MATERIALS LIST AND AREAS OF PANELS WITH CONSTRUCTION SPECIFICATIONS FOR THE

SHUTTLE 28 CATAMARAN

Shuttle 28 Technical details.

Sail areas
Main 33 m^2 355 sq. ft.
Jib 14.3 m^2 154 sq. ft.
Mast 4 m^2 43 sq. ft.
Genoa 37.5 m^2 403 sq. ft.

LOA 8.5 m 28 ft
BOA 6.33 m 20.8 ft
LWL 8.35 m 27.4 ft

Engine 9.9mHP 4 stroke outboard.

Berths 2 x double plus 2 x singles or 1 x double in saloon.

Water 100 gals
Fuel 20 gals in 4 x portable tanks.

Propane. 15 Kgs.

Headroom
Max 1.87 m 6ft. 2 ins.

Draft
Board and rudder up 0.396 m 1ft. 3 ins.
Rudder down board up 0.73 m 2ft. 5 ins.
Board down 1.93 m 6 ft. 4 ins.

Displacement.
Empty in sailing trim 2100 Kgs

DWL drawn at full load. 2800 Kgs

Max displacement 3100 Kgs

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LAMINATES FOR ALL PANELS

PANEL	Shuttle 28 POLYESTER RESIN SB R272	Kg/m2
1	1*290WR/ 12mmCORE /1*290WR	3.52
2	1*340WR/ 12mmCORE /1*340WR	3.72
3	2*290WR/ 12mmCORE /1*290WR	4.10
4	1*600BIAX/ 12mmCORE /1*600BIAX	4.76
5	1*600BIAX/ 15mmCORE /1*600BIAX	5.00
6	1*600BIAX/ 20mmCORE /1*600BIAX	5.40
7	2*500UD/12mm CORE/2*500UD	6.36
8	2*500UD/15mm CORE/2*500UD	6.60
9	2*500UD/20mm CORE/2*500UD	7.00
10	2*400WR/20mm CORE/2*400WR	6.20
11	1*600BIAX+1*290WR/12mmCORE/1*600BIAX+1*290WR	5.92
12	1*600BIAX+1*290WR/15mmCORE/1*600BIAX+1*290WR	6.16
13	1*580BIAX/12mm Cedar/1*580BIAX	7.61
14	6mm PLY	3.91
15	9mm PLY	5.86
16	1*600BIAX/12mm CORE/1.8mm PLY	4.93
17	1*600BIAX/12mm CORE/7mm Teak & Holly	8.31
18	6mm PERSPEX	7.60

THE PANEL AREAS SHOWN IN THIS TABLE CORRESPOND TO THE PANEL NUMBERS IN THE TABLE ABOVE.

CORE AREA SHUTTLE 28

ITEM	AREA	PANEL	WEIGHT
BULKHEADS	M2		Kgs
420	0.60	4	2.9
950	1.28	2	4.8
2230	1.41	4	6.7
3010	1.85	4	8.8
3640	4.3	8	28.4
5430	4.94	5	24.7
6030	2.40	3	9.8
7230	3.05	5	15.2
7500	1.22	4	5.8
8040	1.00	7	6.4
2*STERN STEPS	0.92	4	4.4
SUBTOTAL	22.97		117.8
PORT HULL	AREA	PANEL	WEIGHT
SAIL LKR SOLE	0.76	4	3.6
WC LKR X2	1.00	2	3.7
WC LKR X2	1.00	2	3.7
WC SOLE	0.32	4	1.5
WC PLINTH	0.21	15	1.2
WC COUNTERS	0.5	14	2.0

WC COUNTER FRONTS	0.60	2	2.2
DAGGERBOARD CASE	3.00	7	19.1
EXTRA GLASS DAG CASE			10.0
SHELVES AND FRONT	2.69	2	10.0
SOLE	0.85	17	7.1
LKR FRONT	0.75	2	2.8
LKR SIDE	0.63	2	2.3
STEPS	0.42	4	2.0
COUNTER	0.24	14	0.9
SHELF AND FRONTS	1.1	2	4.1
AFT BERTH	2.80	4	13.3
SUBTOTAL	16.87		89.6
STARBOARD HULL	AREA	PANEL	WEIGHT
LKR SOLE	0.25	2	0.9
FORD BERTH	2	4	9.5
COUNTER	0.24	14	0.9
LKR AND COUNTER FRNT	1.07	2	4.0
SOLE	0.6	17	5.0
GALLEY COUNTER	0.55	14	2.1
COUNTER FRONT	0.8	2	3.0
GALLEY COUNTER	0.9	14	3.5
SHELVES AND FRONT	2.69	2	10.0
STEPS	0.42	4	2.0
SALOON SOLE	0.85	17	7.1
SALOON SEATS	1.95	3	8.0
SEAT FRONTS	1.36	2	5.1
TABLE	0.4	16	2.0
SUBTOTAL	14.08		63.09
BRIDGEDECK	AREA	PANEL	WEIGHT
BRIDGEDECK SOLE	10.00	10	53.4
FORD. FAIRING TOP	1.80	10	9.6
FORD. FAIRING FRONT	1.16	10	6.2
FORD FAIRING BOTTOM	2.62	10	14.0
MAIN BEAM ON BR DECK	2.03	8	13.4
FORD BM BLKHDS*3	1.62	4	7.7
COCKPIT SEAT	1.08	4	5.1
CKPIT SEAT FRNT	0.81	2	3.0
CKPIT F & A ST FRNT	1.00	2	3.7
COCKPIT SEATS	1.10	4	5.2
COCKPIT SEAT SIDES	0.36	2	1.3
COCKPIT SEAT SIDES	0.36	2	1.3
COCKPIT TABLE	1.65	16	8.1
COCKPIT TABLE BOX	2.31	2	8.6
COCKPIT SEATS	1.80	4	8.6
CKPIT F & A ST FRNT	1.60	2	6.0
COCKPIT SEAT	0.85	4	4.0

COCKPIT SEAT	0.28	4	1.3	
COCKPIT SEAT	1.20	4	5.7	
AFT BM BLKHD ON BRDK	1.71	5	8.5	
ENGINE POD FRNT	0.28	11	1.7	
ENGINE POD SIDES	1.10	11	6.5	
ENGINE POD BACK	0.20	15	1.2	
2*SHELF AT RUDDER	0.88	4	4.2	
AFT PLATFORM	2.64	4	12.6	
SUBTOTAL	40.44		201.06	
OTHER ITEMS				
2 * HULLS	48.94	4	233.0	
2 * DECKS	30.86	4	146.9	
STRUTS AFT PLAT	0.50	4	2.4	
STRUT ACRS AFT PLAT	0.81	4	3.9	
SUBTOTAL	81.11		386.1	
CONNECTIONS+EXTRA GLASS			150.0	
	AREA		WEIGHT	
TOTAL	**175.5**		**1007.7**	
AIREX CORE REQUIRED	12	15	20	mm
	141	16	16	m2

To calculate the areas

Note. The vanity units and chart table etc. can be built in 4 mm ply instead of foam sandwich.

Foam is Airex R 63.80 for hulls below the knuckle and the underside of the bridgedeck and beam fairings. And Divinycel H80 above the knuckle and all of the deck areas. Ply replaces foam in way of all fittings. Core-cell A500 can be used throughout. The hulls can be strip planked in Core-cell A500.

There is extra reinforcing in way of bolts and chainplates. Also in the hulls in way of the cross beams and daggerboard case.

OPTIONAL… Carbon fibre may be used for the top and bottom flanges of the main crossbeam. = 90 metres of 100 mm wide 300 gms/m2 . unidirectional Carbon Fibre. 12000 fillament tow. Cortaulds X-AS or similar.

The materials required for glassing the panels should be taken from the list of areas, and the panel specifications. Cross check to the construction drawings. The panels specification shows an example of a laminate for each panel. For your local area, you may not be able to obtain the exact material specified. If that is the case, use a combination of materials to arrive as closely as possible to the same total weight of glass

on each side of the panel, with the same fibre orientation. In all cases on the bulkheads and hull, but not in the top and bottom flanges of the cross beams, Unidirectional Glass may be substituted by Biaxial or Double Bias cloth. Provided that the total weight of glass is the same in the end, and that there is and equal amount of glass in both directions.

LAMINATING KEY. (Preliminary)

WR = Woven Rovings or 4 harness satin, 50:50 warp/weft.
UDWR = Unidirectional Woven Rovings. Minimum 9.8:0.2 warp/weft.
Carbon = Carbon Fibre unidirectional tape as SP AC series carbon tapes or similar. Carbon to conform to Courtaulds type XA-S as minimum Spec.

e.g. of laminate specs on drawings.
200 WR = 200 gms/m2 woven rovings E glass fibre.

Please note, the joining edges of all Woven Rovings and Satin weaves must be overlapped by 30mm minimum per layer. Unidirectionals are butted along the fibre direction, and overlapped 50 mm minimum anywhere where the fibres are being joined.

Resin = SP Epoxy laminating resin or similar. Note all laminates to be post cured to manufacturers specifications, to achieve maximum laminate properties.
Or use a high quality marine grade polyseter resin. lsophthalic resin preferred.

In all cases, the surface of the foam shall be filled with a runny mix of resin and microballoons, just prior to laminating The foam will either be vacuumed to the laminate, or laminating shall be done before this surface filler has gone off'. The runny mix is trowelled into the surface with a plasterers float (or similar) thereby forcing the mix into the cells of the foam.
Note: The extra glass shown on the construction drawings is only on the inside skin of the hulls, unless otherwise specified.
The extra glass inside the hull in way of the keel continues straight down into, and through the keel. The basic keel laminate is the same as the hull laminate.