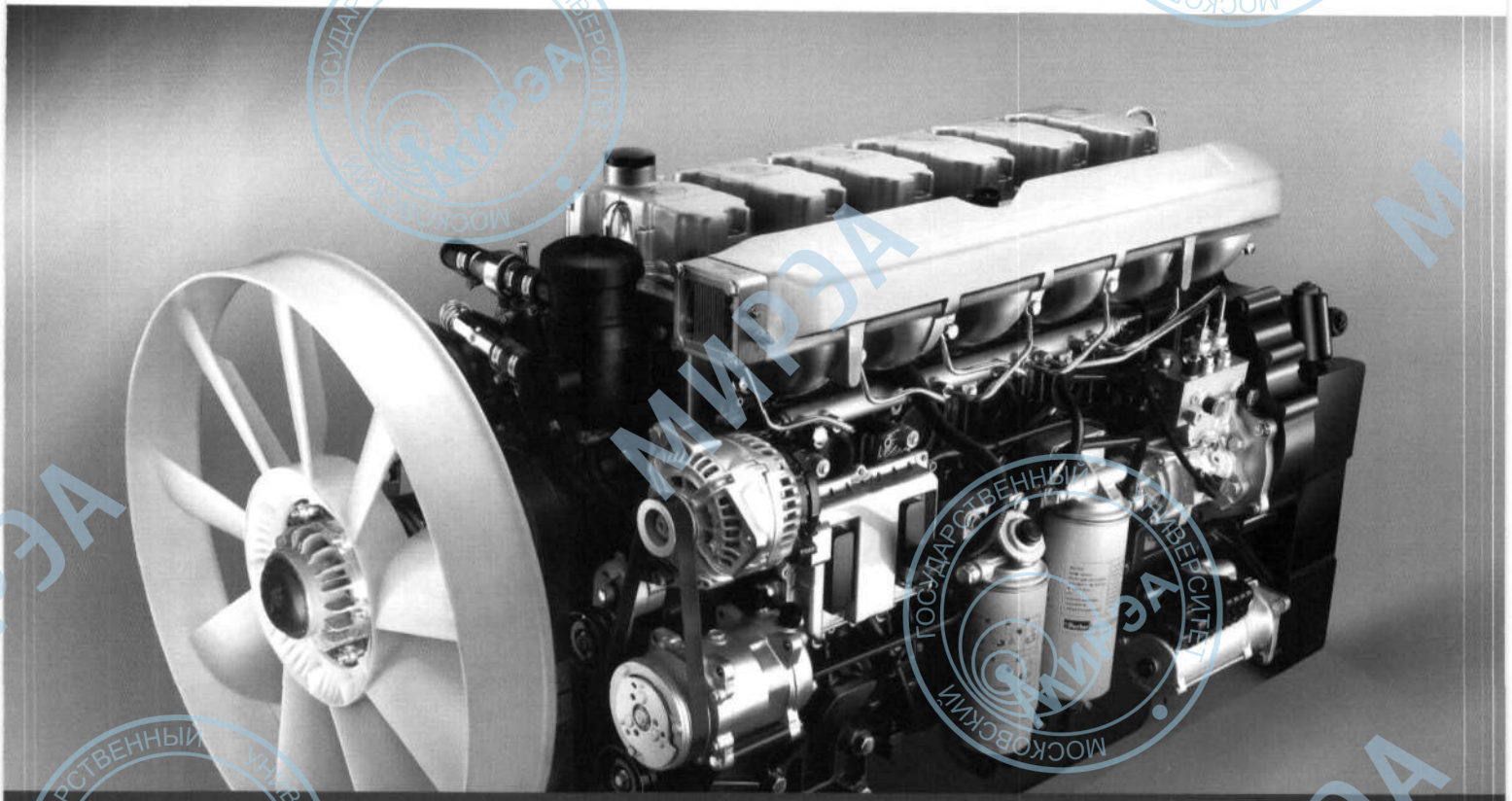
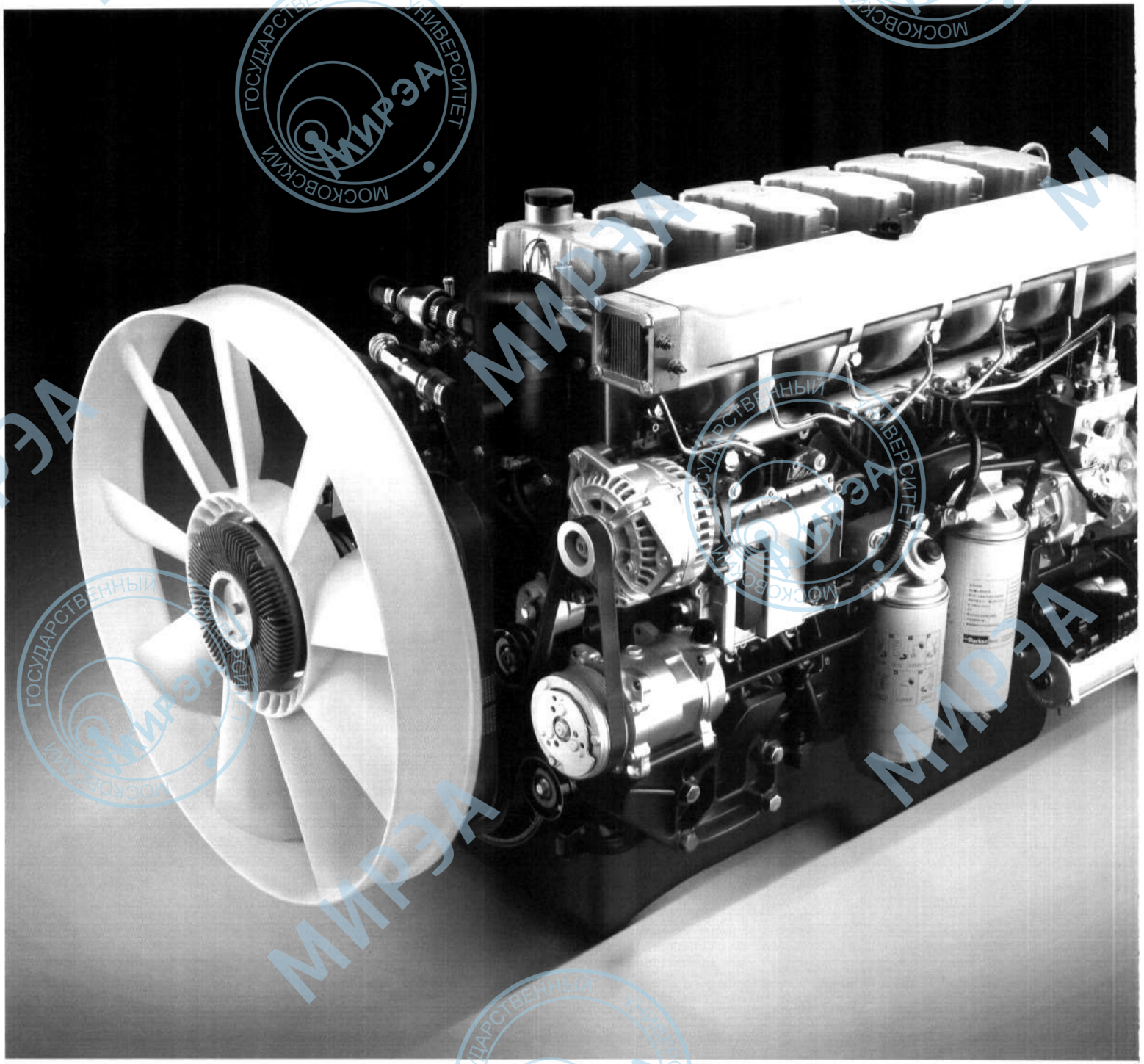
潍柴动力
WEICHAI POWER



WEICHAI COMMERCIAL VEHICLE ENGINES

GLOBAL LEADING FULL SERIES WHOLE FIELED ENGINE SUPPLIER



Contents

Weichai Group Introduction

Long history, excellent products, leading technology, innovation consciousness, first-class management systems, top service quality, worldwide customers and partners------this is Weichai Group.

"We aim to your maximum satisfaction, our confidence comes from our products' perfect quality, you will enjoy our ideal for perfection when using our products.

Weichai, established in 1946, with more than 50,000 staff, and general assets of 70.2 billion and 98 billion RMB sales 2011, is one of the biggest manufacturers of vehicle and equipment, ranks the 77th in 2012 China top 500 enterprises, the 39th in 2012 China top 500 Manufacturers enterprises,the 7th in 2012 China top 100 Machinery enterprises.

Weichai Group business covers engine, gear box, axle, vehicle, construction machinery, and parts, creating a complete golden industry chain of machinery. Weichai Power co., Ltd, with more than 13,000 staff, with 750,000 units sales volume and 102% growth in 2011, is one of the most famous, professional diesel engine manufacturers and saler of China. Fast Gear company, with sales income 12 billion, with 850000 units sales volume, is the first gear box manufacture of sales revenue more than 10 billion RMB. Hande Axels company, with 400,000 units sales volume and 165% growth in 2010, is the top one of axles manufacture in China. Commercial vehicle business---Shacman Co., with 100,000 units sales volume and 118% growth in 2010, gets the first growth rate in China. Components business sales revenues reach to 7 billion RMB. Construction machinery business like Shantui Construction Machinery Co., Ltd, bus business like Yaxing Motor Coach Co., Ltd, they all are going toward the good direction.Now, Weichai Power is with a more high-spirited attitude, leading the world, moving the world.

Weichai R&D

First-class R&D Center

Weichai has a national-level R&D center and lab, with a professional R&D team of 1069 researchers. 681 of them are senior and middle-level engineers. More than 150 are technical experts and 136 have Ph.D.

R&D Ability:

- State-qualified Technical Center;
- State-qualified Product Laboratory;
- Postdoctoral workstation;
- State-qualified physical and chemical index measuring enterprise;
- Weichai takes on R&D programs of the National 10th and 11th five-year plans. Weichai launches strategic cooperation relations with world famous R&D organizations, such as AVL, FEV and BOSCH.
- National Commercial Vehicle Powertrain Engineering Research Center.

State-qualified Technical Center

European R&D Center

State-qualified Product Laboratory

Technology Exhibit Hall

The most advanced manufactuing base of diesel engines in the world

Weichai has an Industrial Park covering 220 hectares. Phase I invested 150 Million USD and 200,000 engines are produced per year. Phase II invested 140 Million USD and 150,000-ton castings are produced per year. All facilities are imported from world famous companies such as Heller of Germany, ATLAS and ABB of Switzerland and TOYOTA of Japan.

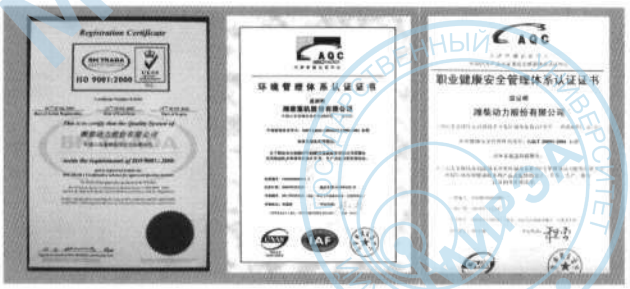
All facilities on the product line are connected by LAN, which manages production in realtime.The lines include 50 machining centers, 8 robots, 5 fine finishing centers and CMM. All equipment is imported from Heller of Germany and TOYOTA of Japan.

Weichai Power Industrial Park

Certificate

Honour

System



Emissions

Product Catalogue

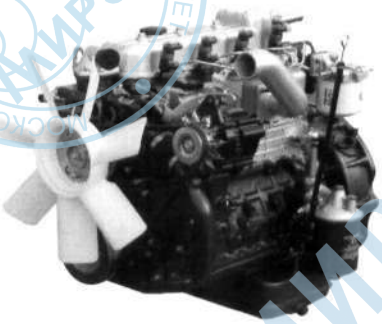
Introduction of Weichai power products for commercial vehicle

As the earliest engine manufacturer in China, Weichai Power is also the current largest diesel engine manufacturer and the main supplier of commercial vehicle manufacturing enterprise in China, whose product market share has been ranking the first in China.

Over half the century, Weichai power has been devoted to exploring the applications and development of diesel engine and providing a full range of engine assemblies for users, so as to pay attention to living environment for human beings in a more active way, push forward low-emission products with continuous technological innovation, lead industry and win users' acceptance.

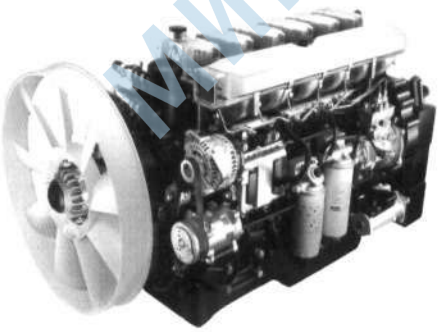
Weichai Power currently has a full range of powers for light, middle and heavy-duty commercial vehicles and 10 series of products, whose engine displacement ranges from 2L to 13L with a power range from 48 to 550 horsepowers.The self-research products Euro III, IV and V have got certification from ECE regulation in Europe and GOST in Russia.

Weichai Power, sincerely provides you with all-around power services!



WP4.1 Series Engine

WP7 Series Engine



WP12/WP13 Series Engine

Products and Technique Route

Diesel Engine

Models and Power Range (Ps)	Euro Ⅲ	Euro Ⅳ	Euro Ⅴ
270 WP12/WP13 550	Common Rail	Common Rail+SCR	Common Rail+SCR
240 WP10 380	Common Rail	Common Rail+SCR	Common Rail+SCR
210 WP7 300	Common Rail	Common Rail+SCR	Common Rail+SCR
160 WP5 200	Common Rail	Common Rail+SCR	Common Rail+SCR
49 WP2.1-WP4.3 143	Common Rail	Common Rail+SCR	

Gas Engine

Models and Power Range (Ps)	Euro Ⅲ Euro Ⅳ Euro Ⅴ
330 WP12NG 380	Electric control injection ,catalyst converter
260 WP10NG 300	Electric control injection ,catalyst converter
210 WP7NG 260	Electric control injection ,catalyst converter
210 WP6NG 240	Electric control injection ,catalyst converter
165 WP5NG 180	Electric control injection ,catalyst converter

Hybrid Products

Models and Power Range (Ps)	Euro Ⅲ	Euro Ⅳ	Euro Ⅴ
210 WP7 300	Common Rail	Common Rail+SCR	Common Rail+SCR
160 WP5 200	Common Rail	Common Rail+SCR	Common Rail+SCR

* The hybrid technology is mainly applied in buses, from which the fuel economy, emissions and manufacturing cost of complete vehicle can be reduced significantly. This product is still in the process of development.

Weichai Commercial Vehicle Engine Catalogue

Light Truck Light Bus

WP2.1 Series Engine

Power Range: 49–84Ps

Model	Displacement L	Rated Power kW	Rated Speed r/min	Max. Torque N · m	Max. Torque Speed r/min	Fuel Consumption g/(kW · h)	Idle Speed r/min	Emission	Bus	Truck
YZ485QB	2.088	36	3200	125	2200	242	800	Euro I	5–6m	2–4t
YZ485ZLQ		46		165		215	850	Euro II		
YZ4DC1		52		185		215	800	Euro II		
YZ4DC2-30		52		185		205	800	Euro III		

WP2.5 Series Engine

Power Range: 63–91Ps

Model	Displacement L	Rated Power kW	Rated Speed r/min	Max. Torque N · m	Max. Torque Speed r/min	Fuel Consumption g/(kW · h)	Idle Speed r/min	Emission	Bus	Truck
YZ4DH	2.54	46	3200	157	2000	235	800	Euro I	5–6m	2–4t
YZ4DH1-20		62	3000	220	1800	215	800	Euro II		

WP3.7 Series Engine

Power Range: 90–130Ps

Model	Displacement L	Rated Power kW	Rated Speed r/min	Max. Torque N · m	Max. Torque Speed r/min	Fuel Consumption g/(kW · h)	Idle Speed r/min	Emission	Bus	Truck
YZ4102QF	3.857	70.6	3200	245	2200	230	750	Euro I	6–7m	4–6t
YZ4D37TC	3.66	70	2900	265	1800	210	850	Euro II		
YZ4D37TC		75	2900	285	1800	210	850	Euro II		
YZ4D37TC		81	2900	310	1800	210	850	Euro II		
YZ4D37TC		90	2900	350	1700	210	850	Euro II		
YZ4DA1-30		95	2900	380	1600	205	700	Euro III	6–7.5m	4–10t
YZ4DA2-30		81	2900	320	1600	205	700	Euro III		
YZ4DA1-40		95	2900	380	1600	205	700	Euro IV		
YZ4DA2-40		80	2900	300	1600	205	700	Euro IV		
YZ4DA3-40		75	2900	280	1600	205	700	Euro IV	6–7m	4–10t

WP4.1 Series Engine

Power Range: 102–143Ps

Model	Displacement L	Rated Power kW	Rated Speed r/min	Max. Torque N · m	Max. Torque Speed r/min	Fuel Consumption g/(kW · h)	Idle Speed r/min	Emission	Bus	Truck
YZ4105QF	4.087	75	3200	260	2200	230	750	Euro I	6–7m	4–10t
YZ4DB2-30		92	2400	380	1500	205	700	Euro III		5–12t
YZ4DB1-40		95	2600	400	1500	205	700	Euro IV	6–8m	5–12t

WP4.3 Series Engine

Power Range: 110–136Ps

Model	Displacement L	Rated Power kW	Rated Speed r/min	Max. Torque N · m	Max. Torque Speed r/min	Fuel Consumption g/(kW · h)	Idle Speed r/min	Emission	Bus	Truck
YZ4108Q	4.324	81	3000	280	2000	231	800	Euro I	6–7.5m	5–10t
YZ4DD1		100	2800	420	1800	210	750	Euro II		
YZ4DD1-30		96	2600	400	1500	205	700	Euro III	6–8m	5–12t
YZ4DD2-30		98	2600	400	1500	205	700	Euro III		

■ Mid Truck Mid Bus

WP5 Series Engine

Power Range: 159–200Ps

Model	Displacement L	Rated Power kW	Rated Speed r/min	Max. Torque N · m	Max. Torque Speed r/min	Fuel Consumption g/(kW · h)	Idle Speed r/min	Emission	Bus	Truck
TBD226B-4IIQ1	4.5	120		560	1400–1600	235	700	Euro II	7.5–8m	
WP5.160E30		117		600	1200–1700	195	600	Euro III	7.5–9m	
WP5.180E30		132		650	1200–1700	195	600	Euro III	7.5–9m	
WP5.200E30		147		732	1200–1700	195	600	Euro III	7.5–9m	
WP5.160E40		117		600	1200–1700	195	600	Euro IV	7.5–9m	10–15t
WP5.180E40	4.75	132	2300	650	1200–1700	195	600	Euro IV	7.5–9m	
WP5.200E40		147		732	1200–1700	195	600	Euro IV	7.5–9m	
WP5.160E50		117		600	1200–1700	195	600	Euro V	7.5–9m	
WP5.180E50		132		650	1200–1700	195	600	Euro V	7.5–9m	
WP5.200E50		147		732	1200–1700	195	600	Euro V	7.5–9m	

WP6 Series Engine

Power Range: 210–240Ps

Model	Displacement L	Rated Power kW	Rated Speed r/min	Max. Torque N · m	Max. Torque Speed r/min	Fuel Consumption g/(kW · h)	Idle Speed r/min	Emission	Bus	Truck
TBD226B-6IIQ1	6.75	176	2300	860	1400–1600	235	700	Euro II	9–10.5m	13–18t
TBD226B-6IIQ2		155		800		230				

WP7 Series Engine

Power Range: 210–300Ps

Model	Displacement L	Rated Power kW	Rated Speed r/min	Max. Torque N · m	Max. Torque Speed r/min	Fuel Consumption g/(kW · h)	Idle Speed r/min	Emission	Bus	Truck
WP7.210E30		155		900						
WP7.240E30		176		1000						
WP7.270E30		199		1100						
WP7.300E30		220		1160						
WP7.210E40		155		900						
WP7.240E40	7.14	176	2300	1000	1200–1700	195	600	Euro III/IV/V	9–12m	15–25t
WP7.270E40		199		1100						
WP7.300E40		220		1160						
WP7.210E50		155		900						
WP7.240E50		176		1000						
WP7.270E50		199		1100						
WP7.300E50		220		1160						

Heavy Truck, Big Bus

WP10 Series Engine

Power Range: 240–380Ps

Model	Displacement L	Rated Power kW	Rated Speed r/min	Max. Torque N·m	Max. Torque Speed r/min	Fuel Consumption g/(kW·h)	Idle Speed r/min	Emission	Bus	Truck
WD615.58		175	2200	1000	1400–1600	205		Euro II		
WD615.56		193	2200	1100	1300–1600	205		Euro II		
WD615.50		206	2200	1160	1100–1600	205		Euro II		
WD615.30		221	2200	1160	1100–1600	205		Euro II		
WD615.44		235	2200	1250	1400–1600	205		Euro II		
WD615.34		250	2200	1350	1100–1600	205		Euro II		
WD615.46		266	2200	1460	1400–1600	205		Euro II		
WD615.38		280	2400	1460	1200–1800	205		Euro II		
WP10.240E30		175	2200	1050	1200–1600	196		Euro III		
WP10.270E30		199	2200	1150	1200–1600	196		Euro III		
WP10.290E30		213	2200	1160	1200–1600	196		Euro III		
WP10.336E30		247	2200	1300	1200–1600	196		Euro III		
WP10.375E30		276	2200	1480	1200–1600	200		Euro III		
WP10.240N	9.726	175	1900	1150	1200–1500	196	600	Euro III	11–13.7m	25–31t
WP10.270N		199	1900	1270	1200–1500	196		Euro III		
WP10.300N		221	1900	1390	1200–1500	196		Euro III		
WP10.336N		247	1900	1500	1200–1500	196		Euro III		
WP10.240E40		175	1900	1150	1200–1500	200		Euro IV		
WP10.270E40		199	1900	1270	1200–1500	200		Euro IV		
WP10.300E40		221	1900	1390	1200–1500	200		Euro IV		
WP10.336E40		247	1900	1500	1200–1500	200		Euro IV		
WP10.240E41		175	2200	1050	1200–1600	198		Euro IV		
WP10.270E41		199	2200	1150	1200–1600	198		Euro IV		
WP10.290E41		213	2200	1160	1200–1600	198		Euro IV		
WP10.310E41		228	2200	1180	1200–1600	198		Euro IV		
WP10.336E41		247	2200	1300	1200–1600	198		Euro IV		
WP10.375E41		276	2200	1480	1200–1600	198		Euro IV		

WP12/WP13 Series Engine

Power Range: 270–550Ps

Model	Displacement L	Rated Power kW	Rated Speed r/min	Max. Torque N·m	Max. Torque Speed r/min	Fuel Consumption g/(kW·h)	Idle Speed r/min	Emission	Bus	Truck
WD12.336		247	2200	1350	1300–1600	198		Euro II		
WD12.375		276	2200	1500	1300–1600	198		Euro II		
WD12.420		309	2200	1750	1300–1600	198		Euro II		
WP12.270N		199	1900	1300	1000–1400	198		Euro III		
WP12.300N		221	1900	1440	1000–1400	198		Euro III		
WP12.336N		247	1900	1600	1000–1400	198		Euro III		
WP12.375N		276	1900	1800	1000–1400	195		Euro III		
WP12.400N		294	1900	1920	1000–1400	195		Euro III		
WP12.430N	11.596	316	1900	2060	1000–1400	195	600	Euro III	12–13.7m	31–70t
WP12.460N		338	1900	2110	1000–1400	195		Euro III		
WP12.270E40		199	1900	1300	1000–1400	198		Euro IV		
WP12.300E40		221	1900	1440	1000–1400	198		Euro IV		
WP12.336E40/E50		247	1900	1600	1000–1400	198		Euro IV/Euro V		
WP12.375E40/E50		276	1900	1800	1000–1400	195/198		Euro IV/Euro V		
WP12.400E40/E50		294	1900	1920	1000–1400	195/198		Euro IV/Euro V		
WP12.430E40/E50		316	1900	2060	1000–1400	195/198		Euro IV/Euro V		
WP12.460E40/E50		338	1900	2110	1000–1400	195/198		Euro IV/Euro V		
WP12.480E40/E50		353	2100	1970	1200–1500	198		Euro IV/Euro V		
WP13.480E40/E50		353	1900	2110	1100–1400	195		Euro IV/Euro V		
WP13.500E40/E50	12.54	368	2100	2100	1200–1500	195	600	Euro IV/Euro V	12–13.7m	31–70t
WP13.530E40/E50		390	2100	2220	1200–1500	195		Euro IV/Euro V		
WP13.550E40/E50		405	2100	2300	1200–1500	195		Euro IV/Euro V		

Weichai Commercial Vehicle Gas Engine Catalogue

WP5NG Series Engine

Power Range: 165Ps

Model	Displacement L	Rated Power kW	Rated Speed r/min	Max. Torque N · m	Max. Torque Speed r/min	Gas Consumption g/(kW · h)	Idle Speed r/min	Emission	Bus	Truck
WP5NG165E40	4.76	121	2300	560	1300 – 1500	185	650	Euro IV	8 – 9m	10 – 15t

WP6NG Series Engine

Power Range: 210–240Ps

Model	Displacement L	Rated Power kW	Rated Speed r/min	Max. Torque N · m	Max. Torque Speed r/min	Gas Consumption g/(kW · h)	Idle Speed r/min	Emission	Bus	Truck
WP6NG210E30	6.75	155	2300	740	1400—1600	185	700	Euro III	9–10.5m	19–24t
WP6NG240E30		177		780						
WP6NG210E40	6.75	155	2300	740	1400—1600	185	700	Euro IV	9–10.5m	19–24t
WP6NG240E40		177		780						

WP7NG Series Engine

Power Range: 210–270Ps

Model	Displacement L	Rated Power kW	Rated Speed r/min	Max. Torque N · m	Max. Torque Speed r/min	Gas Consumption g/(kW · h)	Idle Speed r/min	Emission	Bus	Truck
WP7NG210E40	7.14	155	2300	850	1300—1500	185	650	Euro IV	9–12m	19–25t
WP7NG240E40		176		900						
WP7NG260E40		191		980						
WP7NG270E40		199		990						

WP10NG Series Engine

Power Range: 260–336Ps

Model	Displacement L	Rated Power kW	Rated Speed r/min	Max. Torque N · m	Max. Torque Speed r/min	Gas Consumption g/(kW · h)	Idle Speed r/min	Emission	Bus	Truck
WP10NG260E30	9.726	191	2200	980	1400—1600	185	700	Euro III	12–13.7m	25–31t
WP10NG280E30		206		1060						
WP10NG300E30		221		1230						
WP10NG336E30		247		1350						
WP10NG260E40	9.726	191	2200	980	1400—1600	185	700	Euro IV	12–13.7m	25–31t
WP10NG280E40		206		1060						
WP10NG300E40		221		1230						
WP10NG336E40		247		1350						

WP12NG Series Engine

Power Range: 330–380Ps

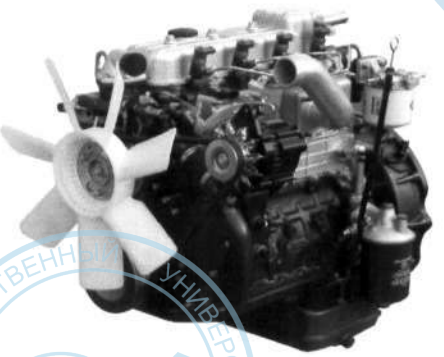
Model	Displacement L	Rated Power kW	Rated Speed r/min	Max. Torque N · m	Max. Torque Speed r/min	Gasl Consumption g/(kW · h)	Idle Speed r/min	Emission	Bus	Truck
WP12NG330E30	11.596	243	2200	1350	1400—1600	185	700	Euro III	12–18m	31–45t
WP12NG350E30		257		1440						
WP12NG380E30		280		1500						
WP12NG330E40	11.596	243	2200	1350	1400—1600	185	700	Euro IV	12–18m	31–45t
WP12NG350E40		257		1440						
WP12NG380E40		280		1500						
WP12HPDI480E40	11.596	353	2100	1970	1200—1500	185	700	Euro IV	12–18m	31–45t
WP12HPDI480E50		353		1970				Euro V		

Product Introduction

WP2.1,WP2.5,WP3.7,WP4.1,WP4.3 Series Engine

Introduction

Weichai WP2.1-4.3 engine, which is jointly developed by Yangzhou Branch of Weichai Power and Austria AVL Corporation, has combined international advanced design concept. Its fuel system adopts electric controlled high-pressure common rail system of BOSCH so that fuel consumption and timing can be controlled in a flexible and precise way, thus making low emission and low fuel consumption possible. Besides, the design of dimensional finite element is adopted to make safe and reliable operation of complete vehicle with slight vibration and low noise.

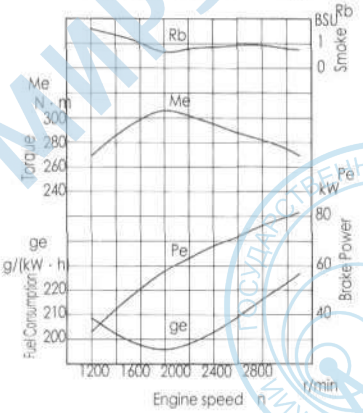


Specification

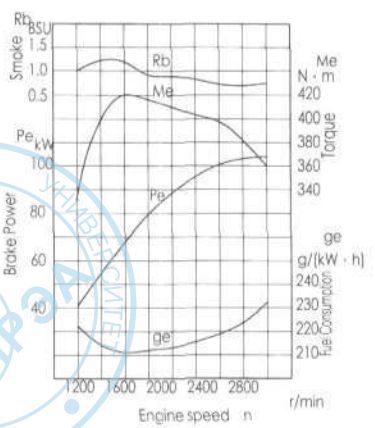
Model	YZ4DC1-30	YZ4DH1-30	YZ4DA2-30	YZ4DB2-30	YZ4DD2-30
Type	Vertical, water-cooled, four-stroke, turbocharged and intercooled				
No.of cylinders-bore × stroke(mm)	4-85 × 92	4-90 × 100	4-102 × 112	4-105 × 118	4-108 × 118
Displacement (L)	2.088	2.54	3.66	4.087	4.324
Rated output (kW)	52	62	81	92	98
Rated speed (r/min)	3200	3000	2900	2400	2600
Max.torque (Nm)	185	220	320	380	400
Torque at speed (r/min)	2000	1800	1600	1500	1500
Specific fuel consumption (g/kWh)	205	205	205	205	205
Fuel injection equipment	ECU controlled				
Emission standard	Euro 3				

Curve

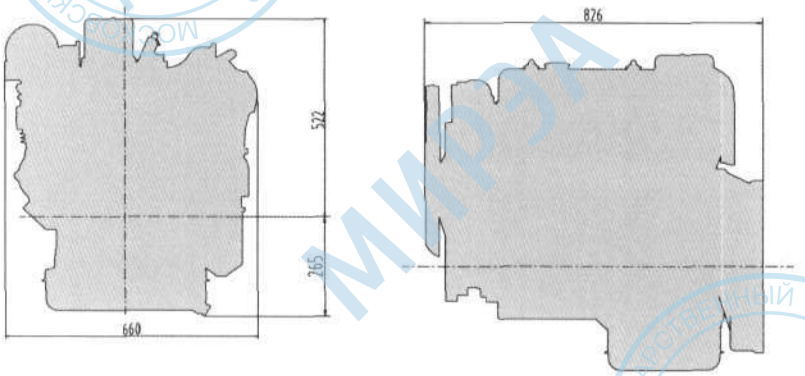
Performance Curve of YZ4D37TC Engine



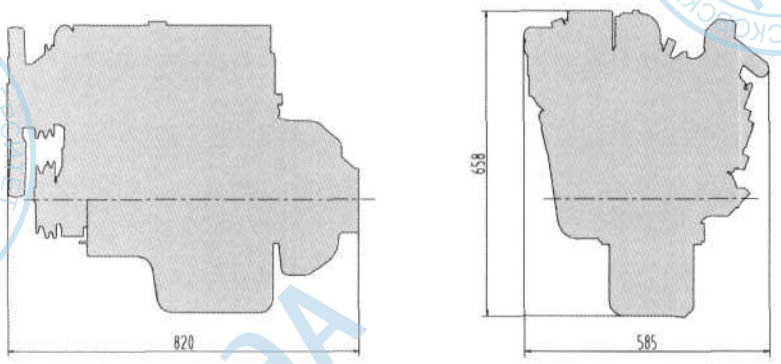
Performance Curve of YZ4105ZLQ Engine



■ YZ4DA2-30、YZ4DB2-30、YZ4DD2-30 Outline Drawing (mm)



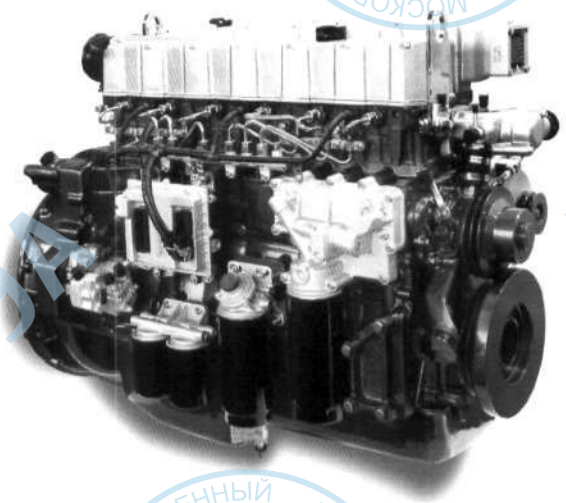
■ YZ4DC1-30 Outline Drawing (mm)



■ Advantage

I. Compact structure, high reliability and low emission;
II. The joint development with Austria AVL Corporation and adoption of electrical control high pressure common rail technology of BOSCH realize low emission and fuel consumption;
III. Low eddy air inlet, precise matching of valve mechanism and multi injection greatly reduces vibration and lower noise;
IV. Optimized supercharger, large torque at low speed, rapid response, good acceleration performance

WP5, WP7 Series Engine



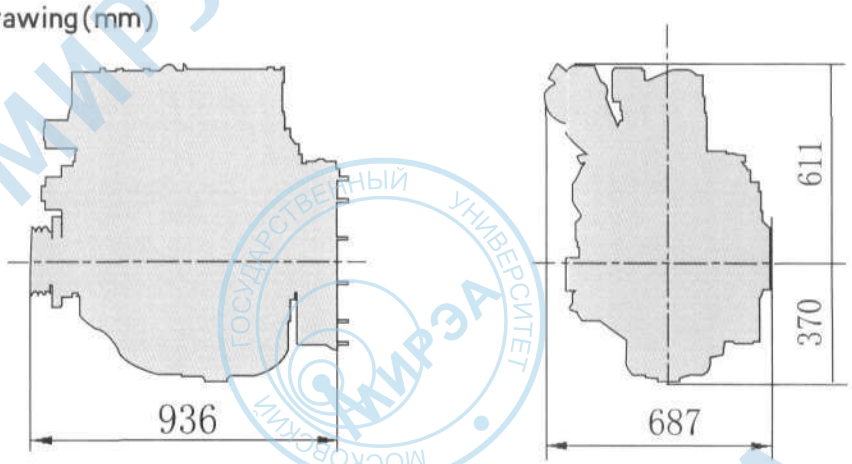
■ Introduction

WP5 and WP7 series diesel engine is a new generation of fuel-saving and environment-friendly engine created and developed by Weichai Power Co.,Ltd. It has the advantage of strong power, high reliability, low noise and so on. With the power ranging from 117kw (160PS) to 147kw (200PS) for WP5, from 155kw (210PS) to 220kw (300PS) for WP7, it is the ideal power for 7-12m middle & large buses and medium & heavy trucks and meets Euro III, IV ,and V standard.

■ Specification

Model	Euro III	WP5.160E30	WP5.180E30	WP5.200E30
	Euro IV	WP5.160E40	WP5.180E40	WP5.200E40
	Euro V	WP5.160E50	WP5.180E50	WP5.200E50
Type		Vertical,water-cooled,four-stroke,turbocharged and intercooled		
No.of cylinders-bore × stroke(mm)		4-108 × 130		
Displacement (L)		4.75		
Rated output (kW)		117	132	147
Rated speed (r/min)		2300	2300	2300
Max.torque (Nm)		600	650	732
Torque at speed (r/min)		1200-1700		
Specific fuel consumption (g/kWh)		195		
Fuel injection equipment		电控 ECU + SCR		

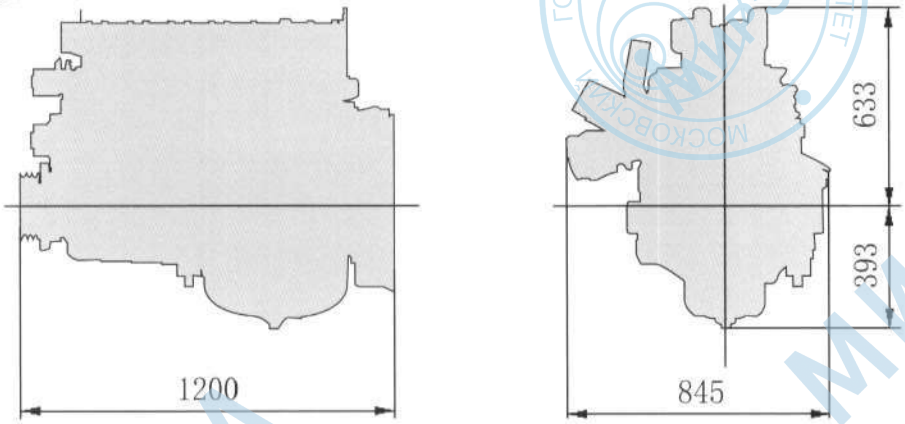
■ Outline Drawing(mm)



Specification

Model	Euro III	WP7.210E30	WP7.240E30	WP7.270E30	WP7.300E30
	Euro IV	WP7.210E40	WP7.240E40	WP7.270E40	WP7.300E40
	Euro V	WP7.210E50	WP7.240E50	WP7.270E50	WP7.300E50
Type		Vertical, water-cooled, four-stroke, turbocharged and intercooled			
No.of cylinders-bore × stroke(mm)		6-108 × 130			
Displacement (L)		7.14			
Rated output (kW)		155	176	199	220
Rated speed (r/min)		2300	2300	2300	2300
Max.torque (Nm)		900	1000	1100	1160
Torque at speed (r/min)		1200-1700			
Specific fuel consumption (g/kWh)		195			
Fuel injection equepment		电控 ECU + SCR			

Outline Drawing(mm)

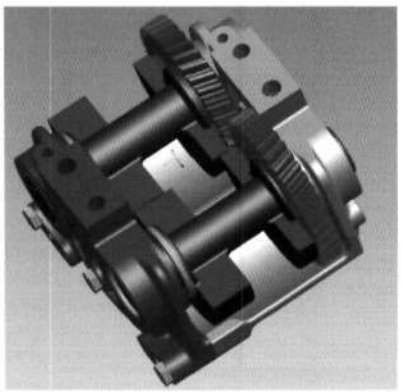


Advantages

I. The adoption of BOSCH electrical control common rail technology, high reliability.

II. Gantry type engine body, integral cylinder head, intake and exhaust valve on the same side, high-capacity oil pan.

III. Adoption of double axles balance mechanism and rear-mounted gear design for WP5 makes running much smoother and noise lower.

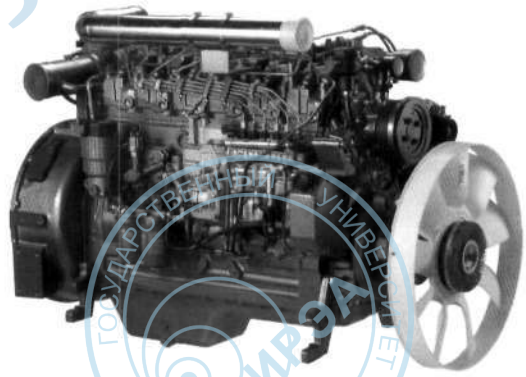


Double axles balance mechanism

WP6 Series Engine

Introduction

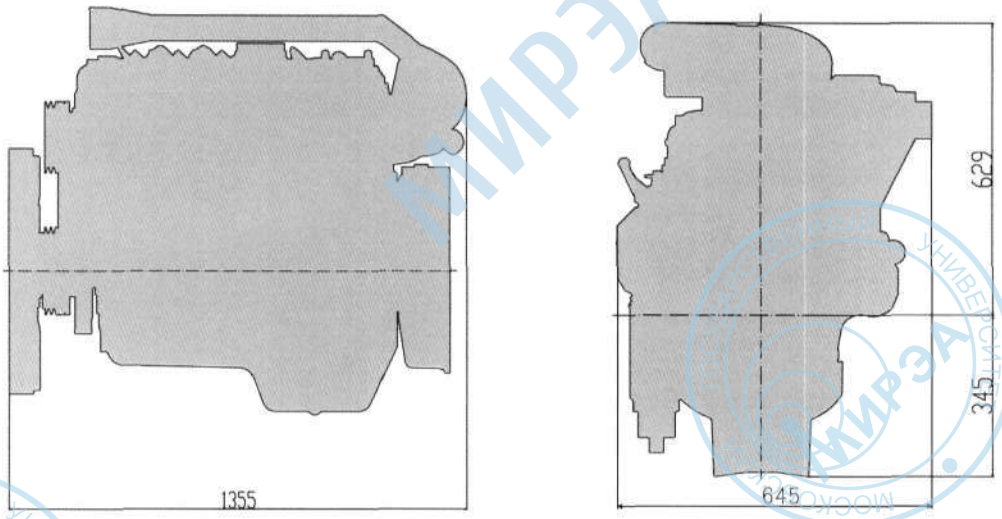
WP6 Series diesel engine is a kind of high-speed diesel engine manufactured by the joint venture company established by Weichai Power and DEUTZ Germany. It is characterized by compact structure, reliable performance, limited technical index on dynamic property and economy, rapid starting, simple operation and convenient maintenance, etc. Therefore, it is the ideal power for commercial vehicles.



Specification

Model	TBD226B-4IIQ1	TBD226B-6IIQ1	TBD226B-6IIQ2
Type	Vertical, water-cooled, four-stroke, turbocharged and intercooled		
No.of cylinders-bore × stroke(mm)	4-105 × 130	6-105 × 130	
Displacement (L)	4.5	6.75	
Rated output (kW)	121	176	155
Rated speed (r/min)	2300		
Max.torque (Nm)	560	860	800
Torque at speed (r/min)	1400-1600		
Specific fuel consumption (g/kWh)	230	235	230
Emission standard	Euro II		

■ Outline Drawing (mm)



■ Advantage

I. Strong power: TBD226B Series diesel engine has excellent performance for its higher power output and the torque reserve is up to 35%, which can fully meet the requirements of trucks on power and torque.

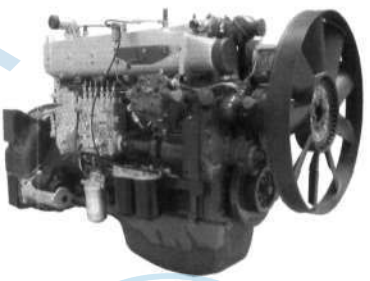
II. Reliable quality: TBD226B Series diesel engine is manufactured on the basis of the original design drawings offered by DEUTZ. It adopts German standard and quality control keeps space with the world level. The first overhaul time is 10,000 hours.

III. Excellent performance, superior low-temperature starting, favorable altitude performance, environment friendly and low noise.

WP10 Series Engine

Introduction

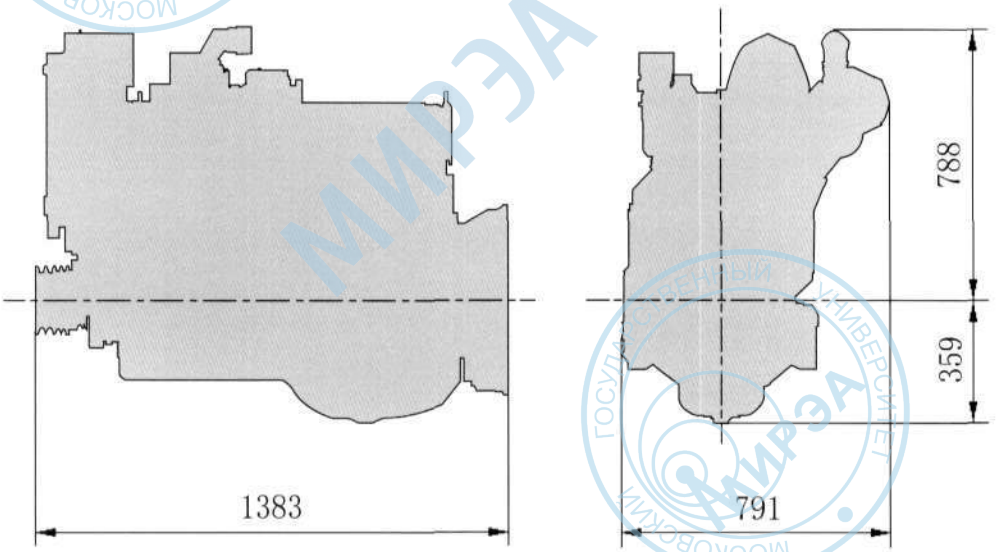
WP10 Series diesel engine is a kind of fuel-saving and environment-friendly product independently developed by Weichai Power and combining advanced America and Europe design concepts. After continuous reform and development, the products are more reliable with the advantages of powerful dynamic property, high reliability, good economy and low noise, etc. With the power range from 176kW (240PS) to 247 kW (336PS),it is the ideal power for 12m or above buses and heavy-duty trucks which can meet the emission requirement specified in Euro III and IV.



Specification

Model	WD615.44	WD615.46	WP10.270E30	WP10.336E30	WP10.270N WP10.270E40	WP10.336N WP10.336E40
Type	Vertical, water-cooled, four-stroke, turbocharged and intercooled					
No.of cylinders-bore × stroke(mm)	6-126 × 130					
Displacement (L)	9.726					
Rated output (kW)	235	266	199	247	199	247
Rated speed (r/min)	2200	2200	2200	2200	1900	1900
Max.torque (Nm)	1250	1460	1150	1300	1270	1500
Torque at speed (r/min)	1400-1600	1400-1600	1200-1600	1200-1600	1200-1500	1200-1500
Specific fuel consumption (g/kWh)	205	205	196	196	196	196
Fuel injection equipment	In-line pump		ECU controlled		ECU controlled + SCR	
Emission standard	Euro II		Euro III		Euro III/Euro IV	

Outline Drawing (mm)



Advantage

I. **Low maintenance cost**

The connection mode of front & back suspension device; position of intake & exhaust pipe outlet identical with that of WD615; most parts replaceable with that of WD615 engine.

II. **High economy**

Low fuel consumption area expands; engine works at more fuel saving area by reasonable matching multi speed gear box and low speed ratio rear axle and this makes fuel consumption of complete vehicle greatly reduced.

III. **Large spare torque**

IV. **High reliability**

Engine reliability improves with the help of connecting structure of high-pressure fuel pump. What's more, the overhaul period can exceed 1.2 million km.

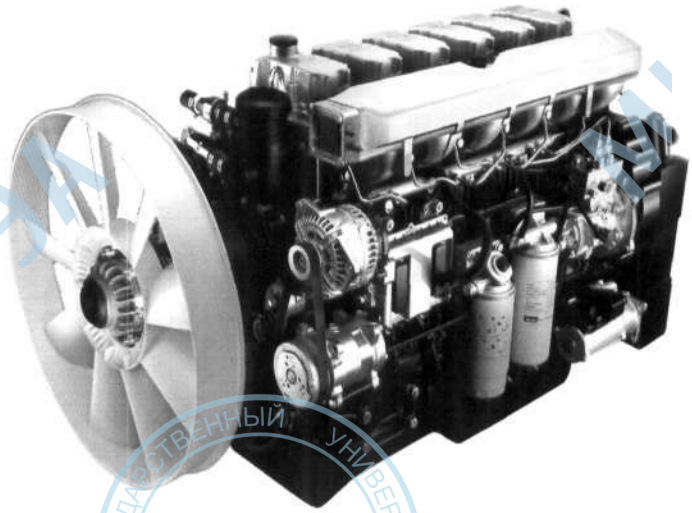
V. **Great comfort**

Low noise, light vibration, and reduced gear speed transfer frequency during driving improves the comfort of driving.

WP12/WP13 Series Engine

■ Introduction

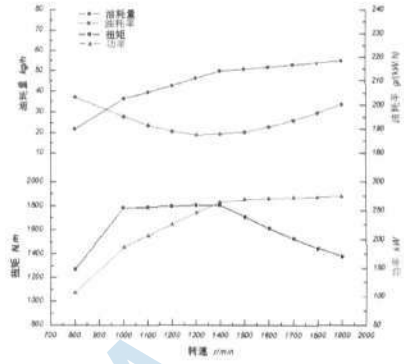
WP12/WP13 Series diesel engine is a new generation of high-duty energy-saving and environment-friendly developed by Weichai Power Co., Ltd. with advanced R&D technology. which possesses advantages of powerful dynamic property, higher reliability, good economy and low noise, etc. Its power ranging from 199kw(270Ps) to 405kw (550Ps) makes it the ideal power for 12m or longer buses and heavy-duty trucks, which can meet Euro III, IV and V standard.



■ WP12 Specification

Model	WD12.336	WD12.375	WD12.420	WP12.375N WP12.375E40 WP12.375E50	WP12.400N WP12.400E40 WP12.400E50	WP12.430N WP12.430E40 WP12.430E50	WP12.460N WP12.460E40 WP12.460E50
Type	Vertical, water-cooled, four-stroke, turbocharged and intercooled						
No.of cylinders-bore × stroke(mm)	6-126 × 155						
Displacement (L)	11.596						
Rated output (kW)	247	276	309	276	294	316	338
Rated speed (r/min)	2200			1900			
Max.torque (Nm)	1350	1500	1750	1800	1920	2060	2110
Torque at speed (r/min)	1300-1600	1300-1600	1300-1600	1000-1400	1000-1400	1000-1400	1000-1400
Specific fuel consumption (g/kWh)	198	198	198	195	195	195	195
Fuel injection equipment	In-line pump			ECU controlled + SCR			
Emission standard	Euro II			Euro II/Euro IV/Euro V			

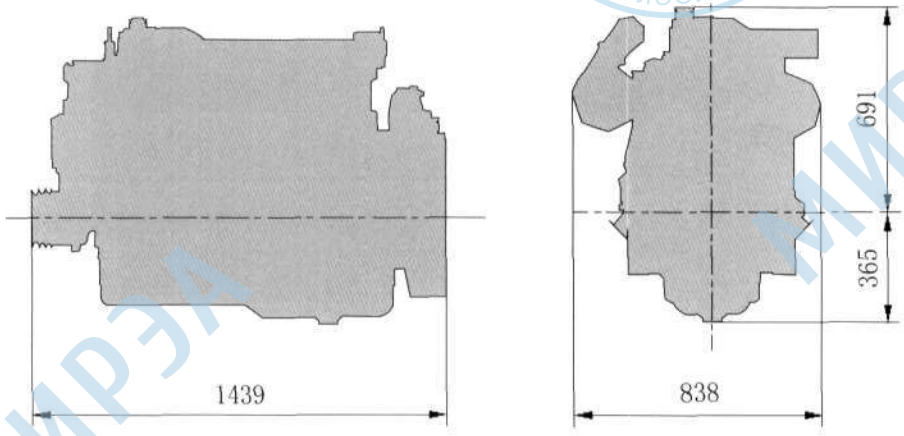
■ WP12.375N external characteristic curve



■ WP13 Specification

Model	WP13.480	WP13.500	WP13.530	WP13.550
	WP13.480E40	WP13.500E40	WP13.530E40	WP13.550E40
	WP13.480E50	WP13.500E50	WP13.530E50	WP13.550E50
Type	Vertical, water-cooled, four-stroke, turbocharged and intercooled			
No.of cylinders-bore × stroke(mm)	6-127 × 165			
Displacement (L)	12.54			
Rated output (kW)	353	368	390	405
Rated speed (r/min)	1900		2100	
Max.torque (Nm)	2110	2100	2220	2300
Torque at speed (r/min)	1100-1400		1200-1500	
Specific fuel consumption (g/kWh)	195	195	195	195
Fuel injection equepment	ECU controlled + EGR			
Emission standard	Euro III/Euro IV/Euro V			

■ Outline Drawing (mm)



■ Advantage

I. Less fuel consumption

II. Large spare torque

III. High reliability

Engine reliability improves with the help of connecting structure of flange high-pressure fuel pump. What's more, the overhaul period can exceed 1.2 million km.

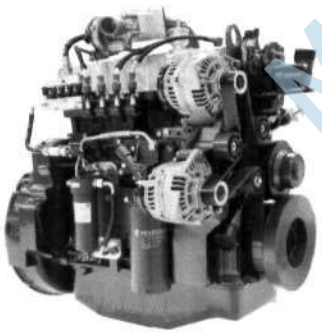
IV. Great comfort

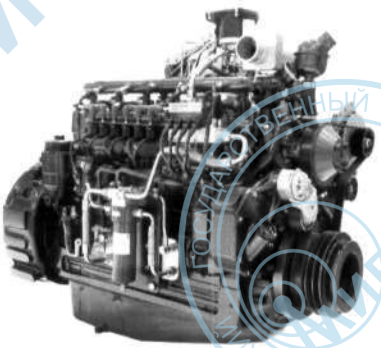
Low noise and slight vibration do a favor to the driver for less gear shifting frequency during driving and therefore accordingly improve the comfortableness.

WP5NG/WP6NG Series Gas Engine

Introduction

Based on mature product WP5/WP6 diesel engine, Weichai developed WP5NG/WP6NG gas engine by changing the key components such as piston, intake and exhaust valve etc and adopting the newly developed electrical control injection system. Compared with the diesel engine at the same power, it can consume 40%-60% less fuel per 100 km.



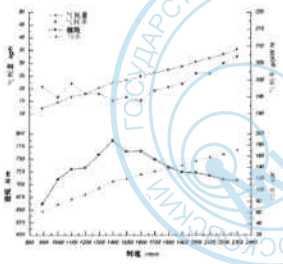


Specification

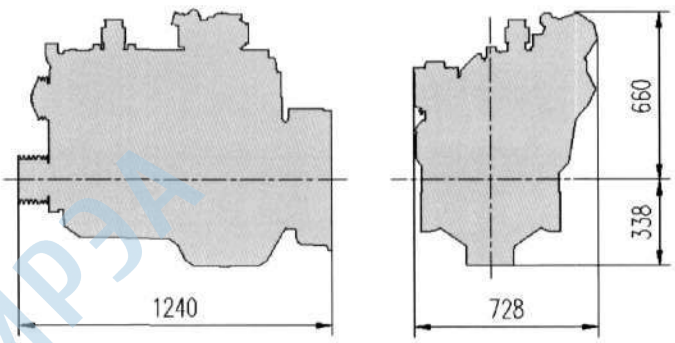
Model	Emission Euro III	WP5NG165E30	WP5NG180E30
	Emission Euro IV	WP5NG165E40	WP5NG180E40
Type		In line,water cooled,wet cylinder liner,turbo charged inter cooling,lean burn	
Cylinder NO.		4	
BoreXStroke (mm)		108x130	
Displacement(L)		4.76	
Rated power (kW/ps)		121/165	132/180
Rated speed (r/min)		2300	
Max.torque/speed(Nm)/ (r/min)		600/1300-1500	650/1300-1500
Standard fuel		CNG/LNG	
Lowest gas consumption(g/kW.h)		<185	
NoisedB(A)		≤95	
Idle speed (r/min)		650 ± 50	
Net weight (Kg)		450	600

Model	Emission Euro III	WP6NG210E30	WP6NG240E30
	Emission Euro IV	WP6NG210E40	WP6NG240E40
Type	In line,water cooled,wet cylinder liner,turbo charged inter cooling,lean burn		
Cylinder NO.	6		
BoreXStroke (mm)	105x130		
Displacement(L)	6.75		
Rated power (kW/ps)		155/210	176/240
Rated speed (r/min)	2300		
Max.torque/speed(Nm)/ (r/min)		680/1300-1500	780/1300-1500
Standard fuel	CNG/LNG		
Lowest gas consumption(g/kW.h)	<185		
NoisedB(A)	≤95		
Idle speed (r/min)	650±50		

■ WP6NG240E30 external characteristic curve



■ WP6NG Outline Drawing(mm)



■ Advantage

I. Adopt water-cooling intermediate turbocharger to improve reliability of supercharger.

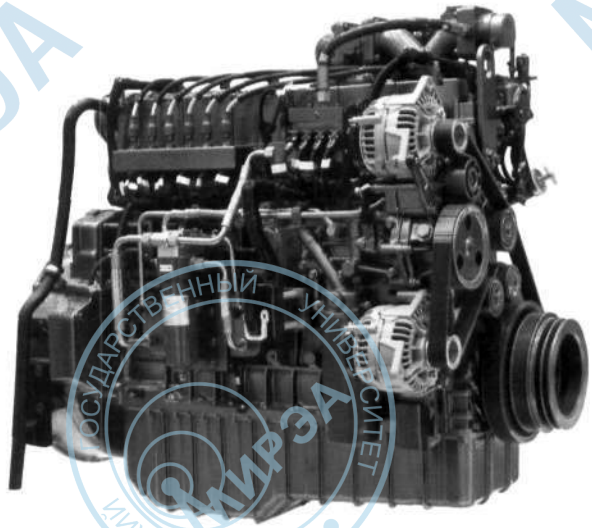
II. Adopt electronic-controlled single-point sequential injection and closed-loop control technique to ensure good dynamic property and economy of engine.

III. Adopt lean burn technique to ensure good plateau adaptability.

WP7NG Series Gas Engine

Introduction

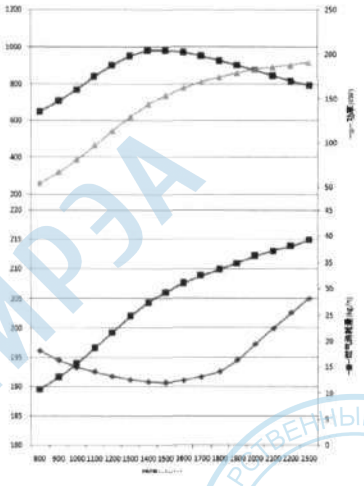
WP7NG Series natural gas engine is a kind of natural gas engine developed on the basis of WP7 diesel engine, which takes advantage of high reliability of WP7 diesel engine and integrates the pioneer technology on natural gas engine in the world today. What's more, it adopts electronic-controlled single-point injection technique which allows revising gas injection in accordance with environment pressure, temperature and humidity to ensure powerful dynamic property and low gas consumption.



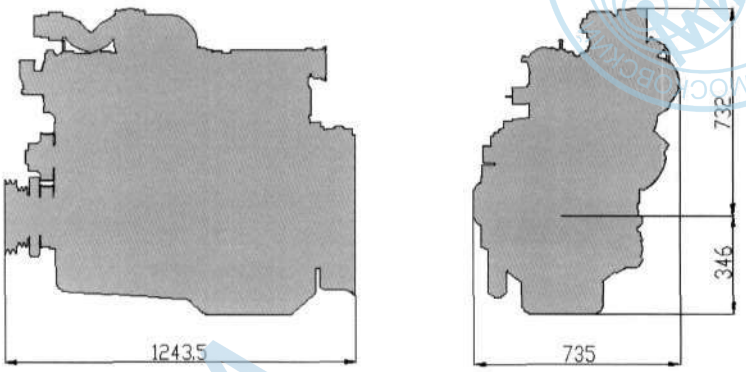
Specification

Model / Emission Euro IV	WP7NG210E30/E40	WP7NG240E30/E40	WP7NG260E30/E40
Type	In line,water cooled,turbo charged inter cooling,lean burn		
Cylinder NO.	6		
BoreXStroke (mm)	108x130		
Displacement(L)	7.14		
Rated power(kW/ps)	155/210	176/240	191/260
Rated speed(r/min)	2300		
Max.torque/speed(Nm) / (r/min)	850/1300-1500	900/1300-1500	980/1300-1500
Standard fuel	CNG/LNG		
Lowest gas consumption(g/kW.h)	<185		
NoisedB(A)	≤95		
Idle speed (r/min)	650 ± 50		
Net Weight (Kg)	650		

■ WP7NG260E40 external characteristic curve



■ Outline Drawing (mm)



■ Advantage

I. Strong power; installation with HOLSET turbocharger with air-release valve; good acceleration performance.

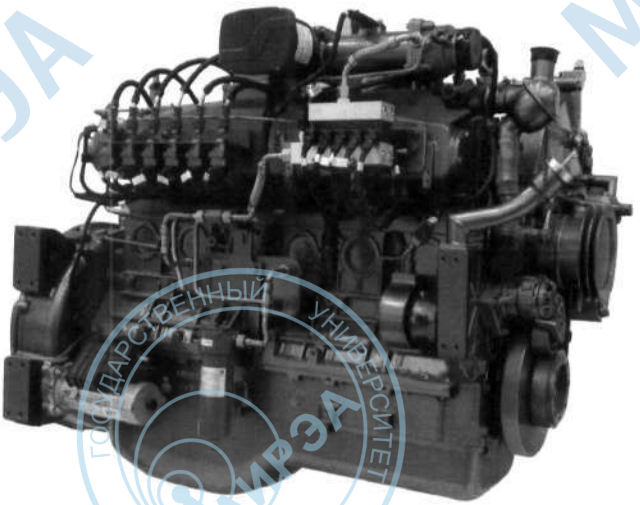
II. Low gas consumption: Piston with high compression ratio is adopted to improve combustion efficiency. Additionally, the use of turbulence mixer and SFO strategy can precisely control gas injection.

III. High reliability: High-strength mechanism body and rear-type gear system allow more steady running and lower noise.

WP10NG Series Gas Engine

Introduction

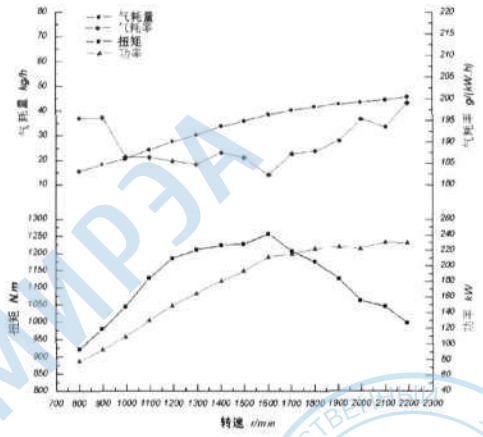
Based on the mature product WP10 diesel engine, Weichai has developed WP10NG gas engine as per the characteristics of gas engine. The completely new matching design on piston cooling, turbocharger cooling, valve and valve seat ring cooling has been conducted. Besides, the adoption of reliable gas electrical control system makes it strong power, reliability reach the same level of diesel engine at the similar power range. All of these make it the ideal power for heavy duty truck and large bus.



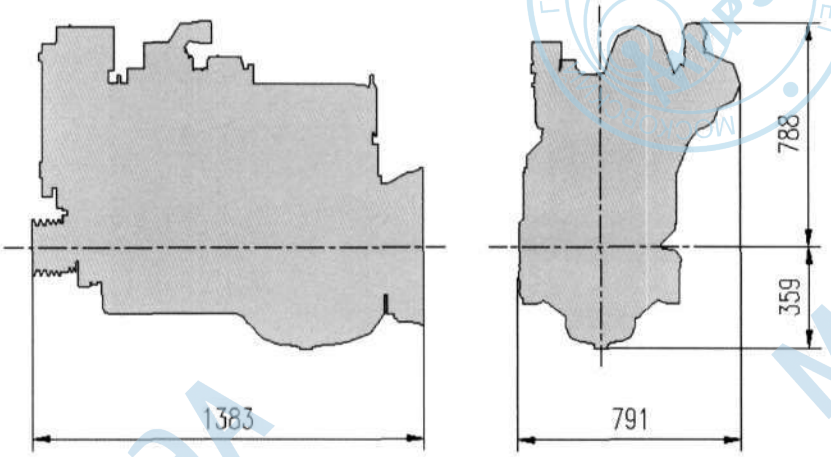
Specification

Model	Emission Euro III	WP10NG260E30	WP10NG280E30	WP10NG300E30	WP10NG336E30
	Emission Euro IV	WP10NG260E40	WP10NG280E40	WP10NG300E40	WP10NG336E40
Type		In line,water cooled,turbo charged inter cooling,lean burn			
Cylinder NO.		6			
BoreXStroke (mm)		126x130			
Displacement(L)		9.726			
Rated power(kW/ps)		191/260	206/280	221/300	247/336
Rated speed(r/min)		2200			
Max.torque/speed(Nm)/ (r/min)		980/1400-1600	1060/1400-1600	1230/1400-1600	1350/1400-1600
Standard fuel		CNG/LNG			
Lowest gas consumption(g/kW.h)		<185			
NoisedB(A)		≤108			
Idle speed (r/min)		650±50			
Net Weight (Kg)		870			

■ WP10NG300E30 external characteristic curve



■ Outline Drawing (mm)



■ Advantage

I. Adopt water-cooling intermediate turbocharger to improve reliability of supercharger.

II. Adopt electronic-controlled single-point sequential injection and closed-loop control technique to ensure good dynamic property and economy of engine.

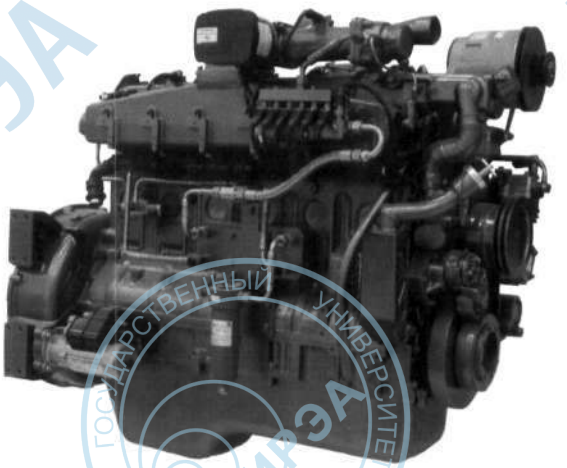
III. Adopt lean burn technique to ensure good plateau adaptability.

IV. Generality of most components for diesel engine makes maintenance convenient.

WP12NG Series Gas Engine

Introduction

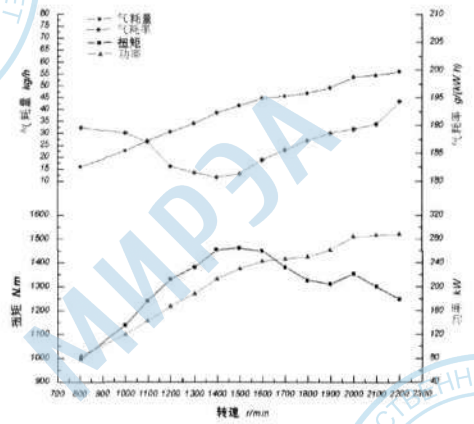
Based on the mature product WP12 diesel engine, Weichai has developed WP12NG gas engine as per the characteristics of gas engine. The completely new matching design on piston cooling, turbocharger cooling, valve and valve seat ring cooling has been conducted. Besides, the adoption of reliable gas electrical control system makes it strong power, reliability reach the same level of diesel engine at the similar power range. All of these make it the ideal power for heavy duty truck and large bus.



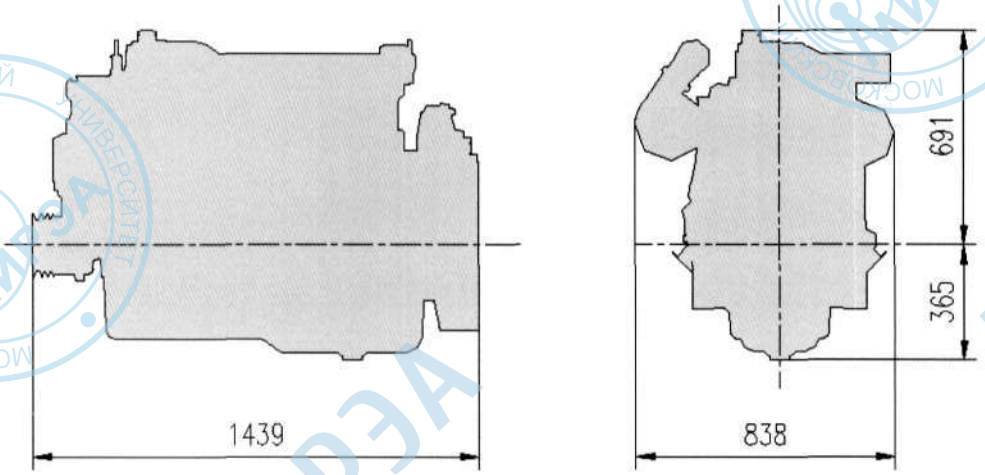
Specification

Model	Emission Euro III	WP12NG330E30	WP12NG350E30	WP12NG380E30
	Emission Euro IV	WP12NG330E40	WP12NG350E40	WP12NG380E40
Type		In line,water cooled,turbo charged inter cooling,lean burn		
Cylinder NO.		6		
BoreXStroke (mm)		126x155		
Displacement (L)		11.59		
Rated power(kW/ps)		243/330	257/350	280/380
Rated speed(r/min)		2200		
Max.torque/speed(Nm)/ (r/min)		1350/1400-1600	1400/1400-1600	1500/1400-1600
Standard fuel		CNG/LNG		
Lowest gas consumption(g/kW.h)		<185		
NoisedB(A)		≤108		
Idle speed (r/min)		650 ± 50		
Net Weight (Kg)		950		

■ WP12NG380E30 external characteristic curve



■ Outline Drawing (mm)



■ Advantage

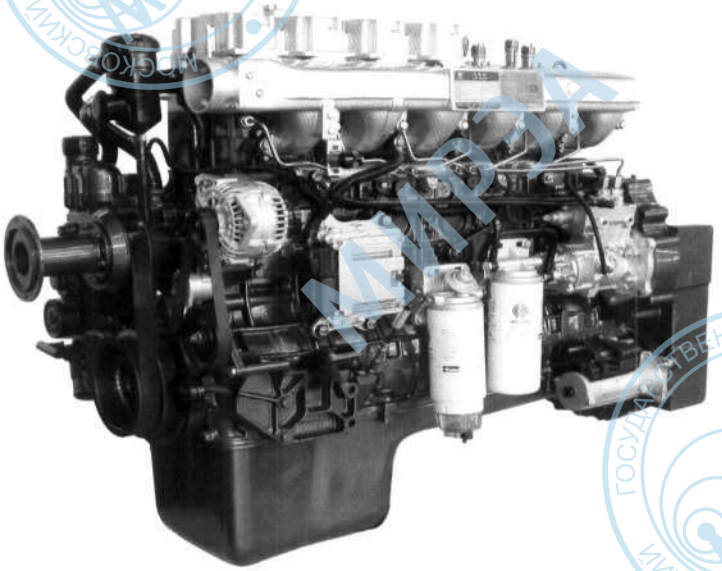
I. Adopt water-cooling intermediate turbocharger to improve reliability of supercharger.

II. Adopt electronic-controlled single-point sequential injection and closed-loop control technique to ensure good dynamic property and economy of engine.

III. Adopt lean burn technique to ensure good plateau adaptability.

IV. Generality of most components for diesel engine makes maintenance convenient.

WP12HPDI Gas Engine



Specification

Model	Emission Euro IV	WP12HPDI480E40
	Emission Euro V	WP12HPDI480E50
Type		In line, water cooling, turbo charged inter cooled, High pressure direct injection
Cylinder NO.		6
BoreXStroke (mm)		126x155
Displacement (L)		11.596
Rated power(kW/ps)		353/480
Rated speed(r/min)		2100
Max.torque/speed(Nm)/ (r/min)		1970/1200–1500
Standard fuel		LNG
Lowest gas consumption(g/kW.h)		<185
NoisedB(A)		≤108
Idle speed (r/min)		650 ± 50
Net Weight (Kg)		1050

Originated from Dr. Philip Hill's research in early 1980's, HPDI technology adopts high pressure common rail direct injection system with 5% diesel injected before TDC in compression as a pilot fuel and then 95% natural gas injected at 300bar pressure as the main fuel of powering the whole engine.

HPDI technology doesn't require any change to compression ratio or any addition throttle, or other ignition equipment to the original base diesel engine, but only needs to install high pressure direct injection injectors. HPDI retains the original efficiency and performance of diesel engine. Meanwhile, by using clean and more economic fuel, HPDI can bring both environment and economy benefits. HPDI technology has completely overcome the power loss problem which happens on spark ignition technology normally applied on natural gas engine currently and its overall performance is better than diesel engine.

HPDI is the only technology which can provide the same performance with diesel engine and can be applied in heavy duty truck market widely.

■ Advantage

Power

- It has the same power as that of diesel engine at the same level.It has 20% bigger power and 20%-25% bigger torque than that of spark ignition engine.It can solve the problem of power loss at plateau area.

Emission

- Euro V emission is reached by oxidation catalytic converter.Its particulate emissions is reduced by 70% and CO_2 reduced by 20% compared with diesel engine.

Reliability

- High generality with diesel engine parts, no need to change piston or base engine, engine thermal load lower than traditional spark ignition gas engine.

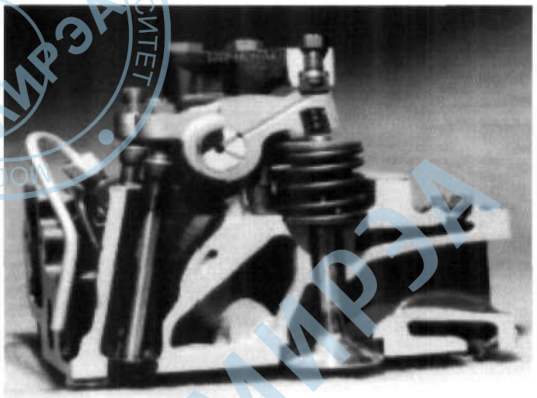
Reliability

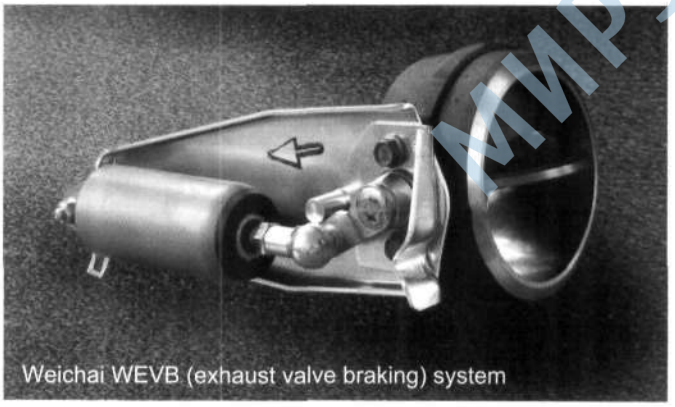
- Same effective thermal efficiency with diesel engine and about 5% higher than ignition engine.Comprehensive gas consumption is 20-25% lower than that of ignition engine.

Enterprise innovation technology

Application of WEVB Exhaust Valve Brake
(applicable to Weichai WP10 and WP12 Series Engine)

Weichai WEVB system(Weichai Exhaust Valve Brake), the combination of exhaust pipe brake valve and exhaust valve brake device makes it possible to realize an improvement of 50% on brake efficiency of complete vehicles which ensures driving safety of vehicles on downhill paths of mountainous areas. In addition, the reduced usage frequency of braking system realizes a lower operating cost of complete vehicle while higher economy. What's more, WEVB auxiliary braking system possesses numbers of advantages as well, for instance: simple structure, reliable performance, easy operation, low cost, few changing parts and convenient maintenance.





Weichai WEVB (exhaust valve braking) system

Fuel System Protector Filter
(applicable to WP4, WP5,WP6, WP7, WP10 and WP12 Series Engine)

Equipped with functions of electric oil pumping, fuel heating and water filtration, startup performance and system reliability have been significantly improved and promoted.

6 Improvements:

-improvement of startup performance

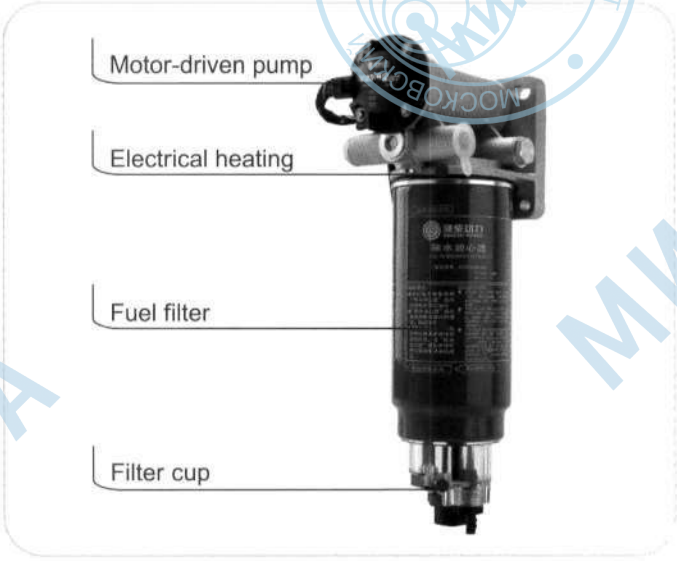
-reduced failure rate of starter

-reduced failure rate of gear ring

-reduced failure rate of fuel pump

-reduced failure rate of fuel injector

-improvement of fuel quality adaptability

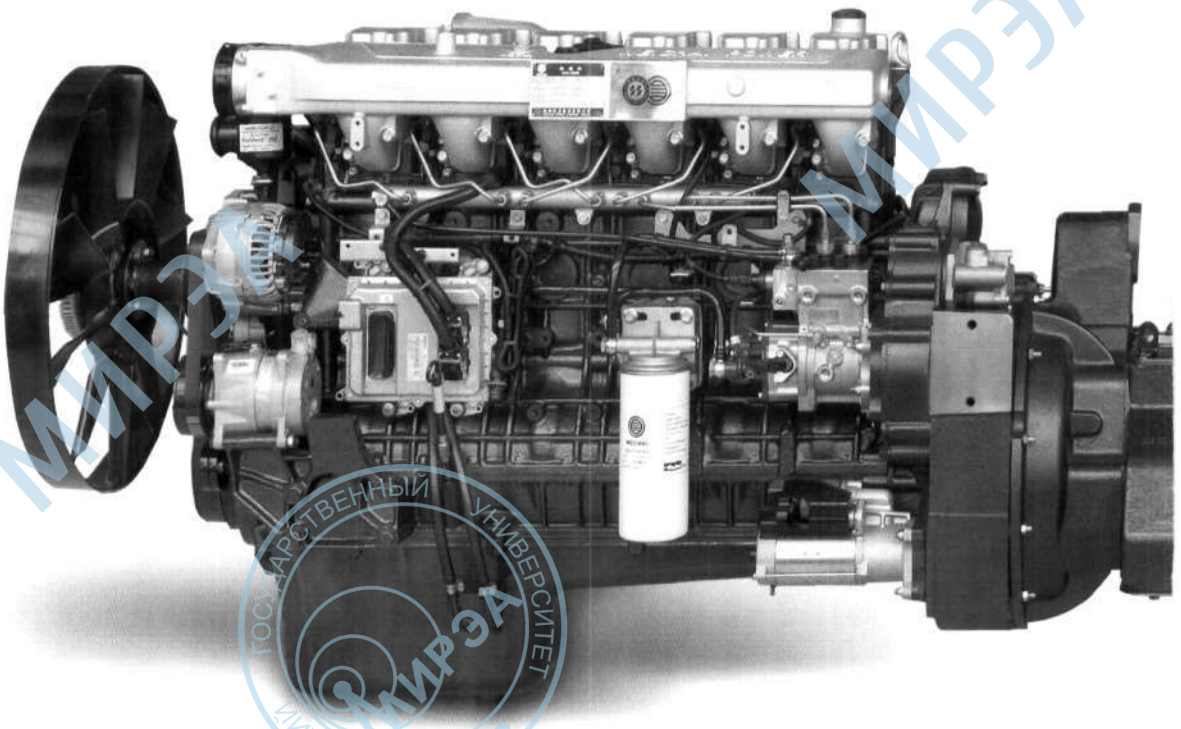


Introduction of Weichai power assembly technology

Weichai Power has the key configuration resources for heavy-duty truck , such as "Weichai" engine. "Fast" transmission gear, "Hande" axle, which occupies absolute advantage in China market. Besides, it has the ability of integrated design, develop and manufacture of power assembly system. What's more, the unique "National commercial vehicle power system assembly engineering technology research center (NCC)" set up by Ministry of Science and Technology is settled at Weichai Power. Weichai Power will make full use of Group resources to provide perfect whole solution of dynamic system for users and optimize economy and dynamic property of complete vehicles.

Perfect power combinations:

潍柴动力 WEICHAI POWER + Fast + 汉德车桥

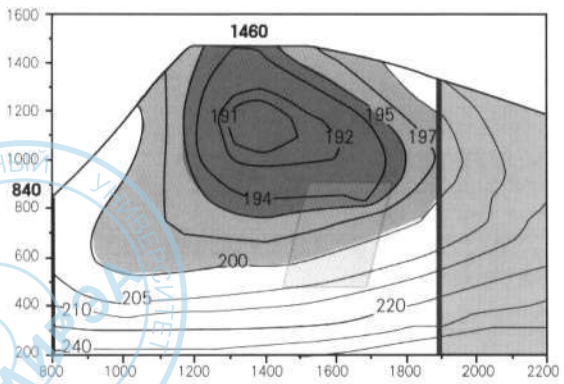


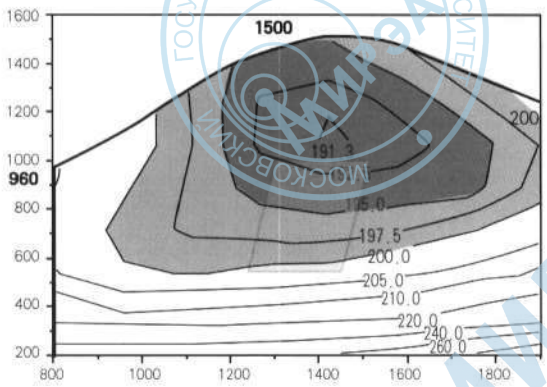
Basic steps to select power assemblies:

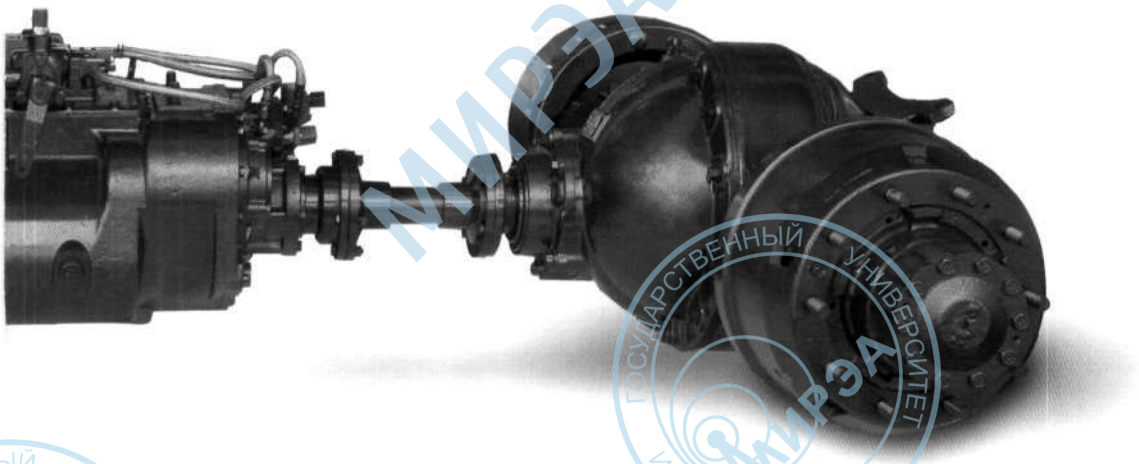
- Dynamic property ----- select suitable engine according to vehicle conditions and road conditions
- Economy-----select reasonable transmission gear and axle speed ratio to make sure that engine runs in low fuel consumption zone

Power for heavy-duty vehicle and engineering truck---------select relatively high transmission gear-axle speed ratio as these vehicles are mostly used in mine lot or mountain path with heavy load and low speed.
Power for cargo truck--------select small speed ratio and single-stage axle as these vehicles mostly drive on highways with light load and high speed.
City bus--------mostly used in traffic jam in cities, so it is required to be equipped with high startup torque, medium & low speed and high economic performance. Additionally, axle and transmission gear must be matched to work normally in economic area.

The usual working conditions of complete vehicle also shall be taken into consideration while improving power performance, so that the engine can run in low fuel consumption revolution zone (green)

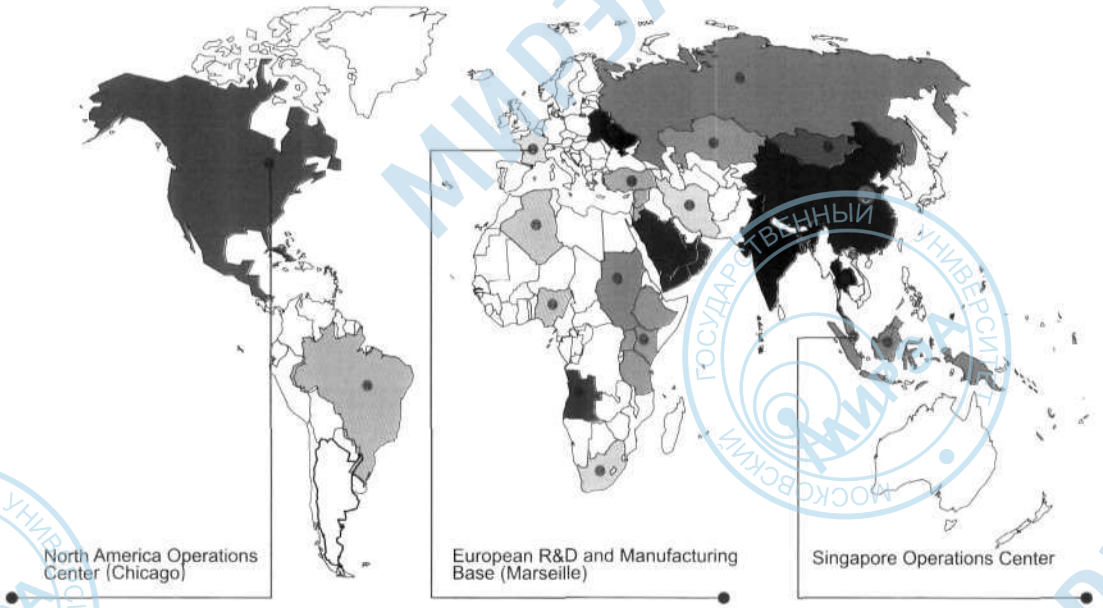






Weichai International Marketing Service Network

Weichai Power has a broad market in 97 countries and regions in five continents. Recently, it has had an international service network covering the global operations with 28 overseas institutions and 150 service agencies, which proves that Weichai Power has the ability to provide services to worldwide users.



Service concept of Weichai Power:

Wherever you are,you are always within Weichai service

Weichai Power 5P Service Project

Weichai International Marketing Service Network

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