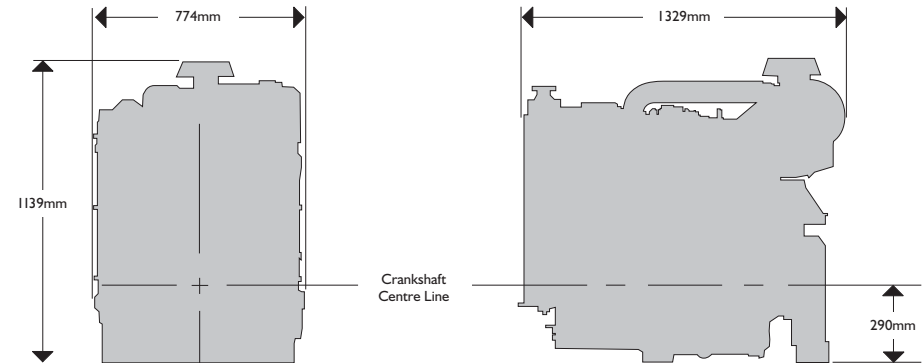




**JCB DIESELMAX** 97kW (130hp), 108kW (145hp) & 120kW (161hp)



**INDUSTRIAL POWER UNIT**



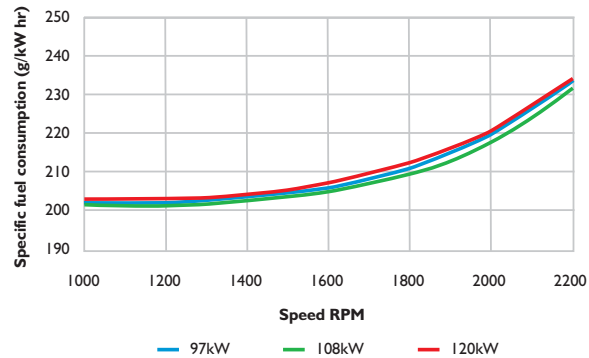
**GENERAL TECHNICAL DATA**

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	In line, 4 cyl	In line, 4 cyl	In line, 4 cyl
Nominal bore	mm 103	mm 103	mm 103
Stroke	mm 132	mm 132	mm 132
Total displacement	cm <sup>3</sup> 4399	cm <sup>3</sup> 4399	cm <sup>3</sup> 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 <sup>2</sup> 0.226	kgm <sup>2</sup> 0.226	kgm <sup>2</sup> 0.226
Standard flywheel inertia	kgm <sup>2</sup> 0.69	kgm <sup>2</sup> 0.69	kgm <sup>2</sup> 0.69

Technical Code	TCAE – 97kW	TCAE – 108kW	TCAE – 120kW
Maximum rating* (gross intermittent)	kW 97	kW 108	kW 120
Net intermittent power	kW 90.8	kW 101.8	kW 113.8
Net continuous power	kW 81.7	kW 91.6	kW 102.4
At speed	rpm 2200	rpm 2200	rpm 2200
Maximum net intermittent torque	Nm 520	Nm 537	Nm 640
Maximum net continuous torque	Nm 468	Nm 483	Nm 576
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 (intermittent)	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	dB(A) 1m 89	dB(A) 1m 89	dB(A) 1m 89
Minimum starting temperature without grid heater	°C -20	°C -20	°C -20
Dry weight	kg 596	kg 596	kg 596



### FUEL CONSUMPTION



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

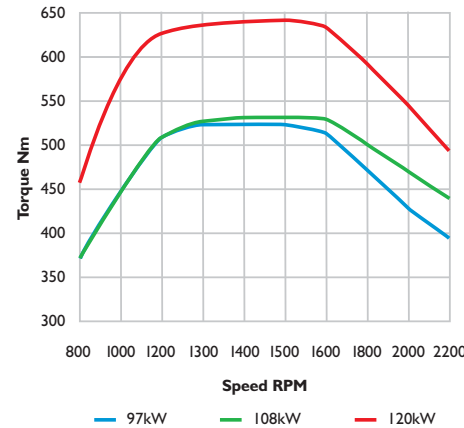
### FUEL SYSTEM

	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
Fuel maximum inlet temperature without derate	°C	85	85
Engine pre filter	micron	5	5
Engine main filter	micron	2	2
Maximum restriction to returned fuel	mbar	220	220
Heat rejection to fuel system	kW	0.43	0.45
Electric lift pump and pre filter/seperator*	Included	Included	Included
Water in fuel sensor	Included	Included	Included

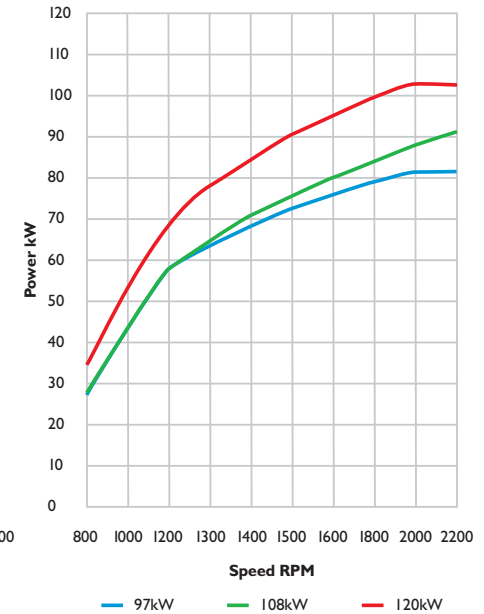
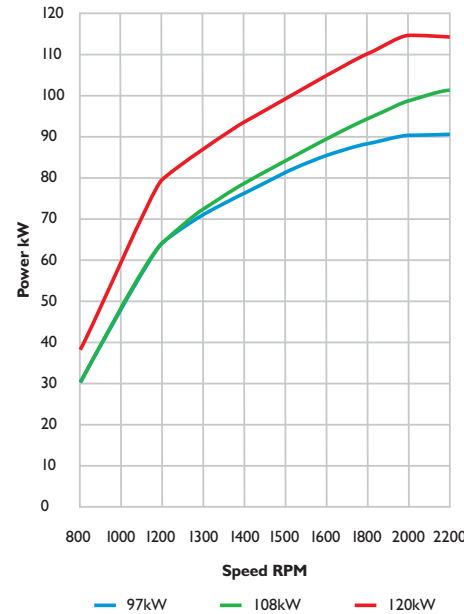
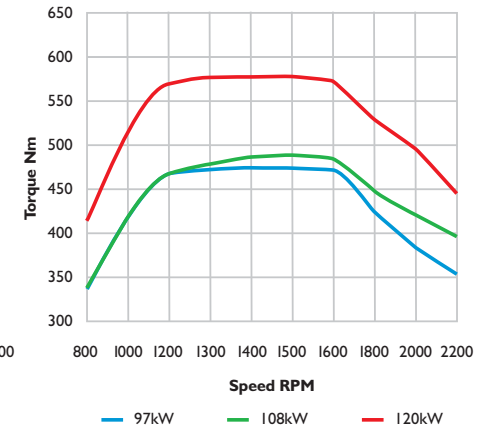
\*Supplied loose

### POWER AND TORQUE CURVES

#### INTERMITTENT



#### CONTINUOUS



As defined by ISO 14396 and ISO 15550:2002



### 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.	2.5	2.5	2.5
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 (inc cooling pack)	ltrs.	20.5	20.5	20.5
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
Cooling air flow requirement	m³/sec	TBA	TBA	TBA
Maximum working ambient temperature	°C	46	46	46
Fan type (standard)		22" Pusher	22" Pusher	22" Pusher
Fan ratio		1.16:1	1.16:1	1.16:1

### 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
Air filter type*		2 Stage	2 Stage	2 Stage

\*Built-in pre-cleaner



**STANDARD CONFIGURATION**

	TCAE – 97kW	TCAE – 108kW	TCAE – 120kW
Flywheel housing SAE	3	3	3
Flywheel	11.5"	11.5"	11.5"
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.	1.16	1.16	1.16
Distance between fan – crankshaft centres mm	262	262	262
Main fuel filter & pre filter	Included	Included	Included
Fuel pump	High pressure common rail	High pressure common rail	High pressure common rail
Electric water in fuel sensor	Included	Included	Included
Electric 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	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

**OPTIONAL EQUIPMENT**

Puller Fans.  
AVM's.  
Hydraulic Pumps.  
24 Volt Electrics.  
Grid Heater Matrix.  
Control panel.

