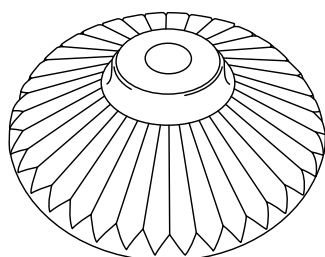


SILO FLUIDIZER USER GUIDE



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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 Installation Questionnaire) for our recommendations for Fluidizer use in your specific application.

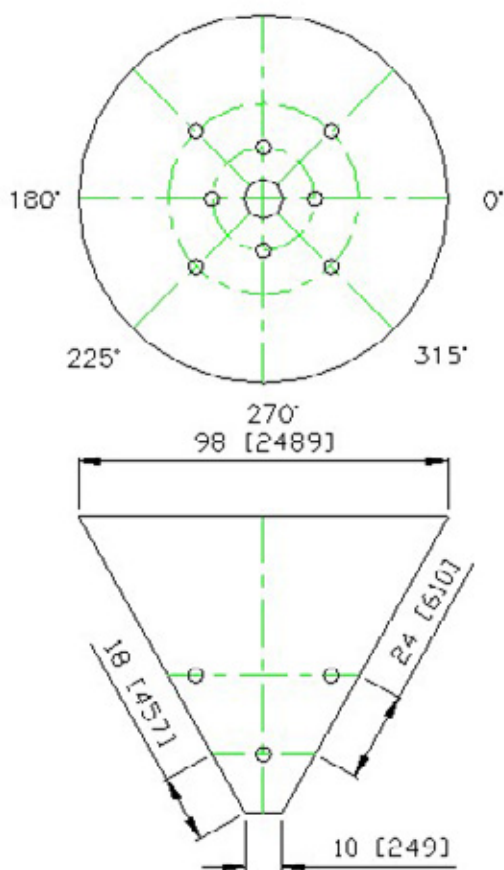
MATERIAL OPTIONS:

The Solimar Silo Fluidizer is available in various stem sizes and materials as shown on the Silo Fluidizer Technical Data Sheet (see Silo Fluidizer Technical Data). The standard models are listed, but special disk materials for high temperature and chemical reactivity are listed on the Fluidizer Disk Specification Sheet (see Fluidizer Disk Specification/Usage). 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:



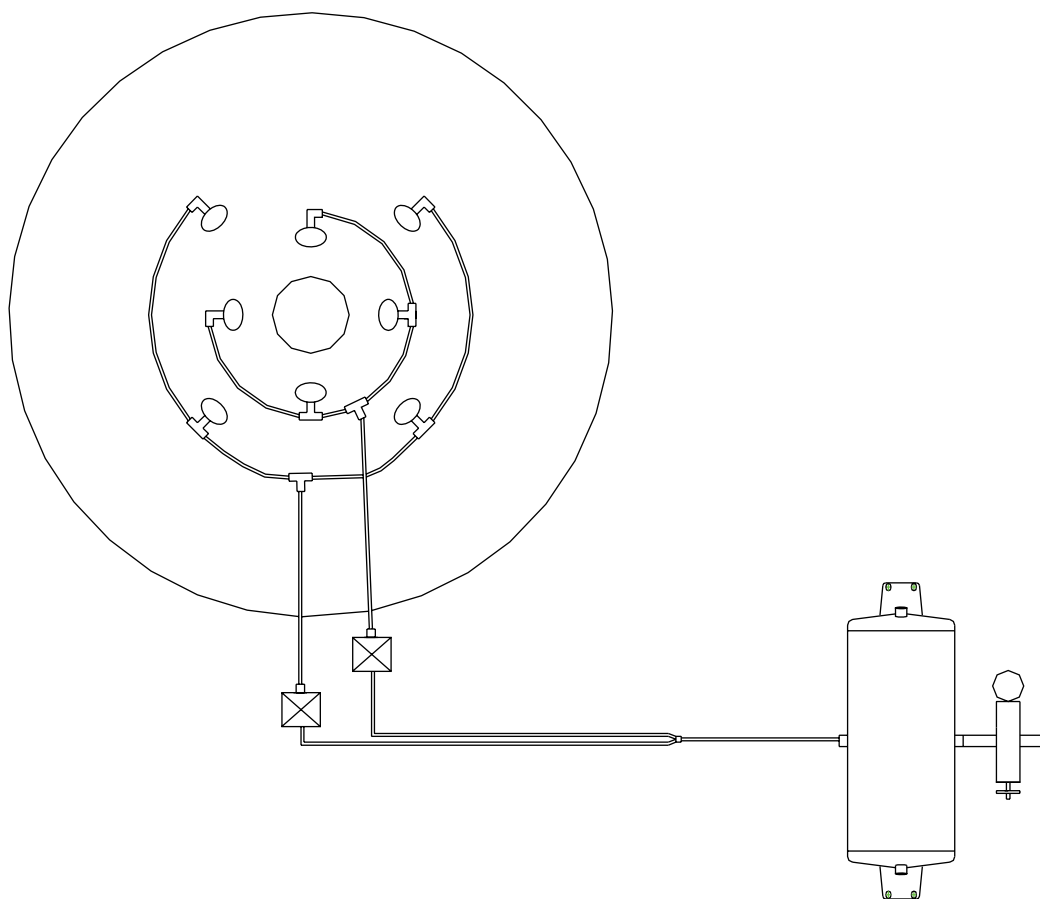
Contact Solimar if you need assistance with Fluidizer placement in your bin or hopper.

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 Silo Fluidizer Installation Instructions). The use of the EZ-In external mounting kit allows for installation and maintenance of the Silo Fluidizer from outside the silo (see EZ-In Fluidizer Installation Instructions). 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 Silo Fluidizer Technical Data Sheet (see Silo Fluidizer Technical Data). 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:

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.

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.

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 Silo Fluidizer Spare Parts list (see Silo Fluidizer Spare Parts).

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.

APPENDIX



Installation Questionnaire

Silo Fluidizer Technical Data

Mini Silo Fluidizer Technical Data

Fluidizer Disk Specification/Usage

Silo Fluidizer Installation Instructions

EZ-In Fluidizer Installation Instructions

EZ-In Fluidizer Kit Cutout Template (Oval)

EZ-In Fluidizer Retro Fit Kit Cutout Template (Rectangle)

EZ-In Fluidizer Retro Fit Kit Cutout Template (Round)

Fast Fit™ Installation Instructions

Silo Fluidizer Spare Parts

INSTALLATION QUESTIONNAIRE



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/ft³] / [Tons/m³]

Special Characteristics _____

DESCRIPTION OF BIN

Bin Wall Material _____

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

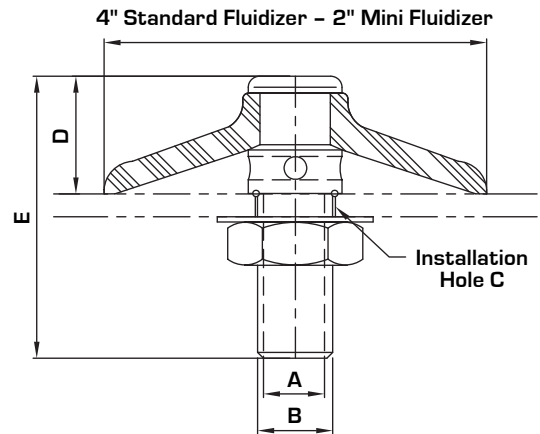
Size (diameter / square) of Hopper _____

Slope of Bin Wall _____ From Horizontal

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

General Comments _____

SILO FLUIDIZER TECHNICAL DATA



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	--	1/2" (13 mm)	9/16" (14 mm)	1 1/2" (38 mm)	1/4" Tubing (6 mm)
	4805		White							

SERIES	AIRFLOW REQUIREMENTS
4300	Capacity 10 - 20 CFM @ 20 - 30 PSI (15 - 30m ³ /h @ 1-2 bar)
4400	Capacity 25 - 40 CFM @ 10 - 20 PSI (40 - 70m ³ /h @ 0.7-1.5 bar)
4500	Capacity 30 - 50 CFM @ 5 - 10 PSI (50 - 85m ³ /h @ 0.3-0.7 bar)
Mini	Capacity 2 - 3 CFM @ 20 - 30 PSI (3.5 - 5m ³ /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.

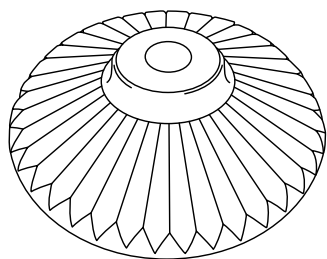
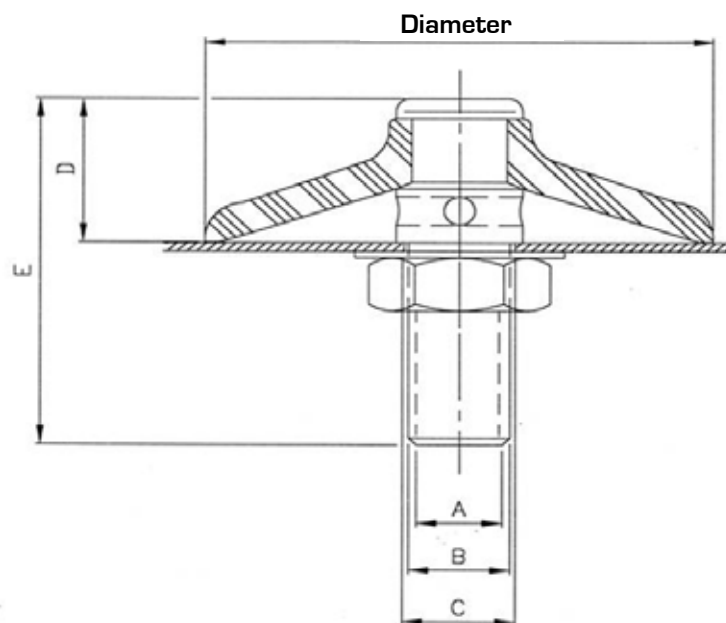
MINI SILO FLUIDIZER TECHNICAL DATA



MODEL	DISK DIAMETER	A	B	C	D	E	AIRLINE OPTIONS
Mini 48XX	2"	1/8" NPT	NA	1/2" (13 mm)	9/16" (14 mm)	1 1/2" (38 mm)	1/4" Tubing (6 mm)
Standard 43XX	4"	1/4" NPT	1/2" NPT	7/8" (22 mm)	1 3/16" (30 mm)	3" (76 mm)	3/8" - 1/2" Tubing (10-13 mm)



Multiple disk options, including silicone rubber food grade/FDA approved (blue or white), high temperature (orange), EPDM (black) or metal detectable (grey).



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MODEL	AIRFLOW REQUIREMENTS
Mini	Capacity 2 - 3 CFM @ 20 - 30 PSI (3.5 - 5m ³ /h @ 1 - 2 bar)
Standard	Capacity 10 - 20 CFM @ 20 - 30 PSI (15 - 30m ³ /h @ 1 - 2 bar)

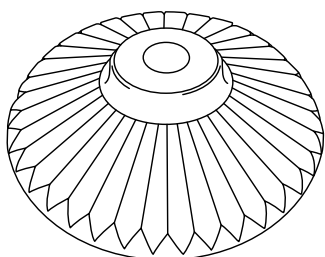
Engineering Assistance. Fax or e-mail a sketch or drawing of your chamber, along with a description of your bulk material and we will provide a recommended number and placement of fluidizers for your application the next day.

FLUIDIZER DISK SPECIFICATION/USAGE



	PART #	COMPOUND	COLOR	TEMPERATURE RANGE	FOOD GRADE APPROVED	USAGE CERTIFICATION
STANDARD	4124	Silicone	Blue	(-60 to 350)°F (-50 to 175)°C	Yes	FDA 177.2600
	4134	Silicone	White	(-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	
	4124MD	Silicone	Gray	(-60 to 350)°F (-50 to 175)°C	Yes	FDA 177.2600 USDA 3A*
MINI	4824	Silicone	Blue	(-60 to 350)°F (-50 to 175)°C	Yes	FDA 177.2600
	4834	Silicone	White	(-60 to 350)°F (-50 to 175)°C	Yes	FDA 177.2600 USDA 3A*
	4824HT	Silicone	Orange	(-50 to 450)°F (-45 to 230)°C	No	
	4824MD	Silicone	Gray	(-60 to 350)°F (-50 to 175)°C	Yes	FDA 177.2600 USDA 3A*
	4854	EPDM	Black	(-20 to 250)°F (-30 to 120)°C	Yes	FDA 177.2600

* USDA 3A compliance on disk only.



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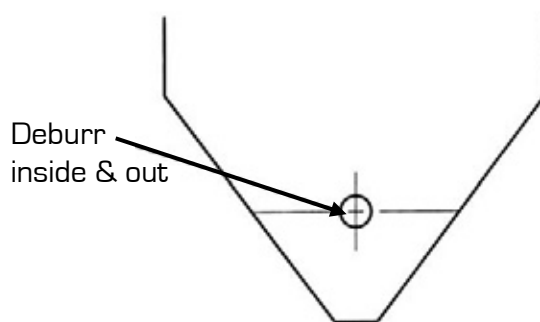
SILO FLUIDIZER INSTALLATION INSTRUCTIONS



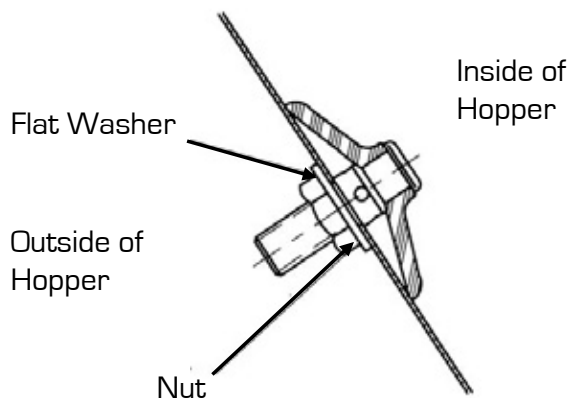
1. Drill appropriate size hole (see table) in silo wall.

Fluidizer	Hole Size - Diameter
43XX	$\frac{7}{8}$ " [22mm]
44XX	$1 \frac{1}{16}$ " [27mm]
45XX	$1 \frac{3}{8}$ " [35mm]
48XX	$\frac{1}{2}$ " [13mm]

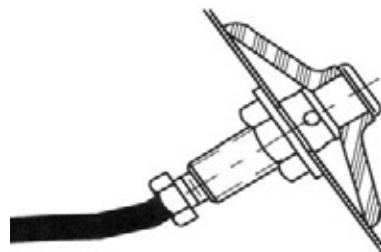
2. Deburr inside and outside of hole. If not deburred, damage to O-ring will occur. Make sure the area where the Fluidizer will be mounted is free of debris or defects (dents, caked material, weld seams, etc).



3. From the inside of the silo, have one person insert disk and stem assembly into the hole.
4. From the outside of the silo, have a second person put the flat washer and nut onto the stem.
5. Torque nut to approximately 25 ft. lbs (35 N m).
20 ft. lbs (27 N m) for the 48XX series.



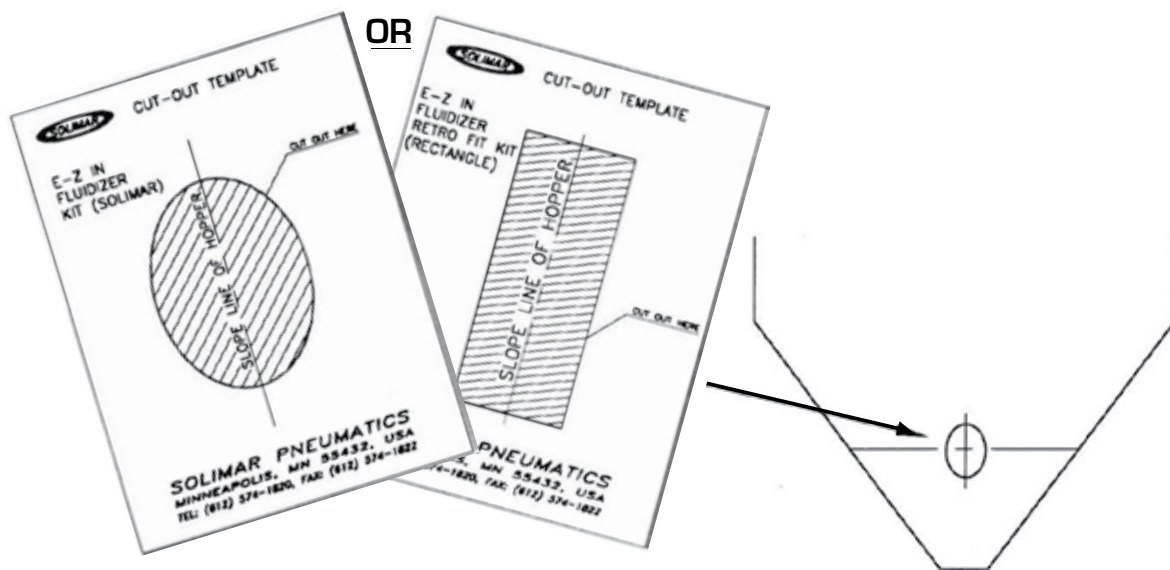
6. Attach air supply line to the stem.



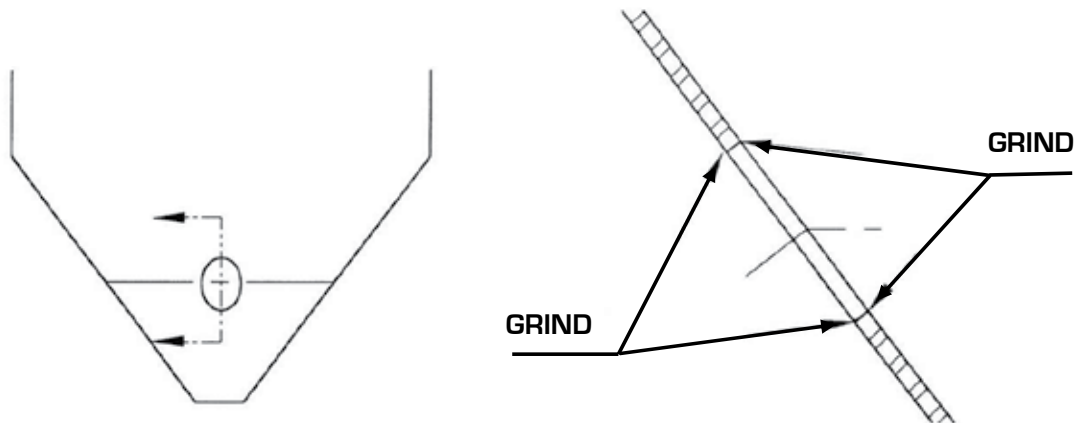
EZ-IN FLUIDIZER INSTALLATION INSTRUCTIONS



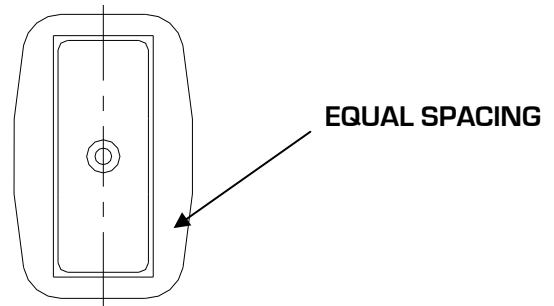
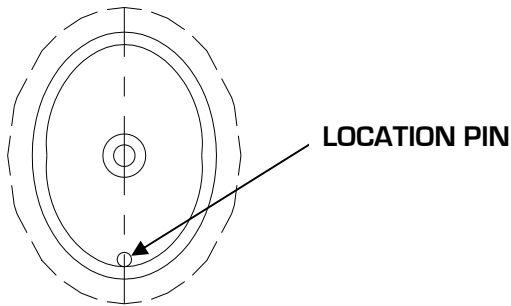
1. Using one of the cut out templates provided by Solimar, trace the pattern on the hopper. On conical hoppers make sure the mounting diameter at the center of the plate is greater than 24". Diameters of 24"-36" will require a curved plate when using the oval kit.



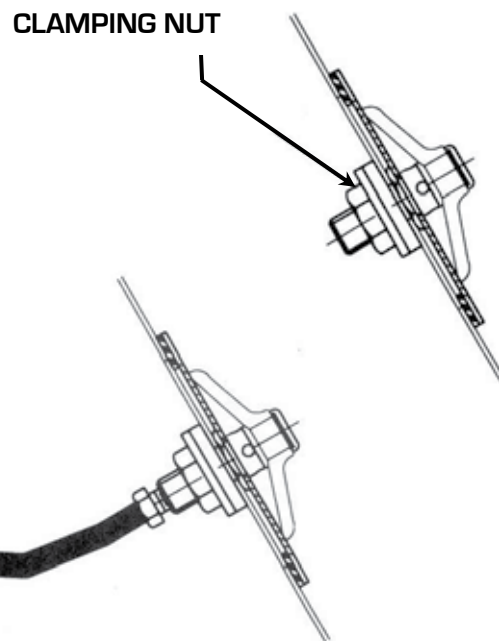
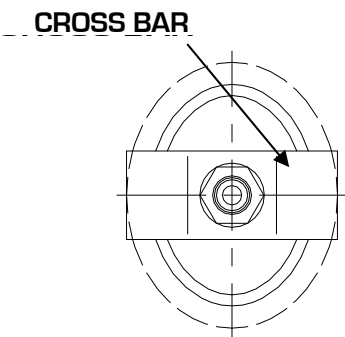
2. Flame cut traced pattern with cutting torch or other means.
3. Grind all surfaces of the cut opening – the inside of the hopper wall must be smooth and free of any burrs or slag.



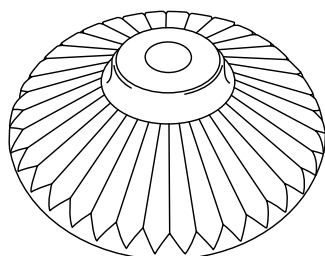
- 4.** Attach the Fluidizer assembly to the plate using the washer and thinner mounting nut. Insert Solimar EZ-In plate with Fluidizer assembly, making sure the location pin on the oval kits is resting at the bottom of the opening. On rectangle kits, make sure the plate is centered with equal spacing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



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

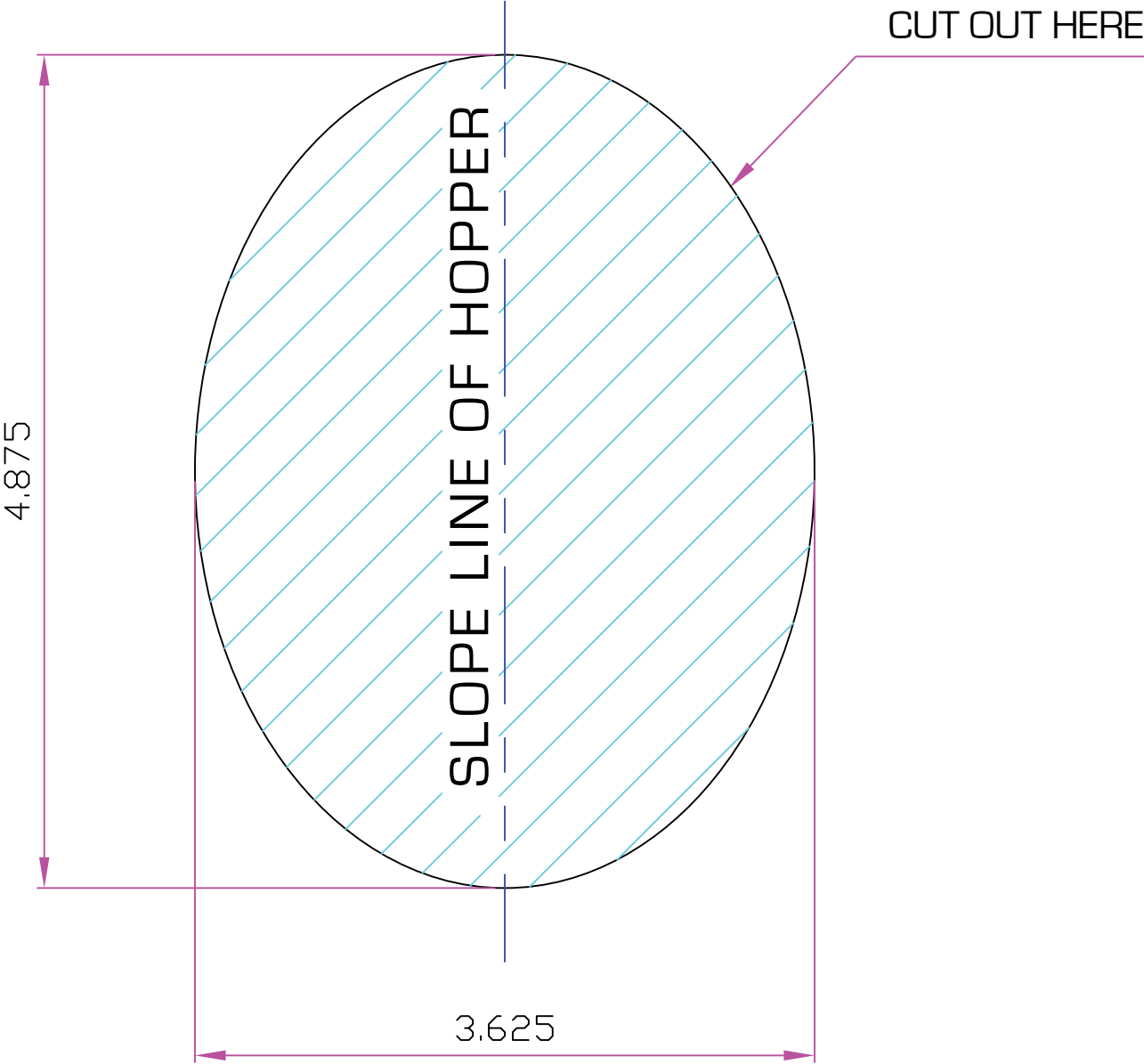


- 6.** Torque clamping nut to 20 ft. lbs (27 Nm).
- 7.** Attach the air supply line to the Fluidizer.

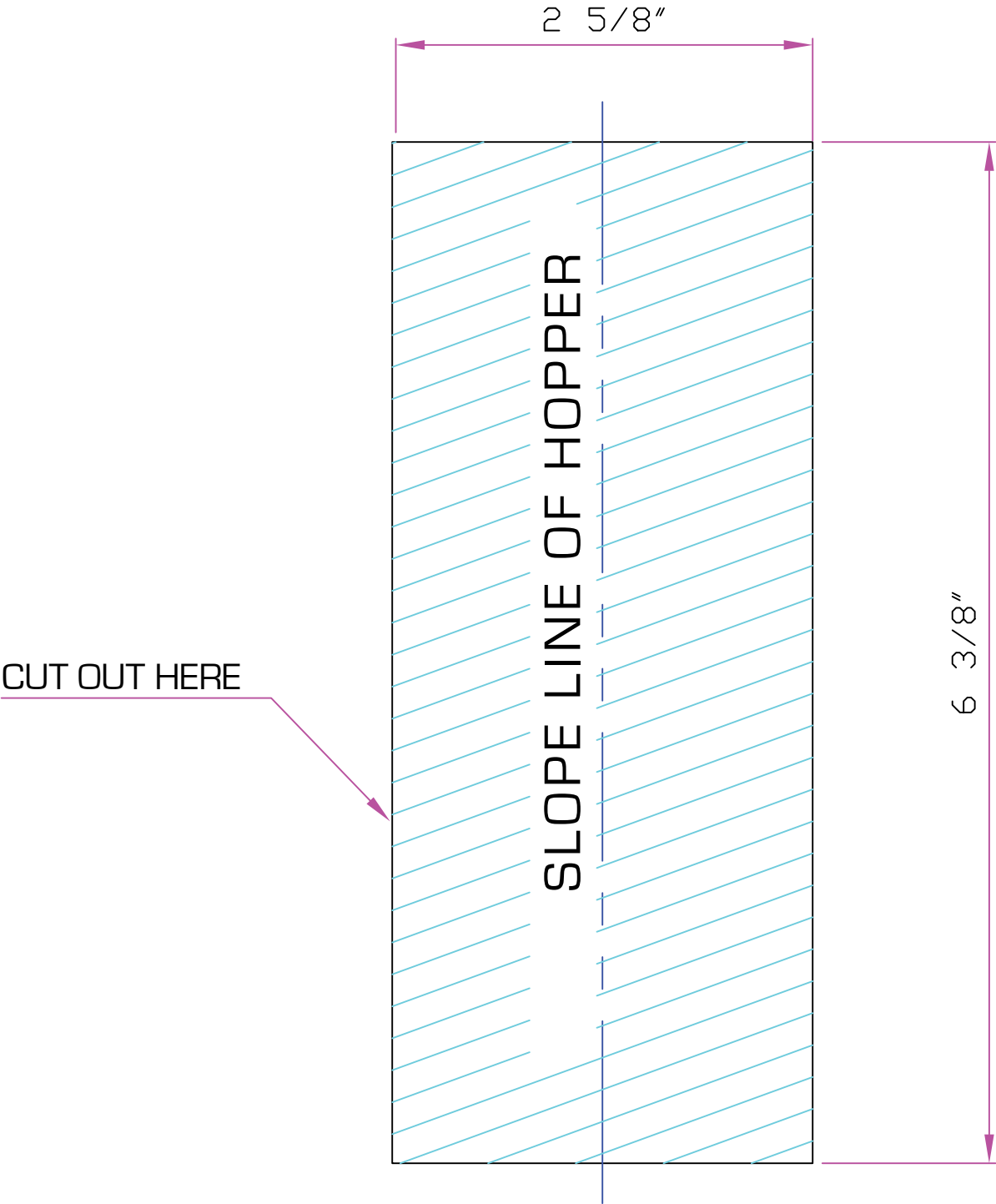


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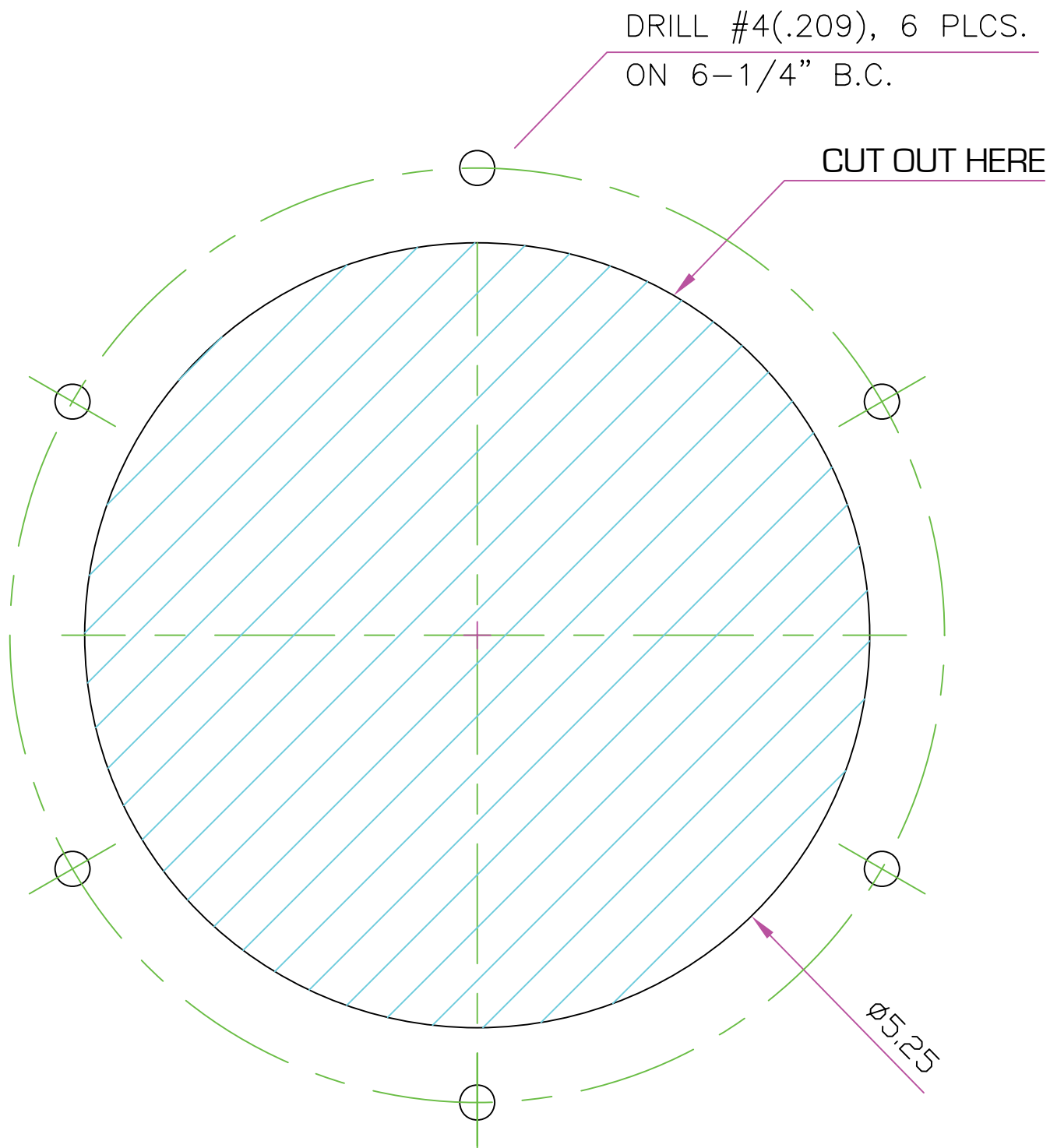
**EZ-IN FLUIDIZER KIT
CUT-OUT TEMPLATE
(OVAL)**



**EZ-IN FLUIDIZER
RETRO FIT KIT
CUT-OUT TEMPLATE
(RECTANGLE)**



EZ-IN FLUIDIZER RETRO FIT KIT CUT-OUT TEMPLATE (ROUND)



FAST-FIT™ KIT INSTALLATION INSTRUCTIONS



1. 4300 Series: Drill a 2" (50mm) hole at the Fluidizer mounting location.
Mini Fluidizer: Drill a 1 1/8" (29mm) hole at the Fluidizer mounting location.
2. De-burr the inside and outside of hole.
3. Thread the Fluidizer (4300 Series) onto the retaining cable or long 1/4" NPT pipe stub and tighten to finger tightness only. (For Mini Fluidizer use 1/8" pipestub.)



4. Fold & Insert the Fluidizer Disk into the installation hole.



5. Install Fast-Fit™ alignment plate onto the retaining cable (or pipe) and into the bin with the shoulder positioned outward. Center the alignment plate in the mounting hole, aligning it in the vertical position with the arrow pointing upwards.



6. While continuing to hold retaining cable, slide the Fast-Fit™ sealing washer and the Fluidizer washer over the retaining cable and onto the stem. Next slide the nut over the retaining cable and thread it onto the stem.



7. Tighten to the specified fluidizer torque of 25 ft. lbs (35 Nm) and remove the retaining cable.

SILO FLUIDIZER SPARE PARTS



<u>Item</u>	<u>Part #</u>	<u>Description</u>
Fluidizer Disks		
1	4124	Blue Silicone Disk
	4124HT	Orange High Temp. Silicone Disk
	4134	White Silicone Disk
	4154	Black EPDM Disk
	4164	White EPDM Disk

4300 Series

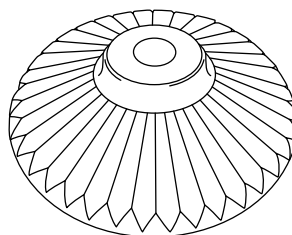
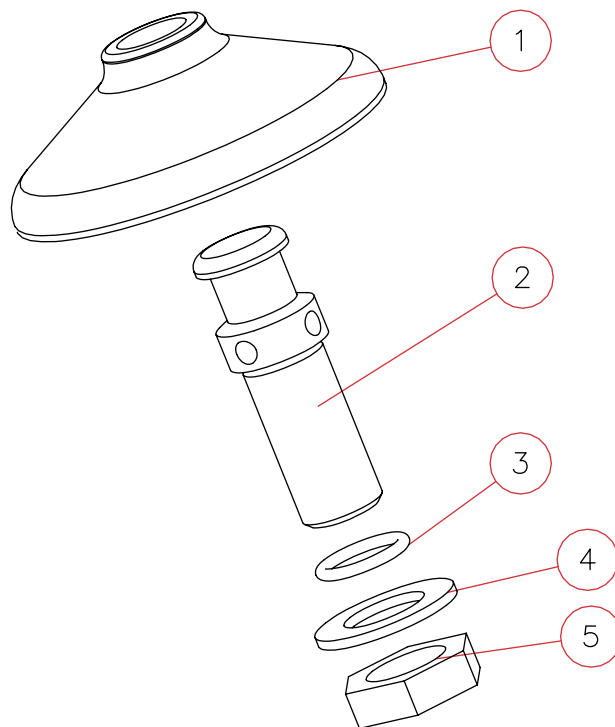
2	4310	Carbon Steel Stem
	4311	Aluminum Stem
	4312	Stainless Steel Stem
3	7561	O-Ring
	7561HT	High Temp O-Ring
4	4313	Flat Washer, Zinc Plated
	4314	Flat Washer, Stainless Steel
5	4315	1/2" Pipe Nut, Zinc Plated
	4316	1/2" Pipe Nut, Stainless Steel

4400 Series

2	4410	Carbon Steel Stem
	4411	Aluminum Stem
	4412	Stainless Steel Stem
3	7755	O-Ring
	7755HT	High Temp 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

4500 Series

2	4510	Carbon Steel Stem
	4511	Aluminum Stem
	4512	Stainless Steel Stem
3	7714	O-Ring
	7714HT	High Temp 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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