'Damietta 5'

A LOMOcean-designed, Mapso Marine Micro-tug for Damietta Port



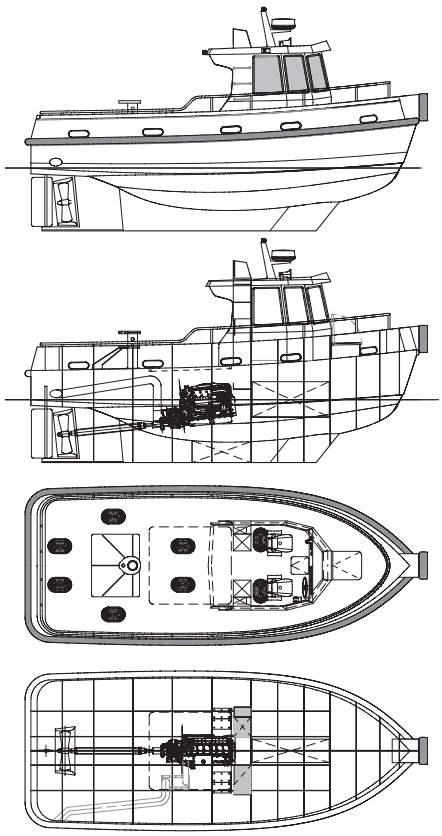
The "µ-tug" has arrived.

The Damietta Port Authority in Egypt needed a line handling vessel for its sea port and a small tug to assist river barge operations for the adjacent river port.

With the Micro-tug from Mapso Marine and designer LOMOcean, they got both.

This small tug delivers five tonnes of bollard pull in a compact package with a single Scania 294kW engine.

The tug comes from the drawing board of LOMOcean, better known for their extremely low resistance vessels ('Earthrace', 'Planet Solar'). This low resistance pedigree has resulted in a fuel consumption of only five litres per hour at seven knots, and a top speed of ten knots, both remarkable for a short, beamy tug. On a full tank of fuel (1,000 litres) this tug would cover 1,400 nautical miles, an almost trans-Atlantic range. It is expected that she will need refueling once every two months, based on an average of three hours of operations per day.



The secret is below the waterline, an innovative design featuring a substantial box keel, multiple chines, and large chine flat aft.

Thanks to the box keel, she tracks very well, and thanks to a MacLear Thistle rudder, she turns sharper than would be expected from a single screw vessel. The Kort nozzle improves the thrust, protects the props and reduces the tendency to walk.

This tug is part of a growing trend to build small tugs in aluminium, such as the BRAtt mini tug delivered this year. The advantages of aluminium are well known for work boats; it does not rust, is durable, low maintenance, tough and light.

A tug can be too light, however, because the forces it is subjected to are so high. Because the hull is so light, despite using 6mm plating all over, the box keel is filled with 4.6 tonnes of lead ballast. The box keel moves the pivot point of the tug forward, which is highly desirable, and the lead ballast is ideally located as low as possible in the hull, much like a sailboat.

The result is an amazingly stable vessel for its size, with a metacentric height (GM) of 1.5 metres. It is quite interesting watching her rock still at anchor while large steel tugs nearby dance to the tune of the waves.

The wheelhouse has a 360-degree view, and is surprisingly spacious with seating for four plus the master. A version with under deck accommodation is on the drawing board; on this particular vessel the under deck compartment houses a work bench.

The µ-tug was designed from the outset to be a single or twin-screw vessel, and the hull longitudinals are spaced accordingly. With twin Scania 335kW engines, the very same hull would provide over ten tonnes of bollard pull. The structure in general, and the towing post on the aft deck especially, are already dimensioned for ten tonnes pull.

Mapso Marine has plans to expand this range of Micro tugs to include eight-metre and 12-metre versions. A "mini-tug" range will be developed with 15-metre and 18-metre models.

Mapso Marine, established in Egypt since 1976, describe themselves as "boat developers". In the words of Philippe Maari, the Managing Director, "We bring together an operator, a yard, a designer, and a propulsion package, and we make it happen." They have been hugely successful applying this formula to Voith Water Tractors, with over thirty projects delivered. In fact, Maari asserts that Mapso has sold more Voith Schneider propellers than anyone else since it was invented.

The Micro-tug is available as a completely engineered kit for any yard in the world that wishes to build it – or indeed available as a finished boat with GL survey ex-Egypt. The kit includes complete design information, pre-cut aluminium sheets, profiles, all closures, all system components (bilge, fuel, fire, etc.) and of course the propulsion system. Mapso Marine can also provide technical personnel to help less experienced yards build this boat, including yards that have never built aluminium boats. The kit is also easily convertible to steel if desired.

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SPECIFICATIONS

Type of vessel:	Micro-tug (µ-tug)
In survey to:	Germanischer Lloyd, 100 A5 IN(0.6) Z Work Boat
Home Port:	Damietta, Egypt
Owner/operator:	Damietta Port Authority
Designer:	LOMOcean Design, New Zealand
Builder:	Mapso Marine / ESRBC, Egypt
Construction material:	Aluminium
Length overall:	10.2 metres
Length waterline:	9.4 metres
Beam overall:	4 metres
Draught:	1.6 metres
Displacement:	15.4 tonnes
Main engine:	1 x Scania DI12 59M 400, 294kW
Propulsion:	1 x FPP in Kort nozzle
Maximum speed:	10 knots
Maximum bollard pull:	5 tonnes
Range:	1,400 nautical miles at 7 knots
Fuel capacity:	1,000 litres (2 x 500)