



Enriching Lives

Kirloskar Green Gensets

HA Series

Air Cooled Silent Gensets



15 to 70 kVA



Salient Features of Genset

■ Customized Product Range

- Ready to use gensets in HA Series are available in the range from 15 to 70 kVA.
- HA Series gensets are powered by most efficient air cooled engines.
- Custom built to ensure your exact power needs.
- Synchronization option available with electronic governing for running the HA Series gensets in parallel operation to ensure optimum usage of generator sets capacity in varying load patterns.

■ Smart Aesthetics

- State - of - the - art competitive design.
- Compact in size with smaller footprint – saves money on installation / space.
- Aesthetically superior and fully integrated weather proof acoustic enclosure.
- Dynamic design with highest quality workmanship acoustics with PU based UV resistant powder coating for superior finish and durability.

■ Highest Reliability

- Superior reliability ensuring un-interrupted, continuous quality power for smooth operation.
- Exceedingly rugged and durable design.
- Lowest lifecycle cost of ownership.
- Safety against operation on low lub oil, high lub oil temperature, over speed, low fuel level, weak battery, low voltage, over load and high frequency.
- State- of - the - art technology for trouble free operations in low / high ambient temperature, high humidity and high altitudes.
- State - of - the - art – compact – Micro-processor based fully configurable genset controller with LCD display, events logging and optional AMF feature.

■ Unmatched Performance

- Low fuel and lub oil consumption ensuring excellent fuel economy and lowest operating cost.
- Low noise and vibration levels.
- High fuel efficiency at part operating loads.
- K-oil Super for best lubrication performance and engine life.

■ Environment Friendly

- The power to preserve, save environment and the earth – Kirloskar Green Power Ideas.
- Gensets conforms to lowest noise pollution norms as laid down by MOEF / CPCB.
- Genset Engine conforms with the latest stringent MOEF exhaust emission norms and international emission standards.
- 100% Bio-diesel compatibility with 100% power option.

■ Maintenance friendly design and Ease of Operation

- Ready to use – connect, distribute and use product.
- Dynamic, high performance and weather proof modular design ensuring lowest maintenance cost.
- Easy serviceability for routine, preventive, predictive maintenance, replacement and overhauls.
- Ensures longer maintenance intervals in its class.
- Easy availability of spare parts and wide spread service network across the Nation.
- Minimum cost for maintenance, spares & services, ensuring lowest operating cost.
- Smart genset control system for closely monitoring, metering and protection of the engine and genset performance.
- Competitive Annual Maintenance Contracts through Nationwide network of authorised service dealerships.
- Close looped Nationwide CRM network for before in time services.
- Single window services for complete genset.
- Pan India single point AMC options.



KIRLOSKAR
GREEN
POWER IDEAS

Standard Features

■ Engine



- Only Indian manufacturer to offer widest range of air cooled engines from 10 hp to 83 hp.
- Offering a wide comprehensive range with power output covering from 15 to 70 kVA
- Kirloskar HA series is most preferred engine series in Telecom, Defense, Railways and other government departments.
- Available in 2, 3, 4 and 6 cylinder configuration
- Most compact, extremely robust & rugged design
- Least maintenance and lowest operating cost
- Meets latest emission norms

■ Alternator



- Most efficient, CE certified Kirloskar Green Alternator
- Compact design with sealed bearings for longer life and lesser maintenance
- Best in class efficiency
- Positive voltage build-up
- Special windings to reduce harmonics
- Electronic AVR
- High short circuit current capacity up to 300%, ensuring controlled regulation even at variable loads
- Well balanced rotating components and lowest vibration levels
- Epoxy gel coating to suit various environment conditions
- CT fitted alternators as option for better performance and safety

■ KG 934 Genset Controller



- State-of-the-art, compact Micro-processor based fully configurable genset operating, monitoring, metering and protection control system with LCD display
- Complete safety for gensets on operating faults
- Real time and event logging facility for performance monitoring
- AMF option in the controller with control for Mains and DG Set circuit breakers
- User friendly operating systems on manual, auto and test modes with soft touch buttons
- Provision for additional digital inputs and digital outputs
- Compatibility for remote monitoring, remote start-stop and BMS options

■ Acoustic Enclosure



- Smart, standardized and dynamic Kirloskar Green Power Ideas modular design for optimum performance and ease of serviceability
- Aesthetically designed weather proof, sound proof acoustic enclosure meeting stringent and latest MOEF noise pollution norms
- PU Based powder-coated enclosure, manufactured on high-tech special purpose CNC machines to ensure highest quality on fit-form-finish-function and durability
- Specially designed with adequate air flow to operate at full load, even at 50 deg. C air inlet temperature
- Noise and thermal Insulation material conforms to UL94, HF1 class for flammability
- Green passivated / black ionized corrosion / rust resistant hardware for manufacturing to withstand salt Spray and corrosion test as per ASTM B-117
- Designed for low noise, high reliability, lowest vibrations and user friendly ready to use installations

■ Optionals

- Remote start, remote monitoring and BMS
- Auto mains failure panel
- Cold starting aid
- Synchronization and parallel operations of multiple gensets
- Bio-diesel compatibility
- Special air filtration system for dusty atmosphere
- Facility for external agency inspection as per custom and IS standards
- PMG for non-linear load conditions
- Power house design support with load pattern study



Overall Specifications of HA Series Genset

15 to 70 kVA

DG Set Specifications

Parameters	Unit	Genset Model						
		KG15AS4	KG25AS-C	KG30AS	KG35AS	KG40AS	KG50AS	KG70AS*
Prime Rating at 0.8 pf	kVA (kW)	15 (12)	25 (20)	30 (24)	35 (28)	40 (32)	50 (40)	70 (56)
Voltage	V	415	415	415	415	415	415	415
Frequency	Hz	50	50	50	50	50	50	50
Overall Dimensions with canopy (L x W x H)	mm	1770×1050×1550	2030×1050×1550	3130×1100×1680	3130×1100×1680	3220×1100×1680	3980×1240×1680	3980×1240×1680
Dry Weight of genset with canopy	kg.	1220	1350	1440	1440	1580	1870	1920
Electrical starting system	Volt-DC	12 V	12 V	12 V	12 V	12 V	12 V	12 V
Battery Capacity	Ah	88	88	100	100	100	120	120
DG set Noise level as per CPCB Norms	dBA	< 75	< 75	< 75	< 75	< 75	< 75	< 75

Engine Specifications

Parameters	Unit	Engine Model						
		HA294 SR3	HA394	HA494	HA494	HA494T	HA694	HA694T
Rated output (prime rating as per ISO 3046)	kW (hp)	15.08 (20.5)	23.5 (32)	31.6 (43)	31.6 (43)	41.2 (56)	47.8 (65)	61 (83)
No. of cylinder	Nos.	2	3	4	4	4	6	6
Bore x Stroke	mm	100 x 120	100 x 120	100 x 120	100 x 120	100 x 120	100 x 120	100 x 120
Aspiration		NA	NA	NA	NA	T	NA	T
Governing Class as per ISO 3046		M3	M3	M3	M3	M3	M3	M3
SFC at 75% load*	(g/Hp-hr)	168	170	159	159	166	161	169
SFC at 100% load*	(g/Hp-hr)	172	174	163	163	166	161	165.5
Lub oil Consumption*	LPH	0.01	0.02	0.02	0.02	0.03	0.03	0.035
Lub oil change period**	hrs	500	500	500	500	500	500	500
Lub oil Sump capacity	Ltrs	4.5	8	11	11	11	13.5	13.5

Alternator Specifications

Parameters	Unit	Alternator Model						
		KG164 J	KG 184B	KG 184D	KG184D	KG 184E	KG 204D	KG 224B
Rating	kVA	15	25	30	35	40	50	70
Insulation Class		H	H	H	H	H	H	H
Protection		IP23	IP23	IP23	IP23	IP23	IP23	IP23
Time to built up rated voltage at rated RPM	sec	≤ 5	≤ 5	≤ 5	≤ 5	≤ 5	≤ 5	≤ 5
Alternator Efficiency at 75% load	%	84.9	89.8	90.5	90.7	90.8	90.8	92.5
Alternator Efficiency at 100% load	%	83.5	88.8	89	89.1	89.2	89.7	91.2
Voltage regulation	%	±1	±1	±1	±1	±1	±1	±1
Wave form Distortion at No load & at Non-distorting balanced linear Load	%	< 1.8 & < 4	< 1.8 & < 4	< 1.8 & < 4	< 1.8 & < 4	< 1.8 & < 4	< 1.8 & < 4	< 1.8 & < 4
Permissible transient voltage dip at full load 0.8 pf lag***	%	< 18	< 18	< 18	< 18	< 18	< 18	< 18

In the view of continuous product updation and design changes, all above specifications & dimensions are subject to change without prior notice

Notes :

- Genset ratings as per ISO 8528 performance class is G2.
- Prime Power Rating is the maximum power available continuously for a variable electrical load for unlimited number of hours per year under standard operating conditions.
- For the site conditions other than standard operating conditions, consult KOEL for available prime power.
- *±5 % tolerance as per ISO 3046. For LPH calculation specific gravity of diesel is considered as 0.845.
- All canopy dimensions have tolerance of ± 50 mm.
- **First oil change at 50 hours.
- ***Permissible transient % voltage dip at full load 0.8 pf lag (alternator tested alone) as per IS 4722.
- *With 5% overload capacity.



After Sales Service Support

Customer Care :

Round the clock, at your service, whenever and wherever you need.

After sales service is the key to the long-term viability of any business. We are committed to provide adequate after sales service support and believe in creating enduring relationship with every individual customer we serve. Kirloskar believes in the wise saying "think global and act local" with full dedication, which have helped us, successfully achieve "100 years of great service".

Service Offerings

- Authorized Kirloskar Service Dealers in your neighborhood to promptly respond to your service calls, provide extensive after sales support including operational, maintenance and repair contract.
- Single window service for Genset and Customised AMC.
- 24/7 help line service for all our customers, offering timely customer support to deal with inquiries.
- Fully implemented CRM module to provide proactive and quick service response.
- Trained and experienced service team to provide value-added support to the highest standards ensuring customer satisfaction at all times.
- Support systems like Mean Time to Restore, Engine Down Order, First Pick Availability for maximum uptime of Gensets.
- K-oil / K-cool super plus for product life extension.
- Excellent product support through easy availability of spare parts, product training, Re-conditioning and warranty administration.
- Easy and Quick delivery... anywhere anytime.

Service Network across the Nation

Where your business operations are far reaching across the country and moreover when they are located in absolute remote places, your business counts on reliability and availability ensuring minimum downtime. Key to the quality of our after sales service is our strong service force, which are always ready to attend your calls anywhere anytime.



Help Desk :
Call 1800 233 3344
020 - 6608 4608
Email : koel.helpdesk@kirloskar.com

Customer Assistance is available from our 24 x 7 Help desk for Sales, after Sales and Service Assistance.

KOEL Sales Offices

- **Ahmedabad:** Ground Floor, D Block, Pruthvi Tower, Jodhpur Char Rasta, Ahmedabad - 380 015. Phone: +91 (79) 2692 9687, 2692 9689.
- **Bangalore:** 3rd Floor, Shri Lakshmi Complex, 15, St. Marks Road, Bangalore - 560 001. Phone: +91 (80) 2558 7562, 30578164, 30578165. Fax: +91 (80) 2558 7559.
- **Bhubaneswar:** 178 A, Zone-B, Mancheswar Industrial Estate, Bhubaneswar - 751 010. Phone: +91 (674) 2585064, 25860059, 25888047. Telefax: +91 (674) 2588021.
- **Chennai:** Nelson Tower, 1st Floor, 2nd Wing, 51, Nelson Manickam Road, Chennai - 600 029. Phone: +91(44) 23744624, 23744625.
- **Cochin:** No. 39/2694 A1, Anugraha, Panthiyil Lane, Warriam Road, Cochin - 682 016. Phone: +91 (484) 2385757, 2385758. Fax: +91 (484) 2385756.
- **Guwahati:** 29,GNB Road, Pan Bazar, Guwahati - 781 001. Phone: +91 (361) 2736016, 2736017. Telefax: +91 (361) 2736015.
- **Indore:** B-1, Ground floor, Radhakrishna complex, 10/1 Manoramagunj, A. B. Road, Indore - 452 001. Phone: +91 (731)-3913100.
- **Jaipur:** Plot No. -3, Purohit Ji Ka Bagh, M I Road, Jaipur - 302 001. Phone: +91 (141) 2370007, 2370014. Fax: +91 (141) 2370018.
- **Kolkata:** 8th Floor, Poonam Building, Flat Nos. 8A and 8B, 5/2, Russel Street, Kolkata - 700 071. Phone: +91 (33) 2217 0858, 2217 0860, 2217 0861. Fax: +91 (33) 2217 0859.
- **Lucknow:** 498 / 143 KA, Faizabad Road, Near IT Collage Chauraha, Upper Floor of State Bank of Indore, Lucknow - 226 007. Phone: +91 (522) 2741440/42/43. Fax: +91 (522) 2741441.
- **Ludhiana:** Plot No. 12, NPC Tempo Union Street, Near Arjun Gas Godown Sherpur Chowk Ludhiana - 141 003. Phone: +91 (161) 254 6667, 2546669. Fax: +91 (161) 2546753.
- **New Delhi:** 4C / 6, Opposite Liberty Cinema, Above the bank of Baroda, Karolbagh, New Delhi - 110 005. Phone: +91 (11) 28715826 / 48195200. Fax: +91 (11) 28715494.
- **Secunderabad:** 5-2-220 to 222, 2nd Floor, Padmavathi Tower, Hyder Basti, Opp. Andhra Bank, Ranigunj, Secunderabad-500 003. Phone: +91 (40) 27534197, 27534176. Telefax: +91 (40) 27534170.



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Stamp of
 Authorised
 Representative

Enriching Lives

SCOPE OF SUPPLY:

Factory assembled DG Set comprising of "KOEL GREEN" make above model Diesel Engine directly coupled to "KIRLOSKAR GREEN" make Alternator mounted on Common Base Frame, Complete with Standard Control Panel, Fuel Tank, Battery with Leads, AVM Pads and Acoustic Enclosure [C A N O P Y] as per CPCB Norms & along with First fill of K-Oil & K-Cool.

<u>WARRANTY</u>	The Warranty of the offered DG Set is applicable as per KOEL Policy. However The DG Set comprising of Engine & Alternator carries a warranty against defective material Manufacturing defects for a period of 24 months from the date of supply or 5000Hrs whichever occurs earlier. The terms of KOEL warranty policy will have precedence under all circumstances & the Warrantee Will Be applicable if customer sources K-Oil K-Cool and avail the services from authorized service dealers
INSURANCE	Extra at cost, if required.
Note	If the order is cancelled after one month, for whatever reason may be the advance amount will not be refunded
<u>INSTALLATION</u>	
Unloading of "D G" and installation work like Exhaust Piping, Earthing, Cabling, Change Over Switch initial Battery Charging, Diesel Oil has to be arranged by Customer.	

COMMISSIONING

Commissioning of DG Set shall be done by our service engineer

- After First Oil Change Next LUB Oil Change Period is 500 hrs/3 Months whichever is earlier
- Free 1+ 3 Service Check (CSP Check) as per KOEL Policy

SALIENT FEATURES OF KOEL GREEN DG SETS

- Low ownership costs due to competitive upfront investment, optimal fuel and Lube Oil & Parts consumption.
- The best Lube oil Change interval in its class.
- Diesel Engines meeting the CPCB norms for emission.
- Branded Sound Proof Enclosures with standard warranty & serviced by Company service dealer
- The only DG set brand to offer consistent deliverables (All DG Plants & most Service Dealers are ISO 9001 certified.
- The most extensive After Sales Service Network rated the best in the industry (according to a survey* conducted by AC neilsen) with:
 - Complement of trained engineers
 - Easy parts availability with first pick at above 95% level.
 - Specially formulated Lube, the K-Oil for longer Change intervals.
 - Single Window Support for providing support Engine, Alternator and acoustic enclosure, another unique KGPI advantage.
 - Value added Service like Annual Maintenance Contracts, Stand-by DG Sets, Customer training program – to name a few.
- Industry best Warranty

** The Customer Satisfaction Survey conducted by AC Nielsen, an independent market research firm of international repute, has placed KOEL at the top of the charts consecutively for 2 years in a row. Our Customer Satisfaction Index (CSI) is one of the best in the world in manufacturing sector.*

Specification of KOEL GREEN Canopy

Acoustic Enclosure

KOEL GREEN Acoustic enclosure shall be powder coated and fabricated out of 16 SWG CRCA MS sheet. The silent canopy shall be of nut bolt type construction. Critical processes of punching are done on CNC machines to maintain dimensional accuracy of holes within 0.1 mm. Powder coating is done after seven-tank surface preparation process of sheet metal. Canopy panel and doors shall have inside lining of FIRE-RETARDANT foam as acoustic material up-to **200** KVA & rock wool for high ratings. Four hinged doors shall be provided to canopy, one door shall have glass window for control panel.

Base Frame

Base frame is fabricated either in ISMC channel or in sheet metal. The base frame will be primer coated and painted. The base frame is rugged n construction and designed for mounting KOEL engine and KG alternator close coupled, with cross members mounted on AVM. The base frame shall have provision for mounting of acoustic enclosure & control panel on in it. The base frame is having provision of lifting hook for convenient lifting of complete set, i.e. along with canopy, engine and alternator.

Color scheme

The base plate and top is painted with OXFORD BLUE / PEPSI BLUE, the canopy is powder coated with IVORY color.

Performance Parameters

The sound level, when measured in green field condition (ISO 3744 OR 8528 PT 10) at 1-metre distance shall be less than 75 - DBA or as per CPCB norms.

The average stabilized hot air temperature rise with in the canopy is maintained within 7°C above ambient temperature.

KOEL GREEN SILENT CANOPY FEATURES

- RTU canopy kits, which can be assembled on site within a time period of 90 minutes.
- Canopy fabricated on imported machines with dimensional accuracy of 0.1 mm.
- Canopy is powder coated after passing through seven tank processes.
- Canopy is lined with acoustic foam / rock wool, which is non-igniting / Fire Retardant (confirming to BS 4375/BIS 7888).
- No grouting required on the ground, only a level surfaces capable of withstanding the DG weight.
- Designed for installation in open-air conditions.
- Lockable doors provided.
- Lockable fuel filling arrangement provided external to the canopy.
- Residential silencer.
- Externally accessible emergency stops button.
- The exhaust gases shall be taken out through a suitable flexible pipe to prevent any back pressure on the engine.

Exhaust System:

The exhaust system and noise suppressor shall be provided with thermal insulation by using fire retardant / non igniting foam conforming to BIS 7888/BS 4375 to prevent excess heat radiation on the engine and safe for operator.

Silencer:

Absorption type non-resistance Residential Silencer insulated from inside with glass wool shall be provided to suppress exhaust noise from the engine.

Wiring and Lighting:

PVC Copper wire concealed in flexible conduit with florescent tube light/bulb with MCB shall be provided.

Surface Treatment – Painting:

The enclosure surface shall be suitably treated for degreasing, derusting and phosphating. High quality powder coat treatment / paint shall be used.

Fuel Tank:

Fuel tank shall be fabricated out of 14SWG CRCA MS Sheet and is part of base frame. It is duly painted and fitted with inlet and outlet connections. Float gauge and fuel float switch is provided.

Kirloskar Brand Stickers with Green band as per Kirloskar design.

Canopy lights: One No. DC bulb to be fitted with suitable toggle switch and wiring.

Emergency Push Stop Button

The canopy shall have provision of emergency push button, which shall be housed in a protective enclosure with a glass front.

SPECIFICATION FOR STANDARD MANUAL CONTROL PANEL**SCOPE OF SUPPLY:**

The standard control panel is fabricated from 16 SWG sheet and powder coated after seven tank treatment process. The panel is equipped with:

- (A) Digital Genset Control Unit
Digital Control Unit Specially Designed to standardize most of control Panels components in Single Unit.

Salient Features of Controller

S. No	Display Parameters	Mechanical Safeties	Electrical Safeties
1	Engine Running Hours	Under / Over Speed	Under / Over Voltage
2	Lub. Oil Pressure	Low Lube Oil Pressure	Under / Over Frequency
3	Water Temperature Centigrade & Fahrenheit	High Engine Coolant temperature for liquid cooled engines	Phase Failure
4	Battery Voltage	High Cylinder Head temperature for Air cooled engines	Phase sequence reverse
5	Phase Voltage	Fan Belt failure for Air cooled Engine	Over Current
6	Line Current	Low coolant level for liquid cooled engines	Over KW
7	Frequency	Low fuel level (alarm)	-
8	Average Voltage	High canopy temperature	Battery Charging Failure
9	Average Current		Low Fuel Level
10	KW		
11	K Watt Hour Meter		
12	KVA		
13	KVAR		
14	Power Factor	Fuel Level in Liters	Number of Engine starts

(B) The Control Panel is equipped with MCB/MCCB of Suitable rating

(C) The Control Panel consist with CT, PT along with Aluminum bus bars & wires.

a). Set of Push Buttons

- Engine start/stop,
- Emergency Stop