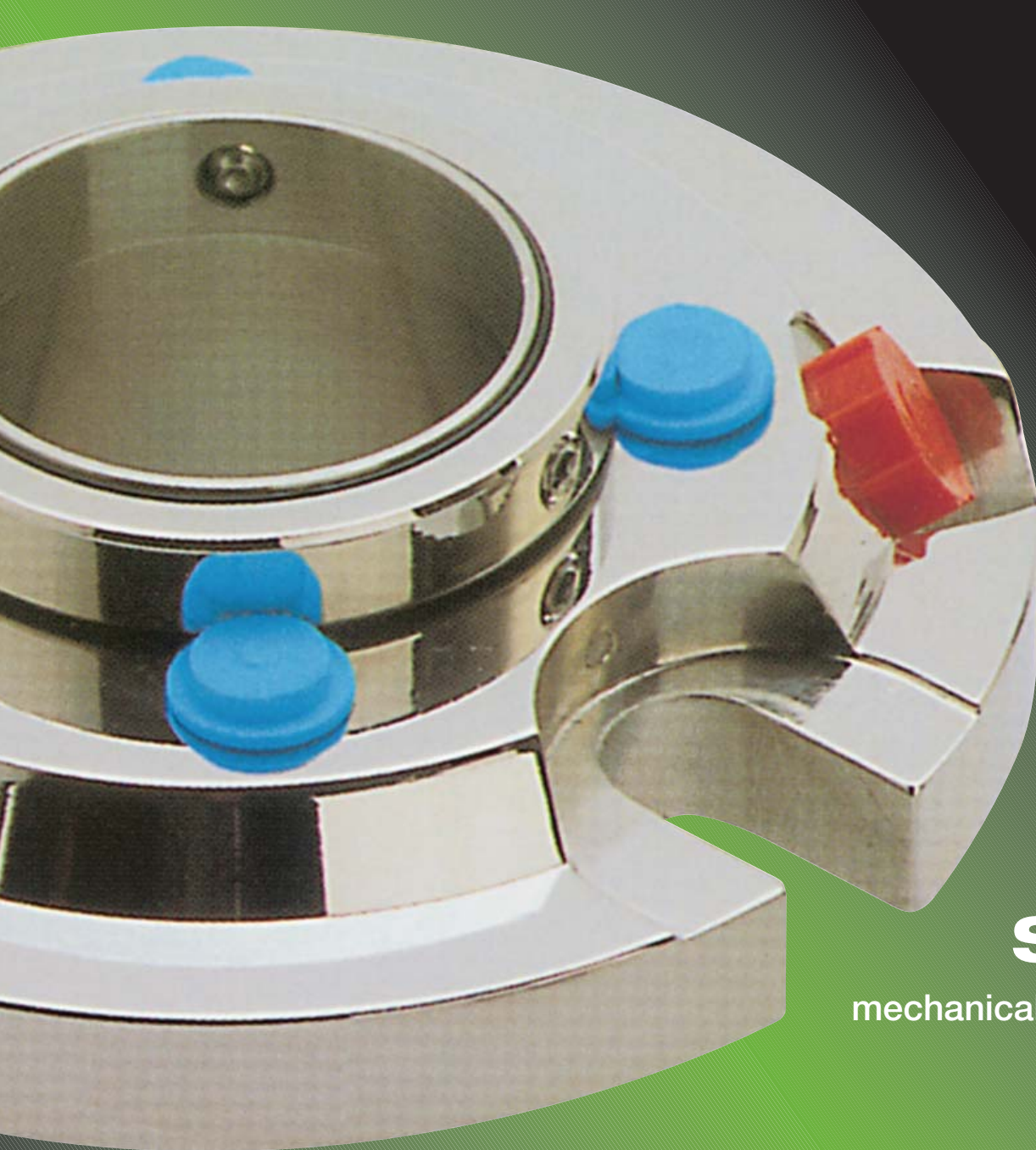


GLE range of
single
environmental
cartridge mechanical seals
301™ and 303™ series



GLE range of
single
mechanical cartridge seals

The balanced cartridge seal design uses less power and therefore less fossil fuels to drive it than is required by 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.

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Atlas® - Asahi Glass Co., Chemraz® - Greene Tweed., Kalrez® Viton® - DuPont Dow Elastomers.

GLE 301™

single mechanical cartridge seals

the green issue

The 301™ series including 301A™ and 301B™ are designed with a Carbon restriction bush which is hydraulically loaded upon seal failure and acts to restrict product leakage to the environment.

Also incorporated into the 301B™ version is a drain port to take away product leakage to a safe area to be disposed of or recycled.

301™ cartridge seals can be fully refurbished with most parts being "re-used".

The 301C™ cartridge seal incorporates a back-up seal to reduce fugitive emissions of noxious products into the environment.

The 301D™ cartridge seal incorporates a low pressure external mechanical seal to reduce fugitive emission of noxious products into the environment.

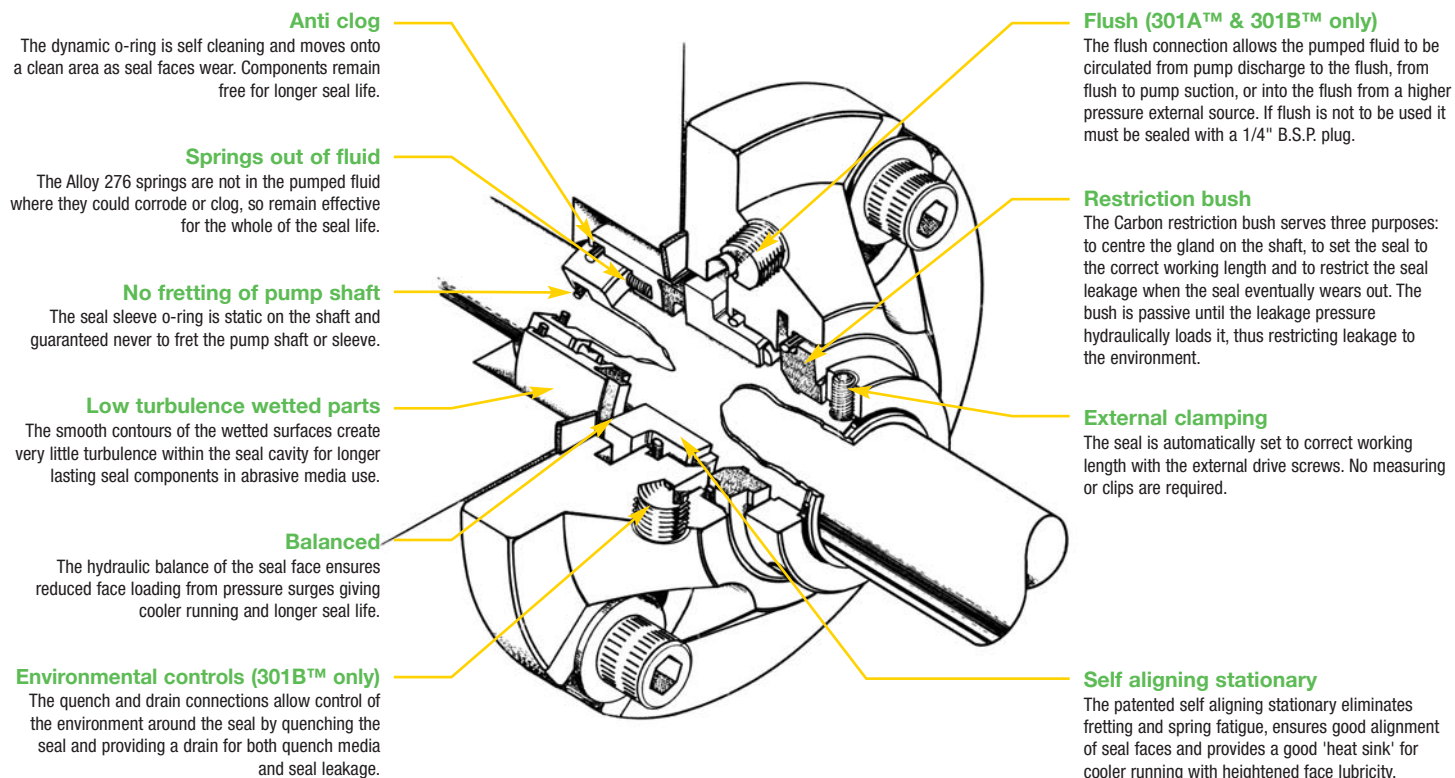
301 series - technical specification

metal parts	316 Stainless Steel as standard. Alloy 276, Alloy 400, Alloy 20 also available.
springs	Alloy 276
o-rings	Viton® (Fluorocarbon) as standard. Ethylene Propylene, Kalrez®, Chemraz® and other elastomers available to order.
rotary face	R-Carbon as standard, with A-Carbon, Tungsten Carbide and Silicon Carbide available.

stationary	Alumina Ceramic as standard, with Silicon Carbide (inserted or solid) and Tungsten Carbide also available.
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). (301D™ 2 Bar maximum barrier pressure. For higher pressure refer to 302™)

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301™, 301A™ & 301B™ - design features



GLE 301™

single mechanical cartridge seals

301C™ & 301D™ - design features

Anti clog
The dynamic o-ring is self cleaning and moves onto a clean area as seal faces wear. Components remain free for longer seal life.

Springs out of fluid
The Alloy 276 springs are not in the pumped fluid where they could corrode or clog, so remain effective for the whole of the seal life.

No fretting of pump shaft
The seal sleeve o-ring is static on the shaft and guaranteed never to fret the pump shaft or sleeve.

Low turbulence wetted parts
The smooth contours of the wetted surfaces create very little turbulence within the seal cavity for longer lasting seal components in abrasive media use.

External lip seal (301C™ only)
A conical lip seal allows a low pressure convection tank to be added, which protects the faces from crystallisation, vacuum and dry running.

Environmental controls
The quench and drain connections allow control of the environment around the seal by quenching the seal and providing a drain for both quench media and seal leakage.

Balanced
The hydraulic balance of the seal face ensures reduced face loading from pressure surges, giving cooler running and longer seal life.

Flush connection (301C™ only)
The flush connection allows the pumped fluid to be circulated from pump discharge to the flush, from flush to pump suction, or into the flush from a higher pressure external source. If flush is not to be used it must be sealed with a 1/4" B.S.P. plug.

Barrier fluid seal (301D™ only)
An external low pressure (2bar / 30psi) seal designed to retain the barrier fluid and provide effective environmental control after internal seal failure. The seal also sets the correct working length and centres the gland during installation.

External clamping
The seal is automatically set to correct working length with the external drive screws. No measuring or clips are required.

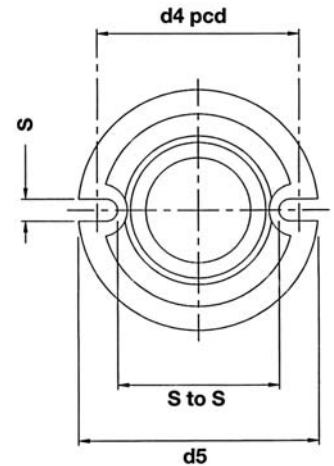
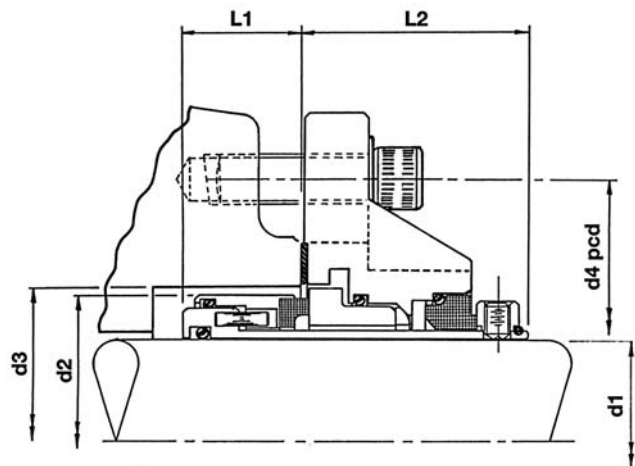
Self aligning stationary
The patented self aligning stationary eliminates fretting and spring fatigue, ensures good alignment of seal faces and provides a good 'heat sink' for cooler running with heightened face lubricity.

GLE 301™

dimensional information

Fixings available in 2 or 4 bolt.

Supplied with no ports.

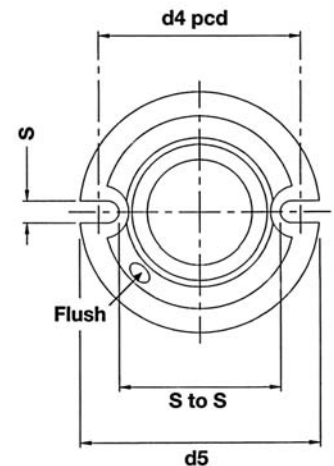
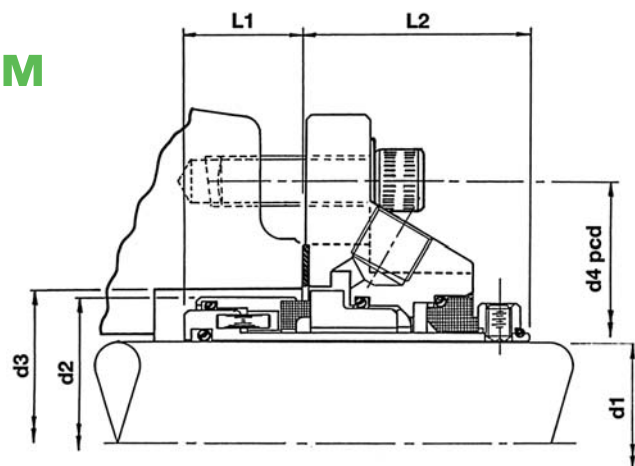


GLE 301A™

dimensional information

Fixings available in 2 or 4 bolt.

Supplied with Flush port.

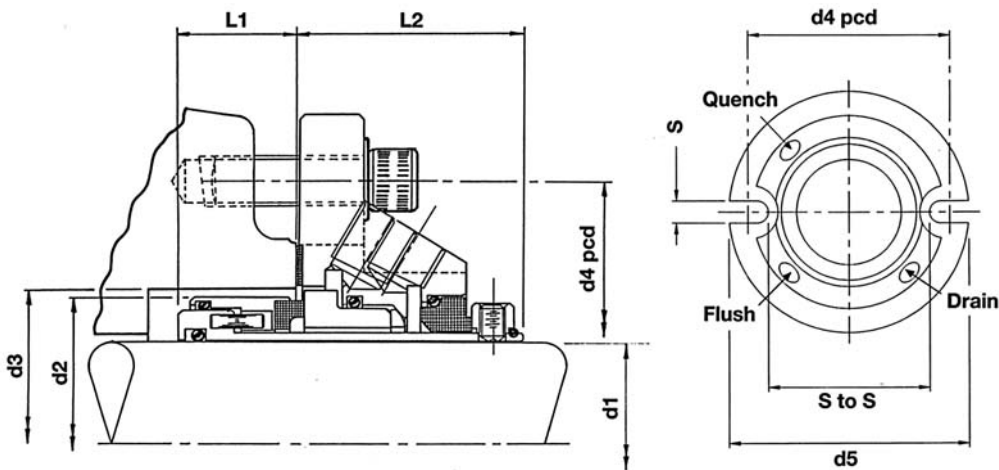


GLE 301B™

dimensional information

Fixings available in 2 or 4 bolt.

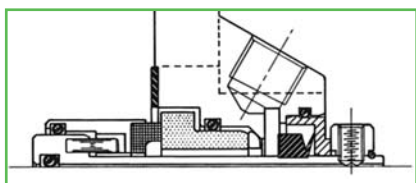
Supplied with Quench, Drain & Flush ports.



The addition of a conical lip seal (301C™ design, shown left) allows a low pressure convection tank to be added, which protects the faces from crystallisation, vacuum and dry running.

Fixings available in 2 or 4 bolt. Supplied with Quench & Drain ports

GLE 301C™

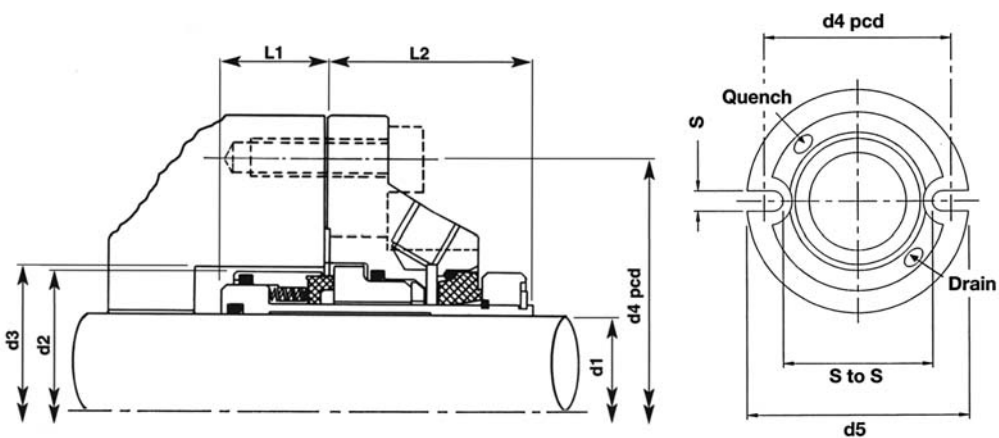


GLE 301D™

dimensional information

Fixings available in 2 or 4 bolt.

Supplied with Quench & Drain.



301™ series - size chart

d1	d2	d3	d4*pcd	d5	L1	L2	S to S	S		
Imp.#	Met.	Rotary O.D.	S/B I.D.	Min	Max	Gland O.D.	Inboard	Outboard	Slot to Slot	Slot Width
5/8	16	33.2	35.0	55	70	80	25.4	41.5	45	10.0
3/4	18-20	36.2	38.0	58	75	85	25.4	41.5	48	10.0
7/8	22	39.4	41.0	60	80	90	25.4	41.5	50	10.0
1	25	42.6	44.0	66	85	95	25.4	41.5	54	12.7
1 1/8	28	45.7	47.0	69	85	100	25.4	41.5	57	12.7
1 1/4	30-33	48.9	50.0	72	95	105	25.4	41.5	60	12.7
1 3/8	35	52.8	54.0	76	95	110	25.4	41.5	64	12.7
1 1/2	38	56.0	57.2	85	100	120	25.4	46.6	73	15.8
1 5/8	40	59.2	60.3	85	100	120	25.4	46.6	73	15.8
1 3/4	43-45	62.4	63.5	94	115	135	25.4	46.6	81	15.8
1 7/8	48	65.5	66.7	94	115	135	25.4	46.6	81	15.8
2	50	68.7	69.9	105	130	150	25.4	46.6	92	15.8
2 1/8	53	71.9	73.0	105	130	150	25.4	46.6	92	15.8
2 1/4	55-58	75.1	76.2	110	145	165	25.4	46.6	97	15.8
2 3/8	60	78.2	79.4	110	145	165	25.4	46.6	97	15.8
2 1/2	63	84.2	85.7	126	150	175	27.2	55.9	110	17.5
2 5/8	65	87.4	88.9	126	150	175	27.2	55.9	110	17.5
2 3/4	70	90.5	92.0	126	150	175	27.2	55.9	110	17.5
2 7/8	-	93.7	95.2	143	165	190	27.2	55.9	127	17.5
3	75	96.9	98.4	143	165	190	27.2	55.9	127	17.5
3 1/8	80	100.0	101.5	143	165	190	27.2	55.9	127	17.5
3 1/4	-	103.2	104.7	156	175	200	27.2	55.9	136	20.6
3 3/8	85	106.4	107.9	156	175	200	27.2	55.9	136	20.6
3 1/2	-	109.6	111.1	156	175	200	27.2	55.9	136	20.6
3 5/8	90	112.8	114.3	171	196	215	27.2	55.9	152	20.6
3 3/4	95	116.0	117.5	171	196	215	27.2	55.9	152	20.6
3 7/8	-	119.1	120.6	171	196	215	27.2	55.9	152	20.6
4	100	125.5	130.0	181	211	230	27.2	61.1	162	20.6
4 1/8	105	128.6	133.0	181	211	230	27.2	61.1	162	20.6
4 1/4	-	131.8	136.5	181	211	230	27.2	61.1	162	20.6
4 3/8	110	135.0	139.7	190	221	240	27.2	61.1	171	20.6
4 1/2	115	138.2	142.9	190	221	240	27.2	61.1	171	20.6
4 5/8	-	141.3	146.1	190	221	240	27.2	61.1	171	20.6
4 3/4	120	144.5	149.2	201	231	250	27.2	61.1	181	20.6
4 7/8	-	147.7	152.4	201	231	250	27.2	61.1	181	20.6
5	125	150.8	155.6	201	231	250	27.2	61.1	181	20.6

All dimensions in (mm) except #

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

GLE 303™ challenger

single mechanical cartridge seals

the green issue

303™ cartridge seals can be fully refurbished, most parts being “re-used”.

application

Designed as a compact single cartridge seal to fit most pump installations, the 303™ is an excellent general purpose sealing solution. The 303A™ incorporates a flush connection as standard.

303™ series - technical specification

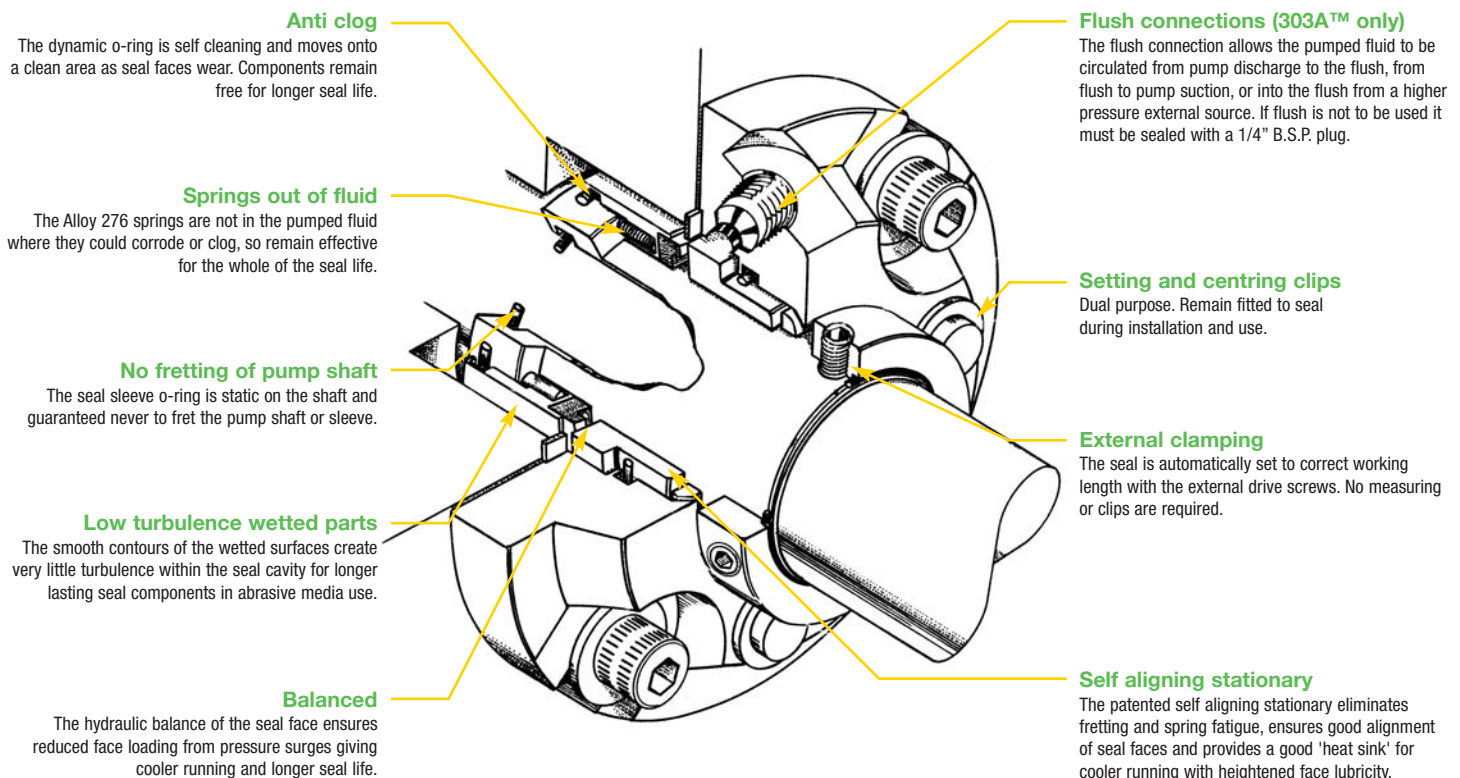
metal parts	316 Stainless Steel as standard. Alloy 276, Alloy 400, Alloy 20 also available.
springs	Alloy 276
o-rings	Viton® (Fluorocarbon) as standard; Ethylene Propylene, Kalrez®, Chemraz® and other elastomers available to order.
rotary face	R-Carbon as standard with Tungsten Carbide and Silicon Carbide available to order.



stationary	Alumina Ceramic as standard with Silicon Carbide (solid) also available.
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.

303™ & 303A™ - design features



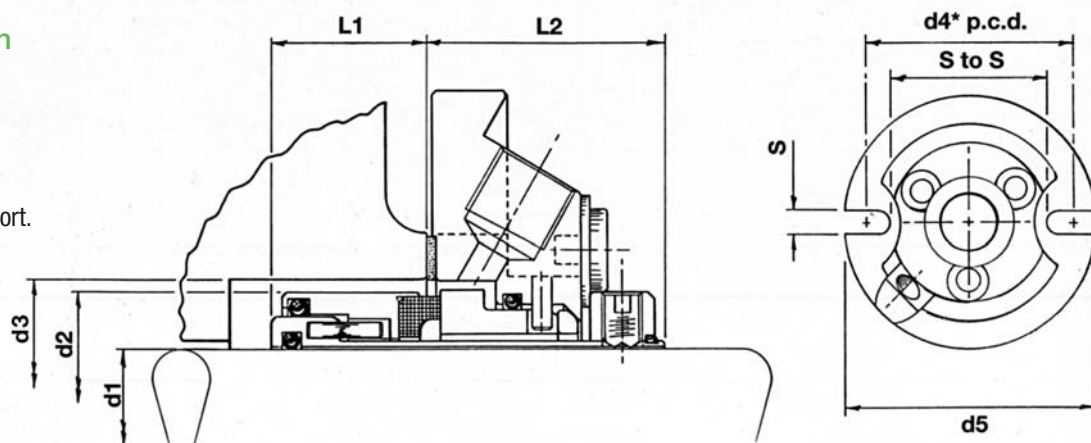
GLE 303™

dimensional information

Fixings available in 2 or 4 bolt.

303™ is supplied with no ports.

303A™ is supplied with Flush port.



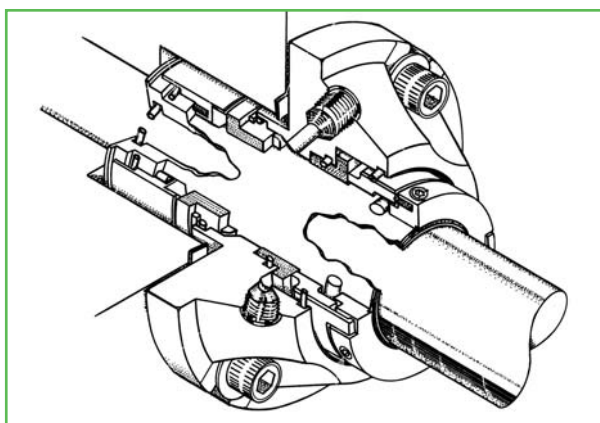
303™ & 303A™ series - size chart

	d1	d2	d3	d4*pcd		d5	L1	L2	S to S	S
Imp.#	Met.	Rotary O.D.	S/B I.D. (min)	Min	Max	Gland O.D.	Inboard	Outboard	Slot to Slot	Slot Width
5/8	16	30.4	32	55	70	80	23.2	33.4	45	10.0
-	18	32.4	34	57	72	82	23.2	33.4	47	10.0
3/4	19	33.4	35	59	75	85	23.2	33.4	49	10.0
-	20	34.4	36	59	75	85	23.2	33.4	49	10.0
7/8	22	36.4	38	62	80	90	23.2	33.4	52	10.0
-	24	38.4	40	67	83	95	23.2	33.4	55	12.7
1	25	39.4	41	67	83	95	23.2	33.4	55	12.7
-	28	42.4	44	69	88	100	23.2	33.4	57	12.7
1 1/8	-	43.4	45	72	90	102	23.2	33.4	60	12.7
-	30	44.4	46	72	90	102	23.2	33.4	60	12.7
1 1/4	32	46.4	48	74	93	105	23.2	33.4	62	12.7
-	33	47.4	49	74	93	105	23.2	35.2	62	12.7
1 3/8	35	49.4	51	80	98	110	23.2	35.2	68	12.7
1 1/2	38	56.0	58	87	106	120	23.2	35.2	73	15.8
-	40	57.8	60	87	106	120	23.2	35.2	73	15.8
1 5/8	-	59.2	61	89	111	125	23.2	35.2	75	15.8
-	43	60.8	63	95	116	130	23.2	35.2	81	15.8
1 3/4	45	62.4	65	95	116	130	23.2	35.2	81	15.8
1 7/8	48	65.6	68	102	126	140	23.2	37.2	88	15.8
2	50	67.8	70	102	126	140	23.2	37.2	88	15.8
-	53	70.8	73	107	136	150	23.2	37.2	93	15.8
2 1/8	-	71.9	74	107	136	150	23.2	37.2	93	15.8
-	55	72.8	75	107	136	150	23.2	37.2	93	15.8
2 1/4	58	75.1	78	112	146	160	23.2	37.2	98	15.8
2 3/8	60	77.8	80	112	146	160	23.2	37.2	98	15.8
2 1/2	63	84.2	86	128	159	175	27.2	42.2	110	17.5
2 5/8	65	87.4	89	128	159	175	27.2	42.2	110	17.5
2 3/4	68-70	90.5	92	128	159	175	27.2	42.2	110	17.5
2 7/8	-	93.7	95	145	174	190	27.2	42.2	127	17.5
3	75	96.9	99	145	174	190	27.2	42.2	127	17.5
3 1/8	80	100.0	102	145	174	190	27.2	42.2	127	17.5

All dimension in (mm) except #

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

other seals in the GLE range: double cartridge seals



302™ range

A range of double cartridge seals are available with Barrier Fluid and Safety Drain connections to suit all application needs. See the GLE double seal literature for further details.

GLE 301™ & 302™

progressive cavity pump seals

the green issue

Cartridge seals can be fully refurbished with most parts being "re-used".

application

Available as a single or double (302™) seal to suit most progressive cavity pumps. The existing pump stuffing box is replaced by the seal gland which is designed to enhance product circulation around the seal.



301™ & 302™ progressive cavity pump seal - technical specification

metal parts	316 Stainless Steel as standard. Alloy 276, Alloy 400, Alloy 20 also available.
springs	Alloy 276
o-rings	Viton® (Fluorocarbon) as standard, Ethylene Propylene, Kalrez®, Chemraz® and other elastomers available to order.
rotary face	R-Carbon as standard, with A-Carbon, Tungsten Carbide, Silicon Carbide available.

stationary	Alumina Ceramic, Silicon Carbide and Tungsten Carbide are available.
temperature limits	-30°C to 260°C (-22°F to 500°F) dependent upon specified elastomer and system configuration.
pressure limits - media and barrier	711mm HG Vacuum to 30 Bar (-28" HG - 440 PSI). It is recommended that the barrier pressure is 1 Bar (15 psi) greater than the media.

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301™ & 302™ progressive cavity pump seal - design features

