

Engine Perkins 404A-22G1	Alternator Leroy-Somer LSA 40 M5	<b>Generator Model</b> <b>FB20-P2 / Open      FC20-P2 / Silent</b>	
-----------------------------	-------------------------------------	---	--

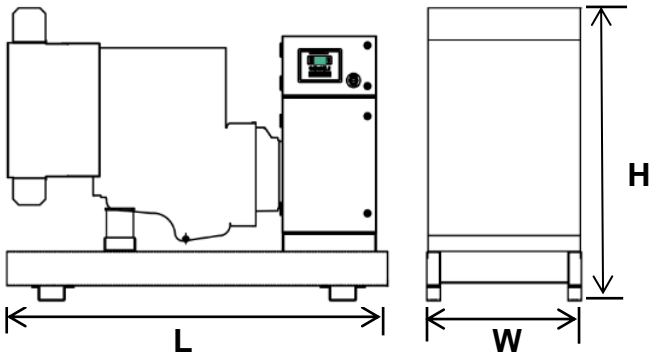
<b>50 Hz/1500rpm</b>	<b>3-Phase</b>	<b>Power Factor</b> <b>Factor Cos <math>\Phi = 0.8</math></b>	<b>Emissions</b> <b>N/A</b>
----------------------	----------------	--	--------------------------------

RATINGS	Prime Power		Standby Power		Rated Current	Fuel Consumption @100% Load
	(PRP)		(ESP)			
Voltage (V)	kWe	kVA	kWe	kVA	(A)	L/h
380/220	16	20	18	22	30.4	5.3
<b>400/230</b>	<b>16</b>	<b>20</b>	<b>18</b>	<b>22</b>	<b>28.9</b>	<b>5.3</b>
415/240	16	20	18	22	27.8	5.3



### 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:	1300
Width (W)-mm:	600
Height (H)-mm:	1150
Dry Weight-kg:	550

**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** **Perkins 404A-22G1**

		Units	Prime	Standby	
General Performance	Frequency	Hz	50		
	Engine Speed	r/min	1500		
	Cylinders / Type		4 cyl / Vertical in-line / 4-stroke		
	Aspiration		Naturally Aspirated		
	Governor Type		Mechanical Governor		
	Bore / Stroke	mm	84/100		
	Displacement	Litres	2.216		
	Compression Ratio		23.3:1		
	Engine Power (Net)	kWm	18.4	20.3	
	Combustion Air Flow	m <sup>3</sup> /min	1.45		
Brake Mean Effective Pressure	kPa	669	650		
Fuel System	Fuel Consumption at 110% Prime Power	Litres/hour	6.1		
	Fuel Consumption at 100% Prime Power	Litres/hour	5.3		
	Fuel Consumption at 75% Prime Power	Litres/hour	4		
	Fuel Consumption at 50% Prime Power	Litres/hour	2.9		
	Standard Fuel Tank Capacity	Hours / Litres	12 / 65		
Air System	Maximum Air Intake Restriction				
	- Clean Filter	kPa	3		
	- Dirty Filter	kPa	6.4		
	Air Filter Type		Dry element type		
Exhaust System	Exhaust Gas Flow	m <sup>3</sup> /min	3.64	3.94	
	Exhaust Gas Temperature	°C	445	505	
	Maximum Back Pressure	kPa	10.2		
	Exhaust Outlet Size	mm	42		
Oil System	Total Oil System Capacity	Litres	10.6		
	Maximum Sump Capacity	Litres	10.6		
	Minimum Sump Capacity	Litres	8.9		
	Max Continuous Oil Temperature	°C	125		
Cooling System	Total System Capacity				
	- With Radiator	Litres	7		
	- Without Radiator	Litres	3.6		
	Thermostat Operation Range	°C	82-95		
	Maximum Top Tank Temperature	°C	112		
Electric System	Electrical System Voltage	V	12		
	Battery		Maintenance-free		
	Connecting Cables		Available		
Energy Balance	Energy to Coolant and Lubricating Oil	kW	17	19.6	
	Energy to Exhaust	kW	14	16.6	
	Energy to Radiation	kW	3.3	4.4	

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

		Units		
General Data	Manufacture / Brand		Leroy-Somer	
	Model		LSA 40 M5	
	Coupling / No. of Bearings		Direct / Single Bearing	
	Phase / Poles		3-Phase / 4-Pole	
	Power Factor		Cos $\Phi$ = 0.8	
	AVR Regulation		Yes	
	Voltage Regulation		± 0,5 %	
	Insulation Class		H	
	Drip Proof		IP23	
	Excitation		Shunt	
	Altitude	m	≤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
<b>Controller Photos</b>				
<b>Standard Supply</b>	●	○	○	○
<b>Viewable Parameters</b>				
Phase Voltage	×	3	3	3
Current	Instrumentation	●	●	●
Frequency	●	●	●	●
Active Power	×	●	●	●
Reactive Power	×	●	●	●
Apparent Power	×	●	●	●
Power Factor	×	●	●	●
Electric Energy Metering	×	●	●	●
<b>Generator Protection</b>				
Abnormal Voltage	●	●	●	●
Over-current Warning	×	●	●	●
Over current Protection	●	●	●	●
Over Frequency Protection	●	●	●	●
Short Circuit Protection	MCCB / ●	MCCB / ●	MCCB / ●	MCCB / ●
<b>Engine Figure</b>				
Oil Pressure	●	●	●	●
Water Temperature	●	●	●	●
Fuel Meter / Fuel Sensor	●/○	●/○	●/○	●/○
Speed	●	●	●	●
Battery Voltage	●	●	●	●
Elapsed Time	●	●	●	●
<b>Engine Protection</b>				
Low Oil Pressure Warning	×	●	●	●
Low Oil Pressure Protection	●	●	●	●
High Temperature Warning	×	●	●	●
High Temperature Protection	●	●	●	●
Overspeed Warning	×	●	●	●
Overspeed Protection	×	●	●	●
Alternator Charger	●	●	●	●
<b>Functions</b>				
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 silencer 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.

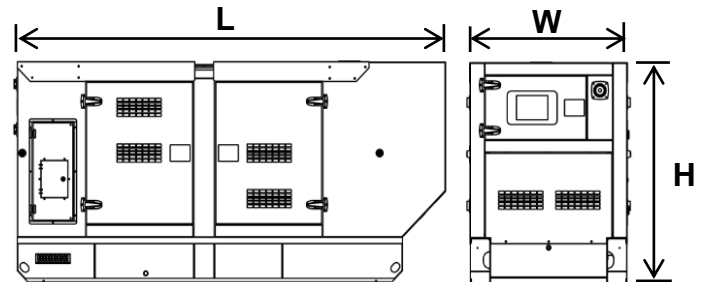


**Security and Safety**

- 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.



<b>Overall Dimensions &amp; Weight &amp; Noice</b>				
<b>Dimensions</b>	<b>Weight</b>	<b>Noice Level</b>	<b>Base Tank @100% Load</b>	
( L x W x H ) mm	kg	dB(A) at 7m	Hours	Litres
2000x830x1100	750	65-78	20	115

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**

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

**Custom-Made solutions**

**Genset:**

**Materials & Miscellaneous**

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

**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

**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
- ✓ Bunded 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

## Custom-Made solutions

### Brushless Alternator:

- Temperature rise class F Marine type alternator IP upgrade MV

### Enclosure & Canopy:

#### Weather protective & Sound proof

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

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 months 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.

### 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.