

CAT® PRECISION SEALS

Seal Group Size (Class) Options

Seal Group Size (Class) Options. Duo-Cone™ seals are classified by toric cross sections ranging from 4.30 to 16.00 mm (0.170 to 0.630 in). Larger section torics can accommodate greater amounts of system deflection and are less sensitive to end play and environmental effects, but occupy more space in the design.

HDDF seals incorporate a rectangular load ring, known as a Belleville Washer (BW), instead of a toric. HDDF seals occupy less axial space in a system and have simpler housing dimensions, but occupy more radial space than a Duo-Cone design and are more sensitive to system deflection and end play.

The table shown below gives a brief summary of available design options.

Class	Toric Size (mm)	Seal Ramp Angle (°)	Housing Ramp Angle (°)
A	4.30	20	15
B	6.22	15	10
C	9.47	8/15/20	10
D	12.70	8/15/20	10
L	16.00	15	10
K	HDDF Load Ring	Square Bore	Square Bore

Class A – 4.30 mm (0.17 in) Toric Cross Section



Duo-Cone seals with a 4.30 mm cross-section toric ring are used only in small diameter applications with extreme axial and radial constraints. Seals of this type have very little end play capability and are extremely sensitive to system deflections. This type of seal is not recommended for most applications.

Class B – 6.22 mm (0.24 in) Toric Cross Section



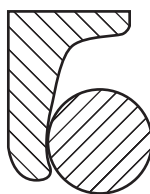
Duo-Cone seals with 6.22 mm cross-section toric rings (104.67 to 222.5 mm [4.12 to 8.76 in]) are typically used in small axle or rock bit applications. They are used where sealing is needed in extreme environments, but where there is insufficient space to put a larger cross section Duo-Cone seal. While these seals do have some end play capability, they have less than seal classes with larger cross section torics.

Class C – 9.47 mm (0.37 in) Toric Cross Section



9.47 mm cross-section Duo-Cone seals range in diameter from 82.5 to 199.0 mm (3.248 to 7.835 in). They are typically used in moving undercarriages for tracked machines. These seals have good end play capability and are available with 8°, 15°, and 20° seal ramps to serve different operating environments.

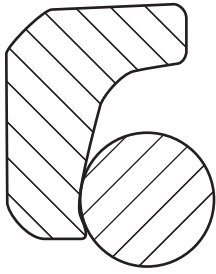
Class D – 12.70 mm (0.50 in) Toric Cross Section



The Class D Duo-Cone seal is very common in axle, wheel and final drive applications in construction and earth moving equipment. Seals are available from 171.7 to 865.0 mm (6.760 to 34.055 in) in diameter. These seals have very good end play capability. Seals are available with both 8° and 15° seal ramps.

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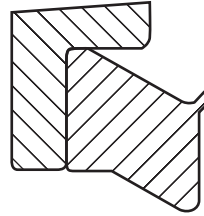
Class L – 16.00 mm (0.63 in) Toric Cross Section



Currently, the largest cross section toric ring offered by Cat Seals, the Class L seal consists of a 16.00 mm (0.63 in) cross section toric and is specified for only the largest of sealing applications. Cat Seals offers a single size of

939.8 mm (37.000 in) in diameter, which has very good end play capability, but requires the largest sealing cavity design in the Duo-Cone seal family.

Class K – Heavy Duty Dual Face Belleville Washer



The HDDF seal requires a square bore housing design and a Belleville washer load ring to provide loads to the seal faces. This seal design is available in sizes ranging from 61.6 to 780.2 mm (2.425 to 30.716 in) in

diameter. While fit and form are different, functionally is completely interchangeable with a conventional Duo-Cone seal at the design stage.

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