



Design

Mills Yacht Design/Mark Mills

Designer Comments

The MAT 1220 is our latest design for a new generation of IRC racers for MAT, emphasising versatility both in performance profile and configurations.

The premise for the boat is to produce a modern light design that is equally at home offshore as inshore, taking the rating-friendly features of the successful 'French' IRC design type and combine with slightly lighter displacement. This French style of IRC design combines features such as medium displacement, greater emphasis on bow overhang, fin keel of moderate draft, and a number of sail plan tweaks to arrive at a very competitive corrected time solution inshore over 12knots true, and offshore in most conditions. Because of this combination of these features it is inherently competitive reaching, and we have been working on improving the inshore character of the boat in sub-12 for better light airs windward leeward performance without giving up the ability to get on the step downwind at a reasonable wind speed. The base rating for the fin keel version with pinhead main is around 1.155, while with the fin keel and a squaretop it could go up to 1.190.

Building on the deck and styling of the MAT 1070, the large cockpit offer an optimal platform for high level racing as open space for fun family sailing. The interior can be completed to a range of fitouts from stripped racing to offshore racing to family racer/cruiser. Working with engineer Steve Koopman of SDK Structures we have configured the boat to be as versatile as possible, with the socketed fin attachment allowing easy changes between the standard fin keel and a deeper bulb keel. The sail plan is built around the lower rated pinhead main, but for lighter air venues the squaretop main offers a useful increase in sail area. A twin rudder option is available for more offshore oriented campaigns, and multiple winch choices range from the base layout to a pedestal driven solution and a powered winch option. Because it is not an extreme typeform with a medium sized sail plan and reasonable displacement, stability and draft, we are also working on an ORC optimised configuration.

Composite Engineering

SDK Structures, Steve Koopman

Dimensions

Hull length	12.20 m
Beam max	3.96 m
Draft with bulb keel	2.90 m
Draft with fin keel	2.50 m
Displacement with bulb keel	4.750 kg
Displacement with fin keel	5.250 kg
I	15.60 m
J	4.79 m
P	15.50 m
E	5.33 m
STL Sprit	7.00 m
STL Pole	5.75 m
IRC rating projection with fin keel	1.155
IRC rating projection with bulb keel	1.190

Certification

DCI Dutch Certification Institute approved, category A, 12 people

Construction

World Sailing plan review to show compliance with specific parts of the International Standard ISO 12215: Hull Construction – Scantlings.

Hull, deck, bulkheads and all interior components in PVC foam cored composite glass sandwich.

Vacuum assisted resin infusion.

Laminated assembly of all components to hull and deck.

Carbon fiber reinforced structural grid for keel and mast loads

Keel

Fully CNC shaped lead fin keel cast around Duplex stainless steel keel spar, draft 2.50 m

Or

Composite fairing around Duplex stainless steel keel spar and fully CNC shaped lead bulb, draft 2.90 m

Socketed fin attachment allowing easy changes between the standard fin keel and a deeper bulb keel.

Rudder and Steering

Isotop made prepreg carbon autoclave cured rudder and stock

Jefa self aligning high performance rudder bearings

900 mm Carbonautica GFC composite twin wheels

Custom colour on request

Deck

6 x Harken Performa 50.2 STP black winches for primaries, main sheet and backstay

2 x Harken Performa 46.2 STP black winches for pit

Optional Harken wing winch pedestal and 3 speed racing primaries

Optional electric winches, 2 or 3 speed

Harken mainsheet track 6:1 up down purchase and 2:1 mainsheet to winch

Harken transverse jib tracks and ball bearing cars allowing up to 5 degrees sheeting angle

Harken Black Magic ball bearing halyard lead blocks

Harken Black Magic ball bearings primary blocks

Harken composite control blocks

3 of Spinlock XX and 5 of XCS clutches

Custom alloy fairleads

Custom stainless steel chainplates recessed in hull

Composite mast collar

SS stanchions, pulpit and pushpit with socketed to laminated bases

5 mm SS lifelines, Blue Wave terminals

Optional black composite stanchions and fluorescent synthetic lifelines

2 opening Lewmar portlights

1 opening Lewmar foredeck hatch

2 opening Lewmar flush hatches

Custom laminated tempered security glass coachroof windows

Recessed companionway sliding hatch

Rig

Axxon Composites

HR standard modulus carbon fiber mast, section 130x215

Optional high modulus or ultra-high modulus carbon fiber mast, section 110x197 mm

2 x mast head Kevlar 7T backstay tails to winches

Optional single centerline backstay and hydraulic cylinder

2:1 main halyard sheave box

Double masthead sheave box for spi

2 x sheave box @headstay height jib/genoa/solent

Optional halyard locks

2 sets of aluminum spreaders

Carbon spreaders on request

Carbon gooseneck and vang bracket

Rigid vang

HR standard modulus carbon max depth boom

RAL 9005 black finish

BSI Rod rigging

Optional composite rigging

Optional internal mast jack

Prepreg carbon autoclave cured bow sprit

Engine

Yanmar 30 Hp diesel engine with sail drive

40 hp common rail diesel on request

Enclosed engine compartment, soundproofing foam

Vetus rotomoulded 60-liter diesel tank

Vetus fuel filter, water separator, syphon breaker, water lock

Southco diesel fill on deck

Gori 2 bladed racing folding propellers

Teleflex Single lever engine control

Spinlock ATCU lever on request

Electricity

12V circuit

Victron Energy 2 x 110 A AGM deep cycle house batteries

Victron Energy 1 x 90 A starter battery

BEP Marine battery switches

BEP Marine distribution switch panel

Victron Energy battery management system

Frensch GmbH dimmable rotating LED interior lights

LED navigation lights

ISO wiring

Plumbing

Plastimo 200 l flexible fresh water tank

Jabsco pressurized fresh water pump

Jabsco manual bilge pump 3000 l/h operated from cockpit

Rule electric bilge pump 7570 l/h

Forespar racing marelon flush valves, when the valve is closed, the internal plunger and valve creates a flush, fair & fast outer surface



Interior

Bulkheads and interior components in PVC foam cored composite glass sandwich

Central cabin:

Lightweight composite companionway ladder for easy access to engine

Composite bunks stb&port

2 mesh pipe cots over bunks serve as backrest when folded down

Lightweight composite nonskid floor boards

Optional handholds, overhead cabinets stb&port, folding-away table

Galley:

Eno gimbaling single burner gas cooker

GRP refrigerator compartment and Danfoss cooling compressor

Can Marine stainless steel galley sink

Optional overhead cabinet, oven with two burner cooker and shelf for storage

Enclosed heads:

Can Marine hand basin

Jabsco marine manual toilet

Optional door, waste water tank, overhead cabinet

Aft cabins:

4 mesh pipe cots, 2 in each cabin, over under