XpanCore™ Mandrels

Heat-Activated Expanding Mandrels

Overview-

Laser-cut hypotubes have grown in popularity in recent years due to the advantages they provide over traditional braided or coiled shafts, namely their high strength, kink resistance, and customizable flexibility profiles. However, manufacturing hypotube assemblies can introduce additional time and process complexity, particularly when integrating liners within the inner diameter (ID) of the hypotube.

Designed to expand when heat is applied, XpanCore™ mandrels are advanced processing aids that help simplify the construction of hypotube assemblies by alleviating issues with liner sizing, placement, and adhesion. During processing, XpanCore™ mandrels expand to help secure the liner against the ID of the hypotube without the need for pressurized systems or other complex techniques to assist with the assembly. This can help speed production, improve yields, and reduce common manufacturing challenges, such as liner tearing, incomplete bonding, leaks, and delamination that may compromise device performance.

XpanCore™ mandrels are available as solid monofilaments or thick-walled tubes, depending on the desired diameter of the mandrel. XpanCore™ mandrels are available in FEP or PFA and can be supplied in cut lengths up to 120″ (3048 mm).

XpanCore™ mandrel as supplied, before expansion (bottom). XpanCore™ mandrel expanded after heat is applied (top).

APPLICATIONS

- Advanced processing aid for lining hypotubes

CAPABILITIES AND SIZING

- As supplied outside diameters from 0.010″ – 0.267″ (0.254 mm – 6.782 mm)
- Typical OD growth after heat applied up to 10% – 30%, design dependent
- Max. cut length 120″ (3048 mm)

KEY PROPERTIES

- Class VI approved resins available
- Heat-activated
- Facilitates liner placement and adhesion
- Helps speed production and improve yields

BIOCOMPATIBILITY

FLEXURAL MODULUS

TEMPERATURE RESISTANCE

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XpanCore™ Mandrels

All XpanCore™ mandrels are produced based on customer specifications, and the table below is a general capability guide. Users should evaluate the material to determine suitability for their own particular application.

XPANCORE™ MANDRELS						
MATERIAL	FEP			PFA		
PROCESS	Expandable Mandrel			Expandable Mandrel		
	AS SUPPLIED OD MAX.	RECOVERED OD MIN.	RATIO	AS SUPPLIED OD MAX.	RECOVERED OD MIN.	RATIO
OUTER DIAMETER	0.010" – 0.050" (0.254 mm – 1.27 mm)	0.012" – 0.060" (0.305 mm – 1.524 mm)	1.2:1	0.033" – 0.092" (0.838 mm – 2.337 mm)	0.040" – 0.110" (1.016 mm – 2.794 mm)	1.2:1
	0.047" – 0.265" (1.194 mm – 6.731 mm)	0.061" – 0.270" (1.549 mm – 6.858 mm)	1.3:1	0.093" – 0.267" (2.362 mm – 6.782 mm)	0.102" – 0.278" (2.591 mm – 7.061 mm)	1.1:1
AS SUPPLIED CUT LENGTH	120" Max. (3048 mm Max.)			120" Max. (3048 mm Max.)		
LONGITUDINAL CHANGE	Varies by expansion and material			Varies by expansion and material		
RECOVERY TEMPERATURE	420 °F (216 °C)* Laminator strongly suggested			420 °F (216 °C)* Laminator strongly suggested		

**Processing temperature and time may vary.*
PFA is better suited for applications requiring higher processing temperatures.