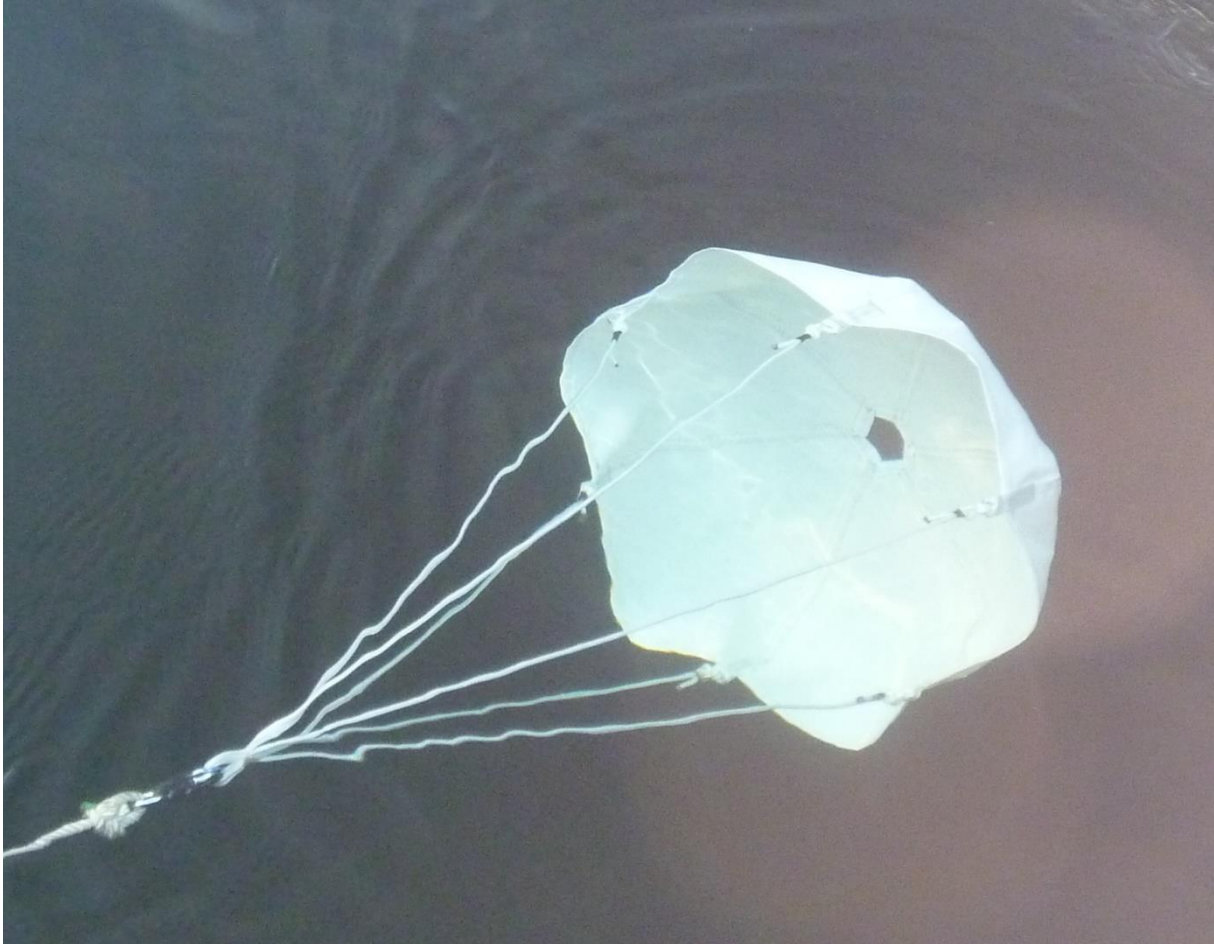


The parachute drogue

During some discussions about the use of sea anchors and drogues on the JRA web forum, I got the idea that I wanted to make a parachute drogue for my 26' IF, Ingeborg.



..20180223 First test-towing from the boat-hook along the pontoon. It opened instantly, as do the others - every time...

While the forum contributors were searching for a good and strong devise to tow behind their vessels in a survival storm, I was only looking for an easy to use sea brake for Ingeborg while hoisting her sail.

The problem with Ingeborg is that she is so keen to get going at speed as soon as I start hoisting sail (with no humans or automatic pilot at the helm), that we quite often end up running out of water in the little bay outside Lundsvågen harbour. In earlier boats, I have been able to set the tiller to nearly 90° and prevent this, but that isn't so easy on the IF.

Design:

Without experience, I opted for a design with only six sectors, as I guessed this was near the lowest number that would work. It appears to be a good guess.

I will not bore you with the designing process to achieve the best shape, but mainly describe how to make it.

Since I didn't know what area of drogue Ingeborg would need for this job, I made no less than four different sizes. They came out with a cross section area of 0.42m^2 , 0.20m^2 , 0.125m^2 and finally 1.00m^2 .



The smallest one. Don't ask me why that hole is needed - but it makes sewing a lot easier...

In use:

I have found that the design is very forgiving in use. I store it by simply coiling the bridle and the 4-5m towing line around the parachute. When it is to be used, I uncoil the line (in opposite direction) and drop the end of it, tied in a bowline, over a cleat on the quarter. After having entered the outer harbour bay, I put the engine out of gear and just toss the drogue over the side. As soon as the line has run out, the parachute opens itself, instantly.



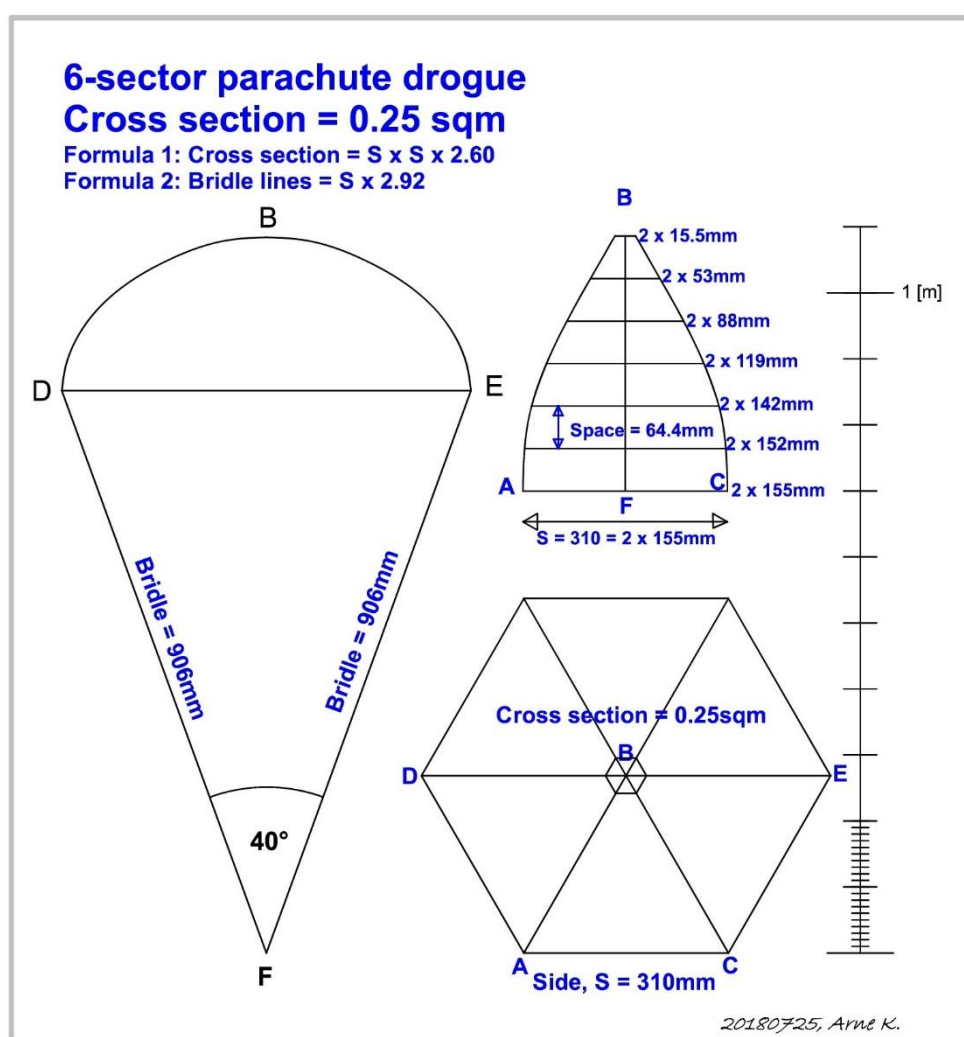
.. 20180414 The smallest drogue at work, the sail is up and the outboard swung up - so must just remember to retrieve the new toy before setting off...

How to make your own parachute drogue.

After testing all my drogues, I have drawn up this general purpose size with a cross section of 0.25 sqm. It is surprisingly powerful, yet quick to stow.

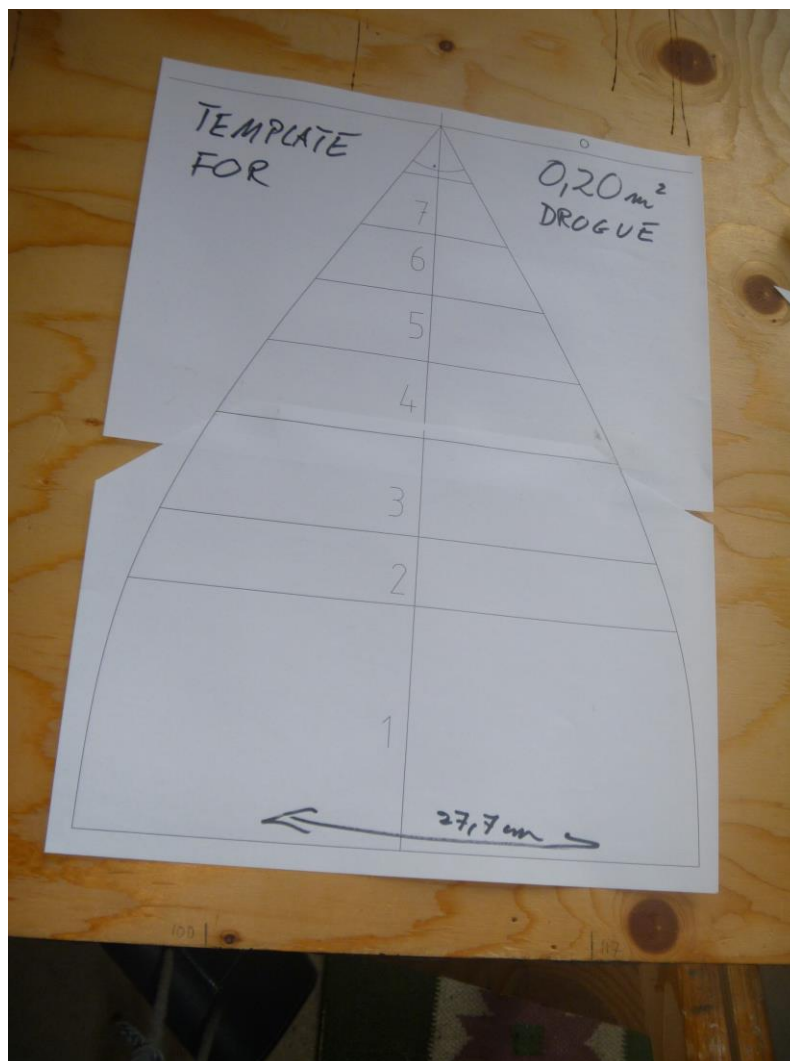
(.. we recently tested the 0.20sqm version behind a powerful Athena 34. While sailing along at six knots, I tossed the chute overboard, and the speed rapidly dropped to just over 3kts, the sails still pulling the best they could. Needless to say, the drogue's line was taut as a steel bar, and we had to round up and stop to retrieve the thing...)

I have made all my drogues from the same canvas as I made *Frøken Sørensen's* and *Ingeborg's* sails from; the 220g/sqm Odyssey III. I guess most stout canvas can be used. If you have a tired old genoa laying around, you may still find areas on it, which are good enough for this job. One should use the thickest thread that a domestic sewing machine will accept. I use T-90 thread, as on my sails, but thinner thread should do as well. Just double the seams if in doubt.

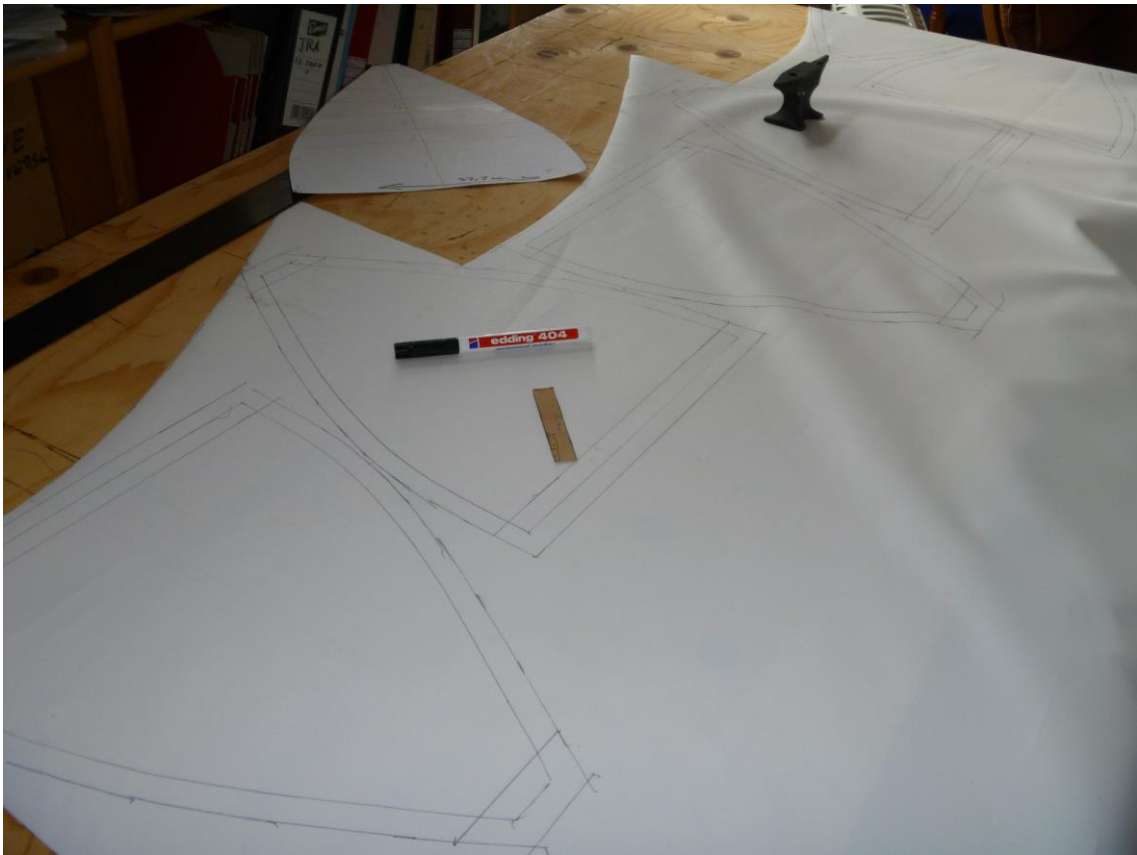


- Look at the unfolded sector up to the right of the diagram. This is made to let you draw a paper or plywood pattern. If you have a printer and a program which lets you crimp or expand the printout, then print it to your wanted size. If not, you must loft the sector right onto a piece of thick paper (or plywood). Start with the bottom line, A-C (the side, S), etc, etc. - the diagram should explain itself way better than my Stavanger English would ever manage.

- The pattern shows the *net shape* of the unfolded sector. When laying it out on the canvas, you are ready to make six copies, adding 20mm cloth around it, both for the hems at the straight sides, and for joining the panels along the curved sides.
- Hem the straight sides first. Then join one sector panel to the next. Personally, I first use a simple tailor's seam (as when joining JR panels in Amateur method B), and then lay the ridge flat and add a second, flat seam, which is much stronger. That first tailor's seam makes joining those curved sides very easy.
- Add a webbing hoop for the bridle lines at each of the six corners.
- If you have any doubts about the strength of the canvas, it may be an idea to add a length of webbing along the edge, all around it. I haven't bothered.
- Add six (or 3 pairs of) bridle lines, each of them at 2.92 times the side, S. Use the softest, 'deadest', braided line you can find, about 4-5mm thick. I tied mine simply with double half-hitches and secured with a heat-crimp sleeve (stitching or whipping it would be just as good). The reason for half-hitches instead of the very good scaffold knot or bowline, is that one needs to fine-adjust the length of the bridles to the same length.



The template printout



The sectors ready to be cut out



Assembled and ready for tying on the bridle



Finished - care taken to get equal length on the bridle lines.

Possible improvements.

I have no idea about their suitability as offshore hard-weather drogues, so will not comment. However, I can imagine it used for two tasks in addition to my own use:

- On motor boats, when the motor quits and needs some attention. Boat motors stop quite frequently (yes!). The most common reason is a blocked fuel filter, or a blocked water intake. The drogue - the bigger the better - not only buys the skipper more time to sort out the problem, but also holds the stern to the wind and thus makes it easier to work down below. Even on sailboats, one may occasionally have to sort out rig problems, and then a drogue may be a welcome helper.
- Deep-water (read: deep-fjord) fishing. A drogue of some size may help a fisherman stay on his position for longer with the engine shut off. The fjords around here are often too deep for anchoring.

In any case, if one is to tow the drogue for an hour or more, I would try to discourage it from spinning and making a mess of the rope. My armchair guess is that fitting some flotation to two panels and some light chain to the two opposite ones, may do the trick. I guess I would also beef it up by adding a length of webbing around its rim, if it is to see more serious use. *However:* After half a season of using the drogue on every outing, it doesn't seem that it is prone to spinning. It 'wanders' or 'kites' a bit back and forth, but not enough to pull us out of course.

Stavanger, 20180729,
Arne Kverneland



The 1.0sqm version - I surely am glad Ingeborg only needed the smallest version!