

Technical Data

1100 Series

1104C-44TG2

59,3 kWm @ 1500 rev/min
66,7 kWm @ 1800 rev/min

Diesel Engine Electropak

Basic technical data

Number of cylinders ... 4
 Cylinder arrangement ... vertical in-line
 Cycle ... four stroke
 Induction system ... turbocharged
 Compression ratio ... 18,23 : 1
 Bore ... 105 mm
 Stroke ... 127 mm
 Cubic capacity ... 4,4 litres)
 Direction of rotation ... anticlockwise viewed on flywheel
 Firing order ... 1, 3, 4, 2

Estimated total weight (fan to flywheel housing)

-dry ... 401 kg
 -wet ... TBA kg

Overall dimensions (electropak)

-height ... 951 mm
 -length ... 1239 mm
 -width (includes mounting brackets) ... 615 mm

Moments of inertia (mk²)

-engine rotational components ... 0,1402 kgm²
 -flywheel ... 1,14 kgm²

Centre of gravity (fan to flywheel housing)

-forward from rear of block ... 227,7 mm
 -above centre line of block ... 160,4 mm
 -offset to RHS of centre line ... 8,1 mm

Performance

Note: All data based on operation to ISO/TR14396, BS5514, ISO3046/1 and DIN 6271 standard reference conditions.

Steady state stability at constant speed -G2 ... ± 0.75%

Steady state stability at constant speed -G3 ... ± 0.5%

Cyclic irregularity at rated power with 1,14kgm² flywheel

-@ 1500 rev/min ... TBA

-@ 1800 rev/min ... TBA

Test conditions

-air temperature ... 25 °C

-barometric pressure ... 100 kPa

-relative humidity ... 30%

Sound level

Estimated sound power level for bare engine without inlet and exhaust at 1 metre:

-@ 1500 rev/min ... 99,5 dB(A)

-@ 1800 rev/min ... 101,0 dB(A)

If the engine is to operate in ambient conditions other than those of the test conditions, suitable adjustments must be made for these changes. For full details, contact Perkins Technical Service Department.

For details of load acceptance values, contact the applications department at Perkins Engines Company Limited, Stafford.

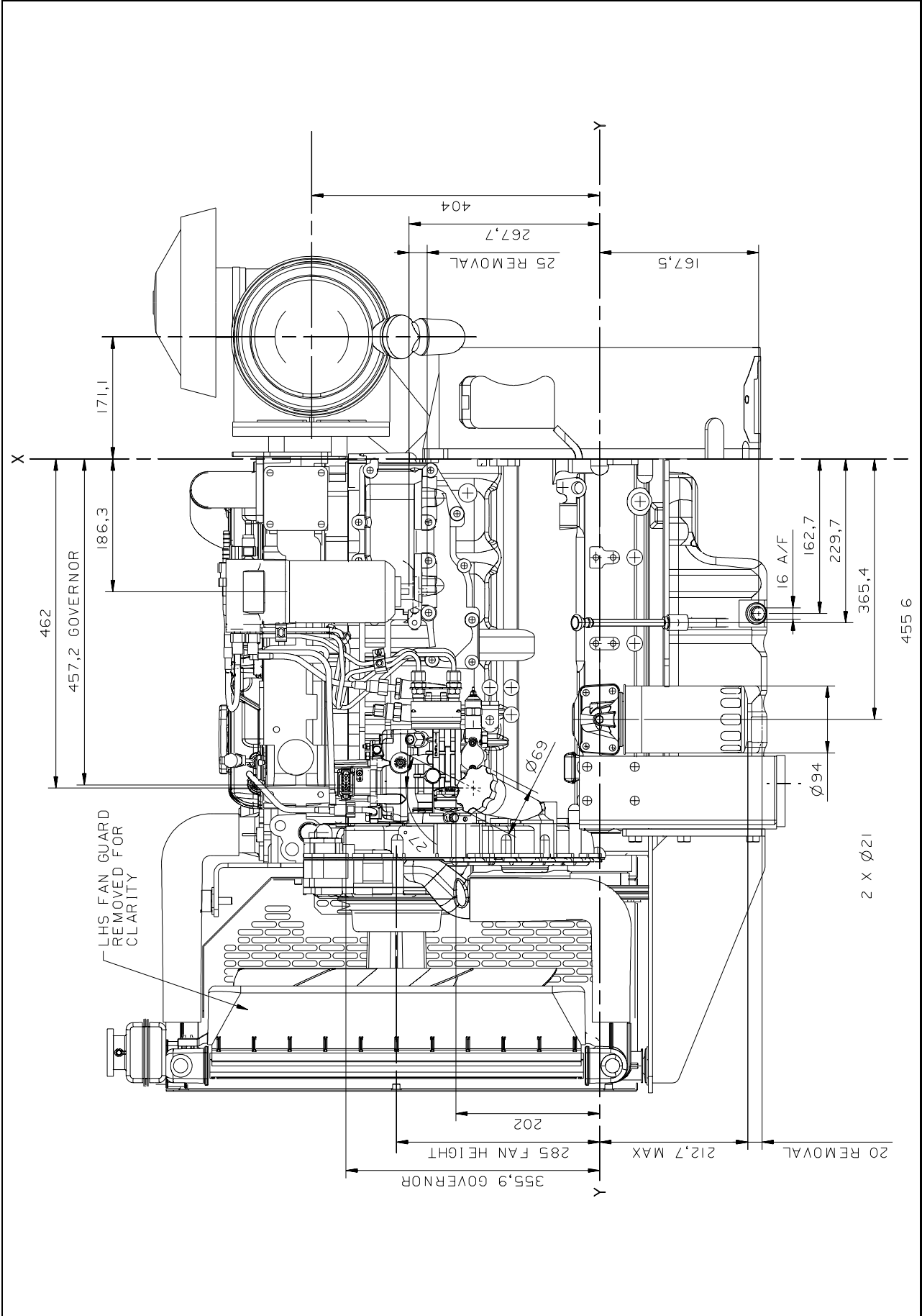
Emissions capability: Certified against the requirements of EU2007 (EU 97/68/EC Stage II) legislation for non-road mobile machinery, powered by constant speed engines

General installation

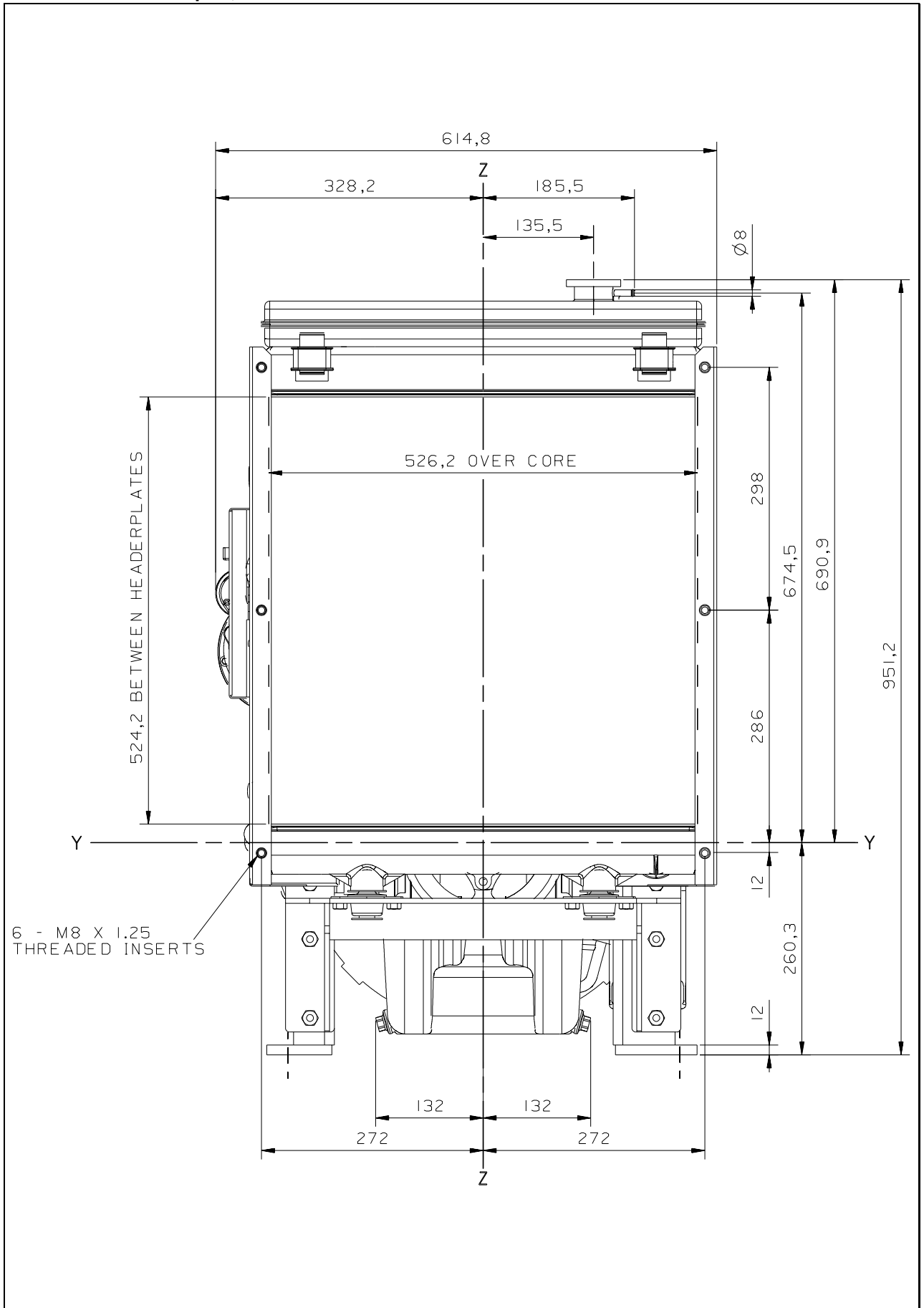
Designation	Units	Type of operation and application			
		Prime	Stand-by	Prime	Stand-by
		50Hz	50Hz	60Hz	60Hz
Gross engine power	kWb	56,4	62,0	64,1	70,5
Brake mean effective pressure	kPa	1002	1130	960	1070
Engine coolant flow 35 kPa system restriction	l/min	142		170	
Combustion air flow	m ³ /min	4,32	4,43	5,26	5,29
Exhaust gas flow (max)	m ³ /min	10,9	11,8	13,1	13,8
Exhaust gas outlet temperature (max at standby)	°C	535	583	544	594
Cooling fan air flow (200kPa External Restriction)	m ³ /min	97,8		128	
Overall thermal efficiency (net)	%	35,3	35	34,3	34
Typical GenSet electrical output (0,8pf)	kWe	48,3	53,4	54,3	60
	kVA	60,4	66,7	67,8	75
Assumed alternator efficiency	%	90		90	
Energy balance					
Energy in fuel (Fuel heat of combustion)	kWt	152	171	176	196
Energy to power output (gross)	kWb	56,4	62,0	64,1	70,5
Energy to cooling fan	kWm	2,7		3,8	
Energy to power output (nett)	kWm	53,7	59,3	60,3	66,7
Energy to coolant and lubricating oil	kWt	38	42	43	48
Energy to exhaust	kWt	48	54	58	65
Heat to radiation	kWt	9,6	13	10,9	12,5

Caution: The airflows shown in this table will provide acceptable cooling for an open power unit operating in ambient temperatures of up to 53 °C or 46 °C. if a canopy is fitted. If the power unit is to be enclosed totally, a cooling test should be done to check that the engine cooling is acceptable. If there is insufficient cooling, contact Perkins Technical Service Department.

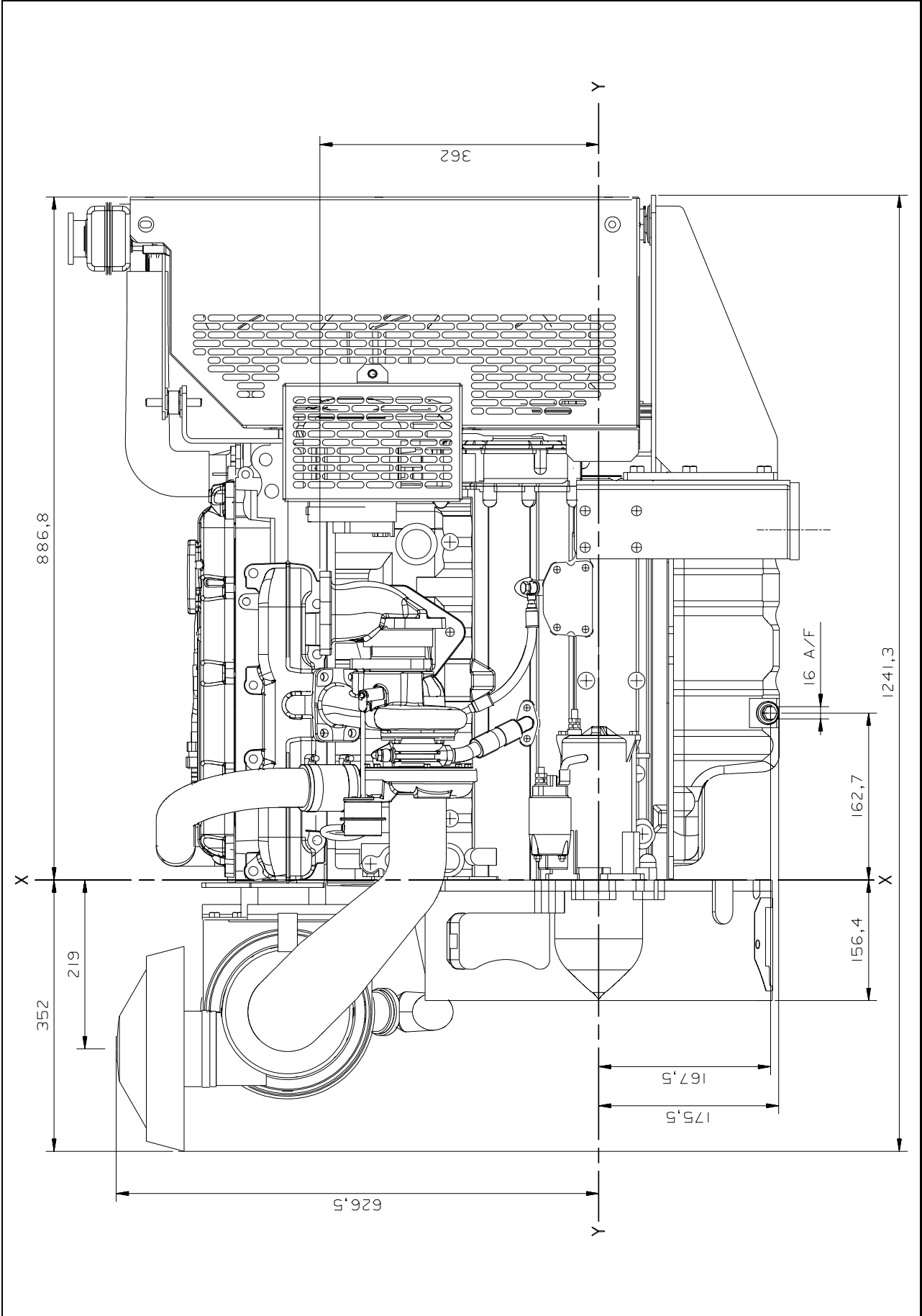
1104C-44TG2 ElectropaK, left side view



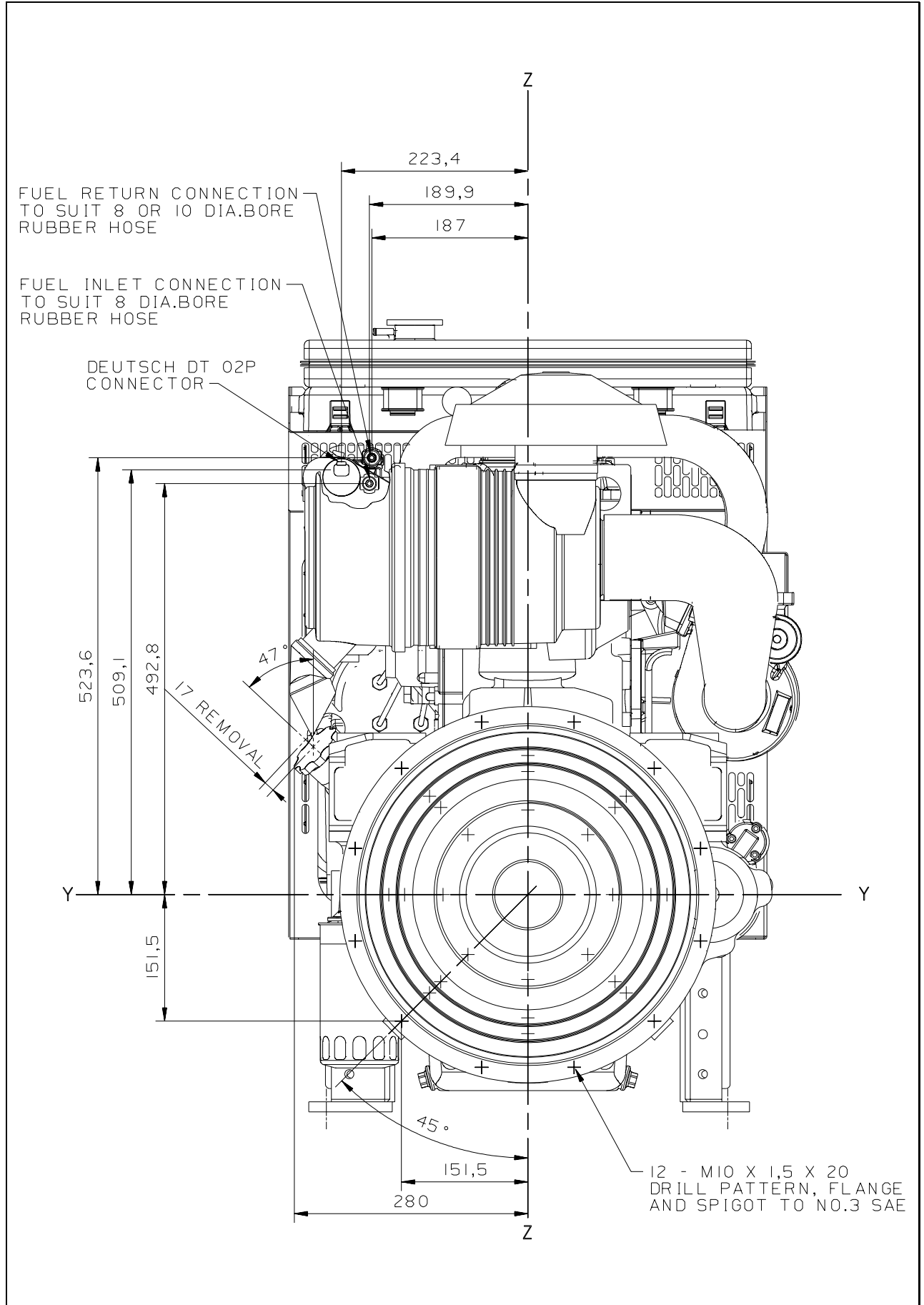
1104C-44TG2 ElectropaK, front view



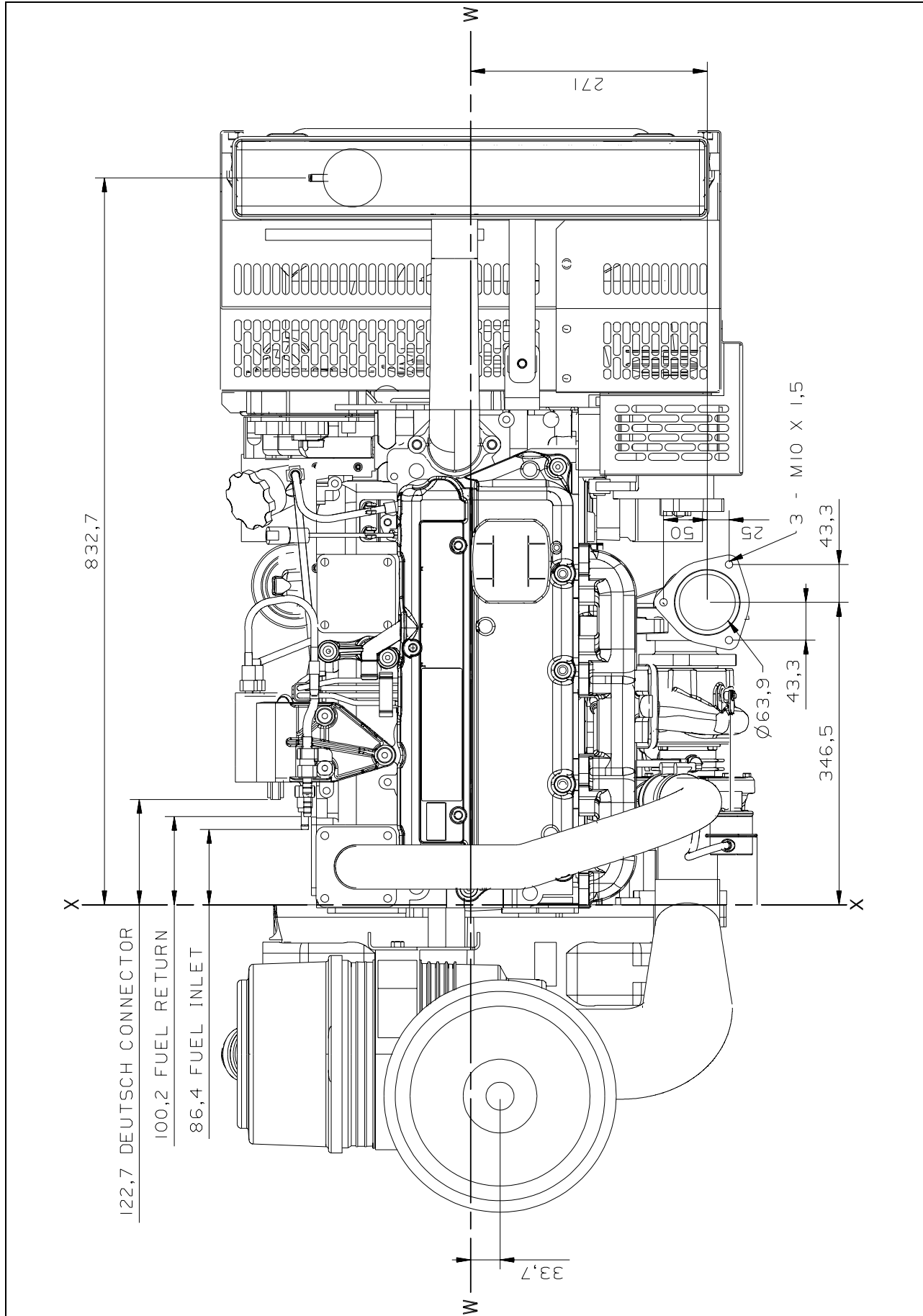
1104C-44TG2 ElectropaK, right side view



1104C-44TG2 ElectropaK, rear view



1104C-44TG2 ElectropaK, plan view



Cooling system

Radiator

-face area... 0,25 m²
 -rows and materials... 38 Aluminium
 -matrix density and material... 9.4 Aluminium Fins Per Inch
 -width of matrix... 439 mm
 -height of matrix... 570 mm
 -pressure cap setting... 100 kPa

Fan

-diameter... 457 mm
 -drive ratio... 1:1
 -number of blades... 7
 -material... composite
 -type... pusher

Coolant

Total system capacity
 -with radiator... 12,6 litres
 -without radiator... 7,0 litres
 Maximum top tank temperature... 110 °C
 Thermostat operation range... 82 - 93 °C
 Recommended coolant:
 50% ethylene glycol with a corrosion inhibitor
 (BS 658 :1992 or MOD AL39) and 50% clean fresh water.

Electrical system

-type... negative ground
 -alternator... 12V/24V options
 -starter motor... 12V/24V options

Cold start recommendations

Minimum cranking speed... 80 rev/min

Starter motor type	Minimum starting temperature	Minimum battery type for SAE lubricating oil viscosity			
		15W	10W	5W	0W
12 volt, 3.0 kW	°C				
	-5	1 X B			
	-15	1 X B			
	-20		1 X B		
	-25				1 X B

Battery minimum performance

Commercial ref number	Perkins code	BS 3911	SAE J537
643	A	440	660
647	B	510	770
069	D	340	540
655	E	570	810

Exhaust system

Maximum back pressure
 -@ 1500 rev/min... 12 kPa
 -@ 1800 rev/min... 15 kPa
 Exhaust outlet size... 64 mm

Fuel system

Type of injection... direct
 Fuel injection pump... rotary
 Fuel atomiser... multi-hole
 Nozzle opening pressure... 29,0 MPa

Fuel lift pump

-flow/hour... 120 - 150 l/h
 -pressure... 30 - 75 kPa
 Maximum suction head... 17 kPa (1.7 m)
 Maximum static pressure head... 10 kPa (1.0 m)
 Governor type... Perkins LCS electronic governor
 Speed control to... ISO 8528, G3

Fuel specification

USA Fed Off Highway EPA2D 89.330-96
 Density (kg/l @ 15°C)... 0,835/0855
 Viscosity (mm²/s @ 40 °C)... 2,0/4.5
 Sulphur Content... 0.2% Max.
 Cetane Number... 45 Min.

Fuel consumption litres/hour

Speed	Power rating			
	110%	100%	75%	50%
60 Hz	24,1	22,0	17,0	11,7
50 Hz	20,3	18,6	14,3	9,8

Induction system

Maximum air intake restriction

- clean filter 5 kPa
- dirty filter 8 kPa
- air filter type 2 stage cyclonic/paper element

Lubrication system

Lubricating oil capacity

- total system 8,0 litres
- Sump capacity
- maximum 7,0 litres
- minimum 5,5 litres

Maximum engine operating angles

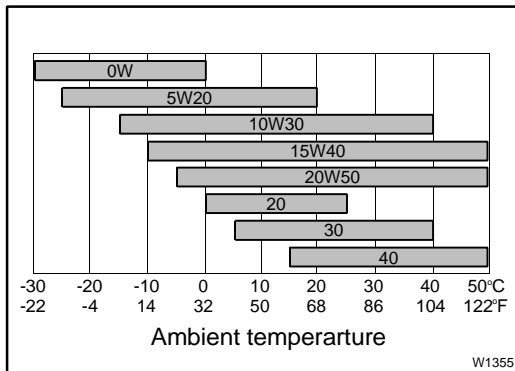
- front up, front down, right side or left side. 30°

Lubricating oil pressure

- relief valve opens 415 - 470 kPa
- at maximum no-load speed 276 - 414 kPa
- Normal oil temperature 100 °C
- Max. continuous oil temperature 125 °C
- Oil consumption at full load as a % of fuel consumption 0.15%

Recommended SAE viscosity

A single or multigrade oil must be used which conforms to API-CC/SE or CCMC-D1, see illustration below:



Mountings

- Maximum static bending moment 791 Nm
- at rear face of block 791 Nm



Perkins Engines Company Limited
 Peterborough PE1 5NA United Kingdom
 Telephone +44 (0) 1733 583000
 Fax +44 (0) 1733 582240
 www.perkins.com

All information in the document is substantially correct at the time of printing but may be subsequently altered by the company.

Distributed by