

POLYURETHANE LINERS





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FOREWORD

Thank you for purchasing an Argonics liner!

Argonics polyurethane lining material is designed to extend the wear life and reduce the maintenance requirements of your process equipment. Years of field research, performance testing and product evaluation has led numerous Original Equipment Manufacturers to offer this lining material as the best product value available on the market today.

This manual contains important information regarding polyurethane material. Please read this entire manual before installing a liner kit. This manual includes hazards that might exist and precautions to be taken during the installation or removal of these lining systems. For more information, or for copies of MSDS information, please contact Argonics.

Argonics is proud to offer these innovative lining systems. With proper care, these liners will provide valuable service for years to come.

INSTALLATION MATERIALS REQUIRED

- 1. Welder (MIG preferred)
- 2. Welding safety equipment
- 3. Safety glasses and work gloves
- 4. Face mask or respirator
- 5. Pipe segments (1³/4" O.D. x 2" long) qty 10
- 6. High volume fans quantity 2
- 7. ABC fire extinguisher
- 8. 5 gallon pail of water
- 9. Clean cloth rags 1 bundle
- 10. 1/2" variable speed drill with bit assortment
- 11. Reciprocating saw with blade assortment

- 12. Shop-vac
- 13. Pliers
- 14. Screwdriver
- 15. Trowels, 4" square end preferred
- 16. 5 lb. hammer
- 17. Pry bar
- 18. Clamps
- 19. Tape measure
- 20. Chalk line
- 21. Spray bottle (water)
- 22. Plywood boards* (1/4" x 24" x 24") qty 2

*Optional: Knee pads for slag protection

Beware: Burning elastomers give off toxic fumes. Take extra time to minimize heat exposure. Have a fire extinguisher and a bucket of water with rags available. If flames or smolders do occur, extinguish immediately. Use of forced air ventilation or an in-line respirator is strongly recommended.

This product will emit fumes when overheated! This product does not present any health hazards in the state it is shipped. However, subsequent operations such as welding, grinding, cutting, etc. may produce dusts, polymer decomposition by-products and metal fumes.

Dusts and fumes may be irritating to eyes and respiratory tract. Dusts may be flammable. Provide adequate ventilation and follow all installation instructions.

Store away from flame or other sources of ignition. Must be protected from heat and sparks generated by welding or cutting torches. Hazardous decomposition by-products include: carbon monoxide, carbon dioxide, hydrogen cyanide, nitrogen oxides, miscellaneous hydrocarbons and polymer fragments, metal fumes and oxides.

Cutting Techniques

If necessary, the polyurethane liners can be cut using either a band saw, heavy-duty jigsaw or reciprocating saw.

Plain urethane sheets and liners:

If cutting with a band, jig or reciprocating saw use a course tooth blade. You may also use a utility knife. Bending the liner section over a board will help increase the surface tension and make the cut a little easier.

When cutting expanded metal backed liners, use a fine tooth blade.

No matter what type of saw you choose to cut the liner, advance the blade slowly, run at lower RPMs, and spray a lubricant in the cut path to minimize friction and heat build-up.

NOTE: Do not use a circular saw to cut polyurethane liners, as they will generate too much heat, causing gumming of the blade.

Drilling Techniques

Drilling is best done using a $\frac{1}{2}$ " high torque drill. The bit should be a spade or fluted style (standard bit), and a low RPM should be used. Allow time between boreholes for the bit to cool, if necessary. Spraying the hole with water or other lubricant will also improve boring.

Bolting Techniques

The best technique for bolting a polyurethane liner is by using the Argonics urethane coated bolt. The optimum installation would be to countersink the urethane liner the same thickness as the head on the coated bolt.

NOTE: If you choose to use plain elevator bolts or carriage bolts, it is advisable to keep them out of the material flow path. If that is unavoidable, countersink the bolthole and cover the bolt head with a polyurethane-based or silicone caulk.

Using the Argonics Counter Bore Tool

The Argonics counter bore tool is specifically designed to work in conjunction with Argonics urethane-coated bolts.

- 1. Determine the desired depth of the counter bore hole needed in the urethane liner section.
- 2. Loosen the stop collar on the counter bore tool with an Allen wrench. Slide the stop to the desired depth and retighten.

As a general rule of thumb, counter bore depth for a plain-backed urethane sheet should be set to threequarters the thickness of the liner that you are installing.

If bolting a liner that has a solid or expanded metal insert, it is okay to counter bore down to the metal.

Coated bolt spacing along the edge of the liner should be 6-8" O.C. and approximately 18" O.C. throughout the rest of the liner.

Gluing Techniques

There are a variety of excellent adhesives that are specifically designed for attaching rubber or polyurethane to a metal substrate. Follow the guidelines that are prescribed by the manufacturer of the adhesive.

For smaller jobs we recommend using Bostik 1100FS. Information about Bostik can be found online at www. bostik.com.

Make sure that the substrate is free of debris and other contaminants by cleaning with a solvent. Then abrade the metal and clean again, to ensure maximum adhesion.

Apply a 1/4" to 3/8" bead of Bostik 1/2" from the edge, around the perimeter of the liner section. Then apply an "X" pattern in the center of the liner and other beads between the lines of the "X" as necessary. Clamp the edges and seams down using a 2x4 or plywood to prevent curling of the liner edges.

Welding Techniques

Position the liner as required. Apply pressure to the liner to ensure the weld disk has good contact with the substrate. Insert a pipe segment (1.75" O.D. x 2" long) inside of the plug-hole opening. Hold in place with pliers or vice grips. Place welder inside of the pipe segment and plug weld around the weld disc hole. The pipe segment will act as a heat shield and will protect the liner from heat degradation and ignition. The pipe segments will build heat, so it is advisable to utilize multiple pipe segments. If flashes of hot slag hit the liner, use a wet rag to extinguish the smolder.

BE CERTAIN THAT THE TACK WELDS ARE SUFFICIENT TO HOLD THE WEIGHT OF THE LINER PANEL.

Before positioning the second liner section, place a $\frac{1}{2}$ " wide bead of Bostik 1100FS along the edge of the first section where the next liner section will be installed. Move the second liner section into place making sure that the liner is lying flat against the substrate. Weld holes along the perimeter as well as a few of the center holes of the liner panel. Use a putty knife to remove any excess Bostik from the seam. Continue until all pieces are in place. Once liners are positioned, continue by welding the remaining weld discs.

Another viable option is to place all adhesive in seams and gaps after welding is complete.

INSTALLATION - Single Tensioner



Snap-Tite[™] Plugs Installation

Snap-Tite plugs are designed to have a very tight fit. They are made this way to prevent the plug from popping out. One effective way of installing plugs is the sledge hammer method. Place the plug over the weld hole and hit it with the top flat portion of the hammer head (figure 1).

The Snap-Tite Plug Pounding Tool can be used to hold the plugs in place while installing on a vertical wall liner where the plug will not rest in place on the liner. The handle of the tool may be bent to more comfortably fit the contours of your hand. The Plug Pounding Tool is only available for ³/₄" and 1" plugs.



Proper Spacing

It is important to evenly space liner panels to ensure minimal gaps. Ideal spacing between liner panels is 1/4'' or less (figure 2).



Sealing Gaps

After your liner is in place and securely fastened, inspect the installation to identify if there are any gaps. Caulk any gaps that appear between the liner segments (figure 3). Be sure to force the caulking compound as deeply into the gap as possible. Argonics recommends Bostik 1100FS adhesive. If this is not available, pure silicone caulk can be used.

Proper Care and Maintenance

The purchase of this liner is a substantial investment. Maximum cost-effective performance can be reached though proper care and maintenance. The following tips should be observed:

Storage

If the liner will be out of service or in storage and waiting to be installed for long periods of time, protect it from the elements. Prolonged solar heat can cause thermal decomposition and stagnant water may promote hydrolysis, both of which can degrade liner performance over time.

Loose Plugs

Plugs should fit snug. If a plug becomes loose or pops out, it may allow material penetration or buildup though the weld hole. Try to remove the buildup, and use Bostik 1100FS adhesive to seal the hole or secure the loose plugs as soon as possible. If you experience this problem at any point in the life cycle, you may request additional plugs from the factory. They will be supplied at no charge.

Gouges or Tears

If a gouge or tear occurs, a polyurethane-based caulking adhesive can be used to fill holes or fix damaged areas. The affected area should be cleaned, dried, stripped of grease or other contaminants, and patched. This should be done as soon as possible to retard the size of the tear.

Seam Care

Seams are generally the most susceptible areas. If material penetration starts to cause problems along a liner seam, damage can quickly spread. Seams should be inspected often, and resealed or repaired as required.

Visual Inspection

Checking a liner on a regular basis is very important in preventing material impediment. Failure to do so can result in premature liner loss. Argonics recommends that all liners be inspected on a weekly basis for thin spots, broken or loose welds, missing Bostik in seams and loose or missing Snap-Loc plugs. If any of these conditions arise it should be taken care of immediately.

Removal Materials Required

- 1. Oxy-acetylene hand torch or air arc
- 2. Welding safety equipment
- 3. Portable or overhead crane
- 4. Blocking material
- 5. Safety glasses and work gloves
- 6. Face mask or respirator
- 7. ABC fire extinguisher
- 8. Compressed air or shop-vac
- 9. High torque, low speed drill with a 200 or 250 RPM setting
- 10. $1^{3}/4^{"}$ diameter standard hole saw (not carbide tip) -45/60 pcs.
- 11. Number 2 arbor for hole saw
- 12. Tapered chuck
- 13. Portable grinder with 9" grinding disk
- 14. 5 lb. hammer
- 15. Pry bar
- 16. Chisel

Do not burn the waste. The decomposition of polyurethane during melting or ignition will generate toxic and irritating fumes.

Always perform removal procedure in an open, well-ventilated area.

Remove the weld hole plugs by prying them out with a large screwdriver or pry bar. Set the drill to 200 or 250 rpm. Using a hole saw, cut through each $\frac{1}{8}$ " thick weld disk that secures the liner panel to the equipment. Be careful not to score the equipment.

Pry up the liner panels at each plug hole to ensure that the steel disk has been completely cut through. Remove each panel as necessary. Use a hammer and chisel to remove any seam adhesive stuck to the equipment. Grind off the remaining weld disks flush with the surface.

Use the vacuum to clean the surface and contain dust particles as you proceed. Dispose of the vacuum cleaner bag or contents and the liner waste in accordance with federal, state and local regulations.

OTHER QUALITY PRODUCTS FROM ARGONICS

THE MOST RELIABLE AND COST-EFFECTIVE SKIRTING AVAILABLE

MADE WITH KRYPTANE[®] POLYURETHANE

Argonics formulates unique proprietary Kryptane polyurethane materials tailored to meet the demands of your wear application, whether it be sliding or impact abrasion, sticking or corrosion.

BENEFITS OF ARGONICS POLYURETHANE SKIRTING:

- 6 10 times the wear life over rubber
- 60% lower coefficient of friction compared to rubber, which reduces drag on conveyor motor
- Will not groove your conveyor belt when installed correctly



FOLD-N-SEAL[™]

If you're looking for a quality multi-sealing conveyor skirting solution that isn't hard on your budget, look no further: Fold-n-Seal is your answer.

Fold-n-Seal gives you the best of both worlds: material and dust containment in one unique solution. The primary seal keeps the material where it should be – on the belt. The secondary seal keeps dust and particulate material under control.



SNAP-LOC[™] DUST SEAL

Snap-Loc is the gold standard for dust containment skirting. This straight-forward, no-nonsense design for dust control snaps into standard unistrut railing that can be bolted or welded into place.

Snap-Loc Dust Seal is engineered to create a perfect seal that follows the contours and low spots of the belt between trough rollers. No additional adjustments are needed for the life of the seal, saving you in both cost and hours of maintenance.



LOAD ZONE CONTAINMENT SKIRTING

Designed to do one thing and do it well: contain material at the transfer points on your belt line. The extra-rugged reinforced design with 1/4" steel means that our Containment Skirting is extremely effective in reducing spillage, resulting in reduced clean-up labor.

Containment skirting is available with either a flat or 20° beveled edge, and in 60" and 96" lengths. Varying heights and thicknesses available.





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