

DANLY

# ***SINTERED BRONZE BUSHINGS***





# DANLY's Sintered Bronze Bushing Technology

## How DANLY Sintered Bronze Bushings Work

DANLY Sintered Bronze Bushings set a new standard of performance for stamping die guide bushings. A layer of bronze is sintered to the inside diameter of a steel bushing, creating a mechanical bond at the bronze / steel interface stronger than that of traditional plated bushings. DANLY Sintered Bronze Bushings do not suffer from peeling as do plated bushings.

Because the sintered bronze surface is porous, it holds the lubrication oil in place, maintaining the integrity of the lubrication boundary layer and providing improved wear resistance.

The inserted diameter has been hardened to resist wear and accidental damage, and it will maintain its correct geometry throughout numerous insertions and disassembles. The flange has been carefully ground perpendicular to the axis of the inside diameter; if the ground flange is properly seated the bushing bore is automatically true to the plate mounting surface.

A light tap is all that is required to locate the bushing's register diameter in the bushing hole. The bushing is then held firmly in place with clamps and screws.

All DANLY bushings are equipped with figure 8 oil grooves and lubrication fittings. The sintered bronze pores act as small oil reservoirs, so DANLY Sintered Bronze Bushings are more forgiving if maintenance has been overlooked. However, for best results we recommend regular, periodic lubrication with a high viscosity oil. DANLY has a specially selected oil available upon request.

## The Advantages of Sintered Bronze Bushings

### **Thicker Bronze:**

The sintered bronze in DANLY's bushings is substantially thicker than the plating technology it replaces.

### **Porous Surface:**

Hold the lubrication oil where you need it most, to resist wear. Sintered bronze is porous bronze, up to 40% porosity.

### **Stronger Bond:**

Our patented process forms a unique fusion bond so the bronze and substrate become one. See figures 3 and 4 opposite page.

### **Wear Resistance:**

The combination of increased thickness, porosity and stronger bonding means the DANLY bushing is your best choice for high speed and eccentric loading. The longest life possible under extreme conditions.

### **Attractively Priced:**

All these features don't add up to a higher price. The DANLY Sintered Bronze Bushings are easy to cost justify. This should be your top choice for most applications.



### Compare the Bronze Thickness

Nom Dia. mm	Plated Bronze Layer Thickness	DANLY Sintered Bronze Layer Thickness
18-19	0,06 mm	0,40 mm
24-25	0,06 mm	0,45 mm
30-32	0,06 mm	0,54 mm
40-42	0,06 mm	0,59 mm
50-52	0,06 mm	0,64 mm
63	0,06 mm	0,69 mm
80	0,06 mm	0,79 mm

Take a Closer Look...

# DANLY's Patented Sintered Bronze Bushings Measure Up to Any Competition

## Typical Plated Bronze

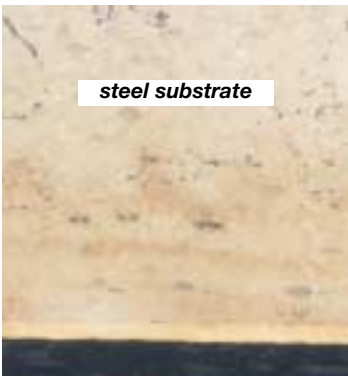


Figure 1

## DANLY Sintered Bronze



Figure 2

The naked eye can detect the thicker bronze layer on the DANLY Sintered Bronze Bushing

100 x reveals the greater bronze porosity of the DANLY Sintered Bronze Bushing

Figures 1 and 2 show the fusion-bonded bronze layer of a DANLY Sintered Bronze Bushing (0,67 mm) as compared to a conventional plated bushing layer (0,03 mm). Ordinary plated bushings have a constant bronze layer regardless of inside diameter, typically 0,05 mm thick. The DANLY layer is actually 22 times thicker in this example.

Also note that Figure 2 clearly depicts the increased porosity of the DANLY Sintered Bronze Bushing, (approximately 40%). The pores effectively trap oil, creating a constant film of lubrication between the pin and bushing. This feature makes our bushing out perform plated bronze bushings. Plated bronze does not offer any porosity.

Both photographs are shown at a 100 x magnification and bronze thickness measured per ASTM B 487-85.



Figure 3

1000 x reveals the fusion bonding of the DANLY Sintered Bronze Bushing

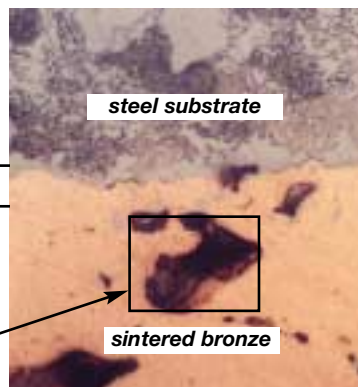


Figure 4

Figures 3 and 4 compares the fusion bond of the DANLY bushing to the flat line lamination effect achieved by plating.

Figure 4, as magnified 1000 x, clearly shows that the sintered bushing's thick bronze layer is fused with the substrate layer of steel.

Figure 3, also magnified 1000 x, shows no substantial mix or bond. The thin plated bronze can be more easily peeled or chipped under normal wear conditions.

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***The Innovator of Our Industry<sup>SM</sup>***

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