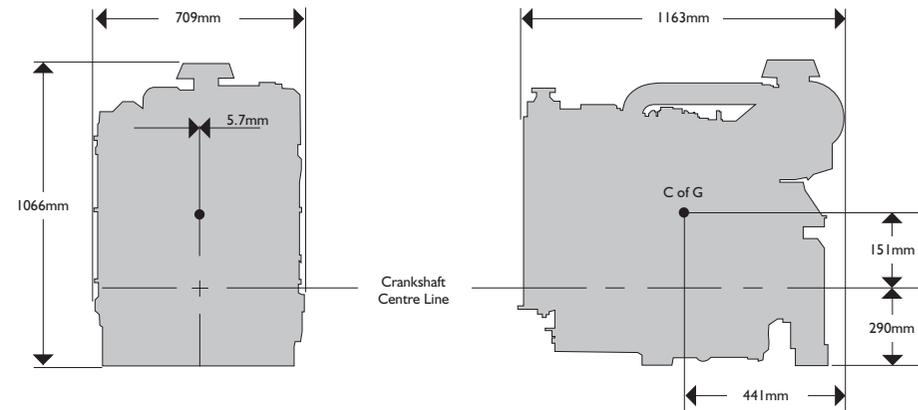
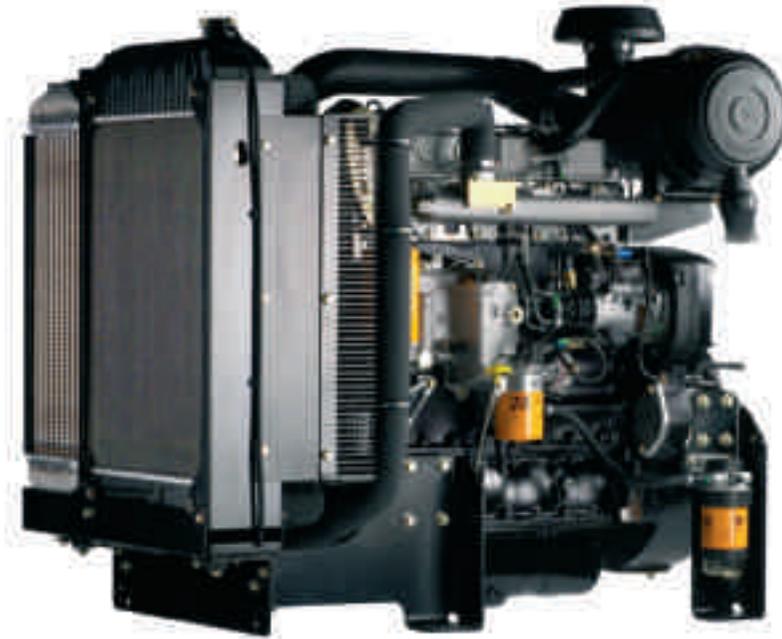


INDUSTRIAL POWER UNIT



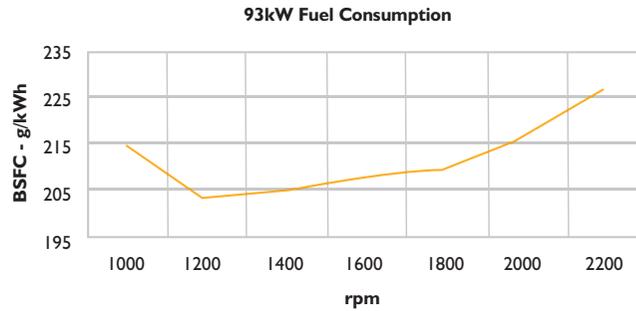
GENERAL TECHNICAL DATA

| Technical Code | TCA – 93KW | |
|---|------------------|--------|
| Thermodynamic cycle | Diesel 4 stroke | |
| Air intake | TCA | |
| Arrangement | 4.4L | |
| Nominal bore | mm | 103 |
| Stroke | mm | 132 |
| Total displacement | cm ³ | 4399 |
| Valves per cylinder | 4 | |
| Cooling | Liquid | |
| Direction of rotation (viewed from crank nose) | Clockwise | |
| Compression ratio | 17.5:1 | |
| Rotational mass moment of inertia excluding flywheel. | kgm ² | 0.2255 |
| 11.5" flywheel inertia | kgm ² | 0.6986 |

| Technical Code | | Intermittent | Continuous |
|--|-------|-----------------|-----------------|
| | | TCA – 93KW | TCA – 93KW |
| Net power output | kW | 89.0 | 80.1 |
| At speed | rpm | 2200 | 2200 |
| Maximum net torque | Nm | 520 | 468 |
| At speed | rpm | 1300 | 1300 |
| Maximum no load governed speed | rpm | 2390 | 2390 |
| Nominal idling speed | rpm | 800 | 800 |
| Mean piston speed at rated speed | m/s | 9.68 | 9.68 |
| BMEP at maximum torque | bar | 15.0 | 13.5 |
| Emission certification | | EPA TII, EU St2 | EPA TII, EU St2 |
| Best point specific fuel consumption | g/kWh | 205 | 205 |
| Minimum full load specific fuel consumption | g/kWh | 205 | 205 |
| Minimum starting temperature without auxiliaries | °C | -12 | -12 |
| Dry weight | kg | 595 | 595 |



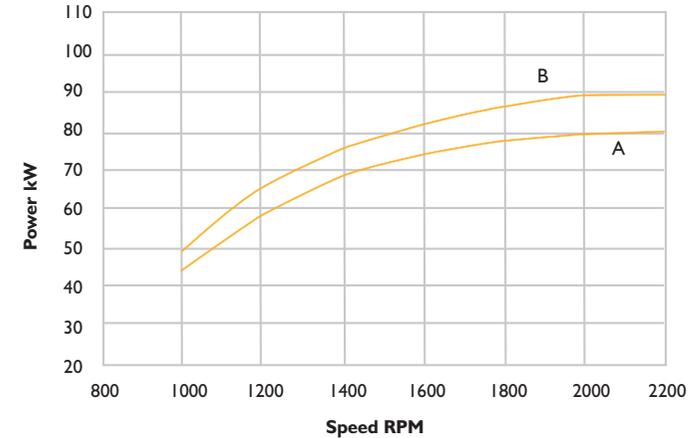
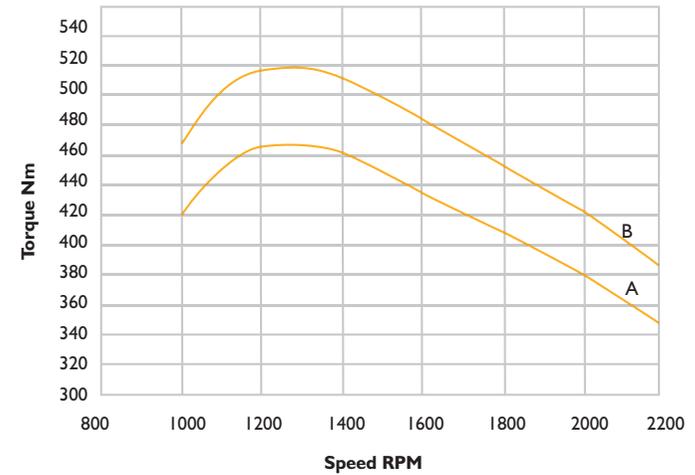
FUEL CONSUMPTION



FUEL SYSTEM

| | | TCA – 93kW |
|---------------------------------|--------|-------------------|
| Injection system | | Rotary Mechanical |
| Fuel maximum intake restriction | mbar | 100 |
| Fuel maximum intake temperature | C | 50 |
| Engine pre-filter | Micron | 30 |
| Engine main filter | Micron | 5 |
| Fuel maximum return restriction | mbar | 35 |

POWER AND TORQUE CURVES



A = Net Continuous Power/Torque
B = Net Intermittent Power/Torque
As defined by ISO 14396 and ISO 15550:2002



TURBOCHARGED AFTERCOOLED 93kW (125hp)

EXHAUST SYSTEM

| | | TCA – 93kW |
|---|------|------------|
| Maximum allowable back pressure | mbar | 150 |
| Maximum exhaust temperature at full rated speed | °C | 560 |
| Exhaust flow at maximum output | kg/h | 580 |

LUBRICATION SYSTEM

| | | TCA – 93kW |
|--|-----------------------|------------|
| Lubricating oil pressure | bar | 4.6 |
| Maximum oil temperature at full rated speed: continuous. | °C | 125 |
| Maximum oil temperature at full rated speed: intermittent. | °C | 135 |
| Engine angularity limits in continuous operation: | | |
| Maximum front up and front down | deg | 35 |
| Maximum right hand and left hand | deg | 35 |
| Total system capacity – including pipes, filters etc | Ltrs | 14 |
| Minimum recommended oil grade | API | CF4 |
| Oil filter maintenance service schedule | Hours | 500 |
| Oil consumption at maximum rating | % of fuel consumption | 0.1 |

COOLING SYSTEM

| | | TCA – 93kW |
|--|---------|------------|
| Coolant capacity – (inc. cooling pack) | Ltrs | 18.4 |
| Water pump flow at rated speed | ltr/min | 200 |
| Heat to reject by heat exchanger at maximum power | kW | 56.0 |
| Thermostat temperature | °C | 90 |
| Cooling liquid maximum temperature | °C | 110 |
| Coolant specification approved (JCB HP high performance) | | ASTM D6210 |
| Header tank pressure cap setting | bar | 1.0 |
| Cooling air flow requirement | m³/sec | 2.5 |
| Maximum working ambient temperature | °C | 46 |
| Fan type (standard) | | 20" Pusher |
| Fan ratio | | 1:1 |

ELECTRICAL SYSTEM

| | | TCA – 93kW |
|--|-----|----------------------|
| Type (ETR - Energised To Run) | | Negative Ground, ETR |
| Standard (starter & alternator) | V | 12 |
| Option. | V | 24 |
| Minimum Cranking Speed | rpm | 120 |
| Battery – minimum capacity recommended, not included | | 145Ah. |
| Battery – minimum cold cranking capacity recommended, not included | | 850 CCA |

AIR INDUCTION

| | | TCA – 93kW |
|--|------|-----------------------|
| Maximum allowable restriction with dirty air filter | mbar | 85 |
| Air requirement for combustion at 100% rated speed | g/s | 153 |
| Turbocharging pressure at full rated speed | bar | 1.2 |
| Turbocharging air maximum temperature – engine inlet | °C | 131 |
| Cooled charge air at inlet manifold | °C | 60 |
| Heat rejected to intercooler at maximum power | kW | 12 |
| Intercooler system max pressure drop | mbar | 125 |
| Air filter type | | 2 stage paper element |

NB. The cooling figures stated are for open units tested with a JCB radiator and fan. If the unit is installed in a canopy type enclosure it is recommended that a cooling test is carried out to ensure satisfactory ambient clearance is achieved.

STANDARD CONFIGURATION

| | | TCA – 93kW |
|---|-----|------------------------|
| Flywheel housing | SAE | 3 |
| Flywheel | | 11.5" |
| Intake manifold location | | Left hand. |
| Exhaust manifold/ turbocharger location | | Right hand. |
| Turbocharger | | Wastegate controlled |
| Fan transmission ratios. | | 1:1 |
| Distance between fan – crankshaft centres | mm | 262 |
| Main fuel filter & pre filter | | Included |
| Fuel pump | | Mechanical with primer |
| Oil filter | qty | 1 left side |
| Oil Sump | | Pressed dual skin |
| Oil vapours blow-by circuit | | Closed |
| Oil heat exchanger | | Left side |
| Oil filler position | | Top and left hand side |
| Starter motor | | 12v, 4.2kW. |
| Alternator | | 12v, 95A |
| Engine stop | | Electrical |
| Power Take Off heavy-duty (OEM Spec) | | Standard: 60kW. RHS. |
| Power Take Off light-duty | | Standard: 10kW. LHS. |
| Finish | | Lacquered |
| Owners Manual | | Included |

OPTIONAL EQUIPMENT

Puller fans, AVM's, Hydraulic Pumps, 24 volt electrics, Water In fuel sensor.
 Grid heater matrix for improved cold starting.
 Long dipstick.

