GOLDEN MAJD Co.

150 - 165S

Rating @ 0.8 PF		Prime rating	Stand-by rating
Voltage *1	Freq. *2	PT150 *3	PT165S *4
400 V	50 Hz	150.0 KVA	165.0 KVA
480 V	60 Hz	---	---

The above ratings represent the generating set capability guarantied within ±3% at the references conditions equivalent to those specified in ISO 8528/1, ISO 3046/1 and BS 5514/1

NOTES

1 - The applicable voltage range is 380V to 415V for 50Hz applications only.
2 - This generating set is of fixed speed of 1500rpm.
3 - **PT150** is the prime power rating of the generating set, where a variable load and unlimited hours usage are applied on the generating set with an average load factor of 80% of the prime rating over each 24 hour period. Noting that a 10% overload is available for 1 hour in every 12 hours operation.
4 - **PT165S** is the standby power rating of the generating set, where a variable load limited to an annual usage up to 500 hours is applied, with 300 hours of which may be continuous running. Noting that no overload is permitted.

Engine Technical Data		
Model	Perkins 1006TAG2	
Cylinders	6; vertical in-line	
Aspiration	Turbocharged, air to air charge cooled	
Combustion	Direct injection	
Cooling System	Water cooled	
Displacement	5.99 L	
Oil consumption	0.2 % of fuel consumption	
Lube oil capacity	19 L	
Coolant capacity	41.0 L	
Governor	Electronic	
Emissions regulations	Non-compliant	
Speed	1500 rpm	1800 rpm
Fuel Consumption PT150	37.3 L/H	---
Fuel Consumption PT165S	45.0 L/H	---
Radiator Cooling Air Flow	154 m^3/min	---
Max Exhaust Gas Flow	29.1 m^3/min	---

The above performance data are valid as per the following specs:
- Diesel Fuel is according to BS2869 Class A2 or equivalent.
- Lubricating oil is according to API CG4 (15W/40).
- The coolant should be 50% antifreeze and 50% fresh water.

Alternator Technical Data		
Model	Leroy Somer LSA 44.2 M95	
Regulation	± 0.5 %	
International protection	IP23	
Insulation class	H	
Terminals	12	
Frequency	50 Hz	60 Hz
Coolant Air Flow	0.37 m^3/s	---

Shipping Data			
Length	Width	Height	Weight
2700 mm	990 mm	1500 mm	1450 kg

All information given in this leaflet is correct at the time of printing but it may be changed subsequently by the Company

ISO 9001 : 2000
Certificate Number: CC1680-009512,009912

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The Perkins 1000 Series family of ElectropaK engines are renowned throughout the power generation industry for their superior performance and reliability.

The 1006TAG2 is a turbocharged, 6 cylinder, 6 litre engine. Its premium design features provide economic and durable operation offering the ideal characteristics for electrical power generation.

1000 Series

1006TAG2

Diesel Engine – ElectropaK

143 kWm 1500 rev/min

Economic power

Single side servicing for reduced service time and cost.
Unique Fastram combustion system enables high power output plus low fuel consumption.
Electronic governor gives close control for 50 Hz (1500 rpm) operation.

Durable power

Maximum cooling efficiency is provided by a gear driven water pump and independent fan drive.
Leak free operation is ensured by Viton crankshaft seals and sophisticated controlled swell joints, giving protection in the toughest conditions.
Inserted valve seats, oil spray cooled pistons and compact plate cooler give enhanced engine life.

Reliable power

Wherever a Perkins' ElektropaK engine is put into service, it will never be far from the support provided by a global network of 4,000 distributors and dealers, all backed by a parts distribution centre giving 24 hour service, 365 days a year.
Suitable for operation in ambient temperatures up to 53ºC (46ºC if a canopy is fitted).
Fuelled starting aid for temperatures down to -20ºC.

Engine Speed (rev/min)	Type of Operation	Typical Generator Output (Net)		Engine Power			
				Gross		Net	
		kVA	kWe	kWm	bhp	kWm	bhp
1500	Prime Power Standby Power	150.0 165.0	120.0 132.0	136.8 150.5	181.0 201.0	129.3 143.0	174.0 193.0

All ratings data based on operating under ISO/TR 14396/ISO 8528 conditions using typical fan sizes and drive ratios. For operation outside of these conditions please consult your Perkins contact. Performance tolerance quoted by Perkins is +5%.

Electrical ratings assume a power factor of 0.8 and a generator efficiency of 90%.

Fuel specification: BS 2869 Part 2 1998 Class A2 or ASTM D975 D2
Lubrication oil: A single or multigrade oil to ACEAE1 E2 or API CD/SD

Rating Definitions
Prime Power: Power available at variable load in lieu of main power network. An overload of 10% is permitted for 1 hour in every 12 hours of operation.
Standby Power: Power available at variable load in the event of a main power network failure. No overload is permitted.

1000 Series
1006TAG2

Standard ElectropaK Specification

Air inlet
- Mounted air filter and turbocharger

Fuel System
- Rotary fuel injection pump
- Electronic governor – speed control to BS 5514 Class A0, ISO 3046-4M3
- Twin spin-on full flow fuel filters and pre-filter

Lubrication system
- Flat bottomed aluminium sump
- Twin spin-on full flow oil filters
- Oil cooler

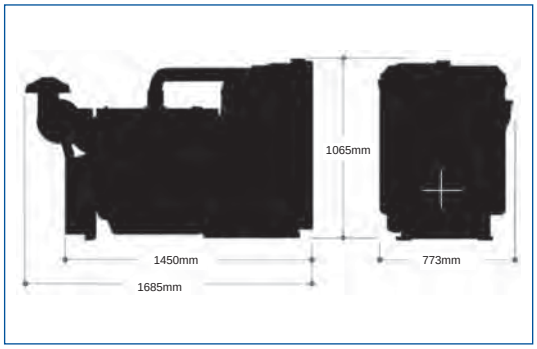
Cooling system
- Thermostat controlled cooling system with gear driven water pump
- 25″ belt-driven pusher fan and guards
- Radiator incorporating air-to-air charge cooler and piping

Electrical system
- 12 volt starter motor and 55 amp alternator with DC output
- 12 volt oil pressure and coolant temperature switches
- 12 volt shut down solenoid – energised to run cold start aid

Flywheel and housing
- Cast iron SAE 3 flywheel housing
- High inertia flywheel to SAE J620 size 10/11½

Mountings
- Front engine mounting bracket

Optional Equipment
- 24 volt alternator
- 24 volt starter motor
- Water temperature gauge and sender
- Heater/Starter switch
- Rear engine mountings
- Workshop manual
- Parts book
- User handbook



General Data

Number of cylinders	6
Cylinder arrangement	Vertical in-line
Cycle	4 stroke
Induction system	Turbocharged, air-to-air aftercooled
Combustion system	Direct injection
Cooling system	Water-cooled
Bore and stroke	100 x 127 mm
Displacement	5.99 litres
Compression ratio	17.0:1
Direction of rotation	Anti-clockwise, viewed on the flywheel
Total lubrication system capacity	19 litres
Coolant capacity (inc. radiator)	41 litres
Length	1685 mm
Width	773 mm
Height	1065 mm
Total weight (dry)	586 kg

Overall dimensions and weight will depend on final specification.§§

Fuel consumption litres/hour (UK gallons/hour)	
Power Rating %	1500 rev/min
110	45.0 (9.9)
100	41.0 (9.0)
75	31.0 (6.8)
50	20.0 (4.4)

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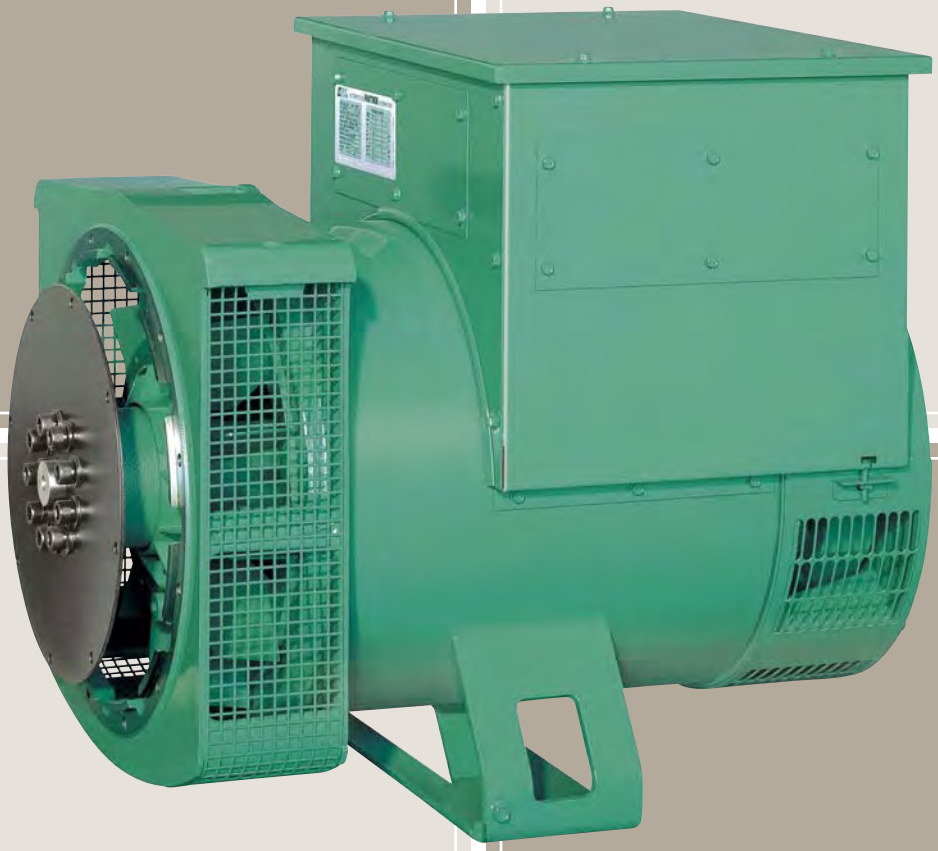


Alternators
LSA 44.2 - 4 Pole

Electrical and mechanical data

Common data

Insulation class	H	Excitation system	SHUNT	A R E P or PMG
Winding pitch	2/3 (N° 6)	A.V.R. model	R 250	R 438
Terminals	12	Voltage regulation (*)	± 0,5 %	± 0,5 %
Drip proof	IP 23	Sustained short-circuit current	-	300% (3 IN) : 10s
Altitude	≤ 1000 m	Total harmonic TGH / THC (**)	at no load < 2 % - on load < 2%	
Overspeed	2250 min^{-1}	Waveform : NEMA = TIF (**)	< 50	
Air flow	0,37 m^3/s (50Hz)/ 0,44 (60Hz)	Wave form : I.E.C. = THF (**)	< 2 %	

(*) Steady state duty. (**) Total harmonic content line to line, at no load or full rated linear and balanced load.

Ratings 50 Hz - 1500 R.P.M.

kVA / kW - Power factor = 0,8

Duty T°C		Continuous duty 40°C					Continuous duty 40°C					Stand-by / 40 °C					Stand-by / 27 °C				
Class / T° K		H / 125° K					F / 105° K					H / 150° K					H / 163° K				
Phase		**3 ph.**				1 ph.	**3 ph.**				1 ph.	**3 ph.**				1 ph.	**3 ph.**				1 ph.
Y		380V	400V	415V	440V	ΔΔ	380V	400V	415V	440V	ΔΔ	380V	400V	415V	440V	ΔΔ	380V	400V	415V	440V	ΔΔ
Δ		220V	230V	240V		230V	220V	230V	240V		230V	220V	230V	240V		230V	220V	230V	240V		230V
YY					220V					220V					220V					220V	
44.2 VS3	kVA	90	**90**	90	90	55	80	**80**	80	80	50	95	**95**	95	95	58	100	**100**	100	100	60
	kW	*72*	***72***	*72*	*72*	*44*	*64*	***64***	*64*	*64*	*40*	*76*	***76***	*76*	*76*	*46*	*80*	***80***	80	*80*	*58*
44.2 VS45	kVA	105	**105**	105	105	66	95	**95**	95	95	62	110	**110**	110	110	69	116	**116**	116	116	72
	kW	84	***84***	*84*	*84*	*53*	*76*	***76***	*76*	*76*	*50*	*88*	***88***	*88*	*88*	*55*	*93*	***93***	*93*	*93*	*58*
44.2 S7	kVA	120	**125**	120	120	73	110	**112**	110	110	65	126	**131**	126	126	77	132	**138**	132	132	82
	kW	96	***100***	*96*	*96*	*58*	*88*	***90***	*88*	*88*	*52*	*101*	***105***	*101*	*101*	*62*	*106*	***110***	*106*	*106*	*66*
44.2 S75	kVA	130	**135**	130	125	83	115	**122**	115	114	75	138	**143**	138	132	88	144	**150**	144	137	93
	kW	104	***108***	*104*	*100*	*66*	*92*	***98***	*92*	*91*	*60*	*110*	***114***	*110*	*106*	*70*	*115*	***120***	*115*	*110*	*74*
44.2 M95	kVA	150	**150**	145	125	94	135	**135**	130	114	87	156	**156**	150	132	101	165	**165**	160	137	104
	kW	120	***120***	*116*	*100*	*75*	*108*	***108***	*104*	*91*	*70*	*125*	***125***	*120*	*106*	*81*	*132*	***132***	128	110	*83*
44.2 L12	kVA	165	**165**	165	135	102	150	**150**	150	123	94	170	**170**	170	143	109	175	**175**	175	148	113
	kW	132	***132***	*132*	*110*	*82*	*120*	***120***	*120*	*98*	*75*	*136*	***136***	*136*	*114*	*87*	*140*	***140***	140	89	*90*

Ratings 60 Hz - 1800 R.P.M.

kVA / kW - Power factor = 0,8

Duty T°C		Continuous duty 40°C					Continuous duty 40°C					Stand-by / 40 °C					Stand-by / 27 °C				
Class / T° K		H / 125° K					F / 105° K					H / 150° K					H / 163° K				
Phase		**3 ph.**				1 ph.	**3 ph.**				1 ph.	**3 ph.**				1 ph.	**3 ph.**				1 ph.
Y		380V	416V	440V	480V	ΔΔ	380V	416V	440V	480V	ΔΔ	380V	416V	440V	480V	ΔΔ	380V	416V	440V	480V	ΔΔ
Δ		220V	240V			240V	220V	240V			240V	220V	240V			240V	220V	240V			240V
YY			208V	220V	240V			208V	220V	240V			208V	220V	240V			208V	220V	240V	
44.2 VS3	kVA	95	100	105	**115**	65	85	90	95	**105**	59	100	105	110	**120**	69	105	110	115	**125**	72
	kW	*76*	*80*	*84*	***92***	*52*	*68*	*72*	*76*	***84***	*47*	*80*	*84*	*88*	***96***	*55*	*84*	*88*	92	***100***	*58*
44.2 VS45	kVA	109	117	123	**131**	74	101	108	113	**122**	68	117	125	131	**138**	79	120	129	135	**144**	81
	kW	*87*	*94*	*98*	***105***	*59*	*81*	*86*	*90*	***98***	*54*	*94*	*100*	*105*	***110***	*63*	*96*	*103*	*108*	***115***	*65*
44.2 S7	kVA	126	137	144	**155**	83	115	123	130	**140**	77	133	143	151	**163**	89	139	151	158	**170**	92
	kW	*99*	*106*	*111*	***120***	*66*	*92*	*98*	*104*	***112***	*62*	*106*	*114*	*120*	***130***	*71*	*110*	*118*	*123*	***132***	*74*
44.2 S75	kVA	136	146	155	**169**	95	122	132	139	**152**	85	143	154	163	**178**	100	150	162	172	**187**	105
	kW	*109*	*117*	*124*	***135***	*76*	*98*	*106*	*111*	***122***	*68*	*114*	*123*	*130*	***142***	*80*	*120*	*130*	*138*	***150***	*84*
44.2 M95	kVA	156	167	174	**188**	104	144	154	160	**167**	96	167	179	186	**196**	110	173	185	194	**206**	115
	kW	*125*	*134*	*139*	***150***	*83*	*115*	*123*	*128*	***134***	*77*	*134*	*143*	*149*	***157***	*88*	*138*	*148*	155	**165**	*92*
44.2 L12	kVA	169	180	190	**206**	110	155	165	171	**185**	102	181	193	200	**215**	118	187	201	209	**225**	123
	kW	*135*	*144*	*152*	***165***	*88*	*124*	*132*	*137*	***148***	*82*	*145*	*154*	*160*	***172***	*94*	*150*	*161*	167	**180**	*98*

PLENUM

This type of enclosures has gained a well known reputation through its relatively medium size and good capabilities for noise reduction. It has a very unique inlet and outlet system and the front and rear attenuators makes it easily accessible for maintenance purposes.

Charasteristics:

> Body and components made of steel painted with highly corrosive synthetic gloss.
> Stainless steel locks and hinges.
> Easy access for the radiator and the control panel throgh the outlet and inlet attenuators.
> Lube oil pipe can be reached externally to allow easy drainage.
> Fuel fill and battery are secured throgh lockable doors.
> Control panel viewing window in the inlet attenuator.
> Lifting points on the top of the enclosure.
> Exhaust silencing system in the interior of the enclosure.
> Large doors for easy maintenance access. (two or four depending on the size).
> Emergency stop push button mounted on the exterior of the enclosure (optional).

GHADDAR
MACHINERY Co. S.A.L.

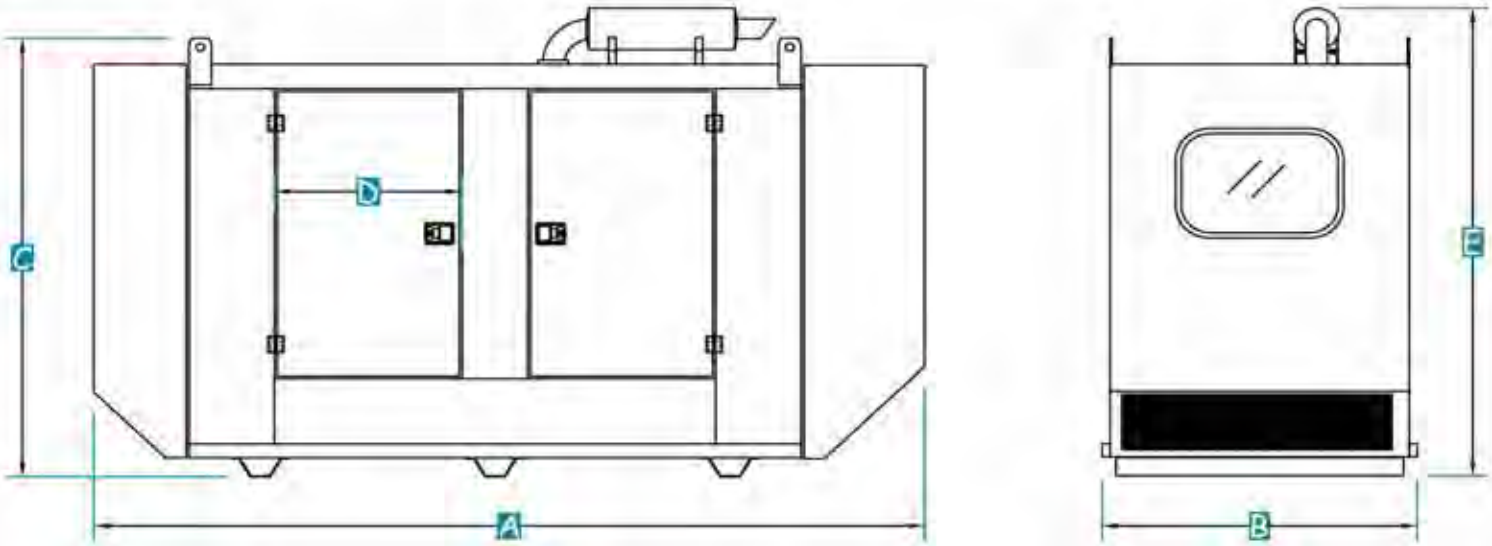
YOUR POWER PARTNER

Range
9 - 250 KVA

ISO 9001 :2000
QMI REGISTERED
IQNet CERTIFIED MANAGEMENT SYSTEM
Certificate Numbers: CC1680-009512, 009912

Sound Pressure Levels (dBA)

		50 Hz						60 Hz					
		1 m		3 m		7 m		1 m		3 m		7 m	
Generating Set	Powertech	0%	100%	0%	100%	0%	100%	0%	100%	0%	100%	0%	100%
Engine model	KVA	Load	Load	Load	Load	Load	Load	Load	Load	Load	Load	Load	Load
403C-11G	9	69.7	71	66.7	68	61.7	63	71.4	72.7	68.4	69.7	63.4	64.7
403C-15G	13	69.7	71	66.7	68	61.7	63	71.4	72.7	68.4	69.7	63.4	64.7
404C-22G	20	69.7	71	66.7	68	61.7	63	71.4	72.7	68.4	69.7	63.4	64.7
1103A-33G	30	71.9	73.4	68.4	69.9	63.4	64.9	73.8	75.3	70.3	71.8	65.3	66.8
1103A-33TG1	45	70.5	72	67	68.5	62	63.5	72.4	73.9	68.9	70.4	63.9	65.4
1103A-33TG2	60	70.5	72	67	68.5	62	63.5	72.4	73.9	68.9	70.4	63.9	65.4
1104A-44TG1	65	70.5	72	67	68.5	62	63.5	72.4	73.9	68.9	70.4	63.9	65.4
1104A-44TG2	80	71.7	73.2	68.2	69.7	63.2	64.4	73.5	75	70	71.5	65	66.2
1006TG1A	95	73.5	75	70	71.5	65	66.2	76	77.5	72.5	74	67.5	68.7
1104C-44TAG2	100	73.5	75	70	71.5	65	66.2	76	77.5	72.5	74	67.5	68.7
1006TG2	105	73.5	75	70	71.5	65	66.2	76	77.5	72.5	74	67.5	68.7
1006TAG1	135	74.7	76.2	71.2	72.7	66.2	67.4	77.2	78.7	73.7	75.2	68.7	69.9
1006TAG2	150	74.7	76.2	71.2	72.7	66.2	67.4	77.2	78.7	73.7	75.2	68.7	69.9
1306C-E87TAG3	200	76.9	79.6	73.4	75.5	68.4	70.8	79.8	82.5	76.3	78.4	71.3	73.7
1306C-E87TAG6	250	76.9	79.6	73.4	75.5	68.4	70.8	79.8	82.5	76.3	78.4	71.3	73.7



Dimensions

Generating Set	Powertech	A: mm	B: mm	C: mm	D: mm	E: mm
Engine model	KVA					
403C-11G	9	2230	1100	1450	834	
403C-15G	13	2230	1100	1450	834	
404C-22G	20	2230	1100	1450	834	
1103A-33G	30	2630	1150	1660	985	
1103A-33TG1	45	2630	1150	1660	985	
1103A-33TG2	60	2630	1150	1660	985	
1104A-44TG1	65	2630	1150	1660	985	
1104A-44TG2	80	2920	1150	1660	640	
1006TG1A	95	3620	1260	1860	872	
1104C-44TAG2	100	3620	1260	1860	872	
1006TG2	105	3620	1260	1860	872	
1006TAG1	135	3620	1260	1860	872	
1006TAG2	150	3620	1260	1860	872	
1306C-E87TAG3	200	4360	1650	2160	860	2480
1306C-E87TAG6	250	4360	1650	2160	860	2480