AYERBE MODELO : AY - 5000 KT MN



Generating Set Specifications

Specification	AY - 5000 KT MN
Model	AY 5000 KT MN
AYERBE part number	5430020
Equipment type	Portable petrol generator, open frame
Maximum output	5 kVA / 4,200 W
Rated output (COP)	4.8 kVA / 3,850 W
Voltage / Frequency	230 V / 50 Hz
Number of phases	Single-phase
Rated current	20.9 A
Power factor	Cos phi 0.8
Running speed	3,000 rpm
Engine	KIOTSU KT-270B, 270 cm³, 9 hp
Alternator	LINZ SP10M F, brushless
Voltage regulation	Capacitor, ± 5 %
AC sockets	2 × schuko 230 V, 16 A, IP44 cover
Protection devices	Thermal protection on the socket panel
Soundproof canopy	NO
Starting	Manual recoil
Handling	Tubular frame with wheels and handle
IP rating	IP 23
Sound power level	97 dB(A) LwA
Sound pressure level	77 dB(A) LpA at 7 m
Net weight	53 kg.
Marking	Stamped CE metal plate

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Engine Specifications



Engine	
Manufacturer	KIOTSU KT-270B
Displacement	270 cm³
Type	Single cylinder OHV, 4-stroke
Cooling	Forced air
Aspiration	Natural
Speed governor	Mechanical centrifugal
Fuel	Unleaded petrol
Starting system	Manual recoil
Engine oil type	SAE 10W-40
Oil capacity	1.1 L.
Declared output	9 hp at 3,600 rpm

The engine of this set

- The KT-270B is rated at 9 hp at 3,600 rpm. The set itself runs at 3,000 rpm, the speed that gives 50 Hz with a two-pole alternator, so the engine never turns at its maximum power speed.
- It is a single-cylinder OHV four-stroke of 270 cm³ cooled by forced air, with a mechanical centrifugal governor and manual recoil starting.
- Servicing is limited to oil, air filter and spark plug. Oil capacity is 1.1 L and the change is best done with the engine warm so the residues drain out with it.

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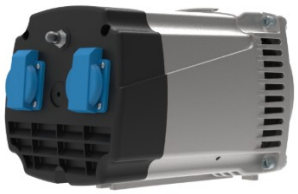
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Alternator Specifications

Alternator	
Make	LINZ
Model	SP10M F
Type	Brushless, S1
Excitation system	Self-excited, capacitor
Number of poles	2
Voltage / Frequency	230 V · 50 Hz
Voltage tolerance	± 5 %
Insulation class	Class H
IP rating	IP 23
Coating type	Standard, no impregnation
Reference standards	EN 60034-1, EN 55011



What this means in practice

Capacitor regulation

Voltage is not regulated by AVR electronics but by an auxiliary winding loaded onto a capacitor. It is a solution with no electronic components to age, highly tolerant of dust and damp, and it holds the output within ± 5 %. In exchange, voltage reacts more to load changes than an alternator fitted with an AVR.

Brushless

With no brushes or slip rings there are no wearing parts in the excitation: periodic servicing and the main cause of failure of older alternators are both eliminated. That is what lets the set stand for months and still start and give voltage.

What 4.8 kVA means on single-phase

At 4.8 kVA and 230 V the rated current is 20.9 A, rising to 21.7 A at the 5 kVA peak. That is a current which demands sockets and leads sized for it: a long extension of small cross-section drops voltage and heats up, and it is the most common reason for a load failing to start on a perfectly healthy set.

kVA and W: why there are two figures

kVA is apparent power and W is active power; the ratio between them is the power factor. At Cos phi 0.8, the rated 4.8 kVA equals 3,850 usable W. When sizing the load, always look at the watts.

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Dimensions and Weight

Dimensions	
Length (L)	630 mm.
Height (H)	650 mm.
Width (W)	540 mm.
Packing volume	0.36 m³
Net weight	53 kg.
Power per kg	73 W/kg



Fuel and running time

Fuel	
Tank capacity	6.5 L.
Fuel type	Unleaded petrol
Consumption at 75% load	2.1 L/h
Running time at 75% load	3.1 hours
Estimated running time at 50%	≈ 4 h 15 min
Estimated running time at 25%	≈ 7 hours

Altitude and operating temperature

- As with any naturally aspirated petrol engine, output falls by roughly 3.5 % for every 300 m of altitude above sea level.
- At altitude, harder starting, higher consumption and spark plug fouling may also appear.
- High ambient temperature also reduces available output, because hot air is less dense.
- Both effects should be taken into account when sizing the load: a set that is just adequate at sea level may fall short on a mountain site or in high summer.

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Starting Up and Use

- Place the set outdoors on a firm, level surface with clear space on all sides so that air cooling works and exhaust gases do not build up.
- Check the oil level before every start. The engine has a low level alert that prevents starting or stops the engine, and it is the most common reason for a set to appear faulty when it is not.
- Open the fuel tap, close the choke if the engine is cold and set the engine switch to the on position.
- Pull the starter grip slowly until resistance is felt, then pull firmly, guiding the cord back without letting it snap.
- Open the choke progressively as the engine warms up and let it run for one minute with no load before connecting anything.
- Connect loads one at a time, starting with the largest, and wait for the engine to recover speed between each one.
- To stop, disconnect the load first, let the engine run for a minute with no load so the temperature drops, switch off and close the fuel tap.
- If the set is to stand for more than a month, drain the carburettor or add fuel stabiliser: petrol left standing is the most common fault on occasional-use equipment.

Before Every Start

Check	What to look at
Engine oil	Level between the dipstick marks, with the set level. SAE 10W-40 oil and 1.1 L capacity.
Fuel	Tank with fresh unleaded petrol and the tap open. Capacity 6.5 L.
Air filter	Element clean and correctly seated. In dusty conditions, check it daily.
Siting	Level surface, outdoors, away from flammable materials and with room for ventilation.
Cables and sockets	Leads in good condition, no temporary joints, and of a cross-section suited to the length.
Earthing	Check the earthing requirements of the installation before connecting site boards or equipment with an RCD.

Guidance procedure. The instructions in the engine manual and in the generating set manual always prevail.

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Performance: permissible loads

Guidance reference of what the set can supply with 3,850 rated W and 4,200 W peak.

Application	Typical consumption	Suitability
Site lighting	up to 3,000 W	YES
Fridge or freezer	150 – 400 W	YES
Drill, grinder or angle grinder	500 – 2,400 W	YES
Electric breaker	1,500 – 2,000 W	YES
Domestic pressure washer	1,400 – 1,800 W	YES
Single-phase cement mixer	700 – 1,500 W	YES
Single-phase submersible pump	750 – 2,200 W	YES
Single-phase cutting table	2,200 – 3,000 W	YES
Electric oven or hob	2,000 – 3,500 W	YES
Single-phase welding set	3,000 – 4,500 W	AT THE LIMIT
Two large machines at once	over 3,850 W	NO

The starting surge

- Loads with an induction motor draw between 3 and 4 times their rated power at the instant of starting. With 4,200 W of peak available, the practical limit is a motor of around 1.1 to 1.4 kW.
- Resistive and electronic loads such as lighting, chargers or computers have no appreciable starting surge and can use the full rated output.
- Capacitor regulation copes well with these loads, but it is not the best choice for delicate electronics. For medical equipment, servers or instrumentation a set with AVR or inverter is preferable.

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Use, Maintenance and Storage

- Starting is by manual recoil, with no battery or electronics involved. That is why the set starts after standing for months.
- The tubular frame protects the set from side impacts and carries wheels and a folding handle, which on a 53 kg set allow one person to move it around site.
- The alternator has no wearing parts in the excitation, so servicing is limited to the engine: oil, air filter and spark plug. It also runs well within itself, because the output of the set is set by the engine and not by the alternator.
- Cooling is by forced air and depends on the grilles being clean and on there being clear space around the set. Working against a wall is the fastest way to overheat it.
- The noise level is 97 dB(A) LwA and 77 dB(A) LpA at 7 metres. This is an open-frame set, not soundproofed, which should be borne in mind in urban areas or inside buildings under construction.
- The low oil alert protects the engine by stopping it before damage occurs. If the set will not start, the first thing to check is the level, not the electrical system.
- The outputs are protected by the thermal protection on the socket panel. This protects the set against overload and does not replace the RCD of the installation, which must be checked before connecting site boards.
- Petrol left standing crystallises and blocks the carburettor. On occasional-use equipment, draining the carburettor or using a stabiliser avoids most faults.
- The engine follows a layout that is very widespread on the market, with low-cost spares available immediately. That is what keeps servicing cheap on occasional-use equipment.

Maintenance Schedule

Interval	Operation
Before every use	Check the engine oil level and the condition of the air filter. Inspect the set for leaks or damage.
First running-in hours	Change the engine oil as stated in the equipment manual.
Periodically	Clean the air filter. Clean and adjust the spark plug. Clean the spark arrester.
Annually	Change the oil. Replace the air filter and the spark plug. Check the fuel circuit.
Spark plug	Check the condition and the electrode gap. Spark plug as stated in the engine manual.
Long-term storage	Drain the tank and the carburettor or add fuel stabiliser. Store in a dry, frost-free place.

Guidance schedule. The exact intervals are those in the equipment manual and in the engine manual.

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Safety Instructions

- Never use indoors, in garages, cellars or enclosed spaces. The exhaust gases contain carbon monoxide, which is odourless and lethal.
- Keep a minimum clearance of 1.5 m from any flammable material and leave clear space on all sides for ventilation.
- Refuel with the engine stopped and cold, outdoors and away from any source of ignition.
- Check the earthing requirements of the installation before connecting the set to site boards or to installations with an RCD.
- Connection to the fixed installation of a building must always be made through a suitable changeover panel, never by plugging the generator into a domestic socket.
- Do not use or store the set in rain, snow or damp conditions.
- Connect loads one at a time, starting with the largest, and let the engine stabilise between each one.
- Do not alter the factory-set speed limiter: it voids the warranty and may damage the set and the connected loads.

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