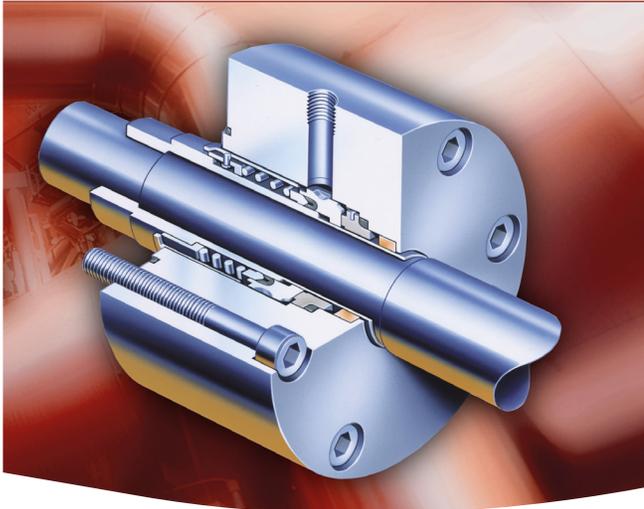


# D Series Balanced pusher seals

*D Series seals are balanced pusher seals with a pumping ring built into the rotating seal face body that establishes an exclusive Plan 23 cooling chamber around the seal faces. D Series seals excel in high temperature boiler feed water and hot hydrocarbon services.*



## Features and Benefits

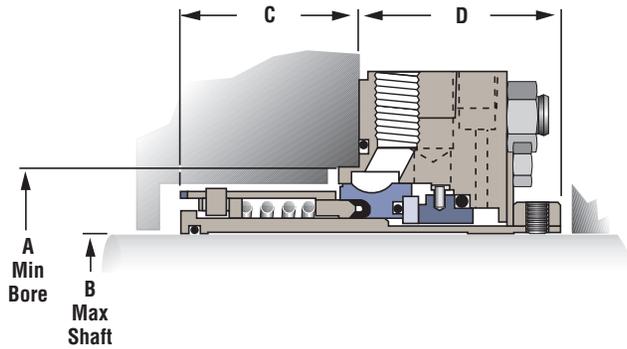
- Rotating seal face body integrates a pumping ring to maximize circulation flow through a Plan 23 seal cooler and return the flow directly at the seal interface, eliminating the expense of cool injection systems.
- Tungsten carbide rotating face is mounted and driven in an optimal, low stress configuration to remain flat under all operating conditions for very low leakage performance.
- Large, low spring rate single coil spring tolerates axial setting variations common to high temperature pumps.
- Robust U-cup seal flexibly mounts the rotating seal face while compensating for minor misalignment of the shaft and maintaining consistent seal face contact.
- Spring holder enables a strong drive linkage from the sleeve to the seal face while isolating the spring from torque.
- Seal installation is simplified with cartridge seal assembly or, as special equipment requirements demand, the seal can be installed by components.

## Operating Parameters

|                         |     |   |
|-------------------------|-----|---|
| <b>Pressure</b>         | D:  | Up to 1000 psi (69.0 bar)                 |
|                         | DP: | Up to 1500 psi (103.4 bar)                |
| <b>Temperature</b>      |     | -100 to 650°F (-73 to 343°C)              |
| <b>Specific Gravity</b> |     | 0.45 and higher                           |
| <b>Shaft Speed</b>      |     | Up to 75 fps (23 m/s)                     |
| <b>Shaft Size</b>       |     | 0.525 to 5.400 inch<br>(13.3 to 137.2 mm) |

## Materials of Construction

|                         |   |
|-------------------------|---|
| <b>Metal Components</b> | 316 Stainless Steel                                     |
| <b>Rotating Face</b>    | Silicon Carbide,<br>Tungsten Carbide                    |
| <b>Stationary Face</b>  | Carbon  |
| <b>Gaskets</b>          | Fluoroelastomer, Perfluoro-<br>elastomer, Nitrile, EPDM |
| <b>Spring</b>           | 316 Stainless Steel                                     |



**Specialized designs for specific applications**

- DQ High balance face satisfies low hydrocarbon emissions levels.
- DP Custom designed stationary face for high pressure services up to 1500 psi (103.4 bar).
- DZ Short axial length design for short seal chambers.

**Dimensional Data**

| Seal Size | inches |       |       |       |       | Seal Size | millimeters |        |       |       |        |
|-----------|--------|-------|-------|-------|-------|-----------|-------------|--------|-------|-------|--------|
|           | A      | B     | C     | C(DZ) | D     |           | A           | B      | C     | C(DZ) | D      |
| 1062      | 2.125  | 0.525 | 1.438 | 0.688 | 2.782 | 1062      | 53,98       | 13,34  | 36,53 | 17,48 | 70,66  |
| 1250      | 2.123  | 0.775 | 1.688 | 0.750 | 2.782 | 1250      | 53,92       | 19,69  | 42,88 | 19,05 | 70,66  |
| 1437      | 2.437  | 0.962 | 1.656 | 0.781 | 2.907 | 1437      | 61,90       | 24,43  | 42,06 | 19,84 | 73,84  |
| 1500      | 2.395  | 1.025 | 1.844 | 0.938 | 3.036 | 1500      | 60,83       | 26,04  | 46,84 | 22,82 | 77,01  |
| 1750      | 3.000  | 1.212 | 1.969 | 0.907 | 3.094 | 1750      | 76,20       | 30,78  | 50,01 | 23,04 | 78,59  |
| 1875      | 2.875  | 1.337 | 2.118 | 1.126 | 3.063 | 1875      | 73,03       | 33,96  | 53,80 | 28,60 | 77,80  |
| 2062      | 3.198  | 1.462 | 2.250 | 1.250 | 3.719 | 2062      | 81,23       | 37,13  | 57,15 | 31,75 | 94,46  |
| 2250      | 3.323  | 1.712 | 1.813 | 1.157 | 3.656 | 2250      | 84,40       | 43,48  | 46,05 | 29,39 | 92,86  |
| 2375      | 3.530  | 1.775 | 3.000 | 1.469 | 3.625 | 2375      | 89,66       | 45,09  | 76,20 | 37,31 | 92,08  |
| 2500      | 3.823  | 1.900 | 2.625 | 1.187 | 3.938 | 2500      | 97,10       | 48,26  | 66,68 | 30,15 | 100,02 |
| 2625      | 4.015  | 1.962 | 2.469 | 1.500 | 4.063 | 2625      | 101,98      | 49,83  | 62,71 | 38,10 | 103,30 |
| 2875      | 4.135  | 2.275 | 2.266 | 1.172 | 4.031 | 2875      | 105,03      | 57,79  | 57,56 | 29,77 | 102,39 |
| 3000      | 4.448  | 2.400 | 2.313 | 1.250 | 4.312 | 3000      | 112,98      | 60,96  | 58,75 | 31,75 | 109,52 |
| 3250      | 4.573  | 2.650 | 2.313 | 1.438 | 4.312 | 3250      | 116,15      | 67,31  | 58,75 | 36,52 | 109,52 |
| 3375      | 4.941  | 2.775 | 2.438 | 1.281 | 4.500 | 3375      | 125,50      | 70,49  | 61,93 | 32,54 | 114,30 |
| 3500      | 4.948  | 2.900 | 2.344 | 1.469 | 4.437 | 3500      | 125,68      | 73,66  | 59,54 | 37,31 | 112,70 |
| 3625      | 4.968  | 3.025 | 2.469 | 1.594 | 4.375 | 3625      | 126,19      | 76,84  | 62,71 | 40,49 | 111,12 |
| 3750      | 5.198  | 3.150 | 2.563 | 1.876 | 4.437 | 3750      | 132,03      | 80,01  | 65,10 | 47,65 | 112,70 |
| 4000      | 5.239  | 3.400 | 2.656 | -     | 4.500 | 4000      | 133,07      | 86,36  | 67,46 | -     | 114,30 |
| 4250      | 5.687  | 3.650 | 2.750 | -     | 4.406 | 4250      | 144,45      | 92,71  | 69,85 | -     | 111,91 |
| 4312      | 5.822  | 3.650 | 2.844 | -     | 4.468 | 4312      | 147,88      | 92,71  | 72,24 | -     | 113,49 |
| 4500      | 6.150  | 3.900 | 2.500 | -     | 4.562 | 4500      | 156,21      | 99,06  | 63,50 | -     | 115,87 |
| 4875      | 6.385  | 4.213 | 3.209 | -     | 4.281 | 4875      | 162,18      | 106,98 | 81,51 | -     | 108,74 |
| 5125      | 6.687  | 4.463 | 3.156 | -     | 4.625 | 5125      | 169,85      | 113,33 | 80,16 | -     | 117,48 |
| 5500      | 7.188  | 4.837 | 3.250 | -     | 4.625 | 5500      | 182,55      | 122,86 | 82,55 | -     | 117,48 |
| 6000      | 7.790  | 5.400 | 3.469 | -     | 4.875 | 6000      | 197,87      | 137,16 | 88,11 | -     | 123,82 |

Note: For additional sizes and conditions not listed, contact your local Flowserve representative.

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