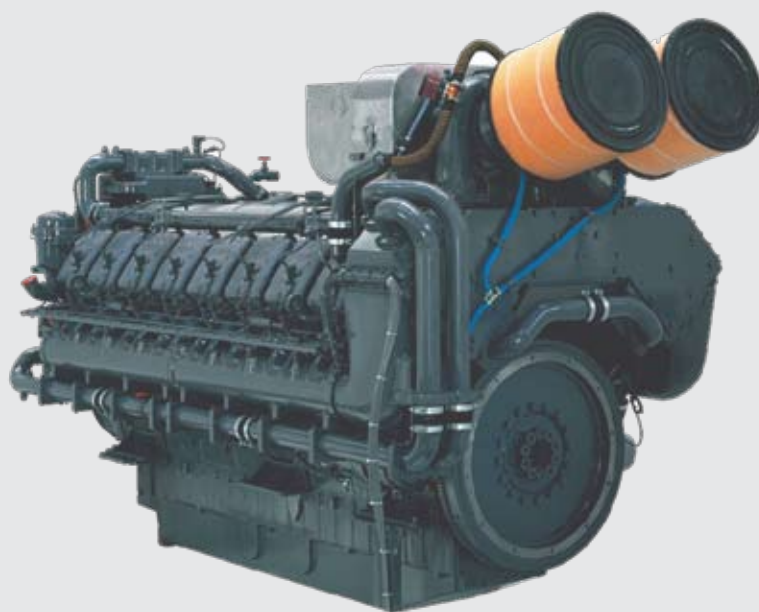


# 620

825-2240 kW at 1500-1860 min<sup>-1</sup>

## TOTAL SERVICE



## WÄRTSILÄ DEUTZ MARINE ENGINES

### CHARACTERISTICS

- Modern water-cooled 8-, 12- and 16-cylinder 90° V-engines.
- Single cylinder heads with four-valve technology.
- Turbocharger(s) and charge air cooling.
- Mechanical hydraulic or electronic speed governing.
- PEARL® exhaust system (Pulse Energy Advanced Recovery Line).
- Optimized combustion for high and low load (HALLO-Swirl® system).
- Auxiliary PTO possibilities.

### BENEFITS

- Electronic engine monitoring enhances safety and reliability of your engine.
- Optimized engine components ensure extended 'time between overhaul' and thus save considerable costs.
- Operating cost savings thanks to low fuel and oil consumption.
- Long maintenance intervals and ease of service.
- Easy and space-saving engine installation due to extremely compact configuration.
- The excellent power-to-weight ratio, particularly for high performance vessels, ensures optimum application possibilities.
- Active contribution towards environmental protection due to compliance with IMO MARPOL 73/78 Annex VI Tier 2 (2011).
- Complies with CCNR phase 2 / EURO NRMM IIIA certification for inland shipping application.



**WÄRTSILÄ**

## ENGINE DESCRIPTION

<b>Crankcase</b>	The crankcase is one-piece and made of nodular cast iron.
<b>Crankshaft</b>	The crankshaft is drop forged and made from heat-treatable steel. The crankpins and journals as well as radii are induction hardened. The counterweights are fitted by using bolts.
<b>Main and big end bearings</b>	‘Ready-to-install’ multi-layer bearing shells with steel back. Full sputter bearing design.
<b>Torsional vibration damper</b>	Rubber damper for V8 engines. Viscous-fluid damper for V12 and V16 engines.
<b>Connecting rod</b>	The drop-forced obliquely split connection rod is made of Cr-steel.
<b>Piston</b>	The piston is oil cooled and made of special light aluminium alloy.
<b>Cylinder head</b>	Two inlet and two exhaust valves, actuated via rocker arms. The injection nozzle is centrally arranged in the cylinder head. The charge air controlled HALLO-Swirl® system (high and low load optimized) air intake system assumes optimal combustion and low fuel consumption.
<b>Camshaft</b>	Two camshafts seated in ‘ready-to-install’ bearing bushes.
<b>Injection pump</b>	High-pressure injection by gear driven in-line pump.
<b>Governor</b>	Hydraulic-mechanical or electronic governor.
<b>Fuel system</b>	Gear driven fuel supply pump. Switch-over twin (duplex) filter with paper element. Double-walled high pressure fuel lines
<b>Lubricating oil system</b>	Forced-feed circulating pump with mounted oil cooler, switch-over oil filter. Lubricating oil centrifuge in auxiliary circuit.
<b>Starting system</b>	Electric or compressed air starter at driving end.
<b>Cooling water system</b>	1) Circulating cooling (single circuit cooling i.e. charge air cooler in internal system) with cooling water circulation pump). 2) Two-circuit cooling, charge air cooler in the external cooling water circuit, one circulating water pump each for engine and charge air cooler cooling water circuits. 3) Indirect cooling, charge air cooler and raw water plate-type heat exchanger in external cooling water circuit. One circulating water pump for engine cooling water circuit, one raw water pump for charge air cooler / intercooling circuit.
<b>Exhaust gas system</b>	Patented PEARL® system for low-loss energy transport to turbocharger. Exhaust manifolds and turbocharger are equipped with insulated sheeting.
<b>Turbocharger</b>	One (V8) or two (V12 & V16) top mounted turbochargers, charge air coolers mounted at driving end.
<b>Crankcase breather</b>	Closed circuit system, with oil separator, vacuum controlled. Optional: open circuit-system.
<b>Intake manifolds</b>	Aluminium, externally arranged.
<b>Alternator</b>	28 V / 40 A, 55 A or 120A.
<b>Optional</b>	PTO variants.
<b>Classification</b>	By all established classification societies.
<b>Emission regulations</b>	Sea-going vessels: All versions of the engine can be provided with an EIAPP certificate if it complies with the NO <sub>x</sub> Technical Code according IMO regulations MARPOL 73/78 Annex VI Tier 2 (2011). Inland shipping operations: The V8 and V12 versions of the engine can be provided with a CCNR phase 2 or EURO NRMM IIIA certificate.

# TECHNICAL DATA

TECHNICAL DATA				
Engine type		TBD620V8	TBD620V12	TBD620V16
Model		90° V-engine	90° V-engine	90° V-engine
Number of cylinders		8	12	16
Bore / stroke	mm	170 / 195	170 / 195	170 / 195
Displacement	l	35.4	53.1	70.8
Compression ratio		13.5	13.5	13.5
Direction of rotation		Counter-clockwise		
<b>Power ratings for marine propulsion units</b>				
Power category A <sup>1)</sup>				
at 1500 min <sup>-1</sup>	kW	829	1240	1658
at 1650 min <sup>-1</sup>	kW	870	1304	1740
at 1800 min <sup>-1</sup>	kW	1016	1524	2032
Power category A <sup>1)</sup> , inland shipping under CCNR phase 2 / EURO NRM IIIA regulations				
at 1800 min <sup>-1</sup>	kW	825 - 920	1240 - 1380	-
Power category B <sup>2)</sup> (Only available on request)				
at 1860 min <sup>-1</sup>	kW	1120	1680	2240
<b>Power ratings for on board generating sets</b>				
Power category G <sup>3)</sup>				
at 1500 min <sup>-1</sup>	kW	829	1240	1658
at 1800 min <sup>-1</sup>	kW	1016	1524	2032
<b>General data</b>				
Specific fuel consumption <sup>4)</sup>				
at 1500 min <sup>-1</sup>	g/kWh	189	189	190
at 1650 min <sup>-1</sup>	g/kWh	192	192	193
at 1800 min <sup>-1</sup>	g/kWh	195	195	198
at 1800 min <sup>-1</sup>	g/kWh	Specific fuel consumption may vary when operating under CCNR phase 2 or EURO phase IIIA regulations.		-
IMO NO <sub>x</sub> limit val. <sup>5)</sup>		fulfilled	fulfilled	fulfilled

1) Net brake fuel stop power for continuous operation unrestricted in time. MCFN to ISO 3046-7.

2) Net brake fuel stop power for continuous operation restricted in time. MCFN to ISO 3046-7.

3) Continuous power for generating sets, exceedable by 10% for 1 hour within an operating period of 12 hours. MCXN to ISO 3046-7. Application: On-board generating sets. Running time: unrestricted.

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

5) NO<sub>x</sub> limit values to IMO MARPOL 73/78 Annex VI.

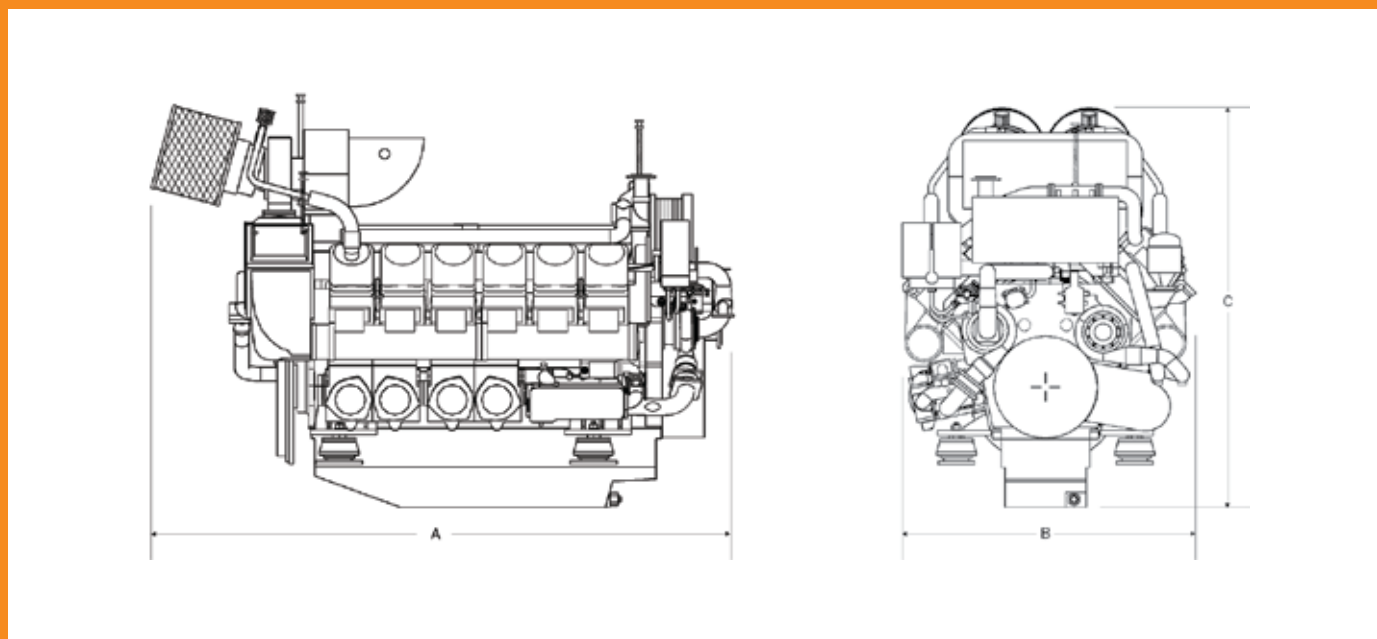
Power declarations based on the following ambient conditions:

45 °C intake air temperature, 32 °C charge air coolant temperature, barometric pressure 1000 mbar, relative humidity 60%.

**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
TBD620V8	2340	1450	2000	3.3
TBD620V12	2920	1450	2040	5.0
TBD620V16	3400	1450	2100	6.2

WÄRTSILÄ® and DEUTZ® are registered trademarks. Copyright © 2009 Wärtsilä Corporation.

#### Wärtsilä Netherlands B.V.

P.O. Box 10608, 8000 GB Zwolle, The Netherlands • Tel. +31 38 425 32 53

• Fax +31 38 425 34 71 • e-mail [service.sales.nl@wartsila.com](mailto:service.sales.nl@wartsila.com) • [www.wartsila.com](http://www.wartsila.com)

