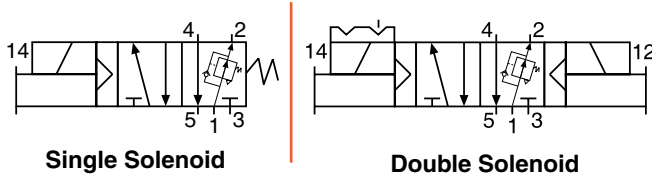


# New Product Information

# ENERGY SAVER® Valve

## 5/2 Single and Double Solenoid Pilot Valves for ISO 5599/I



Single Solenoid

Double Solenoid

### 5/2 Single Solenoid Models

ISO Size*	Model Number	Average $C_v$	Weight lb (kg)
1	W6076A2957	0.8	1.5 (0.7)
2	W6076A3957	1.9	2.3 (1.1)
3	W6076A4957	3.8	3.5 (1.6)

### 5/2 Double Solenoid Models

ISO Size*	Model Number	Average $C_v$	Weight lb (kg)
1	W6076A2961	0.8	1.8 (0.9)
2	W6076A3961	1.9	2.7 (1.2)
3	W6076A4961	3.8	3.9 (1.8)

\* Port sizes determined by customer's choice of base or manifold. Bases and manifolds sold separately – see Bulletin 379B.

### Dimensions - inches (mm)

Model Number	Length	Width	Height**
W6076A2957	5.41 (137.5)	1.64 (41.7)	3.25 (82.6)
W6076A3957	6.24 (158.5)	2.10 (53.4)	3.55 (90.2)
W6076A4957	6.21 (157.8)	2.55 (64.8)	3.73 (94.8)
W6076A2961	6.59 (167.4)	1.64 (41.7)	3.25 (82.6)
W6076A3961	7.39 (187.7)	2.10 (53.4)	3.55 (90.2)
W6076A4961	6.62 (168.2)	2.55 (64.8)	3.73 (94.8)

\*\* Height of valve with electrical connector installed. Connectors sold separately – see Bulletin 379B.

### STANDARD SPECIFICATIONS:

**Solenoid:** Rated for continuous duty.

**Standard Voltages:** 100 – 110 volts AC, 50 Hz; 100 – 120 volts AC, 60 Hz; 200 – 240 volts AC, 50/60 Hz; 24 volts DC; 110 volts DC.

**Power Consumption:** 8.5 VA inrush, 6 VA holding on 50 or 60 Hz; 6 watts on DC.

**Ambient Temperature:** 40° to 120°F (4° to 50°C).

**Media Temperature:** 40° to 175°F (4° to 80°C).

**Flow Media:** Filtered air; 5 micron recommended.

**Inlet Pressure:** 60 to 120 psig (4 to 8 bar).

**Manual Override:** Flush, non-locking.



**Reduces compressed air usage up to 30%.**

### GENERAL:

Traditionally, standard valves apply the same pressure for extending *and* retracting double acting cylinders. However, this new ENERGY SAVER® valve revolutionizes the way cylinders are controlled, by reducing the cylinder retract pressure.

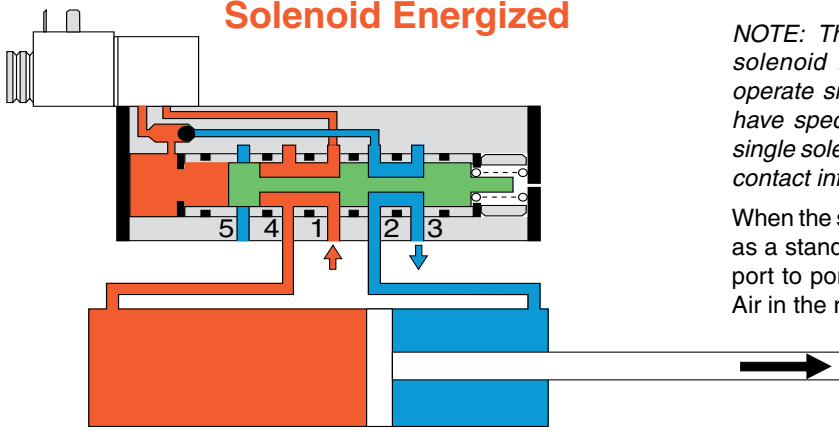
The Series W60 ENERGY SAVER® valve is a 5-port, 2-position, sub-base mounted valve that supplies full line pressure to port 4 and reduced pressure (30 psig - 2 bar) to port 2. This provides full cylinder force to move the load, but returns the cylinder with less pressure thus reducing your compressed air consumption by up to 30%. Although reduced, the pressure in port 2 is enough for quick return of the cylinder. The energy saving function is accomplished by action of the spool and works as quickly as a pressure regulator.

### ADVANTAGES:

- Reduces compressed air consumption up to 30%
- Replaces conventional ISO 5599/I valves without any adaptation
- Spool & sleeve construction for long valve life
- Leakage in cylinder and fittings reduced due to low applied pressure
- Noise reduction
- Extends life of cylinders and other equipment

# How It Works

## Solenoid Energized



*NOTE: The example of "How it Works" is specific to the single solenoid ENERGYSAVER® valve. The double solenoid models operate similarly, but as a double solenoid type valve. If you have specific questions about the operation of the double or single solenoid ENERGYSAVER® valves, please contact ROSS (see contact information below) for more information.*

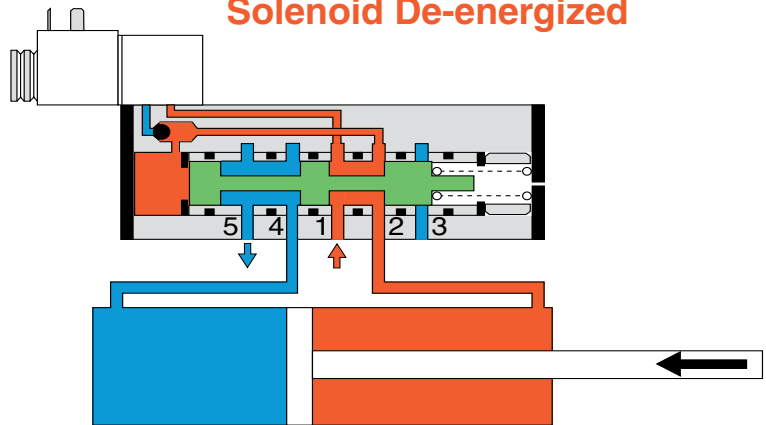
When the solenoid is energized, the ENERGYSAVER® valve operates as a standard valve. Supply pressure is directed from the inlet port to port 4 extending the cylinder at full pressure and force. Air in the rod end of the cylinder is exhausted via port 3.

Upon de-energizing the solenoid, the pilot valve starts to exhaust the pilot signal from the end of the spool. Momentarily, the spool shifts back to a "normal" de-energized position directing inlet air to flow to the rod end of the cylinder (port 2 of the valve) and exhausting the cap end.

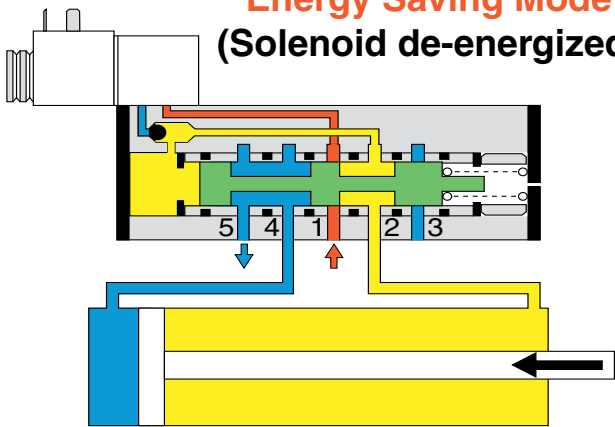
The shuttle now has higher pressure on the opposite side causing it to shift. Shifting the shuttle closes the connection from the spool to the pilot exhaust and opens the cavity at the end of the spool to feedback pressure from port 2.

Meanwhile the cylinder has begun to retract.

## Solenoid De-energized



## Energy Saving Mode (Solenoid de-energized)



Because the actuating end of the spool now has high pressure applied, the spool starts to shift to the right again closing off the inlet port. Closing the inlet prohibits the air supply from maintaining pressure on the rod end of the cylinder and as the cylinder continues to retract, the pressure drops.

This pressure drop reduces the amount of force available to keep the spool actuated against the valve return spring. So, the spool starts to shift back thus allowing an influx of pressure to help retract the cylinder.

The ENERGYSAVER® valve operates as a fixed spring regulator when in the energy saving mode, maintaining the cylinder return pressure at approximately 30 psig (2 bar). Retracting and holding the cylinder with only 2 bar pressure consumes much less air than the standard method of using full pressure to shift and retract.

**APPLICATION WARNING:** When inlet pressure is 45 psig (3 bar) or less, the double and single solenoid ENERGYSAVER® valves will pressurize port 2 and exhaust port 4, regardless of applied solenoid signals. This feature, which occurs when inlet pressure is below 45 psig (3 bar), must be taken into consideration in your application design in order to avoid the potential for personal injury or property damage.



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## WARRANTY and CAUTIONS

Standard ROSS warranty and cautions apply, available upon request or at [www.rosscontrols.com](http://www.rosscontrols.com)

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