

RLEFF FORWARD IT OFFSHORE RACIOS

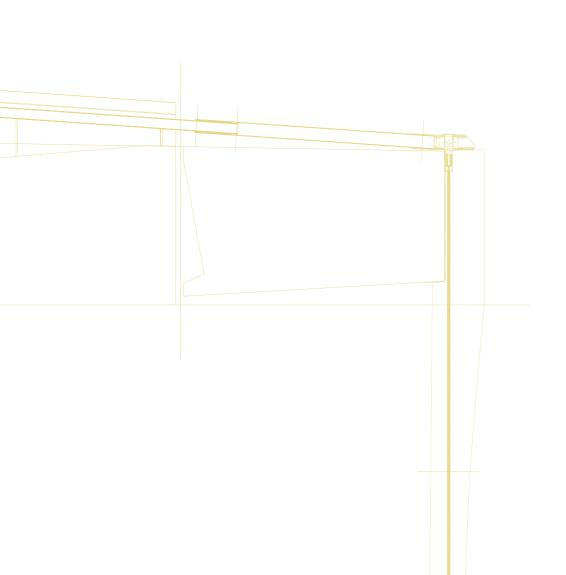
THIS ISN'T A DREAM FOR THE FUTURE, IT'S HAPPENING NOW!

OUR PLAN IS TO INJECT NEW VIGOUR INTO THE SPORT, INCLUDING A VIBRANT CIRCUIT IN WHICH SKIPPERS CAN RACE ULTRA-FAST IDENTICAL FOILING BOATS. WE PROPOSE A COMPETITIVE FLEET OF STATE-OF-THE-ART FOILING MINI 650S RACING WITHIN THEIR OWN EVENTS AND IN ICONIC CLASSE MINI RACES.

THIS AGGRESSIVE LOOKING BOAT IS THE PRODUCT OF A WORLD-CLASS TEAM THAT HAS CAREFULLY ANALYSED EACH ELEMENT. EVERY ASPECT OF THE DESIGN, FROM THE SCOW HULL SHAPE TO ERGONOMICS, HAS THEREFORE BEEN CAREFULLY HONED TO PRODUCE THE ULTIMATE COMPACT OFFSHORE RACEBOAT. IT'S A PERFECT BLEND OF FORM AND FUNCTION.

A RIGOROUS APPROACH TO STRUCTURAL ENGINEERING, COMBINED WITH THE BEST BUILD PROCESSES, SAVES 40KG IN THE HULL AND DECK MOULDINGS. THIS WEIGHT IS REINVESTED IN THE FOILS, CREATING A STRONG AND RELIABLE SET-UP.

READ ON TO FIND OUT MORE...





HULL LENGTH

6.50M

OVERALL LENGTH

11.086M

LIGHTWEIGHT DISPLACEMENT

830KG

BULB WEIGHT

281 TO 294KG

WATER BALLASTS

NONE

KEEL TYPE

CARBON STOCK, CANTING / SLIDING OPTIMIZED FOR FOILING

ELEVATOR TYPE

ROTATING MAST WITH AERO FAIRINGS

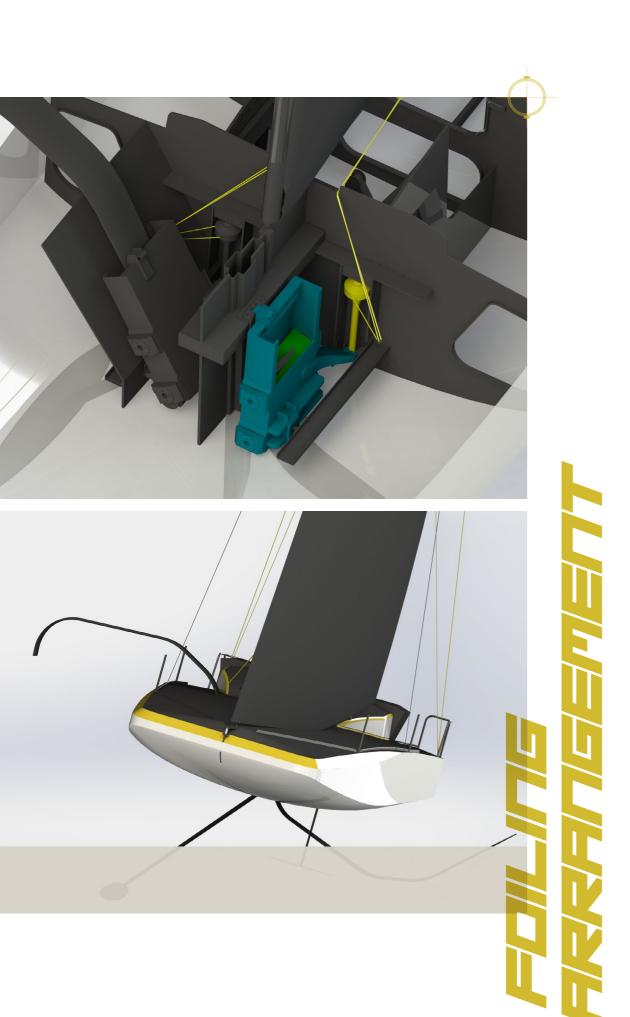
FOIL TYPE

T ARRANGEMENT WITH +/- 12 DEGREE ANGLE OF ATTACK

CONSTRUCTION

PREPREG NOMEX SANDWICH ON FEMALE MOULDS

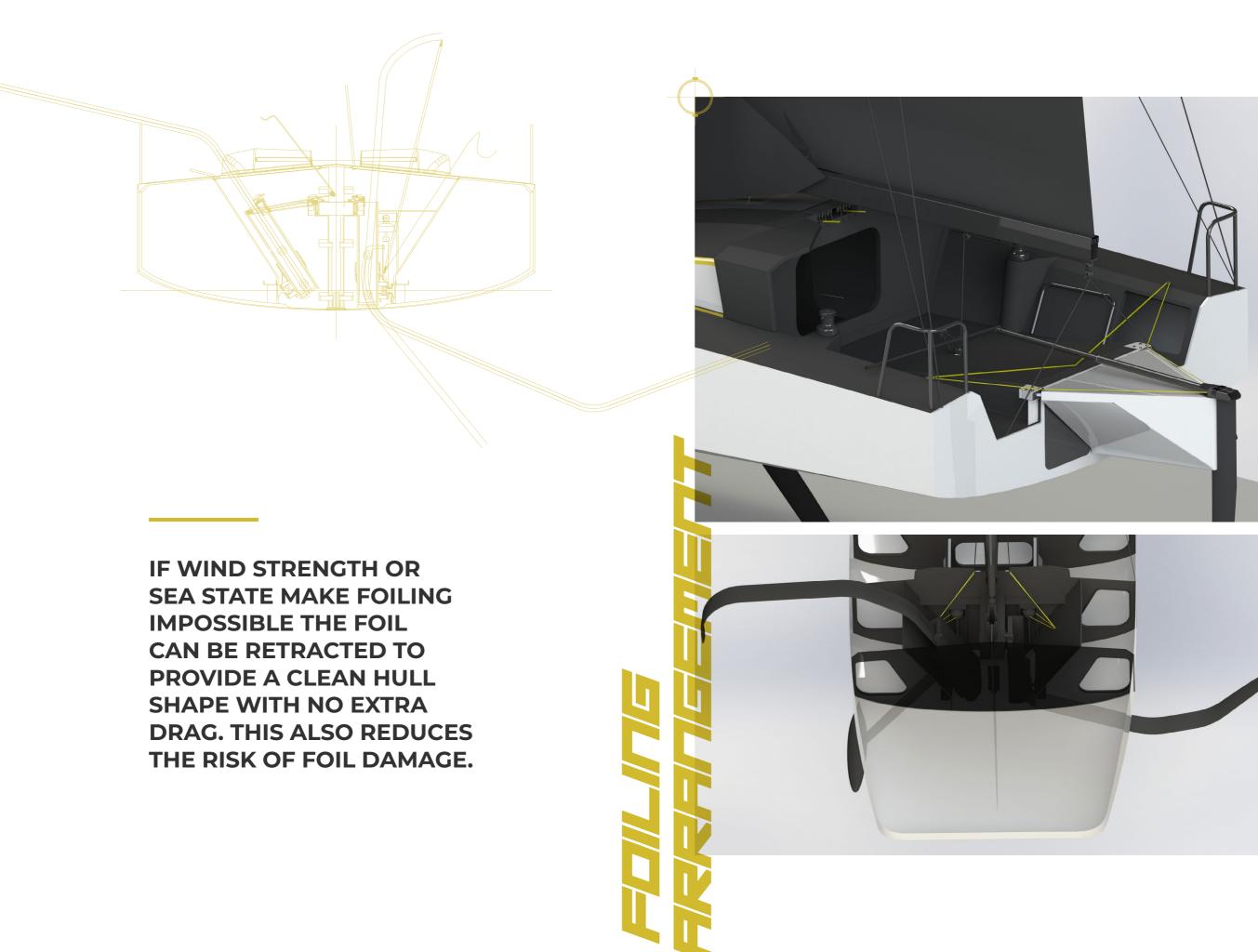


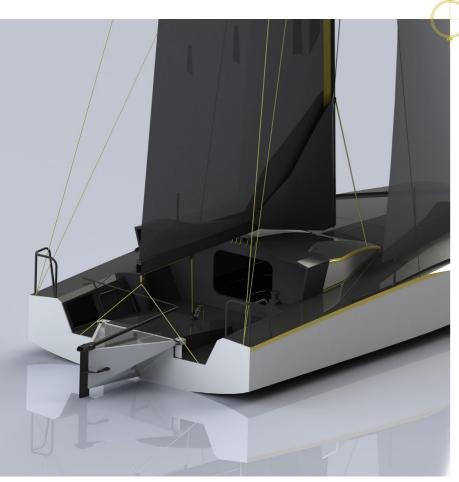


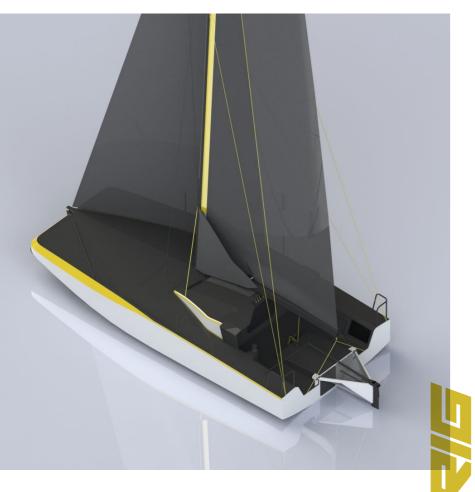
A SURFACE-PIERCING FOIL IS FITTED FORWARD ON EACH SIDE OF THE BOAT, PLUS AN AFT 'ELEVATOR' FOIL AT THE TIP OF THE SINGLE CENTRELINE RUDDER.

THIS IS A STABLE FOILING ARRANGEMENT WHICH REQUIRES ONLY MINOR TRIMMING OF THE FOILS WHEN FLYING, MAKING IT IDEAL FOR SINGLE HANDED SAILING. THE USE OF SURFACE PIERCING FOILS ALSO ELIMINATES THE NEED FOR AN ELECTRIC CONTROL SYSTEM, WHICH SAVES WEIGHT, REDUCES COMPLEXITY AND IMPROVES RELIABILITY.

TO MAXIMISE EFFICIENCY AND FACILITATE TAKE OFF, THE FOIL EXITS UNDER THE HULL AND EXTENDS TO THE MAXIMUM BEAM LIMIT OF THE CLASS RULE. THE RESULT IS MORE TIME SPENT FOILING AND LESS TIME SAILING SLOWLY IN ARCHIMEDES MODE.







A ROTATING REGULAR MAST TUBE AND MAINSAIL IS FITTED, WITH AN AERO FAIRING AT THE INTERSECTION OF THE SAIL AND THE TUBE. IN ADDITION, THE STANDARD TRAVELLER ARRANGEMENT IS REPLACED BY A REVERSE VANG DESIGNED SPECIFICALLY FOR THIS BOAT.

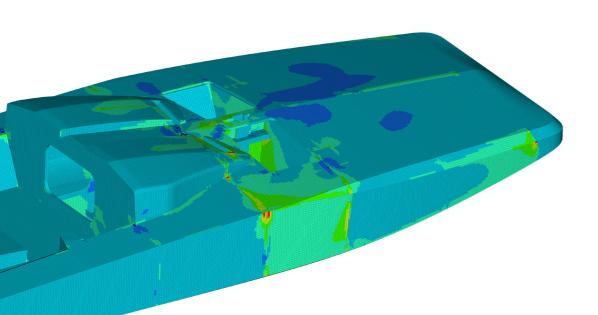
THE AERO FAIRING IMPROVES AIRFLOW OVER THE MAINSAIL, THUS INCREASING PERFORMANCE, WITHOUT THE WEIGHT PENALTY OF A WINGSHAPED MAST SECTION.

IT ALSO HELPS TO CREATE A SUPERBLY EFFICIENT END PLATE ARRANGEMENT, WHILE THE CENTRE OF EFFORT IS LOWERED, ALLOWING FULL SAIL TO BE RETAINED FOR LONGER IN A RISING BREEZE. THE MECHANICAL REVERSE VANG IS VIRTUALLY FRICTIONLESS AND PROVIDES AN 80:1 MECHANICAL ADVANTAGE.

IT CARRIES THE MAINSAIL LEECH TENSION AND THUS REDUCES MAINSHEET LOADS, WHICH MAKES FOR EASY DYNAMIC MAINSAIL TRIMMING.

THIS REDUCTION OF EFFORT ALLOWS THE SAILOR TO FOCUS ON MAKING BEST USE OF THE POWER PROVIDED BY THE FOIL.





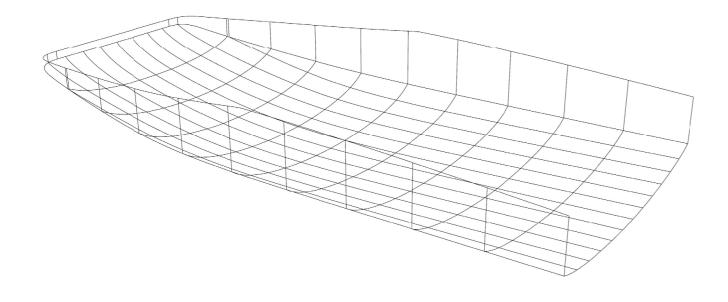
THE ADVANCED NO-EXPENSE-SPARED HULL CONSTRUCTION SAVES A CRITICAL 40KG THAT'S REINVESTED IN THE STRUCTURE OF THE FOILS, MAKING THESE ELEMENTS AS STRONG AND RELIABLE AS POSSIBLE.

HULL CONSTRUCTION IS OF A
FULLY OPTIMIZED NOMEX CARBON
PREPREG SANDWICH WITH AN
INTERNAL SPINE STRUCTURE.
THE HULL IS FURTHER STIFFENED
WITH CLOSELY SPACED
LONGITUDINAL STIFFENERS.

THE INTERNAL SPINE DEALS WITH
THE EXTRA RIG LOADS THAT ARE
PRODUCED WHEN FOILING AT HIGH
SPEED, WHILE THE LONGITUDINAL
STIFFENERS CARRY THE EXTRA
IMPACT LOADS ENCOUNTERED
WHEN FOILING.

THE FOILS CAN DEAL WITH LARGE IMPACT FORCES AND ARE HOUSED IN A WATERTIGHT COMPARTMENT FOR ADDITIONAL PASSIVE SAFETY.





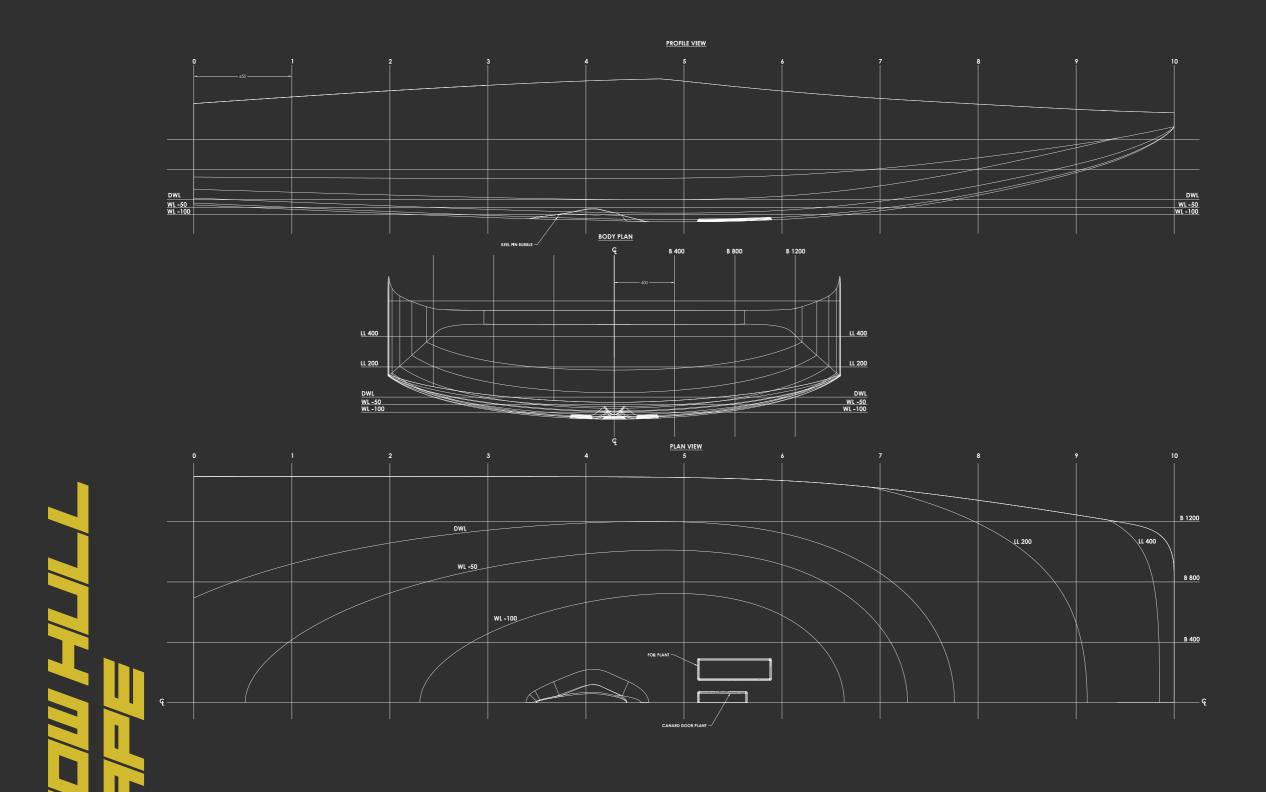
THIS IS THE RESULT OF EXTENSIVE RESEARCH AND EVALUATION.

THE BEAM AT DECK LEVEL IS ALMOST CONSTANT FROM THE TRANSOM TO THE BOW. ALTHOUGH THIS MAKES IT RATHER BOXY IN PLAN VIEW, THE FORWARD SECTIONS OF THE HULL BOTTOM HAVE PRONOUNCED CURVATURE. THE DECK ALSO TAPERS DOWN, RESULTING IN A RAZOR SHARP HORIZONTAL BOW.

THE HULL HAS BEEN SPECIFICALLY DESIGNED FOR FOILING, INCLUDING AN AREA ALIGNED WITH THE FOIL WHOSE ROLE IS TO SMOOTH OUT SOME OF THE WAVE MOTION FOR A MORE CONSTANT FOILING HEIGHT.

THE DECK TAPERS DOWN TO REDUCE BOW VOLUME, MINIMISING IMPACT LOADS ON THE HULL AND THE RESULTING REDUCTION IN SPEED. CREATING A FASTER AND MORE COMFORTABLE RIDE IN THIS WAY ALSO REDUCES PEAK LOADS IN THE RIG.

CARRYING THE MAXIMUM BEAM ALMOST THE FULL LENGTH OF THE HULL MAXIMISES BOTH FORM STABILITY AND PLANING AREA, ENABLING HIGH SPEED SAILING WHEN WEATHER CONDITIONS MAKE FOILING IMPOSSIBLE.





WE KNOW A BOAT LIKE THIS CAN ONLY BE SAILED AT ITS FULL POTENTIAL IF THE ERGONOMICS OF ALL SYSTEMS ARE WORKED OUT TO PERFECTION.

YET EVERY SAILOR HAS DIFFERENT PREFERENCES AND REQUIREMENTS.

FOILING AT HIGH SPEED MEANS PLENTY
OF FAST-MOVING WATER ON DECK, SO A
GREAT DEAL OF THOUGHT HAS GONE INTO
CREW PROTECTION. THE COACHROOF
'EARS', FOR INSTANCE, CAN THEREFORE BE
CUSTOMISED TO EACH SKIPPER'S NEEDS.

INSIDE, THE SYSTEMS ARE NEATLY
PACKAGED, ALTHOUGH OF COURSE
THERE IS NOT MUCH SPACE IN THE
BOAT. HOWEVER, WE HAVE PROVIDED
A COMFORTABLE LIVING AREA ON EACH
TACK AND A BENCH ON EACH SIDE CAN BE
TAILORED TO YOUR NEEDS. BOTH INSIDE
AND OUTSIDE STACKING OPTIONS ARE
POSSIBLE AND CAN BE ARRANGED TO SUIT
YOUR PREFERENCES.

CHECURE DESIGN CHERILITIES

- **FOIL SHAPE, STRUCTURE**AND FLIGHT SIMULATION
- RIG DESIGN AND ENGINEERING
- ERGONOMICS

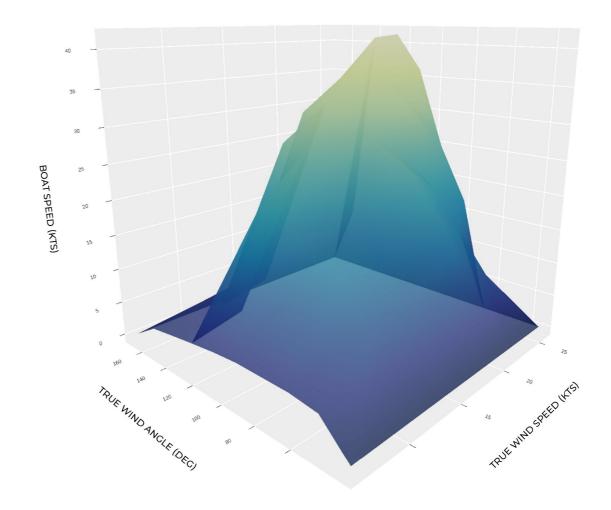
- ADVANCED COMPOSITE
 STRUCTURES
- SCOW BOW
 DEVELOPMENT

AS BOTH A CHARTED STRUCTURAL ENGINEER AND A NAVAL ARCHITECT THOMAS TISON IS UNUSUAL IN HIS FIELD. YET THIS COMBINATION OF SKILLS IS ESSENTIAL FOR AN INTEGRATED, GLOBAL APPROACH TO PROBLEM SOLVING IN THE FIELDS OF SYSTEMS, STRUCTURES AND FLUIDS. IT'S AN APPROACH THAT GENERATES STRONG, GAME CHANGING IDEAS.

OUR KNOWLEDGE OF FOIL DESIGN, CONSTRUCTION AND LOADING HAS BEEN HONED AT THE HIGHEST POSSIBLE LEVEL – DESIGNING FOR THE AMERICA'S CUP.

THIS IS BACKED UP BY TT DESIGN'S EXTENSIVE IN-HOUSE SIMULATION AND VALIDATION FACILITIES.
FOR INSTANCE, A PARAMETRIC STEADY STATE FOILING VPP (VELOCITY PREDICTION PROGRAM) ENABLED THOUSANDS OF COMBINATIONS OF FOILS, RIG AND SAILS TO BE ANALYSED ON EACH POINT OF SAIL.

SPEED ESTIMATION WITH BESTS SAILSET





IN ADDITION, A DYNAMIC FOILING SIMULATOR ALLOWS STUDY OF PERFORMANCE DURING TAKE OFF AND IN FLIGHT. THIS WAS USED TO ASSESS THE DURATION OF STEADY STATE FLIGHT WITHOUT HUMAN INPUT AND TAKE OFF ACROSS A FULL RANGE OF CONDITIONS.

THE CONCEPT AND EXECUTION OF THE RIG DESIGN WAS BORN OF WORKING FOR AMERICA'S CUP TEAMS, PLUS THE EXPERIENCE OF DESIGNING MANY ADVANCED SYSTEMS, FROM THE MOST COMPETITIVE OF DINGHIES TO LARGE OFFSHORE RACING YACHTS.

AN EXTENSIVE STUDY OF EXISTING MINI 6.50 SCOW HULL SHAPES FORMED A BENCHMARK AGAINST WHICH NEW AND REFINED IDEAS COULD BE MEASURED. THIS ENABLED AN INFORMED PROCESS OF EXPERIMENTATION, WITH DIFFERENT SHAPES AND FEATURES, TO BE CARRIED OUT BEFORE ARRIVING AT THE FINAL DESIGN.

IN DEPTH KNOWLEDGE OF ADVANCED STRUCTURES, ALONG WITH OPTIMISATION ALGORITHMS USING BIONIC STRUCTURE

PRINCIPLES, ENABLED TISON'S TEAM TO MINIMISE HULL WEIGHT. THIS WAS ALSO INFORMED BY HIS AMERICA'S CUP EXPERIENCE OF DESIGNING PREPREG STRUCTURES.

FINALLY, ADVANCED CAD MODELLING WAS USED TO CREATE THE BEST POSSIBLE CNC MOULDS, SAVING WEIGHT AND OBTAINING THE MOST ACCURATE GEOMETRIES.

WEIGHT GAINS OBTAINED IN ONE PART OF THE BOAT ARE INVESTED IN OTHER AREAS – NOTABLY THE FOILS – TO MAXIMISE THE STRENGTH AND RELIABILITY OF THESE ELEMENTS.

ERGONOMICS IS AN ASPECT THAT IS ALL TOO OFTEN IGNORED, YET IT'S CRITICAL TO ANY RACING YACHT, ESPECIALLY ONE THAT HAS TO CROSS AN OCEAN SINGLE-HANDED. TT DESIGN'S CUSTOM YACHT DESIGN EXPERIENCE MEANS THE TEAM KNOWS HOW TO LISTEN, AND THE IMPORTANCE OF UNDERSTANDING EACH CLIENT'S PARTICULAR NEEDS, BEFORE DEVELOPING SOLUTIONS.





FOR FURTHER INFORMATION PLEASE CONTACT US.

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GRAPHIC DESIGN: FLORIAN SAUVAIRE **TEXT:** RUPERT HOLMES

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