

Controlling Bow in Profile Extrusion

[Print](#)

[\(10\)](#) » [Melting Limitations in Single Screw Extruders](#) » [Surging](#) » [Controlling Bow in Profile Extrusion](#)

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One of the most common flaws in the processing of profile extrusions is to control the straightness in the overall length. This is often know as "the bow" of the extrudate. During the cooling of the profile any area that can retain heat greater than the balance of the profile will maximize its shrink potential and bow in that direction. This is exacerbated when the profile design calls for unbalanced wall thicknesses.

In these extreme cases (severely unbalanced walls), a series of corrections must be made to the process to extrude a straight part. The heavy sections must have accelerated cooling either through water lines in the calibrator and/or water lines that are strategically placed nearer the profile on the heavy section and farther away from the thinner sections.

If one is using free sizing (water bath) the extrudate must be orientated so the heavy portion of the profile is submerged and the thinner wall section be allowed to float above the waters surface. If using free sizing (air rack) one will have to use "Cold-Air" jets on the heavy sections and heat applied to the thinner wall sections downstream to compensate for the bow in the extrudate.

- Dan Cykana, Bemis Mfg

Return to [Consultants Corner](#)