



World Leader in Rating Technology

2018  
ORC Club  
Certificate

Rating Office

US Sailing  
Rating  
Office



Certificate

Number **US6290**  
 Issued On **27/04/2018**  
 ORC Ref **USAX017Q5U8**  
 VPP Ver. **2018 1.00**  
 Valid until **28/02/2019**

Crew Weight

Default 923kg  
 Maximum **612kg**  
 Minimum\* **459kg**  
*\*when applied by the NoR and SI*  
 Non Manual Pwr **No**

Special Scoring

	ToD	ToT
Non Spin GPH	<b>588.3</b>	<b>1.0199</b>
Non Spin OSN	<b>575.1</b>	<b>1.0434</b>

Sails Limitations

Headsails **6** Spinnakers **4**

**Spinnaker configuration**  
 Symmetric: **Yes 149.36**  
 Asymmetric: **Yes 142.05**  
 Flying H/S: **No**  
 Spin. Pole: **Yes**

Class Division Length

CDL = **11.217**

Stability (Estimated)

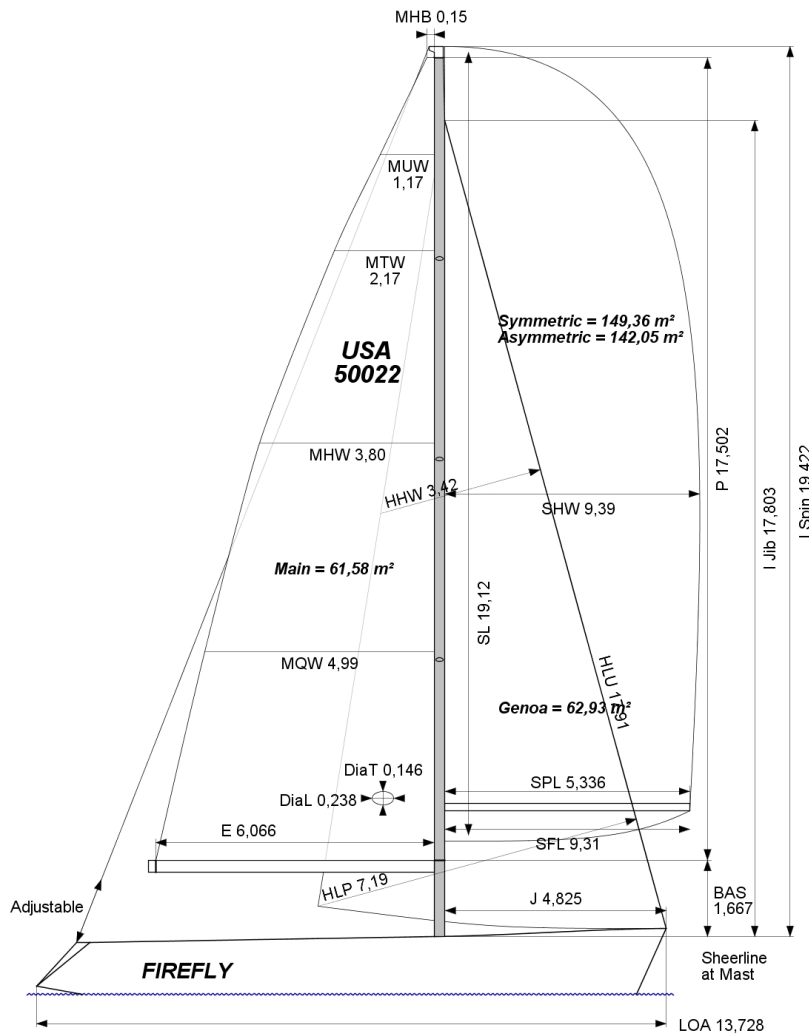
Limit Positive Stab.: **109.8°**  
 Stability Index: **114.5**

Owner

1188 Harvard Ave. E., #5

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

Signature



BOAT	GPH	HULL				
Name <b>FIREFLY</b> Sail Nr <b>USA 50022</b>	<b>560.5</b>	Data File <b>US6290</b> LOA <b>13.728m</b> Offset File <b>US31057a.OFF</b> MB <b>4.036m</b> Displacement <b>9,292kg</b> Draft <b>2.410m</b>				
<b>CLASS</b> Class <b>MORRIS 45</b> Designer <b>PAYNE</b> Builder <b>MORRIS</b> Series <b>07/2000</b> Age Date <b>07/2000</b> Age Allowance <b>0.487%</b>	IMS Division <b>Cruiser/Racer</b> Dynamic All. <b>0.000%</b> Fwd Accom. <b>Yes</b> Construction <b>Cored</b> Fiber Rigging <b>No</b> Aramid Core <b>No</b> Crew Arm Ex <b>0.00</b> Carbon Rudder <b>Yes</b> Light Stanchions	IMSL <b>12.327m</b> VCGD <b>0.000m</b> Sink <b>27.15kg/mm</b> RL <b>10.106m</b> VCGM <b>0.154m</b> WS <b>37.40m²</b> LSMO <b>12.287m</b> Displacement/Length ratio <b>5.0092</b>				
<b>COMMENTS</b>	Water Ballast <b>0</b> Trim Tab <b>No</b> BLR Index <b>0.0000</b>	<b>CENTERBOARD</b>  <b>NA</b>				
<b>PROPELLER</b> Installation <b>Strut</b> PRD <b>0.433</b> Type <b>Feathering 3 blades</b> PBW <b>0.125</b> PIPA <b>0.0038</b>						
<b>SCORING OPTIONS</b>						
	<b>COASTAL / LONG DISTANCE</b>			<b>WINDWARD / LEEWARD</b>		
Time on Distance	<b>547.3</b>			<b>613.8</b>		
Time on Time	<b>1.0963</b>			<b>1.0997</b>		
Triple Number	Low	Medium	High	Low	Medium	High
Time on Distance	<b>631.5</b>	<b>499.0</b>	<b>451.0</b>	<b>817.0</b>	<b>617.3</b>	<b>541.8</b>
Time on Time	<b>1.0688</b>	<b>1.3528</b>	<b>1.4968</b>	<b>0.8262</b>	<b>1.0934</b>	<b>1.2459</b>

<b>BOAT</b>	
Name <b>FIREFLY</b>	Sail Nr <b>USA 50022</b>
File <b>US6290</b>	Data in <b>meters/kilograms</b>

<b>INCLINING TEST AND FREEBOARDS</b>			
Inclining Test <b>Enter VCG directly</b>			
Flotation date <b>02/06/2008</b>		SG <b>1.0230</b>	
VCGDe <b>0.000</b>			
FFM <b>1.422</b>	FF <b>1.430</b>	SFFP <b>0.610</b>	
FAM <b>1.127</b>	FA <b>1.132</b>	SAFP <b>12.558</b>	
LCF from stem on CL / on sheer		<b>7.625 / 7.876</b>	
Maximum beam station from stem		<b>8.077</b>	
RM Measured		<b>204.2kg-m</b>	
RM Default		<b>248.6kg-m</b>	
Limit of positive stability / Stab.Index		<b>109.8° / 114.5</b>	
Freeboard at mast at 4.825		<b>1.253</b>	

<b>RIG</b>			
Forestay Tension <b>Aft</b>	Spreaders <b>3</b>		
Inner Stay <b>None Fitted</b>	Runners <b>0</b>		
Carbon Mast <b>Yes</b>	Jumper Struts <b>None</b>		
Taper Hollows <b>No</b>	Jib Furler <b>No</b>		
Fiber Rigging <b>No</b>	Main Furler <b>No</b>		
Lenticular Rigging <b>No</b>	Without Backstay <b>No</b>		
Articulated Bowsprit <b>No</b>			
P <b>17.502</b>	E <b>6.066</b>	MDT1 <b>0.146</b>	MW <b>0.238</b>
IG <b>17.803</b>	J <b>4.825</b>	MDL1 <b>0.238</b>	GO <b>0.256</b>
ISP <b>19.422</b>	SFJ <b>0.000</b>	MDT2 <b>0.137</b>	BD <b>0.256</b>
BAS <b>1.667</b>	SPL <b>5.336</b>	MDL2 <b>0.207</b>	MWT <b>281.23</b>
FSP <b>0.079</b>	TPS <b>0.000</b>	TL <b>1.372</b>	MCG <b>6.157</b>



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**2018**

Measurements Datasheet

<b>MIZZEN RIG AND SAILS</b>	
N/A	

<b>PROPELLER</b>			
Installation <b>Strut</b>	PRD <b>0.433</b>		
Type <b>Feathering 3 blades</b>	PBW <b>0.125</b>		
Twin Screw <b>No</b>	PIPA <b>0.0038</b>		
ST1 <b>0.052</b>	ST3 <b>0.180</b>	ST5 <b>0.277</b>	
ST2 <b>0.180</b>	ST4 <b>0.107</b>	EDL <b>1.731</b>	

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<b>COMMENTS</b>	

<b>MOVABLE BALLAST</b>	
N/A	

<b>CENTERBOARD</b>	
N/A	

<b>SAILS INVENTORY</b>																
<b>MAINSAIL (1)</b>																
Id	MHB	MUW	MTW	MHW	MQW	Area	Measurer	Meas.Date	Manufacture	Material	Comment					
1732086	0.150	1.17	2.17	3.80	4.99	61.58			JACK		3Di MAINSAIL					
<b>HEADSAILS (1)</b>																
Id	HHB	HUW	HTW	HHW	HQW	HLP	HLU	Ovrlp	Area	Btn	Fly	Measurer	Meas.Date	Manufacture	Material	Comment
1732112	0.08	0.87	1.68	3.42	5.29	7.19	17.91	149%	62.94					North Sails		3Di Genoa 2018
<b>SYMMETRIC SPINNAKERS (1)</b>																
Id	SLU	SLE	SL	SHW	SFL	Area	Measurer	Meas.Date	Manufacture	Material	Comment					
1732096	19.12	19.12	19.12	9.39	9.31	149.36			JACK		S2 SPINNAKER 2018					
<b>ASYMMETRIC SPINNAKERS (1)</b>																
Id	SLU	SLE	SL	SHW	SFL	Area	Kind	Measurer	Meas.Date	Manufacture	Material	Comment				
1732104	19.60	18.61	19.11	8.84	9.25	142.05	asym			Jack		A1 SPINNAKER				

<b>MEASUREMENT INVENTORY</b>					
Measurer					
Date					
Comment					
Id	Item	Weight	Distance	VCG	Description
a	Anchor	0-0	0-00		
Id	Item	Weight			Description

<b>MEASUREMENT INVENTORY</b>											
Id	Item	Tank	Use	Tank	Type	Capcty	Dist.	VCG	Condtn	Description	
		Tank					0.00	0.00	0-0		
Id	Item	Weight		Distance		VCG					Description



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# 2018

## ORC Club Certificate Appendix

<b>BOAT</b>			
Name	<b>FIREFLY</b>	Certificate Number	<b>US6290</b>
Sail Nr	<b>USA 50022</b>	Issued On	<b>27/04/2018</b>

<b>TIME ALLOWANCES</b>							
Wind Velocity	6 kt	8 kt	10 kt	12 kt	14 kt	16 kt	20 kt
Beat VMG	<b>906.3</b>	<b>754.6</b>	<b>691.6</b>	<b>664.2</b>	<b>650.3</b>	<b>647.2</b>	<b>632.5</b>
52°	<b>594.4</b>	<b>503.3</b>	<b>470.5</b>	<b>459.1</b>	<b>453.6</b>	<b>450.7</b>	<b>443.8</b>
60°	<b>562.5</b>	<b>481.9</b>	<b>454.7</b>	<b>445.4</b>	<b>440.5</b>	<b>437.7</b>	<b>432.2</b>
75°	<b>539.5</b>	<b>467.4</b>	<b>442.6</b>	<b>430.4</b>	<b>423.7</b>	<b>419.4</b>	<b>414.9</b>
90°	<b>545.5</b>	<b>468.6</b>	<b>439.8</b>	<b>423.8</b>	<b>411.2</b>	<b>400.9</b>	<b>390.2</b>
110°	<b>570.0</b>	<b>471.9</b>	<b>436.4</b>	<b>419.6</b>	<b>408.5</b>	<b>396.5</b>	<b>376.4</b>
120°	<b>587.5</b>	<b>482.3</b>	<b>440.2</b>	<b>417.4</b>	<b>396.9</b>	<b>383.2</b>	<b>361.9</b>
135°	<b>655.0</b>	<b>528.2</b>	<b>460.9</b>	<b>431.4</b>	<b>408.5</b>	<b>384.8</b>	<b>340.8</b>
150°	<b>775.8</b>	<b>615.9</b>	<b>520.2</b>	<b>463.3</b>	<b>433.7</b>	<b>412.2</b>	<b>367.6</b>
Run VMG	<b>895.8</b>	<b>711.2</b>	<b>600.7</b>	<b>529.8</b>	<b>484.4</b>	<b>448.5</b>	<b>404.9</b>
<b>Selected Courses</b>							
Windward / Leeward	<b>901.0</b>	<b>732.9</b>	<b>646.2</b>	<b>597.0</b>	<b>567.3</b>	<b>547.8</b>	<b>518.7</b>
Circular Random	<b>763.1</b>	<b>619.4</b>	<b>544.1</b>	<b>501.6</b>	<b>475.8</b>	<b>458.6</b>	<b>434.7</b>
Coastal / Long Distance	<b>900.5</b>	<b>688.8</b>	<b>581.8</b>	<b>520.0</b>	<b>486.1</b>	<b>460.4</b>	<b>417.1</b>
Non Spinnaker	<b>813.5</b>	<b>655.2</b>	<b>570.4</b>	<b>521.3</b>	<b>491.0</b>	<b>470.9</b>	<b>444.1</b>

<b>Velocity Prediction in Knots for True Wind Speeds</b>							
Wind Velocity	6 kt	8 kt	10 kt	12 kt	14 kt	16 kt	20 kt
Beat Angles	<b>42.9°</b>	<b>41.4°</b>	<b>40.6°</b>	<b>39.8°</b>	<b>39.3°</b>	<b>39.3°</b>	<b>39.0°</b>
Beat VMG	<b>3.97</b>	<b>4.77</b>	<b>5.21</b>	<b>5.42</b>	<b>5.54</b>	<b>5.56</b>	<b>5.69</b>
52°	<b>6.06</b>	<b>7.15</b>	<b>7.65</b>	<b>7.84</b>	<b>7.94</b>	<b>7.99</b>	<b>8.11</b>
60°	<b>6.40</b>	<b>7.47</b>	<b>7.92</b>	<b>8.08</b>	<b>8.17</b>	<b>8.22</b>	<b>8.33</b>
75°	<b>6.67</b>	<b>7.70</b>	<b>8.13</b>	<b>8.36</b>	<b>8.50</b>	<b>8.58</b>	<b>8.68</b>
90°	<b>6.60</b>	<b>7.68</b>	<b>8.19</b>	<b>8.49</b>	<b>8.76</b>	<b>8.98</b>	<b>9.23</b>
110°	<b>6.32</b>	<b>7.63</b>	<b>8.25</b>	<b>8.58</b>	<b>8.81</b>	<b>9.08</b>	<b>9.56</b>
120°	<b>6.13</b>	<b>7.46</b>	<b>8.18</b>	<b>8.63</b>	<b>9.07</b>	<b>9.40</b>	<b>9.95</b>
135°	<b>5.50</b>	<b>6.82</b>	<b>7.81</b>	<b>8.35</b>	<b>8.81</b>	<b>9.36</b>	<b>10.56</b>
150°	<b>4.64</b>	<b>5.84</b>	<b>6.92</b>	<b>7.77</b>	<b>8.30</b>	<b>8.73</b>	<b>9.79</b>
Run VMG	<b>4.02</b>	<b>5.06</b>	<b>5.99</b>	<b>6.79</b>	<b>7.43</b>	<b>8.03</b>	<b>8.89</b>
Gybe Angles	<b>142.6°</b>	<b>146.9°</b>	<b>149.6°</b>	<b>154.5°</b>	<b>163.4°</b>	<b>180.0°</b>	<b>180.0°</b>