

BOAT Name Tornado Sail Nr BUL-1977	GPH 755.9	HULL Length Overall 7.250m Maximum Beam 2.648m Displacement 1,491kg Draft 1.427m IMS Reg. Division Performance Dynamic Allowance 0.151% Fwd Accommodation No Hull Construction Solid Carbon Rudder No Crew Arm Extension
GENERAL Class Conrad 24 Designer Michel Dufour Builder Poland Series 01/1978 Age 01/1978 Age Allowance 0.487% Offset File Conrad24m.off - 08/08/2017 13:48:20 Measurement by - 26/06/2019		IMSL 5.854m VCGD -0.294m Sink 8.37kg/mm RL 5.861m VCGM -0.179m WS 11.20m² LSM0 5.600m Displacement/Length ratio 8.4901



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SCORING OPTIONS						
	COASTAL / LONG DISTANCE			WINDWARD / LEEWARD		
Time on Distance	732.5			810.0		
Time on Time	0.8191			0.8333		
Triple Number	Low	Medium	High	Low	Medium	High
Time on Distance	863.0	671.6	595.7	1103.3	814.4	708.4
Time on Time	0.7822	1.0050	1.1332	0.6118	0.8288	0.9528

TIME ALLOWANCES							
Wind Velocity	6 kt	8 kt	10 kt	12 kt	14 kt	16 kt	20 kt
Beat VMG	1262.4	1061.5	942.8	872.2	836.5	825.7	832.8
52°	833.8	707.5	651.9	624.4	605.8	594.6	591.0
60°	792.0	679.1	635.6	610.6	590.2	574.7	566.3
75°	763.5	662.9	623.5	597.4	573.6	553.8	532.4
90°	772.0	657.6	608.8	576.7	556.7	545.9	513.5
110°	764.8	646.9	600.5	563.7	533.4	509.6	483.5
120°	789.9	657.3	607.2	569.8	537.8	510.3	465.8
135°	866.6	708.5	629.7	592.0	558.0	529.2	477.8
150°	1005.5	804.6	684.9	623.9	590.3	559.2	508.1
Run VMG	1161.0	928.3	784.9	687.9	632.2	598.7	541.9

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Crew Weight

Default 301kg
Maximum **349kg**
Minimum* **262kg**
**when applied by the NoR and SI*
Non Manual Pwr **No**

Special Scoring

	ToD	ToT
Double H.GPH	760.6	0.7888
Double H.OSN	738.0	0.8130
Non Spin GPH	788.8	0.7606
Non Spin OSN	761.7	0.7877

Selected Courses							
Windward / Leeward	1211.7	994.9	863.9	780.1	734.3	712.2	687.4
Circular Random	1036.8	839.9	734.0	671.9	633.2	607.8	576.5
Coastal / Long Distance	1206.6	935.9	784.3	693.2	643.7	607.8	549.0
Non Spinnaker	1092.6	880.3	765.2	697.4	655.2	627.7	594.4

Sails Limitations

Headsails	Spinnakers
5	3

Dacron Sails

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	41.8°	41.2°	40.5°	38.7°	37.4°	37.2°	38.1°
Beat VMG	2.85	3.39	3.82	4.13	4.30	4.36	4.32
52°	4.32	5.09	5.52	5.77	5.94	6.05	6.09
60°	4.55	5.30	5.66	5.90	6.10	6.26	6.36
75°	4.72	5.43	5.77	6.03	6.28	6.50	6.76
90°	4.66	5.47	5.91	6.24	6.47	6.59	7.01
110°	4.71	5.56	5.99	6.39	6.75	7.06	7.45
120°	4.56	5.48	5.93	6.32	6.69	7.06	7.73
135°	4.15	5.08	5.72	6.08	6.45	6.80	7.53
150°	3.58	4.47	5.26	5.77	6.10	6.44	7.09
Run VMG	3.10	3.88	4.59	5.23	5.69	6.01	6.64
Gybe Angles	148.8°	152.0°	153.8°	172.0°	180.0°	180.0°	180.0°

Class Division Length

CDL = **5.858**

Storm Sails Areas

Heavy Weather Jib **11.19**
Storm Jib (JL=5.92) **4.15**
Storm Trysail **3.66**

Owner

BOAT	
Name Tornado	Sail Nr BUL-1977
File BUL15	Data in meters/kilograms

INCLINING TEST AND FREEBOARDS			
Inclining Test Current Inclining			
Flotation date 02/07/2019		SG 1.0180	
FFM 0.887	FF 0.889	SFFP 0.500	
FAM 0.647	FA 0.648	SAFP 6.885	
W1 8.9	PD1 35.0	WD 6.420	
W2 18.4	PD2 86.0	GSA 50.3	
W3 28.0	PD3 147.0	RSA 18800.	
W4 36.1	PD4 196.0	PLM 2000.0	
LCF from stem on CL / on sheer		3.954 / 4.136	
Maximum beam station from stem		4.380	
RM Measured		37.6kg·m	
RM Default		28.8kg·m	
Limit of positive stability / Stab.Index		121.2° / 113.2	
Freeboard at mast at 2.880		0.808	



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RIG			
Forestay Tension Aft	Spreaders 1		
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 7.740	E 2.700	MDT1 0.085	MW 0.116
IG 9.005	J 2.860	MDL1 0.116	GO 0.146
ISP 8.928	SFJ 0.020	MDT2 0.085	BD 0.064
BAS 1.083	SPL 2.870	MDL2 0.116	MWT
FSP 0.000	TPS 0.000	TL	MCG

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MIZZEN RIG AND SAILS	
N/A	

PROPELLER	
Type No Propeller	

COMMENTS

MOVABLE BALLAST	
N/A	



CENTERBOARD	
N/A	

SAILS (Maximum Areas)									
Mainsail	MHB	MUW	MTW	MHW	MQW	Area	Area (r)	Formula	
	0.140	0.55	0.98	1.77	2.36	12.63	12.89	P/8 · (E + 2·MQW + 2·MHW + 1.5·MTW + MUW + 0.5·MHB)	
Symmetric	SLU	SLE	SL	SHW	SFL	41.63		SL · (SFL + 4·SHW) / 6	
	9.05	9.05	9.05	5.51	5.56				
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
0.06	0.50	0.99	2.09	3.28	4.61	8.90	19.44			26/06/2019	Dacron	
0.06	0.49	0.96	2.03	3.20	4.57	8.74	18.71			26/06/2019	Dacron	
0.04	0.41	0.81	1.73	2.80	4.01	8.76	16.26			26/06/2019	Dacron	

MEASUREMENT INVENTORY				
Measurer				
Date 02/07/2019				
Comment				
Id	Item	Weight	Distance	VCG Description
1	Engine			
Id	Item	Maker	Model	
1	Engine			
Id	Item	Weight Description		

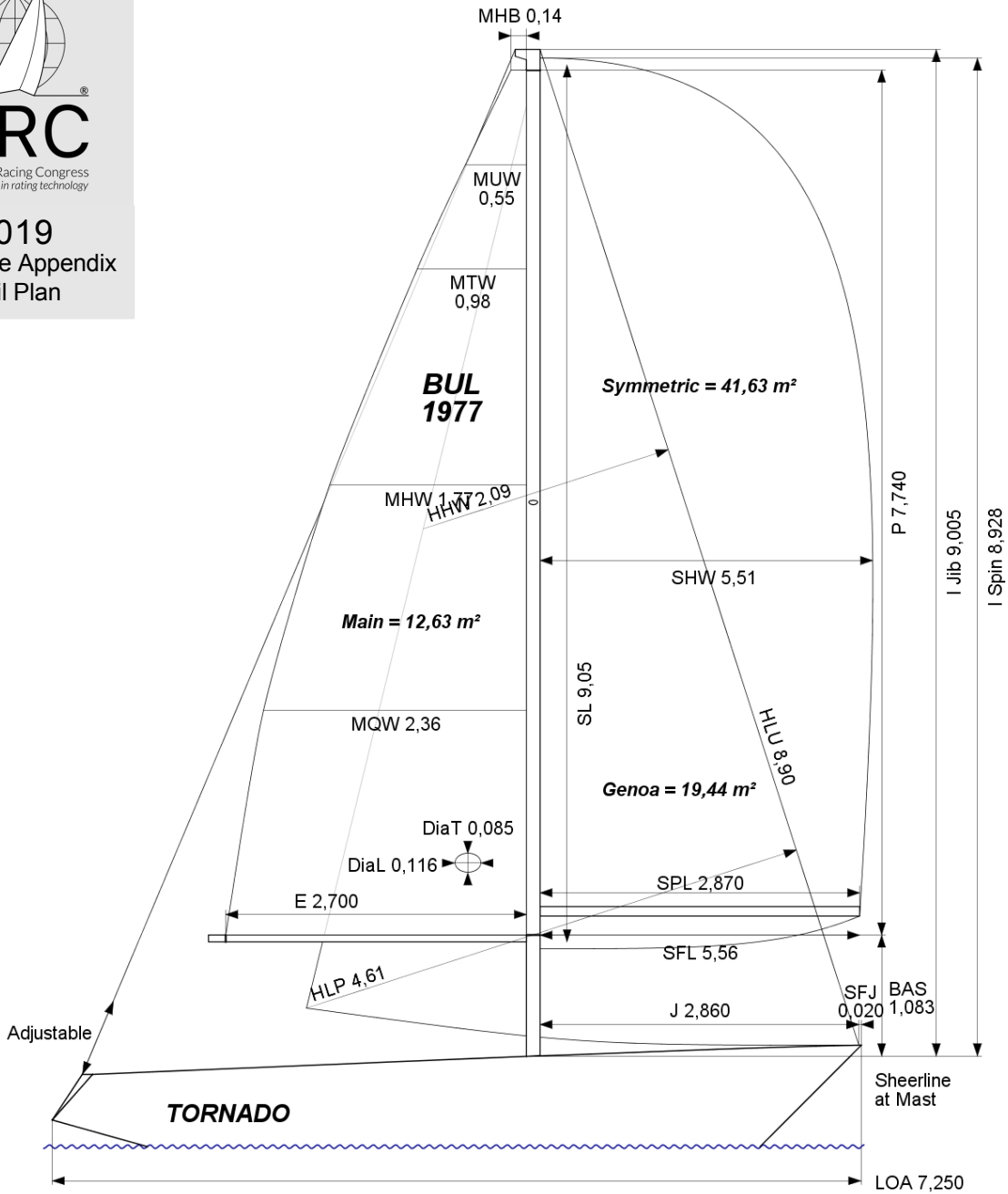
MEASUREMENT INVENTORY				
Id	Item	Weight	Distance	VCG Description
1	Battery	10.0	4.36	
1	Misc	28.0	4.56	Outboard stored in cockpit



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Sail Plan



SAILS INVENTORY

MAINSAIL (1)																
Id	MHB	MUW	MTW	MHW	MQW	Area	Measurer	Meas.Date	Manufacture	Material	Comment					
1	0.14	0.55	0.98	1.77	2.36	12.63		26/06/2019		Dacron						
HEADSAILS (3)																
Id	HHB	HUW	HTW	HHW	HQW	HLP	HLU	Ovrlp	Area	Btn	Fly	Measurer	Meas.Date	Manufacture	Material	Comment
1	0.06	0.50	0.99	2.09	3.28	4.61	8.90	161%	19.44				26/06/2019		Dacron	
2	0.06	0.49	0.96	2.03	3.20	4.57	8.74	160%	18.71				26/06/2019		Dacron	
3	0.04	0.41	0.81	1.73	2.80	4.01	8.76	140%	16.26				26/06/2019		Dacron	
SYMMETRIC SPINNAKERS (1)																
Id	SLU	SLE	SL	SHW	SFL	Area	Measurer	Meas.Date	Manufacture	Material	Comment					
1	9.05	9.05	9.05	5.51	5.56	41.63		26/06/2019		Nylon						
ASYMMETRIC SPINNAKERS (0)																
Id	SLU	SLE	SL	SHW	SFL	Area	Kind	Measurer	Meas.Date	Manufacture	Material	Comment				