Mar 24, 2010

Twin-Cam™ Radial Compression and Pleating Stations

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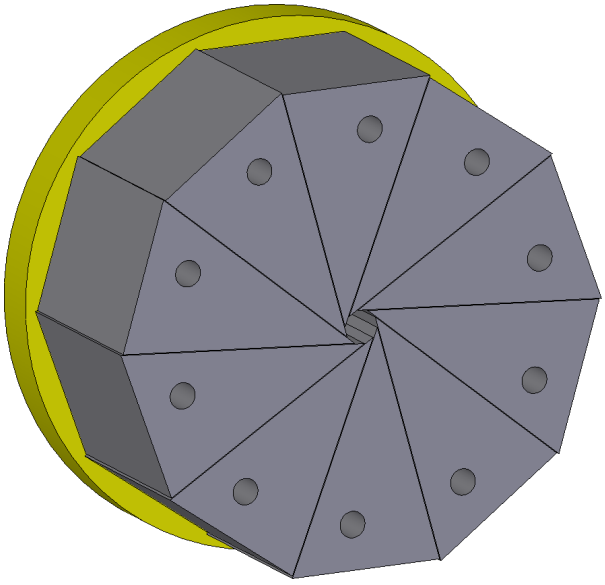
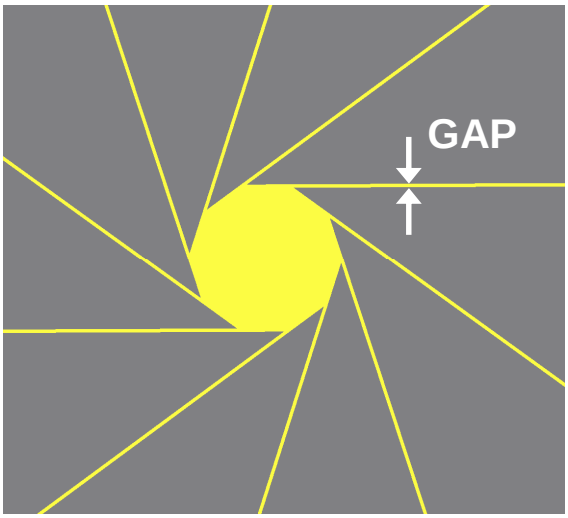
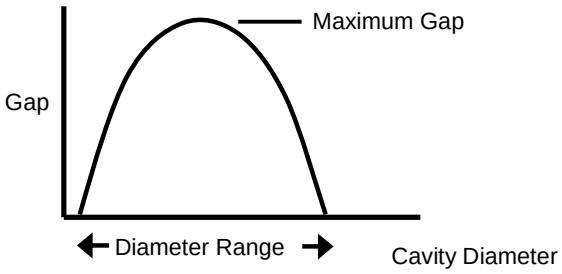
Blockwise Engineering's patented Twin-Cam™ radial compression stations solve a significant problem that burdens traditional radial compression mechanisms. Twin-Cam™ stations are available as part of Blockwise's stent-crimping and balloon wrapping machines, and are also sold as separate components for use in customer's equipment.

Traditional radial compression mechanisms of the "hinged-wedge" variety, commonly used for stent crimping and other manufacturing and testing applications, are constrained by a strict design tradeoff between diameter range and maximum wedge-to-wedge gap. Further, for a given design, the gap is a function of the opening diameter as follows: At the closed and opened extremes of the motion range, the dies are wedged against each other (zero gap), and the gap varies with diameter, reaching a maximum value near the middle of the diameter range. The range of diameter is actually limited by the points at which the gap becomes zero. To avoid excess gapping, the mechanism must be designed specifically for the diameter range of the application.







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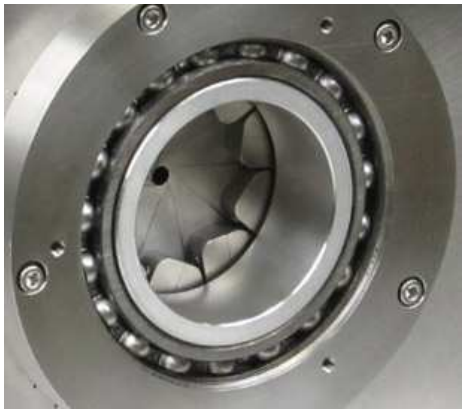
Blockwise's Twin-Cam™ compression station eliminates that tradeoff, and provides a very small die-to-die gap at any opening diameter. Using multiple cams to define the position of each die gives the designer the freedom to have the dies move in virtually any manner desired. For crimping, the die-to-die gap is made very small at all opening diameters. There is no need to design the mechanism specifically for the diameter range of the application because there is no disadvantage in oversizing the mechanism.

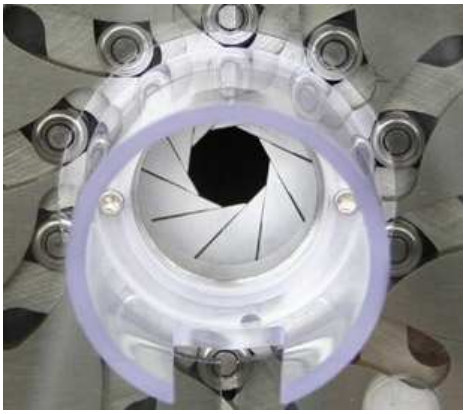
The mechanism is available with hardened stainless steel dies or plastic. There are a number of size and force ranges available.

Due to the extreme flexibility of the design, the Twin-Cam™ mechanism is also perfectly suited for balloon pleating. There are Twin-Cam™ pleating mechanisms in large diameter and long length configurations. The mechanism can also be configured to handle the more complex motion of a two-wing pleating station.

The Twin-Cam™ mechanism is designed-for-manufacturing, using very special processes, to achieve the best possible accuracy and durability,and manufacturing cost within each size range. In comparison with competing mechanisms:

Competitor's Mechanisms	Blockwise Twin-Cam™
Plain metal-on-metal bushings wear out, requiring periodic rebuild.	All-ball-bearing motion has essentially infinite life. No rebuilds, no adjustment.
High, variable friction results in poor process control, often requiring process settings to be different on supposedly identical machines.	Low friction results in precise process control in both force-controlled and diameter-controlled modes.
Die-to-die sliding and wear.	No die-to-die contact or wear.
Poor accuracy (opening not round when viewed under a microscope)	Best roundness accuracy available at each size range.





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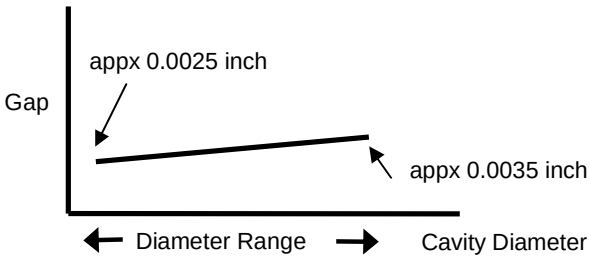
Gap
appx 0.0025 inch
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Diameter Range
Cavity Diameter

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