

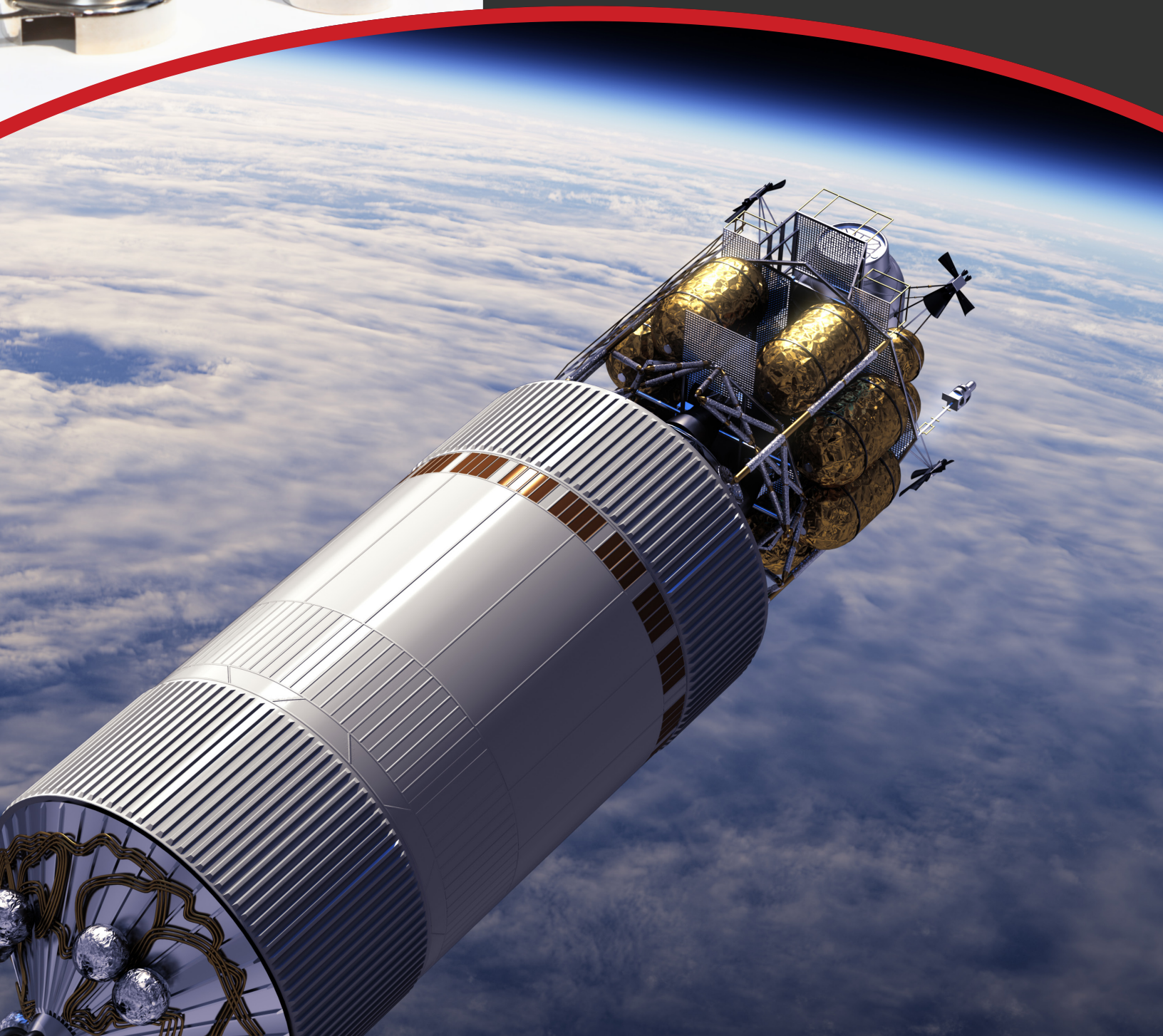
# M $\mu$ Shield®

AS:9100 | ISO 9001:2015 Certified | ITAR Registered Company



## We'll Go Anywhere.

Magnetic shielding solutions for aviation and space travel, exploration, and more.







## Putting the Space in Aerospace Magnetic Interference

MuShield is the industry's sought after choice when it comes to consulting, building and delivering magnetic shields being utilized in the aerospace market from the earth's soil, to the starlit atmosphere.....

For over 60 years MuShield has been a trusted, technologically advanced partner in the development and execution of magnetic shielding solutions for the aerospace industry.

We've long been on the front lines of:

- Consultation
- Design
- Production
- Protection

MuShield's high permeability magnetic shielding solutions and our precision deep drawn hydroformed parts are found within many applications that exist throughout the aerospace and aviation industries to combat against magnetic interference. MuShield plays a pivotal role in our clients' success and continue to remain above board and ahead of the curve when it comes to industry quality standards.



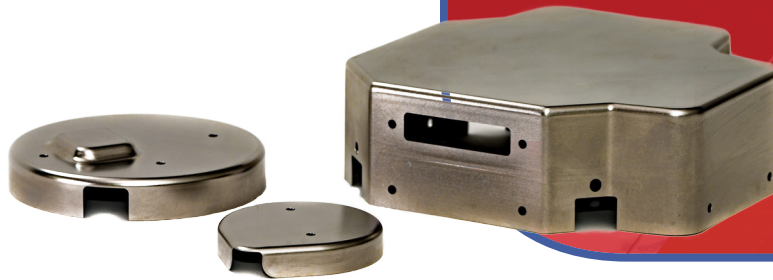
## MuShield made magnetic shielding components are used everywhere from:

- Low flying helicopters
- High altitude airplanes
- Space travel vehicles
- And others...

With constant advances in technology and increased device signal sensitivity, shielding becomes even more important to maintain the functionality and designed precision of avionic equipment from the operative vantage point to guests and applicable patrons utilizing their own devices.

### Such devices and system components may include:

- Navigation systems
- Frequency synthesizers
- Digital circuits
- Telemetry
- Power supplies
- Handheld devices
- Etc.



As you're reading this, many components that we make right here in our New Hampshire plant are orbiting the earth, collecting valuable data and information used for highly technical experiments and operative missions.

Whether we are contracted to fabricate a custom mumetal magnetic shield used to absorb EMI affecting a guidance system, or a hydroformed part being used as a cosmetic cover, every component we make plays a vital part to the aerospace and aviation industries.

Aerospace and aviation device manufacturers look to MuShield to supply them with magnetic shields built at our newly expanded 31,000 sq. ft. facility. The ample room allows us to utilize production methods such as:

- Hydroforming
- 2 Axis and 5 Axis Laser Cutting
- Hydrogen and Vacuum Heat Treating
- Wire EDM
- And many other conventional sheet metal fabrication and forming methods





### Materials We Work with:

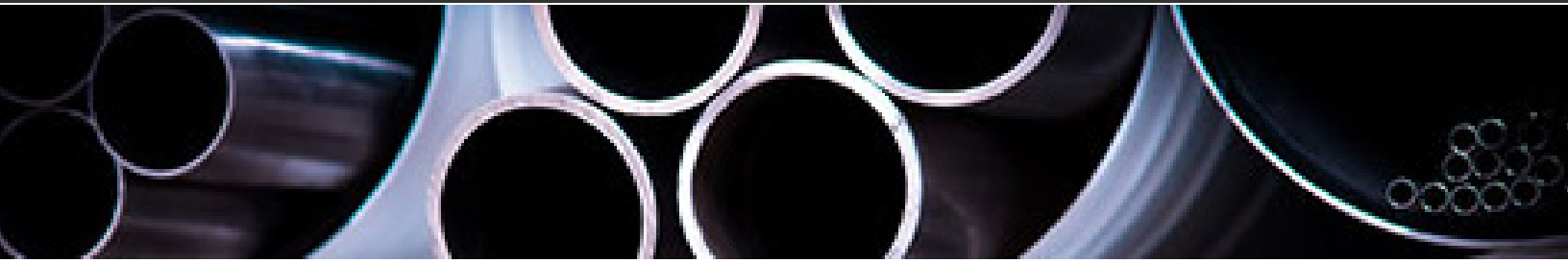
- Magnetic Shielding Alloys
- Materials per spec ASTM A753  
AKA mumetal - Alloys 1-4
- Cryoperm® 10
- Hiperco® 50
- Low Carbon Steel
- Nickel Iron Alloys
- Silicon Irons

### Other Industry Alloys:

- Aluminum and Aluminum Alloys
- Brass
- Copper
- Hastelloy®
- High Temperature Alloys
- Inconel
- Low Carbon Steel
- Stainless Steel
- Tantalum







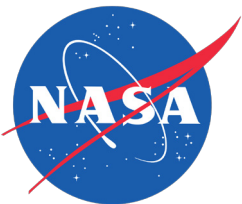
## Two challenges associated with proper EMI solutions

**Weight:** Being sensitive to weight restrictions, we always look to develop the highest performing shield from the lightest materials possible and craftily look for ways to design strategic perforations, and the like, to reduce weight without negatively impacting performance.

**Design and geometry:** This plays right into the “weight” issue above. The geometry of a magnetic shield plays a huge role in whether or not the system will work as expected. You need to partner with someone who not only produces the parts, but also has a keen understanding of how to design and blueprint a part’s unique specs, thus setting yourself up for seamless success.

Our customers come to MuShield due to the experience and expertise we have in manufacturing mumetal and hydroformed piece parts for the aerospace industry. Quality is #1 in our book – and the book is extensive. We took the initiative to get our quality system certified to AS9100D, giving our customers peace of mind that MuShield can not only produce the demanding mumetal magnetic shielding and hydroformed parts their system demands, but also, that they’ll be made right the first time, every time. We continue to evolve our quality system as the aerospace industry dictates to ensure our partners receive magnetic shielding products that meet or exceed their expectations.

This is why our comprehensive list of customers include such industry heavyweights as:



Don't see your name on that list? Let's get to work and figure out the best solution for your unique application!

[info@mushield.com](mailto:info@mushield.com) [ 603.666.4433 ]



## MATERIALS PER SPEC ASTM A753

Can be offered in the following forms

Sheets start at either 24" or 30" wide (based on availability) x 120" long. We have the capabilities to cut your custom blank size.

### Sheet Thicknesses available

.010"	.014"	.020"
.025"	.030"	.040"
.050"	.062"	.125"

Custom thicknesses available upon request.

Coils start at either 12" or 15" wide (based on availability), can be slit to your custom width upon request and can be cut to whatever length you require.

### Coil Thicknesses In Stock

.002"
.004"
.006"
.010"
.014"

### Seamless Tubing (mumetal IAW ASTM A753 Alloy Type 3)

Diameters and lengths based on your custom needs.  
Please contact sales for pricing.

### Round Bar

Standard Diameters available

.250"
.500"
1.00"
1.50"
1.88"

Custom Diameters available upon request.  
Please contact sales for pricing.

### Flat Bar

Custom Dimensions available upon request.  
Please contact sales for pricing.

### Wire

Custom Diameters available upon request.  
Please contact sales for pricing.

## MUSHIELD'S MANUFACTURING CAPABILITIES

Conventional Sheet Metal Fabrication

2-Axis Laser Cutting for Flat Patterns

5-Axis Laser Cutting & Trimming

Hydroforming - Deep Draw

Hydrogen Annealing & Heat Treating

Vacuum Annealing & Heat Treating

TIG Welding

Spot Welding

Laser Welding

Metal Spinning

Stamping

Multi-Axis Machining

Wire EDM

Turret Punching

## CONSULTING & ENGINEERING SERVICES

Consultation for Manufacturing Efficiencies - All Alloys

Magnetic Shielding Consultation

Special Process Development

## QUALITY CAPABILITIES

ISO 9001 : 2015 Certified

AS9100D Certified

ITAR Registered

CMM and Vision System Inspection Equipment for  
Medical and Aerospace Applications

Magnetic Shield Testing



**MATERIALS WE WORK WITH****MAGNETIC SHIELDING ALLOYS**

ASTM A753 Alloy Type 3 and 4 - aka mumetal

ASTM A753 Alloy Type 2 - aka Alloy 49

Cryoperm®

HiPerco® 50

High Saturation/Low Permeability Low Carbon  
Steels and Silicon Iron**OTHER INDUSTRY ALLOYS**

Aluminum and Aluminum Alloys

Brass

Copper

Hastelloy®

High Temperature Alloys

Inconel

Low Carbon Steel

Stainless Steel

Tantalum

From design consultation, to manufacturing,  
final heat treatment and post production  
testing or assistance - MuShield has your back.

[info@mushield.com](mailto:info@mushield.com) [ 603.666.4433 ]







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## Boundless Capabilities Shielded Through Innovation.

For over 60 years, MuShield has been an industry leader in the fabrication of magnetic shields made from high permeability materials. We've long developed trust and working partnerships with our customers who come to us because they know we can analyze their issue and build a solution for their magnetic interference problems.

### Manufacturing Capabilities

- Conventional Sheet Metal Fabrication
- 2-Axis Laser Cutting for Flat Patterns
- 5-Axis Laser Cutting & Trimming
- Hydroforming - Deep Draw
- Hydrogen Annealing & Heat Treating
- Vacuum Annealing & Heat Treating
- TIG Welding
- Spot Welding
- Laser Welding
- Metal Spinning
- Stamping
- Multi-Axis Machining
- Wire EDM
- Turret Punching

### Consulting + Engineering Services

- Consultation for Manufacturing Efficiencies - All Alloys
- Magnetic Shielding Consultation
- Special Process Development

### Quality Capabilities

- ISO 9001 : 2015 Certified
- AS9100D Certified
- ITAR Registered
- CMM and Vision System Inspection Equipment for Medical and Aerospace Applications
- Magnetic Shield Testing



For Orders and Pricing:  
Contact MuShield for more information  
[ 888.669.3549 ]