

Call for Purchase Proposals No. EMSA/SA/1/2025

Sale of Assets: Oil pollution response equipment

Appendix I.A Description of the Assets located in Varna, Bulgaria – Lot 1

Type of equipment	Item	No. of items	First delivery	Description	EMSA ID
1. Lamor LWS1300 Skimmer	Frame	1	21/12/2012	LAMOR LWS 1300 WEIR SKIMMER MK II/MSP 150, WITH THRUSTERS	1684
	Brush module	1	21/12/2012	LAMOR LWS 1300 BRUSH ADAPTOR LBA 1300 MK II	1685
	Pump	1	21/12/2012	LAMOR GTA 140 with WATER INJECTION KIT 3/4 I/O	1687
	Storage reel	1	21/12/2012	HOSE REEL WITH 9-CH SWIVEL LHR 60	1688
	Hydraulic hose(s)	1	21/12/2012	SET FOR LHR 60 9CH - 60 meters in length	1689
	Hooking system	1	21/12/2012	SEA CATCH/RELEASE SET FOR LFF OFFSHORE SKIMMERS	1690
	Storage flat rack	1	21/12/2012	CONTAINER 20'	1691
	Control desk	1	21/12/2012	CONTROL PANEL 4 VALVES	1694
	Power pack	1	21/12/2012	LAMOR LPP 90 CU - Diesel hydraulic	1695
	Pump	1	21/12/2012	MARIFLEX MSP 150 - SCREW/CENTRIFUGAL - 350 m3/h	1696
2.Lamor HDB2000 Booms	Segment	2	21/12/2012	LAMOR HDB 2000, HEAVY DUTY, 250 m	1697, 1698
	Storage reel	2	21/12/2012	LAMOR HSR H 1822/PVG VALVE4 VCONTAINER /CORNER/CANVAS COVER	1699, 1700
	Hydraulic hose(s)	2	21/12/2012	SET OF HOSES, TEMA COUPLING	1701, 1702
	Towing set	4	21/12/2012	1 TOWING END/1 ATSM/1 ROPE 55M/24MM/1 BUOY 400MM	1703, 1704, 1705, 1706
	Towing bridle	1	21/12/2012	CROSS BRIDLE NO-450_600 S	1707
	Air blower	1	21/12/2012	AIR BLOWER HAB 200/FILLING NOZZLE&T-KEY/1 WITH AIR AND HYDRAULIC HOSES	1708
	Power pack	1	21/12/2012	LAMOR LPP 90 CU - Diesel hydraulic	1710
3. Lamor LFF100 Skimmer	Frame	1	12/06/2009	LAMOR LFF100 BRUSH SKIMMER, THRUSTERS	1164
	Brush module	1	12/06/2009	2V*4 chain	1165
	Pump	1	12/06/2009	PDAS GTA 115	1166
	Hydraulic hose(s)	1	12/06/2009	SET HYD. HOSE FOR LFF 100 2C ON REEL	1167
	Storage reel	1	12/06/2009	REEL	1168
	Control desk	1	12/06/2009	REMOTE CONTROL FOR SKIMMER	1169
	Storage flat rack	1	12/06/2009	20 ft. FLAT RACK	1170

Equipment description

1. Lamor LWS1300 Skimmer

Manufacturer:

Lamor Corporation Ab

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1.1. Weir Skimmer LWS 1300 Mk II / MSP150 with thrusters

Year of purchase: 2012

The Lamor Free-Floating Offshore Weir Skimmer LWS 1300 Mk II/MSP150 is a very high-capacity weir skimmer designed for open ocean oil recovery operations. It is equipped with a floating weir lip to separate and collect the oil into the hopper. The floating weir lip has separate small ballast weights that can be independently adjusted for perfect floatation even in difficult sea conditions. The skimmer is hydraulically operated and fitted with two thrusters to allow the operator to manoeuvre the skimmer to where oil is most heavily concentrated. The radio remote control can be operated from up to 200 m distance to the skimmer. The oil on the surface of the water is drawn into the skimmer by gravitational flow over the weir lip and with the added suction of the MSP 150 screw pump. The skimmer can efficiently recover and pump a wide range of oils from light products to medium viscous debris-laden emulsions. The skimmer is manufactured from stainless steel with 3 specially designed hollow floats with internal, separated chambers. These chambers can be filled with water for optional ballast and floatation level adjustment. The skimmer incorporates a large diameter free floating weir and that all gives it excellent wave following characteristics.

The LWS range of weir skimmers has been specifically designed to work with the wide range of oil transfer pumps. The MSP 150 gives a very high pumping capacity of light to medium viscous oils. Please note that the pump always will be quoted separately. The MSP 150 pump can easily be dismantled from the skimmer and used as an independent offloading or transfer pump.

To improve the recovery capability of heavy oils the skimmer can be fitted with a removable brush adapter. The LWS range can be powered from one of the range of Lamor LPP power packs, or from an independent power source using the Lamor LCP remote control panel.



Weir Skimmer LWS 1300 Mk II with brush and weir modules

Technical Specifications:

Length	2850 mm
Width	2590 mm
Height	1830 mm
Diameter	weir: 1300 mm
Weight	250 kg
Draft	1100 mm
Design Capacity	250 m ³ /h
Capacity, certified ASTM	112,2 m ³ /h
Capacity, certified max	360 m ³ /h

Skimmer Hydraulic Thruster set for LWS 1300 Mk II 90ROH-O1386

The LWS HTh is a hydraulically operated thruster set for the Lamor LWS Weir skimmer-range. The skimmers will be fitted with two thrusters to allow the operator to manoeuvre the skimmer to where the oil is most heavily concentrated. This upgrade will include 2 x 190 mm diameter marine thrusters, mounting frame in marine grade aluminium. This thruster arrangement built on the frame is connected to the skimmer head. The weight increase of the thruster arrangement on top of the skimmer and pump weight is approx. 130 kg.

Technical Specifications:

Weight	Plus 130 kg
Hydraulic flow (skimmer ONLY)	2 x 25 l/min
Hydraulic pressure	150 bar
Power requirement	Total 16,5 kw

1.2. Brush adapter LBA 1300 Mk II

The Lamor Brush Adapter LBA 1300 Mk II is a brush-type oil recovery module designed to fit quickly and easily onto the hopper of the Off-Shore Weir Skimmer Lamor LWS 1300 Mk II. The purpose of the device is to improve the overall recovery efficiency (reduce free water recovered with oil) and to improve the performance in very high viscosity oils. The LBA 1300 Mk II has three banks of brush drums, which rotate downward into the oil layer creating a strong inflow. Lamor has conducted tests certified by Bureau Veritas demonstrating similar brush adapter unit corresponding to oil recovery capacity of greater than 100 m³/h in 25 mm thick layer of medium viscosity fuel oil. The LBA 1300 Mk II brush banks are mounted within a sturdy aluminium frame with a centre-lifting eye. The brushes are driven by three hydraulic motors, which are powered by a single hydraulic circuit. The LBA 1300 Mk II can be easily installed on the Lamor LWS 1300 Mk II skimmer hopper in place of the fluid oil adapter and is secured with stainless steel clamps. The design of the LBA 1300 Mk II allows it to be quickly adapted for use with many types of weir skimmers found in today's oil spill response inventories.

Technical Specifications:

Length	2050 mm
Width	1800 mm
Height	570 mm

Weight	220 kg
Design Capacity	3x60 m ³ /h
Capacity, certified ASTM	3x74 m ³ /h
Free water collected	<5 %
Hydraulic flow (skimmer ONLY)	20 l/min
Hydraulic pressure	1700-200 bar
Power requirements	6,5 kw

1.3. Oil Transfer PDAS Pump Lamor GTA 140

The Lamor GT A 140 pump is a multipurpose submersible Archimedes screw pump with a pumping capacity of 140 m³/h. This pump has been designed for use in skimmers and transfer or offloading pump applications and is able to pump a wide range of liquids ranging from water to the heaviest debris-laden viscous oils. The GT A 140 pump can deliver a maximum of 12 bar outlet pressure, benefits from water/steam annular injection on the inlet as standard and debris cutting knife to handle solids such as seaweed, plastics, and ropes.

Technical Specifications

Length:	500 mm
Width:	300 mm
Height:	598 mm
Weight:	71 kg
Capacity:	140 m ³ /h
Hydraulic flow:	160 max l/min
Hydraulic pressure:	210 max bar
Power req.:	56 max kW
Discharge pressure:	12 bar



Oil Transfer PDAS Pump Lamor GTA 140

1.4. Reel with 9-ch Swivel LHR 60 9ch

The lightweight reel frame is manufactured in steel and the spool in marine grade aluminium. The reel frame comprises forklift channels and 4-point lifting points as standard for easy handling both on and offshore. The hoses comprise all needed for an offshore skimmer system. The capacity of the reel is

approx. 60 m of hydraulic and oil transfer hoses with PVC hose floatation for a skimmer/oil transfer pump system. The reel is equipped with Stainless Steel rotary swivel with 9 hydraulic channels mounted in the reel drum for hose connection. The winder frame comprises forklift channels and 4 point lifting points as standard for easy handling both on- and offshore. Marine twist locks and container corner guides can be fitted as desired. The Lamor LHR 60 is driven by 1 hydraulic motor, operated typically with the hydraulic power pack serving the connected skimmer system allowing for easy deployment and recovery using minimal manpower.

Standard hydraulic connectors: Tema 3811/3821.

Base frame dimensions (footprint): 1940 x 1627 mm.

The standard Lamor hose set for free floating offshore skimmers is designed not only to support the hydraulic and transfer hoses but also to act as an oil boom supporting and feeding the skimmer with oil during operation. This feature increases the flexibility of the skimmer package. The hose floatation made of PVC binds the hoses and also protect them from possible damage.

Technical Specifications

Length	2020 mm
Width	1630 mm
Height:	1880 mm
Weight	reel only ca. 500 kg
Capacity	60 m
Reel diameter	1540 mm
Reel inner width	10 l/min
Hydraulic flow	1538 mm
Reel material	Aluminium
Frame material	Steel
Forklift channels	Yes
4-point lifting rings	Yes
Hydraulic pressure	200 bar
Power requirement	3 kW

1.5. Hydraulic hose Set for LHR 60 9ch

The standard Lamor hose set for free floating offshore skimmers is designed not only to support the hydraulic and transfer hoses but also to act as an oil boom supporting and feeding the skimmer with oil during operation. This feature increases the flexibility of the skimmer package. The hose floatation made of PVC binds the hoses and also protect them from possible damage. The electric cable powering the PVG valves and the radio remote controls is also installed in the package.

1.6. Sea Catch/Release Set for LFF Offshore Skimmers

Off-Shore Skimmer deploying and retrieving is easily and safely carried out by using the Sea Catch Release unit. Also, oil spill boom handling and laying workboats are excellent examples to utilize the Sea Catch TR7LM fitted to an innovative multi-directional tow point. Device locking: Having secured the recommended shackle to the rear end of the Sea Catch, open the jaw by removing the hitch pin and prying up the release lever and opening it to the released position. Insert the pin of the shackle to be released into the jaw opening. Secure the shackle by closing the release lever to the locked position and firmly lock the toggle pin over center with a vice-grip-like snap. The shackle is now held

firmly locked even with no load on the device. The hitch pin can be reinserted to prevent inadvertent release. The Sea Catch is now ready to be loaded. Once the hitch pin is removed, the Sea Catch is armed and ready to be released. Device releasing: Release of the loaded Sea Catch is activated by first removing the hitch pin and then pulling firmly on a release line connected to the end of the release lever. The release line can be activated in any direction within the 90 degrees perpendicular and parallel to the line of load. The use of the hitch pin is not required to secure the device in the locked position. It is an added safety measure preventing inadvertent release. A hitch pin is provided with each unit.

1.7. Flatrack for skimmer system

20 ft flatrack black, with following technical specifications:

Length	6056 mm
Width	2437 mm
Height	320 mm
Weight	1550 kg
Footprint	20 ft cont

1.8. Control Panel, 4 valves

The Danfoss proportional PVG-32 valves operate the oil boom winder and the air blower. The control valves are installed in a separate aluminium box that can be place anywhere on the deck to ensure safe and reliable operation.

Technical Specifications

Width	450 mm
Height	750 mm
Weight	50 kg

1.9. Hydraulic Power Pack LPP 90 Cu



Hydraulic Power Pack LPP 90 Cu

The Lamor Power Pack LPP 90 Cu is powered by a water-cooled Cummins turbocharged/intercooled diesel engine and serves as a high capacity multipurpose powerpack designed for the flexible operation of many types of hydraulically operated oil spill clean-up equipment.

The 4-cylinder engine is an in-line design with full-authority electronic controls and combines powerful performance with cost effectiveness. A High-Pressure Common Rail (HPCR) fuel system delivers greater power at every rpm. Together with vertically centred fuel injection and a symmetrical cylinder bowl, it produces exceptional low-end torque and power with reduced emissions and increased fuel

efficiency. Additional torque and faster throttle response make it the perfect choice for many applications. The engine is certified according to the following emission certificates: U.S. EPA Tier 3, CARB Tier 3 and EU Stage IIIA.

Equipped with 3-11 hydraulic circuits the Lamor LPP 90 Cu can be used to power multiple users such as a skimmer and boom winder consecutively. The Lamor LPP 90 Cu is containerized within a steel frame designed to ensure a good circulation for the air-cooled diesel engine.

The Lamor LPP 90 Cu is equipped with electric start and incorporates control panel and hydraulic oil cooler in the framework. The Lamor LPP 90 Cu utilizes a Danfoss PVG-100 Proportional Hydraulic Valve System making it possible to easily adjust the flow of oil to the supplied components. The flow will always remain set even when the pressure varies according to consumption.

The Lamor LPP 90 Cu is equipped with 4 point lifting rings and forklift channels making it easy to handle on land or offshore. For safety the LPP 90 Cu power pack is equipped with an automatic shutdown system, also the power pack can be equipped with a spark arrestor or Chalwyn safety shut down valve.

Technical Specifications

Length	ca 2300 mm
Width	ca 1400 mm
Height	ca 1800 mm
Weight	ca 2000 kg
Power	90 kW
Hydraulic flow	320 l/min
Hydraulic pressure	210 bar
Fuel tank capacity	200 l
Hydraulic oil tank capacity	400 l
Speed	2200 rpm

1.10. Mariflex Centrifugal Pump MSP150 (see point 5.1.11)

Manufacturer:

Mariflex Group

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3133 KA Vlaardingen.

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Year of purchase: 2012

The Mariflex pump type MSP-150 is a hydraulically driven portable single stage vertical centrifugal pump that has been designed for efficient handling of viscous liquids, bulky solids and shear-sensitive liquids. The MSP 150 portable pump is based upon a centrifugal screw impeller that combines the properties of a screw pump with those of a centrifugal one.

The pump impeller is keyed directly onto the hydraulic motor shaft. The high-pressure oil is led into the hydraulic motor through the pressure hose, the leak oil connection is connected to the return oil outlet port on the hydraulic motor, the return oil flows back to the main hydraulic system. A special shaft seal arrangement was developed in the hydraulic motor to segregate the hydraulic and cargo.

Technical Specifications

Design	Single stage centrifugal
Capacity/Head	360m ³ /h-40 mcl
Viscosity/Specific Gravity	1.0 Cst. At 20°C/1.0
Speed	2000 rpm. maximum
Hydraulic Motor Type	Axial Plunger with Mechanical Seal.
Hydraulic working Pressure	200 bar
Maximum Pressure	320 bar
Maximum Return Pressure	6 bar
Maximum oil flow	130 l/min
Outer Diameter	490 mm
Height	610 mm
Weight excluding hoses	85 kg
Hydraulic connections (Tema quick couplings)	1" Tema 10021, 3/4" Tema 7511, drain 3/8" aerequip.
Power required:	50 kW
Discharge connector:	6" Camlock or flange (included adaptor to 5")
Materials:	Housing – Aluminium Impeller – Nodular Cast Iron Seals – Nitrile Hydraulic Motor – Cast Steel Quick Couplings – Yellow Passivated Steel

2. Lamor HDB2000 Boom

Manufacturer:

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Year of purchase: 2012

2.1. Oil Boom Set – Lamor Heavy Duty Boom (HDB) 2000

The Lamor Heavy Duty Oil Boom (HDB) is specifically suited for use in open seas, harbours, semi-sheltered waters and permanent installations such as oil terminals and power plants. The Lamor HDB is constructed so that 2 layers of synthetic fabric are vulcanized together with synthetic oil resistant rubber outer layers. The synthetic coated outer layer gives the Lamor HDB excellent resistance to the effects of oil and UV degradation. The boom is equipped with galvanized ballast chain that guarantees correct deployment in sweeping operations and promotes sea keeping properties. The total boom weight is given including the ballast chain weight. The Lamor HDB comes with end ASTM connectors as standard and can be supplied with towing adaptors or other standard connectors at the customer's request. The Lamor HDB is constructed using fully vulcanized and rubber welded parts without the use of any pop rivets.

The system includes **2 units of 250m** of boom on storage reels with all necessary deployment equipment including air inflation system. The space required on board is at a minimum as the boom is deployed directly from the reel over the aft or the side of the ship.

The Lamor – HDB 2000 set includes the following components:

- Boom segments/sections
- Towing set
- Cross Bridle
- Power pack
- Hydraulic hoses
- Hydraulic air blower
- Air hoses
- Boom reels



Oil Boom Set – Lamor Heavy Duty Boom (HDB) 2000

On deployment the Lamor HDB sits symmetrically in the water allowing it to be handled easily and face an oil slick from either side. Inflation of the Lamor HDB is quick and efficient thanks to the Lamor F1 air valve and use of a Lamor air blower. The aluminium F1 valve is flat in design and has an incorporated airlock. The complete use of the air valve at inflation can be done by one man without additional help. Lamor HDB is stored on a dedicated hydraulically powered reel, enabling deployment of up to 200m in approximately 15 minutes.



Lamor HDB 2000 Boom

Technical specifications HDB 2000

Section length	125 m
Freeboard	560 mm
Draft	1160 mm
Boom Height	2000 mm
Standard Length	250 m
Colour	Black
Flotation	Air (atmospheric pressure)
Weight	17.1 kg/m
Ballast weight	4.4 Kg/m

Ballast Material	Galvanised Steel Chain
Temperature resistance	-40 ... +60°C
Base fabric	EP 400
Fabric tensile strength	20000 N/5cm
Air chamber length	3 m
Efficient in waves	Up to 4.5 m

2.2. Boom Reels Heavy Construction HSR H 1822

The reel frame is manufactured in steel and the spool in marine grade aluminium. The winder frame comprises forklift channels and 4-point lifting points as standard for easy handling both on and offshore. Marine twist locks and container corner guides can be fitted as desired. The Lamor HSR H 1822 is driven by 2 high torque hydraulic motors, together with planetary reduction gears with high gear ratio. It is operated by a hydraulic power pack which allows easy deployment and recovery using minimal manpower.



Boom Reel Heavy Construction HSR H 1822

Technical specifications

Length	2900 mm
Width	1800 mm
Height	2114 mm
Weight	790 kg
Reel diameter	1800 mm
Reel inner width	2200 mm
Reel material	Aluminium
Frame material	Steel
Forklift channels	Yes
4-point lifting rings	Yes
Hydraulic flow min	35 l/min

Hydraulic pressure	180 bar
Power requirement	14 kW
Length	2900 mm
Width	1800 mm

Container Corners for Boom Reels

There are 4 corner fittings used for standard boom reels - 2 bottom right and 2 bottom left. This set is sold complete assembled on the reel frame. These are the fittings found on all ISO type Containers used in the intermodal shipping arena. They are designed to accept a variety of ISO standard Containers.

- Material: Low Carbon Steel for Welding
- Corner conforms to ISO 1161.

Container corners welded on HSR Boom reels:

- 16241 bottom corner front right/back left
- 16240 bottom corner front left/back right

2.3. Hydraulic hoses set for HSR L/H

Hydraulic hose set for Lamor Oil Boom Reels consists of 2 x 15 m 3/8" hydraulic hoses and with standard Tema couplings 3811 and 3821 (M/F).

Hose Construction:

Tube: oil resistant synthetic rubber

Reinforcement: two high tensile steel wire braids

Cover: abrasion and weather resistant synthetic rubber

Temperature range: -40 C to +100 C (+120 C max)

Length: 15 m.

2.4. Towing set

The Lamor TS HDB 2000 towing set consists of an aluminium ASTM connector bolted to a galvanized steel towing post fitted with a certified 3-point wire towing bridle, 12mm/4m. This configuration ensures even and stable operation when towing, mooring, or trawling with the boom. Also supplied with the set is 55 m of 24 mm diameter towing warp and 400 mm diameter buoy.



Towing set

2.5. Cross-Bridle

The cross bridle is a net piece that can be mounted on the boom to give it desirable shape if it is to be towed in a J-formation. The cross-bridle towline allows boom to form a straight line 90-degree angle from reel/vessel to form the J- or U-sweep.

2.6. Hydraulic Air Blower HAB 200

The Hydraulic Air blower HAB 200 is used for inflating the Lamor Inflatable Booms. The air blower consists of a hydraulic motor and air blower installed in a portable aluminium frame. The unit is supplied with hydraulic quick release TEMA couplings. The internals of the Lamor HAB 200 are protected by a suction filter. The Lamor HAB 200 has a set discharge pressure so the oil boom cannot be damaged during the inflation operation. Additionally, the HAB 200 can be configured to provide suction for deflation of ILB boom.



Hydraulic Air Blower HAB 200 and air hoses

The Lamor HAB 200 can be powered by one of the family of Lamor hydraulic power packs or using vessel hydraulics.

Hydraulic couplings: 1/2" TEMA 5011/21, Aeroquip 3/8" DRAIN ISO75242

Components and accessories included:

- HAB 200 air blower
- filling nozzle & T-key
- air hose 3" Camlock L-10 m with Y-junction (2" / 3" / 2" Camlocks)
- 2 x air hose 2" Camlock L-5 m to be connected to the Y-junction

Technical specifications

Length	550 mm
Width	410 mm
Height	600 mm
Weight	40 kg
Air flow	400 m ³ /h
Speed	400 rpm
Pressure	Adjusted to 0.10 bar

Hydraulic flow	25-40 l/min
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Power req.	6 kW
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2.7. Hydraulic Power Pack LPP 90 Cu

The Lamor Power Pack LPP 90 Cu is powered by a water-cooled Cummins 4.5 l turbocharged/intercooled diesel engine and serves as a high-capacity multipurpose power pack designed for the flexible operation of many types of hydraulically operated oil spill clean-up equipment.

The 4-cylinder engine is an in-line design with full-authority electronic controls and combines powerful performance with cost effectiveness. A High-Pressure Common Rail (HPCR) fuel system delivers greater power at every rpm. Together with vertically centred fuel injection and a symmetrical cylinder bowl, it produces exceptional low-end torque and power with reduced emissions and increased fuel efficiency. Additional torque and faster throttle response make it the perfect choice for many applications.



Hydraulic Power Pack LPP 90 Cu

The engine is certified according to the following emission certificates: U.S. EPA Tier 3, CARB Tier 3 and EU Stage IIIA. Equipped with 3-11 hydraulic circuits the Lamor LPP 90 Cu can be used to power multiple users such as a skimmer and boom winder consecutively. The Lamor LPP 90 Cu is containerized within a steel frame designed to ensure a good air circulation inside the power pack frame. The Lamor LPP 90 Cu is equipped with electric start and incorporates control panel and hydraulic oil cooler in the framework. The Lamor LPP 90 Cu utilizes a Danfoss PVG-100 Proportional Hydraulic Valve System making it possible to easily adjust the flow of oil to the supplied components. The flow will always remain set even when the pressure varies according to consumption.

The Lamor LPP 90 Cu is equipped with 4-point lifting rings and forklift channels making it easy to handle on land or offshore. For safety the LPP 90 Cu power pack is equipped with an automatic shutdown system, also the power pack can be equipped with a spark arrestor or Chalwyn safety shutdown valve.

Technical Specifications

Length	ca 2300 mm
Width	ca 1400 mm
Height	ca 1800 mm
Weight	ca 2000 kg
Hy circuits	3-11 pcs
Power	90 kW
Hydraulic flow	320 l/min
Hydraulic pressure	210 bar
Fuel tank capacity	200 l
Hydraulic oil tank capacity	400 l
Speed	2200 rpm

3. Lamor LFF100 Skimmer

Manufacturer:

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Year of purchase: 2009

The skimmer was serviced and upgraded to ATEX Ex Zone 1 in 2015. Some spare parts for regular maintenance and minor repairs are also supplied. The skimmer set consists of:

- Skimmer frame and Brush Module
- Oil Transfer Pumps: Lamor PDAS GT A 115
- Hydraulic Hoses
- Storage Reel: Oil Transfer Hoses
- Remote Control
- Storage units: Reel hose winder and 20 ft. flat rack Container

3.1. Skimmer frame and Brush Module

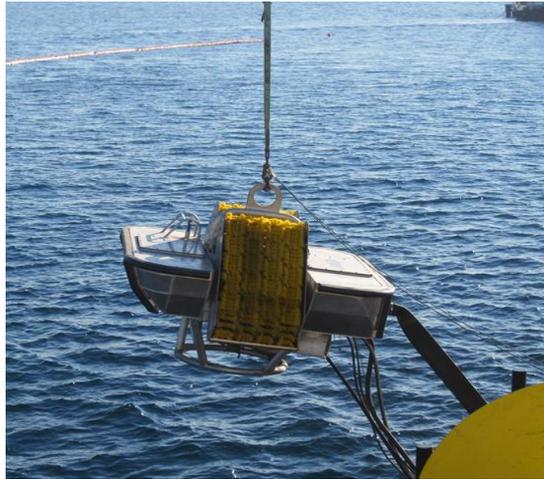
The Lamor free floating offshore Skimmer LFF 100 2C is a skimmer designed for open ocean oil recovery operations.



Lamor Skimmer LFF 100 2C

The LFF 100 2C is fitted with two V-chain-pocket- brush type conveyors for efficient collection of all types of floating oil from light to high viscosity oils and emulsion. Each brush chain conveyor consists of four brush chains. The Danfoss 5xPVG-32 Hydraulic valves are located in one skimmer float. The Lamor V-Chain-Pocket type conveyor Skimmer is a powerful skimming unit designed for recovery of extremely high viscosity oil, emulsion, and bitumen as well as debris in the collected oil.

The skimmer is hydraulically operated and fitted with two thrusters to allow the operator to manoeuvre the skimmer to where oil is most heavily concentrated. The skimmer is designed to collect these heavy materials floating on the water surface or submerged below the surface and feed the oil into a Lamor Archimedes screw pump.



Skimmer deployment

A mechanical feeder skimmer lifts or drags - by means of more than just adhesion – the oil out of the water to a position above the water surface, and feeds or drops it into a collection tank and to the oil transfer pump. The mechanical feeder principle results in a significantly increased performance regarding high viscosity oils, debris, and low water recovered content.

A hydraulic motor handles the rotation of the belts via a set of V-belt wheels, one for each belt section. To improve the flow to the skimmer unit, it is equipped with a flow impeller behind the brush conveyors. Recovered oil is offloaded by a high-volume Positive Displacement Archimedes Screw type pump with capacity 115 m³/hr with more than 1,000.000 cSt oil.

Technical specifications Lamor Skimmer LFF 100 2C:

Length	2740 mm
Width	2280 mm
Height	1950 mm
Draft	870 mm
Weight	820 kg
Weight with pump(GTA115)	895 kg
Capacity	115 m ³ /h - IFO 40 105 m ³ /h - bitumen 1 mil sCt
Hydraulic flow	200 l/min (at max capacity)
Hydraulic pressure	210 bar
Power req.	70 kW
Speed	2 knots

The skimmer is hydraulically operated, and it is fitted with two Hydraulic driven stern tunnel thrusters to allow the operator to manoeuvre the skimmer to where oil is most heavily concentrated.

The skimmer operation requires a crane with enough lifting capacity and range to place the unit in the water from the storage position.

The skimmer is fitted with a “sea catch” quick-release hook to facilitate the deployment. In addition, an especial hook facilitates the retrieval of the unit.



Skimmer retrieving operation

3.2.Oil Transfer Pumps: Lamor PDAS GT A 115

This pump is similar to the one installed in the sweeping arm (see point 5.1.3).

3.3.Hydraulic Hoses

The equipment is supplied with all necessary hydraulic hoses and some spares. The hoses are manufactured in a durable material for long service and supplied with reliable stainless steel “Tema” connectors for secure linkages.

The hydraulic hoses connect the skimmer to the vessel through a 60 meters long umbilical cord.

3.4.Oil Transfer Hoses

Three 20 meter sections of Lay Flat 5" oil transfer hose fitted with Kamlock connections link the skimmer to the vessel through the umbilical cord.

3.5.Remote Control

The LFF 100 2C is designed for deployment from a vessel into an area where oil has been contained. The LFF 100 2C is fitted with two hydraulic thrusters, allowing the operator to manoeuvre the system to where oil is most heavily concentrated.

The remote control system includes a control box, a supply voltage 24 VDC, fuses 0,5 A and a radio module located in the skimmer float ISM 433-443 MHz.

The remote control allows the operator to control all the different elements of the skimmer.



LFF 100 2C remote control

3.6.Storage units: Reel hose winder and 20 ft. flat rack container

Reel hose winder 1514 SIVIWEL

The Lamor Hose Reel is designed to store hydraulic and oil transfer hoses. The frame is produced in steel protected with marine grade painting.

The reels are sea water resistant aluminium. The construction allows the transfer hoses and the hydraulic hoses to be wound and locked separately.

The frame is equipped with 4-point lifting points and forklift channels.

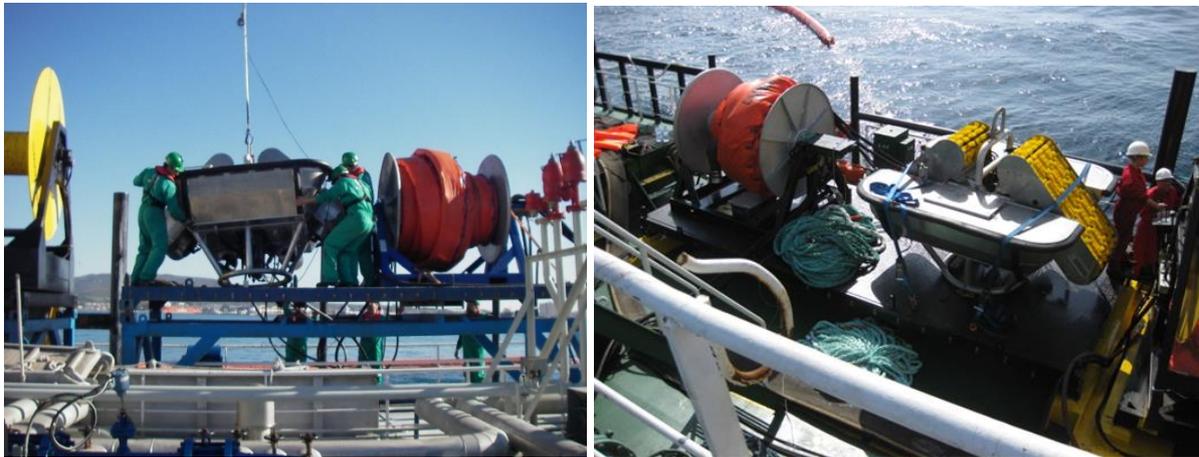
Technical specifications Lamor Reel hose winder:

Max. Capacity	60 m hydraulic hoses and 60 m oil transfer hose
Length	900 mm
Diameter	750 mm
Height	860 mm
Weight	34 Kg

20 ft. Flat rack

The 20 ft. flat rack come equipped with twist locks for transportation, lifting hooks and forklift channels as standard.

The flat rack container is fitted with anti-slip floor for safety and brackets for equipment to be safely secured.



Skimmer storage operation / Skimmer and winder on the flat rack