

MACHINING MYTHS: • THE FACTS ON ENCLOSURE CUSTOMIZATION



PHOENIX MECANO

THE FACTS ON ENCLOSURE CUSTOMIZATION

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 may cause:

- **Loss of IP rating**
- **Stress cracks and visual defects**
- **Exposed porosity**
- **...and more**

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

PLASTIC ENCLOSURES

MYTH

Customizing plastic enclosures is easy and straightforward.

FACT

Plastic is one of the most difficult materials to machine.

HERE'S
WHY:

- **Mill speeds melt the plastic**
- **Mill feeds create stress cracking**
- **Coolants used react poorly to materials, causing stress cracks**
- **Customization can alter the enclosure's IP rating and cause issues with integrity**
- **Additional issues include:**
 - Cutouts/Hole sizes
 - Thread engagement
 - Sharp edges or burrs caused by torque



ALUMINUM ENCLOSURES

MYTH

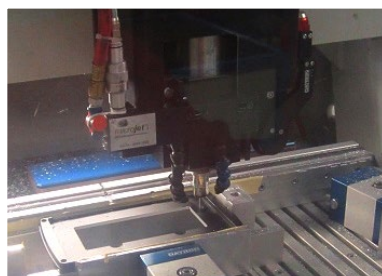
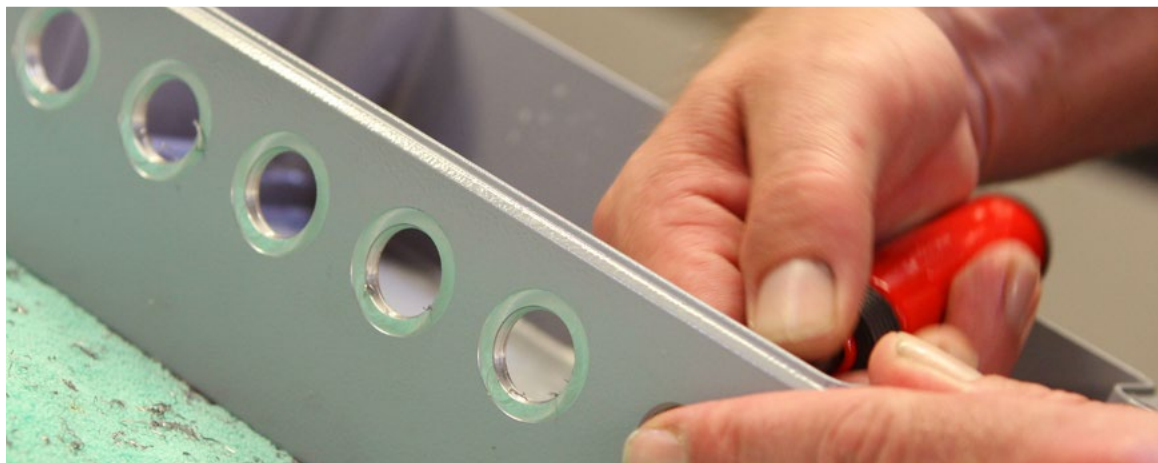
A common belief is that aluminum castings machine/ behave like solid alloy materials.

FACT

Machining aluminum comes with its own set of unique complications.

INCLUDING:

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



FIBERGLASS ISSUES

MYTH

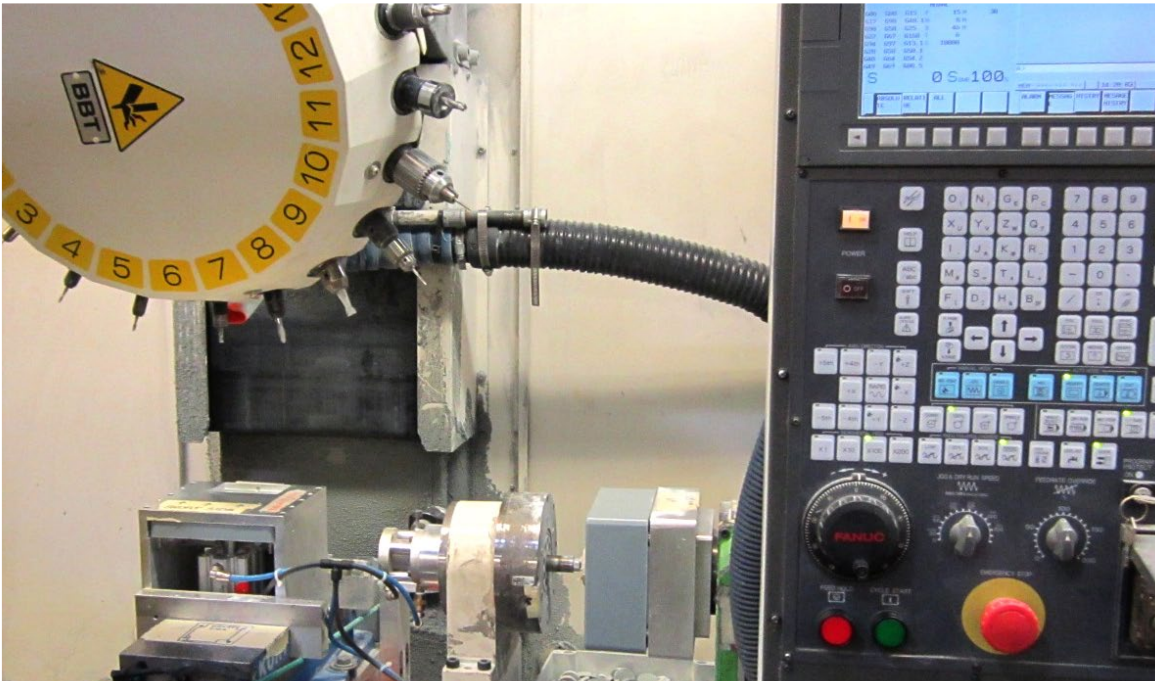
Customizing fiberglass is completely safe.

FACT

Machining fiberglass can raise safety issues concerning loose fibers.

THIS
REQUIRES:

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



PAINTING ISSUES

MYTH

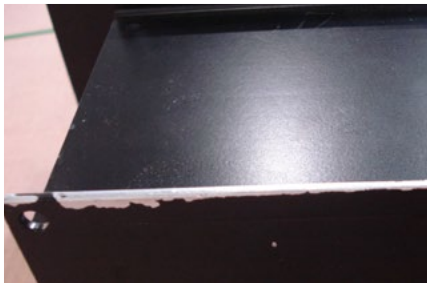
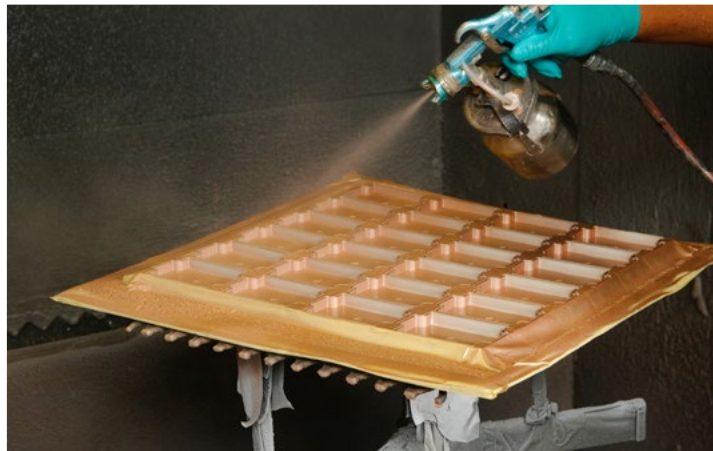
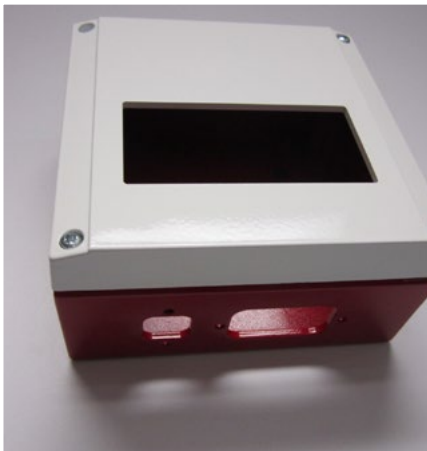
Painting enclosures is easy and straightforward.

FACT

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**



ENCLOSURE CUSTOMIZATION

Customization can also lead to issues with enclosure accessories, such as:

- Cable Entries
- Terminal Blocks, or
- Keypad/Touch Screens

WHEN ORDERING FROM PHOENIX MECANO...

Rest assured that when you discuss your enclosure customization needs with one of our experts, you'll get exactly what you need for your application. Each customer is assigned their own Engineering Project Lead to provide assistance with design drawings and coordinate suppliers for customization, value-add services and/or full assembly.

ABOUT PHOENIX MECANO

Headquartered in Frederick, MD, Phoenix Mecano USA is the North American sales and value-added manufacturer of the Swiss-based holding company Phoenix Mecano Group. Through our Rose Industrial Enclosures, Bopla Electronic Enclosures, and RK Automation Solutions product lines, our enclosure and automation solutions have been protecting and moving the world's innovations for over 30 years.



For more information about enclosure customization risks or to speak with a customer service representative, call 301-696-9411, or for technical assistance, please call 301-696-2126.