

BOAT
Name NORTHERN LIGHT Sail Nr ITA-14696

GPH
647.0

HULL	Length Overall	10.350m
	Maximum Beam	3.484m
	Displacement	5,092kg
	Draft	1.804m
	IMS Reg. Division	Cruiser/Racer
	Dynamic Allowance	0.199%
	Fwd Accommodation	Yes
	Hull Construction	Cored
	Carbon Rudder	No
	Crew Arm Extension	
	IMSL	9.406m VCGD 0.055m Sink 18.01kg/mm
	RL	7.795m VCGM 0.233m WS 23.34m²
	LSM0	9.293m Displacement/Length ratio 6.3448



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GENERAL
Class DUFOUR 34 MOD.
Designer FELCI-ROSEO
Builder DUFOUR
Series 01/2003
Age 01/2003
Age Allowance 0.487%
Offset File I14696A.off - 20/09/2018 17:44:58
Measurement by - 14/04/2019

Rating Office
Offshore Racing Congress

SCORING OPTIONS						
	COASTAL / LONG DISTANCE			WINDWARD / LEEWARD		
Time on Distance	629.2			703.7		
Time on Time	0.9536			0.9592		
Triple Number	Low	Medium	High	Low	Medium	High
Time on Distance	743.6	572.2	511.2	963.6	707.0	613.6
Time on Time	0.9077	1.1797	1.3205	0.7005	0.9547	1.1000

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TIME ALLOWANCES							
Wind Velocity	6 kt	8 kt	10 kt	12 kt	14 kt	16 kt	20 kt
Beat VMG	1113.8	923.6	812.8	756.3	737.2	730.6	719.8
52°	720.4	607.9	546.1	520.4	511.7	508.1	503.4
60°	675.8	575.5	527.7	506.7	497.3	493.3	490.1
75°	643.5	552.1	514.4	494.9	481.4	472.4	465.5
90°	649.8	547.6	504.4	484.3	474.8	460.1	438.4
110°	651.4	541.1	499.3	474.9	452.3	433.5	413.5
120°	672.5	555.3	505.6	479.7	455.6	432.3	394.6
135°	745.2	605.9	530.8	496.6	473.0	449.2	404.7
150°	877.2	696.5	590.8	527.5	496.7	474.6	430.9
Run VMG	1012.9	804.3	681.0	599.9	542.9	506.4	462.5

Certificate
Number 146961
ORC Ref ITA00052750
Issued On 23/05/2019
VPP Ver. 2019 1.01
Valid until 31/12/2019

Selected Courses							
Windward / Leeward	1063.4	863.9	746.9	678.1	640.1	618.5	591.1
Circular Random	892.0	719.8	627.6	574.3	541.9	520.9	494.0
Coastal / Long Distance	1058.3	809.9	672.0	592.4	552.8	522.1	470.2
Non Spinnaker	946.8	758.5	656.3	596.6	560.1	536.7	507.9

Crew Weight
Default 620kg
Maximum 629kg
Minimum* 472kg
*when applied by the NoR and SI
Non Manual Pwr No

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	43.6°	42.0°	41.8°	40.8°	40.1°	39.9°	40.4°
Beat VMG	3.23	3.90	4.43	4.76	4.88	4.93	5.00
52°	5.00	5.92	6.59	6.92	7.04	7.09	7.15
60°	5.33	6.26	6.82	7.10	7.24	7.30	7.34
75°	5.59	6.52	7.00	7.27	7.48	7.62	7.73
90°	5.54	6.57	7.14	7.43	7.58	7.82	8.21
110°	5.53	6.65	7.21	7.58	7.96	8.30	8.71
120°	5.35	6.48	7.12	7.50	7.90	8.33	9.12
135°	4.83	5.94	6.78	7.25	7.61	8.01	8.90
150°	4.10	5.17	6.09	6.83	7.25	7.59	8.35
Run VMG	3.55	4.48	5.29	6.00	6.63	7.11	7.78
Gybe Angles	145.7°	150.1°	152.0°	157.6°	180.0°	180.0°	180.0°

Special Scoring	
ToD	ToT
Double H.GPH 657.3	0.9128
Double H.OSN 641.2	0.9358
Non Spin GPH 677.5	0.8856
Non Spin OSN 657.3	0.9128

Sails Limitations	
Headsails	Spinnakers
5	3

Class Division Length
CDL = 8.601

Storm Sails Areas	
Heavy Weather Jib	22.85
Storm Jib (JL=8.46)	8.47
Storm Trysail	10.44

Owner

BOAT		
Name	NORTHERN LIGHT	Sail Nr
File	I14696	Data in
		ITA-14696
		meters/kilograms

RIG		
Forestay Tension	Aft	Spreaders
Inner Stay	None Fitted	Runners
Carbon Mast	No	Jumper Struts
Taper Hollows	No	Jib Furler
Fiber Rigging	No	Main Furler
Lenticular Rigging	No	Without Backstay
Articulated Bowsprit	No	
P	12.050	E
IG	12.940	J
ISP	13.687	SFJ
BAS	1.450	SPL
FSP	0.068	TPS
MDT1	0.120	MDL1
MDT2	0.120	MDL2
MWT	109.50	TL
MW	0.180	GO
BD	0.145	MCG
		5.370

INCLINING TEST AND FREEBOARDS		
Inclining Test Current Inclining		
Flotation date	22/05/2019	SG
		1.0280
FFM	1.287	FF
FAM	1.073	FA
W1	74.8	PD1
W2	74.8	PD2
W3	74.8	PD3
W4	74.8	PD4
SFFP	0.440	WD
SAFP	9.686	GSA
		1.0
		1.0
		9000.0
LCF from stem on CL / on sheer	5.730 / 5.961	
Maximum beam station from stem	6.458	
RM Measured	100.4kg-m	
RM Default	115.0kg-m	
Limit of positive stability / Stab.Index	106.6° / 106.7	
Freeboard at mast at 0.000	1.135	



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MIZZEN RIG AND SAILS		
N/A		

PROPELLER		
Installation	Strut	PRD
Type	Folding 2 blades	PBW
Twin Screw	No	PIPA
		0.0031
ST1	0.048	ST3
ST2	0.170	ST4
		0.275
		2.100

Certificate	
Number	146961
ORC Ref	ITA00052750
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COMMENTS		
ACL		

MOVABLE BALLAST		
N/A		

CENTERBOARD		
N/A		

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SAILS (Maximum Areas)									
Mainsail	MHB	MUW	MTW	MHW	MQW	Area	Area (r)	Formula	
	0.350	1.15	1.94	3.13	4.11	35.65	36.65	P/8 · (E + 2·MQW + 2·MHW + 1.5·MTW + MUW + 0.5·MHB)	
Symmetric	SLU	SLE	SL	SHW	SFL	73.02		SL · (SFL + 4·SHW) / 6	
Asymmetric on centerline	SLU	SLE	SL	SHW	SFL	57.42	70.26	AS · (SFL + 4·SHW) / 6	

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
0.11	0.77	1.40	2.44	3.33	4.21	12.90	29.82	Y	N	14/05/2019	Unknow	
0.10	0.76	1.40	2.43	3.32	4.22	12.88	29.72	Y	N	15/05/2019	Twaron	J1
0.11	0.76	1.39	2.43	3.33	4.21	12.87	29.69	Y	N	10/04/2019	Twaron	J2

MEASUREMENT INVENTORY				
Measurer FIV-85				
Date 22/05/2019				
Comment GOOD CONDITIONS TRIESTE				
Id	Item	Weight	Distance	VCG Description
Id	Item	Maker	Model	
A	Engine	VOLVO	2030	
Id	Item	Weight	Description	

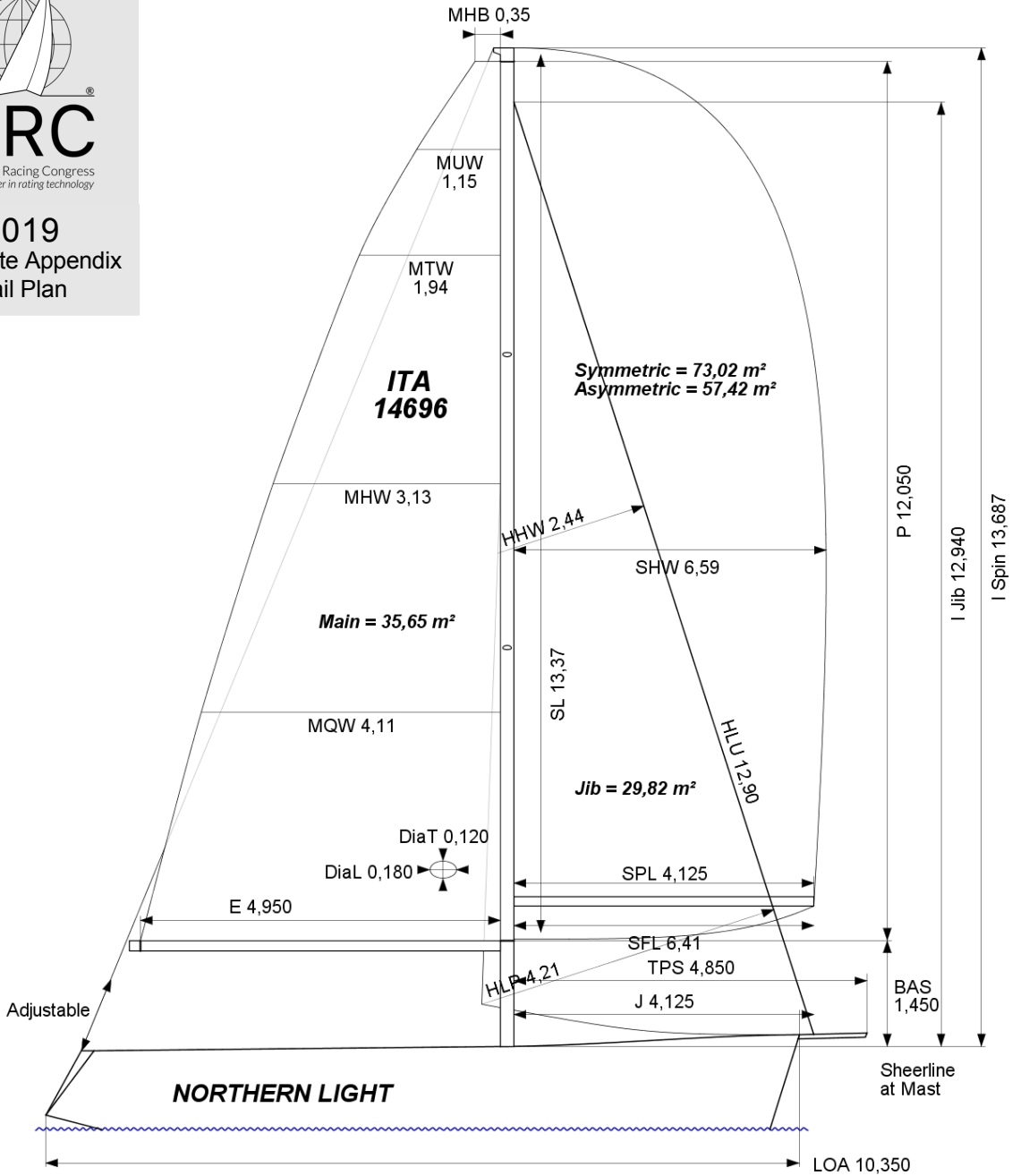
MEASUREMENT INVENTORY									
Id	Item	Tank Use	Tank Type	Capcty	Dist.	VCG	Condtn	Description	
A	Tank	FUEL	PVC	80.0	7.50	-0.20	15-0	L	
B	Tank	WATER	PVC	160.0	2.40	0.00	0-0	EMPTY	
C	Tank	WATER	PVC	160.0	7.50	0.00	0-0	EMPTY	
D	Tank	BOILER	INOX	20.0	5.25	0.00	0-0	EMPTY - SX	
Id	Item	Weight	Distance	VCG Description					
A	Ballast	64.9	3.32	0.00 9 LEAD PIGS					
B	Ballast	77.9	3.77	0.00 6 LEAD PIGS					
C	Ballast	114.2	4.12	0.00 5 LEAD PIGS					
D	Ballast	64.2	4.52	0.00 5 LEAD PIGS					
E	Ballast	108.0	5.12	0.00 7 LEAD PIGS					
A	Battery	0.0	8.00	0.00 3x56 Ah SX					
A	Misc	12.0	0.70	1.20 ANCHOR WINDLASSES					



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Sail Plan



SAILS INVENTORY

MAINSAIL (3)																
Id	MHB	MUW	MTW	MHW	MQW	Area	Measurer	Meas.Date	Manufacture	Material	Comment					
C	0.35	1.15	1.94	3.13	4.11	35.65		16/05/2019	OLIMPIC	Twaron						
B	0.22	0.93	1.66	2.85	3.78	32.75		09/04/2015		Unknown						
HEADSAILS (3)																
Id	HHB	HUW	HTW	HHW	HQW	HLP	HLU	Ovrlp	Area	Btn	Fly	Measurer	Meas.Date	Manufacture	Material	Comment
F	0.11	0.77	1.40	2.44	3.33	4.21	12.90	102%	29.82	Y	N		14/05/2019	OLIMPIC	Unknown	
D	0.10	0.76	1.40	2.43	3.32	4.22	12.88	102%	29.72	Y	N		15/05/2019	OLIMPIC	Twaron	J1
E	0.11	0.76	1.39	2.43	3.33	4.21	12.87	102%	29.69	Y	N		10/04/2019	OLIMPIC	Twaron	J2
SYMMETRIC SPINNAKERS (4)																
Id	SLU	SLE	SL	SHW	SFL	Area	Measurer	Meas.Date	Manufacture	Material	Comment					
D	13.37	13.37	13.37	6.59	6.41	73.03		20/05/2019	ONE	Nylon	S1					
A	12.61	12.61	12.61	6.90	6.69	72.07		15/06/2016	ONE	Nylon	RUNNER					
C	12.82	12.82	12.82	6.47	6.39	68.96		15/06/2016	ONE	Nylon	VMG					
B	12.75	12.75	12.75	5.60	7.06	62.61		15/06/2016	ONE	Nylon	S0					
ASYMMETRIC SPINNAKERS (1)																
Id	SLU	SLE	SL	SHW	SFL	Area	Kind	Measurer	Meas.Date	Manufacture	Material	Comment				
A	13.79	12.45	13.12	4.93	6.54	57.43	asym		23/04/2019	OLIMPIC	Unknown	C0				