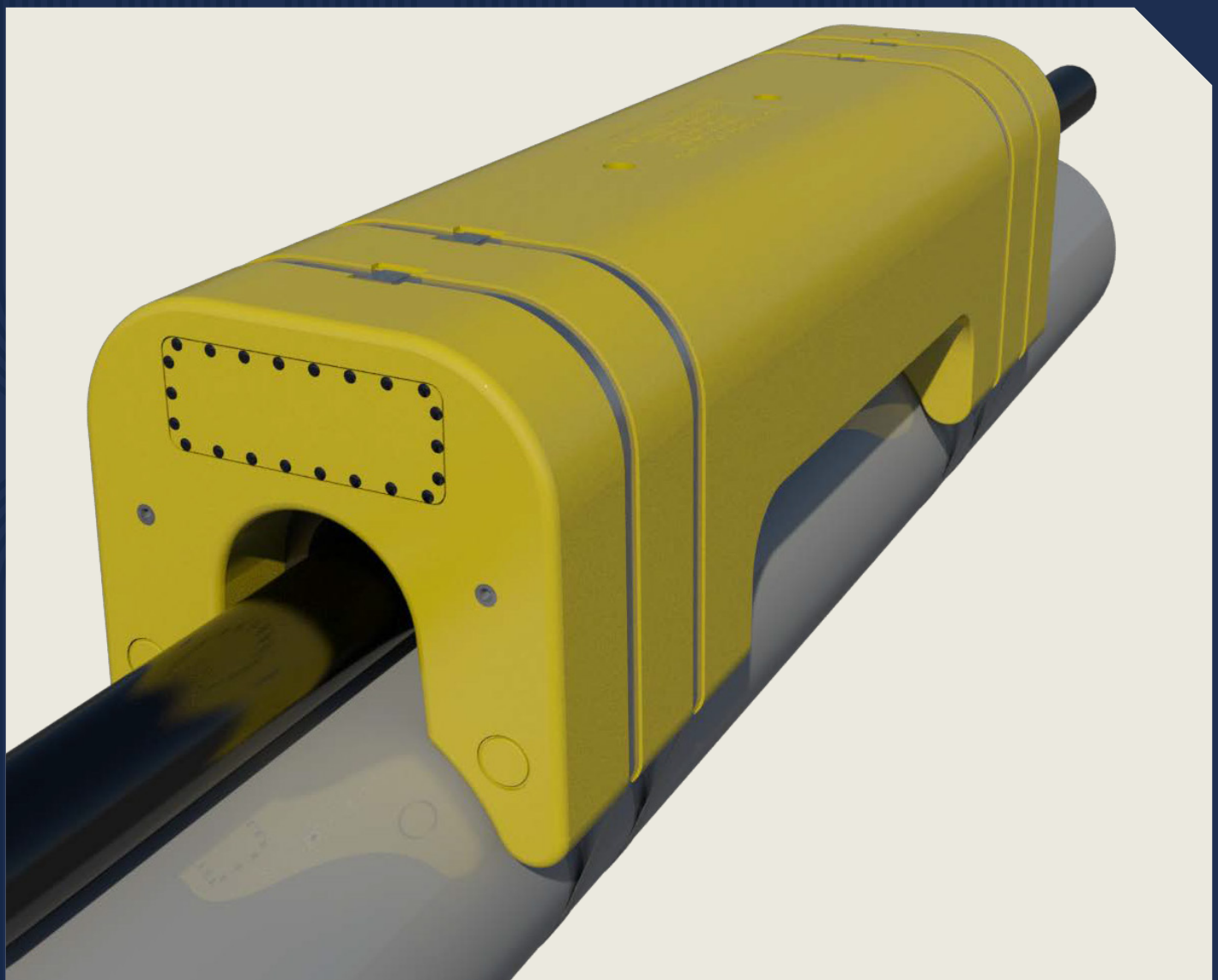
AIS

Subsea

Flowline buckling mitigation buoyancy module

Repeatable and predictable pipeline behaviour

Buckling arises when flowlines deviate from their intended design configuration on the seabed. Buckling often occurs during start-up and shutdown sequences as the thermal fluctuations cause pipelines to expand and contract, leading to problematic buckling along its length.



Subsea

Flowline buckling mitigation

Buckling arises when flowlines deviate from their intended design configuration on the seabed.

The movements can cause high compression forces, bending moments and shear forces that affect the flowline integrity. To relieve these stresses, the pipelines natural response would be to buckle. Adding buoyancy to the flowline in discrete locations can help control the movement and mitigate buckling.

Placement of the flowline buckling mitigation eliminates risk by promoting controlled flowline movement and mitigates flowline buckling. Each flowline buckling mitigation buoyancy module has an engineered structural core ensuring maintenance free performance throughout the design life.

The flowline buckling mitigation buoyancy module skin provides a tough exterior that protects the buoyancy core during handling, deployment and operation. The nature of the design allows the net buoyancy to be adjusted to suit each individual application with systems qualified up to 3000 metres.

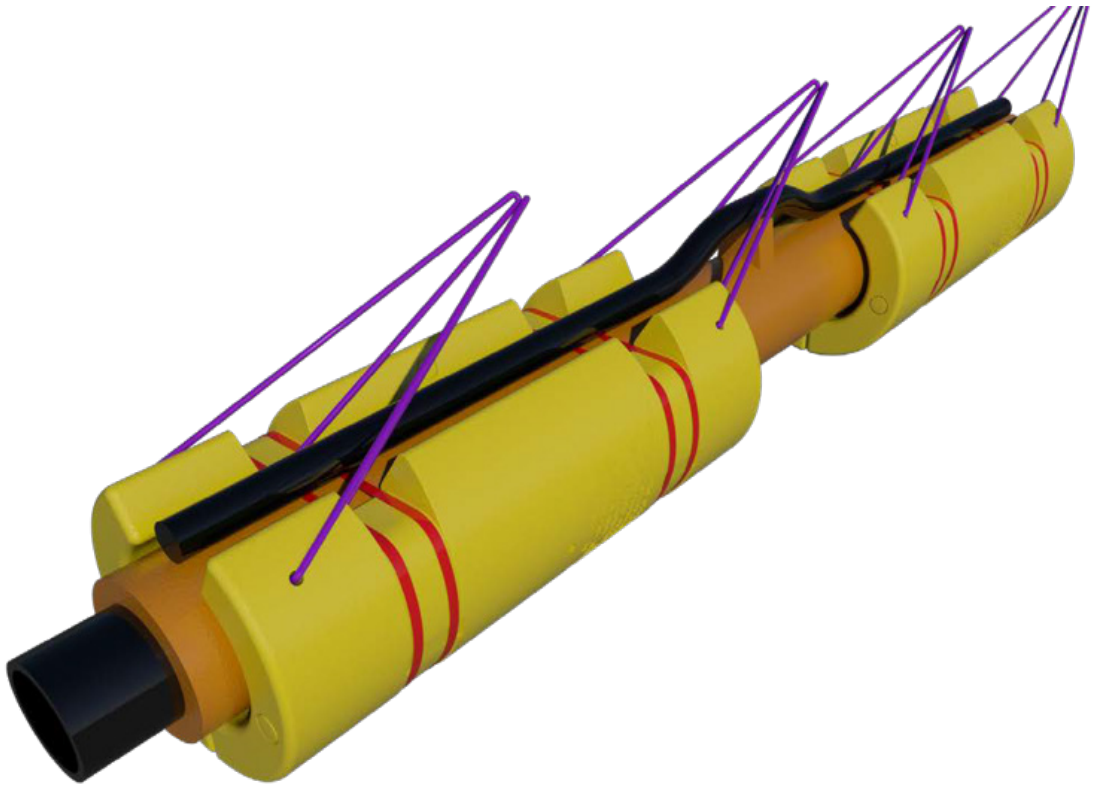
The bright yellow finish guarantees that the flowline buckling mitigation buoyancy modules are easy to see on the seabed which allows flowline position validation.

Benefits

- Extensive track record and over 25 years' experience and knowledge
- Tailored solutions
- Safe and quick installation
- Reduce project costs
- Predictable safe buckling zones
- Reduce berm creation
- Eliminate rogue buckles
- Reduce axial walking in the pipeline

Applications

- High temperature - high pressure pipelines
- Seabed flowlines



Subsea

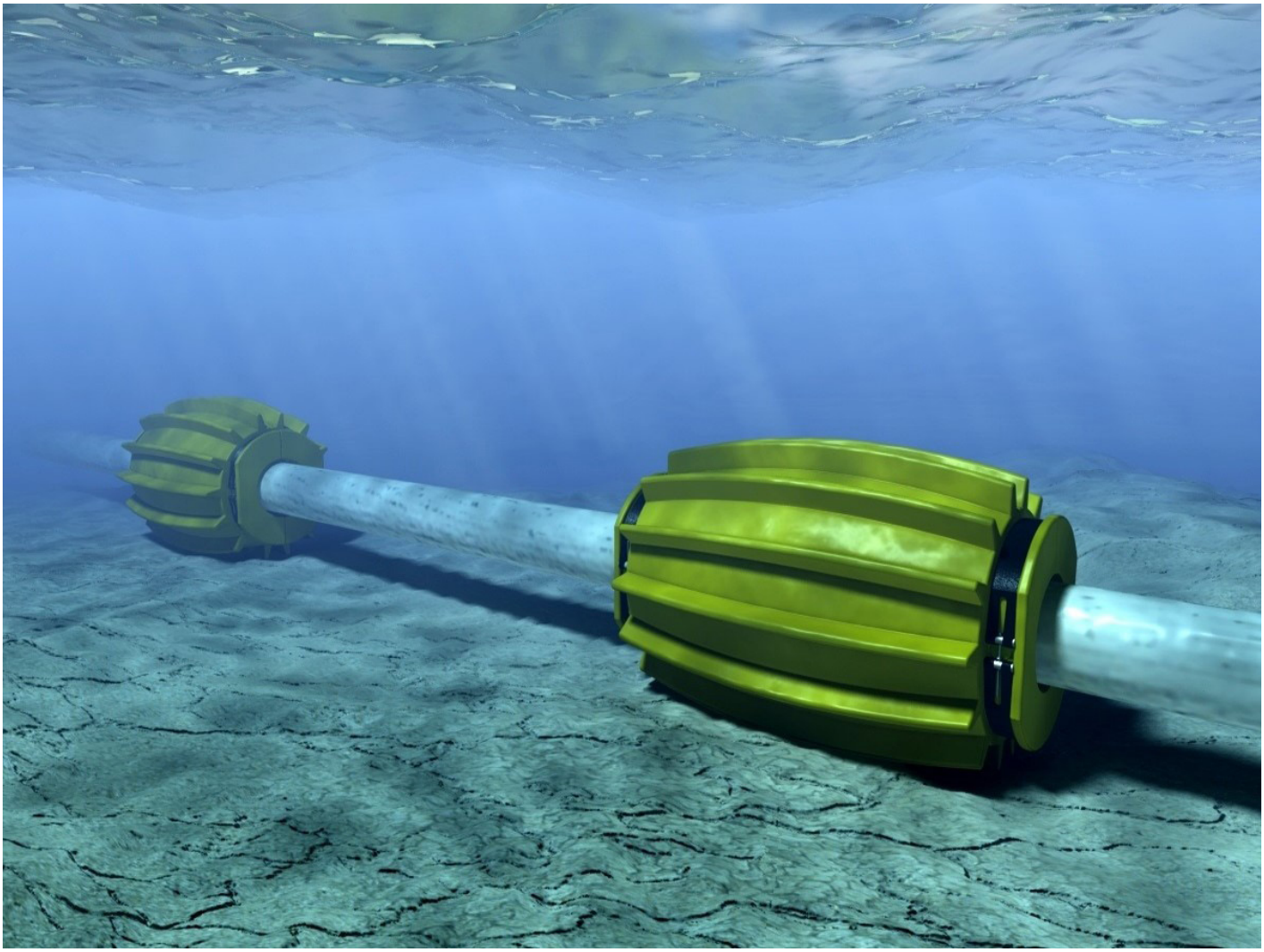
Flowline buckling mitigation

Rotating buoyancy module

Traditionally non-rotating cylindrical buoyancy modules have been installed along sections of the pipeline to reduce the weight and friction in that section and promote controlled bending.

However, in certain conditions the modules have displaced seabed material to build ridges (berms) that have then restricted the lateral movement that the modules were installed to promote.

With that in mind, AIS developed the rotating buoyancy module that rolls on the seabed and thereby reduces lateral friction, berm creation and allows repeatable and predictable pipeline behaviour, eliminating rogue buckles and reducing axial walking in the pipeline. As a consequence, it allows for project cost reduction as a lower quantity of buoyancy modules are used to create 'safe buckling zones'.



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