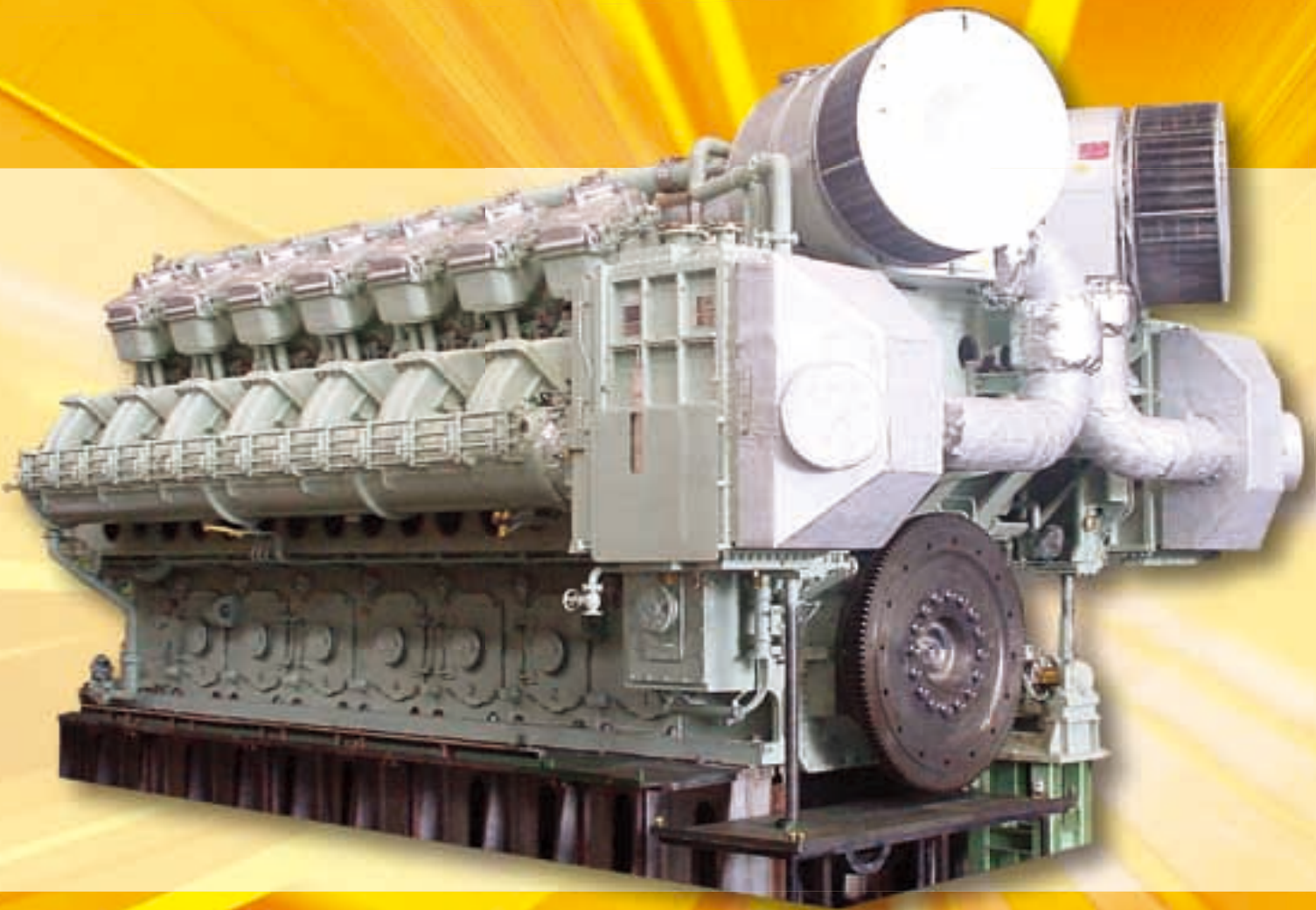




DIESEL UNITED-S.E.M.T PIELSTICK

# PC4-2B



DIESEL UNITED, LTD.

# PC4-2B

## DISTINCTIVE FEATURES OF PC4-2B ENGINE

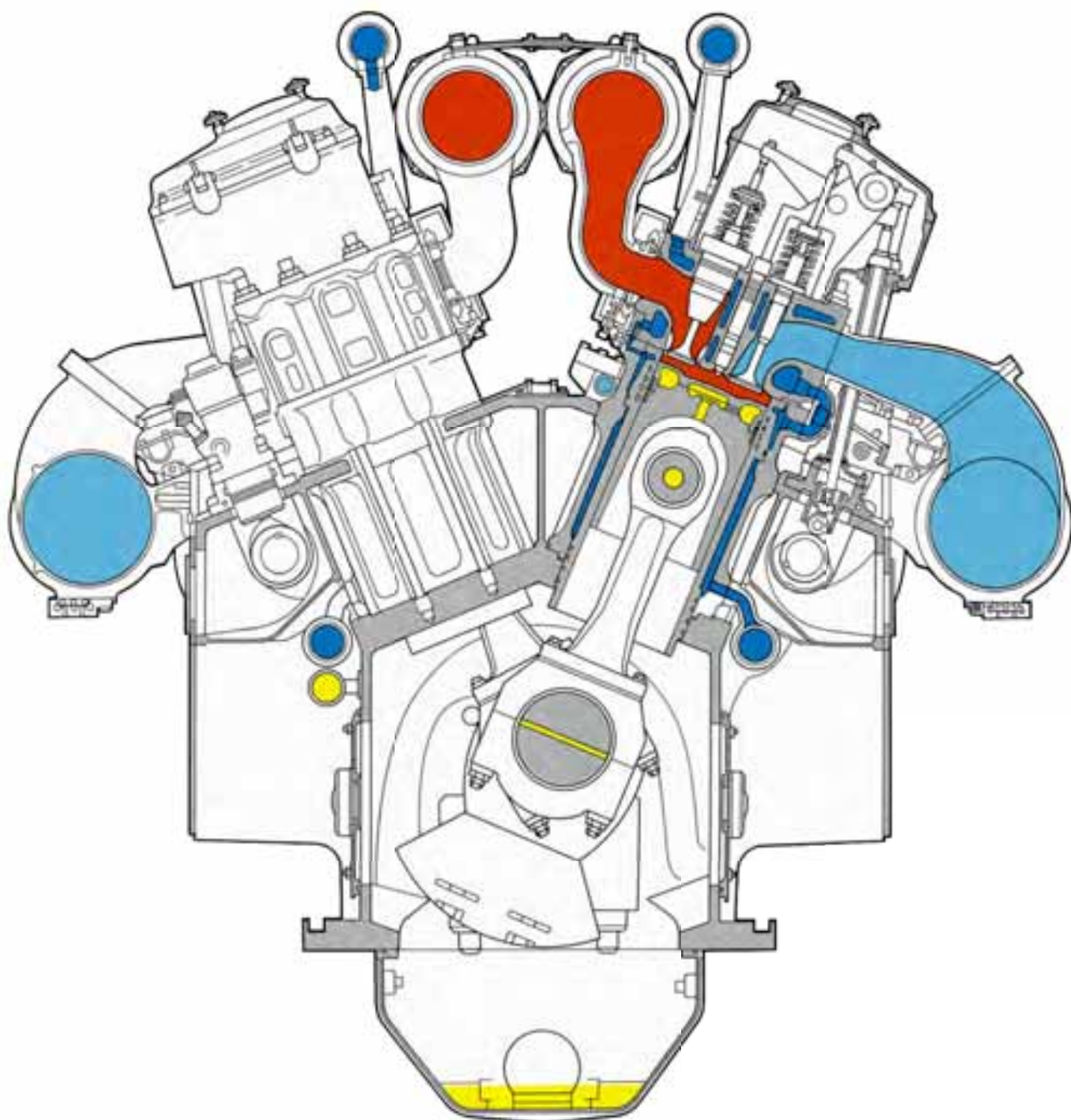
This type of engine has been developed based upon PC4/PC4-2/PC40 type which have been successfully used both in marine application and electric power plant. The distinctive features of current development are as following:

- To reduce specific fuel oil consumption.
- To cope with burning low grade fuel oil.
- To improve reliability and to reduce maintenance fee.
- To develop higher output.
- To meet emission legislation.

## PC4-2B形機関の特徴 低燃費・高出力

本機は、船用および発電プラント用に広く採用され好評を得ているPC4、PC4-2、PC40形機関の実績を基に、下記を目標に開発された機関です。

- 燃料消費率の低減
- 燃料油の粗悪化への対応
- 信頼性向上と保守費の低減
- 高出力化
- 低公害化



## Main bearings 主軸受

Lower body of the main bearing is underslung type and fixed to the frame by two large screws. Temperature sensors are installed on each main bearing to warn of any abnormal.

主軸受下部本体は、架構門形部分に懸垂形にボルト締めされ門形とともに主軸受を構成します。各主軸受には軸受の異常を知らせる軸受温度計を設けています。

## Crankcase 架構

The frame is fabricated from steel plate combined with cast steel. Its structure is strong enough to withstand combustion forces and the stresses of moving parts.

鋼板と鋳鋼部品溶接一体化した強固な構造で、爆発力・運動部分の慣性力に対し十分な剛性を有しています。

## Crankshaft クランク軸

The crankshaft is of forged alloy steel as a single part to which balance weights are fitted by two strong screws.

クランク軸は一体形の鍛造合金鋼製です。バランスウェイトが2本の強力なボルトにより取り付けられます。

## Connecting-rods 接合棒

The connecting rods are of forged alloy steel with straight cut three- part. Temperature sensors are installed on each big-end bearing to warn of any abnormal.

接合棒は水平3分割形の鍛造合金鋼製です。大端部側軸受には異常を知らせる軸受温度計を設けています。

## Pistons ピストン

The pistons are composed of the crown, which made of heat resistant steel, and the skirt which made of aluminium casting. The piston rings are consisted of three compression and two scraper rings. The chromium-ceramic plating rings, which has high resistant wear, are applied in top ring.

ピストンは耐熱合金製クラウンとアルミ鋳物製スカートからなります。ピストンリングは3本の圧縮リングと2本の油掻きリングで構成されます。トップリングには高耐磨耗性のクロムセラミックリングを採用しています。

## Cylinder covers シリンダカバー

The cast iron cylinder covers are attached to the water jacket and liner by means of 8 tie bolts fitted directly into the frame. It is provided with two inlet, two exhaust, one fuel, one indicator, one starting and one safety valves. The exhaust and inlet valves are equipped with turning device.

シリンダカバーは鋳鉄製で、シリンダライナ、ジャケットとともに8本の支柱ボルトで架構に直接結合されます。シリンダカバーは各2個の吸・排気弁、各1個の燃料弁、起動弁、指圧器弁、安全弁を装備しています。この内吸・排気弁はバルブローターを装備しています。

## Injection pumps Fuel injection valves 燃料ポンプ、燃料弁

The fuel injection pressure is higher than 1000 bar in order to ease the combustion of all residual fuels. The fuel injection valves are cooled by a fresh water system.

燃料弁は清水による冷却型です。燃料の噴射圧力はあらゆる重質燃料油に対応するため1000bar以上です。

## Cams カム

The engine is fitted with two camshafts of modular design on each bank. The cams are integrated on each valves and pumps.

カムは各列に1本の一体型設計です。カムは各バルブ・ポンプ毎に独立しています。

Engine type			4 stroke, signal acting, air-less injection, trunk piston type with turbo-charger and air cooler					
Cylinder arrangement			V					
Number of cylinder			12	14	16	18	20	
Cyl. Bore × stroke		mm	570 × 660					
Main Engine for Marine	M.C.R.	Engine output	kW	15900	18550	21200	23850	26500
		Engine speed	rpm	428				
		B.M.E.P.	MPa	2.20				
		Piston speed	m/s	9.4				
	N.O.R.	Engine output	kW	14310	16695	19080	21465	23850
		Engine speed	rpm	413				
		B.M.E.P.	MPa	2.06				
		Piston speed	m/s	9.1				
	Overload		%	110 (One hour)				
	Specific fuel consumption		gr/kW·hr	Please inquire for sales department				
For Generating Set	50 Hertz	Engine output	kW	14310	16695	19080	21465	23850
		Generator output	kW	13880	16190	18505	20820	23130
		Engine speed	rpm	428				
		B.M.E.P.	MPa	1.98				
		Piston speed	m/s	9.4				
	60 Hertz	Engine output	kW	13500	15750	18000	20250	22500
		Generator output	kW	13095	15275	17460	19640	21825
		Engine speed	rpm	400				
		B.M.E.P.	MPa	2.00				
		Piston speed	m/s	8.8				
Overload		%	110 (One hour)					
Specific fuel consumption		gr/kW·hr	Please inquire for sales department					
Super-charge system			Exhaust turbo-charger with air cooler					
Starting system			Compressed air					
Cooling system			Cylinder Jacket : Fresh water Fuel valve : Fresh water Piston : Lub. oil Air cooler : Raw water or Sea water					
Governor			NABCO MG800 Electric Governor (for MARINE) Woodward Electric Governor (for Gen. Set)					
Engine driven pump (Option)			Lubricating oil pump, H.T.cooling water pump					
Fuel oil			Diesel oil or Heavy fuel oil					

#### Remarks

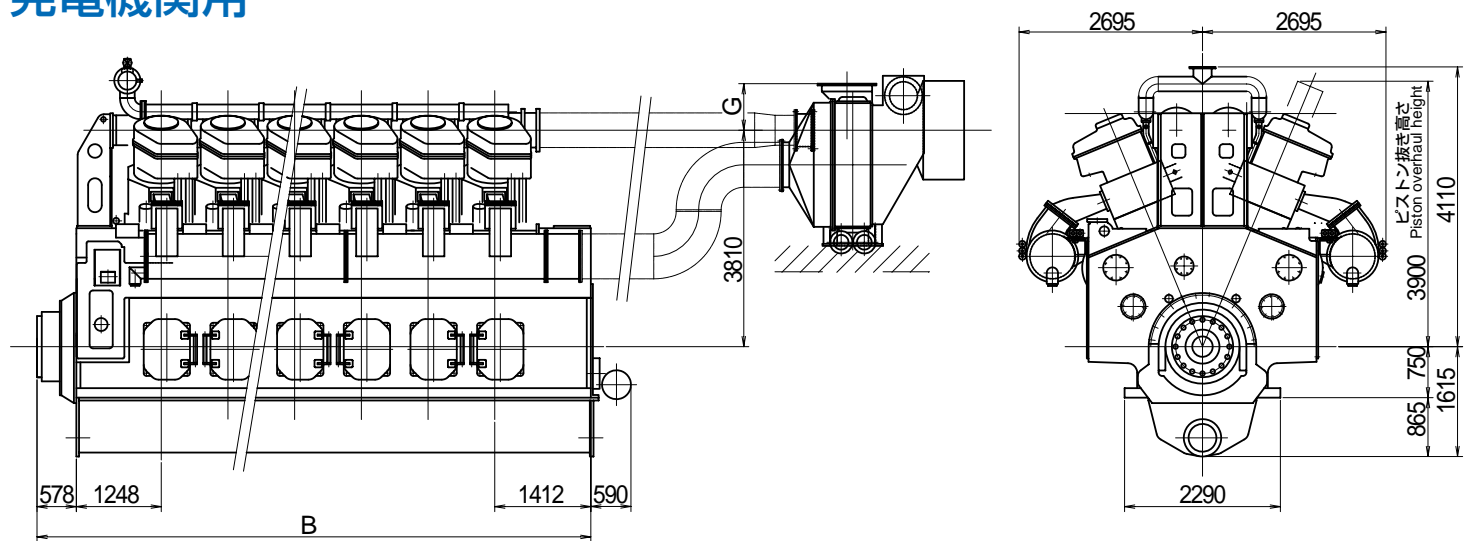
- The rating to be based on : Ambient temp. 45°C, Atmospheric press. 0.1MPa (760 mmHg) cooling sea water temp. 32°C.
- The generator output is calculated as 97% of the generator efficiency.
- The output of the above-mentioned might be restricted according to the operating output and the running hours per year and so on. Please contact to our sales department or technical department.

#### 注)

- 上記の出力は周囲温度45°C、大気圧0.1MPa(760mmHg)冷却水温度32°C、排ガス排圧250mmAqの場合を示します。
- 発電機出力は発電機効率を97%として計算しました。
- プラントの運転負荷、時間等の諸条件によっては最大出力を制限せざるを得ない場合があります。弊社営業部又は技術部にお問い合わせください。

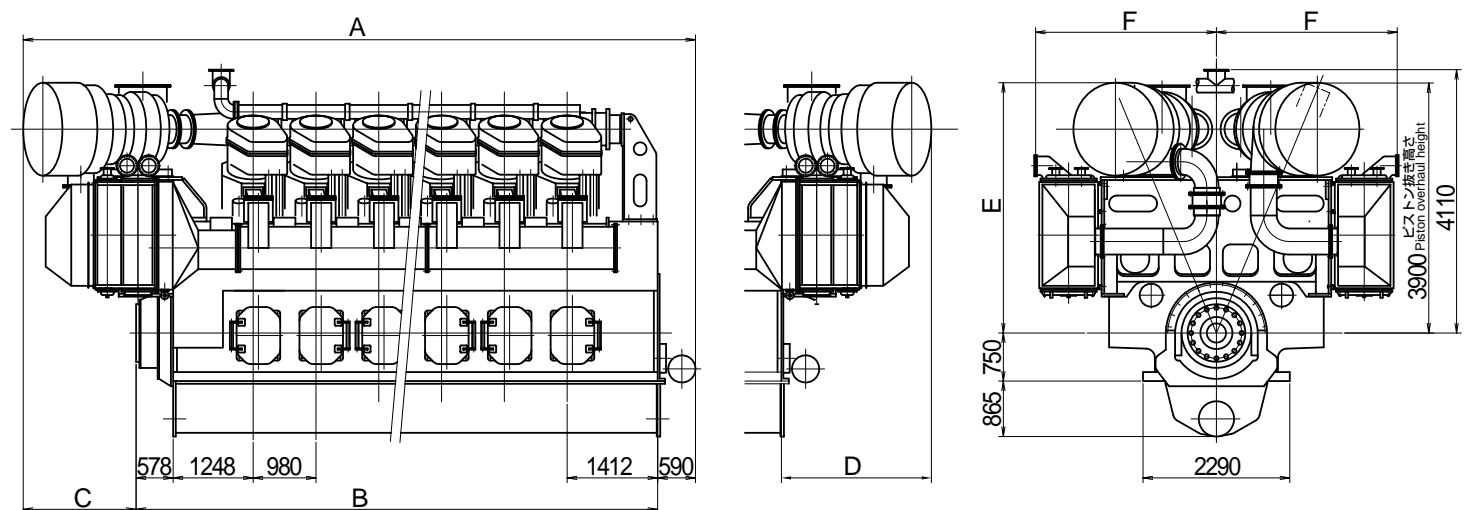
# For generating set

## 発電機関用



# Main engine for marine application

## 船用主機関用



	DIMENSION (mm)							WEIGHT (ton)
	A	B	C	D	E	F	G	
12PC4-2B	10490	8138	1762	2340	3905	2821	684	258
14PC4-2B	11470	9118	1762	2340	3905	2821	684	295
16PC4-2B	12450	10098	1762	2340	3905	2821	684	325
18PC4-2B <sup>*1)</sup>	13430	11078	1762	2340	3905	2821	684	355
20PC4-2B <sup>*2)</sup>	-	12058	-	-	-	2695	794	390 <sup>*3)</sup>

### Remarks

1. According to requirement engine performance, the turbo-charger and the air-cooler might be separately installed.
2. The turbo-charger and the air-cooler is separately installed.
3. This value is including the turbo-charger and the air-cooler unit

### 注)

1. ご要望の性能によって過給機又は空気冷却器が別置きになる可能性があります
2. 過給機 空気冷却器ユニットは別置きになります
3. 過給機 空気冷却器ユニットを含む重量です