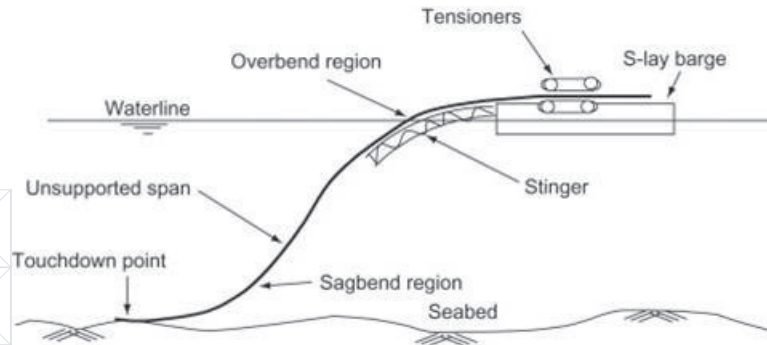


APPLICATION NOTE



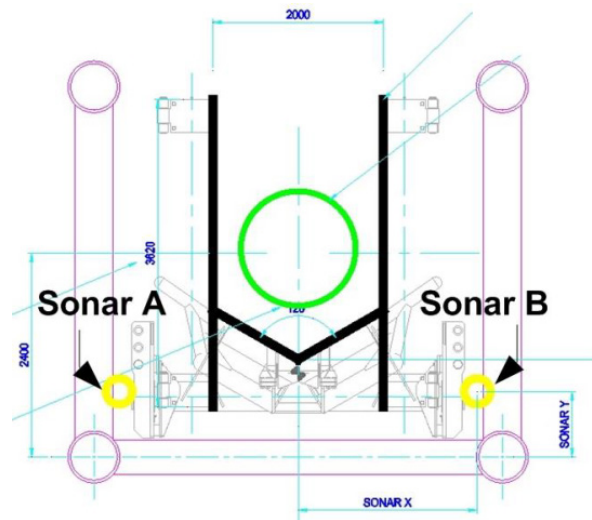
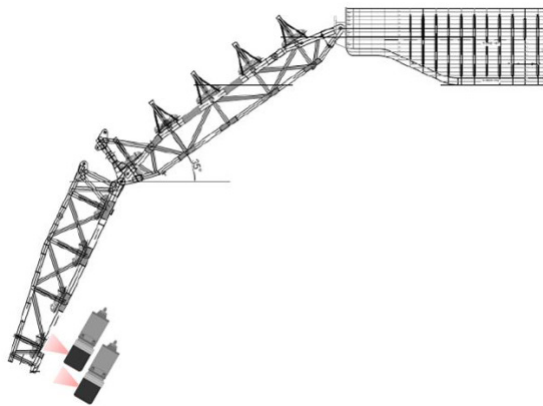
KONGSBERG



DOMED SONARS FOR STINGER MONITORING

Dual-head Stinger Profiling System for pipe-laying operations.

Laying pipe on the seafloor can pose various challenges, especially in deep waters. The dual-head multi-frequency domed sonar system is a complete hardware and software solution to observe “Over bend” or “Sag bend” conditions during pipe-laying operations. The system displays a fused acoustic profile of the pipe and a graphic display of its location. The operator can set a limit allowable zone and the software will send a visual and audio alarm if the detected pipe touches or exceeds the limits.

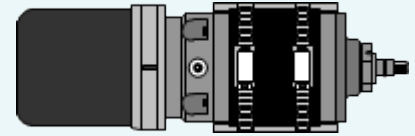


KONGSBERG's dual-head Stinger graphic display allows the operator to set the following parameters:

- Pipe diameter
- Limit allowable zone (alarm)
- Roller spacing
- Screen refresh rate
- Bottom of virtual zero (BOV) point
- Scanning sonar head locations
- Roller elevation above BOV
- Profile point size

DUAL-HEAD STINGER PROFILING SYSTEM COMPONENTS (BASIC):

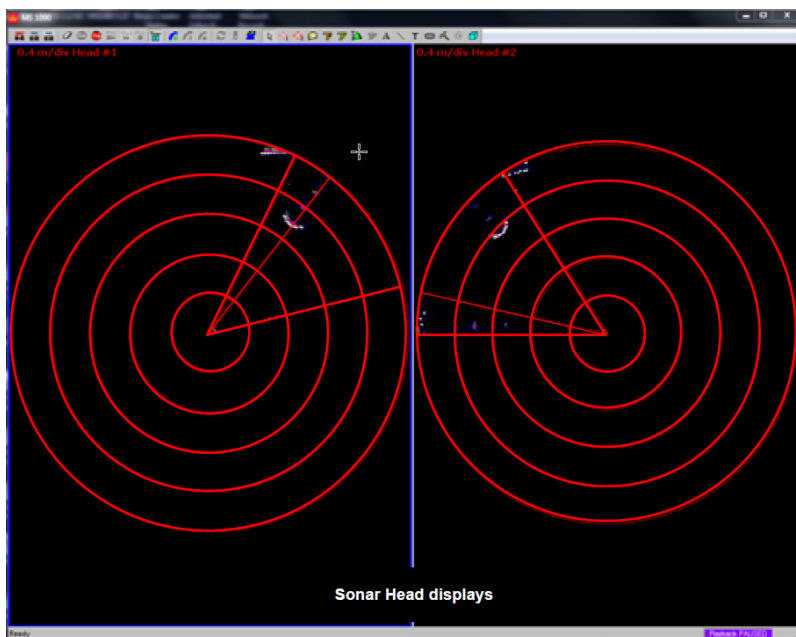
- MS1000 Software with Stinger module
- Multi-frequency domed sonar profilers
675 kHz – 1350 kHz in titanium housing (qty 2)
- MS1000 Interface units (qty 2)
- Cable lengths and connectors to suit
- Rackmount or Rugged Computer



Kongsberg Mesotech Domed sonar head

DUAL-HEAD STINGER PROFILING SYSTEM INSTALLATION CONSIDERATIONS

1. The update rate of the fused pipeline display depends on the range and scan speed, with an average of approximately 3 to 5 seconds.
2. The sonar heads can be ping-synchronised or operated at different frequencies to avoid acoustic crosstalk.
3. Both sonar heads require an unobstructed view of the pipeline within the stinger.
4. The hardware to mount the sonar heads to the stinger frame shall be supplied by others, typically a shipyard contractor. A rubber gasket between the titanium housing and the mounting bracket is recommended to minimise any corrosion.



Selected parameters can be saved and locked to prevent accidental changes or tampering.

Should the pipe touch or move beyond the "Limit Allowable Zone", a visual and audio alarm is activated.

KONGSBERG MESOTECH

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