

## E-Fiber Accessories

Modular electrospinning/electrospraying platform

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### **EFA040 - Triaxial Stainless Steel Needles**

Triaxial needles are made of three concentric standard needles, and can be used to simultaneously infuse, electrospin or 3D print up to three different materials.

Triaxial needles have many different applications: for example, they can be used to create core-shell fibers made of three different materials, hollow fibers, drug-loaded fibers for sustained release. For this reason, they are ideal for research purposes, not only in the electrospinning /spraying field.

Triaxial needles are designed to have minimum dead volume, and detachable assembly for easy cleaning operations. They are fully customizable and made according to customer specifications; washable and reusable.



## MAIN FEATURES

- reusable AISI 304 stainless steel
- 100% compatible with all of our E-Fiber devices
- adaptable to any device using Male Luer Lock Connections
- easy to handle
- easy cleaning procedure
- geometry reduce impact on fluid dynamic (no stagnation point)
- autoclavable
- comply with GLP / GMP

## TECHNICAL DATA

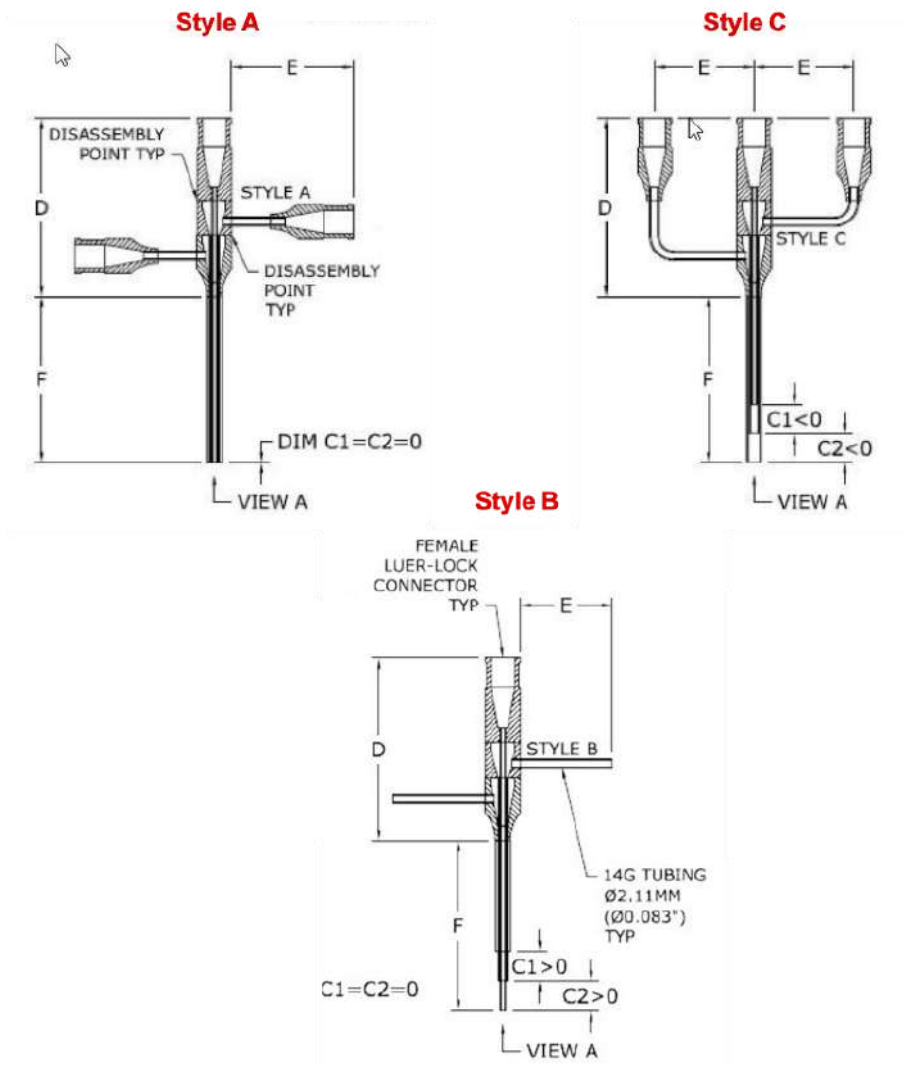
Materials	AISI 304 Stainless Steel (shaft) Chrome and Zinc plated brass (hub)
Connector	Female Luer
Dimensions	Customizable upon request (please see Table below)
Diameter size range	5 - 28 G

Two disassembly points for easy cleaning procedure (POS - Point of Separation)

**SELECTION GUIDELINE**

1. Select dimensions of the inner, the middle and outer needle (keep in mind 5G is the bigger diameter and 28G is the smaller diameter - Outer Diameter of inner needle MUST be less than Inner Diameter of the outer needle).
2. Select the desired design.
3. Select the straight length (parameter F) - minimum value is 2mm, maximum value is 90mm for even gauge and 35mm for odd gauge. Contact SKE technical service for longer dimension.
4. Select the right-angle length (parameter E) - minimum value is 25mm, maximum value is 120mm.
5. Length difference (parameter C):
  - C = 0 → is the most common - both tube at the same quote
  - C > 0 → inner tube longer the outer tube
  - C < 0 → outer tube longer the inner tube

**Triaxial needle design**



Dim D is approximately 30mm and is not adjustable  
 Disassembly for cleaning at point "POS"

**Table of triaxial needle dimensions**

Gauge	OD - Outer Diameter		ID - Inner Diameter		Wall thickness	
	[inches]	[mm]	[inches]	[mm]	[inches]	[mm]
5	0.219	5.56	0.189	4.80	0.015	0.381
6	0.203	5.16	0.173	4.39	0.015	0.381
7	0.180	4.57	0.150	3.81	0.015	0.381
8	0.165	4.19	0.135	3.43	0.015	0.381
9	0.148	3.76	0.118	3.00	0.015	0.381
10	0.134	3.40	0.106	2.69	0.014	0.356
11	0.120	3.05	0.094	2.39	0.013	0.330
12	0.109	2.77	0.085	2.16	0.012	0.305
13	0.095	2.41	0.071	1.80	0.012	0.305
14	0.083	2.11	0.063	1.60	0.010	0.254
15	0.072	1.83	0.054	1.37	0.009	0.229
16	0.065	1.65	0.047	1.19	0.009	0.229
17	0.058	1.47	0.042	1.07	0.008	0.203
18	0.049	1.24	0.033	0.84	0.008	0.203
19	0.042	1.07	0.027	0.69	0.0075	0.191
20	0.035	0.889	0.023	0.584	0.0060	0.152
21	0.032	0.813	0.020	0.508	0.0060	0.152
22	0.028	0.711	0.016	0.406	0.0060	0.152
23	0.025	0.635	0.013	0.330	0.0060	0.152
24	0.022	0.559	0.012	0.305	0.0050	0.127
25	0.020	0.508	0.010	0.254	0.0050	0.127
26	0.018	0.457	0.010	0.254	0.0040	0.102
27	0.016	0.406	0.008	0.203	0.0040	0.102
28	0.014	0.356	0.007	0.178	0.0035	0.089

**N.B. OD of inner needle MUST be less than ID of the outer needle**

## ORDERING DETAILS

Product code EFA035

In order to build up a coaxial needle, we will need basic information like:

Style \_\_\_\_\_ (A, B or C ⇒ A is our standard)  
Inner Gauge needle (IG) \_\_\_\_\_ G  
Middle Gauge needle (MG) \_\_\_\_\_ G  
Outer Gauge needle (OG) \_\_\_\_\_ G  
Straight length (F) \_\_\_\_\_ mm  
Right-Angle length (E) \_\_\_\_\_ mm  
Length difference (C) \_\_\_\_\_ mm

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### **SKE Research Equipment®**

C/O Leonardino Srl  
via Ghisalba 13  
20021 Bollate (MI) - Italy

tel: +39 02 4953 1694

[www.ske.it](http://www.ske.it)

Sales and information request: [sales@ske.it](mailto:sales@ske.it)