

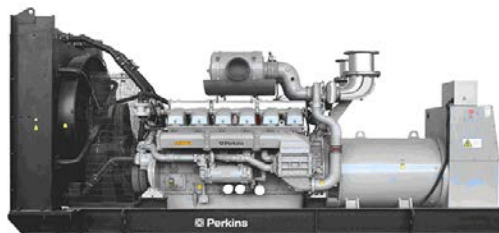
DATA SHEET

DIESEL GENERATOR 88KW

MODEL#FDK-P88/H1

50HZ/1500RPM

PERKINS MODEL: 1104C-44TAG2



General Features:

- ◆ All qualified generator sets are subjected to a comprehensive performance test which includes 50% load, 70% load, 100% load, 110% load and to check, verify that all control systems, alarm and shut-down protection.
- ◆ Equipped with battery charger and 24V high performance maintenance-free lead-acid starting batteries and connecting cables.
- ◆ Stainless galvanized zinc plates with strong corrosion-proof.
- ◆ Vibration isolators between the engine/alternator and base frame.
- ◆ Equipped with industrial silencer and flexible exhaust hose.
- ◆ Designed to comply with ISO8528/GB2820.
- ◆ Powered by Perkins engine and coupled with Stamford alternator.
- ◆ Water jacket preheater, oil heater and double air cleaner, etc. are available.

FDK Diesel Generator Set Data

Genset Model	FDK-P88/H1
Prime Power	80KW/100KVA
Standby Power	88KW/110KVA
Output Frequency / Rated speed	50Hz/1500rpm
Rated Voltage	230V/400V

Engine Make	Perkins CHINA
Engine Model	1104C-44TAG2
Alternator model	Stamford UCI274C
Control System	DSE7320
Phase	Three

(1) **Prime power:** The rating is available for an unlimited of annual operating hours in variable load applications, in accordance with ISO8528-1.A 10% overload is available for a period of 1 hour within 12-hour period of operation, in accordance with ISO 3046-1.

(2) **Standby power:** The rating is applicable for supplying emergency power in variable load applications for up to 200 hours per year in accordance with ISO8528-1. Overload is not allowed.

(3) **Rated voltage:** available with customer requirement.

Engine Specifications (DETAILED in APPENDIX)

Engine Model	1104C-44TAG2
Engine Manufacturer	Perkins CHINA
Cylinder quantity	4
Cylinder Arrangement	In-line
Cycle	4
Aspiration	Turbo charged

Bore x Stroke (mm x mm)	105x127
Displacement	4.4L
Compression Ratio	18.23:1
Prime power / Speed (KW/RPM)	93.6kw/1500
Standby power/ Speed (KW/RPM)	103kw/1500
Governor type	LCS Electric



ISO9001:2008

FDK reserves the right to change the specifications and designs without notice.

Piston Speed	N.A.	Fuel Consumption at 100% load (L/HOUR)	22.6 L
Typical genset electrical output (0,8 pf 25°C)	81.4kw	Starter motor	12V/24V options
Total Lubrication System Capacity (L)	8.0	Alternator	12V/24V options
Total Coolant Capacity (L)	12.6	Minimum cranking speed.	80rpm

Alternator Specifications

Alternator model	UCI274C	Number of phase	3
Alternator manufacturer	STAMFORD	Rated voltage	400V (Available with custom requirements)
Exciter type	Single bearing, Brushless, Self-excited	Power factor	0.8
Rated output prime power	100KVA	Voltage regulation NL-FL	±1%
Rated speed	1500 rpm	Insulation grade	H
Rated frequency	50Hz	Protection grade	IP23

Alternator option: Leroy Somer, MECC, Marathon, Engga, Faraday

Control System DSE7320 (DETAILED in INSTRUCTION)

DSE7320 is an advanced control module based on micro-processor, containing all necessary functions for protection of the genset and the breaker control. It can monitor the mains supply, breaker control and automatically start the engine when the mains are abnormal. Accurately measure various operational parameters and display all values and alarms information on the LCD. In addition, the control module can automatically shut down the engine and indicate the engine failure.

FEATURES

- ♦ Microprocessor control, with high stability and credibility.
- ♦ Monitoring and measuring operational parameters of the mains supply and genset.
- ♦ Indicating operation status, fault conditions, all parameters and alarms.
- ♦ Multiple protections; multiple parameters display, like pressure, temp. etc.
- ♦ Manual, automatic and remote work mode selectable.
- ♦ Real time clock for time and date display, overall runtime display, 250 log entries.
- ♦ Overall power output display.
- ♦ Integral speed/frequency detecting, telling status of start, rated operation, overspeed etc.
- ♦ Communication with PC via RS485 OR RS232 interface, using MODBUS protocol.

Soundproof Enclosure Specification

FDK silent generator is designed by professional acoustic engineers based on years of experience. Now we can make the noise of the generator less than 80-85dB(A) at 1m, or 70-75dB(A) at 7m, 60-65dB(A) at 15m.

FEATURES

- ♦ Multi-way air intake and exhaust guarantee the power performance of the generator.
- ♦ Large-scale impedance combined type silencer effectively reduce noise of the generator.
- ♦ Internal high performance rubber damper and flexible materials reduce vibration.
- ♦ Base mounted fuel tank supports the generator running for 8 hours.



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Optional

Generator set	Alternator	Low environment Temp	ATS
<input type="checkbox"/> Open generator set <input type="checkbox"/> Silent generator set <input type="checkbox"/> Trailer generator set <input type="checkbox"/> ABB MCCB circuit breaker	<input type="checkbox"/> Stamford <input type="checkbox"/> Marathon <input type="checkbox"/> Mecc Alte <input type="checkbox"/> Leroy Somer <input type="checkbox"/> Farady <input type="checkbox"/> Engga	<input type="checkbox"/> Water heater <input type="checkbox"/> Oil heater <input type="checkbox"/> Battery heater	<input type="checkbox"/> CHINT <input type="checkbox"/> SCHNEIDER <input type="checkbox"/> ABB
Fuel system	Control system	Voltage	Synchronized system
<input type="checkbox"/> 12hrs base tank <input type="checkbox"/> 24hrs base tank <input type="checkbox"/> Dual wall base fuel tank <input type="checkbox"/> Outside fuel tank	<input type="checkbox"/> AMF function <input type="checkbox"/> ATS control cabinet <input type="checkbox"/> DSE7320 <input type="checkbox"/> DSE7510 <input type="checkbox"/> GU620A	<input type="checkbox"/> 415/240V <input type="checkbox"/> 400/230V <input type="checkbox"/> 380/220V <input type="checkbox"/> 220/127V <input type="checkbox"/> 200/115V	<input type="checkbox"/> CHINT Cabinet <input type="checkbox"/> SCHNEIDER Cabinet <input type="checkbox"/> DSE8610 Module <input type="checkbox"/> COMAQ Module <input type="checkbox"/> DEIF Module

Dimension & Weight

Open

Overall Size: LxWxH (mm)	2200x1500x870
Weight (kg)	1200

Soundproof Version

Overall Size: LxWxH (mm)	2930x2000x1000
Weight (kg)	2100

Sales Promises

- ◆ FDK provides a full line of brand new and high quality products. Each and every unit is strictly factory tested before shipment.
- ◆ Quality warranty is according to our standard conditions: 12 months from BL date or 1000 running hours, whichever comes first.
- ◆ Service and parts are available from FDK or distributors in your location.
- ◆ FDK guarantee use **BRAND NEW & GENUINE MACHINE.**



Technical Data

1100 Series

Diesel Engine Electropak

1104C-44TAG2

99,5 kWm @ 1500 rev/min
112,4 kWm @ 1800 rev/min

Basic technical data

Number of cylinders 4
 Cylinder arrangement In-line
 Cycle Four stroke
 Induction system Turbocharged, air-to-air charge cooled
 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

Overall dimensions (electropak)

-height 966 mm
 -length 1259 mm
 -width (includes mounting brackets)..... 721 mm

Moments of inertia (mk²)

-engine rotational components..... 0,162 kgm²
 -flywheel 1,31 kgm²

Centre of gravity (fan to flywheel housing)

-forward from rear of block 227,2 mm
 -above centre line of block 160,4 mm
 -offset to RHS of centre line..... 8,1 mm

General installation

Performance

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

All ratings certified to within ±5%
 Speed variation at constant load ± 0.5%

Cyclic irregularity at rated power

-with 1,31 kgm² flywheel (1500 rev/min) 0,029
 -with 1,31 kgm² flywheel (1800 rev/min) 0,017

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) 101 dB(A)
 without inlet and exhaust at 1 metre (1800 rev/min) 104 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.

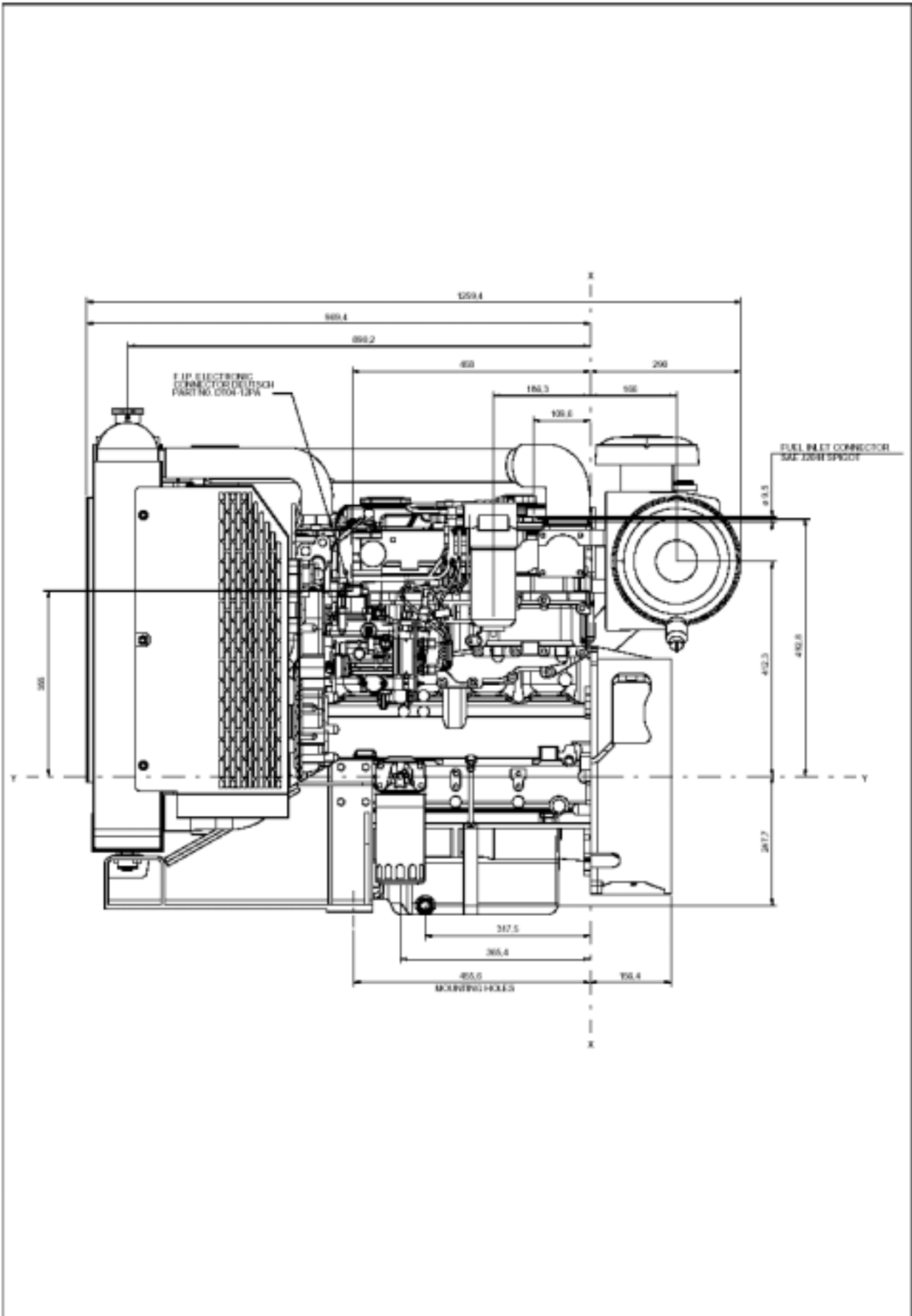
For full details, contact Perkins Technical Service Department.

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

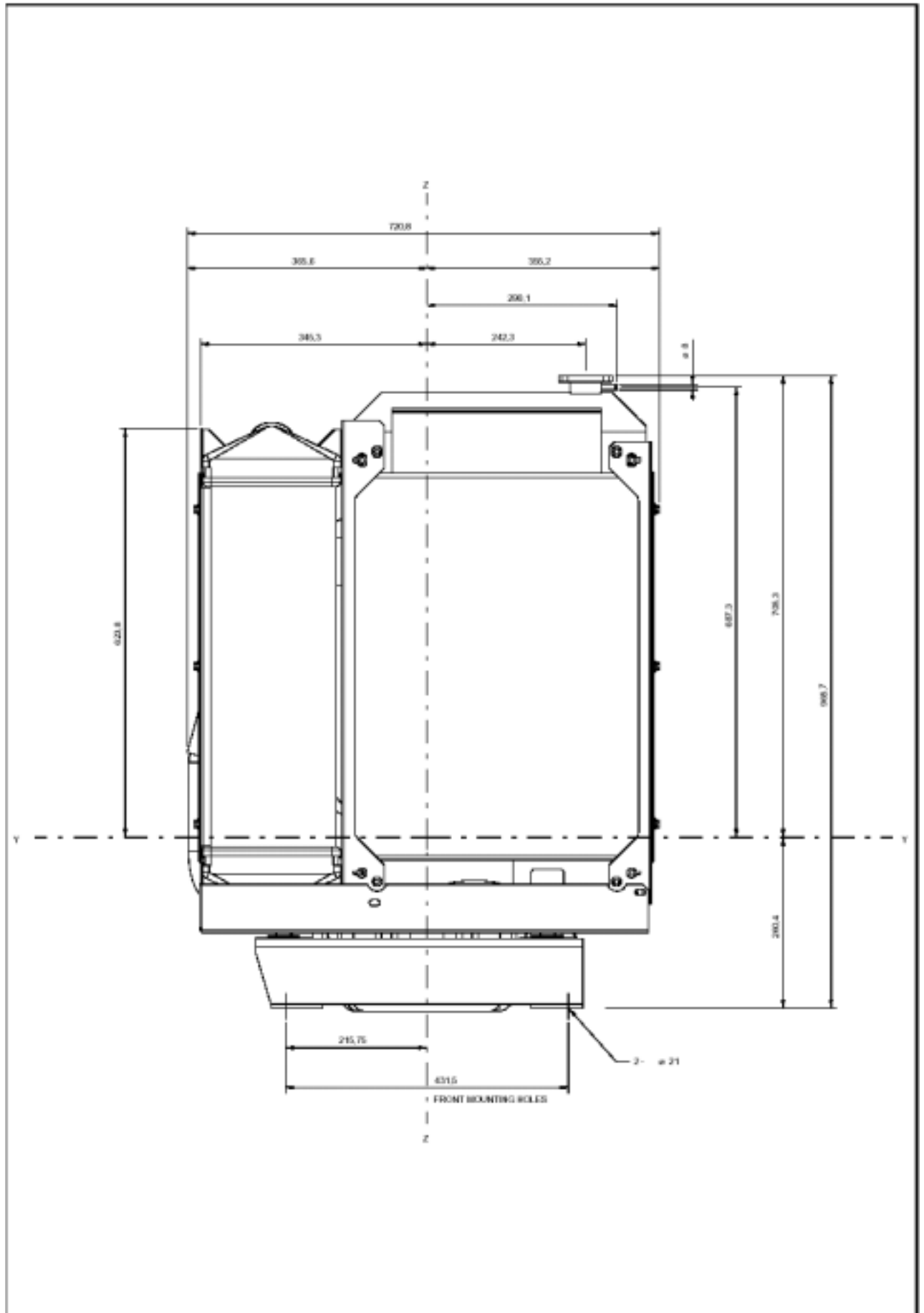
Designation	Units	Type of operation and application			
		Prime	Stand-by	Prime	Stand-by
		50 Hz	50 Hz	60 Hz	60 Hz
Gross engine power	kWb	93,6	103	106,8	117,5
Brake mean effective pressure	kPa	1702	1873	1618	1780
Engine coolant flow 35 kPa system restriction	l/min	142		170	
Combustion air flow	m ³ /min	6,01	6,27	7,75	7,80
Exhaust gas flow (max)	m ³ /min	15,2	16,3	18,4	20,4
Exhaust gas temperature (max)	°C	514	543	517	574
Cooling fan air flow (200kPa External Restriction)	m ³ /min	165,6	165,6	225,6	225,6
Overall thermal efficiency (net)	%	39,5	39,6	36,9	36,9
Typical GenSet electrical output (0,8pf)	kWe	81,4	89,6	91,5	101,2
	kVA	101,4	111,9	114,4	126,5
Assumed alternator efficiency	%	90		90	
Energy balance					
Energy in fuel (Fuel heat of combustion)	kWt	228,1	251	275,2	304,4
Energy to power output (gross)	kWb	93,6	103,0	106,8	117,5
Energy to cooling fan	kWm	3,5		5,1	
Energy to power output (nett)	kWm	90,1	99,5	101,7	112,4
Energy to coolant and lubricating oil	kWt	46,1	50,7	57,7	64,0
Energy to exhaust	kWt	71,7	78,9	89,8	99,7
Energy to radiation	kWt	6,8	7,5	8,5	9,4
Energy to charge cooler	kWt	9,9	10,9	12,4	13,8

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.

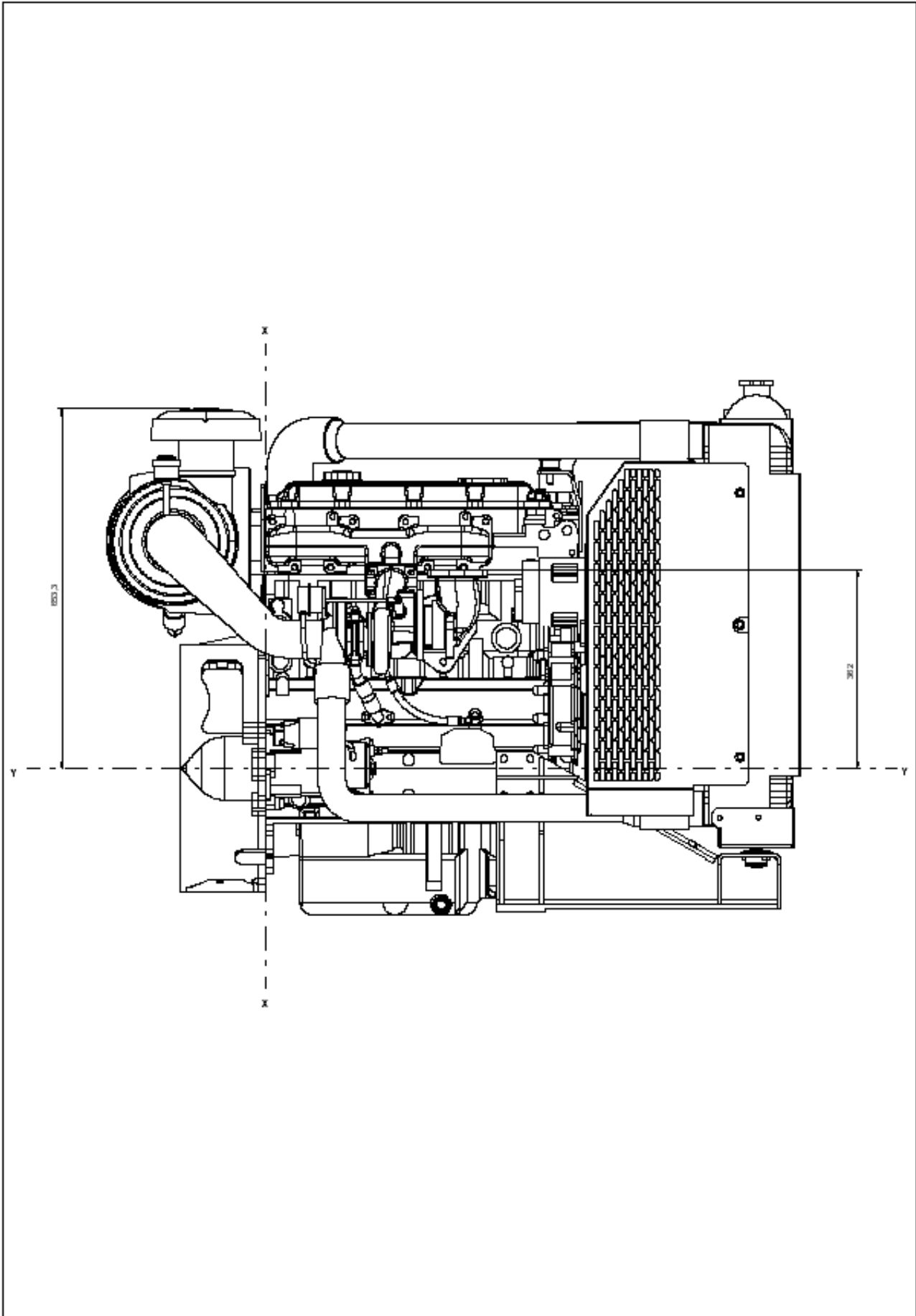
1104-44TAG2 ElectropaK, left side view



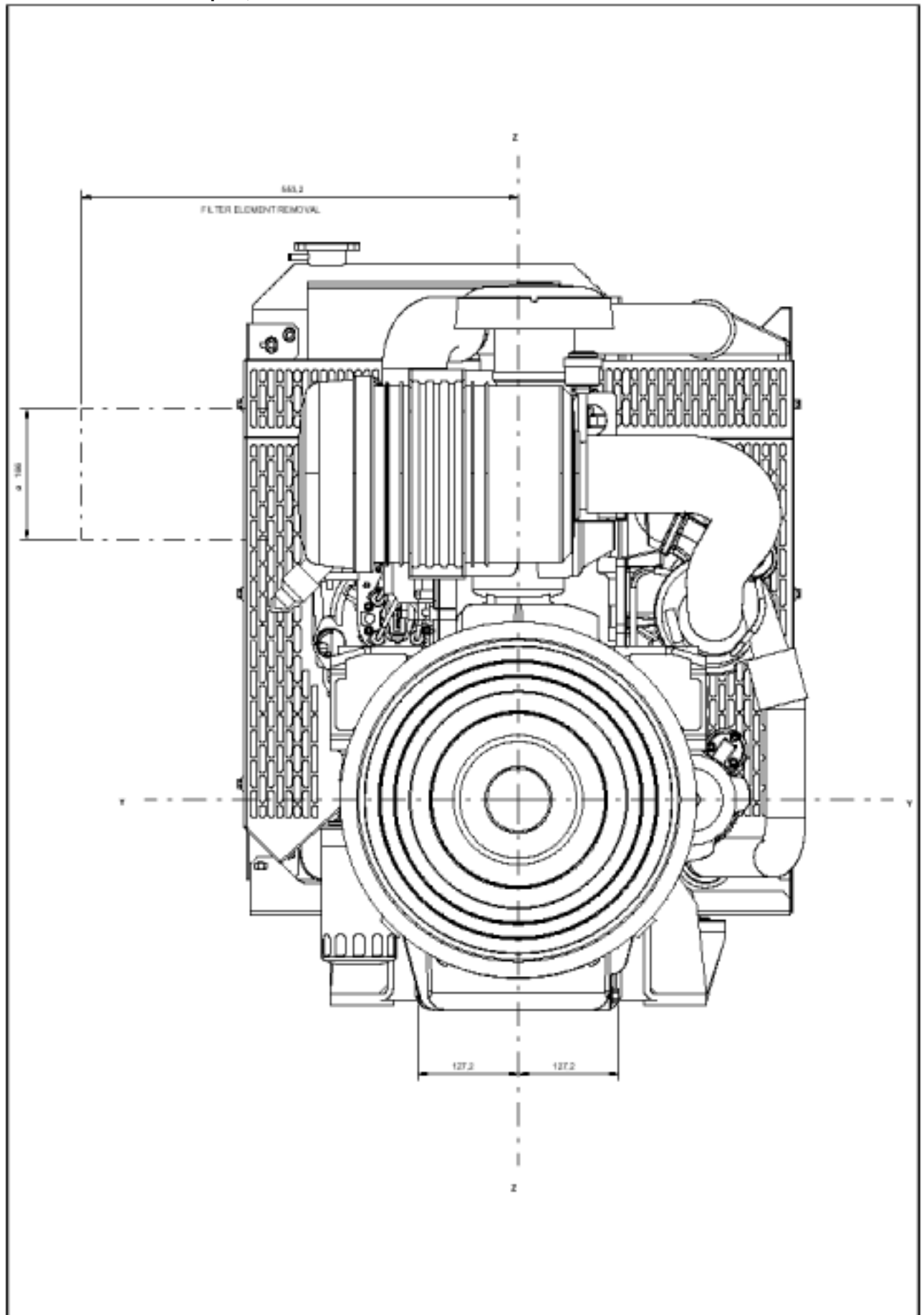
1104C-TAG2 ElectropaK, front view



1104-44C TAG2 ElectropaK, right side view



1104C-44TAG2 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... 559 mm
 -drive ratio... 1:1
 -number of blades... 10
 -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 specifications

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 specification

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 @ 1500 rev/min... 18 kPa
 Maximum back pressure @ 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... 120 - 150 litres/hour
 -pressure... 30 - 75 kPa
 Maximum suction head... 17 kPa
 Maximum static pressure head... 10 kPa
 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	29,7	26,9	20,2	14,1
50 Hz	24,9	22,6	17,1	11,8

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

- maximum7 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

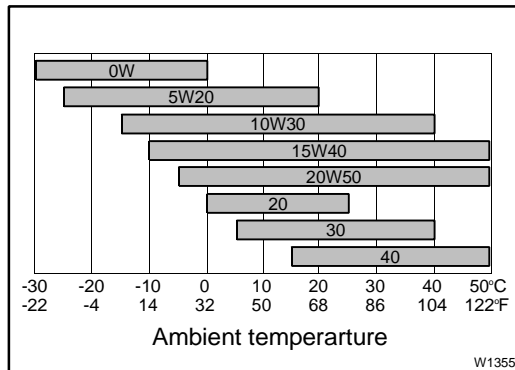
Normal oil temperature.. ... 100 °C

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

at rear face of block... ..791 Nm



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