



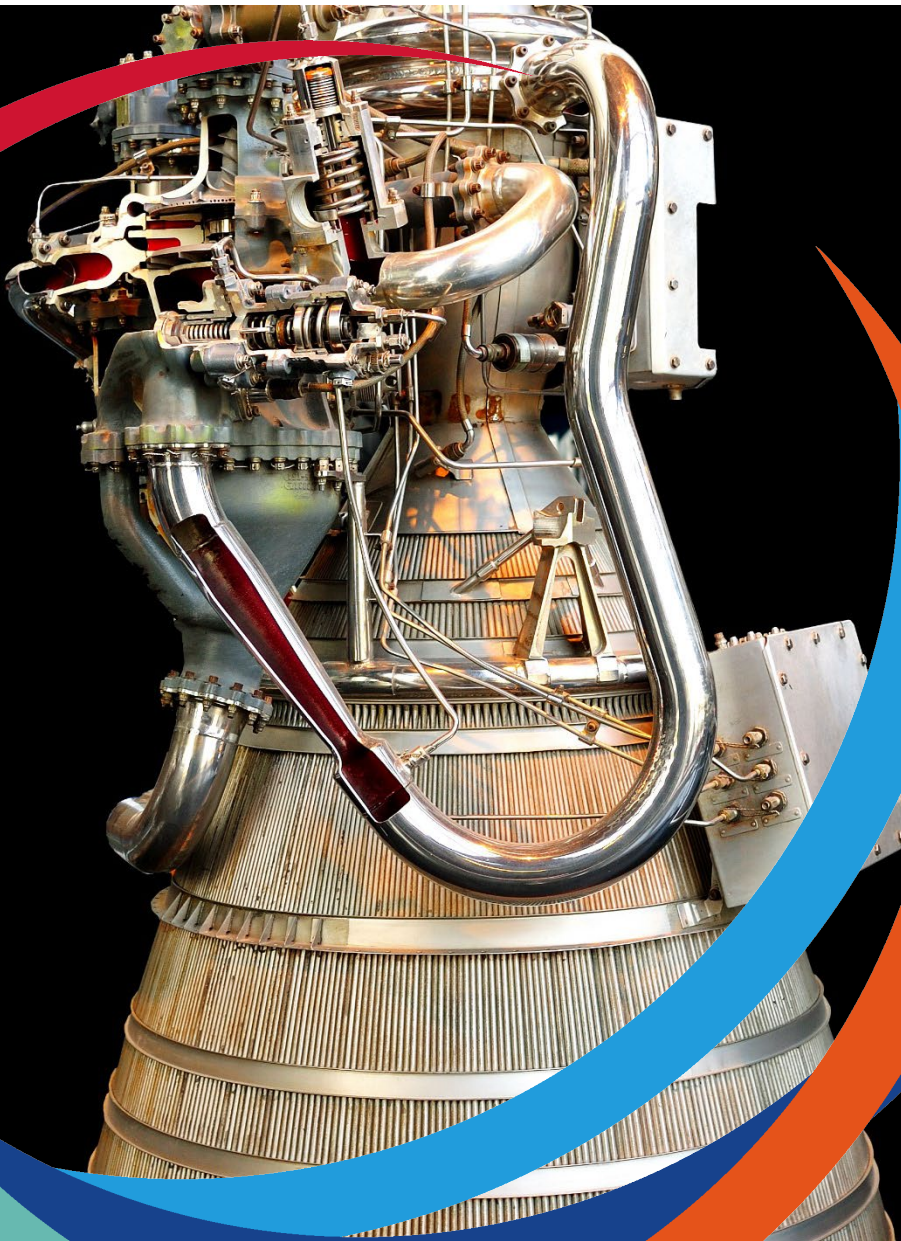
Omniseal Solutions
SAINT-GOBAIN

BEYOND
the boundaries of possible



SPACE CASE STUDY

METAL SEALS FOR LAUNCH VEHICLE COMBUSTION CHAMBER





OMNISEAL® METAL C-SEALS

Metal Seals For Launch Vehicle Combustion Chamber

Hilde Joosen October 2023

LEAK RATE EXTREME ENVIRONMENT HIGH PRESSURE SPRINGBACK

Environment

The combustion chamber in a rocket engine is a main critical part since this area creates the thrust needed to propel the rocket or spacecraft. In order to function properly, this chamber needs to endure extreme temperatures and pressures as well as intense vibrations.

Challenge

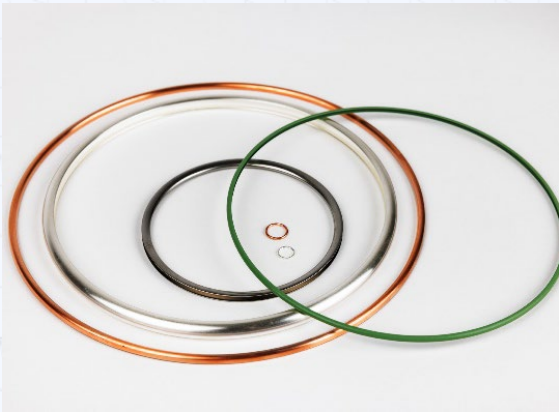
The biggest challenge encountered in a rocket's combustion chamber is managing the constant variation of temperature and pressure. Along with this critical-mission technical element, you must also factor in the required low load and stringent tightness level.



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Solution

High-performance sealing solutions such as Omniseal® metal C-Seals create a tight seal between the combustion chamber walls and the injector plate that is responsible for releasing propellants into the chamber.



Why is a seal so critical in this area? A seal's primary function is to prevent the escape of propellants and maintain a hermetic barrier. By selecting the optimal metal seal, it will provide the necessary resilience, conforming to irregularities in mating surfaces and ensuring a tight seal.

Our metal C-Seals are engineered from advanced materials such as Inconel®. Valued for their resiliency, these solutions are critical for sealing control due to being able to cope with temperature and pressure variations.

Resilient enough to handle extreme
temperature & pressure variations.

Benefits

- Meets demanding leak rate
- Low load/high spring back requirements



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Design Expertise & Tailor-made Solutions for Your Critical Applications

Omniseal Solutions is a global engineering leader with over 65 years of historical legacy, relentlessly dedicated to the design and manufacture of precision sealing and material solutions that protect critical applications in the most demanding environments and passionately driven to push *Beyond the Boundaries of Possible*.



About the Author

Hilde Joosen

District Sales Manager - Space
Kontich, Belgium

+32 486 33 88 91

hilde.joosen@saint-gobain.com

Omniseal Solutions
help@omniseal-solutions.com
www.omniseal-solutions.com