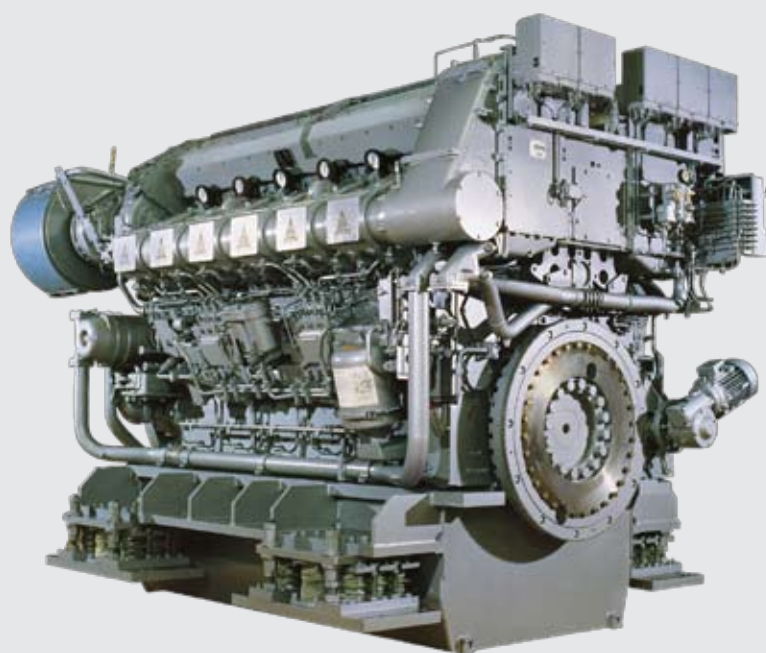


TOTAL SERVICE



WÄRTSILÄ DEUTZ MARINE ENGINES

CHARACTERISTICS

- Water-cooled 6-, 8- and 9-cylinder in-line engines and 12- and 16-cylinder 48° V-engines.
- Mechanical-hydraulic or electronic speed governing.
- Two cooling systems: single-circuit mixed and two circuit system.
- Water pumps mounted at front end and gear driven.
- Engine concept tried and tested worldwide.
- Broad spectrum of applications.

BENEFITS

- High reliability of the engine.
- An extremely compact engine permits easy and space saving engine installation.
- Low maintenance costs due to a smart design of the engine.
- Active contribution towards environmental protection due to compliance with IMO MARPOL 73/78 annex VI.
- Fulfils IMO Solas requirements.

ENGINE DESCRIPTION

Crankcase	<p>The crankcase is made of nodular cast iron. It is a one-piece structure with cast-in lubrication oil lines and cast on engine feet.</p> <p>The main bearing caps are mounted with two vertical and two horizontal bolts.</p>
Crankshaft	<p>The drop forged crankshaft, made of tempered steel, is fitted in the crankcase in underslung arrangement.</p>
Torsional vibration damper	<p>A viscous-fluid damper or a rubber damper is mounted on the crankshaft.</p>
Cylinder liner	<p>The water-cooled cylinder liner has an anti-polishing / fire ring.</p>
Connecting rod	<p>The big end of the drop forged connecting rod is split horizontally, centred with 2 parallel pins and bolted together with four bolts.</p>
Piston	<p>The piston crown is made of steel and the piston skirt is made of forged aluminium.</p> <p>Cooling of the piston is done with oil supplied by a spray nozzle and is based on the shaker cooling principle.</p>
Cylinder head	<p>The cylinder head is made of nodular cast iron and is mounted hydraulically.</p> <p>The inlet and exhaust valves have a valve rotator for heavy fuel oil operation.</p>
Camshaft	<p>The gear driven camshaft consists of camshaft sections. A camshaft section covers three or four cylinders.</p>
Injection pump	<p>The injection pump is of the block-type. It covers three or four cylinders.</p>
Governor	<p>Mechanical-hydraulic or electronic speed governing.</p>
Fuel system	<p>The fuel system consists, among other things, out of a fuel supply pump and a switch-over twin (duplex) filter.</p>
Lubricating oil system	<p>The engine has a forced oil circulation by engine-mounted gear lubricating oil pump. The system is provided with a combination filter (paper and screen) in the main flow and a centrifugal filter in a partial flow.</p> <p>The lubrication oil cooler is mounted on the engine.</p> <p>A second lubricating oil pump is optional.</p>
Starting system	<p>The engine is started by compressed air.</p> <p>Starting air valves are mounted in the cylinder heads (V-engines; A-bank).</p>
Cooling water system	<ol style="list-style-type: none">1) Single-circuit mixed cooling system with a built-on coolant pump and a heat exchanger for engine, lube oil and charge air cooling. A raw water pump can be mounted on the engine.2) Two-circuit cooling system; low-temperature circuit for lube oil and charge air, high-temperature circuit for engine cooling water. Two coolant pumps can be mounted.
Exhaust gas system	<p>The exhaust manifolds have an integrated coolant return.</p>
Turbocharging	<p>The V-engines are equipped with two turbochargers.</p> <p>The charge air cooler is always located on the opposite side of the turbocharger.</p>
Crankcase breather	<p>Open or closed type.</p>
Optional	<p>Heavy fuel operation up to RMK 380 according ISO 8217:2005(E).</p>
Classification	<p>By all established classification societies.</p>
EIAPP	<p>The engine can be provided with an EIAPP certificate if it complies with the NO_x Technical Code according IMO regulations MARPOL 73/78 - annex VI.</p>

TECHNICAL DATA

TECHNICAL DATA						
Engine type		SBV6M628	SBV8M628	SBV9M628	SBV12M628	SBV16M628
Model		in-line	in-line	in-line	48° V	48° V
Number of cylinders		6	8	9	12	16
Bore / stroke	mm	240 / 280	240 / 280	240 / 280	240 / 280	240 / 280
Displacement	l	76	101	114	152	203
Compression ratio		11.7 / 13	11.7 / 13	11.7 / 13	11.7 / 13	11.7 / 13
Direction of rotation		Clockwise or counter-clockwise				
Power ratings for marine propulsion units with fixed-pitch propeller						
Acc. to power category A ¹⁾						
at 750 min ⁻¹	kW	925 / 995	1270 / 1330	1430 / 1495	1895 / 1990	2610 / 2660
at 900 min ⁻¹	kW	1080 / 1170 ⁵⁾	1475 / 1560 ⁵⁾	1660 / 1755 ⁵⁾	2220 / 2340 ⁵⁾	3025 / 3120 ⁵⁾
at 1000 min ⁻¹	kW	1185 / 1285 ⁵⁾	1600 / 1715 ⁵⁾	1810 / 1930 ⁵⁾	2435 / 2570 ⁵⁾	3280 / 3430 ⁵⁾
Power ratings for marine propulsion units with controllable-pitch propeller and constant speed						
Acc. to power category A ¹⁾						
at 750 min ⁻¹	kW	945 / 1035	1290 / 1380	1465 / 1555	1945 / 2070	2650 / 2760
at 900 min ⁻¹	kW	1110 / 1230 ⁵⁾	1530 / 1640 ⁵⁾	1735 / 1845 ⁵⁾	2290 / 2460 ⁵⁾	3145 / 3280 ⁵⁾
at 1000 min ⁻¹	kW	1220 / 1350 ⁵⁾	1680 / 1800 ⁵⁾	1890 / 2025 ⁵⁾	2530 / 2700 ⁵⁾	3470 / 3600 ⁵⁾
Power ratings for on board generating sets						
Continuous power ²⁾						
at 900 min ⁻¹	kW	1110 / 1230	1530 / 1640	1735 / 1845	2290 / 2460	3145 / 3280
at 1000 min ⁻¹	kW	1220 / 1350	1680 / 1800	1890 / 2025	2530 / 2700	3470 / 3600
Specific fuel consumption ³⁾						
at 750 min ⁻¹	g/kWh	NA / 192	NA / 190	NA / 190	NA / 189	NA / 188
at 900 min ⁻¹	g/kWh	NA / 194	NA / 192	NA / 192	NA / 191	NA / 190
at 1000 min ⁻¹	g/kWh	NA / 196	NA / 194	NA / 194	NA / 193	NA / 192
IMO NO _x limit val. ⁴⁾		NA / fulfilled	NA / fulfilled	NA / fulfilled	NA / fulfilled	NA / fulfilled

1) Net brake fuel stop power for continuous operation unlimited in time, SCFN to ISO 3046-7.

Application: Workboats, running time: unlimited.

2) Continuous power for generating sets, exceedable by 10% for 1 hour within an operating period of 12 hours. SCXN to ISO 3046-7.

Application: On-board generating sets, running time: unlimited.

3) At rated power point. Refers to power category A, consumption-optimized version to ISO 3046-1, without engine-driven pumps.

4) NO_x limit values to IMO MARPOL 73/78 Annex VI.

5) CCR2 values fulfilled.

Power declarations based on the following ambient conditions:

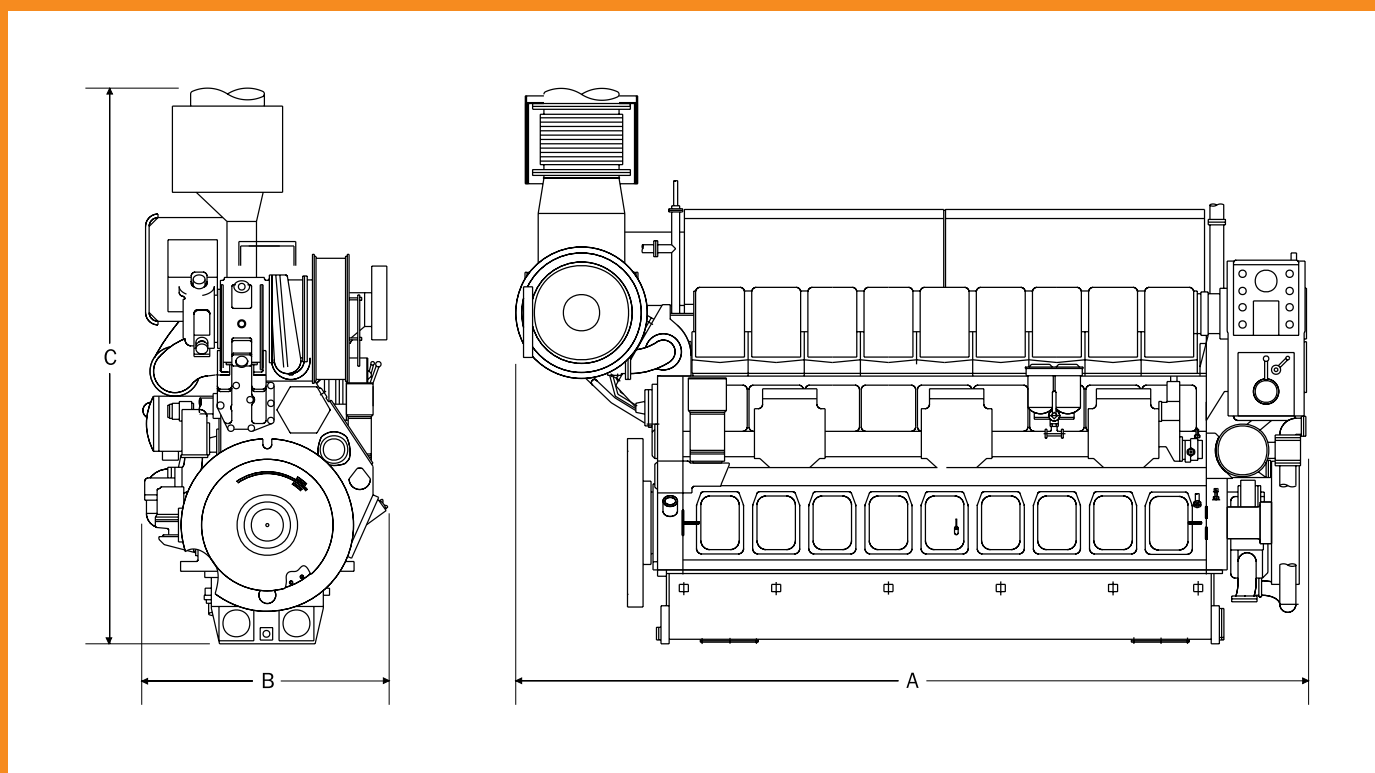
45 °C intake air temperature, 45 °C charge air coolant temperature, barometric pressure 1000 mbar.

Note:

The values given in this document are for information purposes only and not binding.



DIMENSIONS



PRINCIPAL ENGINE DIMENSIONS (mm) AND WEIGHTS (t)

Engine type	A	B	C	Weight (with flywheel)
SBV6M628	3494	1433	2664	9.5
SBV8M628	4246	1512	2791	11.5
SBV9M628	4556	1512	2791	13.4
SBV12M628	4360	1941	2681	16.3
SBV16M628	5135	1980	2809	21.2

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