

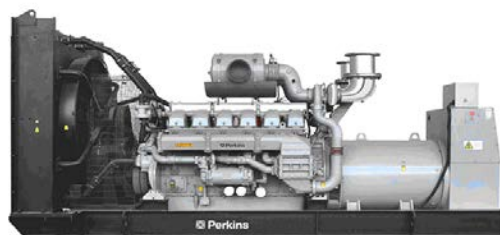
## DATA SHEET

DIESEL GENERATOR 200KW

MODEL#FDK-P200/H1

50HZ/1500RPM

PERKINS MODEL: 1306C-E87TAG4



### 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-P200/H1
Prime Power	180KW/225KVA
Standby Power	200KW/250KVA
Output Frequency / Rated speed	50Hz/1500rpm
Rated Voltage	230V/400V

Engine Make	Perkins UK
Engine Model	1306C-E87TAG4
Alternator model	Stamford UCI274J
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	1306C-E87TAG4
Engine Manufacturer	Perkins UK
Cylinder quantity	6
Cylinder Arrangement	In-line
Cycle	4
Aspiration	Turbo charged

Bore x Stroke (mm x mm)	116.6x135.9
Displacement	8.7L
Compression Ratio	16.9:1
Prime power / Speed (KW/RPM)	205kw/1500
Standby power/ Speed (KW/RPM)	224kw/1500
Governor type	Electric



ISO9001:2008

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

Piston Speed	6.8 m/s
ElectropaK net engine power	198 kw
Total Lubrication System Capacity (L)	28.3
Total Coolant Capacity (L)	37.2

Fuel Consumption at 100% load (L/HOUR)	53 at rated speed
Starter motor	12/24V options
Alternator	12/24V options
Minimum cranking speed.	130 rpm

## Alternator Specifications

Alternator model	UCI274J
Alternator manufacturer	STAMFORD
Exciter type	Single bearing, Brushless, Self-excited
Rated output prime power	230KVA
Rated speed	1500 rpm
Rated frequency	50Hz

Number of phase	3
Rated voltage	400V (Available with custom requirements)
Power factor	0.8
Voltage regulation NL-FL	±1%
Insulation grade	H
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.



ISO9001:2008

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

## 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)	2800x1200x1800
Weight (kg)	1700

### Soundproof Version

Overall Size: LxWxH (mm)	3650x1500x2500
Weight (kg)	3200

## 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

## 1300 Series EDi

# 1306C-E87TAG4

ElectropaK

224 kW @ 1500 rev/min

### Basic technical data

Rating code	M429
Switchable rating code (with 242 kW @ 1800 rev/min)	M435
Number of cylinders	6
Cylinder arrangement	Vertical, in-line
Cycle	Four stroke
Induction system	air to air charged cooled, turbocharged
Compression ratio	16:9:1
Bore	116,6 mm
Stroke	135,9 mm
Cubic capacity	8,7 litres
Direction of rotation	Clockwise, from the front
Firing order	1, 5, 3, 6, 2, 4

### Engine weight

-dry (1), (2)	671 kg
-wet (1), (2)	698 kg
-ElectropaK kit (3)	225 kg
(1) Includes SAE 2 flywheel and flywheel housing	
(2) Without ElectropaK kit	
(3) Includes radiator; fan; fan-guards; starter motor; alternator and air filter assembly. Does not include weight of radiator coolant	

### Overall dimensions (includes ElectropaK kit)

-height	1369 mm
-length	1822 mm
-width (including mounting brackets)	875 mm

### Moments of inertia (mk<sup>2</sup>)

-engine	0,536 kgf m <sup>2</sup>
-flywheel SAE 2 (option GL08)	1,005 kgf m <sup>2</sup>

### Centre of gravity

Position of centre (dry, base engine)	
-forward from rear of block	480,1 mm
-above centre line of block	185,4 mm
-offset to RHS of centre line	25,4 mm
Position of centre (dry, base engine plus accessories)	
-forward from rear of block	449,6 mm
-above centre line of block	182,9 mm
-offset to RHS of centre line	10,2 mm

### Performance

Data based on ISO/TR14396, SAE J1995 3.1, ISO3046/1, DIN6271	
Engine speed control in accordance with BS5514 pt.4; ISO3046-4 and ISO8528-5	
Cyclic irregularity	
-at 110% stand-by power	0,0253

### Test conditions

-air temperature	25 °C
-barometric pressure	100 kPa
-relative humidity	30%

### Sound level

-bare engine at 1 metre	106 dB(A)
-all ratings certified to within	+3 % to -5 %

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.

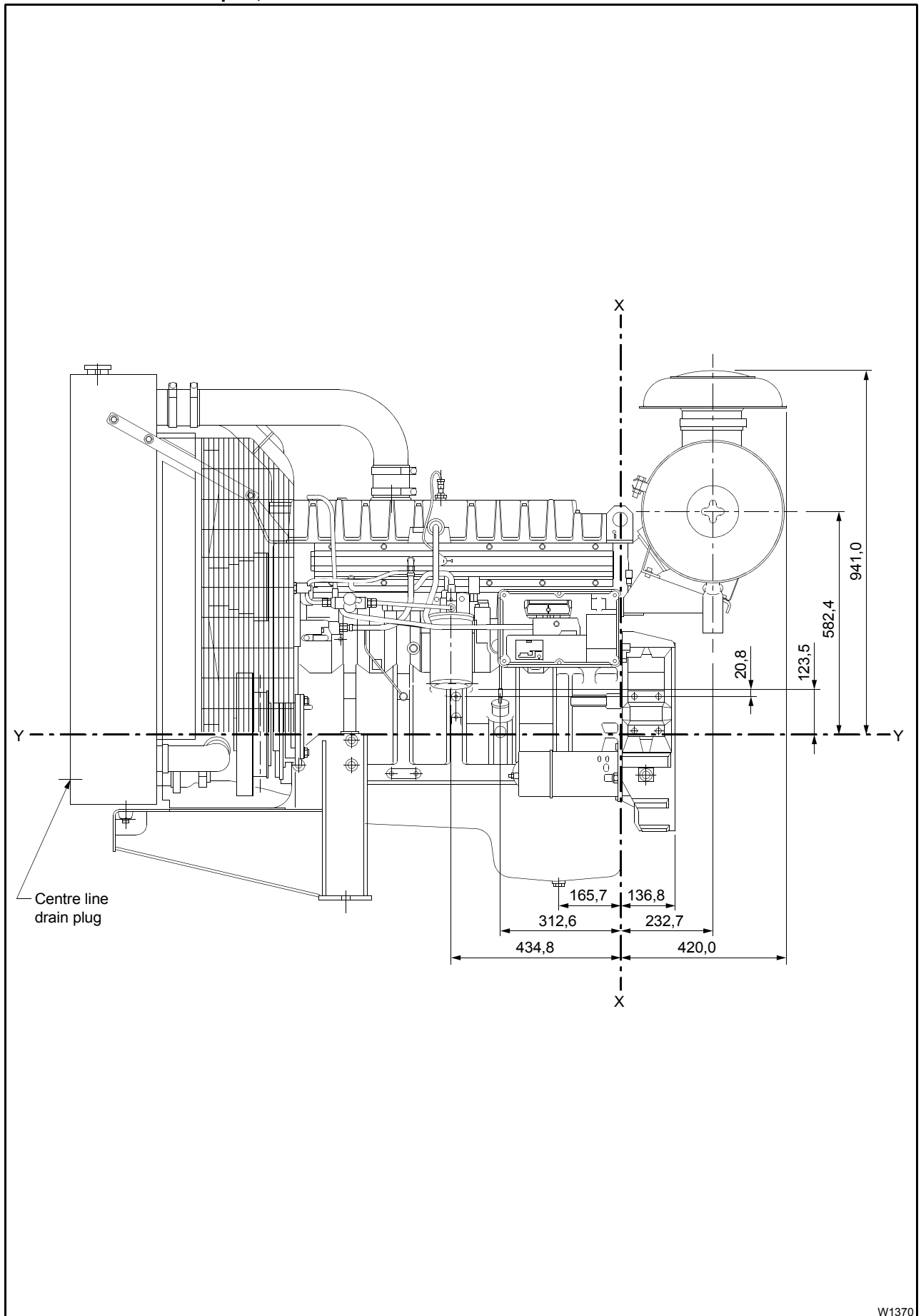
Certified against the requirements of EU2007 legislation for non-road mobile machinery, powered by constant speed engines (EU97/68/EC Stage II)

## General installation

Designation	Units	Type of operation and application		
		Base	Prime	Stand-by
		50Hz	50Hz	50Hz
Gross engine power	kWb	185	205	224
Fan power	kW	7	7	7
Brake mean effective pressure	kPa	1697	18741	2055
Mean piston speed	m/s	6,8	6,8	6,8
ElectropaK net engine power	kWb	179	198	217
Engine coolant flow	l/min	238	238	238
Combustion air flow	m <sup>3</sup> /min	-	-	14,9
Exhaust gas flow (max)	m <sup>3</sup> /min	-	-	40,3
Exhaust gas temperature (max)	°C	-	-	526
Cooling fan air flow	m <sup>3</sup> /min	375	375	375
Typical Genset electrical output (0.8 pf)	kWe	-	182	200
	kVa	-	228	250
<b>Energy balance</b>				
Energy in fuel (Fuel heat of combustion)	kW	-	483	529
Gross heat to power	kW	185	205	224
Energy to coolant and lubricating oil	kW	-	95	103
Energy to exhaust	kW	-	116	126
Heat to radiation	kW	-	37	40
Energy to charge cooler	kW	-	31	36

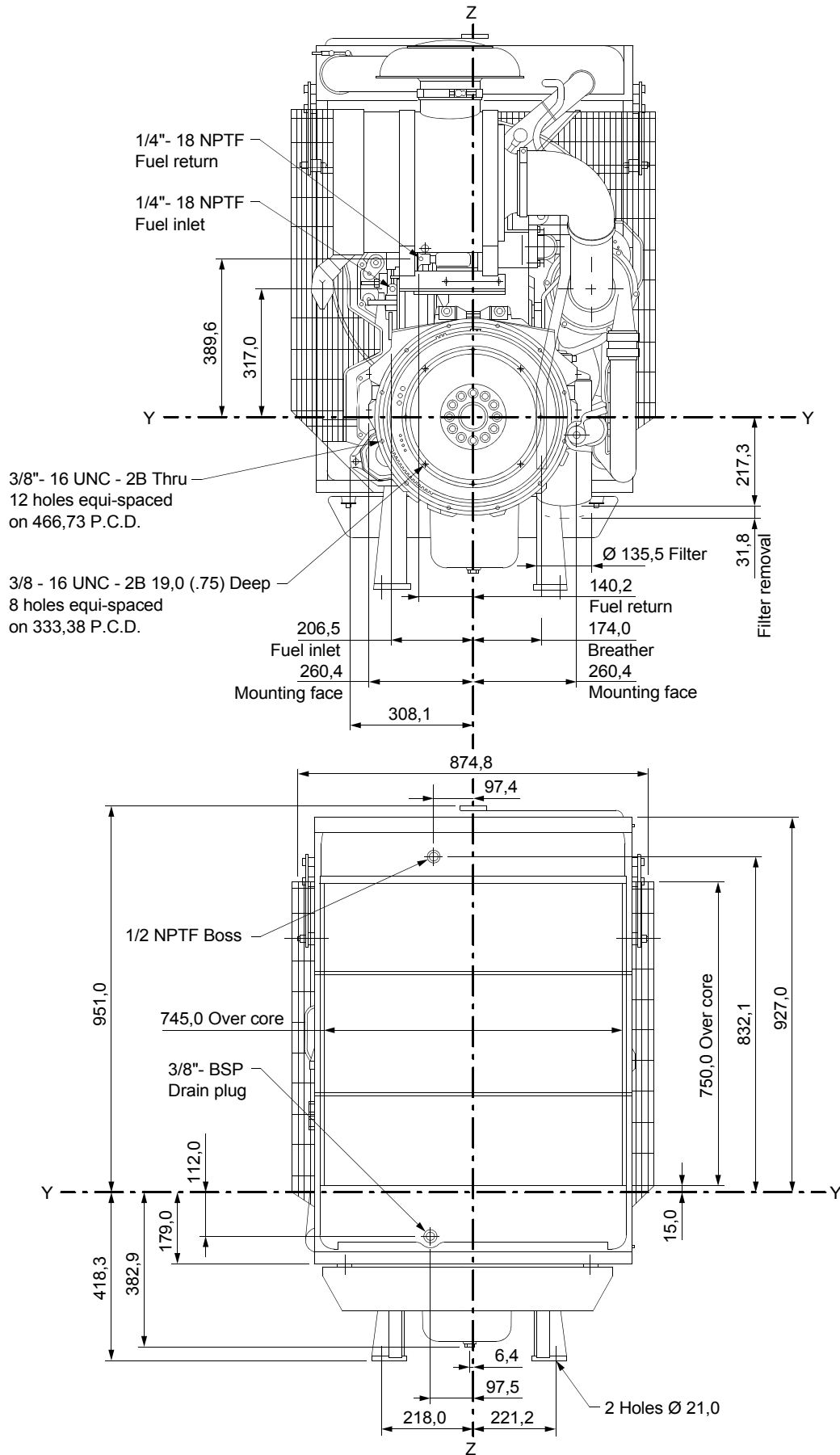
**Caution:** The airflows shown in this table will provide acceptable cooling for an open power unit operating in ambient temperatures of up to 53 °C, 46 °C if a canopy is fitted. If the power unit is to be enclosed totally, a cooling test should be done to check that the engine cooling is acceptable.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

1306C-E87TAG4 ElectropaK, left side view



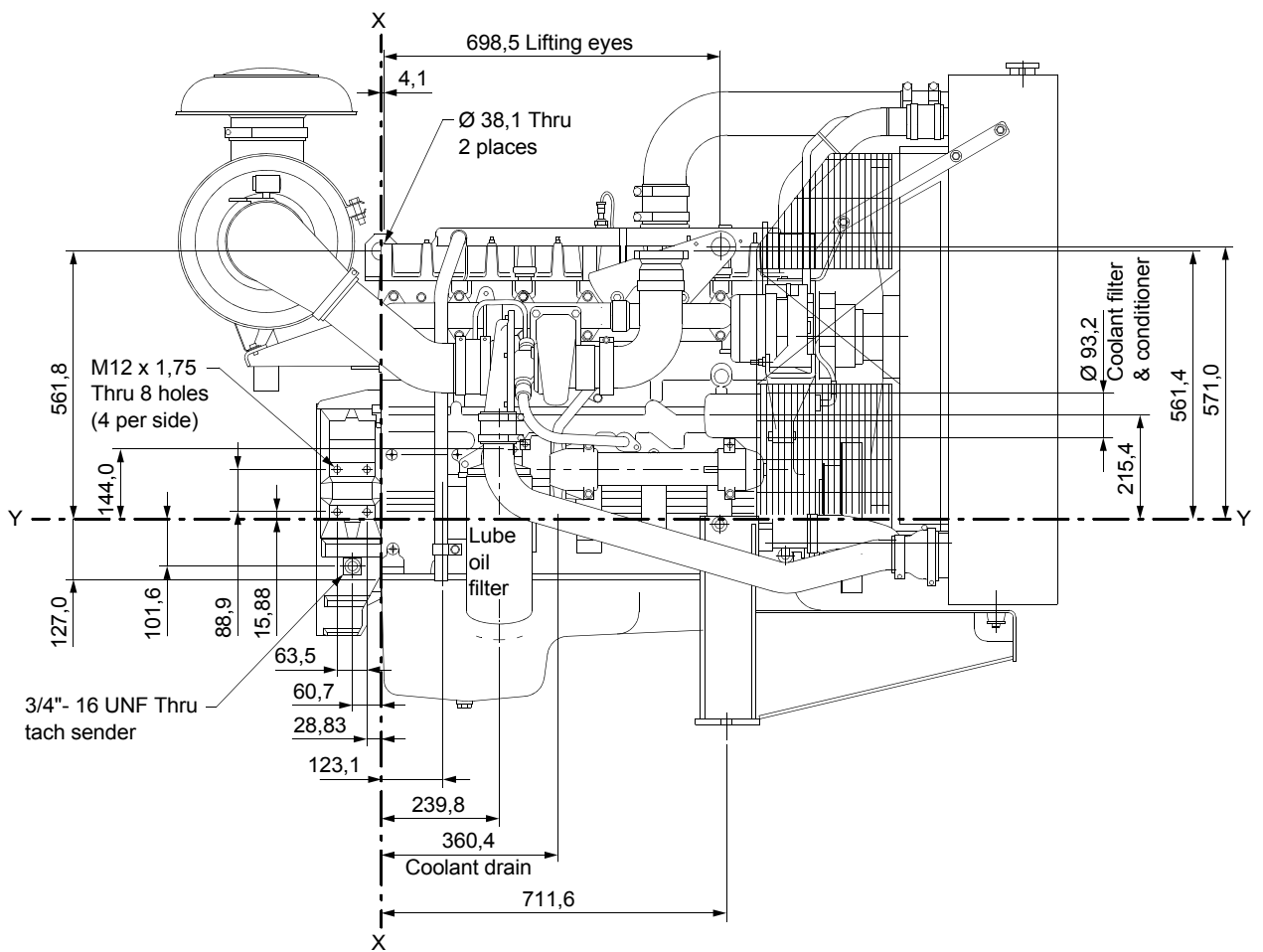
W1370

1306C-E87TAG4 ElectropaK, front and rear views



W1372

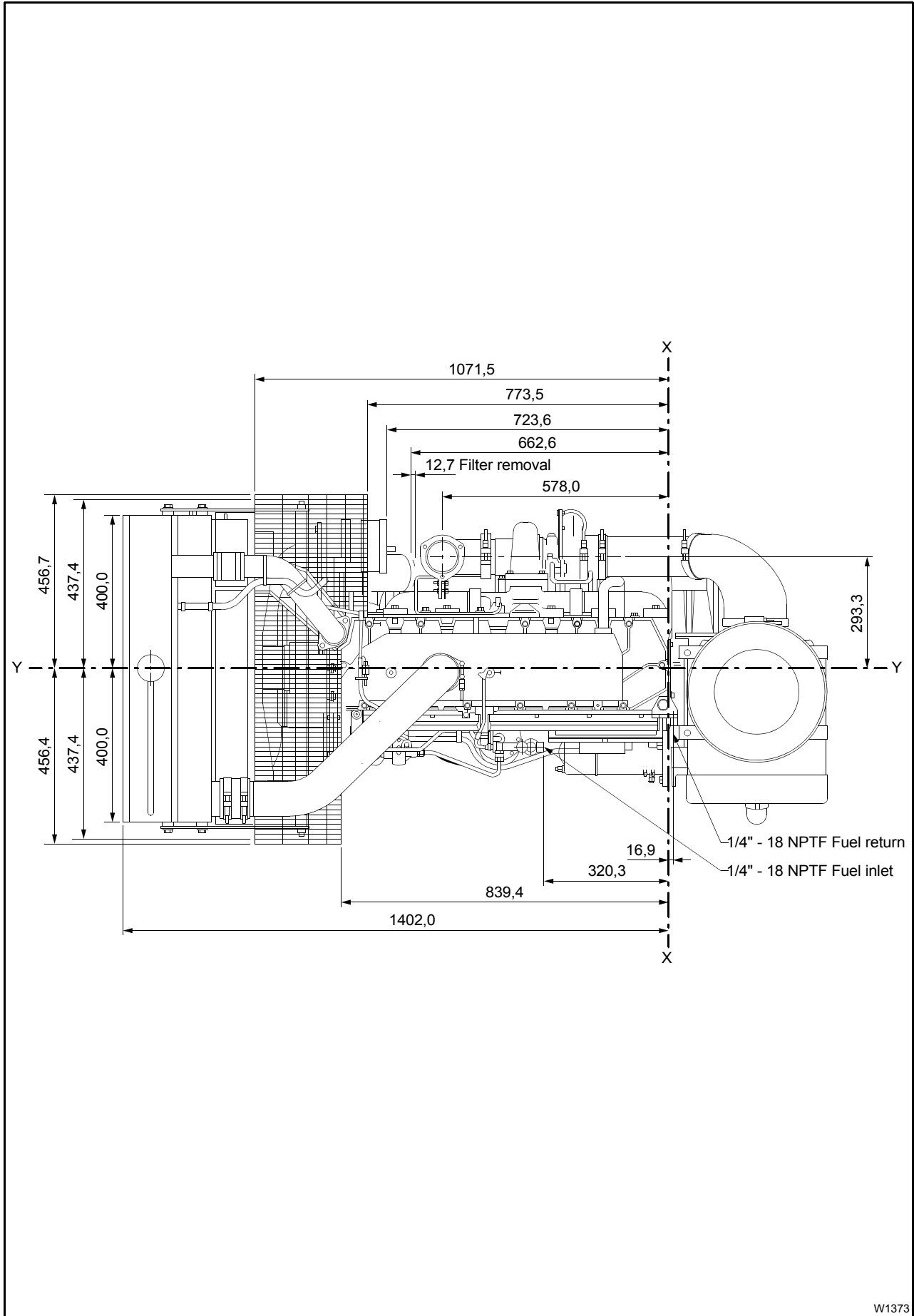
1306C-E87TAG4 ElectropaK, right side view



W1371



1306C-E87TAG4 ElectropaK, plan view



W1373

## Cooling system

### Radiator

-face area .....0,6 m<sup>2</sup>  
 -rows and materials ..... 3, brass  
 -matrix density and material ..... 12, copper  
 -width of matrix ..... 745 mm  
 -height of matrix ..... 750 mm  
 -pressure cap setting .....68,9 kPa  
 Estimated cooling air flow reserve ..... 0,13 kPa

### Fan

-diameter ..... 711,2 mm  
 -drive ratio ..... 1:2 : 1  
 -number of blades ..... 7  
 -material ..... Plastic  
 -type ..... Pusher

### Coolant

Maximum pressure head at pump ..... 12,95 m  
 Total system capacity  
 -with radiator ..... 37,2 litres  
 -without radiator ..... 12,8 litres  
 -draindown capacity ..... 1,3 litres  
 Maximum top tank temperature ..... 103 °C  
 Minimum temperature to engine ..... 79 °C  
 Temperature rise across engine ..... 5 °C  
 Max permissible external system resistance ..... 35 kPa  
 Thermostat start to open ..... 87,8 °C  
 Thermostat fully open ..... 96,1 °C

## Electrical system

-type ..... Negative ground  
 -alternator ..... 12/24V Lucas AC5R  
 -starter motor ..... 12V Lucas PE129 / 24V Lucas S115

### Cold start recommendations

Minimum cranking speed ..... 130 rev/min

Minimum starting temperature		Grade of engine lubricating oil	Battery specifications			
			BS3911 Cold start amps	SAEJ537 Cold cranking amps	Number of batteries needed	Perkins type
°C	°F					
-15	5	10W	440	660	2	A
-20	4	5W	440	660	2	A

## Exhaust system

Maximum back pressure ..... 10,7 kPa

**Note:** For exhaust pipe details, see chapter five of the Gen Set Manual.

## Fuel system

Type of injection ..... Direct  
 Fuel feed pump ..... Bosch  
 Hydraulic pump ..... Rexroth  
 Fuel atomiser ..... Heui  
 Feed pump operating pressure ..... 417 kPa

### Fuel lift pump

-flow/hour ..... 180 litres/hr  
 -suction depression ..... 14 kPa  
 -pressure ..... 137,9 kPa  
 Maximum suction head ..... 1 m  
 Maximum static pressure head ..... 3 m  
 Maximum fuel pump suction (clean system) ..... 14 kPa  
 Governor type ..... electronic (isochronous or droop capability)  
 -speed control for diesel fuel to conform to ..... BS 2869 Class A2  
 ..... ASTM D975 66T Number 2D

### Fuel specification

Fuel specification	USA Fed Off Highway EPA 2D 89.330-96
Density (kg/l @ 15 °C)	0,845 - 0,85
Viscosity (mm <sup>2</sup> /s @ 40 °C)	2,0 - 3,2
Sulphur Content	0,03 - 0,05%
Cetane Number	40 - 48

### Fuel consumption

-at rated speed ..... 53,0 litres/hr

## Induction system

### Maximum air intake restriction

-clean filter ..... 2,5 kPa  
 -dirty filter ..... 6,22 kPa  
 -air filter type ..... dry paper element  
 Turbocharger type ..... Allied signal

**Lubrication system**

**Lubricating oil capacity**

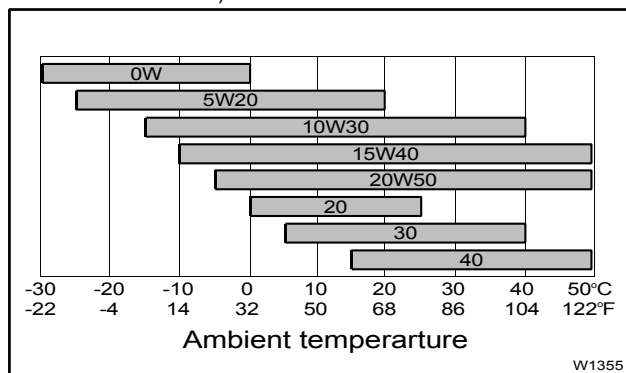
- dry engine with filter .. . . . . .28,3 litres
  - oil change with filter .. . . . . .26,4 litres
  - oil change without filter .. . . . . .22,7 litres
- Maximum engine operating angles
- front up, front down, right side or left side. ....30°

**Lubricating oil pressure**

- relief valve opens .. . . . . .552 kPa
  - at low idle (700 rev/min) .. . . . . .103 kPa
  - at high idle speed .. . . . . .276 - 483 kPa
- Normal oil temperature (sump) .. . . . . .121 °C
- Oil consumption at full load as a % of fuel consumption .... <0,1%

**Recommended SAE viscosity**

A single or multigrade oil must be used which conforms to API-CH-4, API-CG-4 or ACEA E3 (if not available, use only API-CF-4 or ACEA E2) see illustration below:



**Mountings**

- Maximum static bending moment
- at rear face of block .. . . . . .2644 Nm

@ Perkins®

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