Ship type service

◆ **Joint development of ship type**

Ship type is jointly developed in conjunction with the shipyard and designer. By making use of CCS advantage in information and technology, based on comprehensive information such as route, port and channel and by means of advanced technical rules, technical economic analysis, structural and performance calculation analysis, effective technical solutions are provided in order to jointly develop top quality ship type.

◆ **Optimization and upgrading of ship type**

Reliable structural optimization and upgrading solutions are provided by means of scientifically reasonable quantitative and qualitative analysis and research based on current characteristics of ship type, so as to provide strong support for ship type upgrading, making the ship safer, more environmentally friendly, more economical and more efficient.

◆ **Approval of ship type**

Compliance evaluation is carried out on ship types provided by shipyards and designers in accordance with agreed rules and conventions, and ship type approval certificate is issued to lay the foundation for ship type promotion and plan approval in the future.

◆ **Technical training of clients**

Based on the needs of the clients, CCS can provide comprehensive and customized technical training service related to rules, software and technical solutions.



CCS PERFORMANCES AND SERVICES ON WOODCHIP CARRIER

CHINA CLASSIFICATION SOCIETY
中国船级社

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APR, 2023

This is made of recycled paper.

CHINA CLASSIFICATION SOCIETY
中国船级社

Overview

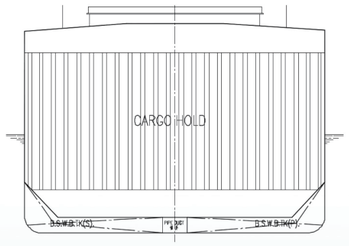
By sticking to the policy of "building first-class international classification society with own characteristics and with technology as the foundation and credibility as the cornerstone", CCS improves continuously its image and value of woodchip carriers through advanced technology and quality service.

With rich and mature plan approval and survey technologies, CCS devotes its technologies and experience in reserve to the ship building industry and offers all-round services to clients in terms of design, manufacturing, maintenance and survey. Based on in-depth research in the overall arrangement, scantling and key techniques including strength assessment for woodchip carriers, CCS has further enhanced its service capability in ship type service and offered clients with all-round and efficient technical services.

By committing to the mission of "safety, environmental protection and creating value for clients and society" and based on over 90 offices established across the globe, CCS provides the ship owner with 7X 24 hours of survey and technical support services. Relying on its highly efficient service system structure, CCS continuously provides comprehensive support for conducting survey activities, safeguarding ship safety and emergency response to accidents. CCS has continuously achieved outstanding performance in three main MoUs and witnessed healthy and steady increase of its fleet size.

Characteristics of ship type

Woodchip carrier is the vessel specially designed and manufactured for the shipment of low-density cargo such as woodchip. The form of structural arrangement generally comprises double bottom, bottom side tank, and single side skin structure with no top side tank. The freeboard of woodchip carrier is relatively high and the hold capacity is 1.3 to 1.5 times that of ordinary bulk/dry cargo carrier of the same deadweight. The moulded depth of woodchip carrier is relatively huge.



Typical shape of cargo hold

Major exporters of woodchip include Australia, Chile, America, Vietnam, Brazil, New Zealand, South Africa, and Canada, among which Australia is the largest exporter of woodchip in the world. Major importers of woodchip include China (including Taiwan area of China), Japan, South Korea, and European countries.

Key technologies:

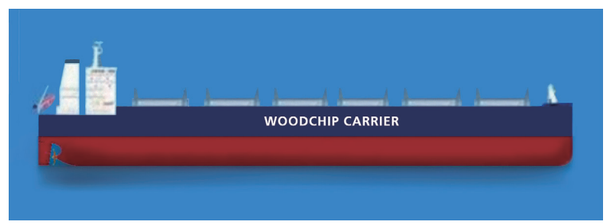
1) Structural safety:

◆ Characteristics of large hold capacity and low cargo density, with special attention to be given the balance between structural weight and structural safety;

◆ Huge moulded depth, single skin structure, no top side tank, relatively large deck deformation, with special attention to be given to relevant rigidity;

◆ Provided with heavy ballast tank. Heavy ballast is a routine working condition, which requires high strength, which special attention to be given to relevant strength;

2) Hull vibration and noise assessment: hull structure tends to be flexible and in need of special attention;



Typical woodchip carrier

1) Structural safety

3) SOx & NOx emission control solutions

4) Intelligent ship (i-Ship)

5) Ship energy efficiency service: providing technical services regarding energy efficiency including resistance reduction technique (including the optimizing of molded lines), efficient propulsion system, energy-saving device, light weight control, optimizing of machinery and electric equipment and systems, optimum trim, technique of new energy utilization, and the intelligent online management system of energy efficiency, etc.

