

# *RIS*

## *A non-clogging, component seal for tough slurry applications*

*The RIS seal has a unique, non-clogging design that does not utilize springs or bellows. The innovative design of the adaptive components allows the seal to be installed from the wet-end of the pump and to be adjusted externally. With many pump designs, the seal may be reset automatically during impeller clearance adjustment.*



### **Features and Benefits**

- The stationary seal face is attached to a smoothly contoured flexible rubber element which holds the seal faces together and absorbs relative shaft movement when the pump is in operation.
- A true non-clogging design provides longer MTBF with the rubber in shear component.
- External adjustments compensate for minor seal wear with no pump disassembly and compensate for pump misalignment.
- A lack of dynamic gaskets provides longer MTBF by eliminating seal face hang-ups.
- Extensive factory and field tests on hard slurries insures consistent and peak performance.
- With the control of slurry composition no flush is required, saving water and energy costs.
- Eliminating process leakage reduces water and disposal problems, packing sleeve wear and bearing failures.

### **Materials of Construction**

**Stationary Assembly** CD-4MCu and Alloy C-276

**Balance of Parts** AISI 316, CE-4MCu and Alloy C-276

#### **Other materials available optionally**

**Seal Faces** Silicon Carbide or Tungsten Carbide

**Elastomers** Bortex I\* Rubber in Shear Element  
O-rings Ethylene-Propylene

\*Bortex™ is a rubber compound developed by Flowserve

### Operating Parameters

**Maximum Static Pressure** (for hydrotesting): 300 psig (2062 kPa) at Ambient Temperature

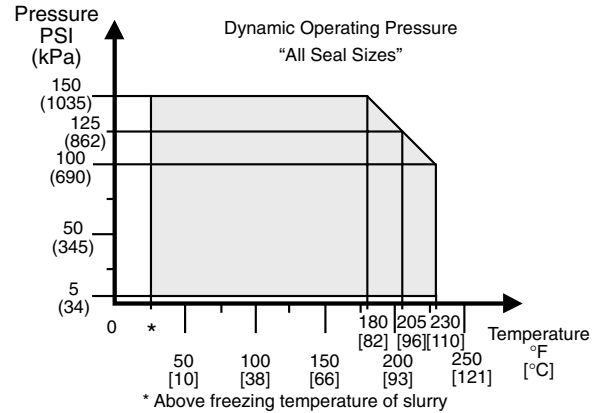
**Minimum Seal Chamber Pressure** (all sizes): 5 psig (35 kPa). If necessary, remove back vanes from impeller to avoid seal chamber pressures below 5 psig.

Tapered self-venting seal chamber recommended for proper product circulation and solids distribution. Recommended Tapered Angle "T": 10° min. to 30° max.

Water based slurries with maximum 5.0 MOH particle hardness (when using Tungsten Carbide Faces) and 7.0+ MOH particle hardness (when using Silicon Carbide Faces). Operates in pH levels from 2-14.

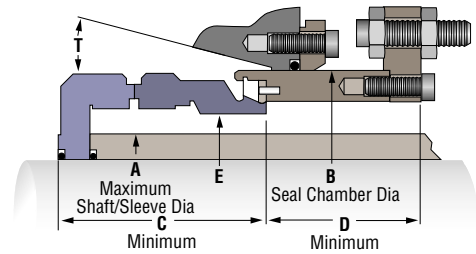
**Shaft size:** Up to 9-1/4 inches (234.7mm) covered by seven seal sizes.

**Surface speed:** up to 35 ft./sec. (11 m/sec.)



### Dimensional Dimension inch (millimeters)

Seal Size	A	B	C	D	E
1875	1.750 (45)	2.940 (74.68)	2.522 (64.06)	2.562 (65.1)	1.935 (49.1)
2750	2.625 (67)	3.875 (98.43)	2.799 (71.09)	2.531 (64.3)	2.810 (71.4)
3750	3.635 (92)	4.875 (123.83)	2.799 (71.09)	2.531 (64.3)	3.810 (96.8)
4500	4.250 (108)	6.250 (158.25)	3.882 (98.60)	3.032 (77.0)	4.562 (116)
5500	5.250 (133)	7.250 (184.15)	4.006 (101.75)	3.032 (77.0)	5.562 (141)
6500	6.250 (159)	8.250 (209.55)	3.032 (108.13)	6.562 (77.0)	6.562 (167)
7500	7.250 (184)	9.250 (234.95)	4.381 (234.95)	3.032 (77.0)	7.562 (192)
9500	9.250 (235)	11.250 (285.75)	4.757 (120.83)	3.032 (77.0)	9.562 (243)



### Typical Applications

Industry	Application	Seal Size	Press PSI (Bar)	Temp F (C)
Power, FGD	Recycle Limestone/Gypsum	4500-9500	30-50 (2-3.3)	120-150 [49-66]
Power	Thickener Underflow	1875-3750	30-75 (2-5)	Ambient
Power	Bottom Ash Removal	4500-5500	30-75 (2.5)	Ambient
Ore Processing	Reagent Feed	1875-3750	20-50 (1.3-3.3)	130-160 (54-71)
Phosphate Chemical	Phosphoric Acid/Gypsum	4500-7500	30-75 (2-5)	150-190 (66-88)
Alumina	Alumina Hydrate/Clarification	1875-7500	30-75 (2-5)	150-190 (66-88)
Iron Ore	Taconite Concentrate	4500-5500	20-75 (1.3-5)	Ambient

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