

APH ToD: **535.8** CDL: **10.629**

APH ToT: **1.1198** CertNo: **PER18**

BOAT

Class **F45F5**
Designer **Farr**
Builder **Beneteau**
Age date **01/1992**
Series date **01/1989**
Offset file **First45F5.off**
Data file **PER2000**

HULL

Length Overall **13.720 m**
Maximum Beam **4.234 m**
Draft **2.197 m**
Displacement **10,897 kg**
DLR **7.3633**
IMS Division **Cruiser/Racer**
Dynamic Allowance **0.370%**
Age Allowance **0.487%**

PROPELLER

Installation **Shaft exposed**
Type **Feathering 3 blades**
Diameter **0.464m**

CREW

Maximum weight **700 kg** (declared)
Minimum weight **570 kg** *when applied
Non Manual Power **No**
Crew Arm Extension

SAIL AREAS (m²)

	Measured	Rated
Mainsail	48.62	49.52
Headsail Luffed	48.25	48.25
Headsail Flying		
Symmetric	112.72	112.72
Asymmetric	109.52	109.52

(All asymmetric spinnakers with SHW/SFL > 85%)

STORM SAIL AREAS (m²)

Trysail **14.14**
Storm Jib **13.52**
Heavy Weather Jib **36.48**

SAIL LIMITS

Headsails **6**
Spinnakers **5** * Asymmetric may be tacked on the pole

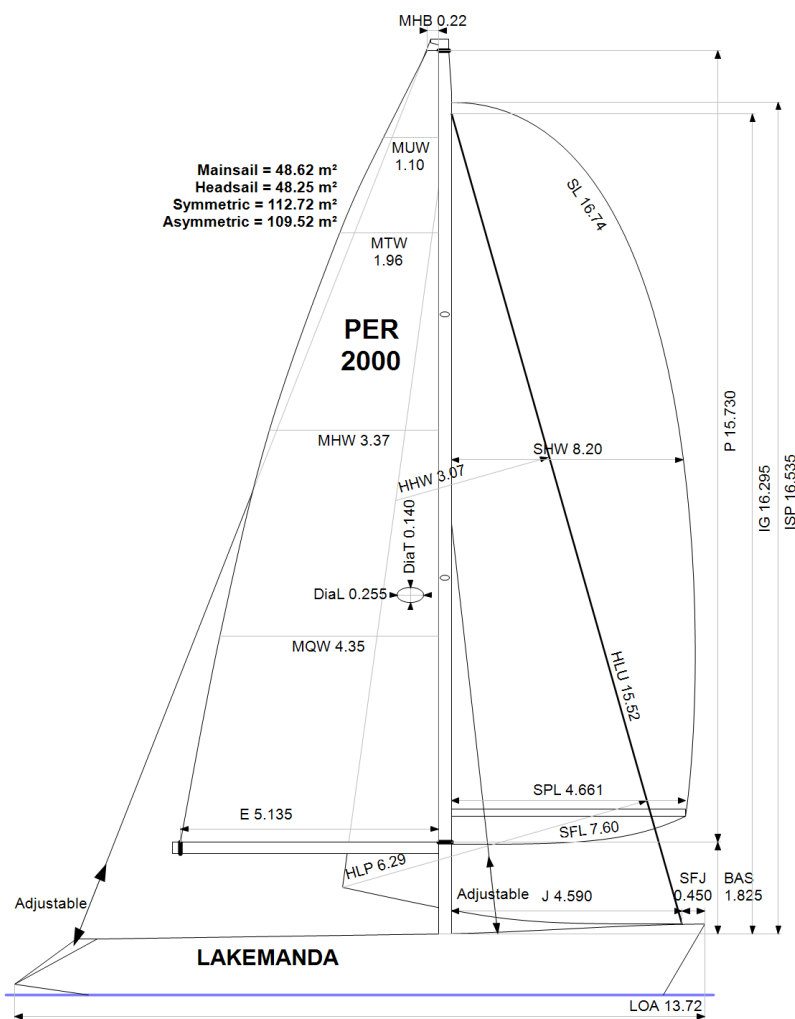
STABILITY

Righting Moment **260.9 kg·m**
Stability Index **115.3**

COMMENTS

NUEVO ARMADOR MEDICION FLOTACION Y ESTABILIDAD

The owner and any other person in charge is responsible that boat is complying with her certificate in accordance with RRS 78.1 and ORC Rule 304.



Rated boat velocities in knots

Wind Velocity	6 kt	8 kt	10 kt	12 kt	14 kt	16 kt	20 kt	24 kt
Beat Angles	44.5°	42.3°	40.7°	39.7°	38.9°	38.5°	38.3°	39.4°
Beat VMG	3.48	4.29	4.87	5.26	5.45	5.56	5.64	5.61
52°	5.38	6.43	7.15	7.55	7.77	7.87	7.97	7.99
60°	5.70	6.73	7.39	7.76	7.97	8.09	8.20	8.24
75°	5.91	6.93	7.56	7.93	8.17	8.35	8.55	8.66
90°	5.77	6.87	7.63	8.03	8.28	8.45	8.81	9.05
110°	5.71	6.96	7.75	8.20	8.52	8.81	9.28	9.59
120°	5.51	6.76	7.62	8.13	8.49	8.82	9.47	10.13
135°	4.91	6.14	7.12	7.79	8.22	8.58	9.29	10.10
150°	4.10	5.26	6.26	7.12	7.74	8.16	8.84	9.56
Run VMG	3.55	4.56	5.43	6.21	6.88	7.47	8.29	8.92
Gybe Angles	142.7°	146.7°	151.0°	154.6°	161.0°	173.6°	178.8°	178.8°



International
Certificate
2024

Boat
LAKEMANDA
PER-2000

Certificate
Copy
ORC
Sailor Services



Time Allowances in secs/NM								
Wind Velocity	6 kt	8 kt	10 kt	12 kt	14 kt	16 kt	20 kt	24 kt
Beat VMG	1034.4	840.0	738.8	684.5	660.3	647.9	638.8	641.6
52°	669.5	559.5	503.4	476.5	463.4	457.3	451.9	450.6
60°	632.0	535.1	487.2	464.0	451.7	444.9	439.1	436.8
75°	609.4	519.5	475.9	453.9	440.6	431.4	420.8	415.7
90°	623.5	523.9	472.1	448.1	434.7	425.9	408.7	397.6
110°	630.2	517.0	464.6	439.3	422.3	408.6	388.1	375.4
120°	653.3	532.5	472.3	442.9	423.9	408.1	380.0	355.3
135°	733.8	586.1	505.6	462.4	438.0	419.8	387.6	356.4
150°	878.2	684.1	574.7	505.3	465.0	441.1	407.3	376.7
Run VMG	1014.0	789.9	663.2	579.8	523.3	482.0	434.4	403.5
Selected Courses								
Windward / Leeward	1024.2	815.0	701.0	632.2	591.8	564.9	536.6	522.6
All purpose	782.3	634.5	556.8	513.6	489.0	473.2	453.3	440.5

Single Number Scoring Options		
Course	Time On Distance	Time On Time
Windward / Leeward	664.2	0.9033
All purpose	535.8	1.1198



Data in meters/kilograms (Metric)

HULL AND APPENDAGES (Lightship Trim)

Class	F45F5	LOA	13.720	VCGD	0.058
Measurement	27/12/2014	Max. Beam	4.234	VCGM	0.112
HIN		Draft	2.197	RM Rated (kg-m)	260.9
Plan review		Displacement	10,897	Limit of positive stability(°)	110.4
Hull construction	Solid	Wetted area	37.07	Stability Index	115.3
Carbon Rudder	No	IMS L	11.742	Default crew weight	829
Light stanchions	No	LSM0	11.395	Declared crew weight	700
Trim tab	No	Acc. length	13.720		
		Sink (kg/mm)	28.01		

PROPELLER

Propeller Type	Feathering 3 blades										
Installation	Shaft exposed	PRD	0.464	PSD	0.033	PSA	19.0°	ST1	0.015	ST4	0.057
Twin screw	No	PBW	0.155	PHD	0.100	ESL	1.220	ST2	0.093	ST5	0.218
Hydro generator	No	PIPA	0.0091	PHL	0.085			ST3	0.093		

RIG

Forestay tension	Aft	P	15.730	E	5.135
Inner stay	Adjustable	IG	16.295	J	4.590
Mast material	Aluminum	ISP	16.535	BAS	1.825
Single headsail furler	No	MDT1	0.140	FSD	0.043
Mainsail furler	No	MDL1	0.255	SFJ	0.450
Articulated bowsprit	No	MDT2	0.140	SPL	4.661
Non-circular rigging	No	MDL2	0.205	WPL	
Fiber rigging	No	TL	0.840	TPS	
Adjustable mast foot	No	MW	0.245	BD	0.230
Runners/Checkstays	0	GO	0.285	MWT	
Spreaders	2			MCG	
Rotating mast	No				

FLOTATION AND STABILITY

Calculation method	Poles inclining	SFFP	0.650	SAFP	12.088	W1	130.0	PD1	472.5	WD	11.910
Flotation Date	13/06/2017	FFM	1.395	FAM	1.117	W2	130.0	PD2	469.5	PLM	9000.00
		FF	1.395	FA	1.117	W3	130.0	PD3	463.2	GSA	1.0
		LCFcl	7.325	LCFsh	7.624	W4	130.0	PD4	466.6	RSA	1.0
		SG	1.0253	HBI	1.214					RM	260.6



MAINSAIL

<i>Id</i>	<i>MHB</i>	<i>MUW</i>	<i>MTW</i>	<i>MHW</i>	<i>MQW</i>	<i>Area</i>	<i>Meas.Date</i>	<i>Comment</i>
M1-24	0.22	1.10	1.96	3.37	4.35	48.62	14/10/2024	REMEDIACION
M2-24	0.15	1.01	1.84	3.19	4.23	46.84	14/10/2024	NUEVA

HEADSAIL

<i>Id</i>	<i>HHB</i>	<i>HUW</i>	<i>HTW</i>	<i>HHW</i>	<i>HQW</i>	<i>HLP</i>	<i>HLU</i>	<i>Btn</i>	<i>Flying FT</i>	<i>Area</i>	<i>Meas.Date</i>	<i>Comment</i>
LM23	0.09	0.78	1.51	3.07	4.66	6.29	15.52	No	No	48.25	14/10/2024	
G1-24	0.09	0.68	1.32	2.72	4.27	5.89	15.86	No	No	44.95	14/10/2024	
INNER	0.07	0.52	1.00	1.94	2.85	3.76	11.86	No	Inner	22.77	20/06/2023	

SYMMETRIC SPINNAKER

<i>Id</i>	<i>SLU</i>	<i>SLE</i>	<i>SL</i>	<i>SHW</i>	<i>SFL</i>	<i>Area</i>	<i>Meas.Date</i>	<i>Comment</i>
S1-24	16.74	16.74	16.74	8.20	7.60	112.72	14/10/2024	BLANCO
S1.5 B	16.58	16.58	16.58	8.20	7.63	111.72	14/10/2024	BLANCO
S1	15.48	15.36	15.42	7.15	7.79	93.52	14/10/2024	ROJO

ASYMMETRIC SPINNAKER

<i>Id</i>	<i>SLU</i>	<i>SLE</i>	<i>SL</i>	<i>SHW</i>	<i>SFL</i>	<i>Ratio</i>	<i>Area</i>	<i>Meas.Date</i>	<i>Comment</i>
A1.5	16.70	13.82	15.26	8.54	8.90	96%	109.52	27/05/2024	
A2-20	17.32	15.13	16.23	7.68	8.02	96%	104.76	27/05/2024	

CRUISER/RACER REQUIREMENTS*

Accommodation length	13.7 m	Table area	0.66 m²	Headroom	1.88 m
Minimum number of berths	6	Personal gear stowage	0.24 m³	Fresh water capacity	231 l
Minimum number of seats in cockpit	6	Food stowage	0.36 m³	Fuel capacity	124 l

* This list refers to the calculated requirements. See IMS Appendix 1 for the complete list of requirements.