

Medium-speed commercial marine gas engines

## B36:45L PROPULSION

**The Bergen B-series is based on a modular design, which gives a flexible platform and at the same time carries forward the Bergen traditional values as a robust and reliable engine.**

### **Proven quality**

The selection of technology was done after consulting a broad range of operators, designers and shipbuilders, to establish the qualities they prize in an engine. This engine series was first introduced to the market in 2014 as a diesel engine, and the gas version followed in 2018. It is available in several in-line or Vee cylinder variants for both diesel and gas, and is equally suitable for mechanical transmission or as a marine generating set.

### **Main benefits for shipyards**

- Easy installation
- New resilient mounting (no need of welding brackets)
- Aligned piping at pump-end for easy connection

### **Main Benefits for ship owners**

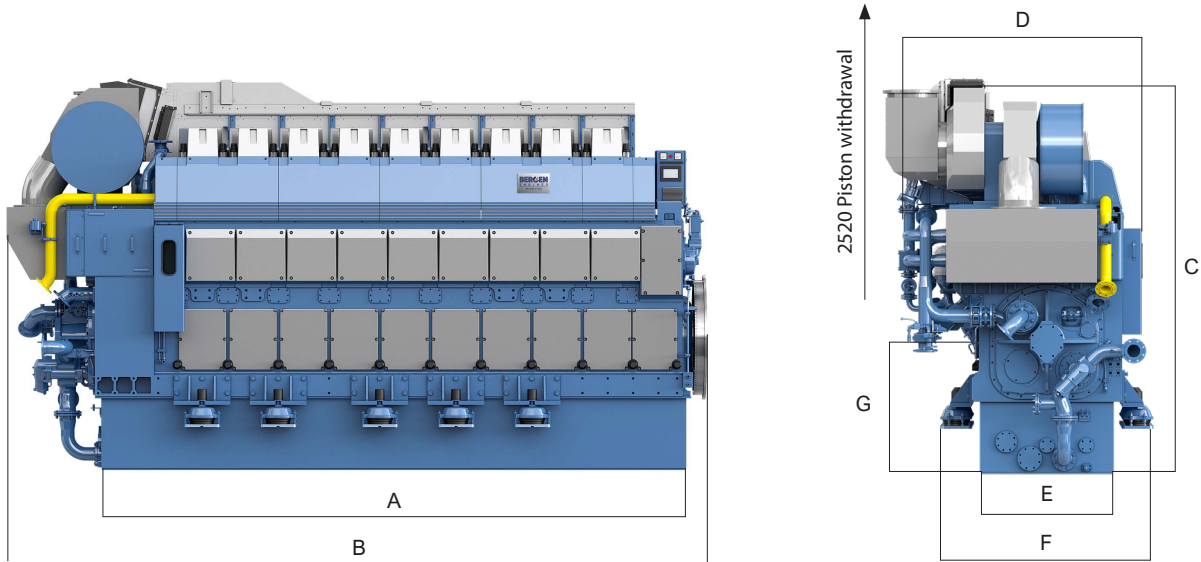
- IMO Tier III compliant without SCR
- Single fuel = single bunkering
- No lubricating oil separator needed
- Fast load response
- Cleaner engine room and no smoke emission
- Extremely low methane slip at all engine loads
- Cylinder Pressure Monitoring (CPM) for improved load control, and possibility for diagnostics per cylinder
- Exceptionally low emissions of NO<sub>x</sub>, CO<sub>2</sub>, SO<sub>x</sub> and particulate
- No “switch over” problems - ref ECA or port regulations
- Long-term compliance with local port regulations and potential benefits from taxation/green port dues
- VVT – Variable Valve Timing for optimum response and load increase
- Gas safe (double wall piping)
- Possible conversion from gas to diesel and vice versa
- Wastegate turbocharger to ensure optimized fuel/air ratio at varying ambient conditions for lean-burn operation

### Technical data

Engine type		B36:45L6P	B36:45L8P	B36:45L9P
Number of cylinders		6	8	9
Engine speed	r/min	750	750	750
Mean piston speed	m/s	11.2	11.2	11.2
Max.cont rating (MCR)	kW	3600	4800	5400
Mean effective pressure (BMEP)	bar	21	21	21
Specific energy consumption	kJ/kWh	7420	7420	7420
Specific lubricating oil consumption	g/kWh	0.4	0.4	0.4
Cooling water temp. engine outlet	°C	90	90	90

The performance data is based on: Marine gas engine ratings are according to ISO 3046-1, at maximum 45°C ambient air temperature and maximum 32°C sea water temperature. Specific fuel gas consumption given at 100% load and no engine driven pumps, running on natural gas with Methane number above 70 and net calorific value of 36 MJ/nm<sup>3</sup>. To include 3 engine driven pumps, add 1.3%. Gas feed temperature is 20-40°C. Minimum gas feed pressure to Gas Regulating Unit to be 5,5 barg.

Waste heat recovery: Necessary data for arranging waste heat recovery plants (exhaust gas and cooling water) are available upon request.  
 Note: Due to continuous development, some data may be changed without notice.



### Principal dimensions

Cylinder dia. 360 mm. Piston stroke 450 mm. All dimensions in mm.

Engine type	A	B	C	D	E	F	G	WEIGHT DRY ENGINE
B36:45L6P	4600	5630	3890	2380	1354	2138	1350	42400 kg
B36:45L8P	5640	6800	4160	2665	1354	2138	1350	53500 kg
B36:45L9P	6160	7320	4170	2665	1370	2138	1360	56400 kg

Weight dry engine excludes transport foundation.