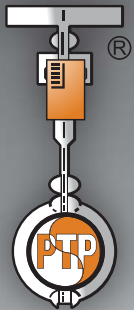


# TECHNICAL BULLETIN

Vol. 1 No. 1

## SLIDE PLATES PTFE, 25% GLASS FILLED SLIDE PLATES



### PIPING TECHNOLOGY & PRODUCTS, INC.



U.S. Bellows, Inc.



SWECO FAB



Pipe Shields Inc.



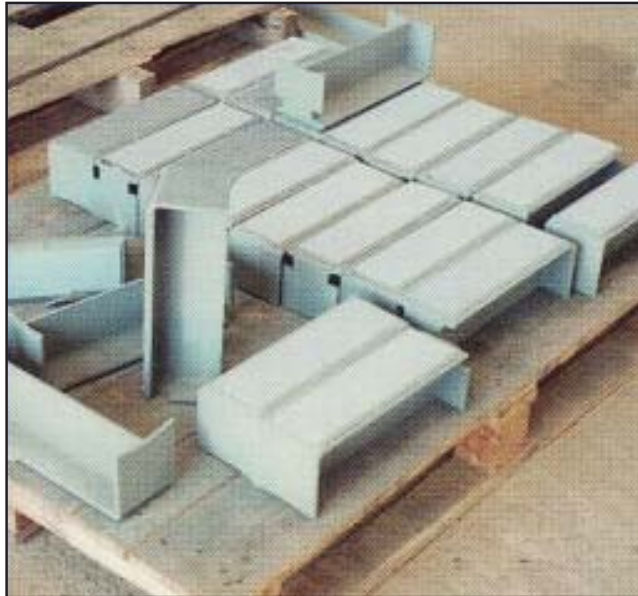
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# TECHNICAL BULLETIN

## Slide Bearing Plates



Slide bearing plates are a very cost-effective way of providing for movement of mechanical systems.

Piping Technology & Products, Inc. supplies slide bearing plates for a variety of applications including support of piping, heavy equipment such as pressure vessels, and structural steel members. The plates provide a low coefficient of friction which can be attached to a supporting structure. This combination provides support while simultaneously allowing an object to move (slide) along the supporting surface.

## Slide Plates: The “Sandwich” Concept

Like other leading designers in our field, Piping technology & Products, Inc. uses the “sandwich concept” when applying slide plates to our customers’ system. Figure 1 shows a “sandwich” composed of two identical slide plates, one on top and another on the bottom. Each slide plate is composed of two components: a metal backing plate (which is the bun of the “sandwich”) and a low coefficient of friction material which is bonded to the metal backing plate.



In a typical application a slide bearing plate is welded to a structural steel member which is strong enough to provide the required support, but whose coefficient of friction is too high. Figure 2 shows an application in which a slide bearing plate is welded on top of one steel beam supporting another beam. When the top beam moves (due to thermal expansion, for example) it slides across the surface of the bearing plate without contacting the supporting beam. To return to our “sandwich” metaphor, the top half of the “sandwich” is bonded to the sliding beam, and the bottom half to the supporting beam.

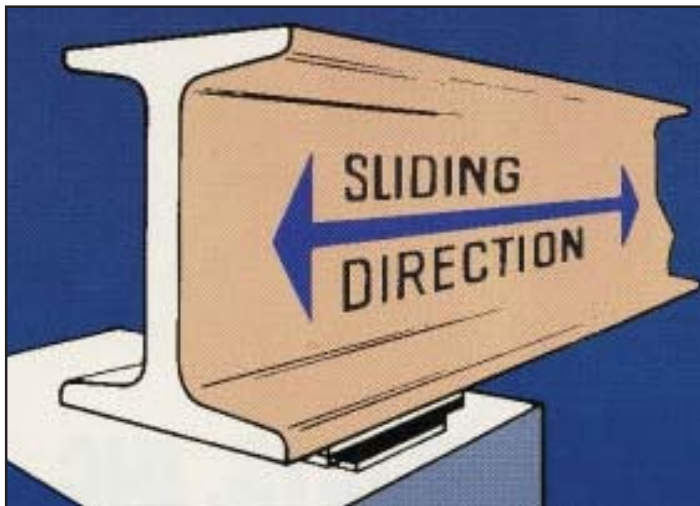


Figure 2

## Materials

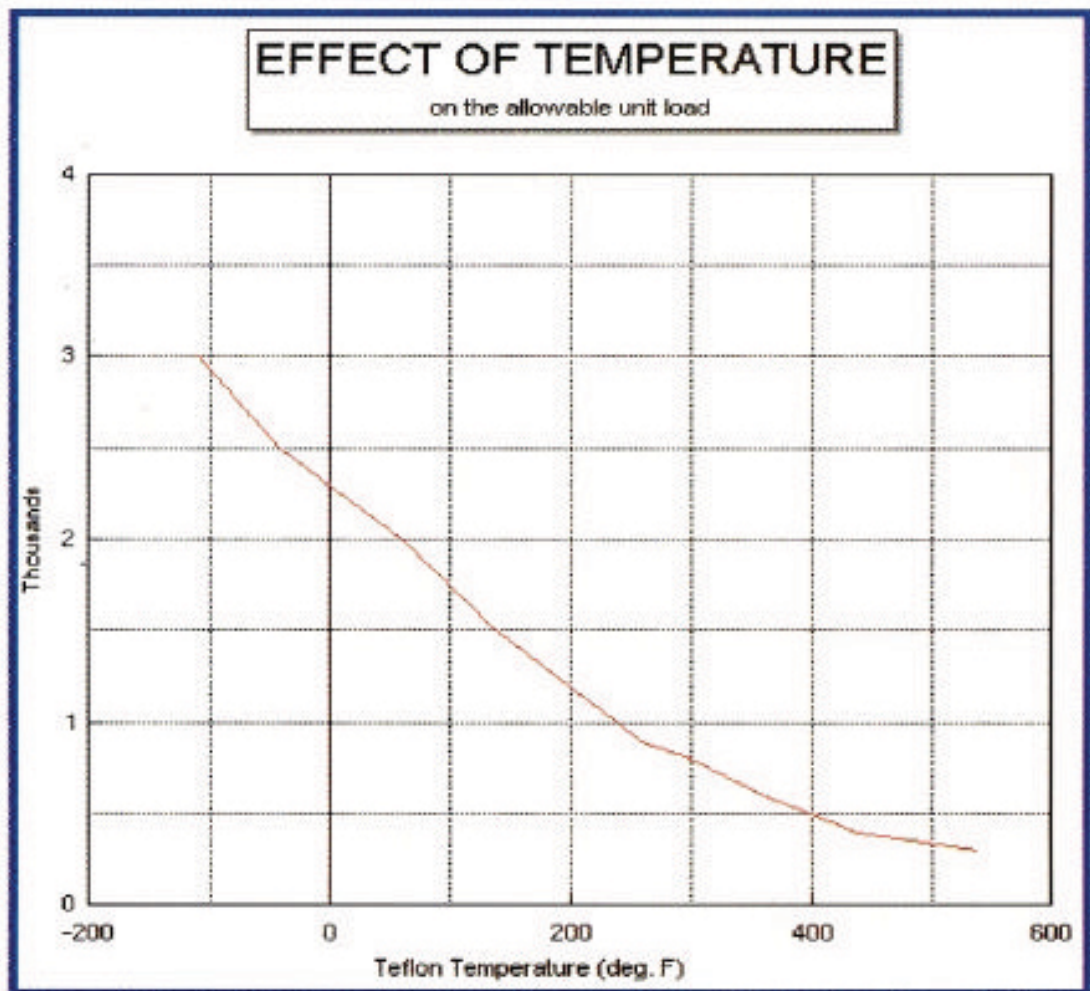
One combination of materials that we often use is that of PTFE, 25% Glass Filled bonded to stainless steel. Both materials resist oxidation and have long lives even in stressful environments. For large slide plates, galvanized steel can be used in place of stainless to reduce the cost. PTFE, 25% Glass Filled provides a low coefficient of friction for most combinations of temperature and load. Figure 3 shows the recommended conditions for 3/32” PTFE, 25% Glass Filled. Note that a 500 psi load would be at the limit at 400 degrees F.

When the slide bearing plate must function at higher temperatures, graphite can be used instead of PTFE, 25% Glass Filled. The ideal temperature range of graphite is around 1,100 degrees F. For combinations of temperature and load beyond the capabilities of graphite, special designs must be considered.

## TECHNICAL BULLETIN

Welding is the most common method of attaching the slide bearing plate to supporting metal structures. When this approach is used a “lip” must be built since the welding’s extreme temperature may break the bond between low-friction material and the metal plate. A 0.25 Inc “lip” is adequate for most welded installations.

In another popular design, we bond PTFE, 25% Glass Filled to one piece of stainless steel on the bottom and a larger piece on top. This combination ensures that the PTFE, 25% Glass Filled is always covered when the system moves, and thus prevents sand or other abrasives from contacting the PTFE, 25% Glass Filled slide surface.



## Ordering Your Slide Bearing Plates

Before we can begin constructing your slide bearing plates, we need only a few pieces of information from you:

- The desired size, shape and materials for the low-friction surface, based on the highest combinations of temperature and load this surface will experience.
- The size, shape, and material for the metal plate backing for the low friction surface.

Slide bearing plates are components of many products which Piping Technology & Products, Inc. supplies, such as guided pipe shoes and upthrust constants. As a result, we have extensive experience in bonding PTFE, 25% Glass Filled and graphite to metal plates. Modern adhesives are adequate for most applications. However, mechanical fasteners such as counter sunk screws can be added when needed. If you have unique problems, we will be happy to custom-design a practical solution to your problem.

**PT&P**  
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