Introduction

DMQ'S **silQflo® Silicon Servo Valve (SSV)** is a MEMS based microvalve that is designed to control fluid pressure or flow rates with high precision at ultrafast response times. The silQflo® SSV series microvalves has enhanced contamination tolerance that is rated to 20/19/16 per ISO 4406:1999 standard. The SSV chipset has been proven on automotive transmission test to withstand up to 10,000 particles greater than 4µm in size, per milliliter of fluid. The silQflo® SSV microvalve directly replaces the Ventilum® microvalve series that was rated to withstand 320 particles greater than 4µm in size, per milliliter of fluid.

DMQ's patented silQflo® SSV series microvalve is an innovative solution to any flow control system. It can be used as an individual unit or as an integrated component of a more complex device. The reduced size and weight of the SSV lends itself to new and innovative package designs. The inherent proportionality of the actuator makes it ideal for proportional control. *Call us for standard or custom package options.*

Principle of Operation

The SSV is an electro-thermally driven device that is proportionally controlled by varying applied power to the actuator. The microvalve is configured as a 3-port proportional pressure control valve or it can also be configured as a 2-port proportional flow control valve.

Technical Specifications

SSV Model Number	PDA3-10
Voltage (V)	12 or 24
Max Power (W)	10±1
Nominal Operating Power (W)	5±1
Weight (grams)	0.24+/-0.01
Length X Width X Height (mm)	10.80 X 4.83 X 2.225
Response time (milliseconds)	50
Internal Leakage @100psi N2 (cc/min)	<500
Max flow@100%PWM N2 gas@100psi (cc/min)	5000 +/-50
Internal leakage @100psi hydraulic oil (cc/min)	<0.5
Max flow@100%PWM hydraulic oil @100psi (cc/min)	60 +/-5
Filtration requirement per ISO 4406:1999 Standard	20/19/16 or better
Applicable Medium	• Hydraulic Oils • Refrigerants: R410A, R404A, R134A, R22, R290A, R600A, CO_2, etc. • Gas: N_2, CO_2, Ultra dry air • Electrically nonconductive high boiling point liquids *Call for all other fluids for compatibility*
Max orifice area	Max area=0.0351 mm^2
Applications	• *Closed loop variable orifice proportional control • On/Off pressure control • On/Off flow control *non-pulsating proportional or pulsating orifice control
Max orifice Open-Close cycles	8 million
Max operating pressure	500psi
Proof pressure	1000psi
Burst pressure	• 1600psi for bare die • 4000psi for packaged die *Call for greater than 4000psi applications*

Dimensions and Product Markings