

ITEM OPPORTUNITY SYNOPSIS

Scouting Number:	2024-160
Name of the item to be scouted:	Fiber Bragg Grating (FBG) Sensor Fabrication on a Flexible Needle
State item to be used in:	Louisiana

Describe the Item:

Please describe the item application/the end use of the item.	The goal is to mill grooves on a flexible medical needle and glue fiber optic cables into those slots. The fiber optic cables will have Fiber Bragg Grating sensors etched into them. We need to use a medical quality glue to glue the fiber optic cables into the slots. We will provide the needles, the fiber optic cables, and the glue. See attached drawings for more details.
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Supplier Information:

Type of Supplier Being Sought (select from the list below):	
Manufacturer	x
Contract Manufacturer	
Distributor	
Other (Please Specify)	
Reason for Scouting Submission (select from the list below)	
2nd Supplier	
Price	
Re-Shore	
Past supplier no longer available	
New Product Startup	x
BABA	
Other (Please Specify)	

Summary of Technical Specifications and Performance Requirements:

Describe the manufacturing processes (elaborate to provide as much detail as possible)	The goal is to mill grooves on a flexible medical needle and glue fiber optic cables into those slots. The fiber optic cables will have Fiber Bragg Grating sensors etched into them. We need to use a medical quality glue to glue the fiber optic cables into the slots. We will provide the needles, the fiber optic cables, and the glue. See attached drawings for more details.
Provide dimensions / size / tolerances / performance specifications of the item	We will be working with BD Spinal (BD Quincke spinal needles - BD) 20G & 22G. These needles have an outer diameter of 0.9mm & 0.7mm respectively. • Each needle is 90mm in length. • The cannula sheet is approximately 0.285 micrometers thick. • We want to use 3 Single-Core Fibers that are 125 micrometers thick, embedded at 120° from each other, as shown in Fig 1. One fiber will align directly in the direction of the bevel. • Each Single-Core Fiber will have 4 sets of FBG sensors embedded at the following distances (shown in Fig 2) o 5 mm from the bevel tip o 13 mm from the bevel tip o 28 mm from the bevel tip o 43 mm from the bevel tip. ** See drawings attached.
List required materials needed to make the product, including materials of product components, if applicable	We will be working with BD Spinal (BD Quincke spinal needles - BD) 20G & 22G. These needles have an outer diameter of 0.9mm & 0.7mm respectively. • Each needle is 90mm in length. • The cannula sheet is approximately 0.285 micrometers thick. Needles, fiber optic cables, and glue provided

Are there applicable certification requirements?	
Yes	
No	x
Please explain:	
Are there any applicable regulations that apply to the production of this item?	
Yes	
No	x
Please explain:	
Are there any other standards / requirements?	
Yes	
No	x
Please explain:	

NAICS CODES:	
NAICS 1	339112 Surgical and medical instrument manufacturing
NAICS 2	
Additional Comments:	
Additional technical comments:	
Volume and Pricing:	
Estimated Potential Business Volume (i.e. #units per day, month, year):	50 initially After experiments and quality check, we are looking at 250 pcs/month, for the first year. The expected volume will scale up with the business and could be significantly greater after approvals.
Estimated Target Price/Unit Cost Information:	Negotiable dependent on the required research, resources, and deliverable timelines.
Delivery Requirements:	
When is it needed by? (Immediate, 30 days, 6 months, etc.)	8/1/2024
Describe packaging requirements (i.e. individually/group packaging, etc.)	Standard Packaging
Where will this item be shipped?	Lafayette, LA
Additional Comments:	
Is there other information you would like to include?	

Needle & FBG Sensor Specs

- We will be working with BD Spinal ([BD Quincke spinal needles - BD](#)) 20G & 22G. These needles have an outer diameter of 0.9mm & 0.7mm respectively.
- Each needle is 90mm in length.
- The cannula sheet is approximately 0.285 micrometers thick.
- We want to use 3 Single-Core Fibers that are 125 micrometers thick, embedded at 120° from each other, as shown in Fig 1. One fiber will align directly in the direction of the bevel.
- Each Single-Core Fiber will have 4 sets of FBG sensors embedded at the following distances (shown in Fig 2)
 - 5 mm from the bevel tip
 - 13 mm from the bevel tip
 - 28 mm from the bevel tip
 - 43 mm from the bevel tip.

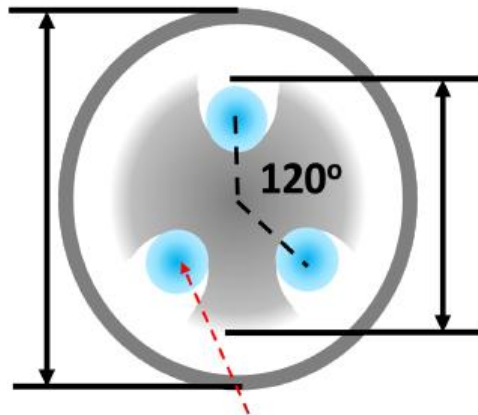


Figure 1: Cross-section of Single Core Fiber Needles

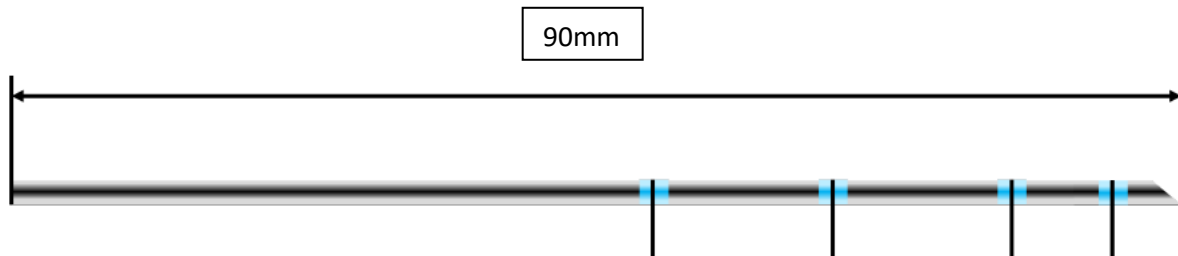


Figure 2: FBG placements on the needle