

Please, read this manual
before use!

Instruction

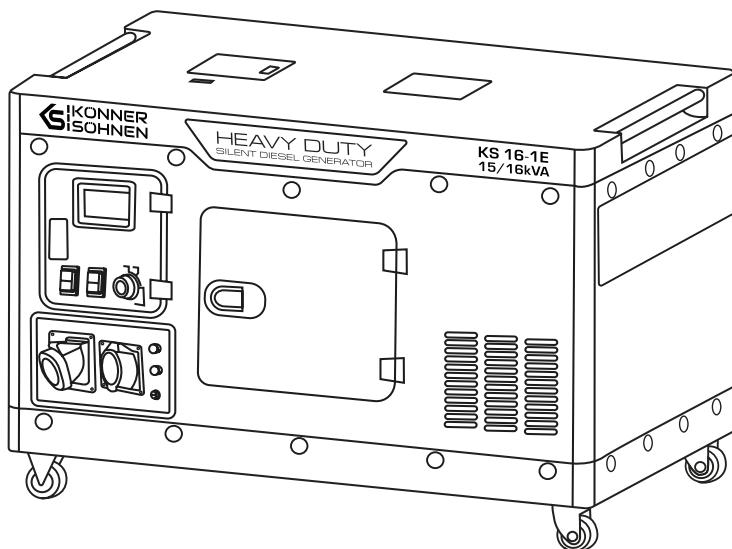


HEAVY DUTY SILENT DIESEL GENERATOR

Diesel Generator

KS 16-1E

KS 16-1/3E





Thank you for your purchase of **Könner & Söhnen** products. This manual contains a brief description of safety, setup and use. More information can be found on the official importer's website in the support section: konner-sohnen.com/pages/instructions

You can also go to the support section and download the manual by scanning the QR code or on the website of the official importer of **Könner & Söhnen**® at www.konner-sohnen.com



We care about the environment, therefore, we consider it expedient to save paper and leave in print a short description of the most important sections.



Be sure to read the full version of the manual before getting started!



The manufacturer of **Könner & Söhnen**® products reserves the right to make changes that may not be reflected in this manual, namely:

- The manufacturer reserves the right to make changes in the product design, configuration and construction.
- The images and drawings in this manual are for reference only and may differ from the actual components and inscriptions on the products.

Contact information that you are free to use in case of any problems can be found at the end of this manual. All information in this manual is correct to the best of our knowledge and belief at the date of its publication. The current list of service centers can be found on the official importer's website at www.konner-sohnen.com



ATTENTION - DANGER!



Failure to follow the recommendations marked with this sign may lead to serious injury or death of the operator or third parties.



IMPORTANT!



Useful information while operating the machine.

SAFETY INFORMATION

1

Do not use the generator in rooms with poor ventilation or in conditions of excessive humidity. Do not place the generator in water or on moist soil. Do not expose the generator to rain, snow, as well as to direct sunlight for a long time. Place the generator on a flat, hard surface, away from flammable liquids/gases (at a minimum distance of 1 m). Install the generator at a distance of not less than 1 m from the front control panel and not less than 50 cm on each side, including the upper part of the generator. Keep unauthorized persons, children, and animals away from work area. Wear safety shoes and gloves.



ATTENTION - DANGER!



When installing the generator, pay attention to the capacity of electrical appliances and their starting current, which may be several times higher than the rated current. The generator cannot run in overload conditions when starting consumers with an inrush current higher than the generator's maximum output.



ATTENTION - DANGER!



Pay attention to the number of phases of the generator and the electrical system. A three-phase generator is only suitable for three-phase power consumers. Never connect a three-phase generator to a three-phase home network if there are no three-phase power consumers.



ATTENTION - DANGER!



The device generates electricity. Follow safety precautions to avoid electric shock.



IMPORTANT!



The generator should be used as an IT or TN system based on the application. Earthing and additional protective measures such as insulation monitoring or protection against accidental contact (residual current device) must be provided based on the application and the system used.

The generator produces electricity that may lead to an electric shock while neglecting compliance regulations. All connecting the generator to the network must be made by certified electrician in accordance with all electrical rules and regulations. Connect the generator to the protective ground before operation. Wires with damaged or spoiled insulation should be replaced. You should also replace worn, damaged or rusty contacts.



IMPORTANT!



It is forbidden to connect to the generator devices which can generate current pulses and direct energy towards the generator (voltage stabilizers, devices with electronic brakes, on-grid and hybrid inverters, etc.).



IMPORTANT!



Using device for other purposes deprives the right for free warranty.



ATTENTION - DANGER!



Be careful. Do not operate the generator, if you are tired, under the influence of drugs or alcohol. Inattention may cause a serious injury.



ATTENTION - DANGER!



The generator runs on automotive diesel fuel and conform to European quality standards not lower than Euro V emission standard. The generator runs on automotive diesel fuel. Do not use gasoline, kerosene, fuel oil as fuel. Diesel fuel type should correspond the operating season.

The use of low-grade fuel can lead to a degradation of the manufacturer's declared specifications or to engine failure. Do not add any chemical additives to diesel fuel and do not mix diesel fuel with used engine oil or fuel oil.

Diesel fuel characteristics	Region of use
EN590:96	European Union
BS 2869-A1 or A2	Great Britain

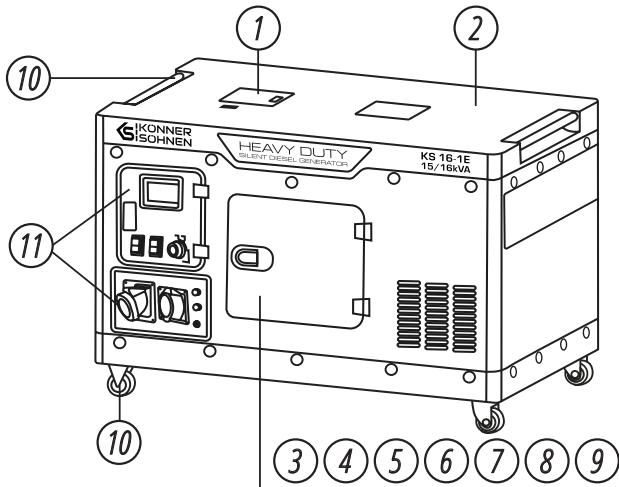
Keep the fuel tank and refueling accessories clean and neat and ensure that no foreign objects / debris get into the fuel tank when refueling the generator. Sulfur content should not exceed 0.5% (less than 0.05% is recommended). Sediment and water content in fuel should not exceed 0.05%. A cetane number of at least 45 must be ensured. For example, biodiesel fuel which is known under the B5 brand, is permitted. This type fuel should contain no more than 5% of fatty acid methyl esters (FAME) and 95% of mineral diesel fuel. Read more about the requirements for biodiesel in the full web version: konner-sohnen.com/pages/instructions



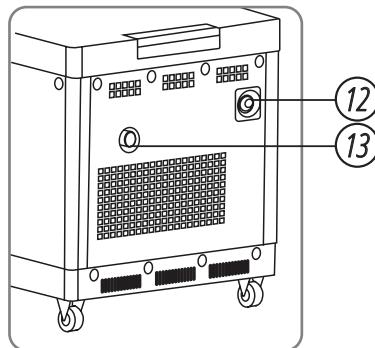
ATTENTION - DANGER!



To prevent electric shock and avoid damage to your electric devices and generator, simultaneous switching on of three and one phase circuit breaker is prohibited!



1. Fuel tank
2. Soundproof anti-vandal housing
3. Fuel filter
4. Air filter
5. Oil filter
6. Oil dipstick
7. Oil drain hole
8. Battery
9. Coolant drain hole
10. Transport kit
11. Control panel



12. Emergency switch engine
13. Silencer

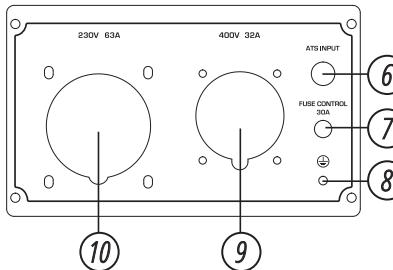
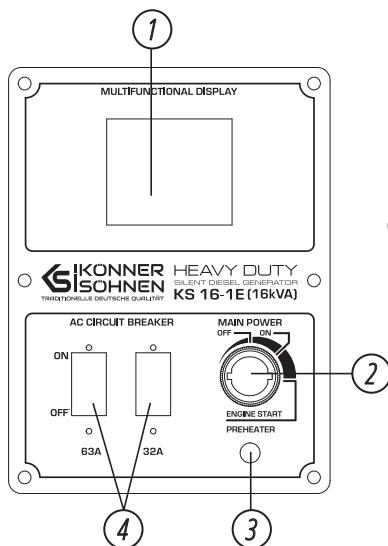


IMPORTANT!



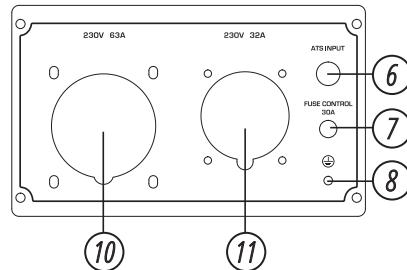
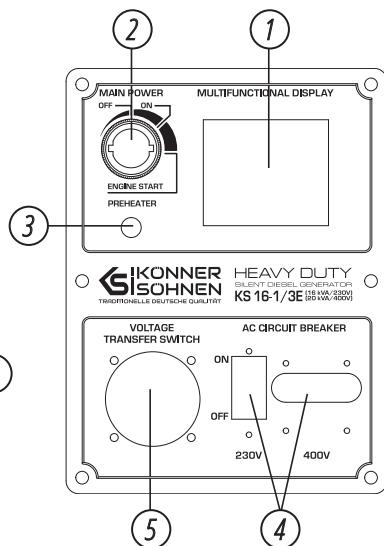
Manufacturer reserves the right to make changes and/or improvements in design, components set and technical attributes without notice and without incurring obligation. The pictures in this manual are schematic and may not match the parameters of original product.

MODEL KS 16-1E



1. HGM501 multifunction digitalcontrol unit
2. Engine start key
3. Preheater
4. AC circuit breakers
5. VTS system single-/three phase switch (position 1 - 400V, position 0 (OFF) - disabled, position 2 - 230V)

MODEL KS 16-1/3E



6. ATS input
7. Fuse control 30A
8. Earthing bolt
9. CEE 400V 32A AC outlet
10. CEE 230V 63 A AC outlet
11. CEE 230V 32A AC outlet

COMPONENTS OF SET

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for model KS 16-1E



for model KS 16-1/3E



Model	KS 16-1E		KS 16-1/3E	
Voltage	230 V		230 V	400 V
Max Power	16 kVA		16 kVA	20 kVA
Nominal Power	15 kVA		15 kVA	18,75 kVA
Frequency	50 Hz		50 Hz	
Current (max)	69,56 A		69,56 A	23,09 A
Engine speed	3000 rpm		3000 rpm	
Outlets	1×32A (230V), 1×63A (230V)		1×32A (400V), 1×63A (230V)	
Emergency stop button	+		+	
Display	DC30T multifunction digitalcontrol unit			
Noise level Lpa (7m)/Lwa	76/96 dB		76/96 dB	
Engine model	KS 1400HD		KS 1400HD	
Engine type	diesel powered two-cylinder, four-stroke air-cooled			
Engine power	30 hp/22 kW		30 hp/22 kW	
Crank case volume	4 l		4 l	
Engine cylinder volume	1326 cm ³		1326 cm ³	
Power output controller	AVR			
Engine start	electro			
Power factor, cosφ	1		1	0.8
Battery	45 Ah		45 Ah	
ATS output (universal 6-pin)	+		+	
Dimensions (LxWxH)	1310×835×900 mm		1310×835×900 mm	
Weight	360 kg		363 kg	
Protection class	IP23			
Acceptable deviation of a current is 5%				

The optimum operating conditions are ambient temperature of 17°C–25°C, barometric pressure of 0.1 MPa (760 mm Hg), and relative humidity of 50–60%. Under such ambient conditions, the generator can guarantee maximum performance in terms of the stated specifications. In case of deviations from the above ambient values, the performance of the generator can be different.

Please note that in order to preserve the lifespan of the generator, continuous loads should not exceed 80% of the rated power.

DC30T CONFIGURATION AND INSTRUCTIONS

5.1

- A – Manual start*
- B – Alarm indicator*
- C – LCD*
- D – Page change*
- E – Stop mode*
- F – Auto mode*



Button	Function	Description
	MANUAL START DECREASE	<ul style="list-style-type: none"> Start the gensem. Under edition mode, to decrease the numbers. Under records mode, pressing this key to change the page.
	STOP RESET REVERT	<ul style="list-style-type: none"> Can stop generator under manual/auto mode. Can reset shutdown alarm. During stop procession, pressing this key again can stop generator immediately. Pressing this key can cancel the setting and back to upper class under edition. Under the setting mode with checking data, the data can be saved and system will exit after pressing. In standby mode, press the button for more than 3 seconds to check the alarm records under stop mode.
	AUTO INCREASE	<ul style="list-style-type: none"> Pressing this key will set the module into auto mode. Under edition mode, to increase the numbers. Under records mode, pressing this key to change the page.
	PAGE CHANGE CONFIRM	<ul style="list-style-type: none"> Page change. Confirm the change under edition mode. In standby state, press for 3 seconds to enter the parameter setting mode. Choose alarm records under records checking mode.
	SETTING MODE	<ul style="list-style-type: none"> Pressing "Page" and "Stop" simultaneously to come into setting mode.

ENGINE FLYWHEEL TEETH AUTOMATIC ADJUSTMENT

1. Crank disconnect must be set to "RPM/Frequency" or "RPM/Frequency/Oil Pressure".
2. In manual mode, Start the generator set.
3. At the same time, press and or more than 0.5 seconds, the controller will automatically calculate and save the number of flywheel teeth according to the generation frequency and generator poles.
4. After calculating and saving the number of flywheel teeth successfully, the controller shows: " Flywheel xxx teeth,saved successfully!"

ALARM RECORDS CHECKING

DC30T controller can save three group of alarm records which contains the alarm record data includes detailed data such as alarm time, generator parameters, engine parameters, etc.

How to check the alarm records:

1. Press the button for more than 3 seconds to check the alarm records under stop mode.
2. In the history alarm list browsing interface, press to move up the cursor, and press to move down the cursor to choose the record you need. Press to confirm the record and come into history records checking page.
3. Press or to change the alarm record data. Press to return to the history alarm list browsing interface.
4. In the history alarm list browsing interface, press to exit.

The generator is supplied without fuel. Before the operation please fill the fuel. Guidelines for filling are below. Generators are supplied without motor oil. The generator casing may contain residues of oil after tests conducted during production.

Before starting to use the generator, be sure to pour oil. Recommendations on oil and its filling process are below. Follow maintenance recommendations during the first month or twenty hours (whichever occurs first) contained in the "Maintenance" section.

For commissioning please charge the battery. Please use additional battery charger (not included) to charge the battery. Upon accumulator unit recharge, it is mandatory to verify the polarity correctness (+ to +, - to -) or let the generator work at least one hour at 50% load at the first start.

This material is for informational purposes only and does not constitute a manual for installing the equipment or connecting it to the mains, but we strongly recommend that you read the instructions below. Equipment connection must always be carried out by a certified electrician responsible for the installation and electrical connection of the equipment according to local laws and regulations. The manufacturer assumes no liability for improper connection of the equipment or for any material or physical damage that may result from improper installation, connection or operation of the equipment.

STARTING TO WORK

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Before starting the engine, make sure that the rated power of power consumers matches with the power of generator. Do not exceed the nominal power of the generator. **Do not connect the device before starting the engine!**

The generator is not intended for continuous operation at maximum power. Operation in this mode significantly reduces the engine life of the generator. In peak power supply mode, the generator can only be used for a short time to start equipment, which has higher starting currents at the time of start (starting of motors or other electrical appliances).

After starting the engine, make sure the voltmeter readings correspond to the nominal (at 50 Hz 230V \pm 5% for single-phase units and 400 \pm 5% for three-phase).

MOTORSTART

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ELECTRIC START

- Do not connect any power consumers to the generator before you start the engine.
- Connect the terminals to the battery and observe the correct polarity: "plus" to "plus", "minus" to "minus".
- Set the start key to ON.
- Turn the key clockwise to the START position.
- After a successful start, release the key and it will automatically return to the ON position.
- If the engine does not start after pressing and holding down the key in the START position for 5 seconds, try again in 15 seconds. Lengthy operation of the engine start system may discharge the battery. When the generator is running, leave the key in the ON position.
- After three minutes of the generator operation, switch the circuit breaker (emergency switch) to the upper position (ON).



ATTENTION - DANGER!



If engine does not start after three or four attempts, it may mean that the fuel system has some air inside. Remove the air from the fuel system (drain the diesel fuel, with the fuel there will be excess of air).


ATTENTION - DANGER!


Do not let the simultaneous connection of two or more devices. Start of many devices requires large power capacity.


ATTENTION - DANGER!


Devices are to be connected in turns, according to its maximum allowed power. Do not connect the consumers in first 3 minutes after the generator start. Do not stop the generator, if there are any devices connected. This may result to generator breakdown.

STARTING IN THE COLD SEASON

- When the air temperature is lower than +5°C it is necessary to use the "Warming-up" function when starting.
- Turn the ignition key to ON position and push the heating button HEAT. Hold it and turn the ignition key to START.

Do not hold the button "Warming-up" more than 10 seconds, it may cause the failure of incandescent candles.

STARTING THE GENERATOR USING THE ATS UNIT:

When starting the generator in automatic or manual mode using the ATS unit (automatic transfer switch), the start key on the generator control panel must be in the "OFF" position.

DURING GENERATOR OPERATION:

- You may use the generator, if the voltage meter displays the value 230V+/- 5% (50 Hz) and 400V+ / - 5% (50 Hz) for three-phase generator.
- Watch the voltage meter and in case of excessive indices values, stop the generator operation.
- All "generator to network" connections are to be carried out by a certified electrician. Any mistakes may result in serious equipment damage.

STOPPING THE ENGINE

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IN ORDER TO STOP THE ENGINE, PERFORM THE FOLLOWING ACTIONS

1. Set the emergency switch to OFF, stop all power consuming devices connected to the generator.
2. Let the generator run at no load for 3 minutes for alternator to be cooled.
3. Turn the key to OFF position.
4. For all types of diesel generators there is an emergency stop lever for the engine.
Use it in case of emergency only

MODELS WITH VTS SYSTEM VTS

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Models named "1/3" are equipped with a VTS phase switching system. These models can operate in single-phase (230V) and three-phase (400V) almost without loss of power.

Switching modes is only allowed when the load is completely switched off.

FOR THREE-PHASE DIESEL GENERATOR

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Three-phase diesel generator load must be distributed on all three phases, and the load on all phases must be balanced. The load on 1 phase should not exceed 1/3 of the total generator capacity. Maximum permissible imbalance is 20%.

Only 1 or 2 phase load leads to the generator breakage. The total load and total current on all three phases should not exceed nominal load and current of the generator.



ATTENTION - DANGER!



An overload may lead to automatic activation of generator protection machine. Reduce the load. Reconnect the generator no earlier than 5 minutes after switching off.

TECHNICAL MAINTENANCE WORKS

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This manual compliance! You can find a list of service center addresses on the website of exclusive importer: www.konner-sohnen.com

TECHNICAL MAINTENANCE WORKS

Note	Service type	Every start	First month or after 20 hrs	Each 3 months or after 50 working hrs	Each 6 months or after 100 working hrs
Motor oil	Check the level	✓			
	Replace		✓		✓
Air filter	Check		✓		
	Replace			✓	
Oil filter	Replace		✓		✓
Fuel tank	Check the level	✓			
	Check/Clean				✓
Fuel filter	Check/Clean		✓	✓	
	Replace				✓

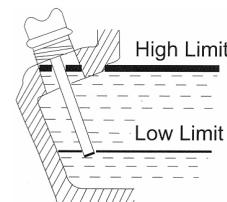
RECOMMENDED OILS

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(-20) (-10) 0 (10) (20) (30) (40) °C

Use oils designed for four-stroke cycle vehicle engines SAE10W-30, SAE10W-40. Motor oils with other viscosity levels, may be used only if the average air temperature in your region does not exceed the limits of the temperature range, specified in the table.



AIR FILTER TECHNICAL MAINTENANCE

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Air filter replacement is to be performed each 50 hours of the generator operation (every 20 hours in unusually dusty conditions).

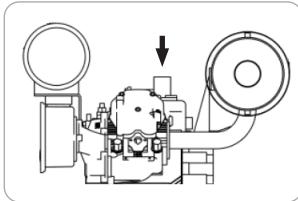
Never run the engine with the air filter removed or without the filter. Otherwise dirt and dust lead to rapid breakage of engine parts. Failure in this case will not be repaired.

There are two kinds of fuel filters in Könner & Söhnen diesel generators. They prevent the ingress of contaminants from diesel fuel to the engine.

COARSE CLEANING FUEL FILTER

Remove the filter after the possible hard particles hit every 50 operating hours. Never use water for purification the filter.

1. Remove the fuel cap.
2. Remove the fuel filter.
3. Use diesel fuel to clean the filter.
4. Put the filter back to the fuel tank.



THE FUEL FILTER IN THE FUEL SUPPLY PIPELINE

This filter has to be replaced every 100 operating hours.

BATTERY USE

To prolong battery life it is recommended to do battery charging with an external device (not included) every three months.

Battery warranted – three months from the date of purchase of the generator.

STORAGE

Storage room has to be dry and free from dust deposits. Storage room also has to be locked away from children. Information on long-term storage and transportation can be found in the full version of the manual.

Potential faults and troubleshooting methods, as well as average device capacities can be found in the full version of the manual.

BATTERY AND GENERATOR DISPOSAL

To prevent environment damage generator and battery should be separated from ordinary waste. Please recycle them in the safest way, passing it to special place for disposal.

WARRANTY SERVICE TERMS

The international manufacturer warranty is 1 year or 1000 hours (whichever comes first). The warranty period starts from the date of purchase. In cases when warranty period is longer than 1 year according to local legislation please contact your local dealer. The Seller which sells the product is responsible for granting the warranty. Please contact the Seller for warranty. Within the warranty period, if the product fails because of defects in the production process, it will be exchanged on the same product or repaired.

The warranty card should be kept throughout the warranty period. In case of warranty card loss, a second one will not be provided. The customer must provide the warranty card and buyer's check during request for repair or exchange. Otherwise, the warranty service will not be provided. The warranty card, attached to the product during sale, should be correctly and fully completed by the retailer and customer, signed and stamped. In other cases, warranty is not considered as valid.

Provide clean product to the service center. Parts, that must be replaced, are the property of the service center.



EC Declaration of Conformity

Nr. 232

The following products have been tested by us with the listed standards and found in compliance with the European Community Machinery Directive 2006/42/EC, Low Voltage Directive 2014/35/EU, Electromagnetic compatibility Directive (EMC) 2014/30/EC, Noise Directive 2000/14/EC.

Manufacturer: DIMAX INTERNATIONAL GmbH

Address: Flinger Broich 203, 40235 Duesseldorf, Germany

Product: Diesel generator "Könner & Söhnen"

Type / Model: KS 16-1E, KS 16-1/3E

The statement is based on a single evaluation of above mentioned products. It does not imply an assessment of the whole production and does not permit the use of the test lab. logo. The manufacturer should ensure that all product in series production are in conformity with the product sample detailed in this report. The applicant should hold the whole technical report at disposal of the competent all the right.

Applied EC Directives: 2006/42/EC Machinery Directive
2014/35/EU Low Voltage Directive
2014/30/EC Electromagnetic compatibility Directive (EMC)
2000/14/EC Noise Directive
2016/1628/EU Non-Road mobile machinery emissions

Applied Standards: EN ISO 12100:2010;
EN 1679-1:1998+A1:2011;
EN 60204-1:2018;
EN 61000-3-3:2013;
EN 61000-3-2:2014;
EN 61000-6-1:2007;
EN ISO 3774:2010;
ISO 8528-10:1998.

Diesel engines KS 1400HD correspond to European Emission Standard Euro V (STAGE V).

This is confirmed by EU TYPE-APPROVAL CERTIFICATE issued by department of transport of Madrid, Spain.

Technical service responsible for carrying out the test -IDIADA.

Date of test reports 27/01/2022

2000/14/EG_2005/88/EG Annex III

For models KS 16-1E, KS 16-1/3E Noise measured Lwa = 95 dB (A), guaranteed Lwa = 96 dB (A)



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Place of issue:

Duesseldorf

Director:

Fomin P.

DIMAX

International GmbH
Flinger Broich 203 40235 Düsseldorf
UST-ID DE296177274
koenner-soehnen.com

We DIMAX INTERNATIONAL GmbH hereby declare that specified above conforms covering European Parliament and Council Directives, 2006/42/EC of 17 May 2006 Machinery Directive, 2014/35/EU Low Voltage Directive of 26 February 2014, Electromagnetic compatibility Directive (EMC) 2014/30/EC of 26 February 2014, Noise Directive 2000/14/EC of 8 May 2000. The CE mark above can be used under the responsibility of manufacturer. After completion of an EC declaration of Conformity and compliance with all relevant EC directives.

CONTACTS

Deutschland:

Hergestellt unter Lizenz und Kontrolle der
DIMAX International GmbH.

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Düsseldorf, Deutschland. Produziert in VRC,
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www.konner-sohnen.com

European Union:

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Düsseldorf, Germany.

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DIMAX International GmbH, Flinger Broich 203,
40235 Дüsseldorf, Німеччина.

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02232, м. Київ, Україна. Змонтовано в КНР
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