

Troubleshooting Hints

Blown Film - How to Hide Your Sins

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Gauge variation is a fact of life in blown film extrusion. New dies are usually guaranteed to $\pm 7\%$ in the transverse direction (TD) with 2 mil thick film. Automatic gauge control will cut this variation by 50%, but costs \$150,000 to \$300,000. TD gauge variation presents problems, particularly with large diameter rolls. The hundreds of layers of film cause bumpy rolls. Blocking problems in the hard, thicker areas are common. Many films are printed and converted into bags. Film is pulled through these machines with two rollers that are pinched together, called draw or nip rollers. Film is pulled toward the thicker side as it moves through the draw rollers. Edge guides and spreader rollers are used to minimize this problem. If these tools cannot overcome the tracking problem, the line speed must be reduced.

Rotating and oscillating dies were developed to randomize TD gauge variation. This equipment will only randomize TD gauge variation caused BELOW the frost line. Drafts through the tower, misaligned cages, collapsing frames, nip or idlers that pull or stretch the film above the frost line will not be randomized. The best solution is to put the winders at the top of the tower and rotate or oscillate them. Small lines, often running HDPE are set up this way. Most companies have winders mounted onto a concrete floor. Oscillating nips were developed to solve this problem. Oscillating nips randomize TD gauge variation ONLY up to the collapsing frame. Collapsing frames stretch the film, especially in the centre of the web. If you have soft cores in the centre of the web, open the collapsing frame at the bottom. Horizontal wrinkles form at the open sides of the collapsing frame near the nip if the collapsing frame is opened too much.

The purpose of rotating or oscillating dies, nips and winders is to randomize the TD gauge variation. THEY DO NOT ELIMINATE IT. That's OK. Converting equipment can operate at maximum line speed as long as the thick bands gradually move from side to side.

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