MITSUBISHI HEAVY INDUSTRIES

PRODUCT OVERVIEW BROCHURE

S6R2 SERIES DIESEL GENERATOR ENGINE
S12R SERIES DIESEL GENERATOR ENGINE
S16R SERIES DIESEL GENERATOR ENGINE

SME
上海菱重发动机有限公司
SHANGHAI MHI ENGINE CO., LTD.

Winning the future with
stakeholders

SME, winning the future with stakeholders

Taking the same course
Depends on cherishing the same ideals

SME has always been committed to providing the customers with the stable and reliable power guarantee and the society with the power future with sustainable development. We share joys and sorrows and weal and woe; we trust and depend on each other with mutual benefit; and we walk hand in hand, achieve success and win the future together.

OUR COMPANY MISSION:

GIVING YOU BETTER POWER

SME generates profit for the customers and builds the shared value,

With ‘trust’ as the management team’s main tenet the supreme goal is customer satisfaction.

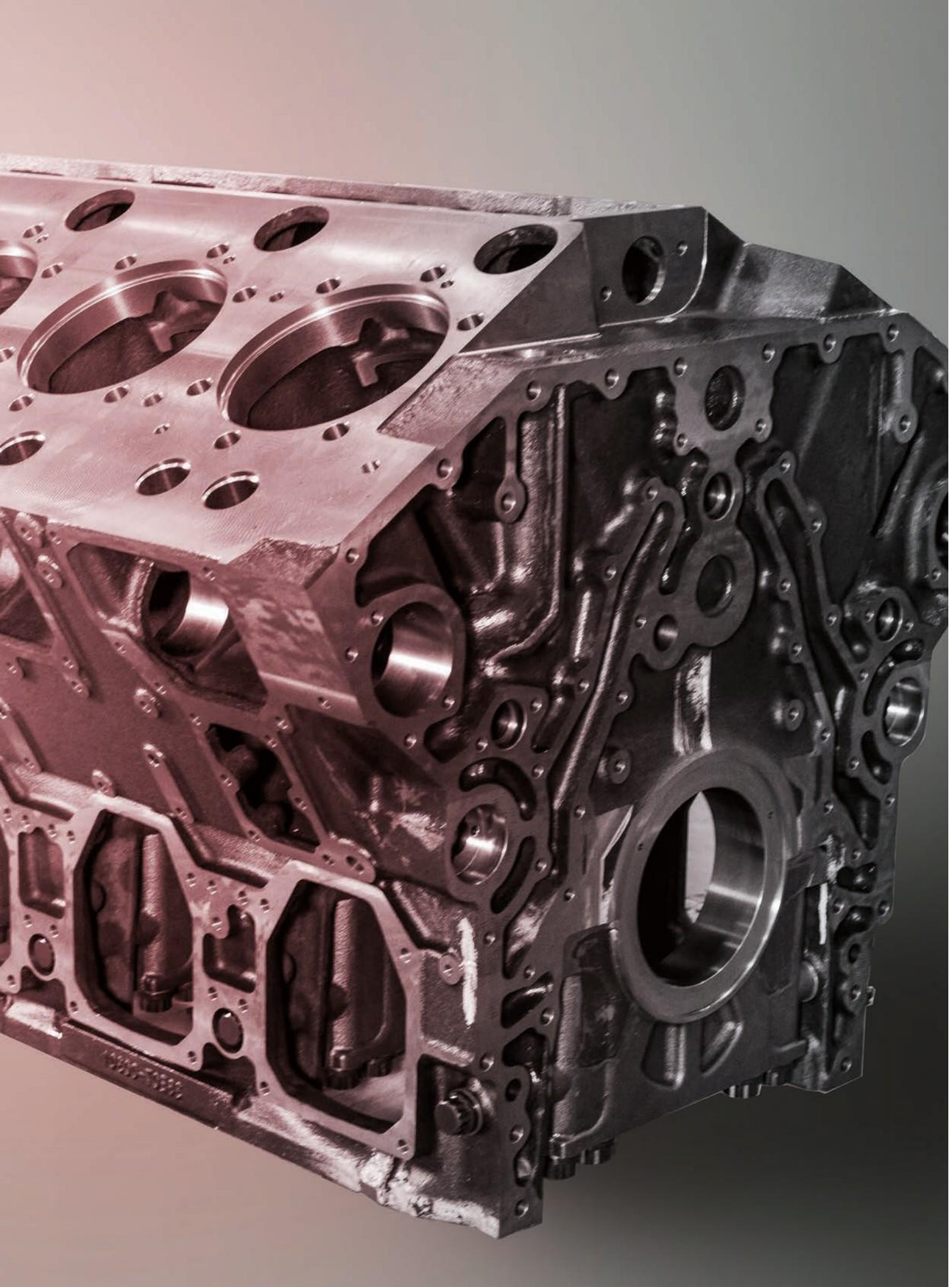
Speed and efficiency create a competitive advantage

SME was established jointly by Shanghai Diesel Engine Co., Ltd and Mitsubishi Heavy Industries, Ltd.

The Company principally produces various engine models; the S6R2/S12R/S16R series which are mainly used in land generator sets, with the power ranging from 500kW to 2000kW.

SR series production currently involves the medium and large size engine models manufactured by Mitsubishi Heavy Industries, Ltd. These applications are for the non-road industry. At present, the products are manufactured in a local Japanese plant as well as a French production plant and are used mainly in land power stations, marine propulsion and auxiliaries. The products are have an established footprint in European and American markets and are highly recognized by the users in China. The series diesel engines meet the American EPA2 emission standard and marine diesel engine IMO2 emission standard.

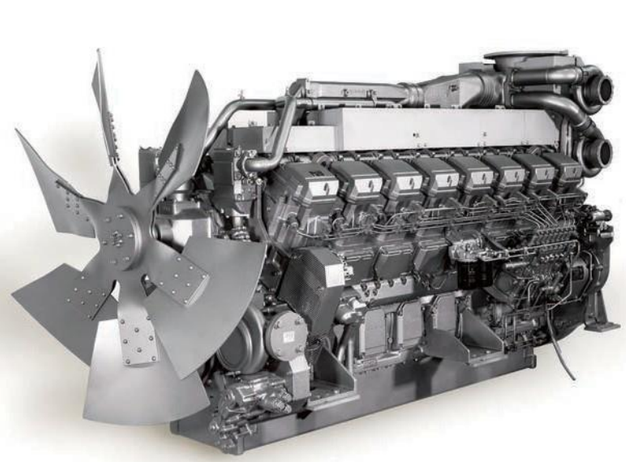
The Company is located in the heart of the Yangpu District of Shanghai City. The first SR series of diesel engines went into production in 2013 with the expected production program to achieve a desired annual output of 5,000 units of SR series by 2020.



Perfect power, the same MHI technology

As far as the three major series of engines S6R2/S12R/S16R produced by SME are concerned, the technology, production and quality are always consistent with MHI. The benefits achieved from the integration of fuel systems and engine development by MHI, SME has realized the optimal performance and ever- reliable high power, high stability and low emission.

No matter which field you are in. SME always provides you with the reliable electric power.



OUR PRODUCTS

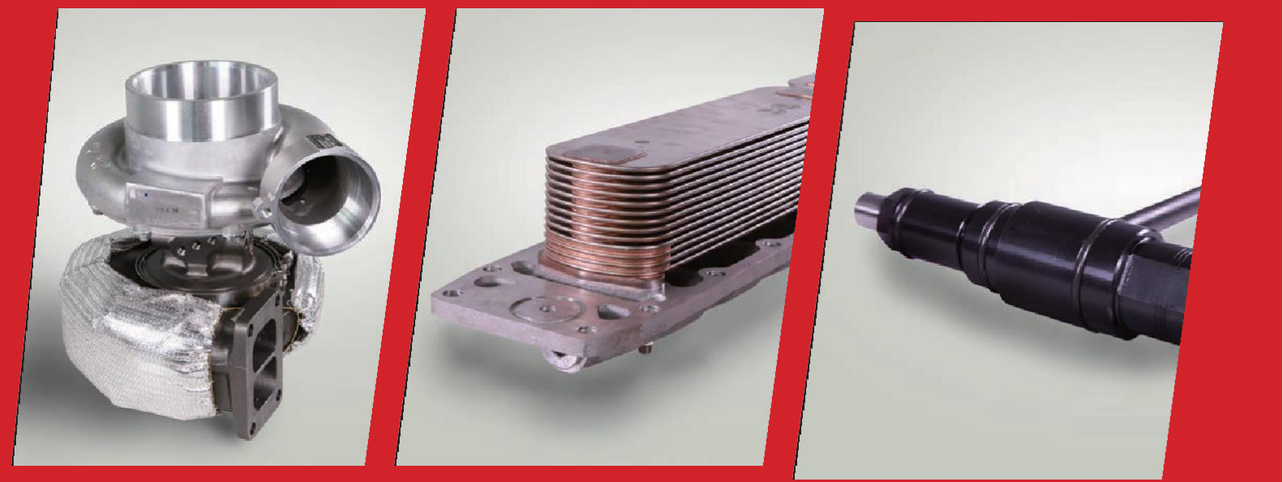
A CHOICE WORTHY DECISION

SME is the preferred choice engines for generator sets used in commercial buildings telecommunications and oil and gas

Power coverage 500kW ~ 2000kW

Majestic output, power protection, successful engine.

SR Series Parts



Economic performance advantages

Excellent combustion chamber design

High-pressure direct injection technology

Advanced turbocharger

High-efficiency cooling system

Ease of maintenance

Independent cylinder head

Large cover in body sides,easy to repair

Easily replaceable oil and fuel filter

Auxiliary component do not need separate lubrication

Three key components researched and produced by MHI

High-pressure oil pump

Turbocharger

Fuel injector

SR Series Products

Fuel Nozzle

High-flow nozzle

Fuel injection pump, MHI produced high-pressure fuel injection pump

Cam shaft, Optimum valve timing

Piston, Best compression ratio and combustion-chamber shape

High reliability

Piston cooling nozzle, so that the piston temperature is lower, with the shock cooling oil chamber and the back cooling.

Crank shaft and shaft neck quenching, to increase its abrasion resistance

Coated aluminum bearing, improve the corrosion resistance good encapsulation by coating

Smooth and steady

Combustion at high injection pressure, Mild combustion of high atomizing fuel

Middle support cylinder sleeve, To control the deformation and vibration due to piston impact

Firm crank case, A firm support for main bearing, constituted of ribbed crankcase skirt and a structure with side bolt

Optimized combustion

Supercharged air cooling system, various engine different cooling system, PTA (Aftercooler), PTAA (Air-to-Air cooler)

Turbocharger, MHI produced turbocharger with high supercharge ratio

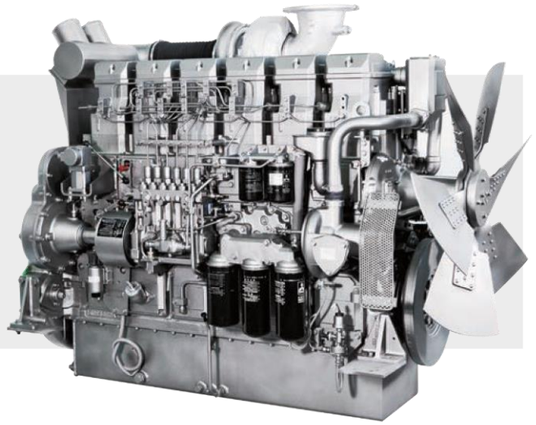
Air inlet with high flow coefficient, Tangent – flow type single air duct

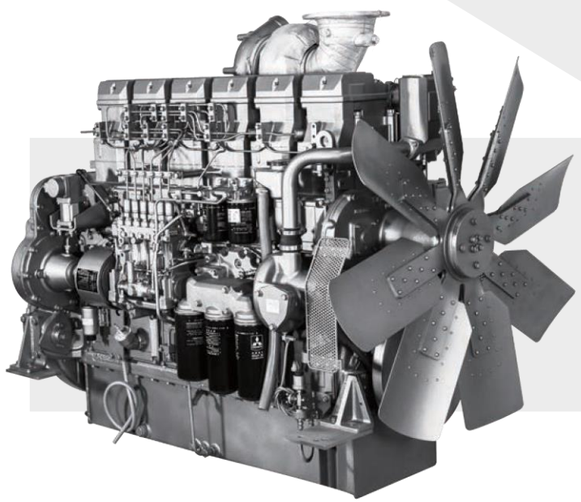
MHI produced turbocharger with high supercharge ratio, High compression ratio with efficient diffuser

High-pressure pump MHI manufactured by 1200 kg / cm^2 (120MPa) high injection pressure for fast and clean burning

S6R2 Series

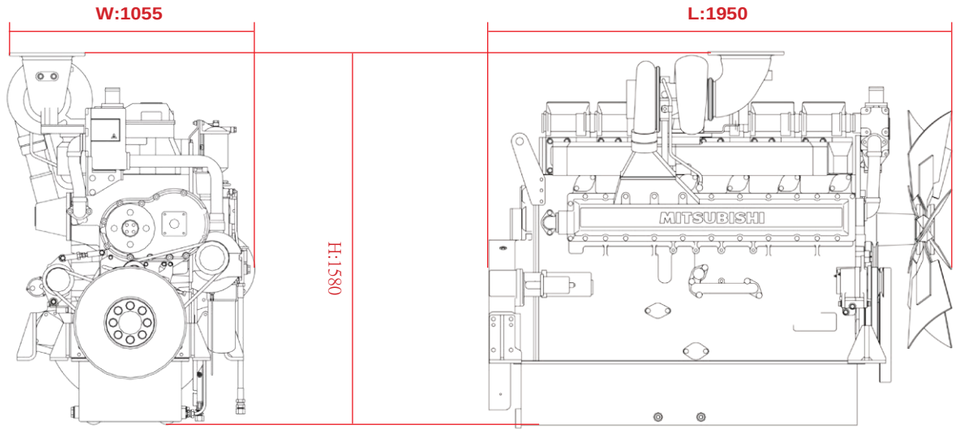
S6R2-PTA-C



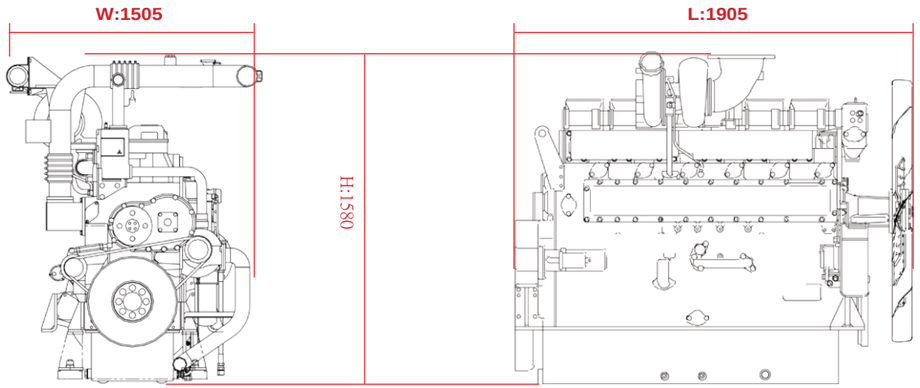


S6R2-PTAA-C

Dimensions



S6R2-PTA-C



S6R2-PTAA-C

S6R2 Series

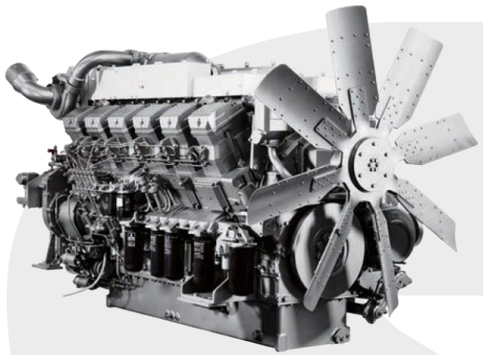
Technical parameters

Model	S6R2 PTA-C	S6R2 PTAA-C
Engine Type	direct injection/4-stroke /water-cooled	
Aspiration Type	Turbo- Charged Air to Air Cooler	Turbo- Charged Air to Air Cooler
No. of Cylinders	6-L	6-L
Bore*Stroke (mm)	170×220	170×220
Displacement (L)	29.96	29.96
Compression Ratio	14.1：1	14.1：1
Prime power with fan (kw)	575	645
Standby power with fan (kW)	635	710
Rated speed (r/min)	1500	1500
Type of governor	Mechanical Electronic (Optional)	Mechanical Electronic (Optional)
Power supply Vdc	24	24
100% Fuel Consumption (L/h)	139	170
Maximum allowable (kPa) exhaust back pressure	5.9	5.9
Exhaust Air pipe diameter (mm)	218	218
Exhaust Gas flow (m^3/min)	132	153

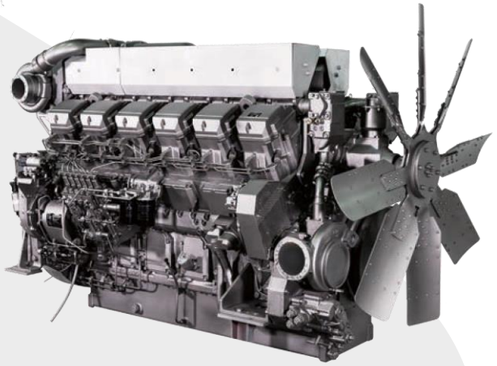
Remarks: all parameters should be subject to factory testing certificate

Model	S6R2 PTA-C	S6R2 PTAA-C
Exhaust temperature (℃)	500	520
Intake Air flow (m^3/min)	50	58
Max. intake Air-Restriction (kPa)	5.6	5.6
Clean/Dirty filter resistance (kPa)	3.9/6.3	3.9/6.3
Intake Air pipe diameter (mm)	127	127
Oil total (L)	92	92
Maximum oil temperature (℃)	110	110
Oil consumption rate (g/kw.h)	0.4	0.4
Coolant Capacity (L)	205	258
Standard Thermostat Range (℃)	71 ～ 85	71 ～ 85
Top temperature of Radiator ℃	98	98
Environmental thermal power loss (kW)	44.9	53.6
The coolant thermal loss power (kW)	377.6	375.0
Exhaust thermal loss power (kW)	432.4	576.0
Approximate weight (Kg) (Dry)	2900	2850

S12R Series

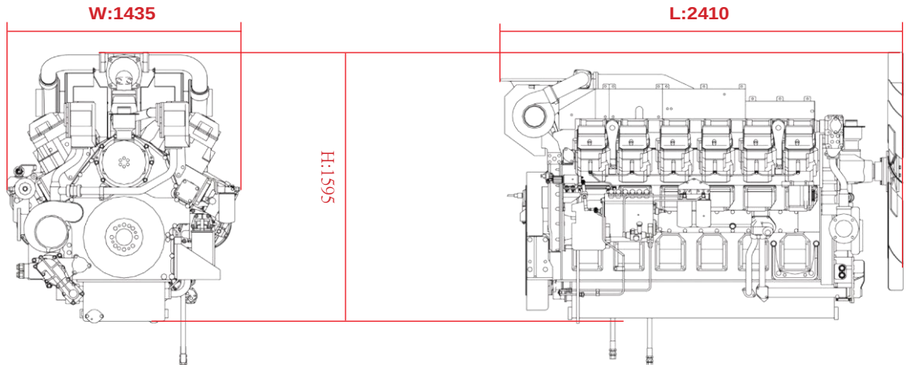


S12R-PTA-C

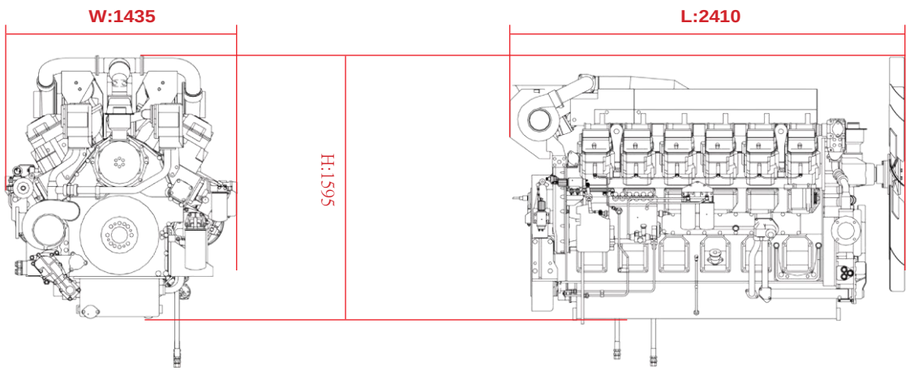


S12R-PTA2-C

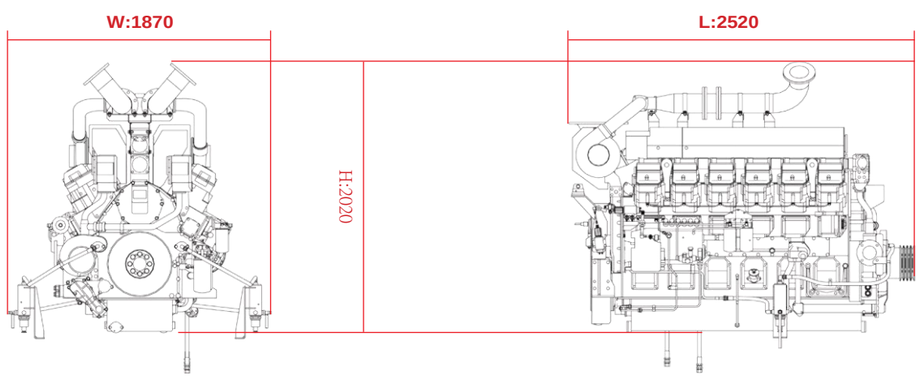
S12R-PTAA2-C



S12R-PTA-C



S12R-PTA2-C



S12R-PTTA2-C

S12R Series

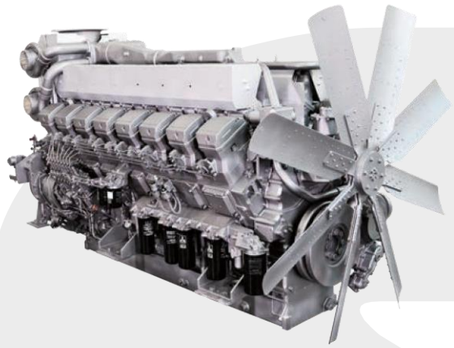
Technical parameters

Model	S12R PTA-C	S12R PTA2-C	S12R PTAA2-C
Engine Type	direct injection/4-stroke /water-cooled		
Aspiration Type	Turbo Charged After Cooler	Turbo Charged After Cooler	Turbo Charged Air to Air Cooler
No. of Cylinders	12-V	12-V	12-V
Bore*Stroke (mm)	170×180	170×180	170×180
Displacement (L)	49.03	49.03	49.03
Compression Ratio	14.0:1	13.5:1	13.5:1
Prime power with fan (kW)	1080	1165	1277
Standby power with fan (kW)	1190	1285	1404
Rated speed (r/min)	1500	1500	1500
Type of governor	Mechanical Hydraulic Electronic (Optional)	Mechanical Hydraulic Electronic (Optional)	Mechanical Hydraulic Electronic (Optional)
Power supply V	24	24	24
100% Fuel Consumption (L/h)	266	281	308
Maximum allowable exhaust back pressure (kPa)	5.9	5.9	5.9
Exhaust Air pipe diameter (mm)	321	321	321
Exhaust Gas flow (m^3/min)	256	271	287

Remarks: all parameters should be subject to factory testing certificate

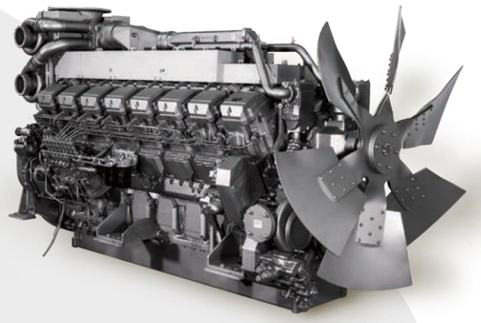
Model	S12R PTA-C	S12R PTA2-C	S12R PTAA2-C
Exhaust temperature (℃)	520	520	520
Intake Air flow (m^3/min)	97	97	102
Max. intake Air-Restriction (kPa)	5.6	5.6	5.6
Clean/Dirty filter resistance (kPa)	3.9/6.3	3.9/6.3	3.9/6.3
Intake Air pipe diameter (mm)	152	160	160
Oil total (L)	180	180	180
Maximum oil temperature (℃)	110	110	110
Oil consumption rate (g/kw.h)	0.4	0.4	0.4
Coolant Capacity (L)	391	391	391
Standard Thermostat Range (℃)	71 ～ 85	71 ～ 85	71 ～ 85
Top temperature of Radiator ℃	98	98	98
Environmental thermal loss power (kW)	85.5	92.2	105.2
The coolant thermal loss power (kW)	712.8	768.3	876.3
Exhaust thermal loss power (kW)	833.1	898.3	1119.7

S16R Series



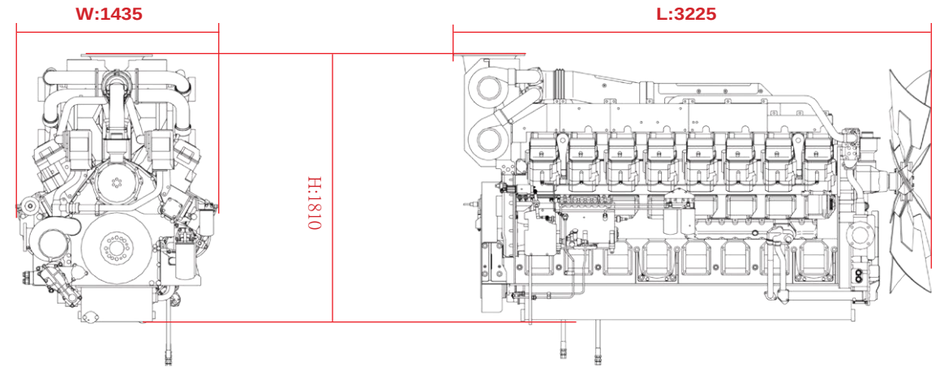
S16R-PTA-C

S16R-PTA2-C



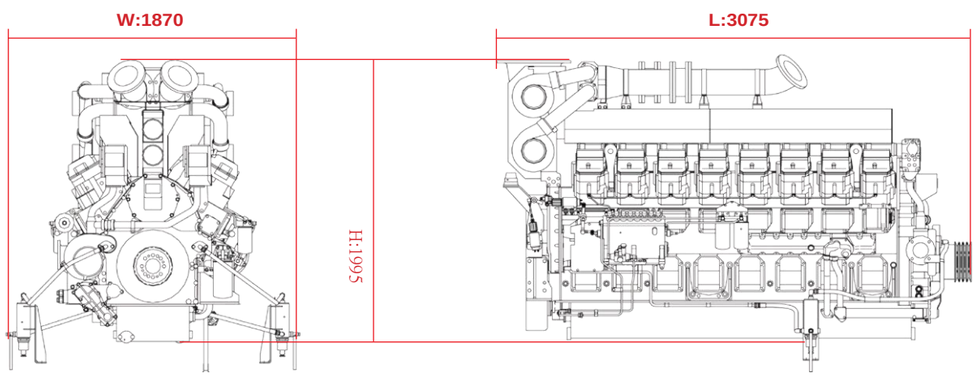
S16R-PTAA2-C

Dimension



S16R-PTA-C

S16R-PTA2-C



S16R-PTTA2-C

S16R Series

Model	S16R PTA-C	S16R PTA2-C	S16R PTAA2-C
Engine Type	direct injection/4-stroke /water-cooled		
Aspiration Type	Turbo-Charged After Cooler	Turbo Charged After Cooler	Turbo-Charged Air to Air Cooler
No. of Cylinders	16-V	16-V	16-V
Bore*Stroke (mm)	170×180	170×180	170×180
Displacement (L)	65.37	65.37	65.37
Compression Ratio	14.0:1	13.5:1	14.0:1
Prime power with fan (kW)	1450	1600	1684
Standby power with fan (kW)	1590	1760	1895
Rated speed (r/min)	1500	1500	1500
Type of governor	Mechanical Hydraulic Electronic (Optional)	Mechanical Hydraulic Electronic (Optional)	Mechanical Hydraulic Electronic (Optional)
Power supply (Vdc)	24	24	24
100% Fuel Consumption (L/h)	310	418	432
Maximum allowable exhaust back pressure (kPa)	5.9	5.9	5.9
Exhaust Air pipe diameter (mm)	358	358	358
Exhaust Gas flow (m^3/min)	337	388	406

Technical

Remarks: all parameters should be subject to factory testing certificate

Model	S16R PTA-C	S16R PTA2-C	S16R PTAA2-C
Exhaust temperature (℃)	520	520	520
Intake Air flow (m^3/min)	127	146	154
Max. intake Air -Restriction (kPa)	5.6	5.6	5.6
Clean/Dirty filter resistance (kPa)	3.9/6.3	3.9/6.3	3.9/6.3
Intake Air pipe diameter (mm)	152	160	160
Oil total (L)	230	230	230
Maximum oil temperature (℃)	110	110	110
Oil consumption rate (g/kw.h)	0.4	0.4	0.4
Coolant Capacity (L)	560	560	560
Standard Thermostat Range (℃)	71 ～ 85	71 ～ 85	71 ～ 85
Top temperature of Radiator ℃	98	98	98
Environmental thermal loss power (kW)	112.1	125.5	139.2
The coolant thermal loss power (kW)	934	1045.8	1160
Exhaust thermal loss power (kW)	1069.6	1222.4	1446.1
Approximate weight (Kg) (Dry)	6759	6850	6650

OUR QUALITY

BEYOND ENDLESS

认证证书

标准	**GB/T 19001-2008/ISO 9001:2008**
证书登记号码	01 100 1430559

证书持有者: **上海菱重发动机有限公司**
组织机构代码：060899919
注册地址：中国上海市杨浦区军工路 2630 号
邮编：200438
经营地址：同上述地址

认证范围: 配套电站用大功率发动机的生产

证明完成了审核并满足了 GB/T 19001-2008/ISO 9001:2008 标准的要求。

有效期: 证书有效期从 11.12.2014 至 10.12.2017。

本证书信息可在国家认证认可监督管理委员会官方网站上查询 http://www.cnca.gov.cn

11.12.2014

TÜV Rheinland Cert GmbH
Am Grauen Stein · 51105 Köln

DAkkS Deutsche Akkreditierungsstelle D-ZM-16031-04-00

Certificate

Standard	**GB/T 19001-2008/ISO 9001:2008**
Certificate Registr. No.	01 100 1430559

Certificate Holder: **Shanghai MHI Engine Co., Ltd.**
Organization Code: 060899919
Registration Address: No. 2630, Jungong Road, Yangpu District, Shanghai 200438, P. R. China
Operation Address: same as above

Scope: Manufacturing of High-power Engines Supporting for Power Station

Proof has been furnished by means of an audit that the requirements of GB/T 19001-2008/ISO 9001:2008 are met.

Validity: The certificate is valid from 11.12.2014 until 10.12.2017.

This certificate information can be searched on CNCA official website http://www.cnca.gov.cn

11.12.2014

TÜV Rheinland Cert GmbH
Am Grauen Stein · 51105 Köln

DAkkS Deutsche Akkreditierungsstelle D-ZM-16031-04-00

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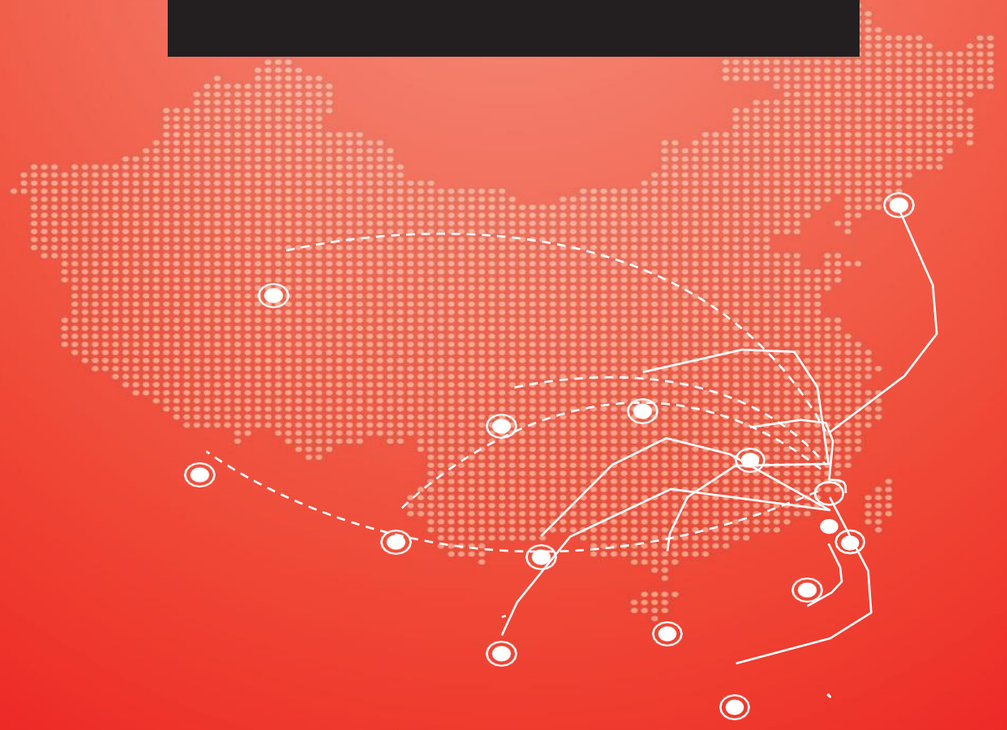

OUR FUTURE

BRIGHT BECAUSE OF YOU

Contact

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