

# OptiSeal® Products Energized Seals and Packing Systems



Precision. Engineered. Performance.

## Proven Design

For over 30 years OptiSeal® systems have provided reliable, low friction seals for multiple industries. By using a variety of profiles and materials, we are able to customize design solutions to specifically address your individual applications and needs. From modeling to manufacturing, our industry-proven design formulas and standards ensure the best performance possible under the most challenging conditions.

## Configurations



OptiSeal® Standard



OptiFace Seal



Opti-Oilseal

The basic design of the OptiSeal® system consists of a U-shaped jacket made from an inert thermoplastic. The addition of a metal spring or elastomer energizes the OptiSeal® to provide sealing at low system pressures. At higher system pressures, the seal becomes pressure-energized by the fluid media. This sealing combination ensures adequate sealing across the entire pressure range.

With diameters from .040" (1mm) to 110" (2.8m), and customizable heights, the OptiSeal® can be configured to fit in almost any hardware. Our broad portfolio of materials used for OptiSeal® designs allows for sealing a multitude of media, from inert to highly reactive and corrosive fluids.

## Lip Profiles

Seal characteristics such as sealability, wear, and friction are affected by lip profile construction and design. In addition to the following standard forms, the lip profile can be customized for specific gland configurations and for service in highly abrasive environments.

Profile & Code	S	A	B	C	D	F	G	J
Reciprocating								
Rotating								
Static								
Oscillating								
High Sealability								
Exclusion								
Low Friction								
Step Gland								
<3/16" ID								

## OptiSeal® Types

- OptiSeal® Standard
- OptiVee
- OptiFace Seal
- Flanged
- Opti-OilSeal

The OptiSeal® system's ability to perform in extreme temperature, pressure, and media make it an ideal choice for critical service sealing. The design benefits of the OptiSeal® system provide robust assemblies for the most extreme conditions, such as:

- High-pressure ranges
- Broad temperature requirements
- Large extrusion gaps
- Static and dynamic applications
- Potential misalignment
- Rough surface finishes
- API 607 FireSafe valves
- Low emission requirements

## Back-Ups

To prevent seal extrusion, an anti-extrusion device, or back-up ring, can be added. Constructed from stronger material, the back-up ring blocks extrusion paths, allowing for maximum seal life in high temperature and high pressure applications.

### Types of Back-Up Rings

- Integral Back-Up Ring
- OptiBack
- Delta Back-Up

Profile & Type
Bi-Directional Sealing
Reciprocating
Rotary
Oscillating
Static
Cryo
High Pressure
Low Pressure
Stackable
Food Service
Available Lip Profiles
Can be used with

## Packing Designs

OptiPak® assemblies are specifically designed for conditions requiring redundant sealing surfaces found in a broad range of applications—from high pressures, and temperature ranges to large extrusion gaps or rough surface finishes.

### Standard OptiPak® System



Tested and qualified by customers to meet API-6A-PR2 standards, this configuration boasts a robust non-elastomeric design for use in liquid and gas applications, as well as valve stems on high-pressure valves and chokes.

### Low-Emission OptiPak® System



The elastomeric composite V-Ring within this assembly provides enhanced sealability for low-emission performance. The positive seal and resilience provided by the V-Ring enhancement work in tandem with the PTFE shell to ensure low friction operation.

### High-Temperature OptiPak® System



This composite assembly enables the OptiPak® system to function optimally in environments with extreme temperatures, such as those found in steam systems. A variation of the standard system, a flexible graphite female replaces the thermoplastic PEEK female. The 1100°F (537.8° C) thermal limit of the graphite seal maximizes its functionality, making it suitable for a broad range of applications, from firesafe valves to geothermal assemblies and rotating swivel joints.

### Rough Surface OptiPak® System



For applications with rough surface finishes, a BL style V-Ring may be added to the OptiPak®. The BL style V-Ring is made from a homogeneous elastomer for superior sealability on rough gland surfaces.



 Preferred      Do Not Use

1 OptiSeal®	2 OptiFace	3 Flanged OptiSeal®	4 Opti-OilSeal	5 Pakring	6 Opti-Ipak®	7 OptiSeal® w/ Back-Up	8 OptiVee® w/ Nipple	9 OptiVee®	10 Flat Band Coil Spring	11 Food Service Filled	12 Integral Back-Up	13 Multi-Spring
All	B	All	B, D	All	All	All	All	All	A, B, D	All	All	All
5, 9-13	10-12	1, 11-13	11, 13	1, 9, 12, 13	1, 5-9	1, 2, 10, 11, 13	1, 5, 11, 13	1, 5, 11, 13	1, 2, 4, 9, 12	1-3, 10, 11, 13	1-3, 10, 11, 13	1, 3-5, 9, 11, 12



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Or talk with our experts at your regional office.

### **In-depth Solutions**

CDI Energy Products is a designer and manufacturer of custom plastic and elastomeric products, seals, and ancillary metal components. As part of the global group Fenner, our multiple locations enable us to partner with clients worldwide to produce unique, high-performance solutions for the energy industry.



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