

Single Screw Feeding

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To maintain the maximum and most consistent feeding, it is necessary to exercise care when changing hopper dimensions, feed throat openings, or adding any intermediate sections (side feeders, magnet packs, adapters, etc.). Some broad rules for such re-engineering of the solids delivery system are as follows:

- a.) Minimum taper for hoppers is 60 degrees included angle for general purpose use. Some materials will require a smaller angle, i.e., steeper sides.
- b.) Be sure the system is streamlined with no ledges, projections, or rough surfaces.
- c.) Avoid, as much as possible, changes in shape, i.e., round to square, etc. Each change of shape causes a restriction to flow.
- d.) The absolute minimum cross section in any solid's flow channel should be the cross section of the barrel bore. It is preferred to be about 1-1/2 times the cross section of the barrel bore.

You can visualize solids flow much like liquid flow with respect to use of the above rules. That is, anything that has entry problems, is not streamlined, has shape changes, or restrictive flow area will result in excessive pressure drop.

Unless there is a minimum pressure of the solid's mass at the entry to the screw, the screw channel will not fully fill. This is particularly true as the screw speed increases and, of course, varies with the characteristics of the solids.

- J.D. Frankland

See also:

- [Answers - preheating feedstocks for extrusion](#)
- [Causes of extruder surging](#)
- [Extrusion feeding](#)
- [Stability on single screw extruders](#)

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