

# Spring-Energized Cantilever Seal Proves Reliable for Toroidal Swivel Units

Oil and Gas, LNG Industry  
 Chesterton Series 100 – Cantilever  
 Spring-Energized Seal  
 Case Study 001 SES

## Challenge

### Background

A company specializing in offshore mooring systems required seals for its toroidal swivel units. This system was to be deployed on a Floating Liquefied Natural Gas (FLNG) platform. The unit would be positioned above an offshore natural gas field to produce, liquefy, store, then transfer at sea. Seals must prove reliable under extreme pressure and high-temperatures.

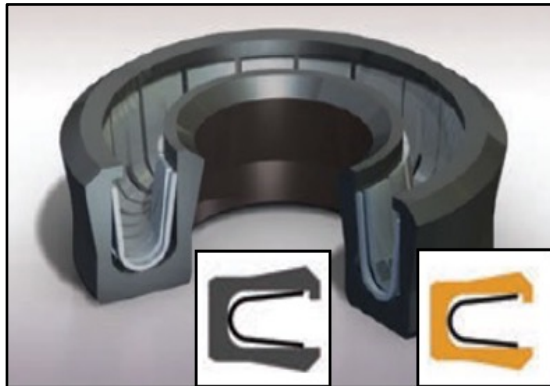


Floating Liquefied Natural Gas (FLNG) Platform.

## Solution

### Product

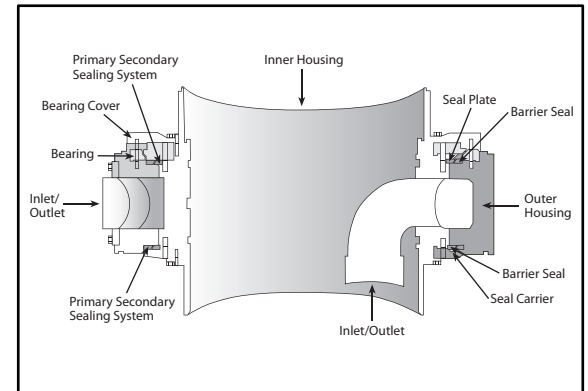
Chesterton Series 100 – Cantilever Spring Energized Seals were installed in the upper and lower seal arrangements. These included both radial and face seal configurations. Jackets were made of UHMW-PE due to its excellent wear and abrasion characteristics. Chamfered PEEK backup rings were used to close the E-Gap and resist extrusion at higher-pressure.



Chesterton Series 100 – Cantilever Spring-Energized Seal.

## Results

Performance of these seals was successfully validated via scaled lab testing and subsequent production testing. The Chesterton Series 100 – Cantilever SES product successfully provided sealing at pressure and temperature per the test program, while also achieving low torque values required by the application. The toroidal swivel system has been successfully deployed for 5+ years.



Toroidal Swivel for Offshore Mooring System.