

The Challenges Ahead

Class Societies get their act together in R&D and Technical Support

According to UK-based classification society Lloyd's Register (LR), which is developing 'winterisation' guidelines and products, there is a need for class to strengthen its capability in a number of aspects for ship operation in Arctic conditions.

The main challenges facing the industry are:

- Ice strengthening of hull structure and rudder
- Strength of shaft and propeller
- Strength of pods and supporting structure, if applicable
- Safety and operability under icing and snowing conditions
- Hours of darkness during wintertime
- Very low ambient temperatures, - 40 deg C or lower
- Increased need for engine output
- Avoidance of unintended stops in ice without ice breaker assistance
- Operate the ship within acceptable limits
- Routeing to avoid non-acceptable heavier ice conditions
- Sufficient ice breaker assistance
- Shore based contingency arrangements
- Noise/vibration
- Competent crew

Class guidance

Rob Tustin, LR's technical manager - new construction, said: "To adequately deal with the

challenge; new operating scenarios, technologies and trades within icy and cold environments, class must not only provide basic guidance on compliance with minimum requirements for ice class, but go beyond this to provide advice on operational aspects.

"We are working with industry participants, including existing and potential owners of ice-class tonnage, national authorities, equipment manufacturers and research institutes to develop new services and to formulate meaningful guidance to help ensure that new opportunities can be taken advantage of while maintaining the safety of seafarers, ships, cargo and the environment in icy and cold operating conditions," he continued.

LR pointed out that ice and cold operation comprises the confluence of three principal elements: the ice and cold regime, ship operation and the ship itself.

The ice and cold regime consists of the prevailing environmental conditions and the ice management offered by the relevant national authorities. Environmental information includes temperature, ice thickness, pressure, degree of ice ridging, duration of ice season, wind and weather, currents and presence of land-fast ice, while ice management contains information relating to icebreaker assistance, the availability of ice forecasts and the provision of routeing advice.

The implications on the design, propulsion and operation of a vessel trading in Arctic regions are many, not only in respect of choice of ice class, but also in the scope of 'winterisation' that should be applied to the design and operation of the vessel.