Dalian Shipbuilding

Standards as a tool for innovation and legal compliance

The Dalian Shipbuilding Industry Company, located in the city of Dalian, Liaoning Province, China, is the largest shipbuilding enterprise in China. It is part of the China Shipbuilding Industry Corporation (CSIC), one of the two state-owned shipbuilding corporations in China. A flagship of China's shipbuilding industry, the Dalian Shipbuilding Industry Corporation (hereinafter referred to as DSIC) is a modern engineering and final assembly company spanning five industries – shipbuilding, defence, ocean engineering, ship repair (including shipbreaking) and heavy industrial manufacturing (e.g. equipment for offshore plants).

Company name: Dalian Shipbuilding Industry Co. Ltd. (DISC)

Country: China

Industry: Shipbuilding

No. of employees: DISC total: 7 600
Research&development (R&D): 867

Revenues/profits: From R&D:
CNY 150.8 million/N.A.
(USD 22.7 million/N.A.)
Total revenue of DISC:
CNY 22.7 billion (USD 3.4 billion)
(in 2010)*

Main products/services:
The assessment focused on the R&D business function of DSIC's shipbuilding branch. The products of the shipbuilding branch are divided into oil tankers, bulk carriers, container ships and special ships.

Main use of standards: The shipbuilding industry uses a variety of technologies and its processes are very complex, requiring a large number of standards (over 100 000 Chinese, international and other standards). The most important ones for R&D are product and testing standards used for the design of whole ships, their subsystems and parts.

Most important standards used:

- Conventions of the International Maritime Organization (IMO)
- Chinese national standards
- Chinese industry-sector standards for the shipbuilding industry
- Some ISO standards (ISO 9001, ISO 14001 and standards of ISO/TC 8)
- OHSAS 18001:2007, *Occupational health and safety management systems*
- Many technical regulations and mandatory standards of China

Economic benefits generated by standards: CNY 13.3 million (USD 2 million) annually (around 12 % of the revenues of the R&D function).

Key qualitative benefits: Information sharing inside DISC and with suppliers was improved.

What were the major benefits for DISC of using standards?

Using standards allowed DISC to:

- Improve the design of ships and components based on customer requirements
- Reduce design errors and ensure safety
- Promote customer confidence through widespread use of standards
- Reduce negotiation time by referencing standards
- Ensure compliance with regulatory requirements
- Unify and re-use design documentation
- Ease cooperation with suppliers through use of agreed standards-based solutions

How did standards lead to these benefits?

Standards are applied extensively by all DISC engineering offices. They make it possible to refer to proven solutions, helping to reduce risk and shorten design cycles. They also facilitate the re-use of solutions developed in other projects and their application to new projects. Standards make compiling technical instructions for contracts easier, allowing greater accuracy in determining technical parameters and reducing the time needed to reach agreement with ship owners. The compilation of test files follows standardized rules and formats, which improves work efficiency and design quality.

Standards facilitate the design selection process, leading to streamlined manufacturing and installation of equipment and components, which also helps to increase design quality and work efficiency. Lastly, they lay down specific requirements for indicators, making documentation faster and simpler to prepare.

* CNY 1 = USD 0.15124 (2010-12-31)