موتور دیزل : Cummins	ژنراتور : Stamford

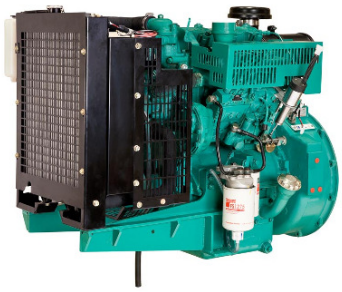
Standby		Prime		
KVA	KW	KVA	KW	
28	22	25	20	دیزل ژنراتور

موتور دیزل		
Manufacturer	Cummins	تولید کننده
Type	X2.5-G2	تیپ
Number of cylinders	3	تعداد سیلندر ها
Cylinder arrangement	Inline	آرایش سیلندر ها
Displacement , Liters	2.5 liter	جا به جایی
Bore × Stroke , mm	91.4mm×127 mm	قطر سیلندر × کورس پیستون
Compression Ratio	18.5:1	نسبت تراکم
Aspiration	Naturally Aspirated	سیستم تنفس
Rotation	1500 RPM	چرخش
Exhaust Pipe Size	50	قطر لوله خروجی اگزوز
Cycle	4 stroke	چرخه

ژنراتور

Manufacturer	Stamford	تولید کننده
Type	PI144E	تیپ
Standby power at rated voltage ,KVA	28	توان standby در ولتاژ نامی
Efficiency, %	85.3 %	راندمان
Power factor	0.8	ضریب قدرت
Phase	3	فاز
Frequency, Hz	50	فرکانس
Speed, Rpm	1500	سرعت
Voltage, V	380	ولتاژ
Stator windings	Double layer concentric	سیم پیچ استاتور
Voltage Regulation, %	± 1.0 %	تنظیم ولتاژ
Rotor	with damping cage	روتور
Insulation class	H	کلاس عایق
Protection class	IP 23	کلاس حفاظتی
Cooling air volume,m^3 / sec	0.09 m^3/sec 191cfm	دبی هوای خنک کننده

X2.5 G2



Description

The X2.5 has all the strength and reliability the industry has come to expect from Cummins Inc., but in a smaller, lighter and more economical package. The X2.5 features direct fuel injection, resulting in cleaner quieter and more fuel efficient performance. The CoolPac system offers a cost effective, fully warranted, high ambient, integrated system solution capable of meeting our customers application requirements.

CE — This engine has been built to comply with CE certification.

ISO 9001 — This engine has been designed in facilities certified to ISO9001 and manufactured in facilities certified to ISO9001 or ISO9002.

Features

The X2.5 is built to last, with a cast-iron block designed for durability and reliability. Design elements include:

• Bosch direct injection in-line pump for cleaner, more efficient fuel consumption.

• Parent bore block with deep, stiff crankcase and optimised rib arrangement to enhance strength and reduce noise.

• 12 volt electrics package as standard, with starter, alternator and fuel solenoid.

• Single spin-on oil filter and Fuel Filter

• SAE '3' flywheel housing

Integrated Design - Coolpac products are supplied complete and factory fitted with cooling package and air cleaner for a complete power package. Each component has been has been specifically developed and rigorously tested for G-Drive products, ensuring high performance, durability and reliability.

Service and Support - G-Drive products are backed by an uncompromising level of technical support and after sales service, delivered through a world class service network.

1500 rpm (50 Hz Ratings)

Gross Engine Output			Net Engine Output			Typical Generator Set Output					
Standby	Prime	Base	Standby	Prime	Base	Standby (ESP)		Prime (PRP)		Base (COP)	
kWm/BHP			kWm/BHP			kWe	kVA	kWe	kVA	kWe	kVA
27/36	24/32	22/29	26/35	23/31	21/28	22	27.5	20	25	18	22

General Engine Data

Type	4 cycle, in-line, naturally aspirated
Bore mm	91.7mm (3.61 in.)
Stroke mm	127mm (5 in.)
Displacement Litre	2.5 litre (153in.^{3})
Cylinder Block	Cast iron, 3 cylinder
Battery Charging Alternator	36 amps
Starting Voltage	12 volt, negative ground
Fuel System	Direct injection
Fuel Filter	Spin on fuel filters with Water Drain Facility
Lube Oil Filter Type(s)	Spin on full flow filter
Lube Oil Capacity (l)	6.5
Flywheel Dimensions	3/11.5

Coolpac Performance Data

Cooling System Design	Jacket Water
Coolant Ratio	50% ethylene glycol; 50% water
Coolant Capacity (l)	5.5
Limiting Ambient Temp.**	50
Fan Power	0.9
Cooling System Air Flow (m^3/s)**	1.6
Air Cleaner Type: Heavy Duty	Dry replaceable element with restriction indicator

** @ 13 mm H^20

Ratings Definitions

Emergency Standby Power (ESP):
Applicable for supplying power to varying electrical load for the duration of power interruption of a reliable utility source. Emergency Standby Power (ESP) is in accordance with ISO 8528. Fuel Stop power in accordance with ISO 3046, AS 2789, DIN 6271 and BS 5514.

Limited-Time Running Power (LTP):
Applicable for supplying power to a constant electrical load for limited hours. Limited-Time Running Power (LTP) is in accordance with ISO 8528.

Prime Power (PRP):
Applicable for supplying power to varying electrical load for unlimited hours. Prime Power (PRP) is in accordance with ISO 8528. Ten percent overload capability is available in accordance with ISO 3046, AS 2789, DIN 6271 and BS 5514.

Base Load (Continuous) Power (COP):
Applicable for supplying power continuously to a constant electrical load for unlimited hours. Continuous Power (COP) in accordance with ISO 8528, ISO 3046, AS 2789, DIN6271 and BS 5514.

Weight & Dimensions

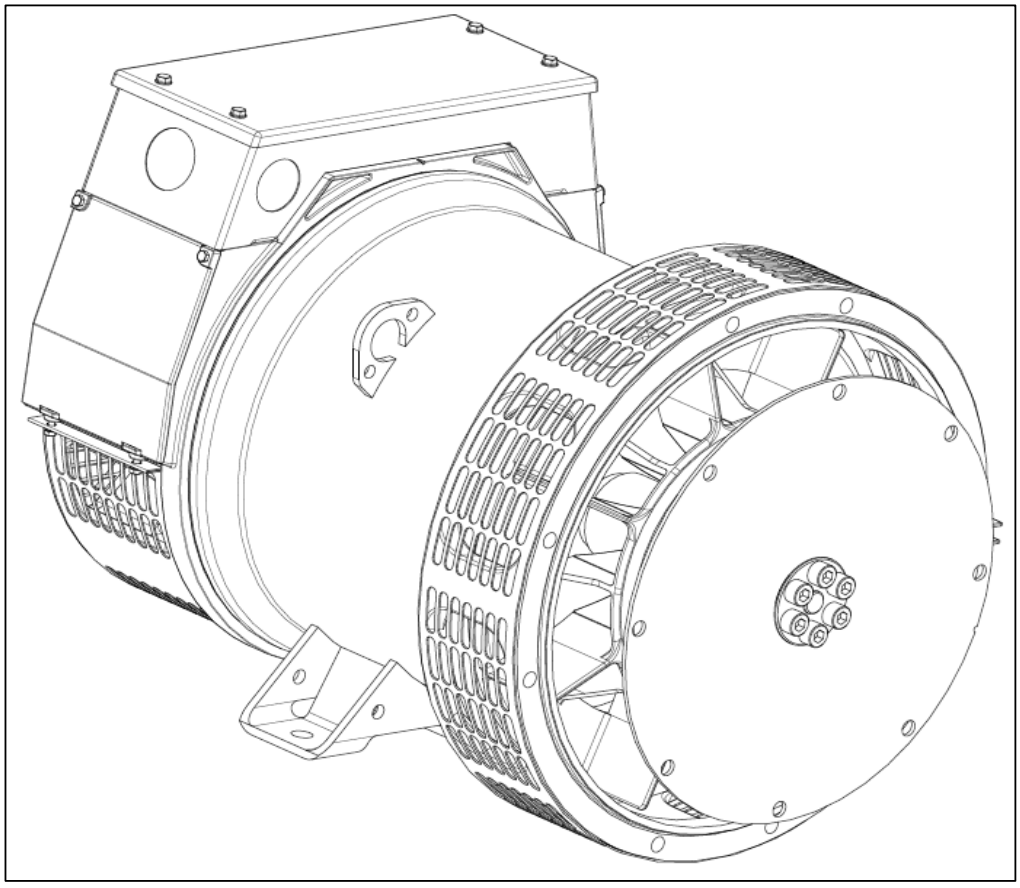
Length mm	Width mm	Height mm	Weight (dry) kg
1160	670	800	285

Fuel Consumption 1500 (50 Hz)

%	kWm	BHP	L/ph	US gal/ph
Standby Power				
100	27	36	6.5	1.7
Prime Power				
100	24	32	6	1.6
75	18	24	4.8	1.3
50	12	16	3.5	0.9
25	6	8	2.5	0.7
Continuous Power				
100	22	29	5.6	1.5

STAMFORD®

PI144E - Technical Data Sheet



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	0.3 Ohms PER PHASE AT 22°C SERIES STAR CONNECTED							
ROTOR WDG. RESISTANCE	0.67 Ohms at 22°C							
EXCITER STATOR RESISTANCE	19.36 Ohms at 22°C							
EXCITER ROTOR RESISTANCE	0.215 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	135 kg				138 kg			
WEIGHT WOUND STATOR	55 kg				55 kg			
WEIGHT WOUND ROTOR	47.24 kg				48.24 kg			
WR² INERTIA	0.1771 kgm^2				0.1772 kgm^2			
SHIPPING WEIGHTS in a crate	152 kg				161 kg			
PACKING CRATE SIZE	71 x 51 x 67 (cm)				71 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	25	25	25	23.8	27.5	29.4	30.3	31.3
Xd DIR. AXIS SYNCHRONOUS	1.78	1.61	1.50	1.27	2.11	2.02	1.90	1.80
X'd DIR. AXIS TRANSIENT	0.17	0.15	0.14	0.12	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	0.85	0.77	0.72	0.61	1.01	0.97	0.91	0.86
X"q QUAD. AXIS SUBTRANSIENT	0.19	0.17	0.16	0.13	0.22	0.21	0.20	0.19
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	0.08	0.07	0.07	0.06	0.09	0.09	0.08	0.08
REACTANCES ARE SATURATED	VALUES ARE PER UNIT AT RATING AND VOLTAGE INDICATED							
T'd TRANSIENT TIME CONST.	0.019 s							
T"d SUB-TRANSTIME CONST.	0.005 s							
T'do O.C. FIELD TIME CONST.	0.45 s							
Ta ARMATURE TIME CONST.	0.007 s							
SHORT CIRCUIT RATIO	1/Xd							

PI144E

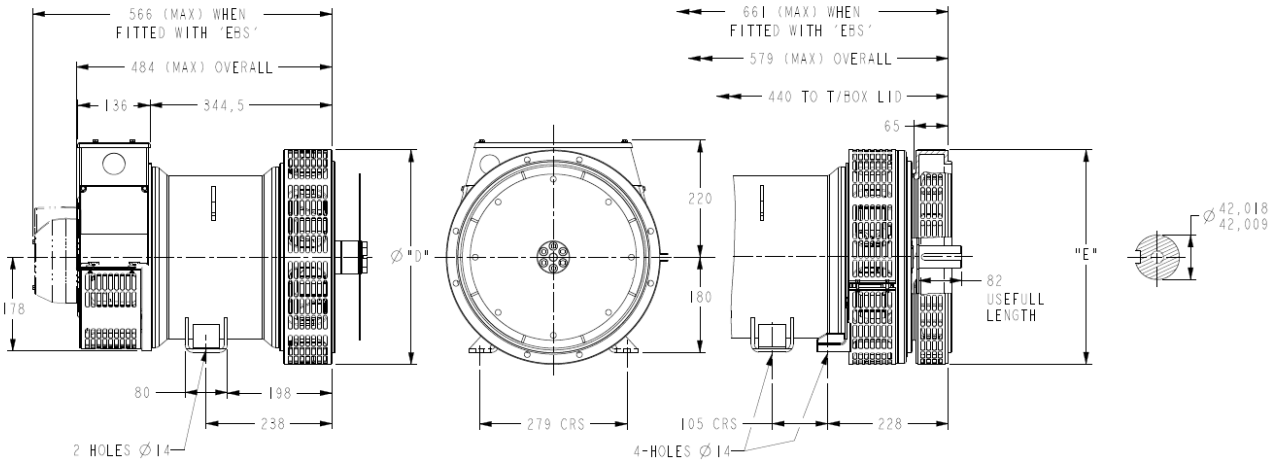
Winding 311 / 0.8 Power Factor

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	22.8	22.8	22.8	21.6	25.0	25.0	25.0	23.8	26.9	26.9	26.9	25.6	27.5	27.5	27.5	26.1
	kW	18.2	18.2	18.2	17.3	20.0	20.0	20.0	19.0	21.5	21.5	21.5	20.5	22.0	22.0	22.0	20.9
	Efficiency (%)	85.3	85.6	85.7	86.0	84.6	85.0	85.2	85.6	83.9	84.4	84.6	85.2	83.7	84.1	84.4	85.1
	kW Input	21.3	21.3	21.2	20.1	23.6	23.5	23.5	22.2	25.6	25.5	25.4	24.1	26.3	26.2	26.1	24.6

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	25.0	26.7	27.6	28.4	27.5	29.4	30.3	31.3	29.6	31.6	32.6	33.6	30.3	32.3	33.3	34.4
	kW	20.0	21.4	22.1	22.7	22.0	23.5	24.2	25.0	23.7	25.3	26.1	26.9	24.2	25.8	26.6	27.5
	Efficiency (%)	85.9	85.9	85.9	86.0	85.3	85.3	85.4	85.4	84.8	84.7	84.8	84.9	84.6	84.5	84.6	84.7
	kW Input	23.3	24.9	25.7	26.4	25.8	27.5	28.3	29.3	27.9	29.9	30.8	31.7	28.6	30.5	31.4	32.5

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	8-HOLES SPACED AS 12
3	451	8-HOLES SPACED AS 12
2	489	

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