

BOOST PRODUCTIVITY AND LOWER MAINTENANCE COSTS

Increase equipment durability and efficiency
for smoother operation and fewer breakdowns,
even in tough conditions.



Cassette Seals
and Combi Seals



Rotary Seals for agriculture applications

Cassette Seals

Angst+Pfister cassette seals consist of several elements integrated together which perform as an all-in-one oil seal, wear bushing and contamination protection thanks to the labyrinth created by the sealing lips.

These can be customized for a wide range of rotating shaft applications, allowing machineries, equipment and transmissions manufacturers to install cutting-edge sealing technologies, which eliminate the need for very expensive shaft rework and costly maintenance to eliminate the effects of abrasion and wear.

Customized in different configurations based on the needs of specific applications, cassette seals can optimize performance in terms of friction, lubricant leakage, external contamination and overall operating costs.

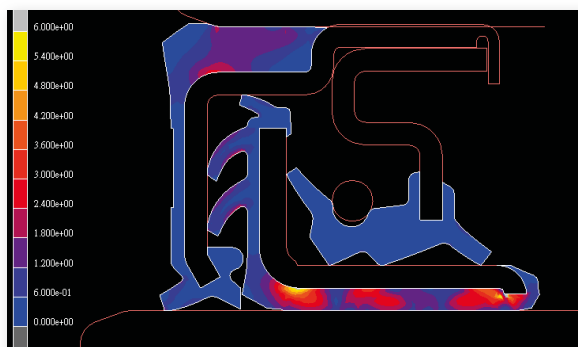
Available in different materials (NBR, HNBR, ACM, FKM) even different for the two parts, the cassette seals can work at temperatures between -40°C and $+150^{\circ}\text{C}$, up to peripheral speeds of 10 m/s.



Fully equipped testing laboratories to conduct several types of tests, including dust resistance test, mud resistance test and superimposed vibrations test

Features and Benefits

- Customizable design to adapt the seal to existing grooves
- The internal wear bush eliminates the need for subsequent treatments on the shafts, including chrome plating and grinding, while eliminating abrasion and wear phenomena.
- Optimized labyrinth layout to protect from external contaminants such as mud, dust, debris
- Pre-greased, the internal lubricant reduces friction and heat generation.
- The over-molded rubber on the metal internal diameter helps installation on and disassembly from the shaft.
- The outer rubber diameter can be made corrugated to reduce the assembly forces and compensate for any thermal expansion of the housing.

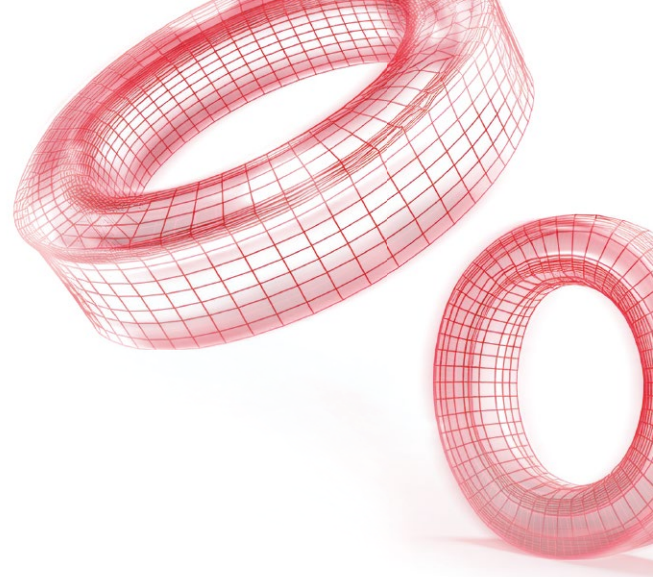


Customized software tools for rubber material allow the simulation through FEA to assist in the design of the seal, predicting several parameters like stress distribution, contact pressure, friction force, thermal effects and seal life

R&D Capabilities

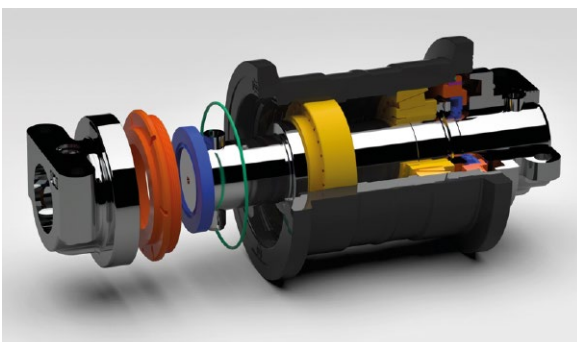
Angst+Pfister can rely on several technical departments, both in the headquarter and local, with which it is able to develop specific designs and submit its cassette seals to intensive durability tests (oil leakage test, dust resistance test, mud resistance test), adapting its benches to the geometric conditions of the application.

We also use the most modern FEM/FEA technologies to simulate our new solutions, and we can develop new compounds to optimize all application parameters. Our engineering team is ready to support you in developing sealing solutions suited to your specific needs.



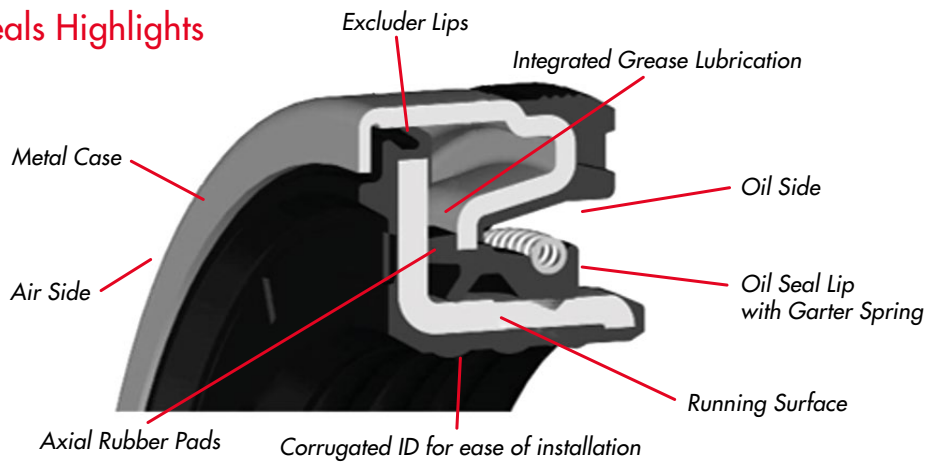
Power harrows must be protected from external contamination in the area of the tines, while the rotor shafts must remain lubricated.

Sealed hubs for disc harrows must be protected from external contamination by a shaft seal ring, which also prevents leaks.



Rotary seals are required to seal lubricant into the rollers of crawler tracks and to prevent external contamination in heavily polluted environments.

Cassette Seals Highlights



Combi Seals

In applications where minimal axial play is crucial and operating speeds are higher, A+P offers a variety of Combi Seal designs. These seals are engineered to meet demanding requirements by combining two essential elements: a primary seal that prevents lubricant leakage and an additional protective element that guards against external contamination. Both elements are encased within a metal framework, which may be partially covered in rubber to enhance sealing efficiency.

The additional dust protection component can be crafted from polyurethane or felt, depending on the specific needs of the application. This versatility allows Combi Seals to be tailored to various operational environments, ensuring optimal performance and durability.

Combi Seals are suitable for both driveline applications and auxiliary equipment, such as power harrows. Their robust design and dual-element configuration make them an excellent choice for protecting critical components from contamination and ensuring reliable operation.

Applications



Tractors and Agricultural Machineries



Attachments and Implements



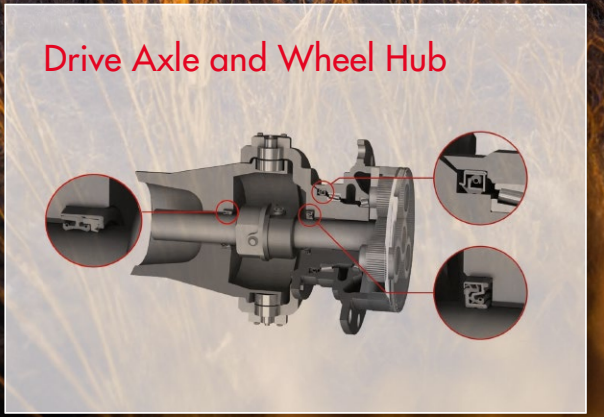
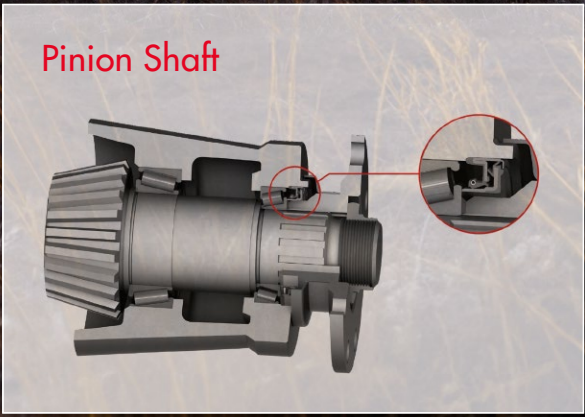
Construction and Forestry Machines



Transmissions and Drivelines



Tracked Machines



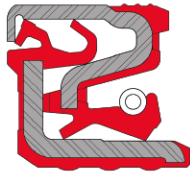


Components requiring Cassette and Combi Seals

- Wheel Hub
- Pinion Shafts
- Gearboxes
- Bearing Housings
- Drivelines
- Axles
- Drive Shafts
- Power Take Off
- Hydraulic equipment



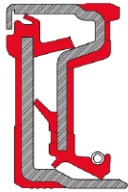
Cassette Seal Design Concepts



Standard design for applications on wheel hubs of Agricultural machines or special ones



Design with labyrinth which fits an additional spring loaded lip to increase protection against external contamination



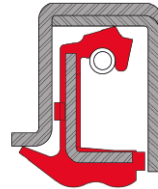
Developed for pinion applications, this design can also withstand superimposed vibrations generated by hinged axles.



Design with labyrinth to protect grease-lubricated bearings and ensure maximum protection against external contamination

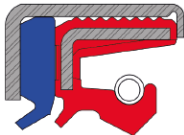


Springless design to minimize friction and wear caused by the rotary movement

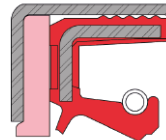


Cassette seal to be used on static shaft and rotating hubs

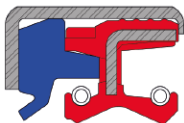
Combi Seal Design Concepts



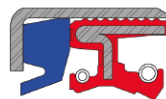
Moderate and high speeds, low axial offset possible, moderate and strong dirt ingress protection



Mainly for low and moderate speeds, low axial offset possible



Medium speeds and medium axial offset, medium and strong dirt ingress protection



Medium speeds and high axial offset, medium and strong dirt ingress protection

About Us

The Angst+Pfister Group, headquartered in Switzerland, has been a leading innovation development partner for technical components and engineering solutions for over a hundred years.

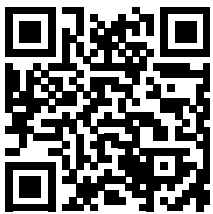
Through local sales and technical organizations, the company serves every year more than 20'000 customers in over 50 countries. Angst+Pfister operates research and development centers as well as production facilities worldwide that, together

with a global network of highly selective partners worldwide, allow to serve our customers in the most efficient and innovative way.

Angst+Pfister stands for the highest possible degree of responsibility – good corporate governance, fair competition, the well-being of our employees, and social and environmental responsibility are our guiding principles in all areas of our business.

Get in Touch with Us!

We're here to help you find the best sealing solutions for your needs. Contact us today to learn more about how Angst+Pfister can support your operations.



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