GENERAL INFORMATION

It has become common practice for synthetic fibre rope to be used for mooring of mobile offshore units due to its light weight and high elasticity. Fibre rope is preferred by clients to reduce likelihood and consequence of contact with subsea infrastructure should the mooring line fail. The most common type of synthetic fibre rope used in mooring lines is polyester. Our fibre ropes are classified in accordance with DNV/DNV-OS-E303.

Torque matched fibre is designed to be used in combination with steel wire rope.

Fibre Rope Handling

The recommended handling practices related to fibre rope include, but are not limited to:

- Ropes should not be permanently installed around bollards or fairleads.
- A minimum bending radius should be observed.
- When unreeling the rope from storage reel onto the AHV, minimum line tension should be observed, to avoid pulling the rope into the underlying layer.
- Torque or twist in the rope should be avoided.
- Fibre ropes should not run over surfaces with sharp edges or abrasive features.
- There should be no 'hot work' such as welding near the rope.
- Frictional heat such as that generated from excessive slippage over the capstan, drum etc. should be avoided.
- Care should be taken to prevent the rope from becoming knotted or tangled.
- Rope contact with sharp gritty materials should be avoided.
- Abrasion or fouling with other mooring line components should be avoided.
- Chasers should not be used on fibre ropes.

FIG: 70: Fibre rope

- Shark jaw stoppers designed for use with steel wire rope, chain and connectors should not be used on fibre ropes.
- Fibre rope should not be laid on the seabed for prolonged periods unless protected against external abrasion and ingress of abrasive particles.
- For regions exposed to warm/sunny climate, care shall be taken to protect the ropes against direct sunlight and high temperatures including the use of Ultra Violet (UV) stabilised wrapping.
- For regions with cold climates measures shall be taken to prevent rope from being spooled/bent if frozen.

MOBILISATION

This guide is based on previous DSM experiences with these operations, but does not take into consideration local conditions, different spooling machines, reels, etc. that may vary in different parts of the world. Great care must always be taken when handling the equipment, as described.

Regarding spooling, there is little allowance for providing any holdback tension if spooling over top as this will influence the stability of the spooling machine significantly.

As a guide, we use a minimum 28mm fibre rope connected to fibre eye to be pulled aboard the vessel and connected to the winch. Good communication between vessel and operator is essential throughout the whole operation.

The operator of spooling machine to hold back with appropriate tension in co-operation with vessel.

Based on the operational water depth and expected tension during deployment, it is recommended that the AHV tensions up the fibre rope on their winches after the spooling operation. This can either be done by connecting to an approved bollard suited for this operation, between vessels in suitable areas or other means that is found acceptable within the given circumstances. This will however always be at the discretion of the vessel master.

⚠ When taking off the securing rope connected to the fibre rope eye make sure personnel are well clear off the reel as the eye may drop from the top as the securing comes loose.

⚠ Good communication to be established between vessel and operator before operation start.

⚠ Special care must be taken if spooling over top of the spooling machine. Too high hold back tension can make the spooling machine unstable.

FIG: 71: Spooling fibre

If fibre ropes are dressed during mobilisation, the dressing should be covered by using fibre mats. This is for protection of fibre against sharp edges in the connection components. Alternatively, the chain adapters/connections can be spooled into a dedicated winch pocket.

Fibre may also be spooled onto the AHV undressed, connected via fibre grommets and 25T shackle (common procedure in Australia). Sharp edges on these shackles should be taped up to prevent damage to the fibre rope.

FIG: 72: Fibre mats

FIG: 73: Fibre on drum, dressing in pocket

OPERATION

Generally, fibre ropes should not touch the sea bed. This has the potential to cause damage. It is important to always keep sufficient tension in the mooring line to avoid contact with the seabed.

If fibre ropes are recovered to the AHV winch with dressing on, the dressing should be covered by use of fibre mats. This is for protection of fibre against sharp edges in the connection components. Alternatively, the chain adapters/connections can be spooled into dedicated a winch pocket.

FIG: 74: Shackle, spool and seizing

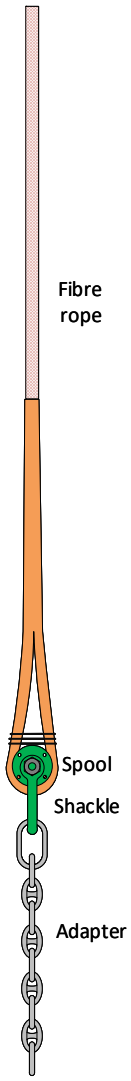


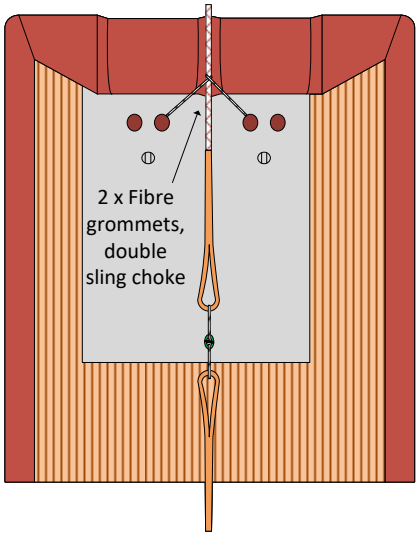
FIG: 75: Typical fibre rope dressing

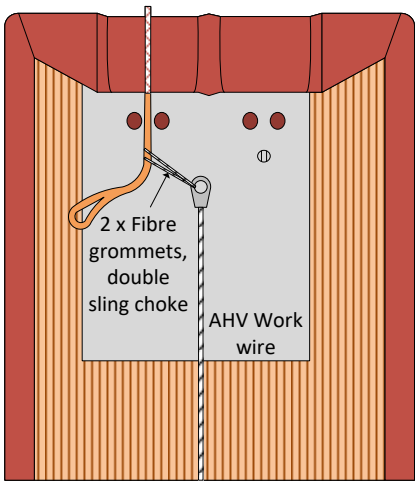
If recovered ropes are to be re-used, they must be inspected as far as practicable for any damages. Securing bolts on D-shackles are to be replaced if damaged. Seizing at roll thimble is to be checked.

If ropes are mobilised intended for test tensioning prelaid anchors, they should be used in their full lengths together with a chafing chain. This is to avoid friction on the rope and the risk of introducing twist from the vessel's work wire to the fibre rope.

Normally a chain adapter is used for securing of the fibre rope ends on AHV. In case no chain adapter is applied on fibre end during deployment or recovery the fibre rope can be secured by use of fibre grommets connected to towing pins or AHV work wire.

⚠ Under no circumstances should the fibre rope be used for recovering anchors!





⚠ Avoid wear and tear on grommets.

FIG: 76: Securing of fibre rope end by use of fibre grommets