

International 2.4 metre Measurement Form

Sail Number

ISAF Plaque Number **870**

Owner **H. Striehl**

Name of yacht

| | | | |
|---------------------------------------|-------------------------|--------|--------------|
| Overall length | | | 4.186 |
| Overhang Forward to L1 | | +0.427 | |
| Overhang Aft to L1 | Total overhang | +0.661 | → -1.088 |
| Measured length | | | 3.092 |
| Girth at Bow | | 0.313 | |
| Twice Vertical Height at Bow | O at Bow | -0.240 | → 0.073 |
| 1½ O at Bow | | | +0.109 |
| Girth at Stern | | 0.878 | |
| Twice Vertical Height at Stern | O at Stern | -0.538 | → 0.340 |
| Add 1/3 O at Stern | | | +0.117 |
| Add any penalty at O2 | Sum of Girth difference | +0.000 | → +0.226 |
| Correct length, L | | | 3.318 |
| Skin girth d to d1 Port | | 0.730 | |
| Chain girth d to d1 Port | d Port | -0.730 | → +0.000 |
| Skin girth d to d1 Starboard | | 0.730 | |
| Chain girth d to d1 Starb, | d Starboard | -0.730 | → +0.000 |
| d = d Port + d Starboard | 2 x d | | +0.000 |
| Add to find sum of L + 2d | | | 3.318 |
| Mean freeboard Bow O | | +0.330 | |
| Mean freeboard Midships D | | +0.305 | |
| Mean freeboard Stern | Sum of freeboards | +0.305 | 0.940 |
| F=1/3 sum of freeboards | F, max 0.292 | | 0.317 |
| = L + 2d - F | | | -0.292 |
| | | | 3.026 |
| Penalty Displacement Rule D.7.2. | LWL | 0.000 | |
| Corr LWL | Difference | -0.000 | → 0.000 |
| | 2 x difference | | +0.000 |
| Penalty Beam Rule D.7.3 | Beam | 0.770 | |
| Min beam | Deficiency | -0.720 | → 0.000 |
| | 4 x deficiency | | +0.000 |
| √S | | | +2.654 |
| Total of Measurements L + 2d - F + √S | | | 5.680 |
| Divide by 2.37 = RATING = | | | 2.396 |
| Penalty Draft Rule D.7.1 | Draft | 0.975 | |
| Max draft | Excess | -1.000 | → 0.000 |
| | 3 x excess | | +0.000 |
| Penalty Tumble home D.7.4 | Tumble home | 0.000 | |
| Max Tumble home | Excess | -0.015 | → 0.000 |
| | 3 x excess | | +0.000 |
| FINAL RATING | | | 2.396 |

Other Measurements recorded by measurer

Overall Length

Overhang Forward to L

Overhang Aft to L

Total Overhang (Sum overhang forward and aft)

Waterline Length (Overall Length - Total Overhang)

Minimum measured cockpit frame over water level when ballasted and swamped in accordance with rule C.5.2

Boat weight recorded by weighing according to rule C.5.1

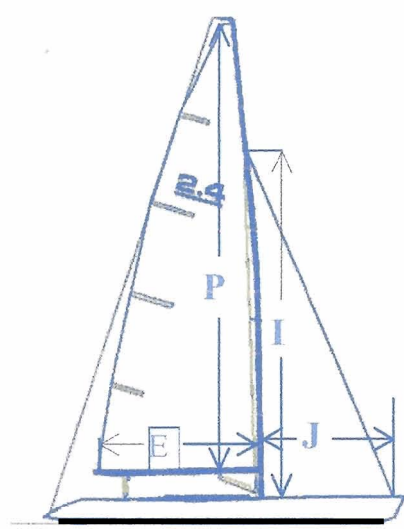
Boat weight including 35 kg ballast

Minimum weight by Rule D.7.2 $(0.2 \times LWL + 0.06)^3 \times 1.025$

| | |
|---------|---------|
| | 4.180 |
| +0.544 | |
| +0.661 | |
| 1.205 → | - 1.205 |
| | 2.975 |
| | 0.050 |
| | 254 Kg |
| | 289 Kg |
| | 288 Kg |

Sail Dimensions

Outer point distance $P = 4.650$
 Forestay height $E = 1.460$
 Foretriangle base $I = 3.750$
 $J = 1.560$



| | |
|---|---|
| Mast measurements checked | ✓ |
| Height of mast datum point Rule C.8.2 (b) (2) | ✓ |
| Boom measurements checked | ✓ |
| Rudder thickness, Rule E.4.3 | ✓ |

Areas of Sail

Mainsail $0.5 \times P \times E =$

Foretriangle Total $0.5 \times I \times J =$

Foretriangle Total $\times 0.85$

Sail Area For Rating $= S =$

\sqrt{S}

| | |
|----------------------|----------------------|
| | 4.557 m ² |
| 2.925 m ² | |
| | 2.486 m ² |
| | 7.043 m ² |
| | 2.654 |

Builder *Charger* Designer *P. Norlin* When Built *2014*

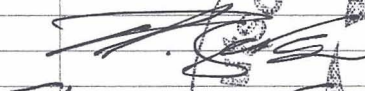
Measured by *Thomas Jatsch* Date of Measurement *20.12.2020*

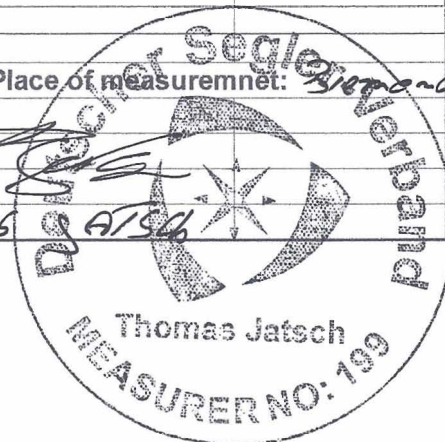
Complementary measured by Date of compl measurement

Certificate issued by Date of issue

name
CA
authority

| 2.4 Norlin One Design Class NEW BOATS | | | | |
|---|----------------------------|--|------------------------|----------------------|
| Official Measurer's certification control of 2.4 NOD boats built AFTER 2011-03-01 | | | | |
| Measurement Report New Boat | | | Checks according to CR | |
| ISAF Plaque number: 870 OD.NO. 83 | | | | |
| Builder's details and hull number: Charger Composites | | | | |
| Mast Builder's details: | | | | (if not the builder) |
| Rule | Item to be checked | Requirements | Measurem result | Comments |
| B.1.1 | Cerification marks | Acc to 2.4mR CR | N/A | acc to form A |
| C.6.1(a) | Boat weight | Weight 253 - 254kg | 254 kg | |
| C.6.1(b) | Balance point (C of G) | Distance fr sect 0 1343-1371mm | 1345 mm | |
| C.9.9(a) | Adjustable shrouds | According to rule | YES | |
| D.2.3(c) | Holes in hull and deck | According to rule | YES | |
| D.2.4(b) | Hull datum section | Marked on deck and sheer line | YES | |
| D.2.5 | ISAF Plaque | Placed in the cockpit | YES | |
| D.3.1 | Building materials | According to C M 3.1 | YES | * |
| D.3.2 | Hull construction | According to C M 3.2 | YES | * |
| D.5.1(a) | Buoyancy material | Non-com. air cell foam plastic | YES | * |
| D.5.1(d) | Compartments | Shall be inspectable | YES | |
| D.6.2(b) | Seat not incl in weight | CoG \leq 300 from sheer line | N/A mm | |
| D.7.1(a) | Mandatory fittings | All fittings installed | YES | |
| D.7.1(10) | Foretriangle base | Fitting or devise installed | YES 1.560mm | |
| D.7.1(c) | Fittings construction | Distance from stem acc drw J 1 | YES | |
| D.7.1(c) | Fitting on outside of hull | No fitnngs permitted on outside | OK | |
| D.8.3 | Ballast | Acc to rule D.8.3 (a), (b), (c) | YES | * |
| C.7.3 | Ballast | Weight \leq 181kg | 181 kg | |
| | Ballast | Weight of topmost pig | 4 kg | |
| C.7.3 | | Battery included in ballast | YES | |
| | Corrector weights | Position | N/A kg | |
| C.9.5(b)(1) | Mast step | Movement $<$ 10mm athwartships | 6 mm | * |
| C.9.5(b)(2) | Mats datum point | Dist to deck measur point $<$ 36mm | 5 mm | |
| F.2.4 | Mast datum point | 3750mm from rigging point | YES | |
| C.9.5(a) | Mast curvature | \leq 30mm | 5 mm | * |
| F.3.1 | Mast material | Aluminium | ALUMINIUM | * |
| F.3.2 | Mast construction | Fixed sail groove | FIXED | * |
| F.3.3 | Mandatory fittings | All installed | YES | * |
| F.3.4 | Mast cross sections top | Fore/aft $28\text{mm} \leq d \leq 66\text{mm}$ | 32 mm | * |
| | | Transv \geq 28mm | 33 mm | * |
| | Datum point - 3500mm | Fore/aft $56\text{mm} \leq d \leq 66\text{mm}$ | 65 mm | * |
| | | Transv \geq 38mm | 52 mm | * |
| | Lower point height | $340\text{mm} \leq h \leq 350\text{mm}$ | 350 mm | |
| | Upper point height | $4990\text{mm} \leq h \leq 5000\text{mm}$ | 5.000 mm | |
| | Lower to upper point | $4630\text{mm} \leq h \leq 4650\text{mm}$ | 4.650 mm | |
| | Forestay height | $3750\text{mm} \leq h \leq 3750\text{mm}$ | 3.750 mm | |
| | Shroud height | $3900\text{mm} \leq h \leq 4000\text{mm}$ | 3.804 mm | * |
| | Spreader length | $250\text{mm} \leq l \leq 350\text{mm}$ | 255 mm | * |
| | Spreader height | $1950\text{mm} \leq h \leq 2050\text{mm}$ | 1974 mm | * |
| F.3.5 | Mast weight | $6,5\text{kg} \leq q \leq 7,5\text{kg}$ | 6.5 kg | * |
| | Mast tip weight | \geq 2,0kg | 2.1 kg | * |
| F.4.1 | Boom material | Aluminium | ALUMINIUM | * |
| F.4.2 | Boom construction | With or without groove | with | * |
| F.4.4 | Outer point distance | \leq 1960mm | 1960 mm | * |

| Plaque number: | | Measurement Report New Boats | | Page 2 |
|---|-----------------------------------|---|--------------------|----------|
| Rule | Item to be checked | Requirements | Measurement result | Comments |
| F.4.4 | Boom cross section | Vertical < 75mm | 57 mm | |
| | | Transverse $27\text{mm} \leq d \leq 55\text{mm}$ | 49 mm | |
| C.9.6(b) | Boom position on mast | Over side at lower point | YES | |
| F.5.2 | Whisker pole material | Aluminium | ALUMIN | * |
| F.5.5 | Whisker pole length | < 2109mm | 2104 mm | |
| | Whisker pole diameter | $\geq 22\text{mm}$ | 26 mm | * |
| F.7.1 | Shrouds material | Stainless steel | S.S | * |
| F.8.2(a) | Running rigging mandato | Maximum acc to C.9.10(c) (1) | OK | * |
| F.8.2(b) | Running rigging optional | Maximum acc to C.9.10(c) (2) | OK | * |
| C.9.10(d) | Mainsail sheet | Only one sheet is permitted | OK | |
| K3 | Checking against templates | | | |
| Hull | Vertical section 0 | clearance 2 - 4mm | OK | |
| Hull | Vertical section 2 | clearance 2 - 4mm | OK | |
| Hull | Vertical section 4 | clearance 2 - 4mm | OK | |
| Stem | 100mm part in centre | clearance 0 - 2mm | OK | |
| Keel | Vertical section 2 | clearance 2 - 4mm | OK | |
| Keel | Horizontal section 75mm b BL | clearance 2 - 4mm | OK | |
| Keel | Horizontal section 400mm b BL | clearance 2 - 4mm | OK | |
| Keel | Trailing edge | clearance 1 - 0mm | OK | |
| Rudder | Standard, profile | clearance 2 - 4mm | OK | |
| Rudder | Standard, section 200 | clearance 0 - 1mm | OK | |
| Rudder | Standard, section 400 | clearance 0 - 1mm | OK | |
| Rudder | Standard, section 600 | clearance 0 - 1mm | OK | |
| Rudder | Trailing edge | clearance 1 - 0mm | OK | |
| Additional checks of dimensions given on drawing nr 1, 2, 9 and 10 | | | | |
| Hull | Over all length | $4178 \leq l \leq 4182\text{mm}$ | 4181 mm | |
| Hull | Beam section 0 | $537 \leq l \leq 541\text{mm}$ | 540 mm | |
| Hull | Beam section 2 | $801 \leq l \leq 805\text{mm}$ | 803 mm | |
| Hull | Beam section 4 | $303 \leq l \leq 308\text{mm}$ | 303 mm | |
| Hull | Aft end to section 0 | $647 \leq l \leq 649\text{mm}$ | 647 mm | |
| Deck | Mast hole to sect 0 | $l \leq 2043\text{mm}$ | 2083 mm | |
| Deck | Shroud hole to sect 0 | $1902 \leq l \leq 1922\text{mm}$ | 1906 mm | |
| Deck | Shroud hole to Centre L | $250 \leq l \leq 260\text{mm}$ | 242 mm | |
| Deck | Stem to forestay extens. | intersection with deck $0 \leq l \leq 10\text{m}$ | | |
| Date of measurement: | | 20.12.00 | | |
| Place of measurement: | | Siegfriedstrasse | | |
| Signature of measurer: | |  | | |
| Name of measurer: | | THOMAS JATSCH | | |



Buoyancy Certificate

ISAF Plaque Number:

870

Date of Floatation Check:

20-12-2020

A floatation check is valid maximum five (5) years from the date of floatation check.

The yacht has been checked under the following conditions:

The boat was in racing condition and with an extra 35kg lead ballast placed within 100mm from 0.55 x LWL from the bow station.

- The boat was filled with water and tilted over to starboard, to port, to the bow and to the stern in order to let air enclosed under deck and other parts of the hull to come out.

It was noticed that the boat floated in an approximate horizontal position.

This is certified by:



International 2.4mR Class Association

www.inter24metre.org

Ver 1.0