

BOAT	GPH	HULL
Name SWAN 45 ONE DESIGN Sail Nr SW45 1234	532.9	Length Overall 13.829m Maximum Beam 3.888m Displacement 9 850kg Draft 2.834m Plan Review IMS Reg. Division Cruiser/Racer Dynamic Allowance 0.000% Hull Construction Cored Carbon Rudder Yes Crew Arm Extension
GENERAL		IMSL 12.631m VCGD -0.293m Sink 26.78kg/mm RL 11.656m VCGM -0.348m WS 36.62m² LSMO 12.420m Displacement/Length ratio 5.1413
Class SWAN 45 OD Designer FRERS Builder NAUTOR Series 11/2001 Age 11/2001 Age Allowance 0.487% Offset File swan45.od - 10/01/2020 00:00:00 Measurement by - 26/04/2013		



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2020 (Test)
ORC International
One Design Certificate

Rating Office

SCORING OPTIONS						
	COASTAL / LONG DISTANCE			WINDWARD / LEEWARD		
Time on Distance	520.5			580.0		
Time on Time	1.1527			1.1639		
Triple Number	Low	Medium	High	Low	Medium	High
Time on Distance	596.9	476.6	428.1	770.5	584.2	510.7
Time on Time	1.1308	1.4163	1.5769	0.8760	1.1555	1.3216

TIME ALLOWANCES							
Wind Velocity	6 kt	8 kt	10 kt	12 kt	14 kt	16 kt	20 kt
Beat VMG	848.5	708.9	645.1	618.5	605.6	593.9	582.3
52°	561.1	479.0	450.2	439.9	434.7	431.7	423.6
60°	531.7	462.5	439.0	428.8	423.3	420.0	411.9
75°	509.0	451.7	429.8	416.1	406.3	400.2	393.6
90°	512.0	451.9	428.0	411.5	396.5	383.5	367.9
110°	533.8	452.5	422.6	404.5	391.8	379.5	357.8
120°	550.9	460.2	426.8	403.8	381.3	366.3	343.6
135°	614.7	499.9	445.5	420.2	397.2	373.0	325.5
150°	732.5	588.0	498.8	448.6	423.0	401.4	356.2
Run VMG	845.9	679.0	576.0	511.9	469.8	436.9	394.0

Selected Courses							
Windward / Leeward	847.2	693.9	610.6	565.2	537.7	515.4	488.1
Circular Random	721.4	588.0	517.9	477.9	452.9	435.6	411.2
Coastal / Long Distance	847.0	653.3	552.8	495.7	464.0	437.5	395.7
Non Spinnaker	778.6	628.4	547.7	500.4	470.7	450.7	424.2

Velocity Prediction in Knots for True Wind Speeds							
Wind Velocity	6 kt	8 kt	10 kt	12 kt	14 kt	16 kt	20 kt
Beat Angles	42.0°	40.5°	39.4°	37.9°	37.3°	36.8°	36.8°
Beat VMG	4.24	5.08	5.58	5.82	5.94	6.06	6.18
52°	6.42	7.51	8.00	8.18	8.28	8.34	8.50
60°	6.77	7.78	8.20	8.39	8.50	8.57	8.74
75°	7.07	7.97	8.38	8.65	8.86	9.00	9.15
90°	7.03	7.97	8.41	8.75	9.08	9.39	9.78
110°	6.74	7.96	8.52	8.90	9.19	9.49	10.06
120°	6.53	7.82	8.44	8.91	9.44	9.83	10.48
135°	5.86	7.20	8.08	8.57	9.06	9.65	11.06
150°	4.91	6.12	7.22	8.03	8.51	8.97	10.11
Run VMG	4.26	5.30	6.25	7.03	7.66	8.24	9.14
Gybe Angles	143.0°	146.0°	149.5°	155.8°	167.0°	180.0°	180.0°

Certificate
Number **SWAN45**
ORC Ref **N/A**
Issued On **10/01/2020**
VPP Ver. **2020 1.00**
Invalid for Racing

Crew Weight
Default 938kg
Maximum **950kg**
Minimum* **713kg**
**when applied by the NoR and SI*
Non Manual Pwr **No**

Special Scoring
ToD ToT
Non Spin GPH **564.4** **1.0631**
Non Spin OSN **551.7** **1.0876**

Sails Limitations
Headsails **7** Spinnakers **5**

Class Division Length
CDL = **12.139**

Storm Sails Areas
Heavy Weather Jib **48.01**
Storm Jib (JL=12.26) **17.78**
Storm Trysail **21.75**

Owner

I certify that I understand my responsibilities under ORC Rules and Regulations

Signature

BOAT Name SWAN 45 ONE Sail Nr SW45 1234 File Swan45 Data in meters/kilograms		INCLINING TEST AND FREEBOARDS Inclining Test Current Inclining Flotation date 26/04/2013 SG 1.0230 FFM 1.489 FF 1.490 SFFP 0.295 FAM 1.188 FA 1.189 SAFF 13.301 W1 103.0 PD1 427.0 WD 14.100 W2 103.0 PD2 427.0 GSA 1.0 W3 103.0 PD3 427.0 RSA 1.0 W4 103.0 PD4 427.0 PLM 9000.0 LCF from stem on CL / on sheer 7.686 / 7.918 Maximum beam station from stem 8.935 RM Measured 267.8kg·m RM Default 271.8kg·m Limit of positive stability / Stab.Index 135.8° / 142.7 Freeboard at mast at 5.435 1.267																																																							
RIG Forestay Tension Aft Spreaders 2 Inner Stay None Fitted Runners/Checkstays 0 Carbon Mast Yes Jib Furler No Fiber Rigging No Main Furler No Non-Circular Rigging No Articulated Bowsprit No P 18.660 E 6.660 MDT1 0.133 MW 0.260 IG 18.735 J 5.400 MDL1 0.272 GO 0.295 ISP 20.765 SFJ 0.035 MDT2 0.106 BD 0.303 BAS 1.860 SPL 5.440 MDL2 0.142 MWT 285.00 FSD 0.035 TPS TL 1.500 MCG 6.800		MIZZEN RIG AND SAILS <div style="text-align: center;">N/A</div>																																																							
COMMENTS VALID ONLY IN CONJUNCTION WITH SWAN 45 CLASS CERTIFICATE		PROPELLER Installation Strut PRD 0.425 Type Folding 2 blades PBW 0.108 Twin Screw No PIPA 0.0033 ST1 0.048 ST3 0.170 ST5 0.330 ST2 0.170 ST4 0.098 EDL 2.770																																																							
		MOVABLE BALLAST <div style="text-align: center;">N/A</div>																																																							
		CENTERBOARD <div style="text-align: center;">N/A</div>																																																							
SAILS (Maximum Areas) <table border="1"> <thead> <tr> <th>Mainsail</th> <th>MHB</th> <th>MUW</th> <th>MTW</th> <th>MHW</th> <th>MQW</th> <th>Area</th> <th>Area (r)</th> <th>Formula</th> </tr> </thead> <tbody> <tr> <td></td> <td>0.27</td> <td>1.67</td> <td>2.80</td> <td>4.53</td> <td>5.70</td> <td>77.26</td> <td>79.37</td> <td>$P/8 \cdot (E + 2 \cdot MQW + 2 \cdot MHW + 1.5 \cdot MTW + MUW + 0.5 \cdot MHB)$</td> </tr> <tr> <td>Symmetric</td> <td>SLU</td> <td>SLE</td> <td>SL</td> <td>SHW</td> <td>SFL</td> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td>18.70</td> <td>18.70</td> <td>18.70</td> <td>9.85</td> <td>9.80</td> <td>153.34</td> <td></td> <td>$SL \cdot (SFL + 4 \cdot SHW) / 6$</td> </tr> <tr> <td>Asymmetric</td> <td>SLU</td> <td>SLE</td> <td>SL</td> <td>SHW</td> <td>SFL</td> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td>18.74</td> <td>18.74</td> <td>18.74</td> <td>9.86</td> <td>9.87</td> <td>154.01</td> <td></td> <td>$AS \cdot (SFL + 4 \cdot SHW) / 6$</td> </tr> </tbody> </table>				Mainsail	MHB	MUW	MTW	MHW	MQW	Area	Area (r)	Formula		0.27	1.67	2.80	4.53	5.70	77.26	79.37	$P/8 \cdot (E + 2 \cdot MQW + 2 \cdot MHW + 1.5 \cdot MTW + MUW + 0.5 \cdot MHB)$	Symmetric	SLU	SLE	SL	SHW	SFL					18.70	18.70	18.70	9.85	9.80	153.34		$SL \cdot (SFL + 4 \cdot SHW) / 6$	Asymmetric	SLU	SLE	SL	SHW	SFL					18.74	18.74	18.74	9.86	9.87	154.01		$AS \cdot (SFL + 4 \cdot SHW) / 6$
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2020
IMS Measurement Certificate

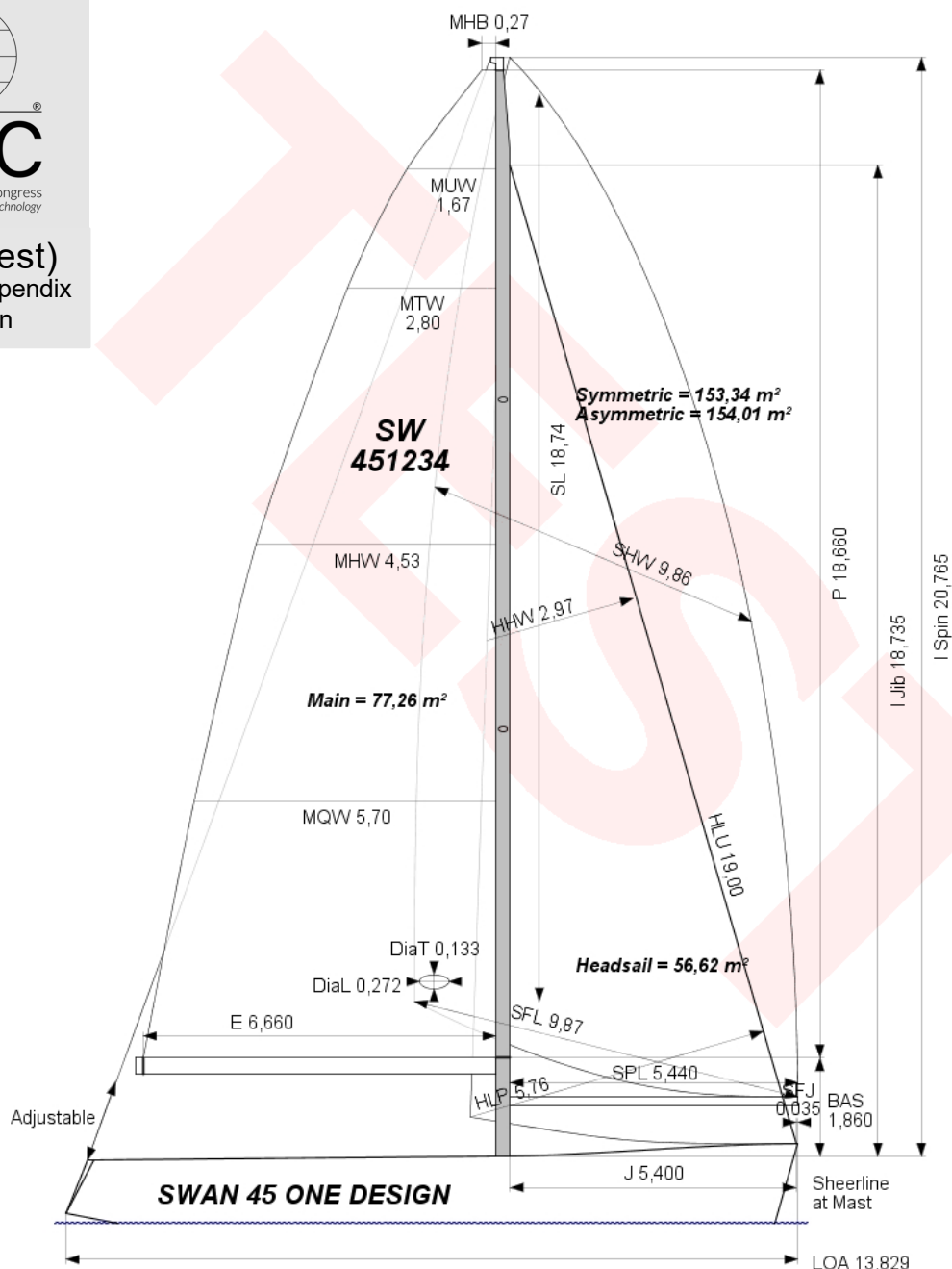
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Certificate Appendix
Sail Plan**



SAILS INVENTORY

MAINSAIL (1)

Id	MHB	MUW	MTW	MHW	MQW	Area	Measurer	Meas.Date	Manufacture	Material	Comment
ORC	0,27	1,67	2,80	4,53	5,70	77,27	ACC. CLASS				ONE DESIGN

HEADSAILS (1)

Id	HHB	HUW	HTW	HHW	HQW	HLP	HLU	Ovrlp	Area	Btn	Flying	Measurer	Meas.Date	Manufacture	Material	Comment
ORC	0,15	0,92	1,62	2,97	4,40	5,76	19,00	107%	56,62	Y	No	ACC.				ONE DESIGN

SYMMETRIC SPINNAKERS (1)

Id	SLU	SLE	SL	SHW	SFL	Area	Measurer	Meas.Date	Manufacture	Material	Comment
ORC	18,70	18,70	18,70	9,85	9,80	153,34	ACC. CLASS				ONE DESIGN

ASYMMETRIC SPINNAKERS (1)

Id	SLU	SLE	SL	SHW	SFL	Area	Kind	Measurer	Meas.Date	Manufacture	Material	Comment
ORC	18,74	18,74	18,74	9,86	9,87	154,02	asym	ACC. CLASS				ONE DESIGN