

## **CUSTOM CYLINDER SLEEVES**

Custom-made cylinder sleeves to your specifications are available from L.A. SLEEVE. Quantities from one sleeve to full production are gladly accepted.

In many instances catalog item sleeves that are on the shelf may be close in size to fulfill the requirements. Call our technical staff, we will be glad to assist you!

### **WHAT YOU NEED TO KNOW**

The two most important elements of custom sleeve design are the size required and the material requirements. L.A. SLEEVE stocks an array of raw material sizes ranging from 1-3/4" (45mm) to 8" (200mm). Cylinder sleeves may be manufactured in different wall thicknesses within this range.

### **MATERIAL**

There are three different materials that L.A. SLEEVE uses for custom sleeves. The first and most popular is the Moly 2000 chrome-moly iron. This material covers all applications from hi-performance to small engine. Moly 2000 iron is available in all sizes and is the material chosen for ninety percent of all sleeves made. Unless otherwise specified we make custom sleeves from this material.

The second material is ductile iron (also known as Nodular). This is a high tensile strength, air quenched iron material and is used for specific hi-performance applications, such as fuel blown motors. Sleeve availability is limited to a small range of available casting sizes.

The third material available is aluminum, A355 centrifugally spun or A6061-T651 aluminum. Sleeve sizes are very limited. Also, aluminum sleeves are only made for applications where plating is required.

### **SLEEVE DIMENSION**

When designing a sleeve, you need to determine the wall thickness required. You may also design the sleeve using the inside diameter and outside diameter to produce the desired wall thickness. The method to determine wall thickness is  $O.D. - I.D. \div 2 = \text{wall thickness}$ .

Next, determine the proper length. Finally, if a flange is required, determine the flange outside diameter and flange length (also known as flange thickness).

Allow the inside diameter to be .030" undersize the actual finish bore size dimension. This will give the machine shop bore stock after the sleeve is installed into the cylinder or block. Always note the actual finish bore size as a reference on the drawing or dimension spec sheet.

Some sleeve applications require the bore size to be finish honed to the exact size. L.A. SLEEVE is able to provide the sleeve bore with a sized finish hone. Please be specific when requesting this application.

## **ADDITIONAL CUSTOM MACHINING**

Some custom sleeves may require O-Ring grooves, flange clearances, notches or radius cuts. L.A. SLEEVE will machine any of these requirements into the custom sleeve. Provide a detailed drawing of all required custom machining and dimensions for a quotation.

## **HOW TO ORDER**

Choose one of the drawing templates below that most closely matches your requirement. Fill in the requested dimensions and FAX or e-mail the drawing to L.A. SLEEVE for a quotation and delivery.

If you do not see a drawing that matches your requirement, simply provide your own drawing and we will quote the sleeve per your requirements. Or call direct for technical assistance in designing your custom sleeve. Our staff will be glad to help!