

1. Safety

When handling cured Carbon fibre, there is a risk of damage to skin from sharp slivers. Wear long sleeves and heavy duty gloves. Use barrier cream to reduce irritation from carbon dust. Safety goggles and a **face mask** should be worn when cutting, sanding or drilling the tube. Latex gloves should be worn when handling the mixed adhesive during join assembly. A vacuum cleaner is highly recommended for frequent removal of dust.

2. Tools & Materials

2.1 Normal hand & power tools used in spar making will be sufficient. Standard HSS drill bits etc. will damage the laminate. Dagger drill bits, jigsaw and holesaws with abrasive blades are essential. For cutting the tubes, a special diamond edged hacksaw blade will be required. These can be purchased from Seldén Mast (item number 592-102).

3. Drilling instructions for all Carbon Spars

Important:
To drill holes in carbon, use 'Dagger' drill bits supplied from Seldén Mast. These bits are specially designed to cut into carbon material.

- 3.1 Mask off area around hole position using masking tape.
- 3.2 Use correct sized 'Dagger' drill bit.
- 3.3 Set drill speed according to the Table below:

"Dagger" Drill Bit		
Diameter (mm)	Drilling Speed rpm)	Item No:
6.4	1500	592-081

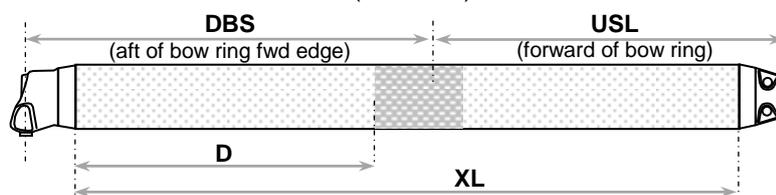
3.4 Support the weight of the drill, position the "Dagger" drill bit, and start carefully drilling. Continue supporting the weight of the drill, and allow the "Dagger" drill bit to cut through the material. Do not apply any pressure. Just before the drill bit breaks through, give even more support to the drill. This reduces the chance of breaking fibres, and produces a cleanly cut hole.

CARBON GENNAKER POLE ASSEMBLY

Important:
All metal surfaces that contact carbon fibre, including fastenings, must be insulated

4. Tube Preparation

To achieve the correct finished lengths **DBS** (Distance Between Supports) and **USL** (UnSupported Length), use the table deductions listed in PS742 (attached)



4.1 Mark the cut position with a grease pencil or white typist's correction fluid. To ensure a correct pole structure, the ends of the tube must be precisely cut and square.

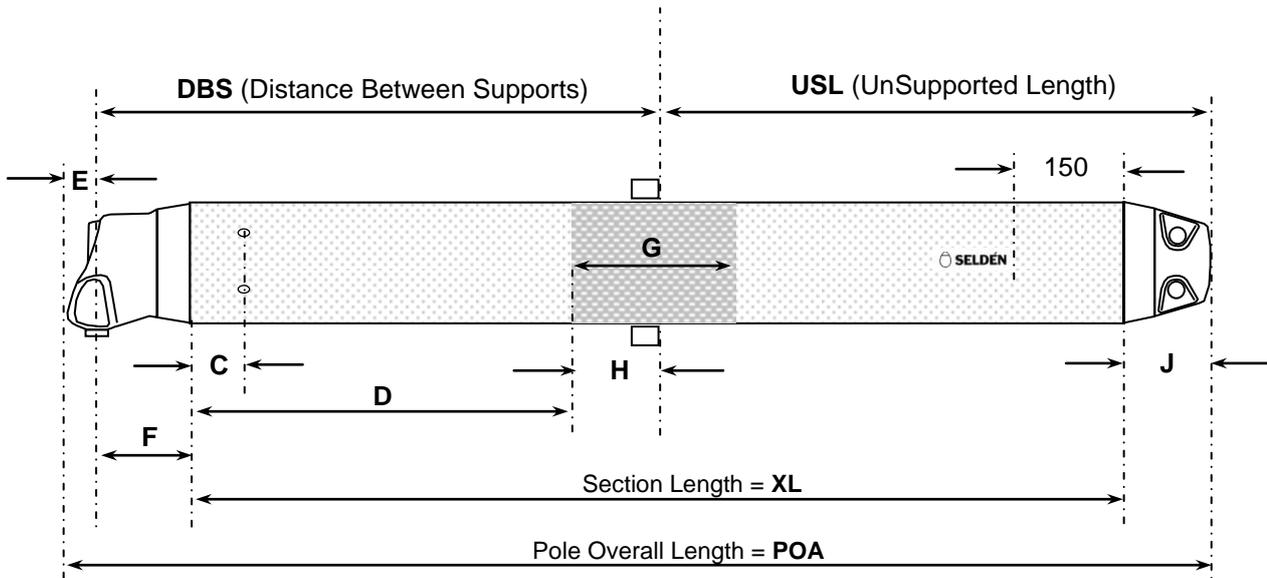
4.2 Using the special blade fitted into a hacksaw, cut the tube. To avoid a ragged edge, it is essential that the cutting action is only towards the inside of the tube. Rotate the tube frequently during the cutting process, and cut on the downstroke at the same end of the cut slot. Smooth even strokes are more effective than short strokes. Carefully smooth the cut edges with grit loaded cloth.

4.4 Drill rivet holes for inboard end (see 3.4 above). Rivet inboard end in place and punch out rivet mandrel heads. Tilt tube and remove loose heads.

4.5 Run a messenger line through the inboard end to the open tube end.

4.3 Feed the messenger line through, then bond the outboard end in place using the supplied 2 part Plexus adhesive. Mix the adhesive thoroughly on a clean surface. Working time before curing is 15 minutes.

Rev.	Qty	Revisions	Date	Initials
a	5	GC100, GC101, GC120 & GC121 added. Dimn J added to table	090929	jp
b	2	"DBS" was "A", "USL" was "B"	100401	jp



Section Length Dimensions

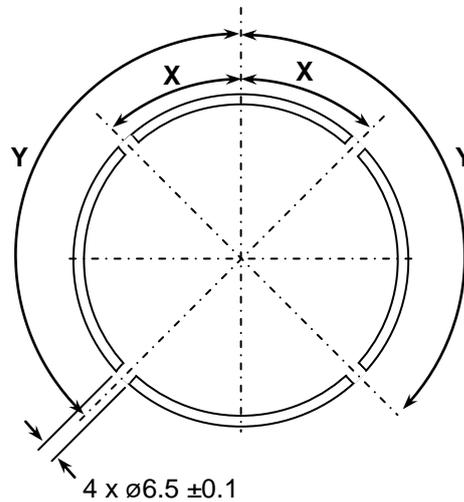
Section	C	E	F	G	H	J	D	XL	POA
GC076	35	20	46	100	70	42	DBS – 116	(DBS+USL) – 88	(DBS+USL) +20
GC088 / GC089	35	20	66	100	70	62	DBS – 136	(DBS+USL) – 128	(DBS+USL) +20
GC100 / GC101	40	31	14	150	95	31	DBS – 109	(DBS+USL) – 45	(DBS+USL) +31
GC120 / GC121	40	31	34	150	95	51	DBS – 129	(DBS+USL) – 85	(DBS+USL) +31

Rivet Positions (Inboard End only)

Section	X	Y
GC076	30	85
GC088 / GC089	35	100
GC100 / GC101	30	130
GC120 / GC121 1)	40	150

1) GC120/121 are screw fix

Outboard end is bonded in place, aligned as shown in the diagram



References

**Standard Layout, Deck Fitted Cbn Gennaker Pole
GC076 ~ GC121**

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				Dwg. No. PS 742	