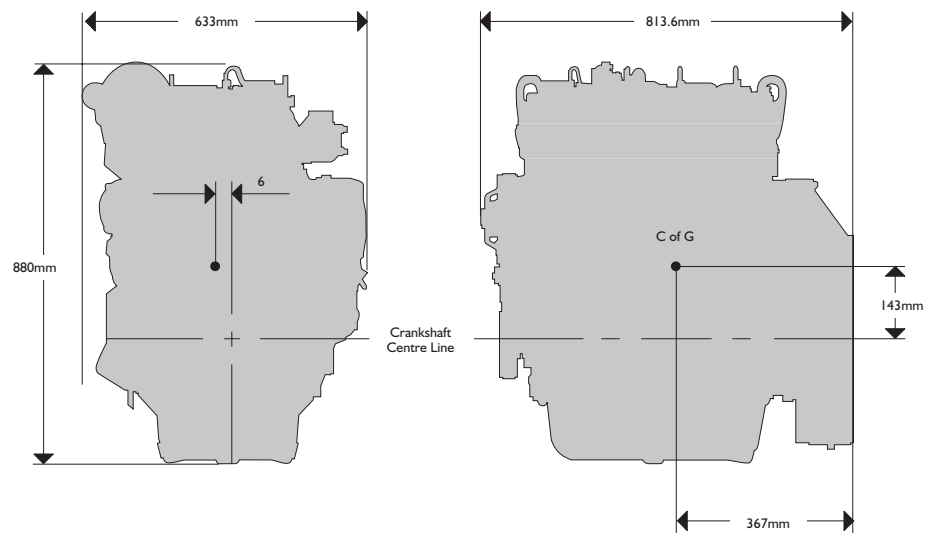




JCB DIESELMAX 97kW (130hp), 108kW (145hp) & 120kW (161hp)



MOBILE MACHINERY



GENERAL TECHNICAL DATA

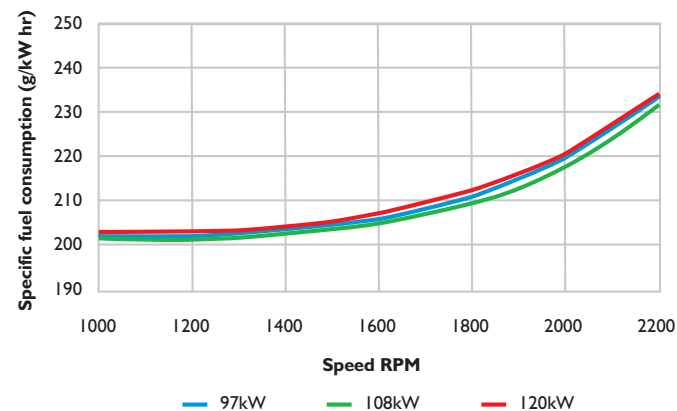
Technical Code	TCAE – 97kW	TCAE – 108kW	TCAE – 120kW
Thermodynamic Cycle	Diesel 4 stroke	Diesel 4 stroke	Diesel 4 stroke
Air intake	TCA	TCA	TCA
High pressure common rail	Yes	Yes	Yes
Electronic control unit	Yes	Yes	Yes
Arrangement	4.4L	4.4L	4.4L
Nominal Bore	mm 103	mm 103	mm 103
Stroke	mm 132	mm 132	mm 132
Total displacement	cm ³ 4399	cm ³ 4399	cm ³ 4399
Valves per cylinder	4	4	4
Cooling	Liquid	Liquid	Liquid
Direction of rotation (viewed from crank nose)	Clockwise	Clockwise	Clockwise
Compression ratio	17.1:1	17.1:1	17.1:1
Rotational mass moment of inertia excluding flywheel.	kgm ² 0.226	kgm ² 0.226	kgm ² 0.226
Standard flywheel inertia	kgm ² 0.42	kgm ² 0.42	kgm ² 0.42

Technical Code	TCAE – 97kW	TCAE – 108kW	TCAE – 120kW
Maximum rating* (gross intermittent)	kW 97	kW 108	kW 120
At speed	rpm 2200	rpm 2200	rpm 2200
Maximum torque	Nm 532	Nm 550	Nm 657
At speed	rpm 1500	rpm 1500	rpm 1500
Maximum no load governed speed	rpm 2420	rpm 2420	rpm 2420
Nominal idling speed	rpm 850	rpm 850	rpm 850
Mean Piston speed at rated speed	m/s 9.7	m/s 9.7	m/s 9.7
BMEP at maximum torque	bar 15.2	bar 15.7	bar 18.7
Emission Certification	EPA TIII, EU S13 A	EPA TIII, EU S13 A	EPA TIII, EU S13 A
Specific fuel consumption (rated conditions)	g/kWh 234	g/kWh 232	g/kWh 234
Specific fuel consumption (best point)	g/kWh 202	g/kWh 200	g/kWh 204
Noise at maximum rating	dBA 1m 89	dBA 1m 89	dBA 1m 89
Minimum starting temperature without grid heater	°C -20	°C -20	°C -20
Dry weight (no fan drive)	kg 457	kg 457	kg 457

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FUEL CONSUMPTION



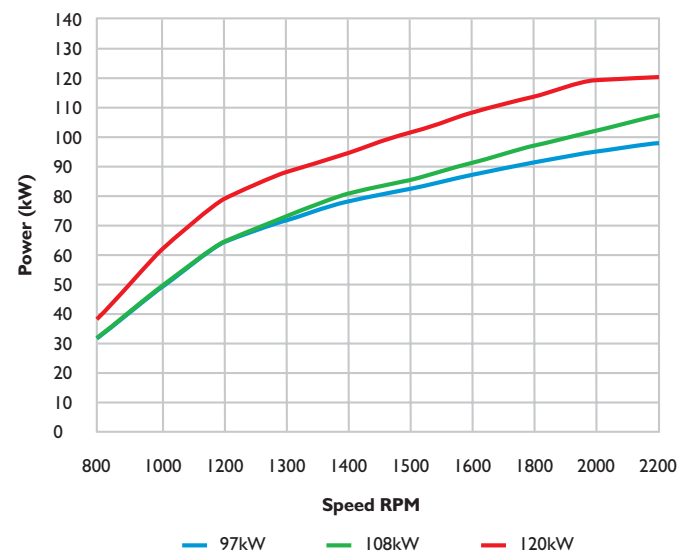
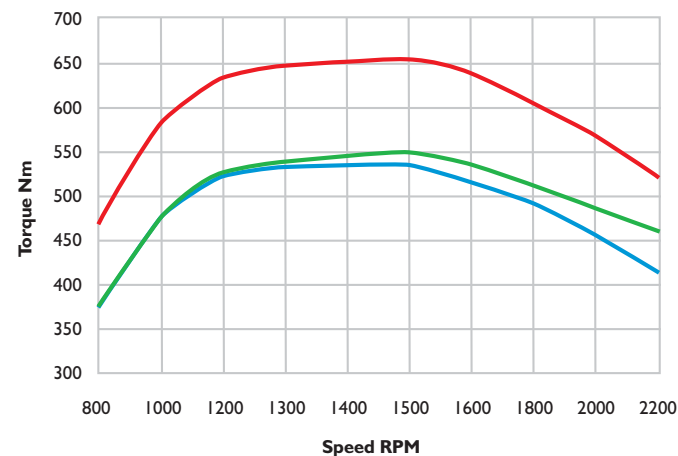
Fuel consumption with fuel at 40°C pump inlet, at full load.

FUEL SYSTEM

		TCAE – 97kW	TCAE – 108kW	TCAE – 120kW
Injection system		HP Common Rail	HP Common Rail	HP Common Rail
Maximum depression at inlet to electric pump	mbar	250	250	250
Fuel maximum inlet temperature without derate	°C	85	85	85
Engine Pre Filter	micron	5	5	5
Engine Main Filter	micron	2	2	2
Maximum restriction to returned fuel	mbar	220	220	220
Heat rejection to fuel system	kW	0.43	0.45	0.46
Electric lift pump and pre filter/seperator*		Included	Included	Included
Water in fuel sensor		Included	Included	Included

*Supplied loose

POWER AND TORQUE CURVES



Fuel stop power (gross intermittent) shown.
Performance measured according to ISO 14396 after 50 hours running without fan.



EXHAUST SYSTEM

		TCAE – 97kW	TCAE – 108kW	TCAE – 120kW
Maximum allowable back pressure	mbar	150	150	150
Maximum exhaust temperature at full rated speed	°C	538	550	570
Exhaust flow at maximum output	g/s	162	171	173
Heat rejected to exhaust gas	kW	86	93	103

LUBRICATION SYSTEM

		TCAE – 97kW	TCAE – 108kW	TCAE – 120kW
Lubricating oil pressure	bar	4.3	4.3	4.3
Maximum oil temperature at full rated speed: continuous.	°C	125	125	125
Maximum oil temperature at full rated speed: intermittent.	°C	135	135	135
Engine angularity limits in continuous operation:				
Maximum front up and front down	deg	35	35	35
Maximum right hand and left hand	deg	35	35	35
Total system capacity – including pipes, filters etc	Ltrs	14	14	14
Capacity minimum to maximum on dipstick	ltrs.	3	3	3
Minimum recommended oil grade	API	CH4	CH4	CH4
Oil filter maintenance service schedule*	Hours	500	500	500
Oil consumption at maximum rating	% of fuel consumption	0.1	0.1	0.1

*250 hours on arduous applications

COOLING SYSTEM

		TCAE – 97kW	TCAE – 108kW	TCAE – 120kW
Coolant capacity – Engine only	Ltrs	7	7	7
Water pump flow at rated speed	ltr/min	230	230	230
Heat to reject by heat exchanger at maximum power	kW	60	64	70
Thermostat Temperature	°C	90	90	90
Cooling liquid maximum temperature	°C	110	110	110
Minimum and Maximum pressure in the cooling circuit	kPa (bar)	1 bar max – min	1 bar max – min	1 bar max – min
Coolant Specification Approved (JCB HP High Performance)		ASTM D6210	ASTM D6210	ASTM D6210

ELECTRICAL SYSTEM

		TCAE – 97kW	TCAE – 108kW	TCAE – 120kW
Type		Negative Ground	Negative Ground	Negative Ground
Standard (Starter, Alternator, ECU)	V	12	12	12
Option*	V	24	24	24
Minimum Cranking Speed (at -20°C)	rpm	110	110	110
Battery – min. capacity recommended, not included		145Ah.	145Ah.	145Ah.
Battery – min. cold cranking capacity recommended, not included		1000 CCA	1000 CCA	1000 CCA
Communications standard		J1939	J1939	J1939

*ECU requires voltage converter supplied loose

AIR INDUCTION

		TCAE – 97kW	TCAE – 108kW	TCAE – 120kW
Maximum allowable air intake restriction with clean air filter	mbar	50	50	50
Maximum allowable restriction with dirty air filter	mbar	85	85	85
Air requirement for combustion at 100% rated speed	g/s	155	164	165
Turbocharging pressure at full rated speed	bar	1.74	1.86	1.9
Turbocharging air temperature – intercooler inlet	°C	174	182	191
Cooled charge air at inlet manifold	°C	55	55	55
Heat rejected to intercooler at maximum power	kW	15	20	21
Intercooler system max pressure drop	mbar	150	150	150



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STANDARD CONFIGURATION

		TCAE – 97kW	TCAE – 108kW	TCAE – 120kW
Flywheel housing	SAE	3	3	3
Intake manifold location		Left hand forward.	Left hand forward.	Left hand forward.
Exhaust manifold/ Turbocharger location		Right hand rearward.	Right hand rearward.	Right hand rearward.
Turbocharger		Wastegate controlled	Wastegate controlled	Wastegate controlled
Fan transmission ratios.		0.85, 1.1, 1.16 or 1.25:1	0.85, 1.1, 1.16 or 1.25:1	0.85, 1.1, 1.16 or 1.25:1
Distance between fan – crankshaft centres	mm	262 or 356	262 or 356	262 or 356
Main Fuel Filter & Pre Filter		Included	Included	Included
Fuel lift pump		Included	Included	Included
Oil filter	qty	1 left side	1 left side	1 left side
Oil Sump		Pressed dual skin	Pressed dual skin	Pressed dual skin
Crankcase ventilation		Open with filter	Open with filter	Open with filter
Oil heat exchanger		Left side	Left side	Left side
Oil filler position		Top and left hand side	Top and left hand side	Top and left hand side
Starter motor		12v, 4.2kW	12v, 4.2kW	12v, 4.2kW
Alternator		12v, 95A	12v, 95A	12v, 95A
Power Take off Heavy Duty (OEM Spec)*		Standard: 60kW. RHS.	Standard: 60kW. RHS.	Standard: 60kW. RHS.
Power Take off Light Duty		Standard: 10kW. LHS.	Standard: 10kW. LHS.	Standard: 10kW. LHS.
Power Take off Crank nose		Standard: 60kW.	Standard: 60kW.	Standard: 60kW.
Finish		Lacquered	Lacquered	Lacquered
Owners Manual		Included	Included	Included

*Require remote location of crankcase ventilation filter

OPTIONAL EQUIPMENT

Pusher & Puller Fans, AVM's, Hydraulic Pumps, 24 Volt Electrics.
 Grid Heater Matrix for improved cold starting.
 Flywheel Options: 10", 11.5", W300, Voith and ZF.
 Long dipstick.
 Foot throttle, hand throttle.
 Display panel.



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