China Classification Society

- Sailing Gloriously to the Farthest End of the Earth,

CCS is on the Way

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China is a country with long history in navigation and shipbuilding as well as in safety supervision and ship survey.

China Classification Society (CCS) has grown up with the establishment and development of New China. It has now become both the main force in the national ship survey sector and an important technical supporter of the development of national shipping and shipbuilding industries.

1. Development history and purpose

CCS was founded in 1956, headquartered in Beijing. It is a full member of the International Association of Classification Societies.

China started preparations for the establishment of ship inspection body in 1951. The predecessor of China Classification Society, the Register of Ships of the People's Republic of China was officially founded on August 1, 1956 and it was renamed as the Ship Inspection Bureau of the People's Republic of China in 1958.

In November 1973, the Chinese government became signatories to the 1960 International Convention for the Safety of Life at Sea and the International Convention on Load Lines 1966, and authorized the Ship Inspection Bureau to issue relevant certificates in accordance with the provisions of the Conventions.

In 1986, with the approval of the State Council, CCS was formally established on the basis of the ship classification service carried out by the Ship Inspection Bureau in accordance with the requirements of the Charter of the International Association of Classification Societies. In 1988, CCS joined the International Association of Classification Societies (IACS) as a full member.

As a national ship survey technical institution, by committing to the mission of “safety, environmental protection and creating value for clients and society”, CCS provides classification services to ships, offshore installations and related industrial products by furnishing world-leading technical rules and standards.

CCS also provides statutory surveys, impartial and integral classification, verification, certification and accreditation and other services in accordance with international conventions, regulations and the related rules and regulations of the authorizing flag states or regions.

CCS also conducts statutory survey and certification to Chinese ocean-going fishing vessels and the marine products used onboard these vessels.

In addition, CCS conducts certification, audit, supervision, inspection, assessment, testing, consultation, training and other services in the fields of renewable energy, transportation, infrastructure, and large-scale steel structure.

As authorized by the administrations of the flag States or regions, CCS carries out statutory survey and other services as authorized. Up to now, it has been authorized by 45 major shipping nations or regions in the world including China to perform statutory surveys for the ships and offshore facilities flying their flags.

Based on the 90 offices established across the globe, CCS provides services for a range of industry and fields including shipping, shipbuilding, shipping finance and insurance, marine equipment, ocean resources exploitation, ocean scientific research, industrial supervision, system certification, government policy and rule development, energy saving and emission reduction, risk management.
and evaluation, and is constantly developing new business areas.

2. Business areas and development

With risk management as the core of its business, and the scientific research, rules and information technology as the support, CCS provides services for ships engaged in international and domestic navigation, offshore engineering and onshore industries.

CCS provides life-cycle services for vessels and offshore facilities by offering services ranging from rule development, design, plan approval, construction supervision, classification and maintenance to dismantling.

2.1 Services for ships

After more than 60 years of development, the number of CCS-classed ships has amounted to 16,301 of 126.769 m GT by the end of August. Among which, 3784 of 95.61m GT are engaged in international navigation.

The domestic fleet and the ocean-going fishing vessels stand at 9,838 vessels of 29.6m GT and 1.571m GT respectively. The total volume of orders stands at 21.3m GT.

Amongst the IACS member societies, CCS, with the largest number of ships under its survey and certification and the youngest classed international fleet in terms of average age, has the 6th largest gross tonnage of international navigation fleet.

The tanker fleet covers all ship types from MR to VLCC.

The bulk carrier fleet covers all types of vessels from flexible bulk carriers to very large bulk carriers. A large number of ultra-large, high-performance, high value-added vessels and mobile offshore platforms have joined CCS. Apart from bulk carriers, oil tankers and container ships, CCS has also made breakthroughs and marvelous achievements in high-tech field like LNG carriers, VLGC, polar scientific research vessels, semi-submersible vessels, large deep-water submarines.

The 21,000TEU container ship “COSCO SHIPPING UNIVERSE” with the largest size and capacity, which is surveyed by CCS, was named and delivered.

![Fig.1 COSCO SHIPPING UNIVERSE](image1)

38800DWT “Great Intelligence”, the world’s first smart ship developed and built in China has been delivered.

![Fig.2 Great Intelligence](image2)

The “MV ORE TIANJIN”, a new generation of 400,000 DWT ore carrier, is the largest one in the world in terms of tonnage shuttling between China and Brazil. Surveyed by CCS, the ship has for the first time adopted LNG Ready, cargo liquefaction, speed double-track optimization and other latest technological solutions whilst applying new technology and new standards such as ultra-long-stroke engine, high-efficiency propulsion, high-voltage shore power and the recycling convention, having more extraordinary performance in green, environment protection, energy efficiency and safety.
Asia’s largest and most advanced dredging vessel “Tian Kun Hao”, which was inspected by CCS, was put into service. “Tian Kun Hao” is a heavy self-propelled cutter-suction dredger, which reflects the latest technology, featuring high technical standards, advanced equipment, high environment friendliness and humanistic design. With full electric propulsion, double positioning system and unrestricted navigation worldwide, “Tian Kun Hao” boasts the largest dredging power in Asia and it is among the top in terms of dredging power and conveying capability.

Since April 2018, CCS has carried out statutory survey and certification to Chinese ocean-going fishing vessels and related marine products. Nearly 3,000 ocean-going fishing vessels operating in the sea area under the jurisdiction of 42 nations (regions) and the Pacific Ocean, the Indian Ocean, the Atlantic Ocean as well as the Antarctic Ocean, have joined the CCS fleet.

CCS will actively promote the upgrade of equipment of fishing vessels, and the use of green energy in communication, navigation, fishing machinery as well as the use of intelligent equipment, environment protection materials and energy conservation and emission reduction technology.

2.2 Marine Engineering Services
As authorized by the Chinese government and the governments of other nations and regions, CCS carry out independently statutory and classification surveys, third-party certification inspections and notarial inspections for offshore facilities, equipment and materials engaged in exploration, development and production operations in Chinese seas. These offshore facilities are located in various oil and gas fields spreading all over Chinese seas from Bohai Bay to South China Sea, and from shallow seas to deep seas.

In 2017, 6 new mobile platforms were added to CCS, reaching 138 mobile and floating facilities in service, and the fixed platforms stood at 394 including 6 newly-added ones, representing a year-on-year growth of 6.1%.

With the concept of providing “all-round, life-cycle service”, CCS is constantly improving its service capability and market competitiveness in offshore engineering.

CCS won the bid for the world’s first semi-submersible production platform project with oil storage function, carried out certification inspection to 1,500m deep water sea pipelines and underwater production systems, undertook platform inspection service for offshore booster station: applied the engineering critical assessment (ECA) to plan approval service, issued the “polar compliance certificate” for the semi-submersible platform.

CCS has also expanded new areas of ocean economic service to provide classification service for fishery aquaculture facilities at sea and consultation services to marine fishery aquaculture platform inspection technology, tourism and sightseeing platforms at sea as well as other newly-emerged facilities engaged in ocean economy exploration.
3. Onshore industry services

CCS's onshore business is experiencing rapid development.

CCS has obtained authorization from the Chinese government and the government of HKSAR to carry out inspections to containers, and has been listed as the container inspection agency declared by the International Maritime Organization (IMO) to the world via the CSC.1/Circ.156 circular.

As a container and tank inspection agency declared by IMO, the certificates issued by CCS according to the International Convention for the Safety of Containers (CSC) and the International Maritime Dangerous Goods Code (IMDG) are recognized by all nations and regions.

CCS Certification Ltd. (CCSC) as the subsidiary company of CCS is a professional organization to undertake onshore inspection and certification. Its business scope includes management system certification, product certification, industrial product inspection, container inspection, energy conservation and emission reduction verification, vocational education and training, risk management and technical services, assessment of safety production standardization and so on.

The subsidiary Industrial Corporation carries out businesses covering ship construction supervision, supervision and testing of bridge steel structure, supervision of manufacture and installation of giant hoisters, non-destructive testing, third-party inspection and etc.

4. Quality performance and external cooperation

Regarding quality as its life and standards as the criterion, CCS is among the top in global PSC quality performance, and has won the trust of shipping companies including COSCO Shipping, China Merchants Group and Maersk.

In order to better serve the shipbuilding and shipping industry, CCS has played its advantage, integrated maritime resources and established strategic partnerships with China Ocean Shipping Group, China Merchants Group, China Shipbuilding Industry Corporation, China National Shipbuilding Corporation, Export-Import Bank of China, the CRRC Corporation and other shipping and shipbuilding enterprises, design units, offshore engineering owners, marine equipment manufacturers and financial institutions to effectively promote the development of China's marine industry and its self-development.

CCS has cooperated with the industry's top-notch design units and research institutes in ship type development and has developed a series of excellent ship types. The four ship types of 208,000 dwt bulk carrier (MARIC), the 180,000 dwt bulk carrier (CSDC), the 63,500 dwt bulk carrier (SDARI), and the 40,000 dwt bulk carrier (Bestway) released not only meet the latest CSR rules and regulations, but also represent the leading level in environment protection, intelligence, energy efficiency and other aspects of performance.

5. Rule-related research and development

By upholding the guiding ideology of "independent innovation, leading development" and adhering to the work requirements of "field oriented, market oriented and future oriented", CCS has been continuously strengthening its scientific and technical research and development, and has made comprehensive improvement in technical service skills related to ultra-large and high-tech ship type, ocean engineering key technologies, green technology and new energy application, inspection and certification, and industrial application technology.

CCS actively participates in global environment protection. As the formulator of China's rule for marine LNG, it has established a technical standard system for the entire industrial chain of LNG water application, covering all aspects including offshore floating storage, transportation, bunkering, propelled boat and so on, laying the technical foundation for the development of LNG application on water.
CCS is able to provide all-around technical solutions to LNG application on water covering LNG storage, lightering, bulk transportation, package transportation, gasification and regasification and LNG risk assessment.

The fleet of CCS-class LNG carriers has grown continuously. Among the newly-built large-scale membrane tank LNG carriers built in the world in the past 10 years, CCS accounts for 8%. CCS-classed C-type independent tank LNG carriers account for 15% of the global share.

With the rise of the concept of intelligent ship and the ever-growing development of intelligent ship technology, ship intelligence has become the general trend of global shipping.

CCS has done a lot of work in ship intelligence. It released the world's first Rules for Intelligent Ships in 2015, compiled a series of guidelines like Guidelines for Survey of Intelligent Integration Platform 2018, Guidelines for Survey of Intelligent Machinery of Ships 2017, Guidelines for Survey of Intelligent Energy Efficiency Management of Ships 2018 and Guidelines for Requirement and Security Assessment of Ship Cyber System 2017, providing corresponding requirements for data sense, analysis, evaluation, diagnosis, prediction, decision support, and independent response implementation. At present, 13500\, 14500\, 19000\, 21000TEU container ships, 300,000 dwt VLCC, 400,000 dwt VLOC, polar scientific research vessels and other newbuildings have applied for CCS notation for intelligent ships.

In recent years, unmanned vehicles and drones have gradually become familiar to the public. In fact, in the field of unmanned technology, research and exploration on unmanned ships is also underway.

CCS has carried out related research and development work on ship survey. Through the hull structure scanning by the close-range image captured by UAV, automatic or manually controlled UAV, image recognition technology is used to detect deficiencies. It is an alternative or supplementary measure for the surveyor to inspect the hull structural parts that are not easy for access, aiming to improve survey safety.

At the same time of carrying out in-depth research on unmanned ship technology, CCS has strengthened cooperation with the industry. It has established unmanned cargo carrier alliance and joint laboratory for unmanned ship technology and systems.

The unmanned marine test field established in cooperation with the industry is the first one in Asia.

6. Conclusion

“Sailing gloriously to the farthest end of the earth”, CCS will continue to provide high quality services to more customers from a wider scope of industry in the world.

Now the maritime technology is experiencing fast changes, and demands for safety, environment protection and energy efficiency have increased dramatically. CCS will further increase investment in rule development and scientific research, as well as research on service products to vigorously promote scientific and technical innovation and transformation of related technical achievements. CCS will continuously improve service and technical capability, practicing "safety, environmental protection, creating value for clients and society.

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