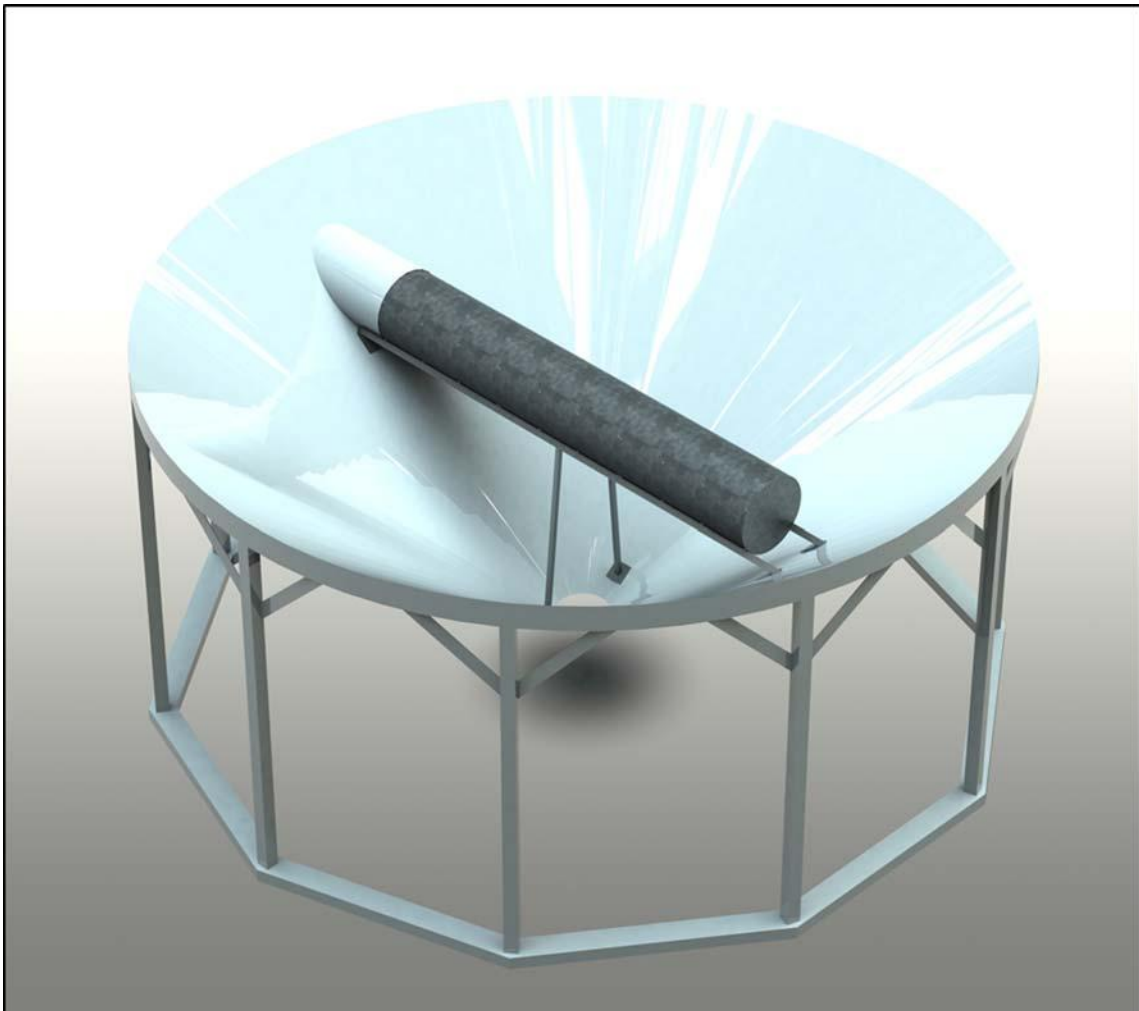


# **GRAIN GUARD**

## **TUBE AERATION NEXT GENERATION 9000 & 10000 INSTALLATION MANUAL**



Read this manual before using product. Failure to follow instructions and safety precautions can result in serious injury, death, or property damage. Keep manual for future reference.

Part Number: RNA-3287 R0

Revised: Jan/14



## GRAIN GUARD TUBE AERATION

Congratulations on the purchase of your next generation Grain Guard tube aeration system. Our next generation tubes have been re-engineered to provide many value added features. These features include:

- Newly designed support ring is lighter and meets or exceeds strength of previous design.
- Louvre direction has been optimised to prevent open area blocking, lessen grain drag during unloading and reduce the amount of debris entering the tube.
- New section lengths allow for assembly lengths of 6'-12' in 1' increments, thus maximizing available airflow into the bin

Following the guidelines listed below will ensure that the system functions as intended and will last for years to come.

It is important to note that the Grain Guard tube aeration system has been designed to use in 40 degree hoppers. Contact Grain Guard prior to using this system with hopper angles other than 40 degrees.

**Note:** *Always inspect all tubes and supports prior to filling the bin.*

*Do not leave tube assembly in bins used for fertilizer storage.*

## TUBE SELECTION METHOD

### TUBE DIAMETER

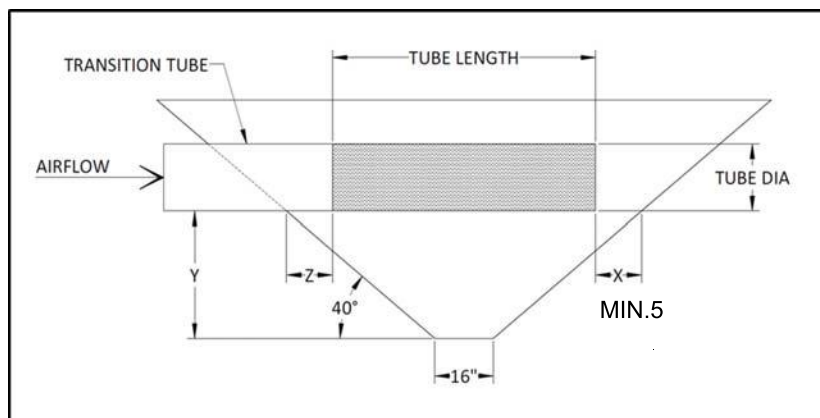
Grain Guard tube aeration is available in two diameters:

- 18" (9000 Series)
- 24" (10000 Series)

Tube diameter is typically dictated by hopper design. Consult your hopper supplier as to which diameter of tube you require.

### TUBE LENGTH

Tube sections are available in 3' and 4'. This allows for assembled lengths of 6'-12'. Table 1.2 for more information. Lengths over 12' are not recommended.



**Figure 1.1 Tube Length Selection**

Using the diameter of your bin, as well as dimension Y from Figure 1.1 find the maximum tube length from Table 1.2 on page 5.

Ideally the length of the tube will be centered in the hopper

(dimension X = dimension Z, Figure 1.1).

When choosing a length it is imperative that dimension X is not less than 5". If dimension Z of your hopper exceeds the centered dimension shown in Table 1.1, three options exist as an alternative:

1. Trim inlet length to recommended length (if hopper design allows). This option is ideal as it utilizes all available louvered area.
2. Telescope tube assembly into inlet until tube assembly is 5" from hopper (if inlet diameter allows). This option does not utilize all available louvered area.
3. Order a 1' shorter assembly. This option does not utilize available hopper space and reduces potential airflow.

|                     |                                      |                     | 9000 Series (18" dia)<br>Fitment into bin dia |     |     | 10000 Series (24" dia)<br>Fitment into bin dia |     |     |     |
|---------------------|--------------------------------------|---------------------|-----------------------------------------------|-----|-----|------------------------------------------------|-----|-----|-----|
| Dimension<br>Y (in) | Centered<br>Dimension<br>If X=Z (in) | Tube Length<br>(ft) | 14'                                           | 15' | 16' | 16'                                            | 18' | 19' | 21' |
| 28                  | 5                                    | 6                   | ✓                                             | ✓   | ✓   | ✓                                              | ✓   | ✓   | ✓   |
| 30                  | 7.5                                  | 6                   | ✓                                             | ✓   | ✓   | ✓                                              | ✓   | ✓   | ✓   |
| 32                  | 10                                   | 6                   | ✓                                             | ✓   | ✓   | ✓                                              | ✓   | ✓   | ✓   |
| 34                  | 6.5                                  | 7                   | ✓                                             | ✓   | ✓   | ✓                                              | ✓   | ✓   | ✓   |
| 36                  | 8.5                                  | 7                   | ✓                                             | ✓   | ✓   | ✓                                              | ✓   | ✓   | ✓   |
| 38                  | 5                                    | 8                   | ✓                                             | ✓   | ✓   | ✓                                              | ✓   | ✓   | ✓   |
| 40                  | 7.5                                  | 8                   | ✗                                             | ✓   | ✓   | ✓                                              | ✓   | ✓   | ✓   |
| 42                  | 10                                   | 8                   | ✗                                             | ✓   | ✓   | ✓                                              | ✓   | ✓   | ✓   |
| 44                  | 6                                    | 9                   | ✗                                             | ✓   | ✓   | ✗                                              | ✓   | ✓   | ✓   |
| 46                  | 8.5                                  | 9                   | ✗                                             | ✗   | ✓   | ✗                                              | ✓   | ✓   | ✓   |
| 48                  | 5                                    | 10                  | ✗                                             | ✗   | ✓   | ✗                                              | ✓   | ✓   | ✓   |
| 50                  | 7.5                                  | 10                  | ✗                                             | ✗   | ✓   | ✗                                              | ✓   | ✓   | ✓   |
| 52                  | 9.5                                  | 10                  | ✗                                             | ✗   | ✓   | ✗                                              | ✓   | ✓   | ✓   |
| 54                  | 6                                    | 11                  | ✗                                             | ✗   | ✗   | ✗                                              | ✓   | ✓   | ✓   |
| 56                  | 8.5                                  | 11                  | ✗                                             | ✗   | ✗   | ✗                                              | ✗   | ✓   | ✓   |
| 58                  | 5                                    | 12                  | ✗                                             | ✗   | ✗   | ✗                                              | ✗   | ✓   | ✓   |
| 60                  | 7.5                                  | 12                  | ✗                                             | ✗   | ✗   | ✗                                              | ✗   | ✗   | ✓   |
| 62                  | 9.5                                  | 12                  | ✗                                             | ✗   | ✗   | ✗                                              | ✗   | ✗   | ✓   |

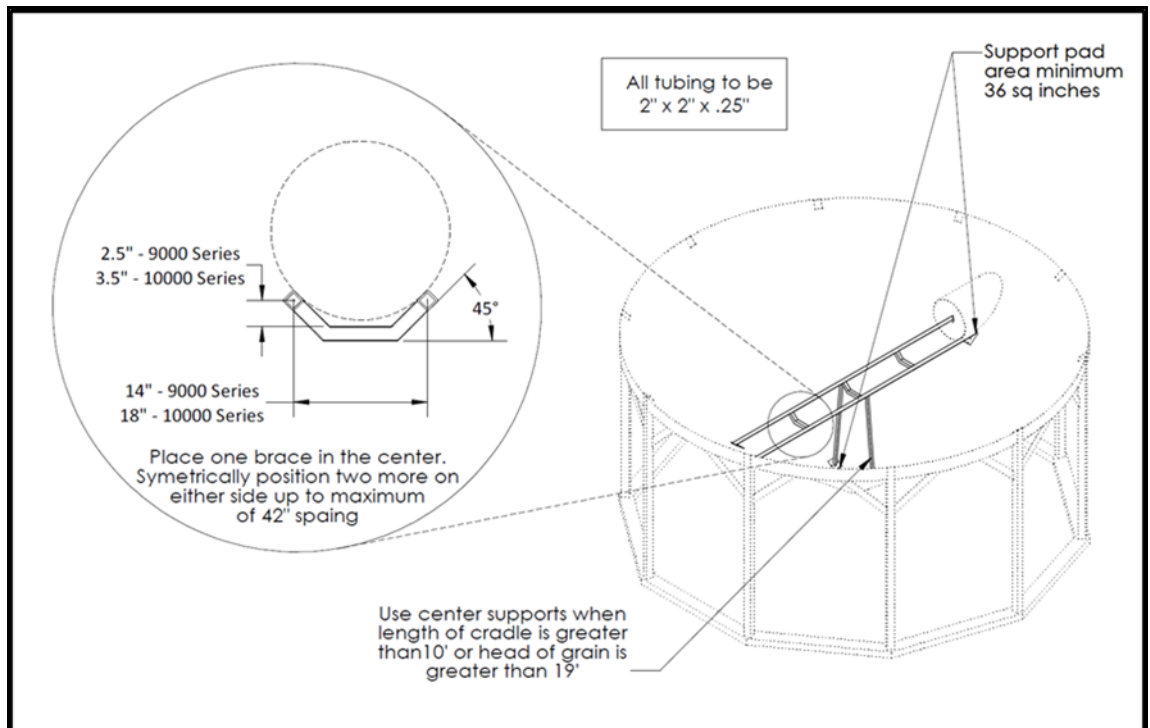
**Table 1.1 Tube Selection**

| Series             | Length (ft) | Part Number         | Louvered Area (ft <sup>2</sup> ) | Max airflow (@1200CFM/ft <sup>2</sup> ) | Weight (lbs) |
|--------------------|-------------|---------------------|----------------------------------|-----------------------------------------|--------------|
| 9000<br>(18" Dia)  | 3           | GGR-8137            | 11.8                             | 920                                     | 33           |
|                    | 4           | GGR-8138            | 15.9                             | 1240                                    | 40           |
|                    | 6           | GGR-8139            | 23.5                             | 1833                                    | 76           |
|                    | 7           | GGR-8140            | 27.5                             | 2145                                    | 84           |
|                    | 8           | GGR-8141            | 31.8                             | 2480                                    | 91           |
| 10000<br>(24" Dia) | 3           | GGR-8129            | 15.6                             | 1216                                    | 44           |
|                    | 4           | GGR-8130            | 21.2                             | 1653                                    | 61           |
|                    | 6           | GGR-8131            | 31.2                             | 2433                                    | 105          |
|                    | 7           | GGR-8132            | 36.8                             | 2870                                    | 122          |
|                    | 8           | GGR-8133            | 42.5                             | 3315                                    | 139          |
|                    | 9           | GGR-8131 + GGR-8129 | 46.8                             | 3650                                    | 149          |
|                    | 10          | GGR-8132 + GGR-8129 | 52.4                             | 4087                                    | 166          |
|                    | 11          | GGR-8133 + GGR-8129 | 58.1                             | 4531                                    | 183          |
|                    | 12          | GGR-8133 + GGR-8130 | 63.6                             | 4960                                    | 200          |

**Table 1.2 Tube Information**

## SUPPORT SYSTEM

Grain Guard tubes require a full span cradle support to withstand the forces subjected to the assembly during loading and unloading. A recommended design is shown in Figure 1.2 on page 5. Failure to meet the recommendations listed below will void the warranty.



**Figure 1.2 Support System Design**

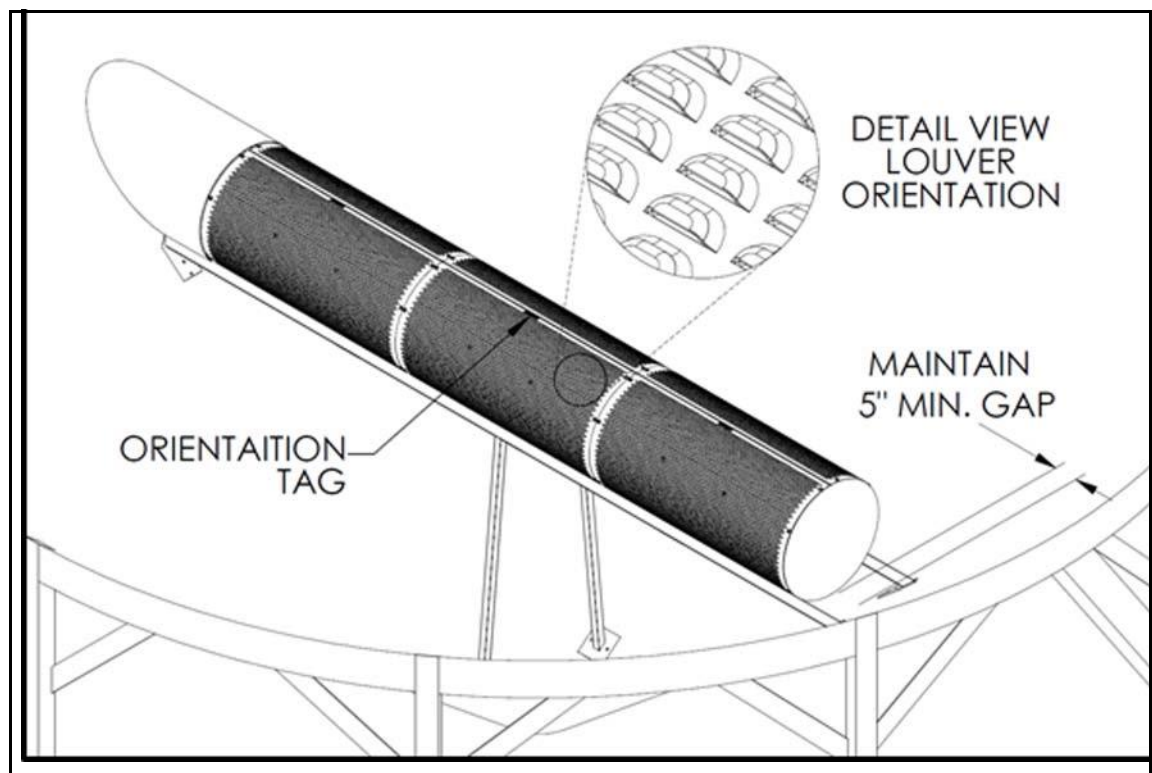
1. The support system should be manufactured from a minimum  $\frac{1}{4}$ " thick 2"x2" square tubing.
2. A cross brace should be placed in the center and then symmetrically spaced on either side. Spacing should not exceed 42". Add additional braces if unbraced span exceeds 42".
3. If support span is over 10' or if grain height above the tube is greater than 20' a vertical support is required in the center of the bin.
4. Horizontal and vertical supports should be attached to the hopper using a  $\frac{3}{16}$ " thick pad not less than 36 square inches in area.

Do not install system in bins where grain height above the tube exceeds 25'.

## INSTALLATION

Typically an existing inlet tube will be installed/manufactured with your hopper. If no inlet is present, contact your hopper supplier for a solution.

Install the support system ensuring that it is level and centered in the hopper. Fasten the support system to the bin by welding or bolting.



**Figure 1.3 Tube Installation**

1. Place and join the tube sections on the support, with louver opening facing down, See Figure 1.3. For further reference tube sections are shipped with a tag identifying the top of the tube.
2. Position the tube in the inlet with as much surface area exposed as possible, up to a minimum end spacing of 5".
3. Fasten the tube to the inlet and seal as required.



# **GRAIN GUARD**

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