

Technical Report

Bill of Material Report

Report generated in BoMGen powered by CompoSIDE

Document:	Bulkhead Bill of Materials
Product Name:	60' Cruiser Racer
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Circulation:	

Issues and Amendments:

Issue	Issue Log	Issued by	Approved by	Issue Date
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Disclaimer:

1. This document is intended for estimation purposes only and is not to be used for materials order.
2. This document should be used as a guide to tendering only. It remains the responsibility of the builder to satisfy himself as to the final selection of materials and the quantities required.
3. Some of the laminates are based on limited information and previous experience.
4. The laminates will be subject to change as the design evolves.
5. The "Weight Estimate" is exclusive of "wastage factors" (i.e. weights as designed) but includes "usage factor" (i.e. core resin consumption etc.).
6. The "Bill of Materials (BoM)" estimate includes "wastage and usage factors"
7. Product BoM factors are specified in the Appendix to this document or if specific for component in the document section outlining component BoM.
8. It is the builder responsibility to verify the appropriateness of the "wastage factors" and "usage factors" applied.

1. Introduction

Product:	60' Cruiser Racer
Product Type:	
Keywords:	Bill of Materials

2. Product Summary

2.1 BoM - Summary

		Summary	
Type	Material / Component	Total Areal Quantity ¹ [m ²]	Total Weight Quantity ¹ [kg]
	Total		177.05
Cores	20 mm T10.100	5.08	11.03
	30 mm C70.130	10.15	46.37
Plies	UC-SM300-EP-PP	130.99	59.52
	WC-SM400-EP-PP	29.95	19.26
	XC-SM400-EP-PP	63.55	40.87

Core Weights include Resin Weight due to core resin consumption.

Areal and weight quantities include wastage and usage factors.

For core sheet size please refer to section: "Material Details"

2.2 Weight Estimate

#	Component	As Designed Weight ² [kg]
1	INTERNAL	159.62
2	INTERNAL/Bulkhead	159.62
3	INTERNAL/Bulkhead/Bulkhead Group	42.42
4	INTERNAL/Bulkhead/Capping Group	10.4
5	INTERNAL/Bulkhead/Deck Group	28.23
6	INTERNAL/Bulkhead/Hull Group	78.58

3. Components Summary

3.1 Hull Group (incl. Sub-components details)

Quantity: 1 (Including parent component quantity)

3.1.1 Hull Group Unique Material List (Total quantities)

#	Material Name	Type	As Designed Area ² [m ²]	Total Area ¹ [m ²]	As Designed Weight ² [kg]	Total Weight ¹ [kg]	Total Resin Weight ¹ [kg]	Total Fibre Weight ¹ [kg]
1	UC-SM300-EP-PP	Ply	66.87	73.72	30.08	33.5	0	0
2	WC-SM400-EP-PP	Ply	11.44	12.61	7.28	8.11	0	0
3	XC-SM400-EP-PP	Ply	22.88	25.23	14.57	16.22	0	0
4	30 mm C70.130	Core	5.55	6.42	26.64	29.31	0	0

Core Weights include Resin Weight due to core resin consumption.

Hull Group Subcomponents:

#	Name	Type	Unit Area / Unit Length [m ²] / [mm]	Unit Subcomponent Weight (Factored) ² [kg]	Unit Quantity	Quantity (including component quantity)
1	Hull	Surface Element	5.55 / -	73.59	1	1

3.1.2 Hull Group Stacking

3.1.2.1 Hull StackUp (Surface Element)

Area: 5.55 [m²] Component Area Percentage: 100 [%]

Material		α	Area / Cov.	Comment
		[°]	[m ²] / [%]	
1 - 20	20 x UC-SM300-EP-PP	0	2.17 / 39.01	
Inner Skin		0		
21	WC-SM400-EP-PP	0	5.55 / 100	
22	XC-SM400-EP-PP	0	5.55 / 100	
23 - 24	2 x UC-SM300-EP-PP	0	5.55 / 100	
25	XC-SM400-EP-PP	0	5.55 / 100	
Core		0		
26	30 mm C70.130	0	5.55 / 100	
Outer Skin		0		
27	XC-SM400-EP-PP	0	5.55 / 100	
28 - 29	2 x UC-SM300-EP-PP	0	5.55 / 100	
30	XC-SM400-EP-PP	0	5.55 / 100	
31	WC-SM400-EP-PP	0	5.55 / 100	

3.2 Deck Group (incl. Sub-components details)

Quantity: 1 (Including parent component quantity)

3.2.1 Deck Group Unique Material List (Total quantities)

#	Material Name	Type	As Designed Area ² [m ²]	Total Area ¹ [m ²]	As Designed Weight ² [kg]	Total Weight ¹ [kg]	Total Resin Weight ¹ [kg]	Total Fibre Weight ¹ [kg]
1	WC-SM400-EP-PP	Ply	6.66	7.34	4.24	4.72	0	0
2	XC-SM400-EP-PP	Ply	13.32	14.69	8.48	9.44	0	0
3	30 mm C70.130	Core	3.23	3.73	15.51	17.06	0	0

Core Weights include Resin Weight due to core resin consumption.

Deck Group Subcomponents:

#	Name	Type	Unit Area / Unit Length [m ²] / [mm]	Unit Subcomponent Weight (Factored) ² [kg]	Unit Quantity	Quantity (including component quantity)
1	Deck	Surface Element	3.23 / -	25.33	1	1

3.2.2 Deck Group Stacking

3.2.2.1 Deck StackUp (Surface Element)

Area: 3.23 [m²] Component Area Percentage: 100 [%]

Material		α	Area / Cov.	Comment
		[°]	[m ²] / [%]	
Inner Skin		0		
1 - 2	2 x XC-SM400-EP-PP	0	3.23 / 100	
3	WC-SM400-EP-PP	0	3.23 / 100	
Core		0		
4	30 mm C70.130	0	3.23 / 100	
Outer Skin		0		
5	WC-SM400-EP-PP	0	3.23 / 100	
6 - 7	2 x XC-SM400-EP-PP	0	3.23 / 100	

3.3 Capping Group (incl. Sub-components details)

Quantity: 1 (Including parent component quantity)

3.3.1 Capping Group Unique Material List (Total quantities)

#	Material Name	Type	As Designed Area ² [m ²]	Total Area ¹ [m ²]	As Designed Weight ² [kg]	Total Weight ¹ [kg]	Total Resin Weight ¹ [kg]	Total Fibre Weight ¹ [kg]
1	UC-SM300-EP-PP	Ply	23.12	25.49	10.4	11.58	0	0

Core Weights include Resin Weight due to core resin consumption.

Capping Group Subcomponents:

#	Name	Type	Unit Area / Unit Length [m ²] / [mm]	Unit Subcomponent Weight (Factored) ² [kg]	Unit Quantity	Quantity (including component quantity)
1	Capping	Surface Element	0.57 / -	10.4	1	1

3.3.2 Capping Group Stacking

3.3.2.1 Capping StackUp (Surface Element)

Area: 0.57 [m²] Component Area Percentage: 100 [%]

Material	α	Area / Cov.	Comment
	[°]	[m ²] / [%]	
1 - 40	40 x UC-SM300-EP-PP	90	0.567 / 100

3.4 Bulkhead Group (incl. Sub-components details)

Quantity: 1 (Including parent component quantity)

3.4.1 Bulkhead Group Unique Material List (Total quantities)

#	Material Name	Type	As Designed Area ² [m ²]	Total Area ¹ [m ²]	As Designed Weight ² [kg]	Total Weight ¹ [kg]	Total Resin Weight ¹ [kg]	Total Fibre Weight ¹ [kg]
1	UC-SM300-EP-PP	Ply	28.83	31.78	12.97	14.44	0	0
2	WC-SM400-EP-PP	Ply	9.06	9.99	5.77	6.42	0	0
3	XC-SM400-EP-PP	Ply	21.44	23.64	13.65	15.2	0	0
4	20 mm T10.100	Core	4.4	5.08	10.03	11.03	0	0

Core Weights include Resin Weight due to core resin consumption.

Bulkhead Group Subcomponents:

#	Name	Type	Unit Area / Unit Length [m ²] / [mm]	Unit Subcomponent Weight (Factored) ² [kg]	Unit Quantity	Quantity (including component quantity)
1	Bulkhead	Surface Element	4.4 / -	41.19	1	1

3.4.2 Bulkhead Group Stacking

3.4.2.1 Bulkhead StackUp (Surface Element)

Area: 4.4 [m²] Component Area Percentage: 100 [%]

Material		α [°]	Area / Cov. [m ²] / [%]	Comment
STB Top Tapes		0		
1 - 5	5 x UC-SM300-EP-PP	8.7	0.402 / 9.14	
Port Top Tapes		0		
6 - 10	5 x UC-SM300-EP-PP	-8.7	0.403 / 9.16	
STB Side Tapes		0		
11 - 15	5 x UC-SM300-EP-PP	-60	0.786 / 17.86	
Port Side Tapes		0		
16 - 20	5 x UC-SM300-EP-PP	60	0.797 / 18.12	
Compression Tapes		0		
21 - 22	2 x UC-SM300-EP-PP	0	0.286 / 6.49	
Bottom Tapes		0		
23 - 26	4 x UC-SM300-EP-PP	0	0.405 / 9.21	
Base Laminate		0		
27 - 29	3 x XC-SM400-EP-PP	45	2 / 45.54	Inner Skin
30	WC-SM400-EP-PP	0	4.4 / 100	Inner Skin
31	XC-SM400-EP-PP	45	4.4 / 100	Inner Skin
32	20 mm T10.100	90	4.4 / 100	Core
33	XC-SM400-EP-PP	45	4.4 / 100	Outer Skin
34	WC-SM400-EP-PP	0	4.4 / 100	Outer Skin
35 - 37	3 x XC-SM400-EP-PP	45	2 / 45.54	Outer Skin
Bottom Tapes		0		
38 - 41	4 x UC-SM300-EP-PP	0	0.405 / 9.21	
Compression Tapes		0		
42 - 43	2 x UC-SM300-EP-PP	0	0.286 / 6.49	

Material		α	Area / Cov.	Comment
		[°]	[m ²] / [%]	
Port Side Tapes		0		
44 - 48	5 x UC-SM300-EP-PP	60	0.797 / 18.12	
STB Side Tapes		0		
49 - 53	5 x UC-SM300-EP-PP	-60	0.786 / 17.86	
Port Top Tapes		0		
54 - 58	5 x UC-SM300-EP-PP	-8.7	0.403 / 9.16	
STB Top Tapes		0		
59 - 63	5 x UC-SM300-EP-PP	8.7	0.402 / 9.14	

4. BoM Material Details

Cores

Name	t_{pp} [mm]	ρ [kg/m ³]	A_m [g/m ²]	Sheet Width Sheet Length [mm]	Core Preprocessing Type	Paper/Film Type	Cell Shape / Grade
20 mm T10.100	20	100	2000	1005 2440	Plain (PL)	-	- / -
30 mm C70.130	30	130	3900	850 1900	Plain (PL)	-	- / -

Plies

Name	t_{pp} [mm]	A_m [g/m ²]	FVF	RWF	Material Type	Reinforcement Type	Matrix Type	Processing Type
UC-SM300-EP-PP	0.298	454.39	0.56	0.34	UD	SMC	Epoxy	Prepreg
WC-SM400-EP-PP	0.427	643.056	0.52	0.378	Plain	SMC	Epoxy	Prepreg
XC-SM400-EP-PP	0.427	643	0.52	0.378	Biaxials	SMC	Epoxy	Prepreg

Material Description

Type	Name	Description
Cores	20 mm T10.100	
	30 mm C70.130	
Plies	UC-SM300-EP-PP	
	WC-SM400-EP-PP	
	XC-SM400-EP-PP	

5. Appendix

5.1 BoM Settings

Wastage factors

Property	Value	Unit
Wastage Scale Factor	1	
Finished Part Offcut	5	%
Cores Offcut	10	%

	Prepreg
Fabric Offcut [%]	5
Resin Application Wastage [%]	0

Included in Usage and Wastage Quantities accordingly.

Usage factors

Property	Value	Unit
Usage Scale Factor	1	

	Prepreg
General Resin Usage [%]	0
Resin Bleed-Out [%]	1

Included in Usage and Wastage Quantities accordingly.

Overlap Factors (Wastage & Usage)

Overlap Factors (Percentage of ply total area)

	Prepreg
Woven Overlap [%]	3
Multiaxial Overlap [%]	3
UD Overlap [%]	2

Included in Usage and Wastage Quantities accordingly.

Core Resin Consumption Factors

Core Resin Consumption varies and depends on Core Preprocessing (i.e. Core Cut Type) and Laminate Processing Type (i.e. Infusion).

Defined according to CompoSIDE Internal Knowledge.

5.2 Tables Header Notes

¹ Including Wastage & Usage Factors

² Including Usage Factors

³ Laminates are compliant with the ISO 12215 Category A and ABS guidelines