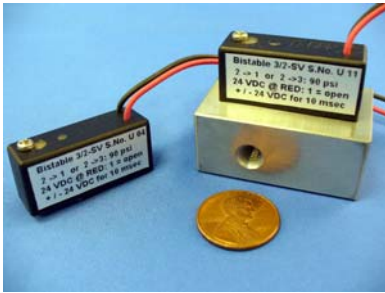


Product Datasheet: Oscar Valve Series



The patent-pending Oscar valve is a new concept in small valve design. A miniature solenoid system pushes or pulls an activator plate (a very small encapsulated magnet) to either side of the valve body. Permanent magnet forces in the valve body hold the plate in position without the need for power from the solenoid. Since the solenoid is only activated for milliseconds, there is no heat build-up in the valve and thus no heat transfer to the fluid. Power is only consumed during switching, which makes the valve ideal for battery operated systems.

Valve reliability is excellent because the activator plate is the only moving part. Since it's actuated magnetically, there are no chance of leaks and or chemical attack on the solenoid components. The small package size makes it ideal for mounting in tight places, and it's manifold mounting simplifies assembly.

- Hermetically sealed: No seal leaks
- Does not obstruct fluid path (low Kv)
- Magnetic valve plate activated by external solenoid
- Zero power consumption after switching—ideal for battery operation.
- No heat transfer to process fluid
- Very small dead volume
- Simple mounting: manifold mounted individually or in arrays
- Easy cleaning/rinsing
- Very fast switching time
- Only one moving part means very long life
- Simple and small: fits into very small areas
- Extremely quiet
- All valves 100% inspected and tested
- Permanently marked for easy traceability

Specifications

Performance:
 Valve Type: Bi-stable 2/2-way or bi-stable 3/2-way.
 Switching time: typically <10 msec
 Flow direction: Reversible
 Viscosity: <20 cps
 Life expectancy: 60 million cycles
 Valve Orifices and Pressure Info.:

Orifice Diameter (mm)	Max. Pressure (bar)	K _v Value (l/min.)
0.8	6	0.17
1.0	3	0.24

Electrical:
 Voltage: 24 volts during switching (<10 msec), 0 volts in the open or closed positions (change polarity to switch between ports)
 Power: Power consumption is zero during in open and closed positions.
 Connection: Flying leads (optional: connectors)
 Resistance: 60 Ω
 Solenoid Insulation Class: H

Temperature:
 Operating Temperature Range: -10 to +80°C
 Ambient Temperature Range: -10 to +60°C
 Storage Temperature Range: -10 to +110°C

Construction:
 Wetted materials: PEEK (valve body), 316L Stainless Steel (activator plate), and EPDM (manifold-mount o-rings). Optional materials include titanium and all other elastomer types...contact factory.
 Environmental Rating: IP65

Operating Principle & Dimensional Information

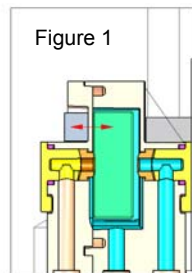
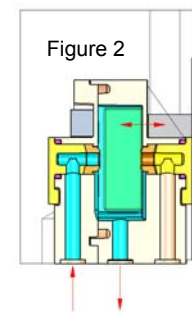
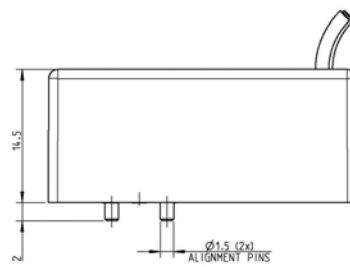
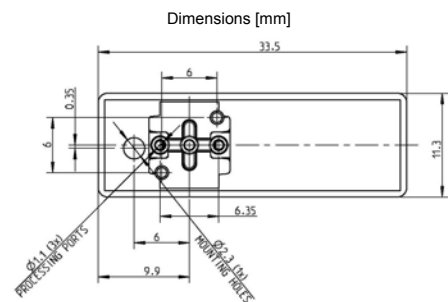
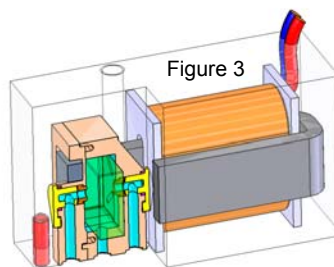


Figure 1 shows the encapsulated magnet (green) being attracted to an iron plate (gray). This magnetic attraction causes it to seal tightly against the EPDM port (brown), allowing fluid to flow along the path highlighted in blue. The magnetic attraction alone holds the pressure: no power is required by the solenoid.



When powered, the solenoid pulls the magnet (green) toward it until the magnetic force holds it tight against the EPDM port on the opposite wall (see figure 2). The power is turned off yet the magnetic force holds it firmly in place.

Figure 3 shows a cutaway view of the entire valve. The total mass of the magnet is only a few milligrams, allowing extremely fast switching and requiring very low power input.



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