

## Frequently Asked Questions

### General Questions

1. What does NMR stand for?

*NMR is an acronym for No Molds Required.*

2. Is the NMR technology just for prototyping?

*The NMR technology is ideally suited for quantities ranging from a 5 piece prototype build to 5000 piece blanket orders.*

3. Can Envision make NEMA rated enclosures?

*Envision Plastics can make plastic housings and enclosures that are dust and moisture resistant. It is up to our client to test and certify the enclosure if necessary.*

4. How can I label connectors or place my logo on the parts?

*The best solution is silk-screening the connector cutouts. The logo may be silk-screened or a pocket recess made to accept a decal with more intricate printing.*

5. What is the standard lead-time?

*Our standard prototyping lead-time is dependent on both the complexity of the plastic part and engineering workload. The typical prototype has a lead-time of approximately three weeks. A four week lead-time is typical for production orders.*

6. Are you able to add EMI/RFI shielding to the enclosure?

*That is not a problem. We work with coating vendors that will apply a thin layer of copper, nickel or silver to the desired surfaces. We have two ways that we apply the coating. The first is to spray the sheet of plastic prior to fabrication. This eliminates the need to mask the part and ensures a even coating coverage. The joints can be touched up if it is deemed necessary. The other way is to have the coating applied after the part is built. This requires more masking and is more expensive.*

7. Does Envision Plastics have any stock plastic enclosures?

*Envision Plastics does not have a stock enclosure. All of the plastic enclosures that we produce are custom designed to fulfill the needs of our customer.*

## Material Questions

1. What type of materials do you work with?

*The core materials that Envision Plastics uses are high impact polystyrene (HIPS), ABS, FR-HIPS, FR-ABS, acrylic, polycarbonate and PETG. The materials come in varying UL fire ratings. Please refer to our website at [www.envplastics.com](http://www.envplastics.com) for more in depth material specifications and options.*

2. Can you make an enclosure using delrin, HDPE, UHMW or PP?

*We are not able to make an enclosure using these materials utilizing the NMR technology. We are able to cnc route the material, but bending and welding are not possible. These engineering materials can be utilized for wear strips and enclosure hog outs.*

3. What colors are available?

*Envision Plastics stocks black HIPS and FR-HIPS in multiple gauges. We also carry an off-white and grey in ABS. A custom extrusion run of 500 pounds or greater can be done to achieve any color. We work with many extruders and distributors to give the customer an array of material choices. Painting is an option if the volume is low and does not justify a custom extrusion.*

4. What is UL94-HB and UL94-V0? Do I need this?

*UL94-HB and UL94-V0 are flame ratings for plastic given by United Laboratories. UL94-HB stands for horizontal burn and UL94-V0 means the material meets the UL 94 vertical 0 burn test. We stock materials that meet both UL94 HB and V0.*

5. Are your materials RoHS compliant?

*All of our stock materials are RoHS compliant. Please specify if your product needs to be RoHS compliant.*

6. What is the minimum material thickness you can work with to produce a plastic enclosure or plastic housing?

*The minimum thickness we use for producing plastic enclosures or plastic housings is 3mm (.118"). This is due to the tongue and groove construction used in the NMR technology. We will bend up to 1/4" (.250) thick for a wall thickness. We can incorporate thicker materials as ribs, standoffs or stiffeners, but we are unable to bend thicker material with great consistency.*

## Design

1. I have never designed an enclosure before. Can you help me?

*Envision Plastics offers design services. It is very common for our customers to send us their circuit board and components, and Envision will start the design from there. We will also work with your designer to streamline the part to work with the NMR technology. You will be charged an upfront non-recurring engineering charge that starts as low as \$300. The cost is dependent on complexity and depth of engineering project.*

2. What type of cad files do you work with?

*Envision Plastics designs in SolidWorks. We prefer to import native Solidworks files or .stp files. We can also import .igs, .dxf, .dwg, .prt, and .xmt files.*

3. What cad platform do you use?

*Envision Plastics uses SolidWorks for design. We also use SMP-81, Woodwop, Mastercam and TTK.*

4. Can Envision Plastics achieve any bend radius?

*Unfortunately, there are limitations to the bend radii that we can achieve. The outside bend radius is approximately the material thickness. Larger radii can be achieved by cold forming the part. This means the material is flexed to a certain radius and then held in place by ribbing and endcaps.*

## Cost

1. Is the NMR technology cost competitive with sheet metal?

*This really depends on the part. The NMR technology is able to compete when the sheet metal part is welded, ground and painted. Many people feel that plastic gives you an aesthetically pleasing appearance and an improved part feel over metal. We can incorporate sheet metal into our design when it will enhance component mounting and strength.*

2. Is the NMR technology more cost effective than rapid prototyping?

*If you are certain that your product is going direct to injection molding and have no need for pre-production, then making a SLA rapid prototype is going to be your best solution. Envision Plastics does not consider itself a prototype shop. We are able to produce your prototypes if it is going to lead to pre-production or production work.*

3. Is the NMR technology more cost effective than injection molding or thermoforming?

*In order to compare prices, you must look at the overall cost of the product including amortized mold tooling costs. We can compete on the lower volume production because we have no tooling costs, but a tooled process will lead to cheaper prices as volumes increase. However, the NMR technology offers our customers the flexibility to make product changes and improvements as their market and technology changes. Mold changes can be very expensive and cost prohibitive.*

4. How does the NMR technology costs compare to using an off-the-shelf box?

*We are able to compete with off-the-shelf molded enclosures when the off-the-shelf plastic enclosure has a need for additional milling and mounting features. We are not able to compete if you only need a few enclosures and are willing to figure out your own mounting and cutout solution. All of our plastic enclosures or plastic housings are custom. They are designed and built to your specifications.*

5. What is a NRE charge? Do I need to pay this with every order?

*NRE is an acronym for Non-Recurring Engineering. This charge covers the upfront cost of designing and programming of your product. It is a one-time charge as long as the part does not change. Additional NRE charges for design changes vary depending on the degree of the part change.*

