

**JetSpray™ Thermal**  
*Spray-On Insulation System*



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**INTRODUCTION**

JetSpray Thermal is a premium fiberglass spray-on insulation wall system designed exclusively for residential application. The JetSpray Thermal Spray-On Insulation System utilizes virgin loose-fill fiberglass insulation blended with a water-activated adhesive at our manufacturing plants. You just spray the material with water at the job site. There is no liquid adhesive so you don't have to deal with ordering, inventory, spoilage/waste, measuring/mixing, mess or cleanup.

In addition, your present fiberglass attic blowing machine can likely be converted to the JetSpray Thermal Spray-On Insulation System with relative ease at a nominal cost. Your machine can still be used as an attic blower with JetSpray Thermal components attached.

This installation guide will describe all the facets of the JetSpray Thermal Spray-On Insulation System, from the process and equipment to installation and troubleshooting. A list of approved JetSpray Thermal insulation blowing machines and system components is contained in the Equipment section as well.

**RECOMMENDED PERSONAL PROTECTIVE EQUIPMENT (PPE)**

**Inhalation**

Fiberglass insulation may cause mechanical irritation of the upper respiratory tract. Use of a 2-strap NIOSH-Approved N-95 filtering face piece respirator (3M model 8210 or equivalent) is recommended as a minimum when handling loose-fill\* and when exposure is unknown or when fibers exceed the TLV of 1 fiber/cc\*\*.

**Skin & Eye Contact**

Direct contact with the skin and/or eyes may cause mechanical irritation. If irritation occurs, long sleeves, loose fitting clothing, gloves and eye protection (safety glasses with side shields or goggles) are recommended. Wash exposed areas with soap and cold water after handling.

\*An OSHA-Compliant Respiratory Protection program must be initiated when employees are required to wear a respirator. Refer to 29CFR1910.134 for details.

\*\*The TWA TLV of 1 f/cc is a protection standard voluntarily adopted by the fiberglass industry and is a recommendation of ACGIH and California's ACAC.

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### EQUIPMENT

We have tested many insulation machines and various system components to arrive at the optimal system for JetSpray Thermal. One of our many goals was to devise a system comprised of as many commercially available components as possible – providing flexibility without sacrificing performance or product quality.

#### General Requirements

- Fiberglass insulation blowing machine, 1 each
- Water Supply Tank, 1 each
- Water pump, 1 each
- ¾" high-pressure hose, 150'
- 1" (typ.) suction hose with strainer ,10'
- ½" (typ.) pump return hose, 10'
- 2½" JetSpray Thermal Spray Nozzle 1 each
- Ideal Spray Hose Configuration: 4"=>3½" =>3"=>2½" (50' of each), 150' minimum, ending in 2½"
- 4" Insulation Blow Hose for Vacuum, 150'
- Vacuum Suction Attachment (VSA), 1 each
- Electric Wall Scrubber, 1 each
- Insulation Vacuum, 1 each
- Vacuum Collection Box, 1 each
- Densi-Checker, 1 each
- Portable Moisture Meter, 1 each
- Portable Electric Generator (optional), 1 each
- Filter at Water Pump Intake, 1 each

#### Accessories

- Poly film for masking windows
- Duct tape for masking electrical outlets
- Brooms for dressing-up the job & for cleanup
- Extension cord for power to scrubber, lights, etc.
- Hose couplers to join hose lengths
- Hose reducers to change hose sizes
- Spare spray tips to quickly change if plugged or damaged

#### Blowing/Spraying Machine

- Capitol Models 70, 80, 100 & 125, Capitol Machine
- Cool Machines CM3500 & CM4500, Cool Machines<sup>1</sup>
- Meyer® Series 1300, 1400 & 3000, Wm. W. Meyer & Sons, Inc.
- All Volu-Matic® Series Machines, SE Model & Attic Matic™, CertainTeed Machine Works<sup>2</sup>
- Monsoon 1000, Dahl Mfg.
- Heat Seal 5000 Series, Heat Seal Equipment, Ltd.
- Fiberstar III, Super Star III, Super Star Supreme III & Vol-U III, Star Machine, Ltd.
- Stanco 1400 & 1800, Stanco Machine
- Krendl™ 5200 & KS260, Krendl Machine Co.<sup>3</sup>
- Krendl 2300 (electric), Krendl Machine Co.<sup>3</sup>
- Intec Model 5150, Intec or Service Partners equivalent
- Intec Model 5650, Intec or Service Partners equivalent

**NOTE:** You will need a total 150' of hose for your machine—50' of hose that fits your machine outlet; 50' of 3"; and 50' of 2½" or 3" depending on nozzle size.

#### Water Pump

- Model MP20 (Dynesco), Krendl Machine Co.

#### JetSpray Nozzle

- 2½" Model 14202JS, Krendl Machine Co.
- 3" Model 12203Q, Krendl Machine Co.

#### Vacuum/Recycle Machines

- Model GV180 18 hp, Krendl Machine Co.
- Model CV-14-4"-6" 14 hp, Capitol Machine

**NOTE:** 150' of 4" flexible hose and 2 each of 4" hose couplers is required.

#### Recycle Equipment

- Vacuum Collection Box # RCVB 100, Krendl Machine Co.<sup>3</sup>

1. Cool Machines require recycle hopper to have agitator paddles.
2. SE Models require an electric water pump.
3. Krendl models need upper agitator unit.

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#### Vacuum Accessories

- Vacuum Suction Attachment #VSA 100, Krendl Machine Co.

#### Wall Scrubber

- Model 349C-B or 349B-B, Krendl Machine Co.
- Model CT—Cool Tool, Cool Machines

**NOTE:** It is recommended more than one scrubber be inventoried by each insulation contractor, so there is a backup if there is difficulty with your primary unit. Not having a scrubber will shut you down. Also, be aware that scrubbing tight areas such as closets will necessitate a narrow scrubber. Please specify scrubber width to the vendor when ordering.

#### Water Supply Tank

- Any agricultural poly tank approved for holding water. These can be sourced from most any local farm/ranch supply store. We recommend 65-gallon capacity minimum.

#### Spray Nozzle Jets

- SJ4001S (Stainless), Krendl Machine Co.

**NOTE:** The JetSpray Nozzle comes with a set of the SS jets listed above. We require the use of stainless steel tips as we've found the brass ones wear very quickly allowing more water than necessary to be applied when spraying JetSpray Thermal Insulation. **The only jet size recommended for the JetSpray System is listed above.**

#### Fittings

- Miscellaneous equipment, Krendl Machine Co.

#### Portable Generator (optional)

- Model 4NY99 (or similar), W.W. Grainger, Inc.

#### Moisture Meter

- Delmhorst BD-10 (p/n MM100), Delmhorst Instrument Co. (Analog)
- GE Protimeter Mini BLD2000 (p/n MM200) (Digital)

#### Densi-Checker

- Model DC100, Krendl Machine Co.

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### EQUIPMENT SETUP

This section covers setting-up for the application of the JetSpray Thermal Spray-On Insulation System, paying particular attention to the settings for the various fiberglass insulation blowing machines. The settings for these blowing machines are initial settings only. Although we have tested all the listed units in the JetSpray Thermal Spray-On Insulation System, each machine by every manufacturer develops its own “personality” over time. Depending on age, method of operation, maintenance schedule, number of hours operated, etc., identical machines can yield different results. How to fine-tune your machine for optimal results in the JetSpray Thermal Spray-On Insulation System is discussed in the Installation section.

#### Blowing Machine Setup

Typically, the blowing machine feed gate is set to approximately 75% of where you set it to blow attics. Material feed rate should be 1 bag of JetSpray Thermal every 2 minutes to 2 minutes 10 seconds. Spray hose configuration should be 4"-3½"-3"-2½" or 3"-2½" for smaller electric machines. A minimum of 150' of hose must be used to condition fiber.

#### Material

- “Dry” refers to when using 100% virgin JetSpray Thermal fiber, typically only on the startup of a job.
- “Wet” refers to when recycled JetSpray Thermal fiber is being introduced back into the blower hopper; this is about 95% of the time on any job.

#### Density

The Densi-Checker™ is an important part of your JetSpray Thermal Spray-On Insulation System. It provides a quick, simple and accurate check of your JetSpray Thermal spray application density.

#### Truck and Machine Location

Try to park the truck on a surface as level as possible, preferably less than 150' from the farthest wall to be sprayed in the home. This is ideal, but as much as 200' of spray and vacuum hose will work in most cases. Please note at hose distances greater than 150' adjustments to the blowing wool machine air output and vacuum RPM may be needed for an effective installation.

#### Equipment Flow Check: Bucket Check

Before you begin spraying you need to perform a water flow bucket check. This important procedure follows:

#### Equipment

- JetSpray Thermal nozzle with 2 each 4001 jets
- Small plastic bucket typ. 5 gallon or less
- Digital scale capable of 10 lb. capacity minimum
- Dynesco pump & liquid hose (on your truck)
- Timing device that can track seconds (stop watch, cell phone, etc.)

#### Standards

- 1 gallon water weighs 8.34 lb.
- Each jet output is 0.16 gallons per minute (GPM) at 100 PSI.

#### Procedure

- Tare empty bucket on scale to zero.
- Hook JetSpray Thermal nozzle to hose & pump.
- Set pump to 100 PSI with jets flowing.
- Start watch & begin timing spray discharge as you're collecting it in the bucket.

**NOTE:** Be sure spray is on and stabilized and jets are free-flowing. Then move nozzle over the bucket & immediately start timing the test.

- Collect water spray in bucket for 3 minutes exactly. Move nozzle away from the bucket at the end of 3 minutes, THEN turn it off. (Perform this 2-3 times and average the quantity collected).
- The target water flow rate is 8 lb. in three minutes.

#### Calculations

- Weigh contents of bucket on scale. (example = 8.00 lb)
- $8.00 \div 3 \text{ min} = 2.67 \text{ lb. water/min.}$
- $2.67 \div 8.34 = 0.32 \text{ gallons water/min. or } 0.16 \text{ gallons/min./jet}$
- If a 2 x 4 x 8 at 16" o.c. stud cavity is sprayed in 30 seconds, the above water flow rates yield approximately 18% added moisture to the JetSpray Thermal. This is the target.

#### NOTES

- There is typically a pressure drop through a long hose that will necessitate you to increase your pump pressure in order to maintain water volume (flow), therefore you'll typically have to set your pump at approximately 110 PSI as a base setting to get the proper amount of water onto JetSpray Thermal when using a liquid hose greater than 125' in length.
- The only water spray jets approved for the JetSpray Thermal Spray-On Insulation System is Part Number SJ4001S from Krendl Machine Co. (jets should be changed once per year, or more frequently if damaged).

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### JOB SITE PREPARATION

This section covers the basic equipment setup, job preparation and application of JetSpray Thermal. For illustration purposes the application is described at 1.9 lb./ft<sup>3</sup> density.

To install JetSpray Thermal at 1.9 lb./ft<sup>3</sup> density, spray with nozzle 36"–40" from cavity, adjust impact distance and application rate for 1.6 lb./ft<sup>3</sup> density.

This is a good time to get one person sweeping the floor area about 10-12' back from all walls to be sprayed. This is a very important step in the process and must not be overlooked. You do not want any construction trash vacuumed-up and run through your blowing machine. Nails, staples, electrical wire trimmings, dirt and sawdust will cause problems with the process. Some contractors like to lay down poly sheeting around the inside perimeter of the house to further protect the scrubbed-off fiber. While this is certainly acceptable, in most cases is not necessary.

This person can then mask-off all electrical and plumbing outlets with duct tape and use poly film to protect windows from fiber and water over spray. All floor registers should be masked as well. Be certain all air sealing work is completed, and chinking gaps less than 1¾" wide where JetSpray cannot be applied. We address and offer alternative chinking solutions in the Vacuuming segment.

#### Hose Alignment and Setup

- Blow/Spray Hose (see recommendation under General Requirements)
- Vacuum Hose
- Water Line
- Remote Control Cord (if using a tethered control instead of wireless system)

The 3 or 4 lines should be uncoiled and stretched in parallel to the furthest point in the house that will be sprayed. Now make the connections to the equipment. Attach the Blow/Spray line to the discharge connection of the blowing wool machine. The vacuum should be set away from the truck roughly 25' and will connect to the vacuum hose at the first connection away from the truck. The first section of the vacuum line (roughly 50') will connect from the discharge port of the vacuum to the vacuum collector box straddling the blowing wool machine hopper. The remaining vacuum line will connect to the intake connector on the vacuum. Connect the Remote control cord to the machine. The water line will be connected in following steps.

#### Portable Generator and Scrubber Preparation

Set the portable generator out of the truck on the ground and run cord into the house to power the electric wall scrubber. In some cases the water pump requires power from this source as well. If there is 100 VAC power on the job site, it makes this process a bit simpler. Get the wall scrubber into the house, hook up and test for proper operation. Use a good quality scrubber power cord, at least 12 awg. and able to reach all parts of the house.

Attach the vacuum suction attachment (VSA) installed onto the end of the 4" vac. hose inside the house. This makes the vacuuming process easier after fiber is scrubbed from the walls. It is usually best to tape this attachment to the 4" hose with some duct tape.

#### Nozzle and Water Line Attachment

Next, attach the 2½" JetSpray Thermal spray nozzle to the end of the 2½" blow hose inside the house.

It is best to just attach the nozzle to the hose with a compression fit. Check the jets to ensure they are clear and not worn. Attach the water hose quick disconnect (female) to the JetSpray Thermal nozzle quick disconnect attachment (male). Be sure to turn the water supply valve on the spray nozzle to the off position.

In the truck, place the water suction and return hoses into the top of the water supply tank and immerse as much as possible in the water. Tying a piece of pantyhose over the inlet screen is a trick which helps eliminate jet plugging from small bits of trash picked up from the water reservoir. This should only be done if there is no filter in place. Start the pump and check for proper operation. Adjust pressure close to where you'll want to spray. One person should now check the proper water spray pattern on the jets at the nozzle. Spray the water someplace where it won't cause any problems, such as out a window or door into the yard. Once jets are cleared and spraying properly, adjust the pump to the desired pressure with the water spraying from the jets.

## INSTALLATION

### Spraying

Be certain the end of your 4" vacuum hose is not sitting in a pile of trash in the house. When you start the vacuum. Start the portable generator (if applicable). Start the blowing machine and set to desired settings; RPM, blower pressure transmission, etc., fill the hopper with JetSpray Thermal, and you're ready to spray.

Be sure the fiberglass insulation blowing machine is adjusted to all the recommended settings for operation and that the liquid pump is on and set to proper pressure with water flowing. The JetSpray Thermal spray nozzle is held for application in a "vertical" position, with the jets to either side with water shutoff valve locating on the bottom. It is important to hold it this way as the jets are positioned for proper fiber coating with water when spraying a wall cavity.

To begin spraying:

- Stand 36"–40" from the wall to be sprayed
- Hold nozzle at approximately a 10° downward angle
- Point toward bottom of wall cavity to be sprayed
- Open water valve on the nozzle to the jets
- Turn remote control switch on to start fiber flow
- Start at the bottom of the cavity, moving the nozzle side-to-side
  - Fill one wall cavity at a time working from bottom to top
  - Try to develop a rhythm where you fill the cavity but do not overfill it

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- Try to keep the same nozzle angle with respect to the wall at all times
- Once filled to about 10" from the top of the cavity, quickly step in close (end of nozzle ~18"-24" from cavity) and fill the very top of the cavity and move downward filling any voids in the cavity you just sprayed. It is important to avoid fiber over spray into the next cavity
- Move to the next wall cavity and repeat the procedure
- Typically, walls over 8' high will require using a ladder to effectively fill

JetSpray Thermal sprays well against most types of sheathing: plywood, particle board, OSB, foam board, and various other products commonly used in the industry, including those with foil laminates. Cavity fill times can be dependent on cavity size, as well as machine size. Generally the larger the machine, the faster the production.

It is important that applicators be consistent in their spray methods and follow the above procedures. Improper or sloppy application techniques can cause problems. Spray about 4 to 6 wall cavities and then start scrubbing. Get the recycled (scrubbed) material incorporated back into the mix as quickly after startup as possible. If you don't, you'll be left with excess recycled fiber and no more walls to spray on that job to use it up. This fact cannot be overemphasized; it's a very simple procedure that will eliminate a lot of frustration. This balance of virgin to recycled fiber must be established at the beginning of the job. It is very difficult, sometimes impossible to play catch-up. It is best to have one person spray, one person scrub and vacuum, and a third person alternating between feeding bags of JetSpray Thermal into the blower hopper and helping scrub and vacuum. This establishes an equilibrium among:

- Dry JetSpray Thermal fiber being fed into the hopper
- Recycled JetSpray Thermal fiber being re-introduced into the hopper to mix with the dry fiber
- The blend of the two fibers being sprayed

**IMPORTANT:** The small water flow valve on the spray nozzle should either be ON or OFF. Never try to control water flow with this valve; it does not work!

### Density Checks

Beyond achieving the stated coverage per bag, or per 1,000 square feet based on the stud thickness and application density, it is a good idea to ensure density uniformity by performing random density checks at each job. The Densi-Checker™ performs this task easily and quite accurately. Get the JetSpray Thermal "in balance" by spraying about 8-10 wall cavities, then use the Densi-Checker to check your installation density. Follow the operation instructions that come with this unit. Based on the field results, adjust application accordingly. The weight of the box is included in the "Sprayed Box Weight" below.

### WALL SPRAY

#### 2 x 4 Framing, Spraying Water Pressing: 100 PSI

Spray Time in Cavity (seconds)	Desired Density	Sprayed Box Weight
45	1.9 lb.	3 lb. 9 oz.
	1.6 lb.	3 lb. 0 oz.
40	1.9 lb.	3 lb. 8 oz.
	1.6 lb.	2 lb. 15 oz.
35	1.9 lb.	3 lb. 7 oz.
	1.6 lb.	2 lb. 14 oz.
30	1.9 lb.	3 lb. 6 oz.
	1.6 lb.	2 lb. 13 oz.
25	1.9 lb.	3 lb. 5 oz.
	1.6 lb.	2 lb. 12 oz.
20	1.9 lb.	3 lb. 4 oz.
	1.6 lb.	2 lb. 11 oz.

#### 2 x 6 Framing, Spraying Water Pressing: 100 PSI

67.5	1.9 lb.	3 lb. 5 oz.
	1.6 lb.	2 lb. 13 oz.
60	1.9 lb.	3 lb. 4 oz.
	1.6 lb.	2 lb. 12 oz.
52.5	1.9 lb.	3 lb. 3 oz.
	1.6 lb.	2 lb. 11 oz.
45	1.9 lb.	3 lb. 2 oz.
	1.6 lb.	2 lb. 10 oz.
40	1.9 lb.	3 lb. 1 oz.
	1.6 lb.	2 lb. 9 oz.

### Cold Weather Application

During the cold weather, typical **RV antifreeze/coolant can be added to the water tank to prevent water line freeze-ups. Anything up to a 10% solution of water/antifreeze will not affect the performance of JetSpray Thermal.**

This only drops the freezing point of water a few degrees Fahrenheit, but it will help. Some applicators like to heat tape the pump and lines, but this can be cumbersome and unreliable.

Protecting the water hose that lies on the ground outside the building, especially on days with very cold winds, can help reduce downtime. Keeping production going in cold weather helps reduce water line freeze-ups as well. If the water is flowing, it is less likely to freeze. In between jobs and when storing the pump overnight in cold weather, it is strongly advised that a 100% solution of antifreeze (or windshield washer fluid) be drawn into the pump and lines. This antifreeze can be reclaimed many times and is cheap insurance against bursting pump seals, diaphragm or hose fittings.

**NOTE:** Most recommended pumps are not adversely affected having antifreeze/coolant drawn into them. However, you should check with your pump manufacturer and follow their recommendations.

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When spraying wall cavities and the substrate is below freezing temperatures, **do NOT use Torpedo Heaters or similar type heaters to dry the house.** The house should dry gradually, and space heaters force the warmer moist air to the cold exterior sheathing creating a possibility for condensation. **Make sure the exterior sheathing and installed insulation is <15% or less moisture content before installing vapor retarders or drywall. Use a moisture meter to determine moisture content in wall cavity.**

### Scrubbing

Excess fiber scrubbing is a very simple procedure, but there are a few important techniques which must be learned. To begin scrubbing:

- Turn the scrubber on
- Be sure the wheel on the scrubber is rotating downward
- Start about 12" from the top of the cavity and let the roller rest on the studs. Make sure the roller is rotating upward. Keeping the roller centered on the studs, move the roller upward to the top of the cavity.
- Reverse the scrubber direction so the roller is rotated upward. (With some scrubbers, you must invert the unit.) Start at a point toward the top of the cavity where you left off and scrub the remainder of over spray off until you've completely cleaned the cavity. This technique is important and must be practiced throughout as it will help reduce the possibility of the fiber sagging at the tops of the cavities.

You might find it helpful to temporarily skip one corner cavity when spraying as this allows quicker and cleaner scrubbing. If you fill both corner cavities, you will find that the person scrubbing will have considerable difficulty getting both cavities scrubbed cleanly without "digging-in" to one of them which will require repair. You can come back to the open cavity once the person scrubbing finishes everything up to the corner cavity. Judge for yourself and use techniques that work well for you.

### Vacuuming

Vacuuming is a very simple and important procedure. Vacuum smoothly as you would any material, and try not to force-feed the product. A good reference is to vacuum when the person is spraying, and then stop vacuuming when spraying stops; keeping in mind that it is important to stay between 4–6 cavities behind the person spraying. This helps keep the ratio of dry to recycled fiber in balance. If you fall outside these parameters, try to get back into balance, as it will save you the difficulty of trying to use-up a disproportionate amount of recycled fiber at the end of the job. This could compromise the quality of the installation, and is an unnecessary situation to have deal with if a bit of foresight is used.

One responsibility of the person vacuuming is to ensure all cavities are properly filled. In very narrow cavities, such as those less than about 1¾" wide, it is usually necessary to hand-chink the gaps. This is sometimes done before or after the spray application with strips of fiberglass batts. One alternative to that is to chink with JetSpray Thermal. It's quick, clean, matches the rest of the job in color, and performs well.

**NOTE:** *Smaller electric machines cannot accommodate a VSA (Vacuum Suction Attachment – as indicated in the Equipment section list) or fiber being blown into the machine hopper and therefore wet fiber to be recycled must be fed into the machine manually. Keeping a blend of dry and wet fiber is no less important with these smaller units. A shovel and trash can typically work well here.*

### CLEAN-UP

This is an important step which is sometimes overlooked or not given proper attention in various types of insulation applications. Proper dressing and clean-up gives a professional appearance to the job and focuses the attention of the builder or homeowner on how good the JetSpray Thermal looks once it's installed. It reduces the possibility of a "call-back" to correct something that should have been done in the first place.

**REMEMBER:** *Perception is reality. If the builder or homeowner doesn't feel that the job is right, it isn't right!*

- Sharpen a broom handle similar to that of a pencil and use pointed end to clean over spray from corners and other places the scrubber may not have effectively reached.
- Use a utility knife to cut and shorten the bristles on a typical house broom and then use to clean the top plate, joist bottom and drywall nailer.
- Remove protective tape from electrical outlet boxes.
- Remove poly film protection from windows.
- Do any repair necessary to the job or further dressing.
- Sweep the entire house and properly discard waste.
- Do a final walk-through to ensure the job looks good and that nothing has been overlooked.

### Use of Vapor Retarders in Cold Climates

Before installing any vapor retarders over recently installed JetSpray Thermal Spray-on Insulation, **ensure the moisture content is <15%.** Class I or II vapor retarders are typically required on the interior side of framing by code for Climate Zones 5 and greater. Consult your state or local code or ask your local building code official for requirements surrounding the use of vapor retarders.

## JetSpray™ Thermal Spray-On Insulation System



### TROUBLESHOOTING

In this section we try to provide solutions to problems we've encountered in the development process and years of field experience with JetSpray Thermal. We stay product-specific, working to solve difficulties exclusive to the spray application of JetSpray Thermal. While we cover many aspects of the operation, we assume in this section that the owner and/or operator has knowledge of properly operating, maintaining, and troubleshooting an insulation blowing machine and all its typical components including a liquid pump. In addition, we do not address troubleshooting small engines such as those on the insulation blowing machine vacuum unit or power generator.

#### IMPORTANT NOTES

- *The portable moisture meter should be used throughout the project to ensure that the targeted 18–20% moisture content is achieved and maintained throughout the application.*
- *If local building code requires that the walls must be covered with a 1 perm or less vapor retarder, the insulation needs to be dried to 15% moisture content or less before the vapor retarder is installed.*

#### Problem: Fiber won't stay in the wall.

<b>Cause</b>	Spraying fiber too dry.
<b>Solution</b>	Check pump pressure. Check jets for plugging. Re-do Bucket check to ensure proper water flow.
<b>Cause</b>	Too much fiber.
<b>Solution</b>	Close gate on machine a notch or two and check the fiber flow.
<b>Cause</b>	Fiber bouncing off the wall.
<b>Solution</b>	Turn blowing machine air pressure down or step back more from the wall. Nozzle should be ~36"–40" from the wall.
<b>Cause</b>	Fiber not hitting wall with enough force to stay in place.
<b>Solution</b>	Increase blowing machine air pressure.
<b>Cause</b>	Operator moving nozzle back and forth too rapidly.
<b>Solution</b>	Slow down and establish a rhythm in spray application.
<b>Cause</b>	Operator standing too close or too far from the wall.
<b>Solution</b>	Adjust distance to about 36"–40" from wall.
<b>Cause</b>	Installer using wrong angle on nozzle.
<b>Solution</b>	Hold nozzle at approximately a 10° angle; downward angle when possible.

#### Problem: Fiber too wet.

<b>Cause</b>	Imbalance of fiber to water ratio.  Increase dry fiber flow. Reduce water flow. Check jets to ensure they are not worn. (It is advisable to do a bucket check here.) Important: Reducing pump water pressure does not compensate for worn jets.
<b>Solution</b>	

#### Problem: Using too much fiber (not getting coverage).

<b>Cause</b>	Fiber too wet.
<b>Solution</b>	Increase fiber flow to recommended rate. Reduce water flow to recommended rate.
<b>Cause</b>	Operator standing too close to wall.
<b>Solution</b>	Adjust distance to about 40" from wall.
<b>Cause</b>	Air pressure too high on machine blower.
<b>Solution</b>	Reduce air flow.

#### Problem: Fiber settling or sagging at top of stud cavity.

<b>Cause</b>	Fiber too wet; imbalance of fiber to water ratio.
<b>Solution</b>	Increase dry fiber or reduce water.
<b>Cause</b>	Density too light.
<b>Solution</b>	Adjust spray distance to about 36" from wall.
<b>Cause</b>	Improper scrubbing techniques.
<b>Solution</b>	See Scrubbing section in this guide.
<b>Cause</b>	Improper spray techniques.
<b>Solution</b>	See Spraying section in this guide.

#### Problem: Too much wet fiber left at end of job.

<b>Cause</b>	Improper planning.
<b>Solution</b>	See Spraying section in this manual, details given to assist keeping virgin:recycle ratio in balance.

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Check with your Knauf Insulation Territory Manager to ensure information is current.

The chemical and physical properties of this product represent average values determined in accordance with accepted test methods. The data is subject to normal manufacturing variations. The data is supplied as a technical service and is subject to change without notice. References to numerical flame spread ratings are not intended to reflect hazards presented by these or any other materials under actual fire conditions.

This product is covered by one or more U.S. and/or other patents.  
See patent [www.knaufnorthamerica.com/patents](http://www.knaufnorthamerica.com/patents)

Visit [knaufnorthamerica.com](http://knaufnorthamerica.com) to learn more.

### **KNAUF INSULATION, INC.**

One Knauf Drive  
Shelbyville, IN 46176

### **Technical Support**

(317) 398-4434 ext. 8727  
[info.us@knaufinsulation.com](mailto:info.us@knaufinsulation.com)

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