

Sail Area Calculations

BOAT	I	J	P	E	ISP	JSP	PY	EY	Disp	LWL	DRAFT
Dufour 31 sd	38.7	11.97	33.3	10.17	38.7	11.97			9256	23	4.75

The following formulas are approximate

Sail areas depend on lots of factors, leach hollow, foot round, luff hollow etc. Also, remember that jib sail area in general is based on the forestay length, I. But all things considered, these numbers are close but should not be considered exact. They are rules of thumb, not measurements of a this specific boat.

Mainsail

Mainsail = $(P \times E) / 2 = 169$ sq ft
 Racing Mainsail (add 10%) = 186 sq ft

Genoa

155% Genoa = $((J \times I) / 2) \times 1.65 = 382$ sq ft
 135% Genoa = $((J \times I) / 2) \times 1.44 = 334$ sq ft

Jib

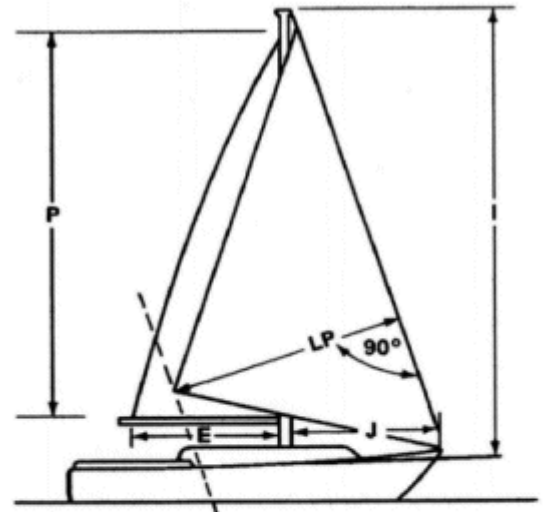
LP of full fore triangle = $(I \times J) / \sqrt{I^2 + J^2} = 11.4$
 Jib size to fill fore triangle = 95%
 100% Jib = $(I \times J) / 2 = 232$ sq ft

A more accurate LP calculator is [HERE](#)

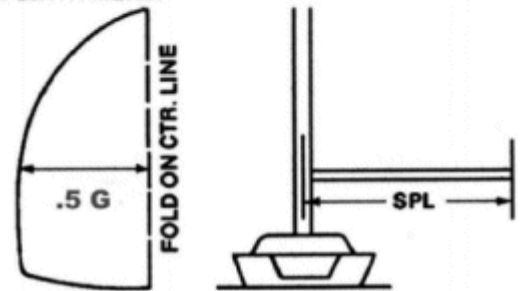
Spinnaker

Spinnaker Area = Max Luff x Max Girth x (70-85%) = 580 to 705 sq ft
 "Square" Spinnaker Area = Max Luff x Max Girth = 829 sq ft
 AC Area = 691 sq ft
 Maximum Luff (.95 * sqrt(JSP² + ISP²)) = 38.48 feet
 Maximum Girth = 1.8 * JSP = 21.55 feet

[Ref](#)



SPIN. GIRTH MEAS.



DEFINITIONS

"P" is the luff length of the mainsail, measured along the aft face of the mast from the top of the boom to the highest point that the mainsail can be hoisted or black band.

"E" is the foot length of the mainsail, measured along the boom from the aft face of the mast to the outermost point on the boom to which the main can be pulled or to the black band.

"I" is measured along the front of mast from the genoa halyard to the main deck. The main deck is where the deck would be if there were no deckhouse.

"J" is the base of the foretriangle measured along the deck from the headstay pin to the front of the mast.

"JSP" is the length of the spinnaker pole or the distance from the forward end of the bowsprit (fully extended) to the front face of the mast.

"ISP" is measured from the highest spinnaker halyard to the deck.

"PY" and "EY" are, respectively the luff length and foot length of the mizzen of a yawl or ketch measured in the same way as for the mainsail.

"IY" is the measurement from the staysail halyard to the deck.

"JY" is the measurement from the staysail stay to the front face of the mast.

"LP" is the shortest distance between the clew and the luff of the genoa.