



37FS

S-37FS-A

FULLY SPLIT SEAL

Applications

Type 37FS Seals are fully split seals, which allow for reduced maintenance on large, difficult to seal equipment. The seal is outside mounted and used to solve equipment axial runout and vibration problems.

- No springs or O-rings mean no clogging. Non-pusher, elastomer bellows design renders extreme flexibility without hang-up.
- Only seven components make-up the entire seal, for fast and easy installation. Easily mounts on worn shafts and out-of-square stuffing boxes. No machining or modification to equipment is required. All adaptive parts are supplied for fitting seal to existing equipment.
- Recommended for use on heavy duty, pulp and paper equipment, such as pulpers, pumps, refiners, agitators, screens, and other typically packed rotary equipment.
- For pulp and paper, petrochemical, power plants, food processing, municipal wastewater treatment, and other demanding applications.
- Easy to repair on-site or at any John Crane Seal Rebuilding Center with genuine John Crane replacement parts. These seals minimize replacement costs and downtime.

Operating Conditions*

- **Temperatures:** 82°C/180°F maximum
- **Pressures:** 5.5 bar g/80 psig maximum
- **Speeds:** 1800 rpm maximum

* For other operating conditions, consult John Crane Engineering.

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INCH RANGE





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Design Features

Maximum Flexibility

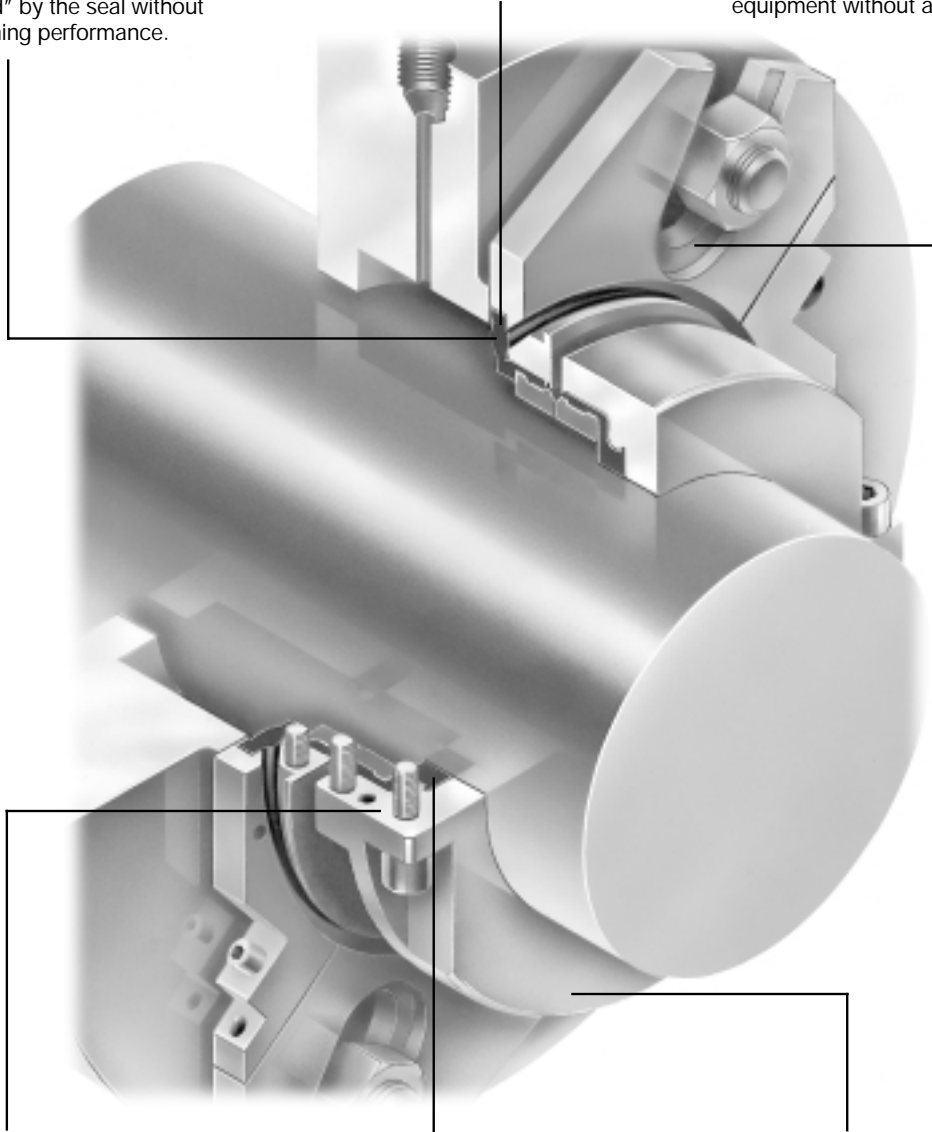
Compression ring provides extreme flexibility. Shaft deflections, angular misalignments, and run outs are "tracked" by the seal without diminishing performance.

No Springs

Compression ring acts as the spring eliminating clogging problems seen in fibrous or abrasive services.

Slotted Gland Plates

Long slots on gland plates allow the seals to be fitted to numerous pumps and other rotating equipment without adaptors.



Any Shaft Size Possible

The rotating assembly can be machined to fit any size shaft whether it is inch, metric, or special.

No O-Rings

Wide sealing surface of the sealing ring prevents leaks even on the most worn, pitted shafts.

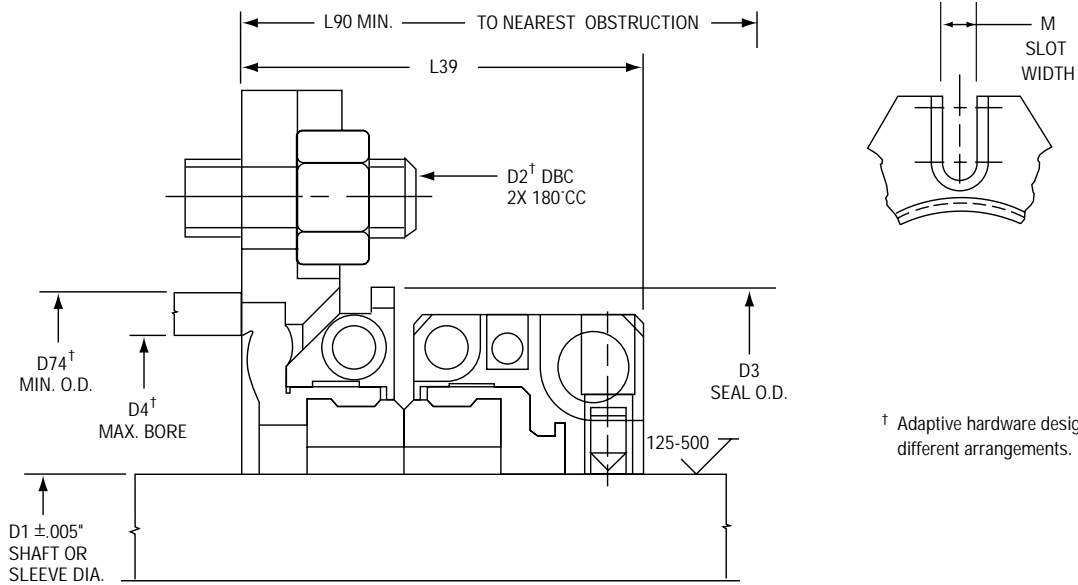
Self-Aligning

The rotating assembly self-aligns itself square with the shaft for true running.



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Type 37FS Typical Arrangement/Dimensional Data



† Adaptive hardware designed for different arrangements.

Chart 1. Type 37FS Dimensional Data

Shaft/Sleeve Size/D1 (inches)	D2	D3	D4	D74	M	L39		L90
						SIC/SIC*	CAR/SIC**	
1.375	3.750-5.000	3.642	2.406	3.000	.562	1.968	2.000	2.500
1.500	3.875-5.125	3.767	2.531	3.125	.562	1.968	2.000	2.500
1.625	4.000-5.250	3.892	2.656	3.250	.562	1.968	2.000	2.500
1.687	4.062-5.312	3.955	2.718	3.312	.562	1.968	2.000	2.500
1.750	4.125-5.375	4.017	2.781	3.375	.562	1.968	2.000	2.500
1.875	4.250-5.500	4.142	2.906	3.500	.562	1.968	2.000	2.500
1.937	4.312-5.562	4.205	2.968	3.562	.562	1.968	2.000	2.500
2.000	4.375-5.625	4.268	3.031	3.625	.562	1.968	2.000	2.500
2.125	4.500-5.750	4.393	3.156	3.750	.562	1.968	2.000	2.500
2.250	4.625-5.875	4.518	3.281	3.875	.562	1.968	2.000	2.500
2.375	4.750-6.000	4.643	3.406	4.000	.562	1.968	2.000	2.500
2.437	4.812-6.062	4.705	3.468	4.062	.562	1.968	2.000	2.500
2.500	4.875-6.125	4.768	3.531	4.125	.562	1.968	2.000	2.500
2.625	5.000-6.250	4.893	3.656	4.250	.562	1.968	2.000	2.500
2.750	5.125-6.375	5.018	3.781	4.375	.562	1.968	2.000	2.500
2.937	5.312-6.562	5.205	3.968	4.562	.562	1.968	2.000	2.500
3.000-3.250	6.500-8.500	5.450	4.812	5.375	.562	2.600	2.665	3.000
3.250-3.437	6.750-8.750	5.700	5.062	5.625	.562	2.600	2.665	3.000
3.437-3.812	7.625-10.125	6.137	5.500	6.062	.687	2.600	2.665	3.000
3.812-4.187	8.000-10.500	6.512	5.875	6.437	.687	2.600	2.665	3.000
4.187-4.562	8.375-10.875	6.887	6.250	6.812	.687	2.600	2.665	3.000
4.562-4.937	8.750-11.250	7.262	6.625	7.187	.687	2.600	2.665	3.000
4.937-5.312	9.125-11.625	7.637	7.000	7.562	.687	2.600	2.665	3.000
5.312-5.687	10.000-12.500	8.012	7.375	7.937	.812	2.600	2.665	3.000
5.687-6.062	10.375-12.875	8.387	7.750	8.312	.812	2.600	2.665	3.000
6.062-6.437	10.750-13.250	8.762	8.125	8.687	.812	2.600	2.665	3.000
6.437-6.812	11.125-13.625	9.137	8.500	9.062	.812	2.600	2.665	3.000
6.812-7.187	11.500-14.000	9.512	8.875	9.437	.812	2.600	2.665	3.000
7.187-7.562	11.625-14.625	10.137	9.250	9.812	.812	2.710	2.770	3.125
7.562-7.937	12.000-15.000	10.512	9.625	10.187	.812	2.710	2.770	3.125
7.937-8.312	12.375-15.375	10.887	10.000	10.562	.812	2.710	2.770	3.125
8.312-8.687	12.750-15.750	11.262	10.375	10.937	.812	2.710	2.770	3.125
8.687-9.062	13.500-16.500	11.637	10.750	11.312	.812	2.710	2.770	3.125
9.062-9.437	13.875-16.875	12.012	11.125	11.687	.812	2.710	2.770	3.125
9.437-9.812	14.250-17.250	12.387	11.500	12.062	.812	2.710	2.770	3.125
9.812-10.187	14.625-17.625	12.762	11.875	12.437	.812	2.710	2.770	3.125

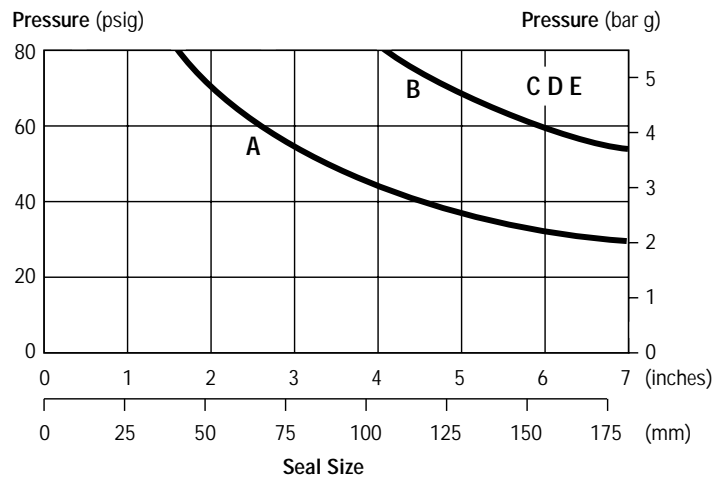
*SIC/SIC = Silicon Carbide vs. Silicon Carbide

**CAR/SIC = Carbon vs. Silicon Carbide



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Chart 2. Pressure/Velocity (PV) Limits



- A. Silicon Carbide vs. Silicon Carbide 1800 rpm
- B. Silicon Carbide vs. Silicon Carbide 1200 rpm
- C. Silicon Carbide vs. Silicon Carbide 1800 rpm (Dissimilar Materials)
- D. Carbon vs. Silicon Carbide 1800 rpm
- E. Silicon Carbide vs. Silicon Carbide 800 rpm

Chart 3. Materials of Construction

Seal Component Materials		Secondary Sealing Element	Primary Ring	Hardware Clamp Ring, Drive Ring, Gland Plate, Fasteners	Mating Ring	Mechanical Loading Device Springs
Material	Standard	Ethylene Propylene	Silicon Carbide Coarse Grain	316 Stainless Steel	Silicon Carbide Coarse Grain	
		Buna-N	Carbon			
	Options	Fluoroelastomer		Monel		
		Aflas*				

* Aflas is a trademark of the Asahi Glass Co. Ltd.

Chart 4. Criteria for Installation

Shaft/Sleeve	Limits
Shaft Surface Finish	125-500 RMS
Ovality/Out of Roundness (Shaft)	0.13 mm/0.005"
End Play/ Axial Float Allowance	±0.76 mm/0.030"
Axial Runout/ Out of Squareness	2.54 mm/0.100" T.I.R. (Silicon Carbide vs. Silicon Carbide) 1.27 mm/0.050" T.I.R. (Carbon vs. Silicon)

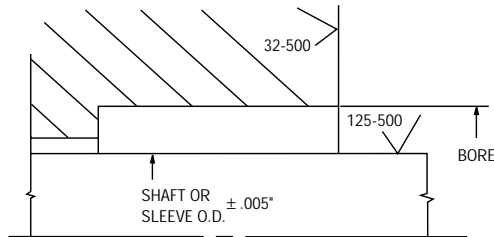


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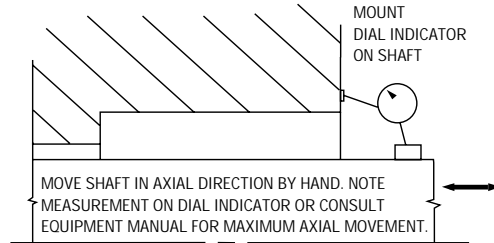
Flexibility Specifications

1. Seal chamber dimensions and finishes



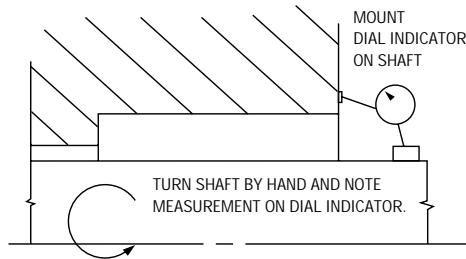
2. Axial end play

Seal sizes 1.375" to 3.000" - 0.020" T.I.R. max
Seal sizes 3.000" to 10.000" - 0.060" T.I.R. max

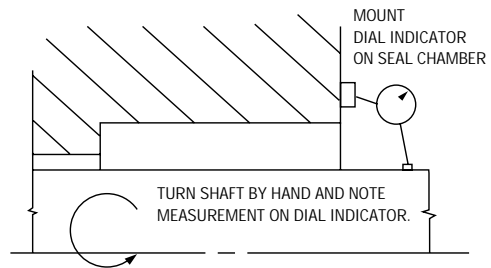


3. Squareness of seal chamber face to shaft

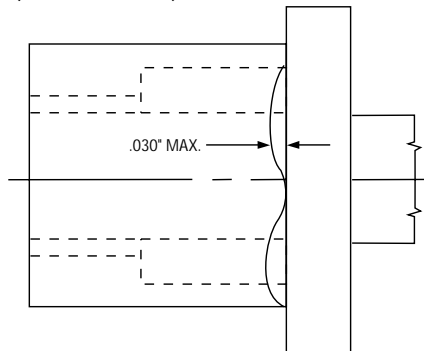
Carbon vs. Silicon = 0.050" T.I.R. max
Silicon vs. Silicon = 0.100" T.I.R. max



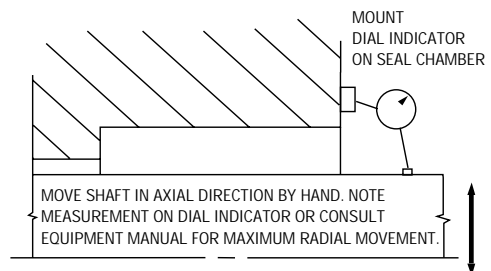
4. Shaft runout (0.020" T.I.R. max)



5. Stuffing box face waviness (0.030" T.I.R. max)



6. Radial shaft movement (0.125" T.I.R. max)





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Type 37FS Application Information

Fill out the following information and return it to your local John Crane Sales/Service Engineer.
All of this data is necessary to evaluate the proposed application.

Customer's Name: _____

Location: _____

JC Salesman: _____

Phone #: _____

1. Equipment:

Type: _____

Manufacturer: _____

Model: _____

Installation: _____

(Circle Appropriate) Horizontal or Vertical

If Vertical, is it Top or Bottom Entering.

2. Application:

Process Fluid: _____

Specific Gravity: _____

Viscosity: _____

Vapor Pressure: _____

Injection Fluid: _____

Specific Gravity: _____

Viscosity: _____

Available Pressure: _____

Max. Allowable Pressure: _____

Max. Allowable Flow Rate: _____

3. Operation:

Speed: _____

Temperature: _____

Stuffing Box Pressure: _____

Suction Pressure: _____

Discharge Pressure: _____

4. Dimensions:

Sleeve OD (A) (if Applicable): _____

Sleeve Extension (B) (if Applicable): _____

Shaft/Sleeve Surface Finish: _____

Shaft OD (C): _____

Stuffing Box Bore (D): _____

Stuffing Box OD (E): _____

Bolt Circle Diameter (F): _____

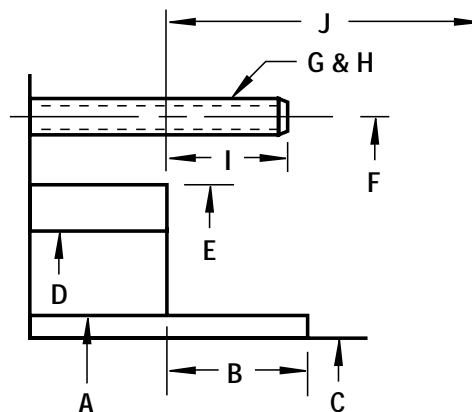
Number & Size of Bolts (G,H): _____

Type of Bolts: (Circle Appropriate)

Swing Bolts, Studs (Removable: Y/N), or Tapped Holes

Bolt Extension (I): _____

Nearest Obstruction (J): _____



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