

DURAFRAX® 2000

SMOOTH BEND ELBOW LINERS

The Only Choice for Extreme Abrasive Environments

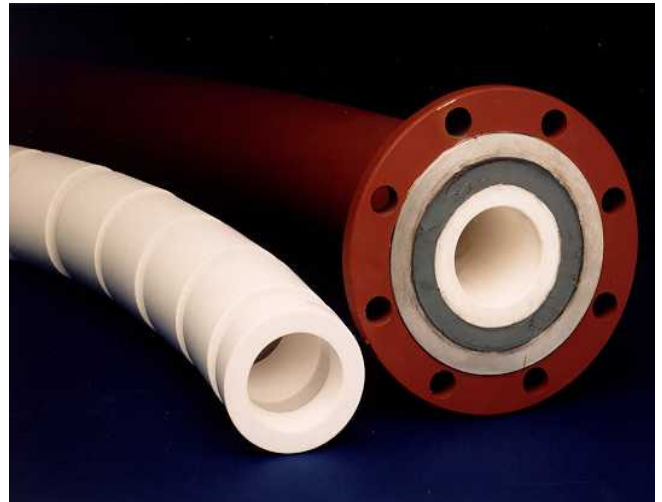
In industrial environments where highly abrasive materials are pneumatically conveyed, unlined steel or rubber lined elbows may wear out in a few weeks, generating a costly cycle of downtime for frequent repairs and replacements. SHINAGAWA's solution to this common wear problem is our Durafrax® alumina elbow liner, an option that offers easy installation, exceptionally long service life, and low-cost fabrication.

SHINAGAWA developed the Durafrax® alumina elbow liner specifically for this type of application. By engineering our Durafrax® alumina to be one of the best wear materials available for fine particle abrasion, we produce a product with excellent mechanical properties, superior wear resistance and desirable corrosion performance. In the most severe operating environments, SHINAGAWA's Durafrax® elbow liners lasted a minimum of ten times longer than the steel. Do not be fooled by "ceramic lined" imitations; the Durafrax® elbow liners are constructed from robust fully dense, ultra fine grain sintered Alpha Alumina Oxide cylinders.



Easy Integration Into Your System

Our Durafrax® 2000 Elbow Liners are designed with the same internal diameter as the existing un-lined adjoining pipe. A minimum Durafrax® thickness of 1/2" (12,7 mm) wall is required, but based on our experience and the evaluation of your system, we typically recommend a heavier wall for optimum wear life. Small degree segmented cylinders are laid out in preparation for installation, and each joint is coated with a specially formulated Wearpak® epoxy. The Durafrax® elbow liner is

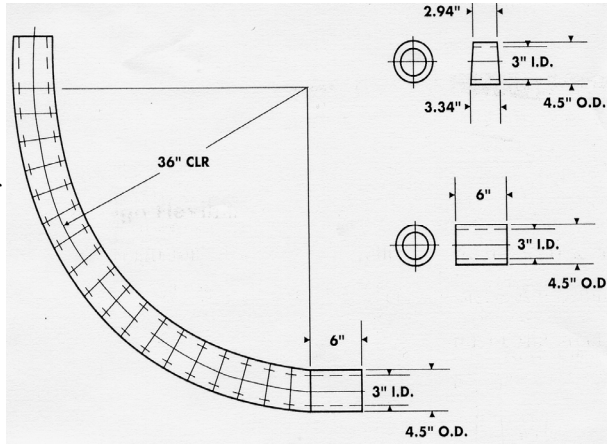


inserted into the steel smooth bend elbow and the space between the Durafrax® OD and the steel ID is filled using a ceramic Wearpak® mortar specified to your particular operating environment. Easily adaptable end connections are used on existing straight pipe to connect them to the Durafrax® Lined Elbow. When the elbow is installed in a pneumatic conveying line, an 1/8" (3,2 mm) thick full face gasket is placed between the flanges.



Chorded Construction Offers Design Flexibility

SHINAGAWA's recommended design for the Durafrax® elbow liners is called chorded construction because each section of the liner is a straight tube, rather than a curved piece. A minimum clearance of 1/4" (6,4 mm) between the alumina liner and the inside diameter of the steel is required for proper insertion of tubes and mortar. SHINAGAWA smooth bend construction



Durafrax® lined elbows are available in diameters 0.5"(12.7mm) up to 12" (304,8 mm) with virtually any degree of bend and center line radius.

Quality Through Design

Our expertise in material science, the latest technology in computer design, and our unique shaping capabilities give SHINAGAWA an unmatched experience technical edge. One of our major strengths is custom-engineering ceramic shapes in their pre-fired state, which enables us to provide a more precise fit and full ceramic protection throughout the thickness of every joint. The result is a superior wear system that eliminates frequent downtime for repairs and substantially extends the service life of your equipment.



For more information or to discuss your application in more detail, please contact your SHINAGAWA representative.

We sell solutions

Analyzing a wear problem is a complex process. Erosive wear is typically caused by a combination of temperature, raw material impingement angle and hardness, high velocity particles, abrasive slurries, and chemical attack. Our design engineers understand wear issues and specify materials to suit the operational environment. Material properties, engineering tolerances, attachment methods, and material costs are all considered in a SHINAGAWA wear solution.

Applications

- Chutes/Hoppers
- Classifier Cones
- Cyclone Separator
- Elbows
- Fan Housing & Blades
- Lined Piping
- Nozzles
- Wear Panels

Markets

- Coal-fired Power Generation
- Abrasive Material Handling
- Chemical Processing
- Food Processing
- Iron/Steel Manufacturing
- Mineral Processing
- Powder/Bulk Solids Conveying
- Pulp & paper Manufacturing
- Pulverizing & Grinding
- Grain Handling
- Cement
- Asphalt

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