Strategic Versatility
SMS1, RB1, SB1, SS1

One design,
Four Integrated Seals
Traditional cup point set screws in rotating units are replaced by a patent pending Plunger-Lock drive. The torque transmission strength is increased 5 fold over traditional cup point set screws. Most importantly, it allows for quick/easy assembly and seal-kit replacement. The entire drive mechanism is out of product. This system eliminates any possibility of sleeve distortion from overtightened set screws. There are no set screws to “back out”. The spring-loaded mechanism keeps the lug “trapped” in position.

No more difficult set screws. Our unique, Plunger-Lock Drive makes assembly easy.

(Patent No. 7979986)

With common sleeves, glands, and seal parts for all designs, cartridge assembly is quick and fail-safe. Plus, it's easy to modify face material, metallurgy and elastomers. This strategic grouping covers 80% of industries' sealing applications. The efficiency gained allows aggressive price structures and even low-cost repair kits and exotic alloys at substantial savings. Flex-A-Seal’s famous premium welded bellows designs are included at multiple spring prices.

Downstream, the benefits start with quick deliveries, allowing customers to minimize inventories through various exchange programs.

Design advantages are: simple, easy-to-install cartridge designs; sleeves that are isolated from the product; fewer "O" rings and rugged machined construction.

Versatility Means Savings and Reliability

There are Clear Reasons to Employ the Integrated Cartridge System

Interchangeable sleeves, glands, clips, faces, rotaries, seats, “O” rings, and fasteners.
**SMS1 Stationary Multiple Spring Cartridge**

- Only 4 primary assembled parts
- Faces, metallurgies, and elastomers are easily upgradeable
- Self cleaning
- Easy cartridge installation
- Hydraulically balanced design
- No springs to break or clog
- Flush position maximizes cooling
- Fits all standard and big bore ANSI pumps
- Uniform 360° transfer of torque to primary rotating face
- Sleeve is isolated from product

**RB3 FV&D**

- All benefits of RB1 plus with vent and drain connections made to different sizes to assure that correct piping plans are employed

**SB3 FV&D**

- All benefits of SB1 plus with vent and drain connections made to different sizes to assure that correct piping plans are employed

**SMS1 Specifications**

- **Silicon Carbide**
- **Carbon**
- **Heat**
  - 400°F (200°C)
- **Max. Pressure**
  - 300 psi (20 BAR)
- **Max. Speed**
  - 6000 fpm

**SB1 Specifications**

- **Silicon Carbide**
- **Carbon**
- **Heat**
  - 400°F (200°C)
- **Max. Pressure**
  - 300 psi (20 BAR)
- **Max. Speed**
  - 4500 fpm

**RB1 Specifications**

- **Silicon Carbide**
- **Carbon**
- **Heat**
  - 400°F (200°C)
- **Max. Pressure**
  - 300 psi (20 BAR)
- **Max. Speed**
  - 4500 fpm

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**Stationary Face**

- Stationary springs isolated from the process
- Flush connection
- Rotating mating ring for better face alignment and heat dissipation
- Seals faces positioned in gland for maximum protection
- Dynamic elastomer moves on non-metallic surface eliminating fretting
- Faces designed for optimum heat dissipation
- Sleeve is isolated from product
- Hydraulically balanced
- Easy cartridge installation
- Flush position maximizes face cooling
- Fits all standard and large bore ANSI pumps

**SMS3 FV&D**

- All benefits of SMS1 plus with vent and drain connections made to different sizes to assure that correct piping plans are employed
- Very cost effective upgrade

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**Rotary Face**

- Carbon
- Silicon Carbide
- Stainless steel
- Perfluoroelastomer
- Ethylene Propylene
- Fluorine
- Stainless steel
- Silicon carbide
- Hastelloy
- Silicon carbide
- Carbon

**Metal Parts**

- 316 SS
- 316 SS/17-4
- Hastelloy
- Silicon carbide
- Silicon carbide
- Nickel tungsten carbide
- Carbon

**"O" Rings**

- Viton®
- AFLAS®
- Ethylene Propylene
- Perfluoroelastomer

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**Stationary Multiple Spring Cartridge**

- FAS’ most cost effective cartridge design
- Monolithic face w/ homogenous material
- Drive mechanisms out of product
- Springs are out of product, minimizes corrosion and stress related failure
- Unique shrouded rotary for maximum face protection and reliable startup
- Uniform 360 degree transfer of torque to rotating face

**SB1 Stationary Welded Bellows Cartridge**

- Stationary bellows for maximum face alignment

**SB1 Stationary Welded Bellows Cartridge**

- Faces designed for optimum heat dissipation
- Shrouded rotary seal ring for maximum face protection and reliable start-up
- Easy cartridge installation
- No dynamic elastomers
- Hydraulically balanced design
- Even face loading
- Flush position maximizes face cooling
- Fits all standard and big bore ANSI pumps
- Uniform 360° transfer of torque to primary rotating face
- Only 2 static “O” rings

**SB3 FV&D**

- All benefits of SB1 plus with vent and drain connections made to different sizes to assure that correct piping plans are employed
- Very cost effective upgrade
**SS1 Stationary Single Spring Cartridge**

- Stationary pusher design
- Heavy-duty non-clogging design
- Faces designed for optimum heat dissipation
- One heavy-duty single spring located out of the product
- Shrouded rotary seal ring for maximum face protection and reliable start-up
- Uniform 360° transfer of torque to primary rotating face
- Upgradeable faces, metallurgies, and elastomers
- Sleeve is isolated from product
- Hydraulically balanced
- Easy cartridge installation
- Flush position maximizes face cooling
- Fits all standard and large bore ANSI pumps

SS3 FV&D

- All benefits of SS3 plus with vent and drain connections made to different sizes to assure that correct piping plans are employed
- Very cost-effective upgrade

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**Seal Size**

| Seal Size | A (Metric)** | B | C | D | E | F | G | H | J (metric) | I (inch) |
|-----------|--------------|---|---|---|---|---|---|---|---|-----------|---------|
| 16        | 1.000        | 24mm | 1.63 | 1.700 | 4.000 | 1.531 | .437 | 2.375 | .587 | 1.790 | 2.220 |
| 18        | 1.000        | 25mm | 1.63 | 1.700 | 4.000 | 1.531 | .437 | 2.375 | .587 | 1.790 | 2.220 |
| 20        | 1.250        | 30mm | 1.63 | 1.700 | 4.350 | 1.531 | .437 | 2.462 | .587 | 1.795 | 2.335 |
| 22        | 1.375        | 33mm | 1.63 | 1.700 | 4.350 | 1.531 | .437 | 2.462 | .587 | 1.795 | 2.335 |
| 24        | 1.500        | 38mm | 1.63 | 1.700 | 4.500 | 1.531 | .437 | 2.583 | .587 | 1.850 | 2.480 |
| 26        | 1.625        | 43mm | 1.63 | 1.700 | 4.500 | 1.531 | .437 | 2.583 | .587 | 1.850 | 2.480 |
| 28        | 1.750        | 48mm | 1.63 | 1.700 | 4.500 | 1.531 | .437 | 2.583 | .587 | 1.850 | 2.480 |
| 30        | 1.875        | 53mm | 1.63 | 1.700 | 4.500 | 1.531 | .437 | 2.583 | .587 | 1.850 | 2.480 |
| 32        | 2.000        | 58mm | 1.63 | 1.700 | 4.500 | 1.531 | .437 | 2.583 | .587 | 1.850 | 2.480 |
| 34        | 2.250        | 63mm | 1.63 | 1.700 | 4.500 | 1.531 | .437 | 2.583 | .587 | 1.850 | 2.480 |
| 36        | 2.500        | 68mm | 1.63 | 1.700 | 4.500 | 1.531 | .437 | 2.583 | .587 | 1.850 | 2.480 |

**Notes:**

- *Certain O-rings will fit SS3/SM1/SMS1 SS1 Stationary Single Spring Cartridge*
- **Indicate metric when ordering**