

RELY ON EXCELLENCE

## Class E unbalanced seals E01, E02, E11, E12

Mechanical Seals | Mechanical seals for pumps | Pusher seals



### Features

- Rotating single-spring pusher seals
- Unbalanced
- Robust seal design
- Available as O-Ring or wedge variants
- Hard/hard seal face combination available
- Independent of direction of rotation (E11, E12)
- Available as single, dual and tandem arrangements

### Advantages

- Ideal for general purpose applications
- Suitable for abrasive, corrosive and viscous fluids
- Over 35 years of running reference in the field
- Narrow cross-section allows the seal fitment in narrow stuffing boxes
- "Lower inventory since all parts except seal ring composite and follower are interchangeable with Class E balanced seals (E03, E04, E13, E14).

### Operating range

Shaft diameter:  $d = 25 \dots 100 \text{ mm}$  (1" ... 3.94")

Pressure:  $p = \text{vacuum to } 16 \text{ bar}$  (232 PSI)

Temperature:

$t = -75 \text{ }^\circ\text{C} \dots +260 \text{ }^\circ\text{C}$  (-103 °F ... +500 °F)

Sliding velocity:  $v_g = 15 \text{ m/s}$  (49 ft/s)

Axial movement:  $\pm 1.5 \text{ mm}$

(Consult EB for applications outside above limits).

### Materials

Seal ring: Carbon graphite resin impregnated, Carbon graphite antimony impregnated, Tungsten carbide, Silicon carbide  
Mating ring: Silicon carbide, Tungsten carbide  
Secondary seals: FKM, NBR, FFKM, PTFE  
Springs: SS 316  
Metal parts: SS 316, other materials on request.

### Recommended applications

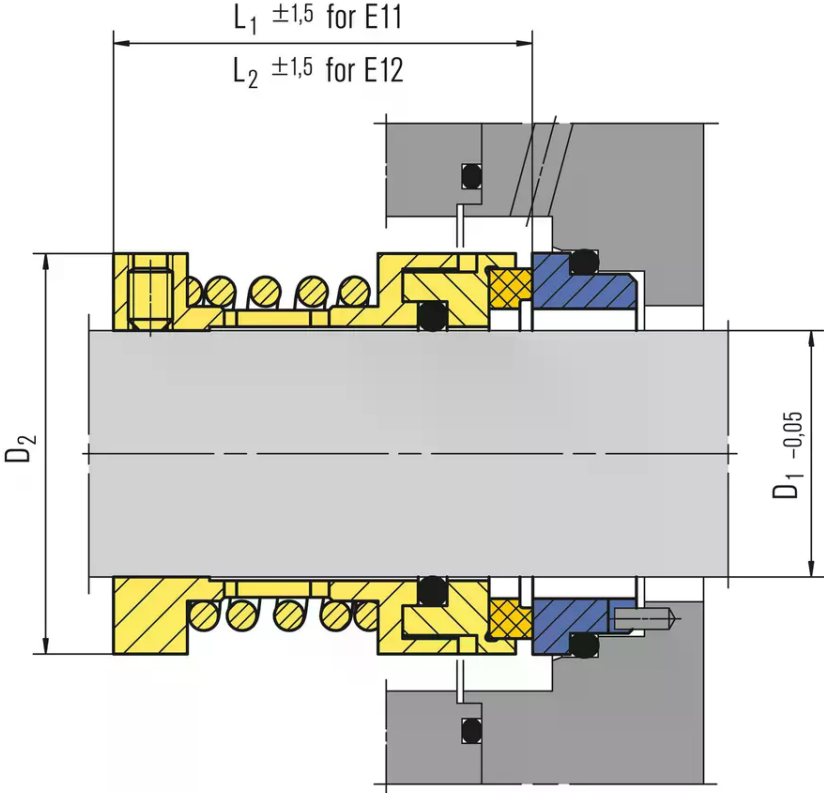
- Process industry
- Oil and gas industry
- Refining technology
- Petrochemical industry
- Chemical industry
- Pharmaceutical industry
- Power plant technology
- Pulp and paper industry
- Water and waste water technology
- Mining industry
- Building services industry
- Food and beverage industry
- Sugar industry
- Horizontal and vertical pumps, agitators, mixers

### Recommended piping plans

API Plans 01, 02, 03, 11, 12, 13, 14, 21, 22, 23, 31, 32, 41, 52, 53A, 53B, 53C, 54, 55, 61, 62, 65A, 65B, 66

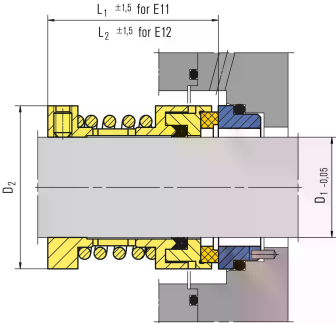
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Drawing shows  
E01/E11 unbalanced seal



## Product variants

E02 / E12 Variant with wedge as secondary seal.



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### Dimensions

| Dash size | D1    | D2    | L1   | L2   |
|-----------|-------|-------|------|------|
| D016      | 25.40 | 39.0  | 45.0 | 48.0 |
| D018      | 28.57 | 42.0  | 47.0 | 49.0 |
| D020      | 31.75 | 46.0  | 50.0 | 52.5 |
| D022      | 34.93 | 49.0  | 53.0 | 56.0 |
| D024      | 38.10 | 54.0  | 53.5 | 56.0 |
| D026      | 41.27 | 59.0  | 53.5 | 56.0 |
| D028      | 44.45 | 61.0  | 54.0 | 56.0 |
| D030      | 47.62 | 64.0  | 62.0 | 63.5 |
| D032      | 50.80 | 66.0  | 65.0 | 66.5 |
| D034      | 53.97 | 69.0  | 67.0 | 69.0 |
| D036      | 57.15 | 78.0  | 67.0 | 69.0 |
| D038      | 60.32 | 80.0  | 70.0 | 72.0 |
| D040      | 63.50 | 83.0  | 70.5 | 72.0 |
| D042      | 66.67 | 86.0  | 74.0 | 75.5 |
| D044      | 69.85 | 90.0  | 74.0 | 75.0 |
| D046      | 73.02 | 93.0  | 79.0 | 80.5 |
| D048      | 76.20 | 99.0  | 85.5 | 84.5 |
| D050      | 79.37 | 104.0 | 86.5 | 82.0 |
| D052      | 82.55 | 103.0 | 86.5 | 86.0 |
| D054      | 85.72 | 109.0 | 86.5 | 86.0 |
| D056      | 88.90 | 114.0 | 86.0 | 86.0 |
| D058      | 92.07 | 114.0 | 91.0 | 90.5 |
| D060      | 95.25 | 119.0 | 91.0 | 90.5 |
| D062      | 98.42 | 122.0 | 91.0 | 90.5 |
| D064      | 101.6 | 126.0 | 98.0 | 97.5 |

### Imperial size

| Seal size | D1   | D2   | L1   | L2   |
|-----------|------|------|------|------|
| 0025      | 25.0 | 39.0 | 45.0 | 48.0 |
| 0028      | 28.0 | 42.0 | 47.0 | 49.0 |
| 0030      | 30.0 | 44.0 | 47.0 | 49.0 |
| 0032      | 32.0 | 46.0 | 50.0 | 52.5 |
| 0033      | 33.0 | 47.0 | 50.0 | 52.5 |
| 0035      | 35.0 | 49.0 | 53.5 | 56.0 |
| 0038      | 38.0 | 54.0 | 53.5 | 56.0 |
| 0040      | 40.0 | 56.0 | 53.5 | 56.0 |
| 0043      | 43.0 | 59.0 | 53.5 | 56.0 |
| 0045      | 45.0 | 61.0 | 54.0 | 56.0 |
| 0048      | 48.0 | 64.0 | 62.0 | 63.0 |
| 0050      | 50.0 | 66.0 | 65.0 | 66.5 |
| 0053      | 53.0 | 69.0 | 67.0 | 69.0 |
| 0055      | 55.0 | 71.0 | 67.0 | 69.0 |
| 0058      | 58.0 | 78.0 | 67.0 | 69.0 |
| 0060      | 60.0 | 80.0 | 70.0 | 72.0 |
| 0063      | 63.0 | 83.0 | 70.5 | 72.0 |
| 0065      | 65.0 | 85.0 | 70.5 | 72.0 |
| 0068      | 68.0 | 88.0 | 70.5 | 72.0 |

## RELY ON EXCELLENCE

| Seal size | D1    | D2    | L1   | L2   |
|-----------|-------|-------|------|------|
| 0070      | 70.0  | 90.0  | 74.0 | 75.0 |
| 0075      | 75.0  | 99.0  | 85.5 | 84.5 |
| 0080      | 80.0  | 104.0 | 86.5 | 82.0 |
| 0085      | 85.0  | 109.0 | 86.0 | 86.0 |
| 0090      | 90.0  | 114.0 | 86.5 | 86.0 |
| 0095      | 95.0  | 119.0 | 91.0 | 90.5 |
| 0100      | 100.0 | 124.0 | 91.0 | 90.5 |

Metric size