

# FUJIAN EPOS ELECTRIC MACHINERY CO., LTD

**EMEAN**  
POWER

**WEICHAI**  
潍柴

ENGINE MODEL: WP13D490E310

EMEAN POWER


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WECHAT




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<b>转速</b> <b>Speed</b>	<b>发动机功率</b> <b>Gross Engine Output</b>		
	持续功率 kW COP kW	常用功率 kW PRP kW	备用功率 kW ESP kW
1500r/min	/	450	490

**功率定义解释 Ratings definitions :**

<b>功率分类</b> <b>Ratings Definitions</b>	<b>运行条件</b> <b>Operating condition</b>
持续功率 COP	1、每年运行时间不限 Unlimited using time per year ; 2、在恒定的 100%负荷下运行 Continuous power is the maximum power available at a constant load factor ; 2、不具备超负荷能力 No overload capability is allowed;
常用功率 PRP	1、每年运行时间不限 Unlimited using time per year ; 2、运行24h上平均负荷率不超过70% The average load rate is no more than 70% over 24 hours. 3、每 12h 内，可超负荷 10%运行 1h Overloading 10% for 1 hour within 12 hours of operation is allowed.
备用功率 ESP	1、每年运行时间不超过200h ; The annual operating time shall not exceed 200h. 2、运行24h以上，平均负荷率不能超过70% The average load rate shall not exceed 70% over 24h operation cycle ; 3、不具备超负荷能力 No ability to overload ; 4、柴油机启动没有热机过程，由启动加速到标定转速需在 10s 内完成。自然吸气柴油机，环境温度 5℃以下时，需增加预热设施保证柴油机出水温度 30℃以上；环境温度 5℃以上时，无预热设施。增压柴油机环境温度 10℃


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	<p>以下时，需增加预热设施保证柴油机出水温度在 30℃以上；环境温度 10℃ 以上时，无预热设施。</p> <p>The diesel engine starts without the heating engine process, and the acceleration from the start to the calibration speed needs to be completed within 10s. Natural aspirated diesel engine , when the environment temperature is below 5℃ , need to increase preheat facilities to ensure that diesel engine water temperature above 30℃.When environment temperature over 5℃ , no preheating facilities are require.Supercharged diesel engine ,when the environment temperature is below 10℃ , need to increase preheat facilities to ensure that diesel engine water temperature above 30℃.When environment temperature over 10℃ , no preheating facilities are required.</p>
备注 Descriptions	<p>1) 所有功率基于标准 ISO 8528-1, ISO 3046, DIN6271 , 误差范围±5%。</p> <p>All ratings are based on operating conditions under ISO 8528-1, ISO 3046, DIN6271. Performance tolerance of ±5%.</p> <p>2) 测试条件：大气压力 100kPa , 25℃ , 相对湿度 30% , 燃油密度 0.84kg/L ; 其他环境条件下可能需要进行功率修正 , 详情请与厂家联系。</p> <p>Test conditions : 100 kPa, 25℃ air inlet temperature, relative humidity of 30%, with fuel density 0.84 kg/L. Derating may be required for conditions outside these; please contact the factory for details.</p> <p>3) 所有的数据均基于发动机带燃油系统、水泵、机油泵时获得的，而不带有交流发电机、风扇、其它选用设备和被驱动的附件。</p> <p>Power output curves are based on the engine operating with fuel system, water pump and lubricating oil pump; not included are battery charging alternator, fan and optional equipment.</p>

**基础数据 Essential Data**

发动机类型 Engine model ..... 柴油机 Diesel Engine  
 气缸/气门数量 N° of Cylinders / Valves ..... 6/24  
 气缸分布型式 Cylinders arrangement..... 直列/Line  
 缸径×行程 ( mm ) Bore x Stroke ( mm ) ..... 127×165  
 排量(L) Displacement(L) ..... 12.54



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燃油系统型式 Fuel System	电控高压共轨 Common-Rail
进气形式 Aspiration	增压中冷 Turbocharged and aftercooled
压缩比 Compression ratio	15
飞轮壳尺寸 Flywheel housing	SAE1
飞轮尺寸 Flywheel	14"
飞轮齿圈齿数 N° of teeth on flywheel ring gear	136
飞轮转动惯量 (kg/m <sup>2</sup> ) Inertia of flywheel (kg/m <sup>2</sup> )	1.34
曲轴转动惯量 (kg/m <sup>2</sup> ) Inertia of crankshaft (kg/m <sup>2</sup> )	0.064
排放阶段 Emission standard	中国非道路三阶段 Non-road China III
发动机尺寸(长×宽×高) (mm) Overall Dimensions with radiator (L x W x H) (mm)	1752×972×1188 (以外形图为准 The outer chart shall prevail)
发动机净重 (kg) Engine weight (kg)	998
不带辅助启动装置时最低冷启动温度 (°C) Min.cold start temperature without auxiliary starting device(°C)	-10
带辅助启动装置时最低冷启动温度 (°C) Min. cold start temperature with auxiliary starting device (°C)	-35
包装尺寸 Packing measurement ( mm )	1910×1050×1300
运输重量 Transport weight ( kg )	1100

### 进气系统 Air intake system


在涡轮增压器前允许的最大的进气温升(°C) Air intake temperature rise (°C)	15
清洁滤芯进气阻力 (kPa) Air intake restriction clean filter (kPa)	≤3.5
脏滤芯进气阻力 (kPa) Air intake restriction dirty filter (kPa)	≤6.2
额定工况下进气流量 (kg/h) Recommended air flow @ PRP (kg/h)	2336
应急备用工况下进气流量 (kg/h) Recommended air flow @ ESP (kg/h)	2473
推荐最小进气管直径(mm) Min. diameter of intake pipe (mm)	100

### 中冷系统 Intercooling system

25°C环境温度下的最高进气温度 (°C) Max. intake temperature @ 25°C ambient temperature (°C)	55
进气温度与环境温度的最大温差 (°C) Max. difference between intake temperature and ambient temperature (°C)	30
中冷器允许的最大压力降 (kPa) Max. intake pressure drop of intercooler (kPa)	12

### 冷却系统 Cooling system

发动机允许的最高使用环境温度 (°C) System designed for ambient temperature up to (°C)

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.....	45
进出水外部管路的最小内径 (mm) Min. inside diameter of coolant outlet pipe (mm) .....	75
出水管报警温度 (°C) Coolant alarm (shutdown) temperature (°C) .....	98
节温器初开/全开温度 (°C) Thermostat opening temperature/full open temperature (°C).....	76/88
冷却系统内最小保持压力 (kPa) Min. pressure in cooling system (kPa) .....	50
发动机本身冷却液容量 (L) Coolant capacity of the engine (L) .....	25

**排气系统 Exhaust system**

允许最大排气背压 (kPa) Max. exhaust back pressure (kPa) .....	12
最大的排气温度 (涡轮前) (°C) Max. exhaust temperature before turbocharger (°C) .....	740
最大的排气温度 (涡轮后) (°C) Max. exhaust temperature after turbocharger (°C) .....	580
额定工况下排气流量 (kg/h) Exhaust flow @ PRP (kg/h) .....	2428
应急备用工况下排气流量 (kg/h) Exhaust flow @ ESP (kg/h) .....	2577
推荐排气管最小直径(mm) Min. diameter of exhaust pipe (mm) .....	100
涡轮增压器法兰处允许的最大弯矩(Nm) Max. bending moment of exhaust gas exit flange (Nm) .....	19

**润滑系统 Lubrication system**


油底壳机油容量 (L) Oil capacity (L) .....	30
怠速时机油压力 (kPa) Oil pressure in normal condition idle speed (kPa) .....	130~250
在额定转速下的机油压力 (kPa) Oil pressure in normal condition at rated speed .....	350-550
机油低报警压力 (kPa) Lowest oil pressure alarm (kPa) .....	120
机油低停机压力 (kPa) Lowest oil pressure shutdown (kPa) .....	120
机油最高温度 (°C) Max. oil temperature (°C) .....	85~105
机油流量 (L/min) Oil flow (L/min) .....	≥180
机油燃油消耗比 Oil fuel consumption ratio based on engine fuel consumption data .....	≤0.2%

**噪声 Noise**

发动机噪声 (声功率级) (dB(A)) Diesel engine noise (Acoustic power level) (dB(A)) .....	110.3
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**燃油系统 Fuel system**

喷油泵进油口最大进油阻力 (kPa) Max. restriction at fuel pump inlet (kPa) .....	18
喷油泵最大回油阻力 (kPa) Max. fuel return restriction (kPa) .....	22
燃油最高进油温度 (°C) Max. fuel inlet temperature (°C) .....	70
供油流量 (kg/h) Fuel supply flow (kg/h) .....	/
输油泵最小压力 (kPa) Min. pressure of fuel pump (kPa) .....	/
燃油进油管最小直径 (mm) Min. diameter of inlet pipe (mm) .....	12

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燃油回油管最小直径 (mm) Min. diameter of return pipe (mm) .....12

**电器系统 Electrical system**

电气系统电压 ( 负极接地 ) (V) Electrical system voltage (negative to ground) (V) .....24

起动机功率(kW) Starter power (kW) .....7.5

充电发电机额定电流 (A) Battery charger current (A).....55


启动回路最大电阻 (Ω) Max. electric resistance of starting circuit (Ω)..... 0.04

启动回路导线最小截面积(mm<sup>2</sup>) Min. sectional area of wire (mm<sup>2</sup>) .....70

加热格栅工作电压(V)/电流(A) Heat The Grille Voltage(V)/Current(A) ...../

**热平衡测试数据 (环境温度 42.5 °C)Heat balance test data ( 42.5°C )**

发动机进/出水压力 Coolant inlet/ output pressure ( kPa )	额定工况 Rated working condition	20.0/106.4
	超负荷工况 Overload working condition	18.3/106.0
冷却液流量 Coolant flow ( m <sup>3</sup> /h )	额定工况 Rated working condition	24.0
	超负荷工况 Overload working condition	23.9
发动机进/出水温度 Coolant inlet/output temperature ( °C )	额定工况 Rated working condition	88.5/95.0
	超负荷工况 Overload working condition	87.5/95.0
中冷器前/后温度 Intercooler inlet/output temperature ( °C )	额定工况 Rated working condition	229.7/53.7
	超负荷工况 Overload working condition	249.4/55.2
中冷器前/后压力 Intercooler inlet/output pressure ( kPa )	额定工况 Rated working condition	314.3/310.8
	超负荷工况 Overload working condition	342.4/337.6
发动机总热量 Engine total heat ( kJ/s )	额定工况 Rated working condition	1095.2
	超负荷工况 Overload working condition	1241.1
中冷器散热量 Intercooler heat dissipating capacity ( kJ/s )	额定工况 Rated working condition	114.8
	超负荷工况 Overload working condition	134.1
排气带走的热量	额定工况 Rated working condition	332.5

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The heat taken away by the exhaust ( kJ/s )	超负荷工况 Overload working condition	386.4
冷却液带走的热量	额定工况 Rated working condition	163.4
The heat taken away by the coolant ( kJ/s )	超负荷工况 Overload working condition	187.8
发动机表面辐射热量	额定工况 Rated working condition	54.8
Radiation heat of the engine surface ( kJ/s )	超负荷工况 Overload working condition	62.1
<p>注：因测量等误差原因，表面辐射热量按发动机总热量的 5% 计算。</p> <p>Note: Because of test errors and other reasons, the surface radiation heat is 5% of the engine total heat.</p>		

### 性能数据 Performance data

活塞平均速度 (m/s) Mean Piston Speed (m/s) .....	8.25
平均有效压力 (MPa) BMEP (MPa) .....	3.13
最高爆发压力 (MPa) Maximum Burst Pressure (MPa) .....	/
最低空载稳定转速 (r/min) Minimum No-load Speed (r/min) .....	600±50
发火次序 Ignition Order .....	1-3-5-2-4-6
旋转方向 Sense of Rotation .....	逆时针 ( 面对飞轮 ) Anticlockwise ( In the Face of Flywheel )

备注：所有参数如有更改，恕不另行通知。

Remark: All Parameters If Changed Without Prior Notice.