

CTX Single Seals

Standard Cartridge Seals

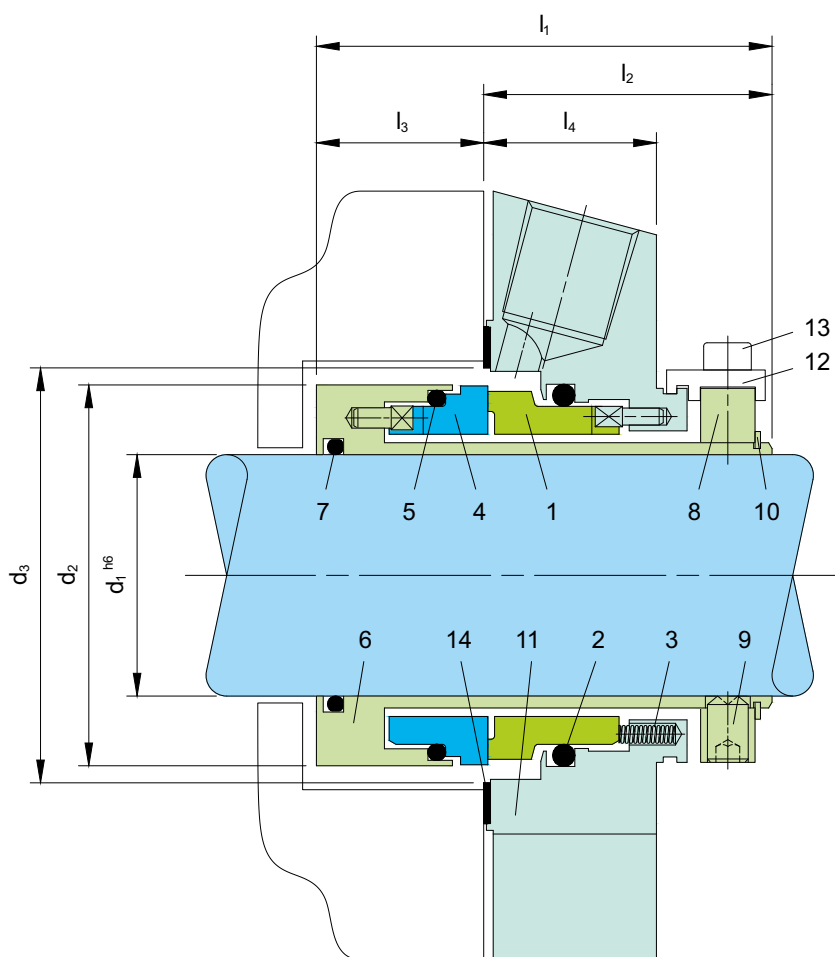


Product Description

1. Single seal configuration
2. Balanced design
3. Independent of direction of rotation
4. Cartridge construction

Technical Features

1. Ideal for use in process pump standardization
2. O-ring is dynamically loaded to prevent shaft damage.
3. Dimensional modification of the stuffing box chamber is not required due to short radial installation height
4. Ideal to convert and retrofit pumps with packings and large volume OEM production
5. Cartridge unit factory assembled for easy installation, which reduces down-time
6. Rugged design for long operating life



Note: The item numbers as depicted above are based on our technical experience and knowledge and are placed in the chronological order of their assembly procedure.

| Item | Description |
|---------|--------------|
| 1 | Seal face |
| 2, 5, 7 | O-ring |
| 3 | Spring |
| 4 | Seat |
| 6 | Shaft sleeve |
| 8 | Drive collar |
| 9 | Set screw |

Typical Industrial Applications

| | |
|----------------------|---------------------|
| ISO process pumps | Hydrocarbons |
| Acids | Lubricating liquid |
| Aqueous solutions | Marine |
| Caustics | Petrochemical |
| Chemicals | Pharmaceutical |
| Crystallizing fluids | Solvents |
| Fertiliser | Water & waste water |
| Food & beverage | |

Materials

| | |
|-----------------|--|
| Seal face | Silicon carbide (Q1), Carbon graphite resin impregnated (B), Tungsten carbide (U2) |
| Seat | Silicon carbide (Q1) |
| Secondary seals | FKM (V), EPDM (E), FFKM (K), Perfluorocarbon rubber/PTFE (U1) |
| Springs | Hastelloy® C-4 (M) |
| Metal parts | CrNiMo steel (G), CrNiMo cast steel (G) |

Performance Capabilities

| | |
|------------------------|--|
| CTX-SN, -SNO, -QN, -TN | |
| Sizes | d ₁ = Upto 1.000" (Upto 4.000") Other sizes on request |
| Temperature | t = -40°C...+220°C (-40°F...+428°F) (Check O-ring resistance) |

Sliding face material combination BQ1

| | |
|----------|-----------------------------------|
| Pressure | p ₁ = 25 bar (363 PSI) |
| Speed | 16 m/s (52 ft/s) |

Sliding face material combination Q1Q1 or U2Q1

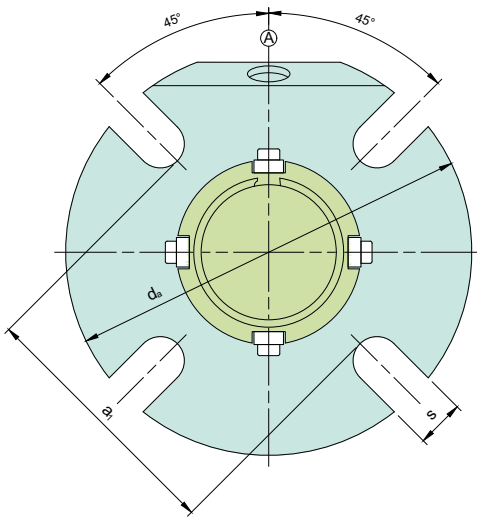
| | |
|----------|-----------------------------------|
| Pressure | p ₁ = 12 bar (175 PSI) |
| Speed | 10 m/s (33 ft/s) |

Permissible axial movement:

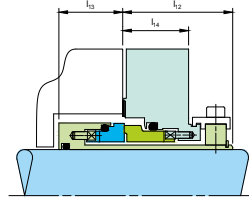
d₁ < 2.935" = ± 0.039", d₁ ≥ 2.935" ± 0.059

| Item | Description |
|------|--|
| 10 | Snap ring |
| 11 | Cover |
| 12 | Assembly fixture |
| 13 | HSH Cap Screw |
| 14 | Gasket |
| 16 | Lip seal (-QN), throttle ring (-TN) |

Installation, Details, Options

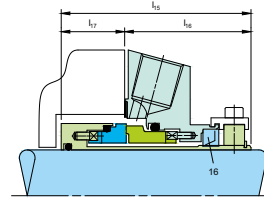


Design Variations



CTX-SNO

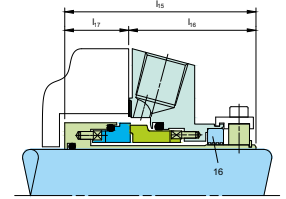
Single seal without connections, for dead-end operation.



CTX-TN

Single seal for operation with unpressurized quench. Same as CTX-SN but with throttle ring (item 16). The cover has auxiliary connections for flushing and quench.

Throttle ring: PTFE carbon-graphite reinforced (T12).



CTX-QN

Single seal for operation with unpressurized quench. Same as "-SN" version but with outboard lip seal (item 16). The cover has auxiliary connections for flushing and quench.

Lip seal: NBR (P), FKM (V), PTFE carbon reinforced (T3).

Dimensional Data

Dimensions in inch

| d ₁ | d ₂ | d _{3min.} | d _{3max.} | l ₁ | l ₂ | l ₃ | l ₄ | l ₁₂ | l ₁₃ | l ₁₄ | l ₁₅ | l ₁₆ | l ₁₇ | a ₁ | d _a | s | Connection |
|----------------|----------------|--------------------|--------------------|----------------|----------------|----------------|----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|----------------|----------------|-------|------------|
| 1.000 | 1.693 | 1.750 | 2.000 | 2.640 | 1.669 | 0.969 | 1.000 | 1.378 | 1.260 | 0.689 | 3.130 | 2.102 | 1.028 | 2.440 | 4.134 | 0.520 | 1/4 NPT |
| 1.125 | 1.811 | 1.875 | 2.050 | 2.640 | 1.669 | 0.969 | 1.000 | 1.378 | 1.260 | 0.689 | 3.130 | 2.102 | 1.028 | 2.440 | 4.134 | 0.520 | 1/4 NPT |
| 1.250 | 1.969 | 2.008 | 2.244 | 2.640 | 1.669 | 0.969 | 1.000 | 1.378 | 1.260 | 0.689 | 3.130 | 2.102 | 1.028 | 2.640 | 4.252 | 0.520 | 1/4 NPT |
| 1.375 | 2.086 | 2.125 | 2.420 | 2.640 | 1.669 | 0.969 | 1.000 | 1.378 | 1.260 | 0.689 | 3.130 | 2.102 | 1.028 | 2.750 | 4.449 | 0.520 | 1/4 NPT |
| 1.500 | 2.200 | 2.250 | 2.625 | 2.640 | 1.669 | 0.969 | 1.000 | 1.378 | 1.260 | 0.689 | 3.130 | 2.102 | 1.028 | 2.950 | 4.842 | 0.520 | 3/8 NPT |
| 1.625 | 2.340 | 2.375 | 2.700 | 2.640 | 1.669 | 0.969 | 1.000 | 1.378 | 1.260 | 0.689 | 3.130 | 2.102 | 1.028 | 3.030 | 4.842 | 0.599 | 3/8 NPT |
| 1.750 | 2.460 | 2.500 | 2.812 | 2.640 | 1.669 | 0.969 | 1.000 | 1.378 | 1.260 | 0.689 | 3.130 | 2.102 | 1.028 | 3.190 | 5.433 | 0.599 | 3/8 NPT |
| 1.875 | 2.582 | 2.625 | 2.940 | 2.640 | 1.669 | 0.969 | 1.000 | 1.378 | 1.260 | 0.689 | 3.130 | 2.102 | 1.028 | 3.307 | 5.433 | 0.599 | 3/8 NPT |
| 2.000 | 2.677 | 2.750 | 3.190 | 2.640 | 1.669 | 0.969 | 1.000 | 1.378 | 1.260 | 0.689 | 3.130 | 2.102 | 1.028 | 3.430 | 5.827 | 0.599 | 3/8 NPT |
| 2.125 | 2.834 | 2.875 | 3.437 | 2.640 | 1.669 | 0.969 | 1.000 | 1.378 | 1.260 | 0.689 | 3.130 | 2.102 | 1.028 | 3.543 | 5.827 | 0.709 | 3/8 NPT |
| 2.250 | 2.960 | 3.000 | 3.560 | 2.640 | 1.669 | 0.969 | 1.000 | 1.378 | 1.260 | 0.689 | 3.130 | 2.102 | 1.028 | 3.940 | 6.181 | 0.709 | 3/8 NPT |
| 2.375 | 3.070 | 3.125 | 3.590 | 2.640 | 1.669 | 0.969 | 1.000 | 1.378 | 1.260 | 0.689 | 3.130 | 2.102 | 1.028 | 4.020 | 6.181 | 0.709 | 3/8 NPT |
| 2.500 | 3.212 | 3.250 | 3.800 | 2.640 | 1.669 | 0.969 | 1.000 | 1.378 | 1.260 | 0.689 | 3.130 | 2.102 | 1.028 | 4.170 | 6.417 | 0.709 | 3/8 NPT |
| 2.625 | 3.338 | 3.375 | 3.937 | 2.640 | 1.669 | 0.969 | 1.000 | 1.378 | 1.260 | 0.689 | 3.130 | 2.102 | 1.028 | 4.290 | 6.417 | 0.709 | 3/8 NPT |
| 2.750 | 3.660 | 3.750 | 4.250 | 2.640 | 1.669 | 0.969 | 1.000 | 1.378 | 1.260 | 0.689 | 3.130 | 2.102 | 1.028 | 4.650 | 7.008 | 0.709 | 3/8 NPT |
| 2.875 | 3.937 | 4.000 | 4.646 | 3.307 | 2.260 | 1.047 | 1.000 | 1.815 | 1.492 | 0.866 | - | - | - | 5.079 | 7.480 | 0.709 | 3/8 NPT |
| 3.000 | 3.937 | 4.000 | 4.646 | 3.307 | 2.260 | 1.047 | 1.000 | 1.815 | 1.492 | 0.866 | 3.858 | 2.516 | 1.343 | 5.039 | 7.480 | 0.709 | 3/8 NPT |
| 3.125 | 4.190 | 4.125 | 4.764 | 3.307 | 2.260 | 1.047 | 1.000 | 1.815 | 1.492 | 0.866 | 3.858 | 2.516 | 1.343 | 5.315 | 7.677 | 0.709 | 3/8 NPT |
| 3.250 | 4.189 | 4.250 | 4.882 | 3.307 | 2.260 | 1.047 | 1.000 | 1.815 | 1.492 | 0.866 | - | - | - | 5.315 | 7.677 | 0.709 | 3/8 NPT |
| 3.375 | 4.311 | 4.375 | 5.039 | 3.307 | 2.260 | 1.047 | 1.000 | 1.815 | 1.492 | 0.866 | - | - | - | 5.472 | 7.795 | 0.866 | 3/8 NPT |
| 3.500 | 4.437 | 4.500 | 5.157 | 3.307 | 2.260 | 1.047 | 1.000 | 1.815 | 1.492 | 0.866 | - | - | - | 5.591 | 7.795 | 0.866 | 3/8 NPT |
| 3.625 | 4.563 | 4.625 | 5.315 | 3.307 | 2.260 | 1.047 | 1.000 | 1.815 | 1.492 | 0.866 | - | - | - | 5.709 | 8.071 | 0.866 | 3/8 NPT |
| 3.750 | 4.689 | 4.750 | 5.433 | 3.307 | 2.260 | 1.047 | 1.000 | 1.815 | 1.492 | 0.866 | 3.858 | 2.516 | 1.343 | 5.827 | 8.189 | 0.866 | 3/8 NPT |
| 4.000 | 4.937 | 5.000 | 5.669 | 3.307 | 2.260 | 1.047 | 1.000 | 1.815 | 1.492 | 0.866 | - | - | - | 6.063 | 8.583 | 0.866 | 3/8 NPT |

Dimensions in millimeter

| d ₁ | d ₂ | d _{3min.} | d _{3max.} | l ₁ | l ₂ | l ₃ | l ₄ | l ₁₂ | l ₁₃ | l ₁₄ | l ₁₅ | l ₁₆ | l ₁₇ | a ₁ | d _a | s | Connection |
|----------------|----------------|--------------------|--------------------|----------------|----------------|----------------|----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|----------------|----------------|------|------------|
| 25 | 43.0 | 44.0 | 51.5 | 67 | 42.4 | 24.6 | 25.4 | 35.0 | 32.0 | 17.5 | 79.5 | 53.4 | 26.1 | 62 | 105 | 14 | 1/4 NPT |
| 28 | 46.0 | 47.0 | 52.0 | 67 | 42.4 | 24.6 | 25.4 | 35.0 | 32.0 | 17.5 | 79.5 | 53.4 | 26.1 | 62 | 105 | 13.2 | 1/4 NPT |
| 30 | 48.0 | 49.0 | 56.0 | 67 | 42.4 | 24.6 | 25.4 | 35.0 | 32.0 | 17.5 | 79.5 | 53.4 | 26.1 | 65 | 105 | 13.2 | 1/4 NPT |
| 32 | 50.0 | 51.0 | 57.0 | 67 | 42.4 | 24.6 | 25.4 | 35.0 | 32.0 | 17.5 | 79.5 | 53.4 | 26.1 | 67 | 108 | 13.2 | 1/4 NPT |
| 33 | 50.0 | 51.0 | 57.0 | 67 | 42.4 | 24.6 | 25.4 | 35.0 | 32.0 | 17.5 | 79.5 | 53.4 | 26.1 | 67 | 108 | 13.2 | 1/4 NPT |
| 35 | 53.0 | 54.0 | 61.5 | 67 | 42.4 | 24.6 | 25.4 | 35.0 | 32.0 | 17.5 | 79.5 | 53.4 | 26.1 | 70 | 113 | 13.2 | 1/4 NPT |
| 38 | 56.0 | 57.0 | 66.0 | 67 | 42.4 | 24.6 | 25.4 | 35.0 | 32.0 | 17.5 | 79.5 | 53.4 | 26.1 | 75 | 123 | 13.2 | 3/8 NPT |
| 40 | 58.0 | 59.0 | 68.0 | 67 | 42.4 | 24.6 | 25.4 | 35.0 | 32.0 | 17.5 | 79.5 | 53.4 | 26.1 | 75 | 123 | 14.2 | 3/8 NPT |
| 42 | 60.5 | 61.5 | 69.5 | 67 | 42.4 | 24.6 | 25.4 | 35.0 | 32.0 | 17.5 | 79.5 | 53.4 | 26.1 | 79 | 133 | 14.2 | 3/8 NPT |
| 43 | 60.5 | 61.5 | 70.5 | 67 | 42.4 | 24.6 | 25.4 | 35.0 | 32.0 | 17.5 | 79.5 | 53.4 | 26.1 | 79 | 133 | 14.2 | 3/8 NPT |
| 45 | 62.5 | 64.0 | 73.0 | 67 | 42.4 | 24.6 | 25.4 | 35.0 | 32.0 | 17.5 | 79.5 | 53.4 | 26.1 | 81 | 138 | 14.2 | 3/8 NPT |
| 48 | 65.6 | 67.0 | 75.0 | 67 | 42.4 | 24.6 | 25.4 | 35.0 | 32.0 | 17.5 | 79.5 | 53.4 | 26.1 | 84 | 138 | 14.2 | 3/8 NPT |
| 50 | 68.0 | 69.0 | 78.0 | 67 | 42.4 | 24.6 | 25.4 | 35.0 | 32.0 | 17.5 | 79.5 | 53.4 | 26.1 | 87 | 148 | 14.2 | 3/8 NPT |
| 53 | 72.0 | 73.0 | 87.0 | 67 | 42.4 | 24.6 | 25.4 | 35.0 | 32.0 | 17.5 | 79.5 | 53.4 | 26.1 | 97 | 148 | 18.0 | 3/8 NPT |
| 55 | 73.0 | 74.0 | 83.0 | 67 | 42.4 | 24.6 | 25.4 | 35.0 | 32.0 | 17.5 | 79.5 | 53.4 | 26.1 | 90 | 148 | 18.0 | 3/8 NPT |
| 60 | 78.0 | 79.0 | 91.0 | 67 | 42.4 | 24.6 | 25.4 | 35.0 | 32.0 | 17.5 | 79.5 | 53.4 | 26.1 | 102 | 157 | 18.0 | 3/8 NPT |
| 65 | 83.1 | 84.5 | 98.5 | 67 | 42.4 | 24.6 | 25.4 | 35.0 | 32.0 | 17.5 | 79.5 | 53.4 | 26.1 | 109 | 163 | 18.0 | 3/8 NPT |
| 70 | 93.0 | 95.0 | 108.0 | 67 | 42.4 | 24.6 | 25.4 | 35.0 | 32.0 | 17.5 | 79.5 | 53.4 | 26.1 | 118 | 178 | 18.0 | 3/8 NPT |
| 75 | 100.0 | 101.6 | 118.0 | 84 | 57.4 | 26.6 | 25.4 | 46.1 | 37.9 | 22.0 | 98.0 | 63.9 | 34.1 | 129 | 190 | 18.0 | 3/8 NPT |
| 80 | 106.4 | 108.0 | 124.0 | 84 | 57.4 | 26.6 | 25.4 | 46.1 | 37.9 | 22.0 | 98.0 | 63.9 | 34.1 | 135 | 195 | 18.0 | 3/8 NPT |
| 85 | 109.5 | 111.1 | 128.0 | 84 | 57.4 | 26.6 | 25.4 | 46.1 | 37.9 | 22.0 | 98.0 | 63.9 | 34.1 | 139 | 198 | 22.0 | 3/8 NPT |
| 90 | 115.9 | 117.5 | 135.0 | 84 | 57.4 | 26.6 | 25.4 | 46.1 | 37.9 | 22.0 | 98.0 | 63.9 | 34.1 | 145 | 205 | 22.0 | 3/8 NPT |
| 95 | 119.1 | 120.7 | 138.0 | 84 | 57.4 | 26.6 | 25.4 | 46.1 | 37.9 | 22.0 | 98.0 | 63.9 | 34.1 | 148 | 208 | 22.0 | 3/8 NPT |
| 100 | 125.4 | 127.0 | 144.0 | 84 | 57.4 | 26.6 | 25.4 | 46.1 | 37.9 | 22.0 | 98.0 | 63.9 | 34.1 | 154 | 218 | 22.0 | 3/8 NPT |

Note: Additional technical & dimensional information will be provided on request.

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