



**ORC**

Offshore Racing Congress  
World leader in rating technology

**2020  
ORC Club  
Certificate**

**Rating Office**

**Offshore  
Racing  
Congress**



**Certificate**

Number **US6089**  
Issued On **11/01/2021**  
ORC Ref **03410000TLP**  
VPP Ver. **2020 1.02**  
Valid until **31/01/2021**

**Crew Weight**

Default 641kg  
Maximum **791kg**  
Minimum\* **593kg**  
*\*when applied by the NoR and SI*  
Non Manual Pwr **No**

**Special Scoring**

	ToD	ToT
Non Spin GPH	<b>639.0</b>	<b>0.9390</b>
Non Spin OSN	<b>622.3</b>	<b>0.9641</b>

**Sails Limitations**

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

**Asymmetric on centerline**

**Spinnaker configuration**  
Symmetric: **No**  
Asymmetric: **Yes 121.05**  
Flying H/S: **No**  
Spin. Pole: **No**

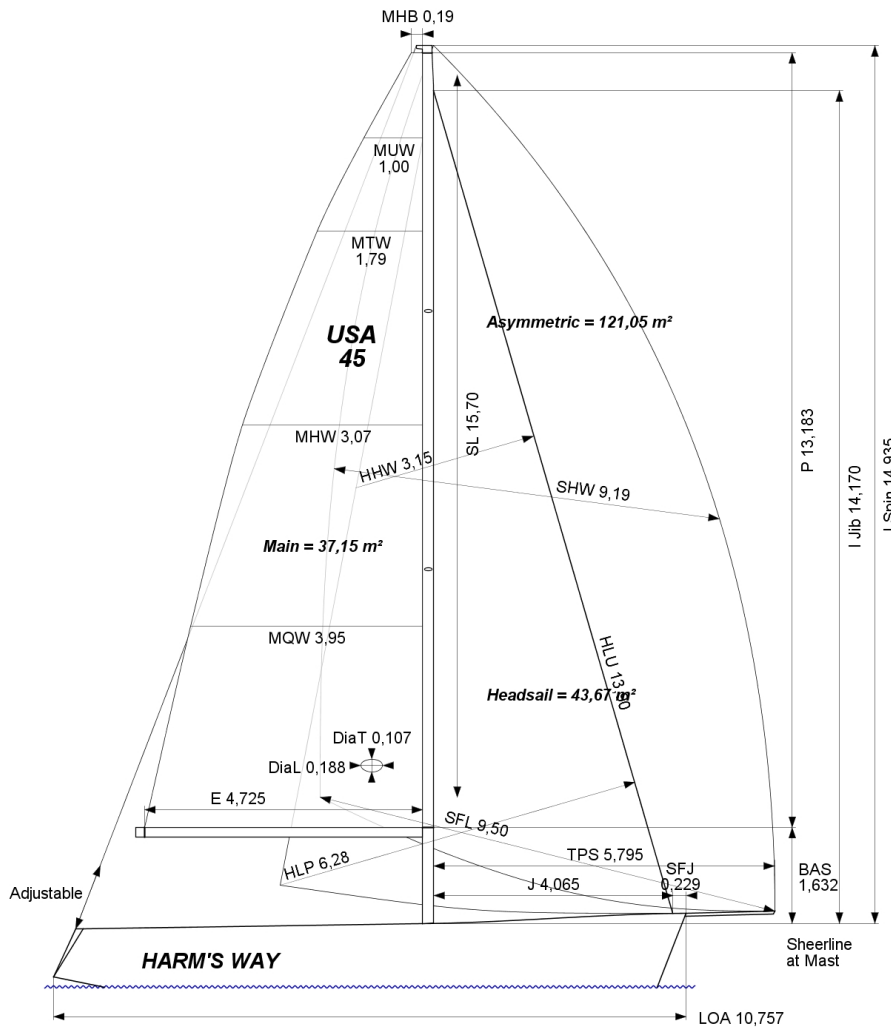
**Class Division Length**

**CDL = 9.473**

**Stability (Estimated)**

Limit Positive Stab.: **119.5°**  
Stability Index: **119.5**

**Owner**



BOAT		GPH		HULL		
Name <b>Harm's Way</b> Sail Nr <b>USA 45</b>		<b>605.6</b>		Data File <b>US6089</b>	LOA <b>10.757m</b>	
CLASS		IMS Division <b>Cruiser/Racer</b>		Dynamic All. <b>0.002%</b>	MB <b>3.524m</b>	
Class <b>J-109</b>	Designer <b>Johnstone</b>	Plan Review	Construction <b>Cored</b>	Fiber Rigging <b>No</b>	Aramid Core <b>No</b>	
Builder <b>JBoats</b>	Series <b>10/2001</b>	Crew Arm Ex	Carbon Rudder <b>No</b>	Light Stanchions		
Age Date <b>03/2005</b>	Age Allowance <b>0.487%</b>	IMSL <b>9.661m</b>	VCGD <b>-0.018m</b>	Sink <b>18.45kg/mm</b>	RL <b>9.284m</b>	
COMMENTS		RL <b>9.284m</b>	VCGM <b>-0.055m</b>	WS <b>24.95m²</b>	LSM0 <b>9.510m</b>	
PROPELLER		Water Ballast <b>0</b>		Trim Tab <b>No</b>	Displacement/Length ratio <b>6.0331</b>	
Installation <b>Strut</b>	PRD <b>0.400</b>	BLR Index <b>0.0000</b>		CENTERBOARD		
Type <b>Folding 2 blades</b>	PIPA <b>0.0031</b>			<b>N/A</b>		
SCORING OPTIONS						
	COASTAL / LONG DISTANCE			WINDWARD / LEEWARD		
Time on Distance	<b>589.9</b>			<b>659.8</b>		
Time on Time	<b>1.0171</b>			<b>1.0230</b>		
Triple Number	Low	Medium	High	Low	Medium	High
Time on Distance	<b>684.7</b>	<b>538.8</b>	<b>487.3</b>	<b>882.9</b>	<b>661.2</b>	<b>587.3</b>
Time on Time	<b>0.9859</b>	<b>1.2529</b>	<b>1.3851</b>	<b>0.7645</b>	<b>1.0209</b>	<b>1.1494</b>



# 2020

## ORC Club Certificate Appendix

<b>BOAT</b>			
Name	<b>Harm's Way</b>	Certificate Number	<b>US6089</b>
Sail Nr	<b>USA 45</b>	Issued On	<b>11/01/2021</b>

<b>TIME ALLOWANCES</b>							
Wind Velocity	6 kt	8 kt	10 kt	12 kt	14 kt	16 kt	20 kt
Beat VMG	<b>997.9</b>	<b>827.9</b>	<b>731.0</b>	<b>693.0</b>	<b>676.7</b>	<b>668.7</b>	<b>666.4</b>
52°	<b>655.6</b>	<b>554.4</b>	<b>511.8</b>	<b>496.0</b>	<b>489.6</b>	<b>486.2</b>	<b>484.5</b>
60°	<b>619.5</b>	<b>533.8</b>	<b>500.7</b>	<b>485.2</b>	<b>477.6</b>	<b>473.2</b>	<b>469.8</b>
75°	<b>592.9</b>	<b>520.3</b>	<b>492.3</b>	<b>474.5</b>	<b>460.7</b>	<b>451.8</b>	<b>443.5</b>
90°	<b>600.8</b>	<b>520.0</b>	<b>488.1</b>	<b>471.8</b>	<b>454.1</b>	<b>438.3</b>	<b>417.6</b>
110°	<b>604.5</b>	<b>510.9</b>	<b>476.8</b>	<b>452.1</b>	<b>434.0</b>	<b>422.1</b>	<b>400.8</b>
120°	<b>620.0</b>	<b>518.2</b>	<b>480.8</b>	<b>453.0</b>	<b>426.9</b>	<b>405.4</b>	<b>379.0</b>
135°	<b>695.7</b>	<b>559.6</b>	<b>499.7</b>	<b>471.0</b>	<b>443.7</b>	<b>417.4</b>	<b>365.1</b>
150°	<b>820.6</b>	<b>656.5</b>	<b>555.1</b>	<b>505.0</b>	<b>482.4</b>	<b>463.8</b>	<b>419.0</b>
Run VMG	<b>947.6</b>	<b>758.1</b>	<b>640.9</b>	<b>582.6</b>	<b>554.0</b>	<b>511.0</b>	<b>465.5</b>
<b>Selected Courses</b>							
Windward / Leeward	<b>972.8</b>	<b>793.0</b>	<b>685.9</b>	<b>637.8</b>	<b>615.3</b>	<b>589.8</b>	<b>566.0</b>
Circular Random	<b>824.7</b>	<b>669.6</b>	<b>587.9</b>	<b>541.7</b>	<b>513.8</b>	<b>495.5</b>	<b>471.4</b>
Coastal / Long Distance	<b>970.3</b>	<b>745.8</b>	<b>622.4</b>	<b>559.0</b>	<b>525.8</b>	<b>495.9</b>	<b>450.8</b>
Non Spinnaker	<b>886.1</b>	<b>713.0</b>	<b>619.6</b>	<b>565.1</b>	<b>531.5</b>	<b>509.8</b>	<b>482.9</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>42.4°</b>	<b>41.3°</b>	<b>39.8°</b>	<b>38.1°</b>	<b>37.5°</b>	<b>37.1°</b>	<b>37.1°</b>
Beat VMG	<b>3.61</b>	<b>4.35</b>	<b>4.93</b>	<b>5.19</b>	<b>5.32</b>	<b>5.38</b>	<b>5.40</b>
52°	<b>5.49</b>	<b>6.49</b>	<b>7.03</b>	<b>7.26</b>	<b>7.35</b>	<b>7.40</b>	<b>7.43</b>
60°	<b>5.81</b>	<b>6.74</b>	<b>7.19</b>	<b>7.42</b>	<b>7.54</b>	<b>7.61</b>	<b>7.66</b>
75°	<b>6.07</b>	<b>6.92</b>	<b>7.31</b>	<b>7.59</b>	<b>7.81</b>	<b>7.97</b>	<b>8.12</b>
90°	<b>5.99</b>	<b>6.92</b>	<b>7.38</b>	<b>7.63</b>	<b>7.93</b>	<b>8.21</b>	<b>8.62</b>
110°	<b>5.96</b>	<b>7.05</b>	<b>7.55</b>	<b>7.96</b>	<b>8.29</b>	<b>8.53</b>	<b>8.98</b>
120°	<b>5.81</b>	<b>6.95</b>	<b>7.49</b>	<b>7.95</b>	<b>8.43</b>	<b>8.88</b>	<b>9.50</b>
135°	<b>5.17</b>	<b>6.43</b>	<b>7.20</b>	<b>7.64</b>	<b>8.11</b>	<b>8.63</b>	<b>9.86</b>
150°	<b>4.39</b>	<b>5.48</b>	<b>6.49</b>	<b>7.13</b>	<b>7.46</b>	<b>7.76</b>	<b>8.59</b>
Run VMG	<b>3.80</b>	<b>4.75</b>	<b>5.62</b>	<b>6.18</b>	<b>6.50</b>	<b>7.04</b>	<b>7.73</b>
Gybe Angles	<b>144.5°</b>	<b>148.0°</b>	<b>148.0°</b>	<b>150.5°</b>	<b>174.0°</b>	<b>177.0°</b>	<b>177.5°</b>