

# Technical Data

190-600V DIESEL 01-01-2012



<b>CUMMINS</b> Engine: <b>4B3.9-G2</b> Electronic Governor	<b>Alternator:</b> Leroy-somer LSA40VS2	<b>Generator Model:</b>	<b>TCM12.5 (Open)</b>
	<b>Optioanl:</b> Stamford Tide		<b>TCM12.5C (Silent)</b>

<b>50Hz</b> 1500 r.p.m	<b>3 Phase</b> 4 Wires	<b>Power Factor:</b> $\text{Cos } \phi = 0.8$	<b>Emissions Certification:</b>	N/A
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<b>RATINGS</b>	<b>Prime Power</b> (PRP)		<b>Standby Power</b> (LTP)		<b>Rated Current</b> (A)
	kW	kVA	kW	kVA	Amps
Voltage (V)					
440/254	8.8	11	9.7	12.1	14.4
415/240	10	12.5	11	13.8	17.4
<b>400/230</b>	10	12.5	11	13.8	18.0
380/220	10	12.5	11	13.8	19.0

## RATINGS:

All three Phase generator sets are rated at 0.8 power factor. All single-phase generator sets are rated at 0.8 or 1.0 power factor. **TIDE Power** reserves the right to change the design or specifications without notice and without any obligation or liability whatsoever.

## Prime Power:

Available continuously at variable load in lieu of commercially purchased power for an unlimited number of hours per year in accordance with ISO8528-1, and an overload of 10% permitted for one hour in every twelve hours of operation in accordance with ISO 3046-1.

## Standby Power:

Emergency Standby Power in variable load applications in accordance with ISO8528-1 in the event of a utility power failure. No overload available for this service as relevant alternators are peak continuous rated at 27°C.

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## Standard Features

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- ▲ High efficient water cooled diesel engine
  - ▲ Brushless alternators (Class H, with AVR.)
  - ▲ Heavy duty rubber anti-vibration mountings
  - ▲ 12/24V starter batteries and connecting cables
  - ▲ Separate engine-drive battery charging alternator
  - ▲ Industrial silencer for open type generator sets
  - ▲ Residential silencer for open type generator sets
  - ▲ Auto start / Digital Tide Easycon Control Panel
  - ▲ Wiring with IEC standard
  - ▲ Factory Test Certificate
  - ▲ Operation & Maintenance Manual & Diagrams
  - ▲ Worldwide Product / Technical Support
- ▲ Radiator with cap and drain point.
  - ▲ Fully guarded engine driven fan
  - ▲ Circuit Breaker - 3 pole (MCCB)
  - ▲ Base fuel tank for 8 hours running at 100% load
  - ▲ Oil filter - Diesel filter - Air filter
  - ▲ Fully welded steel baseframe with lifting and fork-lifting facilities.
  - ▲ Sound proof & Weather protective enclosures for silent type generator sets.

## Optional

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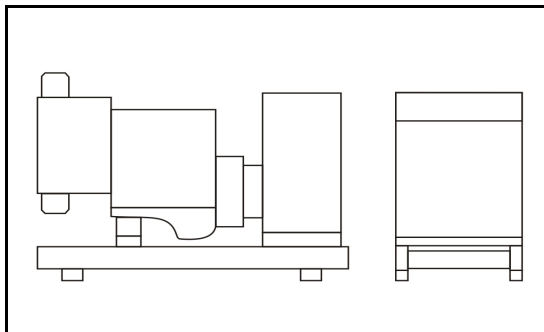
- △ Automatic Transfer Switch (ATS)
  - △ Water - fuel separator
  - △ Water heater for severe cold weather
  - △ Lub-oil heater for severe cold weather
  - △ 50°C-60°C Radiator
  - △ Dual wall fuel tank base
  - △ Fuel level sensor
  - △ Maintenance free battery
  - △ Additional **CE Features** Selection
- △ Extra air filters for time-maintenance
  - △ Extra diesel filters for time-maintenance
  - △ Extra oil filters for time-maintenance
  - △ Separated standing fuel tank
  - △ Low coolant level sensor
  - △ Full range of attachments and options available for alternator

## Overall Dimensions (mm) & Weight (kg)

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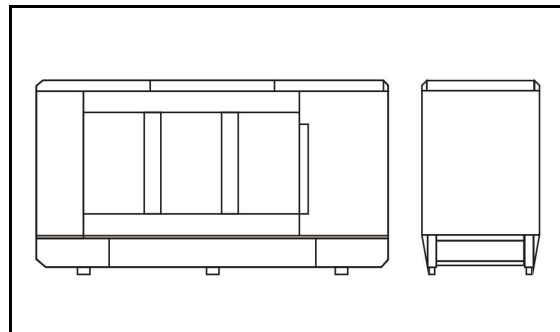
### Open Type

**Length:**  
1650  
**Width:**  
700  
**Height:**  
1350  
**Weight:**  
560



### Silent Type

**Length:**  
2800  
**Width:**  
1000  
**Height:**  
1500  
**Weight:**  
1250



Dimension and design are subject to change without notice.

## Warranty

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The goods of Tide Power System are under warranty against defects in materials and workmanship for a period of 12 months or 1000 hours whichever come first from the date of delivery to the end user (except the damageable spare parts of genset caused by incorrect man-made operation), and that the aforementioned warranty for the same token is back up by the engine & alternator manufactures and their global distributors.

## Engine Specification

50HZ

General Performance	
Manufacture	DCEC Cummins
Engine Model	4B3.9-G2
Engine Type	4 cycle, in-line, 4-cylinder
Engine Speed	1500 r.p.m
Base Output Power	24kW/32hp
Standby Power	27kW/36hp
Governor Type	Electronic
Governor Make / Model	BYC A/GAC
Air Intake Way	Naturally Aspirated
Displacement	3.9L
Cylinder Bore * Stroke	102mm × 120mm
NO. of Cylinders	4
Compression Ratio	17.3:1
Engine Idle Speed	950-1050 r/min
Piston Speed	6.0 m/s
Intake Air Flow	33 Litres/sec.
Air Cleaner Type	Dry

Exhaust System	
Exhaust Gas Flow	71 Litres/sec.
Exhaust Gas Temperature	380 - 410°C
Maximum Back Pressure	10kPa
Exhaust Pipe Size	75mm

Air Intake System	
Recommended intake piping size	76mm
Maximum Intake Air Restriction	
- Dirty Element	6kPa
- Clean Element	4kPa

Lubrication System	
Oil Capacity (High - Low)	9.5 - 8.5 Litres
Maximum Oil Temperature	121°C
Minimum Required Lube System Capacity - Sump plus Filters	10.9Litres

Fuel System	
Type Injection System	BYC A Direct Injection
Fuel Consumption at 100% Standby power	7.5 Litres/hour
Fuel Consumption at 100% Prime power	6.7 Litres/hour
Fuel Consumption at 75% Prime power	5.2 Litres/hour
Fuel Consumption at 50% Prime power	4.0 Litres/hour
Fuel Consumption at 25% Prime power	2.7 Litres/hour
Fuel Tank Capacity	
- Open Type Genset	8-12 Hours at Full Load
- Silent Type Gensets	240 Litres

Cooling System	
Coolant Capacity - Engine Only	7.2 Litres
Standard Thermostat (Modulating) Range	82 - 95°C
Maximum Top Tank Temperature	
- Standby Power	104°C
- Prime Power	100°C

Electric System	
Electrical System Voltage	24V
Battery	Maintenance-free
Connecting Cables	Available

Thermal	
Radiated Heat to Ambient	TBD
Heat Rejection to Coolant	25.9-29kW
Heat Rejection to Exhaust	To Be Decided

## Alternator Specification

General Data	
Manufacture / Brand	Leroy-somer
Model	LSA40VS2
AVR Model	R220
Coupling / Bearing	Direct / Single Bearing
Phase	3 Phase
Power Factor	Cos $\phi$ = 0.8
Winding pitch - Code	2/3 - (N° 6)
Drip Proof	IP 23
Excitation	Shunt

50HZ/1500R.P.M	
Prime Output Power	10kW/12.5kVA
Standby Output Power	11kW/13.8kVA
Insulation class	H
Voltage regulation	± 1 %
Total harmonic TGH / THC at no load<3 %-on load<2 %	
Wave form : NEMA = TIF - (*)	< 50
Wave form : I.E.C. = THF - (*)	< 2 %
Altitude	≤ 1000 m
Overspeed	2250 min -1

**TIDE Power comprehensive Easycon range control panels are compact, versatile and easy to use.**

Easycon 2.0L/H (GU601A / Deepsea DSE3110) panel is a key-start auto control panel, it's a basic control panel fits for generators up to 100kVA to provide basic operating parameters display and protection.



Easycon 3.0 L/H (GU641B / Deepsea DSE7210) panel is an auto & digital control panel, it's an entry level control panel which provides full power monitoring and protection facilities. All operating parameters are with LCD display. (Auto Main Failure Version DSE7220 also Available.)



Easycon 4.0L/H (GU620A / Deepsea DSE7310) panel is an auto & digital & Remote control panel which includes all the features of Easycon 3.0, and plus data communication of full telemetry via the RS232/RS485 interfaces, CANBus is also included. (Auto Main Failure Version DSE7320 also Available.)



**Specifications**

4 . 0 L / H	3 . 0 L / H	2	Over Speed pre-alarm & shutdown -	Auto Start -
		0	Low Oil Pressure Pre-Alarm & shutdown -	Oil Pressure -
L / H	H	L	High Water Temp. Pre-alarm & shutdown -	Genset Running Hours -
		H	Volts, Current, Frequency, Rpm (Instruments)-	Battery Voltage and Charging -
			Fuel Sensor as optional -	
			AMF Module as optional -	
			Digital Control Panel -	Switch Opening as Optional -
			Overcurrent Pre-alarm -	AMF Module as optional -
			Overcurrent Shutdown -	Power Factor -
			Prefix Start, Service Indicate, Fault History for Deepsea Module.-	
			Remote Start (Data communication of full telemetry via the RS232/RS485) -	CANBus -

**Options**

Easycon 5.0H (Deepsea DSE8610) panel fits for Gen-Gen automatic Synchronising and load sharing.

Easycon 6.0H (Deepsea DSE8620) panel fits for Single Gen - Mains automatic Synchronising.

Deepsea DSE7560 Synchronising Controller for Multi gen – Mains Synchronising. This is a separate control unit which enables multiple Easycon 5.0 equipped Gens to be synchronised with the Mains supply.

**(For details specifications of Control Panels, please consult our sale department.)**

## ***Circuit Breaker***

***3 Pole MCCB - Standard (4 Pole as optional)***

The generators are supplied together with a circuit breaker that permits a thermal protection against overloads and magnetic protection against short-circuit.

## ***Automatic Transfer Switch***

***A.T.S - 4 Poles***

TIDE Power offers not only a changeover switch but also an integrated mains detection and switch system for your 24 Hour Power Protection. The system enables automatic start-up and operation of the generating set in the event of a mains power failure, overvoltage or loss of phase; and also mains automatic re-transfer once it come back.

ATS: Automatically transfer and re-transfer load from main power to gen-power without operator intervention. (Both Automatic and manual operation.)

**Please consult our sales department for specifications.**



## ***Enclosure / Canopy***

***(Sound-attenuated & Weather Protective)***

***“Ensure a quieter life with our sound attenuation system.”***

***Features:***

### ***Extremely Rugged &***

### ***Highly Corrosion Resistant Construction***

- ▲ Body made from 2.0mm sheet steel components with powder coating
- ▲ 8-12 hours built-in fuel tank integrated into the skid-mount base
- ▲ Excellent design and craftsmanship
- ▲ Zinc alloy with black powder coated or Bright polished stainless steel hinges tested and proven to withstand corrosive conditions.
- ▲ Compact structure and longer service life

### ***Easy Commissioning and Maintenance***

- ▲ Separate & Standing control cabinet at one side, quick fix electrical power connections.
- ▲ 1ph and 3ph easy accessible electric sockets
- ▲ Side doors allowing 180° opening rotation
- ▲ Radiator fill access through cover in canopy roof.
- ▲ Lube oil drain and radiator drain

### ***Security and Safety***

- ▲ Earth leakage protection
- ▲ 40-50mm non-inflammable sponge inside
- ▲ Control panel viewing window in a lockable access door
- ▲ Emergency stop button mounted on canopy exterior
- ▲ Fuel fill and battery can only be reached via lockable access doors
- ▲ Exhaust silencing system enclosed for operator safety
- ▲ Excellent cooling system to avoid high water temp., reliable operation under harshest conditions.
- ▲ (Ambient temp. upto 40-52°C and altitudes up to 1000M)

### ***Transportability***

- ▲ Lifting points on baseframe
- ▲ <4L engine drive genset, single hook on top prepared

### ***Quiet (Reduce Sound and Vibration)***

#### ***Noice Level:***

72-78dBA at 1m & 64-70dBA at 7m