

---

# Archiving Index

## Material Flow Solutions, Inc.

---



**Critical Conical Arching Dimension.** The critical conical arching dimension is the smallest span of a conical hopper that will prevent arching of the bulk material. It is a function of the material's unconfined yield strength and storage time in the vessel. A conical hopper must have an outlet at least this large to prevent stable arch formation from occurring in bins and hoppers. Plane flow hoppers can have hopper widths about  $\frac{1}{2}$  as wide and still prevent stable arch formation. The critical arching dimension is also a small function of the bin size and, hence, is usually associated with a calculation basis which represents the approximate size of a given bin geometry. Engineers who understand and utilize critical conical arching dimensions in design of their specific system and material are able to avoid costly process downtime caused by hang-up due to arches formed at hopper outlets – getting it right the first time.

The **Archiving Index** is used to determine the minimum conical hopper outlet diameter that is needed to prevent arching in a bin or hopper. It specifies whether fine particles will sift through a matrix of coarser particles, adhere to the surface of coarser particles or form large agglomerates that will not fit through openings in the matrix of the mixture.

At Material Flow Solutions, Inc. we use a combination of standard and proprietary testing methods to determine the arching index of your material in both aerated and non-aerated conditions.

**PRACTICAL APPLICATIONS** of the **Archiving Index** include, but are not limited to:

- ✿ Characterizes hang-ups
- ✿ Characterizes segregation prevention
- ✿ Identifies poor fluidization materials
- ✿ Characterizes tablet feed operations
- ✿ Characterizes packaging feasibility
- ✿ Characterizes blender performance
- ✿ Characterizes reactor flowability
- ✿ Characterizes briquette toughness
- ✿ Characterizes agglomerate strength