ADVANCE
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ISO 9001 Certified

APOGEEAERO® Casing Spacer
Installation Instructions

Preparation of Casing Pipe

1. The casing pipe should be cleaned and free of all free-standing obstructions, such as rocks or other construction debris, prior to installation.
2. All weld beads should be ground to 1/4" tall or less and have a minimum radius of curvature of 2 in.

Installation of Casing Spacers

> **For the Anti-Corkscrewing Spacers**, each casing spacer must be installed with Directional Arrow Decal pointing in the direction the carrier will be installed into the casing.

1. The distance between each Casing Spacer should be no more than 6 - 8 feet, unless otherwise specified by Advance Products and Systems.
2. Each spacer is labeled with "TOP" or "BOTTOM". Be sure each is installed as labeled.
3. Spacers MUST be aligned with each other along the length of the carrier pipe. Place a chalk line along the pipe as an alignment guide for the placement of each spacer during installation, and alignment of each pipe segment.
4. Join the two halves together with the bolts provided. Anti-seize may help to prevent galling.
5. Tightening sequence: Alternate between outside and inside bolts to maintain an even gap, and alternate between each spacer flange to ensure a proper grip of the casing spacer to the carrier pipe.

   *A torque wrench is not required. The bolts are to be tightened until the flanges slightly bend towards each other, or in some cases, may touch at the ends.
6. **For the Anti-Corkscrewing Spacers**, make a final inspection of Casing Spacer direction prior to insertion into casing to insure Spacers are not backwards on carrier.

Installation Warnings

1. Caution: **Anti-Corkscrewing spacers are not reversible**. For these spacers, Arrow Decal MUST point in direction of carrier pipe insertion into casing.
2. Warning: Never set a loaded casing spacer on a flat or irregular surface. This could cause premature failure in the spacer.

Disclaimer: Failure to follow these instructions could lead to the failure of the casing spacer. Advance Products and Systems will not be held responsible if the instructions are not followed.

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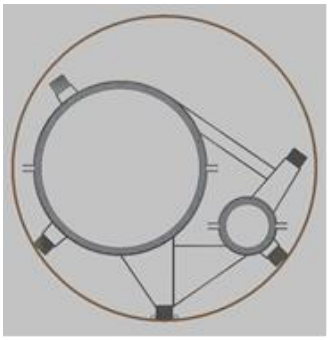
Installation Tips (for Spacers without Anti-Corkscrewing Function)

1. To help prevent the carrier pipe from rotating inside the casing, install a guide at the bottom of the casing for the spacers to follow. There are several options for guides, such as 3/8" or 1/2" flat bar with Roller Spacers or Angle Iron and Channel with Runner spacers.
2. Another option to help prevent the carrier pipe from rotating inside the casing is to push from the back of the carrier while also pulling from the front. This also reduces the stress on the spacers.
3. Cluster Casing Spacers: Although cluster casing spacers are designed to be weight balanced, due to manufacturing and material tolerances, the actual spacer will likely have a slight imbalance. Also, some size constraints prevent weight balancing of cluster spacers. Therefore, precautions like those mentioned above should be used to prevent corkscrewing due to these imbalances.

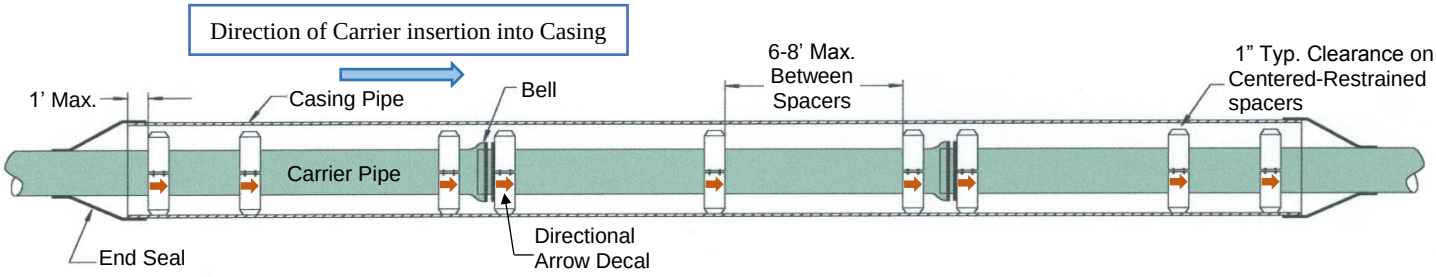
Symmetrical cluster



Asymmetrical Cluster

Recommended Placement

(For typical 20' joint):



A. **General Carrier:** One spacer shall be placed within one foot from each end of the casing and pipe joint. Subsequent spacers shall have a maximum of 6-8' intervals within the casing.

B. **Bell & Spigot Carrier:** One spacer shall be placed on the spigot end of each segment at the line marking the limit of insertion into the bell. When the joint is complete, the spacer shall be in contact with the bells of the joint so that the spacer pushes the joint and relieves compression within the joint. Subsequent spacers shall be placed at 6' intervals.