

Pinch Valve Life Test Report

Test purpose:

10 million switch cycles test for PV20NO12-3-32 and PV20NO12-1-8

2. Test samples

No.	Model	Test quantities	
I	PV20NO12-1-8	5 pcs	
2	PV20NO12-3-32	5 pcs	

3. Test environment/parameters:

Environment temperature: 15+/-3°C

Medium: compressed air Test pressure:15PSI

4. Test tools and equipment:

DC power supply, air flow rate meter, and aging test fixture are used in the test.

5. Test criteria:

Test voltage 12V

Silicone tubing is placed in the positions of pinch valve PV20NO12-1-8, PV20NO12-3-32

Before test: minimum starting voltage 5.5-8V

Air flow deviation value less than 1L/min

Leakage standard: tubing immersed in water for 10s and no bubbles can be observed

6. Test method and acceptance criteria

Randomly pick 5 samples to run the intermittent power on and off test on the aging test fixture. Switch the valves on and off twice per second.

Perform the qualification test after certain amount times of switch cycles

Qualification test method:

Under a pressure of 15 PSI, measure the air flow rate when the valve is open. Use the initial flow rate as a reference value. The deviation of the measured air flow rate from the reference value should be < 1L/min. Measure the minimum trigger voltage, and test the leakage when the pinch valve is turned off (no bubble is observed after the tubing is immersed in water for 10s)

Note: replace silicone tubing after every 1 million switch cycles



Table 1. Test Result of the Pinch Valves (Model PV20NO12-1-8)

	Sample #1	Sample #2	Sample #3	Sample #4	Sample #5	
	Accumula	ated switch 0 cycles				
Measured air flow rate (L/min)	8.51	7.81	8.79	8.13	8.39	
Air flow rate deviation (<1L/min)	accepted					
Minimum trigger voltage 5.5~8 V	7.5	8.0	7.0	7.1	7.3	
Minimum trigger voltage acceptance	accepted					
Leakage @15PSI	no					
	Accumulated	switch 1728000 cyc	les			
Measured air flow rate (L/min)	8.82	7.58	8.98	7.80	8.65	
Air flow rate deviation (<1L/min)	accepted					
Minimum trigger voltage 5.5~8 V	7.8	8.0	7.2	7.6	7.2	
Minimum trigger voltage acceptance	accepted					
Leakage @15PSI	no					
	Accumulated	switch 7056000 cycl	les			
Measured air flow rate (L/min)	8.21	7.46	8.12	7.50	7.47	
Air flow rate deviation (<1L/min)	accepted					
Minimum trigger voltage 5.5~8 V	7.6	7.7	6.9	7.5	6.8	
Minimum trigger voltage acceptance	accepted					
Leakage @15PSI	no					
	Accumulated s	witch 8796000 cycl	es			
Measured air flow rate (L/min)	8.69	7.42	8.23	7.16	7.70	
Air flow rate deviation (<1L/min)	accepted					
Minimum trigger voltage 5.5~8 V	7.3	6.8	7.0	6.8	6.9	
Minimum trigger voltage acceptance	accepted					
Leakage @15PSI	no					
	Accumulated sy	vitch 10524000 cycl	es			
Measured air flow rate (L/min)	8.91	7.42	8.44	7.79	8.53	
Air flow rate deviation (<1L/min)	accepted					
Minimum trigger voltage 5.5~8 V	7.6	7.4	7.0	7.1	6.9	
Minimum trigger voltage acceptance	accepted					
eakage @15PSI			no			



Table 2. Test Result of the Pinch Valves (PV20NO12-3-32)

	Sample #1	Sample #2	Sample #3	Sample #4	Sample #5		
	Accun	nulated switch 0 cyc	eles				
Measured air flow rate (L/min)	6.83	6.92	6.58	6.82	7.13		
Air flow rate deviation (<1L/min)	accepted						
Minimum trigger voltage 5.5~8 V	7.5	7.0	7.1	7.5	7.1		
Minimum trigger voltage acceptance			accepted				
Leakage @15PSI	no						
	Accumulat	ted switch 5256000	cycles				
Measured air flow rate (L/min)	6.67	6.98	6.43	6.45	6.88		
Air flow rate deviation (<1L/min)	accepted						
Minimum trigger voltage 5.5~8 V	5.7	5.8	6.0	5.9	5.8		
Minimum trigger voltage acceptance			accepted				
Leakage @15PSI			no				
	Accumulate	ed switch 8496000	cycles				
Measured air flow rate (L/min)	6.3	6.73	6.59	6.25	6.55		
Air flow rate deviation (<1L/min)	accepted						
Minimum trigger voltage 5.5~8 V	6.1	5.6	5.9	6.0	5.7		
Minimum trigger voltage acceptance	accepted						
Leakage @15PSI	no						
	Accumulate	d switch 10404000	cycles				
Measured air flow rate (L/min)	6.26	6.54	6.47	6.34	6.22		
Air flow rate deviation (<1L/min)	accepted						
Minimum trigger voltage 5.5~8 V	5.9	6.0	6.1	5.9	6.3		
Minimum trigger voltage acceptance	accepted						
_eakage @15PSI	no						

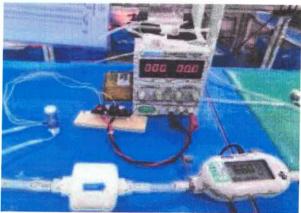
7. Test conclusion

Pinch valve PV20NO12-1-8 and P20NO12-3-32 is able to run more than 10 million cycles.









Tested by: $\sqrt{m} 2$. Date: 02/09/2019.