Rotary Seals for Wind Energy
Vast range of profiles with proven longevity

Parker rotary seal advantages:

Parker is uniquely positioned to provide wind turbine manufacturers worldwide availability to a wide range of sealing solutions. We work with our customers to provide solutions to meet their service life objectives — from short term, cost effective solutions to 20 year service life. Quick response to customer needs is facilitated by engineering, manufacturing and logistics capabilities which include:

- In-house tooling
- CAE including finite element analysis (FEA) for rapid prototypes, design and delivery
- Global footprint for service and support when and where you need it.

Product Features:

- High performance materials and patented designs deliver reliable, long seal life
- Expansive selection of profiles in size ranges from 1/2” to 80” dia (12mm to 2032mm)
- Split seal profiles available for easy installation
- Parker’s global service, support, and availability is unmatched
- Short lead times on design, tooling and product

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ProTech™ Advanced Seal Technology

Upgrading to ProTech provides:
• Greatly extended seal life for the life of the bearing
• Energy efficiencies
• Design change ease
• Availability of split designs facilitate easy field repairs
• Wide range of available materials

Standard ProTech designs are available in sizes to 38" (965mm) diameter. Custom sizes as well as custom designs are available to 72" diameter (1828mm).

<table>
<thead>
<tr>
<th>Feature</th>
<th>Benefit</th>
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| Non-contact design                           | • Improved energy efficiencies with virtually no torque consumption  
                                              • Will not damage shaft due to friction or drag               |
| Two-piece unitized construction              | • Complete exclusion of dust and water  
                                              • Zero oil leakage  
                                              • Fewer components  
                                              • Easier installation                                          |
| Accommodates greatest axial movement in the industry | • Reduces a major factor causing labyrinth seal leakage     |
| Fluoroelastomer O-rings                      | • Static elastomer seal for the most severe services         |
| High shaft speeds                            | • Operates far beyond shaft speed limits of standard radial lip seals  
                                              • Liberal specifications for shaft and bore finish result in cost savings |
| Precision machined seal                      | • Design changes are easily accommodated  
                                              • Allows retrofit of most bore and shaft combinations         |
| Can be split                                 | • Easy installation for field retrofits where equipment cannot be uncoupled or disassembled. Requires no wear sleeves or shaft refurbishment. |

Clipper® Oil Seal Profiles

Clipper® Oil Seals feature an integrally molded rubber fiber outer case and an elastomeric seal lip. The unique, nonmetallic construction will not rust or corrode and forms a gasket-type seal between the equipment housing and the seal outside diameter. Clippler split seal profiles are known as the easiest to install because they do not require a coverplate and may be replaced in the field with minimal downtime.

<table>
<thead>
<tr>
<th>Profile</th>
<th>Features</th>
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<tbody>
<tr>
<td>LUP</td>
<td>LUP and LPD profiles: General purpose spring-loaded single lip seal. Features non-metallic composite OD for damage-free installation. LPD can be furnished with/without spring retainer feature.</td>
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<tr>
<td>LPD</td>
<td>LDS profile has a primary spring-loaded lip with a non-spring-loaded secondary lip for exclusion of light dust or contamination.</td>
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<tr>
<td>LDS</td>
<td>RUP/RPD profiles. Used for split seal requirements at lower shaft surface speeds.</td>
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</tbody>
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ProTech bearing isolator seals are available in a wide range of materials, including PTFE, metals & alloys.