

DURAFRAX® 2000 WELD-AL TILE

Providing Strength Through A Mechanical Bond

One of our most frequently specified wear materials is Saint-Gobain's own pre-engineered, custom-designed Durafrax® ceramic. Engineered to be one of the best wear materials available for fine particle abrasion, where temperatures are too high for common adhesives or where

the positive mechanical attachment feature of Weld-Al is necessary to insure trouble-free performance. The Weld-Al insert for attaching Durafrax® offers excellent mechanical properties, superior wear resistance, and desirable corrosion performance in many applications.



Durafrax® Lining Systems

Durafrax® products are available in tile, blocks, pre-engineered systems or more complex cast and machined shapes. Saint-Gobain manufactures plain tile, which is attached with specially formulated adhesives, and tile with preformed holes for use with our patented Weld-Al attachment method. Weld-Al tile is attached mechanically by bolting or welding. The metal inert gas (MIG) process or the stick weld process can be used for welding. Your Saint-Gobain Ceramic Materials representative can help you select the attachment method that is best suited to your operating environment .

The Weld-Al Advantage

The Durafrax® Weld-Al system offers advantages over adhesive only attachment methods in many environments.

Durafrax® Weld-al tiles have been designed for easy welding with either MIG or stick weld processes.

The MIG process

Equipment required : PPE & MIG welder
MIG settings and specifications :

- **Wire** : mild steel filler wire such as type ER 705-6 of suitable diameter within .030 to .060 inch diameter range. A.035 diameter wire is suggested for best overall usage.
- **Voltage and amperage** : adjust as required to produce a smooth, sputtering arc. For 0.35 wire, typical machine settings are 20 to 24 volts and 120 to 230 amperes for manual and timed plug welding. Due to the Weld-Al design, excessive shielding gas flow is not required. Use approximately 10 cubic feet per hour (CFH).

(Continued)

For manual welding in the vertical position, direct the wire toward the lower center of the Weld-Al hole and weld to fill.

The Stick Process

Equipment required Welder, Hood, Gloves.

Settings and specifications for welding :

- Electrode : 3/32 inch or 1/8 inch diameter E-6010,E-6011, E-6012, E-6013, or 3/32 inch diameter E-7014 or E-7018
- Set the weld amperage near the maximum recommended by the electrode manufacturer for the welding position.
- Hold a short arc length to float the molten flux to the top of the weld puddle.

Attachment Process for MIG and Stick Welding Process

Place initial Durafrax® Weld-Al tile into position and insert retainer (s) (*figure 1*). We recommend that cement, adhesive, mastic or other suitable material be used to compensate for irregularities between the alumina and base plate when the application involves a high degree of impact. This added support will distribute stresses over an area rather than at points.

The MIG process is the preferred method to attach weld retainers to the base plate; however, the stick weld method also may be used.

With the MIG process, retainers can be welded achieving a very strong bond in 3 or 4 seconds each, and the welding wire is fed automatically. The minimum diameter welding wire that should be used is .035 inches.

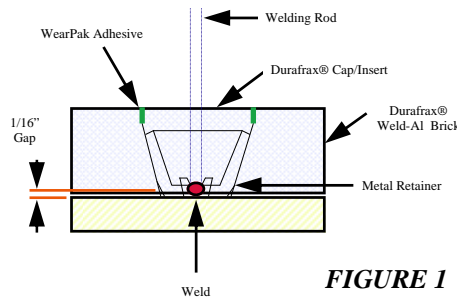


FIGURE 1

When using the stick welding process, be sure the welding rod is positioned so it is not in contact with the retainer. Strike the arc to the back-up. Use a 1/8 inch diameter or smaller welding rod. Weld only the bottom of the retainer.

When using either welding process, be sure NOT to overfill the weld. Maximum buildup in the retainer should NOT exceed 3/16 inch, not quite 1/2 full.

Insert remaining segment using the previously installed as bases and guides. “Break” joints along the path of flow where possible (*figure 2*).

Note : Welding should be done in accordance with the accepted practices and latest standards of the American Welding Society.

It is recommended that those unfamiliar with the method, first attempt several practice welds using extra retainers and backing plates.

Steel Preparation for Application with Weld-Al Tile

Steel with coatings of grease or oil should be cleaned thoroughly with a solvent(SSPC-SP1) such as trichloroethylene or a lacquer thinner. Oil- based solvents such as paint thinner, gasoline, or varnish thinner are NOT acceptable.

The best surface preparation is a sandblasted surface to a near white metal(SSPC-SP10). The Minimum acceptable surface preparation is having no loosely adhering scale which could be removed easily by prying with a wire brush. When mill scale or rust is evident, aggressive wire brushing or grinding must be done to obtain an acceptable surface condition (SSPC-SP3)

For more information about ordering and installing Weld-Al Tile, contact your Saint-Gobain Ceramic Materials representative.

We Sell Solutions

Analyzing a wear problem is a complex process. Our design engineers understand wear problems and specify solutions to suit your operational environment. Material properties, engineering tolerances, attachment methods, and material cost are all considered in a Saint-Gobain wear solution.

APPLICATIONS

- Chutes/Hoppers
- Classifier
- Cyclone Separators
- Elbows
- Fan Housing & Blades
- Lined Piping
- Nozzles

MARKETS

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

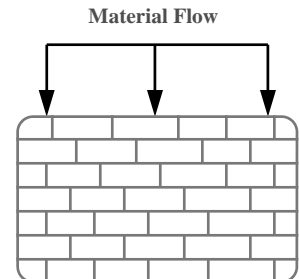


FIGURE 2

All of the above statements, recommendations, suggestions and data concerning the subject material are based on laboratory and field results, and although we believe the same to be reliable, we expressly do not represent, warrant or guarantee the accuracy, completeness or reliability of same, of the material, or the result to be obtained from the use thereof. Nor do we warrant that any such use, either alone or in combination with other materials, shall be free of the rightful claim of any third party by way of INFRINGEMENT or the like, and Saint-Gobain Ceramic Materials DISCLAIMS ALL WARRANTIES, EXPRESSED OR IMPLIED OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.



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