

BOAT Name Karpo Sail Nr CRO 1715	GPH 579.9	HULL Length Overall 13.580m Maximum Beam 4.356m Displacement 12,776kg Draft 2.300m IMS Reg. Division Cruiser/Racer Dynamic Allowance 0.278% Fwd Accommodation Yes Hull Construction Solid Carbon Rudder No Crew Arm Extension
GENERAL Class Elan 450 Designer Rob Humphreys Builder Elan Marine Series 11/2007 Age 10/2008 Age Allowance 0.390% Offset File ELAN450s.off - 27/04/2011 11:25:26 Measurement by - 31/03/2011		IMSL 12.908m VCGD 0.225m Sink 32.45kg/mm RL 9.858m VCGM 0.156m WS 44.26m² LSM0 12.831m Displacement/Length ratio 6.0480



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SCORING OPTIONS						
	COASTAL / LONG DISTANCE			WINDWARD / LEEWARD		
Time on Distance	562.3			630.0		
Time on Time	1.0670			1.0715		
Triple Number	Low	Medium	High	Low	Medium	High
Time on Distance	677.4	510.2	450.9	879.9	635.4	541.6
Time on Time	0.9965	1.3231	1.4971	0.7671	1.0624	1.2463

TIME ALLOWANCES							
Wind Velocity	6 kt	8 kt	10 kt	12 kt	14 kt	16 kt	20 kt
Beat VMG	1023.7	836.8	732.1	672.5	647.1	635.6	626.9
52°	659.2	552.2	488.5	458.7	446.9	442.0	438.9
60°	618.0	523.1	469.0	445.2	434.0	429.2	425.7
75°	587.6	500.1	455.7	435.1	422.7	414.1	406.1
90°	593.3	501.3	449.9	433.0	419.1	407.4	387.9
110°	594.1	487.8	439.6	418.2	403.6	394.2	377.9
120°	608.5	498.2	444.5	420.4	401.9	383.8	361.6
135°	672.3	544.0	469.1	434.5	414.5	395.9	357.6
150°	799.9	637.2	536.0	470.9	437.2	417.7	382.5
Run VMG	923.6	735.8	619.0	540.9	492.1	454.2	412.4

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Selected Courses							
Windward / Leeward	973.7	786.3	675.5	606.7	569.6	544.9	519.6
Circular Random	808.5	648.7	561.9	511.1	480.0	460.1	436.5
Coastal / Long Distance	968.6	737.0	605.1	526.7	487.5	458.9	416.6
Non Spinnaker	875.1	695.6	596.5	537.4	500.6	476.7	448.1

Crew Weight
Default 982kg
Maximum **950kg**
Minimum* **713kg**
**when applied by the NoR and SI*
Non Manual Pwr **No**

Special Scoring
ToD ToT
Non Spin GPH **616.5 0.9732**
Non Spin OSN **597.2 1.0046**

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	43.9°	42.1°	41.3°	41.1°	40.3°	39.9°	39.4°
Beat VMG	3.52	4.30	4.92	5.35	5.56	5.66	5.74
52°	5.46	6.52	7.37	7.85	8.06	8.14	8.20
60°	5.83	6.88	7.68	8.09	8.29	8.39	8.46
75°	6.13	7.20	7.90	8.27	8.52	8.69	8.87
90°	6.07	7.18	8.00	8.31	8.59	8.84	9.28
110°	6.06	7.38	8.19	8.61	8.92	9.13	9.53
120°	5.92	7.23	8.10	8.56	8.96	9.38	9.96
135°	5.35	6.62	7.67	8.29	8.69	9.09	10.07
150°	4.50	5.65	6.72	7.64	8.23	8.62	9.41
Run VMG	3.90	4.89	5.82	6.66	7.32	7.93	8.73
Gybe Angles	140.8°	147.9°	148.4°	153.0°	160.2°	180.0°	180.0°

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

Class Division Length
CDL = **11.384**

Storm Sails Areas
Heavy Weather Jib **41.85**
Storm Jib (JL=11.45) **15.50**
Storm Trysail **17.35**

Owner

BOAT	
Name Karpo File CRO1715	Sail Nr CRO 1715 Data in meters/kilograms

RIG	
Forestay Tension Aft	Spreaders 2
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 17.385	E 5.700 MDT1 0.149 MW 0.284
IG 17.583	J 4.860 MDL1 0.284 GO 0.290
ISP 18.763	SFJ 0.320 MDT2 0.135 BD 0.205
BAS 1.773	SPL 4.870 MDL2 0.201 MWT
FSP 0.090	TPS TL 2.190 MCG

INCLINING TEST AND FREEBOARDS		
Inclining Test Current Inclining		
Flotation date 17/05/2019		SG 1.0280
FFM 1.491	FF 1.487	SFFP 0.150
FAM 1.138	FA 1.142	SAFP 13.310
W1 140.9	PD1 440.7	WD 12.370
W2 140.9	PD2 441.9	GSA 1.0
W3 140.9	PD3 442.0	RSA 1.0
W4 140.9	PD4 440.0	PLM 9000.0
LCF from stem on CL / on sheer		7.533 / 7.816
Maximum beam station from stem		10.079
RM Measured		311.1kg-m
RM Default		315.4kg-m
Limit of positive stability / Stab.Index		109.4° / 116.4
Freeboard at mast at 5.180		1.291



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MIZZEN RIG AND SAILS	
N/A	

PROPELLER		
Installation Strut	PRD 0.400	
Type Folding 2 blades	PBW	
Twin Screw No	PIPA 0.0039	
ST1 0.065	ST3 0.180	ST5 0.270
ST2 0.180	ST4 0.110	EDL 3.375

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COMMENTS	
TPS = 6.58	

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	1.26	2.26	3.85	4.89	60.71	61.96	P/8 · (E + 2·MQW + 2·MHW + 1.5·MTW + MUW + 0.5·MHB)	
Symmetric	SLU	SLE	SL	SHW	SFL				
	18.98	18.98	18.98	10.36	9.40	160.82	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
0.08	0.88	1.71	3.12	4.45	5.71	17.12	51.76	Y		17/05/2019	Carbon	LM
0.09	0.90	1.71	3.10	4.44	5.74	17.04	51.54	Y		17/05/2019	Carbon	L
0.08	0.74	1.45	2.86	4.28	5.68	16.88	48.31			17/05/2019	Dacron	
0.09	0.78	1.47	2.65	3.79	4.86	17.34	44.74	Y		27/03/2017	Carbon	H

MEASUREMENT INVENTORY				
Measurer CRO5				
Date 17/05/2019				
Comment				
<i>Id</i>	<i>Item</i>	<i>Weight</i>	<i>Distance</i>	<i>VCG Description</i>
<i>Id</i>	<i>Item</i>	<i>Maker</i>	<i>Model</i>	
1	Engine	Volvo	D2 55 E	
<i>Id</i>	<i>Item</i>	<i>Weight Description</i>		

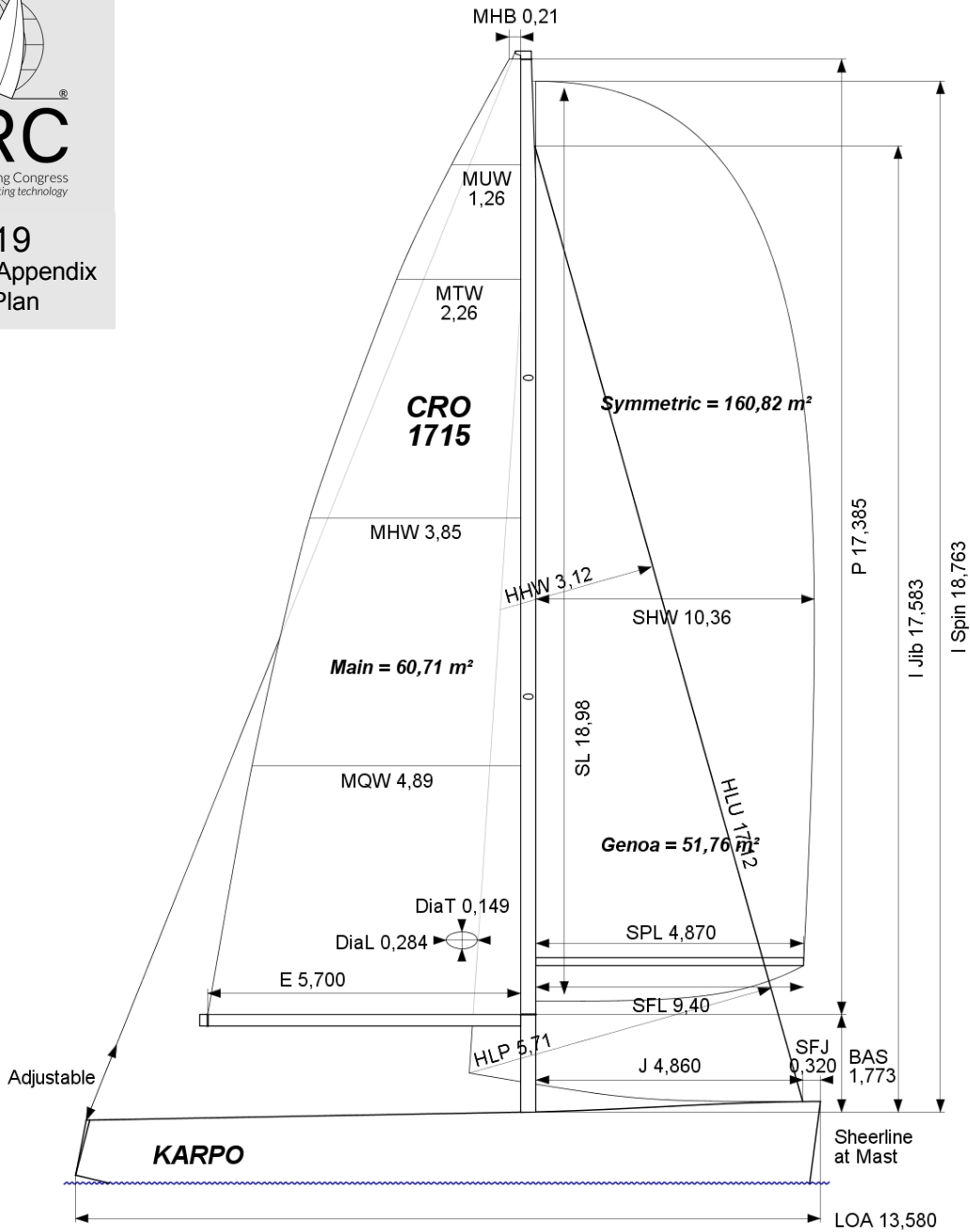
MEASUREMENT INVENTORY									
<i>Id</i>	<i>Item</i>	<i>Tank Use</i>	<i>Tank Type</i>	<i>Capcty</i>	<i>Dist.</i>	<i>VCG</i>	<i>Condn</i>	<i>Description</i>	
4	Tank	Holding	PVC-fix	100.0	5.10		0-0	starboard side	
3	Tank	Water	PVC-fix	200.0	2.60		0-0		
2	Tank	Water	PVC-fix	220.0	5.10		0-0	starboard side	
1	Tank	Disel	PVC-fix	200.0	10.36		65.0		
<i>Id</i>	<i>Item</i>	<i>Weight</i>	<i>Distance</i>	<i>VCG Description</i>					
2	Battery		2.00	2 x 95 Ah					
1	Battery		6.00	3x 95 Ah					



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Sail Plan



SAILS INVENTORY

MAINSAIL (2)																
Id	MHB	MUW	MTW	MHW	MQW	Area	Measurer	Meas.Date	Manufacture	Material	Comment					
1	0.21	1.26	2.26	3.85	4.89	60.71		17/05/2019	Dustom sails	Carbon						
2	0.21	1.13	2.04	3.57	4.76	57.93		06/04/2019	Dustom sais	Dacron						
HEADSAILS (4)																
Id	HHB	HUW	HTW	HHW	HQW	HLP	HLU	Ovrlp	Area	Btn	Fly	Measurer	Meas.Date	Manufacture	Material	Comment
2	0.08	0.88	1.71	3.12	4.45	5.71	17.12	117%	51.76	Y			17/05/2019	Dustom sails	Carbon	LM
1	0.09	0.90	1.71	3.10	4.44	5.74	17.04	118%	51.54	Y			17/05/2019	Dustom sails	Carbon	L
4	0.08	0.74	1.45	2.86	4.28	5.68	16.88	117%	48.31				17/05/2019	Dustom	Dacron	
3	0.09	0.78	1.47	2.65	3.79	4.86	17.34	100%	44.74	Y			27/03/2017	Dustom	Carbon	H
SYMMETRIC SPINNAKERS (2)																
Id	SLU	SLE	SL	SHW	SFL	Area	Measurer	Meas.Date	Manufacture	Material	Comment					
1	18.98	18.98	18.98	10.36	9.40	160.83		01/03/2015	North sails	Nylon	Plavi					
2	19.00	19.00	19.00	10.28	9.56	160.49		28/02/2017	North sails	Nylon	Sivi					
ASYMMETRIC SPINNAKERS (0)																
Id	SLU	SLE	SL	SHW	SFL	Area	Kind	Measurer	Meas.Date	Manufacture	Material	Comment				