



***MACHINING MYTHS***

THE FACTS ON  
**ENCLOSURE  
CUSTOMIZATION**

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# THE FACTS ON ENCLOSURE CUSTOMIZATION

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Many people believe that they can order a standard enclosure and customize it themselves to fit their specific application needs; however, this isn't always the case.

Customizing an enclosure can cause minor to serious issues, rendering an enclosure defective, and in extreme cases useless. Phoenix Mecano has compiled this Machining Myths guide to help you avoid these issues.

Machining an enclosure incorrectly may cause:

- Loss of IP rating
- Stress cracks and visual defects
- Exposure of internal porosity and other imperfections

Ensure the protection and integrity of your enclosures. Learn — and avoid — these common misconceptions of machining and customization work.



# Plastic Enclosures



## THE MYTH

Customizing plastic enclosures is easy and straightforward.

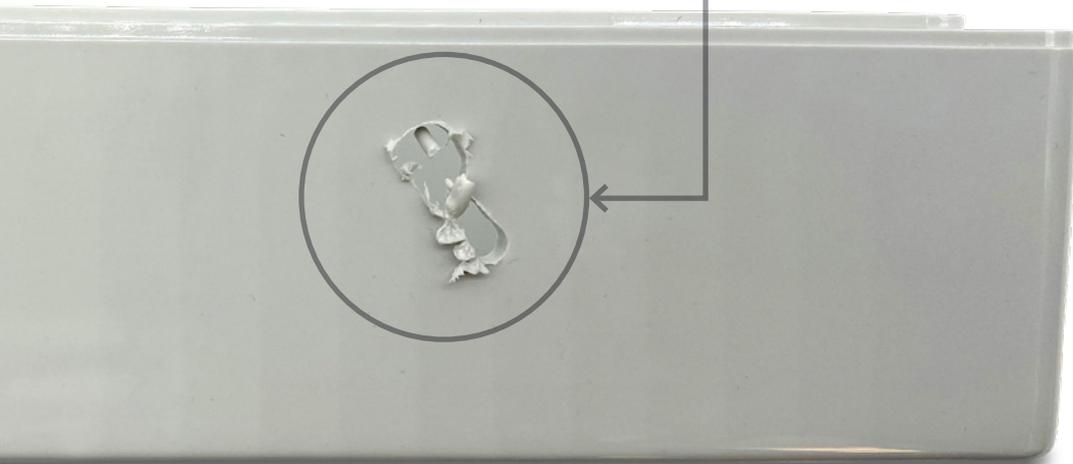


## THE REALITY

Plastic is one of the most difficult materials to machine.

## Here's Why:

- Mill speeds melt plastic
- Mill feeds create stress cracking
- Coolants used react poorly to materials, causing stress cracks
- Poor machining can alter the enclosure's IP rating and cause issues with integrity
- Poor thread engagement
- Certain plastics are sensitive to scratching



# Aluminum Enclosures



## THE MYTH

A common belief is that machining cast aluminum is like machining solid alloy material.



## THE REALITY

Machining aluminum comes with its own set of unique complications.

## The Complications

- Issues with porosity (NADCA standards applicable)
- It necessitates special tooling due to breakage
- Machining parameters (speed/feeds) differ from alloy materials
- Draft angle compensation is required



# Fiberglass Issues



## THE MYTH

Customizing fiberglass is completely safe.



## THE REALITY

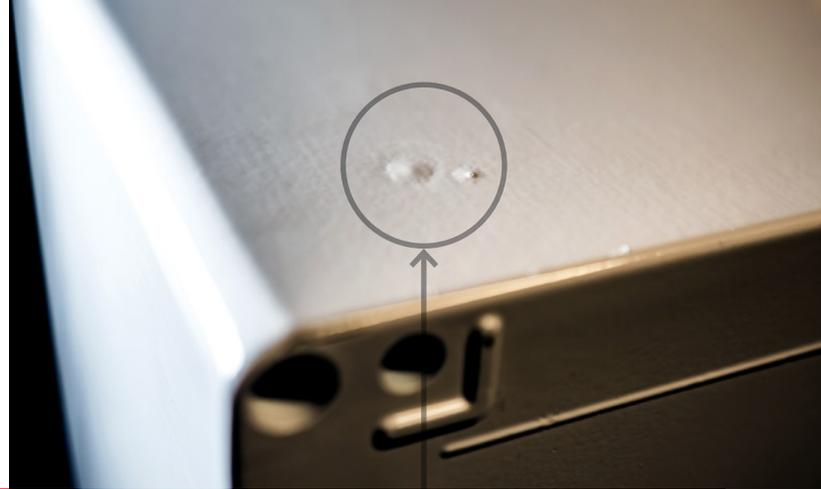
Machining fiberglass can raise safety issues concerning loose fibers.



## The Requirements

- A special vacuum system for glass fibers
- Specialized tools for proper surface finish
- Fitted equipment to ensure dust is not airborne
- Tools wear much quicker due to abrasive glass fibers

# Painting Issues



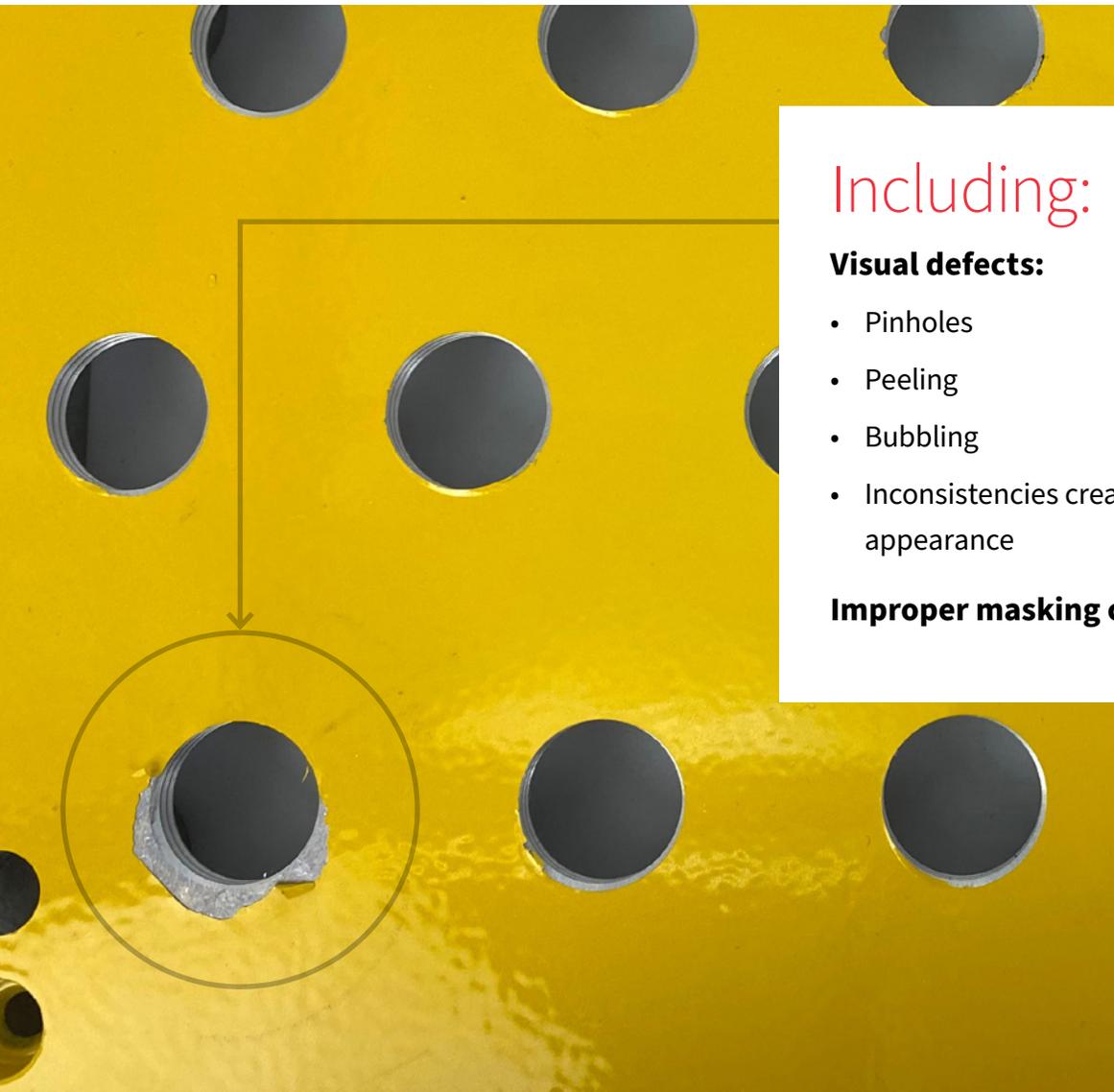
## THE MYTH

Painting enclosures is easy and straightforward.



## THE REALITY

Improper surface preparation can lead to a myriad of problems.



## Including:

### Visual defects:

- Pinholes
- Peeling
- Bubbling
- Inconsistencies creating an “orange peel” appearance

**Improper masking can affect edge quality**

# Value-Added Services —



## OUR CUSTOMIZATION SERVICES SHOULD BE THE LAST STOP ON YOUR ENCLOSURES JOURNEY!

### Assembly & Integration



Short on lead times, high on quality.

Whether it's simple to complex modification, we provide fast results, and consistent quality.

- Cable glands, terminals, mounting plates, DIN rails, connectors, and more
- Threaded inserts or studs, hardware, and RFI/EMC conductive seals
- Membrane keypads and decorative foils

### Branding & Labeling



Incorporating your corporate identity into your application.

Through our screen-printing process, we are able to print your data on any extrusion, housing, or front plate. If you need artwork services, we can cover those, too!

- High-quality, semi-automatic screen printing
- Automated pad printing — a cost-effective solution that can fit many shapes
- Any color available

**CONTACT US TODAY  
TO LEARN ABOUT OUR  
VALUE-ADDED SERVICES!**

### Machining



Total quality, from design to delivery.

Our machining and cutting services include tight tolerance milling, drilling, and tapping. Expect faster lead times and better quality control.

- Machining: Aluminum, plastics, fiberglass, and stainless steel
- Capable of machining tight tolerances

### Surface Treatment



You've got it made in any shade!

We can handle the most complex special finishing and color projects, all while keeping the process simple. Fast delivery and less confusion are the Phoenix Mecano way.

- Chemical Conversion Coating
- Color
- RFI/EMC Shield Coating

### Engineering



Expert design and development.

Top-tier customized solutions.

Trained safety experts provide an on-site assessment that includes inspections of existing machines to determine risk level and guarding compliance as they adhere to OSHA, ANSI and ISO standards.

- Product Design
- Rapid Prototyping

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