



AutoMoor

Automated Mooring Systems

AutoMoor is a rope-free automated mooring system that can deliver efficiency gains in port operation as well as improve mooring capabilities at berth.

Vacuum technology is used to rapidly attach to and secure a vessel at berth. It dampens and reduces vessel motions, whilst improving port operational safety.

AutoMoor uses SmartPort technology to continuously monitor all mooring loads acting on the vessel at berth, collect and store cloud-based information for analysis, and provide live data to the operator.

AutoMoor models are available in Hazardous and non-Hazardous specification. They are designed to suit a variety of marine fender quaylines and engineered with mooring capacities to suit a range of environmental and berthing conditions.

Field proven since 1972 and installed in over 600 mooring facilities worldwide, Trelleborg's docking & mooring products are the foundation for today's modern mooring systems such as AutoMoor.

Powered By
SmartPort



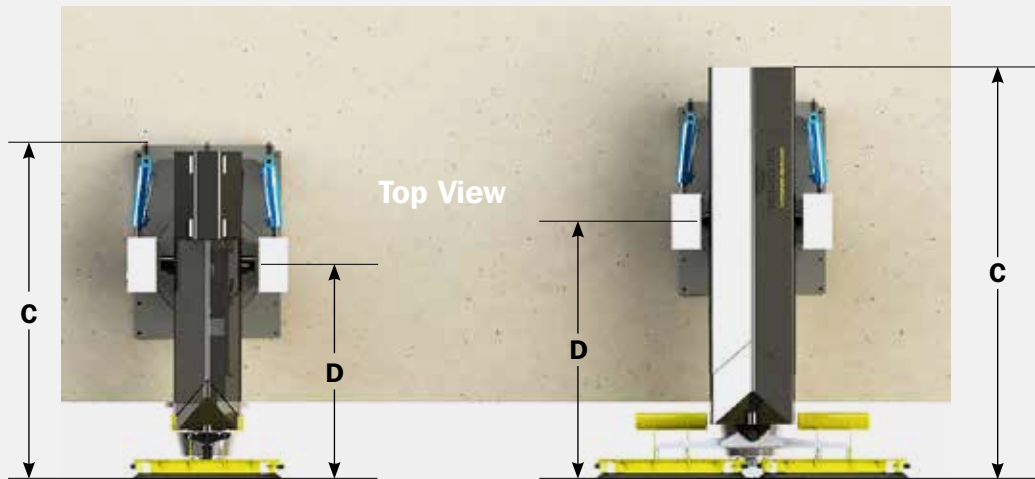
SmartPort by Trelleborg is a technology platform that connects disparate, data-driven assets, giving stakeholders a holistic view of operations to power communication and decision making.



Trelleborg Marine Systems' commitment to continuous product improvement means that we reserve the right to upgrade and modify equipment and systems without notice as technological and operational parameters demand.

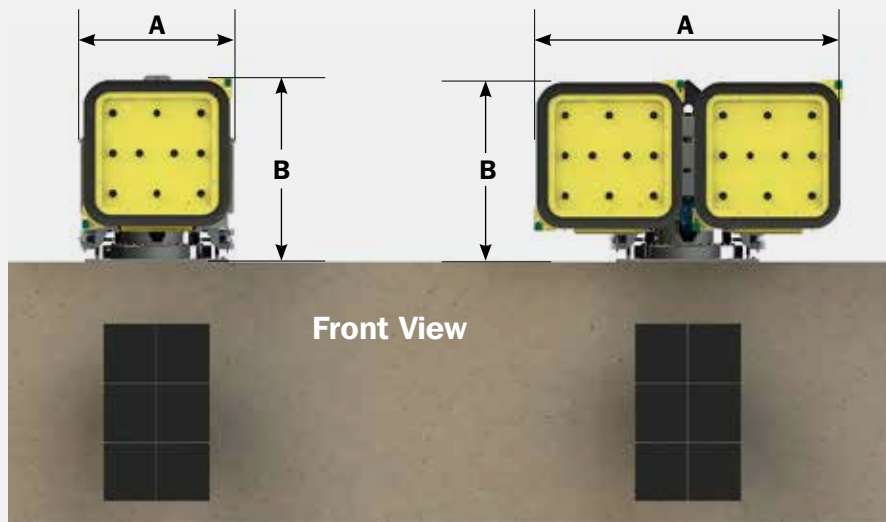
AutoMoor - Details and Specifications

MODEL	QTY. PADS	A	B	C	D	ANCHOR BOLT SIZE (mm)	ANCHOR BOLT (QTY)	SHIPPING MASS (kg)
AM-T20-01	1	1780	2400	3845	2450	M30 x 500	15	8500
AM-T40-02	2	3430	2470	4065	2465	M30 x 500	18	11000



AM-T20-01

AM-T40-02



Front View



AutoMoor units operating on a typical berthing dolphin

Safety and efficiency are two of the most critical operating principles that define port operations globally. AutoMoor enhances these principles with six key benefits that automated mooring systems can provide to the industry.

Dampens vessel motions by reducing peak mooring loads due to surge and sway movements. Port operations can continue safely in a greater range of environmental conditions.

Reduces effects of passing ships in narrow waterways and the long period wave motions experienced in some ports and harbors, by damping motions of the affected vessel.

Eliminates wharf extensions or mooring dolphin investments for port terminal upgrades previously required to allow for larger vessels. Reduces structural requirements for port facility and overall construction costs.

Reduces turnaround time for vessels to berth and depart, increasing port throughput. Vessels can be securely moored in under a minute, and released upon departure in less than 30 seconds.

Improves port safety and reduces operational costs due to the reduction of mooring gang personnel required during berthing operations. Mooring ropes are not required, so snapback is eliminated.

Decreases port carbon emissions thanks to the reduced time taken to moor the vessel, as ship engine idling is diminished and tug vessel time at berth reduced.

DESCRIPTION		T20	T40
1	GENERAL SPECIFICATIONS		
	Max Outreach (from wharf edge)	Approx. 2100mm (to suit typical SCN700 fender system outstand and smaller)	Approx. 2600mm (to suit typical SCN800 fender system outstand and larger)
1.1	Horizontal Range of Movement (Surge)	+/-15° or +/-500mm	
	Vertical Range of Movement (Heave)	+/-22° or +/-1000mm	
1.2	Vacuum Holding Capacity	1 Vacuum Pad = 20T	2 Vacuum Pads = 40T
1.3	Primary Fabrication Material	Low Alloy Steel Grade Q345B to GB/T1591-2008 equivalent to ASTM A572 Grade 50.	
1.4	Temperature Range	Operating: -15°C to +50°C Storage: -40°C to +70°C	
1.5	Foundation Design Requirements	Designed in accordance with AS4100. Suitable for surface mount concrete or steel foundations.	
1.6	Hold Down Bolts (Anchors)	Supplied with unit as standard. Hold down bolts: M30 x 500mmL, ISO898-1:1999 (E) Property Class 8.8 Finish: Hot-dip galvanizing to ISO10684: 2004 (E)	
1.7	Anchor Template	One mild steel template supplied per AutoMoor unit.	
1.8	Fasteners	Where possible all fasteners used in the assembly of AutoMoor units are 316 stainless steel. Non-stainless steel fasteners are high strength Property Class 8.8 alloy steel, treated with a solid-film coating of Molybdenum Disulphide for long-term corrosion protection and to provide anti-seizing properties.	

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1 GENERAL SPECIFICATIONS		
1.9 Remote Release	Remote release from port control room, handheld wireless control device and control pedestal adjacent to mooring unit.	
1.10 Area Footprint	5.4m ² deck footprint	7.5m ² deck footprint
1.11 Peak Power Consumption		
Driveline Motor	5.5kW	7.5kW
Vacuum Motor	3.5kW	3.5kW
1.12 Power Supply Type	3-Phase, 440-480VAC 60Hz recommended	
1.13 Control System & Reporting	Operating System: PLC based. User Interface: Remote operator workstation. Remote Control: Included. Alarms: Audible & Visual.	
1.14 SmartPort Enabled	Data Logging & Reporting: Multiple reporting levels available.	
2 QUALITY AND TESTING		
2.1 NDT	ASTM E1444-05	
2.2 Welding	AWS D1.1 or AS1554	
2.3 Testing	Each unit is individually proof load tested using a specially designed test rig. Proof load testing equipment is calibrated by a certified body such as Lloyds Register. Each unit is functional control system tested in factory and series tested for multiple unit orders. AutoMoore units are commissioned once installed onsite to verify factory testing and system performance requirements.	
3 PROTECTIVE COATING		
3.1 Surface Treatment	Surface Preparation – Class 2.5 Blast (1). 1st Coat: Nominal 75µm DFT epoxy zinc-rich primer. 2nd Coat: Nominal 125µm DFT two-part epoxy, containing MIO. 3rd Coat: Nominal 75µm re-coatable two-part polyurethane. Colour: As required to suit customer protective coating specifications. (1) AS1627.4, USA, National Association Corrosion Engineers, NACE or Society for Protective Coatings, SSPC-SP10 Sweden, Sa 2.5.	
4 OPTIONAL SYSTEM UPGRADES (AVAILABLE AT ADDITIONAL COST)		
4.1 Vessel Warping System	Motor and system programming upgrade to allow AutoMoore units to warp a vessel along a berth.	
4.2 Extended Temperature Range	From -40°C to +70°C.	
4.3 Hazardous Version	Electrical control system and motor upgrades to suit hazardous area operation.	
4.4 Class Design Approval	Independent 3rd Party inspection & certification.	

For a more comprehensive product insight, please refer to the AutoMoore brochure.