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BEYOND
the boundaries of possible



SPACE CASE STUDY

METAL BOSS SEALS FOR FUEL & HYDRAULIC AS5202 FITTINGS





OMNISEAL® METAL BOSS SEALS

Metal Boss Seals For Fuel & Hydraulic AS5202 Fittings

Hilde Joosen & Kha Le November 2023

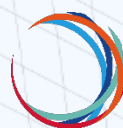
CRYOGENIC EXTREME ENVIRONMENT STANDARD APPLICATIONS

Environment

In space applications, standard fittings are specifically used to tackle several high-end connections and extreme conditions for fuel and hydraulic ports. In particular, AS5202 ports and fittings are installed in not only spacecraft and aircraft but are also valued in nuclear and industrial applications. These fittings have been sealed with an elastomer O-Ring; however, since harsher conditions are becoming more prevalent in these critical industries, this sealing part is no longer an adaptable solution. In addition, the hardware is designed to create a lighter weight on the overall system, and every design needs to be engineered to improve the load and the fuel consumption for future use.

Challenge

What sealing options can be used? In order to replace the elastomer O-Ring in more extreme conditions, there are several metal machined parts being selected today, which induce a strong increase of load available to compress the parts and provide a significant decrease in weight.



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Solution

Due to our many years of sealing expertise in space and aviation markets as well as collaboration with leaders in metal sealing technology (ASE, USA, and HTMS, Belgium, acquisitions), our business is able to provide a more competitive and improved formed metal sealing solution. Currently, we offer two metal seal alternatives in lieu of elastomer O-Rings, metal machined parts, C-type boss seals, and C tail-type boss seals. Our metal designs are pressure loaded, positive sealing devices with specific benefits such as installation ease and adapting to all hardware structure.

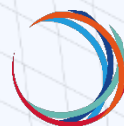
The combination of our metal seal customer support at both USA and Belgium sites allows us to develop a precision solution for your applications. Our offer can be customized with various alloys as well as complementary plating options from our wide range of advanced materials. The final metal boss seal will handle your extreme environmental conditions, i.e., high and low pressure or significant temperature changes, and adhere to engineering and design standards as well as industry regulations.



Going beyond in high pressure
capability & reliability with Omniseal®
metal sealing solutions

Benefits

- Excellent leakage control compared to elastomer O-Ring
- Installation ease for all hardware accessibility
- Strong metal seal expertise to solve all challenges
- Lighter weight of formed seals compared to machined parts



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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 Authors

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