

APH: **618.0** CDL: **7.697**

GPH: **696.9** CertNo: **28673**

BOAT

Class **Friendship 34**
Designer **v/d Stadt Design**
Builder **Waterhorst**
Age date **02/1996**
Series date **02/1996**
Offset file **hc14002.off**
Data file

HULL

Length Overall **10.080 m**
Maximum Beam **3.338 m**
Draft **1.725 m**
Displacement **5,761 kg**
DLR **8.7476**
IMS Division **Cruiser/Racer**
Dynamic Allowance **0.457%**
Age Allowance **0.487%**

PROPELLER

Installation **Strut**
Type **Folding 2 blades**
Diameter **0.350m**

CREW

Maximum weight **564 kg**
Minimum weight **423 kg** * when applied
Non Manual Power **No**
Crew Arm Extension

SAIL AREAS (m²)

	Measured	Rated
Mainsail	27.52	28.05
Headsail Luffed	33.69	33.69
Headsail Flying		
Symmetric	88.43	88.43
Asymmetric		

STORM SAIL AREAS (m²)

Trysail **8.39**
Storm Jib **7.79**
Heavy Weather Jib **21.03**

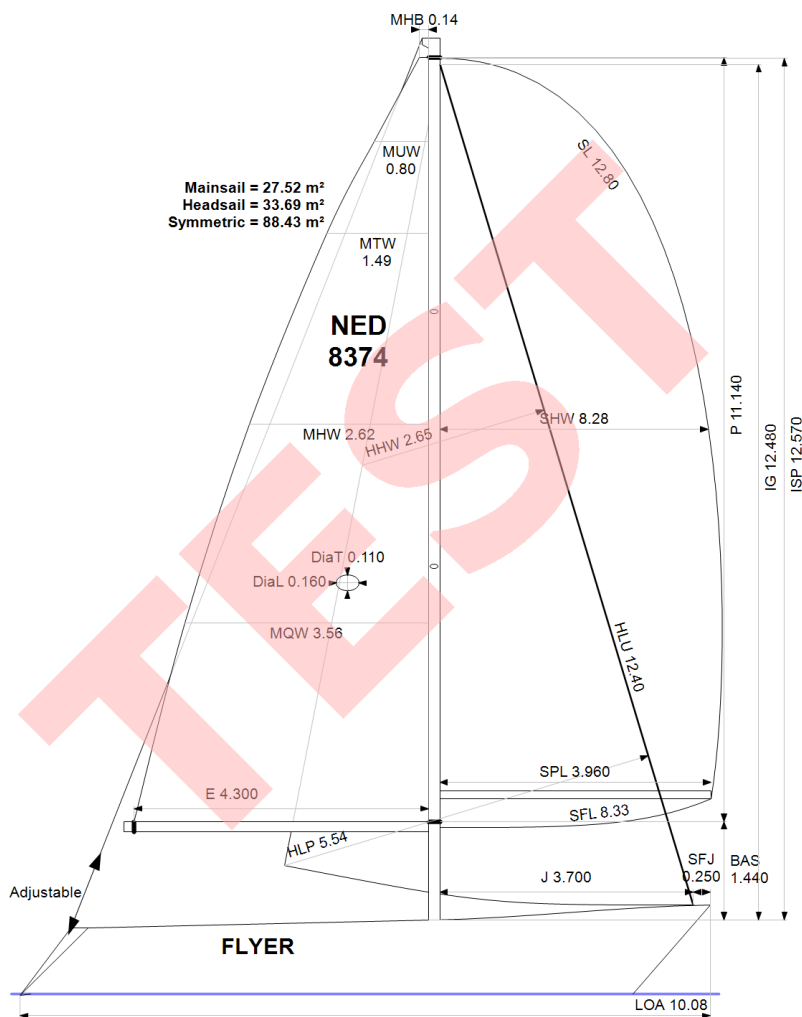
SAIL LIMITS

Headsails **5**
Spinnakers **4**

STABILITY

Righting Moment **118.4 kg·m**
Stability Index **N/A**

The owner and any other person in charge is responsible that boat is complying with her certificate in accordance with RRS 78.1 and ORC Rule 304.



Rated boat velocities in knots

Wind Velocity	6 kt	8 kt	10 kt	12 kt	14 kt	16 kt	20 kt
Beat Angles	44.4°	42.6°	42.4°	42.0°	40.6°	39.6°	39.3°
Beat VMG	2.93	3.53	3.97	4.37	4.63	4.75	4.81
52°	4.52	5.35	6.01	6.43	6.64	6.74	6.81
60°	4.82	5.66	6.28	6.61	6.80	6.92	7.01
75°	5.03	5.91	6.47	6.76	6.96	7.13	7.37
90°	4.98	6.00	6.64	6.93	7.07	7.23	7.63
110°	5.12	6.20	6.78	7.11	7.41	7.70	8.01
120°	4.98	6.08	6.72	7.07	7.41	7.76	8.32
135°	4.54	5.56	6.45	6.88	7.20	7.55	8.27
150°	3.84	4.85	5.78	6.52	6.90	7.19	7.86
Run VMG	3.33	4.21	5.01	5.75	6.31	6.74	7.32
Gybe Angles	146.9°	151.4°	149.8°	157.7°	170.3°	178.1°	179.0°

Time Allowances in secs/NM							
Wind Velocity	6 kt	8 kt	10 kt	12 kt	14 kt	16 kt	20 kt
Beat VMG	1230.6	1020.7	905.8	823.0	777.8	758.4	748.0
52°	795.8	673.0	598.8	560.3	542.1	533.9	528.6
60°	747.5	636.4	573.4	545.0	529.4	520.1	513.3
75°	715.3	609.1	556.4	532.8	517.4	505.0	488.8
90°	722.4	600.4	542.3	519.4	509.4	497.9	471.8
110°	702.9	580.9	531.2	506.5	485.5	467.8	449.6
120°	722.7	591.6	535.5	509.0	486.1	464.1	432.4
135°	793.8	647.6	557.7	523.2	499.9	476.8	435.4
150°	936.6	742.1	622.9	552.1	522.1	500.5	458.2
Run VMG	1081.5	855.7	719.2	625.7	570.6	534.4	492.0
Selected Courses							
Windward / Leeward	1156.1	938.2	812.5	724.4	674.2	646.4	620.0
All purpose	889.1	731.1	644.5	593.2	564.3	546.1	523.3

Single Number Scoring Options		
Course	Time On Distance	Time On Time
Windward / Leeward	761.9	0.7875
All purpose	618.0	0.9708

Custom scoring options for Netherlands

Single Number	Time On Time
Triple Number Coastal/Long Distance Low	0.7406
Triple Number Coastal/Long Distance Medium	0.9763
Triple Number Coastal/Long Distance High	1.1068
Triple Number Windward/Leeward Low	0.5730
Triple Number Windward/Leeward Medium	0.7905
Triple Number Windward/Leeward High	0.9325
Coastal/Long Distance	0.8895
Predominantly Upwind	0.8863
Predominantly Downwind	0.9661

Data in meters/kilograms (Metric)

HULL AND APPENDAGES (Lightship Trim)

Class	Friendship 34	LOA	10.080	VCGD	-0.087
Measurement	14/04/2021	Max. Beam	3.338	VCGM	-0.028
HIN		Draft	1.725	RM Measured (kg·m)	118.4
Plan review		Displacement	5,761	RM Default (kg·m)	118.4
Hull construction	Solid	Wetted area	24.82	Limit of positive stability(°)	N/A
Aramid Hull Core	No	IMS L	8.811	Stability Index	N/A
Carbon Rudder	No	LSM0	8.700		
Light stanchions	No	Acc. length	10.080		
Trim tab	No	Sink (kg/mm)	17.68		

PROPELLER

Propeller Type	Folding 2 blades			
Installation	Strut	PRD	0.350	EDL ST3
Twin screw	No	PBW		ST1 ST4
Hydro generator	No	PIPA	0.0005	ST2 ST5

RIG

Forestay tension	Aft	P	11.140	E	4.300
Inner stay	None Fitted	IG	12.480	J	3.700
Carbon mast	No	ISP	12.570	BAS	1.440
Headsail furler	No	MDT1	0.110	FSD	Foil
Mainsail furler	No	MDL1	0.160	SFJ	0.250
Articulated bowsprit	No	MDT2		SPL	3.960
Non-circular rigging	No	MDL2		WPL	
Fiber rigging	No	TL	No Taper	TPS	
Runners/Checkstays	0	MW		BD	
Spreaders	2	GO		MWT	
				MCG	

FLOTATION AND STABILITY

Calculation method	VCG estimated	SFFP	0.650	SAFP	9.086
Flotation Date	14/04/2021	FFM		FAM	
Measurer		FF	1.273	FA	0.875
Comment		LCFcl	5.877	LCFsh	6.113
		SG	1.0000	HBI	1.075

INVENTORY

OTHER ITEMS	<i>Id</i>	<i>Kind</i>	<i>Description</i>	<i>Weight</i>	<i>LCG</i>	<i>VCG</i>
	SaS	Deductible	Sailor Services	49	6.92	0.00
			<i>Total deductible</i>	19	6.92	0.00

MAINSAIL

<i>Id</i>	<i>MHB</i>	<i>MUW</i>	<i>MTW</i>	<i>MHW</i>	<i>MQW</i>	<i>Area Meas.Date</i>	<i>Maker</i>	<i>Material</i>	<i>Comment</i>
1	0.14	0.80	1.49	2.62	3.56	27.52		Unknown	

HEADSAIL

<i>Id</i>	<i>HHB</i>	<i>HUW</i>	<i>HTW</i>	<i>HHW</i>	<i>HQW</i>	<i>HLP</i>	<i>HLU</i>	<i>Btn</i>	<i>Flying</i>	<i>FT</i>	<i>Area Meas.Date</i>	<i>Maker</i>	<i>Material</i>	<i>Comment</i>
01	0.09	0.68	1.31	2.65	4.08	5.54	12.40	No	No		33.69		Unknown	

SYMMETRIC SPINNAKER

<i>Id</i>	<i>SLU</i>	<i>SLE</i>	<i>SL</i>	<i>SHW</i>	<i>SFL</i>	<i>Area Meas.Date</i>	<i>Maker</i>	<i>Material</i>	<i>Comment</i>
02	12.80	12.80	12.80	8.28	8.33	88.43 10/07/2019		Nylon	
01	12.45	12.45	12.45	6.88	6.44	70.47		Unknown	