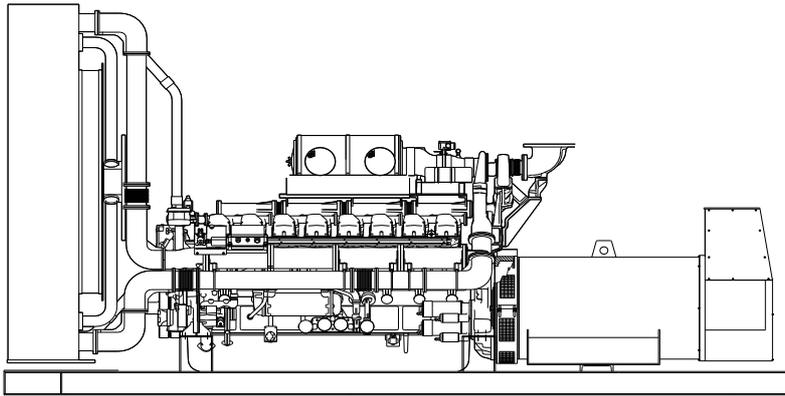


Perkins 4016-61TRG3 diesel engine

Newage/Stamford PI734H alternator



Standard Generator Features

- ◊ AMF, Automatic mains failure unit
- ◊ Heavy duty type, 16 cylinder, water cooled engine
- ◊ 50°C tropical type radiator
- ◊ Starter motor
- ◊ Lead acid battery
- ◊ Charging alternator
- ◊ Battery charge redressor
- ◊ Heavy duty, brushless type alternator
- ◊ Base frame with anti-vibration units
- ◊ Industrial type silencers
- ◊ Flexible exhaust compensator
- ◊ Block water heater unit
- ◊ Control panel with digital-automatic main control module
- ◊ Fan, fan drive, charging alternator drive and all rotating parts covered
- ◊ Radiator matrix covered by metal mesh against the mechanical damages
- ◊ Fabricated and welded steel base frame
- ◊ Anti-vibration mountings
- ◊ Engine and alternator manufacturer test reports
- ◊ Factory load, performance and function tests

Optional Features

- ◊ Automatic load transfer panel
- ◊ Automatic synchronization and power sharing systems
- ◊ Container type enclosers
- ◊ Road trailer
- ◊ Job-site trailer
- ◊ Protection circuit breaker
- ◊ Air start
- ◊ Remote type radiator
- ◊ External type fuel tank
- ◊ Automatic fuel transfer system
- ◊ Residential silencer



Model	Standby		Prime	
	kVA	kW	kVA	kW
CJ2500PN	2500	2000	2255	1804

APPLICATION DATA

Perkins 4016-61TRG3 Engine

Standard Features

Economic power

- ◊ Individual four valve per cylinder heads give optimised gas flows, while unit fuel injectors ensure ultra fine fuel atomisation and hence controlled rapid combustion, for efficiency and economy
- ◊ Commonality of components with other engines in the 4000 Series family allows reduced parts stocking levels

Reliable power

- ◊ Developed and tested using latest engineering techniques
- ◊ Piston temperatures are controlled by an advanced gallery jet cooling sys.
- ◊ All engines are tolerant of a wide range of temperatures without derate
- ◊ Service is provided by the extensive Perkins network of over 4.000 distributors and dealers worldwide

Clean, efficient power

- ◊ Exceptional power to weight ratio and compact size for easier transportation and installation
- ◊ Designed to provide excellent service access for easy of maintenance
- ◊ Engines designed to comply with major international standards
- ◊ Low gaseous emissions for cleaner operation

Standards

- ◊ UK MOD, BS5750, ISO9001, BS5514/1-1982, ISO 3046/1, ISO 8528/1

Technical Specifications

Manufacturer	PERKINS
Model	4016-61TRG3
Type	4 cycle, water-cooled, diesel engine
Number of cylinders	16
Cylinder arrangement	60° Vee
Displacement, Liters	61.123
Bore X Stroke, mm	160 X 190
Compression Ratio	13.6:1
Combustion System	Direct injection
Aspiration	Turbocharge, air-to-air charge cooled
Rotation	Anti-clockwise viewed on flywheel
Gross engine power, kWb	1937
Fan Power, kWm	51
BMEP gross, bar	28,57
Combustion air flow, m ³ / min	175
Exhaust gas temp.(after turbo), °C	560
Exhaust gas flow (after turbo),m ³ / min	525
Mean piston speed, m / s	9,5

Cooling System

Type	Tropical, heavy duty type
Ambient temperature, °C	52
Engine coolant capacity, Liters	95
Engine+Radiator coolant cap., Liters	316
Jacket coolant flow, Liters / sec	21
Cooling min airflow, m ² / min	2430
◊ Twin gear driven circulating pumps	
◊ Two twin thermostats	
◊ Crankshaft pulley for fan drive	

Model	Standby kWm		Prime kWm	
	Gross	Net	Gross	Net
4016-61TRG3	2183	2083	1975	1875

Lubricating System

Type	Pressurized
Capacity, Liters	213
Lub oil temp. Max to bearings, °C	105
Lub oil pressure (at 80°C,min), MPa	0.34
◊ Wet sump with filler and dipstick	
◊ Full flow spin on oil filters	
◊ Engine jacket lub oil temperature stabilizer	

Fuel System

Type of injection system	Direct injection
Fuel injection pump	Combined unit injector
Fuel injector opening pressure, bar	234
Delivery/hour at 1500rev/min, Liters	1380
Fuel lift pump	Tuthill TCH 5
Governor type	Electronic governor to ISO 3046 Part 4 class A1
◊ Unit fuel injectors with lift pump and hand stop control	
◊ Full flow spin-on fuel filters	

Electrical System

Alternator	24 Volt with integral regulator
Starter motor (DC)	24 Volt
Starter motor power	16.4 kW
◊ Combined high coolant temperature / low oil pressure switch	
◊ Overspeed switch and magnetic pick up	
◊ Turbo inlet temperature shutdown switch	
◊ 24 Volt stop solenoid	

Fuel Consumption

liters per hour	%110 Load	528 L
	%100 Load	473 L
	%75 Load	346 L
	%50 Load	235 L
grams per kWh	%110 Load	209 g/kWh
	%100 Load	205 g/kWh
	%75 Load	200 g/kWh
	%50 Load	204 g/kWh

Optional Equipments

- ◊ Twin heavy duty air cleaner - paper element with pre-cleaner
- ◊ Changeover lubricating oil filter
- ◊ Changeover fuel oil filter
- ◊ Immersion heater with thermostat
- ◊ Air starters

Newage/Stamford PI734H Alternator

Standard Features

Winding&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.

DECS100 AVR

The PI range generators, complete with a PMG, are available with one of two AVRs. Each AVR has soft start voltage build up and built in protection against sustained over-excitation, which will de-excite the generator after a minimum of 8 seconds.

Underspeed protection (UFRO) is also provided on both AVRs. The UFRO will reduce the generator output voltage proportional to the speed of the generator below a presettable level.

The MX341 AVR is two phase sensed with a voltage regulation of $\pm 1\%$.

The MX321 AVR is 3 phase rms sensed with a voltage regulation of 0.5%rms

The UFRO circuit has adjustable slope and dwell for controlled recovery from step loads. An over voltage protection circuit will shutdown the output device of the AVR, it can also trip an optional excitation circuit breaker if required.

As an option, short circuit current limiting is available with the addition of current transformers.

Both the MX341 and the MX321 need a generator mounted current transformer to provide quadrature droop characteristics for load sharing during parallel operation.

The DECS100 AVR is 3 phase rms sensed with a voltage regulation of 0.25%rms

Terminals&Terminal Box

Standard generators feature a main stator with 6 ends brought out to the terminals, which are mounted on the frame at the non-drive end of the generator. A sheet steel terminal box contains the AVR and provides ample space for the customers' wiring and gland arrangements. It has removable panels for easy access.

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', and meets the requirements of UL1446.

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.

Standards

Newage Stamford industrial generators meet the requirements of **BS EN 60034** and the relevant section of other international standards such as **BS5000, VDE0530, NEMA MG1-32, IEC34, CSA C22.2-100, AS1359**

Other standards and certifications can be considered on request

Quality Assurance

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

Model	Standby		Prime	
	kVA	kW	kVA	kW
PI734H	2600	2080	2325	1860

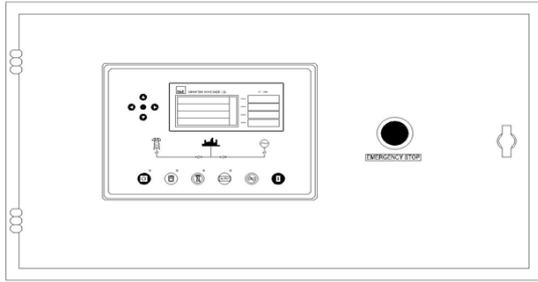
Technical Specifications

Manufacturer	Newage/Stamford
Model	PI734H
Type	4-Poles, Rotating Field, Brushless
Standby power at rated voltage, kVA	2600
Efficiency, %	95.9
Power factor	0.8
Phase	3
Frequency, Hz	50
Speed, Rpm	1500
Voltage, V	400/415
Excitation	Self excited
Stator windings	2/3 Pitch factor
Regulation	AVR, Automatic Voltage Regulator
Voltage Regulator	DECS100
Voltage Regulation, %	$\pm 0,25$
R.F.I Suppression	BS EN 61000-6-2 & BS EN 61000-6-4 VDE0875G, VDE 0875N
Waveform distortion	No Load <1.5% Non distorting balanced linear load <5.0%
Rotor	Dynamic balanced
Overspeed, Rpm	2250
Short circuit current	< 300%
TIF	Less than 50
Insulation class	H
Construction	Single bearing, direct coupled
Coupling	Flexible
Stator winding	Double layer concentric
Connection	WYE
Protection class	IP23
Cooling air volume, m ³ / sec	2.69

Optional Equipment

- ◊Winding and bearings RTDs
- ◊Excitation Loss Module
- ◊Anti Condensation Heaters
- ◊Air Filters
- ◊Re-greasable bearings
- ◊Winding Protection Thermistors
- ◊Quadrature Droop kit for Parallel Operation
- ◊Power Factor Controller
- ◊Diode Failure Unit
- ◊Manual Voltage Regulator
- ◊MX321 AVR with 0.5% Regulation and 3 phase sensing

Standart Ekipmanlar



- ◆Deeapse 7320 dijital otomatik kontrol modülü
- ◆Acil durdurma butonu
- ◆
- ◆
- ◆
- ◆
- ◆

Deepsea 7320 Kontrol Modülü

Açıklama

- ◆7320 modülü AMF modülüdür.
- ◆Modül şebekeyi izler ve otomatik olarak jeneratör çalıştırır.
- ◆Modül işlem durumunu ve arızaları gösterir jeneratörü otomatik olarak durdurur
- ◆ve uygun LED in yanıp sönmesiyle bunu kullanıcıya bildirir.
- ◆Seçilen zamanlayıcılar ve ayarlar modülden değiştirilebilir.
- ◆
- ◆

Spesifikasyonlar

- ◆240mm x 181mm ölçülerinde
- ◆70mm x 40mm ölçülerinde , 4 parça LCD monitor
- ◆Geliştirilmiş 16-bit Mikroişlemci dizaynı
- ◆Kolay anlaşılır ekran (Hid-Til-Lit SMD LED teknolojisi)
- ◆LED mimik diagram
- ◆GSM Modem yardımı ile sms gönderimi
- ◆Yazılımı windows ile uyumlu olup USB ile kolayca program atma.
- ◆Kolay basılabilen tuş takımları.
- ◆Ön panelden sistem parametreleri kolayca alınabilir
- ◆kVA,kW ve Cosφ ölçüleri.
- ◆Modem ile haberleşme.
- ◆Modbus RTU
- ◆Kullanıcı tarafından seçilebilir RS232 veya RS485 bağlantı.
- ◆4 analog giriş , 8 dijital giriş, 6 dijital çıkış sinyali

Buton Kontrolleri

STOP / START
 AUTO, TEST, MANUAL
 LCD PAGE

LCD Gösterge Ölçümleri

Jeneratör Voltajı	Volt L1-N, L2-N, L3-N
Jeneratör Voltajı	Volt L1-L2, L2-L3, L3-L1
Jeneratör Akımı	Amp L1, L2, L3
Jeneratör Frekansı	Hz
Şebeke Voltajı	Volt L1-N, L2-N, L3-N
Şebeke Voltajı	Volt L1-L2, L2-L3, L3-L1
Şebeke Frekansı	Hz
Motor Devri	RPM
Akü Voltajı	Volt
Çalışma Saati	Saat
Jeneratör Toplam Gücü	kVA L1, L2, L3,total
Jeneratör Toplam Gücü	kW L1, L2, L3,total
Güç Faktörü	Cosφ L1, L2, L3,total

Opsiyonel Göstergeler

Yağ Göstergesi	kPa
Yakıt Seviye	%
Sıcaklık Göstergesi	°C

Alarmlar

- Düşük/Yüksek Jeneratör Voltajı
- Aşırı Akım
- Düşük/Yüksek Jeneratör Frekansı
- Düşük/Yüksek Hız
- Şarj Arızası
- Acil Durdurma
- Düşük Yağ Basıncı
- Hararet Arızası
- Çalışmadı Arızası
- Düşük/Yüksek Akü Voltajı
- Ters Güç
- Jeneratör Faz Sırası Arızası
- Jeneratör Kısa Devre Koruması
- Şebeke Voltajının Limit Dışında Olması

Çevresel Test Standartları

Elektromanyetik uygunluk

BS EN 50081-2:1992 and EN 61000-6-4:2000 EMC, Endüstriyel Çevre Emisyon Standartı.

EN 61000-6-2:1999 EMC,Endüstriyel Çevre Endüksiyon Standartı.

Titreşim

BS EN 60068-2-6 10 her 3 aks'tan birinin 1dk/oktaldaki (yukarı aşağı yönlü) 10 titreşimi.

5Hz to @ +/-7.5mm sabit yer değişimi.

8Hz to 500Hz 2gn sabit ivme.

Sıcaklık

Soğuk : BS EN 60068-2-1 to -30°C

Sıcak : BS EN 60068-2-2 to 70°C

Nem

48 saat'teki BS EN 2011'in 2.1'nci bölümünün 93% RH @ 40°

Şok

BS EN 6068-2-27 11 ms süresince her biri 15gn genlik'li.

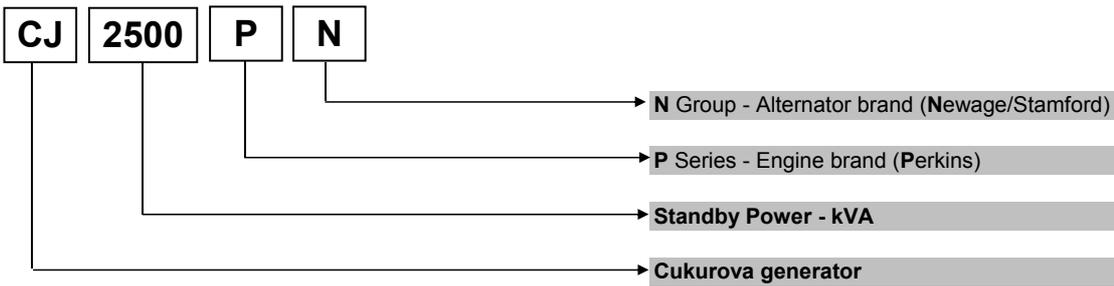
3 ana aks'ın 3 yarım şoku.

Elektriksel Güvenlik

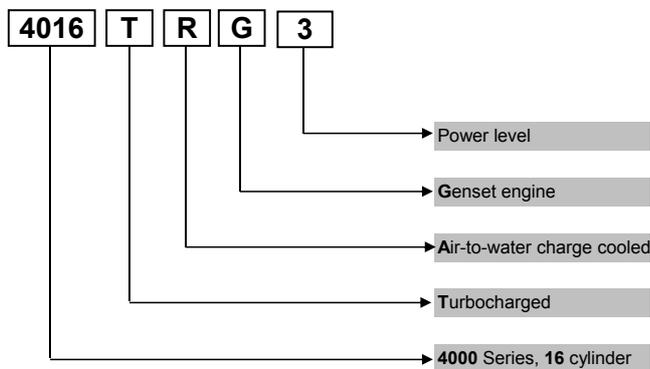
BS EN 60950 Düşük voltaj koruması.

Model Codes and General Information

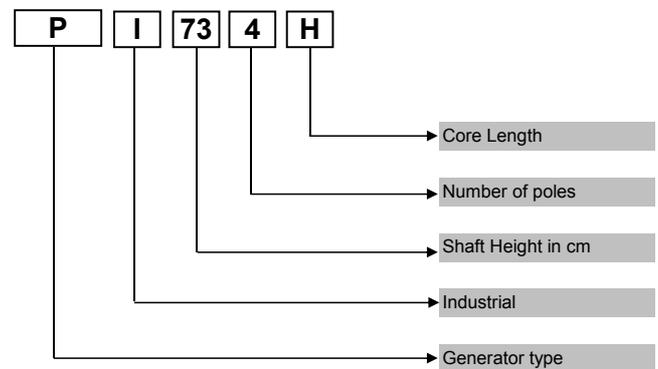
Cukurova Diesel Generator



Perkins 4000 Series Diesel Engine



Newage/Stamford Alternator



Information

Power Ratings

Standby power rating is for the supply of emergency power at variable load for the duration of the non-availability of the mains power supply. No overload capacity is available at this rating. A standby rated engine should be sized for an average load factor of 80% based on published standby rating for 500 operating hours per year. Standby ratings should never be applied except in true emergency power failure conditions.

Prime power rating is available for unlimited hours per year with a variable load of which the average engine load factor is 80% of the published power rating, incorporation of a 10% overload for 1 hour in every 12 hours of operation which permitted

Continuous power rating is available for continuous full load operation. No overload is permitted.

Acc. to 3046/1, BS 5514, DIN6271

Electric Formulas

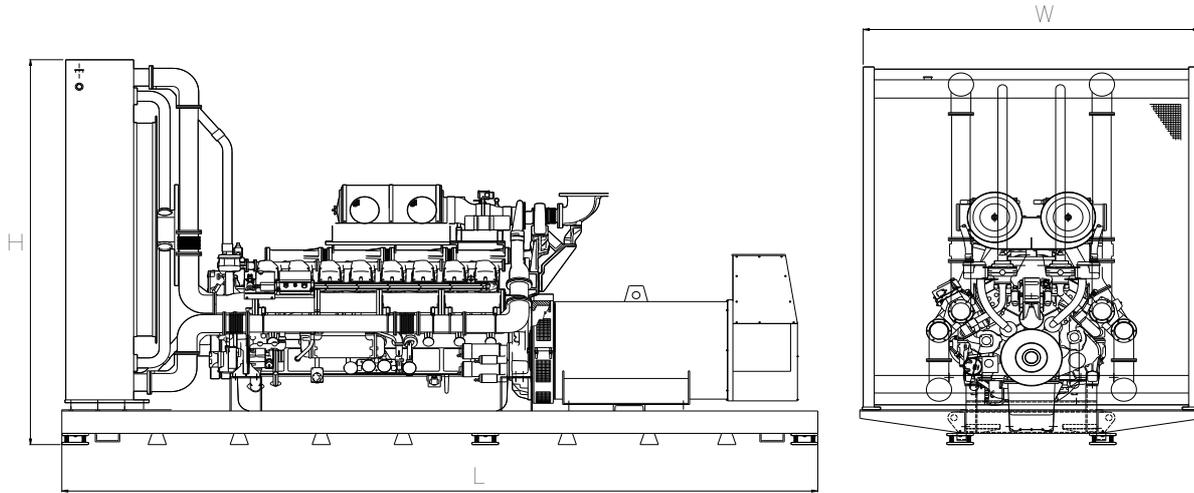
Values	Formula	
kWe	kWm X E	
kWe	$(U \times I \times 1.73 \times pf) / 1000$	kVA x pf
kVA	$(U \times I \times 1.73) / 1000$	kWe / pf
I (Amp)	$(kWe \times 1000) / (U \times 1.73 \times pf)$	$(kVA \times 1000) / (U \times 1.73)$
Frequency	$(Rpm \times N^{\circ}Pole) / (2 \times 60)$	
Rpm	$(2 \times 60 \times Frequency) / N^{\circ}Pole$	

kWm: Mechanical Power
kWe: Electrical Power
pf: Power factor
E: Alternator efficiency

I: Current (A)
U: Voltage (V)
kVA: Power
Rpm: Revolutions per minute

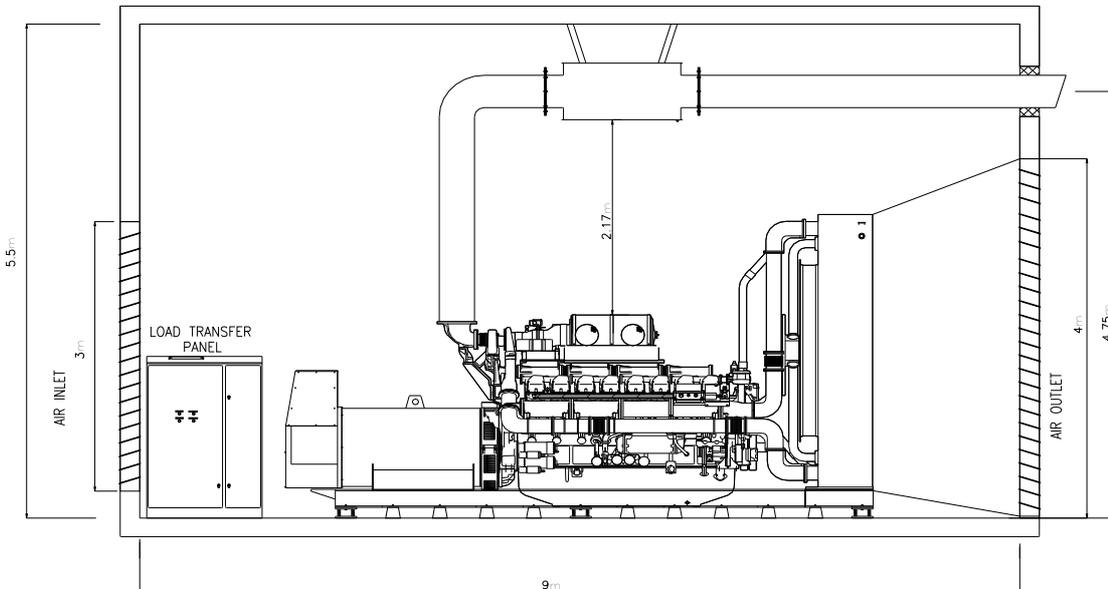
General Dimensions

Standard Generator



Length, L	6,15 m
Height, H	3,80 m
Width, W	2,79 m
Weight, Total	13.600 kg

Generator Room Layout



Above drawings dimensions and weights are only for guidance. For installation design of your specific application, necessary certified drawings, at site consultancy service as well as maintenance and installations manuals will be provided by Cukurova without any charge.

Specifications may change without notice

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	<p>ÇUKUROVA JENERATÖR SANAYİİ TİCARET A.Ş.</p>		