



**Omniseal Solutions**  
SAINT-GOBAIN

# OMNISEAL<sup>®</sup> METALS

PRECISION METAL BOSS SEALS FOR  
STANDARD AS5202 FITTINGS HANDBOOK



**BEYOND**  
the boundaries of possible

  
SAINT-GOBAIN

# Omniseal Solutions' Metal Solutions for Standard Aerospace Fittings

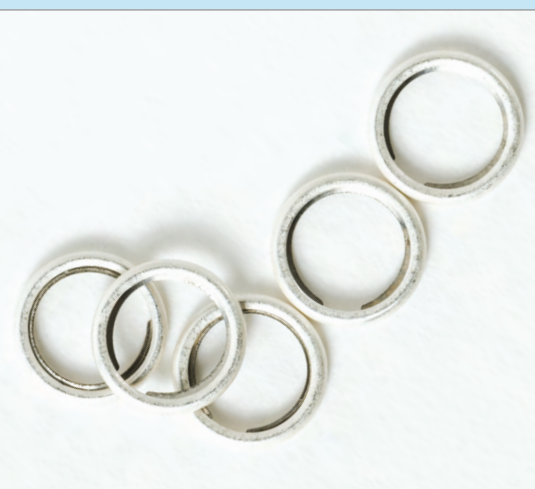
In aerospace applications, standard fittings are used to solve several high-end applications for fuel and hydraulic ports. AS5202 ports and fittings are currently used frequently in spacecraft and aircraft but also in nuclear and industrial applications. Strengthened by our metal sealing expertise, Omniseal Solutions offers two precision solutions for replacing K-Seals / silicon O-Rings in challenging applications. Designed by our engineering teams at our Orange, Connecticut, and Garden Grove, California, USA, manufacturing sites, these metal seals are valued due to a reduction in weight and resistance to extreme conditions (high temperature, cryogenic applications and high pressure).



## Technology Advantage of Omniseal® Metal Boss Seals

- Two designs that adapt to all conditions and applications
- Standard catalogue parts
- Pressure loaded, positive sealing device designed for service in AN port-to-tube fitting
- Harsh conditions resistance compared to elastomer solutions
- Sealing performance
- Light weight compared to machined part

To reach the most optimum performance, we can offer various solutions with customized materials, plating and designs. Thanks to our global engineering teams in the USA, Asia and Europe, we can support you globally as well as locally in selecting the best configuration.



# High Performance Properties of Omniseal Solutions' Metal Boss Seals

There are many benefits in using our metal boss seals for your space, aviation and nuclear applications.

- Temperature range from -453°F to +1,500°F (-269°C to +815°C)
- Compatible with corrosive and radioactive fluids
- Fits standard AS, MS and MC hardware
- Permits full thread engagement (gain of space)
- Lightweight gain compared to K-Seal

Our two metal boss seal designs (OR and GG) solve specific installation conditions – a precision fit for your hardware and application requirements.

- You can install directly on the port thread and symmetrical design.
- You can locate easily on the tube part of the fitting jacket thanks to the tail of the jacket.





# Omniseal Solutions' Metal Boss Seal Offerings

## Ordering as easy as 1-2-3

Seal Part Number should be written as follows:



### Metal Boss Seal (OR) 1200XX-YY

1 2

#### Select Base Material / Plating Number (XX)

- 06 Inconel X750 – Bare
- 07 Inconel X750 – Silver plated
- 27 Inconel X750 – Teflon® coated
- 1 36 316 SS – Silver plated
- 37 316 SS – Bare
- 39 Inconel 718 – Gold plated
- 43 Inconel X750 – Silver with gold flash

#### Select Port Size (YY)

- 01 02 03 04 05 06 07 08
- 2 09 10 11 12 14 15 16 18
- 20 24 28 32

### Metal Boss Seal (GG) 10061-YY-X-Z

2 3 4

#### Select Coating Number (X)

- 0 Teflon®
- 1 Silver
- 2 Gold
- 3 Nickel
- 4 Copper
- 5 Bare

#### Select Crush Ring / Jacket (Z)

- 0 302 SS Cond. A
- 1 Inconel 718 Annealed
- 321 SS AMS 5510
- Inconel 718 Annealed, AMS 5596

	SS Inconel	Aluminum	Liner ID	Free heights	Metal thickness
Dash Number	ft.-lbs.	ft.-lbs.	Inches (mm)	Inches (mm)	Inches (mm)
-1	n/a	n/a	—	0.046 (1.168)	—
-2	7	4,55	.278 (7.061)	0.046 (1.168)	0.006 (0.152)
-3	10	6,5	.341 (8.661)	0.046 (1.168)	0.006 (0.152)
-4	16	10,4	.397 (10.084)	0.046 (1.168)	0.006 (0.152)
-5	20	13	.459 (11.659)	0.046 (1.168)	0.006 (0.152)
-6	26	16,9	.517 (13.132)	0.046 (1.168)	0.006 (0.152)
-7	n/a	n/a	.579 (14.707)	0.046 (1.168)	0.006 (0.152)
-8	60	39	.699 (17.755)	0.046 (1.168)	0.006 (0.152)
-9	n/a	n/a	.761 (19.329)	0.046 (1.168)	0.006 (0.152)
-10	80	52	.817 (20.752)	0.046 (1.168)	0.006 (0.152)
-11	n/a	n/a	.932 (23.673)	0.046 (1.168)	0.006 (0.152)
-12	130	84,5	.995 (25.273)	0.062 (1.575)	0.010 (0.254)
-14	170	110,5	1.120 (28.448)	0.062 (1.575)	0.010 (0.254)
-15	—	—	1.183 (30.048)	0.062 (1.575)	0.010 (0.254)
-16	200	130	1.245 (31.623)	0.062 (1.575)	0.010 (0.254)
-18	—	—	1.432 (36.373)	0.062 (1.575)	0.010 (0.254)
-20	152	98,8	1.557 (39.548)	0.062 (1.575)	0.010 (0.254)
-24	175	113,75	1.807 (45.898)	0.062 (1.575)	0.010 (0.254)
-28	n/a	n/a	2.182 (55.423)	0.062 (1.575)	0.010 (0.254)
-32	265	172,25	2.432 (61.773)	0.062 (1.575)	0.010 (0.254)

Please note that combinations of other base materials / platings are available. Please contact our metal sealing experts if you need assistance in selecting a precision metal boss seals solution, or if your application includes any extreme or unusual conditions such as high temperature.

## DESIGN

### Jacket materials:

Inconel X-750, Inconel 718, Stainless Steel

### Washer/ring materials:

300 series SS, Inconel 718, and others

### Platings and coatings:

PTFE	-423°F to +500°F (-252°C to +260°C)
Silver	-320°F to +1,300°F (-196°C to +704°C)
Gold	+423°F to +1,400°F (+217°C to +760°C)
Nickel	-453°F to +1,500°F (-269°C to +815°C)
Copper	-423°F to +1,500°F (-252°C to +815°C)

## PERFORMANCE

### Leakage rate:

10<sup>-8</sup> to 10<sup>-9</sup> mbar.l/s

### Temperature range:

Cryogenic to +1500°F (+815°C)

### Pressure range:

up to 12,000 PSI – with our technical team support

### Media:

LOX, Helium, Nitrogen, Hydrogen, Methane, Hydraulic fluids

## Precision Sealing & Material Solutions

In the space, aviation and nuclear industries that have demanding specifications, they rely on partners like Omniseal Solutions with many years of expertise and proven metal sealing and material solutions.

## Global Capabilities & Services

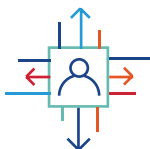
- Sealing Control In Extreme Environments
- Material Expertise & Formulation
- Customer Intimacy & Co-Development
- Precision Processing & Manufacturing
- Advanced Simulation & Data Engineering
- Rapid Prototyping & Samples



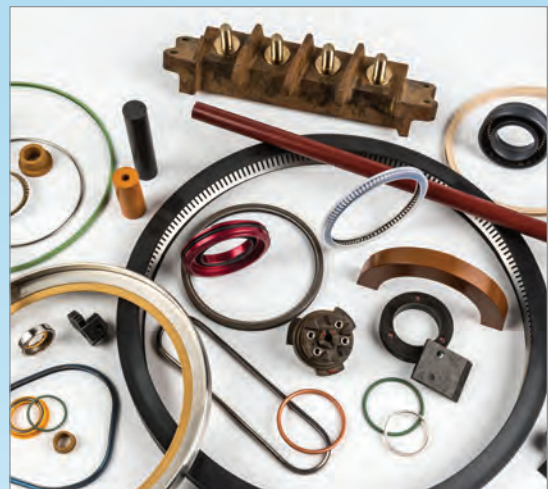
Material Expertise



Manufacturing Specialists



Collaborative Design Partners



### Solutions

### Main Features

#### OMNISEAL® POLYMERS

High-Performance  
Spring-Energized Seals

- Temperatures from -210°C to +316°C (-346°F to +600°F).
- Pressure: Vacuum up to 3,448 bar (50,000 psi).
- Low and controlled friction.
- Broad chemical resistance.

High-Performance PTFE  
Rotary Shaft Seals

- Temperatures from -53°C to +232°C (-65°F to +450°F).
- Shaft speed in excess of 36 m/s (7,000 fpm).
- Pressures up to 35 bar (508 psi).

#### RULON® FLUOROPOLYMERS

High-Performance  
Fluoropolymer Compounds

- Temperatures from -268°C to +316°C (-450°F to +600°F).
- Low friction, high wear life and broad chemical resistance.

#### MELDIN® POLYIMIDES

High-Performance Thermoset  
Polyimide Materials

- Temperatures from cryogenic through +316°C (+600°F), intermittently up to +482°C (+900°F).
- Superior strength and rigidity combined with self-lubrication properties.

#### OMNISEAL® METALS

High-Performance Metal Seals

- Temperatures from cryogenic up to +1,093°C (+2,000°F).
- From ultra-high vacuum to 6,894 bar (100,000 psi).
- Leakage performances as low as  $10^{-10}$  sccs with GHe

# ONE GLOBAL TEAM... A DEDICATED CUSTOMER FOCUS



## GLOBAL & LOCAL PRESENCE

With 17 manufacturing facilities in 10 different countries, Omniseal Solutions is a diverse group that is committed to being customer centric.

**Contact our team of experts for more information. We have local resources to support you!**

- **Americas:** Garden Grove, CA, USA; Bristol, RI, USA; Orange, CT, USA; Cleveland, OH, USA; Northboro, MA, USA; Saltillo, MX; Vinhedo, Brazil
- **Europe:** Kontich, Belgium; Vimercate, Italy; La Rioja, Spain; Kolo, Poland; Willich, Germany
- **Asia:** Shanghai, China; Bangalore & Chennai, India; Suwa & Tokyo, Japan; Seoul & Incheon, South Korea; Taipei & Yilan, Taiwan; Rayong, Thailand

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