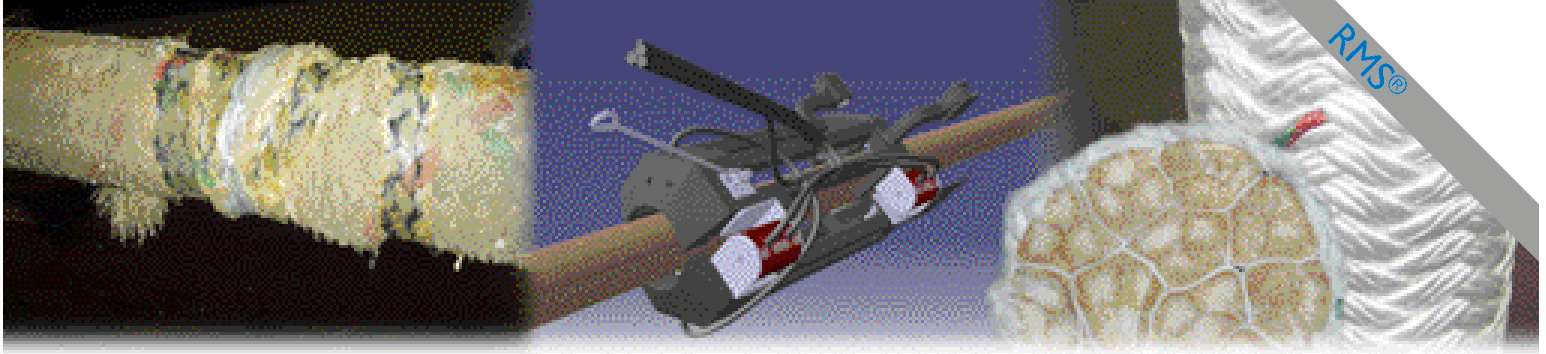


Welaptega Rope Measurement System (RMS)[®]



RMS[®] is part of the Welaptega **Subsea Intelligence Suite**[™] also comprising mooring Chain Measurement (CMS)[®], 3Dimensional Video (3DV)[®] and 3Dimensional Modelling (3DM)[®]. This unique toolset gives you the information you need to protect the integrity of your subsea infrastructure.

The Business Problem

There is no method – other than visual inspection – to monitor the in-service condition of a fiber or wire rope mooring line.

The Business Solution

Introduce an in-service fiber and rope inspection system.

The Welaptega RMS[®] assesses the in-service condition of fiber or wire rope moorings. Deployed by ROV, the RMS[®] identifies changes in the cross-sectional geometry of the rope. These measurements are indicators of potential deterioration of the rope. Deterioration increases the risk of failure in a mooring system.

The RMS[®] frame is towed by ROV along sections of fiber or wire rope, cleaning the surface and recording dimensions in real time. The surface condition is recorded for later analysis.

System integrity

The RMS[®] has been designed in consultation with rope manufacturers, installers and platform operators to ensure safe data acquisition without affecting the performance or integrity of the rope system. RMS[®] is equipped with a suspension system incorporating sprung, acetyl rollers to ensure the rope remains centralised avoiding contact with other system components.

www.welaptega.com

Gathering subsea intelligence that matters.

The Technical Solution

RMS[®] is an ROV-deployed frame equipped with a hydraulic sled and geometrically fixed cameras.

The ROV deploys the RMS[®] frame to the fiber or wire rope. A hydraulic sled encircles the rope and clasps shut. As the frame is towed along the rope by the ROV the sled removes marine growth using a combination of processes that include a mechanical plough, high-pressure water jetting and an annulus of brushes. One or all of these options can be used for a customized service.

At the rear end of the sled, two-to-four video cameras are positioned at 90 degrees to each other and 90 degrees to the longitudinal axis of the rope. As the frame is moved, the cameras record measurements.

The video signal is then transmitted via the ROV to a top-side computer suite which processes video signals at 50 frames per second, in real time. Automatic measurement algorithms measure the rope at approximately 50 mm increments. This builds a profile of the rope's geometry along each mooring line.

For fiber rope, potential deterioration is indicated if the diameter measurements are smaller than manufacturer's specification. If measurements are more than specification, this indicates a flattening in the rope's circumference which is another sign of internal structural deterioration. For wire rope an increase in diameter may be an indication of corrosion of interior wire strands.

Welaptega RMS[®] specifications

RMS[®] deployment requirements

- Work-class ROV with 7-function manipulator

System components

- High-resolution video camera array with integrated LED lighting
- Acetal tool frame
- Digital recording system
- Real-time computer image analysis system

Rope surface preparation

- In-built three-way marine growth removal system

Both cameras have in-built LED lighting to enhance visual video images of the rope's surface.

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