

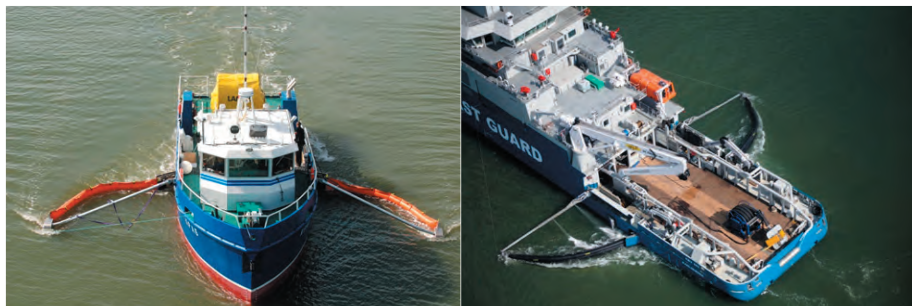
The Lamor In-built Oil Recovery System LORS is a vessel mounted advancing skimming system that is based on Lamor's proven conveyor chain brush technology. The system is designed for small workboats and tugs (7 - 15 m / 23 - 49 ft) up to medium and big vessels (15 - 85m / 49 - 278 ft) providing the highest possible performance and safety for oil spill recovery operations.

Deployment of the LORS makes the entire vessel an "oil slick processing system". The system utilizes the vessel's forward motion to deflect surface water and oil from the collection area that is formed by the jib arm and deflection boom into the recovery process. The flow of water carries oil through the recovery channel where the oil is efficiently separated and recovered. The recovery channel recirculates surface water back into the recovery area increasing the system's overall throughput efficiency.

The LORS operates at vessel speeds of 4 knots effectively in harsh weather and sea conditions with high oil encounter rate with free water content of < 5 % and does not diminish the vessel's maneuverability.

The recovery capacity has been certified by Bureau Veritas and tested by e.g. the Swedish Coast Guard.

Please note that product configurations may impact on technical specifications.



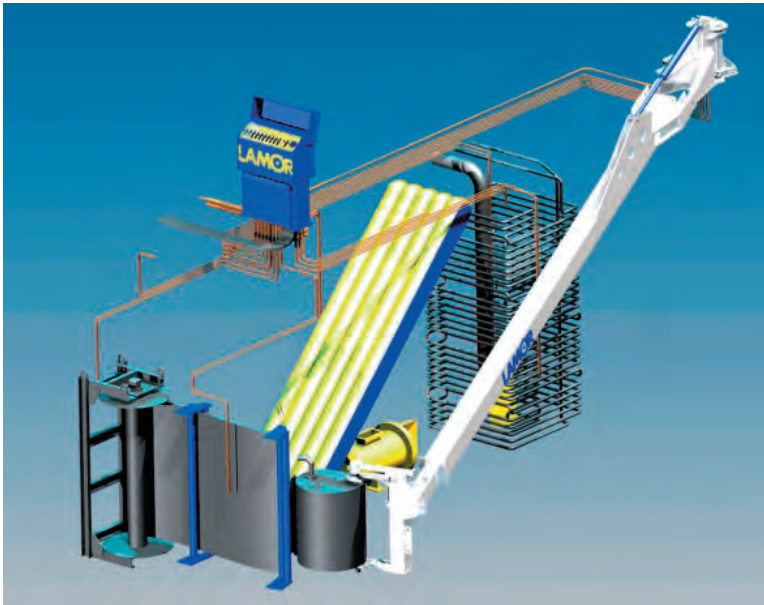
Every LORS system is built in accordance with the customer's specifications and the dedicated vessel. Required system components will vary pending customer's requirements and the LORS system.

Required System Components

Vessel with adequate LORS oil recovery channel built in to the vessel

- Sweep boom (solid or inflatable)
- Jib arm with floats (telescopic or manual)
- Oil transfer pump (selection dependent upon system size)
- Power pack (hydraulic or electric). Hydraulic power from vessel's own system or from separate hydraulic power pack
- Hydraulic hoses
- Oil transfer hoses
- Stabilizing ropes, front rope for jib
- Storage for collection of recovered oil

LORS Main Components



Brush Pack

The brush pack is based on Lamor's proven stiff brush technology that offers high performance and safety for near and offshore oil spill recovery operations. Mounted on a chain conveyor system, the brush pack is able to achieve a very high oil recovery rate with low free water content of less than five percent.

The LSC brush conveyor belt is a double acting skimming system which has brush chains that can be rotated in both directions and a double brush scraper that allows two-way operation of the brush pack. The scraper is adjustable to different positions allowing the skimmer to efficiently recover heavy to light viscous oils.

The length of the brush pack can be modified to the vessel particulars i.e. size, usage areas etc. The brush pack and LSC are capacity certified by Bureau Veritas.

Oil Recovery Channel

The oil recovery channel consists of the skimmer bay, collection hopper, and the mounting rails that fit the brush pack. The size of the channel can be modified to the vessel's particulars i.e. size, usage areas etc.

LORS Brush Pack Models

LORS 2-3C

- 2 chain, brush pack conveyor oil recovery system
- Ideal for small vessel installations e.g. workboats and tugs
- Coastal and near shore applications



LORS 4 - 5C

- 4-5 chain, brush pack conveyor oil recovery system
- Ideal for medium and large vessel installations
- Offshore applications



Sweep Boom Models

Solid Sweep Boom (Foam Filled Boom)

- No inflation needed
- Coastal and near shore applications

The solid sweep boom is made of reinforced PVC/PU fabric and incorporates internal foam floatation. It is equipped with a stainless steel wire in the skirt to make it stable during operations. The boom is fitted with necessary strengthening parts, weights and supporting lines.



Inflatable Sweep Boom (Heavy Duty Boom)

- Excellent wave conformance characteristics
- Durable
- Offshore applications

The Lamor sweeping boom is made of heavy duty inflatable rubber fabric. It is also equipped with a stainless steel wire in the skirt to make it stable during operations. The inflatable oil boom has excellent wave following characteristics which allows oil spill clean-up operations in rough seas with 10 - 15 m (33 - 50 ft) long jib arms. The boom is fitted with necessary strengthening parts, weights and supporting lines. The Inflatable boom needs an air supply from the vessel or a separate air supply.



Jib Arm Models

Manual Jib Arm

The vessel mounted square aluminum Jib Arm 10 m (33 ft) is a cost effective manually operated support for the outer end of the deflection boom in the sweeping boom system for oil recovery operations.

The inner end of the jib arm is connected to the bulwark of the vessel with a universal joint. This allows the jib arm to move flexibly together with the boom during deployment as well as keeping excellent wave following characteristics. The float, with a volume size of 330 l (87 gal), is attached to the outer end of the jib arm and connects the jib arm to the deflection boom. The inner end of the jib arm consists of standard deck fittings and basement. Pending the vessel type and design, the inner end fitting may have to be customized.



Telescopic Jib Arm

The telescopic jib arm provides easy and safe deployment of the automatic inflatable sweeping boom system at all waterline heights and has a compact storage dimension when not in use. One operator controls the vertical and longitudinal position of the jib arm, extends the length of the arm and controls the connection between the inflation/towing apparatus and the towing bar of the sweeping boom, while standing safely on deck. The telescopic jib arm with an extension range of up to 12 m (39 ft) has a base assembly with a U joint with semi-permanent deck installation. The sweeping boom system includes: vertical and horizontal positioning cylinders, locking and inflation device for the oil boom, and air delivery system with connection for the blower on deck.



Additional Options

Sweep Boom Reel

The oil recovery channel is equipped with a hydraulically operated deflection boom reel. The sweep boom is deployed into a sweeping position and simultaneously filled with air when using the automatic jib arm.

The automatic oil boom reel, located at the rear of side in the channel , stores the heavy duty inflatable boom that is required for sweeping operations. The robust rubber boom is stored on the reel and is quickly deployed and retrieved and is adjusted remotely for efficient and effective sweeping performance. The unit can easily be removed from the channel for clean-up.

The automatic sweep boom reel and frame is made of marine grade aluminum.

Flow impeller, in the oil recovery channel for to improve the water circulation through the brush pack

Oil transfer pump with optional water injection

Electric or diesel hydraulic power pack

Hydraulic hose sets

Oil transfer hoses

Control panel or radio remote control

Air supply for sweep boom

Installation pre-fittings