APTech

ADVANCED PRESSURE TECHNOLOGY

# STERLING SL 5400

## Springless Positive Shut-off Regulator

*Defining New Levels of Ultraclean*

- 10μ in. surface finish (7 and 5μ in. optional)
- Particle tested
- Hot DI cleaned and baked
- Low internal volume and surface area
- Vacuum to 1000 psig (70 bar)

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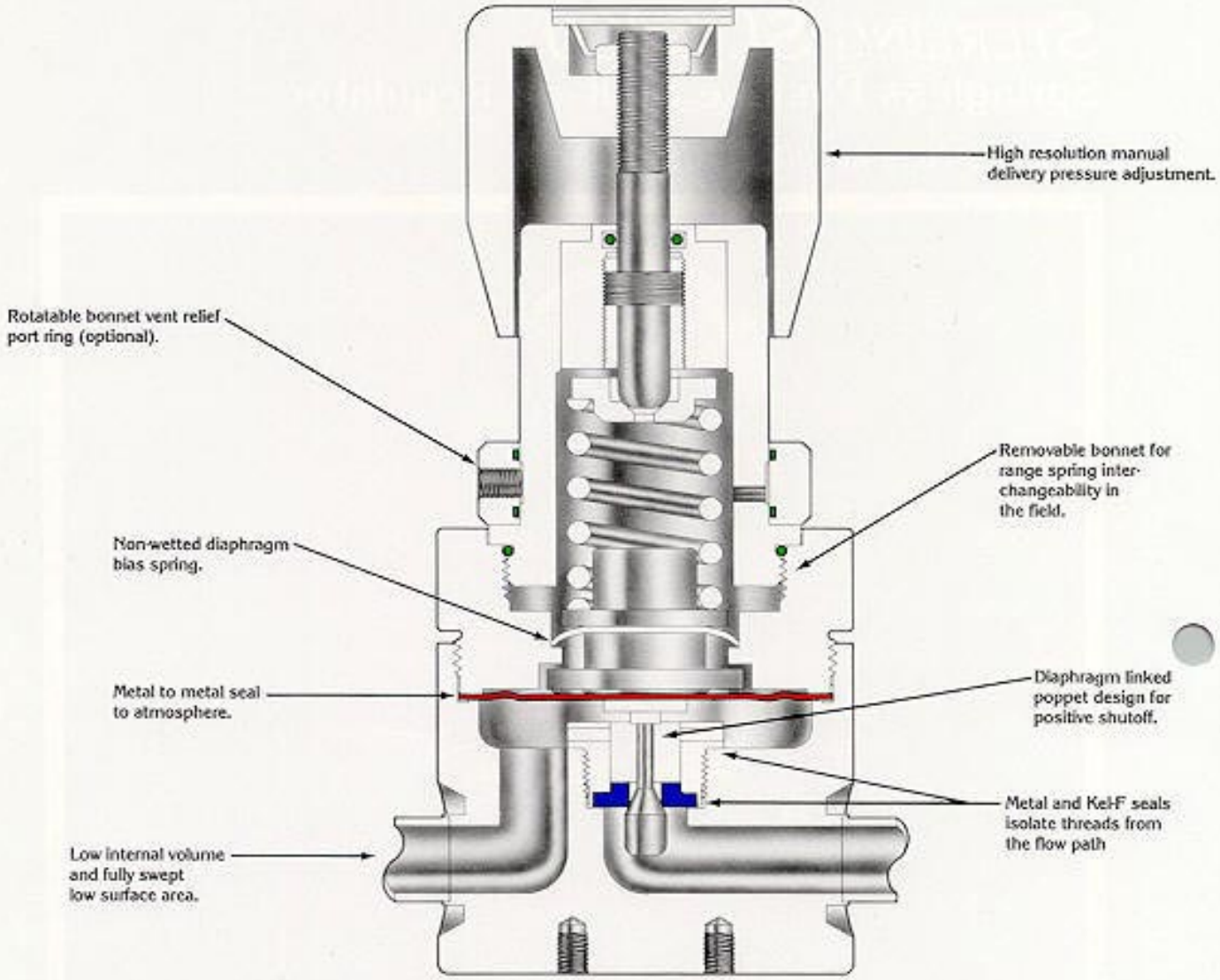
## Ultraclean technology backed by service and support.




## The Sterling SL 5400 – the ultimate in ultraclean

The Sterling is a new generation of pressure regulators. The SL 5400 provides the optimum in performance and cleanliness. It is designed to deliver precise and stable pressure control for intermediate flow rates at point of use and source cylinder applications. The SL 5400 is definitively the regulator of choice for liquid source applications such as HCl with flow rates ranging from 0.5 slpm to 80 slpm.

The SL 5400 is manufactured, cleaned and tested to rigorous standards using the most advanced techniques available. Minimal surface area, free of unswept zones, combined with proper surface chemistry and low Ra finishes minimize the potential for adsorption of contamination. These features ensure the absolute minimum contribution of contamination to the process stream.

Please consult your local representative or our staff for further information or technical assistance.

# Engineering data –
# Sterling Series SL 5400 Springless Pressure Regulators

## Operating parameters

| | |
|---|---|
| Source pressure | vacuum to 1000 psig (70 bar) |
| Delivery pressure (SL 5402) | 1 to 30 psig (.07 to 2 bar) |
| Delivery pressure (SL 5406) | 1 to 60 psig (.07 to 4 bar) |
| Delivery pressure (SL 5410) | 2 to 100 psig (.14 to 7 bar) |
| Proof pressure | 3000 psig (210 bar) |
| Burst pressure | 6000 psig (420 bar) |

## Other parameters

| | |
|---|---|
| Inlet and outlet connnectors | ¼, ⅜ or ½ inch face seal or tube weld |
| Actuation/relief port (optional) | 10–32 inch |
| Flow coefficient (Cv) | 0.23 |
| Internal volume | 0.65 $in^3$ (10.6 $cm^3$) |
| Operating temperature | -40° to +160°F (-40° to +71°C)* |
| Surface finish | 10µin. (0.25µm) standard;<br>7µin (0.18µm); and 5µin (0.13µm) optional |
| Inboard leakage | $2 \times 10^{-10}$ sccs |
| Outboard leakage | $2 \times 10^{-9}$ sccs He at 1000 psig inlet pressure |
| Leakage across seat | $4 \times 10^{-6}$ sccs He at 1000 psig inlet pressure |
| Installation | surface or panel (optional) |
| Delivery pressure rise | 1.6 psi per 100 psig inlet pressure drop |

## Materials

| Type of Service | Series SL 5400 S<br>Noncorrosive | Series SL 5400 SH<br>Corrosive |
|---|---|---|
| **Wetted Parts** | | |
| Body & diaphragm | stainless steel 316L/AOD VAR | stainless steel 316L/AOD VAR |
| Finish | electropolished and passivated | electropolished and passivated |
| Poppet | stainless steel 316L | Hastelloy® alloy C–22 |
| Seat | PCTFE (Vespel® optional) | PCTFE |
| **Non-wetted Parts** | | |
| Bonnet, cap, plate | nickel–plated brass | nickel–plated brass |
| Diaphragm spring | stainless steel 302 | stainless steel 302 |
| O–ring | Viton® | Viton |
| Stem | brass | brass |

*High temperature ratings available. Please contact factory.

Hastelloy® Haynes Corporation
Viton® DuPont

Vespel® DuPont

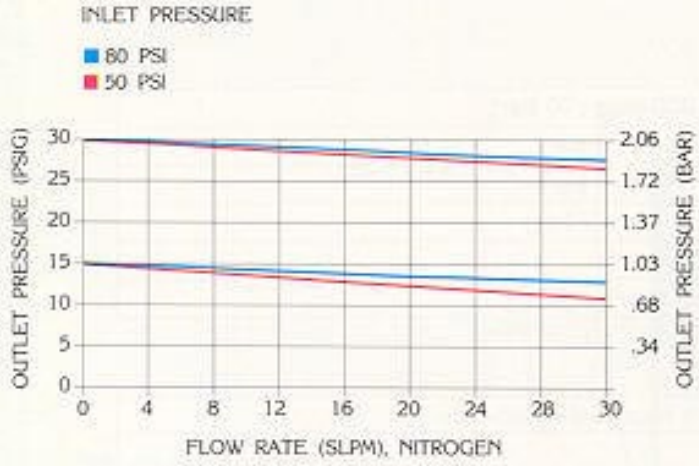
All specifications subject to change without notice.

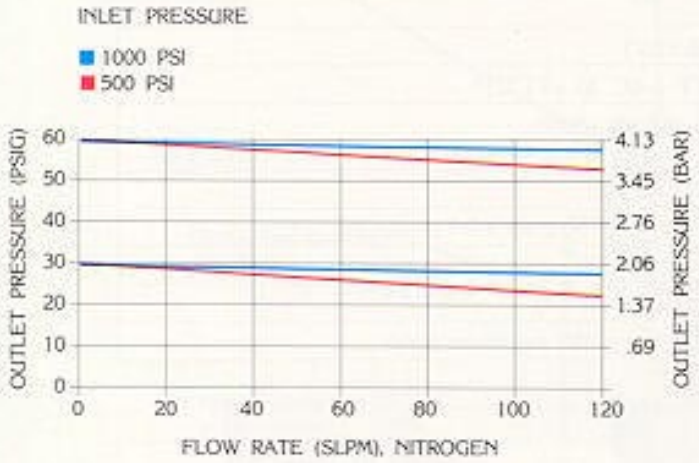
## Cleaning and packaging

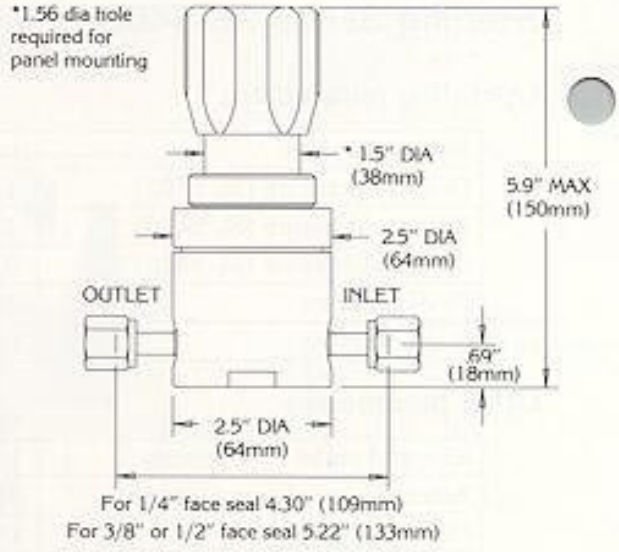
Cleaning is a multi-step process performed in a Class 100 clean room. Parts are ultrasonically cleaned with a wetting agent initially and then progressively with hot and cold DI water. Cleaned parts are then blown dry with ultra pure nitrogen prior to being baked completely dry in a nitrogen atmosphere.

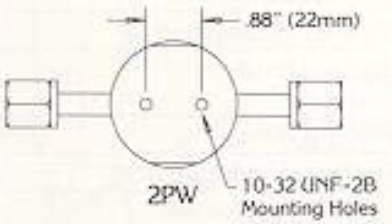
Each regulator is then individually assembled, pressure tested, functionally tested, helium leak tested and particle tested. Labels, including a unique serial number, are installed prior to products being double packaged under ultra pure nitrogen.

# Uncompromising quality, performance and reliability from a company known for service and support.





## ORDERING INFORMATION

| Series SL 5400 | S Material | M Material Surface Finish | 4PW Ports | FV4 – FV4 Connectors Inlet Outlet | 10 – V3 Gauges* Source Delivery | p Options |
|---|---|---|---|---|---|---|
| SL5402 = 1 – 30 psi (.07 to 2 bar)<br>SL5406 = 1 – 60 psi (.07 to 4 bar)<br>SL5410 = 2 – 100 psi (.14 to 7 bar) | S = Stainless steel<br>SH = Stainless steel with Hastelloy alloy C-22 poppet | M = 10µ in. Ra (standard)<br>V = 7µ in. Ra<br>X = 5µ in. Ra | 2PW = 2 ports butt weld<br>3PW = 3 ports butt weld<br>4PW = 4 ports butt weld | FV4 = ¼ inch face seal female<br>MV4 = ¼ inch face seal male<br>TW4 = ¼ inch tube weld stub<br>FV6 = ⅜ inch face seal female<br>MV6 = ⅜ inch face seal male<br>TW6 = ⅜ inch tube weld stub<br>FV8 = ½ inch face seal female<br>MV8 = ½ inch face seal male<br>TW8 = ½ inch tube weld stub | 0 = No gauge<br>V3 = 30-0-30 psi/bar<br>L = 30-0-60 psi/bar<br>1 = 30-0-100 psi/bar<br>2 = 0-200 psi/bar<br>4 = 0-400 psi/bar<br>10 = 0-1000 psi/bar | P = Panel installation<br>BV = Bonnet vent ring<br>VS = Vespel seat |

*Gauge ports are standard with 1/4" face seal male.

## Products by AP Tech

AP Tech manufactures a wide array of products exclusively for the semiconductor industry. Pressure regulators, valves, check valves and a variety of flow devices are available for applications ranging from the source cylinder cabinet, bulk delivery systems through point of use including VMB distribution boxes and process tool gas trays. Products can be tailored for specific needs with custom fittings, dimensions, porting or testing with an option of multiport, monoblock and surface mount configurations.