

江苏星河



XINGHE GROUP

船用聚乙烯管道系统

THE POLYETHYLENE PIPES SYSTEM FOR SHIPS

JIANGSU XINGHE GROUP LIMITED COMPANY
江苏星河集团有限公司



XINGHE
船用聚乙烯管道系统 **GROUP**
THE POLYETHYLENE PIPES SYSTEM FOR SHIPS

XINGHE GROUP

星河集团是国内较早进行塑料管道开发、研制、生产、销售的国内行业龙头企业，公司系国家中型企业、中国塑协塑料管道专业委员会理事单位，注册资金2.1亿元，是国内最早与挪威船东一起研制开发船用管道的生产厂家，公司设有博士后工作站，江苏省企业技术研究中心和镇江市级的产品检测试验中心，生产的塑料管道产品曾获国家免检产品证书，并被评定为江苏省高新技术产品，列为国家科技成果重点推广计划和建设部以及江苏省科技成果推广项目、江苏省火炬计划项目，国家特种设备制造许可证等。船用管道先后获得DNV、ABS,BV,CCS, ,GL,LR,KR、NK等船用产品认证。

Xinghe Group is an industry leading enterprise, engaged in plastic pipe development, research, production and sales more early in the domestic. It is a national medium-sized enterprise, and director unit of China Plastics Piping Association, with registered capital of RMB 210 million. It is the first manufacturer in the domestic to cooperate with Norway ship owners about research and development of shipboard pipes. It has postdoctoral center, Jiangsu Province enterprise technology research & development center, and Zhenjiang city-level product test center. Its manufactured plastic pipe has obtained national inspection-free product certificate, and been praised as Jiangsu Province high-tech product, and been listed as the Key Promotion Plan of National Technological Achievement, the Promotion Project of the Ministry Of Construction and Jiangsu Province Technological Achievement, Jiangsu Province Torch Plan Project, and National Special Equipment Manufacturing License. The shipboard pipe has successively got ship product certifications such as DNV, ABS, BV, CCS, GL, LR, KR and NK.

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JIANGSU XINGHE GROUP LIMITED COMPANY



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聚乙烯管材 的分类

POLYETHYLENE PIPES CLASSIFICATION

PE-100 聚乙烯管

PE-100 POLYETHYLENE PIPE



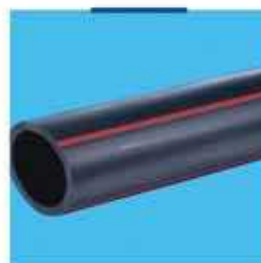
产品公称外径
Nominal outer diameter
dn20~dn1000

公称内压
Nominal inner pressure
**0.6/ 0.8/ 1.0/ 1.25/ 1.6
MPa**

耐热温度
Heat-resistance temperature
60°C

PE-RT 耐热聚乙烯管

PE-RT POLYETHYLENE OF RAISED TEMPERATURE
RESISTANCE PIPE



产品公称外径
Nominal outer diameter
dn20~dn1000

公称内压
Nominal inner pressure
**1.6
MPa**

耐热温度
Heat-resistance temperature
95°C

1

生活给排水管;(冷热供水、黑水和灰水)
Living water supply and drainage pipe
(heal and cool water supply, black water and grey water)

2

压载水(压缩空气)、舱底水、扫舱水、透气管;
Ballast water (compressed air), limber water,
stripping water and vent pipe;

3

冷冻水和盐水系统;
Chilled water and salt water system;

聚乙烯管材应用的船舶系统

APPLICATION OF POLYETHYLENE PIPES IN SHIPPING PIPE SYSTEM

4

空调水管;
Air conditioning pipe;

5

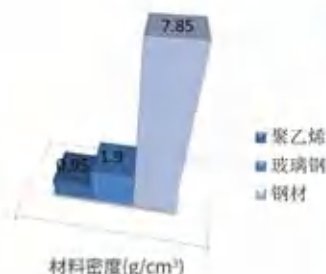
水处理的淡水和废水管;
Fresh water and waste water pipe for water treatment

6

渗透系统和淡水舱管线等
Penetration system and fresh water tank pipeline, etc.

船用聚乙烯管材的特点

FEATURES OF SHIPBOARD POLYETHYLENE PIPES



重量轻、使用寿命与船舶寿命相当

light weight, long service life in alignment with ship life

船用强化聚乙烯管道材料的密度 (0.95g/cm^3) 仅为钢管 (7.85g/cm^3) 的八分之一、玻璃钢 ($1.8-2.0\text{g/cm}^3$) 的二分之一, 设计使用寿命均为五十年, 与船舶的寿命相当。

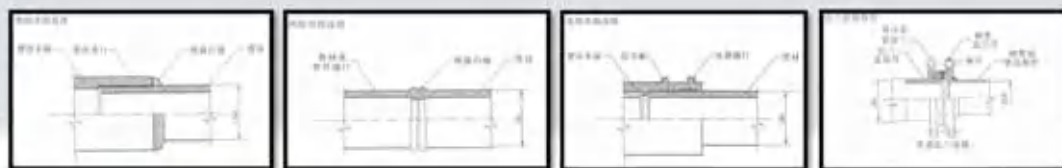
The shipboard reinforced polyethylene pipe has the material density of 0.95g/cm^3 , only 1/8 of that of steel pipe (7.85g/cm^3), and 1/2 of that of glass steel pipe ($1.8-2.0\text{g/cm}^3$), and enjoys the design service life of 50 years in alignment with that of ship.

安装施工工艺简单方便和快捷

Simple, convenient, fast installation and construction process

我公司生产的船用强化聚乙烯管材及各种管件的规格齐全, 安装可以采用热熔承插、热熔对焊、多种灵活的钢塑连接方式和电熔承插方式, 操作简单、连接安全可靠, 大大方便了船舶系统管道的安装。

Our shipboard polyethylene pipes and other pipes are complete in specification, and may be installed in the way of hot-melting socket welding, hot-melting butt welding, flexible steel-plastic connection and electric melting socket welding. Besides, they are characterized by simple operation, safe and reliable connection, greatly facilitating the installation of shipping system pipes.

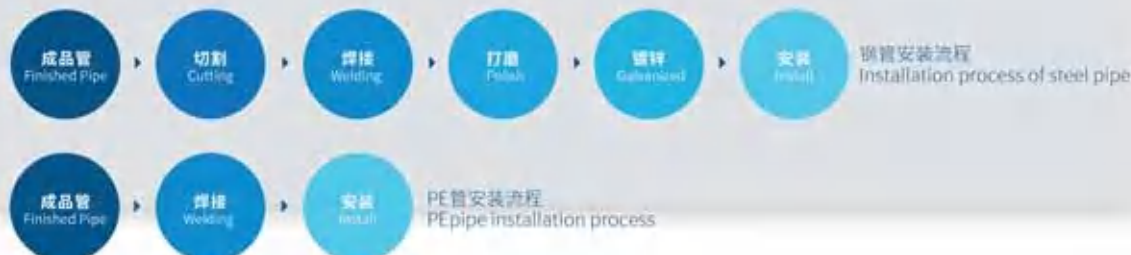


缩短了造船周期

Shortening of ship making cycle

船用强化聚乙烯管道在搬运、切割和焊接时所需人工仅为钢管所需人工的五分之一, 免去了钢管焊接打磨、镀锌等工序; 对于新造船, 特别是首制船, 如果采用船用强化聚乙烯管道, 可当场加工拼管焊接一次成功, 安装极其简单快捷, 大大缩短了造船周期。对于旧船改造或修船也同样会缩短其周期, 并节约成本。

In terms of transport, cutting and welding, the manual work required by shipboard reinforced polyethylene pipe is only 1/5 of that of steel pipe, because the processes such as steel pipe welding, polishing and galvanizing are removed; if shipboard reinforced polyethylene pipe should be used in the new-built ship, especially the leading ship, the on-the-spot processing of pipe welding would be successful in the first time. The installation is very simple and convenient, which leads to dramatic shortening of ship-making cycle. If it should be used in old ship reform or repair, cycle shortening and cost reduction would also be achieved.



较低的工程造价 Lower engineering cost

材料成本:

船用聚乙烯管与钢管相比整船材料成本相当

施工成本:

由于船用聚乙烯管重量轻、施工灵活方便免除了钢管大量人工、大型器械的搬运、镀锌等费用以及可缩短船舶的管路施工周期等,因此施工成本大大低于钢管。

运行成本:

由于船用聚乙烯管耐海水腐蚀性能较强设计使用寿命与船舶使用寿命相当,因此“一劳永逸”在船舶后续的运行使用过程中免除了管路的维护及保养。大大节约了使用运行成本。

Material cost:

Compared with steel pipe, shipboard reinforced polyethylene pipe has the cost as same as that of whole ship materials.

Construction cost:

since shipboard reinforced polyethylene pipe has light weight, flexible installation mode, and is free of transport and galvanization expenses arising from massive manual and mechanical work, and shortens the construction period of ship pipelines, its construction cost is significantly lower than that of steel pipe.

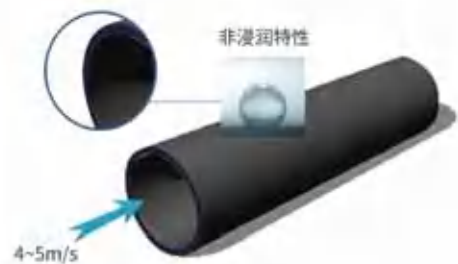
Operation cost:

as shipboard polyethylene pipe has strong resistance to sea water corrosion, and long service life in alignment with ship life, the subsequent ship operation requires no pipe maintenance and care, leading to remarkable reduction in use and operation cost.

较小的摩擦阻力, 更好地节省空间 Small frictional resistance, saving space

船用聚乙烯管道内壁非常光滑, 具有非浸润特性, 较小的摩擦阻力而达到较高的流量(推荐设计海水流速为4~5m/s)。与传统的钢管相比可节能30%以上, 设计时管道通径可以选用比钢管小的规格使用。

Shipboard polyethylene pipe has smooth inner wall, which owns non-infiltrative property, and could lead to high flow in a small friction (design sea water flow rate of 4~5m/s as recommended). Compared with traditional steel pipe, the energy conservation could exceed 30%. The pipe diameter may be designed to allow the smaller steel pipe to use.



较好的抗冲击强度、较高的耐磨性能 Strong impact strength, high wearing resistance performance

船用聚乙烯管道的抗冲击强度为各种工程塑料之首, 耐磨性能优于尼龙、聚甲醛和许多金属材料, 如A3钢、青铜等, 具有自润滑性、摩擦系数与聚四氟乙烯相近, 耐低温和耐化学试剂, 稳定性良好等优点, 因而被广泛应用到国民经济各个领域。

In terms of impact strength, shipboard polyethylene pipe takes the lead in various engineering plastics, and in term of wearing resistance performance, is superior to nylon, daicel and many metal materials such as A3 steel and bronze. It has many advantages such as self-lubrication, friction coefficient close to that Teflon, low temperature resistance, chemical reagent resistance, and good stability, so it is widely applied in various fields in national economy.

清洁环保, 永不结垢 Environmental friendly cleaning, no scaling all the time

船用聚乙烯船用聚乙烯管道材质无毒, 输送饮用水安全卫生, 管壁永不结垢、不滋生细菌和霉菌, 还能抵抗海洋微生物和藻类的腐蚀。

Shipboard polyethylene pipe uses non-toxic material, so it is safe and healthy for transportation of drinking water. The pipe wall is free of scaling all the time, and will not cause bacteria and mildew. Besides, the pipe is resistant to marine microorganism and alga corrosion.

减轻船舶自重 Reduction of ship weight

由于船用聚乙烯管道重量较轻, 船舶设计过程中会对船舶自重等要求带来方便。同样在船舶运输过程中也会有较大利益空间的体现。

Since shipboard polyethylene pipe has light weight, it will facilitate the conformity with ship weight requirements during ship design process, and bring much benefit space during ship transportation process.



PE管与钢管、玻璃钢管对比

COMPARISON OF PE PIPE, GRP PIPE, STEEL PIPE

船用聚乙烯管道与钢管产品性能比较
Performance Comparison Table (PE Pipe VS Steel Pipe)

钢管	VS	星河船用聚乙烯(PE100)管
材料密度为7.8g/cm³，重量较重。		材料密度为0.95g/cm³，为钢管的八分之一。 用在同样的船型能减轻船体自重， 增加单次航运运力。
		重量轻
大口径管材需要吊机，运输不便。 安装需要切割、焊接、 打磨、镀锌等一系列工序		重量轻，便于运输，比如dn500的管材几个工人就能直接扛到船上， 节省运输成本和时间。由于PE管采用热熔对接形式连接，如施工现场 图纸发生变更，可直接切割对接， 根据图纸增加或缩短管材长度，大大节省安装成本和时间。
		运输、安装方便
管道内表面基本光滑， 内壁绝对粗糙度为0.013 mm。 设计流速为2-3米/秒。		管道内外表面非常光滑，内壁绝对粗糙度为0.009mm， 管道输送介质时所引起的压头损失较钢管小。 设计流速为4-5米/秒。
		水力学性能优良
断裂伸长率为20~25%， 抗蠕变性能差。刚性较强。		断裂伸长率为550~650%，抗蠕变性能非常好， 可适应船体应力变形。 具有非常好的柔韧性，有较高的抗冲击强度。
		抗蠕变性能好、力学性能合理
导热性能较好， 耐低温性能较差， 不适合在寒冷的环境使用。		具有较好的保温性能，输送介质时可以降低热能损耗； 一般可以不予考虑增加膨胀接头以消除管线上的热应力集中； 具有良好的耐寒特性，可在多种恶劣环境中使用。
		导热系数低、热应力小
一般船用镀锌钢管大约 10年更换一次。		PE管耐腐蚀，使用寿命为50年， 对于船东来说属于一次性投入无需更换。
		使用周期
会腐蚀生锈，污染水质。		良好的卫生性能。管道生产过程中不添加任何有毒助剂， 内壁光滑、流量大、不结垢、不滋生细菌 是建设部推荐的绿色环保产品。
		卫生性能
具有防火能力。		符合IMO第A.753(18)号决议中 耐火性要求矩阵的规定使用要求。
		防火性能

STEEL PIPE	VS	"XH" BRAND MARINE POLYETHYLENE PIPE (PE100)
The density of material is 7.8g/cm ³ . The weight is heavy.		The density of material is 0.95g/cm ³ , it is 1/8 of steel pipe. Used in the same ship, it can reduce the weight of hull, increase single shipping capacity.
		Light weight
Large diameter pipes need crane and transportation is inconvenient. The installation requires a series of processes such as cutting, welding, polishing, galvanized etc.		Light weight, easy to transport. For example, for dn500 pipes, a few workers will carry directly to the ship and save transportation cost and time. It can also save installation cost and time, as PE pipes adopt the connection of thermal butt weld, if site drawings change, the pipe length can be increased or shorten by directly cutting and butt weld.
		Easy to install and transport
The pipe inner surface is almost smooth, the absolute roughness of inner wall is 0.013 mm. The design flow rate is 2-3 m/s.		The inner and outer surface of pipes is very smooth. The absolute roughness of inner wall is 0.009 mm. The head loss caused by conveying medium is much less than steel pipes. The design flow rate is 4 to 5 m/s.
		Good hydraulics performance
The elongation at break is 20~25%, the creep resistance is poor. Rigid is stronger.		The elongation at break is 550~650%, the creep resistance is very good. It can adapt to the stress of hull deformation products. It has good flexibility and high impact strength.
		Good creep performance, reasonable mechanical performance
Heat conduction performance is good, low-temperature performance is poor, not suitable for use in cold environment.		It has good heat preservation performance. It can reduce heat loss when conveying medium. Generally adding expansion joint to eliminate the thermal stress concentration on the pipeline will not be considered. It has good cold resistant property and can be used in a variety of harsh environments.
		Low thermal conductivity, small thermal stress
Replace every ten years.		PE pipe has good corrosion resistance performance and has service life of 50 years. For ship-owners it is a one-time investment without replacement.
		Usage period
It has rust corrosion and pollute water quality.		PE pipes have good health performance. There are no toxic additives during the manufacturing process. The pipes are green environmental products recommended by MOC owing to their features of smooth inner wall, high flow, no easy scaling and no microbes breeding.
		Health performance
It has fire prevention ability		Meet the requirements of fire resistance specified in IMO A. 753(18).
		Fireproof performance

生产装备

PRODUCTION EQUIPMENT

公司在三十年的发展历程中不断引进国际先进技术和装备，拥有从德国、奥地利引进的最具国际先进水平的管材生产线和检测设备30余台（条），加工过程自动化程度高，工艺控制精确、产量高、质量稳定；
In the 30 years of development history, the company has always introduced international advanced technology and equipment, and owns more than 30 pipe production lines and test equipment, which reach international advanced level and feature high processing automation, accurate process control, high yield and steady quality;



Battenfeld

battenfeld-cincinnati

HAITIAN
PLASTICS MACHINERY

Krauss Maffei
Group



管件生产拥有国内顶级注塑机及国际先进的成型焊接装备，满足了在应用过程中任意形式、长度、规格等要求的船舶管路配件。

管材管件加工过程中采用了先进的除湿烘干系统、自动称重系统、篮式模头及真空定型装置。

As to pipe production, the company possesses domestic top injection molding machine and international advanced molding welding equipment, which meet various requirements of ship pipe parts in terms of form, length and specification during application.

In the course of pipe processing, advanced drying system, automatic weighting system, basket die head and vacuum calibration device are adopted.



产品的质量保证 PRODUCT QUALITY WARRANTY

原料 / 检测 Raw material test



密度检测 density test



碳黑检测 black carbon test



溶脂检测 fat-soluble test



水分检测 water content test



氧化检测 oxidation test

星河船用PE管均采用国际顶级进口原料（北欧化工3490）进行加工，原料进厂用于加工前需对原料进行一系列的检测。以保证用于加工的原料满足船用管道生产的各项性能指标要求。

Xinghe shipboard PE pipe uses world's leading imported raw material (Borealis 3490) for processing. Before raw material enters plant for processing, a series of tests are required to be made, such as density test, black carbon test, fat-soluble test, water content test and oxidation test, so as to ensure that the raw material to be used for processing meets various performance index requirements of shipboard pipe production.

生产在线 / 检测设备 Production of online test equipment

生产过程中原料集中供给，采用集中供料系统上料对原料进行烘干除湿处理，清除原料里残留的水分，致使原料加工过程中经过加热后不会产生水蒸气，同样不会在成品管内壁形成气泡以此保证成品管质量。

管材生产均采用国际顶级管材挤出设备（德国巴顿菲尔、奥地利辛那提）进行生产，管材生产中壁厚和缺陷的检测，利用数控技术，将测量技术与挤出机控制系统以及生产线检验员检测结合起来，从而使管材的壁厚和缺陷检测得到有效控制，确保入库管材零缺陷的目标。



X-ray在线壁厚检测 Online Defect Detection

In the course of production, the mode of concentrated supply of raw material is adopted. A centralized feeding system is used to dry raw material, and remove residual water from raw material in order to prevent water vapor from being generated during raw material processing, and air bubble from being formed in finished pipe inner wall, thus ensuring the quality of finished pipe.

International leading pipe extrusion equipment (Germany Bottenfeld, and Austria Cincinatti) shall be used to manufacture pipes. In terms of pipe wall thickness and defect test during production, digital control technology is applied, and the measuring technology is combine with extrusion machine control system and production line inspector's test to effectively control pipe wall thickness and defect test, further attaining the goal of zero defect of stock pipes.

出厂质量 / 检测

Factory quality inspection



静液压强度试验
Hydrostatic strength test



外压试验
External pressure test



韧性试验
Toughness test



落锤冲击试验
Falling weight impact test



拉伸强度试验
Tensile strength test



高温压力试验
High temperature pressure test

每批次管材出厂前需对管材进行抽检，并予以下列出厂试验。
Before every batch of pipes leave factory, a sampling inspection is required to be made, and the following factory tests should be carried out.

公司按照国家质量监督检验总局锅炉压力容器压力管道组件生产检验质量控制要求，设有专业计量室、实验室、理化检测室，归质检部管理。车间有专职质检员检测产品质量。

In strict accordance with pressure pipeline component production test quality control requirements of the Boiler Bureau of State Administration for Quality Supervision and Inspection, the company sets up professional measuring room, laboratory, and physical-chemical test room, which are subject to the management of quality inspection department. In the workshop, quality inspector is made available to take charge of product quality inspection.

从原料的检验到管材产品的检验，编制了相应检验规程并按该规程严格执行，配置了齐全的检测设备，配备原料检验员3人，工序检验员16人，出厂专职检验员6人，检测设备运用先进数控检测原理，具备完善准确检测能力，从而确保从原料进厂到成品出厂的产品质量。

From raw material test to pipe product test, the company has prepared and strictly implemented inspection specification, and in addition, is fully configured with complete test equipment, and there are 3 raw material inspectors, 16 process inspectors and 6 factory leave inspectors. By use of advanced digital control test principle, test equipment owns prefect, accurate testing capacity, which ensures product quality over the whole process from raw material entering to finished product leaving factory.

严格执行《压力管道元件制造质量手册》和全套程序文件，使塑料管道产品的生产形成一个闭环管理，保证每一个产品的可追溯性。

The Pressure Pipe Component Manufacturing Quality Manual and all procedure documents are strictly observed to make the production of plastic pipe form a closed management, thus ensuring the traceability of every product.

原材料及管理：我公司制定了《塑料管原材料采购规程》，从采购到检验、入库都有专人负责、专门记录，有健全的制度和台帐。Raw material and management, the company has worked out the Codes for Procurement of Plastic Pipe Raw Materials; dedicated persons are assigned to be responsible for the whole process from procurement, test and warehouse-in, and records are kept; in addition, complete system and accounting are made available.

管件分类

PIPE CLASSIFICATION

按形状分类 Classification by shape.



直通
Direct pipe



弯通
Elbow pipe



等径三通
Equal-diameter
three-way pipe



等径四通
Equal-diameter
four-way pipe



法兰
Flanged pipe



吸入口
Intake-type pipe



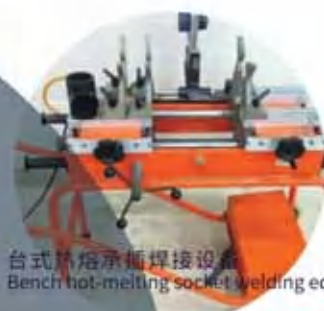
异径四通
Reducing four-way pipe



异径三通
Reducing three-way pipe

按连接形式分类 Classification by connection mode.

· 热熔承插注塑管件
Hot melting socket welding injection pipe



台式热熔承插焊接设备
Bench hot-melting socket welding equipment



承插90度弯通
Socket welding 90° elbow pipe



承插45度弯通
Socket welding 45° elbow pipe



承插套筒
Socket welding sleeve



承插异径三通
Socket welding reducing three-way pipe



承插异径直通
Socket welding reducing direct pipe



承插等径三通
Socket welding equal-diameter three-way pipe



承插法兰适配器
Socket welding flange adaptor



承插管帽
Socket welding pipe cap



手持式热熔承插焊接设备
Hand type hot-melting socket welding equipment

· 热熔对焊注塑管件
Hot melting butt fusion injection pipes



全自动热熔对焊焊接设备
Full-auto hot-melting butt fusion welding equipment



· 电熔承插注塑管件
Electric melting socket welding injection pipe fittings



电熔焊接设备
Electric melting welding equipment



管件分类

PIPE CLASSIFICATION

· 钢塑转换连接管件
Steel-plastic conversion
connection pipe fittings

1. 钢塑过渡连接管件
Steel-plastic
transition
connection pipe
fittings



2. 法兰连接
Flange connection



3. 管支架的布置与形式
Pipe support layout and form



4. 通舱件的形式
Form of pipe penetration piece





生产车间
**PRODUCTION
WORKSHOP**



船用聚乙烯管道的安装

Installation and protection of shipboard polyethylene pipe

星河集团拥有独立的安装公司，具有丰富的安装经验，拥有各种型号安装器具140多台套，专业的安装及售后服务人员180余人，能同时在全国各个不同的项目分片区、分项目经理责任制开展安装作业，售后服务近区24小时，偏远48小时及时响应。并且在常规船型、海工船及军品船的施工安装上有着成熟完善的施工经验。我公司在压载、透气、舱底、扫舱、空压等管系中PE管的安装一般采取发管材、管件至造船厂现场预制上分段安装。

Xinghe Group has independent installation company, which rich of is installation experience, and owns more than 140 installation equipment in various specifications, and over 180 professional and after-sales service workers. So, the company could carry out installation operation simultaneously at various project zones throughout the country, and according to sub-project manager responsible system, and make reply within 24 hours for after-sales near area, and 48 hours for remote area. Besides, the company has mature and perfect construction experience in construction and installation of conventional ship, marine ship and military ship. As to the installation of PE pipe in the series of ballast, vent, bilge, stripping and spatial pressure pipes, our company tends to deliver pipe and pipe fittings to on-site prefabrication in ship making plant for segmented installation.



应用业绩

APPLICATION ACHIEVEMENT

船东、船厂名称 Shipowner and shipyard	船型 Ship Type	船检 Certificate	应用管系 Pipe System	数量(条) Qty	项目进展 Project progress
招商局能源运输有限公司(扬子鑫福) China Merchants Energy Shipping Co., Ltd. (Jiangsu Yangzi Xinfu Shipbuilding Co., Ltd.)	40000DWT 矿石船	CCS+LR	舱底水 (dn400) Bilge Water	6	安装结束 contract has been signed
中远海运散货运输有限公司 (天津新港船厂重工有限公司) COSCO SHIPPING BULK CO., Ltd (Tianjin Xingang Shipbuilding Heavy Industry Co., Ltd.)	33500DWT 矿石船	CCS	压载水 舱底水 (dn150), (dn75) Ballast & Bilge Water	4	2019.3月合同已签, 即将安装 contract has been signed
青岛远洋(扬州中远海运重工有限公司) COSCO SHIPPING BULK CO., Ltd (Cosco Shipping)	20000DWT 散货船	CCS	压载水 舱底水 (dn630) Ballast & Bilge Water	2	2018.9月合同已签, 正在安装 contract has been signed
中远海运散货运输有限公司 (扬州中远海运重工有限公司) COSCO SHIPPING BULK CO., Ltd (Cosco Shipping)	21000DWT 散货船	CCS	压载水 舱底水 (dn630) Ballast & Bilge Water	8	2019.7月已宣布中标 contract has been signed
福建闽越海洋运输集团股份有限公 (青岛武船重工有限公司) Fujian Guochang Ocean Shipping Group Co., Ltd. (Wuchang Shipbuilding Industry Group Co., Ltd.)	85000DWT 散货船	CCS	生活管系 压载水 (dn400) Life Piping System Ballast water	3+9	2019.9月合同已签, 正在安装 contract has been signed
山东海运股份有限公司 (扬州中远海运重工有限公司) SHANGDONG SHIPPING CORPORATION (Cosco Shipping)	61200DWT 散货船	CCS	生活管系 压载水 (dn355) Life Piping System Ballast water	4+4	2019.7月合同已签, 即将安装 contract has been signed
苏州鑫新海运 (扬州大洋造船有限公司) Yangzhou Dayang Shipbuilding Co., Ltd.	59900DWT 江海运输船	CCS	压载水 舱底水 (dn150) Ballast & Bilge Water	2	2018.12月合同已签, 正在安装 contract has been signed
新加坡皇家船务 (青岛北海船厂重工有限公司) Royal Marine Holdings PTE. LTD (B&K)	64000DWT 木货船	NK	生活管系 压载水 (dn355) Life Piping System Ballast water	4	2017.10月合同已签, 正在安装 contract has been signed
美国福茂(中船澄西船厂修造有限公司) FM (Chengxi Shipyard Co., LTD)	65000DWT 散货船	ABS	生活管系 压载水 舱底水 (dn450) Life Piping System Ballast & Bilge Water	2+2	2019年7月合同已签 contract has been signed
新加坡皇家船务 (中船澄西船厂修造有限公司) Royal Marine Holdings PTE. LTD (Chengxi Shipyard Co., LTD)	64000DWT 木货船	NK	生活管系 压载水 (dn355) Life Piping System Ballast water	4	2018.5月合同已签, 正在安装 contract has been signed
新加坡太古船务 (中船黄埔文冲船厂有限公司) Swire Shipping (Cuc Huangpu wenchong shipbuilding company limited)	2350TEU 集装箱船	CCS	生活管系 压载水 Life Piping System Ballast water	4	2018.6月合同已签, 正在安装 contract has been signed
中远海运特种运输股份有限公司 (大连中远船务工程集团有限公司) COSCO SHIPPING SPECIALIZED CARRIERS CO., LTD (Dalian-Cosco Shipyard company limited)	62000DWT 纸浆船	NK	生活管系 压载水 (dn350) Life Piping System Ballast water	9	2018.9月合同已签, 正在安装 contract has been signed
中远海运特种运输股份有限公司(南通中远川崎) COSCO SHIPPING SPECIALIZED CARRIERS CO., LTD (Nantong Cosco KHI Ship Engineering Co., Ltd.)	28000DWT 重吊	CCS	压载水 舱底水 (dn355) Ballast & Bilge Water	4	2012年完工运营 finish
中远海运散货运输有限公司 (中船澄西船厂修造有限公司) COSCO SHIPPING BULK CO., Ltd (Chengxi Shipyard Co., LTD)	64000DWT 散货船	CCS	生活管系 Life Piping System	3	2017年完工运营 finish
中远海运散货运输有限公司 (中船澄西船厂修造有限公司) COSCO SHIPPING BULK CO., Ltd (Chengxi Shipyard Co., LTD)	62000DWT 散货船	CCS	压载水 舱底水 Ballast & Bilge Water	2	2017年完工运营 finish
中远海运散货运输有限公司 (中船澄西船厂修造有限公司) COSCO SHIPPING BULK CO., Ltd (Chengxi Shipyard Co., LTD)	38000DWT 散货船	CCS	生活管系 Life Piping System	4	2017年完工运营 finish
中船船务 (中船澄西船厂修造有限公司) CSSC (Leasing) Chengxi Shipyard Co., LTD)	62000DWT 散货船	ABS	生活管系 压载水 舱底水 (dn355) Life Piping System Ballast & Bilge Water	4	2017年完工运营 finish
美国福茂 (中船澄西船厂修造有限公司) FM (Chengxi Shipyard Co., LTD)	80000DWT 散货船	ABS	生活管系 压载水 舱底水 (dn355) Life Piping System Ballast & Bilge Water	2	2017年8月合同已签, 完工运营 contract has been signed
PSU (中船澄西船厂修造有限公司) PSU (Chengxi Shipyard Co., LTD)	82000DWT 散货船	CCS	生活管系 压载水 舱底水 (dn355) Life Piping System Ballast & Bilge Water	2	2018年2月合同已签, 正在安装 contract has been signed
交通银行租赁 (中船澄西船厂修造有限公司) Bank Of Communications (Chengxi Shipyard Co., LTD)	82000DWT 散货船	CCS	生活管系 压载水 舱底水 (dn355) Life Piping System Ballast & Bilge Water	2	2017年12月签订, 完工运营 contract has been signed

应用业绩

APPLICATION ACHIEVEMENT

船东、船厂名称 Shipowner and shipyard	船型 Ship Type	船检 Certificate	应用管系 Pipe System	数量(条) Qty	项目进展 Project progress
交通银行租赁 (中航通西船舶建造有限公司) Bank Of Communications (Chengxi Shipyard Co., Ltd.)	82000DWT 散货船	BV	生活管系 压载水 舱底水 (dn355) Life Piping System Ballast & Bilge Water	4	2017年8月签订合同, 完工运营 contract has been signed
中远海运特种运输股份有限公司 (上海船厂船舶有限公司) COSCO SHIPPING SPECIALIZED CARRIERS CO., LTD. (Shanghai Shipyard Co., Ltd.)	36000DWT 重吊船	CCS	压载水 Ballast Water	3	2017年完工运营 finish
中远海运特种运输股份有限公司 (上海船厂船舶有限公司) COSCO SHIPPING SPECIALIZED CARRIERS CO., LTD. (Shanghai Shipyard Co., Ltd.)	28000DWT 重吊船	CCS	透气, 压载水 舱底水 Ballast & Bilge Water	6	2017年完工运营 finish
中远海运特种运输股份有限公司 (中航通西船舶建造有限公司) COSCO SHIPPING SPECIALIZED CARRIERS CO., LTD. (Chengxi Shipyard Co., Ltd.)	7500DWT 沿海船	CCS	压载水 (dn250) Ballast Water	4	2017年完工运营, 已完工 contract has been signed
中远海运特种运输股份有限公司 (中航通西船舶建造有限公司) COSCO SHIPPING SPECIALIZED CARRIERS CO., LTD. (Chengxi Shipyard Co., Ltd.)	50000DWT 半潜船	CCS	透气, 压载水 舱底水 (dn630, dn400) Ballast & Bilge Water	3	2017年完工运营, 已完工 contract has been signed
中交国际航运 (中交博涛科) CCCC International Shipping Corp. (CCCC BOHUAO MARINE INDUSTRY CO., LTD.)	深部搜排船	CCS	生活管系 压载水 舱底水 Life Piping System Ballast & Bilge Water	2	完工运营 finish
中交国际航运 (中航通西船舶建造有限公司) CCCC International Shipping Corp. (Chengxi Shipyard Co., Ltd.)	85000DWT 半潜船	CCS	生活管系 压载水 舱底水, 透气 (dn710, dn630, dn400) Life Piping System Ballast & Bilge Water	1	完工运营 finish
中海油 (中航通西船舶建造有限公司) China National Offshore Oil Corporation (Chengxi Shipyard Co., Ltd.)	18000DWT 半潜船	CCS	透气, 压载水 舱底水 (dn710, dn630, dn560) Ballast & Bilge Water	1	完工运营 finish
中海油 (招商局重工) China National Offshore Oil Corporation (China Merchants Heavy Industry (Shenzhen) Co., Ltd.)	50000DWT 半潜船 (海油278)	CCS	生活管系 压载水 舱底水 (dn560) Life Piping System Ballast & Bilge Water	1	完工运营 finish
交通银行租赁 (招商局重工) Guangzhou Salvage Bureau of the Ministry of Transport (China Merchants Heavy Industry (Shenzhen) Co., Ltd.)	40000DWT 半潜船 (华海2号)	CCS	生活管系 压载水 舱底水 (dn630) Life Piping System Ballast & Bilge Water	1	完工运营 finish
中交三航局工程船舶有限公司 (招商局重工) CCCC Engineering Vessel Co., Ltd. of the (China Merchants Heavy Industry (Shenzhen) Co., Ltd.)	15000DWT 自航半潜船	CCS	透气, 压载水 舱底水 (dn560) Ballast & Bilge Water	4	完工运营 finish
招商局重工 China Merchants Heavy Industry (Shenzhen) Co., Ltd.	38000DWT 半潜船	CCS	透气, 压载水 舱底水 (dn710) Ballast & Bilge Water	1	完工运营 finish
招商局重工 China Merchants Heavy Industry (Shenzhen) Co., Ltd.	22000 半潜船	CCS	压载水 (dn560, dn450) Ballast Water	1	完工运营 finish
交通银行租赁 (招商局重工) Guangzhou Salvage Bureau of the Ministry of Transport (China Merchants Heavy Industry (Shenzhen) Co., Ltd.)	12000DWT 半潜工程打桩船	CCS	生活管系 压载水 舱底水 (dn630, dn400) Life Piping System Ballast & Bilge Water	2	2017年完工运营 finish
中远海运特种运输有限公司 (中航通西船舶建造有限公司) COSCO SHIPPING SPECIALIZED CARRIERS CO., LTD. (Chengxi Shipyard Co., Ltd.)	62米半潜船	CCS	生活管系 压载水 舱底水 (dn355) Life Piping System Ballast & Bilge Water	1	2017年完工运营 finish
南京武家嘴船舶制造有限公司 Nanjing Wu Jia Zui Ship Manufacture Co., Ltd.	124米半潜驳船	DNV	压载水 舱底水 (dn710) Ballast & Bilge Water	2	完工运营 finish
中交四航局工程船舶有限公司 Zhongjiao Navigation Bureau Ship Engineering Company Limited	55000DWT 半潜船	CCS	透气, 压载水 舱底水 (dn400) Ballast & Bilge Water	1	完工运营 finish
交通银行租赁 (大连中远船务工程集团有限公司) China Yantai Salvage (Dalian Cosco Shipyard company limited)	12000DWT 半潜工程打桩船	CCS	生活管系 压载水 舱底水 (dn630, dn400) Life Piping System Ballast & Bilge Water	2	完工运营 finish
大连海洋渔业集团 Dalian Ocean Fishery Group Of Corporations	7000 半潜驳船	CCS	压载水 舱底水 (dn400) Ballast & Bilge Water	1	完工运营 finish
舟山长宏国际船舶建造有限公司 Zhoushan Changhong International Shipyard company limited	15000 半潜驳船	NK	透气, 压载水 舱底水 (dn600) Ballast & Bilge Water	1	完工运营 finish

应用业绩 APPLICATION ACHIEVEMENT

船东、船厂名称 Shipowner and shipyard	船型 Ship Type	船检 Certificate	应用管系 Pipe System	数量(条) Qty	项目进展 Project progress
江南造船集团有限责任公司 Jiang Nan Ship Building Limited Liability Company	20000立方米LNG船	GL	生活管系 Life Piping System	2	完工运营finish
江南造船集团有限责任公司 Jiang Nan Ship Building Limited Liability Company	火药运粮船	CCS	生活管系 压载水 舱底水 Life Piping System Ballast & Bilge Water	2	完工运营finish
中谷海运(上海船厂)船舶有限公司 ZhongGu Shipping Group Co.,LTD (Shanghai Shipyard Co.,LTD)	2500TEU集装箱船	CCS	生活管系 Life Piping System	6	2018年完工finish
中波轮船股份公司(上海船厂)船舶有限公司 Chinese-Polish Joint Stock Shipping Company (Shanghai Shipyard Co.,LTD)	32000DWT重吊船	LH	生活管系 压载水 (dn350) Life Piping System Ballast Water	4	2013年完工运营finish
中国外运长航集团有限公司(上海船厂)船舶有限公司 Sinotrans&Co. Holdings Co.,LTD (Shanghai Shipyard Co.,LTD)	4500TEU集装箱船	CCS	生活管系 压载水 舱底水、透气 (dn280) Life Piping System Ballast & Bilge Water	2	2018年完工运营finish
舟山长宏国际船舶修造有限公司 Zhoushan Changhong International Shipyard company limited	39000DWT多用途船	CCS	压载水 舱底水 Ballast & Bilge Water	4	完工运营finish
苏美达·南京远洋(南京系建船厂) Sumei&Nasco (Nanjing Shipyard)*	39000DWT多用途船	CCS	压载水 舱底水 Ballast & Bilge Water*	4	完工运营finish
苏美达·南京造船有限公司(镇江船厂) Sumei&TOPSHEEN SHIPPING(NANJING)CO.,LTD (ZJ Shipyard)	48500DWT多用途船	DNV	生活管系 压载水 舱底水 Life Piping System Ballast & Bilge Water	4	完工运营finish
香港龙运船务有限公司(福建冠海造船工业有限公司) Fujian Guanhai Shipyard	60300DWT散货船	LH	压载水 舱底水(dn350) Ballast & Bilge Water	2	2010年完工运营finish
上海振华港口机械集团长兴船厂 Shanghai Zhen Hua Port Machinery Group Chang Xing Shipyard	4000吨工程起重船	CCS	生活管系 Life Piping System	1	完工运营finish
大连船舶重工有限公司 Da Lian Shipping Heavy Industry Co.,Ltd.	6600箱集装箱船	LH	生活管系 Life Piping System	4	完工运营finish
渤海重工 Bohai Shipping Heavy Industry Co.,Ltd.	58000DWT散货船	CCS	生活管系 Life Piping System	4	完工运营finish
江西福星(翔升)船厂 Jiangxi Yixing(Xiangsheng) Shipyard	58000DWT散货船	CCS	压载水 舱底水 Ballast & Bilge Water	2	完工运营finish
泰州三福船舶工程有限公司 Taizhou Sanfu Ship Engineering Co.,Ltd	12500DWT多用途船	GL	压载水 舱底水 Ballast & Bilge Water	2	完工运营finish
江苏神通船舶重工有限公司 Jiangsu Hantong ship heavy industry Co.,Ltd	64000DWT散货船	LH	生活管系 Life Piping System	6	完工运营finish
江苏新韩通船舶重工有限公司 Jiangsu New Hantong ship heavy industry Co.,Ltd	82000DWT散货船	ABS、CCS	生活管系 Life Piping System	8	完工运营finish
重庆交旅集团(重庆新世纪船厂) Chongqing Tourism Investment	20000DWT 豪华游轮	CCS	生活管系 Life Piping System	2	完工运营finish
扬州市振兴船厂 Taizhou Zhen Xing Shipyard	47000DWT散货船	CCS	压载水 舱底水 Ballast & Bilge Water	4	完工运营finish
舟山正华船舶制造有限公司 Zhou Shan Zheng Hua Ship Manufacture Co.,Ltd.	12000DWT 养殖渔干货	CCS	压载水 舱底水 Ballast & Bilge Water	1	完工运营finish
江苏荣盛重工有限公司 Jiangsu Rongsheng Heavy Industry Co.,Ltd.	116000 DWT 油轮押载	CCS	生活管系 Life Piping System	4	完工运营finish
江苏荣盛重工有限公司 Jiangsu Rongsheng Heavy Industry Co.,Ltd.	98000DWT 超吊船	CCS	生活管系 Life Piping System	1	完工运营finish
江苏荣盛重工有限公司 Jiangsu Rongsheng Heavy Industry Co.,Ltd.	152000DWT散货船	CCS	生活管系 Life Piping System	2	完工运营finish
浙江正和船厂 Zhe Jiang Zhenghe Shipyard	57000DWT散货船	CCS	压载水 舱底水 Ballast & Bilge Water	2+6	完工运营finish
台州市凤叶船业有限公司 Taizhou City Fengye Ship industry Co.,Ltd.	32500DWT散货船	CCS	压载水 舱底水 Ballast & Bilge Water	1	完工运营finish
山东黄渤海船务有限公司 Shandong Huanghai Shipbuilding Co., Ltd.	28000DWT 多用途船	CCS	生活管系 Life Piping System	1	完工运营finish

应用业绩

APPLICATION ACHIEVEMENT

船东、船厂名称 Shipowner and shipyard	船型 Ship Type	船检 Certificate	应用管系 Pipe System	数量(条) Qty	项目进展 Project progress
浙江舟山港务集团 Zhe Jiang Zhoushan PSA	228000WT 散货船	CCS	压载水 舱底水 Ballast & Bilge Water	4	完工运营finish
台州市隆兴船厂 Taizhou Zhen Xing Shipyard	47000WT 散货船	CCS	压载水 舱底水 Ballast & Bilge Water	2	完工运营finish
浙江金海岸船舶制造有限公司 Zhe Jiang Jing Hai An Ships building Co., Ltd.	228000WT 散货船	CCS	压载水 舱底水 Ballast & Bilge Water	4	完工运营finish
南通通海船舶有限公司 Nan Tong Tong Shun Ship Industry Co., Ltd.	170000WT 散货船	CCS	压载水 舱底水 Ballast & Bilge Water	3	完工运营finish
江苏连云港名洋船厂 Jiang Su Liangyunliang Ming Yang Shipyard	398000WT 散货船	CCS	压载水 舱底水 Ballast & Bilge Water	2	完工运营finish
江苏连云港五洲船厂 Jiang Su Liangyunliang Wu Zhou Shipyard	470000WT 散货船	CCS	压载水 舱底水 Ballast & Bilge Water	1	完工运营finish
南通通海船舶制造有限公司 Nan Tong Gang Za Ships building Co., Ltd.	25000方散货船	CCS	生活管系 Life Piping system	1	完工运营finish
南通通海船舶制造有限公司 Nan Tong Gang Za Ships building Co., Ltd.	180000WT 集装箱	CCS	压载水 舱底水 Ballast & Bilge Water	1	完工运营finish
仪征扬子船厂 Yi Zheng Yang Zhi Shipyard	65000WT 化学品船	BV	压载水 舱底水 Ballast & Bilge Water	6	完工运营finish
南京长江船业有限公司 Nan Jing Chang Jiang Ship Industry Co., Ltd.	230000WT 散货船	CCS	压载水 舱底水 Ballast & Bilge Water	5	完工运营finish
江苏泰州润华船业有限公司 Jiang Su Tai Xing Gang Hua Ship Industry Co., Ltd.	75000WT 化学品船	BV	压载水 舱底水 Ballast & Bilge Water	2	完工运营finish
浙江海丰船厂 Zhe Jiang Hai Feng Shipyard	228000WT 散货船	CCS	压载水 舱底水 Ballast & Bilge Water	2	完工运营finish
仪征市扬子船修造厂 Yi Zheng City Yangzi Ship Building&Repairing Factory	65000WT 化学品船	BV	压载水、生活水 Ballast & Living water	6	完工运营finish
台州市长源船厂 Tai Zhou Chang Shun Shipyard	118000WT 散货船	BV	压载水 Ballast Water	1	完工运营finish
福建福安船厂 Fujian Fu An Shipyard	200000WT 散货船	CCS	压载水 Ballast Water	2	完工运营finish
舟山海晨船厂 Zhou Shen Hai Chen Shipyard	65000WT 散货船	CCS	压载水 舱底水 Ballast & Bilge Water	1	完工运营finish
扬州市江都船务有限公司 Yangzhou City Han Jiang Jiu Jian East Ship Building & Repairing Factory	100000WT 散货船	CCS	压载水 舱底水 Ballast & Bilge Water	1	完工运营finish
宁波象山鹤浦大江船厂 Ningbo Xiangshan Hupo Great River Shipyard	590000WT 散货船	CCS	压载水 舱底水 Ballast & Bilge Water	4	完工运营finish
宁波象山鹤浦大江船厂 Ningbo Xiangshan Hupo Great River Shipyard	138000WT 散货船	CCS	压载水 舱底水 Ballast & Bilge Water	1	完工运营finish
南京长江船业有限公司 Nanjing Chang Jiang Ship Industry Co., Ltd.	230000WT 散货船	CCS	压载水 舱底水 Ballast & Bilge Water	2	完工运营finish
福建莆田南日岛船厂 Fu An Sai Qi Qiong River South Shipyard	110000WT 散货船	CCS	压载水 舱底水 Ballast & Bilge Water	1	完工运营finish
福建莆田南日岛船厂 Fu Jian Xia Bai Shi Ying Qi Xin Chang Shipyard	150000WT 散货船	CCS	压载水 舱底水 Ballast & Bilge Water	1	完工运营finish
浙江舟山一海(招商)船厂 Zhe Jiang Zhou Shan Yi Hai(Zhao Bao) Shipyard	228000WT 散货船	CCS	压载水 舱底水 Ballast & Bilge Water	1	完工运营finish
宁波东方船厂 Ning Bo Dong Fang Shipyard	200000WT 散货船	CCS	压载水 舱底水 Ballast & Bilge Water	1	完工运营finish
扬州万隆船务有限责任公司 Yangzhou Wan Long Shipping Industry Limited Liability Company	260000WT 散货船	CCS	压载水 舱底水 Ballast & Bilge Water	1	完工运营finish
启东船务船厂 Qi Dong Ji Sheng Shipping Industry	230000WT 散货船	CCS	压载水 舱底水 Ballast & Bilge Water	2	完工运营finish

应用业绩 APPLICATION ACHIEVEMENT

船东、船厂名称 Shipowner and shipyard	船型 Ship Type	船检 Certificate	应用管系 Pipe System	数量(条) Qty	项目进展 Project progress
山东中集船厂 Shan Dong Zhong Sheng Shipyard	15800DWT散货船	CCS	压载水 舱底水 Ballast & Bilge Water	1	完工运营finish
温州市兴源船舶修造有限公司 Wen Lin Xing Yuan Ship Building & Repairing Co.,Ltd.	52000DWT散货船	CCS	压载水 舱底水 Ballast & Bilge Water	1	完工运营finish
仪征方源船厂 Yi Zheng Fang Yuan Shipyard	18000DWT集装箱	CCS	压载水 舱底水 Ballast & Bilge Water	1	完工运营finish
台州桐叶船业有限公司 Taizhou Fengye Ship Industry Co.,Ltd.	23000 DWT 散货船	LR	生活管系 压载水 舱底水 Life Piping System Ballast & Bilge Water	2	完工运营finish
台州五洲船厂 Taizhou Wu Zhou Shipyard	10000DWT 散货船	CCS	压载水 舱底水 Ballast & Bilge Water	1	完工运营finish
临海航特船厂 Lin Hai Hang Chang Shipyard	13500DWT散货船	CCS	压载水 舱底水 Ballast & Bilge Water	1	完工运营finish
南通明德重工 Nan Tong Ming De Heavy Industry	11000DWT 化学品船	CCS	生活管系 Life Piping System	1	完工运营finish
南通永兴船厂 Nantong Yong Xing Shipyard	5000DWT 多用途货船	CCS	压载水 舱底水 Ballast & Bilge Water	1	完工运营finish
浙江海天船厂 Zhe Jiang Hai Tian Shipyard	8000DWT 散货船	CCS	压载水 舱底水 Ballast & Bilge Water	2	完工运营finish
瑞安恒伟船业 Fu An Hengwei Ship Industry	15000DWT 散货船	CCS	压载水 舱底水 Ballast & Bilge Water	1	完工运营finish
武汉市建达船舶制造有限公司 Wuxue Jianda Ships building Co.,Ltd.	300客位船	CCS	生活管系 Life Piping System	1	完工运营finish

重点项目介绍

INTRODUCTION OF KEY PROJECTS

50000T半潜船

中远航运股份有限公司
(中船黄埔文冲船舶有限公司)
Cosco Shipping Co.,Ltd (Cssc
huangpu wenchong
shipbuilding company limited)
Shipbuilding 50,000T



21万吨系列散货船(16条)

船厂：中海重工、
大连中远川崎
船东：中远散运
Shipyard: CNOOC heavy industries,
COSCO Kawasaki, Dalian
Ship owner: COSCO bulk



12000吨系列半潜船(4条)

船厂：招商重工、大连中远
船东：广州打捞局、烟台打捞局
Shipyard: China Merchants heavy
industry, Dalian COSCO
Ship owner: Guangzhou Salvage Bureau,
Yantai Salvage Bureau



82000吨系列散货船计(46条)

船厂：澄西船厂、黄埔船厂、
扬子江船厂、中海工业等
船东：交银/中船租赁、中远散运、PSU
Shipyards: Chengxi shipyard, Huangpu
shipyard, Yangzi River Shipyard, China
shipping industry, etc.
Ship owner: bocom / CSSC leasing, COSCO
bulk transportation, PSU



30000吨半潜船

交通运输部广州打捞局
(招商重工)

Guangzhou Salvage Bureau of the
Ministry of Transport (China
Merchants Heavy Industry (Shenzhen)
Co.,Ltd) Shipbuilding 30,000T



船厂：扬子江船厂、天津新港
船东：招商能源、中远散运

Shipyard: Yangzijiang shipyard, Tianjin
Xingang
Ship owner: China Merchants Energy,
COSCO bulk transportation





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