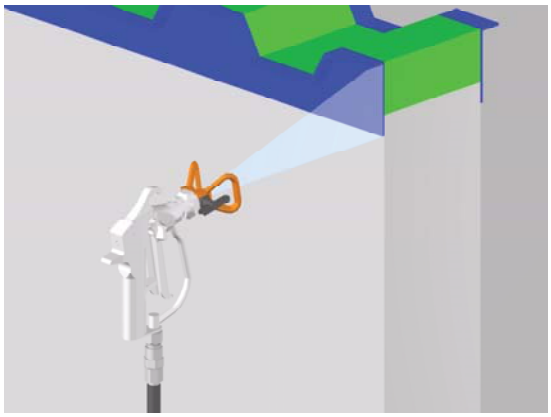
5100SP - SPRAYING INSTALLATION INSTRUCTIONS

INSTALLATION

Firestopping Construction Joints 5100SP



Determine the installation requirements. Select the appropriate firestop listing for the application

The installation of the safing material is crucial to the joint firestop system. If the mineral wool safing material is poorly installed several undesirable consequences could happen: (1) normal building movement may cause the firestop materials to fall out; (2) if loosely packed and safing is hit with the pressure from the spray gun, the material may blow out of the joint; (3) loosely packed mineral wool will require more firestop spray material to be applied (the wool fiber will open up and create more voids to be filled with the coating).

Surface preparation: To ensure an effective firestop system, remove excessive dust, dirt, debris, frost, water and oils. Remove any rust from supporting members.

Safing Insulation: Use minimum 4pcf mineral wool fiber (some systems may require 6 or 8 pcf)

- **For horizontal joints in wall assemblies:** Select the appropriate nominal thickness for the joint; cut the mineral wool safing material to fit tightly into the joint and compress it to the density (usually 25% compression) required by the listing. The mineral wool should be installed with the laminations (layers) being in a horizontal orientation (this will allow the wool to compress easier and not break apart).
- **Vertical joints in wall assemblies:** Install as outlined above, except for floor joints the safing laminations (layers) should be installed in a vertical orientation. This allows for maximum compression of the safing material.
- **Floor to floor and floor to wall joints:** Install as outlined above, except for the floor joints the safing material should be installed with the laminations (layers) in a vertical orientation. Larger floor joints may require impaling clips or pins, which help support the mineral wool (manufacturer recommends using clips or pins in joints 4 inches and larger).

Operating Electrical Spray Equipment

For optimum equipment operating and cleaning information, consult the spray pump manufacturer's **Owner's Manual** or their local distributor/representative.

Spraying Elastomeric Firestop Techniques

- An important factor when spray-applying **5100SP** is to achieve an even coating over the entire surface being covered.
- Use even strokes to get the best results.
- As much as possible, keep you arm moving at a constant speed.
- Keep the spray gun at a constant distance from the surface. A good distance is 10-12 inches (25-30cm) between the spray tip and the surface.
- **5100SP** can be applied in a single pass up to 80 mil (5/64") wet thickness.
- Overlap the interfacing surfaces with the correct amount of material [usually 1 inch (25cm)]
- If the coating starts to run when applied to vertical assemblies, more than one thin coat may be necessary. Begin the process by first applying a thin tack coating. After a short time apply the desired coating thickness.

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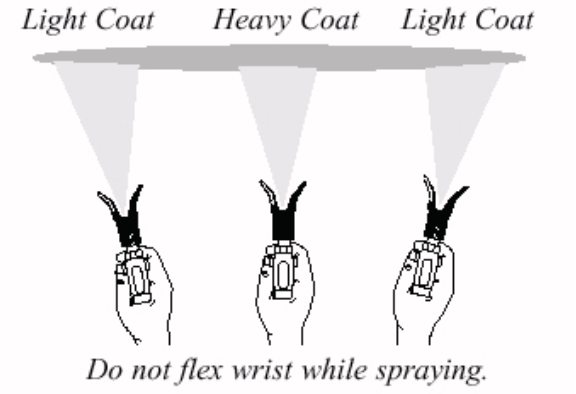
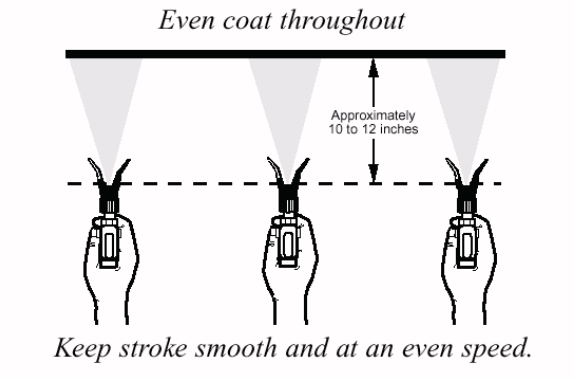


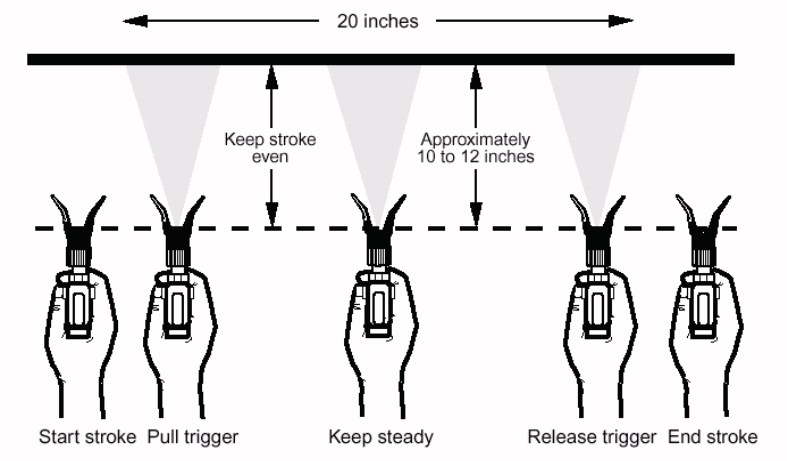
Keep the gun at right angles on the surface. This means moving your entire arm back and forth rather than flexing the wrist.



Keep the spray gun perpendicular to the surface.

The spray gun should be triggered by turning it on and off with an even stroke.

Proper way to trigger the spray gun



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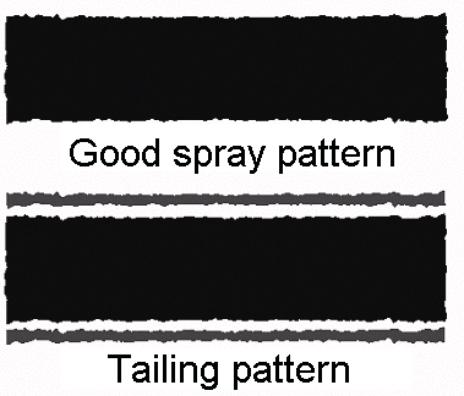
Overlap each stroke by approximately 30%. This will ensure an even coating.



Not Acceptable Spray Pattern

Spray Equipment

Apply 5100SP using airless spray equipment. Recommended specifications:

Heavy to Moderate Duty

Electric motor	1.50 hp
Maximum Working Pressure	3000 psi
Flow Output	1.25 gpm
20 Amp Mode Cord	Min. 12 gauge (recommend 10 gauge)
Hose size	3/8" (9.5mm)
Hose length	Max. 100 ft. (30.5m)
Spray Gun	Mastic Gun
Spray Tips	Reversible 0.019 to 0.031 (recommend 0.021)
Fan width	2" – 12" (50mm-300m)


EP2510

***Note Remove the filter element and filter support attempting to spray. The screen in some applications could be removed.**

Moderate to Heavy Duty

Electric Motor	1.50 hp
Maximum Working Pressure	3000 psi
Flow Output	0.67 gpm
20 Amp Mode Cord	12 gauge
Hose Size	¼" or 3/8 " (6 or 9.5mm)
Hose Length	Max. 100ft. (30.5m)
Spray Gun	Mastic Gun
Spray Tips	Reversible 0.019 to 0.025 (recommend 0.021)
Fan Width	2" – 12" (50-300mm)


EP2305

***Note Remove the filter element and filter support before spraying. The screen (rock) filter could also be removed.**

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Light to Moderate Duty

Electric Motor	1.1 hp
Maximum Working Pressure	3000 psi
Flow Output	0.55 gpm
Amp Mode Cord	12 gauge
Hose Size	¼” (6mm)
Hose Length	Max. 100 ft. (30.5m)
Spray Gun	Mastic Gun
Spray Tips	Reversible 0.019 – 0.023
Fan Width	2” – 12” (50-300mm)

*__Note Remove the element filter and filter support before spraying.__

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3500SI - SPRAYING INSTALLATION INSTRUCTIONS

INSTALLATION

Introduction

3500SI spray is a latex-based, intumescent spray designed to stop the passage of fire, smoke, and fumes through fire-rated separations. 3500SI spray forms a durable and flexible seal after curing.

3500SI spray becomes an integral component in a complete building system of walls, pipe penetrations, HVAC ducts, joints, and the like.

Applications

When installed correctly within Passive Fire Protection (PFP) Partners' recognized and tested systems, 3500SI spray will help prevent fire, smoke, toxic fumes, and moisture from passing through penetrations of fire rated walls and floors. Some typical applications include:

- Openings with or without penetrations
- Single or bundled cables with or without plastic jacketing
- Cable trays
- Plastic pipes, including PVC, CPVC, ENT, and ABS
- Cross-linked polyethylene
- Rigid metallic conduit
- Metallic pipes, including cast iron, copper, and steel
- Insulated metallic pipes
- Construction joints, including horizontal expansion joints and top-of-wall joints

Advantages

Intumescent. When exposed to high temperatures or fire, 3500SI spray expands in volume close off voids left by melting or burning construction materials.

Simplified Installation. 3500SI spray is installed with standard commercial spraying equipment. Priming of surfaces is not required before use.

Versatility. 3500SI spray adheres easily to dry or damp concrete, wood, metal, and other building material surfaces.

Flexibility. 3500SI spray, when used in joints, accommodates up to 33 percent joint move compression/extension. It remains flexible and fully resistant to water after curing.

Approvals and Regulations

3500SI spray has been tested for hundreds of firestop installations and meets or exceeds the requirements of ASTM E 814, ASTM E 119, UL 1479, UL 2079, CAN/ULC S115, and CAN/ULC S101. Underwriters Laboratories (UL) is a third party, fire endurance testing agency accredited by ICBO, BOCA and SBCCI (National Evaluation Service) in the United States.

Materials and Equipment Needed for Installation

The following items are necessary for proper installation of 3500SI spray:

- ❑ Safety glasses
- ❑ Gloves(plastic, disposable gloves are preferred)
- ❑ Appropriate UL listing for the firestopping system to be installed. This can be determined by referring to the selection charts in the PFP Partner Pocket Guide, identifying the type of system to be installed, and locating the UL approved listing for that system.
- ❑ All items shown in the UL listing. This will include 3500SI spray and mineral wool filler.
- ❑ 3500SI spray, in 5 gal. pails. The amount of spray required can be determined by using the charts and formulas found in the PFP Partners Estimating Information Technical Data Sheet.
- ❑ A low-pressure air spray system with a pressurized pot (2 quart, 2 gallon, or 5 gallon) or a diaphragm pump and air spray gun. Suggested spray equipment is listed in Table 1.
- ❑ Mineral wool (4 lb/ft^3 minimum, 6 lb/ft^3 preferred for ease of use) cut to size per the applicable UL system.
- ❑ As an option, 3500SI spray can be applied with a 3" to 5" wide brush or a 3/8" or medium nap paint roller.
- ❑ Putty knife and/or 2-inch paint brush
- ❑ Other tools, ladders, etc. as required for the specific jobsite.

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INSTALLATION

Figure 1. Equipment for installation includes safety glasses and gloves

Installation Procedures

All installations must be in accordance with the UL listing for the firestopping system that is being installed and must comply with all applicable firestopping codes. Always refer to the UL listing before, during, installation to ensure that the outlined procedures have been followed exactly. Installation should be by a PFP Partner certified technician.

Areas to be protected must be clean and free of any oil, dust, or dirt, similar to that of any typical painting application. A light dusting with a damp cloth is usually sufficient to prepare the surface.

Recommended installation temperatures should be 40°-90°F (4°-32°C). Preferred temperatures are between 65°-75°F (18°-24°C).

Figure 2. Installing filler material.

- ❑ Put on gloves, safety glasses, and any other required protective equipment.
- ❑ Install any required filler material, per the UL listing, prior to installing the 3500SI spray.
- ❑ Open the 5 gal. pail of 3500SI spray and stir with a mixer or a stirring stick to insure that the spray is of a uniform consistency.

Figure 3. Pressure pot with 3500SI spray ready to beclosed and pressurized.

Pressurized Pot Sprayers

If using a pressurized pot sprayer, fill the pot 1/2 to 3/4 full. If the pot has a liner, use this for easier cleanup, but be sure that the filler hose is not against the liner. This would prevent the spray from flowing into the filler hose.

- ❑ Secure the lid to the pot, using uniform pressure around the lid to ensure no leakage. Attach the hose and spray gun to the pressure pot.
- ❑ Before attaching the inlet pressure hose, make sure all pressure regulators are turned off or set to zero pressure.
- ❑ Attach the hose and gradually pressurize the pot to the desired pressure (40-80 psi). If the desired pressure cannot be attained, the pot is leaking. Set the pressure back to zero, release pressure on the pot, tighten the lid and repeat pot pressurization.

CAUTION: Do not exceed the maximum recommended pressure for the pump and spray gun.

Do not allow pot to turn on its side as this can allow spray material into the valves in the lid. Should this occur, the lid must be cleaned.

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Diaphragm Pump Sprayer

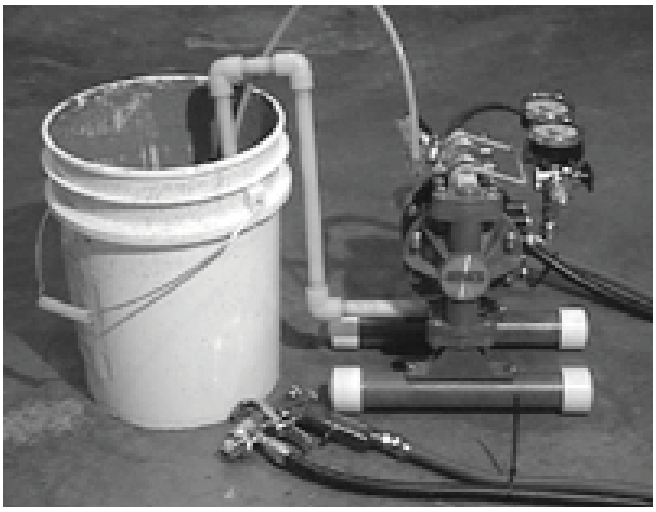

Figure 4. Diaphragm pump with spray gun and 5-gallon pail.

- ❑ If using a diaphragm pump spray, set the pressure regulators to off or zero and attach the hose and spray gun to the pump. Connect the inlet air hose to the diaphragm pump. Place the inlet hose in an empty 5-gallon pail and fill it 1/2 to 3/4 full with 3500SI spray.
- ❑ Set the diaphragm pump regulator to 60-100 psi.

Figure 5. Proper pressure settings insure smooth spraying of 3500SI spray.

- ❑ Remove the spray nozzle from the spray gun allow the pump to fill up the hoses and remove any trapped air. Replace the nozzle.
- ❑ Set the spray gun regulator to 40-80 psi and use the gun adjustments to adjust the spray.

CAUTION: Do not exceed the maximum recommended pressure for the pump and spray gun.

- ❑ Apply the 3500SI spray into the joints or openings, to the thickness specified in the UL listing and related drawing.

Figure 6. 3500SI can be installed by spraying or with a brush or roller.

Cleanup

- ❑ When installation is completed, tools and other surfaces that require cleanup can be easily cleaned with tap water.

Note: Cleanup should be done before the 3500SI spray becomes dry.

Brushes and rollers can be cleaned with tap water and, if necessary, soap, in a manner similar to cleanup of latex paint.

- ❑ If a pressurized pot has been used, turn off the air pressure and bleed off any residual pressure in the pot, using the relief valve. Remove the lid and empty any remaining 3500SI spray into its original container. Replace and secure the lid and turn on the air pressure. Remove the nozzle from the spray gun and use the air pressure to “spray” the remaining 3500SI back into its original container.

  Turn off the air pressure and bleed off any residual pressure in the pot, using the relief valve. Remove the lid and rinse the pot with clean water. Fill the pot one-half full of clean water. Replace and secure the lid and turn on the air pressure. With the nozzle removed from the spray gun, use the air pressure to “spray” the clean water through the hose into a suitable container, for later disposal. Repeat this process until the hose is clean. Wash the spray nozzle with clean water. Allow to air dry.
- ❑ If a diaphragm pump has been used, turn off the air pressure to the spray gun and remove the nozzle. Remove the inlet pump from the holding tank. Turn on the air pump and “spray” the remaining 3500SI into its original container. Pour any 3500SI remaining in the holding tank into its original container.

Rinse out the holding tank and fill with it one-half full with clean water. Place the diaphragm pump in the holding tank and use air pressure to “spray” clean water through the pump and hoses into a suitable container, for later disposal. Repeat this process until the hose is clean. Wash the spray nozzle with clean water. Allow to air dry.

Binks Model 2001 Spray Gun
- Fluid Nozzle 59B or 59C
- 3/8” Fluid Line

Graco Model 204 Spray Gun
- 1/4 in. or 3/8 in. Nozzles
- 3/8 in. Fluid Line

Table 1. Spray Equipment Recommendation

Figure 7. Typical spray gun and nozzles.

Installation Checklist

Begin inspection with review of the submittal package, which should include:

- ❑ Required firestop ratings
- ❑ UL listing number for the firestop system
- ❑ Copy of the UL listing with installation drawing and instruction details
- ❑ Clearly noted product thickness

Verify that the requirements specified in the submittal documents have been accomplished in the actual installation.

- ❑ Is the construction type the same as that specified in the UL listing?
- ❑ Is the fire rating for the installed fire system equal to or greater than the construction assembly?
- ❑ Do the joints or penetrating items match those specified in the UL listing in both type and size?
- ❑ Does the size of the opening meet the specifications in the UL listing?
- ❑ Does the annular space meet the minimum and maximum specifications in the UL listing?

Inspect the installed UL system. This will typically require a destruction test in which a section of the material is removed from the annular space. After inspection, new material must be reinstalled.

- ❑ Verify the type, density, and thickness of filler material (if used).
- ❑ Verify the type and thickness of the 3500SI spray.
- ❑ Verify that ceiling and wall joints and penetrations are firestopped on both sides. Floors are usually protected from the underside only.

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