



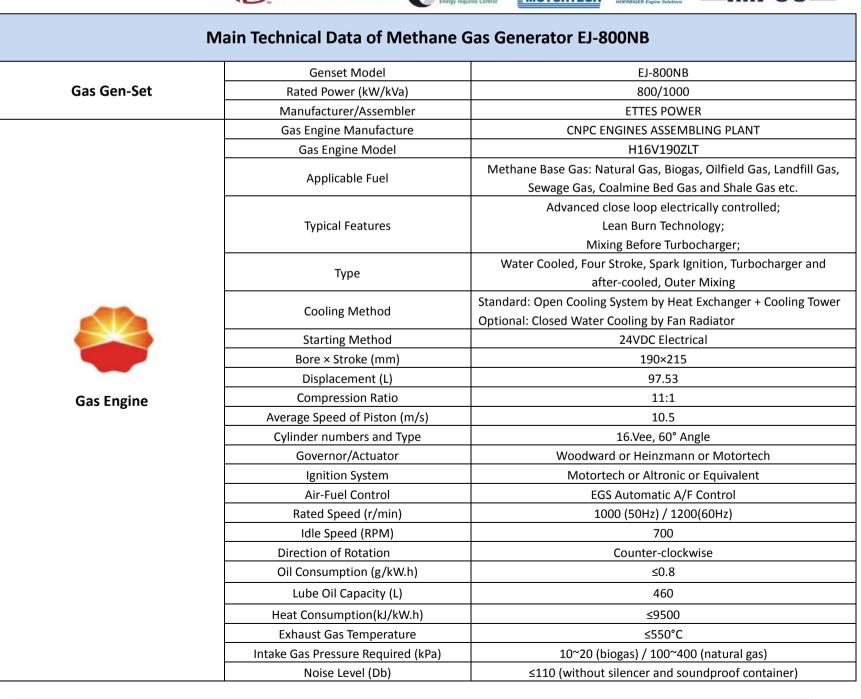
Ettes Power is the leading manufacturer and supplier for diesel & gas generators from 20kW upto 4500kW. We use world top engines (Cummins, MAN, CAT-MWM, CNPC 190 Series and Low speed 300 Series etc.) to ASSEMBLE into complete-generator-set and CHP units. Ettes gensets enjoy hot markets in more than 70 countries all over the world including Latin America, Africa, Middle East, Europe and Asia markets.

190 Series gas engines are developed by cooperation with AVL from Germany and Austria. The engine assembling plant is affiliated to CNPC (China National Petroleum & Oil Corporation), those engines work extensively in 90% of China oil fields and coal mines, and enjoy hot markets in global.

Benefits of ETTES-CNPC 190 Series gas engines & Genset

- ◆ The engine performance is "Leading China" and "First class Global"
- ◆ Long history: produced by engines plant under control by CNPC (China National Petroleum & Oil Corporation), it is the first and the largest engine manufacture in China since 1953.
- ♦ Proven Technology: widely used in 90% of China Oil & Gas Fields, Coalmines, Vessels and other areas under severe working conditions.
- Fuel flexibility: designed for operation on a wide range of methane based gases including natural gas, biogas, oilfield gas, coal mine methane and shale gas and other special gas.
- Designed for intensive use (continuous duty)
- Capable of working with variable loads.
- ♦ Advanced technology of close-loop control, lean-burn and Mixing before turbo.
- Adopting highly intelligent gas control system of Woodward EGS or Motortech, the air fuel ratio can be automatically adjusted as per fluctuation of gas components.
- ◆ Adopting intelligent & digital ignition system from Motortech or Altronic.
- Adopting super-turbocharged technology from ABB.
- ◆ Heat Recovery system to realize CHP, Cogeneration and Distribution Energy.
- Integrated & modularized unit to facilitate easy transport and quick setup.
- ◆ Easy Maintenance in Low Cost.
- Ensured annually continuous working over 8000 hours.
- ◆ Longer life span of 15~20 years.





			Alternator Bran	nd		Siemens or Equiva	alent	
		Alternator Model			1FC6 Series			
		Frequency (Hz)			50/60			
					400/230(50Hz), 480/270(60Hz)			
		Rated Voltage (V)		V)	Other Special Low Voltages and			
SIEMENS					High Voltage of 6.3kV, 6.6kV, 10.5kV, 13.8kV are available			
		Power Factor (Cosφ)			0.8			
Alternator			Туре		Insulation Class IP23, Protection Class H			
			Excitation Meth	od	Self-excited, Brushless			
			Voltage Regulati	ion	AVR			
		Standard Control System: advanced SIVAC control panel by Siemens Technology, adopting control module of						
		ComAp Intelilite Series, with functions including manual keys, alarms, protections, auto start and shut down,						
Control System		showing running parameters in LCD Display.						
		Engine SCADA System, Communications protocol RS485						
		Options: Auto parallel synchronization control panel, Remote control system etc.						
Size and Weight		Net Weight (KG)			22000			
		Dimension (L×W×H, mm)			6070×2380×2776 (based on open cooling system)			
			Main Ele	ctronic Performai	nce Data			
Voltage					Frequency			
Stabilized Degulation	Instanta	neous	Pacayany Time	Fluctuatio -	Stabilized	Instantaneous	Recovery	Fluctuation
Stabilized Regulation	regula	ation	Recovery Time	Fluctuation	Regulation	regulation	Time	
≤ ±2%	≤ ±5%		1 s	≤ 0.5%	≤ 0.5%	≤ ±10%	<5s	≤ 0.5%

 $[\]bigstar \text{Above values are provided for information purpose only and are non-binding. The data given in official offer is decisive.}$



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