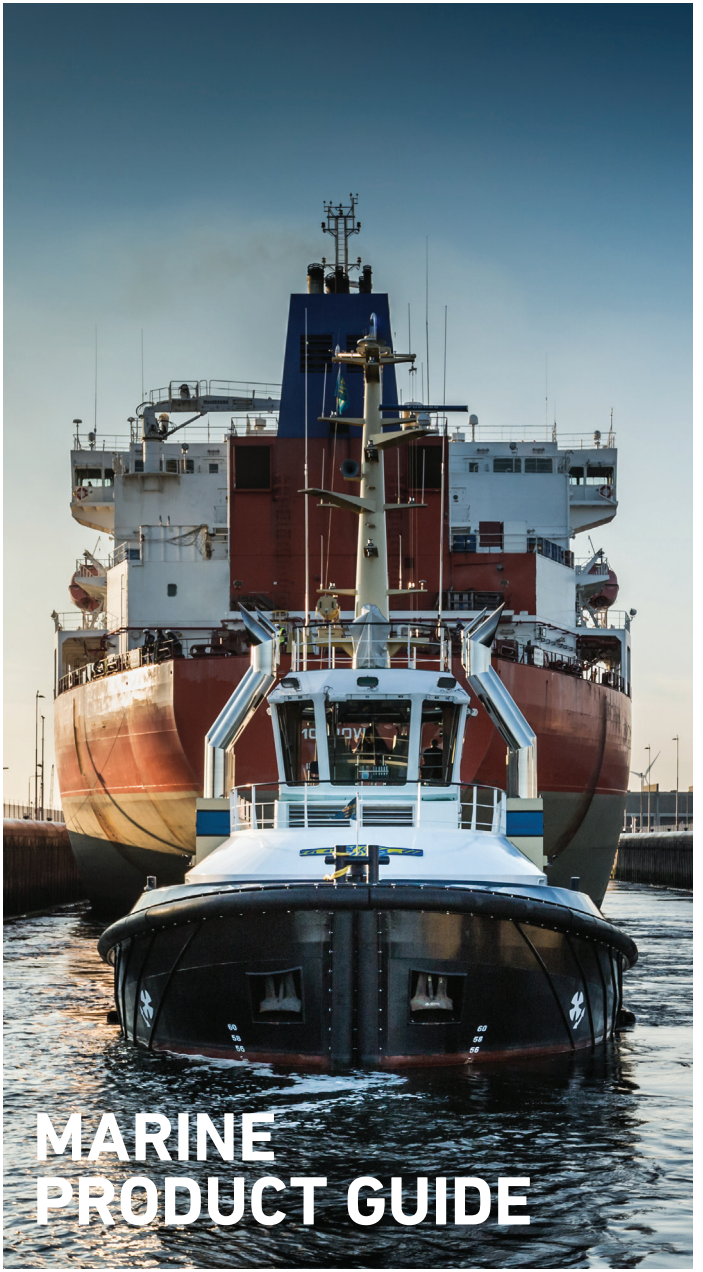
MOVE THE WORLD FORW>RD MITSUBISHI HEAVY INDUSTRIES GROUP



MARINE PRODUCT GUIDE

MITSUBISHI HEAVY INDUSTRIES

MITSUBISHI MARINE ENGINE

Marine product guide

Engines and generator sets

Contents

Mitsubishi marine power

Mitsubishi Heavy Industries (MHI) boasts a long tradition in manufacturing engines, tracing back to the production of Japan's first unit for commercial use in 1917 and spanning both diesel and gasoline types in two – and four – stroke configurations. MHI continues to supply engines for a multitude of applications, from industrial and marine to off-highway and agricultural uses, and in line-ups raging from as small as 0.3 kW to gigantic 66000 kW. As a result, MHI now ranks as one of the worlds leading engine manufacturers.

To date MHI has supplied more than 180000 marine diesel engines for both main propulsion and auxiliary applications in ships and boats. They are preferred especially in applications demanding dependable, continuous operation combined with outstanding durability, excellent fuel efficiency and minimal requirements with respect to lubricants and spare parts. This way, MHI marine engines offer the dual advantages of ease of operation and optimum ease of maintenance.

The company's impressive record of engine deliveries is proof of MHI's close and unbroken relationship with marine industries.

Marine engines made in Japan

All MHI marine diesel and gas engines are manufactured to the highest standards, applying state-of-the-art production facilities combined with experienced workmanship. Production is carried out exclusively at the Sagamihara Works in Japan, a facility conforming to strict ISO-9001 international quality standards as certified by DNV.

MHI marine engines have been purpose-designed for marine use. The base of the engine was designed based on marine vessels used in Unrestricted Continuous Duty circumstances.

According to our customers, the engines perform excellent in terms of reliability, durability, fuel consumption, long overhaul and easy maintenance.

Emission regulations

MHI has long been engaged in the production of four-stroke cycle diesels, and already its conventional models incorporate a number of important breakthroughs. Next to that, MHI makes significant investments in the environment-friendly engines development.

A summary of major regulations which Mitsubishi Heavy Industries adheres to is listed here.

Regulations summary

IMO - Annex VI of MARPOL 73/78 which International Maritime Organization (IMO) has issued, entered into force on 19 May 2005. It applies retroactively to new engines greater than 130 kW and installed on vessels constructed from 1 January 2000 or to those which will undergo a major conversion after that date. The regulation also applies to fixed and floating rigs and to drilling platforms.

EU - The emission limitations are valid for propulsion and auxiliary engines of inland vessels in EU inland waterways.

The following classifications will appear on subsequent pages to identify the regulation with which the engine will be certified or complaint once placed on the market:

not regulated	–	For use in applications or area's where emissions are not regulated.
IMO Tier II	–	IMO Tier II compliant; Engine International Air Pollution Prevention (EIAPP) certificates available.
IMO Tier III	–	IMO Tier III compliant; Engine International Air Pollution Prevention (EIAPP) certificates available.
EU Stage V	–	For EU stage 5 solutions, please contact Mitsubishi Turbocharger and Engine Europe B.V.

Classification approvals

Mitsubishi engines are delivered tested and ready for installation on board. We are cooperating with the following major classification societies:

- American Bureau of Shipping (ABS)
- Bureau Veritas (BV)
- China Classification Society (CCS)
- DNV
- Korean Register of Shipping (KR)
- Lloyd's Register (LR)
- Nippon Kaiji Kyokai (NK)
- Registro Italiano Navale (RINA)
- Russian Maritime Register of Shipping (RS)
- Russian River Register (RRR)
- Türk Loydu (TL)

For availability and more information on marine classification society certification, please contact your local distributor or visit our website engine-genset.mhi.com

Propulsion

Unrestricted Continuous Duty (UCD)

Typical operation:

- Allowable load factor is less than 100% of rated power.
- Allowable cruising speed is less than 100% of rated speed.
- Continuous operation with over 90% load is allowed unlimited.
- Operating hours are unlimited per year.

Typical vessel application:

- Cargo vessels and fishing boats.

Heavy Duty (HD)

Typical operation:

- Allowable load factor is up to 83% of rated power.
- Allowable cruising speed is up to 94% of rated speed.
- Continuous operation with over 90% load is allowed for 8hrs per every 24hrs operation.
- Operating hours are less than 6000hrs per year.

Typical vessel application:

- Working, fishing, tug and ferrie boats and passenger vessels.

Medium Duty (MD)

Typical operation:

- Allowable load factor is up to 75% of rated power.
- Allowable cruising speed is up to 91% of rated speed.
- Continuous operation with over 90% load is allowed for 1hr per every 6hrs operation.
- Operating hours are less than 4000hrs per year.

Typical vessel application:

- Pleasure and patrol boats and high performance vessels.

Diesel-electric propulsion

Typical operation:

- Average load factor is 60 - 80% of rated power.
- Operating hours are 3000 - 6000hrs per year.
- Momentary overload: 110% is available for max. 25hrs per year on emergency basis.
- 100% of rated power is available for max. 3hrs per every 12hrs operation.

Typical vessel application:

- Offshore and inland cargo vessels and ferries.

Auxiliary generator

Main power supply

Typical operation:

- Average load factor is 60% of rated power.
- Operating hours: unlimited.
- Momentary overload: 110% is available for governing purpose.

Typical vessel application:

- Fishing boats, ferries, cargo vessels and tankers.

Emergency power supply

Typical operation:

- Average load factor is 60% of rated power.
- Operating hours: up to 500hrs per year.
- Overload: 110% can be used for less than 25hrs per year.

Typical vessel application:

- Tankers, cargo and cruise vessels.

RATING DEFINITIONS MEDIUM SPEED

Propulsion

Heavy Duty (HD)

Typical operation:

- Allowable load factor is less than 100% of rated power.
- Allowable cruising speed is less than 100% of rated speed.
- Operating hours are less than 8000hrs per year.

Typical vessel application:

- Inland cargo vessels, fishing boats and coasters.

Medium Duty (MD)

Typical operation:

- Allowable load factor is up to 83% of rated power.
- Allowable cruising speed is up to 94% of rated speed.
- 100% of rated power is available intermittently for 4hrs per every 12hrs operation.
- Operating hours are less than 3000hrs per year.

Typical vessel application:

- Tug and fishing boats.

Light Duty (LD)

Typical operation:

- Allowable load factor is up to 75% of rated power.
- Allowable cruising speed is up to 90% of rated speed.
- 100% of rated power is available intermittently for 1hr per every 6hrs operation.
- Operating hours are less than 1000hrs per year.

Typical vessel application:

- Fast vessels with low load.

Heavy Duty Tugboat (HD-T)

Typical operation:

- 100% of rated power is available intermittently for 8hrs per every 24hrs operation.
- Operating hours are less than 6000hrs per year.
- Average load factor is 60 - 80% of rated power.

Typical vessel application:

- (Harbour) tugboats.

Diesel-electric propulsion

Continuous operation:
- Allowable load factor is less than 100% of rated power.
- Operating hours are unlimited per year.
- Overload: 110% is available for max. 25hrs per year on emergency basis.

Typical vessel application:
- Ocean/sea going cargo vessels and tugboats.

Intermittent operation:
- Average load factor is 60 - 80% of rated power.
- 100% of rated power is available intermittently for less than 3hrs per every 12hrs operation.
- Operating hours: 3000 - 4000hrs per year.
- Overload: 110% is available for max. 25hrs per year on emergency basis.

Typical vessel application:
- Offshore vessels and harbour tugboats.

Auxiliary generator

Main power supply:
- Average load factor is 60 - 80% of rated power.
- 100% of rated power is available intermittently for less than 3hrs per every 12hrs operation.
- Operating hours: 3000 - 4000hrs per year.
- Overload: 110% is available for max. 25hrs per year on emergency basis.

Typical vessel application:
- Ocean/sea going cargo vessels and tugboats.

ENGINE MODEL NAME EXPLANATION

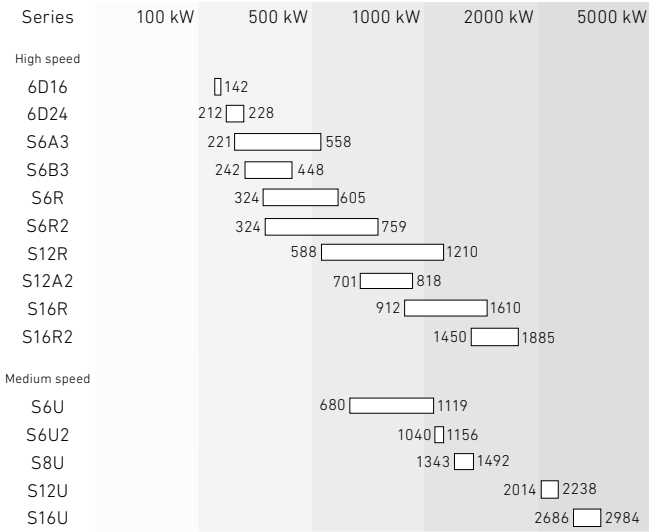
S 6 R2 - T2 MPTAW 3L

- 3L — Identical number for revision (Power up)
- MPTAW — Type of charge air cooling
  - MPTAW Turbocharged, separate high and low temperature cooling circuit; charge air cooler by closed freshwater system controlled by thermostat. (Intercooler)
  - MPTK Turbocharged, separate high and low temperature cooling circuit; charge air cooler directly cooled by sea water. (Intercooler)
  - MPTA Turbocharged, single cooling, charge air cooler integrated in jacket water system. (Aftercooler)
- T2 — Compliant to emission regulations
  - T2 IMO Tier II
  - None Not regulated
- R2 — Series
- 6 — No. of cylinders
- S - Capital of Sagamihara

Propulsion specifications

Fishing vessel - Juli-Ane
Partner - West Diesel A.S.

LINE-UP - MARINE PROPULSION



Propulsion - Not regulated - High speed

Engine model	kW	bhp	rpm	Rating	Emission	Page
Engine *(without heat exchanger)*						
6D16-MPT	142	190	2700	HD	not regulated	11
6D24-MPT(A)	212	284	2200	HD	not regulated	12
6D24-MPT(A)	228	306	2200	HD	not regulated	12
Propulsion package *(with built-up heat exchanger and sea water pump)*						
S6B3-MPTK	242	325	1800	UCD	not regulated	13
S6B3-MPTK	308	413	1940	UCD	not regulated	13
S6B3-MPTK	345	463	1940	UCD	not regulated	13
S6B3-MPTK	380	510	2000	HD	not regulated	13
S6A3-MPTK	368	494	1840	UCD	not regulated	14
S6A3-MPTK	405	543	1840	UCD	not regulated	14
S6A3-MPTK	445	597	1900	HD	not regulated	14
S6R -MPTK	405	543	1600	UCD	not regulated	15
S6R -MPTK	441	591	1600	UCD	not regulated	15
S6R -MPTK	470	630	1600	UCD	not regulated	15
S6R -MPTK	520	697	1650	HD	not regulated	15

Propulsion - IMO Tier II - High speed

Engine model	kW	bhp	rpm	Rating	Emission	Page
Engine *(without heat exchanger)*						
S6B3-T2MPTAW	320	429	1940	UCD	IMO Tier II	16
S6B3-T2MPTAW	350	469	2000	HD	IMO Tier II	16
S6A3-MPTAW	221	296	1530	UCD	IMO Tier II	17
S6A3-MPTAW	360	483	1840	UCD	IMO Tier II	17
S6A3-MPTAW	385	516	1800	MD	IMO Tier II	17

Engine model	kW	bhp	rpm	Rating	Emission	Page
Engine *(without heat exchanger)*						
S6R-MPTAW	324	434	1600	UCD	IMO Tier II	18
S6R-MPTAW	447	599	1600	UCD	IMO Tier II	18
S6R-MPTAW	470	630	1600	UCD	IMO Tier II	18
S6R-MPTAW	520	697	1650	HD	IMO Tier II	18
S6R-MPTAW	605	811	1800	MD	IMO Tier II	18
S6R2-T2MPTK	324	435	1350	UCD	IMO Tier II	19
S6R2-T2MPTK	380	510	1350	UCD	IMO Tier II	19
S6R2-T2MPTK	395	530	1350	UCD	IMO Tier II	19
S6R2-T2MPTK	423	567	1350	UCD	IMO Tier II	19
S6R2-T2MPTK	480	644	1350	UCD	IMO Tier II	19
S6R2-T2MPTK	530	711	1400	HD	IMO Tier II	19
S6R2-T2MPTK	610	818	1500	MD	IMO Tier II	19
S6R2-T2MPTAW3	460	617	1350	HD	IMO Tier II	20
S6R2-T2MPTAW3	480	644	1350	HD	IMO Tier II	20
S6R2-T2MPTAW3	555	744	1350	HD	IMO Tier II	20
S6R2-T2MPTAW3	645	865	1400	HD	IMO Tier II	20
S6R2-T2MPTAW3	691	927	1406	HD	IMO Tier II	20
S12A2-MPTAW	701	940	1940	UCD	IMO Tier II	21
S12A2-MPTAW	776	1041	2000	HD	IMO Tier II	21
S12A2-T2MPTAW2	727	975	1800	UCD	IMO Tier II	22
S12A2-T2MPTAW2	818	1097	1800	HD	IMO Tier II	22
S12R-MPTAW	588	789	1400	UCD	IMO Tier II	23
S12R-MPTAW	696	933	1500	UCD	IMO Tier II	23
S12R-MPTAW	749	1004	1500	UCD	IMO Tier II	23
S12R-MPTAW	749	1004	1600	UCD	IMO Tier II	23
S12R-MPTAW	940	1261	1600	UCD	IMO Tier II	23
S12R-MPTAW	1040	1395	1650	HD	IMO Tier II	23
S16R-MPTAW	912	1223	1450	UCD	IMO Tier II	24
S16R-MPTAW	1250	1676	1600	UCD	IMO Tier II	24
S16R-MPTAW	1380	1851	1650	HD	IMO Tier II	24
S16R2-T2MPTAW	1450	1944	1350	UCD	IMO Tier II	25
S16R2-T2MPTAW	1600	2146	1400	HD	IMO Tier II	25
S16R2-T2MPTAW	1885	2528	1500	MD	IMO Tier II	25
Propulsion package *(with built-up heat exchanger and sea water pump)*						
S6B3-T2MPTK2	378	507	2001	HD	IMO Tier II	26
S6B3-T2MPTK2	448	601	2001	MD	IMO Tier II	26
S6A3-T2MPTK3	502	673	1900	HD	IMO Tier II	27
S6A3-T2MPTK3	558	748	1900	MD	IMO Tier II	27
S6R-T2MPTK	470	630	1600	UCD	IMO Tier II	28
S6R-T2MPTK	520	697	1650	HD	IMO Tier II	28
S6R-T2MPTK	605	811	1800	MD	IMO Tier II	28
S6R2-T2MPTK	480	643	1350	UCD	IMO Tier II	29

Engine model	kW	bhp	rpm	Rating	Emission	Page
Propulsion package *(with built-up heat exchanger and sea water pump)*						
S6R2-T2MPTK	530	711	1400	HD	IMO Tier II	29
S6R2-T2MPTK	610	818	1500	MD	IMO Tier II	29
S6R2-T2MPTK3	691	927	1406	HD	IMO Tier II	30
S6R2-T2MPTK3	759	1018	1406	MD	IMO Tier II	30
S12A2-T2MPTK	701	940	1800	UCD	IMO Tier II	31
S12A2-T2MPTK	776	1041	1860	HD	IMO Tier II	31
S12R-T2MPTK	940	1261	1600	UCD	IMO Tier II	32
S12R-T2MPTK	1040	1395	1650	HD	IMO Tier II	32
S12R-T2MPTK	1210	1623	1800	MD	IMO Tier II	32
S16R-T2MPTK	1250	1676	1600	UCD	IMO Tier II	33
S16R-T2MPTK	1380	1851	1650	HD	IMO Tier II	33
S16R-T2MPTK	1610	2159	1800	MD	IMO Tier II	33
S16R2-T2MPTK	1450	1944	1350	UCD	IMO Tier II	34
S16R2-T2MPTK	1600	2156	1400	HD	IMO Tier II	34
S16R2-T2MPTK	1885	2528	1500	MD	IMO Tier II	34

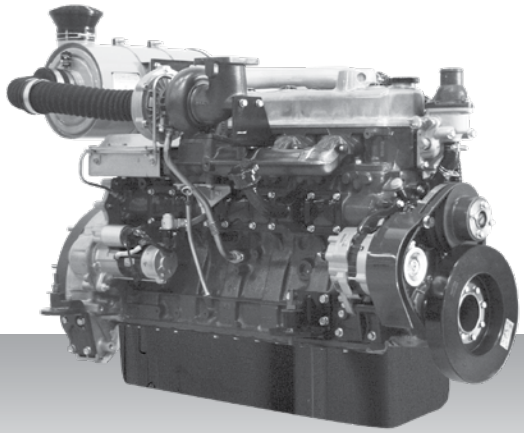
Propulsion - IMO Tier II - Medium speed

Engine model	kW	bhp	rpm	Rating	Emission	Page
S6U-MPTK	680	912	1100	HD	IMO Tier II	35
S6U-MPTK	719	964	1100	HD	IMO Tier II	35
S6U-MPTK	749	1004	1100	HD	IMO Tier II	35
S6U-MPTK	1007	1350	1060	HD	IMO Tier II	35
S6U-MPTK	1103	1479	1150	HD-T	IMO Tier II	35
S6U-MPTK	1119	1499	1100	MD	IMO Tier II	35
S6U2-MPTK	1040	1395	930	HD	IMO Tier II	36
S6U2-MPTK	1156	1550	960	MD	IMO Tier II	36
S8U-MPTK	749	1004	1100	HD	IMO Tier II	37
S8U-MPTK	849	1139	1100	HD	IMO Tier II	37
S8U-MPTK	1343	1801	1060	HD	IMO Tier II	37
S8U-MPTK	1470	1971	1150	HD-T	IMO Tier II	37
S8U-MPTK	1492	2001	1100	MD	IMO Tier II	37
S12U-MPTK	2014	2701	1060	HD	IMO Tier II	38
S12U-MPTK	2205	2957	1150	HD-T	IMO Tier II	38
S12U-MPTK	2238	3001	1100	MD	IMO Tier II	38
S16U-MPTK	2686	3602	1060	HD	IMO Tier II	39
S16U-MPTK	2940	3943	1150	HD-T	IMO Tier II	39
S16U-MPTK	2984	4002	1100	MD	IMO Tier II	39

For IMO Tier III Propulsion engines, please contact Mitsubishi Turbocharger and Engine Europe B.V.
Website: engine-genset.mhi.com

Propulsion - Not regulated
High speed - Engine

6D16-MPT



6-cylinder, 4-stroke, water-cooled diesel engine,
with direct-injection and turbocharger.

Bore x stroke (mm) : 118 x 115
Displacement (l) : 7.54

Rating

kW	bhp	rpm	Rating	Emission
142	190	2700	HD	not regulated

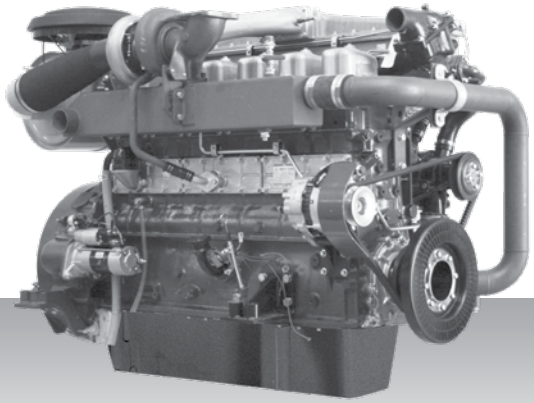
Engine dimensions & dry weight

L (mm) : 1335
W (mm) : 731
H (mm) : 830
Dry weight (kg) : 575

Dimensions and weight are based on standard configuration.

Propulsion - Not regulated
High speed - Engine

6D24-MPT(A)



6-cylinder, 4-stroke, water-cooled diesel engine,
with direct-injection, turbocharger and air-cooler.

Bore x stroke (mm) : 130 x 150
Displacement (l) : 11.95

Rating

kW	bhp	rpm	Rating	Emission
212	284	2200	HD	not regulated
228	306	2200	HD	not regulated

Engine dimensions & dry weight

L (mm) : 1535
W (mm) : 880
H (mm) : 1235
Dry weight (kg) : 1209

Dimensions and weight are based on standard configuration.

Propulsion - Not regulated
High speed - Propulsion package

S6B3-MPTK

6-cylinder, 4-stroke, water-cooled diesel engine, with direct-injection, turbocharger, air-cooler, built-up heat exchanger and sea water pump.

Bore x stroke (mm) : 135 x 170
Displacement (l) : 14.60

Rating

kW	bhp	rpm	Rating	Emission
242	325	1800	UCD	not regulated
308	413	1940	UCD	not regulated
345	463	1940	UCD	not regulated
380	510	2000	HD	not regulated

Engine dimensions & dry weight

L (mm) : 1967
W (mm) : 984
H (mm) : 1330
Dry weight (kg) : 1650

Dimensions and weight are based on standard configuration.

Propulsion - Not regulated
High speed - Propulsion package

S6A3-MPTK

6-cylinder, 4-stroke, water-cooled diesel engine, with direct-injection, turbocharger, air-cooler, built-up heat exchanger and sea water pump.

Bore x stroke (mm) : 150 x 175
Displacement (l) : 18.56

Rating

kW	bhp	rpm	Rating	Emission
368	493	1840	UCD	not regulated
405	543	1840	UCD	not regulated
445	597	1900	HD	not regulated

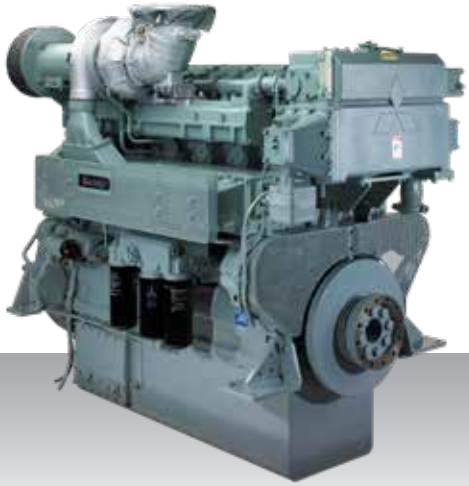
Engine dimensions & dry weight

L (mm) : 2189
W (mm) : 1127
H (mm) : 1421
Dry weight (kg) : 2100

Dimensions and weight are based on standard configuration.

Propulsion - Not regulated
High speed - Propulsion package

S6R-MPTK



6-cylinder, 4-stroke, water-cooled diesel engine, with direct-injection, turbocharger, air-cooler, built-up heat exchanger and sea water pump.

Bore x stroke (mm) : 170 x 180
Displacement (l) : 24.51

Rating

kW	bhp	rpm	Rating	Emission
405	543	1600	UCD	not regulated
441	591	1600	UCD	not regulated
470	630	1600	UCD	not regulated
520	697	1650	HD	not regulated

Engine dimensions & dry weight

L (mm) : 2122
W (mm) : 1202
H (mm) : 1615
Dry weight (kg) : 2950

Dimensions and weight are based on standard configuration.

Propulsion - IMO Tier II
High speed - Engine

S6B3-T2MPTAW

6-cylinder, 4-stroke, water-cooled diesel engine,
with direct-injection, turbocharger and air-cooler.

Bore x stroke (mm) : 135 x 170
Displacement (l) : 14.60

Rating

kW	bhp	rpm	Rating	Emission
320	429	1940	UCD	IMO Tier II
350	469	2000	HD	IMO Tier II

Engine dimensions & dry weight

L (mm) : 1465
W (mm) : 873
H (mm) : 1331
Dry weight (kg) : 1310

Dimensions and weight are based on standard configuration.

Propulsion - IMO Tier II
High speed - Engine

S6A3-MPTAW

6-cylinder, 4-stroke, water-cooled diesel engine,
with direct-injection, turbocharger and air-cooler.

Bore x stroke (mm) : 150 x 175
Displacement (l) : 18.56

Rating

kW	bhp	rpm	Rating	Emission
221	296	1530	UCD	IMO Tier II
360	483	1840	UCD	IMO Tier II
385	516	1800	MD	IMO Tier II

Engine dimensions & dry weight

L (mm) : 1636
W (mm) : 1036
H (mm) : 1421
Dry weight (kg) : 1900

Dimensions and weight are based on standard configuration.

Propulsion - IMO Tier II
High speed - Engine

S6R-MPTAW

6-cylinder, 4-stroke, water-cooled diesel engine,
with direct-injection, turbocharger and air-cooler.

Bore x stroke (mm) : 170 x 180
Displacement (l) : 24.51

Rating

kW	bhp	rpm	Rating	Emission
324	434	1600	UCD	IMO Tier II
447	599	1600	UCD	IMO Tier II
470	630	1600	UCD	IMO Tier II
520	697	1650	HD	IMO Tier II
605	811	1800	MD	IMO Tier II

Engine dimensions & dry weight

L (mm) : 1786
W (mm) : 1220
H (mm) : 1650
Dry weight (kg) : 2830

Dimensions and weight are based on standard configuration.

Propulsion - IMO Tier II
High speed - Engine

S6R2-T2MPTK

6-cylinder, 4-stroke, water-cooled diesel engine,
with direct-injection, turbocharger and air-cooler.

Bore x stroke (mm) : 170 x 220
Displacement (l) : 29.96

Rating

kW	bhp	rpm	Rating	Emission
324	435	1350	UCD	IMO Tier II
380	510	1350	UCD	IMO Tier II
395	530	1350	UCD	IMO Tier II
423	567	1350	UCD	IMO Tier II
480	644	1350	UCD	IMO Tier II
530	711	1400	HD	IMO Tier II
610	818	1500	MD	IMO Tier II

Engine dimensions & dry weight

L (mm) : 2207
W (mm) : 1156
H (mm) : 1695
Dry weight (kg) : 2960

Dimensions and weight are based on standard configuration.

Propulsion - IMO Tier II
High speed - Engine

S6R2-T2MPTAW3

6-cylinder, 4-stroke, water-cooled diesel engine,
with direct-injection, turbocharger and air-cooler.

Bore x stroke (mm) : 170 x 220
Displacement (l) : 29.96

Rating

kW	bhp	rpm	Rating	Emission
460	617	1350	HD	IMO Tier II
480	644	1350	HD	IMO Tier II
555	744	1350	HD	IMO Tier II
645	865	1400	HD	IMO Tier II
691	927	1406	HD	IMO Tier II

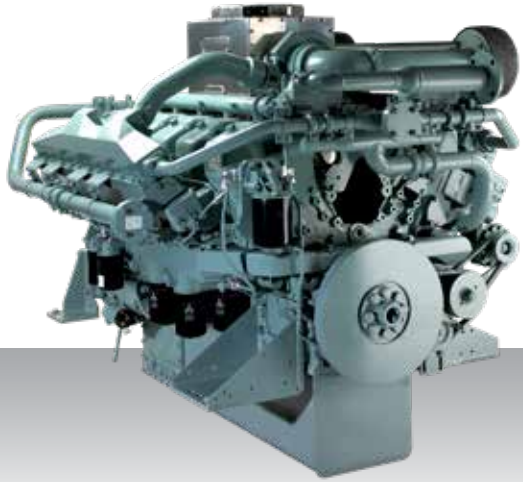
Engine dimensions & dry weight

L (mm) : 1786
W (mm) : 1220
H (mm) : 1650
Dry weight (kg) : 2960

Dimensions and weight are based on standard configuration.

Propulsion - IMO Tier II
High speed - Engine

S12A2-MPTAW



12-cylinder, 4-stroke, water-cooled diesel engine,
with direct-injection, turbocharger and air-cooler.

Bore x stroke (mm) : 150 x 160
Displacement (l) : 33.93

Rating

kW	bhp	rpm	Rating	Emission
701	940	1940	UCD	IMO Tier II
776	1041	2000	HD	IMO Tier II

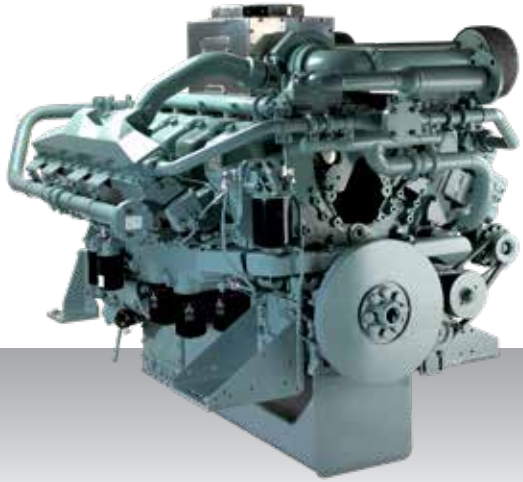
Engine dimensions & dry weight

L (mm) : 2059
W (mm) : 1654
H (mm) : 1566
Dry weight (kg) : 3380

Dimensions and weight are based on standard configuration.

Propulsion - IMO Tier II
High speed - Engine

S12A2-T2MPTAW2



12-cylinder, 4-stroke, water-cooled diesel engine,
with direct-injection, turbocharger and air-cooler.

Bore x stroke (mm) : 150 x 160
Displacement (l) : 33.93

Rating

kW	bhp	rpm	Rating	Emission
727	975	1800	UCD	IMO Tier II
818	1097	1800	HD	IMO Tier II

Engine dimensions & dry weight

L (mm) : 2059
W (mm) : 1654
H (mm) : 1566
Dry weight (kg) : 3380

Dimensions and weight are based on standard configuration.

Propulsion - IMO Tier II
High speed - Engine

S12R-MPTAW

12-cylinder, 4-stroke, water-cooled diesel engine,
with direct-injection, turbocharger and air-cooler.

Bore x stroke (mm) : 170 x 180
Displacement (l) : 49.03

Rating

kW	bhp	rpm	Rating	Emission
588	789	1400	UCD	IMO Tier II
696	933	1500	UCD	IMO Tier II
749	1004	1500	UCD	IMO Tier II
749	1004	1600	UCD	IMO Tier II
940	1261	1600	UCD	IMO Tier II
1040	1395	1650	HD	IMO Tier II

Engine dimensions & dry weight

L (mm) : 2416
W (mm) : 1585
H (mm) : 1807
Dry weight (kg) : 5320

Dimensions and weight are based on standard configuration.

Propulsion - IMO Tier II
High speed - Engine

S16R-MPTAW

16-cylinder, 4-stroke, water-cooled diesel engine,
with direct-injection, turbocharger and air-cooler.

Bore x stroke (mm) : 170 x 180
Displacement (l) : 65.37

Rating

kW	bhp	rpm	Rating	Emission
912	1223	1450	UCD	IMO Tier II
1250	1676	1600	UCD	IMO Tier II
1380	1851	1650	HD	IMO Tier II

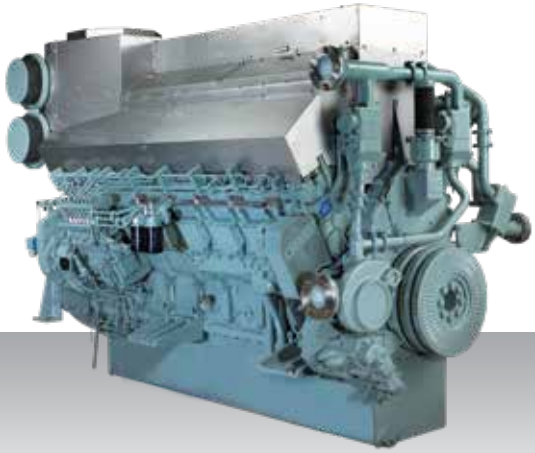
Engine dimensions & dry weight

L (mm) : 2971
W (mm) : 1585
H (mm) : 1960
Dry weight (kg) : 6780

Dimensions and weight are based on standard configuration.

Propulsion - IMO Tier II
High speed - Engine

S16R2-T2MPTAW



16-cylinder, 4-stroke, water-cooled diesel engine,
with direct-injection, turbocharger and air-cooler.

Bore x stroke (mm) : 170 x 220
Displacement (l) : 79.90

Rating

kW	bhp	rpm	Rating	Emission
1450	1944	1350	UCD	IMO Tier II
1600	2146	1400	HD	IMO Tier II
1885	2528	1500	MD	IMO Tier II

Engine dimensions & dry weight

L (mm) : 2946
W (mm) : 1525
H (mm) : 2030
Dry weight (kg) : 7750

Dimensions and weight are based on standard configuration.

Propulsion - IMO Tier II
High speed - Propulsion package

S6B3-T2MPTK2

6-cylinder, 4-stroke, water-cooled diesel engine, with direct-injection, turbocharger, air-cooler, built-up heat exchanger and sea water pump.

Bore x stroke (mm) : 135 x 170
Displacement (l) : 14.60

Rating

kW	bhp	rpm	Rating	Emission
378	507	2001	HD	IMO Tier II
448	601	2001	MD	IMO Tier II

Engine dimensions & dry weight

L (mm) : 1967
W (mm) : 984
H (mm) : 1330
Dry weight (kg) : 1400

Dimensions and weight are based on standard configuration.

Propulsion - IMO Tier II
High speed - Propulsion package

S6A3-T2MPTK3

6-cylinder, 4-stroke, water-cooled diesel engine, with direct-injection, turbocharger, air-cooler, built-up heat exchanger and sea water pump.

Bore x stroke (mm) : 150 x 175
Displacement (l) : 18.56

Rating

kW	bhp	rpm	Rating	Emission
502	673	1900	HD	IMO Tier II
558	748	1900	MD	IMO Tier II

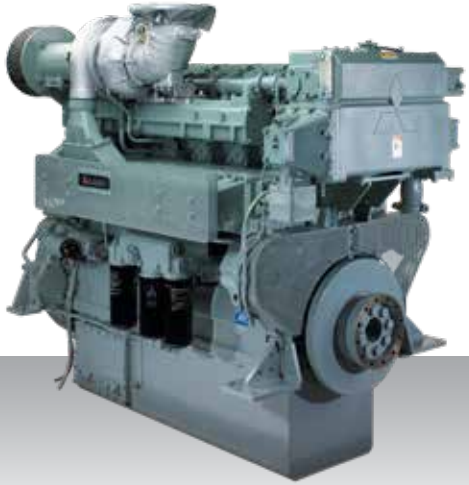
Engine dimensions & dry weight

L (mm) : 2189
W (mm) : 1127
H (mm) : 1421
Dry weight (kg) : 2100

Dimensions and weight are based on standard configuration.

Propulsion - IMO Tier II
High speed - Propulsion package

S6R-T2MPTK



6-cylinder, 4-stroke, water-cooled diesel engine, with direct-injection, turbocharger, air-cooler, built-up heat exchanger and sea water pump.

Bore x stroke (mm) : 170 x 180
Displacement (l) : 24.51

Rating

kW	bhp	rpm	Rating	Emission
470	630	1600	UCD	IMO Tier II
520	697	1650	HD	IMO Tier II
605	811	1800	MD	IMO Tier II

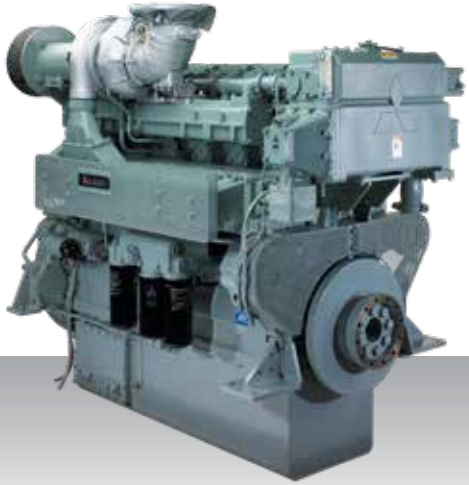
Engine dimensions & dry weight

L (mm) : 2122
W (mm) : 1202
H (mm) : 1615
Dry weight (kg) : 2950

Dimensions and weight are based on standard configuration.

Propulsion - IMO Tier II
High speed - Propulsion package

S6R2-T2MPTK



6-cylinder, 4-stroke, water-cooled diesel engine, with direct-injection, turbocharger, air-cooler, built-up heat exchanger and sea water pump.

Bore x stroke (mm) : 170 x 220
Displacement (l) : 29.96

Rating

kW	bhp	rpm	Rating	Emission
480	643	1350	UCD	IMO Tier II
530	711	1400	HD	IMO Tier II
610	818	1500	MD	IMO Tier II

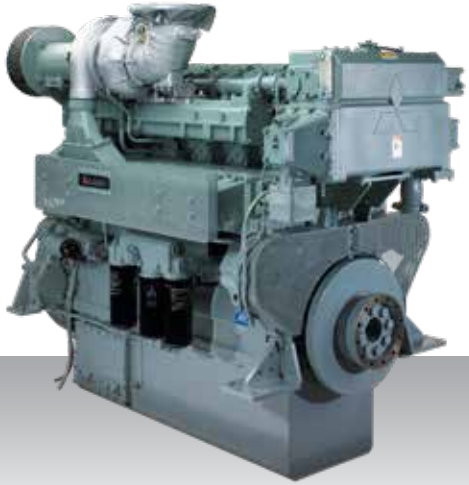
Engine dimensions & dry weight

L (mm) : 2207
W (mm) : 1156
H (mm) : 1695
Dry weight (kg) : 3000

Dimensions and weight are based on standard configuration.

Propulsion - IMO Tier II
High speed - Propulsion package

S6R2-T2MPTK3



6-cylinder, 4-stroke, water-cooled diesel engine, with direct-injection, turbocharger, air-cooler, built-up heat exchanger and sea water pump.

Bore x stroke (mm) : 170 x 220
Displacement (l) : 29.96

Rating

kW	bhp	rpm	Rating	Emission
691	927	1406	HD	IMO Tier II
759	1018	1406	MD	IMO Tier II

Engine dimensions & dry weight

L (mm) : 2105
W (mm) : 1183
H (mm) : 1695
Dry weight (kg) : 3130

Dimensions and weight are based on standard configuration.

Propulsion - IMO Tier II
High speed - Propulsion package

S12A2-T2MPTK

12-cylinder, 4-stroke, water-cooled diesel engine, with direct-injection, turbocharger, air-cooler, built-up heat exchanger and sea water pump.

Bore x stroke (mm) : 150 x 160
Displacement (l) : 33.90

Rating

kW	bhp	rpm	Rating	Emission
701	940	1800	UCD	IMO Tier II
776	1041	1860	HD	IMO Tier II

Engine dimensions & dry weight

L (mm) : 2439
W (mm) : 1482
H (mm) : 1596
Dry weight (kg) : 3820

Dimensions and weight are based on standard configuration.

Propulsion - IMO Tier II
High speed - Propulsion package

S12R-T2MPTK

12-cylinder, 4-stroke, water-cooled diesel engine,
with direct-injection, turbocharger, air-cooler,
built-up heat exchanger and sea water pump.

Bore x stroke (mm) : 170 x 180
Displacement (l) : 49.03

Rating

kW	bhp	rpm	Rating	Emission
940	1261	1600	UCD	IMO Tier II
1040	1395	1650	HD	IMO Tier II
1210	1623	1800	MD	IMO Tier II

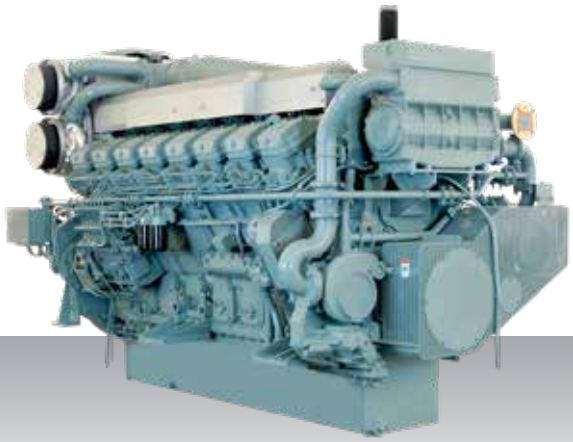
Engine dimensions & dry weight

L (mm) : 2556
W (mm) : 1622
H (mm) : 1728
Dry weight (kg) : 5500

Dimensions and weight are based on standard configuration.

Propulsion - IMO Tier II
High speed - Propulsion package

S16R-T2MPTK



16-cylinder, 4-stroke, water-cooled diesel engine,
with direct-injection, turbocharger, air-cooler,
built-up heat exchanger and sea water pump.

Bore x stroke (mm) : 170 x 180
Displacement (l) : 65.37

Rating

kW	bhp	rpm	Rating	Emission
1250	1676	1600	UCD	IMO Tier II
1380	1851	1650	HD	IMO Tier II
1610	2159	1800	MD	IMO Tier II

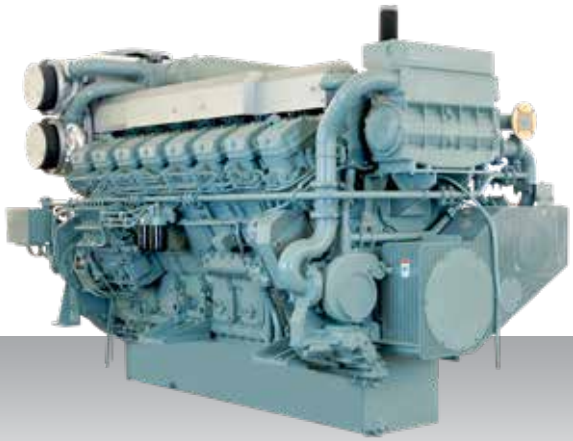
Engine dimensions & dry weight

L (mm) : 3086
W (mm) : 1622
H (mm) : 1960
Dry weight (kg) : 7000

Dimensions and weight are based on standard configuration.

Propulsion - IMO Tier II
High speed - Propulsion package

S16R2-T2MPTK



16-cylinder, 4-stroke, water-cooled diesel engine, with direct-injection, turbocharger, air-cooler, built-up heat exchanger and sea water pump.

Bore x stroke (mm) : 170 x 220
Displacement (l) : 79.90

Rating

kW	bhp	rpm	Rating	Emission
1450	1944	1350	UCD	IMO Tier II
1600	2156	1400	HD	IMO Tier II
1885	2528	1500	MD	IMO Tier II

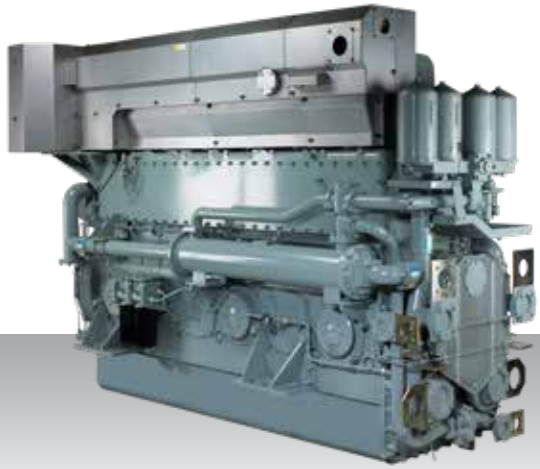
Engine dimensions & dry weight

L (mm) : 3065
W (mm) : 1622
H (mm) : 2030
Dry weight (kg) : 8000

Dimensions and weight are based on standard configuration.

Propulsion - IMO Tier II
Medium speed

S6U-MPTK



6-cylinder, 4-stroke, water-cooled diesel engine,
with direct-injection, turbocharger and air-cooler.

Bore x stroke (mm) : 240 x 260
Displacement (l) : 70.57

Rating

kW	bhp	rpm	Rating	Emission
680	912	1100	HD	IMO Tier II
719	964	1100	HD	IMO Tier II
749	1004	1100	HD	IMO Tier II
1007	1350	1060	HD	IMO Tier II
1103	1479	1150	HD-T	IMO Tier II
1119	1499	1100	MD	IMO Tier II

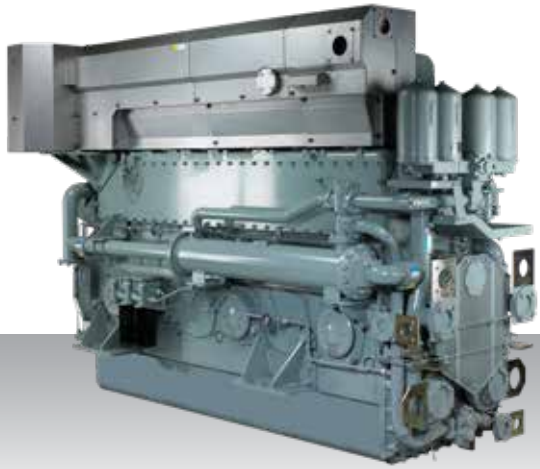
Engine dimensions & dry weight

L (mm) : 3211
W (mm) : 1429
H (mm) : 2104
Dry weight (kg) : 8350

Dimensions and weight are based on standard configuration.

Propulsion - IMO Tier II
Medium speed

S6U2-MPTK



6-cylinder, 4-stroke, water-cooled diesel engine,
with direct-injection, turbocharger and air-cooler.

Bore x stroke (mm) : 240 × 300
Displacement (l) : 81.43

Rating

kW	bhp	rpm	Rating	Emission
1040	1395	930	HD	IMO Tier II
1156	1550	960	MD	IMO Tier II

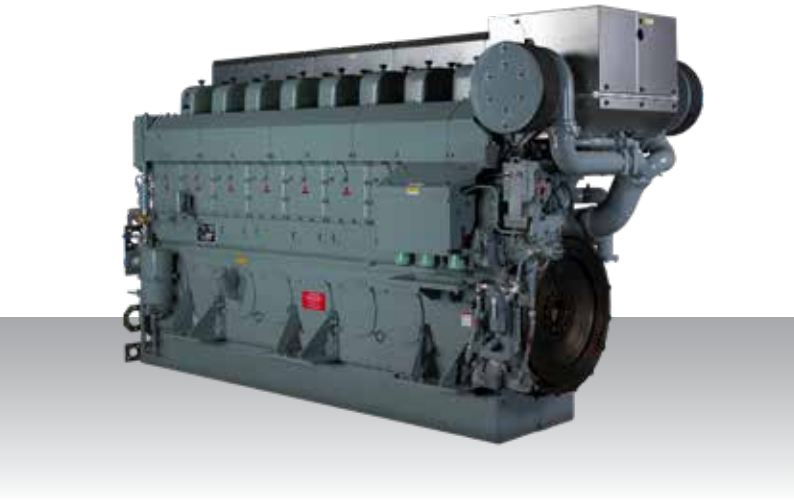
Engine dimensions & dry weight

L (mm) : 3226
W (mm) : 1429
H (mm) : 2177
Dry weight (kg) : 8650

Dimensions and weight are based on standard configuration.

Propulsion - IMO Tier II
Medium speed

S8U-MPTK



8-cylinder, 4-stroke, water-cooled diesel engine,
with direct-injection, turbocharger and air-cooler.

Bore x stroke (mm) : 240 x 260
Displacement (l) : 94.10

Rating

kW	bhp	rpm	Rating	Emission
749	1004	1100	HD	IMO Tier II
849	1139	1100	HD	IMO Tier II
1343	1801	1060	HD	IMO Tier II
1470	1971	1150	HD-T	IMO Tier II
1492	2001	1100	MD	IMO Tier II

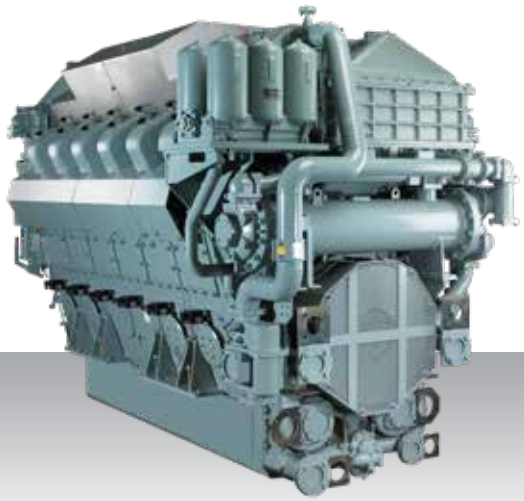
Engine dimensions & dry weight

L (mm) : 4065
W (mm) : 1539
H (mm) : 2192
Dry weight (kg) : 11000

Dimensions and weight are based on standard configuration.

Propulsion - IMO Tier II
Medium speed

S12U-MPTK



12-cylinder, 4-stroke, water-cooled diesel engine,
with direct-injection, turbocharger and air-cooler.

Bore x stroke (mm) : 240 x 260
Displacement (l) : 141.15

Rating

kW	bhp	rpm	Rating	Emission
2014	2701	1060	HD	IMO Tier II
2205	2957	1150	HD-T	IMO Tier II
2238	3001	1100	MD	IMO Tier II

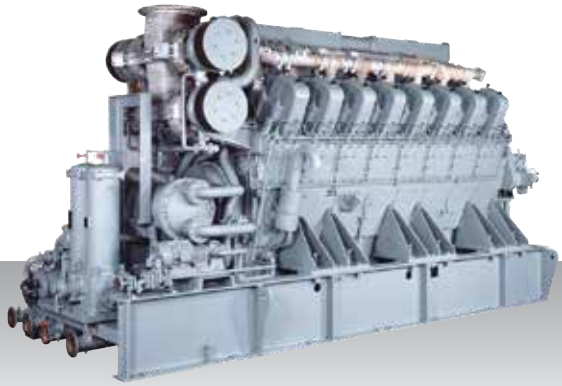
Engine dimensions & dry weight

L (mm) : 3562
W (mm) : 1910
H (mm) : 2374
Dry weight (kg) : 15500

Dimensions and weight are based on standard configuration.

Propulsion - IMO Tier II
Medium speed

S16U-MPTK



16-cylinder, 4-stroke, water-cooled diesel engine,
with direct-injection, turbocharger and air-cooler.

Bore x stroke (mm) : 240 x 260
Displacement (l) : 188.19

Rating

kW	bhp	rpm	Rating	Emission
2686	3602	1060	HD	IMO Tier II
2940	3943	1150	HD-T	IMO Tier II
2984	4002	1100	MD	IMO Tier II

Engine dimensions & dry weight

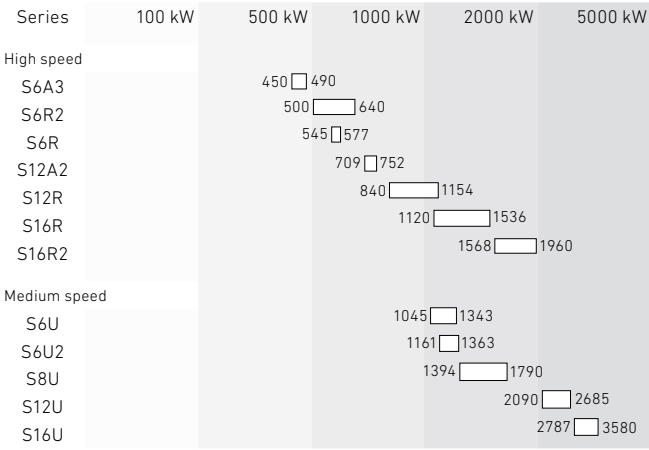
L (mm) : 4628
W (mm) : 1710
H (mm) : 2473
Dry weight (kg) : 20500

Dimensions and weight are based on standard configuration.

Diesel-electric propulsion specifications

Inland cargo vessel - ms Goblin
Partner - Koedood Dieselservice B.V.

LINE-UP - MARINE DIESEL-ELECTRIC PROPULSION



Diesel-electric propulsion - IMO Tier II / III - High speed

Engine model	kW	bhp	rpm	Hz	Emission	Page
50 Hz						
S6A3-T2MPTAW	450	603	1500	50	IMO Tier II	44
S6R-MPTAW	545	731	1500	50	IMO Tier II / III	45
S6R2-T2MPTK	640	858	1500	50	IMO Tier II / III	46
S12A2-MPTAW	709	951	1500	50	IMO Tier II / III	48
S12R-MPTAW	1120	1502	1500	50	IMO Tier II / III	49
S16R-MPTAW	1500	2012	1500	50	IMO Tier II / III	50
S16R2-T2MPTAW	1960	2628	1500	50	IMO Tier II / III	51
60 Hz						
S6A3-T2MPTAW	490	657	1800	60	IMO Tier II	44
S6R-MPTAW	577	774	1800	60	IMO Tier II / III	45
S6R2-T2MPTK	500	671	1200	60	IMO Tier II	46
S6R2-T2MPTAW3	610	818	1200	60	IMO Tier II / II	47
S12A2-MPTAW	752	1008	1800	60	IMO Tier II / III	48
S12R-MPTAW	840	1126	1200	60	IMO Tier II / III	49
S12R-MPTAW	1154	1548	1800	60	IMO Tier II / III	49
S16R-MPTAW	1120	1502	1200	60	IMO Tier II / III	50
S16R-MPTAW	1536	2060	1800	60	IMO Tier II/ III	50
S16R2-T2MPTAW	1568	2103	1200	60	IMO Tier II / III	51

Diesel-electric propulsion - IMO Tier II - Medium speed

Engine model	kW	bhp	rpm	Hz	Emission	Page
50 Hz						
S6U-MPTK	1142	1531	1000	50	IMO Tier II	52
S6U-MPTK	1270	1703	1000	50	IMO Tier II	52
S6U2-MPTK	1234	1655	1000	50	IMO Tier II	53
S6U2-MPTK	1363	1828	1000	50	IMO Tier II	53
S8U-MPTK	1522	2041	1000	50	IMO Tier II	54
S8U-MPTK	1693	2270	1000	50	IMO Tier II	54
S12U-MPTK	2283	3062	1000	50	IMO Tier II	55
S12U-MPTK	2541	3408	1000	50	IMO Tier II	55
S16U-MPTK	3045	4083	1000	50	IMO Tier II	56
S16U-MPTK	3388	4543	1000	50	IMO Tier II	56
60 Hz						
S6U-MPTK	1045	1401	900	60	IMO Tier II	52
S6U-MPTK	1150	1542	900	60	IMO Tier II	52
S6U-MPTK	1205	1616	1200	60	IMO Tier II	52
S6U-MPTK	1343	1801	1200	60	IMO Tier II	52
S6U2-MPTK	1161	1557	900	60	IMO Tier II	53
S6U2-MPTK	1250	1676	900	60	IMO Tier II	53
S8U-MPTK	1394	1869	900	60	IMO Tier II	54
S8U-MPTK	1533	2056	900	60	IMO Tier II	54
S8U-MPTK	1608	2156	1200	60	IMO Tier II	54
S8U-MPTK	1790	2400	1200	60	IMO Tier II	54
S12U-MPTK	2090	2803	900	60	IMO Tier II	55
S12U-MPTK	2299	3083	900	60	IMO Tier II	55
S12U-MPTK	2412	3235	1200	60	IMO Tier II	55
S12U-MPTK	2685	3601	1200	60	IMO Tier II	55
S16U-MPTK	2787	3737	900	60	IMO Tier II	56
S16U-MPTK	3065	4110	900	60	IMO Tier II	56
S16U-MPTK	3215	4311	1200	60	IMO Tier II	56
S16U-MPTK	3580	4801	1200	60	IMO Tier II	56

Diesel-electric propulsion
IMO Tier II / IMO Tier III
High speed

S6A3-T2MPTAW

6-cylinder, 4-stroke, water-cooled diesel engine,
with direct-injection, turbocharger and air-cooler.

Bore x stroke (mm) : 150 x 175
Displacement (l) : 18.56

Rating

kW	bhp	rpm	Hz	Emission	SCR system IMO Tier III*
450	603	1500	50	IMO Tier II	on request
490	657	1800	60	IMO Tier II	on request

*For more information on our SCR systems, please see chapter SCR system specifications or visit our website engine-genset.mhi.com

Engine dimensions & dry weight

L (mm) : 1636
W (mm) : 924
H (mm) : 1421
Dry weight (kg) : 1900

Dimensions and weight are based on standard configuration.

Diesel-electric propulsion
IMO Tier II / IMO Tier III
High speed

S6R-MPTAW

6-cylinder, 4-stroke, water-cooled diesel engine,
with direct-injection, turbocharger and air-cooler.

Bore x stroke (mm) : 170 x 180
Displacement (l) : 24.51

Rating

kW	bhp	rpm	Hz	Emission	SCR system IMO Tier III*
545	731	1500	50	IMO Tier II / III	SCR25
577	774	1800	60	IMO Tier II / III	SCR25

*For more information on our SCR systems, please see chapter SCR system specifications or visit our website engine-genset.mhi.com

Engine dimensions & dry weight

L (mm) : 1786
W (mm) : 1220
H (mm) : 1650
Dry weight (kg) : 2830

Dimensions and weight are based on standard configuration.

Diesel-electric propulsion
IMO Tier II / IMO Tier III
High speed

S6R2-T2MPTK

6-cylinder, 4-stroke, water-cooled diesel engine,
with direct-injection, turbocharger and air-cooler.

Bore x stroke (mm) : 170 x 220
Displacement (l) : 29.96

Rating

kW	bhp	rpm	Hz	Emission	SCR system IMO Tier III*
500	671	1200	60	IMO Tier II	n.a.
640	858	1500	50	IMO Tier II / III	SCR25

*For more information on our SCR systems, please see chapter SCR system specifications or visit our website engine-genset.mhi.com

Engine dimensions & dry weight

L (mm) : 1811
W (mm) : 1108
H (mm) : 1694
Dry weight (kg) : 2960

Dimensions and weight are based on standard configuration.

Diesel-electric propulsion
IMO Tier II / IMO Tier III
High speed

S6R2-T2MPTAW3

6-cylinder, 4-stroke, water-cooled diesel engine,
with direct-injection, turbocharger and air-cooler.

Bore x stroke (mm) : 170 x 220
Displacement (l) : 29.96

Rating

kW	bhp	rpm	Hz	Emission	SCR system IMO Tier III*
610	818	1200	60	IMO Tier II / III	SCR25

*For more information on our SCR systems, please see chapter SCR system specifications or visit our website engine-genset.mhi.com

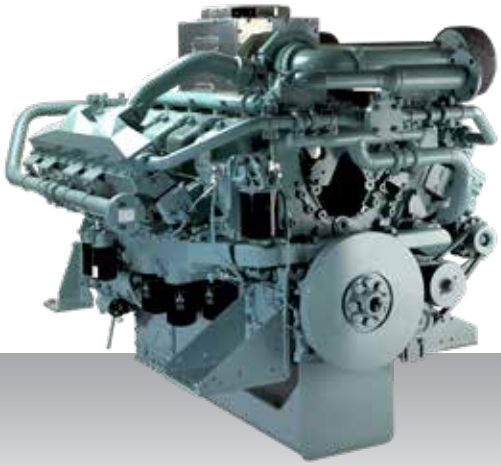
Engine dimensions & dry weight

L (mm) : 1811
W (mm) : 1108
H (mm) : 1694
Dry weight (kg) : 2960

Dimensions and weight are based on standard configuration.

Diesel-electric propulsion
IMO Tier II / IMO Tier III
High speed

S12A2-MPTAW



12-cylinder, 4-stroke, water-cooled diesel engine,
with direct-injection, turbocharger and air-cooler.

Bore x stroke (mm) : 150 x 160
Displacement (l) : 33.93

Rating

kW	bhp	rpm	Hz	Emission	SCR system IMO Tier III*
709	951	1500	50	IMO Tier II / III	SCR25
752	1008	1800	60	IMO Tier II / III	SCR25

*For more information on our SCR systems, please see chapter SCR system specifications or visit our website engine-genset.mhi.com

Engine dimensions & dry weight

L (mm) : 2059
W (mm) : 1654
H (mm) : 1596
Dry weight (kg) : 3380

Dimensions and weight are based on standard configuration.

Diesel-electric propulsion
IMO Tier II / IMO Tier III
High speed

S12R-MPTAW

12-cylinder, 4-stroke, water-cooled diesel engine,
with direct-injection, turbocharger and air-cooler.

Bore x stroke (mm) : 170 x 180
Displacement (l) : 49.03

Rating

kW	bhp	rpm	Hz	Emission	SCR system IMO Tier III*
840	1126	1200	60	IMO Tier II / III	SCR25
1120	1502	1500	50	IMO Tier II / III	SCR36
1154	1548	1800	60	IMO Tier II / III	SCR36

*For more information on our SCR systems, please see chapter SCR system specifications or visit our website engine-genset.mhi.com

Engine dimensions & dry weight

L (mm) : 2416
W (mm) : 1585
H (mm) : 1807
Dry weight (kg) : 5320

Dimensions and weight are based on standard configuration.

Diesel-electric propulsion
IMO Tier II / IMO Tier III
High speed

S16R-MPTAW

16-cylinder, 4-stroke, water-cooled diesel engine,
with direct-injection, turbocharger and air-cooler.

Bore x stroke (mm) : 170 x 180
Displacement (l) : 65.37

Rating

kW	bhp	rpm	Hz	Emission	SCR system IMO Tier III*
1120	1502	1200	60	IMO Tier II / III	SCR25
1500	2012	1500	50	IMO Tier II / III	SCR49
1536	2060	1800	60	IMO Tier II / III	SCR49

*For more information on our SCR systems, please see chapter SCR system specifications or visit our website engine-genset.mhi.com

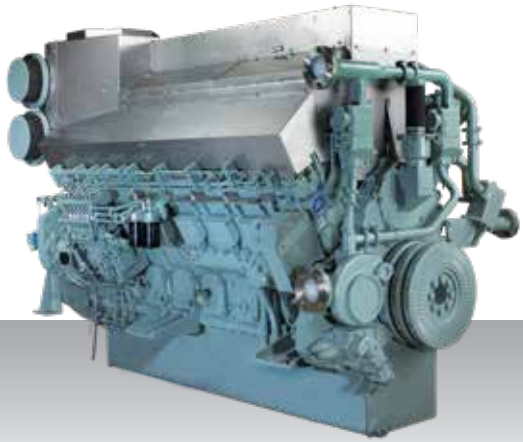
Engine dimensions & dry weight

L (mm) : 2971
W (mm) : 1585
H (mm) : 1960
Dry weight (kg) : 6780

Dimensions and weight are based on standard configuration.

Diesel-electric propulsion
IMO Tier II / IMO Tier III
High speed

S16R2-T2MPTAW



16-cylinder, 4-stroke, water-cooled diesel engine,
with direct-injection, turbocharger and air-cooler.

Bore x stroke (mm) : 170 x 220
Displacement (l) : 79.90

Rating

kW	bhp	rpm	Hz	Emission	SCR system IMO Tier III*
1568	2103	1200	60	IMO Tier II / III	SCR49
1960	2628	1500	50	IMO Tier II / III	SCR49

*For more information on our SCR systems, please see chapter SCR system specifications or visit our website engine-genset.mhi.com

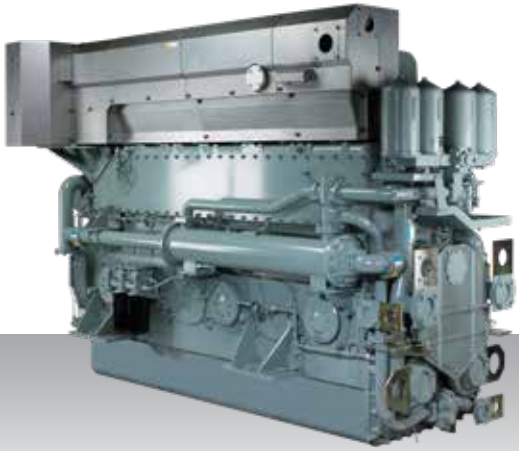
Engine dimensions & dry weight

L (mm) : 2946
W (mm) : 1525
H (mm) : 2030
Dry weight (kg) : 7750

Dimensions and weight are based on standard configuration.

Diesel-electric propulsion
IMO Tier II - Medium speed

S6U-MPTK



6-cylinder, 4-stroke, water-cooled diesel engine,
with direct-injection, turbocharger and air-cooler.

Bore x stroke (mm) : 240 x 260
Displacement (l) : 70.57

Rating

Rating	kW	bhp	rpm	Hz	Emission
Continuous	1045	1401	900	60	IMO Tier II
	1142	1531	1000	50	IMO Tier II
	1205	1616	1200	60	IMO Tier II
Intermittent	1150	1542	900	60	IMO Tier II
	1270	1703	1000	50	IMO Tier II
	1343	1801	1200	60	IMO Tier II

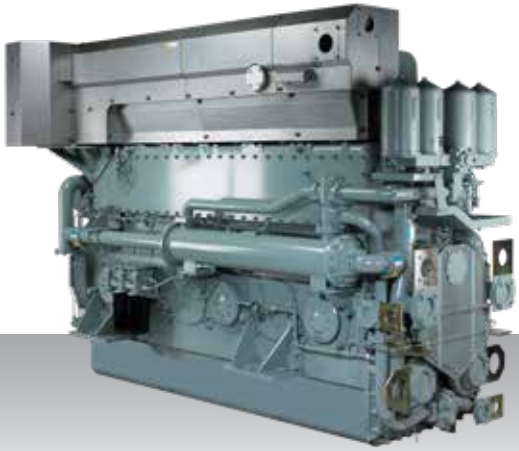
Engine dimensions & dry weight

L (mm) : 3211
W (mm) : 1429
H (mm) : 2104
Dry weight (kg) : 8350

Dimensions and weight are based on standard configuration.

Diesel-electric propulsion
IMO Tier II Medium speed

S6U2-MPTK



6-cylinder, 4-stroke, water-cooled diesel engine,
with direct-injection, turbocharger and air-cooler.

Bore x stroke (mm) : 240 x 300
Displacement (l) : 81.43

Rating

Rating	kW	bhp	rpm	Hz	Emission
Continuous	1161	1557	900	60	IMO Tier II
	1234	1655	1000	50	IMO Tier II
Intermittent	1250	1676	900	60	IMO Tier II
	1363	1828	1000	50	IMO Tier II

Engine dimensions & dry weight

L (mm) : 3226
W (mm) : 1429
H (mm) : 2177
Dry weight (kg) : 8650

Dimensions and weight are based on standard configuration.

Diesel-electric propulsion
IMO Tier II Medium speed

S8U-MPTK

8-cylinder, 4-stroke, water-cooled diesel engine,
with direct-injection, turbocharger and air-cooler.

Bore x stroke (mm) : 240 x 260
Displacement (l) : 94.10

Rating

Rating	kW	bhp	rpm	Hz	Emission
Continuous	1394	1869	900	60	IMO Tier II
	1522	2041	1000	50	IMO Tier II
	1608	2156	1200	60	IMO Tier II
Intermittent	1533	2056	900	60	IMO Tier II
	1693	2270	1000	50	IMO Tier II
	1790	2400	1200	60	IMO Tier II

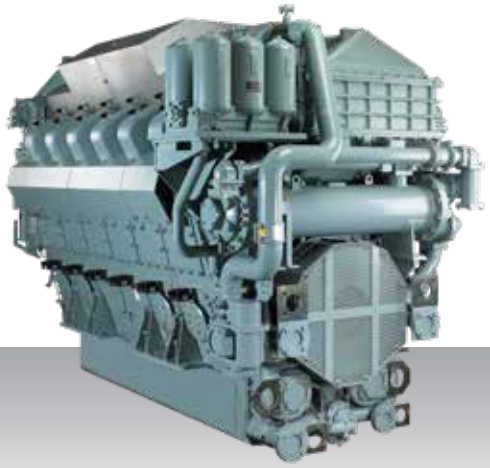
Engine dimensions & dry weight

L (mm) : 4065
W (mm) : 1539
H (mm) : 2192
Dry weight (kg) : 11000

Dimensions and weight are based on standard configuration.

Diesel-electric propulsion
IMO Tier II Medium speed

S12U-MPTK



12-cylinder, 4-stroke, water-cooled diesel engine,
with direct-injection, turbocharger and air-cooler.

Bore x stroke (mm) : 240 x 260
Displacement (l) : 141.15

Rating

Rating	kW	bhp	rpm	Hz	Emission
Continuous	2090	2803	900	60	IMO Tier II
	2283	3062	1000	50	IMO Tier II
	2412	3235	1200	60	IMO Tier II
Intermittent	2299	3083	900	60	IMO Tier II
	2541	3408	1000	50	IMO Tier II
	2685	3601	1200	60	IMO Tier II

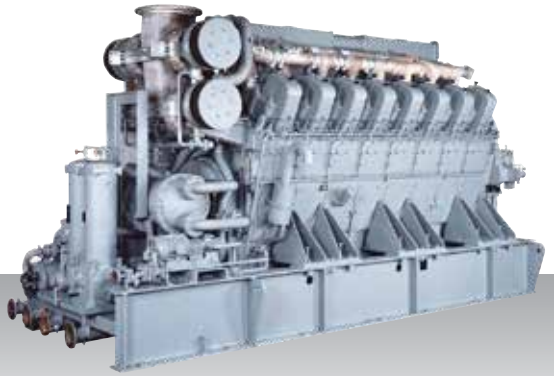
Engine dimensions & dry weight

L (mm) : 3562
W (mm) : 1910
H (mm) : 2374
Dry weight (kg) : 15500

Dimensions and weight are based on standard configuration.

Diesel-electric propulsion
IMO Tier II Medium speed

S16U-MPTK



16-cylinder, 4-stroke, water-cooled diesel engine,
with direct-injection, turbocharger and air-cooler.

Bore x stroke (mm) : 240 x 260
Displacement (l) : 188.19

Rating

Rating	kW	bhp	rpm	Hz	Emission
Continuous	2787	3737	900	60	IMO Tier II
	3045	4083	1000	50	IMO Tier II
	3215	4311	1200	60	IMO Tier II
Intermittent	3065	4110	900	60	IMO Tier II
	3388	4543	1000	50	IMO Tier II
	3580	4801	1200	60	IMO Tier II

Engine dimensions & dry weight

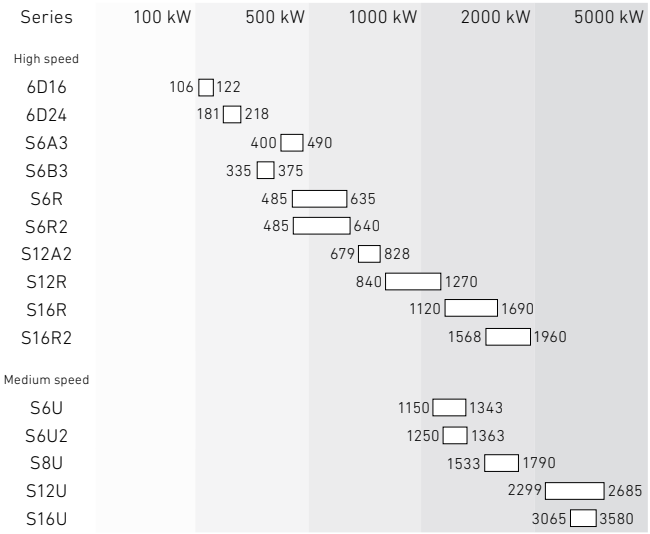
L (mm) : 4628
W (mm) : 1710
H (mm) : 2473
Dry weight (kg) : 20500

Dimensions and weight are based on standard configuration.

Auxiliary generator specifications

Fishing vessel - Skagøysund
Partner - Mitsubishi Turbocharger and Engine Europe B.V.
Norwegian Branch Office

LINE-UP - MARINE AUXILIARY GENERATOR



Auxiliary generator - Not regulated - High speed

Engine model	kW	bhp	rpm	Hz	Emission	Page
50 Hz						
6D16-MPT	106	142	1500	50	not regulated	60
6D24-MPTA	181	243	1500	50	not regulated	61
S6B3-MPTA	335	449	1500	50	not regulated	62
S6A3-MPTA	400	536	1500	50	not regulated	63
S6R-MPTA	515	691	1500	50	not regulated	64
S6R2-MPTA	595	798	1500	50	not regulated	65
S12A2-MPTA	679	911	1500	50	not regulated	66
S12R-MPTA	1110	1489	1500	50	not regulated	67
S16R-MPTA	1480	1985	1500	50	not regulated	68
60 Hz						
6D16-MPT	122	164	1800	60	not regulated	60
6D24-MPTA	218	292	1800	60	not regulated	61
S6B3-MPTA	375	503	1800	60	not regulated	62
S6A3-MPTA	460	617	1800	60	not regulated	63
S6R-MPTA	595	798	1800	60	not regulated	64
S6R2-MPTA	485	650	1200	60	not regulated	65
S12A2-MPTA	761	1021	1800	60	not regulated	66
S12R-MPTA	1190	1596	1800	60	not regulated	67
S16R-MPTA	1590	2132	1800	60	not regulated	68

Auxiliary generator - IMO Tier II / IMO Tier III - High speed

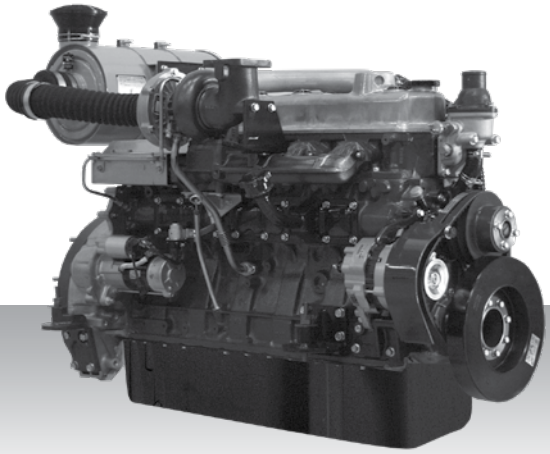
Engine model	kW	bhp	rpm	Hz	Emission	Page
50 Hz						
6D16-MPT	106	142	1500	50	not regulated under IMO Tier III	69
6D24-MPTA	181	243	1500	50	IMO Tier II	70
S6B3-T2MPTAW	335	449	1500	50	IMO Tier II	71
S6A3-T2MPTAW	450	603	1500	50	IMO Tier II	72
S6R-MPTAW	545	731	1500	50	IMO Tier II / III	73
S6R2-T2MPTK	640	858	1500	50	IMO Tier II / III	74
S12A2-MPTAW	709	951	1500	50	IMO Tier II / III	76
S12R-MPTAW	1120	1502	1500	50	IMO Tier II / III	77
S16R-MPTAW	1500	2012	1500	50	IMO Tier II / III	78
S16R2-T2MPTAW	1960	2628	1500	50	IMO Tier II / III	79
60 Hz						
6D16-MPT	122	164	1800	60	not regulated under IMO Tier III	69
6D24-MPTA	218	292	1800	60	IMO Tier II	70
S6B3-T2MPTAW	375	503	1800	60	IMO Tier II	71
S6A3-T2MPTAW	490	657	1800	60	IMO Tier II	72
S6R-MPTAW	635	852	1800	60	IMO Tier II / III	73
S6R2-T2MPTK	500	671	1200	60	IMO Tier II	74
S6R2-T2MPTAW3	610	818	1200	60	IMO Tier II / III	75
S12A2-MPTAW	828	1110	1800	60	IMO Tier II / III	76
S12R-MPTAW	840	1126	1200	60	IMO Tier II / III	77
S12R-MPTAW	1270	1703	1800	60	IMO Tier II / III	77
S16R-MPTAW	1120	1502	1200	60	IMO Tier II / III	78
S16R-MPTAW	1690	2266	1800	60	IMO Tier II / III	78
S16R2-T2MPTAW	1568	2103	1200	60	IMO Tier II / III	79

Auxiliary generator - IMO Tier II - Medium speed

Engine model	kW	bhp	rpm	Hz	Emission	Page
50 Hz						
S6U-MPTK	1270	1703	1000	50	IMO Tier II	80
S6U2-MPTK	1363	1828	1000	50	IMO Tier II	81
S8U-MPTK	1693	2270	1000	50	IMO Tier II	82
S12U-MPTK	2541	3408	1000	50	IMO Tier II	83
S16U-MPTK	3388	4543	1000	50	IMO Tier II	84
60 Hz						
S6U-MPTK	1150	1542	900	60	IMO Tier II	80
S6U-MPTK	1343	1801	1200	60	IMO Tier II	80
S6U2-MPTK	1250	1676	900	60	IMO Tier II	81
S8U-MPTK	1533	2056	900	60	IMO Tier II	82
S8U-MPTK	1790	2400	1200	60	IMO Tier II	82
S12U-MPTK	2299	3083	900	60	IMO Tier II	83
S12U-MPTK	2685	3601	1200	60	IMO Tier II	83
S16U-MPTK	3065	4110	900	60	IMO Tier II	84
S16U-MPTK	3580	4801	1200	60	IMO Tier II	84

Auxiliary generator
Not regulated - High speed

6D16-MPT



6-cylinder, 4-stroke, water-cooled diesel engine,
with direct-injection and turbocharger.

Bore x stroke (mm) : 118 x 115
Displacement (l) : 7.54

Rating

kW	bhp	rpm	Hz	Emission
106	142	1500	50	not regulated
122	164	1800	60	not regulated

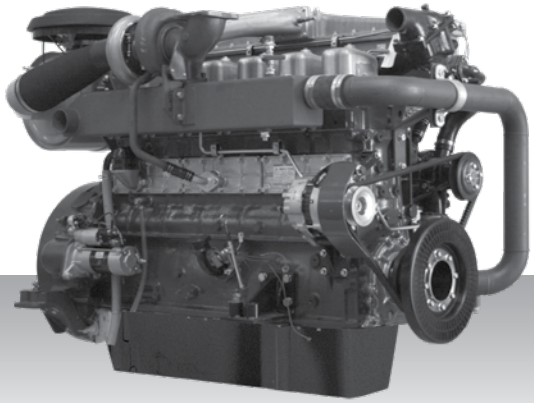
Engine dimensions & dry weight

L (mm) : 1335
W (mm) : 731
H (mm) : 830
Dry weight (kg) : 575

Dimensions and weight are based on standard configuration.

Auxiliary generator
Not regulated - High speed

6D24-MPTA



6-cylinder, 4-stroke, water-cooled diesel engine,
with direct-injection, turbocharger and air-cooler.

Bore x stroke (mm) : 130 x 150
Displacement (l) : 11.95

Rating

kW	bhp	rpm	Hz	Emission
181	243	1500	50	not regulated
218	292	1800	60	not regulated

Engine dimensions & dry weight

L (mm) : 1535
W (mm) : 880
H (mm) : 1235
Dry weight (kg) : 1209

Dimensions and weight are based on standard configuration.

Auxiliary generator
Not regulated - High speed

S6B3-MPTA

6-cylinder, 4-stroke, water-cooled diesel engine,
with direct-injection, turbocharger and air-cooler.

Bore x stroke (mm) : 135 x 170
Displacement (l) : 14.60

Rating

kW	bhp	rpm	Hz	Emission
335	449	1500	50	not regulated
375	503	1800	60	not regulated

Engine dimensions & dry weight

L (mm) : 1834
W (mm) : 873
H (mm) : 1331
Dry weight (kg) : 1331

Dimensions and weight are based on standard configuration.

Auxiliary generator
Not regulated - High speed

S6A3-MPTA

6-cylinder, 4-stroke, water-cooled diesel engine,
with direct-injection, turbocharger and air-cooler.

Bore x stroke (mm) : 150 x 175
Displacement (l) : 18.56

Rating

kW	bhp	rpm	Hz	Emission
400	536	1500	50	not regulated
460	617	1800	60	not regulated

Engine dimensions & dry weight

L (mm) : 1636
W (mm) : 924
H (mm) : 1421
Dry weight (kg) : 1850

Dimensions and weight are based on standard configuration.

Auxiliary generator
Not regulated - High speed

S6R-MPTA

6-cylinder, 4-stroke, water-cooled diesel engine,
with direct-injection, turbocharger and air-cooler.

Bore x stroke (mm) : 170 x 180
Displacement (l) : 24.51

Rating

kW	bhp	rpm	Hz	Emission
515	691	1500	50	not regulated
595	798	1800	60	not regulated

Engine dimensions & dry weight

L (mm) : 1811
W (mm) : 1108
H (mm) : 1614
Dry weight (kg) : 2780

Dimensions and weight are based on standard configuration.

Auxiliary generator
Not regulated - High speed

S6R2-MPTA

6-cylinder, 4-stroke, water-cooled diesel engine,
with direct-injection, turbocharger and air-cooler.

Bore x stroke (mm) : 170 x 220
Displacement (l) : 29.96

Rating

kW	bhp	rpm	Hz	Emission
485	650	1200	60	not regulated
595	798	1500	50	not regulated

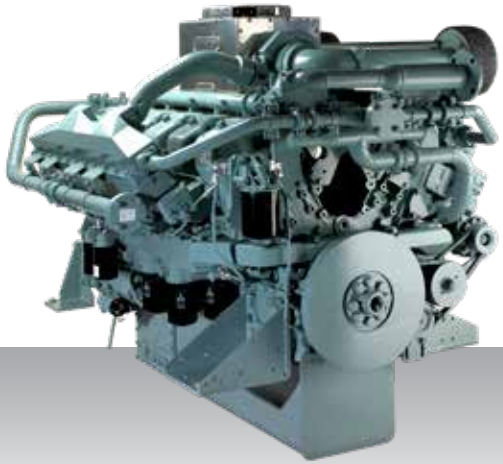
Engine dimensions & dry weight

L (mm) : 1811
W (mm) : 1108
H (mm) : 1694
Dry weight (kg) : 2910

Dimensions and weight are based on standard configuration.

Auxiliary generator
Not regulated - High speed

S12A2-MPTA



12-cylinder, 4-stroke, water-cooled diesel engine,
with direct-injection, turbocharger and air-cooler.

Bore x stroke (mm) : 150 x 160
Displacement (l) : 33.93

Rating

kW	bhp	rpm	Hz	Emission
679	911	1500	50	not regulated
761	1021	1800	60	not regulated

Engine dimensions & dry weight

L (mm) : 2002
W (mm) : 1442
H (mm) : 1596
Dry weight (kg) : 3380

Dimensions and weight are based on standard configuration.

Auxiliary generator
Not regulated - High speed

S12R-MPTA

12-cylinder, 4-stroke, water-cooled diesel engine,
with direct-injection, turbocharger and air-cooler.

Bore x stroke (mm) : 170 x 180
Displacement (l) : 49.03

Rating

kW	bhp	rpm	Hz	Emission
1110	1489	1500	50	not regulated
1190	1596	1800	60	not regulated

Engine dimensions & dry weight

L (mm) : 2376
W (mm) : 1512
H (mm) : 1742
Dry weight (kg) : 5230

Dimensions and weight are based on standard configuration.

Auxiliary generator
Not regulated - High speed

S16R-MPTA

16-cylinder, 4-stroke, water-cooled diesel engine,
with direct-injection, turbocharger and air-cooler.

Bore x stroke (mm) : 170 x 180
Displacement (l) : 65.37

Rating

kW	bhp	rpm	Hz	Emission
1480	1985	1500	50	not regulated
1590	2132	1800	60	not regulated

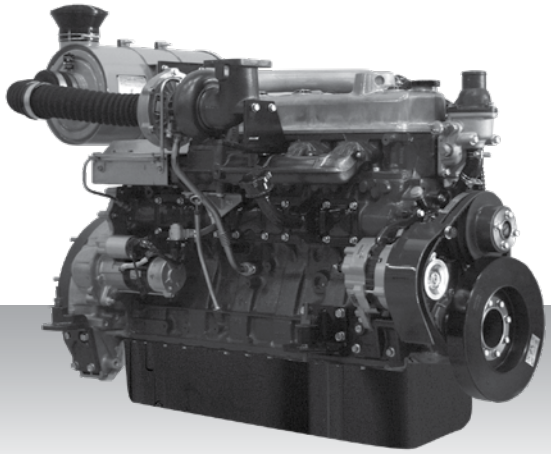
Engine dimensions & dry weight

L (mm) : 2931
W (mm) : 1512
H (mm) : 1960
Dry weight (kg) : 6660

Dimensions and weight are based on standard configuration.

Auxiliary generator
IMO Tier II / IMO Tier III
High speed

6D16-MPT



6-cylinder, 4-stroke, water-cooled diesel engine,
with direct-injection and turbocharger.

Bore x stroke (mm) : 118 x 115
Displacement (l) : 7.54

Rating

kW	bhp	rpm	Hz	Emission	SCR system IMO Tier III*
106	142	1500	50	not regulated under IMO Tier III	n.a.
122	164	1800	60	not regulated under IMO Tier III	n.a.

*For more information on our SCR systems, please see chapter SCR system specifications or visit our website engine-genset.mhi.com

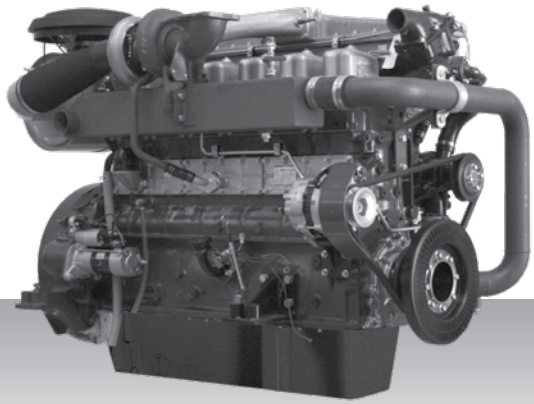
Engine dimensions & dry weight

L (mm) : 1335
W (mm) : 731
H (mm) : 830
Dry weight (kg) : 575

Dimensions and weight are based on standard configuration.

Auxiliary generator
IMO Tier II / IMO Tier III
High speed

6D24-MPTA



6-cylinder, 4-stroke, water cooled diesel engine,
with direct-injection, turbocharger and air-cooler.

Bore x stroke (mm) : 130 x 150
Displacement (l) : 11.95

Rating

kW	bhp	rpm	Hz	Emission	SCR system IMO Tier III*
181	243	1500	50	IMO Tier II	n.a.
218	292	1800	60	IMO Tier II	n.a.

*For more information on our SCR systems, please see chapter SCR system specifications or visit our website engine-genset.mhi.com

Engine dimensions & dry weight

L (mm) : 1535
W (mm) : 880
H (mm) : 1235
Dry weight (kg) : 575

Dimensions and weight are based on standard configuration.

Auxiliary generator
IMO Tier II / IMO Tier III
High speed

S6B3-T2MPTAW

6-cylinder, 4-stroke, water-cooled diesel engine,
with direct-injection, turbocharger and air-cooler.

Bore x stroke (mm) : 135 x 170
Displacement (l) : 14.60

Rating

kW	bhp	rpm	Hz	Emission	SCR system IMO Tier III*
335	449	1500	50	IMO Tier II	on request
375	503	1800	60	IMO Tier II	on request

*For more information on our SCR systems, please see chapter SCR system specifications or visit our website engine-genset.mhi.com

Engine dimensions & dry weight

L (mm) : 1465
W (mm) : 873
H (mm) : 1300
Dry weight (kg) : 1310

Dimensions and weight are based on standard configuration.

Auxiliary generator
IMO Tier II / IMO Tier III
High speed

S6A3-T2MPTAW

6-cylinder, 4-stroke, water-cooled diesel engine,
with direct-injection, turbocharger and air-cooler.

Bore x stroke (mm) : 150 x 175
Displacement (l) : 18.56

Rating

kW	bhp	rpm	Hz	Emission	SCR system IMO Tier III*
450	603	1500	50	IMO Tier II	on request
490	657	1800	60	IMO Tier II	on request

*For more information on our SCR systems, please see chapter SCR system specifications or visit our website engine-genset.mhi.com

Engine dimensions & dry weight

L (mm) : 1636
W (mm) : 924
H (mm) : 1421
Dry weight (kg) : 1900

Dimensions and weight are based on standard configuration.

Auxiliary generator
IMO Tier II / IMO Tier III
High speed

S6R-MPTAW

6-cylinder, 4-stroke, water-cooled diesel engine,
with direct-injection, turbocharger and air-cooler.

Bore x stroke (mm) : 170 x 180
Displacement (l) : 24.51

Rating

kW	bhp	rpm	Hz	Emission	SCR system IMO Tier III*
545	731	1500	50	IMO Tier II / III	SCR25
635	852	1800	60	IMO Tier II / III	SCR25

*For more information on our SCR systems, please see chapter SCR system specifications or visit our website engine-genset.mhi.com

Engine dimensions & dry weight

L (mm) : 1786
W (mm) : 1220
H (mm) : 1650
Dry weight (kg) : 2830

Dimensions and weight are based on standard configuration.

Auxiliary generator
IMO Tier II / IMO Tier III
High speed

S6R2-T2MPTK

6-cylinder, 4-stroke, water-cooled diesel engine,
with direct-injection, turbocharger and air-cooler.

Bore x stroke (mm) : 170 x 220
Displacement (l) : 29.96

Rating

kW	bhp	rpm	Hz	Emission	SCR system IMO Tier III*
500	671	1200	60	IMO Tier II	on request
640	858	1500	50	IMO Tier II / III	SCR25

*For more information on our SCR systems, please see chapter SCR system specifications or visit our website engine-genset.mhi.com

Engine dimensions & dry weight

L (mm) : 1811
W (mm) : 1108
H (mm) : 1694
Dry weight (kg) : 2960

Dimensions and weight are based on standard configuration.

Auxiliary generator
IMO Tier II / IMO Tier III
High speed

S6R2-T2MPTAW3

6-cylinder, 4-stroke, water-cooled diesel engine,
with direct-injection, turbocharger and air-cooler.

Bore x stroke (mm) : 170 x 220
Displacement (l) : 29.96

Rating

kW	bhp	rpm	Hz	Emission	SCR system IMO Tier III*
610	818	1200	60	IMO Tier II / III	SCR25

*For more information on our SCR systems, please see chapter SCR system specifications or visit our website engine-genset.mhi.com

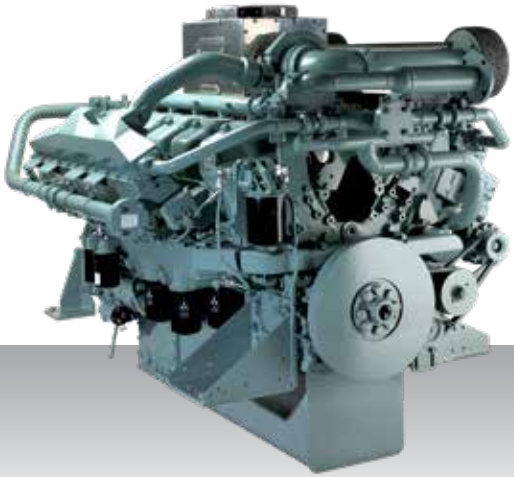
Engine dimensions & dry weight

L (mm) : 1811
W (mm) : 1108
H (mm) : 1694
Dry weight (kg) : 2960

Dimensions and weight are based on standard configuration.

Auxiliary generator
IMO Tier II / IMO Tier III
High speed

S12A2-MPTAW



12-cylinder, 4-stroke, water-cooled diesel engine,
with direct-injection, turbocharger and air-cooler.

Bore x stroke (mm) : 150 x 160
Displacement (l) : 33.93

Rating

kW	bhp	rpm	Hz	Emission	SCR system IMO Tier III*
709	951	1500	50	IMO Tier II / III	SCR25
828	1110	1800	60	IMO Tier II / III	SCR25

*For more information on our SCR systems, please see chapter SCR system specifications or visit our website engine-genset.mhi.com

Engine dimensions & dry weight

L (mm) : 2059
W (mm) : 1654
H (mm) : 1596
Dry weight (kg) : 3380

Dimensions and weight are based on standard configuration.

Auxiliary generator
IMO Tier II / IMO Tier III
High speed

S12R-MPTAW

12-cylinder, 4-stroke, water-cooled diesel engine,
with direct-injection, turbocharger and air-cooler.

Bore x stroke (mm) : 170 x 180
Displacement (l) : 49.03

Rating

kW	bhp	rpm	Hz	Emission	SCR system IMO Tier III*
840	1126	1200	60	IMO Tier II / III	SCR25
1120	1502	1500	50	IMO Tier II / III	SCR36
1270	1703	1800	60	IMO Tier II / III	SCR36

*For more information on our SCR systems, please see chapter SCR system specifications or visit our website engine-genset.mhi.com

Engine dimensions & dry weight

L (mm) : 2416
W (mm) : 1585
H (mm) : 1807
Dry weight (kg) : 5320

Dimensions and weight are based on standard configuration.

Auxiliary generator
IMO Tier II / IMO Tier III
High speed

S16R-MPTAW

16-cylinder, 4-stroke, water-cooled diesel engine,
with direct-injection, turbocharger and air-cooler.

Bore x stroke (mm) : 170 x 180
Displacement (l) : 65.37

Rating

kW	bhp	rpm	Hz	Emission	SCR system IMO Tier III*
1120	1502	1200	60	IMO Tier II / III	SCR25
1500	2012	1500	50	IMO Tier II / III	SCR49
1690	2266	1800	60	IMO Tier II / III	SCR49

*For more information on our SCR systems, please see chapter SCR system specifications or visit our website engine-genset.mhi.com

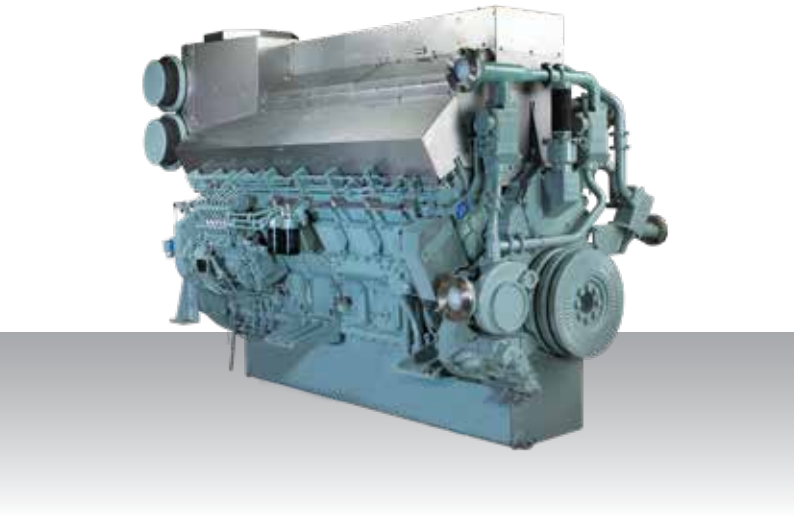
Engine dimensions & dry weight

L (mm) : 2971
W (mm) : 1585
H (mm) : 1960
Dry weight (kg) : 6780

Dimensions and weight are based on standard configuration.

Auxiliary generator
IMO Tier II / IMO Tier III
High speed

S16R2-T2MPTAW



16-cylinder, 4-stroke, water-cooled diesel engine,
with direct-injection, turbocharger and air-cooler.

Bore x stroke (mm) : 170 x 220
Displacement (l) : 79.90

Rating

kW	bhp	rpm	Hz	Emission	SCR system IMO Tier III*
1568	2103	1200	60	IMO Tier II / III	SCR49
1960	2628	1500	50	IMO Tier II / III	SCR49

*For more information on our SCR systems, please see chapter SCR system specifications or visit our website engine-genset.mhi.com

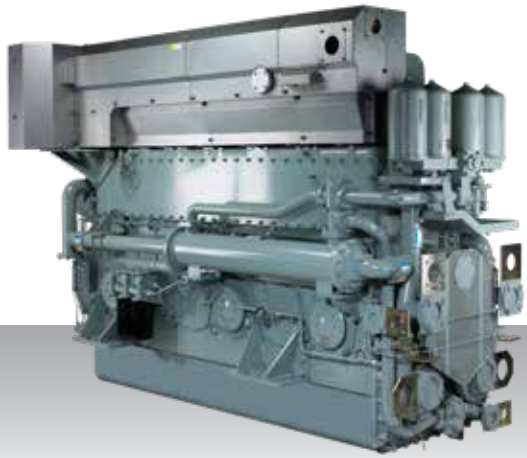
Engine dimensions & dry weight

L (mm) : 2946
W (mm) : 1525
H (mm) : 2030
Dry weight (kg) : 7750

Dimensions and weight are based on standard configuration.

Auxiliary generator
IMO Tier II - Medium speed

S6U-MPTK



6-cylinder, 4-stroke, water-cooled diesel engine,
with direct-injection, turbocharger and air-cooler.

Bore x stroke (mm) : 240 x 260
Displacement (l) : 70.57

Rating

kW	bhp	rpm	Hz	Emission
1150	1542	900	60	IMO Tier II
1270	1703	1000	50	IMO Tier II
1343	1801	1200	60	IMO Tier II

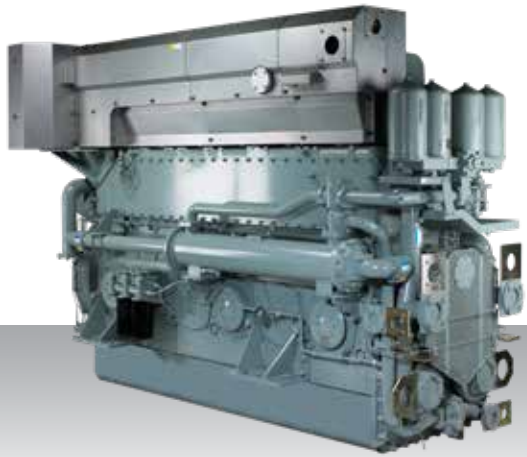
Engine dimensions & dry weight

L (mm) : 3211
W (mm) : 1429
H (mm) : 2104
Dry weight (kg) : 8350

Dimensions and weight are based on standard configuration.

Auxiliary generator
IMO Tier II - Medium speed

S6U2-MPTK



6-cylinder, 4-stroke, water-cooled diesel engine,
with direct-injection, turbocharger and air-cooler.

Bore x stroke (mm) : 240 x 300
Displacement (l) : 81.43

Rating

kW	bhp	rpm	Hz	Emission
1250	1676	900	60	IMO Tier II
1363	1828	1000	50	IMO Tier II

Engine dimensions & dry weight

L (mm) : 3226
W (mm) : 1429
H (mm) : 2177
Dry weight (kg) : 8650

Dimensions and weight are based on standard configuration.

Auxiliary generator
IMO Tier II - Medium speed

S8U-MPTK

8-cylinder, 4-stroke, water-cooled diesel engine,
with direct-injection, turbocharger and air-cooler.

Bore x stroke (mm) : 240 x 260
Displacement (l) : 94.10

Rating

kW	bhp	rpm	Hz	Emission
1533	2056	900	60	IMO Tier II
1693	2270	1000	50	IMO Tier II
1790	2400	1200	60	IMO Tier II

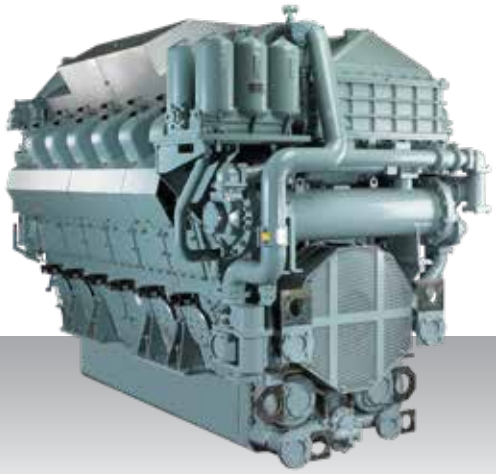
Engine dimensions & dry weight

L (mm) : 4065
W (mm) : 1539
H (mm) : 2192
Dry weight (kg) : 11000

Dimensions and weight are based on standard configuration.

Auxiliary generator
IMO Tier II - Medium speed

S12U-MPTK



12-cylinder, 4-stroke, water-cooled diesel engine,
with direct-injection, turbocharger and air-cooler.

Bore x stroke (mm) : 240 x 260
Displacement (l) : 141.15

Rating

kW	bhp	rpm	Hz	Emission
2299	3083	900	60	IMO Tier II
2541	3408	1000	50	IMO Tier II
2685	3601	1200	60	IMO Tier II

Engine dimensions & dry weight

L (mm) : 3562
W (mm) : 1910
H (mm) : 2374
Dry weight (kg) : 15500

Dimensions and weight are based on standard configuration.

Auxiliary generator
IMO Tier II - Medium speed

S16U-MPTK

16-cylinder, 4-stroke, water-cooled diesel engine,
with direct-injection, turbocharger and air-cooler.

Bore x stroke (mm) : 240 x 260
Displacement (l) : 188.19

Rating

kW	bhp	rpm	Hz	Emission
3065	4110	900	60	IMO Tier II
3388	4543	1000	50	IMO Tier II
3580	4801	1200	60	IMO Tier II

Engine dimensions & dry weight

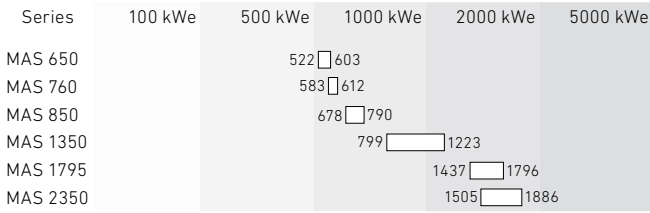
L (mm) : 4628
W (mm) : 1710
H (mm) : 2473
Dry weight (kg) : 20500

Dimensions and weight are based on standard configuration.

Generator set specifications

LNG Tanker - M/T Ternsund
Partner - Power House AB

LINE-UP - MARINE GENERATOR SET

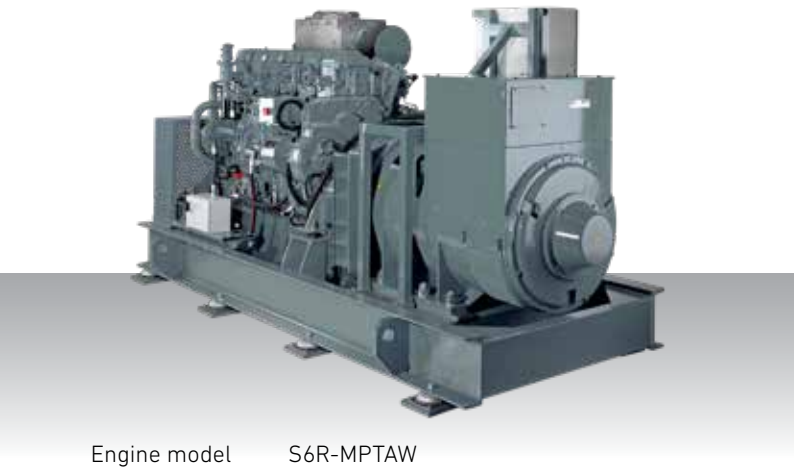


Generator set - IMO Tier II / IMO Tier III

Engine model	kVA	kWe	rpm	Hz	Emission	Page
Diesel-electric propulsion						
50 Hz						
MAS 650	652	522	1500	50	IMO Tier II / III	87
MAS 760	765	612	1500	50	IMO Tier II / III	88
MAS 850	847	678	1500	50	IMO Tier II / III	90
MAS 1350	1351	1081	1500	50	IMO Tier II / III	91
MAS 1795	1796	1437	1500	50	IMO Tier II / III	92
MAS 2350	2358	1886	1500	50	IMO Tier II / III	93
60 Hz						
MAS 650	684	548	1800	60	IMO Tier II / III	87
MAS 760	729	583	1200	60	IMO Tier II / III	89
MAS 850	898	718	1800	60	IMO Tier II / III	90
MAS 1350	999	799	1200	60	IMO Tier II / III	91
MAS 1350	1385	1108	1800	60	IMO Tier II / III	91
MAS 1795	1337	1070	1200	60	IMO Tier II / III	92
MAS 1795	1857	1485	1800	60	IMO Tier II / III	92
MAS 2350	1881	1505	1200	60	IMO Tier II / III	93
Auxiliary generator						
50 Hz						
MAS 650	652	522	1500	50	IMO Tier II / III	87
MAS 760	765	612	1500	50	IMO Tier II / III	88
MAS 850	847	678	1500	50	IMO Tier II / III	90
MAS 1350	1351	1081	1500	50	IMO Tier II / III	91
MAS 1795	1796	1437	1500	50	IMO Tier II / III	92
MAS 2350	2358	1886	1500	50	IMO Tier II / III	93
60 Hz						
MAS 650	753	603	1800	60	IMO Tier II / III	87
MAS 760	729	583	1200	60	IMO Tier II / III	89
MAS 850	988	790	1800	60	IMO Tier II / III	90
MAS 1350	999	799	1200	60	IMO Tier II / III	91
MAS 1350	1529	1223	1800	60	IIMO Tier II / III	91
MAS 1795	1337	1070	1200	60	IMO Tier II / III	92
MAS 1795	2041	1633	1800	60	IMO Tier II / III	92
MAS 2350	1881	1505	1200	60	IMO Tier II / III	93

Generator set
IMO Tier II / III - High speed

MAS 650



Engine model S6R-MPTAW

Rating

	kVA	kWe	rpm	Hz	Emission	SCR system IMO Tier III*
Diesel-electric propulsion	652	522	1500	50	IMO Tier II / III	SCR25
	684	548	1800	60	IMO Tier II / III	SCR25
Auxiliary generator	652	522	1500	50	IMO Tier II / III	SCR25
	753	603	1800	60	IMO Tier II / III	SCR25

*For more information on our SCR systems, please see chapter SCR system specifications or visit our website engine-genset.mhi.com

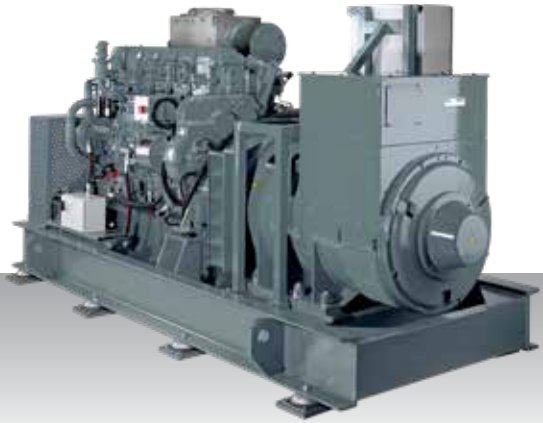
Genset dimensions & dry weight

L (mm) : 3600
W (mm) : 1615
H (mm) : 1900
Dry weight (kg) : 5900

Dimensions and weight are based on standard configuration.

Generator set
IMO Tier II / III - High speed

MAS 760



Engine model S6R2-T2MPTK

Rating

	kVA	kWe	rpm	Hz	Emission	SCR system IMO Tier III*
Diesel-electric propulsion	765	612	1500	50	IMO Tier II / III	SCR25
Auxiliary generator	765	612	1500	50	IMO Tier II / III	SCR25

*For more information on our SCR systems, please see chapter SCR system specifications or visit our website engine-genset.mhi.com

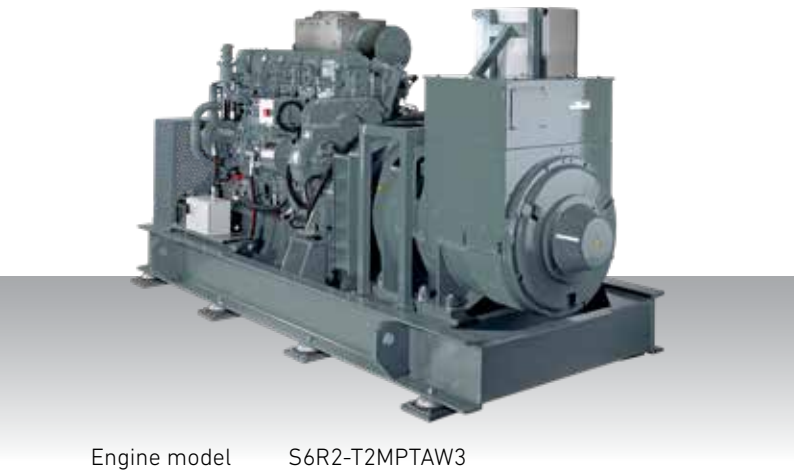
Genset dimensions & dry weight

L (mm) : 3600
W (mm) : 1615
H (mm) : 1931
Dry weight (kg) : 6030

Dimensions and weight are based on standard configuration.

Generator set
IMO Tier II / III - High speed

MAS 760



Engine model S6R2-T2MPTAW3

Rating

	kVA	kWe	rpm	Hz	Emission	SCR system IMO Tier III*
Diesel-electric propulsion	729	583	1200	60	IMO Tier II / III	SCR25
Auxiliary generator	729	583	1200	60	IMO Tier II / III	SCR25

*For more information on our SCR systems, please see chapter SCR system specifications or visit our website engine-genset.mhi.com

Genset dimensions & dry weight

L (mm) : 3600
W (mm) : 1615
H (mm) : 1931
Dry weight (kg) : 6030

Dimensions and weight are based on standard configuration.

Generator set
IMO Tier II / III - High speed

MAS 850

Engine model S12A2-MPTAW

Rating

	kVA	kWe	rpm	Hz	Emission	SCR system IMO Tier III*
Diesel-electric propulsion	847	678	1500	50	IMO Tier II / III	SCR25
	898	718	1800	60	IMO Tier II / III	SCR25
Auxiliary generator	847	678	1500	50	IMO Tier II / III	SCR25
	988	790	1800	60	IMO Tier II / III	SCR25

*For more information on our SCR systems, please see chapter SCR system specifications or visit our website engine-genset.mhi.com

Genset dimensions & dry weight

L (mm) : 3760
W (mm) : 1818
H (mm) : 1900
Dry weight (kg) : 8000

Dimensions and weight are based on standard configuration.

Generator set
IMO Tier II / III - High speed

MAS 1350

Engine model S12R-MPTAW

Rating

	kVA	kWe	rpm	Hz	Emission	SCR system IMO Tier III*
Diesel-electric propulsion	999	799	1200	60	IMO Tier II / III	SCR25
	1351	1081	1500	50	IMO Tier II / III	SCR36
	1385	1108	1800	60	IMO Tier II / III	SCR36
Auxiliary generator	999	799	1200	60	IIMO Tier II / III	SCR25
	1351	1081	1500	50	IMO Tier II / III	SCR36
	1529	1223	1800	60	IMO Tier II / III	SCR36

*For more information on our SCR systems, please see chapter SCR system specifications or visit our website engine-genset.mhi.com

Genset dimensions & dry weight

L (mm) : 4100
W (mm) : 1725
H (mm) : 2280
Dry weight (kg) : 10000

Dimensions and weight are based on standard configuration.

Generator set
IMO Tier II / III - High speed

MAS 1795

Engine model S16R-MPTAW

Rating

	kVA	kWe	rpm	Hz	Emission	SCR system IMO Tier III*
Diesel-electric propulsion	1337	1070	1200	60	IMO Tier II / III	SCR25
	1796	1437	1500	50	IMO Tier II / III	SCR49
	1857	1485	1800	60	IMO Tier II / III	SCR49
Auxiliary generator	1337	1070	1200	60	IMO Tier II / III	SCR25
	1796	1437	1500	50	IMO Tier II / III	SCR49
	2041	1633	1800	60	IMO Tier II / III	SCR49

*For more information on our SCR systems, please see chapter SCR system specifications or visit our website engine-genset.mhi.com

Genset dimensions & dry weight

L (mm) : 4880
W (mm) : 1725
H (mm) : 2280
Dry weight (kg) : 14000

Dimensions and weight are based on standard configuration.

Generator set
IMO Tier II / III - High speed

MAS 2350

Engine model S16R2-T2MPTAW

Rating

	kVA	kWe	rpm	Hz	Emission	SCR system IMO Tier III*
Diesel-electric propulsion	1881	1505	1200	60	IMO Tier II / III	SCR49
	2358	1886	1500	50	IMO Tier II / III	SCR49
Auxiliary generator	1881	1505	1200	60	IMO Tier II / III	SCR49
	2358	1886	1500	50	IMO Tier II / III	SCR49

*For more information on our SCR systems, please see chapter SCR system specifications or visit our website engine-genset.mhi.com

Genset dimensions & dry weight

L (mm) : 4950
W (mm) : 1750
H (mm) : 2400
Dry weight (kg) : 18000

Dimensions and weight are based on standard configuration.

SCR system specifications

SCR system

An SCR system is a system that reduces NOx emissions from the engine exhaust gases. The GESAB SCR system design and settings have been fully optimized and tested (according to scheme A) to the Mitsubishi Marine Engines and Generator Sets to be cost-effective as well as meeting our quality requirements and the IMO Tier III environmental regulations.

Standard equipment

SCR reactor
- Supports for catalyst elements
- Flanged inlet and outlet connection with counter flange
- Catalytic elements 35/4.2

Injection unit
- Mixer element
- Boss for injector
- Flanges and counter flanges

SCR dosing unit and field equipment
- Control cabinet including PLC and dosing equipment
- Touch operation panel
- Urea dosing pump
- Urea injector
- Differential pressure transmitter
- Temperature transmitters
- NOx sensor
- Pitot pipe for NOx sensor

Soot blower system (air pulse)
- Soot blower manifold pipe
- Pressure switch
- Soot blower valves and hoses
- Clamps for soot blower hoses

Documentation
- IMO Tier III certificate (scheme A)

Optional equipment

Urea pump unit
- Urea pump(s)
- Skid-mounted electrical cabinet
- Urea filter
- Pressure gauges with root valves
- Pressure sensor
- Leakage tray and sensor
- Spill valve unit

Classification
We are cooperating with many of the major classification societies.

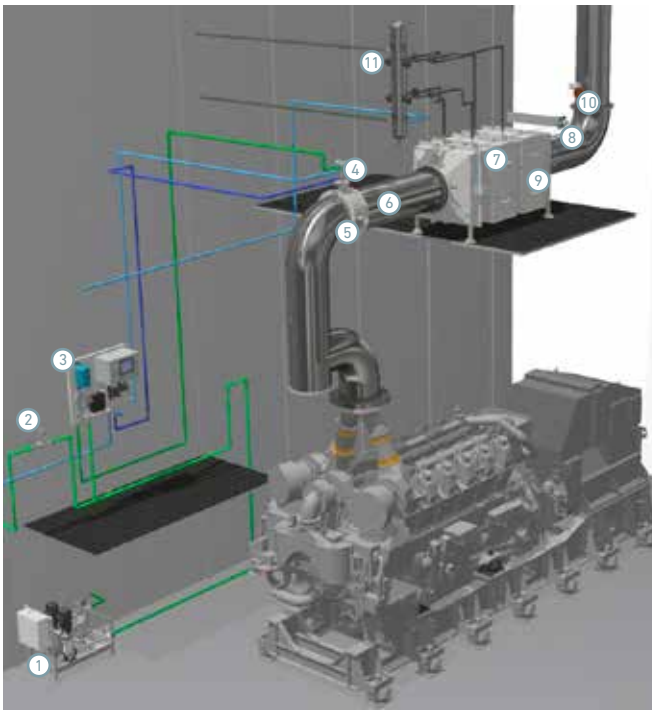
Remark

Insulation of the SCR system is not included in the scope of supply, to be supplied and installed by the shipyard.

Regulation summary

IMO Tier III - The International Maritime Organization (IMO) has set the regulation of the nitrogen oxide emissions since 2000. IMO Tier III has entered into force in North American and US Caribbean waters in 2016. From 1 January 2021, IMO Tier III has come into effect in the North Sea and Baltic Sea Emission Control Areas. Vessels with an engine or generator set output of 130 kilowatts or above and a keel-laying date after 2016 for US waters and 2021 for the North Sea and Baltic Sea waters, operating in these areas must comply with IMO Tier III regulations.

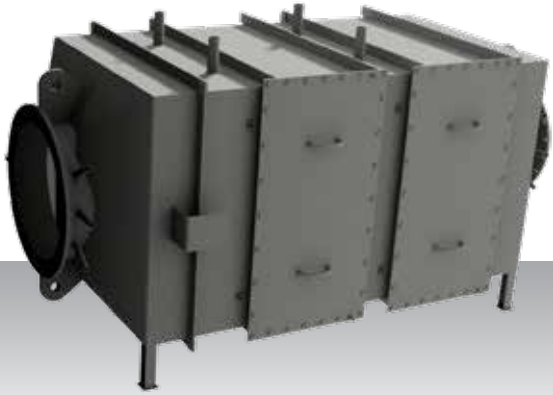
SYSTEM EXPLANATION (HORIZONTAL)



	ITEM	FUNCTION
1	Pump unit *(optional)*	Build pressure in urea ring line
2	Spill valve unit *(optional)*	Set pressure of urea ring line
3	Dosing unit	Control urea and airflow
4	Urea injector	Inject and atomize urea
5	Injection and mixing unit	Inject and mix urea with exhaust gases
6	Mixing section *(shipyard supply)*	Evaporate urea into ammonia
7	SCR reactor	Housing for catalyst material
8	Differential pressure transmitter	Measure pressure drop across catalyst material
9	Temperature transmitters	Measure temperature on catalyst inlet/ outlet
10	NOx sensor	Measure NOx concentration after reactor
11	Soot blower unit	Remove pollutants from catalyst material

SCR SYSTEM

SCR25



SCR Reactor	
Design	Vertical / horizontal
Emission	IMO Tier III
Size W x D x H (mm) (excl. insulation)	893 x 882 x 2349
Weight (kg) (incl. catalyst elements)	884
Fuel type	MGO/MDO (<0.1% Sulphur)

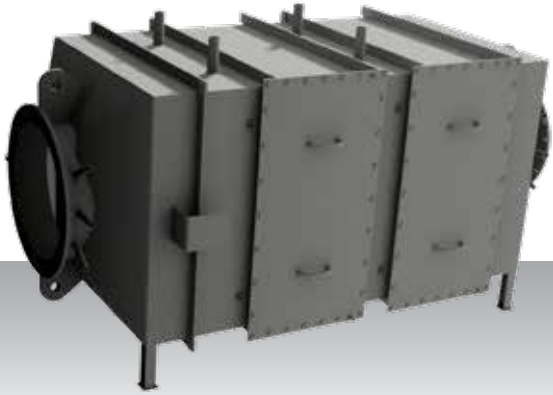
System specific information

Engine model*	Mixing pipe diameter (DN)	Mixing pipe length (mm)
S6R	400	2200
S6R2	400	2100
S12A2	400	2500
S12R	400	2700
S16R	400	2700

*For specific engine models and engine data, please see engine chapter or visit our website engine-genset.mhi.com

SCR SYSTEM

SCR36



SCR Reactor	
Design	Vertical / horizontal
Emission	IMO Tier III
Size W x D x H (mm) (excl. insulation)	1041 x 1036 x 2504
Weight (kg) (incl. catalyst elements)	1138
Fuel type	MGO/MDO (<0.1% Sulphur)

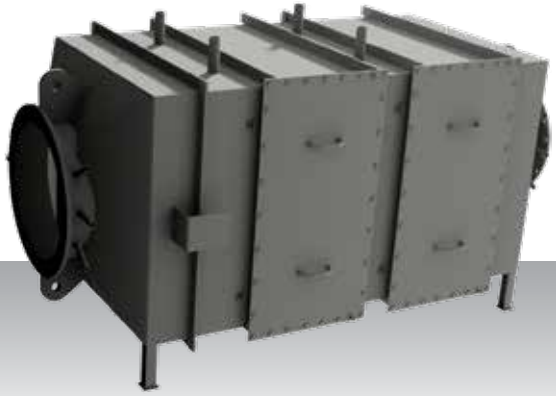
System specific information

Engine model*	Mixing pipe diameter (DN)	Mixing pipe length (mm)
S12R	500	2500

*For specific engine models and engine data, please see engine chapter or visit our website engine-genset.mhi.com

SCR SYSTEM

SCR49



SCR Reactor	
Design	Vertical / horizontal
Emission	IMO Tier III
Size W x D x H (mm) (excl. insulation)	1195 x 1190 x 2658
Weight (kg) (incl. catalyst elements)	1392
Fuel type	MGO/MDO (<0.1% Sulphur)

System specific information

Engine model*	Mixing pipe diameter (DN)	Mixing pipe length (mm)
S16R	600	2800
S16R2	600	2600

*For specific engine models and engine data, please see engine chapter or visit our website engine-genset.mhi.com

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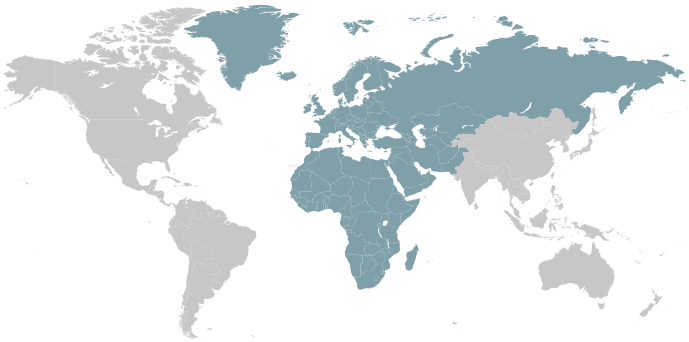

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