



1. OBJECTIVES

The Storm Trysail Club has produced the Storm Trysail 65 Box Rule to meet the following objectives:

To provide owners the opportunity to race a high performance yacht in tight, safe racing for both inshore and offshore sailing by promoting speed and safety with seaworthy keelboats. To create state of the art rule parameters that maintain tight restrictions with regard to construction and design, yet allow some flexibility for each owner to customize the yacht in their own image. To create a design box tight enough to eliminate the quick obsolescence found in broader development classes, yet not go to the point of actual one design criteria.

The Storm Trysail 65 Class yacht is designed to meet all parameters set by the Box Rule (the Rule). The Rule has been developed to produce very similar boats that are "state of the art". These rules are intended to ensure that all yachts are in compliance with the Rule and the yachts are equipped similarly.

2. ADMINISTRATION

- 2.1. This rule is owned and administered by the Storm Trysail 65 Class Association. Amendments to the rules may be made pursuant to the Storm Trysail 65 Class Association By-Laws.
- 2.2. The language of the Rule is English.
- 2.3. The units of the Rule are Kilogram-meters.



3. GOVERNING RULES

The Rule requires compliance with the following rules and regulations in descending priority. The Index of Terms lists the relevant rule in sec. 7.

- 3.1. This Storm Trysail 65 Box Rule
- 3.2. The Storm Trysail 65 Class By-Laws
- 3.3. ISAF Special Regulations- Category 1
- 3.4. ABS Guidelines for Building and Classing Offshore Racing Yachts-1994
 - 3.4.1. The designer shall certify in writing that the plans for the yacht meet these requirements. The builder shall certify in writing that the boat was built in strict accordance with these plans.
 - 3.4.2. The Scantling "L" shall be taken as 20m
- 3.5. ISAF Racing Rules of Sailing
- 3.6. IRC
- 3.7. IMS

The boat shall conform to IMS Rules 2005, and IMS Regulations 2005 with the following modifications:

- 3.7.1. IMS Reg 203 is modified as follows: The maximum allowable cure temperature in association with honeycomb construction is 105° C.
- 3.7.2. IMS Rule 305.2 is modified such that a permanent backstay is required.
- 3.7.3. IMS Rules 203.7 and 305.2 is modified such that both the forestay length and backstay length may be adjusted
- 3.7.4. IMS Rule 305.e is modified such that running backstays in any form are prohibited
- 3.7.5. IMS Rule 813.3 is modified by deleting: "JR multiplied by 1.5 shall be added to LPG for the purpose of calculating the sail area."



3.7.6. IMS Reg Appendix 1B- Hull Skin Construction Limits Shall Apply

3.7.7. IMS Reg Part 3- Racer Division Accommodation shall apply

3.7.7.1. Accommodation 'L' shall be taken as 17.1 meters

3.7.7.2. Interior accommodations requirements are modified as in Paragraph 4.6, below.

4. BOX RULE REQUIREMENTS

4.1. Hull

The Hull surface shall not contain hollows except within the forward 6 meters. Hull sections shall not increase in depth with increasing beam. The sheer line shall have continuous curvature without inflections in both plan and profile between SFFP and SFAP, with a radius of greater than 25mm and less than 75mm in transverse section joining the hull and deck. Below the sheer radius limit, hull sections shall not increase in beam with increasing depth.

A bow sprit is permitted, and shall be measured as STL. It shall not counted as part of LOA.

4.2. Appendages

A maximum of one keel and one rudder is allowed. The maximum transverse width of the keel or rudder shall not exceed 800mm.

4.2.1. Keel

4.2.1.1. The keel shall be fixed and without any moveable surfaces. It may be made of a keel foil, and a bulb.

4.2.1.2. The keel shall not be capable of changing shape or symmetry.

4.2.1.3. A weed knife is allowed, which may only travel in the centerline vertical plane.



4.2.1.4. Materials.

The permitted materials for the keel foil are :

Steel

Stainless Steel

Cast Iron

Bronze

Fairing material

A weed knife system is permitted to be of materials not in above list.

The maximum UTS for any keel material allowed is 700 MPa

4.2.1.5. Bulb

The bulb is that part of the keel below -3.20 from flotation waterline

The material for the bulb shall not exceed a SG=11.3.

4.2.2. Rudder

4.2.2.1. The rudder's axis of rotation shall be in the center plane of the hull, and shall not be multi surfaced.

4.2.2.2. The rudder shall not be capable of changing shape or symmetry.

4.3. Ballast

Moveable ballast is not permitted

Water ballast is not permitted

4.4. Rig

The sail plan shall be a fractional sloop. A masthead spinnaker and masthead loose luffed genoa on a furler are permitted.



Shrouds and stays must terminate to the hull/deck structure, and not to outriggers. Chainplates shall not extend outside the hull more than 12mm.

There shall not be transverse rigging attached to the mast below 5 meters above FBI.

Curved spreaders are not permitted.

The mast must be keel stepped.

Standing rigging including backstays and forestays shall be made of a material with a tensile modulus not greater than 310 GPa. Standing rigging shall be circular in cross section within a tolerance of 10% on diameter.

One Permanently Installed Headstay, adjustable limit .305 m while sailing.

4.5. Water Tight Bulkhead

A Structural Watertight Bulkhead must be located at $X = 3.00\text{m} \pm 100\text{mm}$ aft from stem.

4.6. Interior

4.6.1. Berths

The minimum number of berths is 10

4.6.2. Headroom

In addition to IMS Reg 305, Headroom has additional requirements as follows:

There shall be two box volume below decks of the following dimensions. Deck frames, companionway steps, tables, and settees may intrude.

: **Box 1**



L1	4.5m
W1fwd	1.2
W1aft	2.0
H1	1.90

Box 1 may be interrupted by bulkheads and hull frames

Box 2

L2	3 m
W2fwd	1.4
W2aft	1.8
H2	1.90

Box 2 shall not be interrupted by bulkheads and hull frames

4.6.3. Head

An enclosed head shall consist of a volume enclosed by at least three partitions, at least one of which is longitudinal. Access shall be through a door.

4.6.3.1. There shall be a floor space of at least 5m^2 .

4.6.3.2. Partitions shall be rigid and of a weight not less than 2.1 kg/m^2

4.6.3.3. The head will have a rigid door not less than 2.1 kg/m^2

4.7. Propulsion

4.7.1. Permitted Engines

4.7.1.1. Volvo D-275/150S/MS25A (Sail Drive)

4.7.1.1.1. Specs

75 HP at 3000 RPM maximum rating



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2.19:1 reduction gear

4.7.1.1.2. Weight

Dry weight w/ gear and drive - 264 kg minimum

4.7.1.2. Yanmar 4JH-TE w/ Sail Drive SD50-T

4.7.1.2.1. Specs

75 HP at 3800 RPM maximum rating

2.32:1 reduction gear

4.7.1.2.2. Weight

Dry weight w/ gear and drive - 261 kg minimum

4.7.2. Powering speed of 9 knots

4.7.3. The propeller pin center shall not be less than 1.5x PRD aft of keel



5. BOX RULE REQUIREMENTS

5.1. Hull Dimensions and Weight

<u>Parameter</u>	<u>Min</u>	<u>Max</u>	
LOA		20.000	
BMAX	4.450	4.550	
DSPLW (kg)	14250	14650	Weighed boat empty
BWL	3.40	3.50	
Rmin	.60		Radius in transverse plane within 1.0 meter of BWL vertically and longitudinally
FFM	1.750		
FBIM	1.500		
FAM	1.350		
DM		4.000	
VCG	-1.450	-1.250	
PIPA (m ²)	.004		

5.2. Rig Dimensions

<u>Parameter</u>	<u>Min</u>	<u>Max</u>
I		24.500
J		7.500
P		25.000
E	8.75	9.000
BAS		2.200
SPL/STL		10.000
ISP		27.000



CPW 3.500 chainplate width minimum, V1 c-c

5.3. Mast and Rigging Dimensions and Weight

The mast dimensions MDT and MDL must be maintained below I
Hollows are not permitted.

	Min	max
MDT	.175	.200
MDL	.350	.400
Crane		.500 measured diagonally from the aft end of P to the aftermost point of the crane.
MWT (kg)	525	
MCG	9.75	

5.4. Out of Water Measurement

Hull and Measurements to be to the nearest .001m and 10kg

5.4.1. Location of Stations.

Stations shall be marked by brad heads in sheer, placed by measurer
Stations shall be located as follows:

- SFFP (fixed at) .300 m horizontal distance aft stem
- SFAP (fixed at) 18.000 m horizontal distance aft stem
- SFBI (measured) Horizontal distance to mast's aft face from stem.
- SDM (measured) Horizontal distance -maximum depth aft of stem
- SBMAX (measured) Horizontal distance - maximum beam aft of stem.



5.4.2. Hull Measurements

LOA

BMAX

FFS set 1.750 vertical distance to measurement datum

FAS set 1.350 vertical distance to measurement datum

FBIS vertical distance to measurement datum

DMS DM measured to datum at SDM

Rmin check

Check Hull for compliance to section 3 and section 4 requirements

Check Sheer Radius

Hull Wandering – with Class Designated Instrument

PIPA – Propeller and strut measurements (per IMS)

DSPLW -Weighed Boat Empty on certified scale with increments of 10kg

5.5. In Water Measurement

FFM

FBIM

FAM

BWL

Inclination as per IMS. ST65 Class shall have standard ST 65 Class weights and a Class Designated Instrument

5.6. Calculated Measurements

$$5.6.1. DM=(FFS-FFM+DMS-(FAM-(FAS-FFA-FAM))*(SDM-.3)/17.7$$



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5.6.2. VCG calculation from Wandering and Inclination input to Rating
Authority as per ST 65 Class By-Laws



6. SAILS

Parameter	Min	max
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6.1. Mainsail Dimensions

HB .36 m

MGT 2.25 m

MSA= 136.7 m²

$$MSA = P/4 * (E + MGL) / 2 + P/4 * (MGL + MGM) / 2 + P/4 * (MGM + MGU) / 2 + P/8 * (MGU + MGT) / 2 + P/8 * (MGT + HB) / 2$$

6.2. Jibs

LP 7.74 m

¼ Girth 2.30 m

Mid Girth 3.87 m

6.3. Masthead Jib

One Loose Luffed Masthead Jib on Furler is permitted. This sail may be flown from only the STL position of the bowsprit. Battens or their equivalents are not permitted. Positive roach is not allowed.

LL 28.00 m

LP 10.3 m

¼ Girth 2.58 m

Mid Girth 5.15 m

¾ Girth 7.73 m

6.4. Spinnakers

Spinnaker Area 380 m² Maximum

SMG



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SF

SLU

SLE

$$SA = (SLU + SLE) * SF / 4 + (SMG - SF / 2) * (SLU + SLE) / 3$$



7. Index of Terms

Abbreviation	Term	ST65 sec.	Governing Rule
¼ Girth	Jib ¼ Girth	6.2	IMS
¾ Girth	Jib ¾ Girth	6.3	IMS
BAS	Boom Above Sheer	5.2	ST65
BMAX	Beam Max	5.1	IMS
BWL	Beam Waterline	5.1	ST65
CPW	Chain Plate Width	5.2	ST65
Crane	Length of Crane	5.2	ST65
DM	Draft Max	5.2	ST65 (calc)
DMS	Draft Max to Datum	5.4.2	ST65
DSPLW	Weight Empty	5.1	ST65
E	Foot of Mainsail	5.2	IRC
FAM	Freeboard Aft Measured	5.1	ST65/IMS
FAS	Freeboard Aft to Datum	5.4.2	ST65
FBIM	Freeboard at 'I' Meas.	5.2	ST65
FBIS	Freeboard at 'I' to Datum	5.4.2	ST65
FFM	Freeboard Fwd Measured	5.1	ST65/IMS
FFS	Freeboard Fwd to Datum	5.4.2	ST65
H1	Headroom Height box 1	4.6.2	ST65
H2	Headroom Height box 2	4.6.2	ST65
HB	Mainsail Headboard	6.1	IRC
I	Foretriangle Height	5.2	IMS
ISP	Spinnaker hoist	5.2	IMS
J	J	5.2	IRC
LOA	Length Overall	5.1	IRC
'L'-Scantling	ABS Length	3.4.2	ABS
'L'-Accommodation	Accommodation Length	3.7.7.1	IMS
L1	Headroom Length box 1	4.6.2	ST65
L2	Headroom Length box 2	4.6.2	ST65
LL	Luff Length	6.3	IRC
LP	Length Perpindicular	6.2	IRC
MCG	Mast Center of Gravity	5.3	IMS
MDL	Mast fore and aft dim.	5.3	IMS
MDT	Mast transverse dim.	5.3	IMS
Mid Girth	Jib ½ Girth	6.3	IMS
MGL	Mainsail Lower Girth	6.1	IMS
MGM (MHW)	Mainsail Mid Girth	6.1	IMS (IRC)
MGT (MUW)	Mainsail Top Girth	6.1	IMS (IRC)
MGU (MTW)	Mainsail Upper Girth	6.1	IMS (IRC)
MSA	Mainsail Area	6.1	ST65 calc
MWT	Mast Weight	5.3	IMS
P	Mainasail hoist	5.2	IRC



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PIPA	Prop Installation Proj Area	5.1	IMS calc
Rmin	Radius of curvature BWL	5.1	ST65
SA	Spinnaker Area	6.4	ST65 calc
SBMAX	Station at Bmax	5.4.1	ST65
SDM	Station at Draft Max	5.4.1	ST65
SF	Spinnaker Mid Girth	6.4	IRC
SFAP	Station at FAS	5.4.1	ST65
SFBI	Station at FBI	5.4.1	ST65
SFFP	Station at FAS	5.4.1	ST65
SLU	Spinnaker Mid Girth	6.4	IRC
SLE	Spinnaker Mid Girth	6.4	IRC
SMG	Spinnaker Mid Girth	6.4	IRC
SPL/STL	Pole Length/ Tack Point	5.2	IRC
VCG	Vertical Center of Gravity	5.1	IMS calc
W1aft	Headr'm aft Width box 1	4.6.2	ST65
W1fwd	Headr'm fwd Width box 1	4.6.2	ST65
W2aft	Headr'm aft Width box 2	4.6.2	ST65
W2fwd	Headr'm fwd Width box 2	4.6.2	ST65