



DONGFENG CUMMINS ENGINE  
PERFORMANCE CURVE

Engine Model  
**ISZ450-40**

Curve No.  
**FR20240**

CPL Code  
**43354**

Date  
**04-June**

Displacement: 13.0L

Bore: 130mm

Stroke: 163mm

Fuel System: Cummins XPI

Cylinders: 6 Cylinders, in Line

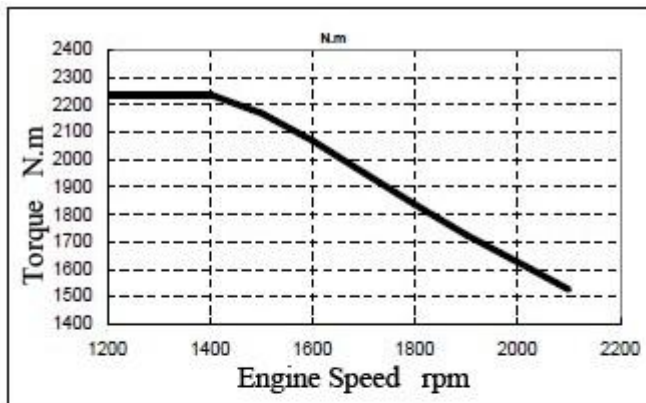
Advertised Power: 335kW@2100 rpm

450HP@2100 rpm

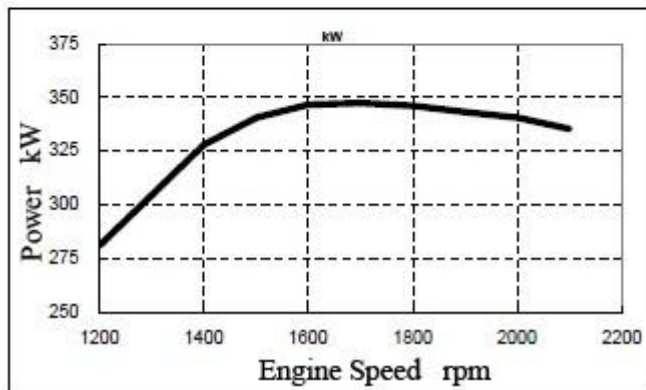
Peak Torque: 2237N.m@1200 rpm

Aspiration: Turbocharged & Inter-cooled

Rating Type: Continuous



Torque	
rpm	N.m
1200	2237
1300	2237
1400	2237
1500	2169
1600	2069
1700	1952
1800	1836
1900	1725
2000	1626
2100	1525



Power	
rpm	kW
1200	281
1300	305
1400	328
1500	341
1600	347
1700	347
1800	346
1900	343
2000	341
2100	335

Performance data obtain under normal conditions, according to GB/T18297-2001 test conditions

# Cummins Engine Co. Ltd

Diesel Engine for Vehicle Performance Data

## Technical Request

Aspiration:	Turbocharged & Inter-cooled
Emission Certification	GB17691-2005
Dry Weight: (without starter motor and air compressor)	1195kg
Wet Weight:	1260kg
Compression Ratio:	17:1
Distance from Center of Gravity to the Front Engine Block	519mm
Distance from Center of Gravity to the Crankshaft Centerline	201mm
Maximum Bending Moment at Rear Face of Block	1356 N.m
Limit load of Thrust Bearing:	
Instantaneous maximum:	9786 N
Continuous maximum	4893 N

## Performance Characteristic

Idle Speed:	600-800rpm
Maximum non-load speed:	2300rpm
Over speed performance(within 15 seconds):	2625rpm
Maximum Altitude at Continuous Operation:	5200m
Torque available at clutch engagement	1152N.m

Engine Speed (RPM)	Oil Pressure (kPa)	Air Flow (m3/min)	Air Pressurized		Exhaust Flow (m3/min)	Exhaust Temperature (°C)	Fuel Consumption (l/hr)	Heat Energy Loss	
			Flow (kg/min)	Pressure kPa				Coolant (KW)	Air (KW)
2100	349	32.2	36.7	219	62.2	401	71.2	130.0	
1600	304	27.6	31.0	240	57.8	429	68.5	121.0	
1200	265	16.9	20.0	169	44.6	534	54.9	111.0	

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All values within  $\pm 5\%$ .

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## LUBRICATION SYSTEM

Low oil pressure at idle:	89.6kPa
Capacity of the whole system:	45.42 L
Maximum flow of the lubrication system:	7.57L/min
The oil pressure range at heat engine:	207-345kPa

## AIR SYSTEM

Air intake maximum temperature rise between ambient and the Turbocharger inlet	11.1 °C
Maximum intake air restriction:	
dirty filter :	6.2kPa
clean filter:	2.5kPa

## EXHAUST SYSTEM

Max. back pressure imposed by complete exhaust system:	21kPa
Maximum allowable static bending moment at exhaust outlet flange:	27kPa
Exhaust pipe size normally acceptable:	125mm

## FUEL SYSTEM

The maximum resistance of Fuel Pump when use clean filter@1800rpm	13.5kPa
Maximum fuel return oil resistance:	27kPa
Minimum capacity oil tank:	0.2m3/hr
Maximum fuel temperature: (at pump)	71 °C
Maximum fuel design flow:	204kg/hr

## COOLING SYSTEM

Engine Coolant Capacity:	23.1L
The range of temperature adjustment for the Thermostat:	82 °C
The maximum pressure of Coolant(without pressure cap and thermostat closed)	407kPa
The highest coolant temperature (at engine exports):	102 °C
Maximum degassing time	25mins
Maximum coolant flow to accessories@1700rpm	76 L
The lowest coolant temperature	71 °C
Minimum speed of water-filling	19 l/min
Maximum coolant expansion volume relative to the system capacity	10 %
Minimum coolant expansion volume relative to the system capacity	6 %
Minimum allows pressure of pressure cap:	103kPa
The alarm temperature of the coolant	107 °C
Minimum cooling capability	
Engine out coolant to ambient @ 1,600 RPM:	60.6 °C

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Engine out coolant to ambient @ 1,200 RPM:	65.6°C
Charge air cooler to ambient @ 1,600 RPM:	23.9°C

#### **ELECTRICAL SYSTEM**

System voltage:	24V
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#### **COLD STARTING SYSTEM**

The lowest cold starting temperature without auxiliary starting device	15°C
The lowest cold starting temperature with starting device	30°C

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*All data is subject to change without notice- contact Cummins for most recent data.*