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本资料所载产品相关数据及文字表述如有变动, 恕不另行通知。



# 宁波中策动力机电集团有限公司

Ningbo C.S.I. Power & Machinery Group CO., LTD.



承诺更优动力

# C.S.I POWER

中策动力

Ningbo C.S.I.Power & Machinery  
Group CO., LTD.



# ABOUT US

## 企业简介

宁波中策动力机电集团有限公司坐落于宁波市江北区，具有百余年发展历史，是原国家机械工业部重点生产船用柴油机和柴油发电机组的重点骨干企业。公司本部占地面积约30万平方米，注册资本2.15亿元，控股（参股）企业10余家，资产总额20亿元。

T Ningbo C.S.I. Power & Machinery Group Co., Ltd. located in Jiangbei District of Ningbo, which has a history of more than 100 years. This company is the former national ministry of machinery industry specializing in the production of Marine diesel engine and diesel generator set key enterprises. The company covers an area of about 300,000 square meters, the registered capital of 215 million Yuan, holding (shares) of more than 10 enterprises, and total assets of 2 billion Yuan.

公司以大功率船用中速柴油机、发电机组为核心产业，属“自主品牌”中速船用柴油机产品品种最多、功率覆盖范围最广、直列单机功率最大的企业。主导产品涵盖了缸径160-340mm的十种系列中速船用柴油机，功率覆盖200kW-4500kW；成套的发电机组，可燃用重油、植物油、橡胶油、天然气等多种燃料，功率覆盖200kW-3500kW；公司具有300万千瓦年产能。

The company takes high-power Marine medium-speed diesel engine and generator set as the core industry, and is an enterprise with the most varieties, the most extensive power coverage and the largest single engine power of its own brand. The leading products cover ten series of medium-speed Marine diesel engines with bore size of 160-340mm, output of 200kW-4500kW. Complete set of generator sets, combustible heavy oil, vegetable oil, rubber oil, natural gas and other fuels can be used, the power range is 200kW-3500kW; The Company has an annual capacity of 3000 MW.

公司为国家首批高新技术企业，拥有省级重点企业研究院、浙江省博士后工作站。公司是国内燃机学会常务理事单位、浙江省高端装备制造业骨干企业、“浙江省船用动力产业技术创新战略联盟”理事长单位。先后获得中国机械工业500强企业、浙江省“五个一批”重点企业、新中国成立60周年宁波最具成就企业等荣誉称号，多次入选宁波市综合百强企业、宁波市制造业百强企业榜单。2019年公司“宁动”品牌获评“浙江老字号”。

The company is one of the first batches of high and new technology enterprises in China. The company is the standing director unit of China internal combustion engine society, the backbone enterprise of high-end equipment manufacturing industry in Zhejiang province, and the chairman unit of “Zhejiang Marine Power Industry Union”. It has been honored as one of the top 500 enterprises in China's machinery industry, one of the five key enterprises in Zhejiang province, and the most successful enterprise in Ningbo on the 60th anniversary of the founding of new China. In 2019, the company's “Ningdong” brand was awarded “Zhejiang time-honored brand”.

公司立足自主品牌，坚持科技创新，承担并完成了包括国家重大科技成果转化项目、工信部产业化项目、国家科技支撑计划项目、国家海洋经济创新发展区域示范项目等重大科技项目。多项产品先后获得部优、省优、国防重大科技成果奖和省市科技进步一等奖等荣誉称号。2010年，以公司为第一完成人的“大功率中速船用柴油机关键技术研究及产业化”项目获得国家科技进步二等奖。

Based on its own brand and adhering to scientific and technological innovation, the company has undertaken and completed many major scientific and technological projects, including the national major scientific and technological achievements transformation project, the industrialization project of the ministry of industry and information technology, the national science and technology support plan project, and the national Marine economy innovation and development regional demonstration project. A number of products have won the ministry of excellence, provincial excellence, national defense major science and technology achievement award and provincial and municipal science and technology progress award and other honorary titles. In 2010, the “key technology research and industrialization of high-power and medium-speed Marine diesel engine” project with the company as the first accomplisher won the second prize of national science and technology progress award.

公司产品销往全国各地，批量出口亚洲、欧洲、美洲及非洲各国，售后服务体系完善，在国内沿海、长江流域等多处设有办事处和特约维修部，并在亚非欧板块建立了销售服务网络。公司提供全方位的海外工程承包业务和系统方案，包含设计、建造、服务，已建造并投入运行主发电站200余座。在非洲建有本土公司，为整个非洲工程建设提供技术支持。

The company's products are sold all over country, exports to Asia, Europe, the Americas and African countries and also with the perfect after-sales service system, offices and special maintenance department are located in the domestic coastal, the Yangtze river basin and many other places, and a sales service network is established in Asia, Africa and Europe. The company provides a full range of overseas project contracting business and system solutions, including design, construction, and service, has built and put into operation more than 200 main power stations. The local company has been established in Africa, provides the technical support for the entire African project construction.

公司秉承“一业为主、多元化经营”的理念，坚持科技创新驱动转型升级，加强对新兴产业板块的投资力度，争取在5-10年内形成技术先进、能参与国际竞争的全系列自主品牌中速柴油机产品，同时加强产学研深度融合，组建院士、专家工作站，为打造国家级重点实验室以提供有力保障，最终发展成为以大功率中速柴油机为核心产业，精密机械为主导产业，国际贸易、工程承包、投资为附翼的复合型企业集团。

Companies adhering to the “raised primarily, diversified management” concept, adhere to scientific and technological innovation to drive the transformation and upgrading, and strengthen the investment of the emerging strategic sectors, in five to 10 years to form advanced technology, to participate in medium speed diesel engine with independent brand of the full range of products in international competition, at the same time, strengthen study depth fusion, form academician, experts workstation, to provide a powerful guarantee to create national key laboratory, eventually developed into a interdisciplinary enterprise group that high-power medium speed diesel engine as the core industry, leading industry of precision machinery, international trade, engineering contracting, investment as the extra business.

# 目录 CONTENTS

Ningbo C.S.I.Power & Machinery Group CO., LTD.

01	船用柴油机 MARINE ENGINE
03	- DN330/DN340技术结构特点 TECHNICAL STRUCTURE CHARACTERISTICS
07	- DN8340
09	- DN8330
11	- DN6330
13	- 330/340技术改进 TECHNICAL IMPROVEMENT
15	- DN8320
17	- GN8320
21	- GN6320
23	- N8300
27	- N6300
31	- G8300
35	- G6300
39	- N210技术结构特点 CHARACTERISTICS OF TECHNICAL STRUCTURE
43	- N8210
47	- N6210
51	- N8170
55	- N6170
59	- N8160
61	- N6160
63	- 双燃料发动机 INTRODUCTION TO DUAL FUEL ENGINES
65	- DF8330
67	- DF6330
69	- DF8300
73	- DF6300

# 目录 CONTENTS

77	- DF8210
81	- DF6210
85	- DF6170
89	- 船用发动机组 MARINE DIESEL GENERATOR SET
91	- N160/N170船用发动机组 MARINE GENERATING SET
97	- N210船用发动机组 MARINE GENERATING SET
105	- 陆用电站 POWER PLANT
109	- 16/20 柴油机发电机组 Engine Driven Diesel Generator
110	- 17/20 柴油机发电机组 Engine Driven Diesel Generator
111	- 21/30 柴油机发电机组 Engine Driven Generator
112	- 30/38 柴油机发电机组 Engine Driven Generator
113	- 32/38 柴油机发电机组 Engine Driven Generator
114	- 32(34)/45 柴油机发电机组 Engine Driven Generator

公司主要生产型号为N160、N170、N210、N300、G300、GN320、DN320、DN330、DN340的中速船用柴油机，产品功率覆盖184kW~4500kW。

The main production models are N160, N170, N210, N300, G300, GN320, DN320, DN330, DN340 medium speed Marine diesel engine, and the product power covers 184kW~4500kW.

所有船用产品完全符合国际海事组织 ( IMO ) Teir II 排放要求；满足CCS的无石棉要求，并向用户提供《无石棉声明》。

可以根据机舱布置需要提供左、右主机，增压器可以提供前、后端布置；同型号柴油机可以根据螺旋桨的转向需要提供顺时针转向和逆时针转向（面对飞轮端）的主机。

All Marine products completely conform to the international maritime organization (IMO) Teir II emissions requirements; conform to the requirements of CCS about no asbestos and "no asbestos statement" can be provided to users.

The starboard engine and port engine can be provided according to the layout of the engine room, and the supercharger can provide the fore end and aft. end layout. The same type of diesel engine can turn clockwise and anticlockwise (facing the flywheel end) according to the direction of rotation of the propeller.

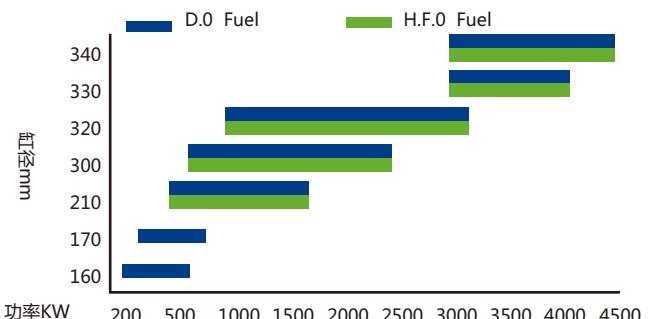
船用柴油机标定功率的标准环境状况按环境温度45°C，环境压力100kPa，相对湿度60%，中冷器进水温度32°C（无限航区标准环境）。若试验时环境状况与标准环境（或替代的基准环境状况）不符，其功率按GB/T6072.1-2000或ISO3046.1-1995进行修正。

Standard environmental conditions according to the environmental temperature 45 °C, the environment 100 kpa pressure, relative humidity 60%, cooling water temperature 32 °C (world-wide nominal environment). If the environmental conditions are not in conformity with the standard environment (or the substituted baseline environment), the power shall be modified by GB/ 16072.1-2000 or ISO3046.1-1995.。

燃油消耗率数值以g/kW·h为单位，所以燃油低热值为42700kJ/kg；标准环境状况按环境温度25°C，大气压力100kPa，相对湿度30%，中冷器进水温度25°C。若试验时环境状况与标准环境（或替代的基准环境状况）不符，其功率按GB/T6072.1-2000或 ISO3046.1-1995进行修正。

The fuel consumption rate is in g/kW.h, so the low calorific value of fuel is 42700kJ/kg; Standard environment according to the environmental temperature 25 °C, atmospheric pressure of 100 kpa, relative humidity 30%, cooling water temperature 25 °C. If the environmental conditions are not in conformity with the standard environment (or the substituted baseline environment), the power shall be modified by GB/ t6072.1-2000 or ISO3046.1-1995.

船用柴油机功率分布图：



# DN330/DN340技术结构特点

## TECHNICAL STRUCTURE CHARACTERISTICS

DN330 /DN340系列是我公司自主研发的新一代船用中速大功率柴油机。蕴含着多项专利技术和创新成果。

DN330/DN340 series diesel engine is a new generation of medium-speed high-power diesel engine developed by our company. It contains many patents and innovations.



机体采用龙门箱式机体结构刚度好；曲轴悬挂式安装，结构紧凑；主轴承采用侧拉螺栓与主轴承螺栓设计，轴线装配精度高；系统润滑油路、冷却水路、进气管路等均机体内加工或铸造形成，外观整洁，运行可靠安全。

The engine block is of the gantry box structure with high strength. Crankshaft is of suspension mounting with more compact. The main bearing adopts lateral bolt and main bearing bolt design, with high axis assembly precision. The lubricating oil piping, cooling water piping and air inlet piping are all machined or cast in the engine block, with neat appearance and safe operation.

气缸盖采用蠕墨铸铁铸造提高的强度，V型盆腔设计提高了结构刚度和抗冲击性；进排气接口同侧设计结构紧凑；气阀旋转机构，转阀器控制气阀每分钟转动4~9圈，清除阀线余碳，阀盘接触均匀;四根强力螺栓，液压拉伸安装，利于同侧气道优化布置。水冷阀座，降低阀座表面温度，避免Va、Na高温腐蚀；Nimonic80A材料排气阀，刮碳台阶设计。

The cylinder cover is strengthened with vermicular cast iron, and the structure rigidity and impact resistance are improved by V type inner cavity design. Rotocap : The valve is rotated between 4 and 9 cycle per minute to clean the residual carbon, to make the valve contact even. Four cylinder head bolts are assembled by hydraulic jack to facilitate the optimization of the airway. The water-cooled seat is designed to reduce the surface temperature of the seat and avoid high temperature corrosion of Va and Na. The exhaust valve material adopts Nimonic80A and adopts the carbon step design.



缸套为磷铸铁厚壁结构，刚性好，变形小；表面氮化处理，提高劣质燃油适应性。湿式缸套，头部钻孔冷却，优化冷却性能，抑制低温硫化物腐蚀，提高了缸套使用寿命。缸套头部燃烧室设计有清洁环，与阶梯状活塞配合，清除了活塞头部积碳，减少磨损，提高了缸套使用寿命。同时降低滑油消耗。

The cylinder liner is phosphorous cast iron thick wall structure, with better rigidity and smaller deformation. The surface of cylinder liner is with nitrogen treatment to improve the adaptability of inferior fuel. The wet cylinder liner is cooling with the top hole , optimize thecooling performance, inhibit the low temperature sulfide corrosion. The combustion chamber, top of the cylinder liner, is designed with a clean ring, which is combined with the piston to remove the carbon on the piston head and reduce the abrasion. Thus improving the service life of the cylinder liner, also reduces the oil consumption.

钢顶、铁裙组合活塞，增强了活塞组件抗应力冲击和热负荷的能力，延长了活塞的使用寿命，提高了工作可靠性。钢顶采用振荡冷却。锥顶与清洁环配合，保护缸套磨损，降低滑油消耗。中凸椭圆腰鼓型裙部，补偿燃烧微变。环槽激光淬火处理，使用寿命长。活塞环镀铬，表面陶瓷化处理，增强耐性，延长了活塞环寿命。

The steel crown casting skirt combination piston, enhanced the piston component to resist the stress impact and the thermal load capacity, extended the piston service life, improved the work reliability. The steel top adopts oscillating cooling. The cone top and the cleaning ring cooperate to protect the cylinder liner and reduce abrasion and the lubricating oil consumption. Middle convex oval waist drum skirt, compensation for combustion micro change. The ring groove is treated with laser quenching, the surface of piston ring is plated with chromium, and it is treated with ceramic treatment to enhance the wear resistance and prolong the service life of piston ring.



三段式船用连杆结构，吊缸时可不拆除连杆大头，降低吊缸高度；在检查连杆瓦时不用吊缸，降低劳动强度；便于后期维修。各段贴合面研磨处理，两套双头液压拉伸器同步紧固，结构安全可靠。

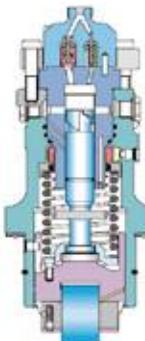
The three - section connecting rod is simple to lift piston and has low height of the lifting operation. Do not need lift piston when checking connecting rod bearing, reduce labor intensity. And it is convenient for maintenance. The connecting surface between the sections of the connecting rod is ground. The connecting rod is assembled by two sets of double - head hydraulic jack and its structure is safe and reliable. The camshaft is a sectional structure, each cylinder with a same diameters camshaft, which facilitates the replacement of bearings, and improves the maintainability of the camshaft and the whole engine. The function cam profile makes the acceleration continuous and the transmission mechanism has no impact. Fuel oil cam has high fuel oil feed rate, short feed time and low combustion temperature. The driving mechanism adopts lever type rocker arm design, while optimizing the stress condition of camshaft and roller, making the maintenance convenient.

单缸分段式整体凸轮结构，每缸一段凸轮轴段，所有缸的凸轮轴轴颈相同，易于凸轮轴段的维护保养和轴承的更换，提升整机可维修性。函数凸轮型线，加速度连续，传动机构无冲击。燃油凸轮供油速率高，时间短，降低燃烧温度。传动机构采用杠杆式摇臂设计，优化凸轮轴与滚轮受力的状况，维修方便。高强度合金钢连续纤维锻造曲轴，并调质处理，增加了曲轴的结构强度。各缸平衡配重，自由端硅油减振器安装，增加了柴油机运行的稳定性，有效衰减曲轴扭转振动应力。合理的油孔布置利于油膜形成，延长轴瓦使用寿命。

High strength alloy steel continuous fiber forging crankshaft with hardening and tempering, increase the structure strength of crankshaft. The balance weight of each crank and the installation of the free end silicon oil damper increase the stability of the engine, and effectively attenuate the torsional vibration stress of the crankshaft. Reasonable oil hole arrangement is beneficial to the formation of oil film, extending the service life of the bearing.



### 喷油系统 Fuel injection system



喷油泵采用整体式等压出油阀高压油泵，各缸独立回油，利于重油温度稳定；喷射压力高，最高压力达200MPa，防止低负荷穴蚀与高负荷二次喷射，降低NOx。柱塞防咬、防蚀镀层处理，能更好的适应380Cst重油使用。

The oil injection pump adopts the high pressure oil pump with constant pressure outlet valve, each cylinder independently return oil, it's good for the heavy oil temperature stability. High injection pressure with maximum pressure up to 200MPa, prevent low-load cavitation erosion and high load secondary injection, and reduce NOx. Plunger anti - seizure, anti - corrosion coating treatment, can better adapt to 380Cst heavy oil use.

喷油器采用高起压压力380bar，油束雾化充分。缸盖滑油直接冷却;合适的喷孔参数，优化燃烧性能，能更好的适应380Cst重油。

The fuel injector adopts a high valve pressure of 380bar, and the oil beam atomization is sufficient. Cylinder head with oil direct cooling. Suitable injection parameters and optimized combustion performance can make it better adapt to 380Cst heavy oil.

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## ■ 产品与附件 Products and Accessories



**附件配置及可选件**  
Standard and optional parts

- 冷却器 :  
Cooler :  
管壳式 ( 标配 ) 、板式 ( 可选配 )  
shell-and-tube heat exchanger ( standard ),  
plate heat exchanger ( optional )
- 盘车装置 :  
turning gear :  
电动盘车 ( 标配 )  
Electric turning gear ( standard )
- 调速器 :  
governor :  
液压 ( 标配 ) 、电液、电子调速器 ( 可选配 )  
hydraulic governor ( standard ),  
E-H governor, electronic governor ( optional )
- 排气消音器 : ( 可选配 )  
silencer : ( optional )
- 增压器出口膨胀节 : ( 可选配 )  
Exhaust expansion bellow : ( optional )

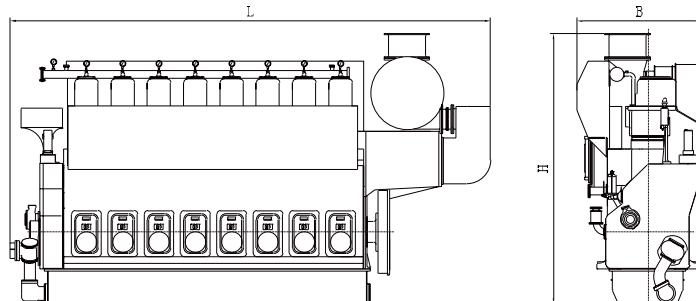
## ■ 基本参数 General Data

项目 Item	单位 unit	参数 data
型式 Type		直列式、水冷、四冲程、直接喷射、不可逆转 Straight-line, water-cooled, four-stroke, direct injection, non-reversible
缸径×行程 Bore × Stroke	mm	340×450
排量 Displacement	L	326.85
压缩比 Comp. ratio		13.5
最低燃油消耗率 SFOC	g/kW·h	≤186 <sup>+3%</sup>
滑油消耗率 SLOC	g/kW·h	≤0.8
起动方式 Starting system		压缩空气 compressed air
曲轴转向 Direction of rotation		顺时针 ( 飞轮端视 ) clockwise ( aft. end )
吊缸高度 Piston Lifting height	mm	2400

## ■ 型谱表 Specification

型号 Model	标定功率 Rated output kW	标定转速 Rated speed rpm	平均有效压力 MEP MPa	外形尺寸 Size mm			净重 weight kg
				L	B	H	
DN8340ZC	4500	650	2.54	6810	1940	3835	52000
DN8340ZC2	4410	650	2.49	6810	1940	3835	52000
DN8340ZC4	4045	620	2.40	6810	1940	3835	52000
DN8340ZC6	3676	600	2.25	6810	1940	3835	52000
DN8340ZC8	3310	600	2.03	6810	1940	3835	52000
DN8340ZC10	2940	600	1.80	6810	1940	3835	52000
DN8340ZC12	3900	600	2.38	6810	1940	3835	52000
DN8340ZC16	2574	520	1.82	6810	1940	3835	52000
DN8340ZC18	3310	520	2.34	6810	1940	3835	52000

## ■ 外形图 Outline



## ■ 产品与附件 Products and Accessories



## 附件配置及可选件

## Standard and optional parts

冷却器 :  
Cooler :  
管壳式 ( 标配 ) 、板式 ( 可选配 )  
shell-and-tube heat exchanger ( standard ),  
plate heat exchanger ( optional )  
盘车装置 :  
turning gear :  
电动盘车 ( 标配 )  
Electric turning gear ( standard )  
调速器 :  
governor :  
液压 ( 标配 ) 、电液、电子调速器 ( 可选配 )  
hydraulic governor ( standard ),  
E-H governor, electronic governor ( optional )  
排气消音器 : ( 可选配 )  
silencer : ( optional )  
增压器出口膨胀节 : ( 可选配 )  
Exhaust expansion bellow : ( optional )

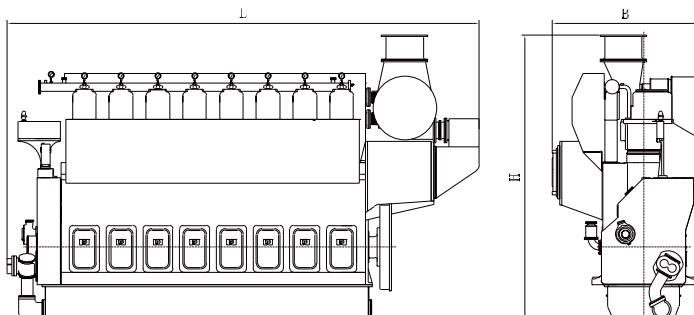
## ■ 基本参数 General Data

项目 Item	单位 unit	参数 data
型式 Type		直列式、水冷、四冲程、直接喷射、不可逆转 Straight-line, water-cooled, four-stroke, direct injection, non-reversible
缸径×行程 Bore × Stroke	mm	330×450
排量 Displacement	L	307.8
压缩比 Comp. ratio		13.5
最低燃油消耗率 SFOC	g/kW·h	≤186 <sup>+5%</sup>
滑油消耗率 SLOC	g/kW·h	≤0.8
起动方式 Starting system		压缩空气 compressed air
曲轴转向 Direction of rotation		顺时针 ( 飞轮端视 ) clockwise ( aft. end )
吊缸高度 Piston Lifting height	mm	2400

## ■ 型谱表 Specification

型号 Model	标定功率 Rated output kW	标定转速 Rated speed rpm	平均有效压力 MEP MPa	外形尺寸 Size mm			净重 weight kg
				L	B	H	
DN8330ZC	3310	620	2.08	6825	1925	3795	48000
DN8330ZC2	4045	650	2.43	6620	2250	3980	48000
DN8330ZC4	3676	650	2.20	6825	1925	3795	48000
DN8330ZC6	3000	620	1.89	6825	1925	3795	48000
DN8330ZC8	2970	620	1.87	6825	1925	3795	48000
DN8330ZC10	3089	600	2.01	6825	1925	3795	48000
DN8330ZC12	3163	600	2.05	6825	1925	3795	48000
DN8330ZC14	3236	600	2.10	6825	1925	3795	48000
DN8330ZC16	3310	600	2.15	6825	1925	3795	48000
DN8330ZC18	3163	620	1.99	6825	1925	3795	48000
DN8330ZC20	3552	650	2.13	6825	1925	3795	48000

## ■ 外形图 Outline



## ■ 产品与附件 Products and Accessories



附件配置及可选件  
Standard and optional parts

冷却器 :  
Cooler :  
管壳式 ( 标配 ) 、板式 ( 可选配 )  
shell-and-tube (heat) exchanger (standard),  
plate heat exchanger (optional)  
盘车装置 :  
turning gear :  
电动盘车 ( 标配 )  
Electric turning gear ( standard )  
调速器 :  
governor :  
液压 ( 标配 ) 、电液、电子调速器 ( 可选配 )  
hydraulic governor ( standard )  
E-H governor, electronic governor ( optional )  
排气消音器 : ( 可选配 )  
silencer : ( optional )  
增压器出口膨胀节 : ( 可选配 )  
Exhaust expansion bellow : ( optional )

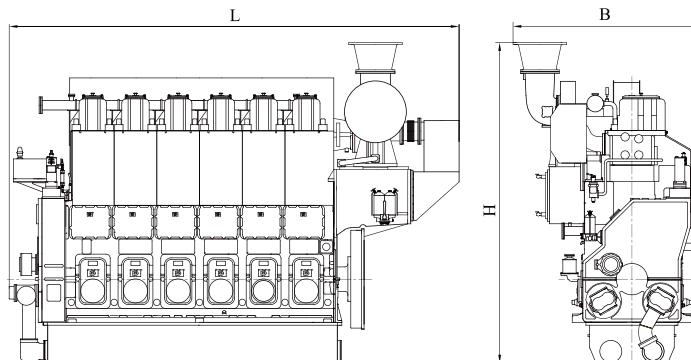
## ■ 基本参数 General Data

项目 Item	单位 unit	参数 data
型式 Type		直列式、水冷、四冲程、直接喷射、不可逆转 Straight-line, water-cooled, four-stroke, direct injection, non-reversible
缸径×行程 Bore × Stroke	mm	330×450
排量 Displacement	L	230.9
压缩比 Comp. ratio		13.5
最低燃油消耗率 SFOC	g/kW·h	≤186 <sup>+5%</sup>
滑油消耗率 SLOC	g/kW·h	≤0.8
起动方式 Starting system		压缩空气 compressed air
曲轴转向 Direction of rotation		顺时针 ( 飞轮端视 ) clockwise ( aft. end )
吊缸高度 Piston Lifting height	mm	2400

## ■ 型谱表 Specification

型号 Model	标定功率 Rated output kW	标定转速 Rated speed rpm	平均有效压力 MEP MPa	外形尺寸 Size mm			净重 weight kg
				L	B	H	
DN6330ZC	2206	550	2.08	5435	2260	3880	36000
DN6330ZC2	2206	600	1.91	5435	2260	3880	36000
DN6330ZC4	2427	600	2.10	5435	2260	3880	36000
DN6330ZC6	2648	600	2.29	5435	2260	3880	36000
DN6330ZC8	2795	600	2.42	5435	2260	3880	36000
DN6330ZC10	2206	620	1.85	5435	2260	3880	36000
DN6330ZC12	2427	620	2.03	5435	2260	3880	36000
DN6330ZC14	2574	620	2.16	5435	2260	3880	36000
DN6330ZC16	2795	650	2.23	5435	2260	3880	36000
DN6330ZC18	2970	650	2.37	5435	2260	3880	36000
DN6330ZC20	2795	620	2.34	5435	2260	3880	36000

## ■ 外形图 Outline



# GN320/G300技术改进

## Technical improvement

### 一、燃烧室的改进

#### A.Improvement of combustion chamber

主要改进措施：

Main measures for improvement

a. 采用厚壁刮碳环缸套，壁厚增加整体刚性增加，稳定性好，改用带刮碳环的缸套，有效增加燃烧室的气密性，刮除活塞头部积碳，减轻积碳磨损。

a.Adopt thick - wall cylinder liner with cleaning ring to increase overall rigidity and enhance stability. Improve the cylinder liner with the cleaning ring, effectively increase the air tightness of the combustion chamber, remove the carbon from the piston head, and reduce the abrasion.

b. 活塞头部为配合刮碳环缸套的使用，将头部加工成阶梯状，使得刮碳环有效刮除活塞头部积碳；

b.The piston head is machined into a ladder shape to fit the cylinder liner with cleaning ring, so that the ring can be effectively removed carbon from the piston head.

c. 活塞环改为：一道偏桶面，二、三道扭曲环，四道油环；

c.The piston ring is changed to: the first ring is the partial barrel surface ring, the second and the third ring are twisted rings, and the fourth ring is the oil ring.

d. 增加火焰环；

d.Added cleaning ring.

主要目的：降低机油消耗率、清除积碳、减少缸套磨损，延长缸套使用寿命。

Main purpose: Reduce the lub. oil consumption rate, remove carbon, reduce the abrasion of cylinder liner, and extend the service life of cylinder liner.



### 二、改进喷油泵座

#### B.Improve the injection pump seat.

喷油泵座壳体上增加刮油环槽，并在上部增加了集油槽，解决了漏油现象。

The fuel oil groove is increased on the housing of the fuel injection pump, and the oil sump is added on the upper part to solve the oil leakage phenomenon.

### 三、改进凸轮轴传动齿轮连接方式

#### C.Improved cam shaft transmission gear connection mode.

凸轮轴传动齿轮取消键槽连接方式，用锥套过盈配合传动，消除键槽的应力集中；并采用双支撑，更好的保证了凸轮轴的同轴度。

The cam shaft transmission gears cancel the connection mode of the key, use the taper sleeve with interference fit, eliminate the stress concentration of the keyway.

### 四、气阀导杆

#### D.Valve guide

a. 增加了上部的环槽，加装密封圈，密封圈选择不合适或磨损起到反作用。

a.The upper ring groove is added, the sealing ring is added.

b. 上部无倒角，不集存油；内腔为阶梯孔，上部温度低间隙小，有效阻止机油进入，下部温度高，间隙大，不卡滞；增加刮炭止口；缩短了长度，伸入气道的长度缩短，气流通畅，表面温度也降低。

b.There is no chamfer in the upper part, and no oil gathering. The inner cavity is a step hole, low temperature and lesser clearance at the upper part, effectively preventing oil penetration, high temperature and larger clearance at the lower part, effectively preventing stuck. Increase the scraping steps. Shorten the length of the Valve guide and the airway, the airflow is smooth, the surface temperature is also reduced.

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## ■ 产品与附件 Products and Accessories



附件配置及可选件  
Standard and optional parts

冷却器 :  
Cooler :  
管壳式 ( 标配 ) 、板式 ( 可选配 )  
shell-and-tube heat exchanger ( standard ),  
plate heat exchanger ( optional )  
盘车装置 :  
turning gear :  
手动盘车 ( 标配 )  
manual turning gear ( standard )  
调速器 :  
governor :  
液压 ( 标配 ) 、电液、电子调速器 ( 可选配 )  
hydraulic governor ( standard ),  
E-H governor, electronic governor ( optional )  
排气消音器 : ( 可选配 )  
silencer : ( optional )  
增压器出口膨胀节 : ( 可选配 )  
Exhaust expansion bellow : ( optional )

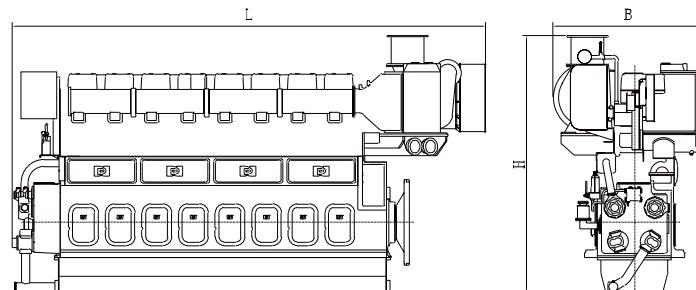
## ■ 基本参数 General Data

项目 Item	单位 unit	参数 data
型式 Type		直列式、水冷、四冲程、直接喷射、不可逆转 Straight-line, water-cooled, four-stroke, direct injection, non-reversible
缸径×行程 Bore × Stroke	mm	320×380
排量 Displacement	L	244.5
压缩比 Comp. ratio		13
最低燃油消耗率 SFOC	g/kW·h	≤195 <sup>+5%</sup>
滑油消耗率 SLOC	g/kW·h	≤0.8
起动方式 Starting system		压缩空气 compressed air
曲轴转向 Direction of rotation		右机 : 顺时针 ( 飞轮端视 ) Starboard : clockwise ( aft. end )
吊缸高度 Piston Lifting height	mm	2600

## ■ 型谱表 Specification

型号 Model	标定功率 Rated output kW	标定转速 Rated speed rpm	平均有效压力 MEP MPa	外形尺寸 Size mm			净重 weight kg
				L	B	H	
DN8320ZC6B	3089	650	2.33	6085	2125	3315	34000
DN8320ZC8B	3310	675	2.41	6085	2125	3315	34000
DN8320ZC10B	2648	600	2.17	6085	2125	3315	34000
DN8320ZC12B	2795	630	2.18	6085	2125	3315	34000
DN8320ZC14B	2970	650	2.24	6085	2125	3315	34000

## ■ 外形图 Outline



## ■ 产品与附件 Products and Accessories



附件配置及可选件  
Standard and optional parts

冷却器 :  
Cooler :  
管壳式 ( 标配 ) 、板式 ( 可选配 )  
shell-and-tube heat exchanger (standard),  
plate heat exchanger ( optional )  
盘车装置 :  
turning gear :  
手动盘车 ( 标配 ) 、电动盘车 ( 选配 )  
manual turning gear ( standard ),  
Electric turning gear ( optional )  
调速器 :  
governor :  
液压 ( 标配 ) 、电液、电子调速器 ( 可选配 )  
hydraulic governor ( standard ),  
E-H governor, electronic governor ( optional )  
排气消音器 : ( 可选配 )  
silencer : ( optional )  
增压器出口膨胀节 : ( 可选配 )  
Exhaust expansion bellow : ( optional )

## ■ 基本参数 General Data

项目 Item	单位 unit	参数 data
型式 Type	mm	直列式、水冷、四冲程、直接喷射、不可逆转 Straight-line, water-cooled, four-stroke, direct injection, non-reversible
缸径×行程 Bore × Stroke	L	320×380
排量 Displacement		244.5
压缩比 Comp. ratio		13
最低燃油消耗率 SFOC	g/kW·h	≤195+5%
滑油消耗率 SLOC	g/kW·h	≤1.2
起动方式 Starting system		压缩空气 compressed air
曲轴转向 Direction of rotation		右机 : 顺时针 ( 飞轮端视 ) Starboard engine: clockwise ( aft. end ) 左机 : 逆时针 ( 飞轮端视 ) Port engine: anticlockwise ( aft. end )
吊缸高度 Piston Lifting height	mm	2600

## ■ 型谱表 Specification

型号 Model	右机 starboard	GN8320ZC	GN8320ZC2B	GN8320ZC4B	GN8320ZC6B
	左机 port	GN8320ZC1	GN8320ZC3B	GN8320ZC5B	GN8320ZC7B
标定功率MCR kW		2206	2500	2795	3089
标定转速Speed rpm		600	600	630	650
平均有效压MEP MPa		1.8	2.05	2.18	2.33
活塞平均速度 mean piston speed m/s		7.6	7.6	7.98	8.23

型号 Model	右机 starboard	GN8320ZC12B	GN8320ZC14B
	左机 port	GN8320ZC13B	GN8320ZC15B
标定功率MCR kW		2648	2970
标定转速Speed rpm		600	650
平均有效压MEP MPa		2.17	2.24
活塞平均速度 mean piston speed m/s		7.6	8.23

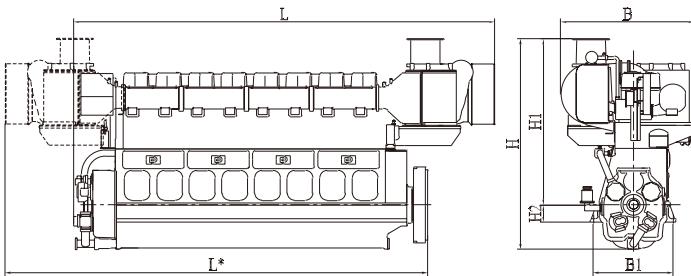
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■ 外形尺寸 Size

型号 Model	L mm	B mm	B1 mm	H mm	H1 mm	H2 mm	L* mm	净重 weight kg
GN8320ZC/1	6175	1790	1150	2940	2300	250	6165	22500
GN8320ZC2B/3B	6210	1755		2950	2310		6200	26500
GN8320ZC4B/5B	6210	1755		2950	2310		6200	26500
GN8320ZC6B/7B	6085	2135		3040	2400		6070	31000
GN8320ZC12B/13B	6210	1755		2950	2310		6200	26500
GN8320ZC14B/15B	6085	2135		3040	2400		6070	31000

■ 外形图 Outline



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## ■ 产品与附件 Products and Accessories



附件配置及可选件  
Standard and optional parts

冷却器 :  
Cooler :  
管壳式 ( 标配 ) 、板式 ( 可选配 )  
shell-and-tube heat exchanger ( standard ),  
plate heat exchanger ( optional )  
盘车装置 :  
turning gear :  
手动盘车 ( 标配 ) 、电动盘车 ( 选配 )  
manual turning gear ( standard ),  
Electric turning gear ( optional )  
调速器 :  
governor :  
液压 ( 标配 ) 、电液、电子调速器 ( 可选配 )  
hydraulic governor ( standard ),  
E-H governor, electronic governor ( optional )  
排气消音器 : ( 可选配 )  
silencer : ( optional )  
增压器出口膨胀节 : ( 可选配 )  
Exhaust expansion bellow : ( optional )

## ■ 基本参数 General Data

项目 Item	单位 unit	参数 data
型式 Type	mm	直列式、水冷、四冲程、直接喷射、不可逆转 Straight-line, water-cooled, four-stroke, direct injection non-reversible
缸径×行程 Bore × Stroke	L	320×380
排量 Displacement		183
压缩比 Comp. ratio		13
最低燃油消耗率 SFOC	g/kW·h	≤195+5%
滑油消耗率 SLOC	g/kW·h	≤1.2
起动方式 Starting system		压缩空气 compressed air
曲轴转向 Direction of rotation		右机：顺时针 ( 飞轮端视 ) Starboard engine: clockwise ( aft. end ) 左机：逆时针 ( 飞轮端视 ) Port engine: anticlockwise ( aft. end )
吊缸高度 Piston Lifting height	mm	2600

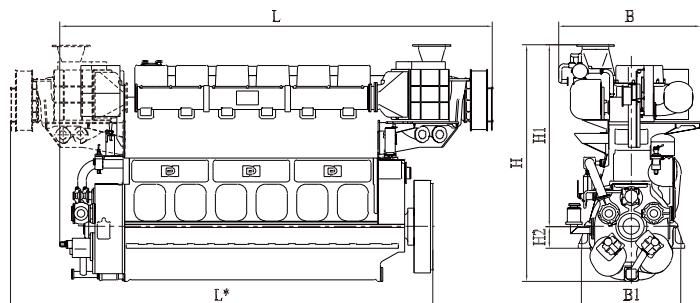
## ■ 型谱表 Specification

型号 Model	右机 starboard	GN6320ZC2B	GN6320ZC8B	GN6320ZC10B	GN6320ZC12B	GN6320ZC14B
	左机 port	GN6320ZC3B	GN6320ZC9B	GN6320ZC11B	GN6320ZC13B	GN6320ZC15B
标定功率MCR kW	735	1323	1323	1471	1618	
标定转速Speed rpm	600	550	600	600	600	
平均有效压MEP MPa	0.8	1.57	1.44	1.6	1.77	
活塞平均速度 mean piston speed m/s	7.6	6.97	7.6	7.6	7.6	

## ■ 外形尺寸 Size

型号 Model	L mm	B mm	B1 mm	H mm	H1 mm	H2 mm	L* mm	净重 weight kg
GN6320ZC2B/3B	5020	1580	1150	2780	2140	250	4895	18000
GN6320ZC8B/9B	5020	1580	1150	2780	2140		4895	
GN6320ZC10B/11B	5020	1580	1150	2780	2140		4895	
GN6320ZC12B/13B	5020	1580	1150	2780	2140		4870	
GN6320ZC14B/15B	5020	1580	1150	2780	2140		4870	

## ■ 外形图 Outline



## ■ 产品与附件 Products and Accessories



附件配置及可选件  
Standard and optional parts

冷却器 :  
Cooler :  
管壳式 ( 标配 ) 、板式 ( 可选配 )  
shell-and-tube heat exchanger ( standard ),  
plate heat exchanger ( optional )  
盘车装置 :  
turning gear :  
手动盘车 ( 标配 )  
manual turning gear ( standard )  
调速器 :  
governor :  
液压 ( 标配 ) 、电液、电子调速器 ( 可选配 )  
hydraulic governor ( standard ),  
E-H governor, electronic governor ( optional )  
排气消音器 : ( 可选配 )  
silencer : ( optional )  
增压器出口膨胀节 : ( 可选配 )  
Exhaust expansion bellow : ( optional )

## ■ 基本参数 General Data

项目 Item	单位 unit	参数 data
型式 Type		直列式、水冷、四冲程、直接喷射、不可逆转 Straight-line, water-cooled, four-stroke, direct injection, non-reversible
缸径×行程 Bore × Stroke	mm	300×380
排量 Displacement	L	214.9
压缩比 Comp. ratio		13.5~14
最低燃油消耗率 SFOC	g/kW·h	≤194 <sup>+5%</sup>
滑油消耗率 SLOC	g/kW·h	≤0.8
起动方式 Starting system		压缩空气 compressed air
曲轴转向 Direction of rotation		右机 : 顺时针 ( 飞轮端视 ) Starboard engine: clockwise ( aft. end ) 左机 : 逆时针 ( 飞轮端视 ) Port engine: anticlockwise ( aft. end )
吊缸高度 Piston Lifting height	mm	2600

## ■ 型谱表 Specification

型号 Model	右机 starboard	N8300ZC	N8300ZC2	N8300ZC4	N8300ZC6
	左机 port	N8300ZC1	N8300ZC3	N8300ZC5	N8300ZC7
标定功率MCR kW		1103	1323	1470	1618
标定转速Speed rpm		500	500	500	500
平均有效压MEP MPa		1.232	1.478	1.642	1.808
活塞平均速度 mean piston speed m/s		6.33	6.33	6.33	6.33

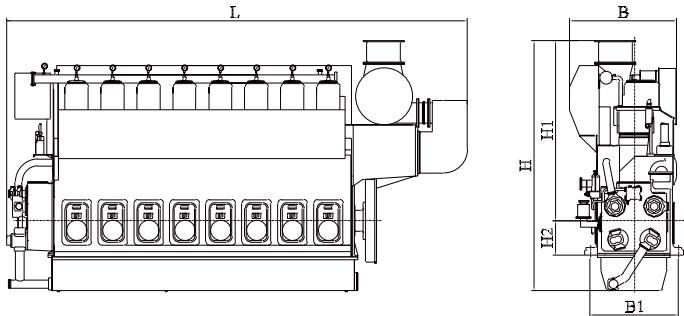
型号 Model	右机 starboard	N8300ZC8	N8300ZC10	N8300ZC12	N8300ZC14
	左机 port	N8300ZC9	N8300ZC11	N8300ZC13	N8300ZC15
标定功率MCR kW		1765	2000	2206	2354
标定转速Speed rpm		550	600	600	650
平均有效压MEP MPa		1.791	1.861	2.053	2.023
活塞平均速度 mean piston speed m/s		6.97	7.6	7.6	8.23

型号 Model	右机 starboard	N8300ZC16	N8300ZC18	N8300ZC20	N8300ZC22
	左机 port	N8300ZC17	N8300ZC19	N8300ZC21	N8300ZC23
标定功率MCR kW		2500	2794	2941	3089
标定转速Speed rpm		650	720	750	750
平均有效压MEP MPa		2.149	2.167	2.190	2.300
活塞平均速度 mean piston speed m/s		8.23	9.12	9.50	9.50

■ 外形尺寸 Size

型号 Model	L mm	B mm	B1 mm	H mm	H1 mm	H2 mm	净重 weight kg
N8300ZC/ZC1	6360	1640		3395	2474		26000
N8300ZC2/ZC3	6360	1640		3395	2474		26000
N8300ZC4/ZC5	6360	1640		3395	2474		26000
N8300ZC6/ZC7	6360	1640		3470	2549		26000
N8300ZC8/ZC9	6360	1640		3470	2549		26000
N8300ZC10/ZC11	6360	1640		3470	2549		26000
N8300ZC12/ZC13	6360	1640		3470	2549		26000
N8300ZC14/ZC15	6360	1640		3470	2549		26000
N8300ZC16/ZC17	6360	1640		3470	2549		26000
N8300ZC18/ZC19	6360	1640		3470	2549		26000
N8300ZC20/ZC21	6360	1640		3470	2549		26000
N8300ZC22/ZC23	6360	1640		3470	2549		26000

■ 外形图 Outline



## ■ 产品与附件 Products and Accessories



附件配置及可选件  
Standard and optional parts

冷却器 :  
Cooler :  
管壳式 ( 标配 ) 、板式 ( 可选配 )  
shell-and-tube heat exchanger ( standard ),  
plate heat exchanger ( optional )  
盘车装置 :  
turning gear :  
手动盘车 ( 标配 ) 、电动盘车 ( 选配 )  
manual turning gear ( standard ),  
Electric turning gear ( optional )  
调速器 :  
governor :  
液压 ( 标配 ) 、电液、电子调速器 ( 可选配 )  
hydraulic governor ( standard ),  
E-H governor, electronic governor ( optional )  
排气消音器 : ( 可选配 )  
silencer : ( optional )  
增压器出口膨胀节 : ( 可选配 )  
Exhaust expansion bellow : ( optional )

## ■ 基本参数 General Data

项目 Item	单位 unit	参数 data
型式 Type		直列式、水冷、四冲程、直接喷射、不可逆转 Straight-line, water-cooled, four-stroke, direct injection, non-reversible
缸径×行程 Bore × Stroke	mm	300×380
排量 Displacement	L	161.2
压缩比 Comp. ratio		13.5~14
最低燃油消耗率 SFOC	g/kW·h	≤194 <sup>+5%</sup>
滑油消耗率 SLOC	g/kW·h	≤0.8
起动方式 Starting system		压缩空气 compressed air
曲轴转向 Direction of rotation		右机 : 顺时针 ( 飞轮端视 ) Starboard engine: clockwise ( aft. end ) 左机 : 逆时针 ( 飞轮端视 ) Port engine: anticlockwise ( aft. end )
吊缸高度 Piston Lifting height	mm	2600

## ■ 型谱表 Specification

型号 Model	右机 starboard	N6300ZC6	N6300ZC16	N6300ZC18	N6300ZC26
	左机 port	N6300ZC7	N6300ZC17	N6300ZC19	N6300ZC27
标定功率MCR kW		1103	1470	1323	1470
标定转速Speed rpm		500	600	550	750
平均有效压MEP MPa		1.643	1.825	1.79	1.46
活塞平均速度 mean piston speed m/s		6.33	7.6	6.97	9.5

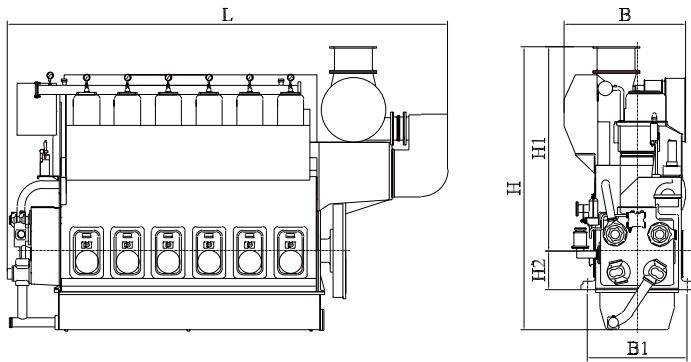
型号 Model	右机 starboard	N6300ZC28	N6300ZC32	N6300ZC34	N6300ZC36
	左机 port	N6300ZC29	N6300ZC33	N6300ZC35	N6300ZC37
标定功率MCR kW		1618	1765	1800	1838
标定转速Speed rpm		750	750	750	750
平均有效压MEP MPa		1.64	1.75	1.79	1.83
活塞平均速度 mean piston speed m/s		9.5	9.5	9.5	9.5

型号 Model	右机 starboard	N6300ZC40	N6300ZC44	N6300ZC48	N6300ZC54
	左机 port	N6300ZC41	N6300ZC45	N6300ZC49	N6300ZC55
标定功率MCR kW		1912	2000	2206	2100
标定转速Speed rpm		750	750	750	750
平均有效压MEP MPa		1.90	1.99	2.19	2.09
活塞平均速度 mean piston speed m/s		9.5	9.5	9.5	9.5

■ 外形尺寸 Size

型号 Model	L mm	B mm	B1 mm	H mm	H1 mm	H2 mm	净重 weight kg
N6300ZC6/ZC7	5430	1640	1150	3170	2249	450	19000
N6300ZC16/ZC17	5430	1640		3170	2249		19000
N6300ZC18/ZC19	5430	1640		3170	2249		19000
N6300ZC26/ZC27	5430	1640		3170	2249		19000
N6300ZC28/ZC29	5430	1640		3170	2249		19000
N6300ZC32/ZC33	5430	1640		3170	2329		19000
N6300ZC34/ZC35	5430	1640		3250	2329		19000
N6300ZC36/ZC37	5430	1640		3250	2329		19000
N6300ZC40/ZC41	5430	1640		3250	2329		19000
N6300ZC44/ZC45	5430	1640		3250	2329		19000
N6300ZC48/ZC49	5430	1640		3250	2329		19000
N6300ZC54/ZC55	5430	1640		3250	2329		19000

■ 外形图 Outline



## ■ 产品与附件 Products and Accessories



附件配置及可选件  
Standard and optional parts

冷却器：  
Cooler:  
管壳式 ( 标配 ) 、板式 ( 可选配 )  
shell-and-tube (heat) exchanger ( standard ), plate heat exchanger ( optional )  
盘车装置：  
turning gear :  
手动盘车 ( 标配 ) 、电动盘车 ( 选配 )  
manual turning gear ( standard ),  
Electric turning gear ( optional )  
调速器：  
governor :  
液压 ( 标配 ) 、电液、电子调速器 ( 可选配 )  
hydraulic governor ( standard ),  
E-H governor, electronic governor ( optional )  
排气消音器： ( 可选配 )  
silencer : ( optional )  
增压器出口膨胀节： ( 可选配 )  
Exhaust expansion joint : ( optional )

## ■ 基本参数 General Data

项目 Item	单位 unit	参数 data
型式 Type		直列式、水冷、四冲程、直接喷射、不可逆转 Straight-line, water-cooled, four-stroke, direct injection, non-reversible
缸径×行程 Bore × Stroke	mm	300×380
排量 Displacement	L	215
压缩比 Comp. ratio		13
最低燃油消耗率 SFOC	g/kW·h	≤195 <sup>+5%</sup>
滑油消耗率 SLOC	g/kW·h	≤0.8
起动方式 Starting system		压缩空气 compressed air
曲轴转向 Direction of rotation		右机：顺时针（飞轮端视） Starboard engine: clockwise ( aft. end ) 左机：逆时针（飞轮端视） Port engine: anticlockwise ( aft. end )
吊缸高度 Piston Lifting height	mm	2600

## ■ 型谱表 Specification

型号 Model	右机 starboard	G8300ZC6B	G8300ZC6BH	G8300ZC6Bs	G8300ZC16B
	左机 port	G8300ZC7B	G8300ZC7BH	G8300ZC7Bs	G8300ZC17B
标定功率MCR kW	1471	1500	1471	2000	
标定转速Speed rpm	500	500	550	600	
平均有效压MEP MPa	1.65	1.67	1.49	1.86	
活塞平均速度 mean piston speed m/s	6.33	6.33	6.97	7.60	

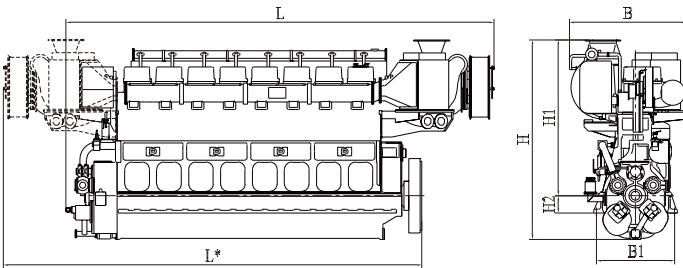
型号 Model	右机 starboard	G8300ZC16Bs	G8300ZC18B	G8300ZC20B	G8300ZC22B
	左机 port	G8300ZC17Bs	G8300ZC19B	G8300ZC21B	G8300ZC23B
标定功率MCR kW	2000	1765	1765	2000	
标定转速Speed rpm	575	550	500	550	
平均有效压MEP MPa	1.94	1.79	1.97	2.03	
活塞平均速度 mean piston speed m/s	7.28	6.97	6.33	6.97	

型号 Model	右机 starboard	G8300ZC30B	G8300ZC32B	G8300ZC34B
	左机 port	G8300ZC31B	G8300ZC33B	G8300ZC35B
标定功率MCR kW	2206	2427	2100	
标定转速Speed rpm	600	630	630	
平均有效压MEP MPa	2.05	2.15	1.89	
活塞平均速度 mean piston speed m/s	7.6	7.98	7.98	

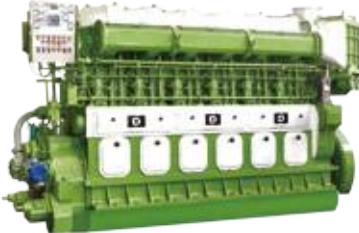
■ 外形尺寸 Size

型号 Model	L mm	B mm	B1 mm	H mm	H1 mm	H2 mm	L* mm	净重 weight kg
G8300ZC6B/7B	5950	1575	1150	2875		2235	5835	21500
G8300ZC6BH/7BH	5950	1575		2875		2235	5835	
G8300ZC6Bs/7Bs	5950	1575		2875		2235	5835	
G8300ZC16B/17B	6300	1725		2940		2300	6160	22500
G8300ZC16Bs/17Bs	6300	1725		2940		2300	6160	
G8300ZC18B/19B	5950	1575		2875	250	2235	5835	21500
G8300ZC20B/21B	5950	1575		2875		2235	5835	
G8300ZC22B/23B	6300	1725		2940		2300	6160	22500
G8300ZC30B/31B	6300	1725		2940		2300	6160	
G8300ZC32B/33B	6300	1725		2940		2300	6160	
G8300ZC34B/35B	6300	1725		2940		2300	6160	

■ 外形图 Outline



## ■ 产品与附件 Products and Accessories



附件配置及可选件  
Standard and optional parts

冷却器 :  
Cooler :  
管壳式 ( 标配 ) 、板式 ( 可选配 )  
shell-and-tube (heat) exchanger ( standard ),  
plate heat exchanger ( optional )  
盘车装置 :  
turning gear :  
手动盘车 ( 标配 ) 、电动盘车 ( 选配 )  
manual turning gear ( standard ),  
Electric turning gear ( optional )  
调速器 :  
governor :  
液压 ( 标配 ) 、电液、电子调速器 ( 可选配 )  
hydraulic governor ( standard ),  
E-H governor, electronic governor ( optional )  
排气消音器 : ( 可选配 )  
silencer : ( optional )  
增压器出口膨胀节 : ( 可选配 )  
Exhaust expansion joint : ( optional )

## ■ 基本参数 General Data

项目 Item	单位 unit	参数 data
型式 Type		直列式、水冷、四冲程, 直接喷射、不可逆转 Straight-line, water-cooled, four-stroke, direct injection, non-reversible
缸径×行程 Bore × Stroke	mm	300×380
排量 Displacement	L	161
压缩比 Comp. ratio		13
最低燃油消耗率 SFOC	g/kW·h	≤195 <sup>+5%</sup>
滑油消耗率 SLOC	g/kW·h	≤0.8
起动方式 Starting system		压缩空气 compressed air
曲轴转向 Direction of rotation		右机 : 顺时针 ( 飞轮端视 ) Starboard engine: clockwise ( aft. end ) 左机 : 逆时针 ( 飞轮端视 ) Port engine: anticlockwise ( aft. end )
吊缸高度 Piston Lifting height	mm	2600

## ■ 型谱表 Specification

型号 Model	右机 starboard	G6300ZCA	G6300ZCB	G6300ZCBa	G6300ZC6B
	左机 port	G6300ZCA1	G6300ZC1B	G6300ZC1Ba1	G6300ZC7B
标定功率MCR kW		735	750	662	1103
标定转速Speed rpm		500	400	400	500
平均有效压MEP MPa		1.10	1.4	1.23	1.65
活塞平均速度 mean piston speed m/s		6.33	5.07	5.07	6.33

型号 Model	右机 starboard	G6300ZC8B	G6300ZC10B	G6300ZC12B	G6300ZC14B
	左机 port	G6300ZC9B	G6300ZC11B	G6300ZC13B	G6300ZC15B
标定功率MCR kW		993	971	882	551
标定转速Speed rpm		500	428	400	400
平均有效压MEP MPa		1.48	1.69	1.65	1.02
活塞平均速度 mean piston speed m/s		6.33	5.42	5.07	5.07

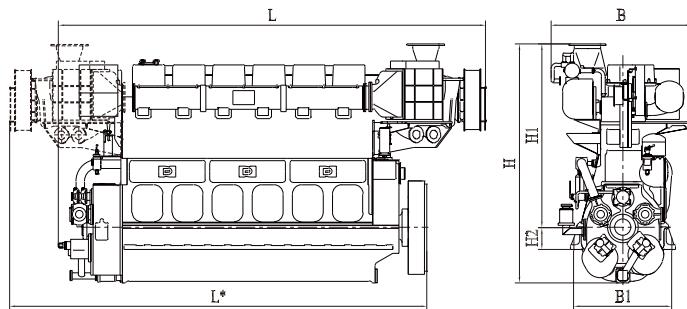
型号 Model	右机 starboard	G6300ZC16B	G6300ZC16Bs	G6300ZC18B	G6300ZC20B
	左机 port	G6300ZC17B	G6300ZC17Bs	G6300ZC19B	G6300ZC21B
标定功率MCR kW		1471	1471	1323	1323
标定转速Speed rpm		600	575	550	600
平均有效压MEP MPa		1.825	1.91	1.79	1.65
活塞平均速度 mean piston speed m/s		7.6	7.28	6.97	7.6



型号 Model	右机 starboard	G6300ZC26B	G6300ZC28B	G6300ZC32B	G6300ZC34B
	左机 port	G6300ZC27B	G6300ZC29B	G6300ZC33B	G6300ZC35B
标定功率MCR kW		1470	1618	1765	1800
标定转速Speed rpm		750	750	750	750
平均有效压MEP MPa		1.46	1.61	1.75	1.79
活塞平均速度 mean piston speed m/s		9.5	9.5	9.5	9.5

型号 Model	右机 starboard	G6300ZC38B	G6300ZC44B	G6300ZC48B	G6300ZC54B
	左机 port	G6300ZC39B	G6300ZC45B	G6300ZC49B	G6300ZC55B
标定功率MCR kW		1900	2000	2206	2100
标定转速Speed rpm		750	750	750	750
平均有效压MEP MPa		1.89	1.99	2.19	2.09
活塞平均速度 mean piston speed m/s		9.5	9.5	9.5	9.5

### ■ 外形图 Outline



### ■ 外形尺寸 Size

型号 Model	L mm	B mm	B1 mm	H mm	H1 mm	H2 mm	L* mm	净重 weight kg
G6300ZCA/A1	5020	1580		2780	2140		4895	17500
G6300ZCB/1B	5020	1580		2780	2140		4895	17500
G6300ZCBa/1Ba1	5020	1580		2780	2140		4895	17500
G6300ZC6B/7B	5020	1580		2780	2140		4895	17500
G6300ZC8B/9B	5020	1580		2780	2140		4895	17500
G6300ZC10B/11B	5020	1580		2780	2140		4895	17500
G6300ZC12B/13B	5020	1580		2780	2140		4895	17500
G6300ZC14B/15B	5020	1580		2780	2140		4895	17500
G6300ZC16B/17B	5020	1580		2780	2140		4870	17500
G6300ZC16Bs/17Bs	5020	1580		2780	2140		4870	17500
G6300ZC18B/19B	5020	1580		2780	2140		4895	17500
G6300ZC20B/21B	5020	1580		2780	2140		4895	17500
G6300ZC26B/27B	5020	1580		2780	2140		4870	17500
G6300ZC28B/29B	5020	1580		2780	2140		4870	17500
G6300ZC32B/33B	5010	1824		2790	2150		4880	17500
G6300ZC34B/35B	5010	1824		2790	2150		4880	17500
G6300ZC38B/39B	5010	1824		2790	2150		4880	17500
G6300ZC44B/45B	5010	1824		2790	2150		4880	17500
G6300ZC48B/49B	5010	1824		2790	2150		4880	17500
G6300ZC54B/55B	5010	1824		2790	2150		4880	17500

# N210技术结构特点

## CHARACTERISTICS OF TECHNICAL STRUCTURE

采用龙门箱式机体结构刚度好；曲轴悬挂式安装，结构紧凑；侧拉螺栓与主轴承螺栓设计，轴线装配精度高；系统润滑油路、冷却水路、进气管路等均机体内加工或铸造而成，可以消除三漏现象，外观整洁，运行可靠安全。

The engine block is of the gantry box structure with high strength. Crankshaft is of suspension mounting with more compact. The main bearing adopts lateral bolt and main bearing bolt design, with high axis assembly precision. The lubricating oil system, cooling water system and air inlet system are all machined or cast in the engine block, with neat appearance and safe operation.



气缸盖采用蠕墨铸铁铸造提高的强度，V型盆腔设计提高了结构刚度和抗冲击性；进排气接口同侧设计结构紧凑；采用切向进气优化进气道结构，使空气燃料混合充分；气阀旋转机构，转阀器控制气阀每分钟转动4~9圈，清除阀线余碳，阀盘接触均匀；四根强力螺栓，液压拉伸安装，利于同侧气道优化布置；水冷阀座，降低阀座表面温度，避免Va、Na高温腐蚀；粉末冶金材料气门导管，具有自润滑功能，防止气阀卡滞。

The cylinder cover is strengthened with vermicular cast iron, and the structure rigidity and impact resistance are improved by V type inner cavity design. Rotocap : The valve is rotated between 4 and 9 cycle per minute to clean the residual carbon, to make the valve contact even. Four cylinder head bolts are assembled by hydraulic jack to facilitate the optimization of the airway. The water-cooled seat is designed to reduce the surface temperature of the seat and avoid high temperature corrosion of Va and Na. The exhaust valve material adopts Nimonic80A and adopts the carbon step design.

缸套为磷铸铁厚壁结构，刚性好，变形小；表面氮化处理，提高劣质燃油适应性。湿式缸套，头部钻孔冷却，优化冷却性能，抑制低温硫化物腐蚀，提高了缸套使用寿命。缸套头部燃烧室设计有清洁环，与阶梯状活塞配合，清除了活塞头部积碳，减少磨损，提高了缸套使用寿命。同时也降低滑油消耗。

The cylinder liner is phosphorous cast iron thick wall structure, with good rigidity and small deformation. The surface of cylinder liner is with nitrogen treatment to improve the adaptability of inferior fuel. The wet cylinder liner is cooling with the top hole, optimize the cooling performance, inhibit the low temperature sulfide corrosion. The combustion chamber, top of the cylinder liner, is designed with a clean ring, which is combined with the piston to remove the carbon on the piston head and reduce the abrasion. Thus improving the service life of the cylinder liner, also reduces the oil consumption.

高配采用钢顶、铁裙组合活塞，增强了活塞组件抗应力冲击和热负荷的能力，延长了活塞的使用寿命，提高了工作可靠性。钢顶采用振荡冷却。锥顶与清洁环配合，保护缸套磨损，降低滑油消耗。中凸椭圆腰鼓型裙部，补偿燃烧微变。环槽中频感应淬火处理，硬度HRC52~58，使用寿命长，适于燃重油；活塞环镀铬，表面陶瓷化处理，增强耐磨性，延长了活塞环寿命。

The steel top and iron skirt combination piston for high configuration, enhanced the piston component to resist the stress impact and the thermal load capacity, extended the piston service life, improved the work reliability. The steel top adopts oscillating cooling. The cone top and the cleaning ring cooperate to protect the cylinder liner and reduce abrasion and the lubricating oil consumption. Medium convex oval waist drum skirt, compensation for combustion micro change. The ring groove is treated by medium frequency induction hardening, and the hardness HRC52~58, with long service life, suitable for burning HFO, the surface of piston ring is plated with chromium, and it is treated with ceramic treatment to enhance the wear resistance and prolong the service life of piston ring.

三段式船用连杆结构，吊缸时不拆除连杆大头，降低吊缸高度；在检查连杆瓦时不用吊缸，降低劳动强度；便于后期维修。各段贴合面研磨处理，两套双头液压拉伸器同步紧固，结构安全可靠。液压拉伸器紧固，降低了劳动强度。单缸分段式整体凸轮轴结构，每缸一段凸轮轴段，所有缸的凸轮轴轴颈相同，易于凸轮轴段的维护保养和轴承的更换，提升整机可维修性。函数凸轮型线，加速度连续，传动机构无冲击。燃油凸轮供油速率高，时间短，降低燃烧温度。

The three - section connecting rod is simple to lift piston and has low height of the lifting operation. Do not need lift piston when checking connecting rod bearing, reduce labor intensity. And it is convenient for maintenance. The connecting surface between the sections of the connecting rod is ground. The connecting rod is assembled by two sets of double - head hydraulic jack and its structure is safe and reliable. The camshaft is a sectional structure, each cylinder with a same diameters camshaft, which facilitates the replacement of bearings, and improves the maintainability of the camshaft and the whole engine. The function cam profile makes the acceleration continuous and the transmission mechanism has no impact. Fuel oil cam has high fuel oil feed rate, short feed time and low combustion temperature. The driving mechanism adopts lever type rocker arm design, while optimizing the stress condition of camshaft and roller, making the maintenance convenient.





**C.S.I. Power**  
NINGBO C.S.I. POWER & MACHINERY GROUP CO., LTD.



曲轴采用QT800材料，表面氮化处理，深度达到0.4mm,增加了曲轴的表面硬度。各缸平衡配重，自由端硅油减振器安装，增加了柴油机运行的稳定性，有效衰减曲轴扭转振动应力。双平衡可平衡绝大部分由曲柄销、连杆、活塞的旋转和往复的离心力和惯性力，减少振动，同时减轻对主轴瓦的压力。合理的油孔布置利于油膜形成，延长轴瓦使用寿命。高强度三元合金薄壁轴瓦，比压达50MPa。

The crankshaft adopts QT800 material, the surface is treated with nitriding, the depth reaches 0.4mm, and the surface hardness of the crankshaft is increased. The balance weight of each crank and the installation of the free end silicon oil damper increase the stability of the engine, and effectively attenuate the torsional vibration stress of the crankshaft. Reasonable oil hole arrangement is beneficial to the formation of oil film, extending the service life of the bearing. The thin-wall bearing is made of high strength ternary alloy material with a ratio of 50MPa.

采用整体式等压出油阀高压油泵，各缸独立回油，利于重油温度稳定；喷射压力高，最高压力达160MPa，防止低负荷穴蚀与高负荷二次喷射，降低NOx。柱塞防咬、防蚀镀层处理，能更好的适应380Cst重油使用。

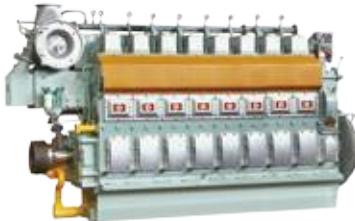
#### Fuel injection system

The oil injection pump adopts the high pressure oil pump with constant pressure outlet valve, each cylinder independently return oil, it's good for the heavy oil temperature stability. High injection pressure with maximum pressure up to 160MPa, prevent low-load cavitation erosion and high load secondary injection, and reduce NOx. Plunger anti - seizure, anti - corrosion coating treatment, can better adapt to 380Cst heavy oil use.

喷油器起阀压力380bar，油束雾化充分。采用耐高温材料，无需冷却。合适的喷孔参数，优化燃烧性能，能更好的适应380Cst重油。

The fuel injector adopts a high valve pressure of 380bar, and the oil beam atomization is sufficient. Cylinder head with oil direct cooling. Suitable injection parameters and optimized combustion performance can make it better adapt to 380Cst heavy oil.

## ■ 产品与附件 Products and Accessories



附件配置及可选件  
Standard and optional parts

冷却器 :  
Cooler:  
管壳式 ( 标配 ) 、板式 ( 可选配 )  
shell-and-tube (heat) exchanger ( standard )  
plate heat exchanger ( optional )  
盘车装置 :  
turning gear :  
手动盘车 ( 标配 )  
manual turning gear ( standard )  
调速器 :  
governor :  
液压 ( 标配 ) 、电液、电子调速器 ( 可选配 )  
hydraulic governor ( standard ) ,  
E-H governor, electronic governor ( optional )  
排气消音器 : ( 可选配 )  
silencer : ( optional )  
增压器出口膨胀节 : ( 可选配 )  
Exhaust expansion joint : ( optional )

## ■ 基本参数 General Data

项目 Item	单位 unit	参数 data
型式 Type		直列式、水冷、四冲程、直接喷射、不可逆转 Straight-line, water-cooled, four-stroke, direct injection, non-reversible
缸径×行程 Bore × Stroke	mm	210×300
排量 Displacement	L	83.1
压缩比 Comp. ratio		13
最低燃油消耗率 SFOC	g/kW·h	≤194+5%
滑油消耗率 SLOC	g/kW·h	≤0.8
起动方式 Starting system		压缩空气 compressed air
曲轴转向 Direction of rotation		右机 : 顺时针 ( 飞轮端视 ) Starboard engine: clockwise ( aft. end ) 左机 : 逆时针 ( 飞轮端视 ) Port engine: anticlockwise ( aft. end )
吊缸高度 Piston Lifting height	mm	1650

## ■ 型谱表 Specification

型号 Model	右机 starboard	N8210ZC2	N8210ZC4	N8210ZC6	N8210ZC8
	左机 port	N8210ZC3	N8210ZC5	N8210ZC7	N8210ZC9
标定功率MCR kW	588	735	882	735	
标定转速Speed rpm	600	720	720	750	
平均有效压MEP MPa	1.415	1.474	1.769	1.415	
活塞平均速度 mean piston speed m/s	6.0	7.2	7.2	7.5	

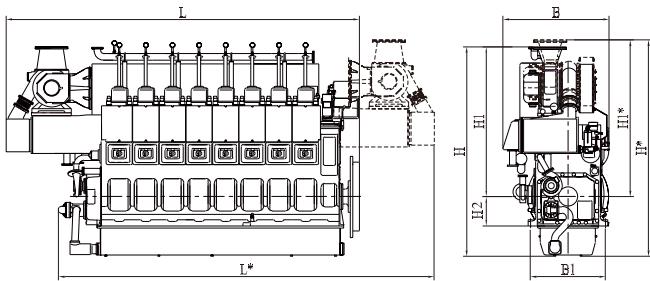
型号 Model	右机 starboard	N8210ZC10	N8210ZC12	N8210ZC14	N8210ZC16
	左机 port	N8210ZC11	N8210ZC13	N8210ZC15	N8210ZC17
标定功率MCR kW	882	1000	1103	1000	
标定转速Speed rpm	750	750	750	830	
平均有效压MEP MPa	1.698	1.925	2.124	1.740	
活塞平均速度 mean piston speed m/s	7.5	7.5	7.5	8.3	

型号 Model	右机 starboard	N8210ZC18	N8210ZC20	N8210ZC22	N8210ZC24
	左机 port	N8210ZC19	N8210ZC21	N8210ZC23	N8210ZC25
标定功率MCR kW	1103	1323	1323	1470	
标定转速Speed rpm	830	900	1000	1000	
平均有效压MEP MPa	1.919	2.123	1.910	2.123	
活塞平均速度 mean piston speed m/s	8.3	9.0	10	10	

■ 外形尺寸 Size

型号 Model	L mm	B mm	B1 mm	H mm	H1 mm	H2 mm	L* mm	H* mm	H1* mm	净重 kg
N8210ZC2/ZC3	4720	1415	1000	2870	2080	390	4930	2905	2115	15000
N8210ZC4/ZC5	4720	1415	1000	2870	2080		4930	2905	2115	15000
N8210ZC6/ZC7	4720	1415	1000	2870	2080		4930	2905	2115	15000
N8210ZC8/ZC9	4720	1415	1000	2870	2080		4930	2905	2115	15000
N8210ZC10/ZC11	4720	1415	1000	2870	2080		4930	2905	2115	15000
N8210ZC12/ZC13	4680	1415	1000	2890	2100		4835	2910	2120	15000
N8210ZC14/ZC15	4680	1415	1000	2890	2100		4835	2910	2120	15000
N8210ZC16/ZC17	4680	1415	1000	2890	2100		4835	2910	2120	15000
N8210ZC18/ZC19	4680	1415	1000	2890	2100		4835	2910	2120	15000
N8210ZC20/ZC21	4680	1415	1000	2890	2100		4835	2910	2120	15000
N8210ZC22/ZC23	4680	1415	1000	2890	2100		4835	2910	2120	15000
N8210ZC24/ZC25	4680	1415	1000	2890	2100		4835	2910	2120	15000

■ 外形图 Outline



C.S.I. Power

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## ■ 产品与附件 Products and Accessories



附件配置及可选件  
Standard and optional parts

冷却器 :  
Cooler :  
管壳式 ( 标配 ) 、板式 ( 可选配 )  
shell-and-tube (heat) exchanger ( standard ),  
plate heat exchanger ( optional )  
盘车装置 :  
turning gear :  
手动装置 ( 标准配 )  
manual turning gear ( standard )  
调速器 :  
governor :  
液压 ( 标配 ) 、电液、电子调速器 ( 可选配 )  
hydraulic governor ( standard ),  
E-H governor, electronic governor ( optional )  
排气消音器 : ( 可选配 )  
silencer : ( optional )  
增压器出口膨胀节 : ( 可选配 )  
Exhaust expansion joint : ( optional )

## ■ 基本参数 General Data

项目 Item	单位 unit	参数 data
型式 Type		直列式、水冷、四冲程、直接喷射、不可逆转 Straight-line, water-cooled, four-stroke, direct injection, non-reversible
缸径×行程 Bore × Stroke	mm	210×300
排量 Displacement	L	62.3
压缩比 Comp. ratio		15
最低燃油消耗率 SFOC	g/kW·h	≤194±5%
滑油消耗率 SLOC	g/kW·h	≤0.8
起动方式 Starting system		空气马达 Compressed-air motor
曲轴转向 Direction of rotation		右机 : 顺时针 ( 飞轮端视 ) Starboard engine: clockwise ( aft. end ) 左机 : 逆时针 ( 飞轮端视 ) Port engine: anticlockwise ( aft. end )
吊缸高度 Piston Lifting height	mm	1650

## ■ 型谱表 Specification

型号 Model	右机 starboard	N6210ZC	N6210ZC2	N6210ZC4	N6210ZC6	N6210ZC8
	左机 port	N6210ZC1	N6210ZC3	N6210ZC5	N6210ZC7	N6210ZC9
标定功率MCR kW		396	662	662	1000	1103
标定转速Speed rpm		600	720	750	900	1000
平均有效压MEP MPa		1.27	1.77	1.70	2.14	2.12
活塞平均速度 mean piston speed m/s		6.0	7.2	7.5	9	10

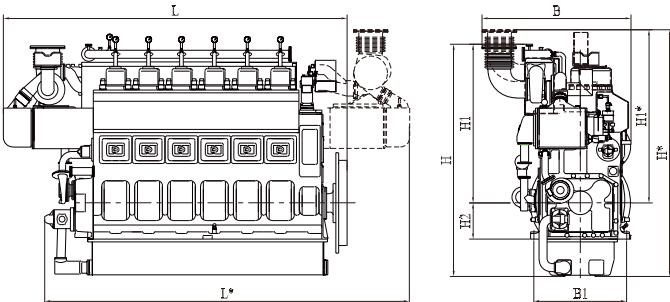
型号 Model	右机 starboard	N6210ZC10	N6210ZC12	N6210ZC14	N6210ZC16
	左机 port	N6210ZC11	N6210ZC13	N6210ZC15	N6210ZC17
标定功率MCR kW		441	551	735	809
标定转速Speed rpm		600	750	830	900
平均有效压MEP MPa		1.41	1.42	1.71	1.73
活塞平均速度 mean piston speed m/s		6.0	7.5	8.3	9.0

型号 Model	右机 starboard	N6210ZC18	N6210ZC20	N6210ZC22	N6210ZC24
	左机 port	N6210ZC19	N6210ZC21	N6210ZC23	N6210ZC25
标定功率MCR kW		882	956	1029	610
标定转速Speed rpm		1000	900	1000	720
平均有效压MEP MPa		1.70	2.05	1.98	1.63
活塞平均速度 mean piston speed m/s		10	9	10	7.2

型号 Model	右机 starboard	N6210ZC26	N6210ZC28	N6210ZC30	N6210ZC32
	左机 port	N6210ZC27	N6210ZC29	N6210ZC31	N6210ZC33
标定功率MCR kW		374	882	1000	993
标定转速Speed rpm		600	900	1000	1000
平均有效压MEP MPa		1.20	1.89	1.93	1.91
活塞平均速度 mean piston speed m/s		6.0	9.0	10	10

型号 Model	右机 starboard	N6210ZC34	N6210ZC36	N6210ZC38	N6210ZC52
	左机 port	N6210ZC35	N6210ZC37	N6210ZC39	N6210ZC53
标定功率MCR kW		956	809	400	720
标定转速Speed rpm		1000	1000	600	750
平均有效压MEP MPa		1.84	1.56	1.28	1.85
活塞平均速度 mean piston speed m/s		10	10	6.0	7.5

## ■ 外形图 Outline



## ■ 外形尺寸 Size

型号 Model	L mm	B mm	B1 mm	H mm	H1 mm	H2 mm	L* mm	H* mm	H1* mm	净重 weight kg
N6210ZC/ZC1	3710	1600	1000	2580	1790		3940	2665	1875	12500
N6210ZC2/ZC3	3710	1600	1000	2580	1790		3940	2665	1875	12500
N6210ZC4/ZC5	3710	1600	1000	2580	1790		3940	2665	1875	12500
N6210ZC6/ZC7	3750	1590	1000	2635	1845		3955	2730	1940	12500
N6210ZC8/ZC9	3750	1590	1000	2635	1845		3955	2730	1940	12500
N6210ZC10/ZC11	3710	1600	1000	2580	1790		3940	2665	1875	12500
N6210ZC12/ZC13	3710	1600	1000	2580	1790		3940	2665	1875	12500
N6210ZC14/ZC15	3710	1600	1000	2580	1790		3940	2665	1875	12500
N6210ZC16/ZC17	3710	1600	1000	2580	1790		3940	2665	1875	12500
N6210ZC18/ZC19	3710	1600	1000	2580	1790		3940	2665	1875	12500
N6210ZC20/ZC21	3750	1590	1000	2635	1845		3955	2730	1940	12500
N6210ZC22/ZC23	3750	1590	1000	2635	1845		3955	2730	1940	12500
N6210ZC24/ZC25	3710	1600	1000	2580	1790		3940	2665	1875	12500
N6210ZC26/ZC27	3710	1600	1000	2580	1790		3940	2665	1875	12500
N6210ZC28/ZC29	3750	1590	1000	2635	1845		3955	2730	1940	12500
N6210ZC30/ZC31	3750	1590	1000	2635	1845		3955	2730	1940	12500
N6210ZC32/ZC33	3750	1590	1000	2635	1845		3955	2730	1940	12500
N6210ZC34/ZC35	3750	1590	1000	2635	1845		3955	2730	1940	12500
N6210ZC36/ZC37	3710	1600	1000	2580	1790		3940	2665	1875	12500
N6210ZC38/ZC39	3710	1600	1000	2580	1790		3940	2665	1875	12500
N6210ZC52/ZC53	3710	1600	1000	2580	1790		3940	2665	1875	12500

390



C.S.I. POWER

## ■ 产品与附件 Products and Accessories



**附件配置及可选件**  
Standard and optional parts

冷却器 :  
Cooler :  
管壳式 ( 标配 )  
shell-and-tube (heat)  
调速器 :  
governor :  
机械调速器 ( 标配 ) 、电子调速器 ( 可选配 )  
mechanical governor ( standard ) 、  
electronic governor ( optional )  
排气消音器 : ( 可选配 )  
silencer : ( optional )  
增压器出口膨胀节 : ( 标配 )  
Exhaust expansion joint : ( standard )

## ■ 基本参数 General Data

项目 Item	单位 unit	参数 data
型式 Type		直列式、水冷、四冲程、直接喷射、不可逆转 Straight-line, water-cooled, four-stroke, direct injection, non-reversible
缸径×行程 Bore × Stroke	mm	170×200
排量 Displacement	L	36.29
压缩比 Comp. ratio		14.5
最低燃油消耗率 SFOC	g/kW·h	≤196 <sup>-3</sup> %
滑油消耗率 SLOC	g/kW·h	≤0.7
起动方式 Starting system		空气马达或电马达 Compressed-air motor/ electric motor
曲轴转向 Direction of rotation		右机 : 逆时针 ( 飞轮端视 ) Starboard engine: anticlockwise ( aft. end ) 左机 : 顺时针 ( 飞轮端视 ) Port engine: clockwise ( aft. end )
吊缸高度 Piston Lifting height	mm	3800
外形尺寸 Size	mm	3180×1360×1680 ( L×W×H )
重量 Weight	Kg	3800

## ■ 型谱表 Specification

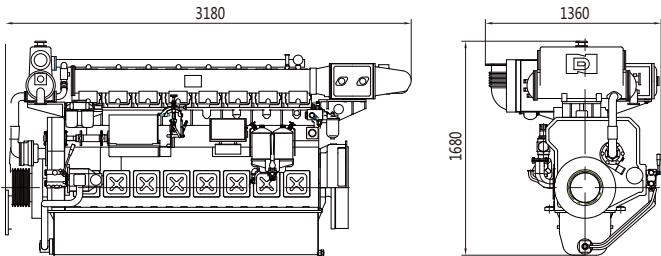
型号 Model	右机 starboard	N8170Z <sub>l</sub> C1	N8170Z <sub>l</sub> C2	N8170Z <sub>l</sub> C3	N8170Z <sub>l</sub> C4
	左机 port	NZ8170Z <sub>l</sub> C1	NZ8170Z <sub>l</sub> C2	NZ8170Z <sub>l</sub> C3	NZ8170Z <sub>l</sub> C4
标定功率MCR kW		441	480	540	600
标定转速Speed rpm		1000	1200	1350	1500
平均有效压MEP MPa		1.46	1.32	1.32	1.32
活塞平均速度 mean piston speed m/s		6.67	8.0	9.0	10

型号 Model	右机 starboard	N8170Z <sub>l</sub> C5	N8170Z <sub>l</sub> C6	N8170Z <sub>l</sub> C7	N8170Z <sub>l</sub> C8
	左机 port	NZ8170Z <sub>l</sub> C5	NZ8170Z <sub>l</sub> C6	NZ8170Z <sub>l</sub> C7	NZ8170Z <sub>l</sub> C8
标定功率MCR kW		480	529	600	575
标定转速Speed rpm		1000	1200	1350	1350
平均有效压MEP MPa		1.58	1.46	1.47	1.41
活塞平均速度 mean piston speed m/s		6.67	8.0	9.0	9.0

型号 Model	右机 starboard	N8170Z <sub>l</sub> C9	N8170Z <sub>l</sub> C10	N8170Z <sub>l</sub> C11	N8170Z <sub>l</sub> C12
	左机 port	NZ8170Z <sub>l</sub> C9	NZ8170Z <sub>l</sub> C10	NZ8170Z <sub>l</sub> C11	NZ8170Z <sub>l</sub> C12
标定功率MCR kW		300	350	400	400
标定转速Speed rpm		1000	1000	1000	1200
平均有效压MEP MPa		0.992	1.157	1.323	1.102
活塞平均速度 mean piston speed m/s		6.67	6.67	6.67	8.0

型号 Model	右机 starboard	N8170Z_C13	N8170Z_C14	N8170Z_C15	N8170Z_C16	N8170Z_C17
	左机 port	NZ8170Z_C13	NZ8170Z_C14	NZ8170Z_C15	NZ8170Z_C16	NZ8170Z_C17
标定功率MCR kW	450	450	500	440	440	
标定转速Speed rpm	1200	1350	1500	1000	1200	
平均有效压MEP MPa	1.24	1.10	1.10	1.45	1.21	
活塞平均速度 mean piston speed m/s	8.0	9.0	10	6.67	8.0	

### ■ 外形图 Outline



**C.S.I. Power**

NINGBO C.S.I. POWER & MACHINERY GROUP CO., LTD.



## ■ 产品与附件 Products and Accessories



**附件配置及可选件**  
Standard and optional parts

冷却器 :  
Cooler :  
管壳式 ( 标配 )  
shell-and-tube (heat) exchanger ( standard ),  
调速器 :  
governor :  
机械调速器 ( 标配 ) , 电子调速器 ( 可选配 )  
mechanical governor ( standard ), electronic governor ( optional )  
排气消音器 : ( 可选配 )  
silencer : ( optional )  
增压器出口膨胀节 : ( 标配 )  
Exhaust expansion joint : ( standard )

## ■ 基本参数 General Data

项目 Item	单位 unit	参数 data
型式 Type		直列式、水冷、四冲程、直接喷射、不可逆转 Straight-line, water-cooled, four-stroke, direct injection, non-reversible
缸径×行程 Bore × Stroke	mm	170×200
排量 Displacement	L	27.22
压缩比 Comp. ratio		14.5
最低燃油消耗率 SFOC	g/kW·h	≤196 <sup>+3%</sup>
滑油消耗率 SLOC	g/kW·h	≤0.7
起动方式 Starting system		空气马达或电马达 Compressed-air motor/ electric motor
曲轴转向 Direction of rotation	右机 : 逆时针 ( 飞轮端视 ) Starboard engine: anticlockwise ( aft. end ) 左机 : 顺时针 ( 飞轮端视 ) Port engine: clockwise ( aft. end )	
吊缸高度 Piston Lifting height	mm	1260
外形尺寸 Size	mm	2730×1320×1670 ( L×W×H )
重量 Weight	Kg	3200

## ■ 型谱表 Specification

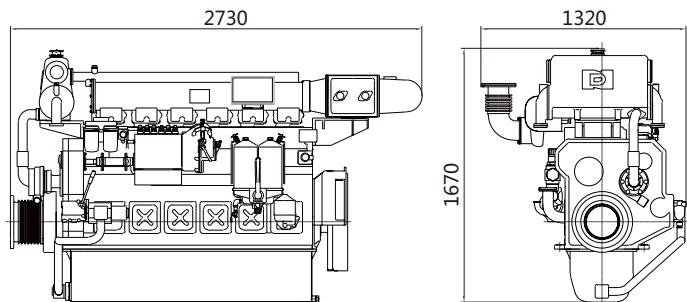
型号 Model	右机 starboard	N6170Z <sub>l</sub> C1	N6170Z <sub>l</sub> C2	N6170Z <sub>l</sub> C3	N6170Z <sub>l</sub> C4	N6170Z <sub>l</sub> C5
	左机 port	NZ6170Z <sub>l</sub> C1	NZ6170Z <sub>l</sub> C2	NZ6170Z <sub>l</sub> C3	NZ6170Z <sub>l</sub> C4	NZ6170Z <sub>l</sub> C5
标定功率MCR kW	220	250	294	330	250	
标定转速Speed rpm	1000	1000	1000	1000	1200	
平均有效压MEP MPa	0.97	1.02	1.29	1.459	0.918	
活塞平均速度 mean piston speed m/s	6.67	6.67	6.67	6.67	8.0	

型号 Model	右机 starboard	N6170Z <sub>l</sub> C6	N6170Z <sub>l</sub> C7	N6170Z <sub>l</sub> C8	N8170Z <sub>l</sub> C9
	左机 port	NZ6170Z <sub>l</sub> C6	NZ6170Z <sub>l</sub> C7	NZ6170Z <sub>l</sub> C8	NZ8170Z <sub>l</sub> C9
标定功率MCR kW	294	330	350	385	
标定转速Speed rpm	1200	1200	1200	1200	
平均有效压MEP MPa	1.080	1.212	1.286	1.414	
活塞平均速度 mean piston speed m/s	8.0	8.0	8.0	8.0	

型号 Model	右机 starboard	N6170Z <sub>l</sub> C10	N6170Z <sub>l</sub> C11	N6170Z <sub>l</sub> C12	N6170Z <sub>l</sub> C13
	左机 port	NZ6170Z <sub>l</sub> C10	NZ6170Z <sub>l</sub> C11	NZ6170Z <sub>l</sub> C12	NZ6170Z <sub>l</sub> C13
标定功率MCR kW	350	400	430	400	
标定转速Speed rpm	1350	1350	1350	1500	
平均有效压MEP MPa	1.157	1.306	1.404	1.176	
活塞平均速度 mean piston speed m/s	9.0	9.0	9.0	10	

型号 Model	右机 starboard	N6170Z_C14	N6170Z_C15	N6170Z_C16	N6170Z_C17
左机 port	NZ6170Z_C14	NZ6170Z_C15	NZ6170Z_C16	NZ6170Z_C17	
标定功率MCR kW	450	225	210	300	
标定转速Speed rpm	1500	1200	1000	1000	
平均有效压MEP MPa	1.323	0.827	0.926	1.320	
活塞平均速度 mean piston speed m/s	10	8.0	6.67	6.67	

### ■ 外形图 Outline



## ■ 产品与附件 Products and Accessories



附件配置及可选件  
Standard and optional parts

冷却器 :  
Cooler :  
管壳式 ( 标配 )  
shell-and-tube (heat) exchanger ( standard ),  
调速器 :  
governor :  
机械调速器 ( 标配 ) 、电子调速器 ( 可选配 )  
mechanical governor ( standard ) 、  
electronic governor ( optional )  
排气消音器 : ( 可选配 )  
silencer : ( optional )  
增压器出口膨胀节 : ( 可选配 )  
Exhaust expansion joint : ( optional )

## ■ 基本参数 General Data

项目 Item	单位 unit	参数 data
型式 Type		直列式、水冷、四冲程、直接喷射、不可逆转 Straight-line, water-cooled, four-stroke, direct injection, non-reversible
缸径×行程 Bore × Stroke	mm	160×200
排量 Displacement	L	32.3
压缩比 Comp. ratio		13.5
最低燃油消耗率 SFOC	g/kW·h	≤200+3%
滑油消耗率 SLOC	g/kW·h	≤0.8
起动方式 Starting system		空气马达或电马达 Compressed-air motor/ electric motor
曲轴转向 Direction of rotation		右机：逆时针（飞轮端视）；左机：顺时针（飞轮端视） Starboard engine: anticlockwise ( aft. end ) Port engine: clockwise ( aft. end )
吊缸高度 Piston Lifting height	mm	1260
外形尺寸 Size	mm	3130×1215×1640 ( L×W×H )
重量 Weight	Kg	3800

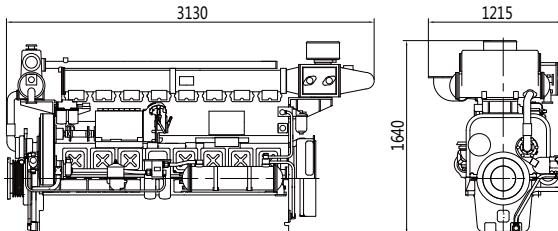
## ■ 型谱表 Specification

型号 Model	右机	N8160Z_C	N8160Z_CA	N8160Z_C2	N8160Z_C2A
	左机	N8160Z_C_9	N8160Z_C_11	N8160Z_C_3	N8160Z_C_5
标定功率kW	400	353	400	353	
标定转速r/min	1000	1000	1200	1200	
平均有效压MPa	1.49	1.32	1.24	1.10	
活塞平均速度m/s	6.67	6.67	8	8	

型号 Model	右机	N8160Z_C6	N8160Z_C6A	N8160Z_C12	N8160Z_C14
	左机	N8160Z_C_13	N8160Z_C_7	N8160Z_C_15	N8160Z_C_17
标定功率kW	330	330	434	441	
标定转速r/min	1000	1200	1200	1000	
平均有效压MPa	1.12	1.03	1.35	1.64	
活塞平均速度m/s	6.67	8	8	6.67	

型号 Model	右机 starboard	N8160Z_C16	N8160Z_C16A	N8160Z_C18
	左机 port	N8160Z_C_19	N8160Z_C_19A	N8160Z_C_21
标定功率MCR kW	464	464	478	
标定转速Speed rpm	1000	1200	1200	
平均有效压MEP MPa	1.73	1.44	1.49	
活塞平均速度 mean piston speed m/s	6.67	8	8	

## ■ 外形图 Outline



## ■ 产品与附件 Products and Accessories



### 附件配置及可选件 Standard and optional parts

冷却器 :  
Cooler :  
管壳式 ( 标配 )  
shell-and-tube (heat) exchanger ( standard ) ,  
调速器 :  
governor :  
机械调速器 ( 标配 ) 、电子调速器 ( 可选配 )  
mechanical governor ( standard ) 、  
electronic governor ( optional )  
排气消音器 : ( 可选配 )  
silencer : ( optional )  
增压器出口膨胀节 : ( 可选配 )  
Exhaust expansion joint : ( optional )

## ■ 基本参数 General Data

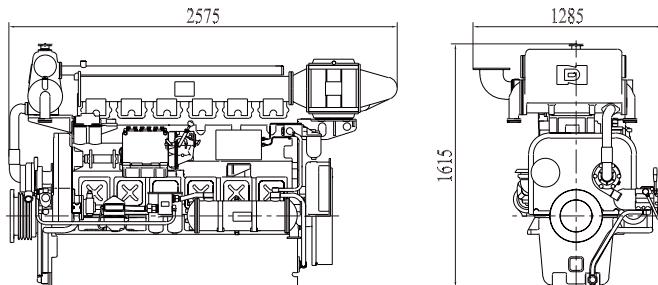
项目 Item	单位 unit	参数 data
型式 Type		直列式、水冷、四冲程、直接喷射、不可逆转 Straight-line, water-cooled, four-stroke, direct injection, non-reversible
缸径×行程 Bore × Stroke	mm	160×200
排量 Displacement	L	24.1
压缩比 Comp. ratio		15.5 ( ≤235.3kW ) 13.5 ( >235.3kW )
最低燃油消耗率 SFOC	g/kW·h	≤200 <sup>+3%</sup>
滑油消耗率 SLOC	g/kW·h	≤0.7
起动方式 Starting system		空气马达或电马达 Compressed-air motor/ electric motor
曲轴转向 Direction of rotation		右机 : 逆时针 ( 飞轮端视 ) Starboard engine: anticlockwise ( aft. end ) 左机 : 顺时针 ( 飞轮端视 ) Port engine: clockwise ( aft. end )
吊缸高度 Piston Lifting height	mm	1260
外形尺寸 Size	mm	2575×1285×1615 ( L×W×H )
重量 Weight	Kg	3200

## ■ 型谱表 Specification

型号 Model	右机 starboard	N6160Z <sub>l</sub> C4	N6160Z <sub>l</sub> C2	N6160Z <sub>l</sub> C4	N6160Z <sub>l</sub> C4A
	左机 port	N6160Z <sub>l</sub> C <sub>z</sub> 1A	N6160Z <sub>l</sub> C <sub>z</sub> 3	N6160Z <sub>l</sub> C <sub>z</sub> 7A	N6160Z <sub>l</sub> C <sub>z</sub> 5A
标定功率MCR kW		220	235.3	294	265
标定转速Speed rpm		1000	1000	1200	1200
平均有效压MEP MPa		1.098	1.17	1.22	1.10
活塞平均速度 mean piston speed m/s		6.67	6.67	8	8

型号 Model	右机 starboard	N6160Z <sub>l</sub> C6	N6160Z <sub>l</sub> C6A	N6160Z <sub>l</sub> C10	N6160Z <sub>l</sub> C12
	左机 port	N6160Z <sub>l</sub> C <sub>z</sub> 7	N6160Z <sub>l</sub> C <sub>z</sub> 5	N6160Z <sub>l</sub> C <sub>z</sub> 11	N6160Z <sub>l</sub> C <sub>z</sub> 13
标定功率MCR kW		294	265	235.3	331
标定转速Speed rpm		1000	1000	1200	1200
平均有效压MEP MPa		1.46	1.32	0.98	1.37
活塞平均速度 mean piston speed m/s		6.67	6.67	8	8

## ■ 外形图



# 双燃料发动机简介

INTRODUCTION TO DUAL FUEL ENGINES



宁动牌双燃料系列发动机是以柴油或重油为引火燃料，天然气（甲烷）为主燃料的发动机；

The Ning Dong dual-fuel series engine is powered by diesel or heavy oil as the fuel for ignition and natural gas (methane) as the main fuel.

发动机可在燃油和燃气两种模式下转换

The engine can be converted in both fuel and dual-fuel modes.

该机是在常规柴油机的基础上，自主研制的新一代节能、环保型的中速发动机。The engine is a new generation of energy-saving and environment-friendly medium-speed engine developed on the basis of diesel engine.

可广泛应用于LNG运输船、渔船、长江航运、客货轮、工程船、天然气钻井平台和陆用电站等；

It can be widely used in LNG carriers, fishing boats, river shipping, passenger freighters, engineering ships, natural gas drilling platforms and power plant.

## 主要特点

main characteristic

双燃料发动机燃气进气管路按本安型双壁管设计；

The gas inlet pipe of dual - fuel engine is designed by intrinsically safe type of double wall tube.

采用多点燃气喷射系统，精准控制燃气喷射正时：可优化单缸燃烧，消除各缸不均匀现象；不产生回火现象；由于燃气进气系统距离气缸较近，有利于改进突变负荷时的响应性能；

A multi-point gas injection system is adopted to accurately control the of gas injection timing. Optimize single cylinder combustion to eliminate uneven of cylinders. There is no flashback. Because the gas injection system is close to the cylinder, it is helpful to improve the response performance of the sudden load.

发动机在柴油/重油或双燃料状态下工作，具有相同的功率输出，并无扰切换；

The engine works in DO/HFO or dual fuel mode with the same power output and has no effect on the mode conversion.

燃气替代率可到达80%，燃气热效率可到达42%；

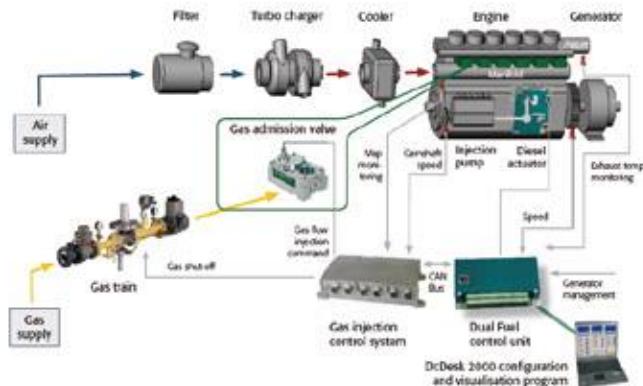
The gas replacement rate is 80% and the gas thermal efficiency is 42%.

进、排气管装有防爆阀，意外发生时快速释放压力；

The inlet and exhaust pipe are equipped with relief valve, which can release pressure quickly when accident occurs.

相比柴油模式可以减少35%氮氧化物排放；

Compared to the diesel mode, it can reduce the emission of NOx by 35%.



## ■ 产品与附件 Products and Accessories



附件配置及可选件  
Standard and optional parts

冷却器 :  
Cooler :  
管壳式 ( 标配 ) 、板式 ( 可选配 )  
shell-and-tube (heat) exchanger ( standard ),  
plate heat exchanger ( optional )  
盘车装置 :  
turning gear :  
电动盘车 ( 标配 )  
Electric turning gear ( standard )  
调速器 :  
governor :  
液压 ( 标配 ) 、电液、电子调速器 ( 可选配 )  
hydraulic governor ( standard ),  
E-H governor, electronic governor ( optional )  
排气消音器 : ( 可选配 )  
silencer : ( optional )  
增压器出口膨胀节 : ( 可选配 )  
Exhaust expansion joint : ( optional )

## ■ 基本参数 General Data

项目 Item	单位 unit	参数 data
型式 Type		直列式、水冷、四冲程、直接喷射、不可逆转 Straight-line, water-cooled, four-stroke, direct injection, non-reversible
缸径×行程 Bore × Stroke	mm	330×450
排量 Displacement	L	307.8
压缩比 Comp. ratio		13.5
最低燃油消耗率 SFOC	g/kW·h	≤186+5% ( 纯燃油模式 fuel modes )
最低燃气消耗率 SFOC	KJ/kW·h	≤8600 ( 标定点 MCR )
滑油消耗率 SLOC	g/kW·h	≤0.8
燃气供应压力 Gas supply pressure	bar	4~6

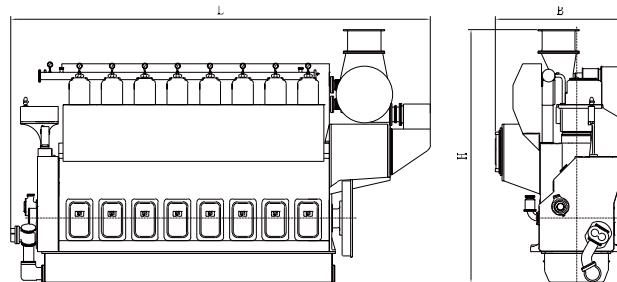
## ■ 基本参数 General Data

替代率 Substitution rate		70~85% ( 50%~100% 标定功率 MCR )
起动方式 Starting system		压缩空气 compressed air
曲轴转向 Direction of rotation		顺时针 ( 飞轮端视 ) clockwise ( aft. end )
吊缸高度 Piston Lifting height	mm	2400

## ■ 型谱表 Specification

型号 Model	标定功率 Rated output kW	标定转速 Rated speed rpm	平均有效压力 MEP MPa	外形尺寸 Size mm			净重 weight kg
				L	B	H	
DF8330ZC	2648	620	1.66	6825	1925	3795	48000
DF8330ZC2	2970	650	1.78	6825	1925	3795	48000
DF8330ZC4	3310	650	1.98	6825	1925	3795	48000
DF8330ZC6	3000	620	1.89	6825	1925	3795	48000
DF8330ZC8	2970	620	1.87	6825	1925	3795	48000
DF8330ZC10	3089	650	1.85	6825	1925	3795	48000

## ■ 外形图



## ■ 产品与附件 Products and Accessories



附件配置及可选件  
Standard and optional parts

冷却器 :  
Cooler :  
管壳式 ( 标配 ) 、板式 ( 可选配 )  
shell-and-tube (heat) exchanger ( standard ),  
plate heat exchanger ( optional )  
盘车装置 :  
turning gear :  
电动盘车 ( 标配 )  
Electric turning gear ( standard )  
调速器 :  
governor :  
液压 ( 标配 ) 、电液、电子调速器 ( 可选配 )  
hydraulic governor ( standard ),  
E-H governor, electronic governor ( optional )  
排气消音器 : ( 可选配 )  
silencer : ( optional )  
增压器出口膨胀节 : ( 可选配 )  
Exhaust expansion joint : ( optional )

## ■ 基本参数 General Data

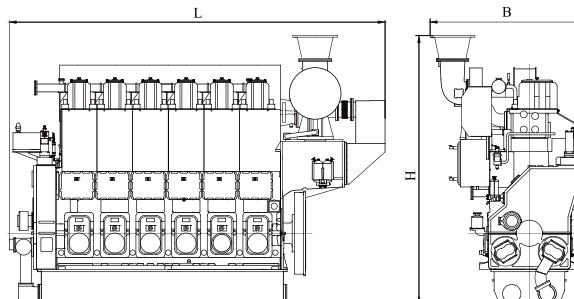
项目 Item	单位 unit	参数 data
型式 Type		直列式、水冷、四冲程、直接喷射、不可逆转 Straight-line, water-cooled, four-stroke, direct injection, non-reversible
缸径×行程 Bore × Stroke	mm	330×450
排量 Displacement	L	230.9
压缩比 Comp. ratio		13.5
最低燃油消耗率 SFOC	g/kW·h	≤186+5% ( 纯燃油模式 fuel mode )
最低燃气消耗率 SFGC	KJ/kW·h	≤8600 ( 标定功率 MCR )
滑油消耗率 SLOC	g/kW·h	≤0.8
燃气供应压力 Gas supply pressure	bar	4~6

替代率 Substitution rate		70~85% ( 50%~100% 标定功率 MCR )
起动方式 Starting system		压缩空气 compressed air
曲轴转向 Direction of rotation		顺时针 ( 飞轮端视 ) clockwise ( aft. end )
吊缸高度 Piston Lifting height	mm	2400

## ■ 型谱表 Specification

型号 Model	标定功率 Rated output kW	标定转速 Rated speed rpm	平均有效压力 MEP MPa	外形尺寸 Size mm			净重 weight kg
				L	B	H	
DF6330ZC	1765	620	1.67	5435	2260	3880	36000
DF6330ZC2	2000	650	1.73	5435	2260	3880	36000
DF6330ZC8	2206	650	1.91	5435	2260	3880	36000
DF6330ZC10	2000	620	1.67	5435	2260	3880	36000
DF6330ZC14	2206	620	1.85	5435	2260	3880	36000
DF6330ZC16	2427	650	1.94	5435	2260	3880	36000
DF6330ZC18	2500	650	2.00	5435	2260	3880	36000
DF6330ZC20	2427	620	2.03	5435	2260	3880	36000

## ■ 外形图 Outline



## ■ 产品与附件 Products and Accessories



### 附件配置及可选件

#### Standard and optional parts

##### 冷却器 :

Cooler :

管壳式 ( 标配 ) 、板式 ( 可选配 )  
shell-and-tube (heat) exchanger ( standard ),  
plate heat exchanger ( optional )

##### 盘车装置 :

turning gear :

手动 ( 标配 ) 、电动盘车 ( 选配 )  
manual ( standard ),  
Electric turning gear ( optional )

##### 调速器 :

governor :

液压 ( 标配 ) 、电液、电子调速器 ( 可选配 )  
hydraulic governor ( standard ),  
E-H governor, electronic governor ( optional )

##### 排气消音器 : ( 可选配 )

silencer : ( optional )

增压器出口膨胀节 : ( 可选配 )  
Exhaust expansion joint : ( optional )

## ■ 基本参数 General Data

项目 Item	单位 unit	参数 data
型式 Type		直列式、水冷、四冲程、直接喷射、不可逆转 Straight-line, water-cooled, four-stroke, direct injection, non-reversible
缸径×行程 Bore × Stroke	mm	330×380
排量 Displacement	L	215
压缩比 Comp. ratio		13
最低燃油消耗率 SFOC	g/kW·h	≤195 <sup>+5%</sup> , ( 纯燃油模式 fuel mode )
最低燃气消耗率 SFGC	KJ/kW·h	≤9000 ( 标定功率 MCR )
滑油消耗率 SLOC	g/kW·h	≤0.8
燃气供应压力 Gas supply pressure	bar	4~6

替代率 Substitution rate		70~85% ( 50%~100% 标定功率 MCR )
起动方式 Starting system		压缩空气 compressed air
曲轴转向 Direction of rotation		右机 : 顺时针 ( 飞轮端视 ) Starboard engine: clockwise ( aft. end ) 左机 : 逆时针 ( 飞轮端视 ) Port engine: anticlockwise ( aft. end )
吊缸高度 Piston Lifting height	mm	2600

## ■ 型谱表 Specification

型号 Model	右机 starboard	DF8300ZC6	DF8300ZC8	DF8300ZC10	DF8300ZC12
	左机 port	DF8300ZC7	DF8300ZC9	DF8300ZC11	DF8300ZC13
标定功率MCR kW	1471	1500	1471	1618	
标定转速Speed rpm	500	500	550	550	
平均有效压MEP MPa	1.64	1.68	1.49	1.64	
活塞平均速度 mean piston speed m/s	6.33	6.33	6.97	6.97	

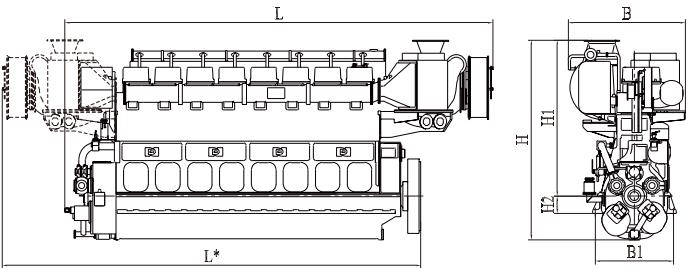
型号 Model	右机 starboard	DF8300ZC14	DF8300ZC16	DF8300ZC18	DF8300ZC20
	左机 port	DF8300ZC15	DF8300ZC17	DF8300ZC19	DF8300ZC21
标定功率MCR kW	1765	1838	1912	2000	
标定转速Speed rpm	600	630	650	720	
平均有效压MEP MPa	1.64	1.63	1.64	1.55	
活塞平均速度 mean piston speed m/s	7.6	7.98	8.23	9.12	

型号 Model	右机 starboard	DF8300ZC22	DF8300ZC24
	左机 port	DF8300ZC23	DF8300ZC25
标定功率MCR kW	2100	2206	
标定转速Speed rpm	720	750	
平均有效压MEP MPa	1.63	1.64	
活塞平均速度 mean piston speed m/s	9.12	9.5	

■ 外形尺寸 Size

型号 Generator model	L mm	B mm	B1 mm	H mm	H1 mm	H2 mm	L* mm	重量 Weight Kg
DF8300ZC6/7	5950	1575	1150	2875	250	2235	5835	21500
DF8300ZC8/9	5950	1575		2875		2235	5835	
DF8300ZC10/11	5950	1575		2875		2235	5835	
DF8300ZC12/13	6300	1725		2940		2300	6160	22500
DF8300ZC14/15	6300	1725		2940		2300	6160	
DF8300ZC16/17	5950	1575		2875		2300	5835	21500
DF8300ZC18/19	5950	1575		2875		2300	5835	
DF8300ZC20/21	6300	1725		2940		2300	6160	22500
DF8300ZC22/23	6300	1725		2940		2300	6160	
DF8300ZC24/25	6300	1725		2940		2300	6160	

■ 外形图 Outline



C.S.I. Power

NINGBO C.S.I. POWER & MACHINERY GROUP CO., LTD.



## ■ 产品与附件 Products and Accessories



### 附件配置及可选件 Standard and optional parts

冷却器 :  
Cooler :  
管壳式 ( 标配 ) 、板式 ( 可选配 )  
shell-and-tube (heat) exchanger ( standard ),  
plate heat exchanger ( optional )  
盘车装置 :  
turning gear :  
手动 ( 标配 ) 、电动盘车 ( 选配 )  
manual ( standard ),  
Electric turning gear ( optional )  
调速器 :  
governor :  
液压 ( 标配 ) 、电液、电子调速器 ( 可选配 )  
hydraulic governor ( standard ),  
E-H governor, electronic governor ( optional )  
排气消音器 : ( 可选配 )  
silencer : ( optional )  
增压器出口膨胀节 : ( 可选配 )  
Exhaust expansion joint : ( optional )

## ■ 基本参数 General Data

项目 Item	单位 unit	参数 data
型式 Type		直列式、水冷、四冲程。直接喷射。不可逆转 Straight-line, water-cooled, four-stroke, direct injection, non-reversible
缸径×行程 Bore × Stroke	mm	300×380
排量 Displacement	L	161
压缩比 Comp. ratio		13
最低燃油消耗率 SFOC	g/kW·h	≤195+5% ( 纯燃油模式 fuel modes )
最低燃气消耗率 SFGC	KJ/kW·h	≤9000 ( 标定功率MCR )
滑油消耗率 SLOC	g/kW·h	≤0.8
燃气供应压力 Gas supply pressure	bar	4~6
替代率 Substitution rate		70~85% ( 50%~100% 标定功率MCR )

起动方式 Starting system		压缩空气 compressed air
曲轴转向 Direction of rotation		右机 : 顺时针 ( 飞轮端视 ) Starboard engine: clockwise ( aft. end ) 左机 : 逆时针 ( 飞轮端视 ) Port engine: anticlockwise ( aft. end )
吊缸高度 Piston Lifting height	mm	2600

## ■ 型谱表 Specification

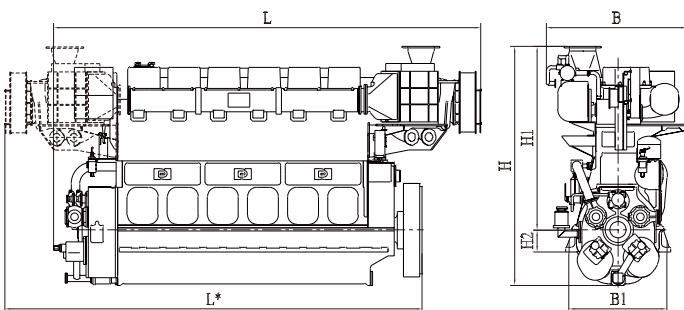
型号 Model	右机 starboard	DF6300ZC	DF6300ZCA	DF6300ZC6	DF6300ZC8
	左机 port	DF6300ZC1	DF6300ZCA1	DF6300ZC7	DF6300ZC9
标定功率MCR kW		750	735	1103	993
标定转速Speed rpm		400	500	500	500
平均有效压MEP MPa		1.4	1.10	1.64	1.48
活塞平均速度 mean piston speed m/s		5.07	6.38	6.33	6.33

型号 Model	右机 starboard	DF6300ZC10	DF6300ZC12	DF6300ZC14	DF6300ZC16
	左机 port	DF6300ZC11	DF6300ZC13	DF6300ZC15	DF6300ZC17
标定功率MCR kW		971	882	551	662
标定转速Speed rpm		428	400	400	400
平均有效压MEP MPa		1.69	1.64	1.02	1.23
活塞平均速度 mean piston speed m/s		5.42	5.07	5.07	5.07

型号 Model	右机 starboard	DF6300ZC18	DF6300ZC20	DF6300ZC22	DF6300ZC24
	左机 port	DF6300ZC19	DF6300ZC21	DF6300ZC23	DF6300ZC25
标定功率MCR kW		1200	1323	1471	1500
标定转速Speed rpm		550	600	670	720
平均有效压MEP MPa		1.63	1.64	1.64	1.55
活塞平均速度 mean piston speed m/s		6.97	7.6	8.49	9.12

型号 Model	右机 starboard	DF6300ZC26	DF6300ZC28
	左机 port	DF6300ZC27	DF6300ZC29
标定功率MCR kW		1471	1618
标定转速Speed rpm		750	750
平均有效压MEP MPa		1.46	1.60
活塞平均速度 mean piston speed m/s		9.5	9.5

## ■ 外形图 Outline



## ■ 外形尺寸 Size

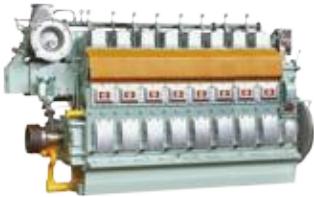
型号 Model	L mm	B mm	B1 mm	H mm	H2 mm	H1 mm	L* mm	重量 Weight Kg
DF6300ZC/1	5020	1580	1150	2780	2140	250	4895	17500
DF6300ZCA/A1	5020	1580		2780	2140		4895	17500
DF6300ZC6B/7B	5020	1580		2780	2140		4895	17500
DF 6300ZC8B/9B	5020	1580		2780	2140		4895	17500
DF 6300ZC10B/11B	5020	1580		2780	2140		4895	17500
DF 6300ZC12B/13B	5020	1580		2780	2140		4895	17500
DF 6300ZC14B/15B	5020	1580		2780	2140		4895	17500
DF 6300ZC16B/17B	5020	1580		2780	2140		4870	17500
DF 6300ZC18B/19B	5020	1580		2780	2140		4895	17500
DF 6300ZC20B/21B	5020	1580		2780	2140		4895	17500
DF 6300ZC26B/27B	5020	1580		2780	2140		4870	17500
DF 6300ZC28B/29B	5020	1580		2780	2140		4870	17500

**C.S.I. Power**

NINGBO C.S.I. POWER & MACHINERY GROUP CO., LTD.



## ■ 产品与附件 Products and Accessories



附件配置及可选件  
Standard and optional parts

冷却器：  
Cooler：  
管壳式（标配）、板式（可选配）  
shell-and-tube (heat) exchanger ( standard ),  
plate heat exchanger ( optional )  
调速器：  
governor：  
液压（标配）、电液、电子调速器（可选配）  
hydraulic governor ( standard ),  
E-H governor, electronic governor ( optional )  
排气消音器：（可选配）  
silencer : ( optional )  
增压器出口膨胀节：（可选配）  
Exhaust expansion joint : ( optional )

## ■ 基本参数 General Data

项目 Item	单位 unit	参数 data
型式 Type		直列式、水冷、四冲程、直接喷射、不可逆转 Straight-line, water-cooled, four-stroke, direct injection, non-reversible
缸径×行程 Bore × Stroke	mm	210×300
排量 Displacement	L	83.1
压缩比 Comp. ratio		15
最低燃油消耗率 SFOC	g/kW·h	≤194 <sup>+5%</sup> ( 纯燃油模式 fuel modes )
最低燃气消耗率 SFGC	KJ/kW·h	≤9000 ( 标定功率MCR )
滑油消耗率 SLOC	g/kW·h	≤0.8
燃气供应压力 Gas supply pressure	bar	4~6
替代率 Substitution rate		70~85% ( 50%~100% 标定功率MCR )
起动方式 Starting system		空气马达 Compressed-air motor

曲轴转向 Direction of rotation		右机：顺时针（飞轮端视）Starboard engine: clockwise ( aft. end )
		左机：逆时针（飞轮端视）Port engine: anticlockwise ( aft. end )
吊缸高度 Piston Lifting height	mm	1650

## ■ 型谱表 Specification

型号 Model	右机 starboard	DF8210ZC2	DF8210ZC8	DF8210ZC28	DF8210ZC30
型号 Model	左机 port	DF8210ZC3	DF8210ZC9	DF8210ZC29	DF8210ZC31
标定功率MCR kW	588	735	600	662	
标定转速Speed rpm	600	750	720	720	
平均有效压MEP MPa	1.415	1.415	1.2	1.33	
活塞平均速度 mean piston speed m/s	6.0	7.5	7.2	7.2	

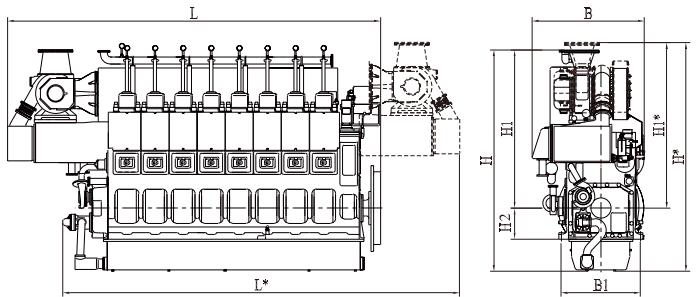
型号 Model	右机 starboard	DF8210ZC38	DF8210ZC46	DF8210ZC50	DF8210ZC54
型号 Model	左机 port	DF8210ZC39	DF8210ZC47	DF8210ZC51	DF8210ZC55
标定功率MCR kW	809	882	956	1029	
标定转速Speed rpm	750	830	900	900	
平均有效压MEP MPa	1.56	1.53	1.53	1.65	
活塞平均速度 mean piston speed m/s	7.5	8.3	9.0	9.0	

型号 Model	右机 starboard	DF8210ZC70	DF8210ZC74
型号 Model	左机 port	DF8210ZC71	DF8210ZC75
标定功率MCR kW	1103	1200	
标定转速Speed rpm	1000	1000	
平均有效压MEP MPa	1.59	1.73	
活塞平均速度 mean piston speed m/s	10	10	

■ 外形尺寸 Size

型号 Generator model	L mm	B mm	H mm	H1 mm	H2 mm	L* mm	H* mm	H1* mm	重量 Kg
DF8210ZC2/3	4720	1415	2870	2080	390	4930	2905	2115	15000
DF8210ZC8/9	4720	1415	2870	2080		4930	2905	2115	15000
DF8210ZC28/29	4720	1415	2870	2080		4930	2905	2115	15000
DF8210ZC30/31	4720	1415	2870	2080		4930	2905	2115	15000
DF8210ZC38/39	4720	1415	2870	2080		4930	2905	2115	15000
DF8210ZC46/47	4680	1415	2890	2100		4835	2910	2120	15000
DF8210ZC50/51	4680	1415	2890	2100		4835	2910	2120	15000
DF8210ZC54/55	4680	1415	2890	2100		4835	2910	2120	15000
DF8210ZC70/71	4680	1415	2890	2100		4835	2910	2120	15000
DF8210ZC74/75	4680	1415	2890	2100		4835	2910	2120	15000

■ 外形图 Outline



## ■ 产品与附件 Products and Accessories



附件配置及可选件  
Standard and optional parts

冷却器 :  
Cooler :  
管壳式 ( 标配 ) 、板式 ( 可选配 )  
shell-and-tube (heat) exchanger ( standard ),  
plate heat exchanger ( optional )  
调速器 :  
governor :  
液压 ( 标配 ) 、电液、电子调速器 ( 可选配 )  
hydraulic governor ( standard ),  
E-H governor, electronic governor ( optional )  
排气消音器 : ( 可选配 )  
silencer : ( optional )  
增压器出口膨胀节 : ( 可选配 )  
Exhaust expansion joint : ( optional )

## ■ 基本参数 General Data

项目 Item	单位 unit	参数 data
型式 Type		直列式、水冷、四冲程、直接喷射、不可逆转 Straight-line, water-cooled, four-stroke, direct injection, non-reversible
缸径×行程 Bore × Stroke	mm	210×300
排量 Displacement	L	62.3
压缩比 Comp. ratio		15
最低燃油消耗率 SFOC	g/kW·h	≤194+5% ( 纯燃油模式 fuel modes )
最低燃气消耗率 SFGC	KJ/kW·h	≤9000 ( 标定功率 MCR )
滑油消耗率 SLOC	g/kW·h	≤0.8
燃气供应压力 Gas supply pressure	bar	4~6
替代率 Substitution rate		70~85% ( 50%~100% 标定功率 MCR )
起动方式 Starting system		空气马达 Compressed-air motor

曲轴转向 Direction of rotation		右机 : 顺时针 ( 飞轮端视 ) Starboard engine: clockwise ( aft. end )
		左机 : 逆时针 ( 飞轮端视 ) Port engine: anticlockwise ( aft. end )
吊缸高度 Piston Lifting height	mm	1650

## ■ 型谱表 Specification

型号 Model	右机 starboard	DF6210ZC	DF6210ZC2	DF6210ZC4	DF6210ZC10
	左机 port	DF6210ZC1	DF6210ZC3	DF6210ZC5	DF6210ZC11
标定功率MCR kW	396	662	662	441	
标定转速Speed rpm	600	720	750	600	
平均有效压MEP MPa	1.27	1.77	1.70	1.41	
活塞平均速度 mean piston speed m/s	6.0	7.2	7.5	6.0	

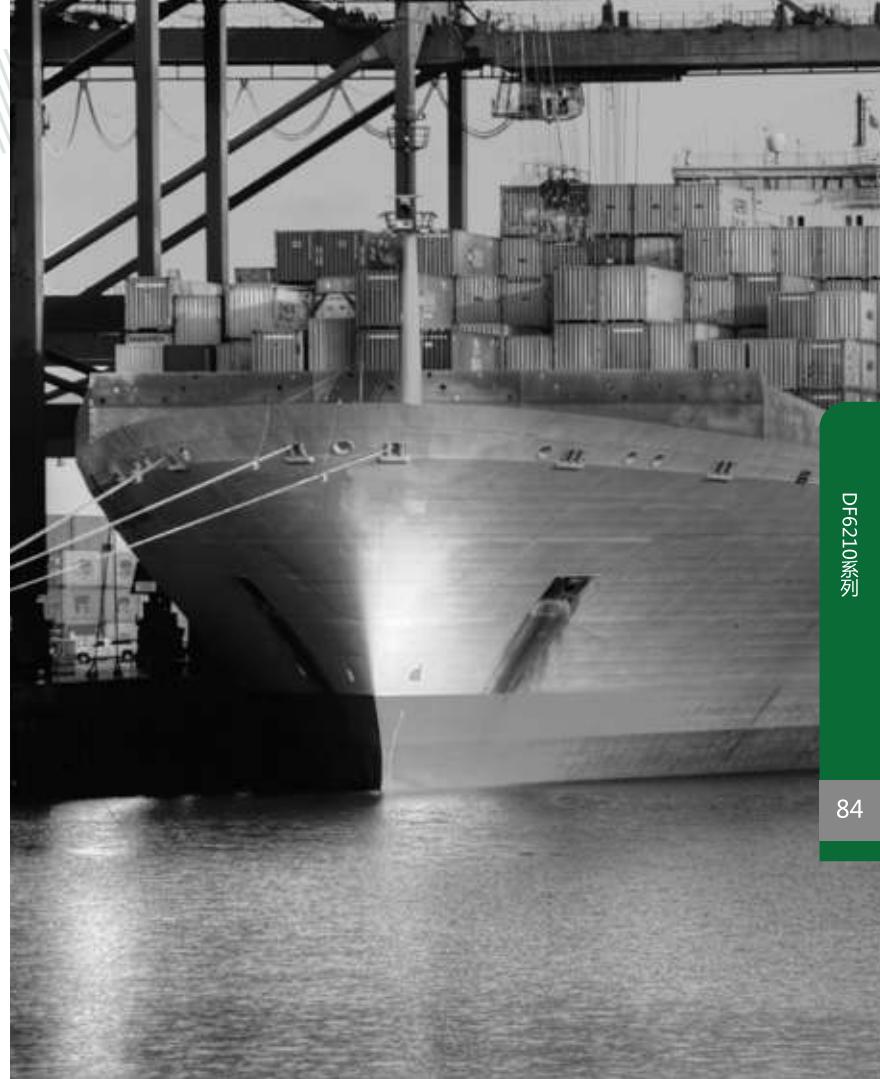
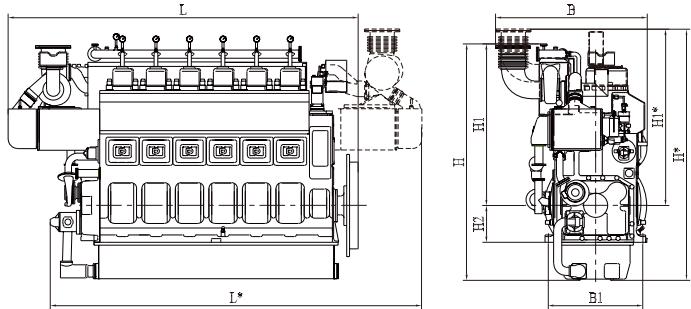
型号 Model	右机 starboard	DF6210ZC12	DF6210ZC14	DF6210ZC16	DF6210ZC18
	左机 port	DF6210ZC13	DF6210ZC15	DF6210ZC17	DF6210ZC19
标定功率MCR kW	551	735	809	882	
标定转速Speed rpm	750	830	900	1000	
平均有效压MEP MPa	1.42	1.71	1.73	1.70	
活塞平均速度 mean piston speed m/s	7.5	8.3	9.0	10.0	

型号 Model	右机 starboard	DF6210ZC24	DF6210ZC26
	左机 port	DF6210ZC25	DF6210ZC27
标定功率MCR kW	610	735	
标定转速Speed rpm	720	1000	
平均有效压MEP MPa	1.64	1.41	
活塞平均速度 mean piston speed m/s	7.2	10.0	

■ 外形尺寸 Size

型号 Generator model	L mm	B mm	H mm	H1 mm	H2 mm	L* mm	H* mm	H1* mm	重量 Weight Kg
DF6210ZC/1	3710	1600	2580	1790	390	3940	2665	1875	12500
DF6210ZC2/3	3710	1600	2580	1790		3940	2665	1875	12500
DF6210ZC4/5	3710	1600	2580	1790		3940	2665	1875	12500
DF6210ZC10/11	3710	1600	2580	1790		3940	2665	1875	12500
DF6210ZC12/13	3710	1600	2580	1790		3940	2665	1875	12500
DF6210ZC14/15	3710	1600	2580	1790		3940	2665	1875	12500
DF6210ZC16/17	3710	1600	2580	1790		3940	2665	1875	12500
DF6210ZC18/19	3710	1600	2580	1790		3940	2665	1875	12500
DF6210ZC24/25	3710	1600	2580	1790		3940	2665	1875	12500
DF6210ZC26/27	3710	1600	2580	1790		3940	2665	1875	12500

■ 外形图 Outline



C.S.I. Power

NINGBO C.S.I. POWER & MACHINERY GROUP CO., LTD.



## ■ 产品与附件 Products and Accessories



附件配置及可选件  
Standard and optional parts

冷却器 :  
Cooler :  
管壳式 ( 标配 )  
shell-and-tube (heat) exchanger ( standard ),  
调速器 :  
governor:  
液压 ( 标配 ) 、电液、电子调速器 ( 可选配 )  
hydraulic governor ( standard ),  
E-H governor, electronic governor ( optional )  
排气消音器 : ( 可选配 )  
silencer : ( optional )  
增压器出口膨胀节 : ( 标配 )  
Exhaust expansion joint : ( standard )

## ■ 基本参数 General Data

项目 Item	单位 unit	参数 data
型式 Type		直列式、水冷、四冲程、直接喷射、不可逆转 Straight-line, water-cooled, four-stroke, direct injection, non-reversible
缸径×行程 Bore × Stroke	mm	170×200
排量 Displacement	L	27.22
压缩比 Comp. ratio		14.5
最低燃油消耗率 SFOC	g/kW·h	≤196 <sup>+3%</sup> ( 纯燃油模式 fuel modes )
最低燃气消耗率 SFBC	KJ/kW·h	≤9000 ( 标定功率 MCR )
滑油消耗率 SLOC	g/kW·h	≤0.8
燃气供应压力 Gas supply pressure	bar	4~6
替代率 Substitution rate		70~85% ( 50%~100% 标定功率 MCR )
起动方式 Starting system		空气马达或电马达 Compressed-air motor/ electric motor

曲轴转向 Direction of rotation		右机：顺时针 ( 飞轮端视 ) Starboard engine: clockwise ( aft. end ) 左机：逆时针 ( 飞轮端视 ) Port engine: anticlockwise ( aft. end )
吊缸高度 Piston Lifting height	mm	1260
外形尺寸 Size	mm	2370×1320×1670 ( L×W×H )
重量 Weight	Kg	3200

## ■ 型谱表 Specification

型号 Model	右机 starboard	DF6170Z_C1	DF6170Z_C2	DF6170Z_C3	DF6170Z_C4
	左机 port	DF6170Z_L_C1	DF6170Z_L_C2	DF6170Z_L_C3	DF6170Z_L_C4
标定功率MCR kW	220	250	294	330	
标定转速Speed rpm	1000	1000	1000	1000	
平均有效压MEP MPa	0.97	1.1	1.29	1.45	
活塞平均速度 mean piston speed m/s	6.67	6.67	6.67	6.67	

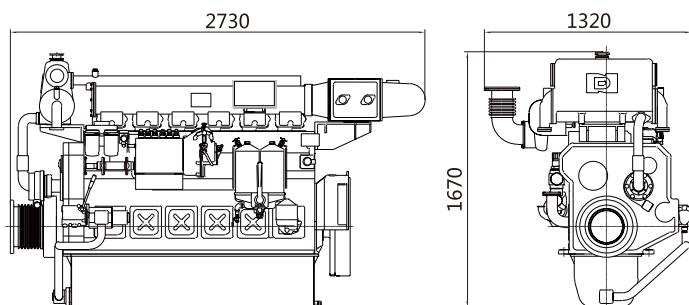
型号 Model	右机 starboard	DF6170Z_C5	DF6170Z_C6	DF6170Z_C7	DF6170Z_C8
	左机 port	DF6170Z_L_C5	DF6170Z_L_C6	DF6170Z_L_C7	DF6170Z_L_C8
标定功率MCR kW	250	294	330	350	
标定转速Speed rpm	1200	1200	1200	1200	
平均有效压MEP MPa	0.92	1.08	1.21	1.29	
活塞平均速度 mean piston speed m/s	8.0	8.0	8.0	8.0	

型号 Model	右机 starboard	DF6170Z <sub>l</sub> C9	DF6170Z <sub>l</sub> C10	DF6170Z <sub>l</sub> C11	DF6170Z <sub>l</sub> C12
	左机 port	DF6170Z <sub>z</sub> C <sub>9</sub>	DF6170Z <sub>z</sub> C <sub>10</sub>	DF6170Z <sub>z</sub> C <sub>11</sub>	DF6170Z <sub>z</sub> C <sub>12</sub>
标定功率MCR kW		385	350	400	430
标定转速Speed rpm		1200	1350	1350	1350
平均有效压MEP MPa		1.41	1.56	1.31	1.40
活塞平均速度 mean piston speed m/s		8.0	9.0	9.0	9.0

型号 Model	右机 starboard	DF6170Z <sub>l</sub> C13	DF6170Z <sub>l</sub> C14	DF6170Z <sub>l</sub> C15	DF6170Z <sub>l</sub> C16
	左机 port	DF6170Z <sub>z</sub> C <sub>13</sub>	DF6170Z <sub>z</sub> C <sub>14</sub>	DF6170Z <sub>z</sub> C <sub>15</sub>	DF6170Z <sub>z</sub> C <sub>16</sub>
标定功率MCR kW		400	450	225	210
标定转速Speed rpm		1500	1500	1200	1000
平均有效压MEP MPa		1.18	1.32	0.83	0.93
活塞平均速度 mean piston speed m/s		10	10	8.0	6.67

型号 Model	右机 starboard	DF6170Z <sub>l</sub> C17
	左机 port	DF6170Z <sub>z</sub> C <sub>17</sub>
标定功率MCR kW		300
标定转速Speed rpm		1000
平均有效压MEP MPa		1.32
活塞平均速度 mean piston speed m/s		6.67

### ■ 外形图 Outline



C.S.I. POWER

# 船用发电机组

## MARINE DIESEL GENERATOR SET

我公司可以提供功率在200~3500kW的船用发电机组，所有船用产品完全符合国际海事组织( IMO ) Teir II排放要求；满足CCS的无石棉要求，并可向用户提供《无石棉声明》。

marine diesel generator set

Our company can provide marine generator sets which power in the 200 ~ 3500 kw. All marine products completely conform to the international maritime organization (IMO) Teir II emissions requirements; conform to the requirements of CCS about no asbestos and "no asbestos statement" can be provided to users.

柴油机和发电机通过弹性联轴器连接后置于装有减震器的共同底座上，便于用户安装；

The diesel engine and generator are connected by a flexible coupling and placed on the common base with shock absorber to facilitate user installation;

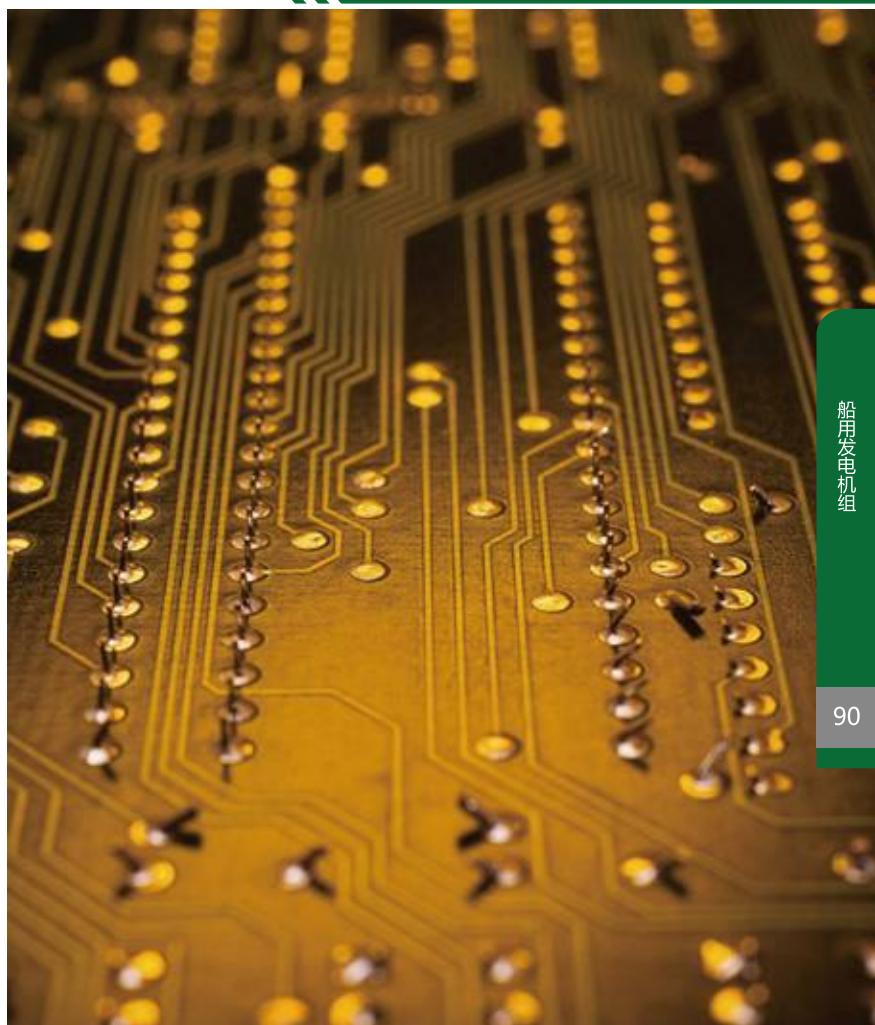
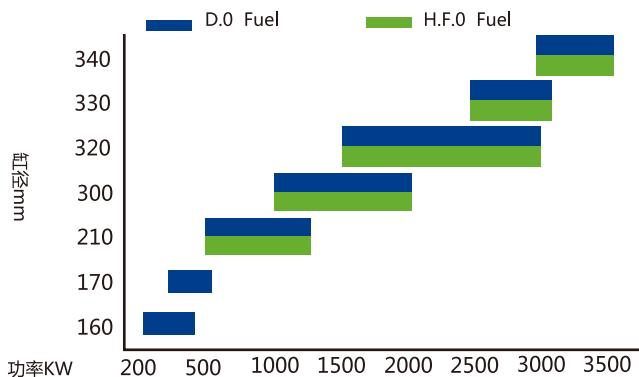
发电机组可以选配中船现代、马拉松、兰州电机和西门子许可证制造的1FC2、1FC5、1FC6等自励型无刷恒压同步发电机（可根据用户要求选配厂家）；

The generator set can be selected for self-excited brushless constant voltage synchronous generator 1FC2、1FC5、1FC6 etc., manufactured by CSSC, Lanzhou electric corporation, MARATHON, Siemens license.

电压等级有230V、400V、450V、690V等；频率50Hz或60Hz。

The voltage level is 230V, 400V, 450V, 690V, etc. Frequency

船用柴油发电机组功率分布图：



## ■ 产品与附件 Products and Accessories



附件配置及可选件  
Standard and optional parts

减震器 ( 标准配 )  
Damping pad ( standard )  
缸套水加热器 ( 自启动标准配 )  
Jacket water heater ( standard for self-start engine )  
预润滑泵 ( 自启动标准配 )  
Pregreasing pump ( standard for self-start engine )  
调速器 : 电子调速器 ( 标准配 )  
Governor : electronic governor ( standard )  
排气消音器 ( 可选配 )  
Silencer : ( optional )  
整机起吊装置 ( 标准配 )  
Lifting appliance ( standard )

## ■ 基本参数

序号No.	项目 Item	单位 Unit	技术参数 Technical data
1	功率因数 Power factor		0.8(滞后lag)
2	电压 Voltage	稳态调整率 Stable voltage	% < ±2.5
		瞬态调整率 Transient voltage	% -15 ~ +20
		稳定时间 Voltage recovery time	s < 1.5
		波动率 Voltage fluctuation rate	% ≤ ±1
3	频率 Frequency	稳态调整率 Steady-state frequency deviation	% < 5 ( 并联机组 )
		瞬态调整率 Steady-state frequency deviation	% ≤ ±10
		稳定时间 Frequency stable time	s < 5
		波动率 Waveform distortion rate	% ≤ ±0.5
4	冷却方式 Cooling method		闭式水冷 Circulating water cooling
5	联接方式 Connecting method		弹性 Flexible coupling
6	起动方式 Starting method		气马达起动 Compressed air motor
7	燃油消耗率 SFOC		≤196+3%
8	滑油消耗率 SLOC		≤0.7

## ■ 型谱表

发电机组型号 Generator model	额定功率 Rated Electrical Power ( kW )	额定转速 Engine Speed ( r/min )	原动机 Engine		发电机型号 Alternator model
			柴油机型号 Engine model	额定功率 Engine Capacity(KW)	
CCFJ200J(Z)-W01	200	1000	N6160Z <sub>L</sub> CD2	235.3	TFXW-355-6-H
CCFJ200J(Z)-W02					1FC6 355-6SA42
CCFJ200J(Z)-W03					1FC5 356-6TA42
CCFJ200J(Z)-W01A		250	N6170Z <sub>L</sub> CD2	250	TFXW-355-6-H
CCFJ200J(Z)-W02A					1FC6 355-6SA42
CCFJ250J(Z)-W01	250	1000	N6160Z <sub>L</sub> CD6	294	TFXW-355-6-H
CCFJ250J(Z)-W02					1FC6 356-6SA42
CCFJ250J(Z)-W03					1FC5 356-6TA42
CCFJ250J(Z)-W01A		330	N6170Z <sub>L</sub> CD4	330	TFXW-355-6-H
CCFJ250J(Z)-W02A					1FC6 356-6SA42
CCFJ280J(Z)-W01	280	1000	N6160Z <sub>L</sub> CD8	331	TFXW-355-6-H
CCFJ280J(Z)-W02					1FC6 404-6SA42
CCFJ280J(Z)-W03					1FC5 404-6TA42
CCFJ280J(Z)-W01A		330	N6170Z <sub>L</sub> CD4	330	TFXW-355-6-H
CCFJ280J(Z)-W02A					1FC6 404-6SA42
CCFJ300J(Z)-W01	300	1000	N8160Z <sub>L</sub> CD6	353	TFXW-355-6-H
CCFJ300J(Z)-W02					1FC6 405-6SA42
CCFJ300J(Z)-W03					1FC5 406-6TA42
CCFJ300J(Z)-W06		330	N6170Z <sub>L</sub> CD4	330	TFXW-355-6-H
CCFJ300J(Z)-W01A					1FC6 405-6SA42
CCFJ300J(Z)-W02A					1FC6 405-6SA42
CCFJ320J(Z)-W03	320	1000	N8160Z <sub>L</sub> CD	400	1FC5 406-6TA42
CCFJ320J(Z)-W06					1FC2 451-6SB42
CCFJ350J(Z)-W01		1000	N8160Z <sub>L</sub> CD	400	TFXW-400-6-H
CCFJ350J(Z)-W02					1FC6 406-6SA42
CCFJ350J(Z)-W03					1FC5 406-6TA42
CCFJ350J(Z)-W08A	1500	N6170Z <sub>L</sub> CD13	400	TFXW-355-4-H	1FC6 403-4SA42
CCFJ350J(Z)-W09A					1FC6 403-4SA42
CCFJ350J(Z)-W01A		1000	N8170Z <sub>L</sub> CD11	400	TFXW-400-6-H
CCFJ350J(Z)-W02A					1FC6 406-6SA42

## ■ 型谱表 Main Specification

发电机组型号 Generator model	额定功率 Rated Electrical Power ( kW )	额定转速 Engine Speed ( r/min )	原动机 Engine		发电机型号 Alternator mode
			柴油机型号 Engine model	额定功率 Engine Capacity ( kW )	
CCFJ380J(Z)-W06	380	1000	N8160Z <sub>L</sub> CD14	441	1FC2 452-6SB42
CCFJ400J(Z)-W01				464	TFXW-400-6-H
CCFJ400J(Z)-W02					1FC6 408-6SA42
CCFJ400J(Z)-W06					1FC2 452-6SB42
CCFJ400J(Z)-W08A		400	N6170Z <sub>L</sub> CD14	450	TFXW-355-4-H
CCFJ400J(Z)-W09A				1FC6 405-4SA42	
CCFJ400J(Z)-W01A				441	TFXW-400-6-H
CCFJ400J(Z)-W02A					1FC6 408-6SA42
CCFJ400J(Z)-W06A					1FC2 452-6SB42
CCFJ500J(Z)-W08A	500	1500	N8170Z <sub>L</sub> CD4	600	TFXW-355-4-H
CCFJ500J(Z)-W09A					1FC6 453-4SA42
CCFJ500J(Z)-W05A					1FC2 451-4SB42

注Note :

1、 "CCFJ\*\*\*J-W\*\*" 为常规机组 ; "CCFJ\*\*\*Z-W\*\*" 为自启动机组。

"CCFJ\*\*\*J-W" means conventional engine,

2、上表中发电机组均为 : 频率50Hz , 电压400V ;

Rated frequency is 50Hz and voltage is 400V for the generator sets in the above table,  
如需要可能根据用户要求更改 , 具体规格和技术参数请咨询。  
which can be changed according to customer requirements..

## ■ 外形尺寸 Size

型号 Generator model	L mm	L* mm	L1 mm	L2 mm	B mm	B* mm	B1 mm	H mm	H1 mm	重量 Weight Kg
CCFJ200J(Z)-W01	3660	3760	560	378.5	1280	1380	850	1805	661	5270
CCFJ200J(Z)-W02	3840	3940	560	558.5	1280	1380	850	1805	661	5420
CCFJ200J(Z)-W01A	3640	3640	570	253	1412	1437	844	1816	667	5480
CCFJ200J(Z)-W02A	3859	3859	570	472	1412	1437	844	1816	667	5650
CCFJ250J(Z)-W01	3660	3760	560	378.5	1280	1380	850	1805	661	5380
CCFJ250J(Z)-W02	3840	3940	560	558.5	1280	1380	850	1805	661	5500
CCFJ250J(Z)-W01A	3640	3640	570	253	1412	1437	844	1816	667	5590
CCFJ250J(Z)-W02A	3859	3859	570	472	1412	1437	844	1816	667	5730
CCFJ280J(Z)-W01	3760	3840	560	458.5	1280	1380	850	1805	661	5500
CCFJ280J(Z)-W02	3940	4015	560	633.5	1280	1440	850	1805	661	5690
CCFJ280J(Z)-W01A	3740	3740	570	353	1412	1437	844	1816	667	5780
CCFJ280J(Z)-W02A	3985	3985	570	598	1412	1597	844	1816	667	5970



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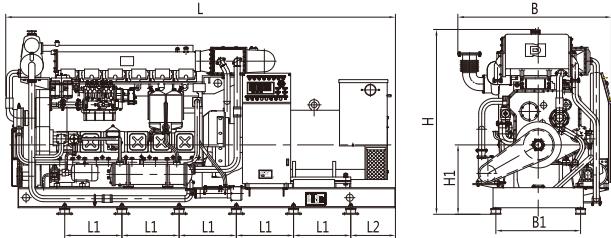
## ■ 外形尺寸 Size

型号 Generator model	L mm	L* mm	L1 mm	L2 mm	B mm	B* mm	B1 mm	H mm	H1 mm	重量 Weight Kg
CCFJ300J(Z)-W01	4285	4375	560	443.5	1280	1325	850	1843	671	6320
CCFJ300J(Z)-W02	4520	4705	560	608.5	1280	1385	850	1842	671	6520
CCFJ300J(Z)-W01A	3740	3740	570	353	1412	1437	844	1816	667	5780
CCFJ300J(Z)-W02A	3985	3740	570	598	1412	1597	844	1816	667	6070
CCFJ350J(Z)-W01	4450	4635	560	538.5	1280	1325	850	1938	766	6920
CCFJ350J(Z)-W02	4520	4705	560	608.5	1280	1385	850	1843	671	6620
CCFJ350J(Z)-W08A	3640	3640	570	253	1591	1591	844	1816	667	5630
CCFJ350J(Z)-W09A	3985	3985	570	598	1591	1591	844	1816	667	5790
CCFJ350J(Z)-W01A	4376	4376	570	418	1519	1519	844	1979	772	7160
CCFJ350J(Z)-W02A	4456	4456	570	498	1519	1519	844	1979	772	7010
CCFJ400J(Z)-W01	4450	4635	560	538.5	1280	1325	850	1938	766	6920
CCFJ400J(Z)-W02	4590	4775	560	678.5	1280	1385	850	1843	671	6770
CCFJ400J(Z)-W06	4475	4660	560	523.5	1280	1385	850	1938	766	7120
CCFJ400J(Z)-W08A	3640	3640	570	253	1591	1591	844	1816	667	5780
CCFJ400J(Z)-W09A	3985	3985	570	598	1591	1591	844	1816	667	5830
CCFJ400J(Z)-W01A	4376	4376	570	418	1519	1519	844	1979	772	7160
CCFJ400J(Z)-W02A	4526	4526	570	568	1519	1579	844	1979	772	7160
CCFJ400J(Z)-W06A	4376	4376	570	418	1519	1674	844	1979	772	7460
CCFJ500J(Z)-W08A	4204	4204	570	253	1526	1526	844	1979	772	6980
CCFJ500J(Z)-W09A	4376	4376	570	418	1526	1641	844	1979	772	8090
CCFJ500J(Z)-W05A	4369	4369	570	418	1526	1641	844	1979	772	7360

注：“\*”的为自启动尺寸

Note : Size with “\*” is for self-start engine.

## ■ 外形图 Outline



## ■ 产品与附件 Products and Accessories



附件配置及可选件  
Standard and optional parts

- 减震器 ( 标准配 )  
Damping pad ( standard )
- 缸套水加热器 ( 自起动标准配 )  
Jacket water heater ( standard for self-start engine )
- 预润滑泵 ( 自起动标准配 )  
Pregreasing pump ( standard for self-start engine )
- 调速器 : 电子调速器 ( 标准配 )  
Governor : electronic governor ( standard )

## ■ 基本参数

序号No.	项目 Item		单位Unit	技术参数Technical data
1	功率因数Power factor			0.8(滞后lag)
2	电 压  Voltage	稳态调整率Stable voltage	%	< ±2.5
		瞬态调整率Transient voltage	%	-15 ~ +20
		稳定时间Voltage recovery time	s	< 1.5
		波动率Voltage fluctuation rate	%	≤±1
3	频 率  frequency	稳态调整率 Steady-state frequency deviation	%	< 5 ( 并联机组 )
		瞬态调整率 Steady-state frequency deviation	%	≤±10
		稳定时间 Frequency stable time	s	< 5
		波动率 Waveform distortion rate	%	≤±0.5
4	冷却方式 Cooling method		闭式水冷 Circulating water cooling	
5	联接方式 Connecting method		弹性 flexible coupling	
6	起动方式 Starting method		气马达起动 Compressed air motor	
7	燃油消耗率 SFOC			≤198+5%
8	滑油消耗率 SLOC			≤0.7

## ■ 型谱表 Main Specification

发电机组型号 Generator model	额定功率 Rated Electrical Power ( kW )	额定转速 Engine Speed ( r/min )	原动机 Engine		发电机型号 Alternator model
			柴油机型号 Engine model	额定功率 Engine Capacity(KW)	
CCFJ350J(Z)-W04B	350	750	N6210ZCD12	551	1FC5 456-8TA
CCFJ400J(Z)-W04B	400	750	N6210ZCD12	551	1FC5 456-8TA
CCFJ500J(Z)-W04B	500	750	N6210ZCD12	551	1FC5 504-8TA
CCFJ520J(Z)-W04B	520	750	N6210ZCD4	662	1FC5 504-8TA
CCFJ600J(Z)-W04B	600	750	N6210ZCD4	662	1FC5 562-8TA
CCFJ720J(Z)-W03B	720	1000	N6210ZCD18	882	1FC5 504-6TA
CCFJ800J(Z)-W03B	800	1000	N6210ZCD18	882	1FC5 506-6TA
CCFJ1000J(Z)-W03B	1000	1000	N6210ZCD8	1103	1FC5 564-6TA
CCFJ1000J(Z)-W04B	1000	750	N8210ZCD14	1103	1FC5 632-8TA
CCFJ1250J(Z)-W03B	1250	1000	N8210ZCD24	1470	1FC5 632-6TA

### 注 Note :

- "CCFJ\*\*\*J-W\*\*" 为常规机组 ; "CCFJ\*\*\*Z-W\*\*" 为自启动机组。  
"CCFJ\*\*\*J-W" means conventional engine,  
2. 上表中发电机组均为 : 频率50Hz , 电压400V ;  
Rated frequency is 50Hz and voltage is 400V for the generator sets in the above table,  
如需要可能根据用户要求更改 , 具体规格和技术参数请咨询。  
which can be changed according to customer requirements.



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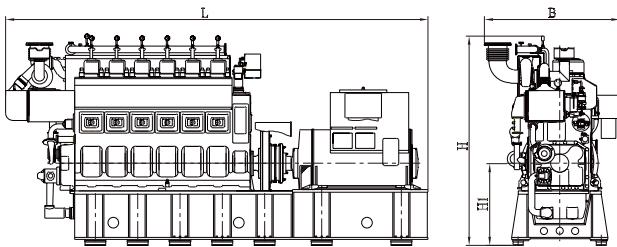
■ 外形尺寸 Size :

型号 Generator model	L mm	L* mm	B mm	H mm	H* mm	H1 mm	重量 Weight Kg
CCFJ300J(Z)-W04B	5800	5345	1915	2965	3025	1150	20.2
CCFJ350J(Z)-W04B	5830	5375	1895	2965	3025	1150	19.8
CCFJ400J(Z)-W04B	5830	5375	1895	2965	3025	1150	19.8
CCFJ500J(Z)-W04B	5950	5495	1895	2965	3025	1150	20.4
CCFJ520J(Z)-W04B	5950	5495	1895	2965	3025	1150	20.4
CCFJ600J(Z)-W04B	5980	5525	1985	2965	3025	1150	21
CCFJ720J(Z)-W03B	5980	5525	1985	2965	3025	1150	20.3
CCFJ800J(Z)-W03B	6040	5585	1985	2965	3025	1150	20.6
CCFJ1000J(Z)-W03B	6255	5850	2155	3070	3090	1150	21.9
CCFJ1000J(Z)-W04B	7320	6620	2300	3255	3305	1150	25.4
CCFJ1250J(Z)-W03B	7280	6520	2300	3270	3330	1150	26

注：“\*”为增压器置于飞轮端

Note : Size with “\*” is for TC on fore end.

■ 外形图 Outline



# 陆用电站 Power Plant

主要产品包括16/20、17/20、30/38、32/38、33/45、34/45系列发电机组产品，功率范围200-3500kW，为陆用发电提供优质的解决方案。可为客户提供“定制服务”，建设连续运行电站，调峰电站以及工业自用电站，可使用柴油、重油、石油、生物燃料及双燃料等多种燃料，广泛用于水泥/纺织/矿山/石油/燃气等行业。

Main products include 16/20, 17/20, 30/38, 32/38, 33/45, 34/45 series diesel generating sets with output from 200 to 3500kW. We offer customized stationary power plant solutions for base load power plant, peaking power plant and industrial self-application power plant in cement, textile, mining or oil, gas industries and etc., which can use diesel, LPFO/HFO, crude oil, bio-fuel, dual fuel(nature gas) and etc.

中策从1999年至今在全球建成200余座容量1MW-42MW。

C.S.I. has built more than 200 power plants, capacity from 1MW to 42MW, around the world since 1999.

电站主要为连续24小时运行重油电站，行业覆盖工业园区、水泥、纺织、矿山、码头、钢铁、城镇主电源与调峰备用电源。

Most of the power plants are HFO plants that continuous work for 24 hours. The industry covers industrial area, cement, textiles, mines, docks, steel, urban power supply and peak reserve power supply.

目前长期驻外人员80余人，其中驻尼日利亚55人，驻苏丹8人，驻几内亚5人，驻乍得3人，驻利比里亚2人，驻菲律宾2人，驻印尼3人，驻索马里2人。

There are more than 80 expatriate staffs for long-term, including 55 people in Nigeria, 8 people in Sudan, 5 people in Guinea, 3 people in Chad, 2 people in Liberia, 2 people in the Philippines, 3 people in Indonesia, 2 people in Somalia.

工程技术：根据不同用电负荷性质采取合适的技术配置（调速系统、励磁系统、配电系统等）；本着实用适度原则，根据客户需求提供完整的电站方案设计与技术支持。

Engineering technology: Adopt appropriate technical configuration according to different load characteristics (speed control system, excitation system, power distribution system, etc.). In order to be practical and appropriate, we provide complete power plant design and technical support according to customer's requirement.

工程组织：根据项目现场环境，开展施工工程图样设计转换，做好系统集成成套；结合电站建设经验，发挥本土公司的资源优势，有效规避土建施工风险；我们自有工程团队，使工程安装、调试、运行等节点能够得到有序、有计划地推进。

Project organization: According to the project site environment, carry out the design of the construction project and complete the system integration. With the experience of power plant construction, the resource advantage of local company can be used to avoid the risk of civil construction. And the installation, commissioning and operation of the project can be carried out in an orderly and planned way.

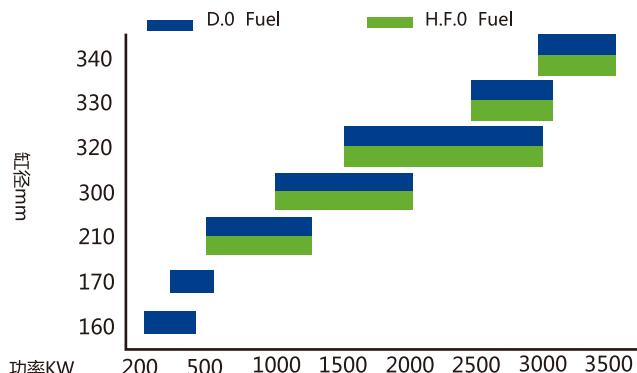
技术培训：项目现场技术培训与维修保养技术培训，确保业主具备项目的本土维护能力；客户可以有计划地组织技术工程师到公司进行设备技术细节培训。

Training : Conduct technical and maintenance training on the site to ensure that the owner has the local maintenance capability of the project. We will provide technical and maintenance training for the project to ensure that the owner has the local maintenance capability of the project. We also provide training at the factory.

服务：长期战略合作，驻点结合市场拓展；设置区域服务机构，覆盖一定范围内的电站。

Service : We can provide a long-term cooperation model. Set up a regional service organization to cover a certain range of power plants.

柴油发电机组功率分布图：



# 海外工程介绍

## Introduction of overseas projects



位于尼日利亚的Jjogana重油电站17X1MW 配备G6300ZD重油发电机组

The JjoganaHFO power plant 17X1MW in Nigeria is equipped with G6300ZD HFOgenerator set.



位于尼日利亚的Jigawa重油电站24X1MW 配备G6300ZD重油发电机组

The JjoganaHFO power plant 17X1MW in Nigeria is equipped with G6300ZD HFOgenerator set.



位于尼日利亚的Ogijo重油/天然气双燃料电站18X2MW + 6X1MW 配备G8300ZD/G6300ZD双燃料发电机组

The OgijoHFO power plant18X2MW+6X1MW in Nigeria is equipped with G8300ZD/G6300ZDHFOgenerator set.



乍得巴阿赫水泥厂10MW重油电站项目安装5台宁波中策生产的2MW发电机组，电站由宁波中策负责设计和指导安装，电站于2011年6月投入运行。此项目中使用的发电机组不仅可以使用柴油、重油，还可以使用生物质柴油、原油等燃料。

The 10MW HFO power plant in Chad, installed 5 sets of 2MW generators produced by Ningbo C.S.I. The power plant was designed and guided by Ningbo C.S.I., and put into operation in June 2011. The generator set used in this project can not only use diesel oil, heavy oil, but also use biomass diesel, crude oil and other fuels.



位于乍得的阿赫水泥厂自用重油电站 5X2MW GN8320ZD 重油机组

The HFO power plant forCement plant5X2MW in Chad is equipped with GN8320ZDHFOgenerator set.

根据客户对环保的要求,中策公司出口欧洲的设备可以燃用裂解油(轮胎油)以及各种生物燃料(如废植物油)。

According to clients requirement, the generating sets exported by Ningbo C.S.I. Power & Machinery Co.,Ltd. to Europe could combust the fuel of Waste tire oil and variety of bio fuel such as waste vegetable oil to protect the environment .

# 陆用电站

## Power Plant



位于菲律宾的Pacerm-1重油电站3X3.5MW 配备DN8340ZD重油发电机组  
The Pacerm-1HFO power plant 3X3.5MW in The Philippines is equipped with DN8340ZD HFO generator set.



为意大利 Project Energy Srl 公司设计建造的轮胎裂解油电站 2X1MW 配备 G6300ZD 胎油发电机组

The TO power plant for Project Energy Srl 2X1MW in Italy is equipped with G6300ZD TO generator set.



## ■ 电气性能 Electrical Performance:

电压 Voltage	空载电压调整范围 Voltage no load adjustment range	%	95~105
	电压波动率 Voltage fluctuation rate	%	±1
	稳态电压调整率 Stable voltage regulating rate	%	±2.5
	瞬态电压调整率 Transient voltage regulating rate	%	±20~-15
	稳定时间 Stabilizing time	s	1
	励磁方式 Alternator Excitation method		Brushless AVR
频率 Frequency	稳态频率(转速)调整率 Stable frequency (rev.) regulating rate	%	5
	频率(转速)波动率 Frequency (rev.) fluctuation rate	%	±0.5
	瞬态频率调整率 Transient frequency regulating rate	%	±10
	稳定时间 Stabilizing time	s	< 5
	调频方式 Frequency regulating method		Auto / Manual
	超速Over speed 滑油压力LO, P 淡水温度FW T 滑油温度LO, T	115% Nr A, T, S 0.25MPa A, 0.15MPa T,S 85°C A, 90°C T,S 90°C A	逆功率Reverse P. 过电流Over current 过电压Over voltage 过负荷Over load

## ■ 技术特点 Technical Performance:

### 注Note :

标准环境状况：环境温度45°C，相对湿度60%，中冷气进水温度：32°C；  
 Reference conditions: Ambient 45°C, Relative humidity 60%, Intcooler coolant inlet:32 °C;  
 标准环境（或替代的基准环境状况）不符，其功率和燃油消耗率ISO3046-1：2002进行修正；  
 If test ambient conditions are not same as the fiducially ambient conditions. The power want revises according to ISO3046-1 : 2002;  
 燃料特性：MDO，低热值：42700kJ/kg，公差：+5%；  
 Fuel characteristics: MDO, Lower heat value:42700kj/kg, Consumption tolerance: +5%;  
 功率：能够在12h运行期间内，间断或不间断的运行110%标定功率1h的能力。  
 Power: An overload of 10% is permitted for one hour in every twelve hours of operation.

### 产品特色：

Characteristics:  
 中速船用发动机驱动；  
 Marine medium speed engine driven, Unrestrictive sailing  
 无刷AVR自励发电机，性能达到G3等级；  
 Configured, IMO TIERII D2 certified  
 应用：船用辅机、电站（应急）机组，成套箱式机组；  
 Application: Marine main power, Emergency automatic start power  
 根据用户需求提供定制化服务  
 As offer customized power plant solutions  
 可使用柴油、重油、生物燃料、橡胶油和天然气等多种燃料  
 By with multi-options fuel of diesel , LPFO/HFO,bio-fuel , nature gas , tyre pyrolysis oil and etc.  
 安装方便，噪音低，运行成本低。  
 Easy installation, low noise, low operating cost.

# 16/20 柴油机发电机组 Engine Driven Diesel

## ■ 主要技术规格 Main Specification

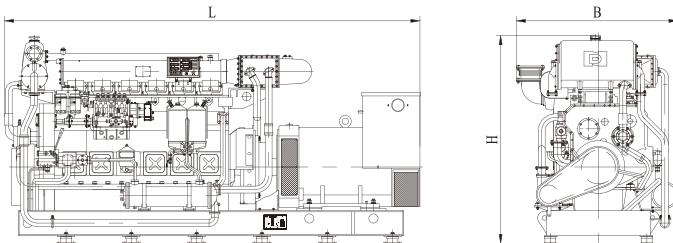


缸径Bore	160mm
行程Stroke	200
转速Speed	1000/1200 r/min
频率Frequency	50/60Hz
燃油规格fuel oil	0#

## ■ 型谱表 Main Specification

型号 Model	额定功率 Rated Power kW	原动机 Prime mover	功率 Power (kW)	燃油消耗量 SFOC (L/h)	外形尺寸 Size mm			净重 weight kg
					L	B	H	
200GF	200	N6160	235	50.6	3755	1328	1807	5500
250GF	250	N6160	294	63	3755	1328	1807	5600
280GF	280	N6160	331	70.8	3852	1435	1807	5800
300GF	300	N8160	353	75.9	4472	1377	1975	6800
350GF	350	N8160	400	88.5	4472	1377	1975	6800
400GF	400	N8160	464	101.2	4546	1250	1975	7400

## ■ 外形图 Outline



# 17/20 柴油机发电机组 Engine Driven Diesel

## ■ 主要技术规格 Main Specification

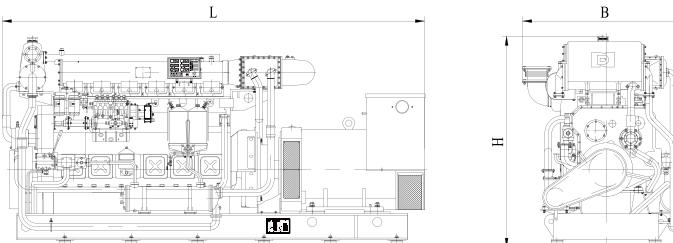


缸径Bore	170mm
行程Stroke	200mm
转速Speed	1000/1500/1200 r/min
频率Frequency	50/60Hz
燃油规格fuel oil	0#

## ■ 型谱表 Main Specification

型号 Model	额定功率 Rated Power kW	原动机 Prime mover	功率 Power (kW)	燃油消耗量 SFOC (L/h)	外形尺寸 Size mm			净重 weight kg
					L	B	H	
200GF	200	N6170	250	47	3740	1437	1816	5480
250GF	250	N6170	294	58.8	3740	1437	1816	5590
300GF	300	N6170	330	70.5	3985	1597	1816	6070
350GF	350	N8170	400	82.4	4472	1519	1979	6860
400GF	400	N8170	441	94.1	4575	1519	1979	7010
500GF	500	N8170	600	117.6	4450	1526	1979	7210

## ■ 外形图 Outline



# 21/30 柴油机发电机组 Engine Driven Diesel

## ■ 主要技术规格 Main Specification

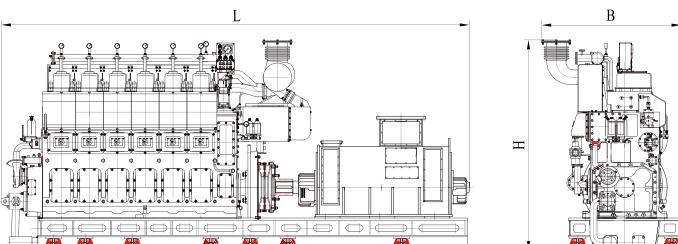


缸径Bore	210mm
行程Stroke	300mm
转速Speed	750/1000/900 r/min
频率Frequency	50/60Hz
燃油规格fuel oil	0#、180cSt/50°C、380cSt/50°C

## ■ 型谱表 Main Specification

型号 Model	额定功率 Rated Power kW	原动机 Prime mover	功率 Power (kW)	燃油消耗量 SFOC (L/h)	外形尺寸 Size mm			净重 weight kg
					L	B	H	
500GF	500	N6210	551	126.5	5900	1577	3005	17000
600GF	600	N6210	661	154.3	5950	1540	2890	17500
800GF	800	N6210	882	207.6	5950	1540	2890	18200
1000GF	1000	N6210	1103	261.9	6370	1750	2994	19500
1200GF	1200	N8210	1323	327.4	6600	1750	2994	21000
1350GF	1350	N8210	1470	353.6	7380	1750	2994	22000

## ■ 外形图 Outline



# 30/38 柴油机发电机组 Engine Driven Diesel

## ■ 主要技术规格 Main Specification

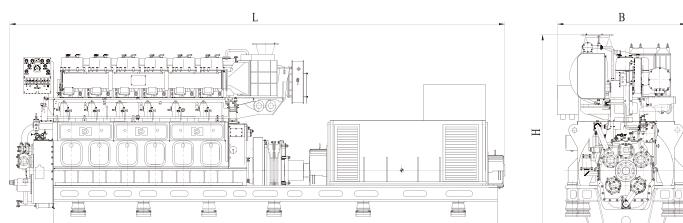


缸径Bore	300mm
行程Stroke	380mm
转速Speed	500/600 r/min
频率Frequency	50/60Hz
燃油规格fuel oil	0#、180cSt/50°C

## ■ 型谱表 Main Specification

型号 Model	额定功率 Rated Power kW	原动机 Prime mover	功率 Power (kW)	燃油消耗量 SFOC (L/h)	外形尺寸 Size mm			净重 weight kg
					L	B	H	
1000GF	1000	G6300	1103	260.2	7364	2285	3211	32000
1250GF	1250	G6300	1471	324.4	7600	2300	3211	33000
1500GF	1500	G8300	1765	389.3	9501	2736	3261	51500
1800GF	1800	G8300	2000	467.1	9522	2736	3261	52000
2000GF	2206	G8300	2206	519	9522	2736	3261	52550

## ■ 外形图 Outline



# 32/38 柴油机发电机组 Engine Driven Diesel

## ■ 主要技术规格 Main Specification

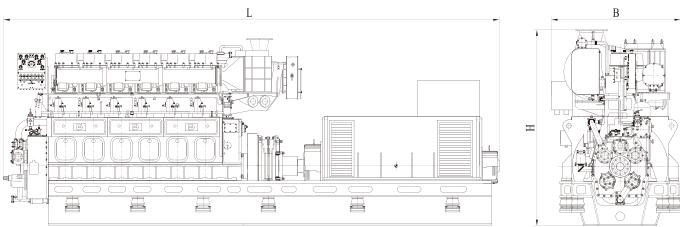


缸径Bore	300mm
行程Stroke	380mm
转速Speed	600/720/750 r/min
频率Frequency	50/60Hz
燃油规格fuel oil	0#、180cSt/50°C

## ■ 型谱表 Main Specification

型号 Model	额定功率 Rated Power kW	原动机 Prime mover	功率 Power (kW)	燃油消耗量 SFOC (L/h)	外形尺寸 Size mm			净重 weight kg
					L	B	H	
1500GF	1500	GN6320	1618	385.2	7525	2540	3211	33500
2000GF	2000	GN8320	2206	519	8550	2663	3348	51000
2200GF	2200	GN8320	2500	571	8650	2663	3348	51500
2500GF	2500	GN8320	2795	648.8	8900	2663	3748	53000
3000GF	3000	DN8320	3310	778.6	9100	2663	3748	54000

## ■ 外形图 Outline



# 33(34)/45 柴油机发电机组 Engine Driven Diesel

## ■ 主要技术规格 Main Specification

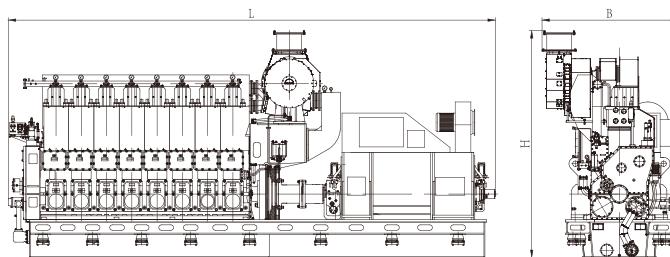


缸径Bore	330/340mm
行程Stroke	450mm
转速Speed	600r/min
频率Frequency	50/60Hz
燃油规格fuel oil	0#、180cSt/50°C, 380cSt/50°C

## ■ 型谱表 Main Specification

型号 Model	额定功率 Rated Power kW	原动机 Prime mover	功率 Power (kW)	燃油消耗量 SFOC (L/h)	外形尺寸 Size mm			净重 weight kg
					L	B	H	
2000GF	2000	DN6330	2206	449.2	8050	2600	4289	53000
2200GF	2200	DN6330	2427	550.3	8050	2600	4289	53500
2500GF	2500	DN6330	2795	625	8100	2600	4289	56000
3000GF	3000	DN8330	3319	750	9400	2580	4220	75000
3200GF	3200	DN8340	3676	804.8	9450	2680	4650	79000
3500 GF	3500	DN8340	3800	871.8	9508	2680	4650	79500

## ■ 外形图 Outline



# 健全网络 通达四海

IMPROVED NETWORK, COMMUNICATING THE WHOLE WORLD



## CHAPTER EIGHT

### ■ 国内销售服务网络

公司设于浙东、浙南、江苏、安徽、中南、上海、华南、福建、北方、重庆等驻外办事处，其中在沿江的重庆、涪陵、宜昌、长沙、岳阳、武汉、芜湖、九江、南京、扬州、常州、南通和沿海的大连、天津、青岛、舟山、台州、福州、泉州、广州、湛江等设立特约维修部和配件供应点。

### ■ 国外销售服务网络

宁波中策(尼日利亚)服务中心

宁波中策(苏丹)服务中心

宁波中策(越南)服务中心

宁波中策(印度尼西亚)服务中心

