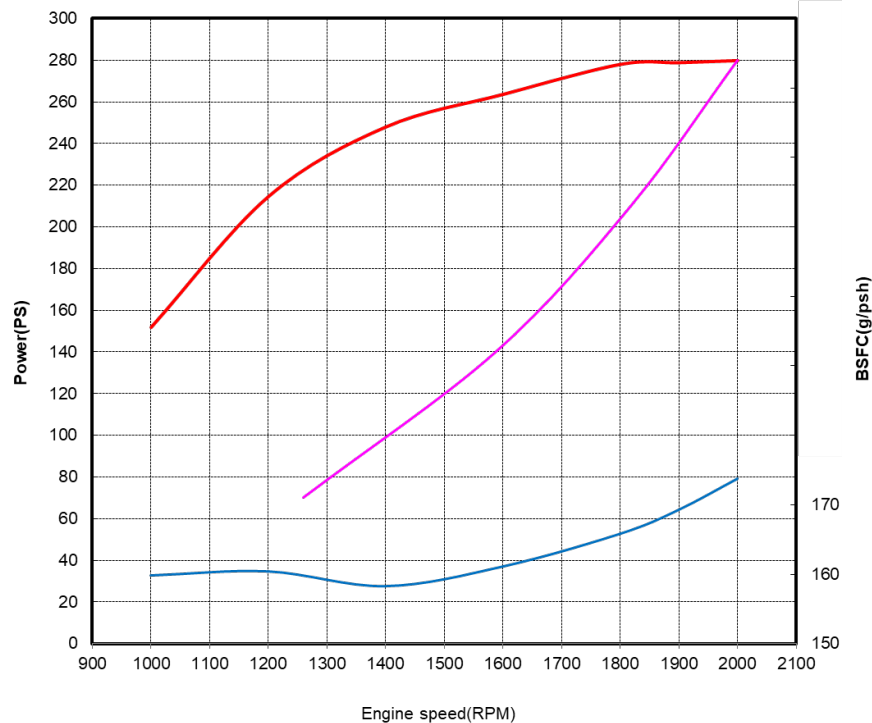
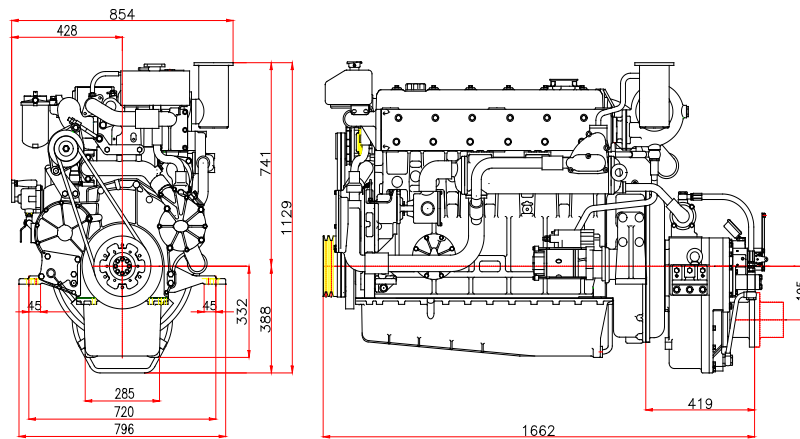


## POWER RATING

Production tolerance :  $\pm 3\%$

MODEL	CONDITIONS	POWER	rpm	Base Engine
MD196T	HEAVY DUTY	280PS (206kW)	2,000	DE12T

**Note : 1)** No reduction in rating for intake air temperature is up to 45 °C (318K) and sea water temperature is up to 32 °C (305K) , relative humidity is up to 60 %  
all data are based on operation to ISO 3046.



- **Heavy Duty :** Operation hours are unlimited per year, at average load is up to 90 %,  
At full load is up to 80 %  
Typical gearbox ratio: 2.5 ~ 6  
(Fishing trawler, Tug boat, Pushing vessel, Cargo boat, Freighter, Ferry)

Engine Specification			
Model		Units	MD196T
Engine type			4 cycle, In line, direct- injection, water cooled with <b>wet turbo charger</b>
Rating output (B.H.P)		PS(kW)/rpm	280(206)/2,000
Displacement		cc	11,051
Cylinder number - bore(φ) x stroke		mm	6 - φ123 x 155
Valve clearance at cold	In / Ex	mm	0.3 / 0.3
Low idling rpm		rpm	<b>725 ± 25</b>
No load max. rpm		rpm	<b>below 2,200</b>
Mean effective pressure		kg/cm <sup>2</sup>	11.41
Mean piston speed		m/sec.	10.33
Compression ratio			17.1 : 1
Firing order			<b>1 - 5 - 3 - 6 - 2 - 4</b>
Max. firing pressure of cylinder		kg/cm <sup>2</sup>	106
Compression pressure	at 200 rpm	kg/cm <sup>2</sup>	28 ( Initial condition )
Governor type of injection pump			<b>Mechanical variable speed (R.Q.V)</b>
Fuel consumption		g/PS.h	<b>169</b>
		lit / h	<b>57</b>
Injection timing (B.T.D.C)		deg	<b>14°±1°</b>
Fuel inj. nozzle opening pressure		kg/cm <sup>2</sup>	<b>220</b>
Starting system			<b>Electric Starting by starter motor</b>
Starter motor capacity		V- kW	<b>24 - 5.4</b>
Alternator capacity		V- A	<b>24 - 80</b>
Battery		V- Ah	<b>24 - 150</b>
Cooling system			Indirect sea water cooling with heat exchanger
Cooling water capacity	Max. / Min.	lit	24 / 19
Fresh water pump type			Centrifugal type, driven by gear
Sea water pump type			Rubber impeller type driven by gear
Lubricating oil (Engine)	Pan capacity	lit	<b>Max : 25, Min : 19 ( Engine total : 27)</b>
	Pressure	kg/cm <sup>2</sup>	<b>Full : 3.5, Idle : 1.2</b>
Marine gear	Model		<b>DMT136H ( Dong-I )</b>
	Gear ratio		<b>1.97 2.57 3.08 3.46</b>
Direction of revolution	Crankshaft		Counter clockwise viewed from stern side
	Propeller		Clockwise viewed from stern side
Engine size (L x W x H)	Without M/G	mm	1,243 x 854 x 1,073
	With M. gear	mm	1,662 x 854 x 1,129
Engine dry weight	Without M/G	kg	975
	with M. gear	kg	1,225

psi = kg/cm<sup>2</sup> x 14.22  
 lb/ft. = N.m x 0.737  
 kW = 0.2388 kcal/s

lb= kg x 2.205  
 lb/PS.h = g/kW.h x 0.00162  
 cfm = m<sup>3</sup>/min x 35.3

hp = PS x 0.98635  
 U.S gal. = liter x 0.264

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※ Specifications are subject to change without prior notice.