



POWERED BY:



GENSET IMAGE IS FOR ILLUSTRATION PURPOSE ONLY

GENERATOR SET MODEL (GPD 400)

OUTPUT RATINGS (1500 RPM @ 0.8 P.F)	PRIME	STANDBY
400 V, 50 Hz @ 50 °C AMBIENT	400 KVA	450KVA

ENGINE / TECHNICAL DATA

MAKE (ORIGIN)	Doosan (Korea)	
MODEL	P-158-LE-S	
GOVERNING TYPE	MECHANICAL	
NUMBER OF CYLINDERS	08	
CYLINDER ARRANGEMENT	V-TYPE	
BORE AND STROKE MM	128 & 142	
DISPLACEMENT (LITERS)	14.61	
CYCLE	04	
COMBUSTION SYSTEM	DIRECT	
COMPRESSION RATIO	14.6:1	
ROTATION	COUNTER CLOCK WISE VIEWED FROM FLYWHEEL	
COOLING SYSTEM	WATER COOLED	
FREQUENCY AND ENGINE SPEED	50 HZ & 1500 RPM	
	PRIME	
GROSS ENGINE POWER KW	402	
FUEL CONSUMPTION	@ 100% LOAD L/HR	76.8
	@ 75% LOAD L/HR	57.6
	@ 50% LOAD L/HR	38.4
LUBRICATION SYSTEM CAPACITY (LITERS)	21	
TOTAL COOLANT CAPACITY (LITERS)	20	

DIMENSIONS AND WEIGHT

LENGTH (MM)	WIDTH (MM)	HEIGHT (MM)	WEIGHT (KG)
1389	1389	1216	2161

1. ENGINE

Doosan 04 STROKE HEAVY DUTY WITH HIGH PERFORMANCE INDUSTRIAL TYPE DIESEL ENGINE.

2. COOLING SYSTEM

THE ENGINE COOLING SYSTEM IS A FRESH WATER FORCED CIRCULATION TYPE & CONSISTS OF:

- A RADIATOR WITH MECHANICAL FAN SUITABLE FOR OPERATION IN A TEMPERATURE OF 50 °C.
- A THERMOSTAT FOR AUTOMATIC CONTROL OF WATER COOLANT TEMPERATURE.
- A COOLING WATER PUMP.

3. LUBRICATION OIL SYSTEM

- LUBRICATING OIL GEAR PUMP & SUMP WITH DRAIN VALVE FOR PRESSURE LUBRICATION.
- SPIN ON FULL FILTER & CARTRIDGE OIL FILTER.
- OIL COOLER.
- MANUAL PUMP FOR EMPTYING THE SUMP.
- LUBE OIL HEATERS.
- GEARED FUEL PUMP.
- SPIN & CARTRIDGE FUEL FILTER.
- FUEL INJECTION PUMP WITH MECHANICAL SPEED REGULATOR.

4. COMBUSTION AIR SUPPLY SYSTEM

DRY AIR FILTER WITH CLOGGING INDICATOR.

5. EXHAUST SYSTEM

WATER COOLED FLANGED EXHAUST MANIFOLD SYSTEM WITH INDUSTRIAL TYPE EXHAUST SILENCER FOR REMOTE MOUNTING. EXPANSION GASKET FITTED ON OUTLET WITH S.S INSULATED PIPES TO AVOID ANY CONTACT WITH HOT AREAS.

6. STARTING SYSTEM

ELECTRIC STARTER WITH BATTERY CHARGER ALTERNATOR COMPLETE WITH AUTOMATIC VOLTAGE REGULATOR, 24 V LEAD ACID STARTER BATTERIES.

7. ELECTRICAL EQUIPMENT FOR AUTOMATIC OPERATION

- MINIMUM OIL PRESSURE CONTACT.
- EXCESSIVE WATER TEMPERATURE CONTACT.
- COOLANT WATER PREHEAT WITH THERMOSTATIC CONTROL.

8. COUPLING

THE GENERATOR SET (ENGINE & ALTERNATOR) IS DIRECTLY COUPLED ON A WELDED STEEL MS GIRDER PLATFORM BY MEANS OF AN SAE FLANGE. THERE ARE A SERIES OF RUBBER ABSORPTION DAMPERS INSTALLED BETWEEN THE GENERATOR SET AND THE FRAME TO ABSORB ANY VIBRATIONS THE GENERATOR SET MIGHT PRODUCE.

9. FUEL SYSTEM

THE BASE FRAME WILL HAVE A BUILT-IN FUEL TANK WITH A MINIMUM CAPACITY OF LITERS OR 800 HOURS ON FULL LOAD.

(CONT.)

ALTERNATOR / TECHNICAL DATA

MAKE (ORIGIN)	MARELLI (MALAYSIA)
MODEL	MJB-315-MB4
POWER FACTOR	0.8
FREQUENCY (Hz)	50
INGRESS PROTECTION	IP 23
INSULATION CLASS	H
RATED SPEED (RPM)	1500
VOLTAGE REGULATION (STEADY)	AUTO (WITH ACCURACY OF ± 0.5 %)
EXCITING MODE	BRUSHLESS (SELF EXCITATION)
PHASE AND THREADS	03 PHASE AND 04 WIRES
OVERLOAD	10% FOR 1 HOUR EVERY 12 HOURS
WINDING PITCH (# OF LEADS)	2/3 (12)
COUPLING	FLEXIBLE DISC
SENSORS	WINDING TEMPERATURE SENSORS
TOTAL HARMONIC CONTENT	< 2% - AT NO LOAD
AVR MODEL (CODE)	MARK V (M16FA655A)
STANDARDS	IEC 60034-1; CEI 2-3; BS 4999-5000; NEMA MG 1.22

RATINGS DEFINITION

PRIME POWER:

POWER AVAILABLE AT VARIABLE LOAD IN LIEU OF MAIN POWER NETWORK. AN OVERLOAD OF 10% IS PERMITTED FOR ONE HOUR IN EVERY TWELVE HOURS OF OPERATION.

STANDBY POWER:

POWER AVAILABLE AT VARIABLE LOAD IN THE EVENT OF A MAIN POWER NETWORK FAILURE. NO OVERLOAD IS PERMITTED. THESE RATINGS ARE APPLICABLE FOR SUPPLY CONTINUOUS ELECTRICAL POWER (AT VARIABLE LOAD) IN THE EVENT OF A UTILITY POWER FAILURE. NO OVERLOAD IS PERMITTED ON THESE RATINGS

STANDARD REFERENCE CONDITIONS

OUTPUT RATINGS ARE PRESENTED AT 30°C AIR INLET TEMPERATURE, BAROMETRIC PRESSURE 100 kPa, RELATIVE HUMIDITY 30%. THIS GENERATING SET IS DESIGNED TO OPERATE AT HIGH AMBIENT TEMPERATURES (UP TO 55°C), HUMIDITY (UP TO 99%) AND HIGHER ALTITUDES. DE-RATION MAY APPLY, PLEASE CONSULT YOUR DEALER FOR SPECIFIC SITE RATINGS AND SMOOTH OPERATION.

AVAILABLE OPTIONS & ACCESSORIES

WE OFFER A RANGE OF OPTIONAL FEATURES AND ACCESSORIES TO TAILOR OUR GENERATING SETS TO MEET YOUR POWER NEEDS.

SOUND / WEATHER PROOF CANOPY	ATS / AMF PANELS
SYNCHRONIZING PANELS	WATER FUEL SEPARATOR
ADDITIONAL PROTECTION ALARMS AND SHUTDOWNS	
WATER JACKET HEATER	CABLING AND DUCTING
REMOTE MONITORING SYSTEM	EARTHING SYSTEM

THE RECOGNIZE BRAND OF

ADVANTAGE  GUARANTEED

GRESHAM'S

     THE ENERGY-ENVIRO SPECIALISTS

10. GENERATOR CONTROL PANEL

MAKE	DEEP SEA
MODEL	DSE-7320

THE MAIN CONTROL PANEL CABINET PROVIDES AN AUTOMATIC CONTROL FOR THE STARTING OF THE GENERATOR SET WHEN A MAINS FAILURE OCCURS. THE DSE-7320 IS AN AUTO START CONTROL MODULE FOR SINGLE GENSET APPLICATIONS. IT INCLUDES A BACKLIT LCD DISPLAY WHICH CLEARLY SHOWS THE STATUS OF THE ENGINE ALL THE TIMES, THIS MODULE CAN EITHER BE PROGRAMMED USING THE FRONT PANEL OR BY USING THE DSE CONFIGURATION SUITE PC SOFTWARE. THE CABINET INCLUDES.

- CIRCUIT BREAKER(S)
- BUS BAR
- MEASURING INSTRUMENTS
 - VOLTMETER
 - AMPERE METER
 - FREQUENCY METER
 - TIME (HOURS) REORDER
 - KILOWATT METER
- ALARMS
 - FAILURE TO START
 - LOW LUBRICATING OIL PRESSURE
 - UNDER/OVER VOLTAGE
 - OVER FREQUENCY
 - HIGH COOLANT TEMPERATURE SWITCH
 - OVER CRANK
 - GENERATOR OVER LOAD
- GAUGES
 - OIL PRESSURE GAUGE
 - WATER TEMPERATURE GAUGE
 - RPM METER
 - CHARGING AMMETER
 - EMERGENCY STOP PUSH BUTTON
- SELECTORS
 - TO SELECT THE GENERATOR'S OPERATING MODE "OFF-AUTOMATIC -MANUAL AND TEST"
 - TO SWITCH THE GENERATOR TO TEST POSITION: "ON-OFF"
- PUSHBUTTONS
 - EMERGENCY SHUTDOWN RED BUTTON
- SAFETIES
 - FAILURE TO START
 - LOW LUBRICATING OIL PRESSURE
 - UNDER/OVER VOLTAGE
 - OVER FREQUENCY
 - HIGH COOLANT TEMPERATURE SWITCH
 - OVER CRANK
 - GENERATOR OVER LOAD
 - FAIL TO START / OVER CRANK

11. FACTORY TESTS

THE GENERATING SET IS LOAD TESTED BEFORE DISPATCH IN OUR FACTORY. ALL PROTECTIVE DEVICES ARE SIMULATED. THE GENERATOR AND ITS SYSTEM ARE CHECKED BEFORE DISPATCH.

12. DOCUMENTATION

ONE SET OF COMPLETE SPARE PARTS LIST, ENGINE & ALTERNATOR MAINTENANCE MANUAL.
ONE SET OF ENGINE OPERATION MANUAL AND PART CATALOGUE.