

BOAT Name SUGAR Sail Nr GRE-400	GPH 596.4	HULL Length Overall 12.190m Maximum Beam 3.764m Displacement 7,392kg Draft 2.371m IMS Reg. Division Cruiser/Racer Dynamic Allowance 0.139% Fwd Accommodation Yes Hull Construction Cored Carbon Rudder No Crew Arm Extension
GENERAL Class X-40 SPORT Designer JEPESEN Builder X-YACHTS Series 04/2004 Age 10/2005 Age Allowance 0.487% Offset File X40HK.OFF - 14/09/2005 12:36:44 Measurement by - 17/06/2010		IMSL 10.886m VCGD 0.038m Sink 22.69kg/mm RL 9.371m VCGM 0.050m WS 30.75m² LSM0 10.839m Displacement/Length ratio 5.8049



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SCORING OPTIONS						
	COASTAL / LONG DISTANCE			WINDWARD / LEEWARD		
Time on Distance	579.9			648.6		
Time on Time	1.0347			1.0406		
Triple Number	Low	Medium	High	Low	Medium	High
Time on Distance	683.5	527.8	472.8	884.0	651.5	566.7
Time on Time	0.9876	1.2790	1.4277	0.7636	1.0361	1.1912

TIME ALLOWANCES							
Wind Velocity	6 kt	8 kt	10 kt	12 kt	14 kt	16 kt	20 kt
Beat VMG	997.1	823.3	729.1	689.8	675.6	670.8	657.3
52°	654.1	550.1	498.3	479.9	473.6	470.8	463.9
60°	618.6	525.1	483.6	467.1	460.4	457.0	451.9
75°	591.2	507.6	473.2	455.6	443.9	436.8	431.1
90°	597.1	509.0	469.8	453.1	437.4	423.4	404.8
110°	608.0	503.3	462.3	439.5	421.9	410.6	392.9
120°	626.8	514.9	467.7	442.6	419.7	398.9	375.0
135°	697.1	564.8	492.4	459.8	436.8	413.7	369.9
150°	828.4	657.3	555.2	492.6	461.5	439.7	397.0
Run VMG	956.6	759.0	640.9	563.4	511.1	473.3	429.5

Certificate
Number **000691**
ORC Ref **GRE01015905**
Issued On **20/06/2019**
VPP Ver. **2019 1.01**
Valid until **28/02/2020**

Crew Weight
Default **772kg**
Maximum **720kg**
Minimum* **540kg**
**when applied by the NoR and SI*
Non Manual Pwr **No**

Special Scoring
ToD ToT
Double H.GPH **605.1 0.9916**
Double H.OSN **589.9 1.0171**
Non Spin GPH **627.0 0.9569**
Non Spin OSN **609.0 0.9852**

Selected Courses							
Windward / Leeward	976.8	791.2	685.0	626.6	593.4	572.1	543.4
Circular Random	820.8	662.7	578.4	530.0	500.7	481.4	456.3
Coastal / Long Distance	974.8	743.2	617.3	547.1	510.7	482.1	436.1
Non Spinnaker	876.7	701.9	607.3	552.0	518.0	495.6	466.5

Sails Limitations
Headsails **6** Spinnakers **4**

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	42.7°	41.1°	40.4°	39.5°	39.0°	39.0°	39.3°
Beat VMG	3.61	4.37	4.94	5.22	5.33	5.37	5.48
52°	5.50	6.54	7.23	7.50	7.60	7.65	7.76
60°	5.82	6.86	7.44	7.71	7.82	7.88	7.97
75°	6.09	7.09	7.61	7.90	8.11	8.24	8.35
90°	6.03	7.07	7.66	7.95	8.23	8.50	8.89
110°	5.92	7.15	7.79	8.19	8.53	8.77	9.16
120°	5.74	6.99	7.70	8.13	8.58	9.03	9.60
135°	5.16	6.37	7.31	7.83	8.24	8.70	9.73
150°	4.35	5.48	6.48	7.31	7.80	8.19	9.07
Run VMG	3.76	4.74	5.62	6.39	7.04	7.61	8.38
Gybe Angles	144.1°	148.5°	150.7°	155.6°	170.2°	180.0°	180.0°

Class Division Length
CDL = **10.130**

Storm Sails Areas
Heavy Weather Jib **36.98**
Storm Jib (JL=10.76) **13.70**
Storm Trysail **15.35**

Owner

BOAT	
Name SUGAR	Sail Nr GRE-400
File GR400	Data in meters/kilograms

RIG	
Forestay Tension Aft	Spreaders 3
Inner Stay None Fitted	Runners 0
Carbon Mast No	Jumper Struts None
Taper Hollows No	Jib Furler No
Fiber Rigging No	Main Furler No
Lenticular Rigging No	Without Backstay No
Articulated Bowsprit No	
P 15.700	E 5.585 MDT1 0.188 MW 0.221
IG 16.417	J 4.390 MDL1 0.221 GO 0.256
ISP 16.447	SFJ 0.230 MDT2 0.114 BD 0.250
BAS 1.807	SPL 4.390 MDL2 0.124 MWT 251.00
FSP 0.074	TPS TL 0.860 MCG 5.070

INCLINING TEST AND FREEBOARDS			
Inclining Test Current Inclining			
Flotation date 31/01/2013		SG 1.0250	
FFM 1.486	FF 1.485	SFFP 0.280	
FAM 1.130	FA 1.131	SAFP 11.610	
W1 114.0	PD1 584.7	WD 10.980	
W2 114.0	PD2 587.4	GSA 1.0	
W3 114.0	PD3 583.6	RSA 1.0	
W4 114.0	PD4 585.1	PLM 9000.0	
LCF from stem on CL / on sheer		6.836 / 7.065	
Maximum beam station from stem		8.019	
RM Measured		168.4kg-m	
RM Default		189.8kg-m	
Limit of positive stability / Stab.Index		117.8° / 121.3	
Freeboard at mast at 4.620		1.264	



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MIZZEN RIG AND SAILS	
N/A	

PROPELLER			
Installation Strut	PRD 0.440		
Type Folding 2 blades	PBW		
Twin Screw No	PIPA 0.0029		
ST1 0.043	ST3 0.170	ST5 0.280	
ST2 0.170	ST4 0.094	EDL 2.740	

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COMMENTS	

MOVABLE BALLAST	
N/A	

CENTERBOARD	
N/A	



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SAILS (Maximum Areas)									
Mainsail	MHB	MUW	MTW	MHW	MQW	Area	Area (r)	Formula	
	0.210	1.11	1.98	3.44	4.56	50.57	51.44	P/8 · (E + 2·MQW + 2·MHW + 1.5·MTW + MUW + 0.5·MHB)	
Symmetric	SLU	SLE	SL	SHW	SFL				
	16.16	16.16	16.16	7.88	7.78	105.85	SL · (SFL + 4·SHW) / 6		
Asymmetric									
Not Available									

HEADSAILS												
Area = 0.1125·HLU · (1.445·HLP + 2·HQW + 2·HHW + 1.5·HTW + HUW + 0.5·HHB)												
HHB	HUW	HTW	HHW	HQW	HLP	HLU	Area	Btn	Fly	Meas.Date	Material	Comment
0.13	0.77	1.40	2.46	3.49	4.55	15.80	38.06			20/08/2013	Carbon	BLACK KEVLAR
0.05	0.64	1.24	2.36	3.44	4.53	16.10	37.44			21/03/2009	Kevlar	
0.10	0.63	1.23	2.26	3.32	4.49	15.91	36.11			30/03/2012	Kevlar	Heavy
0.10	0.56	1.06	2.08	3.16	4.22	15.63	33.02			02/07/2010	Unknow	3DL

MEASUREMENT INVENTORY				
Measurer GRE-33				
Date 31/01/2013				
Comment				
Id	Item	Weight	Distance	VCG Description
Id	Item	Maker	Model	
6	Engine	YANMAR 40	YANMAR 40	
Id	Item	Weight Description		

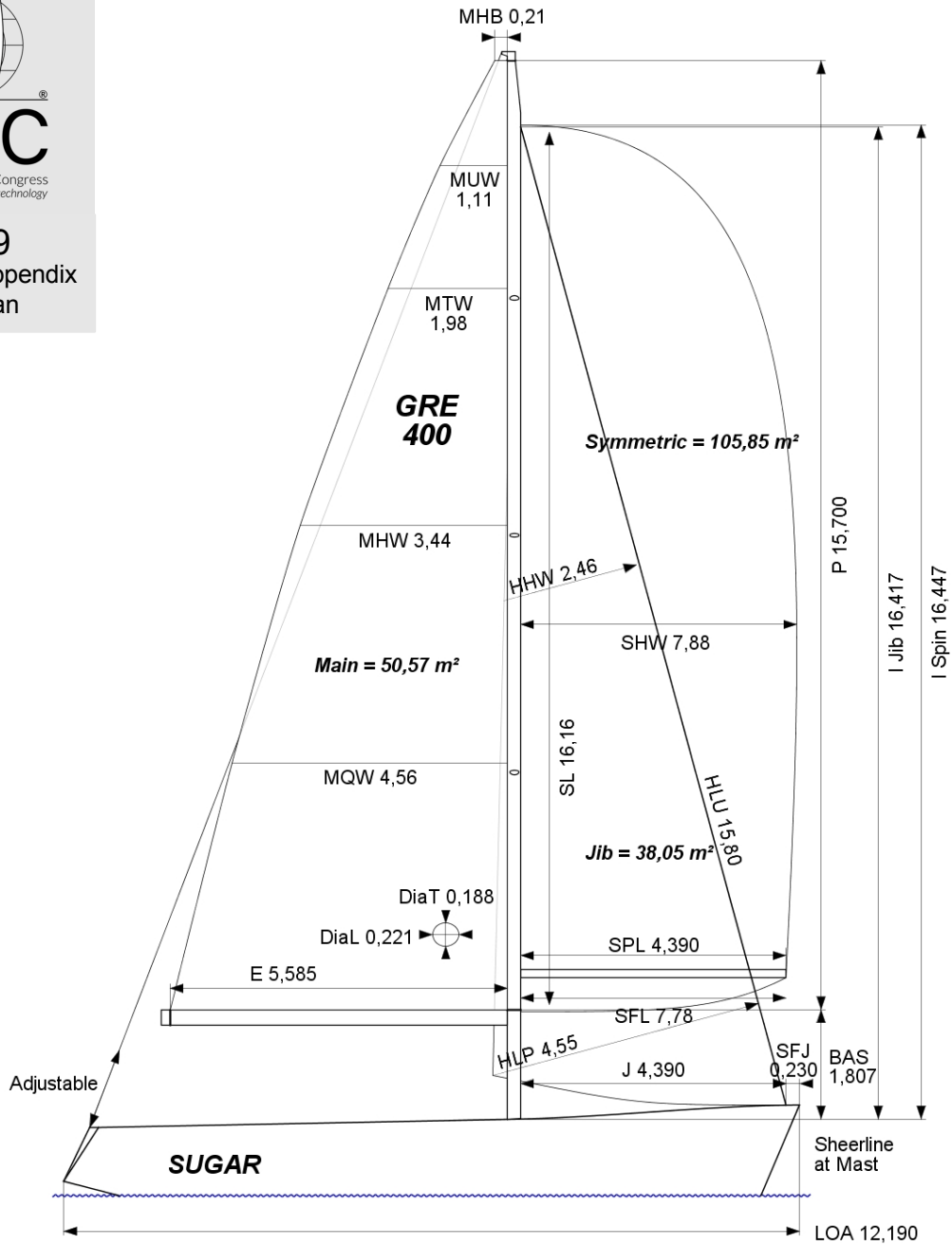
MEASUREMENT INVENTORY							
Id	Item	Tank Use	Tank Type	Capcty	Dist.	VCG	Condtn Description
7a	Tank	WATER	PVC	160.0	5.79		0-0 EMPTY
7b	Tank	FUEL	SOLID	80.0	9.39		10-0
Id	Item	Weight	Distance	VCG Description			
4a	Battery	35.0	4.99	120 Ah			
4b	Battery	35.0	4.49	120 Ah			
4c	Battery	12.0	6.19	40 Ah			
8a	Misc	20.0	11.22	HEATER BOILER			
8b	Misc	25.0	9.79	BOILER 18 Ltr			
8c	Misc	5.0	6.39	INSTRUMENTS CHARGER			



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Sail Plan



SAILS INVENTORY

MAINSAIL (2)

Id	MHB	MUW	MTW	MHW	MQW	Area	Measurer	Meas.Date	Manufacture	Material	Comment
M1	0.21	1.11	1.98	3.44	4.56	50.58		02/07/2010	NORTH	Unknown	3DL
M2	0.21	1.13	1.98	3.42	4.54	50.46		29/03/2009	NORTH	Kevlar	3DL

HEADSAILS (4)

Id	HHB	HUW	HTW	HHW	HQW	HLP	HLU	Ovrlp	Area	Btn	Fly	Measurer	Meas.Date	Manufacture	Material	Comment
3	0.13	0.77	1.40	2.46	3.49	4.55	15.80	104%	38.06				20/08/2013	NORTH	Carbon	BLACK KEVLAR
1	0.05	0.64	1.24	2.36	3.44	4.53	16.10	103%	37.44				21/03/2009	NORTH	Kevlar	
2	0.10	0.63	1.23	2.26	3.32	4.49	15.91	102%	36.11				30/03/2012	NORTH	Kevlar	Heavy
G1	0.10	0.56	1.06	2.08	3.16	4.22	15.63	96%	33.02				02/07/2010	NORTH	Unknown	3DL

SYMMETRIC SPINNAKERS (4)

Id	SLU	SLE	SL	SHW	SFL	Area	Measurer	Meas.Date	Manufacture	Material	Comment
2	16.16	16.16	16.16	7.88	7.78	105.85		01/07/2010		Nylon	
1	16.11	16.11	16.11	7.90	7.68	105.47		16/04/2007		Unknown	
S3	16.10	16.10	16.10	7.89	7.68	105.30		01/08/2013		Nylon	
SP7	15.58	15.58	15.58	6.17	7.95	84.73		12/05/2017	NORTH	Unknown	

ASYMMETRIC SPINNAKERS (0)

Id	SLU	SLE	SL	SHW	SFL	Area	Kind	Measurer	Meas.Date	Manufacture	Material	Comment
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