

| | | | |
|---------------------------|-------------------------------------|---|--|
| Engine Cummins QSB5-G4 | Alternator Leroy-Somer LSA44.3S4 | Generator Model <i>FB90-Q / Open TCN90C / Silent</i> | |
|---------------------------|-------------------------------------|---|--|

| | | | |
|-----------------------|----------------|--|--|
| 50Hz/1500R.P.M | 3-Phase | Power Factor Factor Cos $\Phi = 0.8$ | Emissions EU Stage IIIA / EPA Tier 3 |
|-----------------------|----------------|--|--|

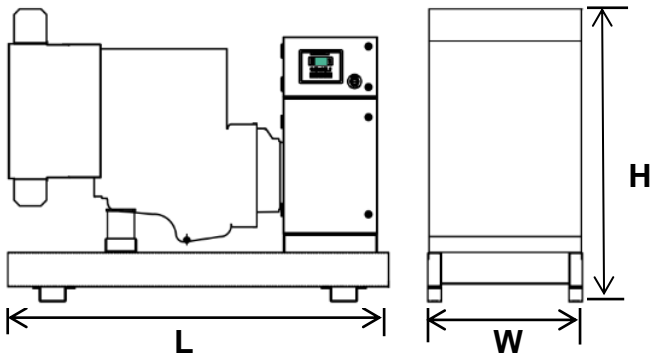
| RATINGS | Prime Power | | Standby Power | | Rated Current | Fuel Consumption |
|----------------|-------------|-----------|---------------|------------|---------------|------------------|
| | (PRP) | | (ESP) | | Amps | @100% Load |
| Voltage (V) | kWe | kVA | kWe | kVA | (A) | L/h |
| 380/220 | 72 | 90 | 80 | 100 | 136.7 | 24.0 |
| 400/230 | 72 | 90 | 80 | 100 | 129.9 | 24.0 |
| 415/240 | 72 | 90 | 80 | 100 | 125.2 | 24.0 |



Photo For Reference Only

Key Features:

- High efficient water cooled diesel engine.
- Single bearing with brushless alternators (Class H, with AVR).
- Radiator with pressure cap and drain point.
- Fully guarded engine-driven fan.
- Fully welded steel skid base with lifting holes and fork lift legs.
- Integral fuel tank with filler cap and gauge ($\leq 650\text{kVA}$).
- Heavy duty rubber anti-vibration mountings.
- 12V or 24V maintenance free starter battery and connecting cables.
- Separate engine-driven battery charging alternator.
- Spin on oil and fuel filters and dry type air filter element.
- Industrial silencer (15dBA reduction) supplied loose.
- Auto start control system with LCD show.
- Battery charger provided.
- Main line 3P circuit breaker.
- Rigorous factory test wiring with IEC standard.
- Operation & Maintenance manual & Wiring diagrams.
- Wide range of optional extra features available.



Overall Dimensions & Weights - Open Set

| | |
|----------------|------|
| Length (L)-mm: | 1850 |
| Width (W)-mm: | 850 |
| Height (H)-mm: | 1400 |
| Dry Weight-kg: | 1250 |

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.

Prime Power: Available continuously at variable load in lieu of commercially purchased power for an unlimited number of hours per year 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.

TIDE Power reserves the right to change the design or specifications without notice and without any obligation or liability.





Engine **Cummins QSB5-G4**

| | | Units | Prime | Standby | |
|---------------------|--|----------------|---|---------|--|
| General Performance | Frequency | Hz | 50 | | |
| | Engine Speed | r/min | 1500 | | |
| | Cylinders / Type | | 4 cyl / In-line / 4-stroke | | |
| | Aspiration | | Turbocharged and Air to Air Aftercooled | | |
| | Governor Type | | ECM | | |
| | Bore / Stroke | mm | 107/124 | | |
| | Displacement | Litres | 4.5 | | |
| | Compression Ratio | | 17.3: 1 | | |
| | Piston Speed | m/s | 6.2 | | |
| | Brake Mean Effective Pressure | kPa | 1593 | 1848 | |
| | Engine Power | kWm | 89 | 103 | |
| Fuel System | Fuel Consumption at 110% Prime Power | Litres/hour | 26 | | |
| | Fuel Consumption at 100% Prime Power | Litres/hour | 24 | | |
| | Fuel Consumption at 75% Prime Power | Litres/hour | 18 | | |
| | Fuel Consumption at 50% Prime Power | Litres/hour | 12 | | |
| | Fuel Consumption at 25% Prime Power | Litres/hour | 7 | | |
| | Standard Fuel Tank Capacity | Hours / Litres | 8 / 200 | | |
| Air System | Maximum Intake Air Restriction with Heavy Duty Air Cleaner | | | | |
| | - With Clean Filter Element | kPa | 3.7 | | |
| | - With Dirty Filter Element | kPa | 6.2 | | |
| | Intake Air Flow | Litres/s | 137 | 138 | |
| Exhaust System | Maximum Back Pressure | | 10 | | |
| | Exhaust Outlet Size | | N/A | | |
| | Exhaust Gas Flow | | 308 | 322 | |
| | Exhaust Gas Temperature | | 439 | 461 | |
| Oil System | Total Oil System Capacity | | 12.2 | | |
| | Oil Pan Capacity - Low | | 9 | | |
| | Oil Pan Capacity - High | | 11 | | |
| | Maximum Oil Temperature | | 138 | | |
| Cooling System | Coolant Capacity - Engine Only | | 8.5 | | |
| | Standard Thermostat (Modulating) Range | | 79-95 | | |
| | Maximum Allowable Top Tank Temperature | | 107 | 112 | |
| Electric System | Electrical System Voltage | | 12 / 24 | | |
| | Battery | | Maintenance-free | | |
| | Connecting Cables | | Available | | |
| Energy Balance | Radiated Heat to Ambient | | 10 | 11 | |
| | Heat Rejection to Jacket Coolant | | 43 | 45 | |
| | Heat Rejection to Exhaust | | 75 | 84 | |

Alternator **50Hz/1500R.P.M**

| | | Units | | | |
|--------------|----------------------------|-------|-------------------------|-------------|--|
| General Data | Manufacture / Brand | | Leroy-Somer | | |
| | Model | | LSA44.3S4 | | |
| | Coupling / No. of Bearings | | Direct / Single Bearing | | |
| | Phase / Poles | | 3-Phase / 4-Pole | | |
| | Power Factor | | Cos Φ = 0.8 | | |
| | AVR Regulation | | Yes | | |
| | Voltage Regulation | | \pm 0,5 % | | |
| | Insulation Class | | H | | |
| | Drip Proof | | IP23 | | |
| | Excitation | | Shunt | | |
| | Altitude | | m | \leq 1000 | |
| | Overspeed | | min ⁻¹ | 2250 | |

Tide Power Easycon Function Summary

| Controller Model / ComAp | EC 2.0 / Nano Plus | EC 3.0 / AMF20 | EC 4.0 / AMF25 | EC 5.0 / IG-NT |
|-----------------------------|---|--|---|---|
| Controller Photos |  |  |  |  |
| Standard Supply | ● | × | ○ | ○ |
| Viewable Parameters | | | | |
| Phase Voltage | × | 3 | 3 | 3 |
| Current | Instrumentation | ● | ● | ● |
| Frequency | ● | ● | ● | ● |
| Active Power | × | ● | ● | ● |
| Reactive Power | × | ● | ● | ● |
| Apparent Power | × | ● | ● | ● |
| Power Factor | × | ● | ● | ● |
| Electric Energy Metering | × | ● | ● | ● |
| Generator Protection | | | | |
| Abnormal Voltage | ● | ● | ● | ● |
| Over-current Warning | × | ● | ● | ● |
| Over current Protection | ● | ● | ● | ● |
| Over Frequency Protection | ● | ● | ● | ● |
| Short Circuit Protection | MCCB / ● | MCCB / ● | MCCB / ● | MCCB / ● |
| Engine Figure | | | | |
| Oil Pressure | ● | ● | ● | ● |
| Water Temperature | ● | ● | ● | ● |
| Fuel Meter / Fuel Sensor | ●/○ | ●/○ | ●/○ | ●/○ |
| Speed | ● | ● | ● | ● |
| Battery Voltage | ● | ● | ● | ● |
| Elapsed Time | ● | ● | ● | ● |
| Engine Protection | | | | |
| Low Oil Pressure Warning | × | ● | ● | ● |
| Low Oil Pressure Protection | ● | ● | ● | ● |
| High Temperature Warning | × | ● | ● | ● |
| High Temperature Protection | ● | ● | ● | ● |
| Overspeed Warning | × | ● | ● | ● |
| Overspeed Protection | × | ● | ● | ● |
| Alternator Charger | ● | ● | ● | ● |
| Functions | | | | |
| Remote Start | ● | ● | ● | ● |
| AMF (Auto Main Failure) | ● | ● | ● | ● |
| Programmable Input | ● | ● | ● | ● |
| Programmable Output | ● | ● | ● | ● |
| Expand Module | × | ○ | ○ | ○ |
| Communication Function | × | ○ | ○ | ● / RS232 / 485 |
| Communication Port | USB | ○ | ○ | RS232 / 485 |
| CAN | ● | × | ● | ● |
| Service Indicate | × | × | ● | ● |
| Fault History | ● | ● | ● | ● |
| Gen-Gen Synchronising | × | × | × | ● |
| Gen-Mains Synchronising | × | × | × | ● |

Remark: ● Standard Supply

○ Available as Optional

× Not Available

“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
- Compact structure and longer service life
- Residential silcencer to made sure the sound level.
- Zinc alloy with black powder coated locks and hinges and proven to withstand corrosive conditions.



Easy Commissioning and Maintenance

- Separate & Standing control room at end side, easy reachable electrical power connections, board.
- Side doors allowing 180° opening rotation .
- Radiator fill access through cover in canopy roof.
- Lube oil drain and radiator drain.
- Manual lube oil pump provided.

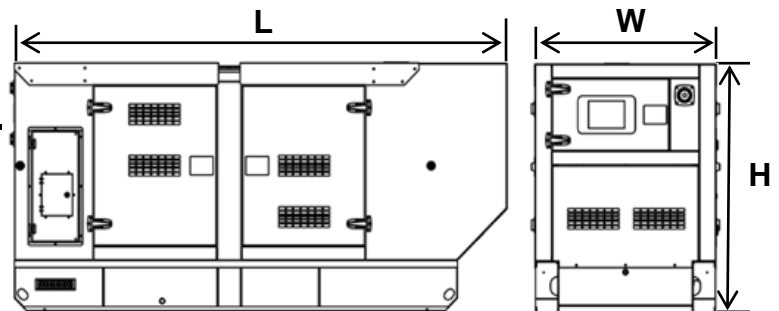


Security and Safety

- 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
- Efficient management of cooling air to avoid high water temperature, reliable operation under harshest conditions.

Transportability

- Lifting points on top to move genset easily.
- Fork lift legs provided and easy to loose to fix the genset.



| Overall Dimensions & Weight & Noice | | | | |
|--|--------------|----------------------------|----------------------|--------|
| Dimensions (L x W x H) mm | Weight kg | Noice Level dB(A) at 7m | Base Tank @100% Load | |
| | | | Hours | Litres |
| 3000x1140x1450 | 1550 | ≤76 | 8 | 200 |

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 a mains automatic re-transfer once it come back.

System Advantages

- Automatically transfer and re-transfer load from main power to gen-power without operator intervention.operation (Both automatic and manual).
- ATS Controller (AMF function), seamless integration with AMF25
- Available from 32 – 4000A, better protection for 4 pole switch.
- Available in standard, bypass isolation and service-entrance configurations.
- Configurable in open, closed and programmed transition operating modes.
- Designed to interface seamlessly with TIDE POWER generators and switchgear.
- Drip proof IP42 enclosure.
- Easy installation: wall-mounted & floor standing
- Comes fully loaded with the technology to do the job.



50/60 Hz, 32-4000 Amps

| Rated Current | Amps | 32 | 63 | 80 | 100 | 125 | 160 | 200 | 250 | 300 | 315 | 400 | 630 | 800 | 1000 | 1250 | 1600 | 2000 | 2500 | 3200 | 4000A |
|---------------|---------|----|----|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|------|------|------|-------|
| Breaker Type | Chinese | x | A | x | A | x | B | x | C | x | x | C | C | D | D | D | D | E | E | E | x |
| | ABB | B | B | x | B | B | B | B | B | x | C | C | D | D | D | D | D | E | E | x | x |
| | Socomec | x | B | B | B | B | B | x | B | x | x | C | D | D | D | D | E | E | E | E | E |

Dimensions : mm

A: 400x200x500

B: 500x300x650

C: 600x400x1200

D: 800x600x1400

E: 1000x800x1600

Optionals (All depends)

Genset:

Materials & Miscellaneous

- Marine class painting and other special painting
- Standard accoustic enclosure genset
- Extended warranty
- Extended factory test
- Additional sensors
- Off road trailer type
- Standard ATS
- Mounted fire extinguisher
- Additional vibration isolation
- Wooden case packaging
- Tide Power tool kit
- Additional operation manual
- Nylon canvas wrapped packaging
- Iron shelf for double stack shipping
- Water jacket heater
- Additional CE features selection.

Custom-Made solutions

Genset:

Materials & Miscellaneous

- On road trailer (EU) type
- Rental type genset
- Mining type genset
- Marine type genset
- High temp. Radiator for silenttype genset
- EPA series gensets

Optionals (All depends)

Diesel Engine/ Baseframe Mounted Accessories:

Cooling System

- ✓ Engine heat guards
- ✓ Low coolant level alarm & shutdown (Depends on engine series)
- ✓ High temp. & Anti-erosion radiator upgrade for open type genset
- ✓ 50% antifreeze @ -36°C

Filters

- ✓ Extra air filters for time-maintenance
 - Double heavy duty air filters
- ✓ Extra fuel filters for time-maintenance
- ✓ Extra oil filters for time-maintenance

Exhaust

- ✓ Residential silencer for open type genset
- ✓ Stainless steel silencer and kits
 - Heat protection guard

Fuel & Oil

- ✓ Separated / External fuel tank
- ✓ Water - fuel separator
- ✓ 3 way fuel valve
- ✓ Manual bypass valve
- ✓ Lub oil make up tank
 - Lub oil drain pump
- ✓ Fuel level sensor
- ✓ Fuel cooler
- ✓ Automatic remote fuel supply with fuel level switch & low fuel level alarm shutdown.
 - Coolant heater 220/240V
- ✓ Lub-oil heater for severe cold weather

Starting & Charging

- ✓ Bulk starting battery -17°C below
- ✓ Battery removal switch
- ✓ Battery heater

Control System & Power Termination:

Control System & Breakers

- ✓ Different functional modules with
 - Tide Easycon refer to other table
- ✓ Mounted audible and visible lighting
- ✓ Control panel cover (80kva or below)
- ✓ Motorized circuit breaker 3 Poles
- ✓ Motorized circuit breaker 4 Poles
- ✓ ACB 3 Poles
- ✓ MCCB 4 poles
- ✓ Different breaker brands, like ABB etc
- ✓ Leakage protection switch

Custom-Made solutions

Diesel Engine/ Baseframe Mounted Accessories:

Cooling System

- ✓ Anti-erosion radiator for silent type genset
- ✓ Remote radiator with heat exchanger
- ✓ Remote cooling tower with heat exchanger

Filters

- Mounted heavy duty air filter

Exhaust

- ✓ Mounted heavy duty air filter

Fuel & Oil

- Bulk base fuel tank
- Bundled base fuel tank

Starting & Charging

- ✓ None

Control System & Power Termination:

Control System & Breakers

- Various standard sockets mounted outside the enclosure

Optionals (All depends)

Brushless Alternator:

- ✓ 12 Lead stator (change voltage depends)
- Interchangeable S.A.E flanges and drive discs
- ✓ Convenient filters on air inlets and outlets
- ✓ Coastal type [] Alternator painting color P.M.G or auxiliary
- ✓ AREP for Leroy-Somer only
- ✓ Shunt trip
- ✓ Exterior potentiometer
- ✓ Auxiliary contacts and double bearing
- Anti-condensation heater
- ✓ Stator thermal protection
- ✓ Quadrature droop kits

Enclosure & Canopy:

Weather protective & Sound proof

- ✓ R series
- ISO 20ft containerized
- ✓ ISO 40ft containerized
- Stainless steel locks and hinges

Please refer to Tide Power sales department for full details of the above options.

Warranty

Tide Power distributor, dealer, or authorized representative performs startup within 6 months of the date of shipment from the factory, warranty coverage will begin on the startup date (Register the startup date to Tide within 6 month is essential and can be enforced). This warranty does not apply to malfunctions caused by damages, unreasonable use, misuse, repair or service by unauthorized persons, or normal wear and tear.

Custom-Made solutions

Brushless Alternator:

- Temperature rise class F Marine type alternator IP upgrade HV

Enclosure & Canopy:

Weather protective & Sound proof

- Super silent enclosure
- ✓ Weather proof enclosure
- Flat sponge sound absorber enclosure
- Porous sheet with rockwool sound absorber enclosure

Warranty Coverage

Generators used to commercial utility source:
One (1) year or 1000 hours (whichever occurs first) from date of shipment from the factory or registered startup date.

