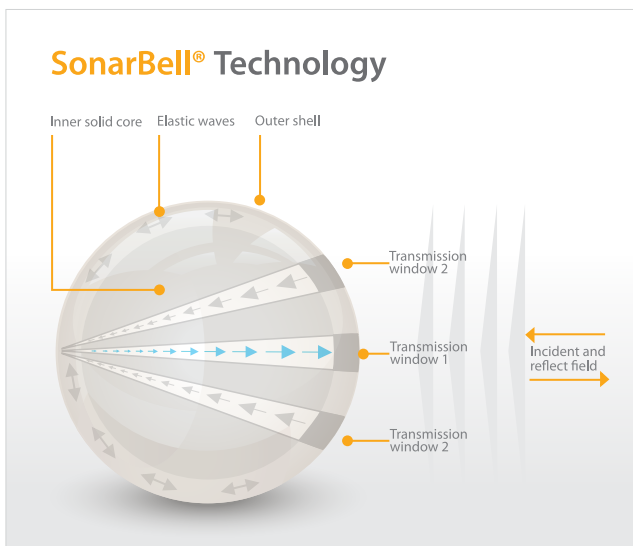


SonarBell[®] Providing innovative product solutions for commercial applications

Commercial Products



SonarBell[®] operates by focusing and reflecting acoustic energy, much as a lens or mirror can focus light. Just like a lens or mirror, SonarBell[®] is a completely passive device.

By focusing and re-radiating the sound energy back in the direction from whence it came, a 200mm SonarBell[®] can deliver the same sonar target strength as a 2m diameter metal sphere whilst being relatively light weight, easy to handle and deploy.

However, unlike other technologies used for asset location, SonarBell[®] does not suffer from the “now you see it, now you don’t” of corner reflectors or the limitations imposed by battery life on transponders utilisation.

SonarBell[®] works well with all types of Sonar from highly sophisticated hull mounted sonar designed for mine-hunting and side-scan devices at one end of the scale to fish-finders and echo-sounders at the other. It works equally well with AUV/UUV and hand-held sonar for work done at close range.

SonarBell[®] has many properties which make it suitable for commercial applications, SALT is working to deliver solutions for marine industrial use around these unique features in areas including:

➡ Oil & Gas

SonarBell[®] provides clear and effective marking of assets, fixed or mobile with minimal CAPEX and OPEX hurdles to ownership. Applications currently under consideration include: the marking of risers and flexible hot pipes for monitoring purposes; marking exposed pipelines and pipe crossings; tracking of ROV and umbilicals and even seabed shift as part of reservoir monitoring.

In poor visibility SonarBell[®] offers a very simple way of marking assets allowing for reduced intervention times, it can even be used to differentiate one part of an existing asset from another.

Be it asset positioning at the start of an operation, dealing with problems causing locked in production or the marking of shut out well heads for return at a later date, SonarBell[®] offers a straight-forward cost effective way of guiding you to where you want to get underwater.



➔ Cable And Pipeline

With increasing numbers of cables and pipes crossing the seabed under busy sea lanes, the necessity for accurate marking of these assets is becoming more acute if costly damage is to be avoided or, post incident efficient repair is to be implemented.

SonarBell® can help in the delivery of accurate dredging or ploughing operations or in the efficient monitoring of touch-down. Alternatively, attached to a cable or pipe it could provide an initial reference point used in guiding ROV monitoring or repair operations.

SonarBell® provides a low cost and low maintenance solution and SALT are now examining other ways in which it can contribute to reducing offshore operational costs, this includes the provision of a very simple efficient method of monitoring "undercut" of pipes and cables.



➔ Equipment Monitoring And Asset Recovery

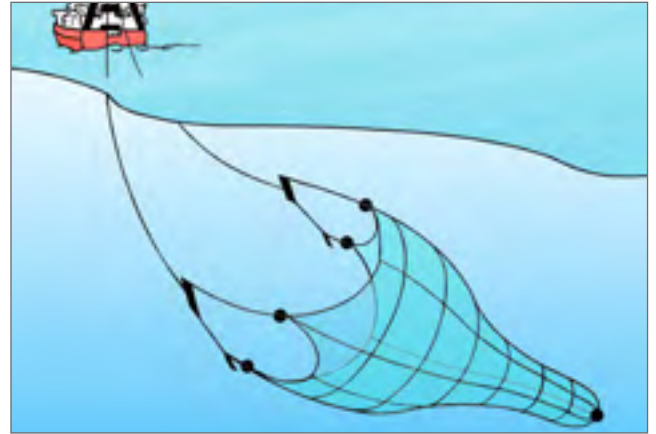


Whether it is real-time positioning monitoring to ensure accurate results without a vulnerability to battery failure in a large seismic array, recovery of equipment deliberately laid aside on the seabed for later use or marking valuable scientific instruments for recovery, SonarBell® offers a cost effective solution worthy of consideration.

SonarBell® also offers a low cost backup solution for the effective recovery of assets unintentionally lost at sea in areas of poor visibility or at depth. Visual search of large areas is a slow and costly exercise particularly when the initial position of entry into the water was uncertain. Equipping a piece of valuable or sensitive cargo with a SonarBell® would potentially speed up recovery operations substantially.

➔ Fishing

Be it large scale pelagic trawling or recovery of pots, SonarBell® offers a cost effective marking solution to the fishing industry. Placed on a trawl net SonarBell® can not only give the operator information on the shape of the net, assisting him catch the more mature and valuable stock, but also provide accurate location information in the event that the net is lost enabling timely recovery and thereby reduce environmental damage.



➔ Commercial EOD

SonarBell® can also make a significant difference to commercially managed operations in terms of: "Post-Operations clearance" speeding up area recovery for the return of commercial shipping and the removal of historic ordnance from the seabed to allow commercial exploitation. SonarBell® is a totally passive device with a significant and dependable acoustic signature and low non-acoustic signature. As such it provides an ideal device for the safe marking mines or other objects for subsequent analysis or destruction.

➔ SALT Bespoke Design And Development

SALT has been engaged by a number of organisations to examine how its products might deliver operational advantage. This development brief can cover:

- Complete acoustic solutions
- SonarBell® / Sonar matching
- Performance modelling
- Operational cost benefit analysis

The unique facets of the SonarBell® technology can be exploited in many different ways, we would be delighted to provide a period of consultation in order to assess the feasibility of delivering your requirements.

Subsea Asset Location Technologies (SALT) Ltd is a 'spin out' company from the UK Ministry of Defence's, Defence Science and Technology Laboratory (Dstl) and was formed to make this military derived technology available to a wider market.