

Technical Data

1100C Series

Electropak

1106C-E66TAG2

132,9 kWm @ 1500 rev/min

154,5 kWm @ 1800 rev/min

Basic technical data

Number of cylinders ... 6
Cylinder arrangement ... In-line
Cycle ... 4 stroke
Induction system ... Turbocharged and air charge cooled
Combustion system ... Direct injection diesel
Compression ratio ... 16,2:1
Bore ... 105 mm
Stroke ... 127 mm
Cubic capacity ... 6,6 litres
Direction of rotation ... Anti-clockwise when viewed from flywheel
Firing order (number 1 cylinder furthest from flywheel) ... 1 5 3 6 2 4
Estimated total weight of Electropak (dry) ... 788 kg
Estimated total weight Electropak (wet) ... 822 kg

Overall dimensions - Electropak

-height ... 1140,4 mm
-length (air cleaner fitted) ... 1728,3 mm
-width ... 779,8 mm

Moments of rotational inertia (mk²)

Engine rotational components ... 0,27 kg m²
Flywheel ... 1,31 kg m²

Centre of gravity - Electropak (wet)

Forward of rear face of cylinder block ... 476,3 mm
Above crankshaft centre line ... 176,3 mm
Offset to RHS of crankshaft centre line ... 16,0 mm

General installation

Performance

Note: All data based on operation to ISO 14396 standard reference conditions.

All ratings certified to within ... $\pm 3\%$
Speed variation at constant load ... $\pm 0,25\%$

Cyclic irregularity at 110% stand-by power

-1500 rev/min ... 0,033
-1800 rev/min ... 0,023

Test conditions

-air temperature ... 25 °C
-barometric pressure ... 100 kPa
-relative humidity ... 31,5 %
-air inlet restriction at maximum power (nominal) ... 3,8 kPa
-exhaust back pressure at maximum power (nominal) ... 11 kPa
-fuel temperature (inlet pump) ... 40 °C

Sound level

Average sound pressure level for Electropak at 1 metre:

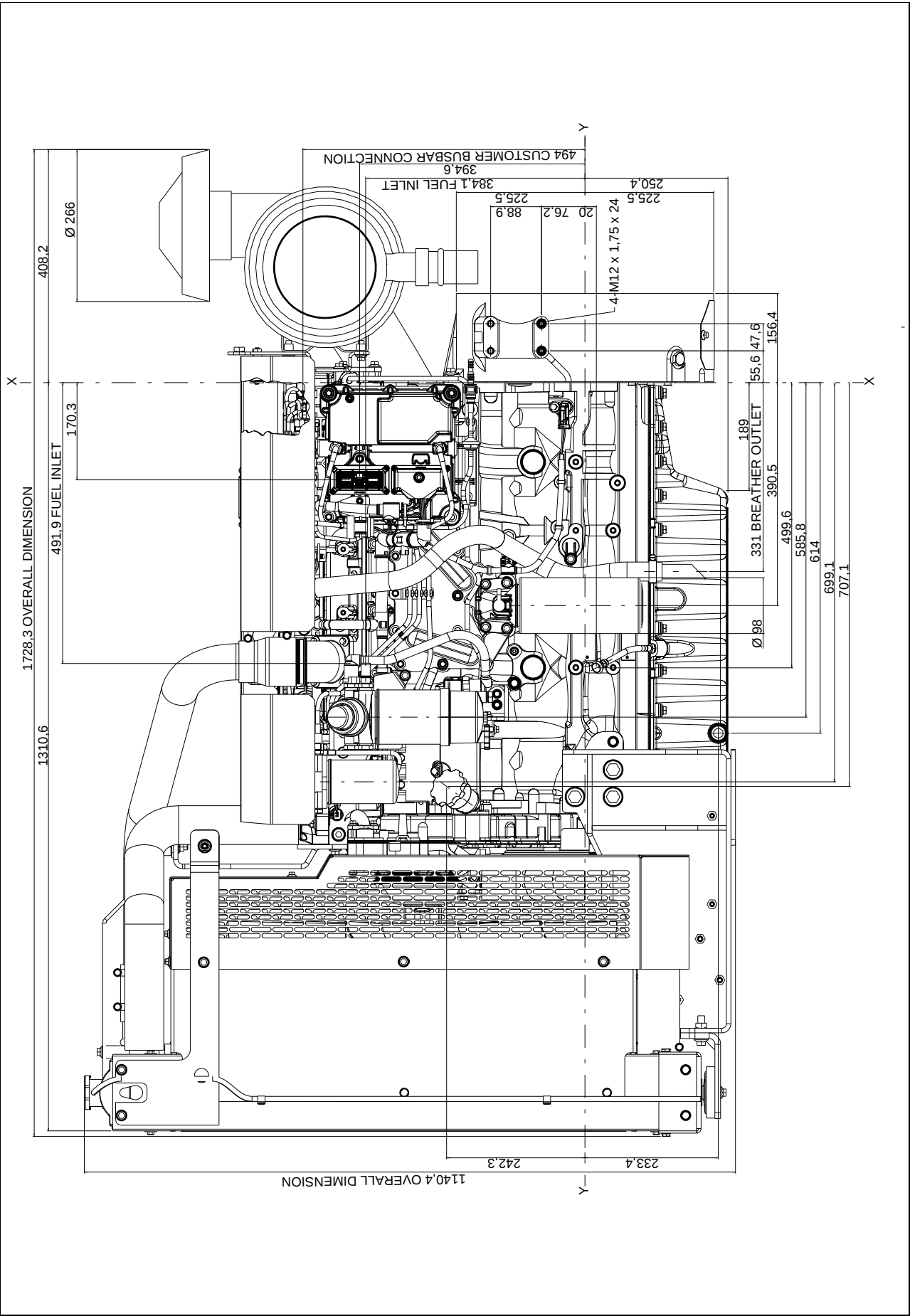
-@ 1500 rev/min ... 97,8 db(A)
-@ 1800 rev/min ... 100,3 db(A)

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.

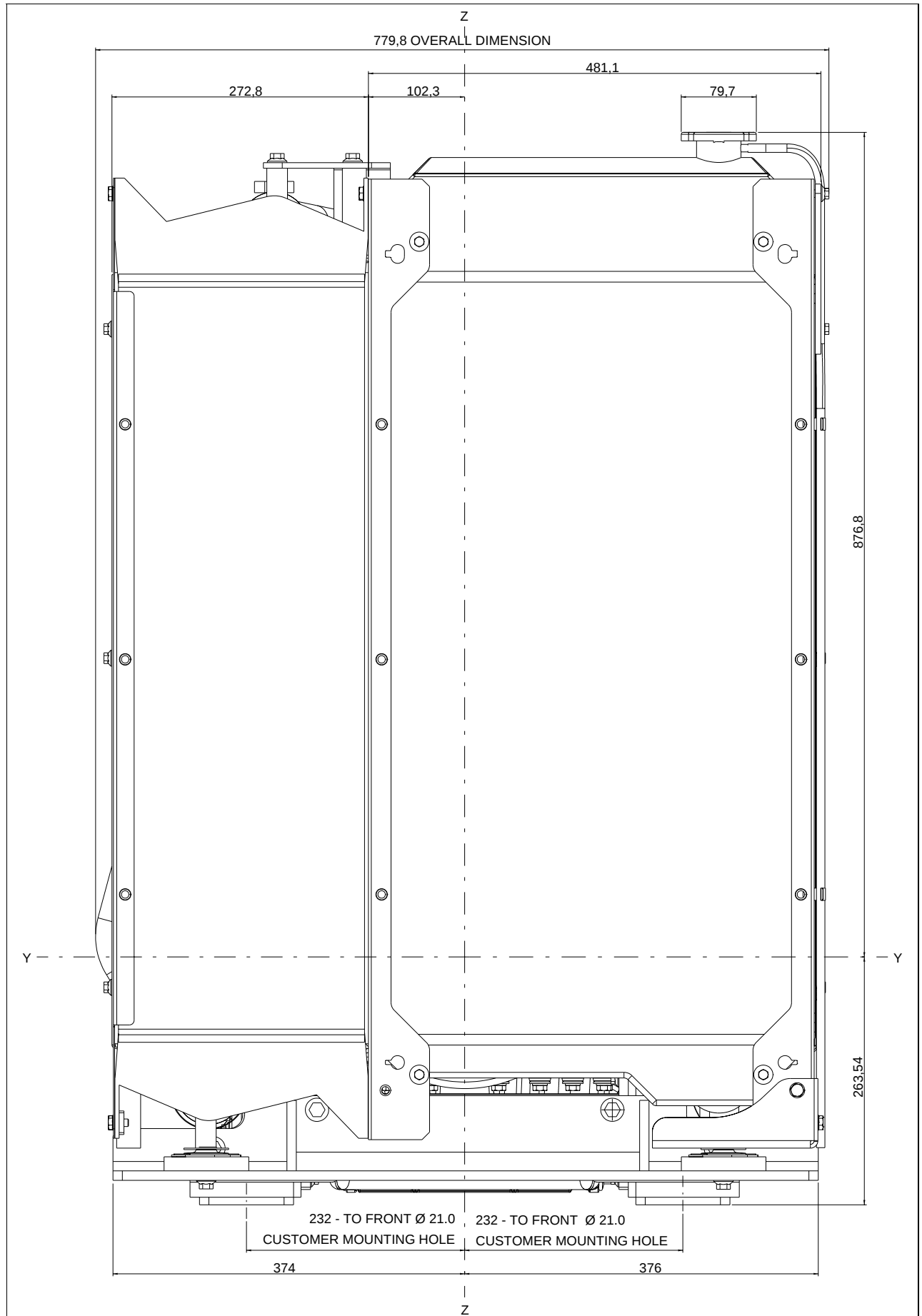
Certified against the requirements of EU2007 legislation for non-road mobile machinery, powered by constant speed engines (EU97/68/EC Stage II)

Designation	Units	Type of operation and application			
		Prime	Standby	Prime	Standby
		50Hz		60Hz	
Gross engine power	kWb	124,0	137,5	144,6	161,5
Brake mean effective pressure	kPa	1252	1390	1461	1633
Engine coolant flow (against 35 kPa restriction)	l/min	140,0		170,0	
Combustion air flow (at STP)	m³/min	8,9	9,4	11,6	12,1
Exhaust gas flow (Max.)	m³/min	23,1	24,4	27,5	28,9
Exhaust gas temperature (Max.) in manifold (after turbocharger)	°C	430	441	477	484
Overall thermal efficiency (nett)	%	38,4	39,1	38,1	40,0
Typical genset electrical output (0.8pf 25 °C)	kWe	108,0	120,0	125,0	140,0
	kVa	135,0	150,0	156,3	175,0
Regenerative power (estimated)	kW	8,8		14,9	
Assumed alternator efficiency	%	92,2	92,0	91,5	91,1
Energy balance					
Energy in fuel	kWt	311,3	339,6	361,0	396,5
Gross engine power	kWb	124,0	137,5	144,6	161,5
Energy to cooling fan	kWm	4,5		7,0	
Electropak net engine power	kWm	119,5	132,9	137,6	154,5
Energy to coolant and lubricating oil	kWt	62,8	66,5	67,2	72,2
Energy to exhaust	kWt	98,5	106,1	112,7	121,7
Energy to charge coolers	kWt	16,3	19,1	25,3	28,8
Energy to radiation	kWt	9,7	10,5	11,2	12,3

1106C-E66TAG2 - Left side view



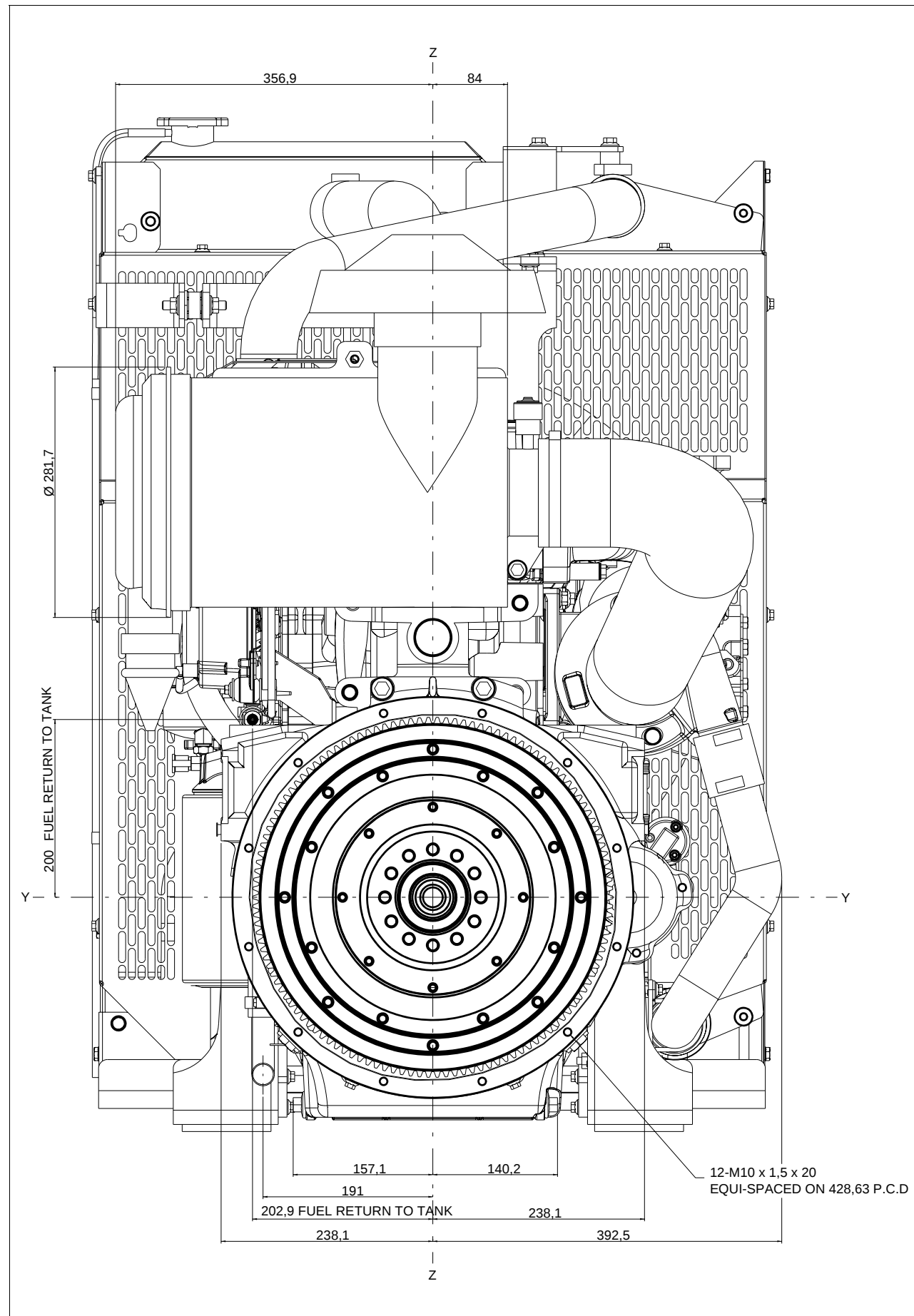
1106C-E66TAG2 - Front view



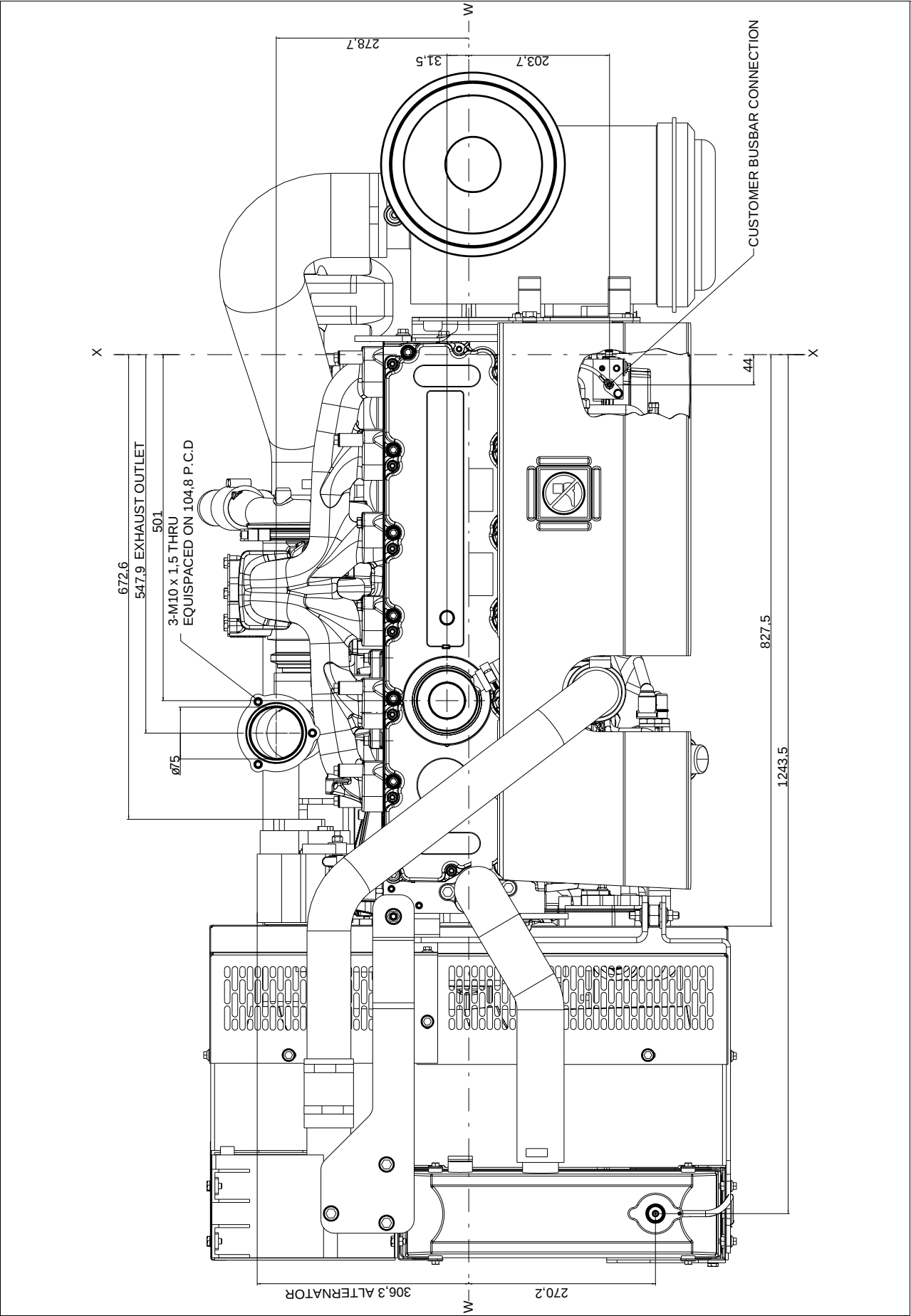
Technical drawing of the front view of a 6-cylinder industrial engine. The drawing includes the following dimensions in millimeters (mm):

- Overall width: 745.5
- Overall height: 672.6
- Distance from base to top of cylinder block: 501
- Distance from base to top of cylinder head: 222.1
- Distance from base to top of cylinder head (alternative measurement): 275.2
- Distance from base to top of cylinder head (alternative measurement): 201.5
- Distance from base to top of cylinder head (alternative measurement): 496.6
- Distance from base to top of cylinder head (alternative measurement): 584.4
- Distance from base to top of cylinder head (alternative measurement): 205
- Distance from base to top of cylinder head (alternative measurement): 701.4 - TO Ø 21.0 CUSTOMER MOUNTING HOLES
- Distance from base to top of cylinder head (alternative measurement): 47.6
- Distance from base to top of cylinder head (alternative measurement): 55.6
- Distance from base to top of cylinder head (alternative measurement): 233.4
- Distance from base to top of cylinder head (alternative measurement): 76.2
- Distance from base to top of cylinder head (alternative measurement): 88.9
- Distance from base to top of cylinder head (alternative measurement): 455
- Distance from base to top of cylinder head (alternative measurement): 4-M12x1.75x24

1106C-E66TAG2 - Rear view



1106C-E66TAG2 - Plan view



Cooling system

Recommended coolant: 50% inhibited ethylene glycol or 50% inhibited propylene glycol and 50% clean fresh water. Where there is no likelihood of ambient temperature below 10 °C, then clean soft water may be used, treated with 1% by volume of Perkins inhibitor.

Cooling pack

-overall weight (wet) 71 kg
-overall face area 0.55476 m²
-width 745 mm
-height 1080 mm

Radiator

Face area 0.3512 m²
Number of rows and materials 5 rows, aluminium
Matrix density and material 10 fins per inch, aluminium
Width of matrix 439 mm
Height of matrix 800 mm
Pressure cap setting (min) 100 kPa

Charge cooler

Face area 0.20356 m²
Number of rows and materials 2 rows, aluminium
Matrix density and material 10 fins per inch, aluminium
Width of matrix 258 mm
Height of matrix 789 mm

Fan

Diameter 610 mm
Drive ratio.. . . . 1.2
Number of blades.. . . . 7
Material Nylon
Type Pusher
Air flow
-1500 rev/min 220 m³/min
-1800 rev/min 250 m³/min

Coolant

Total system capacity 21 litres
System drawdown capacity 10%
Engine capacity 9,5 litres
Maximum top tank temperature 112 °C
Temperature rise across engine
(Max., rating dependent) 6,6 to 7,0 °C
Max. permissible external system resistance 35 kPa
Thermostat operation range.. . . . 85 to 95 °C
Shutdown switch setting 118 °C
Coolant pump method of drive gears
Recommended coolant immersion heater
rating (minimum) 0,75 kW
Recommended coolant BS6580 - 1992, ASTM D3306 and ELC coolants to 1E1966

Duct Allowance

1106C-E66TAG2 - Maximum additional restriction (Duct allowance to cooling airflow and resultant min. airflow (Standby power))			
Duct allowance with inhibited coolant at 53 °C			
Description	rev/min	kPa	m3/min
Duct allowance	1500	0,125	220
	1800	0,125	250
Duct allowance with inhibited coolant at 46 °C			
Minimum airflow	1500	0,200	220
	1800	0,200	250

Electrical system

Alternator Denso A127i
Alternator voltage 12 volts
Alternator output 100 amps
Starter. 29MT
Starter motor voltage 12 volts
Starter motor power 3,3 kW
Number of teeth on the flywheel 126
Pull-in current of starter motor solenoid @ -25 °C Max.. 102 amps
Hold-in current of starter motor solenoid @ -25 °C Max. . 15 amps
Engine stop method via ECM
Note: All leads rated at 10 amps minimum

Cold start recommendations

Minimum required cranking speed over TDC 60 rev/min

Temperature Range	
5 to -10 °C	Oil: 15W40
	Battery: 1x 900CCA
	Max. breakaway current: 867 amps
	Cranking current: 404 (560 Max.) amps
	Aids: Glowplugs
	Minimum mean cranking speed: 107 rev/min

Temperature Range	
-10 to -20 °C	Oil: 10W40
	Battery: 2x 770 CCA
	Max. breakaway current: 984 amps
	Cranking current: 496 (683 Max.) amps
	Aids: Glowplugs
	Minimum mean cranking speed: 100 rev/min

Temperature Range	
-20 to -25 °C	Oil: 5W40
	Battery: 2 x770 CCA
	Max. breakaway current: 984 amps
	Cranking current: 496 (683 Max.) amps
	Aids: Glowplugs
	Minimum mean cranking speed: 100 rev/min

- Battery capacity is defined by the 20 hour rate
- If a change to a low viscosity oil is made, the cranking torque necessary at low ambient temperatures is much reduced. The starting equipment has been selected to take advantage of this. It is important to change to the appropriate multi grade oil in anticipation of operating in low ambient temperatures

Breakaway current is dependent on battery capacity available.

Cables should be capable of handling the transient current which may be up to double the steady cranking current.

Exhaust system

Maximum back pressure

-1500 rev/min 10,0 kPa
-1800 rev/min 15,0 kPa
Exhaust outlet, internal diameter 90 mm

Fuel system

Injection components

Injector ... Electronic
 Fuel pump ... CR200

Fuel priming

Priming pump type ... Manual / electronic
 Maximum priming time ... 90 seconds

Fuel feed

Maximum fuel flow ... 1,5 l/min
 Maximum suction head at engine fuel pump inlet ... 30 kPa
 Maximum static pressure head ... 600 kPa
 Fuel temperature at engine fuel pump inlet ... 80 °C
 Tolerance on fuel consumption ... 3%

Fuel specification

Fuel standard - BS2869, 1998 Class A2 or BS EN590

Fuel consumption

Load	Type of operation and application		Type of operation and application	
	1500 rev/min g/kWhr	1800 rev/min g/kWhr	1500 rev/min l/hr	1800 rev/min l/hr
Standby	206.2	205.0	33.7	39.4
110% prime	209.1	208.0	33.9	39.3
Prime	209.4	208.5	30.9	35.9
75% prime	219.6	216.0	24.3	27.9
50% prime	222.5	226.3	16.4	19.5

Note: based on gross rated power

Induction system

Maximum air intake restriction

-clean filter ... 5 kPa
 -dirty filter ... 8 kPa
 -air filter type ... paper element

Lubrication system

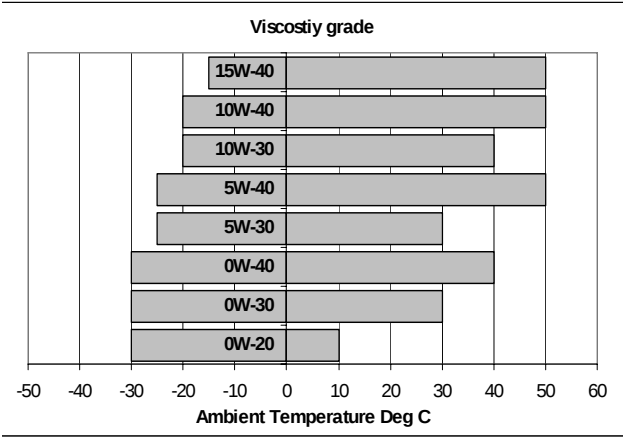
Maximum total system oil capacity ... 16,5 litres
 Minimum oil capacity in sump ... 12,5 litres
 Maximum oil capacity in sump ... 15,5 litres
 Maximum engine operating angles -
 front up, front down, right side, left side ... 25 °
 Sump drain plug tapping size ... 3/4 - 16 UNF
 Shutdown switch setting (where fitted) ... ECM controlled

Lubricating oil

-relief valve opening pressure ... 430 kPa
 -pressure at maximum speed ... 450 kPa
 -maximum continuous oil temperature (in rail) ... 125 °C
 -oil consumption at full load (% of fuel) ... < 0.1

Recommended SAE viscosity

A multi grade oil must be used which conforms to API-CH4/CI4.



Mountings

Maximum static bending moment at
 -rear face of block ... 1130 Nm
 Maximum permissible overhung load
 -on the flywheel ... Data available 28th Feb.Nm
 Maximum bending moment at rear
 -of flywheel housing in shock ... +/- 3000 Nm

Load acceptance

Load acceptance cold engine ... full data available mid 07

All tests were conducted using an engine installed and serviced to Perkins Engine company limited recommendations. Applied load is a percentage of generator electrical output efficiencies as published in the general installation of this data sheet.

The information given on this technical data sheet is for standards ratings only and is for guidance only. For ratings other than those shown, contact Perkins Engines Limited, Peterborough.

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