

Cassette Seal CSL 1500

CASSETTE SEALING SOLUTION FOR HEAVY-DUTY APPLICATIONS



If Your Duty is Heavy-Duty

Trelleborg Sealing Solutions, a leader in cassette sealing technology, has revolutionized cassette seal design with their new CSL 1500.

The new cassette seal CSL 1500 turns conventional thinking on cassette seal design inside-out by incorporating opposing sprung lips as well as a number of other innovations. This allows CSL 1500 to run cooler and longer, allowing it to seal better. The unitized seal design improves contaminant exclusion and static sealing ability, while its advanced lip technology helps reduce friction and wear to lengthen seal life, all in a single package!



The CSL 1500 was originally designed for agricultural and construction equipment and has been proven in vigorous lab and field tests. This technology is being adapted to a variety of other sealing solutions.

For more information:
www.tss.trelleborg.com



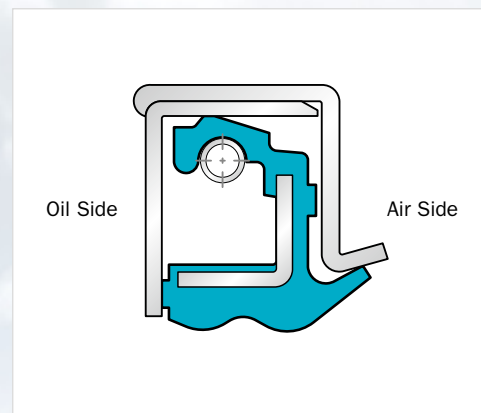
Additional Cassette Seals for Heavy-duty Applications from Trelleborg:

A Cassette Seal is a fully enclosed seal that is able to perform as an all-in-one oil seal, wear sleeve and dust protector. In addition to the new Cassette Seal 1500, the following cassette seals are suitable for heavy-duty applications. Depending on the material, Cassette Seals can operate in temperatures from -40 °C to +150 °C/ -40 °F to +302 °F. Ask your local Trelleborg Sealing Solutions marketing company for further information.



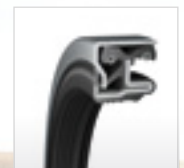
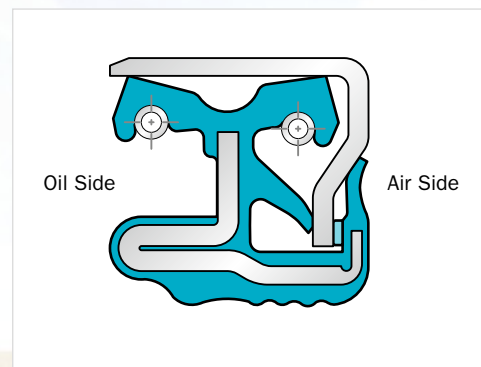
Cassette Seal System 500

The Trelleborg Sealing Solutions System 500 seal was developed primarily for rotating wheel hubs in heavy-duty vehicles such as off-road trucks. The ID of the seal is mounted onto the stationary shaft and the OD pressed into the rotating bore of the hub, creating a fully enclosed seal. In this way, dirt and contamination are effectively sealed out, while lubrication is retained. The rubber ID of the System 500 provides a firm positive seal on the shaft, yet allows it to be easily installed. In particularly dirty environments, it can be supplied with additional integral dirt protection - the HRV seal. The System 500 can run at surface speeds of up to 8 m/s / 26 ft/s for rotating shafts and 10 m/s / 32 ft/s for rotating hubs.



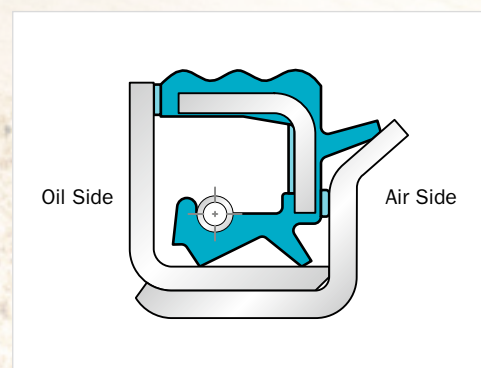
Cassette Seal System 3000

System 3000 was specially developed for off-highway machines and vehicles. The design not only improves water and dirt exclusion, but also its ability to operate with eccentricities, over-pressure and shaft misalignment. With two sealing lips equipped with compression springs, System 3000 provides exceptional sealing performance, and offers double the lifetime of other system seals. The seal can be used in speeds up to 4 m/s / 13 ft/s.



Cassette Seal System 5000

The System 5000 distinguishes itself through its inverted design, meaning the sealing element is fixed and the casing components rotate with the shaft. In this way, System 5000 integrates the necessary shaft counterface as well as the dirt exclusion. This is the reason why it can prevent road dirt from entering the system while preventing oil leakage. For this system, the maximum surface speed is 15 m/s / 49 ft/s.



Proven in lab and field

Successfully performing for a total of 1,500 hours in slurry testing, over 3,000 hours in hot oil tests and over one year in grueling field conditions without leakage, the CSL 1500 impressively demonstrates the results of a cutting edge technology based on 40 years of experience.



SLURRY TEST

Test conditions were as follows:

Housing size:	230 mm / 9.055 inch
Oil temperature:	heat up to +194 °F heat up to +90 °C
Test oil:	mid-shaft
Slurry:	10% clay, 7% fine sand, remainder water
Shaft to bore misalignment:	minimal
Speed:	0.32 and 1.6 m/s with OD of 190 mm 27 rpm and 140 rpm with OD of 7.480 inch
Direction:	Clockwise & Anti-clockwise
Duration:	in total 1,500 hours

Measured: Oil leakage collected in drip tray.

Pass Criteria: no measurable leakage

HOT OIL TEST

Test conditions were as follows:

Housing size:	230 mm / 9.055 inch
Oil temperature:	heat up to +194 °F heat up to +90 °C
Test oil:	mid-shaft
Pressure:	0.03 MPa / 4.35 psi
Run-out:	minimal
Shaft to bore misalignment:	minimal
Speed:	1.6 m/s with OD of 190 mm 140 rpm with OD of 7.480 inch
Direction:	Clockwise & Anti-clockwise
Duration:	500 hours Ran to failure - over 3,000 hours

Measured: Oil leakage collected in drip tray.

Pass Criteria: no measurable leakage

Cutting Edge Technology

Stacked design

The stacked design allows more room to add components and permits a much larger volume of grease between the lips, which serves as a barrier to contamination.

Metal/Rubber OD

The metal/rubber outer diameter gives a positive static seal, but still allows dissipation of heat from the contaminant lip.

Metal cases

The metal cases have been designed in such a way that no crimping is needed to keep them together, allowing for cost-effective manufacturing.

Metal can

The step in the outside of the metal adds stability to prevent deformation during assembly.

Oil-facing side

The oil-facing lip is open to oil, which allows a cooling flush of oil during operation.

Axial lip

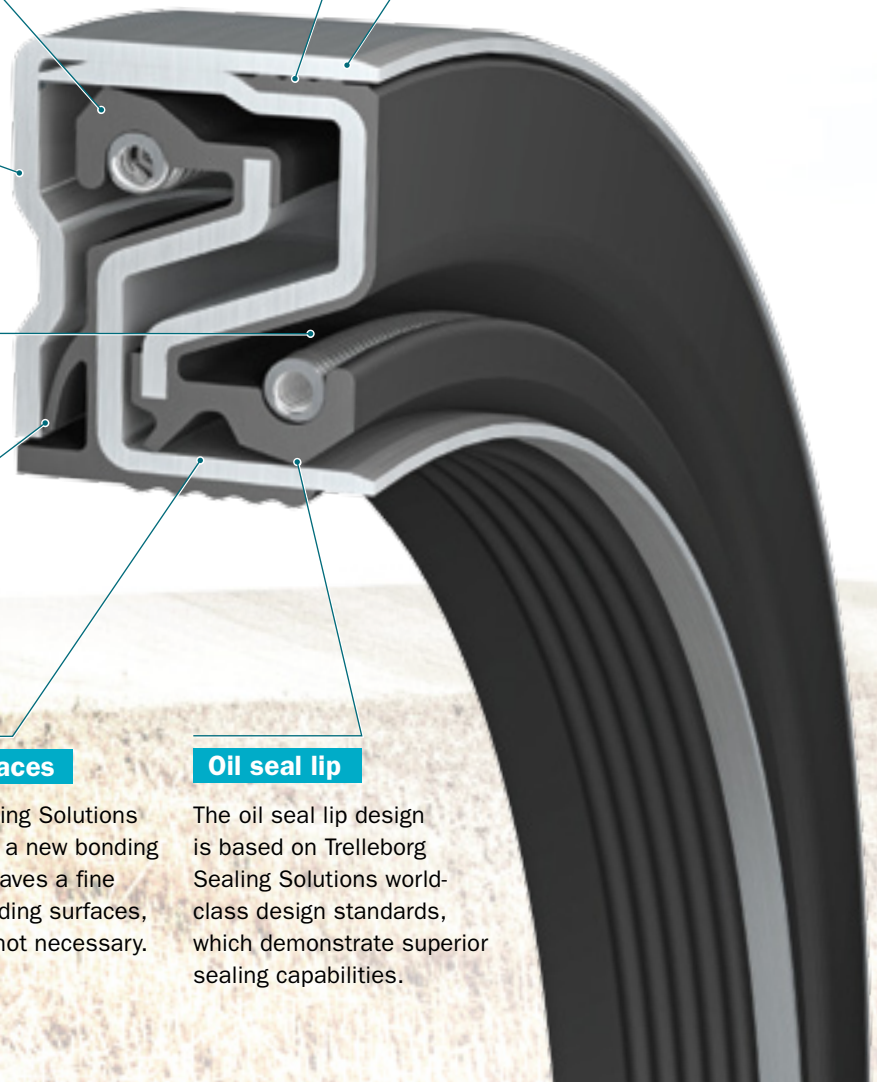
The axial lip is also open to allow contaminants to flush out, preventing them from packing around the lip.

Riding surfaces

Trelleborg Sealing Solutions has developed a new bonding method that leaves a fine finish on the riding surfaces, so grinding is not necessary.

Oil seal lip

The oil seal lip design is based on Trelleborg Sealing Solutions world-class design standards, which demonstrate superior sealing capabilities.



Contact your local marketing company for further information:

Europe	Telephone	Americas	Telephone
Austria – Vienna (Slovenia)	+43 (0) 1 406 47 33	Americas Regional	+1 260 749 9631
Belgium – Dion-Valmont (Luxembourg)	+32 (0) 10 22 57 50	Brazil – São José dos Campos	+55 12 3932 7600
Bulgaria – Sofia (Belarus, Romania, Ukraine)	+359 (0) 2 969 95 99	Canada – Etobicoke, ON	+1 416 213 9444
Croatia – Zagreb (Albania, Bosnia and Herzegovina, Macedonia, Serbia, Montenegro)	+385 (0) 1 24 56 387	Canada East – Montreal, QC	+1 514 284 1114
Czech Republic – Rakovník (Slovakia)	+420 313 529 111	Canada West – Langley, BC	+1 604 539 0098
Denmark – Copenhagen	+45 48 22 80 80	Mexico – Mexico City	+52 55 57 19 50 05
Finland – Vantaa (Estonia, Latvia)	+385 (0) 207 12 13 50	USA, Great Lakes – Fort Wayne, IN	+1 260 482 4050
France – Maisons-Laffitte	+33 (0) 1 30 86 56 00	USA, Midsouth – Mt. Juliet, TN	+1 615 800 8340
Germany – Stuttgart	+49 (0) 711 7864 0	USA, Midwest – Hanover Park, IL	+1 630 539 5500
Greece	+41 (0) 21 631 41 11	USA, Northern California – Fresno, CA	+1 559 449 6070
Hungary – Budaörs	+36 (06) 23 50 21 21	USA, Northwest – Portland, OR	+1 503 595 6565
Italy – Livorno	+39 0586 22 6111	USA, Southwest – Houston, TX	+1 713 461 3495
The Netherlands – Rotterdam	+31 (0) 10 29 22 111		
Norway – Oslo	+47 22 64 60 80	Asia Pacific	Telephone
Poland – Warsaw (Lithuania)	+48 (0) 22 863 30 11	Asia Pacific Regional	+65 6 577 1778
Russia – Moscow	+7 495 982 39 21	China – Hong Kong	+852 2366 9165
Spain – Madrid (Portugal)	+34 (0) 91 71057 30	China – Shanghai	+86 (0) 21 6145 1830
Sweden – Jönköping	+46 (0) 36 34 15 00	India – Bangalore	+91 (0) 80 3372 9000
Switzerland – Crissier	+41 (0) 21 631 41 11	Japan – Tokyo	+81 (0) 3 5633 8008
Turkey – Istanbul	+90 216 569 80 84	Korea – Seoul	+82 (0) 2 761 3471
United Kingdom – Solihull (Eire)	+44 (0) 121 744 1221	Malaysia – Kuala Lumpur	+60 (0) 3 9059 6388
Africa Regional	+41 (0) 21 631 41 11	Taiwan – Taichung	+886 4 2382 8886
		Thailand – Bangkok	+66 (0) 2732 2861
		Singapore	
		and all other countries in Asia	+65 6 577 1778
		Middle East Regional	+41 (0) 21 631 41 11
		(Without GCC Region)	
		Middle East GCC Region	+91 (0) 80 2245 5157
		(Bahrain, Kuwait, Oman, Qatar, Saudi Arabia, United Arab Emirates)	



Trelleborg is a world leader in engineered polymer solutions that seal, damp and protect critical applications in demanding environments. Its innovative engineered solutions accelerate performance for customers in a sustainable way. The Trelleborg Group has local presence in over 40 countries around the world.