ottomotores

Energía que Mueve al Mundo

PERKINS SERIE 1103

Definiciónes

Potencia Prime
Estos valores son aplicables para el suministro de energía eléctrica continua (a carga variable)en lugar de la red comercial.

Potencia Stand by
Estos valores son aplicables para el suministro de energía eléctrica continua (a carga variable)en caso de fall a de la red comercial. No se permite sobrecarga sobre estos valores.

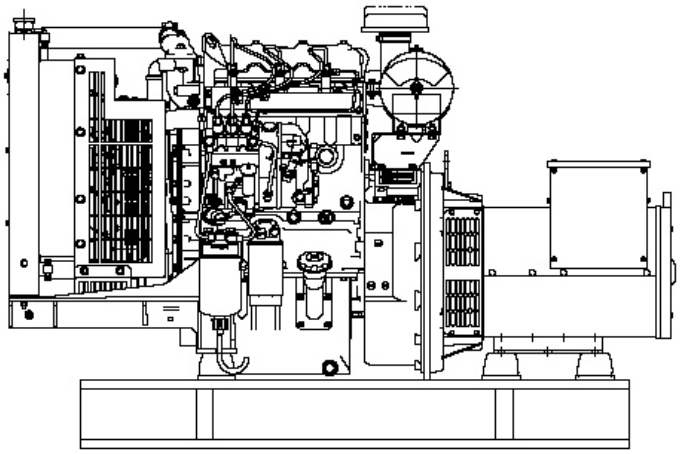

Tabla de Potencias

Modelo	Voltaje	Prime kVA	Prime kWe	Stand-by kVA	Stand-by kWe
PNY30	220-440V	34	27	38	30
PNY40	220-440V	53	42	58	46
PNY60	220-440V	68	54	75	60

0.8 Factor de potencia

Como leer nuestro codigo: Ejem: **PNY30**

P=Motor Perkins
N=Generador Newage Stamford
E=50Hz-1500 RPM
Y=60Hz-1800 RPM
30= Potencia del Equipo.

Información Técnica

Datos Técnicos	PNY30	PNY40	PNY60
Frecuencia:	60 Hz	60 Hz	60 Hz
Motor Marca / Modelo	**Perkins** 1103A-33G	**Perkins** 1103A-33TG1	**Perkins** 1103A-33TG2
Generador Marca/Modelo:	Stamford PI144G	Stamford UCI224C	Stamford UCI224E
Número de polos del Generador:	4 polos	4 polos	4 polos
Tipo de aislamiento del Generador:	Tipo H	Tipo H	Tipo H
Número de Cilindros del motor:	3 en linea	3 en linea	3 en linea
Diametro por Carrera :in (mm)	4.13X4.99 (105X127)	4.13X4.99 (105X127)	4.13X4.99 (105X127)
Relación de Compresión:	19.25 : 1	17.25:1	17.25:1
Aspiración:	Natural	Turbocargado	Turbocargado
Velocidad:	1800 RPM	1800 RPM	1800 RPM
Potencia del motor: kWm	36.5	55.6	69.6
Presion Efectiva: Lbf/in^2(kPA)	106.7 (736)	163.0(1124)	203.9(1406)
Velocidad de Piston: ft/s (m/s)	25 (7.62)	25 (7.62)	25(7.62)
Consumo de combustible: lt / hr - 100%	8.6	12.9	16.6
Calor Expulsado en el Sistema de Escape: BTU/min (kW)	1935.2 (34.0)	2447.5 (43.0)	3073.6(54.0)
Calor Expulsado en el Sistema de Enfriamiento: BTU/min (kW)	1252.2 (22.0)	1935.2 (34.0)	2447.5(43.0)
Temperatura de Escape: °F (°C)	986 (530)	1023.8 (551)	1047.2(564)
Flujo de Enfriamiento en el Radiador: m^3/min (ft^3/min)	70.0 (2472.0)	70.0 (2472.0)	111.0(3919.9)
Flujo de Escape:m^3/min (ft^3/min)	6.6 (233.0)	9.5 (335.4)	12.5(441.4)
Dimensiones (Largo x Ancho x Alto)cm	175x68x118	175x68x118	175x68x118
Peso Aprox. humedo kg.	639	711	738

Los equipos en foto pudieran incluir accesorios opcionales

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Energía que Mueve al Mundo

Celebrando 60 años de exitos 1950-2010

Perkins STAMFORD

Ottomotores, S.A de C.V.
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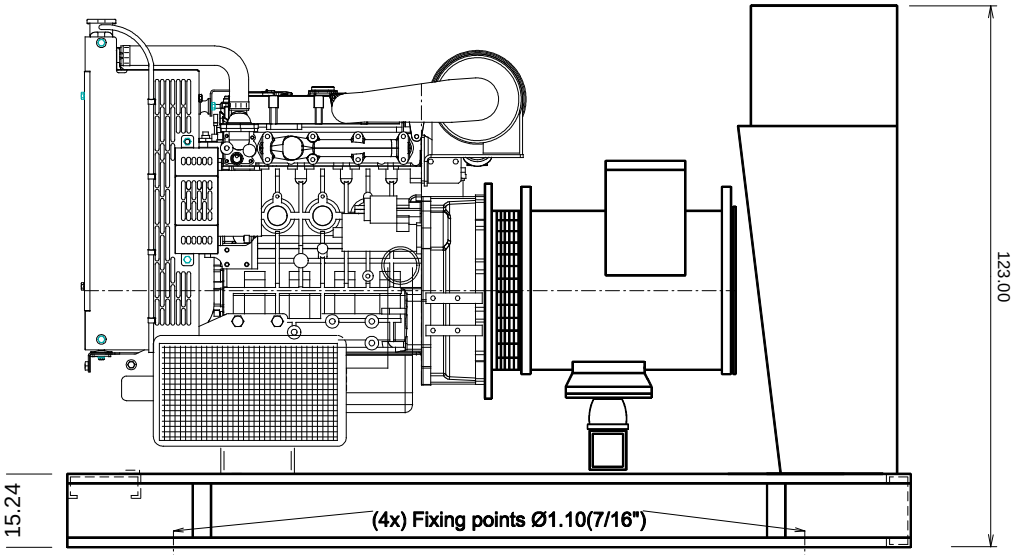
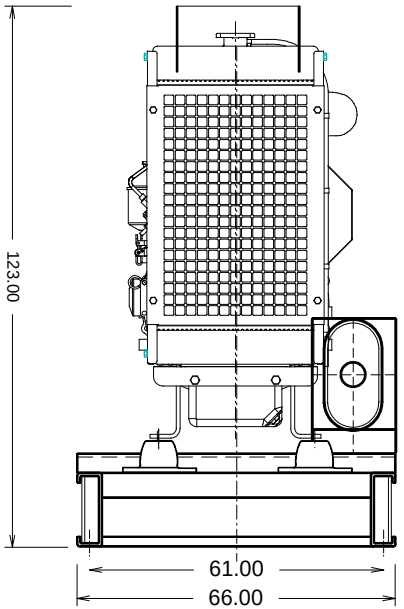
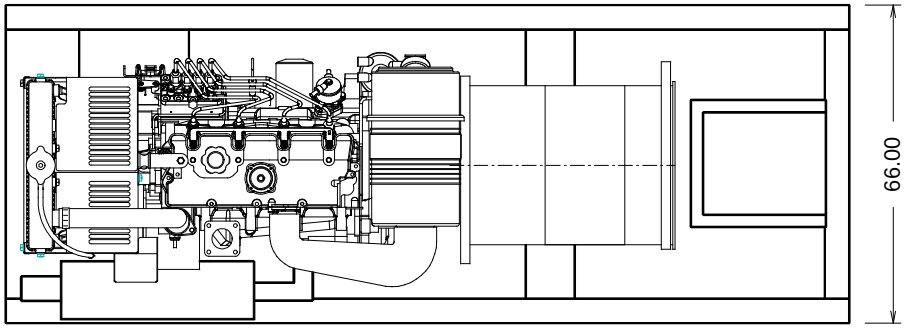
MODELS
PNE 20
PNY 20



SIDE VIEW



FRONT VIEW



TOP VIEW

DESCRIPTION	
RADIATOR:	OT5/60
ENGINE:	404c.22G-EPAC
GENERATOR :	PSL1706
AIR FILTER:	———
BASE FRAME :	BMT-02
TOTAL WEIGHT:	DRY-577.01 Kgs.
AVMS SPRING.	4PZS

-THE GESENT DIMENSIONS ARE THE SAME BY FAMILY MODEL, THERE COULD BE ONLY DIFERENCES ON THE ALTERNATOR LENGHT SEE SPECIFIC GENERAL ARRAGEMENT DRAWING OF CERTEIN MODEL
-TOTAL WEIGHT COULD VARY CHECK RATING CHART FOR EACH MODEL

Customer: S/O:

Rev.	Description	Date	Certificated
	Reviewes		

Titulo: **GENERAL ARRANGEMENT PERKINS ENGINE 404C-22G MARATHON ALTENATOR**

Draw: E.A.C.	Revised: R.G.C.	Certificated: ING.V.F.F.	Code: PNE/Y-02
Date:JUL 21th 2008	Date:JUL 21th 2008	Date:JUL 21th 2008	Dept.: Ingenieria

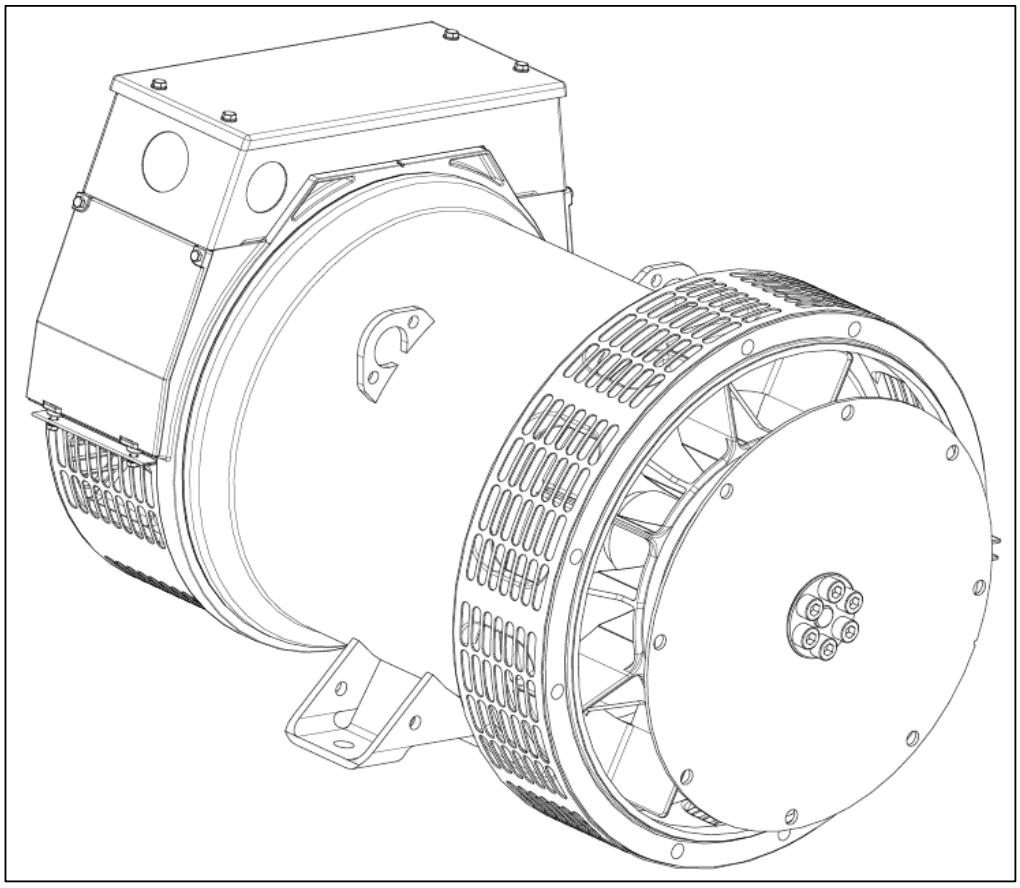
ottomotores

Marks:cm.(pulg.) | Draw: N/A
Scale: Sin esc. | Of: N/A

Ottomotores keeps the right to change the information with out prior notice

STAMFORD®

PI144G - Technical Data Sheet



SPECIFICATIONS & OPTIONS

STANDARDS

Stamford industrial generators meet the requirements of BS EN 60034 and the relevant section of other international standards such as BS5000, VDE 0530, NEMA MG1-32, IEC34, CSA C22.2-100, AS1359.
Other standards and certifications can be considered on request.

VOLTAGE REGULATOR

AS480 AVR fitted as STANDARD

With this self-excited system the main stator provides power via the AVR to the exciter stator. The high efficiency semi-conductors of the AVR ensure positive build-up from initial low levels of residual voltage.
The exciter rotor output is fed to the main rotor through a three-phase full-wave bridge rectifier. The rectifier is protected by a surge suppressor against surges caused, for example, by short circuit or out-of-phase paralleling. The AS480 will support limited accessories, RFI suppession remote voltage trimmer and for the P1 range only a 'droop' Current Transformer (CT) to permit parallel operation with other ac generators.
The AVR is can be fitted to either side of the generator in its own housing in the non-drive end bracket.

Excitation Boost System (EBS) (OPTIONAL)

The EBS is a single, self-contained unit, attached to the non-drive end of the generator.
The EBS unit consists of the Excitation Boost Controller (EBC) and an Excitation Boost Generator (EBG). Under fault conditions, or when the generator is subjected to a large impact load such as a motor starting, the generator voltage will drop. The EBC senses the drop in voltage and engages the output power of the EBG. This additional power feeds the generator's excitation system, supporting the load until breaker discrimination can remove the fault or enable the generator to pick up a motor and drive the voltage recovery.

WINDINGS & ELECTRICAL PERFORMANCE

All generator stators are wound to 2/3 pitch. This eliminates triplen (3rd, 9th, 15th …) harmonics on the voltage waveform and is found to be the optimum design for trouble-free supply of non-linear loads. The 2/3 pitch design avoids excessive neutral currents sometimes seen with higher winding pitches, when in parallel with the mains. A fully connected damper winding reduces oscillations during paralleling. This winding, with the 2/3 pitch and carefully selected pole and tooth designs, ensures very low waveform distortion.

TERMINALS & TERMINAL BOX

Standard generators are 3-phase reconnectable with 12 ends brought out to the terminals, which are mounted at the non-drive end of the generator. Dedicated single phase generators are also available. A sheet steel terminal box contains provides ample space for the customers' wiring and gland arrangements. Alternative terminal boxes are available for customers who want to fit additional components in the terminal box.

SHAFT & KEYS

All generator rotors are dynamically balanced to better than BS6861:Part 1 Grade 2.5 for minimum vibration in operation. Two bearing generators are balanced with a half key.

INSULATION / IMPREGNATION

The insulation system is class 'H'.
All wound components are impregnated with materials and processes designed specifically to provide the high build required for static windings and the high mechanical strength required for rotating components.

QUALITY ASSURANCE

Generators are manufactured using production procedures having a quality assurance level to BS EN ISO 9001.

The stated voltage regulation may not be maintained in the presence of certain radio transmitted signals. Any change in performance will fall within the limits of Criteria 'B' of EN 61000-6-2:2001. At no time will the steady-state voltage regulation exceed 2%.

NB Continuous development of our products entitles us to change specification details without notice, therefore they must not be regarded as binding.

Front cover drawing typical of product range.

WINDING 311

CONTROL SYSTEM	STANDARD AS480 AVR (SELF EXCITED)
VOLTAGE REGULATION	± 1.0 %
SUSTAINED SHORT CIRCUIT	SELF EXCITED MACHINES DO NOT SUSTAIN A SHORT CIRCUIT CURRENT

CONTROL SYSTEM	AS480 AVR WITH OPTIONAL EXCITATION BOOST SYSTEM (EBS)
SUSTAINED SHORT CIRCUIT	REFER TO SHORT CIRCUIT DECREMENT CURVE (page 7)

STATOR WINDING	DOUBLE LAYER CONCENTRIC							
WINDING PITCH	TWO THIRDS							
WINDING LEADS	12							
STATOR WDG. RESISTANCE	0.213 Ohms PER PHASE AT 22°C SERIES STAR CONNECTED							
ROTOR WDG. RESISTANCE	0.857 Ohms at 22°C							
EXCITER STATOR RESISTANCE	20.25 Ohms at 22°C							
EXCITER ROTOR RESISTANCE	0.201 Ohms PER PHASE AT 22°C							
EBS STATOR RESISTANCE	12.9 Ohms at 22°C							
R.F.I. SUPPRESSION	BS EN 61000-6-2 & BS EN 61000-6-4,VDE 0875G, VDE 0875N. refer to factory for others							
WAVEFORM DISTORTION	NO LOAD < 1.5% NON-DISTORTING BALANCED LINEAR LOAD < 5.0%							
MAXIMUM OVERSPEED	2250 Rev/Min							
BEARING DRIVE END	BALL. 6309 - 2RS. (ISO)							
BEARING NON-DRIVE END	BALL. 6306 - 2RS. (ISO)							
	1 BEARING				2 BEARING			
WEIGHT COMP. GENERATOR	160 kg				163 kg			
WEIGHT WOUND STATOR	68 kg				68 kg			
WEIGHT WOUND ROTOR	57.39 kg				58.39 kg			
WR² INERTIA	0.2196 kgm^2				0.2197 kgm^2			
SHIPPING WEIGHTS in a crate	178 kg				187 kg			
PACKING CRATE SIZE	85 x 51 x 67 (cm)				85 x 51 x 67 (cm)			
	50 Hz				60 Hz			
TELEPHONE INTERFERENCE	THF<2%				TIF<50			
COOLING AIR	0.09 m³/sec 191cfm				0.108 m³/sec 229 cfm			
VOLTAGE SERIES STAR	380/220	400/231	415/240	440/254	416/240	440/254	460/266	480/277
VOLTAGE PARALLEL STAR	190/110	200/115	208/120	220/127	208/120	220/127	230/133	240/138
VOLTAGE SERIES DELTA	220/110	230/115	240/120	254/127	240/120	254/127	266/133	277/138
kVA BASE RATING FOR REACTANCE VALUES	30	30	30	28.5	33	35.3	36.4	37.5
Xd DIR. AXIS SYNCHRONOUS	1.74	1.57	1.46	1.23	2.06	1.97	1.86	1.76
X'd DIR. AXIS TRANSIENT	0.16	0.14	0.13	0.11	0.19	0.18	0.17	0.16
X"d DIR. AXIS SUBTRANSIENT	0.12	0.11	0.10	0.09	0.14	0.13	0.13	0.12
Xq QUAD. AXIS REACTANCE	0.83	0.75	0.70	0.59	0.99	0.95	0.89	0.85
X"q QUAD. AXIS SUBTRANSIENT	0.18	0.16	0.15	0.13	0.21	0.20	0.19	0.18
X_L LEAKAGE REACTANCE	0.07	0.06	0.06	0.05	0.08	0.08	0.07	0.07
X_2 NEGATIVE SEQUENCE	0.16	0.14	0.13	0.11	0.18	0.17	0.16	0.15
X_0 ZERO SEQUENCE	0.07	0.06	0.06	0.05	0.08	0.08	0.07	0.07
REACTANCES ARE SATURATED	VALUES ARE PER UNIT AT RATING AND VOLTAGE INDICATED							
T'd TRANSIENT TIME CONST.	0.024 s							
T"d SUB-TRANSTIME CONST.	0.006 s							
T'do O.C. FIELD TIME CONST.	0.55 s							
Ta ARMATURE TIME CONST.	0.007 s							
SHORT CIRCUIT RATIO	1/Xd							

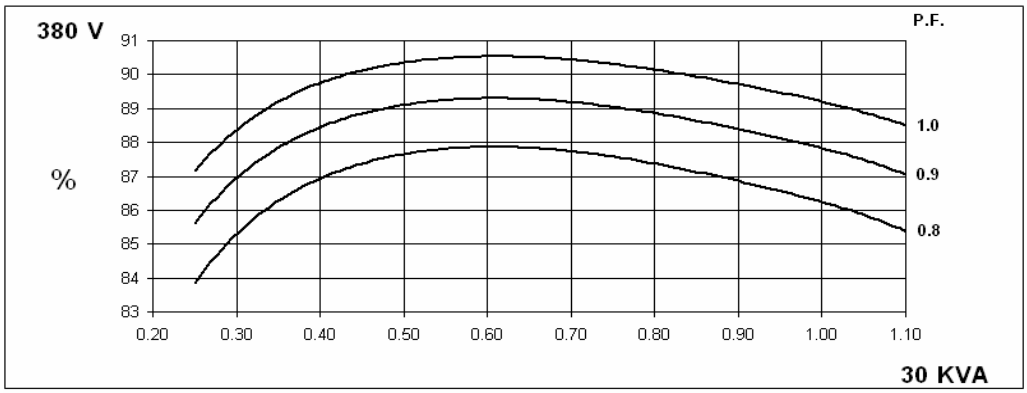
50 Hz

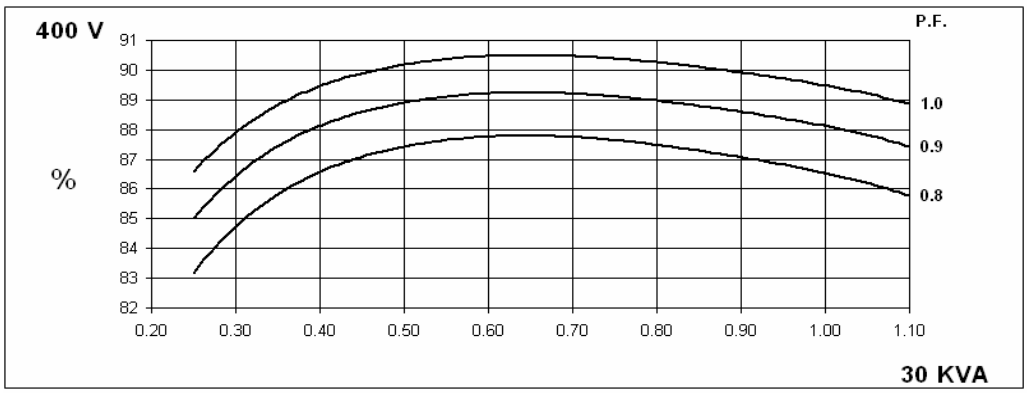
PI144G

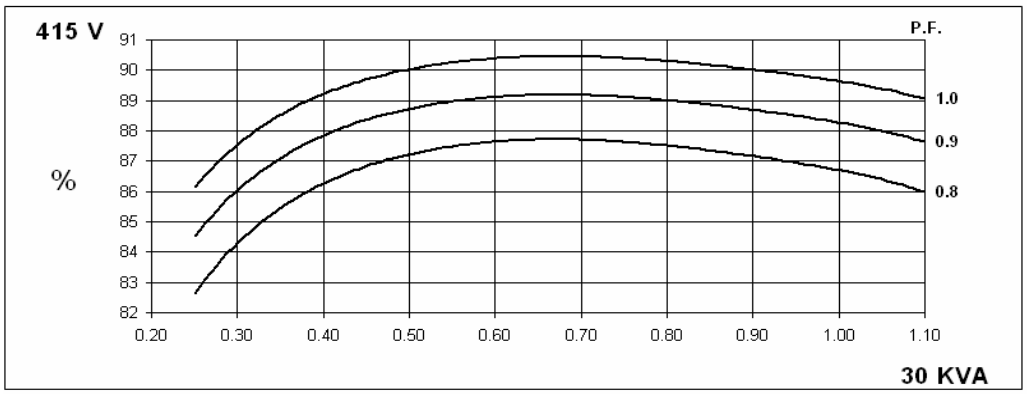
Winding 311

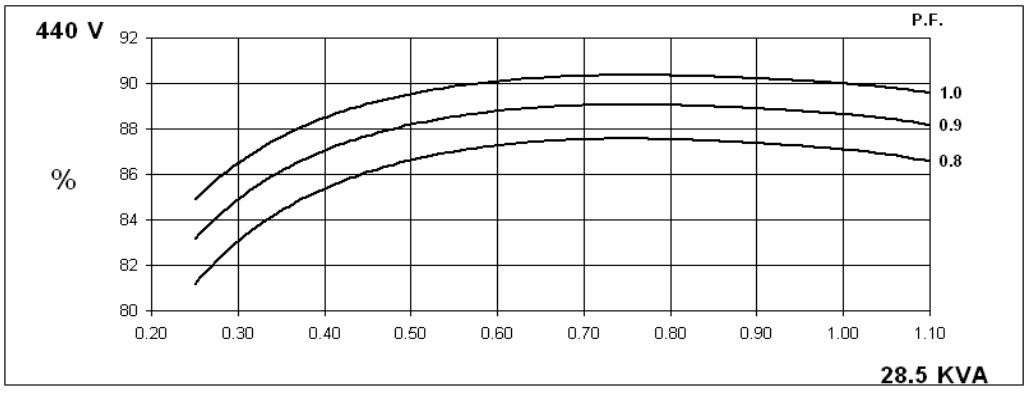
STAMFORD

THREE PHASE EFFICIENCY CURVES







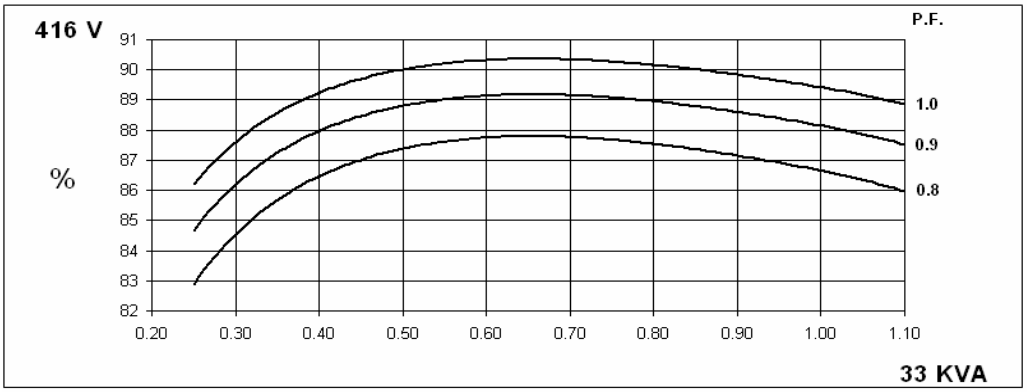


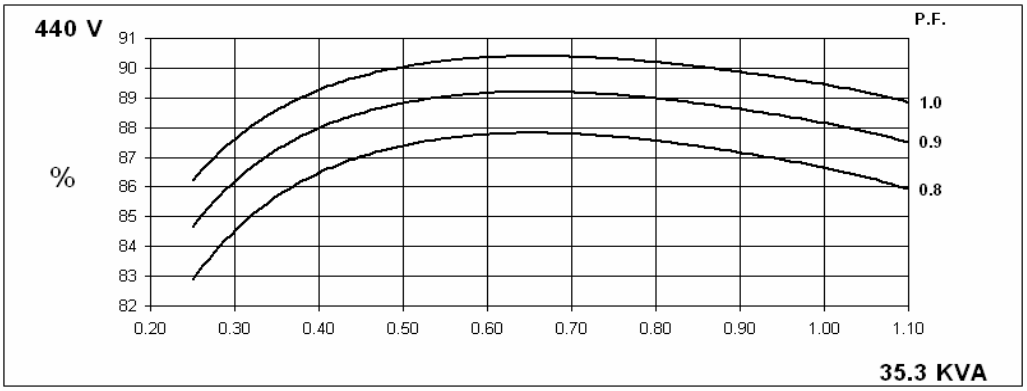
60 Hz

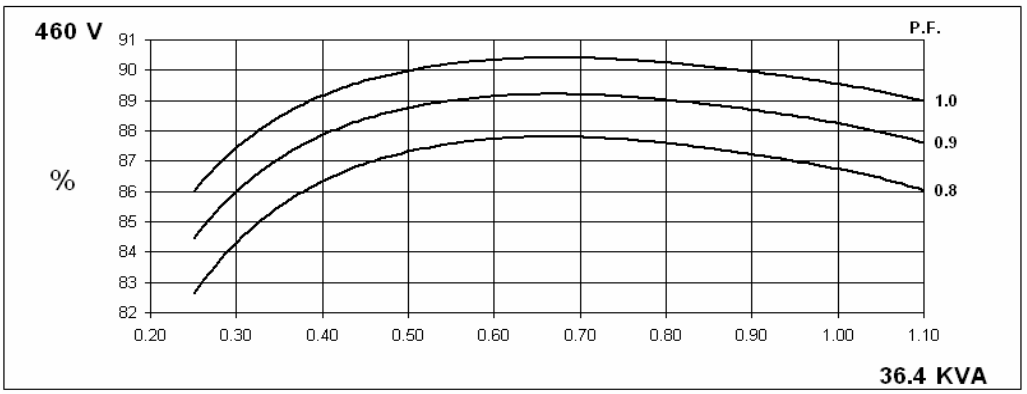
PI144G

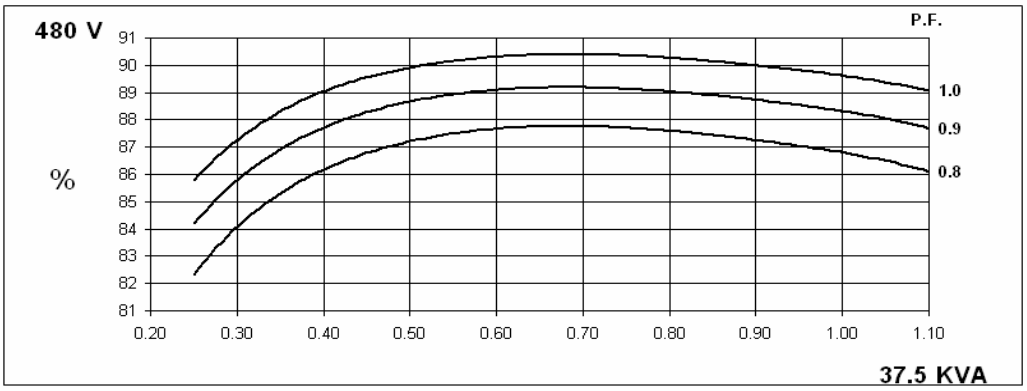
Winding 311

THREE PHASE EFFICIENCY CURVES



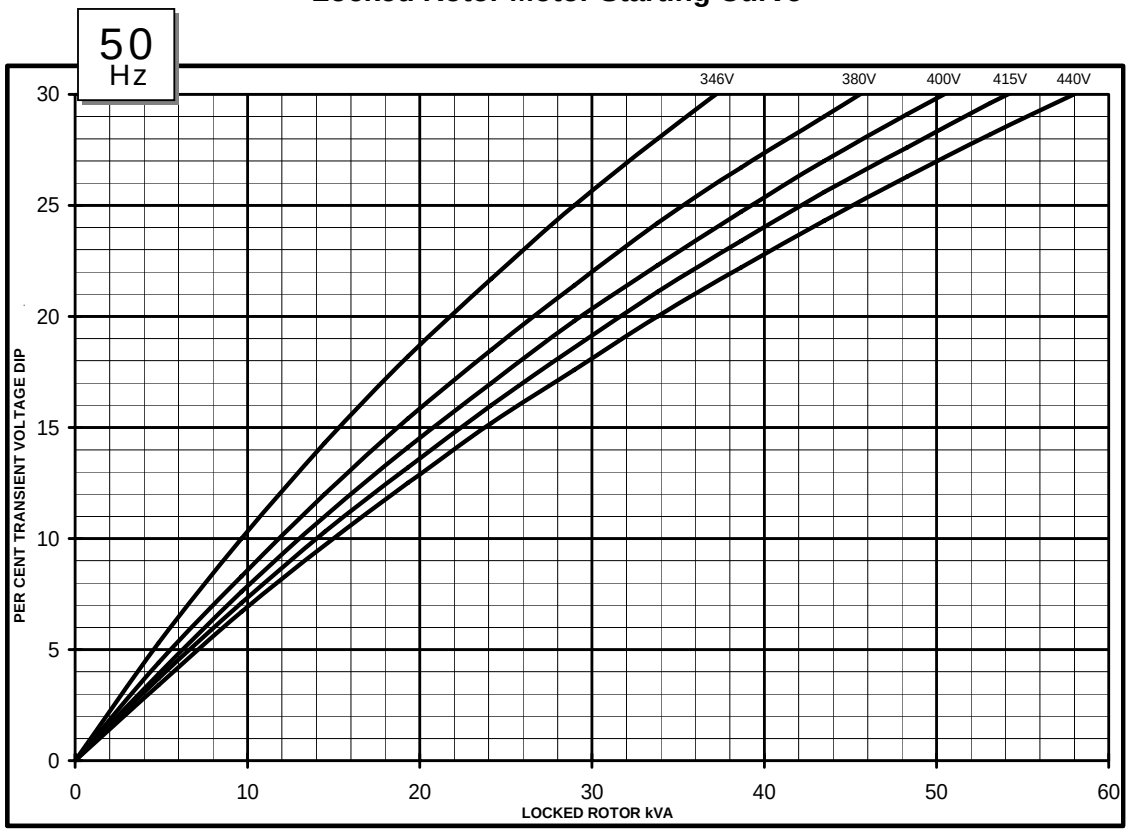


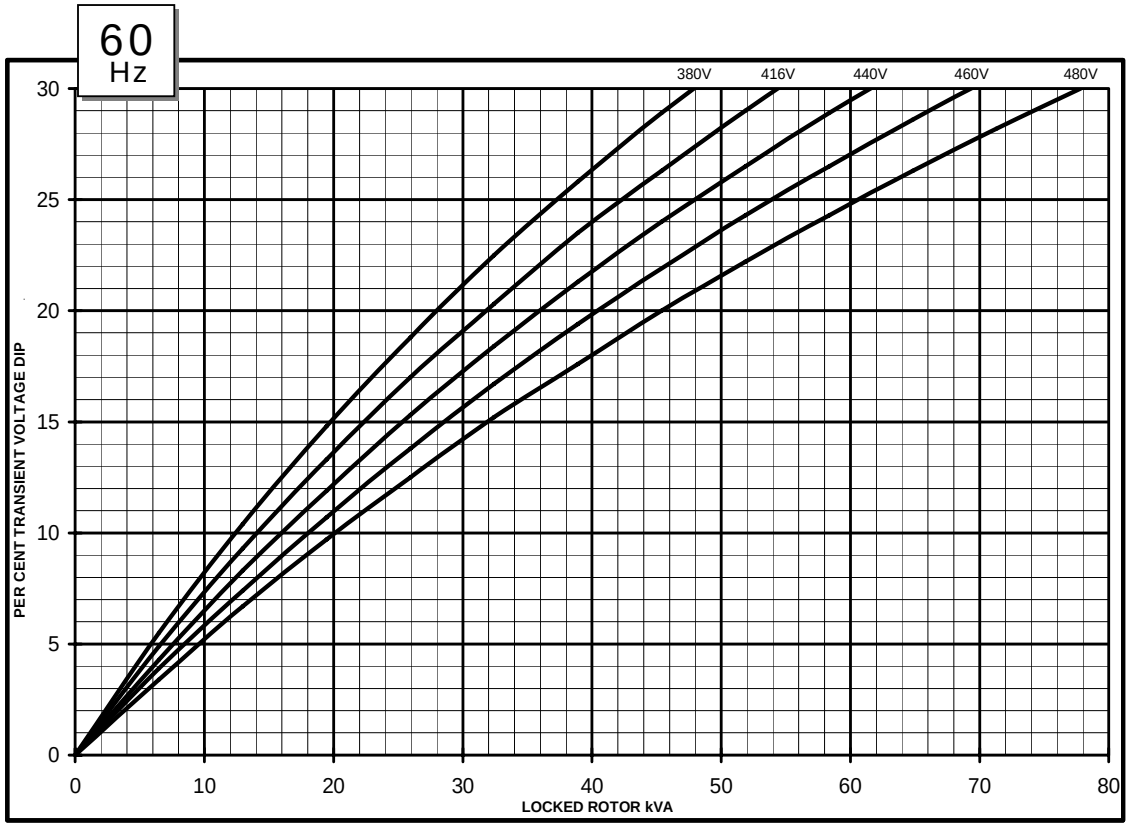




Winding 311

Locked Rotor Motor Starting Curve





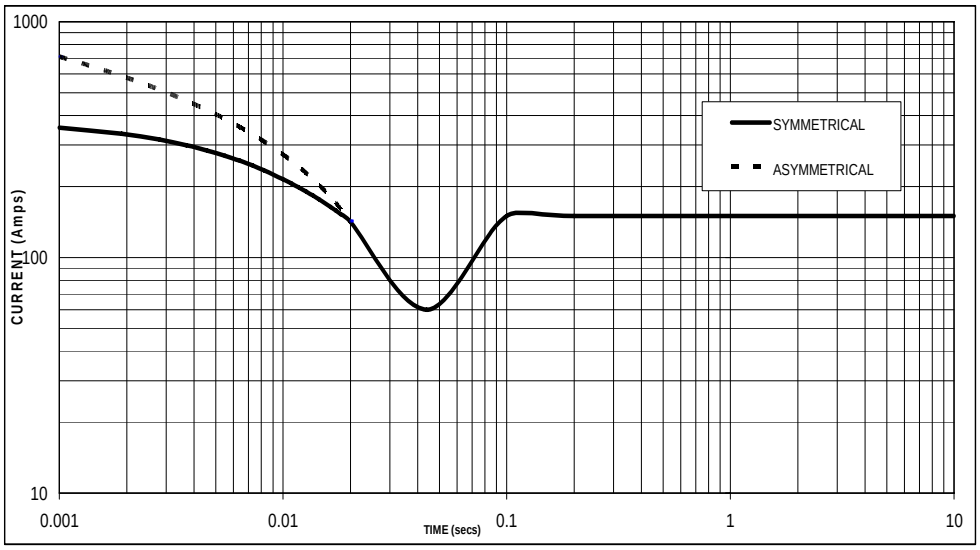
PI144G

WITH EBS FITTED

Three-phase Short Circuit Decrement Curve. No-load Excitation at Rated Speed

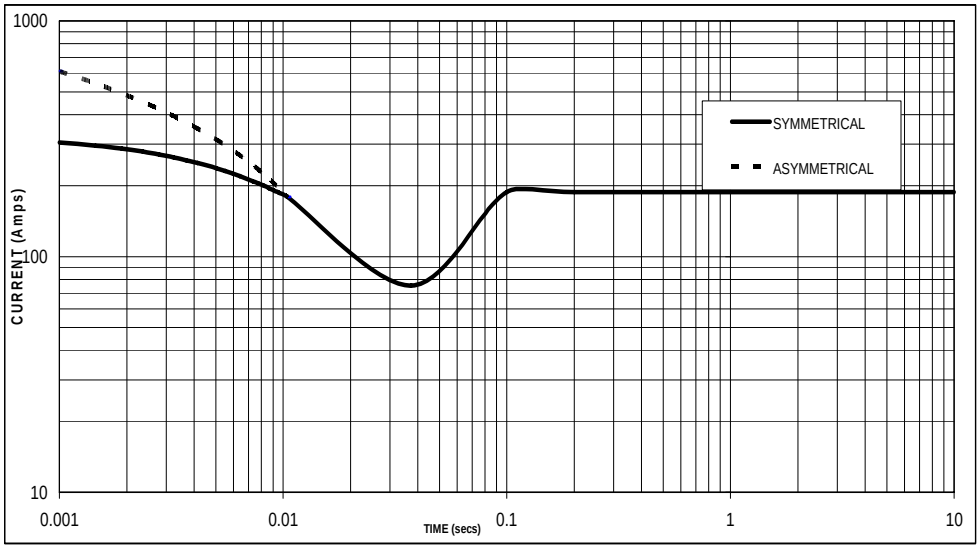
Based on star (wye) connection.

50 Hz



Sustained Short Circuit = 150 Amps

60 Hz



Sustained Short Circuit = 188 Amps

Note 1

The following multiplication factors should be used to adjust the values from curve between time 0.001 seconds and the minimum current point in respect of nominal operating voltage :

50Hz		60Hz	
Voltage	Factor	Voltage	Factor
380v	X 1.00	416v	X 1.00
400v	X 1.05	440v	X 1.06
415v	X 1.09	460v	X 1.10
440v	X 1.16	480v	X 1.15

The sustained current value is constant irrespective of voltage level

Note 2

The following multiplication factor should be used to convert the values calculated in accordance with NOTE 1 to those applicable to the various types of short circuit :

	3-phase	2-phase L-L	1-phase L-N
Instantaneous	x 1.00	x 0.87	x 1.30
Minimum	x 1.00	x 1.80	x 3.20
Sustained	x 1.00	x 1.50	x 2.50
Max. sustained duration	10 sec.	5 sec.	2 sec.

All other times are unchanged

Note 3

Curves are drawn for Star (Wye) connected machines. For other connection the following multipliers should be applied to current values as shown :

Parallel Star = Curve current value X 2

Series Delta = Curve current value X 1.732

PI144G

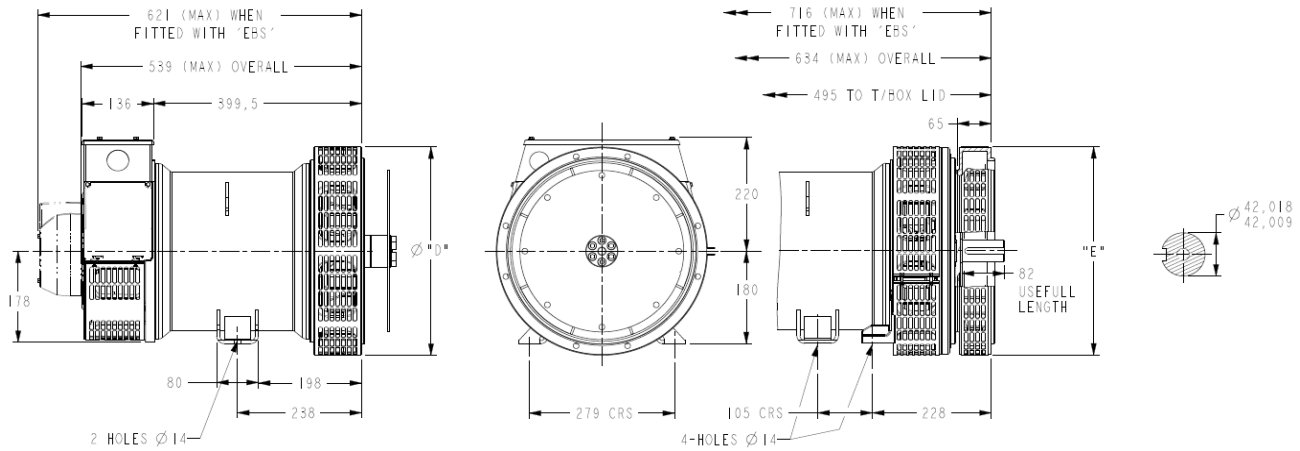
Winding 311 / 0.8 Power Factor

RATINGS

	Class - Temp Rise	Cont. F - 105/40°C				Cont. H - 125/40°C				Standby - 150/40°C				Standby - 163/27°C			
50 Hz	Series Star (V)	380	400	415	440	380	400	415	440	380	400	415	440	380	400	415	440
	Parallel Star (V)	190	200	208	220	190	200	208	220	190	200	208	220	190	200	208	220
	Series Delta (V)	220	230	240	254	220	230	240	254	220	230	240	254	220	230	240	254
	kVA	27.5	27.5	27.5	26.1	30.0	30.0	30.0	28.5	32.3	32.3	32.3	30.6	33.0	33.0	33.0	31.4
	kW	22.0	22.0	22.0	20.9	24.0	24.0	24.0	22.8	25.8	25.8	25.8	24.5	26.4	26.4	26.4	25.1
	Efficiency (%)	86.8	87.0	87.1	87.4	86.2	86.5	86.7	87.1	85.7	86.0	86.2	86.8	85.5	85.8	86.1	86.6
	kW Input	25.3	25.3	25.3	23.9	27.8	27.7	27.7	26.2	30.1	30.0	29.9	28.2	30.9	30.8	30.7	29.0

60 Hz	Series Star (V)	416	440	460	480	416	440	460	480	416	440	460	480	416	440	460	480
	Parallel Star (V)	208	220	230	240	208	220	230	240	208	220	230	240	208	220	230	240
	Delta (V)	240	254	266	277	240	254	266	277	240	254	266	277	240	254	266	277
	kVA	30.3	32.3	33.3	34.4	33.0	35.3	36.4	37.5	35.5	37.9	39.1	40.3	36.3	38.8	40.0	41.3
	kW	24.2	25.8	26.6	27.5	26.4	28.2	29.1	30.0	28.4	30.3	31.3	32.2	29.0	31.0	32.0	33.0
	Efficiency (%)	87.1	87.1	87.2	87.2	86.7	86.6	86.7	86.8	86.2	86.2	86.3	86.3	86.0	86.0	86.1	86.2
	kW Input	27.8	29.6	30.5	31.5	30.4	32.6	33.6	34.6	32.9	35.2	36.3	37.3	33.7	36.0	37.2	38.3

DIMENSIONS



COUPLING DISC	
SAE	"AN"
6.5	30.2
7.5	30.2
8	62
10	53.8
11.5	39.6

1-BRG ADAPTOR	
SAE	"D"
5	361
4	405
3	451
2	489

8-HOLES SPACED AS 12
8-HOLES SPACED AS 12

2-BRG ADAPTOR	
SAE	"E"
5	359
4	406
3	455
2	493

Barnack Road • Stamford • Lincolnshire • PE9 2NB
Tel: 00 44 (0)1780 484000 • Fax: 00 44 (0)1780 484100

@Perkins®

Technical Data

1100 Series

1103A-33G

Gen Set

30,4 kWm @ 1500 rev/min
35,4 kWm @ 1800 rev/min

Basic technical data

Number of cylinders 3
Cylinder arrangement ... ... Vertical in-line
Cycle. ... ... Four stroke
Induction system ... ... Naturally Aspriated
Compression ratio. ... ... 19.25 : 1
Bore .. .. 105 mm (4.13 in)
Stroke .. .. 127 mm (4.99 in)
Cubic capacity .. .. 3.3 litres
Direction of rotation ... ... .Clockwise view from front
Firing order 1,2,3
Total weight (engine only)
-dry ... ...412 kg
-wet ... ...430 kg

Overall dimensions

-height ... ... 951 mm (37.44 in)
-length ... ... 1029 mm (40.51 in)
-width (including mounting brackets) ... ... 629 mm (24.76 in)

Moment of inertia (mk²)

Engine:
- longitudinal. ... ... 23.3 kgm²
- horizontal ... ... 38.1 kgm²
- axial ... ... 24.4 kgm²

Flywheel (polar) ... ... 1.14 kgm²

Centre of gravity (wet)

- forward from rear of block ... ... 210 mm (8.26 in)
- above centre line of block ... ... 120 mm (4.72 in)
- offset of RHS of centre line. ... ... 40 mm (1.57 in)

Performance

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

Note: All data based on operation to ISO 3046/1, BS 5514 and DIN 6271 standard reference conditions.

Test conditions

Air temperature. . ... 25 °C
Barometric pressure ... ... 100 kPa
Relative humidity 30%

Sound level

Overall sound pressure level (cooling pack and air cleaner fitted):
- at 1500 rev/min 88.1dBA
- at 1800 rev/min 90.7dBA

Sound pressure level from the mean of 4 microphones at the front, left, right and above the engine. Exhaust was piped away out of the test cell.

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.

General installation

Designation	Units	Type of Operation and Application			
		Prime	Stand-by	Prime	Stand-by
		50 Hz	50 Hz	60 Hz	60 Hz
Gross engine power	kWm	28,2	31,0	33,2	36,5
Brake mean effective pressure	kPa (lbf/in²)	684 (99.2)	752 (109.0)	669 (97.0)	736 (106.7)
Mean piston speed	m/s (ft/s)	6,35 (20.8)	6,35 (20.8)	7,62 (25.0)	7,62 (25.0)
ElectropaK net engine power	kWm	27,7	30,4	32,2	35.4
Engine coolant flow 35 kPa restriction	l/min (UK gal/min)	125,5 (27.6)	125,5 (27.6)	151,0 (33.2)	151,0 (33.2)
Combustion air flow	m³/min (ft³/min)	2,16 (76.2)	2,15 (75.9)	2,6 (91.8)	2,57 (90.7)
Exhaust gas flow (max)	m³/min (ft³/min)	5,7 (201.2)	5,8 (204.8)	6,4 (226.0)	6,6 (233.0)
Exhaust gas temperature (max) in manifold	°C (°F)	500 (932)	520 (968)	520 (968)	530 (986)
Cooling fan air flow	m³/min (ft³/min)	53,0 (1871.6)	53,0 (1871.6)	70,0 (2472.0)	70,0 (2472.0)
Overall thermal efficiency	%	39,2	39,2	40,0	37.3
Typical genset electrical unit (0.8 pf 25° C	kWe	24,0	26,4	27,9	30,6
	kVA	30,0	33,0	34,9	38,2
Assumed alternator effiency	%	87			
Energy balance					
Power in fuel (Fuel heat of combustion)	kW (Btu/min)	72,0 (4098.2)	79,0 (4496.6)	83,0 (4724.3)	98,0 (5578.1)
Power output (gross)	kW (Btu/min)	28,2 (1605.1)	31,0 (1764.5)	33,2 (1889.7)	36,5 (2077.5)
Power to cooling fan	kW (Btu/min)	0,5 (28.4)	0,6 (34.1)	1,0 (56.9)	1,1 (62.6)
Power output (net)	kW (Btu/min)	27,7 (1576.6)	30,4 (1730.3)	32,2 (1832.8)	35,4 (2014.9)
Power to coolant and lubricating oil	kW (Btu/min)	16,0 (910.7)	18,0 (1024.5)	18,0 (1024.5)	22,0 (1252.2)
Power to exhaust	kW (Btu/min)	22,0 (1252.2)	25,0 (1422.9)	27,0 (1536.8)	34,0 (1935.2)
Power to radiation	kW (Btu/min)	5,0 (284.5)	6,0 (341.5)	5,0 (284.5)	6,0 (341.5)

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 (127 °F) or 46 °C (114.8 °F) 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.*

Cooling system

Radiator

- face area . ... 0.276 m² (2.97 ft²)
- rows and materials .. .. single row aluminium
- matrix density and material . ... Aluminium 12,5 fins/inch
- width of matrix . ... 526 mm (20.7 in)
- height of matrix ... ... 524 mm (20.6 in)
- pressure cap setting ... ... 107 kPa

Fan

- diameter .. .. 457mm (18 in)
- drive ratio ... ... 0.85 : 1
- number of blades 7
- material ... ... Composite
- type . ... Pusher

Coolant

Recommended coolant: 50 % ethylene glycol with a corrosion inhibitor (BS 658 : 1992 or MOD AL39) and 50% clean fresh water.

Total system capacity

- with radiator ... ... 10.2 l (21.5 pt)
- without radiator ... ... 4.4 l (9.2 pt)

Maximum top tank temperature ... ... 110 °C (230 °F)

Thermostat operating range .. .. 82 - 93 °C (180 - 199 °F)

Electrical system

Type .. .. Negative ground

Alternator voltage .. .. 12 V

Alternator output ... ... 65 amps

Starter motor voltage. ... ... 12 V

Starter motor power .. .. 3 kW

Number of teeth on flywheel 126

Pull in current of starter motor solenoid ... ... 60 amps

Hold in current of starter motor solenoid ... ... 15 amps

Engine stop solenoid . ... 12 V

Stop solenoid (minimum)

- pull in current .. .. 10 amps
- hold in current . ... 10 amps

Cold start recommendations

Minimum cranking speed .. .. 120 rev/min

Starter specification

Starter motor type	Min. starting temp.	Lubricating oil viscosity SAE / battery type - values in CCA				
	°C (°F)	15W/40	15W/40	10W/40	5W/40	5W/30
12 volt 3.0 kW	-7 (19.4)	1 x 770				
	-10 (14) *		1 x 770			
	-15 (5) *			1 x 770		
	-20 (-4) *				1 x 900	
	-25 (-13) *					2 x 570

* - Glow plug start aid fitted.

Note: CCA - Cold Cracking Amps to SAEJ537.

Notes:

- Battery capacity is defined by the 20 hour rate
- If a change to a low viscosity oil is made, the cranking torque necessary at lower ambient temperatures is much reduced. The starting equipment has been selected to take advantage of this. It is important to change the appropriate multigrade 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 ... ... 8 kPa
- 1800 rev/min ... ... 10 kPa

Exhaust outlet size . ... 56 mm (2.2 in)

Fuel System

Type of injection . ... Direct

Fuel injection pump ... ... Rotary

Fuel atomiser .. .. Multi-hole

Nozzel opening pressure ... ... 29,0 MPa (290 bar)

Fuel lift pump

Type ... ... Electrical

-flow/hour ... ... 120 - 150 l/h (211 - 264 pt/m)

-pressure ... ... 30 - 75 kPa (4.4 - 10.9 psi)

Maximum suction head:

- 1500 rev/min ... ... 17 kPa

Governor type

Electronic governor . ... .Woodward LCS2

Mechnical and electronic governor speed control to .. ISO 8528, G2

Fuel specification

Fuel Specification	European RF75-T-96 / DIN EN590 / BS2869 class A2
Density (kg/l @ 15 °C)	0,835 - 0,845
Viscosity (mm²/s @ 40 °C)	2,5 - 3,5
Sulphur content (%)	0,1 - 0,2
Cetane number	45 - 50

Fuel consumption litres/hour (UK gals/hr)

	Power rating				
Speed	**110%**	**100%**	**75%**	**50%**	**25%**
1500	7,9 (1.73)	7,1 (1.56)	5,4 (1.18)	3,9 (0.85)	2,5 (0.54)
1800	9,5 (2.08)	8,6 (1.89)	6,6 (1.45)	4,9 (1.07)	3,1 (0.68)

Induction system

Maximum air intake restriction

-clean filter .. .. 3,0 kPa

- dirty filter ... ... 6,5 kPa
- air filter type .. .. Dry

Lubrication system

Lubricating oil capacity

Total system ... ... 8,3 l (17.5 pt)

Sump minimum .. .. 6,2 l (13.1 pt)

Sump maximum . ... 7.8 l (16.4 pt)

Maximum engine operating angles:

- front up, front down, right side or left side ... ... 25°

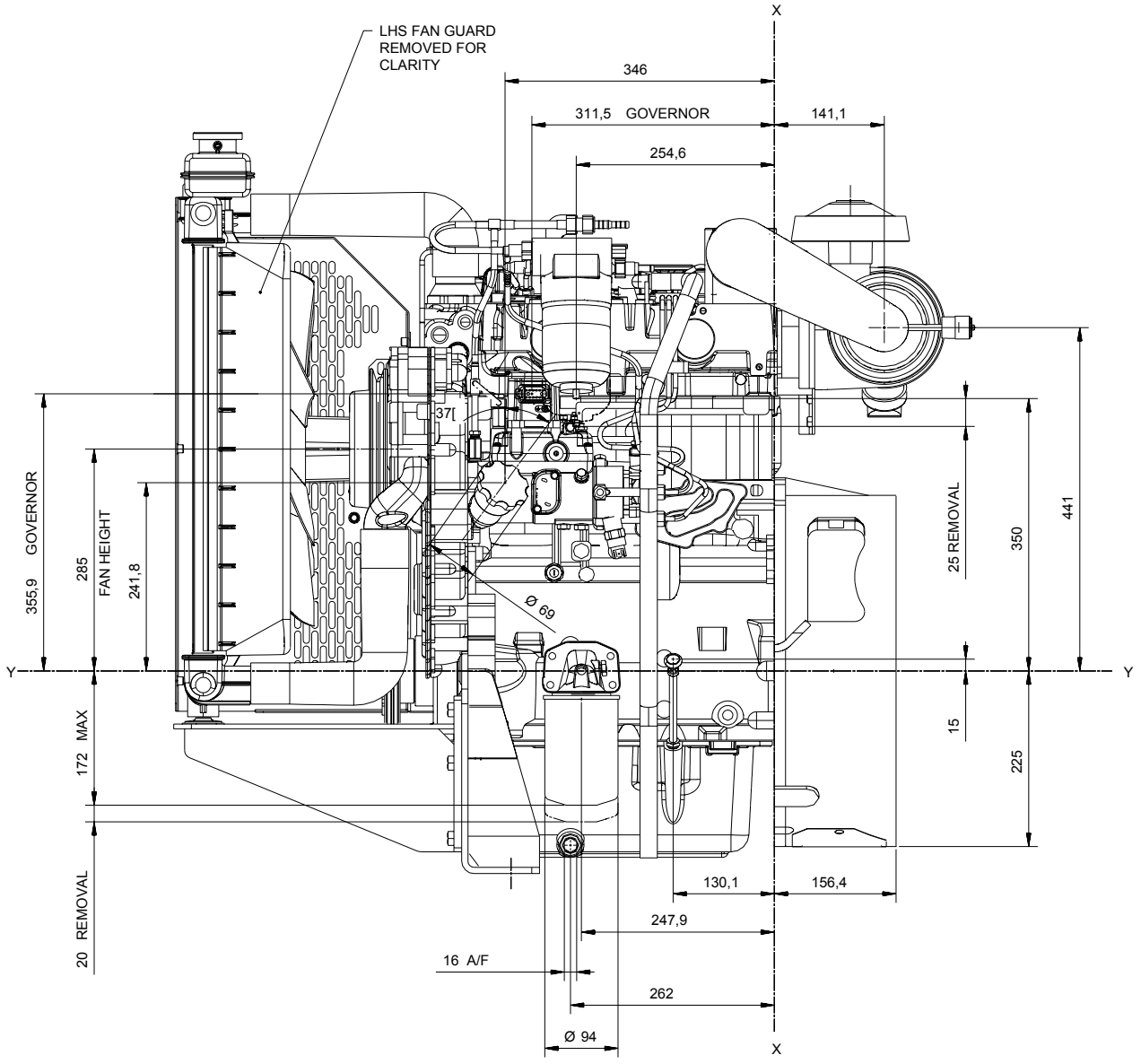
Lubricating oil pressure

- relief valve opens . ... 415 - 470 kPa
- at maximum no-load speed .. .. 276 - 414 kPa

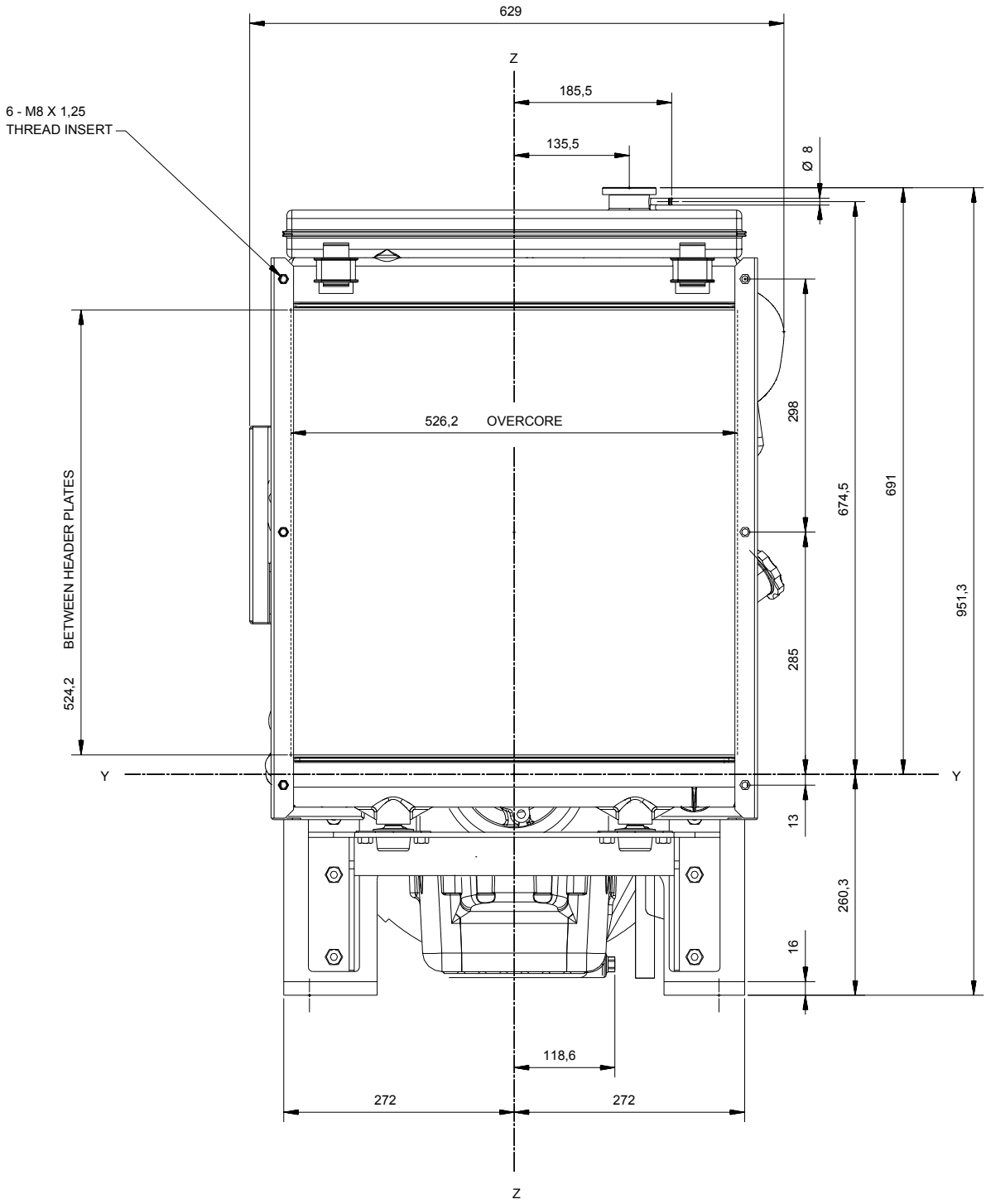
Max continuous oil temperature (in rail) . ... 125 °C (257 °F)

Oil consumption at full load as a % of fuel consumption 0.15%

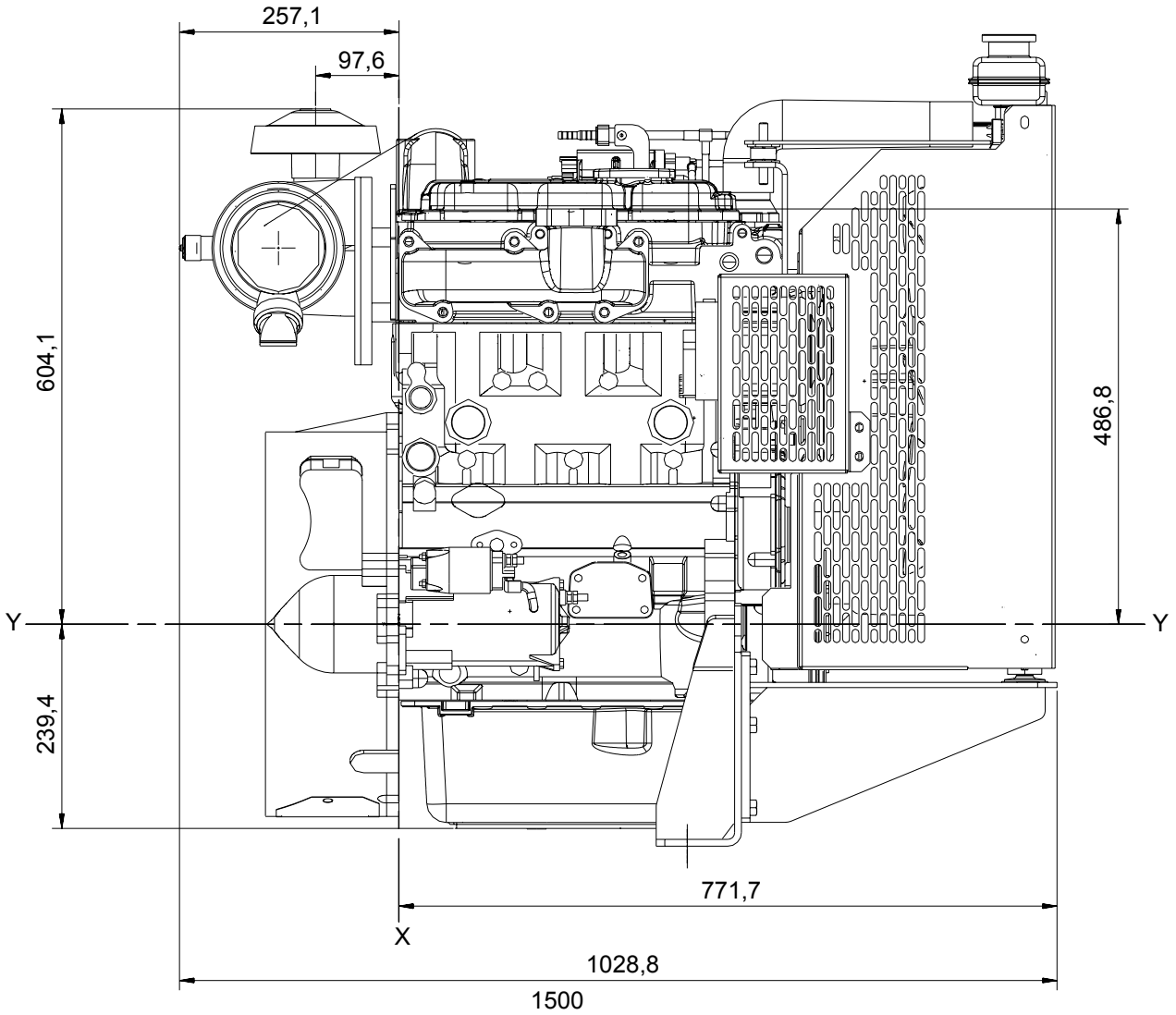
1103A-33G ElectropaK - left view



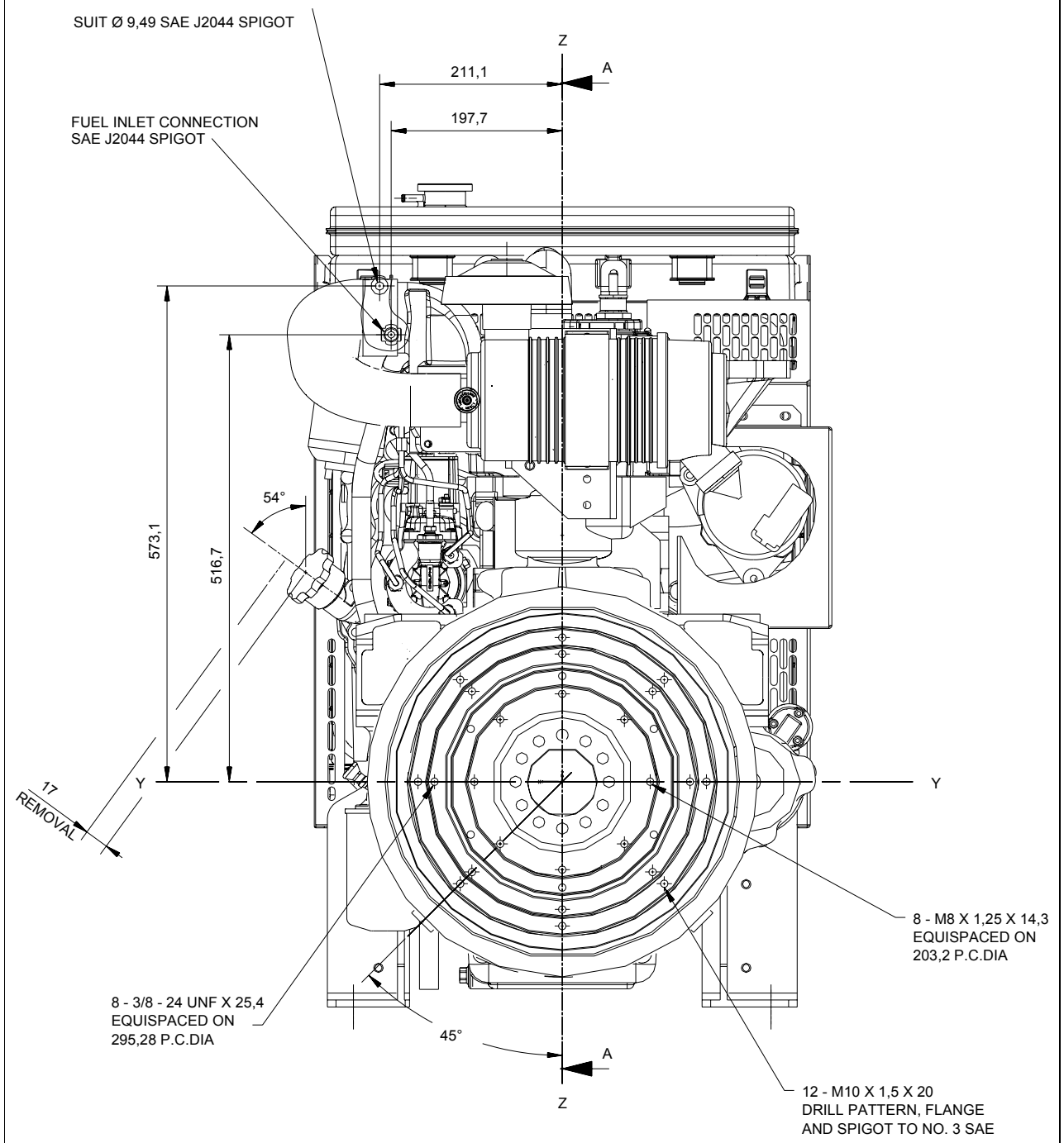
1103A-33G ElectropaK - front view



1103A-33G ElectropaK - right view

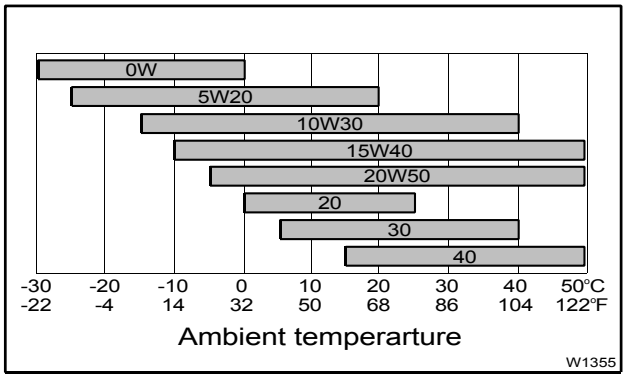


1103A-33G ElectropaK - rear view



Recommended SAE viscosity

A single or multigrade oil must be used which conforms to APi-CG4 / CH4, see illustration below:



Mountings

Maximum static bending moment
at rear face of block ... ... 791 Nm (583 lb/ft)

Load Acceptance

Inital load acceptance when engine reaches rated speed (15 seconds max after engine starts to crank)			
	Units	**1500 rev/min**	**1800 rev/min**
Prime Power	%	90	90
Load	kWm (kWe)	25,7 (21.8)	29,4 (24.7)
Transient Frequency Deviation	%	< -10%	< -10%
Frequency Recovery	Second	<1	<1

The above complies with requirements of Classification 3 & 4 of ISO 8528 - 12 and G2 operating limits stated in ISO 8528 - 5.

The above figures were obtained under test conditions as follows:
- alternator efficiency.. ... ... 87%
- minimum ambient temperature ... ... 15 °C

Isochronous Governing:
- typical alternator inertia ... ... 0.1676 kgm²

All tests were conducted using an engine installed and serviced to Perkins Engine Company Limited recommendations.

The information given in this document is for guidance only.

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