

2. 조선·해양기자재산업의 개발동향

(2) 중 국

Present Status and Future Development of China Marine Engineering Industry

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**Present Status and Future
Development of China Marine
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China's shipbuilding industry has developed rapidly since her reform and opening to the outside world in 1978. The production structure for both shipbuilding and ship-repairing of large, medium-sized and small ships has been basically formed, and the construction of shipbuilding and ship-repairing base, taking Shanghai, Dalian and Guangzhou as the centers, has begun to take shape. The tonnage of a single ship has been developed from 10,000 to 300,000 in the capacity of shipbuilding and ship-repairing, and the types of ships have been developed from common bulk carriers and oil tankers to high-tech ships, such as oil products carriers, chemical carriers, Ro-Ro ships, container ships, liquefied gas carriers, small waterplane area twin-hull (SWATH) craft and wave piercing catamaran (WPC) etc. with advanced levels internationally. The development of China's shipbuilding industry has strongly promoted the development of China's marine engineering industry. In recent 20 years, the policy of "introduction + development" has been implemented in conjunction with the actual situation of China's shipbuilding industry, and China's marine engineering industrial system has been initially formed through hard working and striving by nearly 2000 enterprises. The marine products have met the need of domestic shipbuilding, also lots of electromechanical products for ships have been exported overseas, such as marine diesel engines, accommodation machinery and deck machinery etc. The quantity of production of machinery in China is

taking the third place in the world following Japan and Korea. China has made great achievements in the development of the marine engineering industry.

1. Present Status of China Marine
Engineering Industry

Due to the characteristics of ship industrial multiple-business, the shipbuilding industry has close relations to many departments of the national economy, it needs various materials and equipment of high quality and high performance to be supplied by metallurgical, machinery, electronic, instruments, light industrial, building materials and chemical industrial departments. These products normally take approximately 70% of the total price of a ship, therefore the shipbuilding industry is of great significance for promoting the development of the national economy. Since the reform and opening to the outside world, the Chinese Government has attached great importance to the development of shipbuilding industry, and many favorable policies have been promulgated in the approval and introduction of projects. According to incomplete statistics, China State Shipbuilding Corporation(CSSC) imported advanced technology of more than 60 items for ship's main and auxiliary engines, accommodation machinery, deck machinery, electrical appliances and casting and forging, etc. respectively from more than 10 countries, such as Switzerland, Denmark, Germany, France, Japan, Norway and United Kingdom. The enterprises of the marine engineering industry have attained remarkable achievements by means of introducing, digesting and assimilating advanced technology. The marine

products have been widely used for various ships. Meanwhile lots of such products are also exported overseas.

China's shipbuilding industry never gives up the development of the domestic marine products at the same time when the advanced technology of marine engineering are introduced from overseas. After tens of years' development and innovation, nearly 40 products for ship have been successfully designed and manufactured to have covered the shortage of import of complete sets of equipment, thus to have initially formed the relatively advanced and complete marine engineering industrial system.

The marine engineering industrial system with a certain scale has made a great contribution to the development of China's shipbuilding industry. However we have to know that there is a wide gap as compared with the shipbuilding powers in the world, mainly in the aspects of quantity, quality and advancement of complement products. Take low-speed diesel engines as an example, the output of low-speed diesel engines cannot meet the need of the development of China's shipbuilding, nor manufacture big-power low-speed diesel engines for VLCCs and large container ships. The crankshafts of low-speed engines are mainly dependent on import. The production capacity of ships' auxiliary machinery has been greatly increased relying on introduction of the world advanced technology or cooperating with famous manufacturers overseas technically, however the quality and advancement, particularly the rate of Chinese-made products, remain a further improvement.

2. Situation and Challenge for China's Shipbuilding Industry

In 21st century, the international trade volume will be greatly increased along with the development of the world economy and economical globalization. In addition, the enhancement of concept for human environmental protection will speed up the emerging of novel types of ships and renewing of old ships. The above factors will greatly promote the increase of shipbuilding output and a big development of the world shipbuilding industry will occur in the new century. In the same way, China's shipbuilding industry will also be facing the bigger development, as well as the various challenges. With the strengthening of China's economy and increasing of foreign trade, the scale of our shipping fleets will continue to be developed, a large number of old-aged ships need to be replaced, and the demands for new ships will be a boom. In the period of "10th five-year plan", three big shipping companies in China, i.e. China Ocean Shipping Company, China Shipping (Group) Company and Sino-trans are planning to newly increase ships of 10,620,000 deadweight tons. Particularly with the coming of China's entry into WTO, channels for high-tech research development of ships have been established for the purpose of promoting the whole levels of ships technology, the competitive power and the structural readjustment and optimum upgrading of ships' industrial products. At the time of coming of a new high tide of shipbuilding, China has established the policies for Chinese ships made in China, equipped in China and surveyed in China, to encourage the owner of Chinese

shipping fleets to build new ships in China, and offer to the preferential measures on the policies. At present, projects of VLCCs, large container ships and large bulk carriers have formally started. The LNG ships with higher technology are being developed. This stands for the eve of a big readjustment of China's industrial structure, and the shipbuilding industry is still an orientation of the national industry. The readjustment of shipbuilding industrial structure brings about opportunities and challenges for the development of marine engineering industry. The measures for Chinese ships equipped in China require that essential products should meet the need of development with their high-tech and high-quality.

3. Development of China Marine Engineering Industry

Based on the socialized cooperation system depended on key enterprises, the development of China marine engineering industry should take the road of high-tech development, establish the connection system from developmental research to design and manufacture and from introducing to digesting and assimilating advanced technology.

To develop key complete sets of equipment and products onboard ships, further promote

the progress of introduced technology to be domestically and rate of products equipped onboard ships. The key complete sets of equipment and products onboard ships with certain technical strength now in China are marine low-speed diesel engines, deck machinery, offshore platform cranes, oil-water separators and ship automatic equipment, etc. In the case of marine low-speed diesel engines, the technology of key parts to be domestically up to 85% of the rate and the problems of the domestic technology for crankshafts and big-power diesel engines are to be solved.

The aim of the future development of China's ship complete sets of equipment and products is to be more economic, reliable, advanced and intellectualized technically. Take the road of centralized management, labor productivity increment and competitiveness enhancement through quality management industrially. Make full use of scientific research collective for group combined development. Adopt methods of development, manufacture and service based on computer technology. Implement high-quality services for customers so as to keep path with the international market on sales and services. Build a good reputation in the international market, and become an important power of the world shipbuilding industry.