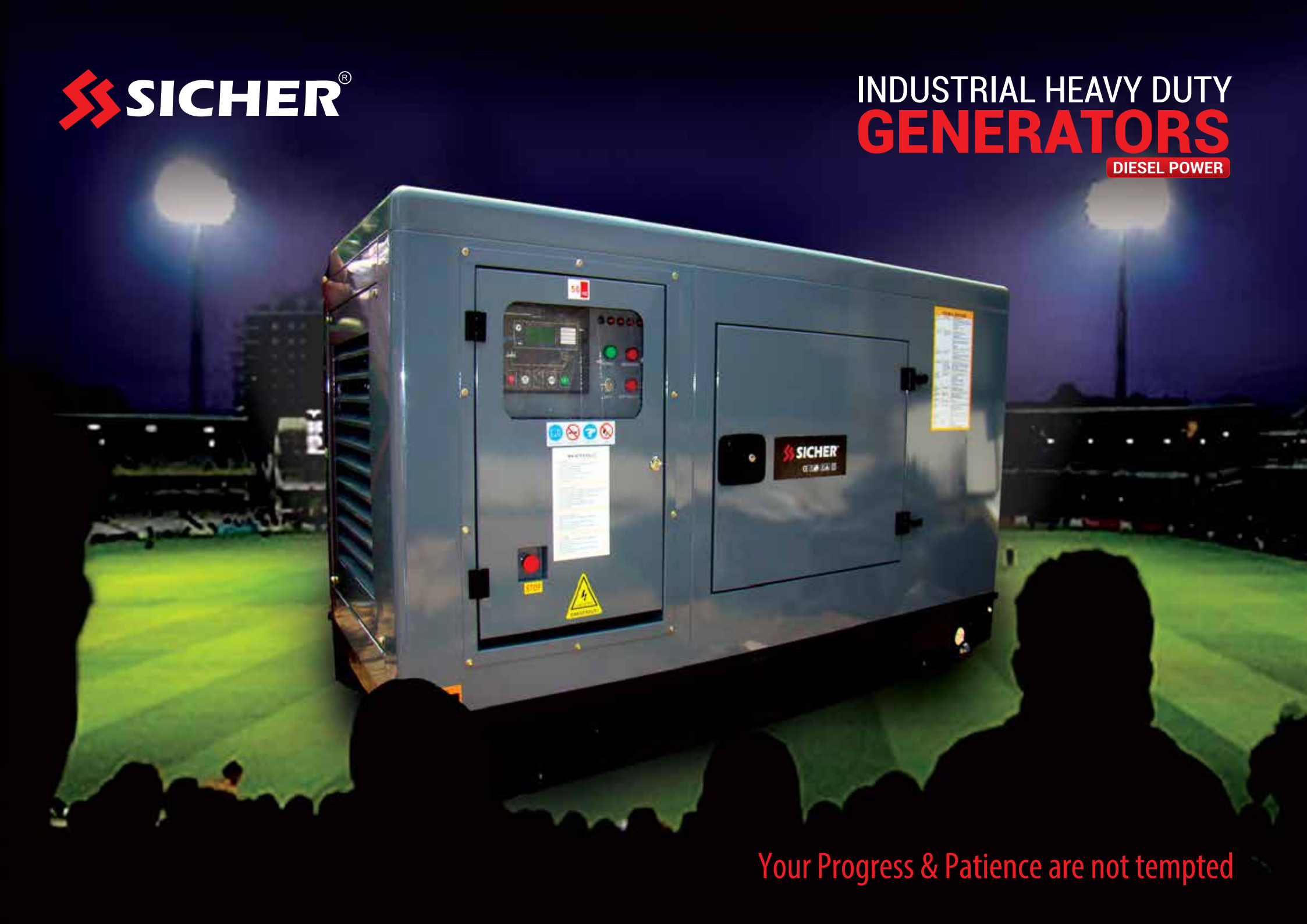
SICHER®

INDUSTRIAL HEAVY DUTY GENERATORS

DIESEL POWER



Your Progress & Patience are not tempted

SICHER®
European & American Technology

SICHER DIESEL GENERATOR SERIES

The proven Quality, Stability and Reliability of the SICHER Industrial Generator Sets ensure the progress of the daily business activities that require continuous power.

We warmly invite you to explore the features of Sicher Industrial Generator Series.

ISO 9001 CERTIFICATION

Special Features

DIESEL GENERATOR SERIES

INDUSTRIAL

SICHER®

Durable Engines Of RICARDO, NTDEC & CUMMINS Integrated With EUROPEAN Technology

Generator Control Module From Deep Sea Electronics (USA)

Stamford (UK) Alternator, With Single Roller Bearing

Introduction Of Phase Failure And Overload Relay

Automatic Four Pole Changeover

Advanced Power Factor Correction For Inductive & Capacitive Loads

Vacuum Circuit Breaker With Stand To 11 KV & Above

Original Factory Fitted Zinc Alloy Canopy

Copper Alloy Radiator

Silent

FACTORY FITTED STANDARDS

System	Standard
Air Inlet	Light duty air cleaner
Cooling	Fan and belt guards
	Coolant drain line with valve
	Long Life Coolent
	Radiator with guard
Exhaust	Standard exhaust flex
	outlet flange, gasket, bolts and matingweld flange
	Flexible and see through fuel lines
Fuel	Fuel priming pump
	Primary and secondary fuel filters
Generator	Three phase sensing
	IP23 Protection
	Class H insulation
	3-phase sensing voltage regulator with load adjustment module
	Circuit Breaker IEC, 3-pole
	Segregated L.V. (AC/DC) wiring panel
Governor	Electro - mechanical (3% speed regulation)
Control Panels	Deepsea USA
	User Interface panel (UIP) - rear mount (standard)
	Emergency Stop Pushbutton
Lube	Lubricating oil and filter
	Oil drain line with valve piped to edge of base
	Fumes disposal piped to front of radiator
Mounting	Narrow integral fuel tank base
	Linear vibration isolators between base and engine-generator
Starting/Charging	45 amp charging alternator
	24 volt starting motor
	Batteries with rack and cables
	Safety shutoff protection

TECHNICAL DATA



Model			GB10SH	GB20SH	GB30SH
Rated frequency (Hz)			50	50	50
Rated output (KW / KVA)			10 / 12.5	20 / 25	30 / 37.5
Max. output (KW)			11	23	33
Rated voltage (V)			380/220	380/220	380/220
Rated current (A)			18.9	37.9	56.4
Rated speed (r/min)			1500	1500	1500
Alternator	Model		**TFW-10KW**	**Stamford - PI144E**	**Stamford - PI144J**
	Pole No.		4	4	4
	Loop mode		Three-phase Four-loop		
	Excitation mode		Self-excitation and constant voltage		
	Power factor (COSΦ)		0.8 (lag)	0.8 (lag)	0.8 (lag)
	Insulation grade		H	H	H
Engine	Model		RICARDO R495D	RICARDO R495D	RICARDO R4100ZD
	Engine type		Four-cylinder, In-lined, four-stroke, Water-Cooled, Direct Injection	Four-cylinder, In-lined, four-stroke, Water-Cooled, Direct Injection	Four-cylinder, in-lined, four-stroke, water-cooled, turbocharged
	Bore×stroke (mm)		95x105	95x115	100x115
	Total displacement (L)		3.26	3.26	3.61
	Compression ratio		19:1	19:1	19:1
	Rated power (KW)		26.5	26.5	40.2
	Cooling water capacity	Voltage	1	1	1
		Radiator tank L	5	5	5
	Lubricating system		Pressure splashed	Pressure splashed	Pressure splashed
	Lube oil brand		SAE 10W-30, 15W-40(above CD grade)		
	Lube oil capacity (L)		6.8	6.8	11.1
	Starting system		12V electric starter	12V electric starter	24V electric starter
	Starting motor capacity (V-kW)		12V 1.4kW	12V 1.4kW	12V 1.4kW
	Charging generator capacity (V-A)		14V 25A	14V 25A	14V 25A
	Battery capacity×No. (V-Ah)		12V 65Ah	12V 65Ah	12V 65Ah
	Fuel type		0# (summer), -10# (winter), -35# (chillness) diesel		
	Fuel consumption (g/kW.h)		≤251.6	≤251.6	≤251.6
Genset	Control Panel type		Electronics Deepsea USA	Electronics Deepsea USA	Electronics Deepsea USA
	Output	Voltage	380/220	380/220	380/220
		Receptacle	One single-phase & One Three Phase receptacles		
		Connection pole	Available	Available	Available
	Noise level (7m) [dB(A)]		60	60	60
	Structure type		Silent	Silent	Silent
	Fuel tank capacity (L)		100	100	100
	Continuous running time (h)		20-24	20-24	20-24
	Overall dimension (cm)		198x88x120	198x88x125	230x110x130
	Net weight (kg)		660	720	920

SOLUTION FOR
EVENT
MANAGEMENT

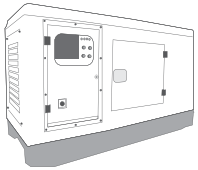
TECHNICAL DATA

SICHER® INDUSTRIAL GENERATOR SERIES



Model			GB40SH	GB50SH	GB60SH
Rated frequency (Hz)			50	50	50
Rated output (KW / KVA)			40 / 50	50 / 62.5	60 / 75
Max. output (KW)			43	55	65
Rated voltage (V)			380/220	380/220	380/220
Rated current (A)			75.9	94.9	113.9
Rated speed (r/min)			1500	1500	1500
Alternator	Model		**Stamford - UC1224D**	**Stamford - UC1224G**	**STAMPFORD TYPE UCI224F**
	Pole No.		4	4	4
	Loop mode		Three-phase Four-loop		
	Excitation mode		Self-excitation and constant voltage		
	Power factor (COSΦ)		0.8 (lag)	0.8 (lag)	0.8 (lag)
	Insulation grade		H	H	H
Engine	Model		RICARDO R4105ZD	RICARDO R4105ZD	RICARDO R6105ZD
	Engine type		Four-cylinder, in-lined, four-stroke, Direct Inject, water cooled, turbocharged	Four-cylinder, in-lined, four-stroke, Direct Inject, water-cooled, turbocharged	Six-cylinder, in-lined, four-stroke, Direct Inject, water-cooled, turbocharged
	Bore×stroke (mm)		105x125	105x125	105x125
	Total displacement (L)		4.33	4.33	6.49
	Compression ratio		17:1	17:1	17:01
	Rated power (KW)		56	56	90
	Cooling water capacity	Voltage Radiator tank L	1	1	4
			8	8	10
	Lubricating system		Compound and Pressure splashed	Compound and Pressure splashed	Compound and Pressure splashed
	Lube oil brand		SAE 10W-30, 15W-40(above CD grade)		
	Lube oil capacity (L)		11.1	11.11	28.7
	Starting system		24V electric starter	24V electric starter	24V electric starter
	Starting motor capacity (V-kW)		12V 1.4kW	24V 1.4kW	12V 1.4kW
	Charging generator capacity (V-A)		14V 25A	14V 25A	14V 25A
	Battery capacity×No. (V-Ah)		12V 65Ah	12V 65Ah	12V 65Ah
	Fuel type		0# (summer), -10# (winter), -35# (chillness) diesel		
	Fuel consumption (g/kW.h)		≤230	≤230	≤224
Genset	Control Panel type		Electronics Deepsea USA	Electronics Deepsea USA	Electronics Deepsea USA
	Output	Voltage	380/220	380/220	380/220
		Receptacle	One single-phase & One Three Phase receptacles		
		Connection pole	Available	Available	Available
	Noise level (7m) [dB(A)]		60	60	65
	Structure type		Silent	Silent	Silent
	Fuel tank capacity (L)		120	120	200
	Continuous running time (h)		20-24	20-24	20-24
	Overall dimension (cm)		230x102x140	230x102x150	240x110x170
	Net weight (kg)		1080	1200	1600

SOLUTION FOR
BANKS



INDUSTRIAL
SUPER HEAVY DUTY

SICHER®

TECHNICAL DATA



Model				GB75SH	GB100SH	GB120SH
Rated frequency (Hz)				50	50	50
Rated output (KW / KVA)				75 / 93.75	100/ 125	120 / 150
Max. output (KW)				80	110	130
Rated voltage (V)				380/220	380/220	380/220
Rated current (A)				142.4	189.9	227.9
Rated speed (r/min)				1500	1500	1500
Alternator	Model			STAMFORD TYPE UC1247C	STAMFORD TYPE UCI274D	STAMFORD TYPE UCI2747
	Pole No.			4	4	4
	Loop mode			Three-phase Four-loop		
	Excitation mode			Self-excitation and constant voltage		
	Power factor (COSΦ)			0.8 (lag)	0.8 (lag)	0.8 (lag)
	Insulation grade			H	H	H
Engine	Model			RICARDO R6105ZD	RICARDO R6105AZLD	RICARDO R6105AZLD
	Engine type			Six-cylinder, in-lined, four-stroke, Direct Inject, water-cooled, turbocharged	Six-cylinder, in-lined, four-stroke, Direct Inject, water-cooled, turbocharged	Six-cylinder, in-lined, four-stroke, Direct Inject, water-cooled, turbocharged
	Bore×stroke (mm)			105x125	105x125	105x125
	Total displacement (L)			6.49	6.96	6.96
	Compression ratio			17:1	17:1	17:1
	Rated power (KW)			90	100	130
	Cooling water capacity	Voltage Radiator tank	L	4	1	4
				8	12	10
	Lubricating system			Compound and Pressure splashed	Compound and Pressure splashed	Compound and Pressure splashed
	Lube oil brand			SAE 10W-30, 15W-40(above CD grade)		
	Lube oil capacity (L)			20.4	28.7	28.7
	Starting system			24V electric starter	24V electric starter	24V electric starter
	Starting motor capacity (V-kW)			12V 1.4kW	12V 1.4kW	12V 1.4kW
	Charging generator capacity (V-A)			14V 25A	14V 25A	14V 25A
	Battery capacity×No. (V-Ah)			12V 65Ah	12V 65Ah	12V 65Ah
	Fuel type			0# (summer), -10# (winter), -35# (chillness) diesel		
	Fuel consumption (g/kW.h)			≤224	≤218	≤215
Genset	Control Panel type			Electronics Deepsea USA	Electronics Deepsea USA	Electronics Deepsea USA
	Output	Voltage		380/220	380/220	380/22 0
		Receptacle		One single-phase & One Three Phase receptacles		
		Connection pole		Available	Available	Available
	Noise level (7m) [dB(A)]			65	65	65
	Structure type			Silent	Silent	Silent
	Fuel tank capacity (L)			200	200	250
	Continuous running time (h)			20-24	20-24	20-24
	Overall dimension (cm)			240x110x180	300x110x180	300x115x185
	Net weight (kg)			1800	2000	2200

SOLUTION FOR
APARTMENTS

TECHNICAL DATA



Model			GB150SH	GB160SN	GB200SN
Rated frequency (Hz)			50	50	50
Rated output (KW / KVA)			150 / 188	160 / 200	200 / 250
Max. output (KW)			150	180	220
Rated voltage (V)			380/220	380/220	380/220
Rated current (A)			284	303.8	379.8
Rated speed (r/min)			1500	1500	1500
Alternator	Model		STAMFORD TYPE UCI274G	STAMFORD TYPE UCI274H	STAMFORD TYPE UCD274K
	Pole No.		4	4	4
	Loop mode		Three-phase Four-loop		
	Excitation mode		Self-excitation and constant voltage		
	Power factor (COSΦ)		0.8 (lag)	0.8 (lag)	0.8 (lag)
	Insulation grade		H	H	H
Engine	Model		RICARDO R6113ZLD	NTDEC Engine NT6135AZLD	NTDEC Engine NT137LR22
	Engine type		Six-cylinder, in-lined, four-stroke, Direct Injection, water-cooled, turbocharged	Six-cylinder, in-lined, four-stroke, Direct Injection, water-cooled, turbocharged	Six-cylinder, in-lined, four-stroke, Direct Injection, water-cooled, turbocharged
	Bore×stroke (mm)		113x135	135x150	135x160
	Total displacement (L)		12.9	12.9	13.74
	Compression ratio		16:1	16:1	16.1
	Rated power (KW)		175	175	242
	Cooling water capacity	Voltage Radiator tank L	4	4	4
			10	10	13
	Lubricating system		Compound and Pressure splashed	Compound and Pressure splashed	Compound and Pressure splashed
	Lube oil brand		SAE 10W-30, 15W-40(above CD grade)		
	Lube oil capacity (L)		28.7	28.7	28.7
	Starting system		24V electric starter	24V electric starter	24V electric starter
	Starting motor capacity (V-kW)		12V 1.4kW	12V 1.4kW	12V 1.4kW
	Charging generator capacity (V-A)		14V 25A	14V 25A	14V 25A
	Battery capacity×No. (V-Ah)		12V 65Ah	12V 65Ah	12V 65Ah
	Fuel type		0# (summer), -10# (winter), -35# (chillness) diesel		
	Fuel consumption (g/kW.h)		≤208	≤215	≤208
Genset	Control Panel type		Electronics Deepsea USA	Electronics Deepsea USA	Electronics Deepsea USA
	Output	Voltage	380/220	380/220	380/220
		Receptacle	One single-phase & One Three Phase receptacles		
		Connection pole	Available	Available	Available
	Noise level (7m) [dB(A)]		65	65	65
	Structure type		Silent	Silent	Silent
	Fuel tank capacity (L)		300	500	500
	Continuous running time (h)		20-24	20-24	20-24
	Overall dimension (cm)		310x115x185	360x140x190	370x160x200
	Net weight (kg)		2400	2600	2800

SOLUTION FOR
HOTELS & RESORTS

SOLUTION FOR
SHOPPING
COMPLEX

TECHNICAL DATA



	Model			GB250SN	GB300SN	GB400SN
	Rated frequency (Hz)			50	50	50
	Rated output (KW / KVA)			250 / 312.5	300 / 375	400 / 500
	Max. output (KW)			280	330	440
	Rated voltage (V)			380/220	380/220	380/220
	Rated current (A)			474.8	569.7	759.6
	Rated speed (r/min)			1500	1500	1500
Alternator	Model			STAMFORD TYPE HCI444D	STAMFORD TYPE HCI444TS	STAMFORD TYPE HCI544C
Alternator	Pole No.			4	4	4
Alternator	Loop mode			Three-phase Four-loop		
Alternator	Excitation mode			Self-excitation and constant voltage		
Alternator	Power factor (COSΦ)			0.8 (lag)	0.8 (lag)	0.8 (lag)
Alternator	Insulation grade			H	H	H
Engine	Model			NTDEC Engine NT151LU30	NTDEC Engine NT151LU33	NTDEC Engine NT283ZW46
Engine	Engine type			Six-cylinder, in-lined, four-stroke, Direct Injection, water-cooled, turbocharged	Six-cylinder, in-lined, four-stroke, Direct Injection, water-cooled, turbocharged	12-cylinder, in-lined, four-stroke, Direct Injection, water-cooled, turbocharged
Engine	Bore×stroke (mm)			138x168	138x168	138x158
Engine	Total displacement (L)			16	16	28.32
Engine	Compression ratio			16:1	16:1	17:1
Engine	Rated power (KW)			331	363	505
Engine	Cooling water capacity	Voltage Radiator tank	L	4	4	4
Engine				15	15	20
Engine	Lubricating system			Compound and Pressure splashed	Compound and Pressure splashed	Compound and Pressure splashed
Engine	Lube oil brand			SAE 10W-30, 15W-40(above CD grade)		
Engine	Lube oil capacity (L)			28.7	57.7	80.7
Engine	Starting system			24V electric starter	24V electric starter	24V electric starter
Engine	Starting motor capacity (V-kW)			12V 1.4kW	12V 1.4kW	12V 1.4kW
Engine	Charging generator capacity (V-A)			14V 25A	14V 25A	14V 25A
Engine	Battery capacity×No. (V-Ah)			12V 65Ah	12V 65Ah	12V 65Ah
Engine	Fuel type			0# (summer), -10# (winter), -35# (chillness) diesel		
Engine	Fuel consumption (g/kW.h)			≤208	≤208	≤218
Genset	Control Panel type			Electronics Deepsea USA	Electronics Deepsea USA	Electronics Deepsea USA
Genset	Output	Voltage		380/220	380/220	380/220
Genset		Receptacle		One single-phase & One Three Phase receptacles		
Genset		Connection pole		Available	Available	Available
Genset	Noise level (7m) [dB(A)]			65	65	65
Genset	Structure type			Silent	Silent	Silent
Genset	Fuel tank capacity (L)			1000	1000	1000
Genset	Continuous running time (h)			20-24	20-24	20-24
Genset	Overall dimension (cm)			380x170x200	400x180x210	420x200x220
Genset	Net weight (kg)			3200	3600	4000

POWER HOUSE
SERIES

SICHER®

TECHNICAL DATA

Model				GB500SN	GB750SC
Rated frequency (Hz)				50	50
Rated output (KW / KVA)				500 / 625	750 / 875
Max. output (KW)				550	750
Rated voltage (V)				380/220	380/220
Rated current (A)				949.6	1329.4
Rated speed (r/min)				1500	1500
Alternator	Model			STAMFORD TYPE HCI 544F-S	STAMFORD TYPE LVI634D
	Pole No.			4	4
	Loop mode			Three-phase Four-loop	
	Excitation mode			Self-excitation and constant voltage	
	Power factor (COSΦ)			0.8 (lag)	0.8 (lag)
	Insulation grade			H	H
Engine	Model			NTDEC Engine TC283LW56	NTDEC Engine TC283LW56
	Engine type			TWELVE-cylinder, in-lined, four-stroke, Direct Injection, water-cooled	TWELVE-cylinder, in-lined, four-stroke, Direct Injection, water-cooled
	Bore×stroke (mm)			138x158	159x159
	Total displacement (L)			28.32	38
	Compression ratio			17:1	17:1
	Rated power (KW)			617	895
	Cooling water capacity	Voltage Radiator tank	L	4	4
	Lubricating system			180	180
	Lube oil brand			Compound and Pressure splashed	Compound and Pressure splashed
	Lube oil capacity (L)			SAE 10W-30, 15W-40(above CD grade)	
	Starting system			80.7	80.7
	Starting motor capacity (V-kW)			24V electric starter	24V electric starter
	Charging generator capacity (V-A)			12V 1.4kW	12V 1.4kW
	Battery capacity×No. (V-Ah)			14V 25A	14V 75A
	Fuel type			12V 65Ah	12V 100Ah
	Fuel consumption (g/kW.h)			0# (summer), -10# (winter), -35# (chillness) diesel	
Genset	Control Panel type			≤218	≤208
	Output	Voltage		Electronics Deepsea USA	Electronics Deepsea USA
		Receptacle		380/220	380/220
		Connection pole		One single-phase & One Three Phase receptacles	
	Noise level (7m) [dB(A)]			Available	Available
	Structure type			65	70
	Fuel tank capacity (L)			Silent	Silent
	Continuous running time (h)			1000	2000
	Overall dimension (cm)			20-24	20-24
	Net weight (kg)			430x210x225	480x220x230
				4500	6000

SOLUTION FOR CONSTRUCTION

TECHNICAL DATA

Model			GB1000SC
Rated frequency (Hz)			50
Rated output (KW / KVA)			1000 / 1250
Max. output (KW)			1100
Rated voltage (V)			380/220
Rated current (A)			1899.2
Rated speed (r/min)			1500
Alternator	Model		STAMFORD TYPE LVI634G
	Pole No.		4
	Loop mode		Three-phase Four-loop
	Excitation mode		Self-excitation and constant voltage
	Power factor (COSΦ)		0.8 (lag)
	Insulation grade		
Engine	Model		Britsh Cummins Engine KTAA38-G9A
	Engine type		TWELVE-cylinder, in-lined, four-stroke, Direct Injection, water cooled
	Bore×stroke (mm)		159x159
	Total displacement (L)		38
	Compression ratio		17:1
	Rated power (KW)		1195
	Cooling water capacity	Voltage Radiator tank L	4 / 200
	Lubricating system		Compound and Pressure splashed
	Lube oil brand		SAE 10W-30, 15W-40(above CD grade)
	Lube oil capacity (L)		135
	Starting system		24V electric starter
	Starting motor capacity (V-kW)		12V 1.4kW
	Charging generator capacity (V-A)		14V 25A
	Battery capacity×No. (V-Ah)		12V 65Ah
	Fuel type		0# (summer), -10# (winter), -35# (chillness) diesel
	Fuel consumption (g/kW.h)		≤208
Genset	Control Panel type		Electronics Deepsea USA
	Output	Voltage	380/220
		Receptacle	One single-phase & One Three Phase receptacles
		Connection pole	Available
	Noise level (7m) [dB(A)]		65
	Structure type		Silent
	Fuel tank capacity (L)		2000
	Continuous running time (h)		20-24
	Overall dimension (cm)		540x220x230
	Net weight (kg)		8000

SOLUTIONS FOR
OFFICE COMPLEX

MADE FOR SICHER

RICARDO

HEAVY DUTY INDUSTRIAL ENGINE

The Ricardo range has been co-created in consultation with engineers and designers. This 2.2 litre, 4 cylinder, water charge cooled engine is a new product line to the heavy but low acoustic range of engines available upto 12 cylinders. The becomes the flagship model in the range offering an increase in the power available from the packed in, lightweight range of engines whilst maintaining all the possible benefits that they can experience from the range.

The engine family draws to set new standards in the smaller engine range, developed from the point of views of customers to fulfill their needs in the assembly, industrial vehicle, genset and military markets. It is another star class diesel engine from Ricardo to Sicher.

Constructed to the latest engine standards, the engines meet all the necessities of international emissions legislation. A one-year standard warranty, low noise and bleakness, and a wide range of options make the range the complete solution for generating power needs. The is a powerful but quiet 2.2 litre unit delivering inspiring performance with low working cost in a small competent package ideal for power generation applications.

Ultra Small

- The carefully installed side mounted Filters position provides less maintenance time with soaring power with minimum impact on enclose size making fitment into machines easier.

Clean and Unvoiced

- Noise levels have been kept to a minimum.
- Biased body has been carefully controlled making the engine sound even quieter.

Stable output

- Product development and method integration has enhanced both engine strength and durability.
- An enhanced conformity testing and governor deliver consistency for 8,000 hours.
- A comprehensive one-year guarantee gives our assurance in durability and reliability.

operating costs

- Approved for operation on biodiesel* concentrations of up to 20%.
- Oil and filter changes are 500 hours, dependent on load factor.
- Engine durability and reliability, the warranty offering, and ease of installation combine to drive down the cost to the owner.

Engine specification

- Cast iron engine block
- Flywheel and flywheel housing
- Fuel injection pump
- Lub oil pressure switch
- Coolant temperature switch
- SAE A PTO
- Choice of cooling fans
- High and low fan positions
- Electronic controlled governing as an option
- Split element fuel filter
- Glow plug starting aid
- Lub oil sump
- Spin on lub oil filter
- Inlet manifold
- Cast iron exhaust manifold – side outlet
- Coolant pump belt driven
- Starter motor 12 volt
- Alternator 12 volt 6
- ESOS (Electric shut-off solenoid)

中国传动
CHINA TRANSMISSION
南晶齿·NGC
南通柴油机股份有限公司

MADE FOR SICHER

NTDEC POWERDRIVE

INSTALLATION CONSIDERATIONS

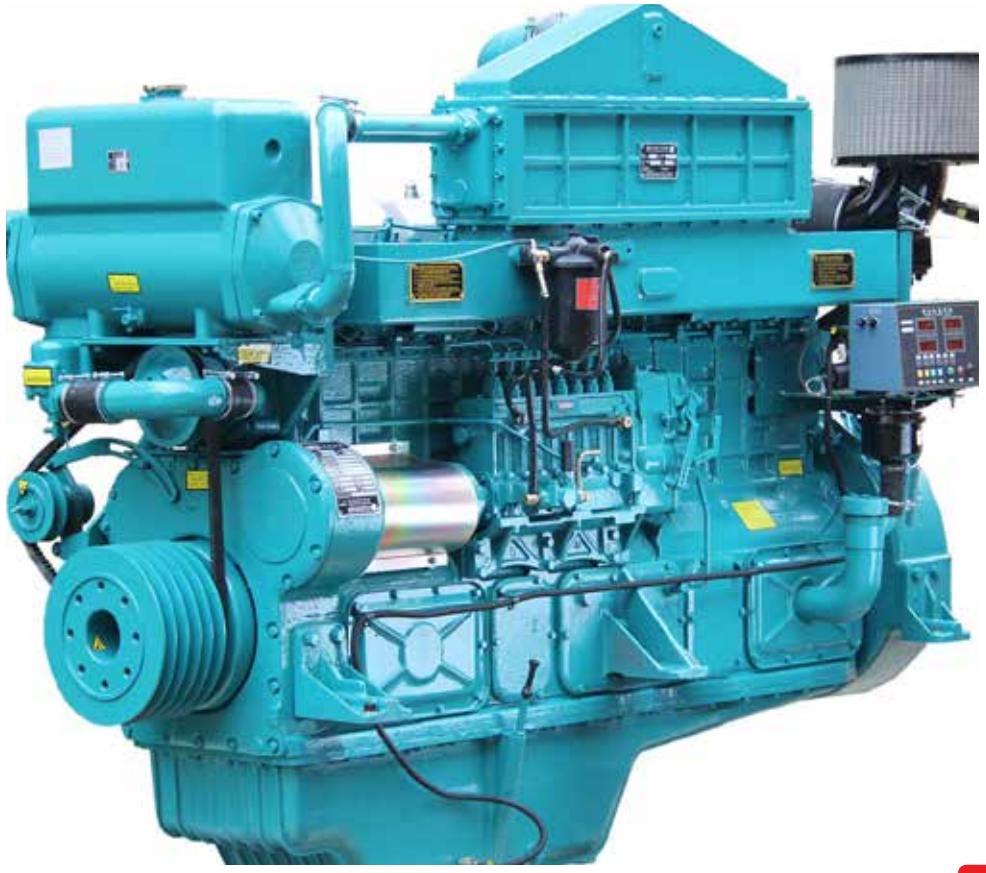
Maximum raw water pressure must not exceed 20 PSI (137 kPa). Minimum acceptable raw water flow at 90" F (32" C) raw water temperature and 100" F (38" C) ambient air temperature should be at least 25 G.P.M. (68 Umin.) at the 2100 RPM listed rating. Ventilation air required for engine combustion is 385 CFM @ 208 and 283 CFM @ 182 hp. This is for engine air combustion only and does not take into consideration additional air required for normal room cooling.

All of the above ratings are listed by the following agencies:

LISTED AGENCY RATINGS

182 HP O 1760 RPM	Underwriters' Laboratorles Inc.
208 HP O 2100 RPM	Factory Mutual, Underwriters' Laboratorles of Canada

The agency-approved horsepower ratings published are already derated for fire pump service. The ratings show horsepower available for driving the fire pump at standard SAE J1995 conditions of 29.61 in. (752 mm) Hg barometer and 77" F (25" C) inlet air temperature (approximately 300 ft. [91.4 m] above sea level). The only additional deration necessary is for higher ambient temperatures and elevations as follows: 3% for each 1000 ft. (305 m) above 300 ft. (91.4 m) and 1% for each 10" F (5.6" C) above 77" F (25" C) in accordance with National Fire Association Pamphlet No. 20.



NTDEC POWERDRIVE

MADE FOR SICHER

DESIGN FEATURES

Aftercooler: Large capacity aftercooler results in cooler, denser air for more efficient combustion and reduced internal stress for longer life.

Direct Fuel Injection System: With high swirl intake ports for thorough mixing of air and fuel to provide low fuel consumption.

Holset Exhaust Gas Driven Turbocharger: Provides more power, improved fuel economy, altitude compensation, and lower smoke and noise levels.

Compact Size: For ease of installation and easy access for routine maintenance.

Fewer Parts: For less inventory and faster maintenance and repair. Parts simplicity also enables engines to be serviced and repaired with ordinary hand tools.

Cast Iron Skirted Block: With main bearing supports between each cylinder, for maximum strength and rigidity, low weight, and optimum crankshaft support.

Forged Steel, I-beam Cross Section Connecting Rods: With angle split cap-to-rod interface and capscrew attachment for maximum structural strength and ease of service

Side Mounted Gear Driven Camshaft: For low engine height and minimum maintenance.

Single Piece Cross Flow Cylinder Head: For short length and maximum structural stiffness of the blocklhead assembly, for fewer head gasket problems.

Two Valves Per Cylinder: With single valve springs, for fewer parts.

Single Belt Fan, Alternator, and Water Pump Drive: With selftensioning idler for minimum belt maintenance.

STANDARD EQUIPMENT

Air Cleaner: 15 inch (31 8 mm) diameter dry air cleaner.

Belt and Damper Shleld Guard: Protection from alternator, accessory drive, and water pump belts and vibration damper.

Coolant Pump: Belt driven, centrifugal type.

Corrosion Resistor: Mounted, checks rust and corrosion, controls acidity, and removes impurities from coolant.

Electrical Equipment: 12 volt negative ground system, including: a 12 volt starting motor; a 12 volt, 65 alternator; manually operable contactors; and a junction box with enclosed terminal strip.

Engine Support: Pedestal type, front and rear.

Exhaust Manifold: Wet.

Exhaust Outlet: 3 in. (76 mm) diameter, 90" elbow.

Filters: Spin-on, replaceable lubricating oil filter. Single spin-on, replaceable fuel filter.

Flywheel: Machined for stubshaft mounting.

Flywheel Housing: SAE No. 3 with industrial supports.

Governor: Mechanical flyweight, mechanical variable speed type.

Heat Exchanger: Copper nickel tube bundle, mounted.

Instrument Panel: Mounted. Electrical instruments only. Includes amp meter, tachometer, hour meter, water temperature gauge, and lubricating oil pressure gauge.

Lubricating Oil Cooler: Tubular type, jacket water cooled.

Oil Pan: Steel stamp, rear sump type, 15 U.S. quarts (14.2 litre) capacity. Provision for optional oil heater.

Oil Pressure Switch: Provides signal to activate alarm (not included) for low oil pressure.

Overspeed Switch: Mounted, overspeed shutdown with manual reset, stop crank contacts.

Stubshaft: Mounted on flywheel.

Throttle Control: Hydraulic, with no manual override.

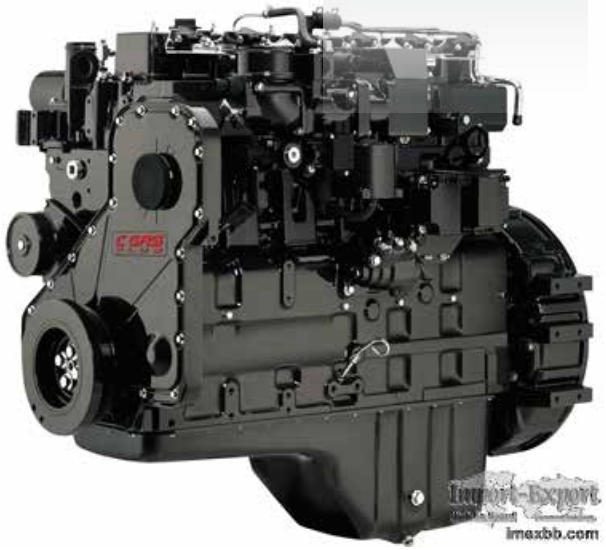
Vibratlon Damper: Viscous type.

Water Jacket Heater: Mounted beside oil pan, 1201240 volt, 1 000 watt.

Water Temperature Switch: Provides signal to activate alarm (not included) for high water temperature.

KTA38-G5
GENERATOR DRIVE
1500 RPM

4-STROKE CYCLE
TURBOCHARGED/AFTERCOOLED
V-12 CYLINDER
DIESEL ENGINE



MADE FOR SICHER

SPECIFICATIONS

4-Stroke Cycle, Turbocharged/Aftercooled, V-12 Cylinder Diesel Engine.

1500 RPM Engine Output		
Standby Power Rating	1300 BHP	[970 kWm*]
Prime Power Rating	1180 BHP	[880 kWm*]
Continuous Power Rating	880 BHP	[656 kWm*]
*Refers to gross power available from engine, not generator set.		
Bore and Stroke	6.25x6.25 in.	[159x159 mm]
Displacement	2300 cu. in.	[38 L]
**Lube System Oil Capacity	34.0 U.S. gal.	[129 L]
Coolant Capacity	31.25 U.S. gal.	[118 L]
Net Weight with Standard Accessories, Dry	9,482 lb.	[4300 kg]
Approx. Overall Dimensions:		
Width	52.9 in.	[1343 mm]
Length	89.1 in.	[2263 mm]
Height	65.3 in.	[1659 mm]

** Spin-on bypass filters are included in total.

RATING GUIDELINES:
Standby Power Rating is applicable for supplying emergency electric power for the duration of the utility power outage. No overload capability is available for this rating. Under no condition is an engine allowed to operate in parallel with the public utility at the Standby Power rating. Prime Power Rating is applicable for supplying electric power in lieu of commercially purchased power. Prime Power is the maximum power available at variable load for an unlimited number of hours. A 10% overload capability is available.

OPERATION at ELEVATED TEMPERATURE and ALTITUDE:
The engine may be operated at:

- 1500 RPM up to: 5000 ft. [1525 m] and 104 °F [40 °C] without power deration.

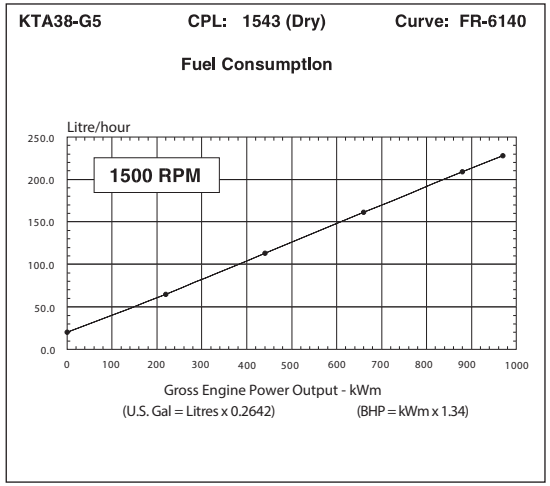
For sustained operation above these conditions derate by:
4% per 1,000 ft. [300 m] and 1% per 10 °F [2% per 11 °C].

PERFORMANCE:
Standard Conditions:
Data Shown Above Are Based On:

- Engine operating with fuel system, water pump, lubricating oil pump, air cleaner and exhaust silencer; not included are battery charging alternator, fan and optional driven components.
- Engine operating with diesel fuel corresponding to grade No. 2D per ASTM D975.
- ISO-3046, Part 1, Standard Reference Conditions of: 29.53 in. Hg. [100 kPa] barometric pressure (361 ft. [110 m] altitude), 77 °F [25 °C] air temperature and a relative humidity of 30%.

NOTES:

- For Continuous Power or Base Power, Interruptible Power (Utility Power Curtailment) and Peak Shaving, contact the local Cummins representative.
- Cummins Engine Company recommends that Cummins engines be operated at a minimum load of 30% of their respective Standby Power rating.



ENGINE DETAILS

KTA38-G5
GENERATOR DRIVE
1500 RPM

MADE FOR SICHER

DESIGN FEATURES

Aftercooler: Large capacity aftercooler results in cooler, denser intake air for more efficient combustion and reduced internal stresses for longer life. Aftercooler is located in engine coolant system, eliminating need for special plumbing.

Bearings: Replaceable, precision type, steel backed inserts. Nine main bearings, 6.5 in. [165 mm] diameter. Connecting rod bearings 4.25 in. [108 mm] diameter.

Camshaft: Dual camshafts precisely control valve and injector timing. Lobes are induction hardened for long life. Eighteen replaceable precision type bushings 3.0 in. [76 mm] diameter.

Camshaft Followers: Induction hardened, roller type for long cam and follower life.

Connecting Rods: Drop forged, I-beam section 11.4 in. [290 mm] center-to-center length. Rifle drilled for pressure lubrication of piston pin. Rod is tapered on piston pin end to reduce unit pressures.

Cooling System: Gear driven centrifugal water pump. Large volume water passages provide even flow of coolant around cylinder liners, valves, and injectors. Four modulating bypass thermostats regulate coolant temperature. Spin-on corrosion resistors check rust and corrosion, control acidity and remove impurities.

Crankshaft: High tensile strength steel forging with induction hardened fillets and journals. Fully counterweighted and dynamically balanced.

Cylinder Block: Alloy cast iron with removable wet liners. Cross bolt support to main bearing cap provides extra strength and stability.

Cylinder Heads: Alloy cast iron. Each head serves one cylinder. Valve seats are replaceable corrosion resistant inserts. Valve guides and cross head guides are replaceable inserts.

Cylinder Liners: Replaceable wet liners dissipate heat faster than dry liners and are easily replaced without reboring the block.

Fuel System: Cummins exclusive low pressure PT™ system with wear compensating pump and integral dual flyweight governor. Camshaft actuated fuel injectors give accurate metering and timing. Fuel lines are internal drilled passages in cylinder heads. Spin-on fuel filter.

Gear Train: Timing gears and accessory drive gears are induction hardened helical gears driven from crankshaft and located at front of block.

Lubrication: Large capacity gear pump provides pressure lubrication to all bearings and oil supply for piston cooling. All pressure lines are internal drilled passages in block and heads. Oil cooler, full flow filters, and bypass filters maintain oil condition and maximize oil and engine life.

Pistons: Aluminum alloy, cam ground and barrel shaped to compensate for thermal expansion assures precise fit at operating temperatures. Grooved skirt finish provides superior lubrication. Oil cooled for rapid heat dissipation. Two compression and one oil ring.

Piston Pins: Full floating, tubular steel retained by snap rings 2.4 in. [61 mm] diameter.

Turbocharger: Holset exhaust gas driven turbocharger mounted at top of engine. Turbocharging provides more power, improved fuel economy, altitude compensation, and lower smoke and noise levels.

Valves: Dual 2.22 in. [56 mm] diameter poppet type intake and exhaust valves. Wear resistant face on exhaust valves.

AVAILABLE EQUIPMENT

Cooling System

1. Fan drive for radiator (0.5:1 drive ratio, 24.0 in. [610 mm] center).
2. Heat exchanger – tube type, copper nickel.
3. Remote cooling (engine water pump only).

Exhaust System:

1. Dry exhaust manifold.
2. Flexible exhaust connection.

Filters: Fleetguard.

1. Lubricating oil: Spin-on paper element full flow and bypass type.
2. Fuel: Dual spin-on paper element type.

Flywheel: To fit SAE-518 (22.500 in. [571.5 mm] diameter) or SAE-521 (26.500 in. [673 mm] diameter), generator flexible drive disk - reference SAE standard J162a.

Flywheel Housing: SAE No. 0 or SAE No. 00, dry type. Governors: Electric or hydraulic; for droop or isochronous operation. Cummins EFC (electric fuel control) or others.

Starting System:

1. Electric starter (24 volt positive engagement).
2. Compressed air starter.
3. Battery charging alternator (24 volt, 35 ampere).

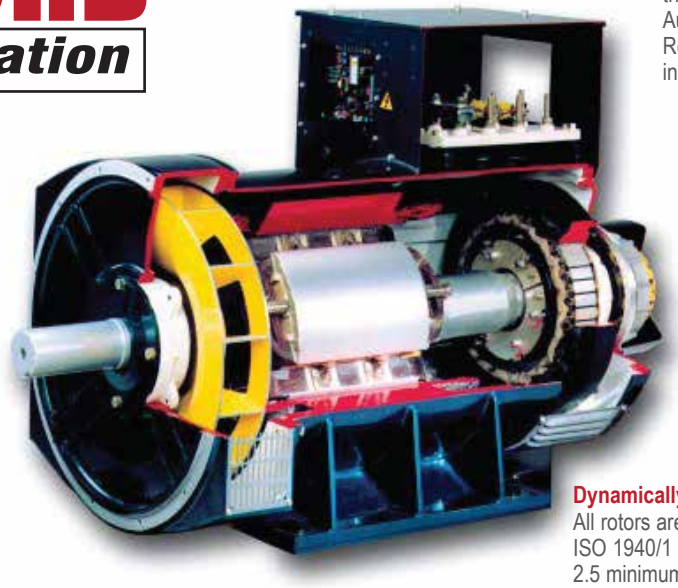
STAMFORD
power generation

Winding Pitches
A 2/3 winding pitch is used for optimal performance.

AVR Controlled
Newage has over 30 years experience in producing the STAMFORD range of Automatic Voltage Regulators for the ultimate in reliability and control.

Permanent Magnet Excitation
Newage's Permanent Magnet Generator control system gives rapid response to widely varying electrical loads. These are available from 40kVA and are standard on the HC6 and P range.

MADE FOR SSICHER



Easy Installation
Terminal boxes are supplied with removable panels for ease of wiring and glanding.

Dynamically Balanced Rotors
All rotors are balanced to a minimum of ISO 1940/1 (BS 6861: Part 1), Grade 2.5 minimum operating vibration. Two bearing ac generators are balanced with a half key.

BRUSHLESS AC GENERATORS UP TO 2750 KVA

Internationally renowned for built-in quality, reliability, and innovation, STAMFORD ac generators from NEWAGE AVK SEG set the industry standard, with a range extending from 5 to 2750 kVA, suitable for all ac generator set configurations. The STAMFORD range supplies AC generators for industrial, marine/offshore, commercial, construction, rental, combined heat and power, parallel operation, peak shaving, telecommunications, mining, and other standby or continuous power applications. STAMFORD brushless ac generators are available with choice of SAE adaptors to ensure easy coupling to a wide range of prime movers. STAMFORD also offers bespoke ranges designed a for direct mounting on major engine ranges.

BC-Range	UC-Range	HC-Range	P-Range
5 kVA — 40 kVA	40 kVA — 250 kVA	250 kVA —1438 kVA	1260 kVA — 2750 kVA
2-pole or 4-pole configuration	4-pole configuration	4-pole or 6-pole configuration	4-pole or 6-pole configuration
A broad range of single and three phase voltages are available from a 12 wire reconnectable winding. BCI184 can be fitted with an auxiliary winding for applications where a sustained short circuit is required. The BCM (marine) generator has an auxiliary winding as standard.	A broad range of single and three phase voltages are available from a 12 wire reconnectable winding. A permanent magnet generator (PMG) is available as an option to sustain a short circuit.	A broad range of single and three phase voltages are available from a 12 wire reconnectable winding upto 800kVA. The HC6 (upto 1000kVA) gives a range of voltages from a standard 6 wire winding. A 12 wire winding is offered on the HC6 as an option. A permanent magnet generator (PMG) is fitted as standard.	A broad range of single and three phase voltages are available from a 6 wire reconnectable winding. A permanent magnet generator (PMG) is fitted as standard.

STAMFORD ac generators set an international standard for ruggedness and reliability. The range of ac generators includes 2-pole, 4-pole, and 6-pole ac generators at low voltages up to 690V.

DSE CONTROL MONITORING WITH INTELLIGENCE

MADE FOR SICHER

DSE5110 & DSE5120
AUTO START & AUTOMAINS FAILURE CONTROLMODULES

The DSE5110 is an Automatic Start Control Module designed to automatically start and stop diesel and gas generating sets that include non electronic engines. The module also provides excellent engine monitoring and protection features.

The module has the ability to monitor under speed, over speed, charge failure, emergency stop, low oil pressure, high engine temperature, fail to start, fail to stop and loss of the speed sensing signal. The module displays fault conditions on the LCD display and via the LED indicators on the front.

The DSE5120 is an Automatic Mains Failure ControlModule and includes all the features of the DSE5110 plus the ability tomonitor a mains (utility) supply. Upon detection of a mains (utility) failure the module automatically starts the generating set. Once themains power has been restored it instructs the generating set to stop.

FEATURES

- Automatic start
- Automatic mains (utility) failure detection (DSE5120 only)
- Automatic load transfer
- Configurable inputs
- Configurable outputs
- Configurable alarms & timers
- Digital inputs
- Analogue inputs
- Back-lit character LCD display
- Engine protection
- Front panel mounting
- Icon based fault diagnostics
- PC configurable
- Front panel programming
- Remote monitoring
- LCD alarm indication
- LED alarm indication

BENEFITS

- In-built engine diagnostics removes the requirement for service equipment
- License free PC software
- Modules help to improve the life cycle of engine starter motors
- On-site module configuration
- User-friendly set-up and button layout

OPERATION

The modules are operated using the front STOP, AUTO and MANUAL push buttons. The DSE5120 also includes a TEST button. An additional push button on both modules allows the user to scroll through the LCD instrumentation display.

CONFIGURATION

The modules can be configured using the front panel buttons or the DSE810 interface and PC software.

SPECIFICATION

DC SUPPLY
8V to 35V continuous
CRANKING DROPOUTS
Able to survive 0V for 50mS, providing the supply was at least 10V before dropout and supply recovers to 5V
START RELAY OUTPUT
16A DC supply at supply voltage
FUEL RELAY OUTPUT
16A DC at supply voltage
AUXILIARY RELAY OUTPUTS
5A DC at supply voltage
CHARGE FAIL/EXCITATION RANGE
0V to 35V
MAXIMUMOPERATING CURRENT
320mA at 12V, 215mA at 24V
MAXIMUMSTANDBY CURRENT
175mA at 12V, 95mA at 24V
ALTERNATOR INPUT RANGE
15V (L-N) to 333V AC (L-N) absolute maximum
ALTERNATOR INPUT FREQUENCY
50-60 Hz at rated engine speed (Minimum: 15V AC L-N)
MAGNETIC PICK-UP VOLTAGE INPUT RANGE
+/- 0.5V to 70V Peak
MAGNETIC INPUT FREQUENCY
10,000 Hz (max) at rated engine speed
GENERATOR &MAINS (UTILITY) LOADING RELAY
(DSE5120 only)
8A at 240V
MAINS (UTILITY) SUPPLY INPUT RANGE
(DSE5120 only)
15V (L-N) to 333V AC (L-N) absolute maximum
MAINS (UTILITY) SUPPLY INPUT FREQUENCY
(DSE5120 only)
10,000 Hz (max) at rated engine speed
MODULE DIMENSIONS (WXH)
240mm x 172mm
9.4" x 6.8"
PANEL CUT-OUT (WXH)
220mm x 160mm
8.7" x 6.3"
MAXIMUMPANEL THICKNESS
8mm
0.3"

DSE CONTROL MONITORING WITH INTELLIGENCE

DSE5110 & DSE5120
AUTO START & AUTOMAINS FAILURE CONTROLMODULES

ENVIRONMENTAL TESTING STANDARDS

ELECTRO MAGNETIC CAPABILITY
BS EN 61000-6-2
EMC Generic Emission 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 60068-2-2
Test Ab to +70ºC 60067-2-2 Hot
Test Ab to -30ºC 60068-2-1 Cold

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

HUMIDITY
BS 2011 part 2.1 60068-2-30
Test Cb Ob Cyclic
93% RH @ 40ºC for 48 hours

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

INPUTS & OUTPUTS

Analogue inputs are provided for oil pressure and engine temperature. These connect to conventional engine mounted resistive sender units to provide accurate monitoring and protection facilities. The modules can also be configured to interface with digital switch type inputs for low oil pressure and high engine temperature shutdowns.

Relay outputs are provided for fuel solenoid output, start output and three additional configurable outputs. A range of different functions, conditions or alarms can be selected for the three configurable relay outputs. These outputs are fed from the permanent plant supply.

DSE5120 only

Dedicated outputs are provided for the control of both the mains (utility) and generator switching devices. This feature combined with the inbuilt incoming mains (utility) supply sensing, removes the requirement for expensive external devices.

INSTRUMENTATION

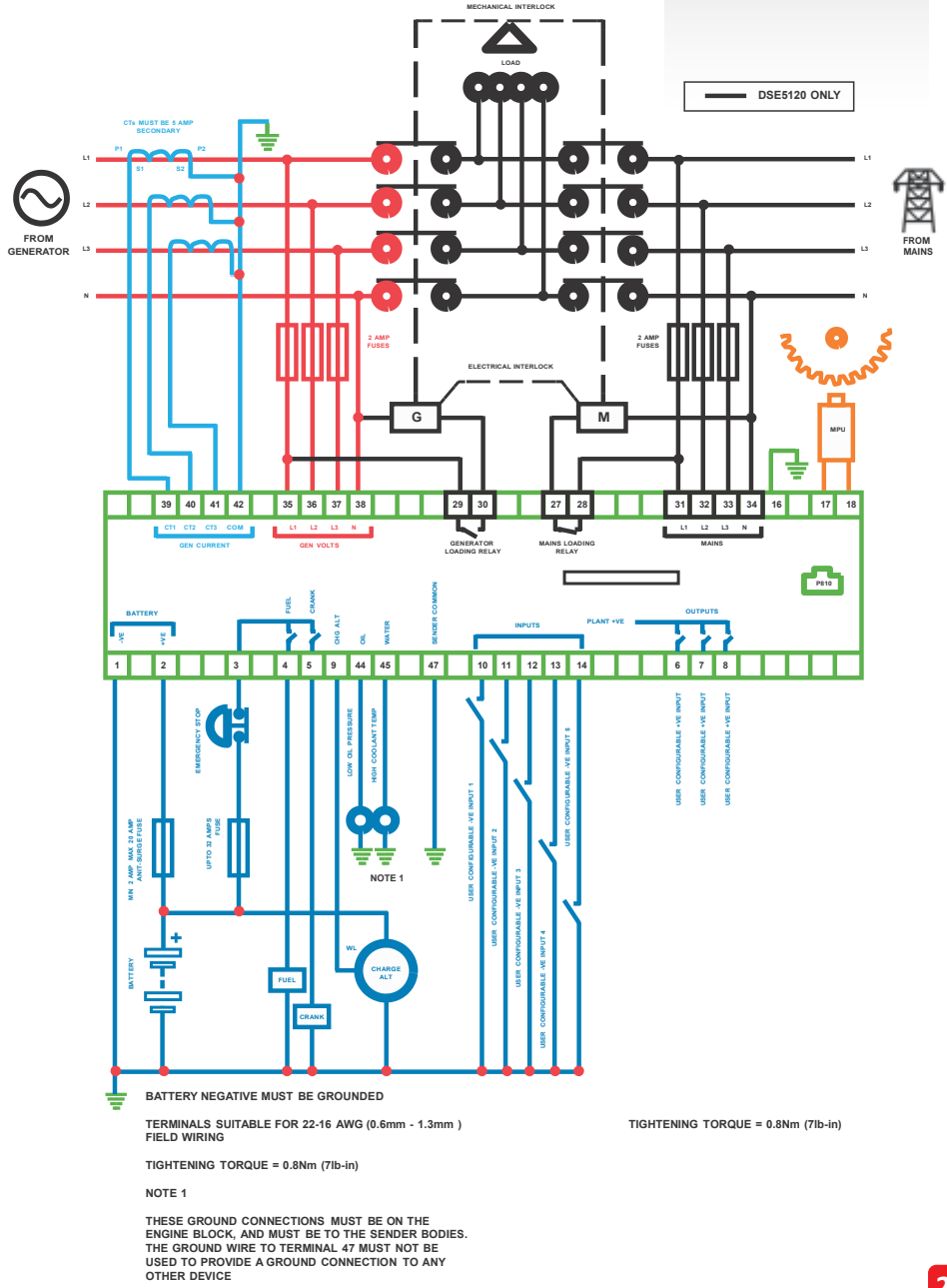
The modules provide advanced metering facilities, displaying the information on the LCD display. The information can be accessed using the display scroll push buttons located next to the LCD display.

Generator Volts L1-N, L2-N, L3-N
Generator Volts L1-L2, L2-L3, L3-L1
Generator Amps L1,L2, L3
Engine Speed RPM Generator
Frequency Hz Engine Oil Pressure (PSI & Bar)
Engine Temperature (ºC & ºF)
Plant Battery Volts
Engine Run Hours

RELATED MATERIALS

TITLE		PART NO'S
DSE5110	Installation Instructions	053-038
DSE5120	Installation Instructions	053-022
DSE5110	Manual	057-009
DSE5120	Manual	057-010
DSE51xx	Software Manual	057-005

DSE5110 & DSE5120



DSEGenset

MADE FOR SICHER

DSE

DSE7310/20

AUTO START & AUTO MAINS FAILURE CONTROL MODULES

FEATURES

DSE7310

DSE7320

KEY FEATURES

- 4-Line back-lit LCD text display
- Five key menu navigation
- Front panel editing with PIN protection
- LED and LCD alarm indication
- 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)
- Control logic facilities
- 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 overload protection
- 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
- SMS Messaging (additional external modem required)
- Additional display screens to help with modem diagnostics
- DSENet® 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®
- Licence-free PC software
- IP65 rating (with supplied gasket) offers increased resistance to water ingress

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"

RELATED MATERIALS

TITLE	PART NO'S
DSE7310 Installation Instructions	053-028
DSE7320 Installation Instructions	053-029
DSE7200/7300 Quick Start Guide	057-101
DSE7200/7300 Operator Manual	057-074
DSE7200/7300 Configuration Suite PC Manual	057-077

DEEP SEA ELECTRONICS PLC UK
Highfield House, Hunmanby Industrial Estate, Hunmanby YO14 0PH
TELEPHONE +44 (0) 1723 890099 FACSIMILE +44 (0) 1723 893303
EMAIL sales@deepseaplc.com WEBSITE www.deepseaplc.com

DEEP SEA ELECTRONICS INC USA
3230 Williams Avenue, Rockford, IL 61101-2668 USA
TELEPHONE +1 (815) 316 8706 FACSIMILE +1 (815) 316 8708
EMAIL sales@deepseausa.com WEBSITE www.deepseausa.com

Registered in England & Wales No.01319649
VAT No.316923457

055-051/08/10 (6) US

DSEGenset

DSE

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 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/Be Dry Heat +70 °C

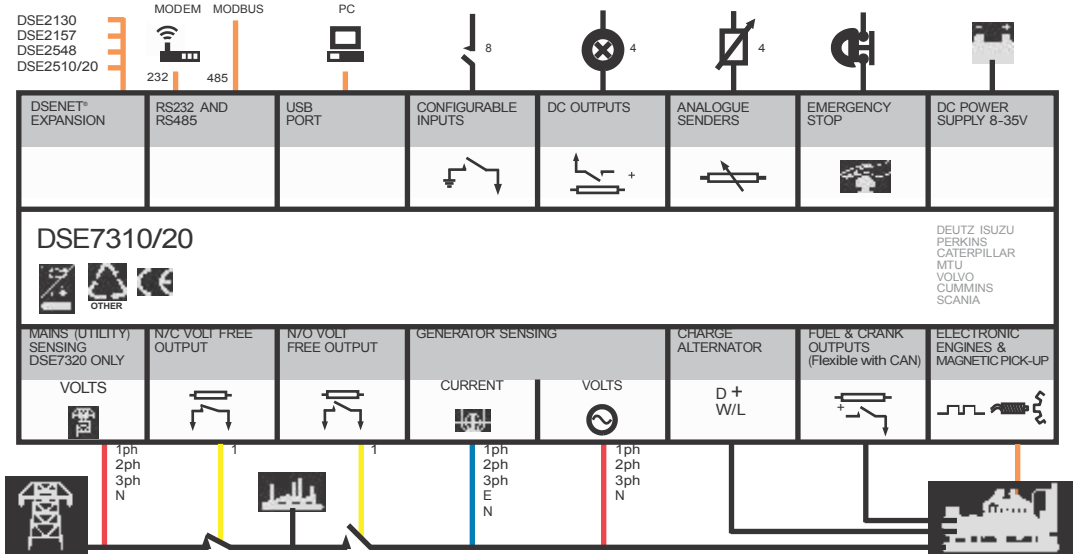
VIBRATION
BS EN 60068-2-6
Ten sweeps in each of three major axes
5 Hz to 8 Hz @ +/-7.5 mm,
8 Hz to 500 Hz @ 2 gn

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



ISSUE 6

DSE® DEEPSEA Electronics, USA

MICRO SYNC

The DSE8660 is an easy-to-use single or multi-mains controller with automatic transfer switch capability. Designed to synchronise single or multiple DSE8610s with single or multiple mains (utility) supplies, the DSE8660 will automatically control the change over from mains (utility) to generator supply or run generators in synchronisation with the mains (utility) to provide no-break, peak lopping and peak shaving power solutions.

The module can indicate operational status and fault conditions on the LCD screen (multiple languages available), by illuminated LED, audible sounder and SMS messaging. Comprehensive communications are also available via RS485 and RS232 for remote PC control and monitoring, and integration into building management systems. The comprehensive event log will record up to 250 events to facilitate maintenance.

An extensive number of fixed and flexible monitoring and protection features are included. Easyalteration of the sequences, timers and alarms can be made using the DSE PC Configuration Suite Software. Selected configuration is also available via the module's front panel.

With all communication ports capable of being active at the same time, the DSE8600 Series is ideal for a wide variety of demanding load share applications.

MADE FOR SICHER

KEY FEATURES

- Configurable inputs (11)
- Configurable outputs (8)
- Voltage measurement
- Mains (utility) fail sensing
- Multiple mains (utility) monitoring
- Peak lopping
- Peak shaving
- RS232 & RS485 remote communications
- Modbus RTU
- Built-in PLC Functionality
- Multi event exercise timer
- Back-lit LCD 4-line text display
- Multiple display languages
- Automatic start/Manual start
- Audible alarm
- Fixed and flexible LED indicators
- Event log (250)
- Fault condition notification to a designated PC
- Front panel mounting
- PIN protected front panel configuration
- PC configuration
- Configurable alarms and timers
- Configurable start and stop timers
- SMS alert messagin

KEY LOAD SHARE FEATURES:

- Peak lopping
- Sequential set start
- Manual voltage/frequency adjustment
- R.O.C.O.F. and vector shift
- Generator load demand
- Automatic hours run balancing
- Mains (Utility) de-coupling
- Mains (Utility) de-coupling test mode
- Bus failure detection
- Volts and frequency matching.

KEY BENEFITS

- A single fexible solution for multiple applications
- Ethernet monitoring
- Built-in RS232 & RS485 can be used at the same time
- DSENet connection for system expansion
- High number of inputs and outputs
- Worldwide Language Support
- Configuration Suite PC Software via USB
- USB Host*
- Data Logging & Trending*

* To follow

SICHER®

OUR CARE
TOWARD YOUR GENERATOR

SICHER®

PREVENTIVE MAINTENANCE

Because of the durability of diesel engines, most maintenances preventive in nature. Preventive diesel engine maintenance consists of the following operations:

- General inspection
- Lubrication service
- Cooling system service
- Fuel system service
- Servicing and testing starting batteries
- Regular engine exercise

It is generally a good idea to establish and adhere to a schedule of maintenance and service based on the specific power application and the severity of the environment. For example, if the generator set will be used frequently or subjected to extreme operating conditions, the recommended service intervals should be reduced accordingly. Some of the factors that can affect the maintenance schedule include:

- Using the diesel generator set for continuous duty (prime power)
- Extreme ambient temperatures
- Exposure to weather
- Exposure to salt water
- Exposure to dust, sand or other airborne contaminates

If the generator set will be subjected to some or all of these extreme operating conditions, it is best to consult with the Sicher to develop an appropriate maintenance schedule. The best way to keep track of maintenance intervals are to use the running time meter on the generator set to keep an accurate log of all service performed. This log will also be important for warranty support. FIGURE 1 shows a typical diesel engine maintenance schedule for generator sets.

MAINTENANCE SERVICE TIME ITEMS

	Daily	Weekly	Monthly	6 Months	Yearly
Inspection	X				
Check coolant heater	X				
Check coolant level	X				
Check oil level	X				
Check fuel level	X				
Check charge-air piping	X				
Check/clean air cleaner		X			
Check battery charger		X			
Drain fuel filter		X			
Drain water from fuel tank		X			
Check coolant concentration			X		
Check drive belt tension			X		
Drain exhaust condensate			X		
Check starting batteries			X		
Change oil and filter				X	
Change coolant filter				X	
Clean crankcase breather				X	
Change air cleaner element				X	
Check radiator hoses				X	
Change fuel filters				X	
Clean cooling system					X

GENERAL INSPECTION

When the generator set is running, operators need to be alert for mechanical problems that could create unsafe or hazardous conditions. Following are several areas that should be inspected frequently to maintain safe and reliable operation.

• EXHAUST SYSTEM:

With the generator set operating, inspect the entire exhaust system including the exhaust manifold, muffler and exhaust pipe. Check for leaks at all connections, welds, gaskets and joints, and make sure that the exhaust pipes are not heating surrounding areas excessively. Repair any leaks immediately.

• FUEL SYSTEM:

With the generator set operating, inspect the fuel supply lines, return lines, filters and fittings for cracks or abrasions. Make sure the lines are not rubbing against anything that could cause an eventual breakage. Repair any leaks or alter line routing to eliminate wear immediately.

• DC ELECTRICAL SYSTEM:

Check the terminals on the starting batteries for clean and tight connections. Loose or corroded connections create resistance which can hinder starting.

• ENGINE:

Monitor fluid levels, oil pressure and coolant temperatures frequently. Most engine problems give
an early warning. Look and listen for changes in engine performance, sound, or appearance that will indicate that service or repair is needed. Be alert for misfires, vibration, excessive exhaust smoke, loss of
power or increases in oil or fuel consumption.

• LUBRICATION SERVICE

Check the engine oil level when the engine is shut down at the interval specified in FIGURE 1. For accurate readings on the engine's dipstick, shut off the engine and wait approximately 10 minutes to allow the oil in the upper portions of the engine to drain back into the crankcase. Follow the engine manufacturer's recommendations for API oil classification and oil viscosity. Keep the oil level as near as possible to the "full" mark on the dipstick by adding the same quality and brand of oil. Change the oil and filter at the intervals recommended in FIGURE 1. Check with the engine manufacturer for procedures for draining the oil and replacing the oil filter. Used oil and filters must be disposed of properly to avoid environmental damage or liability

• COOLING SYSTEM SERVICE

Check the coolant level during shutdown periods atthe interval specified in FIGURE 1. Remove the radiator cap after allowing the engine to cool and, if necessary, add coolant until the level is about 3/4-inch below the radiator cap lower sealing surface. Heavy duty diesel engines require a balanced coolant mixture of water, antifreeze and coolant additives. Use a coolant solution as recommended by the engine manufacturer. Inspect the exterior of the radiator for obstructions and remove all dirt or foreign material with a soft brush or cloth. Use care to avoid damaging the fins. If available, use low pressure compressed air or a stream of water in the opposite direction of normal air flow to clean the radiator. Check the operation of the coolant heater by verifying that hot coolant is being discharged from the outlet hose

APPROXIMATE

DIESEL FUEL CONSUMPTION CHART

This chart provides the approximate consumption of fuel of the SICHER diesel generator based on the size of the generator and the load at which the generator is operating at. Please note that this table is intended to be used as an estimate of how much fuel a generator uses during operation and is not an exact representation due to various factors that can increase or decrease the amount of fuel consumed.

Generator Size (KW)	1/4 Load (L)	1/2 Load (L)	3/4 Load (L)	FULL Load (L)
20	2.20	3.35	4.84	7.44
30	4.88	7.00	9.00	9.00
40	8.00	9.00	12.00	14.00
60	6.60	9.00	13.00	18.00
75	8.90	12.00	15.00	22.00
100	9.60	15.00	19.70	27.53
125	11.00	18.00	25.20	34.00
135	12.28	19.70	28.60	36.40
150	13.00	21.95	31.20	40.50
175	15.00	25.20	30.00	47.20
200	17.00	28.60	41.00	53.50
230	19.07	34.00	49.00	61.70
250	21.00	29.30	49.00	66.96
300	25.20	41.00	60.00	79.98
350	29.30	49.00	68.00	94.00
400	34.00	55.42	80.00	106.00
500	41.00	68.00	98.00	132.00
600	49.00	80.00	117.00	159.20
750	60.00	101.90	146.10	198.60
1000	80.00	135.40	193.00	264.40
1250	100.00	168.50	241.80	372.00

SICHER®

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(PRIVATE) LIMITED

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Fax **: 0112 389265**
E-mail **: admin@reliablesl.com**
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