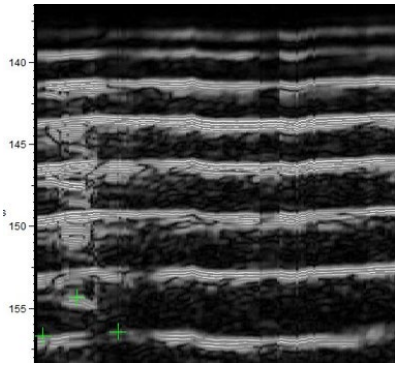
Multi-Skip Ultrasonics (M-Skip®)

Multiple Skip (M-Skip®) is an advanced ultrasonic inspection method used for inspection of areas of pipes, risers, and vessels rendered inaccessible by obstructions such as supports, clamps, and saddles. This ultrasonic pitch/catch method that allows probe placement either side of an obstruction at separation distances of up to 5.25 ft (1.6 m).

Ultrasound is transmitted through the wall of the pipeline, beneath the external obstruction and is received on the far side. The ultrasonic waves 'skip' between the internal and external surfaces and the arrival times of the signals are used to calculate wall thickness. Corrosion is detected through loss of signal amplitude, reduced signal arrival times and changes to signal shape.

Advantages

- Circumferential and axial inspections, including complex geometries such as pipe to bend
- High detection and through wall sizing inspection efficiency for general wall thickness loss
- High detection and medium through wall sizing inspection efficiency for local wall thickness loss, pitting (DNV-RP-G103).
- Through wall measurements based on arrival times, therefore more accurate than amplitude techniques
- 100% coverage, permanent record, instant analysis, and reproducible fingerprinting for condition monitoring
- Probe/wedge placement either side of support negates the requirement for direct access to the area of interest
- Uniform wall thickness measurements +/-0.1mm (ESR technology)
- Localized wall loss through wall extents accuracy better than +/-1.0mm in some cases (ESR technology)

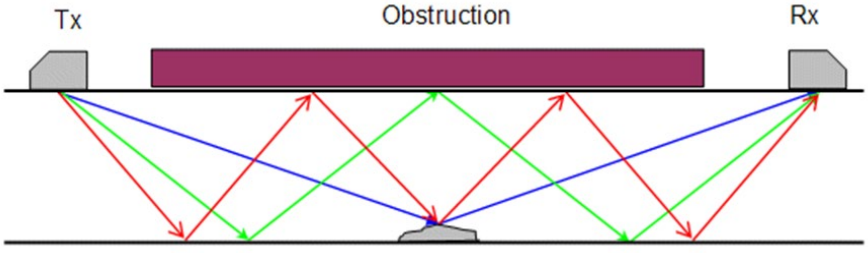


M-skip analysed data showing defect on left side


M-skip scanner setup

M-skip is a specialised ultrasonic inspection technique which was initially developed within the HOIS programme in 2005/2006. Further development and experience from field applications is currently ongoing.

Despite being such a recently developed technique, M-skip has already been applied to off-shore inspection of pipe supports, in conjunction with the other CUPS technique, which in some cases has been shown to provide complementary information.



e.g., M-skip beam pattern demonstration such as a saddle support.