



**LSEAL™**  
**Non-Metallic Cartridge**  
**Mechanical Seals**



**INSTALLATION**  
**INSTRUCTIONS**

## PRE - INSTALLATION INSTRUCTIONS

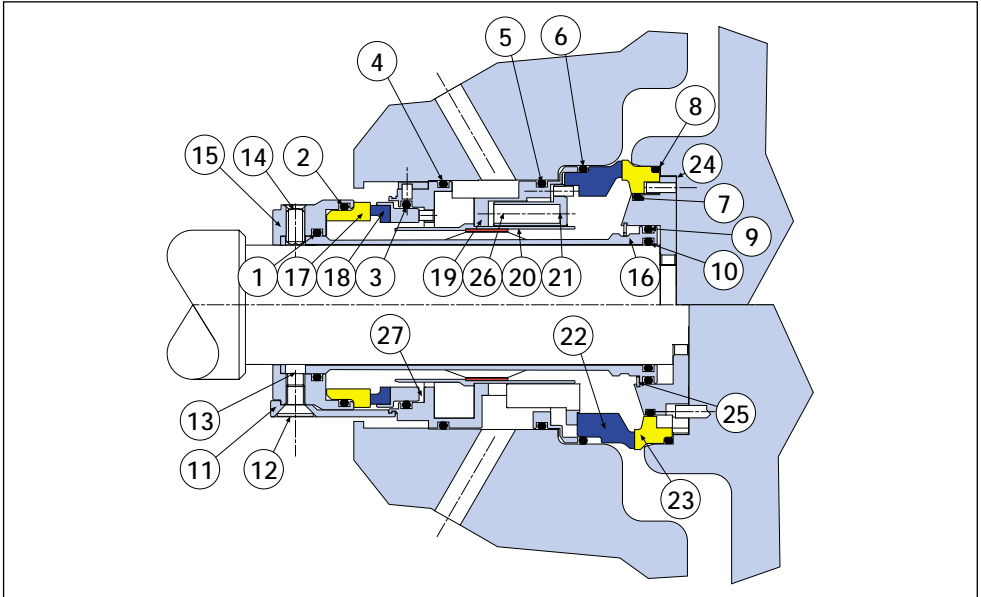
### Pre-Installation Checks

1. Shaft diameter is within tolerance  $\pm 0.002$ " ( $\pm 0.05$ mm)
2. Shaft run out  $<0.004$ " (0.1mm) T.I.R.
3. Shaft end float  $<0.005$ " (0.13mm).
4. Ensure that there are no sharp edges, scratches or any surface damage inside the seal chamber of the pump, particularly where the 'O' rings are positioned.
5. Before fitting the seal ensure that the impeller adjustments have been conducted in accordance with the manufacturer's guidelines. The AESSEAL design will accommodate the differences in length between the back of the impeller and the pump face, (which should be no greater than 0.160"(4.0mm)) as specified by the manufacturer.
6. Ensure that the hooked sleeve is removed from the pump shaft.
7. Ensure that the impeller is free from scratches and burrs where the rotary 'O' ring is positioned, and check that the anti-rotation pin is not damaged.
8. Ensure that the seal anti-rotation lugs/pins, are not damaged.
9. Ensure that the thread on the impeller mates with the thread on the shaft. Check this by screwing the impeller on the shaft prior to fitting the seal.
10. Ensure that the grease provided is compatible with the product being pumped. AESSEAL plc accept no responsibility for any incompatibility. However, they will endeavor to ensure that, to the best of their ability, the seal is dispatched with the correct grease for the application.

### Note:

- i) The standard LSEAL™ cartridge is supplied to fit direct to the shaft without the need for the hooked sleeve supplied with the pump.
- ii) The seal design is a patent pending factory assembled canister. There is no requirement therefore for the fitter to disassemble or re-set the working length.
- iii) AESSEAL plc recommend that the supplied gloves should be used when handling the seal. The fitter must ensure that the seal remains clean before it is fitted.

## PARTS



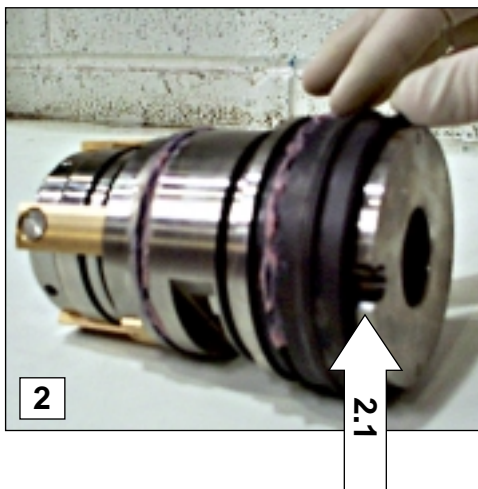
ITEM	DESCRIPTION	QUANTITY		MATERIAL
		1.125"	1.875"	
1	O RING	1	1	VITON®, EPR, AFLAS®
2	O RING	1	1	VITON®, EPR, AFLAS®
3	O RING	1	1	VITON®, EPR, AFLAS®
4	O RING	1	1	VITON®, EPR, AFLAS®
5	O RING	1	1	VITON®, EPR, AFLAS®
6	O RING	1	1	VITON®, EPR, AFLAS®, KALREZ®
7	O RING	1	1	VITON®, EPR, AFLAS®
8	O RING	1	1	VITON®, EPR, AFLAS®, KALREZ®
9	O RING	1	1	VITON®, EPR, AFLAS®
10	O RING	1	1	VITON®, EPR, AFLAS®
11	SETTING CLIP	3	4	BRASS
12	CLIP SCREW	3	4	STAINLESS STEEL
13	ANTI TAMPER SCREW (NOT SHOWN)	3	2	STAINLESS STEEL
14	DRIVE SCREW	3	3	STAINLESS STEEL
15	CLAMP RING	1	1	316L STAINLESS STEEL
16	SLEEVE	1	1	316L STAINLESS STEEL
17	EXTERNAL ROTARY FACE	1	1	SiC
18	EXTERNAL STATIONARY FACE	1	1	316L STAINLESS STEEL / CARBON
19	GLAND	1	1	316L STAINLESS STEEL
20	SHROUD	1	1	316L STAINLESS STEEL / RAZTEC™
21	SPRING PLATE	1	1	316L STAINLESS STEEL
22	INTERNAL STATIONARY FACE	1	1	CARBON, SiC
23	INTERNAL ROTARY FACE	1	1	SiC
24	SPACER PLATE	1	1	316L STAINLESS STEEL
25	CIRCLIP	1	1	STAINLESS STEEL
26	INTERNAL SPRINGS (NOT SHOWN)	10	9	STAINLESS STEEL
27	EXTERNAL SPRINGS (NOT SHOWN)	8	12	ALLOY 276

## INSTALLATION INSTRUCTIONS



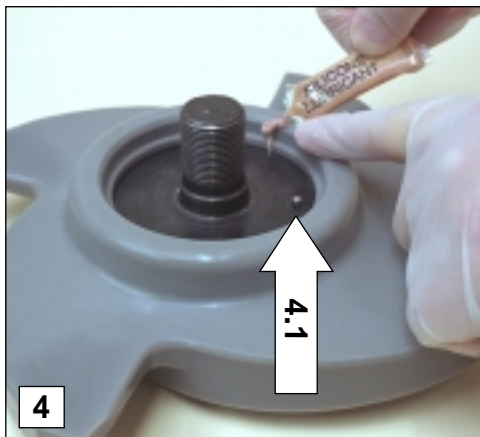
a). Lightly apply grease to the shaft surface where the seal is to be placed. This is advantageous but not necessarily essential.

b). Apply the grease (supplied) to the gland, and outboard & inboard stationary 'O' rings (see figures 1 & 2). Ensure that the grease covers the full circumference of the seal.



c). Apply the grease (supplied) to the inboard rotary 'O' ring, (see figure 3), again ensuring that the grease covers the full circumference of the seal.

## INSTALLATION INSTRUCTIONS



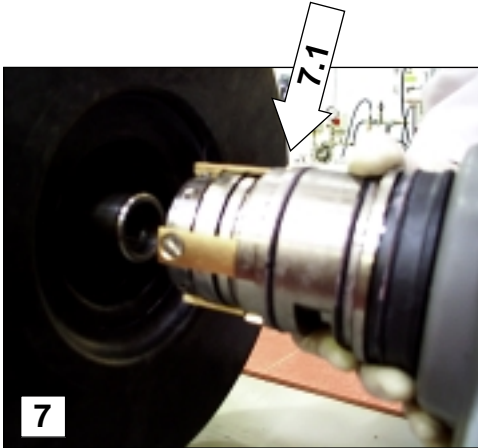
d). Apply the grease to the recess diameter of the impeller (see figure 4). Again this should be spread around the entire circumference.

e). Fit the seal inside the impeller ensuring that the slot/hole at the back of the inboard spacer (24) (see arrow 2.1, fig 2) aligns with the anti-rotation pin in the impeller (see arrow 4.1, fig. 4). Ensure that the seal is fully fitted into the impeller, and that the rotary (23) is seated on the recessed face of the impeller (see figure 5).



f). Apply the grease (supplied) to the recess on the pump where the inboard stationary 'O' ring (6) is seated (see figure 6).

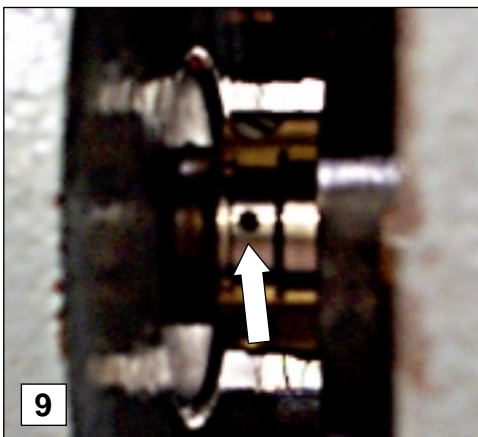
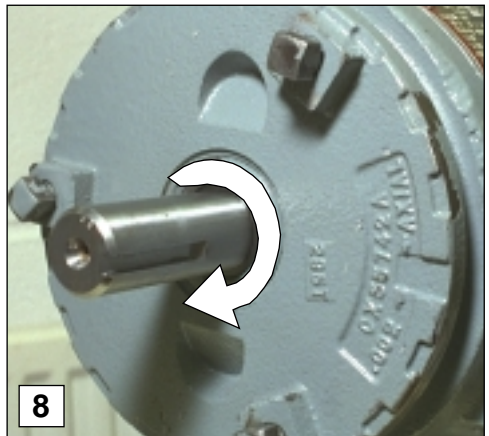
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**g).** Ensure that the two anti-rotation lugs/pins on the seal are aligned at 12 o'clock and 6 o'clock - (see arrow 7.1, fig. 7)

**h).** Carefully slide the seal / impeller sub-assembly onto the pump shaft and into the pump chamber until it comes to rest.

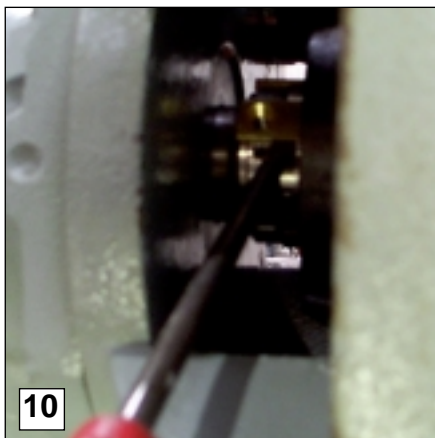
**i)** Whilst still supporting the seal/ impeller sub assembly, rotate the pump shaft at the coupling end in a clockwise direction, (see figure 8) whilst holding the impeller stationary. This engages the thread on the shaft with the thread on the impeller, whilst ensuring that the anti-rotation lugs/pins on the seal remain upright and align into the pump correctly.



**j).** Tighten the shaft to the impeller in accordance with the manufacturer's torque recommendations.

**k).** Tighten the drive screws down equally onto the shaft (see figure 9). This should be done in a uniform manner (see figure 11).

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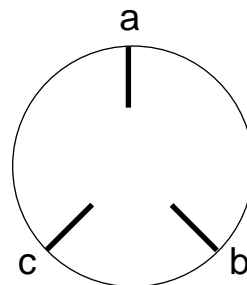
- l). Carefully unscrew and remove the setting clips (see fig.10) and retain for future use.
- m). Spin the shaft by hand. Listen and feel for any shaft binding etc.
- n). Pipe up to the Q & D ports on the pump chamber.
- o). Ensure that barrier fluid is present before start up, and the seal is correctly primed (no air entrapment).

### SCREW TIGHTENING

Tighten the screws in the following sequence:

a, → b, → c, → a, → b, → c.

Repeat the sequence until secure.



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## DECLARATION OF INCORPORATION

This mechanical seal must not be put into service until the relevant machinery into which it is incorporated has been declared to be in conformity with the provisions of Machinery Directive.

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USE DOUBLE MECHANICAL  
SEALS WITH HAZARDOUS  
PRODUCTS. ALWAYS TAKE  
SAFETY PRECAUTIONS

- GUARD YOUR EQUIPMENT
- WEAR PROTECTIVE CLOTHING



**WARNING**

**AESSEAL®**



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