

# REFERENCE GUIDE

## LEMO's PANEL CUTOUT GUIDE ●

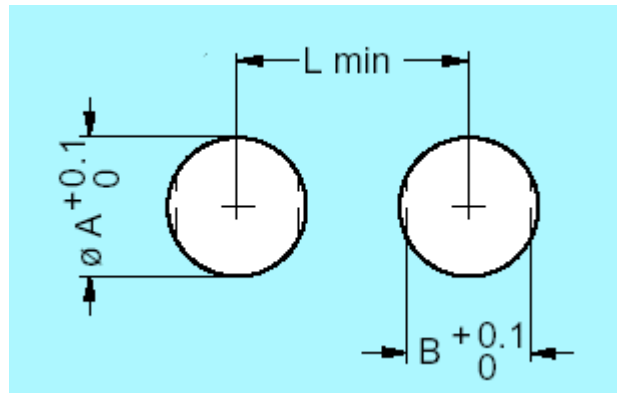


## INTRODUCTION

This guide is designed to help with panel cutouts in sheet metal for LEMO receptacles.

Most LEMO receptacles are threaded with nut fixing. There are flats on the sides of these receptacles to assist with anti-rotation of the receptacle in the sheet metal panel.

## PANEL CUTOUT



A “D” shaped hole or “Double-D” shaped hole is the recommended panel cutout for LEMO receptacles. This shape assists with anti-rotation of the receptacle in the sheet metal panel. With a simple round hole the receptacle may rotate in the sheet metal panel if the fixing nut was loose.

Common methods for fabricating a “D” or “double-D” hole are:

- Laser cutting
- Punch or die press

## Volume Production

Volume production allows for the use of laser or punch press tooling. There are several sheet metal facilities with these types of capabilities.



Laser



Punch Press

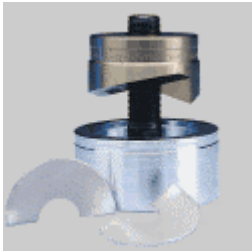
## Prototype Quantities

If the number of holes to be cut is too low for a production facility with laser or punch press capabilities some alternative low volume methods are available:

- Drilling/filing
- Milling

Some fundamental information is necessary before seeking tooling.

- Size of the “D” shaped hole, diameter and flat to diameter dimension.
- Size of the “Double-D” shaped hole, diameter and distances across the flats.
- Sheet metal type? Aluminum, Brass, Copper or various types of Steel.
- How thick is the sheet metal?
- How many penetrations are expected from the tool before it is wore out.
- Operation type for the tool? Wrench, Press tooling or hydraulic assist.

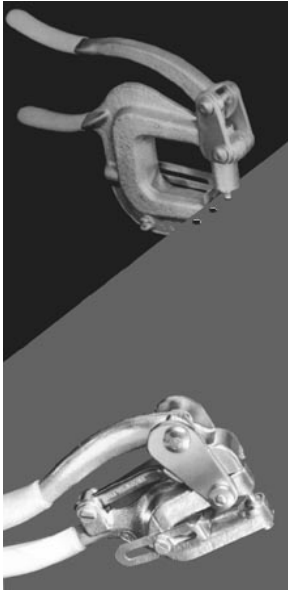


Wrench Operated Hole Punch

Wrench operated hole punches are fairly common. All LEMO receptacles are metric sizes. If the exact metric size is not available, a close approximate fractional inch size may be used.

The size of the center bolt will determine the size of the pilot hole you will need to drill, and the center bolt size limits how small of a “D” shaped can be punched. This is referred to as Die Clearance.

These are typically custom built-to-order for metric sizes. The number of holes they will punch is a product of the metal thickness and type of metal.



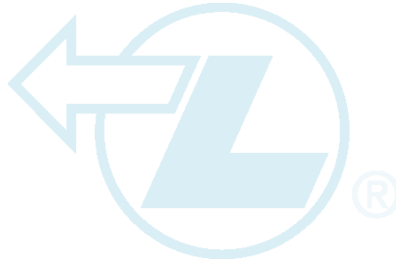
Portable Manual Light Duty Tooling

Portable manual light duty tooling can be ordered, and various custom die sizes to go with the tool. The tool will have a specific tonnage rating so you can determine the maximum size of the hold and/or maximum material type/thickness.

## Resources

Web site of shops with laser cutting capabilities - <http://www.laser-cutting-services.com/>

Roper Whitney custom dies and punches - <http://roperwhitney.com/punching/2-45.asp>



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(800) 444-5366 • (707) 578-8811 • fax (707) 578-0869

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