

Technical Data

1100 Series

1104C-44TG3

59,3 kWm @ 1500 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 ... Anti-clockwise viewed on flywheel
 Firing order ... 1, 3, 4, 2

Estimated total weight (fan to flywheel housing)

-dry ... 401 kg

Overall dimensions (electropak)

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

Moments of inertia (mk²)

-engine ... 0,14102 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

General installation (50Hz)

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%
 -G3 ... ± 0.5%

Cyclic irregularity at rated power ... TBA
 -with 1,14kgm² flywheel ... 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 ... 99,5 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.

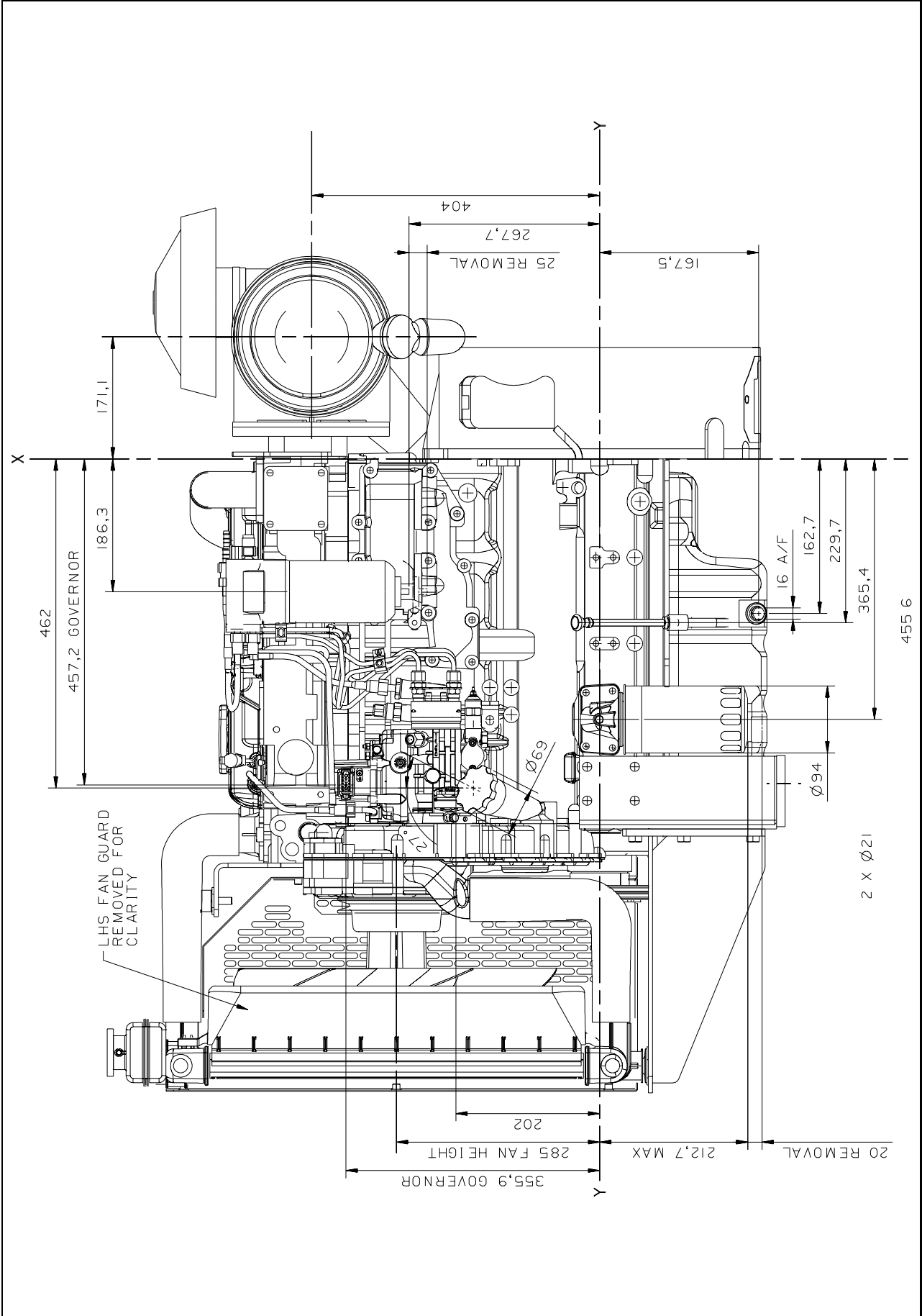
For details of load acceptance values, contact the applications department at Perkins Engines Company Limited, Stafford.

Emissions capability: Certified against the requirements of EU2007 legislation for non-road mobile machinery, powered by constant speed engines (EU97/68/EC Stage II).

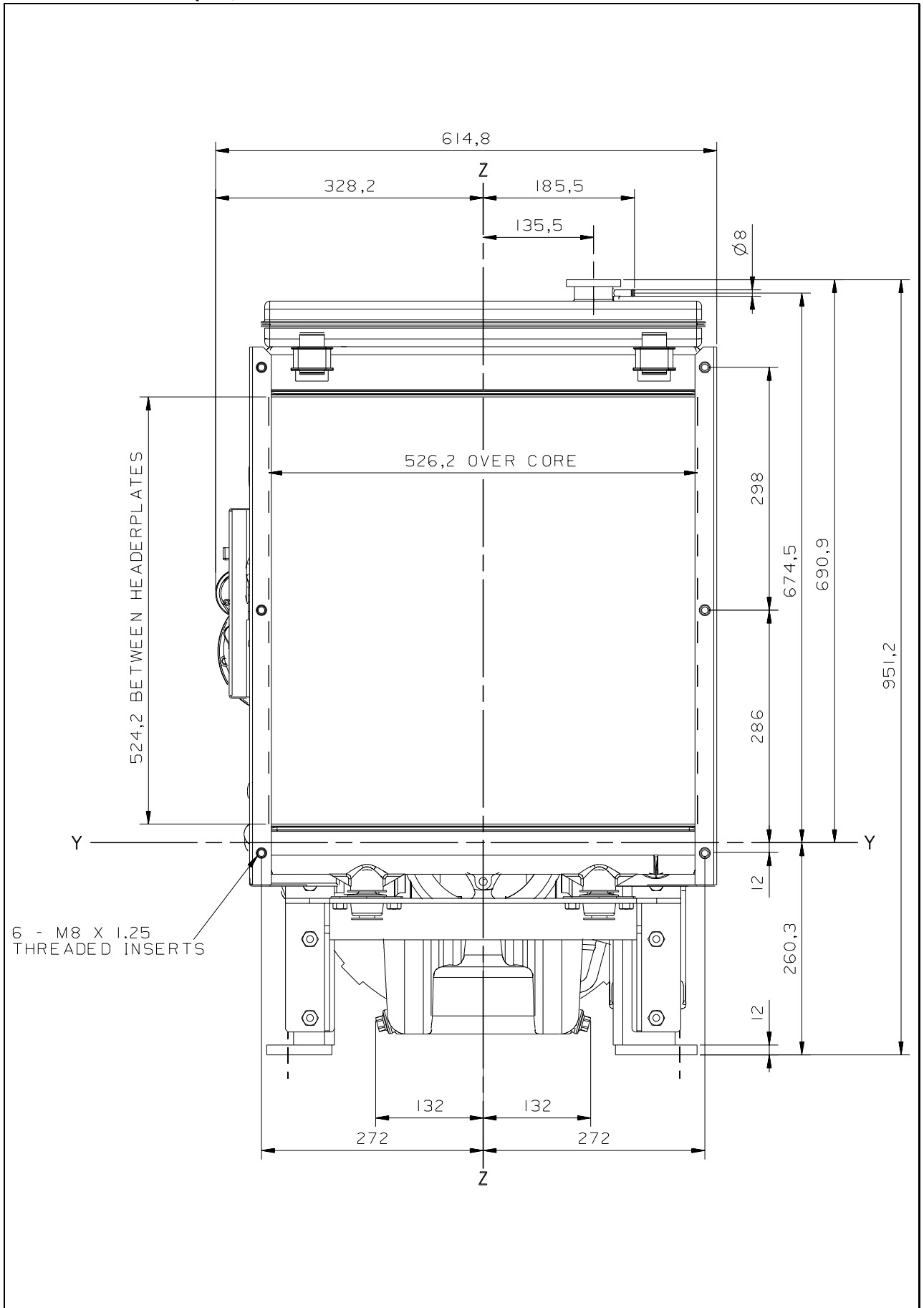
Designation	Units	Type of operation and application	
		Prime	Stand-by
		50Hz	50Hz
Gross engine power	kWb	56,4	62,0
Brake mean effective pressure	kPa	1002	1130
Engine coolant flow 35 kPa system restriction	l/min	142	142
Combustion air flow	m ³ /min	4,32	4,43
Exhaust gas flow (max)	m ³ /min	10,9	11,8
Exhaust gas outlet temperature (max at standby)	°C	535	583
Cooling fan air flow (200 kPa External Restriction)	m ³ /min	97,8	
Overall thermal efficiency	%	35,3	35
Typical genset electrical output (0,8pf 25°C)	kWe	48,3	53,4
	kVa	60,4	66,7
Assumed alternator efficiency	%	90	
Energy balance			
Energy in fuel (Fuel heat of combustion)	kWt	152	171
Energy to power output (gross)	kWm	56,4	62,0
Energy to fan	kWm	2,7	
Energy to power (nett)	kWm	53,7	59,3
Energy to coolant and lubricating oil	kWt	38	42
Energy to exhaust	kWt	48	54
Heat to radiation	kWt	9,6	13

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.

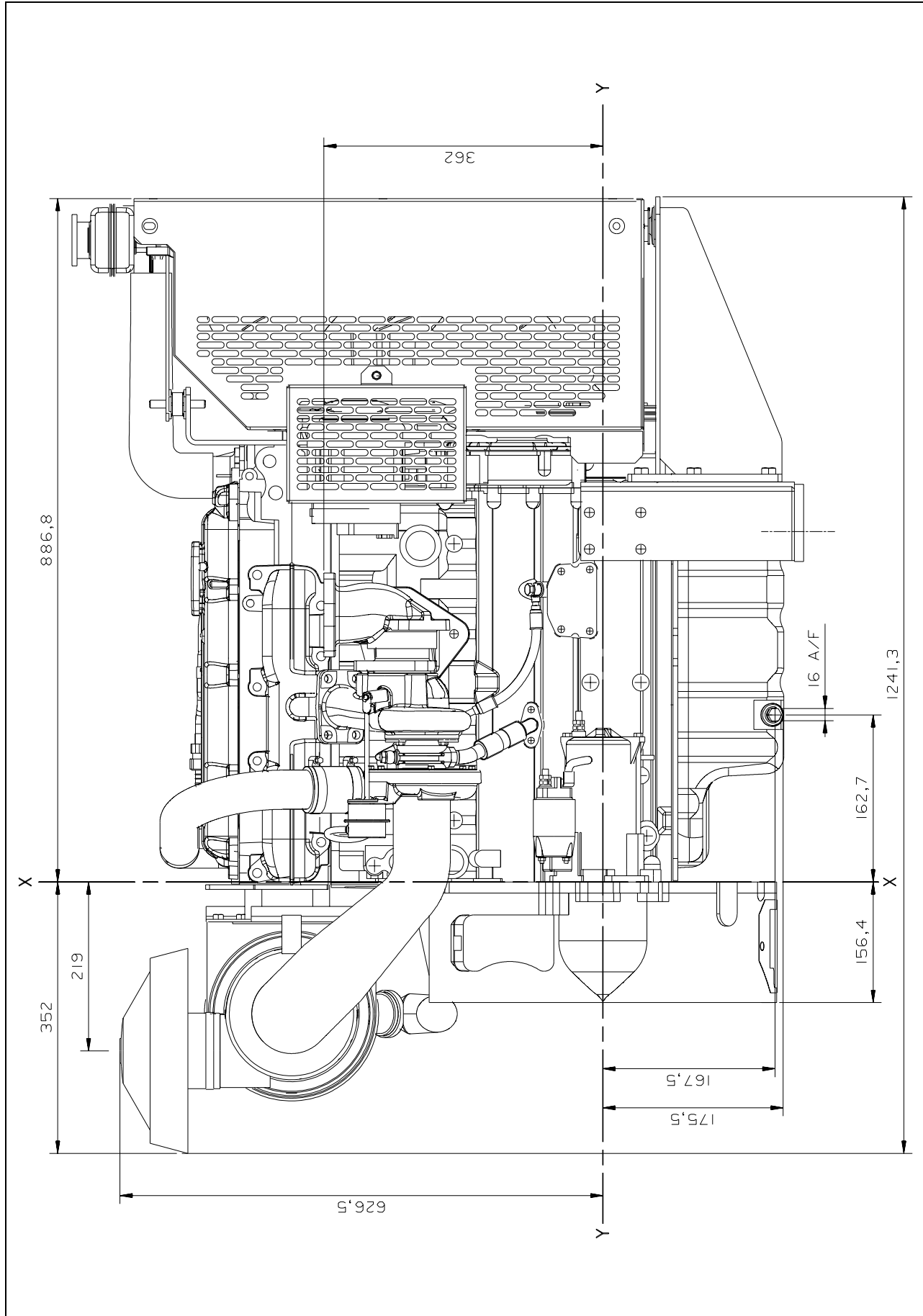
1104C-44TG3 ElectropaK, left side view



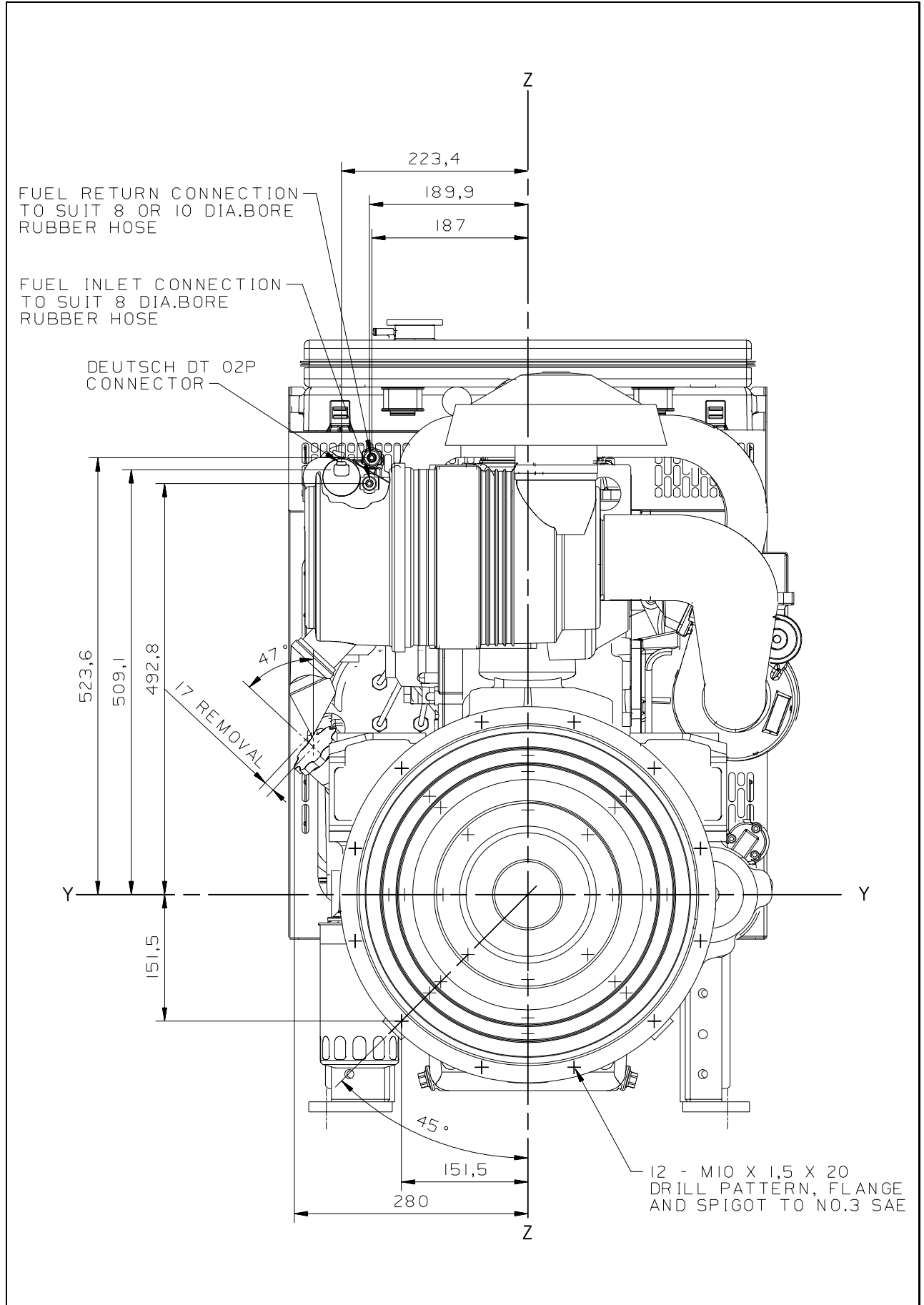
1104C-44TG3 ElectropaK, front view



1104C-44TG3 ElectropaK, right side view



1104C-44TG3 ElectropaK, rear 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 recommendat... 80 rev/min

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

Commercial ref number	Perkins Code	Battery minimum performance	
		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... 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... Mechanical
 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... 45min

Fuel consumption litres/hour

Speed	Power Rating			
	110%	100%	75%	50%
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
 Maximum sump capacity... 7,0 litres
 Minimum sump capacity... 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



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