



World Leader in Rating Technology

2018 ORC Club Certificate

Rating Office

Žemaites 6
LT-03117 Vilnius
Lithuania
+370 650 28392



Certificate

Number **LT5386**
Issued On **2018-08-04**
ORC Ref **lt00000718**
VPP Ver. **2018 0.02b**
Valid until **2018-12-31**

Crew Weight

Declared **415kg**
Default* **472kg**
Non Manual Pwr **No**

Special Scoring

ToD ToT
Non Spin GPH **693,5 0,8652**
Non Spin OSN **673,0 0,8915**

Sails Limitations

Headsails **5** Spinnakers **3**

Spinnaker configuration

Symmetric: **Yes 57,87**
Asymmetric: **No**
Flying H/S: **No**
Spin. Pole: **Yes**

Class Division Length

CDL = 7,701

Stability (Estimated)

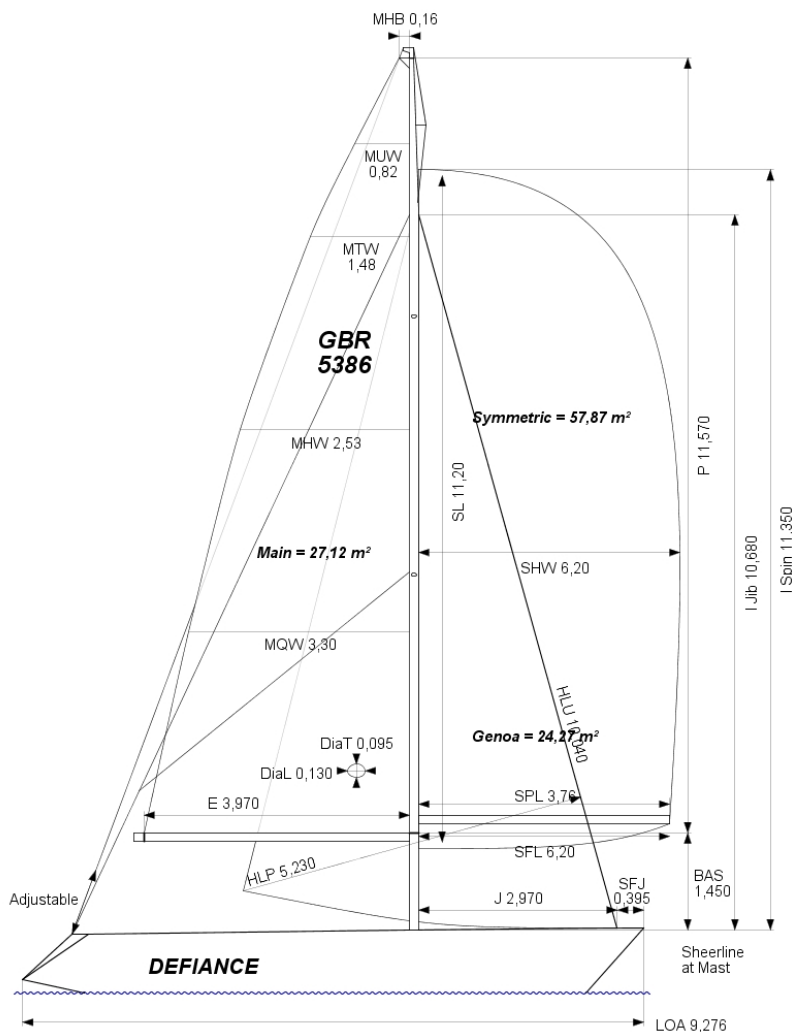
Limit Positive Stab.: **122,1°**
Stability Index: **118,3**

Owner

Oleg Zelenin
Lithuania

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

Signature



BOAT		GPH		HULL		
Name DEFIANCE Sail Nr GBR5386		664,4		Data File Defiance LTU	LOA 9,276m	
				Offset File DefiaS.off	MB 3,048m	
				Displacement 2,923kg	Draft 1,768m	
				IMS Division Cruiser/Racer	Dynamic All. 0,015%	
				Fwd Accom. Yes	Construction Cored	
				Fiber Rigging No	Aramid Core No	
				Crew Arm Ex	Carbon Rudder No	
					Light Stanchions No	
				IMSL 7,822m	VCGD -0,203m	Sink 11,76kg/mm
				RL 7,579m	VCGM -0,122m	WS 16,59m²
				LSM0 7,680m	Displacement/Length ratio 6,4528	
				Water Ballast 0 Trim Tab No		
CLASS		CENTERBOARD				
Class Toledo 31 Mk2 M		N/A				
Designer David Thomas						
Builder						
Series 12-1980						
Age Date 12-1980						
Age Allowance 0,487%						
COMMENTS						
PROPELLER						
Installation Shaft exposed		PRD 0,380				
Type Feathering 2 blades		PBW 0,140				
		PIPA 0,0022				
SCORING OPTIONS						
	COASTAL / LONG DISTANCE			WINDWARD / LEEWARD		
Time On Distance	646,7			717,5		
Time On Time	0,9278			0,9408		
Triple Number	Low	Medium	High	Low	Medium	High
Time on Distance	747,9	592,1	536,4	956,4	718,3	639,4
Time on Time	0,9025	1,1400	1,2585	0,7058	0,9397	1,0556

BOAT	
Name DEFIANCE	Sail Nr GBR5386
File Defiance LTU	Data in meters/kilograms

INCLINING TEST AND FREEBOARDS	
Inclining Test Club Estimated VCG	
Flotation date 06-06-2016	SG 1,0000
FFM 0,966	FF 0,974 SFFP 0,467
FAM 0,877	FA 0,882 SAFB 8,287
LCF from stem on CL / on sheer	4,925 / 5,144
Maximum beam station from stem	5,041
RM Measured	56,2kg·m
RM Default	54,6kg·m
Limit of positive stability / Stab.Index	122,1° / 118,3
Freeboard at mast at 3,365	0,937

RIG	
Forestay Tension Aft	Spreaders 2
Inner Stay None Fitted	Runners 2
Carbon Mast No	Jumper Struts Yes
Taper Hollows No	Jib Furler No
Fiber Rigging No	Main Furler No
Lenticular Rigging No	Without Backstay No
Articulated Bowsprit No	
P 11,570	E 3,970 MDT1 0,095 MW
IG 10,680	J 2,970 MDL1 0,130 GO
ISP 11,350	SFJ 0,395 MDT2
BAS 1,450	SPL 3,755 MDL2
FSP 0,070	TPS
	TL -2,000 MCG



World Leader in Rating Technology

2018 Measurements Datasheet

MIZZEN RIG AND SAILS	
N/A	

PROPELLER	
Installation Shaft exposed	PRD 0,380
Type Feathering 2 blades	PBW 0,140
Twin Screw No	PIPA 0,0022
PSA 16,000	PHL 0,060 ST3 0,100 ESL 0,600
PSD 0,020	ST1 0,016 ST4 0,016
PHD 0,050	ST2 0,100 ST5 0,350

Certificate	
Number LT5386	
ORC Ref lt00000718	
Issued On 2018-08-04	
VPP Ver. 2018 0.02b	
Valid until 2018-12-31	



COMMENTS	

MOVEABLE BALLAST	
N/A	

CENTERBOARD	
N/A	

SAILS INVENTORY																
MANSAL (1)																
Id	MHB	MUW	MTW	MHW	MQW	Area	Measurer	Meas.Date	Manufacture	Material	Comment					
MF	0,160	0,82	1,48	2,53	3,30	27,12	G. Misiunas	05-11-2015		Unknown						
HEADSAILS (3)																
Id	HHB	HUW	HTW	HHW	HQW	HLP	HLU	Ovrlp	Area	Btn	Fly	Measurer	Meas.Date	Manufacture	Material	Comment
G1D	0,06	0,58	1,16	2,46	3,33	5,23	10,04	176%	24,27			G.	26-10-2016		Nylon	Unknow
G1C	0,06	0,51	1,00	2,03	3,15	4,33	10,18	146%	21,37			G.	03-11-2015		Nylon	Unknow "carbon"
G1B	0,06	0,40	0,78	1,59	2,45	3,38	9,80	114%	16,06	Y		G.	06-06-2016		Nylon	Unknow
SYMMETRIC SPINNAKERS (2)																
Id	SLU	SLE	SL	SHW	SFL	Area	Measurer	Meas.Date	Manufacture	Material	Comment					
S1	11,20	11,20	11,20	6,20	6,20	57,87	G. Misiunas			Nylon						
S2	11,10	11,20	11,15	6,22	6,19	57,74	G. Misiunas	07-06-2016		Nylon						
ASYMMETRIC SPINNAKERS (0)																
Id	SLU	SLE	SL	SHW	SFL	Area	Kind	Measurer	Meas.Date	Manufacture	Material	Comment				



World Leader in Rating Technology

2018

ORC Club Certificate Appendix

BOAT	
Name	DEFIANCE
Sail Nr	GBR5386
Certificate Number	LT5386
Issued On	2018-08-04

TIME ALLOWANCES							
Wind Velocity	6 kt	8 kt	10 kt	12 kt	14 kt	16 kt	20 kt
Beat VMG	1062,0	889,5	798,7	767,0	754,5	749,9	764,9
52°	711,0	603,6	564,8	549,1	542,4	539,0	538,7
60°	679,1	585,4	552,7	536,6	527,4	522,5	519,7
75°	656,9	574,5	543,4	523,6	507,9	496,7	487,8
90°	666,8	571,6	536,8	518,0	500,6	483,4	461,4
110°	671,0	567,5	529,3	500,3	476,0	460,5	441,1
120°	692,3	578,3	535,9	505,6	477,6	454,2	421,5
135°	764,4	625,0	559,2	527,1	498,3	470,5	419,6
150°	902,5	720,0	611,5	555,5	526,1	499,2	449,0
Run VMG	1042,2	831,6	702,9	621,5	565,1	533,6	482,3

Selected Courses							
Windward / Leeward	1052,1	860,5	750,8	694,3	659,8	641,7	623,6
Circular Random	902,4	733,9	645,3	595,0	564,8	545,5	522,2
Ocean for PCS	1097,7	855,5	720,6	639,3	586,8	550,0	497,7
Non Spinnaker	954,8	770,8	672,7	616,2	582,1	560,4	535,2

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	41,3°	40,6°	39,0°	38,3°	37,9°	37,8°	39,6°
Beat VMG	3,39	4,05	4,51	4,69	4,77	4,80	4,71
52°	5,06	5,96	6,37	6,56	6,64	6,68	6,68
60°	5,30	6,15	6,51	6,71	6,83	6,89	6,93
75°	5,48	6,27	6,63	6,88	7,09	7,25	7,38
90°	5,40	6,30	6,71	6,95	7,19	7,45	7,80
110°	5,37	6,34	6,80	7,20	7,56	7,82	8,16
120°	5,20	6,22	6,72	7,12	7,54	7,93	8,54
135°	4,71	5,76	6,44	6,83	7,22	7,65	8,58
150°	3,99	5,00	5,89	6,48	6,84	7,21	8,02
Run VMG	3,45	4,33	5,12	5,79	6,37	6,75	7,46
Gybe Angles	146,5°	150,7°	152,7°	163,6°	180,0°	180,0°	180,0°