

# DT90– DT100S (60 Hz)

**Gensets**  
Small Range



**LEROY  
SOMER**

Ratings @ 0.8 PF		Prime Rating	Stand-by Rating
Voltage*1	Frequency*2	DT90*3	DT100S*4
220/380 V	60 Hz	91.2 kVA*5	100.7 kVA*5
127/220 V	60 Hz	89.9 kVA	99.7 kVA
277/480 V	60 Hz	89.9 kVA	99.7 kVA

The above ratings represent the generating set capability guaranteed within  $\pm 3\%$  at the reference conditions equivalent to those specified in ISO 8528/1 standard.

## Notes

1. The applicable voltage range is 220V, 380V to 480V for 60Hz applications. For other voltages, please consult factory.

2. This generating set is of fixed speed of 1800 rpm.

3. DT90 is the prime power rating of the generating set is where a variable load and unlimited hour usage are applied with an average load factor of 80% of the prime rating over each 24-hour period. Noting that a 10% overload is permitted for 1 hour in every 12-hour operation.

4. DT100S is the standby power rating of the generating set is where a variable load limited to an annual usage up to 500 hours is applied, with 300 hours of which may be continuous running. Noting that no overload is permitted.

5. This rating level at voltage 220/380 are achieved when upsizing alternator to TAL044D.

## Engine Technical Data

Make & Model	JOHN DEERE 4045TF220 / 4045TF258			
Cylinders & Arrangement	4; Vertical in-line			
Bore & Stroke (mm)	106 x 127			
Induction system	Turbocharged			
Combustion	Direct injection			
Cycle	4 stroke			
Compression ratio	17.0:1			
Cooling System	Water cooled			
Displacement	4.5 liters			
Lube oil capacity	13.2 liters Max			
Coolant capacity	8.5 liters			
Standard governor (Optional)	Mechanical (Electronic)			
Engine Speed	1800 rpm			
Fuel & [Oil] Cons. (L/H) @ 100% Load	21.0 [0.055]	@ 50% Load	11.0 [0.029]	
Fuel & [Oil] Cons. (L/H) @ 75% Load	16.0 [0.042]	@ 25% Load	6.3 [0.017]	
Radiator Cooling Air Flow (m <sup>3</sup> /s)	2.4			
Emissions regulations	For non-regulated territories			
Exhaust temperature °C (max)	528			
Max exhaust gas flow (m <sup>3</sup> /min)	16.3			
Max. allowed back pressure (kPa)	7.5			

The above performance data are valid as per the following specs:

- Diesel Fuel is according to BS2869 Class A2 or equivalent.
- Lubricating oil is according to Grade SAE 15W-40 API CI4.
- The coolant should be 50% antifreeze and 50% fresh water.

## Certifications



- The complete Generating Set is type-tested according to ISO 8528-8 Standard.



ISO 17025  
ACCREDITED  
LABORATORY

- The control panel is certified by an ISO 17025 accredited laboratory to have IP55 according to IEC 60355



## Open Type Dimensions

Length	2000 mm
Width	770 mm
Height	1330 mm
Weight	824 Kg

## Alternator Technical Data

Make & Model	Leroy Somer TAL044B / Leroy Somer TAL044D					
Frequency / No. of poles	60Hz / 4P	60Hz / 4P	Winding pitch	2/3	2/3	
Ingress protection	IP23	IP23	AVR model	R120	R120	
Insulation class	H	H	Overspeed	2250 R.P.M.	2250 R.P.M.	
Terminals (Optional)	6 (12)	6 (12)	Voltage regulation	$\pm 1\%$	$\pm 1\%$	
Excitation system	SHUNT	SHUNT	Coolant air flow	0.3 m <sup>3</sup> /s	0.3m <sup>3</sup> /s	

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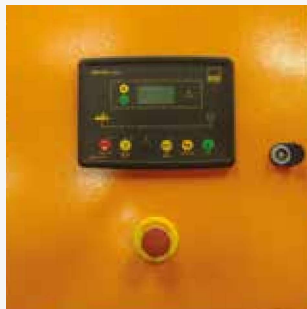


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## Control Panel Specifications

GMP260MK (DSE6010 MKII) panel is an automatic start generating set panel of microprocessor-based design which is capable of interfacing with electronic engine through the can-bus J1939. It is fully configurable by front fascia buttons and PC software as well. If Mains voltage is to be monitored, DSE6020MKII can be offered.

Circuit Breaker Schneider or ABB, 3 Pole MCCB (4 Pole available as Optional)



## Construction

Sheet Fabrication	CNC shearing & bending
Paint type	Heat-treated powder-coated
Paint application	Electrostatic corona spraying
Durability tests	• IMPACT [EN ISO 6272]
	• Salt spray resistance [ASTM B117-73]
	• Humidity Resistance [ASTM D2247]
Compliance	• Panel is compliant with [ISO8528-8]
	• Clearance & Creepage [IEC60355-1]
	• Leakage current & Dielectric strength [IEC60355-1]
	• Protection against electric shock [IEC600 364-4-41]
Degree of protection	IP55
Wire crimping	• Crimping force up to 20KN
	• Accuracy of 0.01mm
	• Each crimping is checked by Komax CFA+
Wire coding	• Wires are coded by wire color and cross-section
	• Wires are coded by printed numbers
	• Wires are coded by printed function of the wire

## Protection (standard)

(OPTIONAL Note <sup>1,3</sup>)

## Control (standard)

(OPTIONAL Note <sup>1</sup>)

## Instrumentation (standard)

(OPTIONAL Note <sup>1,3</sup>)

Over /Under AC voltage	High oil temperature	Remote start input	Battery Charger: 5A, 10A , UL	Gen AC Voltage: 3ph VLL & VLN	Lube oil temperature
Over /Under frequency	High exhaust temperature	Emergency Stop button	Fuel pump control	Gen Frequency: Hz	Exhaust temperature
Delayed Over current	Low fuel pressure	Common Alarm volt-free contact	Extension:	Gen Current: 3 phase A	Engine Inlet air (Boost) pressure
Short-circuit	Low coolant pressure	Event log (50 events)	Ethernet – Modbus TCP	Power: KW, KVA, KVAR & PF	Charging ammeter
Over KW	Low fuel level	Weekly Exerciser	RS485- Modbus RTU	Energy: KWhr, KVAhr, KVARhr	Fuel pressure
High Engine Temperature	Low oil level	Audible Alarm	Webnet – GPS tracker	Lube Oil pressure	Coolant pressure
Low oil pressure	High winding temperature	Standard CANbus J1939	Water in Fuel Detection.	Engine coolant temperature	Fuel level
Maintenance Alarm	High bearing temperature	Preheat control		Battery DC Voltage	Lube oil level
High/Low Battery voltage	Low boost pressure			DC Alternator Voltage	Winding temperature 3xRTD
Low coolant level Note 2	Fusible link fire protection			Engine Speed	Bearing temperature RTD
	Low coolant temperature			Operating hours	

Note 1: some OPTIONAL features could be standard if CANbus is established within electronic engines.

Note 2: Low coolant level protection is standard feature for Gensets above 200KVA, otherwise it is optional.

Note 3: There is limitation in the number of protections and measurements that can be offered with GMP260MK.

Other types of control Panels & Modules can be offered according to required specifications (DSE 7310/20, 7410/20, 8610, 8810 and Others).

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## Genset Standard Features

### Assembly:

Gensets are assembled at Ghaddar Machinery Factory in compliance with ISO 8528-8 standard.

### Fabrication:

- The engine/alternator assembly rests on skid with Anti-vibration mounting pads.
- The skid is made up of durable sheet metals and beams exceeding "Vibration & Torsion" Resistance Norms.
- A skid mounted fuel tank is supplied with fuel gauge, filler cap, fuel inlet and outlet hoses.
- The control panel enclosure is made up of metal sheet .

### Paint:

- The skid and control panel enclosure are painted with heat-treated and power-coated electrostatic corona spraying.
- Paints passed durability tests conforming to international quality standards.
- Impact (EN ISO 6272)
- Salt Spray Resistance (ASTM B117-73)
- Humidity Resistance (ASTM D2247)

### Works-Testing:

- All Gensets are tested prior to dispatch.
- Test is automatically generated and checked according to ISO8528
- Test certificate is issued for each Genset

### Equipment:

- Water cooled Radiator with belt driven blower fan and full guarding
- Electric starter with solenoid Relay
- Battery Charging Alternator
- Energized to run solenoid
- Replaceable fuel, oil and air filters
- Heavy duty leads acid battery with matching capacity (Amps & CCA)
- One loose supplied industrial exhaust silencer – 16 DB noise reduction level.
- Integral Fuel Tank with 117 L capacity.

### Documentation:

- User Manual for Operation, Installation and Maintenance guidance
- Wiring Diagram.
- Test Report
- Maintenance Schedule
- Catalogues for Engine, Alternator & AVR

## Genset Optional Features

- Manual & Automatic Transfer Switches,
- Synchronizing & Totalizing Panels
- Fuel water separator
- Water jacket heater
- Oil heater
- Fuel heater
- Battery heater
- Anti-condensation Heater
- Air Shut-off Valve
- Oil Sampler
- Pre-lube Oil Pump