FLEXINOL®

DYNALLOY, Inc.
Makers of Dynamic Alloys

Pressure*: 100 PSI max.
Voltage (through electronics)**: 0 to 5 Volts (not to exceed 5 Volts)
Current (through electronics)**: 750 mA (@ 22° C)
Resistance: 1.3 Ω
Size: 0.4"∅ x 1.75" Long
Connecting Electrically: The included electronics module electrically connects the valve to a power source and protects the actuator wire from current overload.

*Electrostem™ II valve can be custom manufactured for higher psi if the application requires it.
* Electrostem™ II valve can also be operated manually but should not be manually operated while being used electrically.
* Wire is exposed internally. A wire break could cause a spark internally.
**Flexinol® (the "valve motor") is based primarily on a thermal reaction. Therefore, the cycle rate and power to the valve can vary greatly depending on the goal of each different application.

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Dynalloy's Electrostem™ II valve is only one demonstration of the many new possibilities that Flexinol® actuator wire brings to the valve industry. There are many other needs and preferences that can now be filled with this exciting material.

Please contact us if you have any other valve requests that you would like to explore with us.

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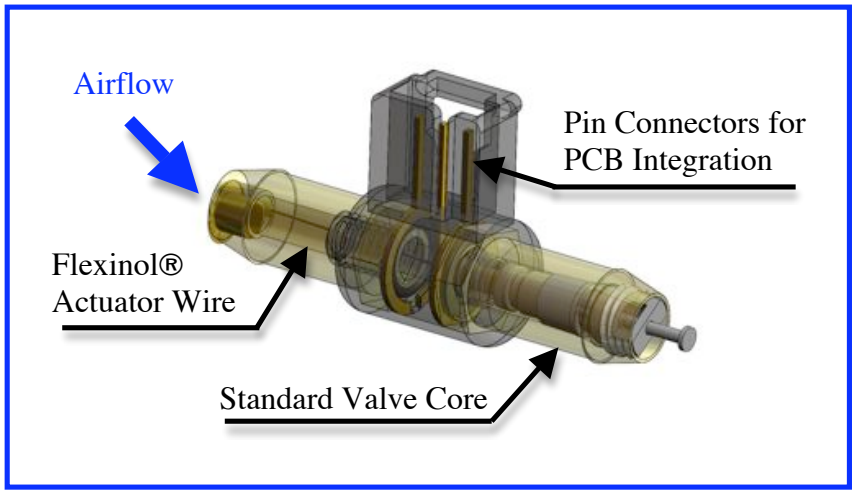
Electrostem™ II Valve



An Exciting Valve that will Revolutionize the Industry

- Proportional Control
- Small Size
- Light Weight
- Acoustically Silent and No Electrical Noise
- Built-In Actuator Wire Protection
- Automatic Feedback
- Great for Inline, High-Density Applications
- Comes with Standalone Electronics
- Surprisingly Low Cost

F1178Rev E.3

FLEXINOL®

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Electrostem™ II Valve

Flexinol® is used to proportionally control airflow. It uses a standard Schraeder valve core or stem like those found in automobile tires. Generally, these stems are on or off depending on whether the internal stem cap is open or closed. The Electrostem™ Valve with Flexinol® actuator wires can very gradually open or close these caps to produce proportionally controlled airflow. While heated with internal resistance (like a light bulb) the Flexinol® contracts and opens the cap; however, as it opens air begins to flow through and cool the actuator wire. Equilibrium between the electrical input and the mass of air entering the valve determines the aperture size and airflow. Consider the following test results showing how higher density of the pressurized input air restricts the output volume.

While passing 750mA current through the valve:

Input Pressure		Approx. flowrate at Atm. Pressure
20psi	≈	2.1gpm
40psi	≈	1.8gpm
60psi	≈	1.6gpm
80psi	≈	1.3gpm
100psi	≈	1.2gpm

Proportional Control:

Further testing also shows that with constant input pressure the approximate output flowrate varies directly with current:

At:		1000mA	1120mA	1150mA
30psi	≈	3.2gpm	4.4gpm	5.3gpm
50psi	≈	2.3gpm	3.4gpm	4.1gpm

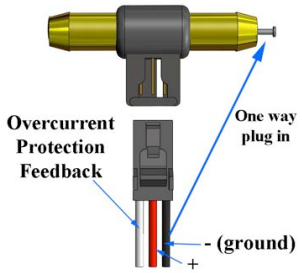
F1178Rev E.3

Electrostem™ II Valve Operation Instructions

Required Materials:
(1) Electrostem™ II Valve
(1) Electrostem™ II Electronics Module
(1) Air Supply with a maximum pressure of 100 psi.
(1) DC Power supply capable of providing no more than 5 Volts and 3 Amps.

Instructions:

1. Assemble the required materials on a clean work area.
2. Plug in the DC power supply and adjust to 0 Volts.
3. Remove Electrostem™ II Valve and Electronics Assembly from the packaging.
4. Securely attach Electrostem™ II Valve to an air supply.
5. Plug the Electronics Module connector into valve taking care to correctly align the clip.



6. Turn on the air supply to the desired pressure with a maximum of pressure 100 psi.
7. Turn on the DC power supply to open the valve and allow airflow.
8. Increase the voltage as needed to a maximum of 5 Volts to adjust the valve to the desired flow rate*.

* At higher pressures the actuator wire cools down more rapidly inside the valve and requires an increase in current to achieve the same flow rate as at lower pressures.

Guidelines: