

BARDEN

Precision Bearing Closures

Flexeal, Barseal, Shield



**BARDEN
PRECISION
BEARINGS**

BEARING CLOSURES

The two basic types of bearing closures are shields and seals, both of which may be ordered as integral components of deep groove bearings and certain angular contact bearings.

All closures serve the same purposes with varying effectiveness. They exclude contamination, contain lubricants and protect the bearing from internal damage during handling.

Closures are attached to the outer ring. If they contact the inner ring, they are seals. If they clear the inner ring, they are shields. Seals and shields in Barden bearings are designed so that the stringent precision tolerances are not affected by the closures. They are available in large precision spindle and turbine bearings as well as in Barden miniature and instrument bearings.

SELECTION OF CLOSURES

Determining the proper closure for an application involves a tradeoff, usually balancing sealing efficiency against speed capability and bearing torque.

Shields do not raise bearing torque or limit speeds, but they have low sealing efficiency. Seals are more efficient, but they may restrict operating speed and increase torque and temperature.

Another consideration in closure selection is air flow through the bearing, which is detrimental because it carries contamination into the bearing and dries out the lubricant. Seals should be used if air flow is present.

NOMENCLATURE

In the Barden nomenclature, closures are designated by the letters: **F** (Flexeal), **S** (Shield), **Y, V, P** (Barseal).

Usually two closures are used in a bearing, so the callout is a double letter e.g. "FF," "SS" etc. If there is only one closure, the callout is a single letter e.g. "F," "S" etc. The closure callout follows the series-size and bearing type.

Example:

206 SS TX200K5
| | |
200 series Two Oil tight seal
Bore 06 (30mm) shields at shield and outer ring

Refer to Barden C-20 or C-8 catalogs for more information regarding Barden nomenclature.



Shield (SS)



Flexeal (FF)



Buna-N Barseal (YY)

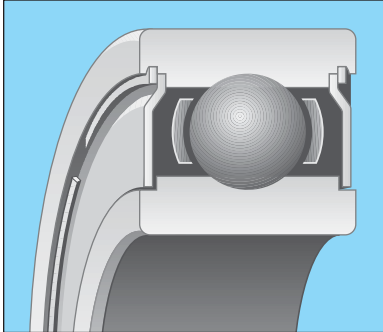


Polyacrylic Barseal (PP)



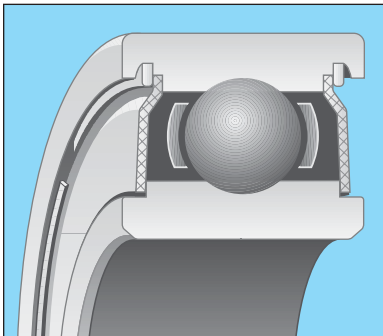
Viton® Barseal (VV)

SHIELD



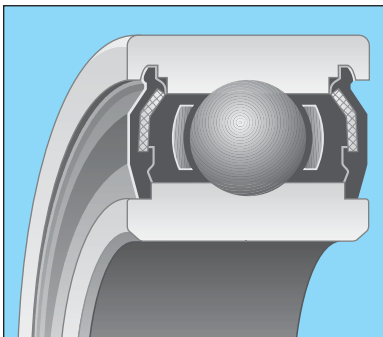
- Designated by SS or S suffix in nomenclature
- Bearing torque and performance not affected because shield does not contact inner ring
- Precision stamped disk shaped 302 stainless steel provides rigidity, resistance to vibration and maximum lubricant space
- Good contamination protection and lubricant retention
- Speed not limited by shields
- Temperature limit of shield material 600°F
- Available with oil tight seal between outer ring and shield where there is outer ring rotation. Specify X200 for this feature
- Available in practically all sizes of deep groove bearings and certain angular contact bearings such as the ZSB series

FLEXEAL



- Designated by FF or F suffix in nomenclature
- Light rubbing contact on inner ring precision ground notch
- Design provides excellent exclusion of contaminants with minimum torque but does not provide a positive seal to the flow of air or liquids
- Fiber is prelubricated to produce low friction at the precision ground sealing notch and minimize seal wear at the contact area
- Precision stamped from an aluminum/fiber laminate
- Resistant to aircraft hydraulic fluids
- Recommended limiting speed 650,000 dN*
- Temperature limit 300°F continuous or 350°F for short periods
- Wide availability in a variety of deep groove sizes

BARSEAL



- Molded rubber seal with metal stiffener
- Available in three different compounds providing a range of high temperature limits
- Provides best sealing from contamination – more positive than Flexeal
- Sealing remains positive on both inner ring precision ground sealing notches even with high thrust loads
- Also provides a seal to lube migration at outer ring where there is outer ring rotation
- Recommended limiting speed 180,000 dN*
- Available in most 200 and 9200 series

Buna-N Barseal

- Designated by YY or Y suffix in nomenclature
- Temperature limit 225°F

Polyacrylic Barseal

- Designated by PP or P suffix in nomenclature
- Temperature limit 265°F

Viton® Barseal

- Designated by VV or V suffix in nomenclature
- Temperature limit 400°F

*dN = Bearing bore in mm × rpm

AVAILABILITY OF SHIELDS

AVAILABLE SHIELDS ARE LISTED BY BARDEN BEARING NUMBER AND BEARING DIMENSIONS

Bearing	SS	FF	Bore	O.D.	Width
S(F)R2	X	X	.1250	.3750	.1562
SR2A	X		.1250	.5000	.1719
S(F)R3	X	X	.1875	.5000	.1960
S(F)R4	X	X	.2500	.6250	.1960
SR4A	X	X	.2500	.7500	.2812
S(F)R6	X	X	.3750	.8750	.2812
SR8	X	X	.5000	1.1250	.3125
SR10	X	X	.6250	1.3750	.3438
34-5	X		.1969	.6299	.1969
34	X	X	.1575	.6299	.1969
35	X		.1969	.7480	.2362
36	X		.2362	.7480	.2362
37	X	X	.2756	.8661	.2756
38	X	X	.3150	.8661	.2756
39	X		.3543	1.0236	.3150
37X2	X	X	.2756	.8661	.4060
38X2	X	X	.3150	.8661	.4060
VS538	X		.6250	1.0625	.2500
VS540	X		.8750	1.3125	.2500
100	X	X	.3937	1.0236	.3150
102	X	X	.5906	1.2598	.3543
103	X	X	.6693	1.3780	.3937
104	X	X	.7874	1.6535	.4724
105	X	X	.9843	1.8504	.4724
106	X	X	1.1811	2.1654	.5118
107	X	X	1.3780	2.4409	.5512
109	X		1.7717	2.9526	.6299
110	X		1.9685	3.1419	.6299
111	X		2.1654	3.5433	.7087

Bearing	SS	FF	Barseal	Bore	O.D.	Width
200	X	X		.3937	1.1811	.3543
201	X	X	X	.4724	1.2598	.3937
202	X	X	X	.5906	1.3780	.4331
203	X	X	X	.6693	1.5748	.4724
204	X	X	X	.7874	1.8504	.5512
205	X	X	X	.9843	2.0472	.5906
206	X	X	X	1.1811	2.4409	.6299
207	X	X	X	1.3780	2.8346	.6693
208	X	X	X	1.5748	3.1496	.7087
209		X		1.7717	3.3465	.7480
100X1	X	X		.3937	1.0236	.4531
101X1	X	X		.4724	1.1024	.4531
201X1	X	X		.5118	1.2598	.5000
202X1	X	X		.5906	1.3780	.5000
9201		X		.4724	1.2598	.6250
9202		X		.5906	1.3780	.6250
9203		X	X	.6693	1.5748	.6875
9204		X	X	.7874	1.8504	.8125
9205	X	X	X	.9843	2.0472	.8125
9206	X	X	X	1.1811	2.4409	.9375
9207		X		1.3780	2.8346	1.0625
9209	X			1.7717	3.3465	1.1875
301	X			.4724	1.4567	.4724
302	X			.5906	1.6535	.5118
303	X			.6693	1.8504	.5512
304	X			.7874	2.0472	.5906
305	X	X		.9843	2.4409	.6693
306	X			1.1811	2.8310	.7480
307	X	X		1.3780	3.1496	.8268
308	X	X		1.5748	3.5433	.9055
309	X	X		1.7717	3.9370	.9843
310	X			1.9685	4.3307	1.0630
311	X	X		2.1654	4.7244	1.1417
312	X			2.3622	5.1181	1.2205
313		X		2.5591	5.5118	1.2992



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