GOLDEN MAJD Co.

660 - 710S

Rating @ 0.8 PF		Prime rating	Stand-by rating
Voltage *1	Freq.*2	PT660*3	PT710S*4
400 V	50 Hz	663.0 KVA	713 .3 KVA
480 V	60 Hz	638.7 KVA	701 .1 KVA

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 and 380V to 480V for 60Hz applications.
2 - This generating set is of switchable speed of 1500rpm/1800rpm.
3 - **PT635** 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 - **PT700S** 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.

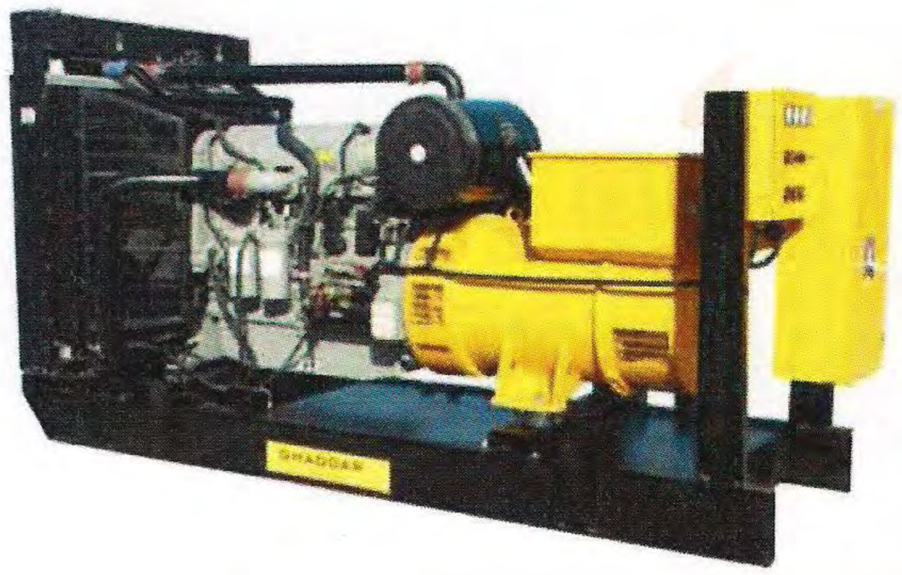
Engine Technical Data		
Model	Perkins 2806C-E18TAG2	
Cylinders	6: vertical in-line	
Aspiration	Turbocharged & A/A charge-cooled	
Combustion	Direct injection	
Cooling System	Water cooled	
Displacement	18.1 L	
Oil consumption	0.1 % of fuel consumption	
Lube oil capacity	62 L	
Coolant capacity	61.0 L	
Governor	Electronic	
Emissions regulations	TA luft (1986)	
Speed	1500 rpm	1800 rpm
Fuel Consumption PT660	132 L/H	127 L/H
Fuel Consumption PT710S	143 L/H	141 L/H
Radiator Cooling Air Flow	702 m^3/min	852 m^3/min
Max Exhaust Gas Flow	114 m^3/min	118 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 49.1 S4	
Regulation	± 0.5 %	
International protection	IP23	
Insulation class	H	
Terminals	6	
Frequency	50 Hz	60 Hz
Coolant Air Flow	1.0 m^3/s	1.2 m^3/s

Shipping Data			
Length	Width	Height	Weight
3940 mm	1550 mm	2120 mm	4769 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

62 St. - Baghdad - Iraq
Tel. : 8150445
8850942
8852140
Mobile : 07901150364
07901109589
07901305088
07901680139
www.goldenmajd.com
E-mail:goldenmajd@yahoo.com
majidobaidi@yahoo.com

2800 Series

Diesel Engine - ElectropaK

2806C-E18TAG2

599 kWm at 1500 rpm
591 kWm at 1800 rpm

The Perkins 2800 Series is a family of well-proven 6 cylinder 16 and 18 litre in-line diesel engines, designed to address today's uncompromising demands within the power generation industry with particular aim at the standby market sector. Developed from a proven heavy-duty industrial base, the engine offers superior performance and reliability.

The 2806C-E18TAG2 is a turbocharged and air-to-air charge cooled, 6 cylinder diesel engine of 18 litres capacity. Its premium features provide economic and durable operation, low gaseous emissions and advanced overall performance and reliability.

Economic power

- Mechanically operated unit fuel injectors with electronic control combined with carefully matched turbocharging give excellent fuel atomisation and combustion with optimum economy.
- Low emissions result from electronic control of fuel injected.

Reliable power

- Developed and tested using the latest engineering techniques and finite element analysis for high reliability, low oil usage and low wear rates.
- High compression ratios also ensure clean rapid starting in all conditions.
- Support comes from a worldwide network of 4000 distributors and dealers.

Compact, clean and efficient power

- Exceptional power to weight ratio and compact size give optimum power density and make installation and transportation easier and cheaper.
- Designed to provide excellent service access for ease of maintenance.

Clean power

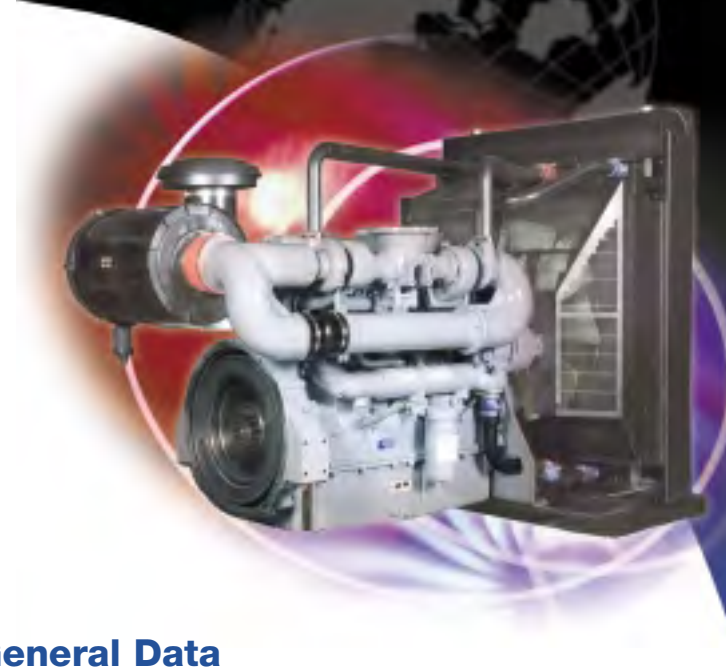
- The 2806C-E18TAG2 is capable of meeting the requirements of TA luft (1986).

Engine Speed rev/min	Type of Operation	Typical Generator Output (Net)		Engine Power			
				Gross		Net	
		kVA	kWe	kW	bhp	kW	bhp
1500	Continuous Baseload*	500	400	441	591	433	581
	Prime power	635	508	550	738	542	727
	Standby (maximum)	700	560	607	814	599	803
1800	Continuous Baseload*	563	450	498	668	484	649
	Prime Power	625	500	552	740	538	721
	Standby (maximum)	688	550	605	811	591	793

The above ratings represent the engine performance capabilities to conditions specified in ISO 8528/1, ISO 3046/1:1986, BS5514/1
* Baseload ratings are under development and will be available later.
Derating may be required for conditions outside these; consult Perkins Engines Company Limited
Generator powers are typical and are based on an average alternator efficiency and a power factor (cos. θ) of 0.8
Fuel specification: BS 2869: Part 2 1998 Class A2 or ASTM D975 D2
Lubricating oil: 15W40 to API CG4

Rating Definitions
Baseload power: Power available for continuous full load operation. Overload of 10% permitted for 1 hour in every 12 hours' operation
Prime power: Power available at variable load with a load factor not exceeding 80% of the prime power rating. Overload of 10% is permitted for 1 hour in every 12 hours' operation
Standby power: Power available in the event of a main power network failure up to a maximum of 500 hours per year of which up to 300 hours may be run continuously. Load factor may be up to 100% of standby power. No overload is permitted.

2800 Series
2806C-E18TAG2



Standard ElectropaK Specification

Air Inlet
Mounted air filter

Fuel System
Mechanically actuated electronically controlled unit fuel injectors with full authority electronic control
Governing to ISO8528-5 class G2 with isochronous capability
Replaceable 'Ecoplus' fuel filter elements with primary filter/water separator
Fuel cooler

Lubrication System
Wet sump with filler and dipstick
Full-flow replaceable 'Ecoplus' filter
Oil cooler integral with filter header

Cooling System
Gear-driven circulating pump
Mounted belt-driven pusher fan
Radiator incorporating air-to-air charge cooler, (supplied loose)
System designed for ambients up to 50ºC
Low coolant level switch

Electrical Equipment
24 volt starter motor and 24 volt 70 amp alternator with DC output
ECM mounted on engine with wiring looms and sensors
3 level engine protection system

Flywheel and Housing
High inertia flywheel to SAE J620 size 18
SAE '0' flywheel housing

Mountings
Front engine mounting bracket

Literature
User's Handbook

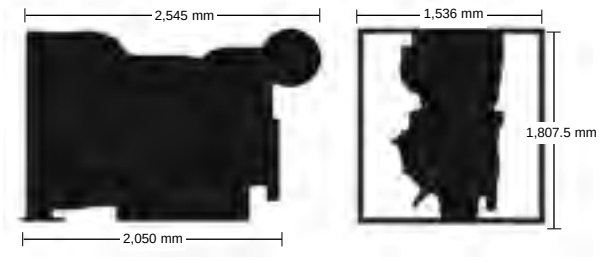
Optional Equipment
110/240 volt immersion heater
Additional speed sensor
Temperature and pressure sensors for gauges
Electric hours counter
Air filter rain hood
Twin starters/facility for second starter
Tool kit
Parts manual/Workshop manual

Perkins Engines Company Limited
Peterborough PE1 5NA
United Kingdom
Telephone +44 (0)1733 583000
Fax +44 (0)1733 582240
www.perkins.com

General Data

Number of Cylinders	6
Cylinder Arrangement	Vertical in-line
Cycle	4 stroke
Induction System	Turbocharged and air-to-air charge cooled
Combustion System	Direct injection
Cooling System	Water-cooled
Bore and Stroke	145 mm x 183 mm
Displacement	18.1 litres
Compression Ratio	14.5:1
Direction of Rotation	Anti-clockwise, viewed on flywheel
Total Lubrication System Capacity	55.5 litres
Total Coolant Capacity	61 litres
Length	2,545 mm
Width	1,536 mm
Height	1,807.5 mm
Dry Weight	1,832 kg

Fuel Consumption				
Engine speed	1500 rev/min		1800 rev/min	
	g/kWh	l/hr	g/kWh	l/hr
At Standby power	202	141	204	140
At Prime power	198	125	203	127
At Baseload power	195	98	201	113
At 75% of Prime power	195	92	202	95
At 50% of Prime power	200	63	211	66



Distributed by

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LEROY SOMER®

3867 en - 10.2006 / d

Alternators
LSA 49.1 - 4 Pole

Electrical and mechanical data

Common data

Insulation class	H	Excitation system	A R E P or PMG
Winding pitch	2/3 (N° 6S)	A.V.R. model	R 448
Terminals	6	Voltage regulation (*)	± 0,5 %
Drip proof	IP 23	Sustained short-circuit current	300% (3 IN) : 10s
Altitude	≤ 1000 m	Total harmonic (* *) TGH / THC	at no load < 4 % - on load < 4%
Overspeed	2250 min^{-1}	Waveform : NEMA = TIF - (* *)	< 50
Air flow	1 m^3/s (50Hz) / 1,2 (60Hz)	Wave form : C.E.I. = FHT - (* *)	< 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													
DutyT°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.			3 ph.			3 ph.			3 ph.		
Y		380V	400V	415V	380V	400V	415V	380V	400V	415V	380V	400V	415V
Δ		220V	230V	240V	220V	230V	240V	220V	230V	240V	220V	230V	240V
49.1 S4	kVA	660	**660**	660	594	594	594	693	693	693	725	**725**	725
	kW	*528*	***528***	*528*	*475*	*475*	*475*	*554*	*554*	*554*	*580*	***580***	580
49.1 M6	kVA	725	**725**	725	653	653	653	760	760	760	800	**800**	800
	kW	580	***580***	*580*	*522*	*522*	*522*	*608*	*608*	*608*	*640*	***640***	*640*
49.1 M75	kVA	775	**800**	775	698	720	698	810	840	810	850	**880**	850
	kW	620	***640***	*620*	*558*	*576*	*558*	*648*	*672*	*648*	*680*	***704***	*680*
49.1 L9	kVA	880	**880**	880	792	792	792	920	920	920	960	**960**	960
	kW	704	***704***	*704*	*634*	*634*	*634*	*736*	*736*	*736*	*768*	***768***	*768*
49.1 L10	kVA	890	**910**	890	800	820	800	934	955	934	979	**1000**	979
	kW	712	***728***	*712*	*640*	*656*	*640*	*747*	*764*	*747*	*783*	***800***	783

Ratings 60 Hz - 1800 R.P.M.

kVA / kW - PF = 0,8															
Duty / T° 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.				3 ph.				3 ph.				3 ph.			
Y		380V	416V	440V	480V	380V	416V	440V	480V	380V	416V	440V	480V	380V	416V	440V	480V
Δ		220V	240V			220V	240V			220V	240V			220V	240V		
49.1 S4	kVA	710	710	725	**792**	639	639	652	712	745	745	760	830	781	781	798	**871**
	kW	568	568	580	**634**	511	511	522	570	596	596	608	664	625	625	638	**697**
49.1 M6	kVA	780	780	800	**870**	702	702	720	783	819	819	840	913	858	858	880	**957**
	kW	624	624	640	**696**	562	562	576	626	655	655	672	730	686	686	704	**766**
49.1 M75	kVA	866	936	960	**960**	780	842	865	865	910	983	1008	1008	953	1030	1056	**1056**
	kW	693	749	768	**768**	624	674	692	692	728	786	806	806	762	824	845	**845**
49.1 L9	kVA	910	980	1010	**1056**	819	882	909	950	955	1029	1060	1108	1000	1078	1111	**1162**
	kW	728	784	808	**845**	655	706	727	760	764	823	848	886	800	862	889	**930**
49.1 L10	kVA	958	1020	1050	**1092**	862	918	945	983	1006	1071	1102	1146	1054	1122	1155	**1200**
	kW	766	816	840	**874**	690	734	756	786	805	857	882	917	843	898	924	**960**

COMPACT (Big Range)

A larger type of the compact enclosure that is used in tigh spaces and almost having the same look. The difference between the two is mainly the number of the doors and the silenced exhaust system which is mounted externally.

GHADDAR
MACHINERY Co. S.A.L.

YOUR POWER PARTNER

Charasteristics:

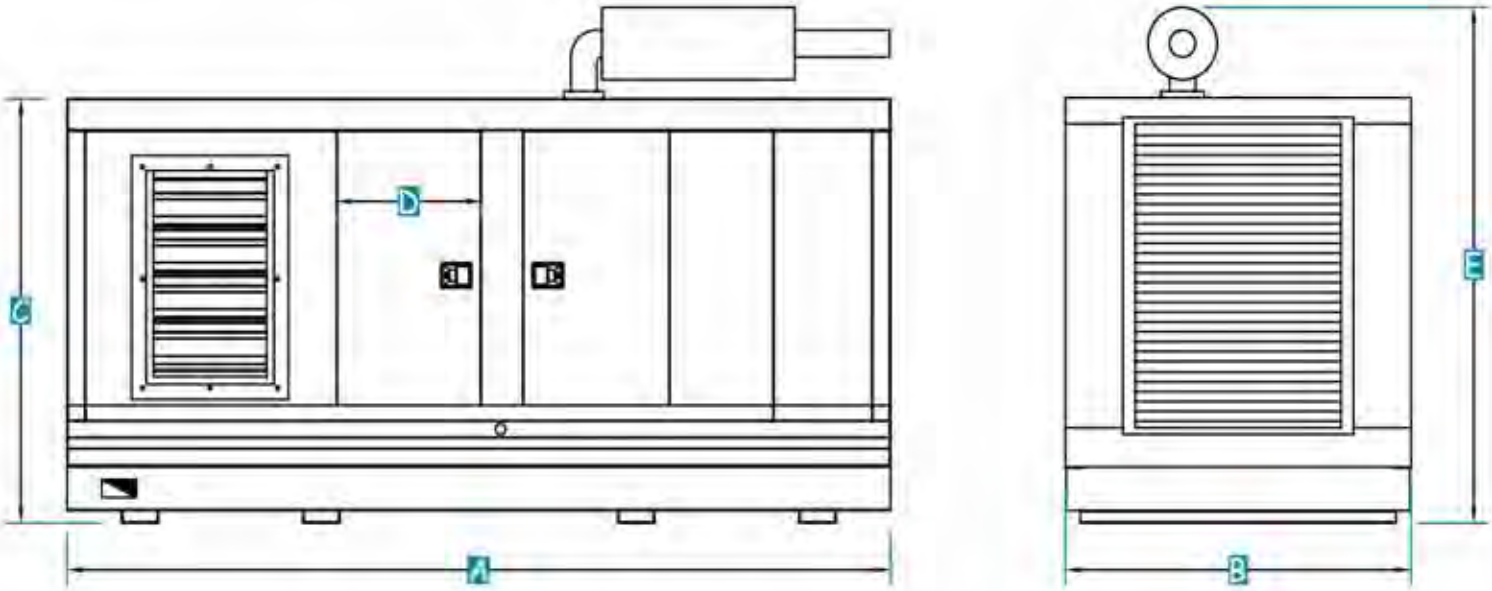
> Body and components made of steel painted with highly corrosive synthetic gloss.
> Stainless steel locks and hinges.
> Two large doors on each side for easy maintenance access.
> Lube oil pipe can be reached externally to allow easy drainage.
> Special viewing window for the control panel in a lockable door.
> Lifting points on the base frame.
> Fuel fill and battery are secured through lockable doors.
> Exhaust silencing system mounted externally.
> Emergency stop push button installed on the exterior of the enclosure (optional).

Range
200 - 800 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
1306C-E87TAG3	200	79.7	82.4	76.2	78.3	71.2	73.6	82.6	85.3	79.1	81.2	74.1	76.5
1306C-E87TAG6	250	79.7	82.4	76.2	78.3	71.2	73.6	82.6	85.3	79.1	81.2	74.1	76.5
2306C-E14TAG2	350	81.2	83.9	77.7	79.8	72.7	75.1	84.1	86.8	80.6	82.7	75.6	78
2306C-E14TAG3	400	81.2	83.9	77.7	79.8	72.7	75.1	84.1	86.8	80.6	82.7	75.6	78
2806C-E16TAG1	450	81.9	84.6	78.4	80.5	73.4	75.8	85	87.7	81.5	83.6	76.5	78.9
2806C-E16TAG2	500	81.9	84.6	78.4	80.5	73.4	75.8	85	87.7	81.5	83.6	76.5	78.9
2806C-E18TAG1	550	83.1	86	79.6	82.9	74.6	77.2	86.3	89.2	82.8	86.1	77.8	80.4
2806C-E18TAG2	625	83.1	86	79.6	82.9	74.6	77.2	86.3	89.2	82.8	86.1	77.8	80.4
4006C-23TAG2A	725	83.8	86.7	80.3	83.6	75.3	77.9	87.3	90.2	83.8	87.1	78.8	81.4
4006C-23TAG3A	800	84.1	87.6	80.6	84.5	75.6	78.8	87.5	91	84	87.9	79	82.2



Dimensions

Generating Set	Powertech	A: mm	B: mm	C: mm	D: mm	E: mm
Engine model	KVA					
1306C-E87TAG3	200	4150	1800	2250	735	2570
1306C-E87TAG6	250	4150	1800	2250	735	2570
2306C-E14TAG2	350	4750	2000	2350	729	2850
2306C-E14TAG3	400	4750	2000	2350	729	2850
2806C-E16TAG1	450	5250	2000	2350	822	2850
2806C-E16TAG2	500	5250	2000	2350	822	2850
2806C-E18TAG1	550	5500	2200	2470	822	2920
2806C-E18TAG2	625	5500	2200	2470	822	2920
4006C-23TAG2A	725	5750	2200	2470	822	2920
4006C-23TAG3A	800	5750	2200	2470	822	2920