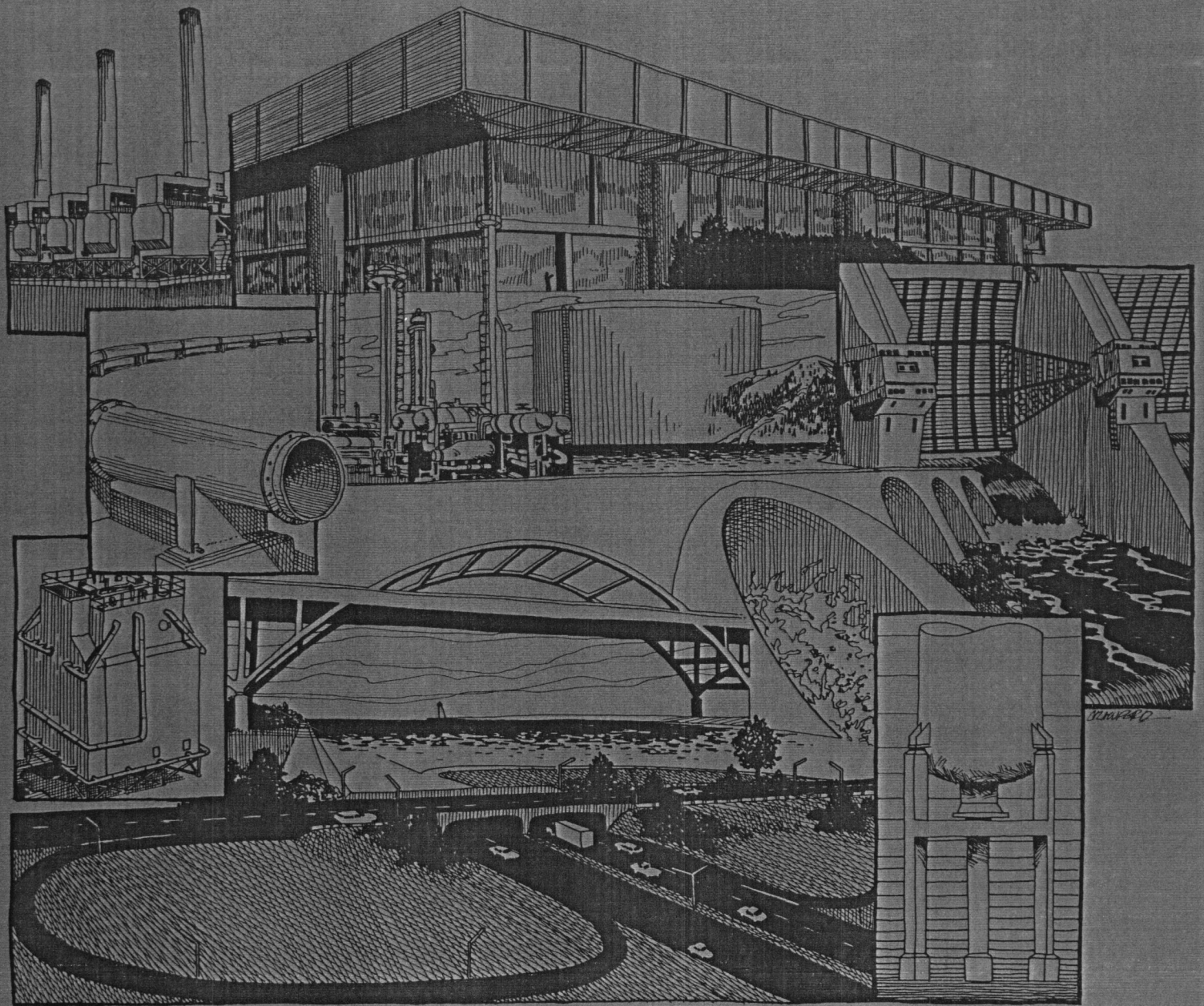


# LUBRITE F<sup>®</sup>

## EXPANSION BEARINGS



Lubrite<sup>®</sup> Technologies

# LUBRITE F IS A COMPOSITE HIGH-COMPRESSION BEARING FOR STRUCTURAL APPLICATIONS.

The construction of Lubrite F® bearings is unique. A pad of woven Teflon® fiber is pressed onto the geometrically-grooved surface of a metal substrate. This creates a firm mechanical lock between the Teflon fabric and the substrate, providing very high shear resistance at the fabric/substrate interface.

Lubrite F with woven Teflon fiber has several important advantages over composite bearings which rely only on Teflon resin.

- Woven Teflon fiber has approximately 30 times the bearing strength of Teflon resin.
- The mechanical fabric/substrate lock circumvents the difficult chemical bonding process used to join a Teflon resin pad to its substrate.
- High bearing strength in combination with high shear resistance virtually eliminates cold flow under structural loads and maintains a low coefficient of friction.

## The Woven Teflon Surface.

Teflon fiber is unaffected by weathering, moisture and severe chemical reagents. There are significant benefits in the bearing properties of Teflon fibers compared to Teflon resin, and a woven

Teflon bearing is superior in many ways to a bearing utilizing Teflon resin only. The molecular orientation of the Teflon fiber results in com-

---

Comparison of properties of TEFLON PTFE fiber, PTFE resin provided by The Dupont Company.

	TEFLON PTFE FIBER	TEFLON PTFE RESIN
Density, g/cc	2.1	2.2
Ultimate Tensile Strength, psi*	52,500	2,000
Elongation at Break %*	19	300
Initial Modulus psi*	360,000	60,000
Load Bearing Capacity without cold flow, psi	60,000	2,000
Coefficient of friction low as	0.01	0.02

\*At 70°F, 65% R.H.

The figures given in this table are for comparative purposes only. Compressive strengths and coefficients of friction of the resins and fibers vary considerably depending on a variety of factors in component design and use.

---

pressive strength approximately 30 times that of resin. A proportional increase in resistance to cold flow is also experienced.

Teflon fiber has demonstrated exceptional stability in intermittent application at temperature extremes of 425°F and -100°F. The performance of Lubrite F bearings actually improves as loads and temperatures increase, providing a built-in safeguard against overloading.

## The Metal Substrate.

Substrates are commonly formed in alloy steel, stainless steel and bronze. Since Lubrite has over 80 years of experience in high-compression bearings, the Lubrite engineering department can assist in the specification of the correct metal substrate.

## Configuration.

Lubrite F bearings can be custom designed to accommodate expansion, rotation and/or deflection. The physical size of the Lubrite F pad is virtually unlimited.

Teflon® is a registered trademark of the DuPont Company. Lubrite F® is a registered trademark of Lubrite Technologies.

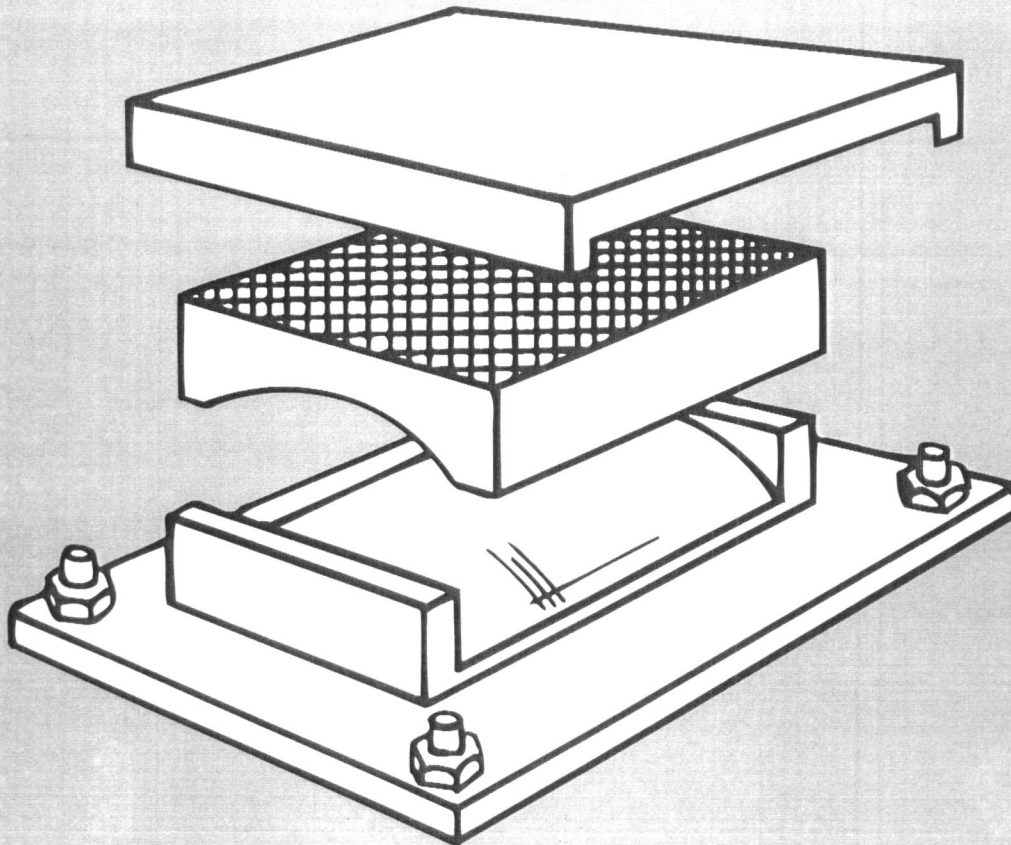
### Coefficient of Fiction.

Operating under loads up to 6000 psi and temperatures between 425°F and -100°F, Lubrite F offers a coefficient of friction that is considerably lower than that of lubricated metal bearings. Specific information is available upon request.

### Applications.

Lubrite F may be custom designed and built for virtually any heavy duty bearing application. Successful installations include bridges, buildings, pollution control equipment, tank and pipe supports as well as refinery and mass transit applications.

Contact the Lubrite Technologies Sales and Engineering Department with details of your application.



*Lubrite F® radius plates are flat on one face and either concave or convex on the opposite face. The radius face accommodates the deflection or rotation of the structural member, while the flat face provides for linear expansion and contraction which may be guided or non-guided for movement in any direction.*

# LUBRITE F BEARING SPECIFICATIONS.

## Bearings with PTFE Sliding Surfaces.

Polytetrafluoroethylene (PTFE) self-lubricating sliding surfaces shall be composed of 100% virgin unfilled Polytetrafluoroethylene fabric manufactured from oriented multifilament PTFE Fluorocarbon fibers. The resin from which these fibers are produced shall be 100% virgin material meeting the requirements of ASTM Designation D-1457. Specific gravity shall be 2.13 to 2.19 as determined by ASTM Method D-792, Test A1, A2 or A3.

The PTFE fabric shall have a minimum thickness of 1/32" and a maximum thickness of 1/8" after compression. The test for cold flow is to be ASTM D-621 at 2000 psi for 24 hours at 70°F Properties of PTFE fiber shall be as follows:

Load Borne without Cold Flow	60,000 psi
Ultimate Tensile Strength	52,500 psi
Elongation at Break	19%
Initial Modulus Maximum	360,000 psi
Coefficient of Friction @ 3500 psi, Static or Dynamic	.04

The Application Test Method for determination of Ultimate Tensile Strength and Elongation at Break shall be D-2256.

The Coefficient of Friction shall be evaluated in a test which simulates the application parameters. The Static Coefficient of Friction shall be determined at breakaway by dividing the horizontal force to start motion by the vertically applied force which shall be equivalent to application pressure. The Dynamic Coefficient of Friction shall be determined by the same method, but at a speed not exceeding 1" per minute in order to approximate actual conditions.

Welding to a steel plate which has a bonded PTFE surface may be permitted providing welding procedures are established which restrict the maximum temperature reached by the bond area to less than 300°F (150°C) as determined by temperature indicating wax pencils or other suitable means.

The PTFE fabric shall be mechanically interlocked with the steel substrate plate under factory controlled conditions in a manner approved by the engineer. The interlock should be equally distributed over no less than 25% of the

bearing area and shall be sufficiently strong to develop 10% of the allowed vertical load in the horizontal shear plane. Adhesive material may be used to supplement the mechanical bond but the 10% development shall be by mechanical interlock only.

The stainless steel surface mating to the PTFE should be an accurate, flat, cylindrical or spherical surface as required by the design and shall have a surface finish of 20 micro inches. The stainless steel surface shall be attached by welding or other suitable mechanical means approved by the engineer.

The manufacturer shall be required to furnish facilities for the testing and inspection of the complete bearings or representative samples in his plant or at an independent test facility. Manufacturer's certification of all materials used in the construction of the bearings shall be furnished.

