



## Mooring Systems Ltd. Manuli hoses, a unique partnership.

**Where did it start?** 25 Years ago, a company called Victoria oilfield development. Started work on new field developments, and EWT's (Extended well testing) This used the Patented TCMS mooring system, 1200mt of 6" Manuli hose, and an Afrimax tanker, and drilling rig.

6" 55 bar Manuli hose was the preferred export pipeline, and was used on all the projects .The advantages of using the Manuli hose over others ,it is , easy to install , cost effective , durable , and can be cleaned and re-used on the next project . After a few successful projects, the relationship, partnership started. And continues to this day.

**What are the advantages of ordering your hose from MSL?** With ordering your hoses from MSL. We will manage your order from PO award to delivery. We can plan, trans pool, and install you hoses, project manage, and write your installation procedures. Supply quality Tran - spooling equipment, Installation supervisors, and lay engineers.



## What we can offer:

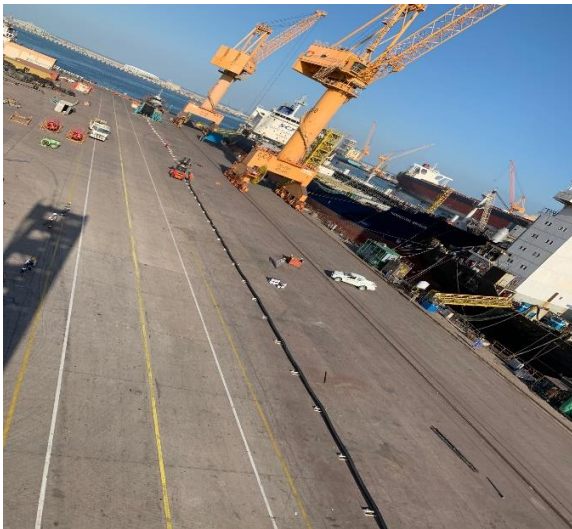
- Any amount of hose, to order, or from stock (subject to availability)
- Full management of order, from PO to delivery
- Preference with factory order
- Competitive pricing
- Full installation service
- Vessel mobilisation
- Installation procedures
- Tran - spooling procedures
- Installation equipment spooling equipment (75te fixed spoolers –to 400te turntable)
- Quayside rollers / rigging containers / cranes / forklifts.
- Installation supervisors
- Lay engineers
- Rigging crew
- Spooler techs
- Sea fastening calculations / sea fastening welding team.
- Flushing/ pigging / testing equipment / supervision.
- Buoyancy / inserts / ballast collars / pulling heads / bend stiffeners / installation aids.

## Brief project history:

- |                             |                  |
|-----------------------------|------------------|
| • 1995 - West of Shetland   | 2017 – North Sea |
| • 1996 - North Sea / Norway | 2018 – Norway    |
| • 1997 - North Sea          | 2019 – Thailand  |
| • 1998 - North Sea          | 2019 – Thailand  |
| • 1999 – Qatar              | 2019 – Thailand  |
| • 2000 – Bay of Biscay      | 2020 – Oman      |
| • 2001 - North Sea          |                  |
| • 2005 – Malaysia           |                  |
| • 2006 – Tunisia            |                  |
| • 2007 – Thailand           |                  |
| • 2008 – Malaysia           |                  |
| • 2009 – North Sea          |                  |
| • 2010 - Thailand           |                  |
| • 2011 – Thailand           |                  |
| • 2012 – Norway             |                  |
| • 2012 – Turkmenistan       |                  |
| • 2013 – Tunisia            |                  |
| • 2014 – Thailand           |                  |
| • 2015 – Norway             |                  |
| • 2016 – North Sea          |                  |

## Handling / Spooling Manuli hoses, what's involved?

Hose reels, they are supplied 6mt long x 2.5mt wide, can weight between 8 and 13te depending on how much product is on the reel. 6mt long lifting beam is required to lift the reels from transport, and onto the spooling device.





**What we do:** We supply the correct equipment, to get the hoses from the storage reels, onto the deployment reel. Each hose is measured, and marked out every 10mt, and where ballast clamps will be attached (optional) or where buoyancy modules will also be attached. This is predetermined during the engineering phase.

Once the hose is marked, and rollers set up on the quayside, the hose is rolled out from A to B, ensuring no twists are in the hose.

When the hose is spooled towards the deployment spooler, the 2 flanges are lined up, cleaned, connected, bolted up, and torqued to the correct setting.

Buoyancy inserts are also fitted in advance, to save on installation time offshore.



Final checks, before the hose is spooled.

### Spooling the hose onto the reel:

Care must be taken to ensure the inboard pulling head is exposed, and easily accessible.

Also, the correct amount of tension applied when spooling on the hose. Correct alignment is crucial to ensure the hose is spooled correctly. Level winder, or spool guild can be used for this task (Yellow device, in the photo about) Once the flange passes through the level winder, care must be taken when the 2 flanges contact with the reel. Packing must be inserted each side of the flange, to make sure no strain is applied to the hose nipple.

These steps are repeated, until all the hose is on the reel.

Next step: Flood the hoses with water, and hydrotest the hoses, to check for leaks on the flanges. We normally bring in a specialist company for this but have a set of guild lines in our procedures for them to follow.



lay vessel.

Hose reel, ready for lifting onboard the

**Final steps:** MSL will already have a deck plan in place, where the spooler is going to be located on the deck of the vessel. All part of our installation procedure.

We can also supply the necessary sea fastening calculations, and organise a welding team, to secure the equipment to the deck.

Our installation team has more than 20 years of experience, handling, and laying this product. Should you need any further info, please contact me on the details bellow



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## Available spooling equipment:

|   |   |  |
|---|---|--|
|    | <p>SR005: 400Te mobile carousel – turntable - 1800mt of 6” Manuli hose, spooled at our Montrose quayside base.</p>  |  |
|   | <p>SR001: 120Te fixed drum spooling unit, with 1200mt of 6” Manuli hose, spooled at our quayside base, for a job in Norway.</p>   |  |
|  | <p>SR002: 75te fixed drum spooling unit.<br/>With 900mt of 4” Manuli hose.<br/>Equipment was trucked to Turkmenistan, where the hose was spooled.</p>                       |  |
|  | <p>SR004: Shaft type spooler.<br/>Used to spool the Manuli hoses from the 6mt long storage reels. This photo shows 8” hose being spooled out for a subsea jetting unit.</p> |  |



SR003: 75Te Fixed drum .  
(Short drum version of SR002)  
spooling unit. 400mt of 6"  
Manuli hose. Riser change of  
project Tunisia



100te spooling unit.  
We use this type of spooler for  
Far East single drum hose  
installations. Photo shows  
225mt of 6" Manuli hose



200te shaft type spooler, with  
removable drum.  
700mt of Manuli hose, spooled  
at Duqm Oman.



