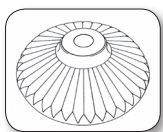


# SILO FLUIDIZER USER GUIDE



**Insist on genuine Solimar disks with  
the trademarked Radial Ridge Design.**

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**F: 763.574.1822 | email: [solimar@solimarpne.com](mailto:solimar@solimarpne.com) | [www.solimarpneumatics.com](http://www.solimarpneumatics.com)**

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### APPLICATIONS:

The Silo Fluidizer is designed for assisting the flow of dry powdered products in flat or conical silos and hoppers. For standard units, the installation should be PH neutral and temperature should be less than 350° F (170°C). The Fluidizers work best when the product moisture content is less than 12-15%. Large particles such as gravel, feed, grain, and pellets do not aerate. The Fluidizers also do not work well in applications where the particles are interlocking such as wood shavings, shredded plastic or fiberglass. Return the Installation Questionnaire (See Appendix 1) for our recommendations for Fluidizer use in your specific application.

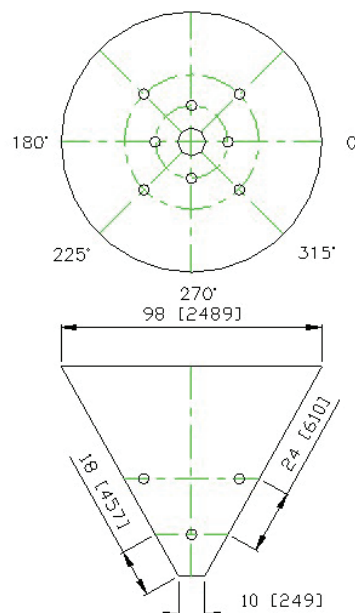
### MATERIAL OPTIONS:

The Solimar Silo Fluidizer is available in various stem sizes and materials as shown on the Fluidizer Data Sheet (See Appendix 2). The standard models are listed, but special disk materials for high temperature and chemical reactivity are listed on the Fluidizer Disk Specification Sheet (See Appendix 3). Non-stock custom stems can be manufactured to customer specifications. Contact Solimar for a quote.

### PLACEMENT GUIDELINES:

Aerate the bottom  $\frac{1}{3}$  –  $\frac{1}{2}$  of the outlet cone. Slope of the cone should be at least 45° for maximum effectiveness. On curved surfaces the mounting diameter must be greater than 16" to ensure proper sealing (a modification can be made for tighter curvature). Locate the first row of Fluidizers 12"-18" from the discharge opening. There should be enough units to space every 20"-24" on this row. Subsequent rows should alternate to achieve complete coverage. Spacing on higher rows can be increased.

Example:



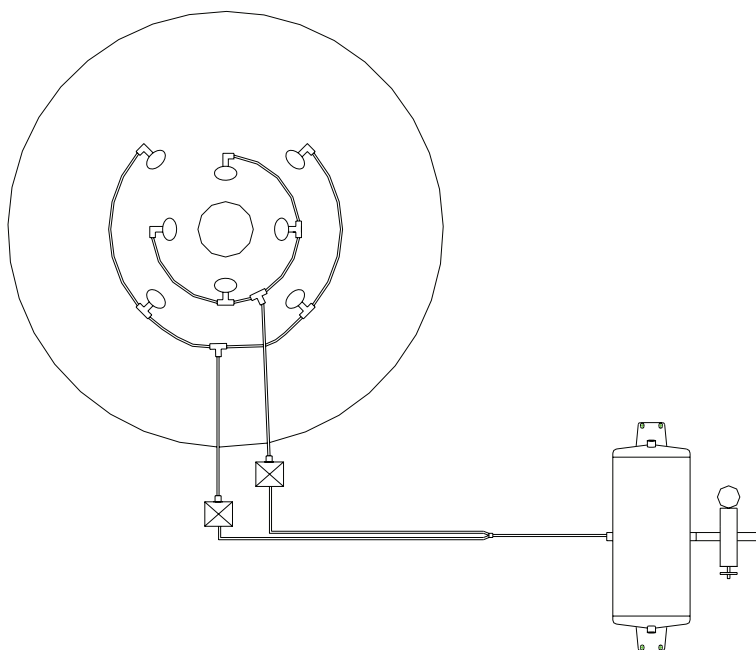
Contact Solimar if you need assistance with Fluidizer placement in your bin or hopper.

### INSTALLATION INSTRUCTIONS:

Standard installation for the Silo Fluidizer requires a through hole drilled or cut in the hopper wall. There is no welding or threaded couplings required (See Appendix 4). The use of the EZ-In external mounting kit allows for installation and maintenance of the Silo Fluidizer from outside the silo (See Appendix 5). This is especially useful when there are confined space constraints or limited access to the interior of process hoppers.

### AIR DISTRIBUTION:

Only operate the Fluidizers while discharging material from the silo to avoid creating air channels or voids. To ensure balanced air distribution it is recommended to use an air manifold or operate no more than four Fluidizers together as shown:



### AIR CONSUMPTION:

Pulsed air flow saves air and decreases the chance of air pockets and channeling to occur. Every product and application is unique, but typical pulse sequencing is 2-3 seconds on with a 7-10 second off time. Air capacity for the different models is shown on the Fluidizer Data Sheet (See Appendix 2). Air consumption for your application can be calculated by the following:

$$\text{CFM} \times \# \text{ of Fluidizers} \times \text{total on time (sec)}/\text{minute} \times 1 \text{ min}/60 \text{ sec.} = \text{Total CFM Required}$$

**SUGGESTED MAINTENANCE:**

Maintenance on Solimar Silo Fluidizers is minimal. However, periodic visual inspections should be made to check for wear. The following inspection should be performed once a year:

1. Check for wear on the Fluidizer disk. Disk should seal tightly against the hopper wall. Check for uneven wear on the disk. If it is no longer round along the outside edge, this is a sign of uneven air flow and the disk should be replaced.
2. Check to make sure no product has “caked” or hardened beneath the disk. This can be cleaned by removing the disk and stem assembly. Also check to make sure the o-ring on the stem has not been crushed or flattened.
3. When reinstalling the Silo Fluidizer, be sure to tighten the nut to the recommended 25 ft. lbs. [35 N m] of torque.

Any parts that need replacing can be ordered using the numbers shown on the Spare Parts List [See Appendix 6].

**LIMITED WARRANTY:**

Solimar Pneumatics warrants its Products as follows:

1. Limited Warranty – Solimar warrants that the Products will be free from defects in material and workmanship for a period of one (1) year from the date of purchase. The Buyer must notify Solimar in writing of any claimed defect within 10 days after discovery thereof and demonstrate to Solimar’s satisfaction that said defects are covered by this Limited Warranty. If the defects are of such type and nature as to be covered by this warranty, Solimar shall, at its own expense, furnish replacement Products or replacement parts for the defective product. Installation of the replacement Products or parts shall be at the Buyer’s expense.

2. Other Limits – The foregoing is in lieu of all other warranties, express or implied, including but not limited to the implied warranties of merchantability and fitness for a particular purpose.

Solimar does not warrant against damages of defects arising from the improper or abnormal use of, handling of, or improper installation of the Products. The warranty also does not apply to Products upon which repairs have been effected or attempted by persons other than pursuant to written authorization from Solimar.

3. Other Statements – This warranty is exclusive. The sole and exclusive obligation of Solimar shall be to repair or replace the defective Products in the manner and for the period provided above. Under no circumstances shall Solimar be liable for incidental, special, or consequential damages.

Solimar’s employees or representatives’ oral or other written statements do not constitute warranties and shall not be relied upon by the Buyer and are not part of the contract for sale or this limited warranty.

This Limited Warranty states the entire obligation of Solimar with respect to the Products. If any part of this Limited Warranty is determined to be void or illegal, the remainder shall remain in full force and effect.



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# APPENDIX

1. Installation Questionnaire
2. Silo Fluidizer Data Sheet
3. Fluidizer Disk Specification Sheet
4. Installation Instructions
5. EZ-In Installation Instructions
  - 5.1 Oval Cutout Template
  - 5.2 Rectangle Cutout Template
  - 5.3 Round Cutout Template
6. Spare Parts

# Solimar Silo Fluidizer Installation Questionnaire



*Since 1985*

Company Name\_\_\_\_\_

Your Name\_\_\_\_\_

Address\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Telephone Number\_\_\_\_\_ Fax Number\_\_\_\_\_

## DESCRIPTION OF MATERIAL IN BIN

Name of Material\_\_\_\_\_

Moisture / Fat Content\_\_\_\_\_ % Min. \_\_\_\_\_ % Max.

Hydroscopic (Yes/No)

Range of Particle Size

Minimum\_\_\_\_\_ or \_\_\_\_\_ Mesh

Maximum\_\_\_\_\_ or \_\_\_\_\_ Mesh

Percent under 50 Mesh \_\_\_\_\_ Under 200 Mesh\_\_\_\_\_

Material Temperature \_\_\_\_\_ (°F / °C)

Settled Bulk Density\_\_\_\_\_ (lb/ft<sup>3</sup>) / (Tons/m<sup>3</sup>)

Special Characteristics\_\_\_\_\_

## DESCRIPTION OF BIN

Bin Wall Material\_\_\_\_\_

Shape of Hopper Conical / Square / Rectangle / Other (please describe)\_\_\_\_\_

Size [diameter / square] of Hopper\_\_\_\_\_

Slope of Bin Wall \_\_\_\_\_ From Horizontal

Bin is Discharged through airlock / Screw / Valve / Other (please describe)\_\_\_\_\_

General Comments\_\_\_\_\_

\_\_\_\_\_

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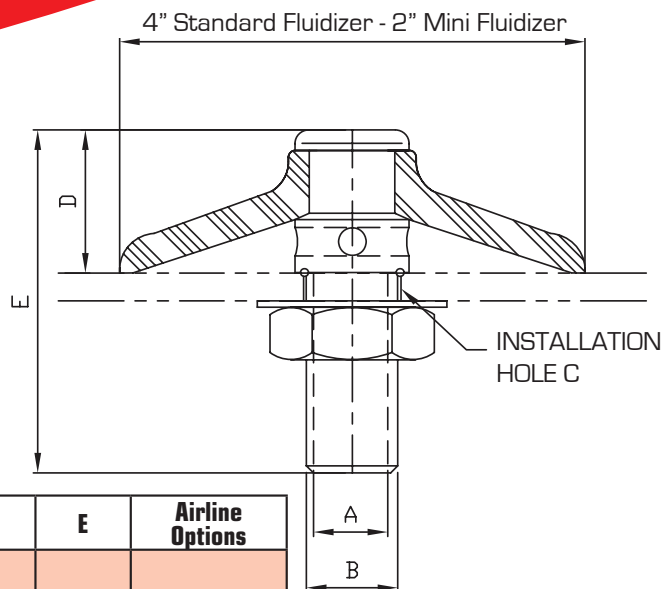


# Silo Fluidizer Technical Data



Mini  
Fluidizer

Standard  
Fluidizer



Series	Part #	Stem Material	Disk Color	Disk Material	A	B	C	D	E	Airline Options
4300	4300	Steel	Blue	Silicone	1/4" NPT	1/2" NPT	7/8" (22 mm)	1-3/16" (30 mm)	3" (76 mm)	3/8"-1/2" (10-12 mm) Tubing
	4301		White							
	4302	Aluminum	Blue							
	4303		White							
	4304	Stainless Steel	Blue							
	4305		White							
4400	4400	Steel	Blue	Silicone	1/2" NPT	3/4" NPT	1-1/16" (27 mm)	1-1/4" (32 mm)	3 -1/16" (78 mm)	1/2"-3/4" (13-19 mm) Tubing or Hose
	4401		White							
	4402	Aluminum	Blue							
	4403		White							
	4404	Stainless Steel	Blue							
	4405		White							
4500	4500	Steel	Blue	Silicone	3/4" NPT	1" NPT	1-3/8" (35 mm)	1-1/4" (32 mm)	3-1/4" (83 mm)	3/4"-1" (19-25 mm) Hose
	4501		White							
	4502	Aluminum	Blue							
	4503		White							
	4504	Stainless Steel	Blue							
	4505		White							
MINI	4804	Stainless Steel	Blue	Silicone	1/8" NPT	NA	1/2" (13 mm)	9/16" (14 mm)	1-1/2" (38 mm)	1/4" (6 mm) Tubing
	4805		White							

Series	AIRFLOW REQUIREMENTS
4300	Capacity 10 – 20 CFM @ 20 – 30 PSI (15 – 30m <sup>3</sup> /h @ 1-2 bar)
4400	Capacity 25 – 40 CFM @ 10 – 20 PSI (40 – 70m <sup>3</sup> /h @ 0.7-1.5 bar)
4500	Capacity 30 – 50 CFM @ 5 – 10 PSI (50 – 85m <sup>3</sup> /h @ 0.3-0.7 bar)
MINI	Capacity 2 – 3 CFM @ 20 – 30 PSI (3.5 – 5m <sup>3</sup> /h @ 1-2 bar)

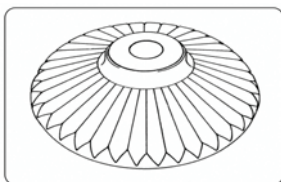
**Engineering Assistance.**  
Fax or e-mail a sketch or drawing of your chamber, along with a description of your bulk material and we will provide a recommended number and placement of Fluidizers for your application the next day.

# Fluidizer Disk Specification/Usage



PART #	COMPOUND	COLOR	TEMPERATURE RANGE	FOOD GRADE APPROVED	USAGE CERTIFICATION
4124	Silicone	Blue	(-60 to 350)°F (-50 to 175)°C	Yes	FDA 177.2600
2134	Silicone	Natural	(-60 to 350)°F (-50 to 175)°C	Yes	FDA 177.2600 USDA 3A *
4154	EPDM	Black	(-20 to 250)°F (-30 to 120)°C	Yes	FDA 177.2600
4164	EPDM	White	(-20 to 250)°F (-30 to 120)°C	Yes	FDA 177.2600
4124HT	Silicone	Orange	(-50 to 450)°F (-45 to 230)°C	No	

\* USDA 3A compliance on disk only.



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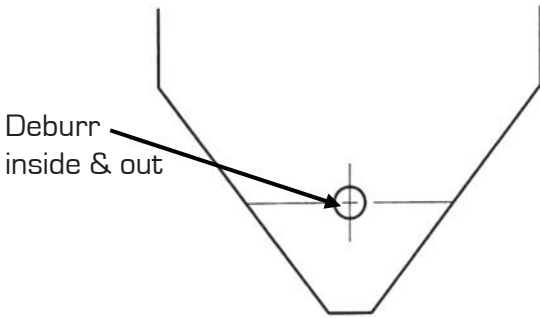
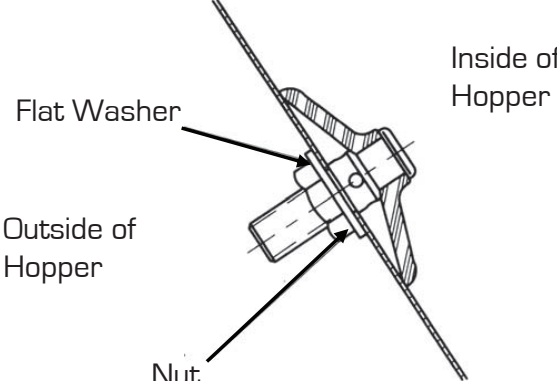
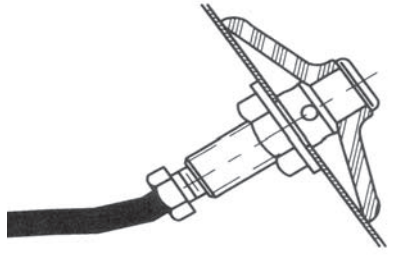
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# Silo Fluidizer Installation Instructions

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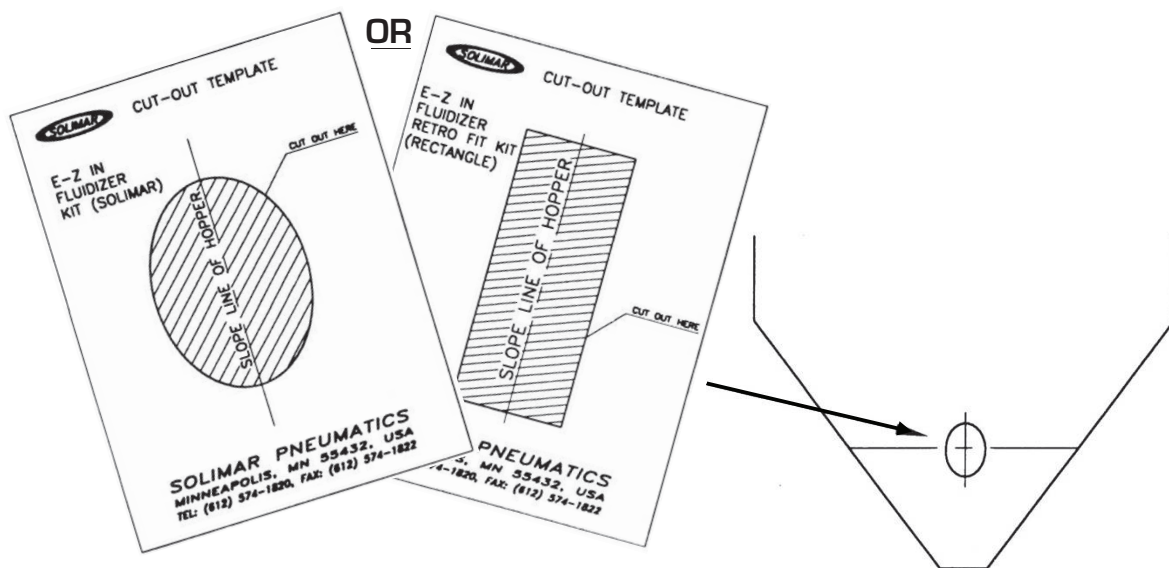
<p><b>1-</b> Drill appropriate size hole (see table) in silo wall.</p>	<table> <tr> <th>Fluidizer</th><th>Hole Size - Diameter</th></tr> <tr> <td>43XX</td><td>7/8" [22mm]</td></tr> <tr> <td>44XX</td><td>1- 1/16" [27mm]</td></tr> <tr> <td>45XX</td><td>1- 3/8" [35mm]</td></tr> <tr> <td>48XX</td><td>1/2" [13mm]</td></tr> </table>	Fluidizer	Hole Size - Diameter	43XX	7/8" [22mm]	44XX	1- 1/16" [27mm]	45XX	1- 3/8" [35mm]	48XX	1/2" [13mm]
Fluidizer	Hole Size - Diameter										
43XX	7/8" [22mm]										
44XX	1- 1/16" [27mm]										
45XX	1- 3/8" [35mm]										
48XX	1/2" [13mm]										
<p><b>2-</b> Deburr inside and outside of hole. If not deburred, damage to O-ring will occur. Make sure the area where the Fluidizer will be mounted is free of debris or defects (dents, caked material, weld seams, etc).</p>											
<p><b>3-</b> From the inside of the silo, have one person insert disk and stem assembly into the hole.</p> <p><b>4-</b> From the outside of the silo, have a second person put the flat washer and nut onto the stem.</p> <p><b>5-</b> Torque nut to approximately 25 ft. lbs [35 N m]. 20 ft. lbs [27 N m] for the 48XX series.</p>											
<p><b>6-</b> Attach air supply line to the stem.</p> <p>© Solimar Pneumatics</p>											



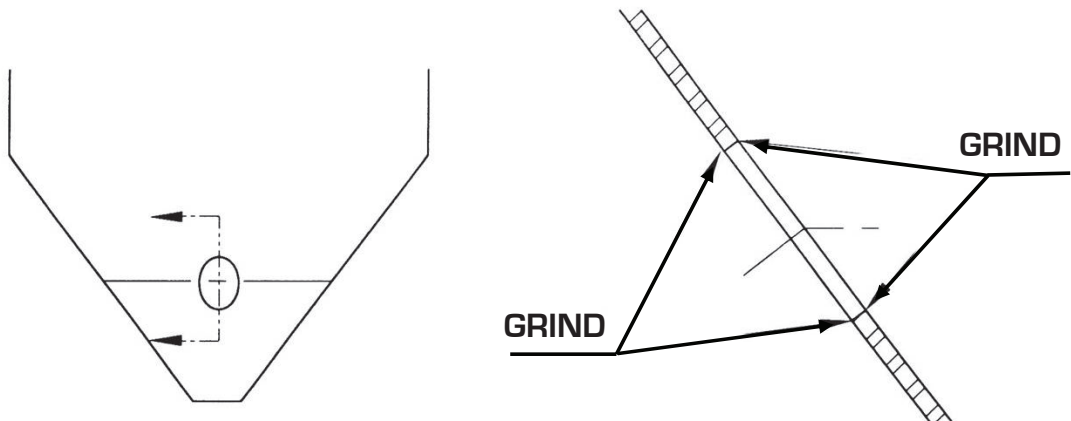
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# Installation Instructions Ez-In Fluidizer

1. Using one of the cut out templates provided by Solimar, trace the pattern on the hopper. On conical hoppers make sure the mounting diameter at the center of the plate is greater than 24". Diameters of 24"-36" will require a curved plate when using the oval kit.



2. Flame cut traced pattern with cutting torch or other means.
3. Grind all surfaces of the cut opening – the inside of the hopper wall must be smooth and free of any burrs or slag.

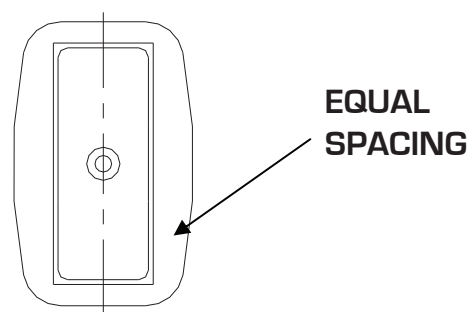
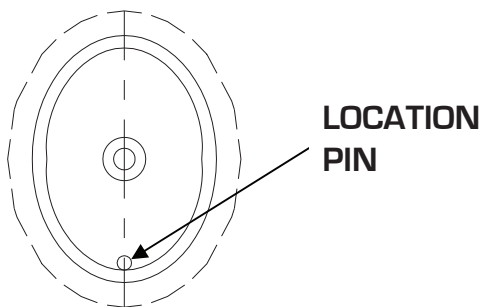




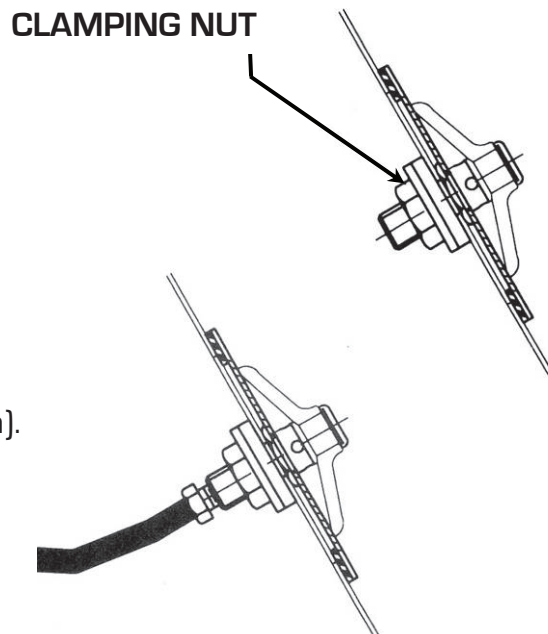
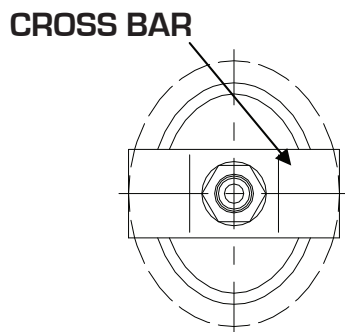
*Since 1985*

# Installation Instructions Ez-In Fluidizer

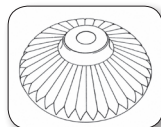
- 4.** Attach the Fluidizer assembly to the plate using the washer and thinner mounting nut. Insert Solimar EZ-In plate with Fluidizer assembly, making sure the location pin on the oval kits is resting at the bottom of the opening. On rectangle kits, make sure the plate is centered with equal spacing around the opening.



- 5.** On the outside of the hopper, attach cross bar to the Fluidizer plate assembly with the washer and clamping nut.



- 6.** Torque clamping nut to 20 ft. lbs [27 N •m].
- 7.** Attach the air supply line to the Fluidizer.

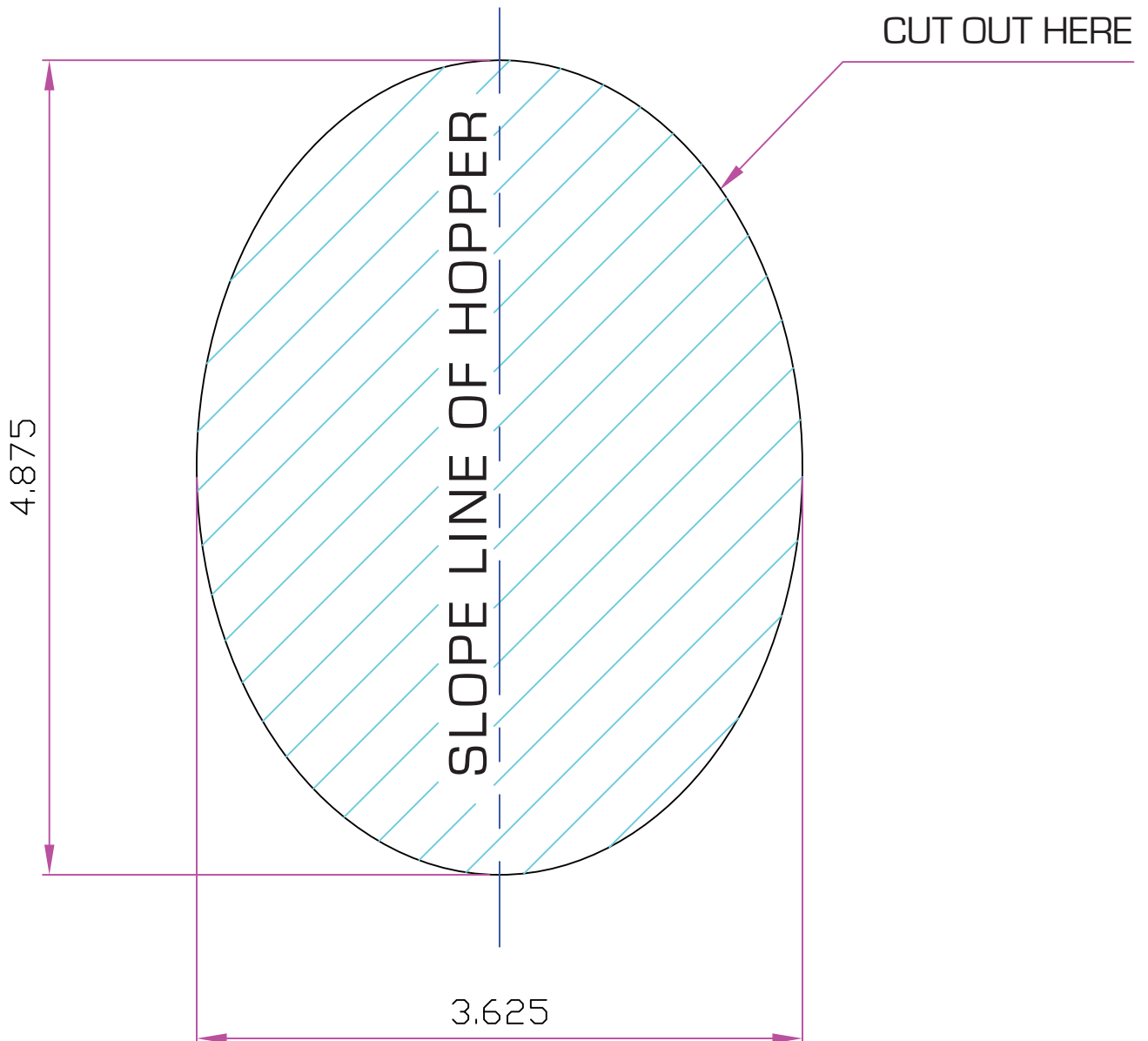


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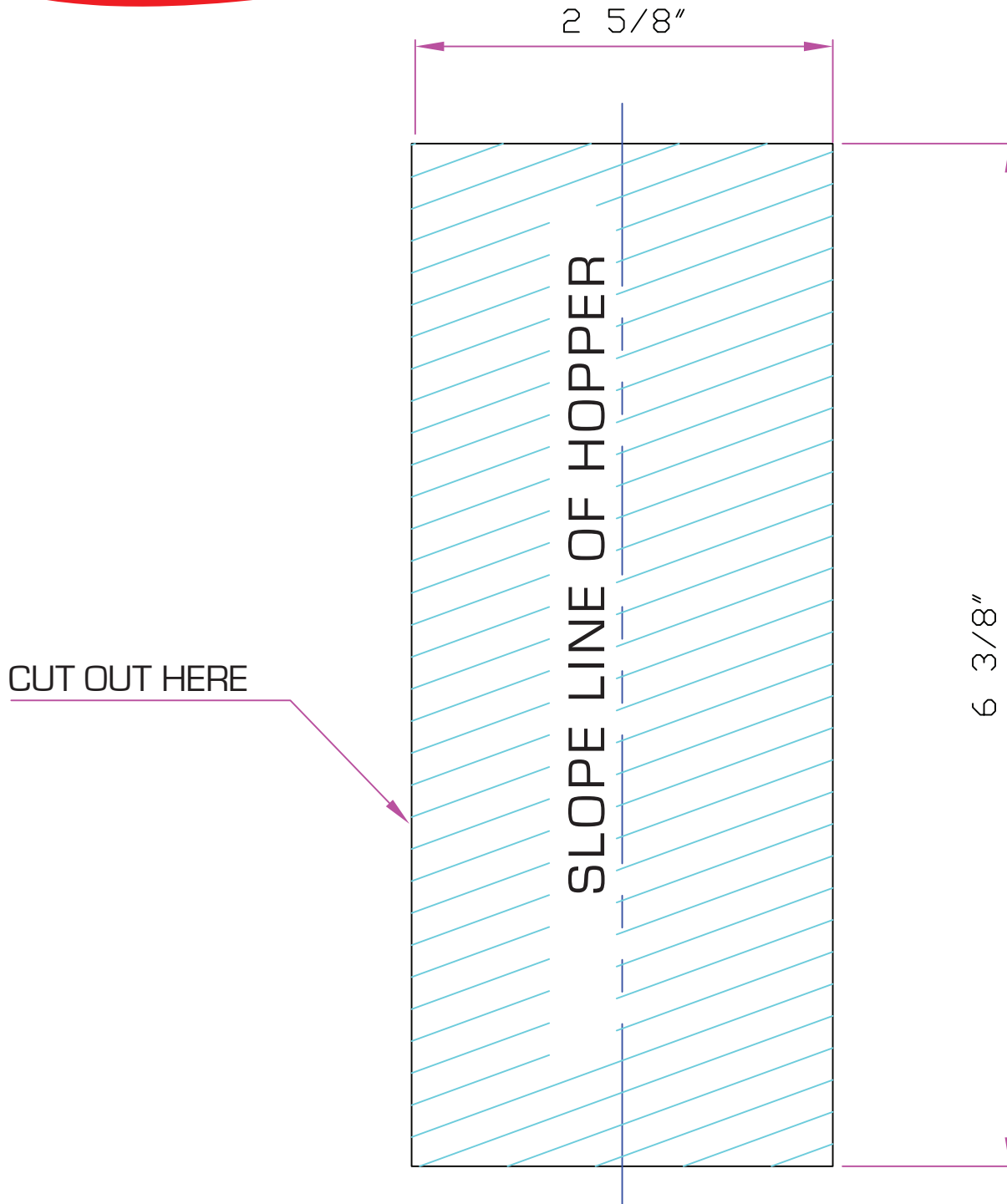


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# CUT-OUT TEMPLATE E-Z IN FLUIDIZER KIT



# CUT-OUT TEMPLATE E-Z IN FLUIDIZER RETRO FIT KIT (RECTANGLE)



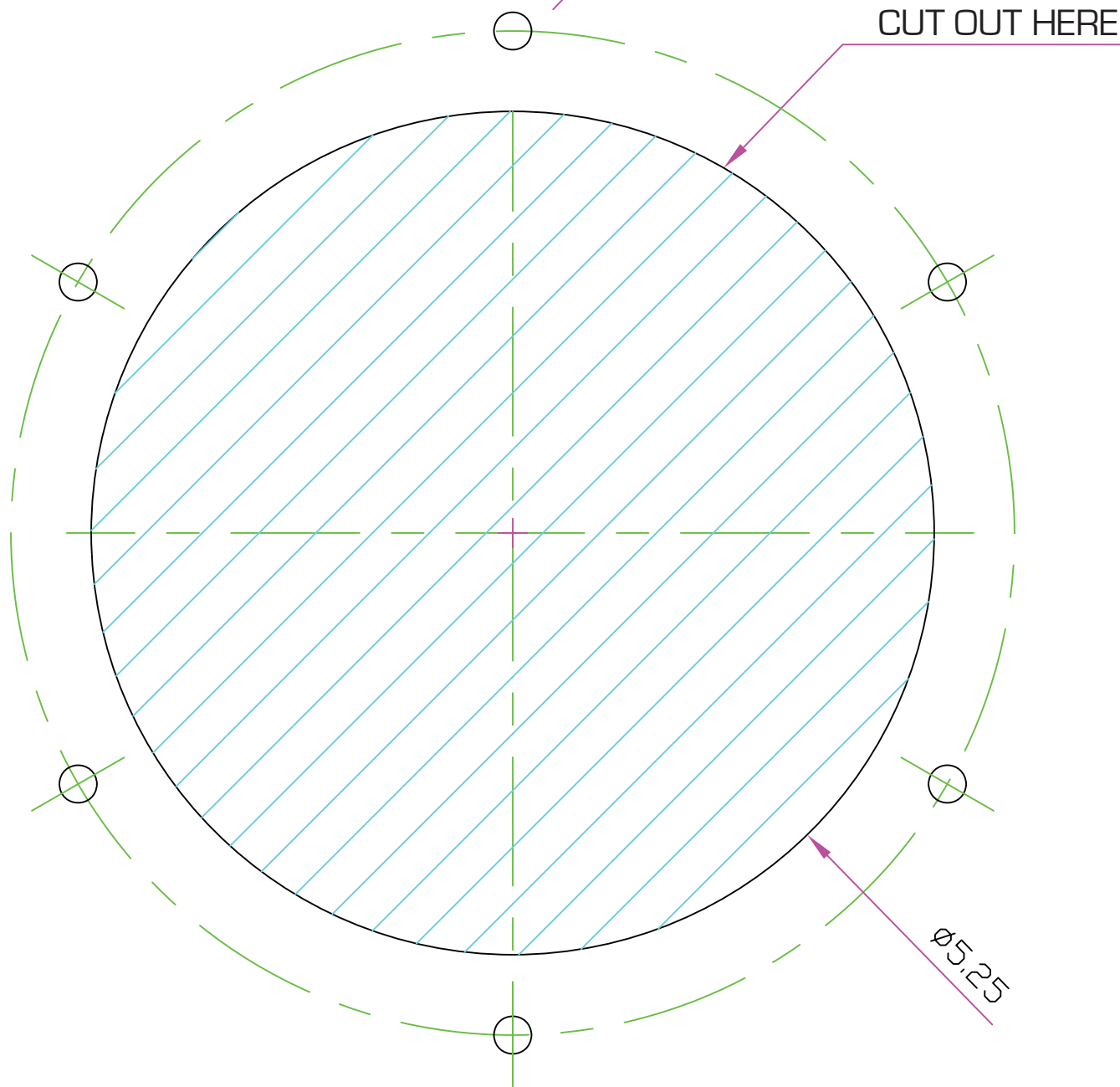
# CUT-OUT TEMPLATE E-Z IN FLUIDIZER RETRO FIT KIT (ROUND)



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DRILL #4 (.209), 6 PLCS.  
ON 6 1/4" B.C.

CUT OUT HERE

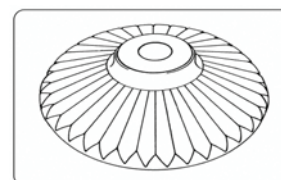
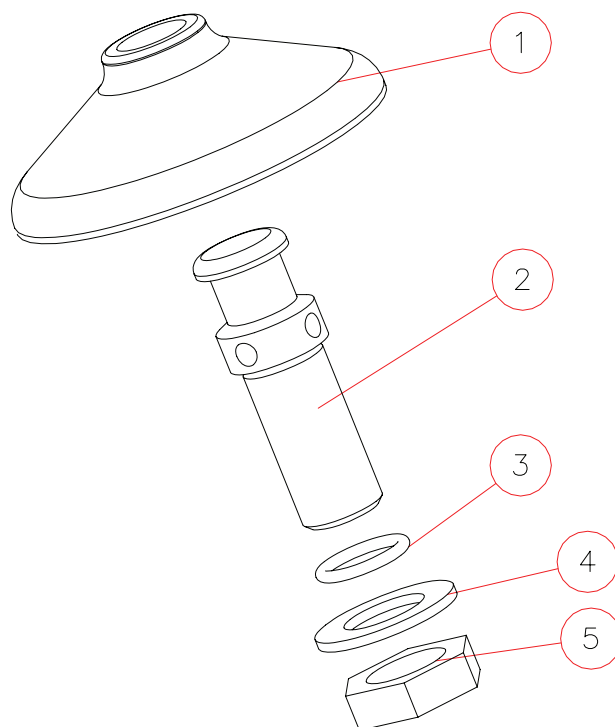




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# Silo Fluidizer Spare Parts

<u>Item</u>	<u>Part #</u>	<u>Description</u>
<b>Fluidizer Disks</b>		
1	4124	Blue Silicone Disk
	4124HT	Orange High Temp. Silicone Disk
	4134	White Silicone Disk
	4154	Black EPDM Disk
	4164	White EPDM Disk
<b>4300 Series</b>		
2	4310	Carbon Steel Stem
	4311	Aluminum Stem
	4312	Stainless Steel Stem
3	7561	O-Ring
4	4313	Flat Washer, Zinc Plated
	4314	Flat Washer, Stainless Steel
5	4315	1/2" Pipe Nut, Zinc Plated
	4316	1/2" Pipe Nut, Stainless Steel
<b>4400 Series</b>		
2	4410	Carbon Steel Stem
	4411	Aluminum Stem
	4412	Stainless Steel Stem
3	7755	O-Ring
4	4413	Flat Washer, Zinc Plated
	4414	Flat Washer, Stainless Steel
5	4415	3/4" Pipe Nut, Zinc Plated
	4416	3/4" Pipe Nut, Stainless Steel
<b>4500 Series</b>		
2	4510	Carbon Steel Stem
	4511	Aluminum Stem
	4512	Stainless Steel Stem
3	7714	O-Ring
4	4513	Flat Washer, Zinc Plated
	4514	Flat Washer, Stainless Steel
5	4515	1" Pipe Nut, Zinc Plated
	4516	1" Pipe Nut, Stainless Steel



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