first4seals™ Division

www.first4seals.com

Single Stationary

Environmental
Cartridge Mechanical Seals
f4s100™ & ANSI+ f4s100™ Series

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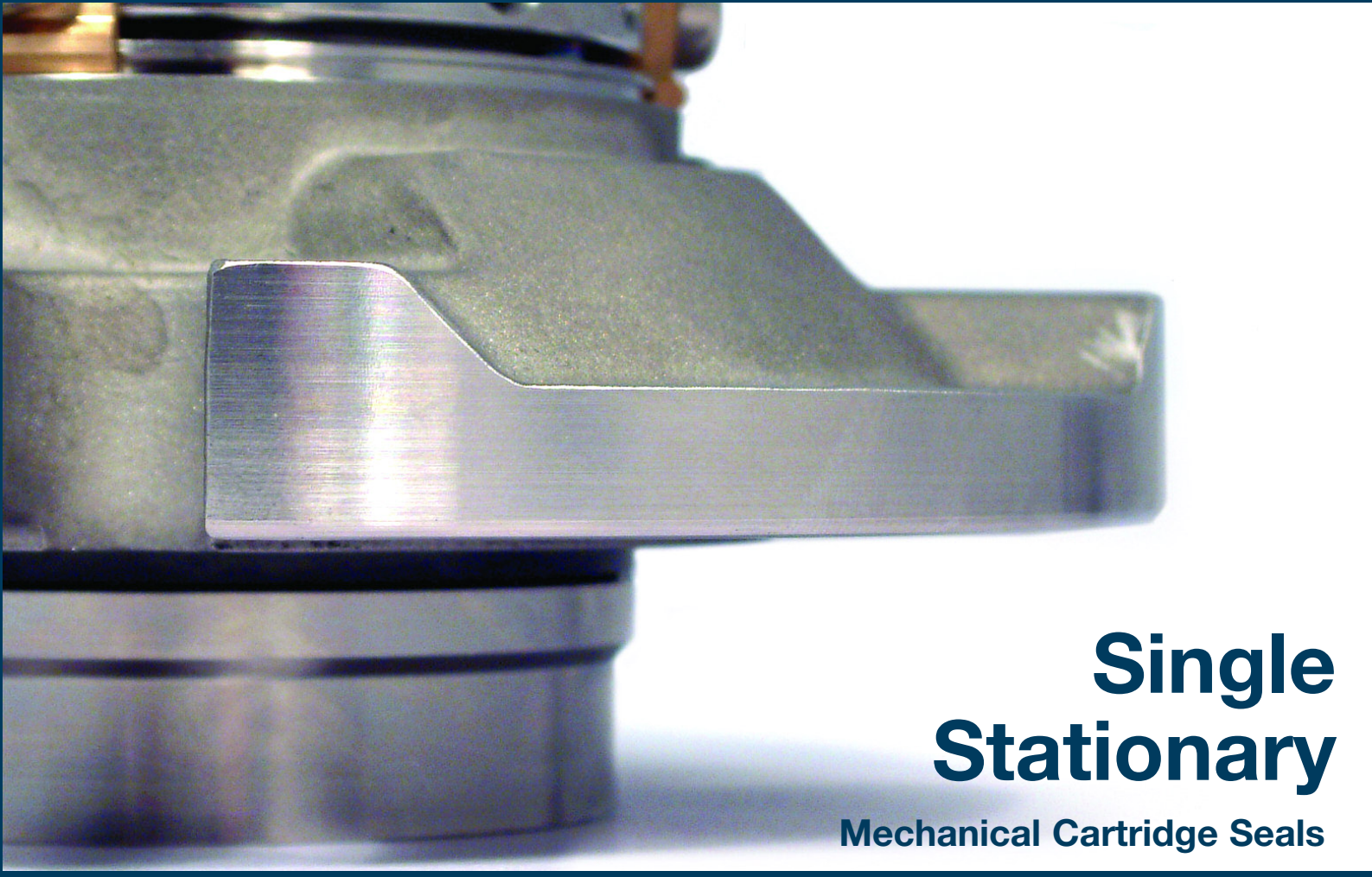


Single Stationary

Mechanical Cartridge Seals

first 4 seals™ Division

The balanced cartridge seal design uses less power and therefore less fossil fuels to drive it than standard unbalanced seals and only 20% of the power requirement of pump packing.

As leakage is eliminated, corrosion problems to pump, bearing and pump room are all greatly reduced.

All packing must leak to survive, whereas seals should be leak free. This reduces environmental contaminants and disposal costs.

f4s100™
single stationary mechanical cartridge seals

first4seals Division

the green issue

f4s100™ cartridge seals can be fully refurbished with most parts being re-used

f4s100™ series - technical specification

metal parts	316 Stainless Steel as standard, other materials also available.
springs	Alloy 276
o-rings	Viton® (Flurocarbon) or Ethylene Propylene (EPR) as standard. Aflas®, Kalrez® and other elastomers available to order.
rotary face	Silicon Carbide available as standard. Tungsten Carbide available to order.
stationary	Carbon or Silicon Carbide as standard. Tungsten Carbide available to order.
temperature limits	-30°C to 260°C (-22°F to 500°F) dependent upon specified elastomer and system configuration.

pressure limits - 711mm HG Vacuum to 30 Bar (-28" HG - 440 PSI).

As the conditions of use are outside the control of first4seals, the information contained within this brochure is given in good faith but without warranty. The above temperature and pressure limits are individual maximum values for SOFT/HARD seal face combinations only. The values are provided for guidance only and are intended for use by suitably qualified application engineers. It is recommended that all users contact the first4seals Technical Department for advice on any new application.

f4s100™ series - design features

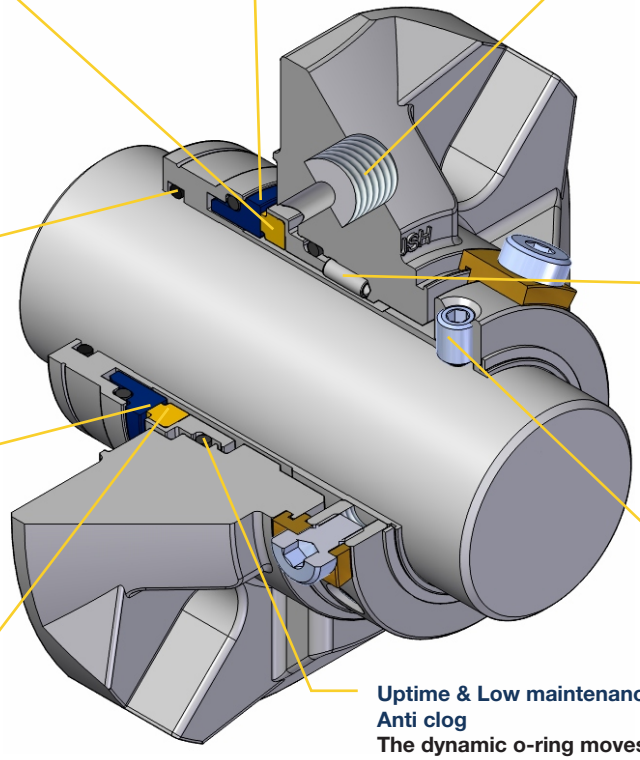
Uptime & Ease of Installation: Self aligning design
Seal face closing is created by springs located behind the stationary face of the seal. This stationary design allows for some misalignment of the shaft and housing hence preventing spring fatigue/ failure due to misalignment.

Low Maintenance: No fretting of the pump shaft
The secondary (sleeve) seal o-ring is static on the shaft and is guaranteed never to fret the pump shaft or sleeve.

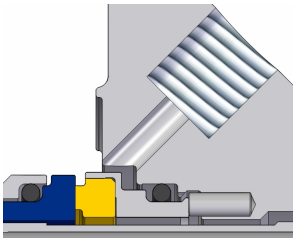
Uptime: Pressure balanced seal faces
The seal is balanced to achieve optimum face loading for high pressure capability and provide cooler running for longer seal life.

Uptime: Balanced shrink fit stationary
Shrink fitted faces for optimum metal to metal drive and balanced loading design for stability at high temperatures.

Monolithic rotary face
Monolithic face construction reduces face rotation in high or low temperature applications.



Uptime: Flush connection
Connection provided for environmental control at the seal faces which will extend seal life.



Uptime & Low maintenance: Isolated springs
The Alloy 276 springs are not in the process fluid where they could corrode and clog, so they remain effective for the whole of the seal life.

Easy Maintenance: External clamping
Pump efficiency adjustments can be made without dismantling the pump.

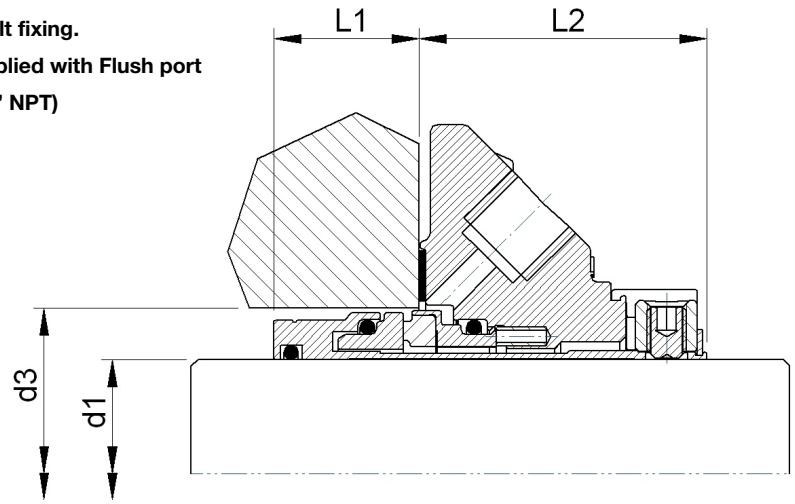
Uptime & Low maintenance: Anti clog
The dynamic o-ring moves onto a clean area as the seal faces wear. Components remain free for longer seal life.

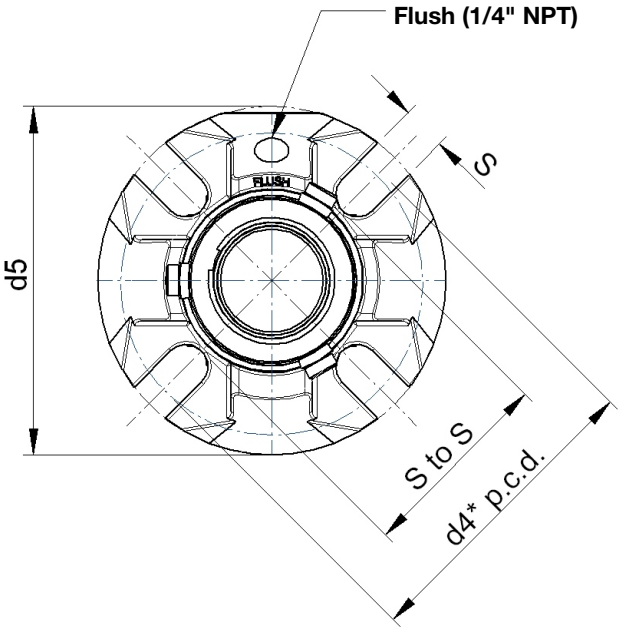
f4s100™

f4s100™ dimensional information

4 bolt fixing.

Supplied with Flush port (1/4" NPT)





f4s100™ series - size chart

d1	d3		d4*pcd		d5	L1	L2	S to S	S
Metric	S/B I.D. Min	S/B I.D. Max	Min	Max	Gland O.D.	Inboard length	Outboard length	Slot to Slot	Slot Width
24	41.0	48.0	68.5	90.5	102.5	22.0	44.6	54.5	14.0
25	41.0	48.0	68.5	90.5	102.5	22.0	44.6	54.5	14.0
28	44.0	52.0	71.5	93.5	104.5	22.0	44.6	57.5	14.0
30	46.0	55.0	75.0	97.0	110.5	22.0	44.6	61.0	14.0
32	48.0	55.0	75.0	97.0	110.5	22.0	44.6	61.0	14.0
33	49.0	55.0	75.0	97.0	110.5	22.0	44.6	61.0	14.0
33K	49.0	55.0	75.0	90.0	101.6	22.0	44.6	61.0	14.0
35	51.0	57.0	77.5	97.0	111.5	22.0	44.6	63.5	14.0
38	57.0	60.0	86.0	114.5	127.0	19.0	45.8	72.0	14.0
40	60.0	63.5	86.0	114.5	127.0	19.0	45.8	72.0	14.0
43	63.0	70.0	95.0	127.0	139.7	19.0	45.8	81.0	14.0
43K	63.0	70.0	95.0	105.0	119.6	19.0	45.8	81.0	14.0
45	64.0	70.0	95.0	127.0	139.7	19.0	45.8	81.0	14.0
48	67.0	73.0	95.0	127.0	139.7	19.0	45.8	81.0	14.0
50	70.0	76.0	104.5	139.5	152.4	19.0	45.8	90.5	14.0
53	73.0	79.5	104.5	139.5	152.4	19.0	45.8	90.5	14.0
55	74.0	82.5	114.4	149.0	165.1	19.0	45.8	96.9	17.5
58	77.0	82.5	114.4	149.0	165.1	19.0	45.8	96.9	17.5
60	79.0	85.5	114.4	149.0	165.1	19.0	45.8	96.9	17.5
63	83.0	92.0	127.0	160.5	177.8	16.0	51.0	109.5	17.5
65	85.0	95.0	127.0	160.5	177.8	16.0	51.0	109.5	17.5
70	90.0	98.0	127.0	160.5	177.8	16.0	51.0	109.5	17.5
75	99.0	108.0	143.0	173.0	190.5	21.0	51.6	125.5	17.5
80	102.0	111.0	143.0	173.0	190.5	21.0	51.6	125.5	17.5
85	108.0	117.0	156.5	182.5	203.2	21.0	51.6	135.5	21.0

Note: The 33K and 43K glands are specifically designed to suit the KSB CPK pump range.

d1	d3		d4*pcd		d5	L1	L2	S to S	S
Imperial	S/B I.D. Min	S/B I.D. Max	Min	Max	Gland O.D.	Inboard length	Outboard length	Slot to Slot	Slot Width
1.000	1.625	1.875	2.750	3.562	4.034	0.875	1.750	2.146	0.551
1.125	1.750	2.062	2.875	3.687	4.113	0.875	1.750	2.264	0.551
1.250	1.875	2.187	3.000	3.812	4.349	0.875	1.750	2.402	0.551
1.375	2.000	2.250	3.125	3.812	4.389	0.875	1.750	2.500	0.551
1.500	2.250	2.375	3.437	4.437	5.000	0.750	1.800	2.835	0.551
1.625	2.375	2.500	3.437	4.437	5.000	0.750	1.800	2.835	0.551
1.750	2.500	2.750	3.750	4.937	5.500	0.750	1.800	3.189	0.551
1.875	2.625	2.875	3.750	4.937	5.500	0.750	1.800	3.189	0.551
2.000	2.750	3.000	4.125	5.437	6.000	0.750	1.800	3.563	0.551
2.125	2.875	3.125	4.125	4.437	6.000	0.750	1.800	3.563	0.551
2.250	3.000	3.250	4.500	5.812	6.500	0.750	1.800	3.813	0.551
2.375	3.125	3.375	4.500	5.812	6.500	0.750	1.800	3.813	0.551
2.500	3.250	3.625	5.000	6.312	7.000	0.625	2.000	4.311	0.689
2.625	3.375	3.750	5.000	6.312	7.000	0.625	2.000	4.311	0.689
2.750	3.500	3.875	5.000	6.312	7.000	0.625	2.000	4.311	0.689
2.875	3.750	4.125	5.625	6.812	7.500	0.830	2.031	4.941	0.689
3.000	3.875	4.250	5.625	6.812	7.500	0.830	2.031	4.941	0.689
3.125	4.000	4.375	5.625	6.812	7.500	0.830	2.031	4.941	0.689
3.250	4.125	4.500	6.187	7.187	8.000	0.830	2.031	5.335	0.827
3.375	4.250	4.625	6.187	7.187	8.000	0.830	2.031	5.335	0.827

***Based on the largest bolt diameter (specials can be produced)**

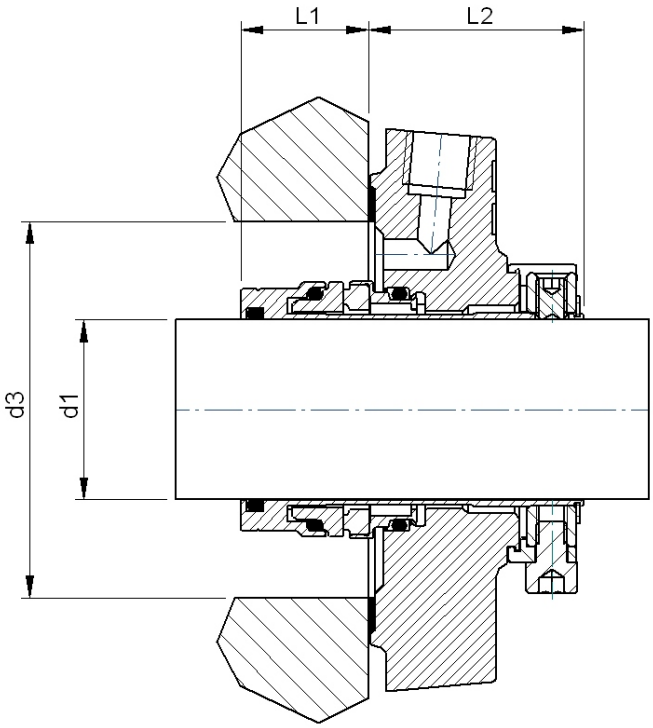
ANSI+ f4s100™
single stationary mechanical cartridge seals

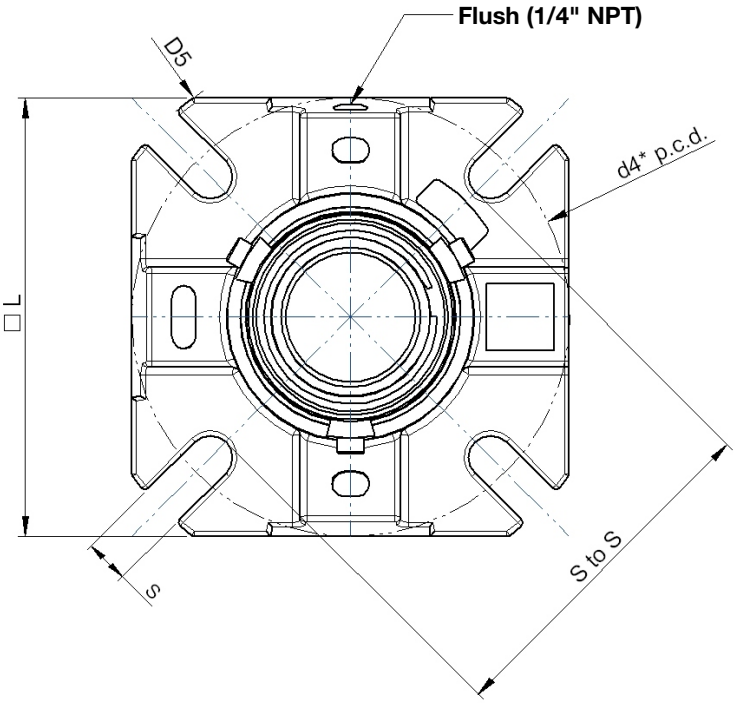
ANSI+ f4s100™
dimensional information

4 bolt fixing
Supplied with Flush port (1/4" NPT)

Hydraulically balanced single stationary cartridge seal, with environmental Flush control and setting clips to specifically suit ANSI+ large bore seal chamber designs. Available in shaft sizes 1.125" – 2.750".

first4seals can also offer special ANSI+ designs based on our 301™, 301A™, 301B™, 301C™ & 303A™ rotary single cartridge seals. Please contact our technical team for more information technical@first4seals.com

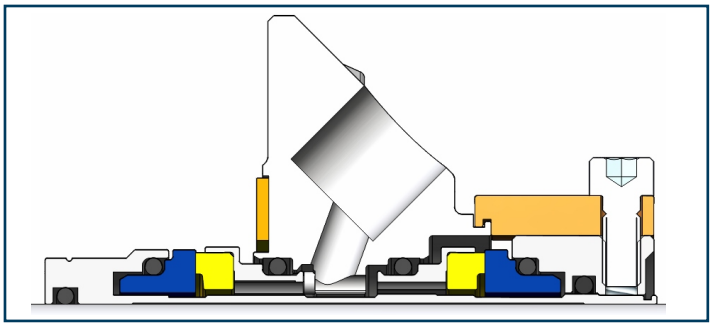




ANSI+ f4s100™ series - size chart

d1	d3		d4*pcd		d5	L1	L2	S to S	S	□ L
Imperial	S/B I.D. Min	S/B I.D. Max	Min	Max	Gland O.D.	Inboard length	Outboard length	Slot to Slot	Slot Width	Flat to Flat
1.125	2.625	2.850	3.750	4.450	4.875	0.972	1.648	3.209	0.551	3.965
1.375	2.875	3.100	4.000	4.812	5.345	0.972	1.648	3.425	0.551	4.301
1.750	3.500	4.100	5.000	6.250	6.772	1.040	1.748	4.425	0.551	5.492
1.875	3.625	4.100	5.000	6.250	6.772	1.040	1.748	4.425	0.551	5.492
2.125	3.875	4.225	5.375	6.937	7.638	1.040	1.748	4.656	0.689	6.420
2.500	4.500	5.100	6.125	7.312	8.268	1.016	1.809	5.413	0.689	6.703
2.625	4.625	5.100	6.125	7.312	8.268	1.016	1.809	5.413	0.689	6.703
2.750	4.625	5.100	6.125	7.312	8.268	1.016	1.809	5.413	0.689	6.703

*Based on the largest bolt diameter (specials can be produced)



f4s200™ double stationary cartridge seal

Double stationary seals available to suit hazardous and aggressive applications. See f4s200™ series literature for further details.

History

Originating in 1989 first4seals is an ISO 9001:2008 certified 21st century seal supplier, which provides affordable, quality products and an excellent standard of service to the customer. It is committed to offering products that protect the environment by reducing pollution and emissions from rotating equipment.

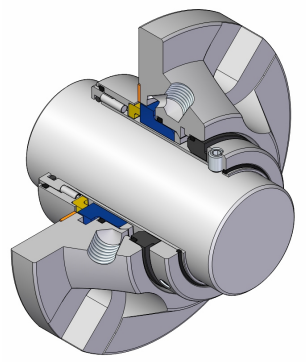
The company's extensive product range consists of single spring, component, single and double cartridge seals available in both rotary and stationary arrangements and double seal support systems to suit some of the industry's most demanding applications.

Contact our Customer Service team for further information about how we can help you reduce your current seal spend and maximize your Mean Time Between Failures.

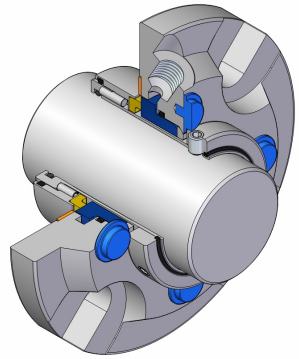
first4seals offers a comprehensive range of interchangeable equivalents to many competitor manufacturers including:

- **John Crane®**
- **Eagle Burgmann®**
- **Flowserve®**
- **Chesterton®**
- **US Seal®**
- **Flex-A-Seal®**

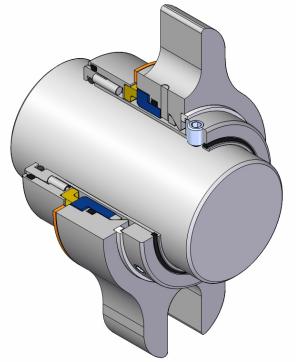
Other single & double cartridge seals in the F4S range:



301™ range

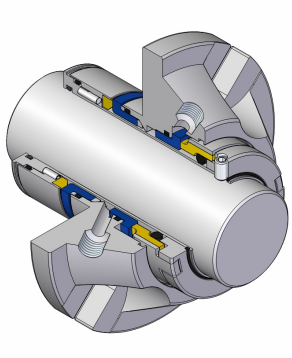


303A™ range

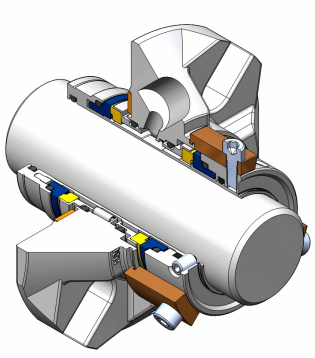


MV™ range

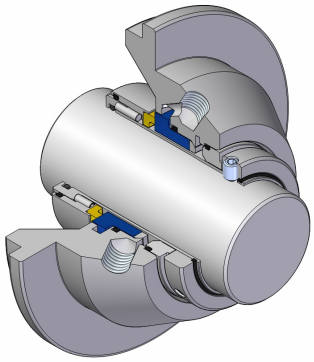
A range of single cartridge seals are available to suit all application needs. Seals to suit progressive cavity pumps (PCP) are also available in single and double formats. See our single seal literature for further details.



302™ range



f4s200™ range



PCP range

A range of double cartridge seals are available all application needs. Seals to suit progressive cavity pumps (PCP) are also available in single and double formats. See our double seal literature for further details.

Mechanical Seal Repairs

Seal assessment
Each seal is cleaned to remove any chemicals or hazardous materials upon arrival and then individually inspected and assessed. The assessment process determines which components require replacement or refurbishment in order to generate an accurate and cost effective repair quotation. Materials specifications are identified through understanding of seal construction, operation and application.

Quotation
All repair quotations are based on specific parts that require refurbishment or replacement. This method is used to reduce repair costs and provide the most economic method of restoring a mechanical seal back to a usable condition.

Seal refurbishment
The refurbishment process restores seals to their original functionality at a fraction of the cost of replacement hardware. Our refurbishment service is available for all standard first4seals products and those of many leading manufacturers, to help prolong a mechanical seal's life span. We are able to repair competitor brands such as: Eagle Burgmann®, Chesterton®, Flowserve®, John Crane® and many more.

We are able to design and reverse engineer competitor components which may have failed in service. Components are modelled using state-of-the-art Computer Aided Design software to produce an accurate model. Components are manufactured using multi-axis CNC machines from a range of materials including standard 316L Stainless Steel, exotic alloys, PTFE and Carbon.

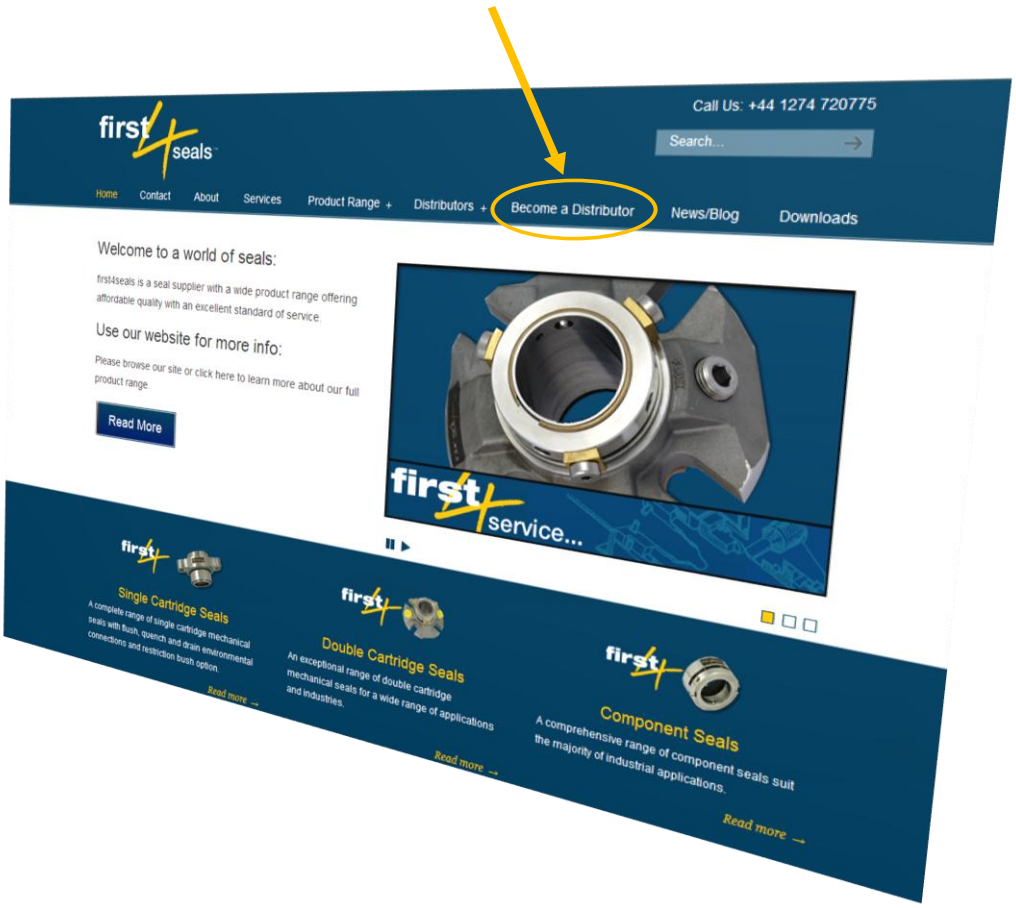
Quality
Quality and customer service are the highest priority and our business is certified to ISO 9001:2015 . All repairs are carried out by experienced workshop technicians and monitored by our Technical Team to provide a service which offers a cost-effective and environmentally sound alternative to purchasing new seals. Each seal is pressure tested before it is sent back to the customer. Testing ensures that the seal is in full working order and will perform correctly when installed back into service.

Interested in becoming a distributor?

first4seals is currently looking to recruit new distributors to help enhance its global coverage.

Please contact us if you are interested in becoming a first4seals distributor:

Visit our brand new website www.first4seals.com and follow the "Become a Distributor" tab.



first4seals product range

single spring seals

component seals

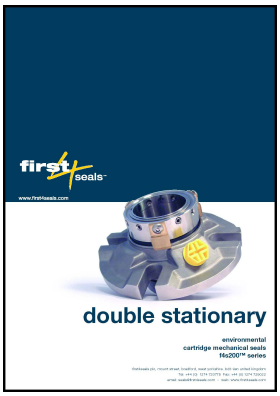
MV™ single rotary cartridge seals

301™/303A™ single rotary cartridge seals

302™ double rotary cartridge seals

f4s100™ single stationary cartridge seals

f4s200™ double stationary cartridge seals



seal support systems

THIS DOCUMENT IS DESIGNED TO PROVIDE DIMENSIONAL DATA AND IS NOT AN INDICATION OF AVAILABLITY FROM STOCK. SOME DESIGNS MAY BE SUBJECT TO MINIMUM ORDER QUANTITIES AND MANUFACTURING LEAD TIMES.

bsi. ISO 9001:2015 Quality Management

FM61505

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