

# Diesel Engine With High-pressure Common Rail Technology

EXCLUSIVELY  
FOR  
HANGCHA

The latest 3.2L diesel engine developed jointly by Hangcha, Xinchai, and Bosch

2014

Hangcha, Xinchai, and Bosch entered into common rail engine development memorandum.

2015

The three-party project group was established, and the project was launched officially.

2016

The common rail engine passed severely rigorous tests, meeting conditions for sales in market.

## Common rail engine W91/W92

Electronically controlled high-pressure common rail engine in conformity with EURO IIIA emission standard is adopted as standard configuration, and the engine has the following merits:

### ► Energy Saving

High-pressure multiple-injection technology is applied, with good fuel economy;

### ► Environmentally Friendly

The engine features strong power and superior smoke control, with no visible black smoke in the entire process;

### ► Performance

Better cold-start performance;

### ► Customer Experience

Reduced noise and vibration;

### ► More Additional Functions

The electronically controlled engine is available for multiple additional software functions (e.g. Speed limit);

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SINCE 1956

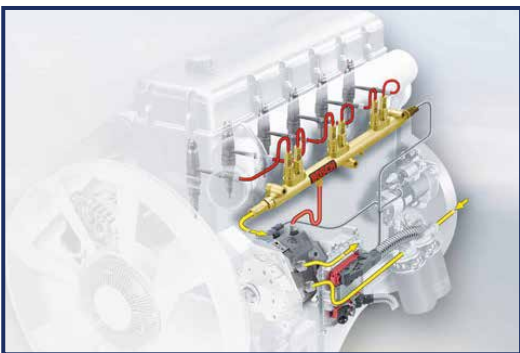
  
**HANGCHA**



Multiple injections at fixed volume,  
fixed timing, and fixed pressure

Accurate injection control  
Flexible injection combination

Injection pressure is up to  
**1800 Bar**



- ▶ Reduced emission
- ▶ Better power performance
- ▶ Higher reliability
- ▶ Lower noise
- ▶ Better fuel economy
- ▶ Stronger suitability

# DIESEL COMMON RAIL TECHNOLOGY



## Product Overview:

Tonnage	Model	Engine
1.5-1.8t	CPCD15/18-XRW91F	XINCHAI/4D27XG30 Engine
2-2.5t	CPCD20/25-XRW92F	XINCHAI/4D32XG30 Engine
3-3.5t	CPCD30/35-XRW92F	

## Comparison of Engine Performance:

Performance	Item	4D32XG30 (High-pressure common rail W92)	A498BT1-1 W27	Improvement (%)
Power performance	Max. torque (N.m/rpm)	186/1600-1800	186/1600-1800	-
	Idle torque (N.m/rpm)	150/650	100/550	50% ↑
	Rated power (kW/rpm)	36.8/2500	36.8/2400	-
Emission	NOX+HC (g/kW.h)	5.97	6.111	2.5% ↓
	CO (g/kW.h)	2.68	3.015	11.1% ↓
	PM (g/kW.h)	0.214	/	-
Comfort	Noise (dB(A))	≤109	≤110	-
Economy	Min. specific fuel consumption (g/kW.h)	≤210	≤225	7% ↓
Reliability	Fuel system failure rate (PPM)	705	5350	86.8% ↓
Cold start	Min. starting temperature (°C)	-25	-20	25% ↑

Various performance indicators are improved substantially in comparison with general engine from XINCHAI.

## Comparison of Truck Performance:

Manufacturer's type designation		CPCD30-XRW92F	CPCD30-XRW56F	CPCD30-XRW55F
Engine		XINCHAI/4D32XG30	YANMAR/4TNV94L-BXPHZ	MITSUBISHI/S4S-DPEU2
Drive: electric (battery or mains), diesel, petrol, fuel gas		Diesel	Diesel	Diesel
Travel speed, laden/unladen	km/h	18/19	17.5/18.6	16.5/17.5
Lift speed, laden/unladen	m/s	0.49/0.54	0.49/0.54	0.48/0.53
Lowering speed, laden/unladen	m/s	0.45/0.50	0.45/0.50	0.45/0.50
Drawbar pull, laden/unladen	KN	20.8/14.5	20.8/14.5	20.5/14.5
Gradeability, laden/unladen (2km/h)	%	23/25	23/25	20/25
0-Maximum speed acceleration time	s	7.8	8.8	7.8
Energy consumption	kg/h	3.5	3.5	4.6
Emission STD		UNECE Stage IIIA	EU Stage IIIA	EU Stage IIIA
Engine power	kW/r/min	36.8/2500	34.6/2400	35.3/2250
Rated torque	N·m/r/min	186/1600-1800	191.5~208.5/1500	177/1700
Number of cylinders/displacement	ml	4/3168	4/3054	4/3331
Sound pressure level at the driver's seat	dB (A)	85	85	85



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HANGCHA trucks conform to the European Safety Requirements.

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