

| | | |
|--|----------------------------|---|
| BOAT Name GRANMA X Sail Nr GRE-88 | GPH 613.4 | HULL Length Overall 11.360m Maximum Beam 3.660m Displacement 5,463kg Draft 2.101m IMS Reg. Division Performance Dynamic Allowance 0.152% Fwd Accommodation No Hull Construction Cored Carbon Rudder No Crew Arm Extension |
| GENERAL Class IMX-38 Designer N.JEPPESEN Builder X-YACHTS Series 09/1992 Age 04/1996 Age Allowance 0.487% Offset File ORC0010.OFF - 23/11/1995 11:10:40 Measurement by - 11/03/2006 | | IMSL 9.831m VCGD -0.020m Sink 19.61kg/mm RL 8.948m VCGM 0.045m WS 26.06m² LSM0 9.761m Displacement/Length ratio 5.8742 |



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| SCORING OPTIONS | | | | | | |
|------------------|-------------------------|---------------|---------------|--------------------|---------------|---------------|
| Time on Distance | COASTAL / LONG DISTANCE | | | WINDWARD / LEEWARD | | |
| | 595.5 | | | 663.8 | | |
| Time on Time | 1.0075 | | | 1.0169 | | |
| Triple Number | Low | Medium | High | Low | Medium | High |
| Time on Distance | 702.1 | 543.5 | 485.4 | 903.9 | 666.1 | 579.6 |
| Time on Time | 0.9614 | 1.2420 | 1.3907 | 0.7468 | 1.0134 | 1.1645 |

| TIME ALLOWANCES | | | | | | | |
|-----------------|---------------|--------------|--------------|--------------|--------------|--------------|--------------|
| Wind Velocity | 6 kt | 8 kt | 10 kt | 12 kt | 14 kt | 16 kt | 20 kt |
| Beat VMG | 1031.3 | 853.2 | 751.3 | 705.9 | 690.4 | 684.1 | 669.6 |
| 52° | 676.7 | 570.5 | 518.0 | 497.8 | 490.3 | 486.8 | 481.1 |
| 60° | 640.5 | 545.9 | 504.4 | 486.1 | 476.9 | 472.7 | 468.7 |
| 75° | 613.7 | 529.0 | 494.3 | 475.1 | 460.8 | 450.5 | 442.4 |
| 90° | 622.4 | 529.9 | 489.5 | 473.0 | 455.4 | 439.0 | 416.7 |
| 110° | 624.6 | 519.5 | 479.6 | 454.6 | 435.2 | 423.1 | 404.0 |
| 120° | 641.4 | 529.4 | 484.2 | 456.9 | 431.1 | 409.5 | 384.6 |
| 135° | 707.8 | 573.9 | 505.5 | 474.1 | 448.1 | 422.7 | 375.4 |
| 150° | 834.2 | 664.6 | 562.6 | 504.7 | 475.5 | 451.4 | 405.4 |
| Run VMG | 963.3 | 767.4 | 649.3 | 574.5 | 523.1 | 487.9 | 440.9 |

Certificate
Number **000231**
ORC Ref **GRE01016331**
Issued On **18/09/2019**
VPP Ver. **2019 1.01**
Valid until **28/02/2020**

Crew Weight
Default **665kg**
Maximum **640kg**
Minimum* **480kg**
**when applied by the NoR and SI*
Non Manual Pwr **No**

Special Scoring
ToD ToT
Non Spin GPH **649.1** **0.9244**
Non Spin OSN **629.4** **0.9532**

| Selected Courses | | | | | | | |
|-------------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| Windward / Leeward | 997.3 | 810.3 | 700.3 | 640.2 | 606.8 | 586.0 | 555.2 |
| Circular Random | 843.3 | 681.5 | 595.1 | 545.3 | 514.7 | 494.4 | 467.4 |
| Coastal / Long Distance | 993.9 | 761.7 | 633.3 | 562.4 | 525.1 | 495.6 | 448.3 |
| Non Spinnaker | 907.9 | 727.1 | 628.9 | 571.2 | 535.5 | 511.9 | 481.0 |

Sails Limitations
Headsails **5** Spinnakers **3**

| 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 | 42.5° | 41.1° | 40.2° | 38.9° | 38.6° | 38.5° | 38.2° |
| Beat VMG | 3.49 | 4.22 | 4.79 | 5.10 | 5.21 | 5.26 | 5.38 |
| 52° | 5.32 | 6.31 | 6.95 | 7.23 | 7.34 | 7.40 | 7.48 |
| 60° | 5.62 | 6.59 | 7.14 | 7.41 | 7.55 | 7.62 | 7.68 |
| 75° | 5.87 | 6.81 | 7.28 | 7.58 | 7.81 | 7.99 | 8.14 |
| 90° | 5.78 | 6.79 | 7.35 | 7.61 | 7.91 | 8.20 | 8.64 |
| 110° | 5.76 | 6.93 | 7.51 | 7.92 | 8.27 | 8.51 | 8.91 |
| 120° | 5.61 | 6.80 | 7.43 | 7.88 | 8.35 | 8.79 | 9.36 |
| 135° | 5.09 | 6.27 | 7.12 | 7.59 | 8.03 | 8.52 | 9.59 |
| 150° | 4.32 | 5.42 | 6.40 | 7.13 | 7.57 | 7.97 | 8.88 |
| Run VMG | 3.74 | 4.69 | 5.54 | 6.27 | 6.88 | 7.38 | 8.16 |
| Gybe Angles | 145.1° | 148.8° | 150.6° | 156.8° | 174.7° | 180.0° | 180.0° |

Class Division Length
CDL = **9.390**

Storm Sails Areas
Heavy Weather Jib **32.84**
Storm Jib (JL=10.14) **12.17**
Storm Trysail **11.48**

Owner

| | |
|----------------------|---------------------------------|
| BOAT | |
| Name GRANMA X | Sail Nr GRE-88 |
| File GR88IMX | Data in meters/kilograms |

| | | | | | |
|--|--------------|-----|--------------|-----------------------|---------------|
| INCLINING TEST AND FREEBOARDS | | | | | |
| Inclining Test Current Inclining | | | | | |
| Flotation date 13/05/2017 | | | | SG 1.0265 | |
| FFM | 1.219 | FF | 1.219 | SFFP | 1.098 |
| FAM | 0.957 | FA | 0.957 | SAFP | 10.595 |
| W1 | 80.0 | PD1 | 259.0 | WD | 12.260 |
| W2 | 80.0 | PD2 | 259.0 | GSA | 50.2 |
| W3 | 80.0 | PD3 | 259.0 | RSA | 5941.7 |
| W4 | 80.0 | PD4 | 259.0 | PLM | 2069.0 |
| LCF from stem on CL / on sheer | | | | 6.239 / 6.480 | |
| Maximum beam station from stem | | | | 6.705 | |
| RM Measured | | | | 136.0kg-m | |
| RM Default | | | | 132.8kg-m | |
| Limit of positive stability / Stab.Index | | | | 112.9° / 112.3 | |
| Freeboard at mast at 4.650 | | | | 1.091 | |



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| | | | | | |
|----------------------|--------------------|------------------|--------------|-------------|---------------|
| RIG | | | | | |
| Forestay Tension | Aft | Spreaders | | 3 | |
| 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 | 13.380 | E | 4.900 | MDT1 | 0.117 |
| IG | 15.500 | J | 4.390 | MDL1 | 0.200 |
| ISP | 15.453 | SFJ | 0.260 | MDT2 | 0.116 |
| BAS | 1.848 | SPL | 4.485 | MDL2 | 0.160 |
| FSP | 0.084 | TPS | | MWT | 180.00 |
| | | TL | 1.600 | MCG | 5.000 |

| | |
|--------------------|--------------------|
| Certificate | |
| Number | 000231 |
| ORC Ref | GRE01016331 |
| Issued On | 18/09/2019 |
| VPP Ver. | 2019 1.01 |
| Valid until | 28/02/2020 |

| | |
|-----------------------------|--|
| MIZZEN RIG AND SAILS | |
| N/A | |

| | | | |
|------------------|-------------------------|------|---------------|
| PROPELLER | | | |
| Installation | Strut | PRD | 0.410 |
| Type | Folding 2 blades | PBW | 0.110 |
| Twin Screw | No | PIPA | 0.0031 |
| ST1 | 0.048 | ST3 | 0.170 |
| ST2 | 0.170 | ST4 | 0.097 |
| | | ST5 | 0.280 |
| | | EDL | 1.480 |

| | |
|---|--|
| COMMENTS | |
| ex "AEOLOS II", ex "ELLINIX", ex "MAISTRATO". Builder's displacement. | |

| | |
|------------------------|--|
| MOVABLE BALLAST | |
| N/A | |

| | |
|--------------------|--|
| CENTERBOARD | |
| N/A | |



| | | | | | | | | | |
|------------------------------|---------------|-------|-------|------|------|--------|------------------------|---|--|
| SAILS (Maximum Areas) | | | | | | | | | |
| Mainsail | MHB | MUW | MTW | MHW | MQW | Area | Area (r) | Formula | |
| | 0.180 | 0.98 | 1.81 | 3.11 | 4.11 | 38.68 | 39.48 | P/8 · (E + 2·MQW + 2·MHW + 1.5·MTW + MUW + 0.5·MHB) | |
| Symmetric | SLU | SLE | SL | SHW | SFL | | | | |
| | 15.18 | 15.18 | 15.18 | 8.17 | 7.90 | 102.67 | SL · (SFL + 4·SHW) / 6 | | |
| 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 |
| 0.15 | 0.73 | 1.32 | 2.33 | 3.30 | 4.26 | 15.30 | 34.77 | Y | | 12/09/2019 | Kevlar | J1 L |
| 0.13 | 0.71 | 1.27 | 2.28 | 3.28 | 4.28 | 15.36 | 34.53 | | | 06/07/2017 | Polyest | #3 |
| 0.09 | 0.58 | 1.09 | 2.14 | 3.22 | 4.28 | 15.38 | 33.16 | | | 29/07/2010 | Unknow | |
| | | | | | 3.58 | 15.30 | 27.88 | Y | | 09/06/2011 | Unknow | staysail |

| | | | | |
|------------------------------|-------------------|--------------------|----------|-----------------|
| MEASUREMENT INVENTORY | | | | |
| Measurer | GRE-16 | | | |
| Date | 13/05/2017 | | | |
| Comment | | | | |
| Id | Item | Weight | Distance | VCG Description |
| Id | Item | Maker | Model | |
| 1 | Engine | VOLVO PENTA | 2030 | |
| Id | Item | Weight Description | | |

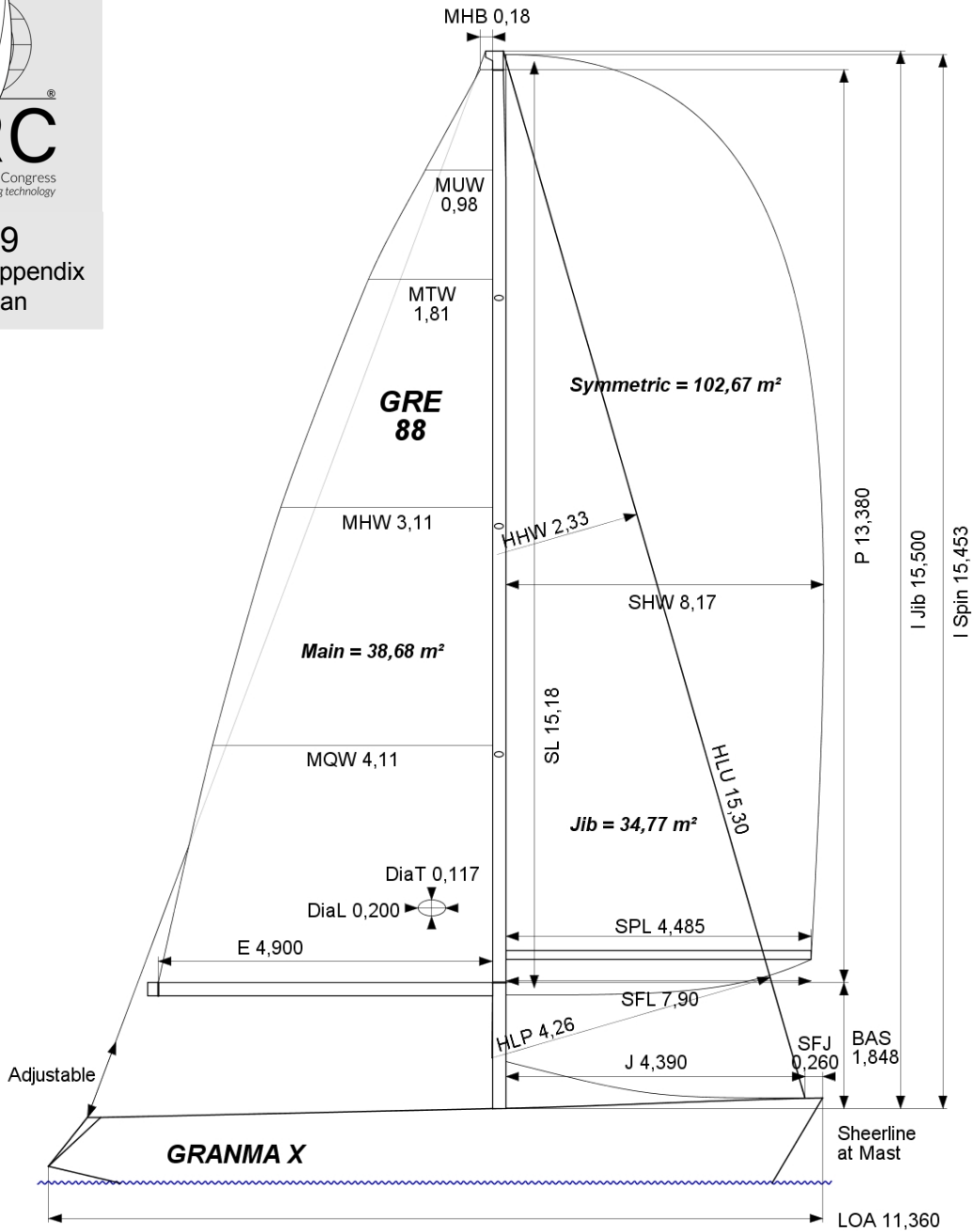
| | | | | | | | |
|------------------------------|---------|----------|-----------|----------------------|-------|-----|--------------------|
| MEASUREMENT INVENTORY | | | | | | | |
| Id | Item | Tank Use | Tank Type | Capcty | Dist. | VCG | Condtn Description |
| 2 | Tank | FUEL | INOX | 80.0 | 6.50 | | 6-0 6 LT |
| 1 | Tank | WATER | PVC | 120.0 | 6.30 | | 0-0 EMPTY |
| Id | Item | Weight | Distance | VCG Description | | | |
| 2 | Battery | 19.0 | 6.70 | 70Ah, port | | | |
| 1 | Battery | 60.0 | 6.60 | 3 x 75Ah, centerline | | | |



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Sail Plan



SAILS INVENTORY

| MAINSAIL (1) | | | | | | | | | | | | | | | | |
|---------------------------|-------|-------|-------|------|------|--------|----------|------------|-------------|-------------|----------|----------|------------|-------------|----------|----------|
| Id | MHB | MUW | MTW | MHW | MQW | Area | Measurer | Meas.Date | Manufacture | Material | Comment | | | | | |
| 4 | 0.18 | 0.98 | 1.81 | 3.11 | 4.11 | 38.68 | | 12/09/2019 | QUANTUM | Carbon | | | | | | |
| HEADSAILS (4) | | | | | | | | | | | | | | | | |
| Id | HHB | HUW | HTW | HHW | HQW | HLP | HLU | Ovrlp | Area | Btn | Fly | Measurer | Meas.Date | Manufacture | Material | Comment |
| 10 | 0.15 | 0.73 | 1.32 | 2.33 | 3.30 | 4.26 | 15.30 | 97% | 34.77 | Y | | | 12/09/2019 | QUANTUM | Kevlar | J1 L |
| 9 | 0.13 | 0.71 | 1.27 | 2.28 | 3.28 | 4.28 | 15.36 | 97% | 34.53 | | | | 06/07/2017 | Quantum | Polyest | #3 |
| 6 | 0.09 | 0.58 | 1.09 | 2.14 | 3.22 | 4.28 | 15.38 | 97% | 33.16 | | | | 29/07/2010 | | Unknow | |
| 11 | | | | | | 3.58 | 15.30 | 82% | 27.88 | | Y | | 09/06/2011 | | Unknow | staysail |
| SYMMETRIC SPINNAKERS (1) | | | | | | | | | | | | | | | | |
| Id | SLU | SLE | SL | SHW | SFL | Area | Measurer | Meas.Date | Manufacture | Material | Comment | | | | | |
| 9 | 15.18 | 15.18 | 15.18 | 8.17 | 7.90 | 102.67 | | 12/09/2019 | QUANTUM | Nylon | S1.5-1 | | | | | |
| ASYMMETRIC SPINNAKERS (0) | | | | | | | | | | | | | | | | |
| Id | SLU | SLE | SL | SHW | SFL | Area | Kind | Measurer | Meas.Date | Manufacture | Material | Comment | | | | |