Polywater®
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INSTRUCTIONS FOR USE

POLYWATER® FST DUCT SEALANT (FST-250)

POLYWATER FST DUCT SEALANT

FST seals ducts with excellent pressure-blocking in tough environments. It has excellent wetting and adhesion to metal, concrete, and plastic surfaces. FST seals out methane and other gases and holds 22 feet (6.7 m) water head pressure. The semi-permanent seal is reenterable and is chemically resistant.

INSTALLATION

Installation temperature:

40°F to 95°F (4°C to 35°C)

In-service temperature:

-20°F to 200°F (-30°C to 95°C) continuous
-40°F to 250°F (-40°C to 120°C) peak

- Good surface preparation is critical.
- Rapid injection produces better mixing.
- For large ducts, use multiple injections.
- Static mixer must be firmly attached to cartridge. It is reusable for 7-10 minutes
- Make sure tip is not clogged before attaching static mixer.

SAFETY

- Wear eye protection
- Use protective gloves and protect bare skin

Clean duct with wire brush, solvent wipe

1. If conduit has loose debris or rust, use a wire brush to remove all loose material. Abrade the surfaces with sand paper or steel wool to increase the effectiveness of the FST.

Clean cable(s) and duct with cleaning wipe. This will remove contaminants and any organic residue.

Note: Steel type conduit must be sanded and cleaned.

Separate cable(s) then wrap with foam strip

2. Create a foam dam by loosely wrapping foam strip around cable(s) so that it fills the space between the cable(s) and duct. It should be slightly wider than the duct and compress slightly when inserted. (If more than one cable, separate cables with foam strip.)

Tail end of foam strip should be at top of wrap. Foam strip will slow any existing water flow and contain the FST. Cut foam to size as necessary.

Insert foam 5 inches

3. Using the positioning rod, push foam 5 inches (125 mm) into duct. Make sure there are no voids in the foam dam for FST to flow through.

Separate cable(s) with foam

4. Wrap the second foam strip around cable. (If more than one cable, separate cables with foam strip.) Tail end of foam strip should be at top of wrap. Push second foam strip into the duct until the edge is flush with the duct entrance.

Prepare cartridge

5. Remove FST Cartridge from pouch.

NOTE: Do not remove cartridge from brown pouch until ready to use. Wear impermeable gloves and eye protection.

Holding cartridge upright, remove nut and plug. (Plug can be saved for re-use of cartridge.) Attach static mixer and tighten into place.

TOOL-250 with FST-250

6. Use a heavy-duty, high-ratio caulking tool for best performance, (Cat. # TOOL-250). Dispense and discard the first liquid to run through the Static mixer (about 1 squirt with the application tool). This initial material will not be well mixed or have the proper ratio of material.

Dispense foam sealant

7. Insert static mixer into top wrap of foam dam so that tip extends into space between foam strips. Inject sealant above cables for better coverage. Use recommended amount of foam sealant (see Table 1).

Rapid injection will produce better mixing.

For large ducts, use multiple injections.

TABLE 1

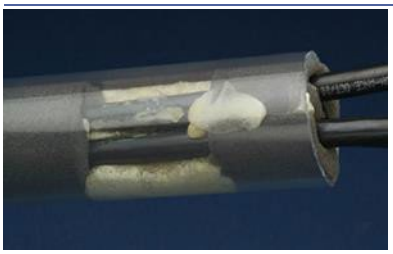
Duct Size, O.D. Inches/mm	QUANTITY LIQUID FOAM SEALANT 0% Cable Fill	20% Cable Fill
2/50	1.5 cm *(1 injection)*	1 cm *(1 injection)*
3/75	3 cm *(1 injection)*	2.5 cm *(1 injection)*
4/100	4 cm	3.5 cm
5/125	3 cm + 3 cm *(2 injections)*	2 cm + 3 cm *(2 injections)*
6/150	4 cm +4 cm *(2injections)*	3 cm + 4 cm *(2 injections)*
8/200	5 cm + 7 cm *(2 injections)*	2 cm +3 cm + 5 cm *(3 injections)*

Note: To seal large ducts (4-inch diameter or larger), inject the FST in stages. After each injection, wait 5 minutes for sealant to rise. Inject each portion as recommended. Excess material may squirt from the foam dam after adding the final portion. Quantities needed may vary based on ambient conditions.

For small ducts (1-1/2-inch diameter or smaller), the FST-MINI or ZipSeal isrecommended.

Mark on side of cartridge

8. There are approximately 8.5 cm per FST-250 Cartridge. Use side markings to measure quantity by difference. Use as a starting point only, actual required quantity will vary.



Rising foam

9. Remove cartridge with the static mixer attached. Sealant may seep between the crevices of the foam dam as it expands. After cure, excess foam may be trimmed and removed.

Sealant will expand fully in 2 to 5 minutes.

Sealant will harden (set) in 10-15 minutes.

Static mixer is reusable 7-10 minutes after injection.

Use screwdriver to check for voids

10. After sealant has fully set and cured, use the positioning rod or a screwdriver to check for voids in the FST Seal. Foam seal should be solid throughout the duct. If any holes or voids are detected in the inspection, use a screwdriver to cut into top of foam and enlarge a path for new material. Attach a new static mixer and inject sealant directly into the void area.

Dispose of any excess material in accordance with local and national regulations.

Storage: FST Foam is sensitive to sun, water, and heat. To keep the FST Foam up to a month after initial use, place the partially used cartridge into the brown pouch and tape it shut. Place the brown pouch in a dry, cool, dark place until ready to use.

ADDITIONAL INSTRUCTION TIPS

CLOGGED/LEAKING CARTRIDGE

The small orifices in the cartridge tip may become clogged. Poke through and loosen hard material or crust with a wire. Material may be used as directed once the clog is cleared. If the back plugs are leaking, do not use cartridge.

RE-USE AND CLEAN-UP

Cartridge can be reused for several weeks after initial use. Remove static mixer and visually ensure that orifices are not blocked. Seal with replaceable plug and nut. When ready to use, remove end cap assembly and check to make sure orifices are clear of any hardened sealant. Attach a new, unused static mixer, tighten the mixer, and insert used cartridge into ratchet application tool.

Unreacted material may be cleaned from surfaces with a solvent wipe such as Polywater's Type HP Cleaner/Degreaser. Part A, amber resin will react with water if surfaces are washed with soap and water solution. Once reacted, material has strong adhesion, and may be scraped or cut from surface. For skin contamination, wash thoroughly with soap and water. See MSDS for further information.

WATER IN DUCT

FST will cure if the duct contains less than 10% water. If water is relatively clean and not flowing, the foam dam will work as a good block. FST will incorporate any excess water into the body of the cured foam seal. Too much water and/or contamination will weaken the seal.

REMOVAL

FST produces a water-tight seal intended for permanent use. It can be mechanically removed with some effort. Use best practices and comply with the NEC by de-energizing equipment before any seal removal is attempted. Use a long screwdriver (7 inches/15 cm) to puncture holes ¼ to ¾ inch (0.5 to 2 cm) throughout the seal. With a hammer, push the screwdriver through the foam, twist it to enlarge cavity, and pull out. Go around the inside duct edge to remove plug. Once the foam is weakened, material can be chipped away, and the cable should break free. At this time the cable can be removed or the remaining FST can be detached from the cable.

COLD WEATHER USE

FST can be used in temperatures down to 40°F (4°C). Reaction is slower, but the sealant will completely foam and cure with time. At cold temperatures, FST becomes slightly viscous and flows through the static mixer at a slower rate. Cure times are as follows:

FOAM CONDITION	40° F (4° C)	70° F (21° C)
Foaming, Expansion Complete	8 - 9 Minutes	4 – 5 Minutes
Hard, Non-sticky Skin Formation	12 – 15 Minutes	7 – 9 Minutes

To decrease cure time in cold temperatures, keep FST warm prior to use.

LARGE VOIDS

Seal should be inspected after installation. If voids or holes are discovered, additional FST may be added at any time. It will bond very well to existing, cured material. Use a screwdriver to cut into top of foam and enlarge a path for new material. Attach a new static mixer and inject sealant directly into the void area. Dam the fill area if larger than 2 inches (50 mm).

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