



**Santo Domingo, D. N.**  
**02 de Enero, 2017.-**

**Cotización # 326764/17**

Señores:  
**JUNTA CENTRAL ELECTORAL**  
Ciudad.-

**Ref.: Oficialía IRA.-Circ.-Y Centro de Servicios de La Romana.**

Atención: **Depto. Compras y Contrataciones.**

Estimados Señores:

Cortésmente les estamos ofreciendo cotización por:

**1- Planta Eléctrica Marca GENMAC Modelo RGU300IS 251KW de capacidad en EMERGENCIA (313 KVA) ó 230KW (288 KVA) PRIME POWER, 1800RPM, 60Hz, 3PH, 120//208V, SILENCIOSA Con Breaker Marca ABB y Tanque Combustible de 350 Litros. Garantizamos que todos los componentes son de Fabricación Europea.**

**INCLUYENDO LOS SIGUIENTES EQUIPOS:**

**Motor Marca FPT-IVECO modelo CURSOR87TE3 Fabricación Europea.**

**Diesel**

**4 ciclos 6 cilindros**

**Gobernador electrónico**

**Motor de arranque eléctrico de 12 VDC**

**Unidad del Radiador que incluye: abanico y la masa**

**Filtro separador de agua del combustible**

**Bomba Para extracción de Aceite**

**Generador STAMFORD Modelo UC DI274K Fabricación Inglesa.**

**AVR**

**Tropicalizado, con aislamiento clase H, a prueba de goteo**

**12 Bornes de conexión**

**Control de Voltaje Stanford**

**Transformadores de corriente (CT)**

**SISTEMA DETECTOR DE AVERIAS, QUE INCLUYE PROTECCIONES CONTRA:**

**Aumento de temperatura**

**Descenso en presión de aceite**

**Sobre velocidad**

**Overcrank**

**Botón apagado de emergencia**

**Bajo nivel refrigerante**

**CONTROLES PARA PARADAS DE EMERGENCIA POR:**

**Baja presión de aceite**

**Alta temperatura del agua**

**Sobre velocidad y Overcrank**



**SAN MIGUEL & CÍA, S.R.L.**

PLANTAS ELÉCTRICAS // ASCENSORES & ESCALERAS MITSUBISHI

**PANEL DE CONTROL DEEPSEA 7320 INCLUYE:**

*Voltaje del generador (L1-N, L2-N, L3-N) en las tres fases*

*Frecuencia del generador (Hz)*

*Corriente del generador (L1, L2, L3)*

*Presión de aceite del motor (PSI y BAR)*

*Temperatura de agua (°C y °F)*

*Temperatura de aceite del motor*

*Consumo de combustible por hora*

*Total de combustible usado*

*Voltaje de batería*

*Velocidad del motor (R.P.M.)*

*Horas de operación*

**PROTECCIONES Y CONTROLES PARA PARADAS DE EMERGENCIA:**

*Para aumentar la confiabilidad y seguridad del equipo y la carga, el control cuenta con protecciones que se consideran algunas como críticas las cuales en caso de presentarse, provocan el paro del equipo y otras como no críticas o pre-alarmas proporcionando la señal indicativa de la falla presente.*

- |  |  |
|--|--|
| ➤ <i>Baja presión de aceite</i>        | <i>Falla del sensor de presión de aceite</i>           |
| ➤ <i>Alta temperatura del agua</i>     | <i>Falla del sensor de la frecuencia del generador</i> |
| ➤ <i>Sobre velocidad</i>               | <i>Sobre corriente</i>                                 |
| ➤ <i>Baja velocidad</i>                | <i>Alto voltaje de batería</i>                         |
| ➤ <i>Alta frecuencia del generador</i> | <i>Bajo voltaje de baterías</i>                        |
| ➤ <i>Falla de arranque</i>             | <i>Falla de paro</i>                                   |
| ➤ <i>Alto voltaje del generador</i>    | <i>Falla de bajo nivel de agua del radiador</i>        |
| ➤ <i>Bajo voltaje del generador</i>    | <i>Bajo nivel de combustible (*) (opcional)</i>        |
| <i>Paro de emergencia</i>              | <i>canales extras configurables</i>                    |

**ACCESORIOS INCLUIDOS EN EL EQUIPO:**

*Batería, base y cables*

*Cargador de Baterías*

*Silenciador Crítico*

*SopORTE de vibración entre chasis y motor-generador*

*Sub-base de acero estructural soldado*

*Manuales de mantenimiento*

*Este equipo fue probado en fábrica para garantizar su correcto funcionamiento.*



**SAN MIGUEL & CÍA, S.R.L.**  
PLANTAS ELÉCTRICAS // ASCENSORES & ESCALERAS MITSUBISHI

**Todos los equipos insonorizados GENMAC están fabricados bajo la norma de calidad ISO 9001/2000. Así mismo, cuentan con el marcado CE (Comunidad Europea) para las siguientes directivas:**

- 98/37/CE Seguridad de maquinas
- 73/23/CEE Baja tensión
- 89/336/ Compatibilidad electromagnética
- 2005/88/CE Emisiones sonoras de las maquinas al aire libre en equipos insonorizados.

**GARANTIA: 2 AÑOS ó 1500 HORAS en servicio de emergencia en piezas y servicios, siempre que la operación y mantenimiento sean de acuerdo a lo especificado por el fabricante.**

**PRECIO DE VENTA: US\$33,371.30**

**18% ITBIS: US\$ 6,006.83**

**TOTAL: US\$39,378.13**

**INCLUYE INSTALACIÓN Y TRANSPORTE A LA ROMANA.**

**PLAZO DE ENTREGA: 60- DIAS DE ORDEN.**

**FORMA DE PAGO: 50% A LA ORDEN.  
50% A LA ENTREGA.**

Los precios ofertados incluyen transporte a su obra en el perímetro de la ciudad de Santo Domingo, en distancias mayores efectuaremos cargos de acuerdo al lugar de destino.

Esta cotización está expresada en US dólares, los pagos pueden ser efectuados en RD pesos, tomando como base la tasa de cambio vigente en el mercado al realizarse el pago.

Esta cotización está realizada en base a los Impuestos vigentes actuales, cualquier cambio que se presente se reflejara en el precio al momento de realizarse la venta.

**SOPORTE DE SERVICIO:**

San Miguel & Cía. garantiza poseer todos los repuestos que pudiera demandar el equipo ofertado. Ponemos a su disposición nuestro Dpto. de servicio para realizar la instalación y contrato de mantenimiento.

Esperando que nuestra cotización sea de su agrado.

Atentamente,

Gerardo Quiroga San Miguel  
Gerente

mahc

# ROYAL RGU300IS

60Hz@1800RPM 208/120V 3PH

**GENMAC**  
POWER PRODUCTS



## Características generales

Generador silenciado con las siguientes características estructurales:

### Estructura:

- En acero de alta calidad UNI S235 JR con base soldada
- Soportes anti vibración, tipo campana, muy resistentes entre motor, alternador y base
- Area de entrada de los cables para la conexión a la carga
- Tanque equipado con drenaje para el vaciado
- Pies y cuatro anillos para levantamiento fijados a la base
- Bomba manual para drenaje de aceite

### Cabina:

- Puertas anchas para facilitar el acceso y el mantenimiento
- Corte de láminas con tecnología láser de alta precisión
- Juntas selladas resistentes a la intemperie
- Bisagras en nylon de alta tecnología: no se oxidan y no requieren lubricación
- Teclas de bloqueo en cada puerta
- Acabado de pintura "piel de naranja" gris RAL 7035 específicamente para uso al aire libre
- Tapa para lluvia sobre salida de gases de escape
- Escotilla para rellenar liquido refrigerante
- Carico combustible externo
- Espuma insonorizante ecologica: 100% reciclable, espesor 40mm, autoextinguible, clase 1, lavable, fijadas mecánicamente al bastidor

### Tablero de control:

- Tablero de control realizado con estructura de metal y componentes IP65, fácil de desmontar para el mantenimiento
- Fácil acceso por una puerta de la cabina, proporcionada con ventana en lexan
- Area externa dedicada a la entrada los cables para la conexión a la carga
- El tablero de control está dividido en dos cajas aisladas entre ellas que separan el cuadro de Control (unidad de control y terminales enumerados) del cuadro de alimentación (disyuntor y entrada de cables)
- Conexiones eléctricas entre interruptor y alternador realizadas con cables alta resistencia en neopreno (H07RNF) y uso de glándulas para conexiones impermeables

Todas las unidades y componentes son probados en fase de prototipo, construcción y producción. Un procedimiento de control específico durante las diversas etapas de la producción asegura larga duración y fiabilidad.

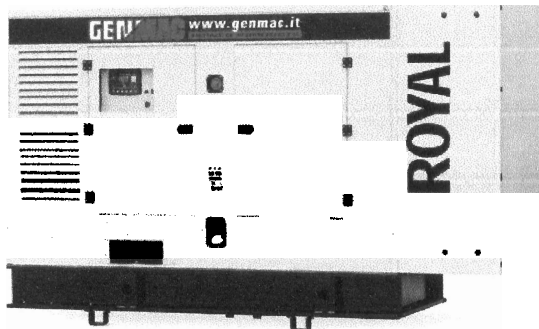


Imagen sólo para fines ilustrativos

## Rendimiento general

**RGU300IS**

Potencia en servicio continuo PRP kVA	<b>288</b>
Potencia en servicio continuo PRP kW	<b>230</b>
Potencia en servicio stand-by LTP kVA	<b>313</b>
Potencia en servicio stand-by LTP kW	<b>251</b>
Factor de Potencia cosφip	<b>0.8</b>
Voltaje VAC	<b>208/120</b>
Frecuencia Hz	<b>60</b>
Ampere PRP/LTP	<b>800 / 871</b>
Velocidad de RPM	<b>1800</b>

## Dimensiones y el nivel de ruido

Largo mm	<b>3600</b>
Ancho mm	<b>1226</b>
Altura mm	<b>2000</b>
Peso neto kg	<b>2255</b>
Peso bruto kg	-

Presión acústica a 7 m. dBA

## Referencias por los datos

Las prestaciones se refieren a temperatura 25°C, altura 1-1000 m sobre el nivel del mar, humedad relativa 30%, presión atmosférica 100 kPa, cosφ 0,8 en atrás, carga lineal, el consumo de combustible es nominal y se refiere al peso específico del gasoil 0,850kg/l. Los datos de potencia mencionados se pueden obtener después del periodo inicial de prueba durante del cual usted tiene que seguir los requisitos del fabricante del motor como se indica en el manual de uso y mantenimiento del mismo. La tolerancia indicada por los fabricantes de los motores es de ± 5%. El valor de potencia sonora se refiere a medidas on campo abierto: el lugar de instalación puede afectar los resultados. Tamaño, peso y otras especificaciones indicadas en las fichas técnicas y los archivos adjuntos son nominales, sujetas a tolerancias y se refieren al modelo estándar; equipamiento opcional y/o accesorios pueden modificar peso, tamaño, prestaciones. P.R.P.-Prime Power-Potencia continua a carga variable; De acuerdo con la ISO 8528-1, es la potencia máxima disponible durante una secuencia de carga variable, que se puede generar durante un numero ilimitado de horas al año, respetando los intervalos de mantenimiento indicados y en las condiciones de referencia determinadas. La salida de energía media admisible y eventual sobrecarga aplicable tienen que ser inferiores al porcentaje establecido desde el fabricante. L.T.P.-Limited-time running power-Potencia limitada. De acuerdo con la ISO 8528-1, es la potencia máxima disponible durante una secuencia de carga variable, que se puede generar durante un numero limitado de horas al año, respetando los intervalos de mantenimiento indicados y en las condiciones de referencia determinadas. El número de horas por año es establecido por el fabricante del motor. Opcion sobrecarga no disponible.

# ROYAL RGU300IS

60Hz@1800RPM 208/120V 3PH

**GENMAC**  
POWER PRODUCTS

## Datos generales del motor

Marca motor	<b>Fpt-Iveco</b>
Modelo	<b>CURSOR87TE3</b>
kW	<b>249.00</b>
Potenza LTP al volante kW	<b>271.00</b>
Carburante	<b>Diesel</b>
Nº cilindros	<b>6</b>
Aspiración	<b>Turbo intercooler</b>
Refrigeración	<b>Agua</b>
Cilindrada l.	<b>8.70</b>
Regulación velocidad	<b>Electrónica</b>
Precisión del regulador +/-%	<b>---</b>
Voltaje VDC	<b>24</b>
Emisiones	

## Consumo de combustible

Consumo 25% l./h	<b>-</b>
Consumo 50% l./h	<b>35.70</b>
Consumo 75% l./h	<b>50.00</b>
Consumo 100% l./h	<b>65.80</b>
Autonomía en al 75% de la carga h.	<b>≈ 7 h</b>

## Líquidos y equipo del motor

Tipo de lubricante	<b>Aceite SAE 15W40</b>
Capacidad de lubricación l.*	<b>28.00</b>
Tipo de refrigerante	<b>Líquido anticongelante</b>
Capacidad refrigerante l.*	<b>58.00</b>
Filtro de aspiración	<b>Cartucho de papel</b>
Capacidad de la batería Ah	<b>140</b>
Numero de baterías*	<b>2</b>

## Datos generales del alternador

Marca alternador	<b>Stamford</b>
Modelo	<b>UCDI274K</b>
Tipo de excitación	<b>Autoexcitado</b>
Tipo de regulación	<b>AVR</b>
Precisión del regulador +/-%	<b>1.00</b>

## Sistema de combustible y el balance energético

Cabezal de aspiración de la bomba de CA kPa	<b>-</b>
Flujo de aire de combustión LTP m3/min	<b>21.20</b>
Flujo del aire de refrigeración LTP m3/min	<b>423.00</b>
Densidad flujo gas de escape LTP m3/min	<b>59.80</b>
Temperatura gas de escape LTP °C	<b>500.00</b>
Contrapresión máx. de escape kPa	<b>10.00</b>
Calor gas de escape LTP kWt	
Calor al refrigerante LTP kWt	<b>-</b>
Calor irradiado LTP kWt	<b>-</b>

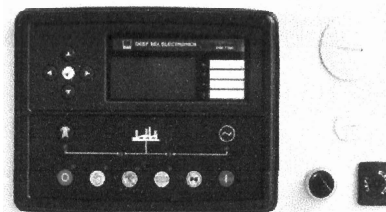
## Datos de estructura

Tipo de estructura	<b>ROYAL</b>
Capacidad del depósito l.	<b>350</b>
Cubeta de recogida	<b>no</b>
Diámetro de escape mm	<b>120</b>

## Características del cuadro de manejo

### QT2A-7320

- Torre IP65 autoportante de metal
- Disyuntor
- Controlador AMF DSE7320
- Voltímetro, Medidor de frecuencia, Amperímetro
- Monitoreo potencia generador (kW, kV Ar, kV A & pf)
- Contador de horas
- Medidor de nivel de combustible
- Protección de sobrecarga (kW & kV Ar)
- Protección baja presión de aceite
- Protección alta temperatura liquido refrigerante
- Protección bajo nivel de combustible
- Falla cargador de batería del alternador
- Protección RPM
- Botón de parada de emergencia
- Alarma Sonora
- Placa de bornes para conexión ATS
- Puertos RS232 & RS485
- Puerto lectura Can Bus (si estándar en el motor)
- Cargador de batería
- Interruptor encendido/apagado



**GENMAC**  
POWER PRODUCTS

Distribuidor



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Código: 3126 Revisión: 00-17/03/2016

# C87 TE3

249 kW (1500 rpm) - 271 kW (1800 rpm)

## 7/ FUEL SYSTEM

			1500 rpm	1800 rpm
Fuel consumption at				
Stand-By	gr/kWh (l/h) [kg/h]		190.2 (58.2) [48.5]	195.3 (65.6) [54.7]
Full load	gr/kWh (l/h) [kg/h]		196.3 (55.3) [46.1]	203.8 (63.0) [52.6]
80%	gr/kWh (l/h) [kg/h]		200.3 (45.2) [37.7]	206.0 (51.1) [42.6]
50%	gr/kWh (l/h) [kg/h]		212.7 (30.0) [25.0]	220.8 (34.2) [28.5]
Fuel specifications			EN 590	
Feed pump max suction head			m	

## 8/ ELECTRIC SYSTEM

			1500 rpm	1800 rpm	
Voltage (negative to ground)			V	24	24
Starter motor					
make			BOSCH		
power	kW		4.5		
pull current	Amp		12		
hold current	Amp		12		
break away current +20°C	Amp		1020		
cranking current +20°C	Amp		0		
Number of teeth on starter motor			10		
Number of teeth on flywheel			149		
Starting batteries					
recommended capacity	Ah	2x	185		
discharge current	Amp		1200		
(EN 50342)					
Alternator					
voltage	V		28		
charge	Amp		90		

## 9/ COLD STARTING

			1500 rpm	1800 rpm
Without air preheating			°C	-10
With air preheating			°C	-25

## 10/ EMISSION GASEOUS AND PARTICLES

			1500 rpm	1800 rpm
No <sub>x</sub>	Oxides of nitrogen	gr/kWh		
HC	Hydrocarbons	gr/kWh		
No <sub>x</sub> +HC		gr/kWh		
CO	Carbon monoxide	gr/kWh		
PT	Particles	gr/kWh		

# C87 TE3

249 kW (1500 rpm) - 271 kW (1800 rpm)

## 3/ COOLING SYSTEM

		1500 rpm	1800 rpm	
Type			liquid	
Recommended coolant			50% water + 50% glycol	
Coolant capacity				
engine only	liter		15	
radiator and hoses	liter		43	
Coolant pump flow	l/min	239,5	287,5	
Pressure cap setting	kPa (bar)		100 (1.0)	
Shutdown switch setting	°C		103	
Maximum additional restriction	Pa		196	
Air To Boil	Prime Power	°C	64	64
Fan				
diameter	mm		750	
number of blades			8	
drive ratio			1.03: 1	
speed	rpm	1545,0	1854,0	
air flow	m <sup>3</sup> /s	5,65	7,05	
power consumption	kWm	6,0	9,0	

## 4/ LUBRICATION SYSTEM

		1500 rpm	1800 rpm
Oil sump capacity			
max	liter		23
min	liter		12,5
Oil system capacity including filter	liter		28
Oil pressure at rated speed	kPa		400 - 550
Oil temperature			
normal	°C		92
max	°C		120
Engine angularity			
longitudinal	degrees		30°
transverse	degrees		30°
Servicing interval	hours		up to 600
Oil specification			API C14 - ACEA E4/E5/E6/E7 5W30
Oil consumption	%fuel		< 0.2

## 5/ INTAKE SYSTEM

		1500 rpm	1800 rpm
Air consumption at 100 % of load	m <sup>3</sup> /h (Kg/h)	1000 (1264)	1271 (1578)
Air intake restriction, clean filter	kPa (mbar)		2 (20)
Air intake restriction, dirty filter	kPa (mbar)		5 (50)
Air filter type			dry

## 6/ EXHAUST SYSTEM

		1500 rpm	1800 rpm
Gas flow at stand-by Power	kg/h	1310	1635
Max temperature at PRP (25°C)	°C	488	500
Max allowable back pressure	kPa (mbar)		10 (100)
Energy to exhaust	kw	145	165

# C87 TE3

249 kW (1500 rpm) - 271 kW (1800 rpm)

## 1/ GENERAL

		1500 rpm	1800 rpm
Engine model		C87 TE3	
Basic engine type		F2CE0685A*D002 - 5801764255	
Number cylinders		6	
Firing order (N° 1 nearest to fan)		1-4-2-6-3-5	
Cylinder arrangement		in line	
Valves per cylinder		4	
Cycle		diesel 4 stroke	
Injection system		direct common rail	
Electronic engine control unit		BOSCH EDC7 UC31	
Induction System		turbo aftercooler air/air	
Bore	mm	117	
Stroke	mm	135	
Total displacement	lit	8,7	
Mean piston speed	m/s	6,75	8,1
Compression ratio		15.9: 1	
Flywheel rotation		anti clockwise viewed on flywheel	
Housing flywheel		SAE 1	
Flywheel		14"	
Moment of inertia			
	without flywheel	kgm <sup>2</sup>	0,30
	flywheel only	kgm <sup>2</sup>	1,94
BMEP gross			
	Prime Power	bar/kPa	17.3/1731
	Stand-by Power	bar/kPa	23.52/2352
			15.9/1593
			21.64/2164
Dry weight (including cooling package)	kg	~ 1050	
Energy to coolant	kw	117	155
Energy to charge cooler	kw	48	60
Energy to radiation	kw	21	37
Dimensions L x W x H	mm	2100 x 1050 x 1385	

## 2/ PERFORMANCES

			1500 rpm	1800 rpm
Continuous Power	(gross)	kWm	184	202
Prime Power	(gross)	kWm	235	258
Stand-By Power	(gross)	kWm	255	280
Fan consumption		kWm	6,0	9,0
Continuous Power	(net)	kWm	178	193
Prime Power	(net)	kWm	229	249
Stand-By Power	(net)	kWm	249	271
Performance condition				
	temperature	°C	≤ 40	
	altitude a.s.l	m	≤ 1000	
Derating				
	temperature > T 40°C	%/5°C	3%	
	altitude > 1000 < 3000 m	%/500m	3%	
	altitude > 3000 m	%/500m	6%	



# DSE7310/20

## AUTO START & AUTO MAINS FAILURE CONTROL MODULES

### FEATURES



The DSE7310 is an Auto Start Control Module and the DSE7320 is an Auto Mains (Utility) Failure Control Module suitable for a wide variety of single, diesel or gas, gen-set applications.

Monitoring an extensive number of engine parameters, the modules will display warnings, shutdown and engine status information on the back-lit LCD screen, illuminated LEDs, remote PC and via SMS text alerts (with external modem).

The DSE7320 will also monitor the mains (utility) supply. The modules include USB, RS232 and RS485 ports as well as dedicated DSENet® terminals for system expansion.

Both modules are compatible with electronic (CAN) and non-electronic (magnetic pick-up/alternator sensing) engines and offer an extensive number of flexible inputs, outputs and extensive engine protections so the system can be easily adapted to meet the most demanding industry requirements.

The extensive list of features includes enhanced event and performance monitoring, remote communications, PLC functionality and dual mutual standby (DSE7310 only) to reduce engine wear.

The modules can be easily configured using the DSE Configuration Suite PC software. Selected front panel editing is also available.

### ENVIRONMENTAL TESTING STANDARDS

#### ELECTRO-MAGNETIC COMPATIBILITY

BS EN 61000-6-2  
EMC Generic Immunity Standard for the Industrial Environment  
BS EN 61000-6-4  
EMC Generic Emission Standard for the Industrial Environment

#### ELECTRICAL SAFETY

BS EN 60950  
Safety of Information Technology Equipment, including Electrical Business Equipment

#### TEMPERATURE

BS EN 60068-2-1  
Ab/Ae Cold Test -30 °C  
BS EN 60068-2-2  
Bb/Bc Dry Heat +70 °C

#### VIBRATION

BS EN 60068-2-6  
Ten sweeps in each of three major axes  
5 Hz to 8 Hz @ +/-7.5 mm,  
8 Hz to 500 Hz @ 2 gn

#### HUMIDITY

BS EN 60068-2-30  
Db Damp Heat Cyclic 20/55 °C  
@ 95% RH 48 Hours  
BS EN 60068-2-78  
Cab Damp Heat Static 40 °C  
@ 93% RH 48 Hours

#### SHOCK

BS EN 60068-2-27  
Three shocks in each of three major axes  
15 gn in 11 ms

#### DEGREES OF PROTECTION PROVIDED BY ENCLOSURES

BS EN 60529  
IP65 - Front of module when installed into the control panel with the supplied sealing gasket.

## COMPREHENSIVE FEATURE LIST TO SUIT A WIDE VARIETY OF GEN-SET APPLICATIONS

DSE2130 DSE2157 DSE2548 DSE2510/20	MODEM MODBUS 232 485	PC	8	4	4		
DSENET EXPANSION	RS232 AND RS485	USB PORT	CONFIGURABLE INPUTS	DC OUTPUTS	ANALOGUE SENDERS	EMERGENCY STOP	DC POWER SUPPLY 8-35V
<b>DSE7310/20</b>  DEUTZ ISUZU PERKINS CATERPILLAR MTU HILTI VOLVO CUMMINS SOLARIS							
MAINS (UTILITY) SENSING DSE7320 ONLY	N/O VOLT FREE OUTPUT	N/O VOLT FREE OUTPUT	GENERATOR SENSING		CHARGE ALTERNATOR	FUEL & CRANK OUTPUTS (Flexible with CAN)	ELECTRONIC ENGINES & MAGNETIC PICK-UP
VOLTS			CURRENT	VOLTS	D+ W/L		
1ph 2ph 3ph N	1	1	1ph 2ph 3ph E N	1ph 2ph 3ph N			

# DSE7310/20

## AUTO START & AUTO MAINS FAILURE CONTROL MODULES

### FEATURES



DSE7310



### KEY FEATURES

- 4-Line back-lit LCD text display
- Five key menu navigation
- Front panel editing with PIN protection
- Customisable status screens
- Power save mode
- Support for up to three remote display units
- 9 configurable inputs
- 8 configurable outputs
- Flexible sender inputs
- Configurable timers and alarms
- 3 configurable maintenance alarms
- Multiple date and time scheduler
- Configurable event log (250)
- Tier 4 CAN engine support
- Integral PLC editor
- Easy access diagnostic page
- CAN and Magnetic Pick-up/Alt. sensing
- Fuel usage monitor and low fuel alarms
- Charge alternator failure alarm
- Manual speed control (on compatible CAN engines)
- Manual fuel pump control
- Engine exerciser
- "Protections disabled" feature
- kW & kV Ar protection
- Reverse power (kW & kV Ar) protection

DSE7320



- LED and LCD alarm indication
- Power monitoring (kW h, kV Ar, kV A h, kV Ar h)
- Load switching (load shedding and dummy load outputs)
- Automatic load transfer (DSE7320)
- Unbalanced load protection
- Independent Earth Fault trip
- True dual mutual standby with load balancing timer (DSE7310 only)
- USB connectivity
- Backed up real time clock
- Fully configurable via DSE Configuration Suite PC software
- Configurable display languages
- Remote SCADA monitoring via DSE Configuration Suite PC software
- User selectable RS232 and RS485 communications
- Configurable Gencomm pages
- Advanced SMS messaging (additional external modem required)
- Start & stop capability via SMS messaging
- Additional display screens to help with modem diagnostics
- Idle control for starting & stopping.
- DSENet<sup>®</sup> expansion compatible

### KEY BENEFITS

- 132 x 64 pixel ratio display for clarity
- Real-time clock provides accurate event logging
- Multiple date and time scheduler
- Set maintenance periods can be configured to maintain optimum engine performance
- Ethernet communications (via DSE860/865 modules), provides advanced remote monitoring at low cost
- Modules can be integrated into building management systems (BMS)
- Increased input and output expansion capability via DSENet<sup>®</sup>
- Licence-free PC software
- IP65 rating (with supplied gasket) offers increased resistance to water ingress
- PLC editor allows user configurable functions to meet specific application requirements

### SPECIFICATION

#### DC SUPPLY

**CONTINUOUS VOLTAGE RATING**  
8 V to 35 V Continuous

#### CRANKING DROPOUTS

Able to survive 0 V for 50 ms, providing supply was at least 10 V before dropout and supply recovers to 5 V. This is achieved without the need for internal batteries. LEDs and backlight will not be maintained during cranking.

#### MAXIMUM OPERATING CURRENT

340 mA at 12 V, 160 mA at 24 V

#### MAXIMUM STANDBY CURRENT

160 mA at 12 V, 80 mA at 24 V

#### CHARGE FAIL/EXCITATION RANGE

0 V to 35 V

#### MAINS (UTILITY) DSE7320 ONLY

**VOLTAGE RANGE**  
15 V - 333 V AC (L-N)

#### FREQUENCY RANGE

3.5 Hz to 75 Hz

#### OUTPUTS

##### OUTPUT A (FUEL)

15 A DC at supply voltage

##### OUTPUT B (START)

15 A DC at supply voltage

##### OUTPUTS C & D

8 A 250 V (Volt free)

##### AUXILIARY OUTPUTS E,F,G,H

2 A DC at supply voltage

#### GENERATOR

##### VOLTAGE RANGE

15 V - 333 V AC (L-N)

##### FREQUENCY RANGE

3.5 Hz to 75 Hz

##### MAGNETIC PICK UP

##### VOLTAGE RANGE

+/- 0.5 V to 70 V

##### FREQUENCY RANGE

10,000 Hz (max)

#### DIMENSIONS

##### OVERALL

240 mm x 181 mm x 42 mm  
9.4" x 7.1" x 1.6"

##### PANEL CUT-OUT

220 mm x 160 mm  
8.7" x 6.3"

##### MAXIMUM PANEL THICKNESS

8 mm  
0.3"

##### OPERATING TEMPERATURE RANGE

-30°C to +70°C

##### STORAGE TEMPERATURE RANGE

-40°C to +80°C

### RELATED MATERIALS

#### TITLE

DSE7310 Installation Instructions  
DSE7320 Installation Instructions  
DSE7200/7300 Quick Start Guide  
DSE7200/7300 Operator Manual  
DSE7200/7300 Configuration Suite PC Manual

#### PART NO'S

053-028  
053-029  
057-101  
057-074  
057-077

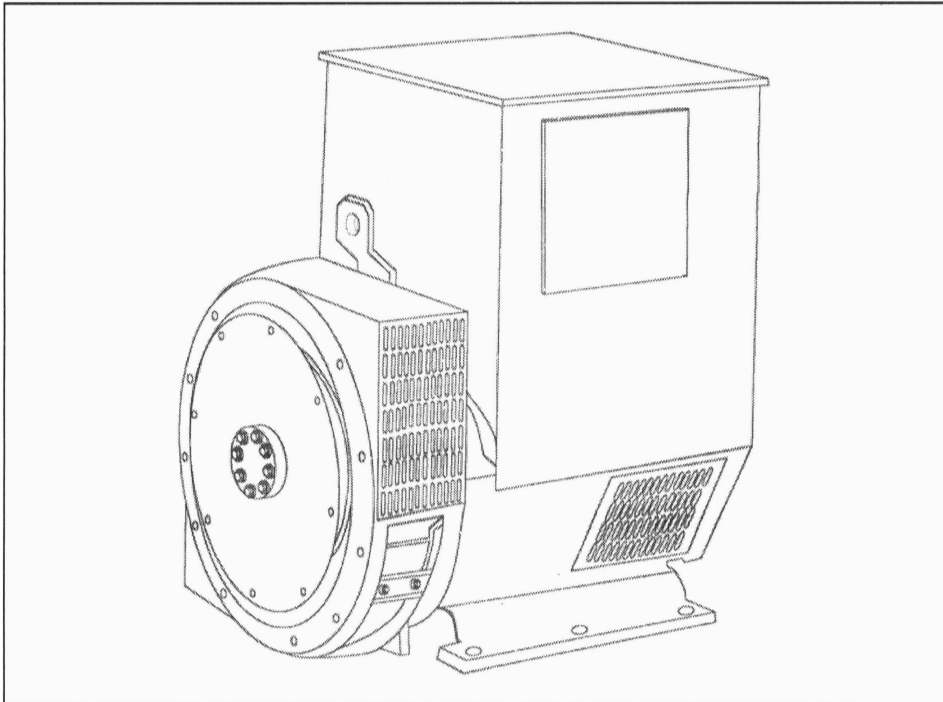
### DEEP SEA ELECTRONICS PLC UK

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**TELEPHONE** +44 (0) 1723 890099 **FACSIMILE** +44 (0) 1723 893303  
**EMAIL** sales@deepseapl.com **WEBSITE** www.deepseapl.com

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**EMAIL** sales@deepseausa.com **WEBSITE** www.deepseausa.com

**UCDI274K - Technical Data Sheet**



# UCDI274K

## SPECIFICATIONS & OPTIONS



### STANDARDS

Newage 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 REGULATORS

#### SX460 AVR - STANDARD

With this self excited control system the main stator supplies power via the Automatic Voltage Regulator (AVR) to the exciter stator. The high efficiency semiconductors 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. This rectifier is protected by a surge suppressor against surges caused, for example, by short circuit.

#### SX440 AVR

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 SX440 will support a range of electronic accessories, including a 'droop' Current Transformer (CT) to permit parallel operation with other ac generators.

If 3-phase sensing is required with the self-excited system, the SX421 AVR must be used.

#### SX421AVR

This AVR also operates in a self-excited system. It combines all the features of the SX440 with, additionally, three-phase rms sensing for improved regulation and performance. Over voltage protection is provided via a separate circuit breaker. An engine relief load acceptance feature is built in as standard.

#### MX341 AVR

This sophisticated AVR is incorporated into the Stamford Permanent Magnet Generator (PMG) control system.

The PMG provides power via the AVR to the main exciter, giving a source of constant excitation power independent of generator output. The main exciter output is then fed to the main rotor, through a full wave bridge, protected by a surge suppressor. The AVR has in-built protection against sustained over-excitation, caused by internal or external faults. This de-excites the machine after a minimum of 5 seconds.

An engine relief load acceptance feature can enable full load to be applied to the generator in a single step.

If three-phase sensing is required with the PMG system the MX321 AVR must be used.

We recommend three-phase sensing for applications with greatly unbalanced or highly non-linear loads.

#### MX321 AVR

The most sophisticated of all our AVRs combines all the features of the MX341 with, additionally, three-phase rms sensing, for improved regulation and performance. Over voltage protection is built-in and short circuit current level adjustments is an optional facility.

### 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 on a cover 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.

### 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.*

**UCDI274K**  
**WINDING 311**

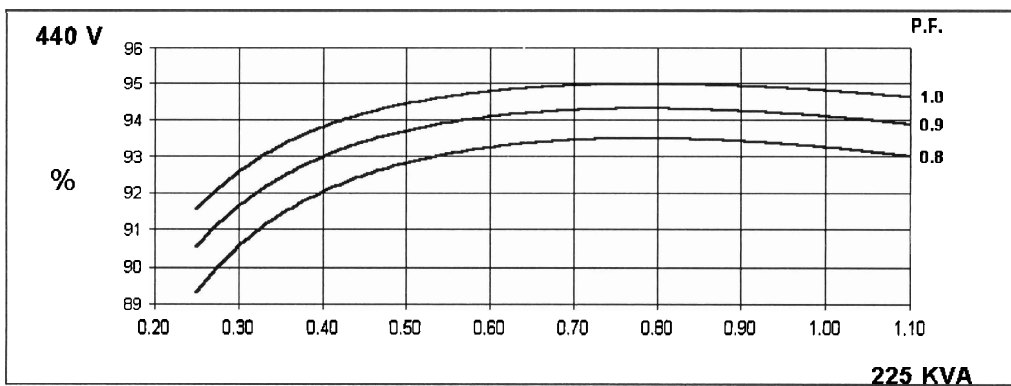
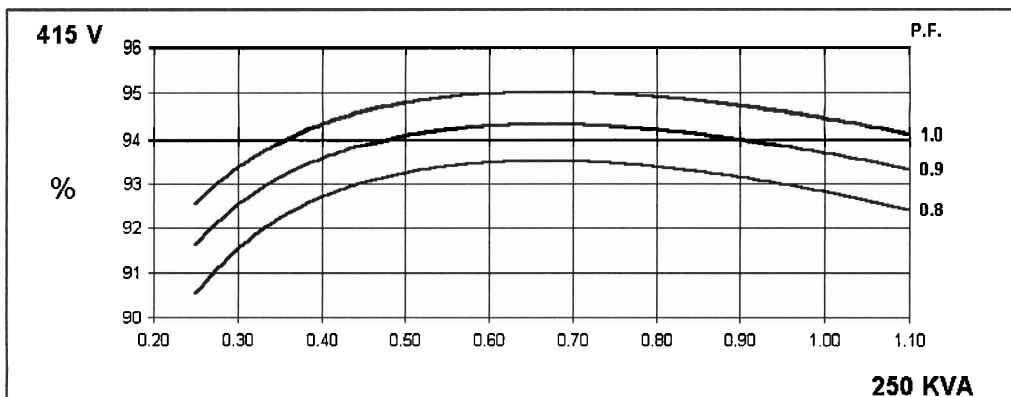
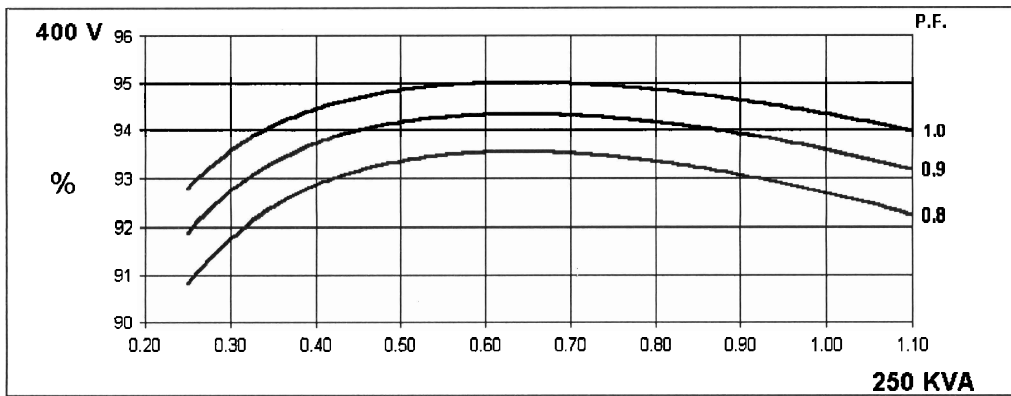
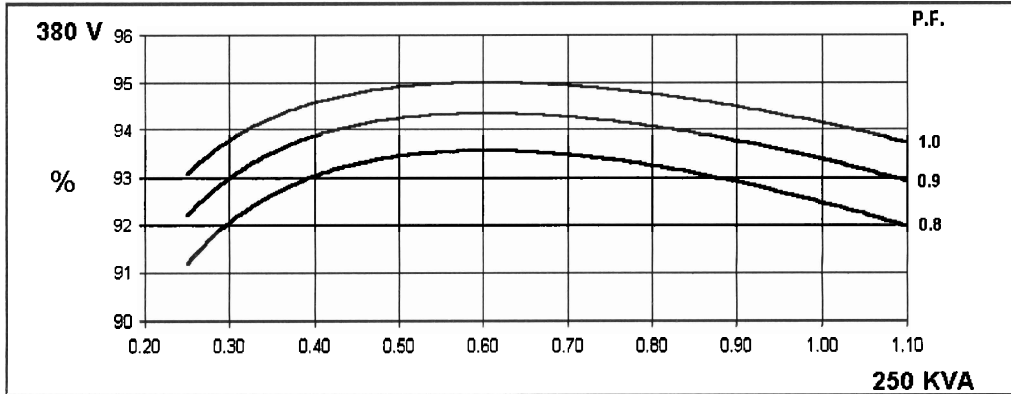
CONTROL SYSTEM	SEPARATELY EXCITED BY P.M.G.							
A.V.R.	MX321	MX341						
VOLTAGE REGULATION	± 0.5 %	± 1.0 %	With 4% ENGINE GOVERNING					
SUSTAINED SHORT CIRCUIT	REFER TO SHORT CIRCUIT DECREMENT CURVES (page 7)							
CONTROL SYSTEM	SELF EXCITED							
A.V.R.	SX460	SX440	SX421					
VOLTAGE REGULATION	± 1.5 %	± 1.0 %	± 0.5 %	With 4% ENGINE GOVERNING				
SUSTAINED SHORT CIRCUIT	SERIES 4 CONTROL DOES NOT SUSTAIN A SHORT CIRCUIT CURRENT							
INSULATION SYSTEM	CLASS H							
PROTECTION	IP23							
RATED POWER FACTOR	0.8							
STATOR WINDING	DOUBLE LAYER CONCENTRIC							
WINDING PITCH	TWO THIRDS							
WINDING LEADS	12							
STATOR WDG. RESISTANCE	0.0126 Ohms PER PHASE AT 22°C SERIES STAR CONNECTED							
ROTOR WDG. RESISTANCE	2.08 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 NON-DRIVE END	BALL. 6310-2RS (ISO)							
WEIGHT COMP. GENERATOR	727 kg							
WEIGHT WOUND STATOR	304 kg							
WEIGHT WOUND ROTOR	272.6 kg							
WR <sup>2</sup> INERTIA	2.3934 kgm <sup>2</sup>							
SHIPPING WEIGHTS in a crate	740 kg							
PACKING CRATE SIZE	123 x 67 x 103 (cm)							
	50 Hz				60 Hz			
TELEPHONE INTERFERENCE	THF<2%				TIF<50			
COOLING AIR	0.58 m <sup>3</sup> /sec 1230 cfm				0.69 m <sup>3</sup> /sec 1463 cfm			
VOLTAGE SERIES STAR (Y)	380/220	400/231	415/240	440/254	416/240	440/254	460/266	480/277
VOLTAGE PARALLEL STAR (Y)	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	250	250	250	n/a	291	299	312.5	312.5
X <sub>d</sub> DIR. AXIS SYNCHRONOUS	2.825	2.550	2.369		3.161	2.903	2.776	2.550
X' <sub>d</sub> DIR. AXIS TRANSIENT	0.132	0.119	0.111		0.148	0.136	0.130	0.119
X'' <sub>d</sub> DIR. AXIS SUBTRANSIENT	0.086	0.078	0.072		0.097	0.089	0.085	0.078
X <sub>q</sub> QUAD. AXIS REACTANCE	1.263	1.140	1.059		1.413	1.298	1.241	1.140
X'' <sub>q</sub> QUAD. AXIS SUBTRANSIENT	0.152	0.137	0.127		0.170	0.156	0.149	0.137
X <sub>L</sub> LEAKAGE REACTANCE	0.066	0.060	0.056		0.074	0.068	0.065	0.060
X <sub>2</sub> NEGATIVE SEQUENCE	0.120	0.108	0.100		0.134	0.123	0.118	0.108
X <sub>0</sub> ZERO SEQUENCE	0.022	0.020	0.019		0.025	0.023	0.022	0.020
	REACTANCES ARE SATURATED				VALUES ARE PER UNIT AT RATING AND VOLTAGE INDICATED			
T <sub>d</sub> TRANSIENT TIME CONST.	0.049 s							
T'' <sub>d</sub> SUB-TRANSTIME CONST.	0.02 s							
T' <sub>do</sub> O.C. FIELD TIME CONST.	1.27 s							
T <sub>a</sub> ARMATURE TIME CONST.	0.018 s							
SHORT CIRCUIT RATIO	1/X <sub>d</sub>							

**50  
Hz**

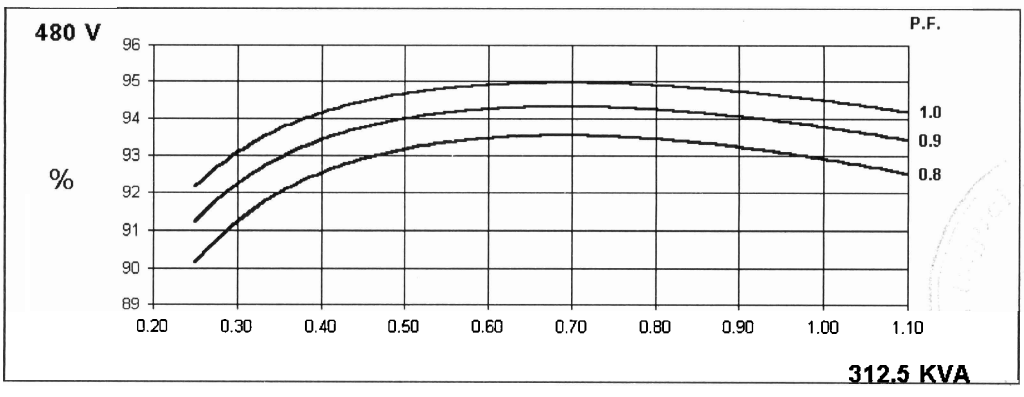
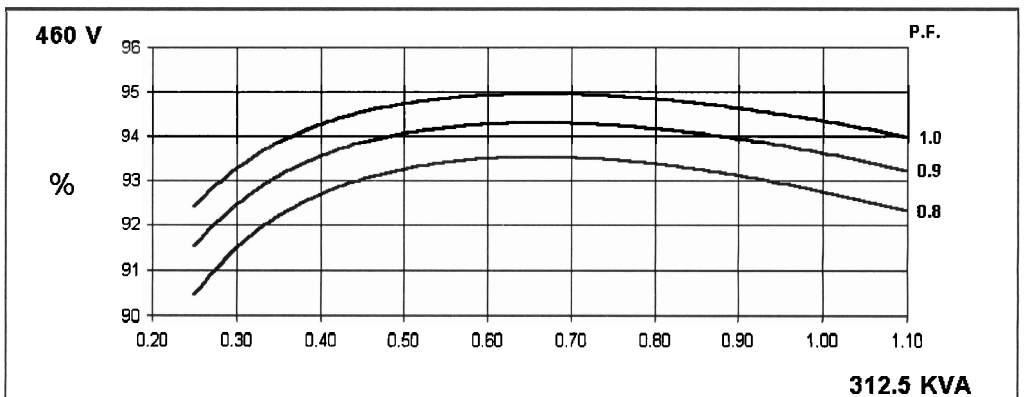
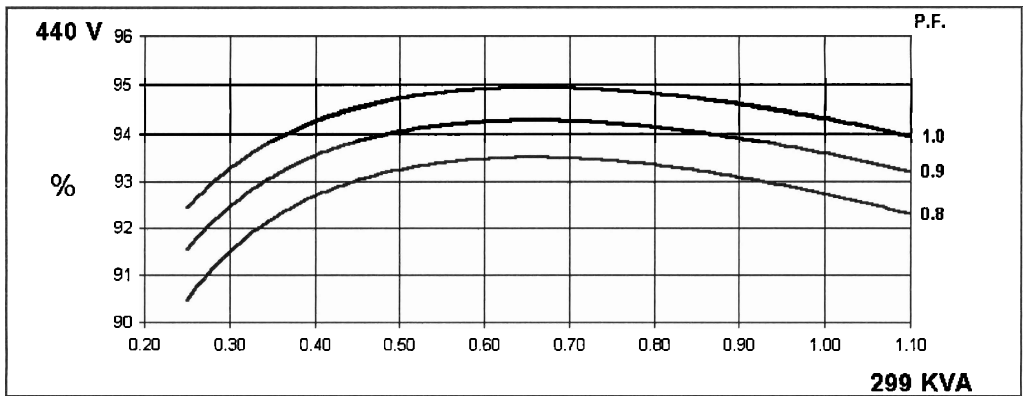
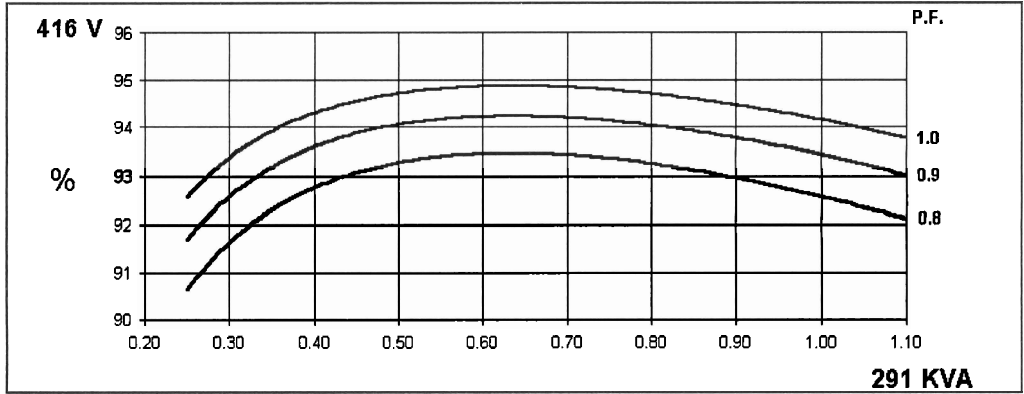
**UCDI274K**  
Winding 311



**THREE PHASE EFFICIENCY CURVES**



**THREE PHASE EFFICIENCY CURVES**



# UCDI274K

## Winding 311

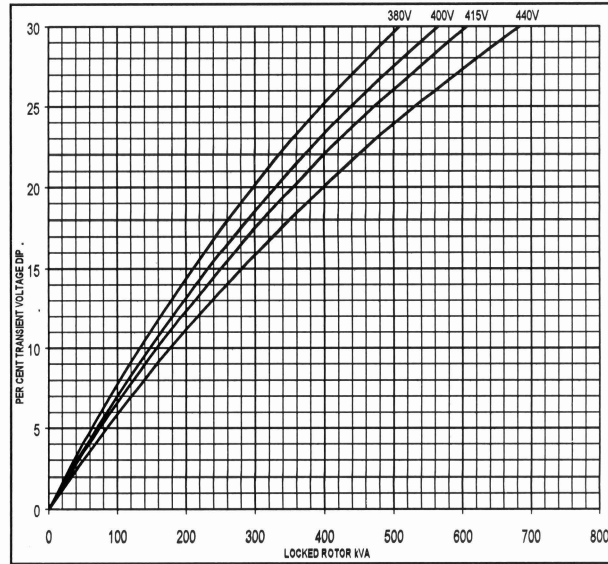
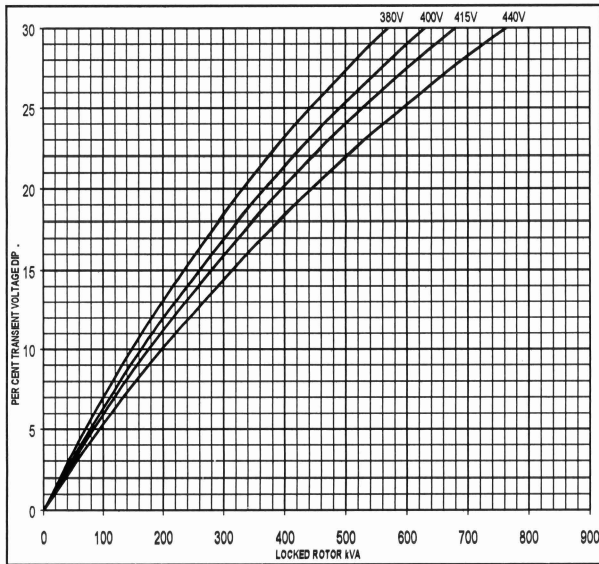


### Locked Rotor Motor Starting Curve

**50  
Hz**

**MX**

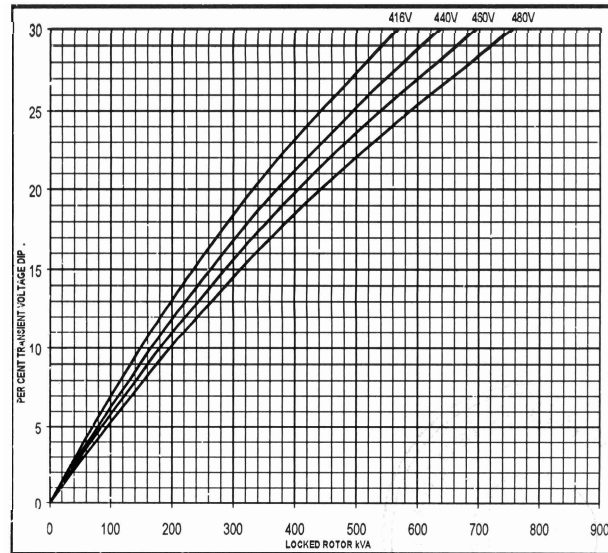
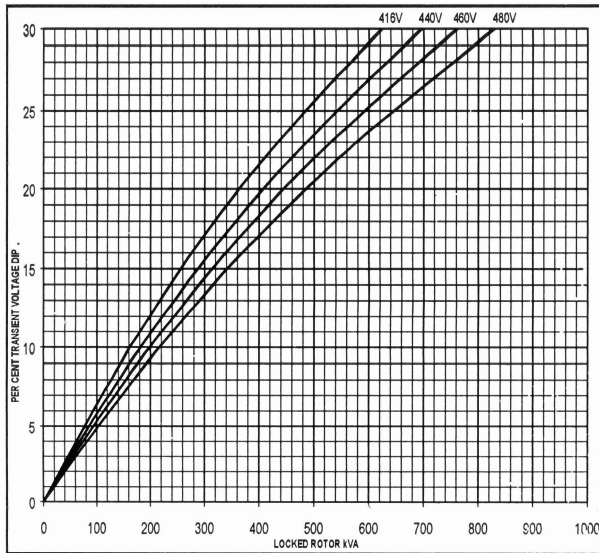
**SX**



**60  
Hz**

**MX**

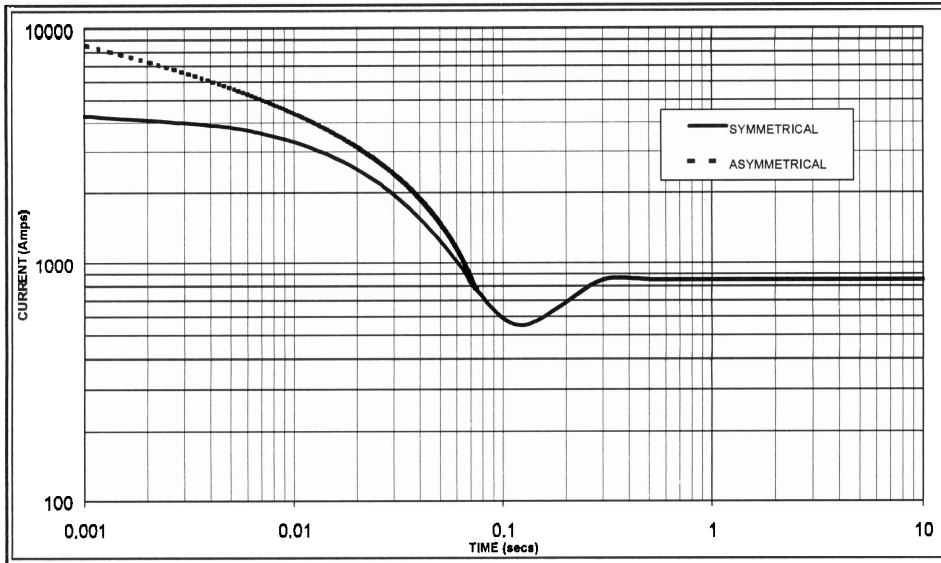
**SX**





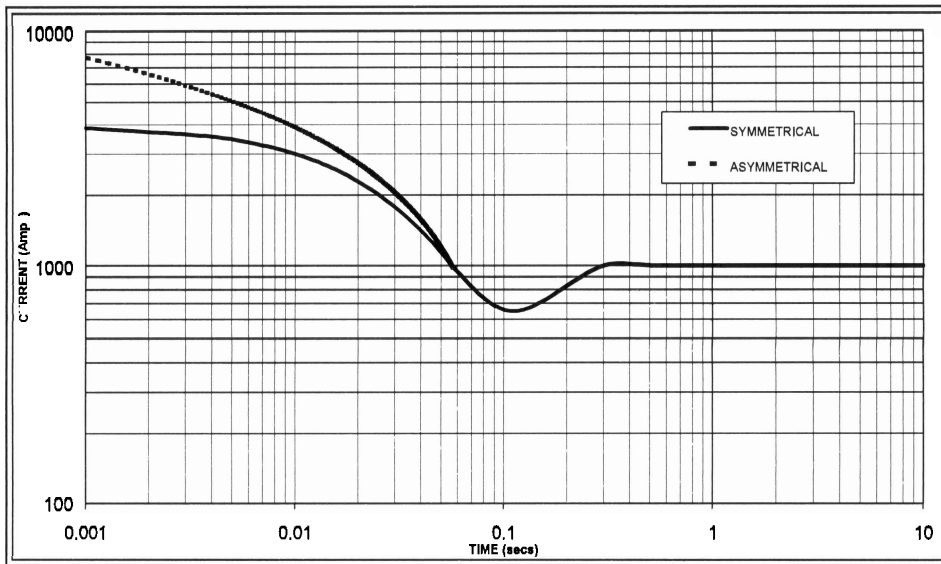
**Three-phase Short Circuit Decrement Curve. No-load Excitation at Rated Speed  
Based on star (wye) connection.**

**50  
Hz**



Sustained Short Circuit = 850 Amps

**60  
Hz**



Sustained Short Circuit = 1,000 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 :

Voltage	Factor	Voltage	Factor
380v	X 1.00	416v	X 1.00
400v	X 1.05	440v	X 1.07
415v	X 1.10	460v	X 1.12
440v	X 1.16	480v	X 1.16

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

# UCDI274K

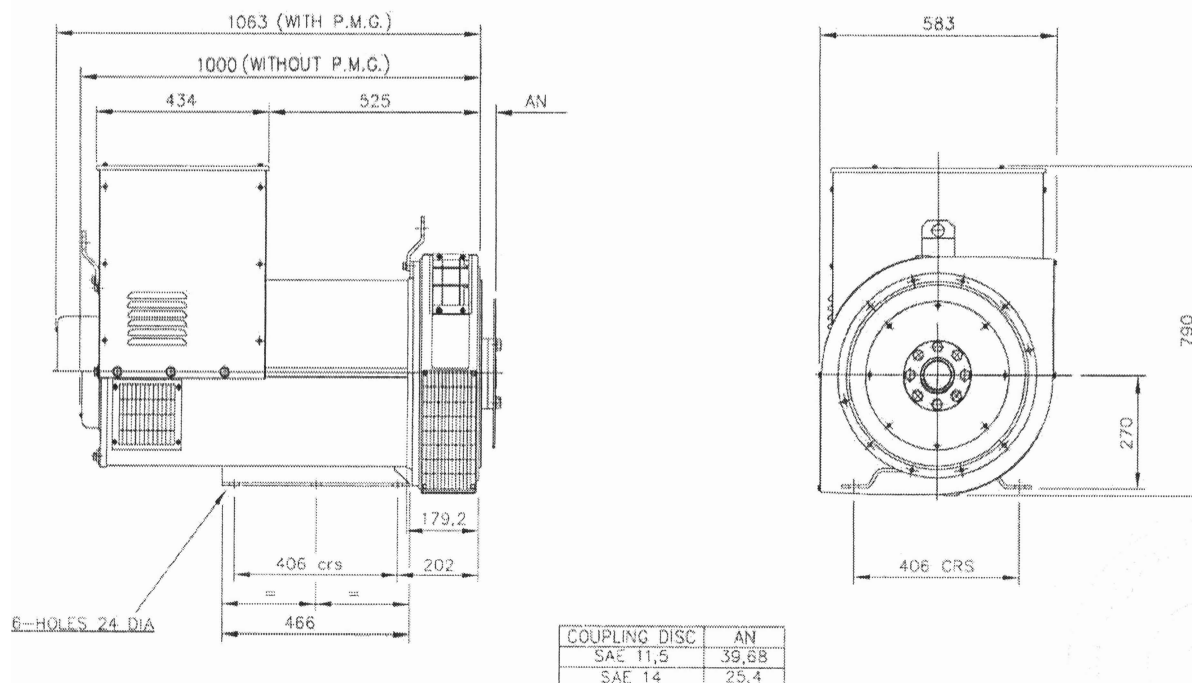
## Winding 311 / 0.8 Power Factor



### RATINGS

Class - Temp Rise		Cont. F - 105/40°C				Cont. H - 125/40°C				Standby - 150/40°C				Standby - 163/27°C			
<b>50 Hz</b>	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	229.0	229.0	229.0	n/a	250.0	250.0	250.0	n/a	265.0	265.0	265.0	n/a	275.0	275.0	275.0	n/a
	kW	183.2	183.2	183.2	n/a	200.0	200.0	200.0	n/a	212.0	212.0	212.0	n/a	220.0	220.0	220.0	n/a
	Efficiency (%)	92.8	93.0	93.1	n/a	92.5	92.7	92.8	n/a	92.2	92.4	92.6	n/a	92.0	92.2	92.4	n/a
	kW Input	197.4	197.0	196.8	n/a	216.2	215.7	215.5	n/a	229.9	229.4	228.9	n/a	239.1	238.6	238.1	n/a
<b>60 Hz</b>	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
	Series Delta (V)	240	254	266	277	240	254	266	277	240	254	266	277	240	254	266	277
	kVA	267.0	275.0	286.5	286.5	291.0	299.0	312.5	312.5	304.0	312.5	331.3	331.3	312.0	320.0	343.8	343.8
	kW	213.6	220.0	229.2	229.2	232.8	239.2	250.0	250.0	243.2	250.0	265.0	265.0	249.6	256.0	275.0	275.0
	Efficiency (%)	92.9	93.0	93.1	93.2	92.6	92.7	92.8	92.9	92.4	92.6	92.5	92.7	92.2	92.4	92.3	92.5
	kW Input	229.9	236.6	246.2	245.9	251.4	258.0	269.4	269.1	263.2	270.0	286.5	285.9	270.7	277.1	298.0	297.3

### DIMENSIONS



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