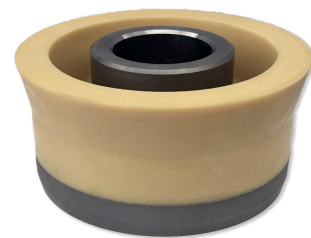




aerospace  
climate control  
electromechanical  
filtration  
fluid & gas handling  
hydraulics  
pneumatics  
process control  
sealing & shielding



## High Performance Seals For Fracking & Mud Pumps



ENGINEERING YOUR SUCCESS.



# Increased Performance and Productivity

Extend maintenance intervals and increase uptime of pumps in oil and gas operations

Parker's experienced engineering team understands the critical equipment needed to explore, drill and produce today's wells. You can rely on Parker's expertise in polymer science and sealing technology to help you design and build robust, reliable systems. As the industry leader in oil and gas applications, we have sealing solutions for piston and piston plunger style pumps as well as positive displacement style pumps.

Oil and Gas pumping equipment is the life-blood for hydraulic fracking and well drilling operations. When pumps go down for planned or unplanned repairs, productivity comes to a halt. Parker's sealing profiles enable equipment to run longer and more efficiently.



## Valve Seals

Valves take a beating from repeated cycling in highly abrasive drilling fluids and aggressive fracking fluids. Valves made with Parker's unique geometry and Resilon polyurethane have shown to extend valve life by over 50%.

- Engineered Resilon seat geometry reduces material failure caused by hysteresis
- Optimized geometry increases service life and reliability of valve seal
- Bonded and snap-in configurations available



## Piston Seals

Parker's design expertise in piston sealing applications has resulted in piston cups that outlast the competition by 50%, reducing costly downtime and eliminating leaks

- Piston seals made from Resilon® polyurethane are long wearing and outperform traditional urethanes in hot water
- Resilon polyurethane resiliency provides consistent sealing with rapid cycling conditions as well as reduces frictional heating
- Compatible with oil and water-base drilling muds



## Well Service Packings

For positive displacement pumps, the materials used in Parker's well service and vee-ring packings have exceptional compressive force resistance to manage side loading yet remain pliable enough for sealing

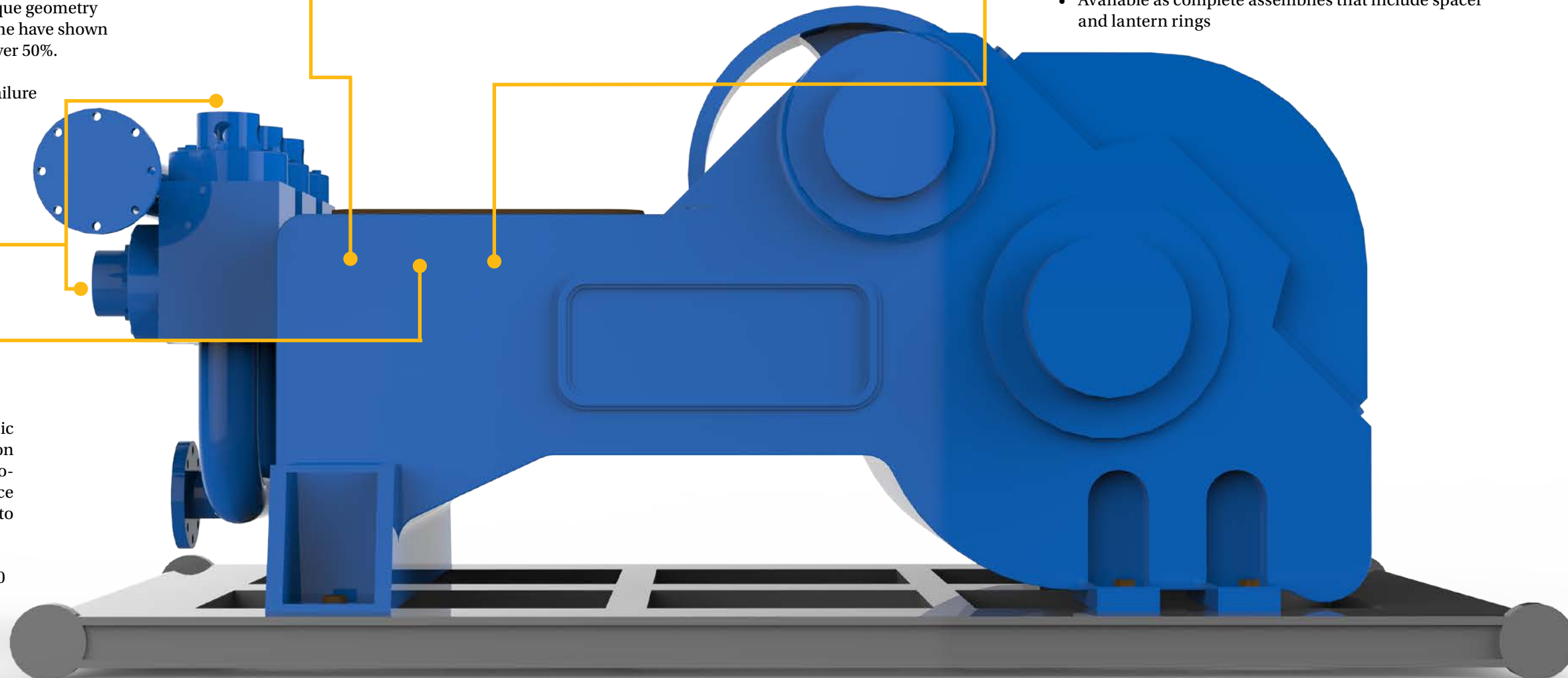
- Material Range: Resilon® Polyurethanes to aramid fabric-reinforced HNBR/FKM
- Compatible with a wide range of fracturing fluids
- Available as complete assemblies that include spacer and lantern rings



## Resilon® Polyurethane Pony Rod Seals

Eliminate leaking of hydraulic fluid and simplify installation by replacing standard two-piece seals with a single-piece design. No more need to replenish lost hydraulic fluid.

- Wear-resistant, high-temperature Parker Resilon® 4300 Polyurethane
- Patented design integrates oil seal and rod wiper into single component
- Secure press fit eliminates the need for snap rings or retaining plates



# Polymer Science Expertise

Parker's advanced material science expertise enables us to design solutions that boost efficiency and improve performance.

Parker helps drilling and servicing companies build robust equipment to meet the challenge of achieving greater production efficiencies, performance improvements and reduction in downtime in the highly competitive oil and gas market.

Our experienced engineering team understands the critical equipment needed to drill and produce today's wells. Companies come to Parker because they know they can rely on our expertise in polymer science to produce solutions to problematic sealing challenges.

One of the challenges oil and gas companies face is working with drilling mud and fracking fluids, some of the most destructive media to be sealed. Parker's proprietary Resilon® material meets the challenges presented in sealing abrasive and caustic fluid with a polyurethane that offers superior wear resistance and the highest operating temperature on the market. To learn more about Resilon Polyurethane sealing materials, go to: [www.parker.com.eps/resilon](http://www.parker.com.eps/resilon)

Contact us to learn how we can solve your engineering challenges.

Advantages of Resilon® Polyurethane over all other commercially available polyurethane seal materials include:

- Excellent abrasion resistance for increased seal life
- Better rebound for faster reaction to rapid changes in pressure
- Toughness for long wearing performance
- Resistance to extrusion at higher pressures
- Thermal suitability for use in applications with continuous operation temperature of 250°F (excursion temperatures up to 300°F).

## Resilon® Polyurethane Physical Properties

| Material Code                  | P4300      | P4301      | P4312      | P4350      |
|--------------------------------|------------|------------|------------|------------|
| Hardness, Shore                | 90 A       | 90 A       | 60 D       | 90 A       |
| Modulus @ 100% elongation, psi | 1674       | 1850       | 2979       | 1870       |
| Ultimate tensile strength, psi | 8021       | 7188       | 7085       | 8340       |
| Ultimate elongation, %         | 638        | 548        | 554        | 570        |
| Specific gravity               | 1.17       | 1.18       | 1.16       | 1.18       |
| Temp range Min to Max (°F)     | -65 to 275 | -35 to 275 | -65 to 275 | -65 to 300 |

Note: Values listed are typical values and should not be used as specification limits.



Polyurethanes are a thermoplastic elastomer. High heat causes the material to soften. High heat melt sample of Resilon 4350 seals (black), Resilon 4300 seal (tan), Leading competitor seal (blue) shown above.

Parker Hannifin Corporation  
Engineered Polymer Systems Division

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