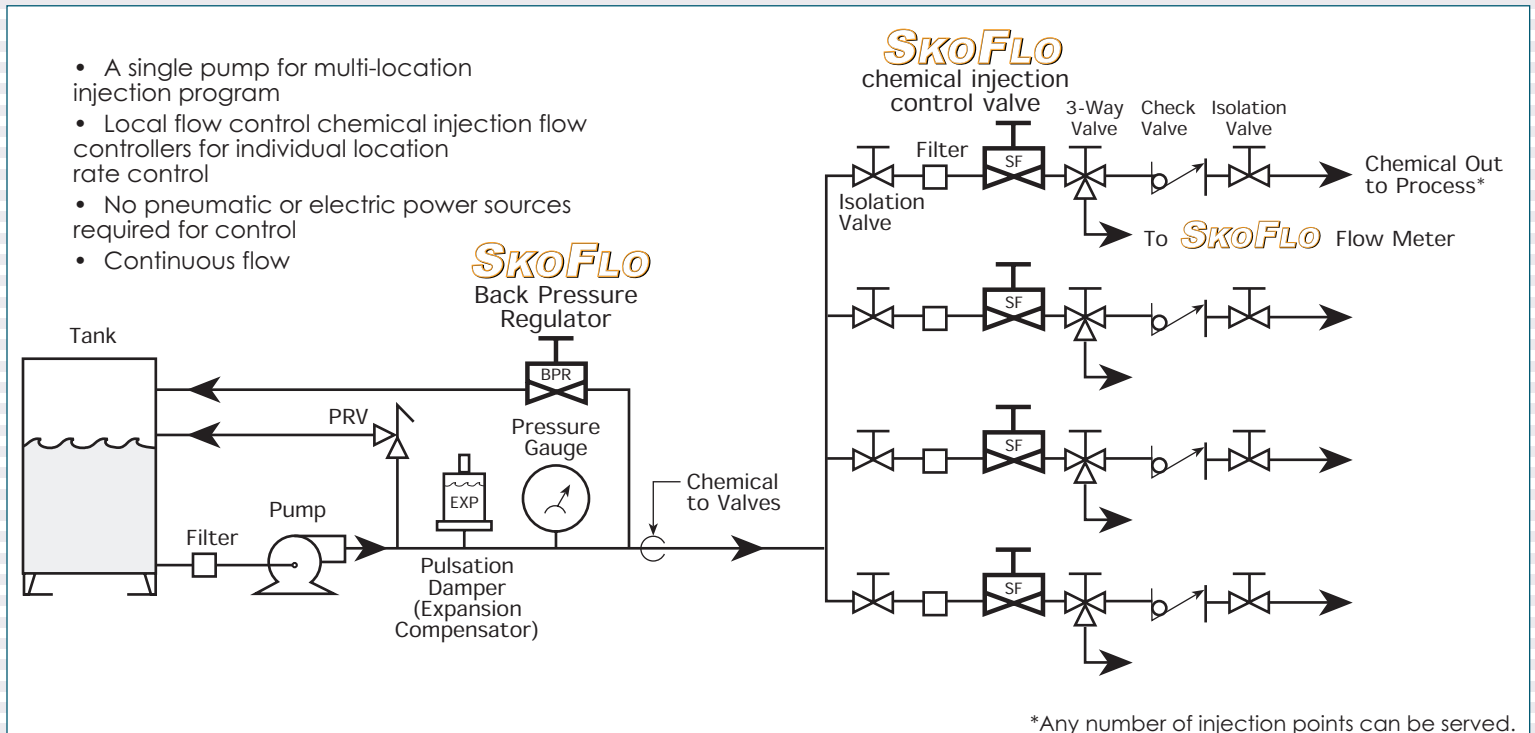
Notes: (Assuming Cv remains constant for both valves)

- Standard Valve:** flow rate varies as the square root of the differential pressure across the standard control valve.
- SkoFlo Valve:** flow rate remains constant once the minimum differential pressure is reached across the SkoFlo valve.



# THE SYSTEM

## SkoFlo Multi-Point System Utilizing a Positive Displacement Pump



\*Any number of injection points can be served.

Notes: For systems **not** using a positive displacement pump the pulsation damper and back pressure regulator are not required.

MODEL	DIMENSIONS (mm/in)													
	"A"	"B"	"C"	"D"	"E"	"F"	"G"	"H"	"I"	"J"	"K"	"L"	"M"	"N"
HTD-10000	157 / 6.18	184 / 7.25	269 / 10.60	88 / 3.48	113 / 4.44	41 / 1.62	31 / 1.20	57 / 2.25	88 / 3.48	13 / 0.50	3/8 AEMP	3/8 AEMP	42 / 1.64	43 / 1.69
HTD-5000	156 / 6.15	184 / 7.25	269 / 10.60	75 / 2.9	113 / 4.44	41 / 1.62	31 / 1.20	57 / 2.25	88 / 3.48	13 / 0.50	1/4 NPT	1/4 NPT	35 / 1.68	43 / 1.69

Consult factory for current outline drawings

## ▶ HOW TO ORDER - NAMEPLATE MARKING



**V** = Viton  
**K** = Kalrez Equivalent  
**E** = EPDM

**Range 1:** 1.0 to 500 GPD  
3.8 to 1893 l/day

**Range 2:** 15 to 1500 GPD  
56.8 to 5678 l/day

*Consult factory for flow rates beyond range 1 and 2*

## PREDICTING FULL SCALE CHEMICAL FLOW

$$Q_{\text{fluid}} = \frac{Q_{\text{water}} \times V}{\sqrt{Sg_{\text{fluid}}}}$$

Where:  $Q_{\text{water}}$  = water rate, Gal/day  
 $Q_{\text{fluid}}$  = fluid flow rate, Gal/day  
 $Sg_{\text{fluid}}$  = specific gravity of fluid  
 $V$  = viscosity correction factor (from table)

Example: Full Scale Water = 500 gpd (1930 l)  
 Fluid specific gravity = 0.9  
 Fluid viscosity = 250 cs  
 $V = 0.58$  (from table)

$$Q_{\text{fs fluid}} = \frac{500 \times 0.58}{\sqrt{0.9}} = 306 \text{ Gal/day}$$

**Note:** For fluid thicker than water, the full scale flow of the actual fluid needs to be converted.

Viscosity CS	Factor V
1	1.00
10	1.00
20	0.97
30	0.92
40	0.89
50	0.86
60	0.83
70	0.81
80	0.79
90	0.77
100	0.74
200	0.63
300	0.53
400	0.44
500	0.39
600	0.34
700	0.30
800	0.26
900	0.24
1000	0.23

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[www.skoflo.com](http://www.skoflo.com)

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