

POWER SYSTEMS TRULY GLOBAL FULLY RELIABLE POWER SYSTEMS TRULY GLOBAL FULLY RELIABLE POWER SYSTEMS

KUNZ

HANDELS - & PRODUKTIONS GMBH

TRULY GLOBAL FULLY RELIABLE POWER SYSTEMS TRULY GLOBAL FULLY RELIABLE POWER SYSTEMS

K.U.N.Z.

P O W E R S Y S T E M S

Truly Global, Fully Reliable



YOUR POWER SOLUTION PARTNER

With a history dating back, KUNZ Handels & Produktions GmbH which manufactures heavy machinery for industries worldwide has maintained a reputation of providing reliable product with excellent sales and after-sales support. Having unparalleled product quality,

KUNZ Power Systems is ready to be your power solution partner with service to match the right generating, transfer and control technologies with your power needs.



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WHO ARE WE?



Founded in Germany, Kunz Power Systems is committed to provide a wide range of generating sets of outstanding quality which would meet our customers' need worldwide. Kunz Power Systems is the only legitimate son of the Manar Al Hadharat Company.

Kunz Power Systems brings generations of unmatched excellence, durability and reliability to the power generation industry. Since its foundation, Kunz Power Systems has manufactured generator sets for a wide variety of applications from the office buildings and hospitals to sewage treatment plants, from oil and gas industries to agriculture industry. Today, we became a driving force in power generation market and thousands of our units are operating on the Earth.

Our engineering expertise combining with continual investment in new technology and production methods allow us to provide customized solutions and that's how we differentiate from others. As a value based management system, we pay attention to our company values which fosters us to set new goals, makes strategic decisions and drives our growth.

OUR VALUES

- **Quality**

At Kunz we are dedicated to quality in all of our products and services. We are determined to serve our valuable customers through innovation and improvement. Our main focus on customer needs drives us to improve Kunz's production and service quality through exclusive **German Engineering**.

In Kunz, we actively listen our customers, understand their challenges and needs and offer a combination of ingrained expertise and German engineering while delivering products, services and solutions.

Kunz is built on quality and underlined by reliability, integrated into each project and this involves covering every aspect of our customers' requirements from feasibility studies and project analysis to implementation, operation and lifetime maintenance. Our commitment to quality is guaranteed by an ISO9001 and European Union certifications and high performance for all products.

- **Consistency**

At Kunz, we remove uncertainty and lead to trust. We align our actions with our words and deliver what we promise. We are not only promise what we can deliver but also strive to keep our commitments.

Mutual trust is essential for our business and we build and strengthen our brand reputation through these trusts which is dedicated to responsibility, openness and transparency. Kunz people communicate with each other and our dealers, suppliers, employees and others with whom we do business in a respectful, fair, honest and OPEN MANNER. Moreover, this openness of individuals in our community or network ensures transparency and mutual trust.

On the other hand, we believe business ethics requires consistency in the sense that our actions and values should not be contradictory. In this regard, we hold ourselves to the highest standard of integrity and ethical behavior.



- **Collaboration**

Kunz's essential strength is to sustain long term relationships with our valuable customers, suppliers, dealers and others with whom we do business. This is one of our distinctive strength, because we work as a team and collaborate and

help each other succeed. We are a team because, we love sharing our unique talents, ideas to help those with whom we work and we believe Two heads are better than one.

Since our business is based on collective discipline, diverse thinking and decision making of our people we can easily collaborate with key entities and organizations, thus execute projects successfully and strengthens our business. In addition to all, our diversity ties us together to operate as a one team.



- **Diversity**

At Kunz, we understand and accept continued growth toward more diverse skills, abilities, cultures and experience is necessary for business success. We value this inclusive environment and foster Kunz people to achieve in business. Our collection of unique cultures and experiences education and talents help make us a stronger and developing company.

As a global company, we acknowledge the wide diversity that exists among cultural traditions in the countries in which we operate in Earth which is continually changing.

However, we respect these cultural differentiations and adopt our business practices to them and leverage our global experiences.



- **First Comes First**

Since Kunz Power Systems was founded, we have built a reputation for keeping the customer on the forefront of everything we do. Understanding and meeting our valuable customers' wants and needs worldwide is our priority.

With a production facility in Mannheim, Germany, Kunz produces more than 1.000 units per year meeting the demanded quality and reliability of our valuable customers while complying with all EU standards.

KUNZ PRODUCTS

Kunz supplies powerful, high quality stationary and mobile power generating aggregates, power stations, generators with floodlight systems, solar generators, GPUs and combination power units designed, built and tested in the most extreme conditions with standard equipment in inventory for a variety of industries including;

- Road construction
- Commercial construction
- Oil and Mining
- Aviation
- Disaster Relief
- Mechanics
- Government and Military
- Special Events
- Emergency Power Generation

Kunz Products are designed and built to meet extreme conditions and challenges.

 **made**
 **in**
 **Germany**



STATIONARY DIESEL GENERATORS

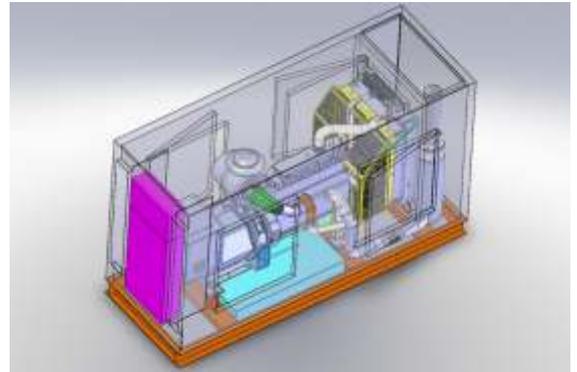
Kunz Power Systems offers a full line prime diesel generator sets from 9 kVA to 2250 kVA both open and weather enclosed and sound attenuated models with a wide variety of options available.

KUNZ STATIONARY DIESEL GENERATOR PRODUCT LIST

| Generator Model | Engine Brand Model | Alternator Brand Model | Cnt.Base load kVA | Prime kVA | Standby kVA |
|-----------------|------------------------|------------------------|-------------------|-----------|-------------|
| KZS9PS | Perkins 403D-11G | Stamford P1044E | NA | 9 | 10 |
| KZS12PS | Perkins 403D-15G | Stamford BC1164C | NA | 12 | 14 |
| KZS20PS | Perkins 404D-22G | Stamford BC1184E | NA | 19 | 22 |
| KZS30PS | Perkins 1103A-33G | Stamford BC1184G | NA | 30 | 33 |
| KZS45PS | Perkins 1103A-33TG1 | Stamford UCI224D | NA | 46 | 50 |
| KZS65PS | Perkins 1104A-44TG1 | Stamford UCI224F | NA | 66 | 73 |
| KZS80PS | Perkins 1104A-44TG2 | Stamford UCI224G | NA | 81 | 90 |
| KZS100PS | Perkins 1104C-44TAG2 | Stamford UCI274C | NA | 100 | 110 |
| KZS140PS | Perkins 1006TAG | Stamford UCI274E | NA | 139 | 150 |
| KZS150PS | Perkins 1006TAG2 | Stamford UCI274F | NA | 149 | 165 |
| KZS180PS | Perkins 1106C-E66TAG4 | Stamford UCI274G | NA | 180 | 200 |
| KZS230PS | Perkins 1306C-E87TAG4 | Stamford UC DI274J | 208 | 229 | 251 |
| KZS250PS | Perkins 1306C-E87TAG6 | Stamford UC DI274K | 230 | 250 | 275 |
| KZS350PS | Perkins 2206C-E13TAG2 | Stamford HCI444E | 281 | 350 | 385 |
| KZS400PS | Perkins 2206C-E13TAG3 | Stamford HCI444F | 306 | 400 | 440 |
| KZS450PS | Perkins 2506A-E15TAG1 | Stamford HCI544C | 358 | 464 | 510 |
| KZS500PS | Perkins 2506A-E15TAG2 | Stamford HCI544D | 412 | 513 | 565 |
| KZS600PS | Perkins 2806A-E18TAG1A | Stamford HCI544E | 465 | 610 | 670 |
| KZS650PS | Perkins 2806A-E18TAG2 | Stamford HCI544F | 518 | 670 | 740 |
| KZS700PS | Perkins 4006-23TAG2A | Stamford HCI634G | 587 | 732 | 805 |
| KZS800PS | Perkins 4006-23TAG3A | Stamford HCI634H | 646 | 811 | 890 |
| KZS1000PS | Perkins 4008TAG2A | Stamford HCI634J | 812 | 1024 | 1125 |
| KZS1250PS | Perkins 4012-46TWG2A | Stamford PI734B | 995 | 1258 | 1385 |
| KZS1350PS | Perkins 4012-46TWG3A | Stamford PI734B | 1084 | 1364 | 1500 |
| KZS1500PS | Perkins 4012-46TAG2A | Stamford PI734C | 1203 | 1511 | 1660 |
| KZS1700PS | Perkins 4012-46TAG3A | Stamford PI734E | 1441 | 1725 | 1900 |
| KZS1850PS | Perkins 4016TAG1A | Stamford PI734E | 1464 | 1844 | 2030 |
| KZS2050PS | Perkins 4016TAG2A | Stamford PI734F | 1638 | 2058 | 2265 |
| KZS2250PS | Perkins 4016-61TRG3 | Stamford PI734G | N/A | 2250 | 2497 |

Standard Generator Features

- AMF, Automatic mains failure unit
- Heavy duty type, water-cooled diesel engine
- 50°C tropical type radiator
- Lead acid battery
- Heavy duty, brushless type alternator
- Industrial type silencers
- Control panel with digital-automatic main control module
- Anti-vibration mountings
- Base fuel tank





Optional Features

- Automatic load transfer panel
- Automatic synchronization and power sharing systems
- Weather and sound proof canopy
- Container type enclosures
- Road trailer
- Job-site trailer
- Protection circuit breaker
- Air start
- Remote type radiator
- External type fuel tank
- Automatic fuel transfer system
- Residential silencer



Engine



KUNZ Power Systems manufacture a series of diesel generators that use world class, United Kingdom origin Perkins diesel engines. Perkins is one of the top diesel engine manufactures in the world with parts and service organizations located worldwide and we can provide all models of Perkins industrial engines.

Alternator



KUNZ has chosen recognized industry leader Newage - Stamford's self - exciting alternators and we are currently using most of Stamford ranges which has been manufacturing in Stamford factory in United Kingdom. Moreover, Kunz strongly recommends the range of alternators produced by Cummins Generator Technologies.



Deepsea

Kunz supplies U.K. origin Deepsea control modules as a standard option in all of its products regardless of power capacities.

Radiator

Kunz Power Systems provides fully original and U.K. origin radiators as a standard option with all power units. Concerning our product lists, we are providing U.K. origin Covrad Brand radiators for 4000 series of Perkins diesel engines and again U.K. origin Perkins radiators for the rest of our models.

Base Frame

Constructed with heavy duty base frame including lifting points, KUNZ chassis are made up with European Standard.

Working Condition

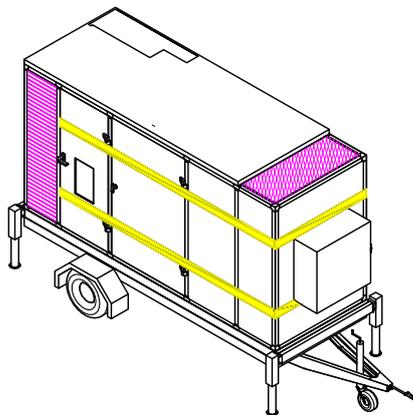
Kunz diesel generator sets are designed to operate;

- +50°C
in ambient temperature up to plus 50°C.
- -35°C
in ambient temperature down to minus 35°C.
- 3500 m
above sea level.



MOBILE / STOWABLE DIESEL GENERATORS

Kunz Power systems, Mobile / Stowable diesel generator sets are built with heavy-duty 4 cycle industrial diesel engines for reliability and fuel efficiency, brushless rotating field alternators with class 'H' insulation, heavy-duty steel trailer with integral fuel tank and digital control systems.



KUNZ MOBILE DIESEL GENERATOR PRODUCT LIST

| Generator Prime Model | Engine Brand Model | Alternator Brand Model | Tank Capacity (Lt) | Trailer Capacity (Kg) | Prime kVA |
|-----------------------|-----------------------|------------------------|--------------------|-----------------------|-----------|
| KZM20PS | Perkins 404D-22G | Stamford BCI184E | 284 | 1588 | 19 |
| KZM30PS | Perkins 1103A-33G | Stamford BCI184G | 473 | 1588 | 30 |
| KZM65PS | Perkins 1104A-44TG1 | Stamford UCI224F | 568 | 2268 | 66 |
| KZM80PS | Perkins 1104A-44TG2 | Stamford UCI224G | 568 | 2268 | 81 |
| KZM100PS | Perkins 1104C-44TAG2 | Stamford UCI274C | 568 | 3175 | 100 |
| KZM140PS | Perkins 1006TAG | Stamford UCI274E | 757 | 4536 | 139 |
| KZM150PS | Perkins 1006TAG2 | Stamford UCI274F | 757 | 4536 | 149 |
| KZM180PS | Perkins 1106C-E66TAG4 | Stamford UCI274G | 757 | 4536 | 180 |
| KZM230PS | Perkins 1306C-E87TAG4 | Stamford UCIDI274J | 757 | 5443 | 229 |
| KZM250PS | Perkins 1306C-E87TAG6 | Stamford UCIDI274K | 757 | 5443 | 250 |
| KZM350PS | Perkins 2206C-E13TAG2 | Stamford HCI444E | 1893 | 8164 | 350 |
| KZM400PS | Perkins 2206C-E13TAG3 | Stamford HCI444F | 1893 | 8164 | 400 |
| KZM450PS | Perkins 2506A-E15TAG1 | Stamford HCI544C | 1893 | 8164 | 464 |
| KZM500PS | Perkins 2506A-E15TAG2 | Stamford HCI544D | 1893 | 8164 | 513 |

Standard Generator Features

- AMF, Automatic mains failure unit
- Heavy duty type, water-cooled diesel engine
- 50°C tropical type radiator
- Lead acid battery
- Heavy duty, brushless type alternator
- Industrial type silencers
- Control panel with digital-automatic main control module
- Anti-vibration mountings
- Base fuel tank
- Road Trailer
- Weather and sound proof canopy
- Working accessories compartment
- Cable drum
- Reflecting stripes



Optional Features

- External fuel tank
- Automatic load transfer panel
- Automatic fuel transfer system
- Automatic synchronization and power sharing systems
- Sound attenuated enclosure
- Residential silencer
- Pneumatic, hydraulic or electric types light towers
- Trailer with 100 km/h towable speed
- Output power cables
- Protection circuit breaker



Engine



KUNZ Power Systems manufacture a series of diesel generators that use world class, United Kingdom origin Perkins diesel engines. Perkins is one of the top diesel engine manufacturers in the world with parts and service organizations located worldwide and we can provide full range of Perkins.

Deepsea

Kunz supplies U.K. origin Deepsea control modules as a standard option in all of its products regardless of power differences.

Accessories

Kunz provides following accessories with mobile generators sets;

- Cable drum
- Working accessories compartment
- Light tower

Alternator



KUNZ has chosen recognized industry leader Newage - Stamford's self - exciting alternators and we are currently using most of Stamford ranges which has been manufacturing in Stamford factory in United Kingdom. Moreover, Kunz strongly recommends the range of alternators produced by Cummins Generator Technologies.



GENERATORS WITH FLOODLIGHT SYSTEMS

Kunz Flood Light installations provide both lighting and electricity at construction and mining sites, road works, civil engineering, emergency rescue, defense, industrial, government and events applications worldwide and many other places of work.

Kunz Flood Light Generators are built, designed and tested for the most extreme conditions. The highest quality Perkins engines and Stamford alternators are used and the floodlight generator offers complete flexibility with 360 degree rotation. Lights consist of 4 or 6 units lamps with 1000W or 1500 W capacities.

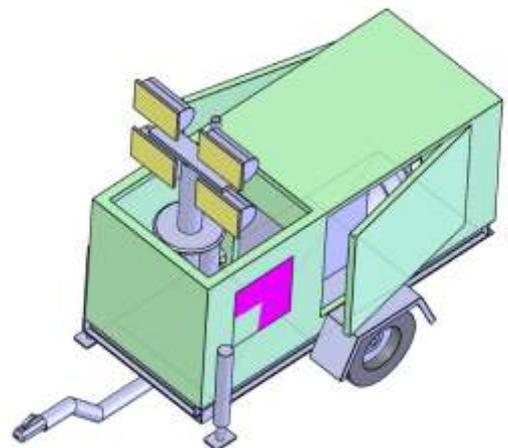
Kunz Power Systems
deliver power
Wherever, Whenever
and However, it is
needed!

Features

- 360 degree mast rotation
- 120 Volt and 240 Volt outlets
- Perkins Engine
- Stamford Alternator
- 1 year 1500 hours warranty
- Fully galvanized chassis according to StVZO
- Protection Circuit Breaker
- 4x1500kW or 6x1000kW metal halide lights
- All-steel mast up to 10 meters
- Extendable support for a safe stand
- Weather and Sound Proof Canopy
- Mounted on a rugged purpose built, 2 wheel, road going trailer
- Can be individually adjusted both vertically and horizontally to any angle before erection

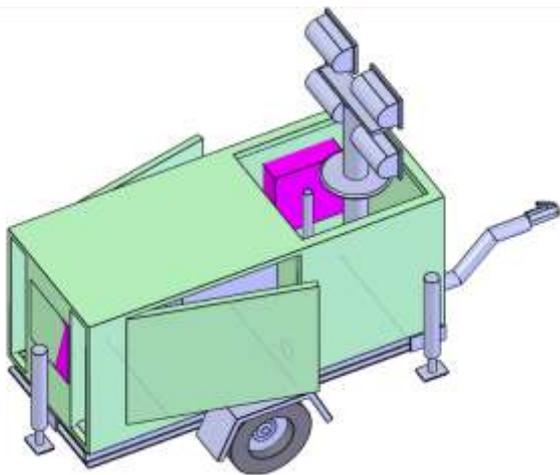
Mast

- ✓ 7 sections telescopic mast up to 10 metres
- ✓ Galvanized with 20 micron guaranteed for outdoor applications
- ✓ Extremely compact structure
- ✓ 360° manual rotation
- ✓ Mast mounted inside a super silenced generating set



Chassis

- ✓ Welded, steel tube, 2 wheels, road tyres 175 R13
- ✓ Rubber in torsion suspension
- ✓ Single axle
- ✓ Metal mudguards
- ✓ Jockey wheel adjustable in height
- ✓ EC approved brake and towing system
- ✓ Automatic reverse
- ✓ 4 quick levelling stabilisers
- ✓ Central lifting hook



Hydraulic system

- ✓ Hydraulic raising/lowering of the first mast section with a cylinder 30 mm stem
- ✓ System of stainless steel ropes for the raising/lowering of the other sections of the mast
- ✓ Safety anti-slip valve
- ✓ Safety system to lower the mast in case of damage of the hydraulic system

GENERATORS WITH FLOODLIGHT SYSTEMS



DIESEL GENERATOR SYSTEMS

GROUND POWER UNITS - GPU

Driven by a Perkins diesel engine coupled with a Stamford alternator, KUNZ GPUs (Ground Power Units) are based on the solid state technology thus assuring excellent performance.

Our German engineered power units are suitable for servicing 400Hz AC and 28 Volt DC electrical systems on all types of aircrafts.

Providing Ground Support Solutions, KUNZ GPUs are being proposed in a range of 40-140kVA with their simplicity, ease of service, maintenance, reliability and performance.

Kunz will complete the launch of GPUs in the last quarter of 2012.

Specifications

- 40 – 140 kVA
- Mounted on 4-wheel trailer with full braking system
- U.K. origin Perkins diesel engine
- UK origin Stamford brushless alternator
- DeepSea control module
- Weather and Sound Proof Canopy
- Integral Cable Trays
- Fuel tank with sufficient capacity to give 8 hours full load running



PORTABLE GASOLINE GENERATORS

Kunz's durable, dependable portable generators are designed to deliver power wherever you are. With sizes up to 5000 watts, you can take your power with you wherever you need it.

Features

- The Kohler OHV engine incorporates splash lubrication and provides long life.
- Large-capacity metal fuel tank with incorporated fuel gauge provides durability and extended run times.
- Low-oil level shutdown automatically safeguards engine from damage.
- Hardened steel tube frame for added strength and durability.
- Low fuel consumption will save your money and time.

Get power when
and where you
need it, no matter
where you go

Engine

KUNZ provides its portable generators with Kohler engines. These well engineered and durable Kohler engines provide low fuel consumption while the large-capacity fuel tank allows for longer runs between fill-ups. Combined, these two features will save your money and time.



Alternator

KUNZ has chosen Italy origin, single phase (three phase is an option), synchronous and highly efficient Linz brand alternators which have the possibility to supply any type of load with wide selection of accessories.



Base Frame

KUNZ supplies U.K. origin Deepsea control modules as a standard option in all of its products regardless of power capacities.

KUNZ PORTABLE GASOLINE GENERATOR PRODUCT LIST

| Generator Model | Engine Brand Model | Alternator Brand Model | Tank Capacity (L) | Consumption (L/h) | Prime kVA |
|-----------------|--------------------|------------------------|-------------------|-------------------|-----------|
| KPG2500 | Kohler Ch270 | Linz SP10SD | 4 | 1,3 | 2,5 |
| KPG3500 | Kohler CH395 | Linz SP10SE | 7 | 2,1 | 3,5 |
| KPG5000 | Kohler CH440 | Linz SP10MG | 7 | 2,6 | 5 |

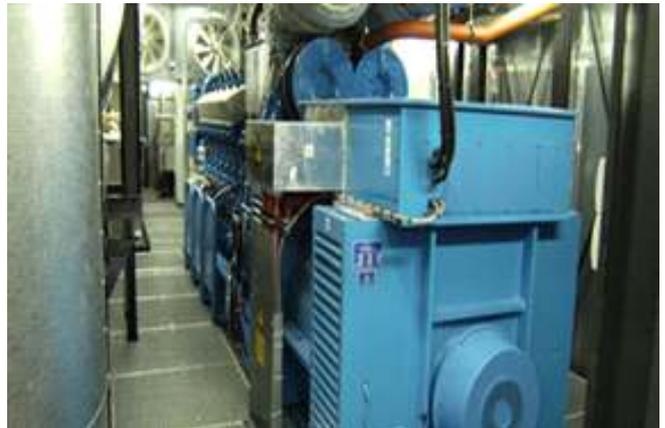
HEAVY FUEL OIL GENERATORS

Kunz offers a range of turbocharged & intercooled Medium Speed Heavy Fuel Oil (HFO) Generator Sets running also on diesel, heavy fuel, vegetable oil, animal greases and at engine speeds between 720 rpm and 1000 rpm with outputs up to 2000 kW per unit.

These HFO Generator Sets are designed and completely installed to operate in continuous power applications for base load power plants.

The advantage of Medium Speed HFO Generator Sets is the considerably low maintenance and operating costs. For example, HFO sets can go more times longer between overhauls, between scheduled maintenance and one and much more times inexpensive to operate on a per kilowatt-hour basis compared to high speed diesels. Medium Speed Generator Sets are able to burn cheaper heavy fuel oil while High Speed Generator Sets use the more expensive lighter fuel oils including distillate or diesel oil.

As Kunz is an independent, Germany origin Generator Set Manufacturer, we can take advantage of working with premium worldwide



engine manufacturers. Kunz is one of the few power providers that can guide you through to the correct application of engine type that would be most suitable for your project.

For further technical and commercial information and advice on product selection please contact us.



OFF-GRID SOLAR POWER

Solar power is one of the most promising sources of energy for the 21st century. As fuel prices climb, the efficiency and affordability of off-grid systems continue to increase, making solar power not only competitive but also a smart alternative.

The sun is a clean, safe and limitless energy source and this makes Kunz Solar Generators not only an environmentally friendly way of producing power but also a valuable and wise long-term investment.

Solar power is an excellent investment for your business and we at Kunz Power Systems are ready to power your business.

Kunz Power Systems strives to provide the best power solutions to suit our customers' power needs. We are using high quality Solar Panels, Batteries and accessories on all of our Kunz Solar Generators. Our Solar Powered mobile generators use clean solar energy to produce pure sine wave power. Moreover, mobile solar is clean and quiet, combining durable mobility and ease of use in a financially and environmentally friendly package. There are many benefits to installing solar power on your business;



Financial

Even though the original cost for a solar generator is higher than some petroleum generators, it will save you money in the long run. Rising energy costs and government incentives like feed-in tariffs, your organization will be able to significantly lower its electricity bills with the energy generated from solar power.



Environmental

The environmental benefits of solar power are well known. By installing solar on your premises you can significantly reduce the amount of greenhouse emissions your business produces. Our solar systems are replenished with clean fuel each day as the sun crosses the sky – fuel that has no environmental impact. You never need to cringe at the noise, smell and emissions of a mobile solar generator – there are none.



Social

Improve your brand image, and marketability and become known as a green business with solar power. Improve societal perception of your business and see the value of your business grow. Help your business in staff acquisition and retention by demonstrating your environmental commitment. In addition to this, many companies now require suppliers to have 'green' credentials and solar power is the perfect display of environmental stewardship for your company.

MOBILE SOLAR GENERATOR

Hybrid Solar System

Much like new generation Hybrid automobiles Kunz's Mobile Solar Generator include an onboard diesel generator that is automatically activated only when needed.

In solar-only mode, Kunz systems can provide continuous clean power from the sun. With our Hybrid option, you can power on, using one of the most technologically advanced clean generators in the world. Kunz's Mobile Solar solution provides the cleanest overall solution to long-term off-grid power needs, while using the least amount of diesel fuel and environment friendly.

KUNZ has designed and assembled Mobile Solar Power System which draws 9,234 W solar powers first and followed by 43, 68 kWh lead-acid batteries and finally relying on 53 kW back-up diesel generators power as the final fallback for the power.

UNIQUE DESIGN

DURABLE MOBILITY

German made trailer-based mobile solar generator can be transported by truck, car and etc.

EASY TO USE

Rock solid aggregate is easy to set up and start up at any job site. One person can produce pure sine wave easily

COMPACT DESIGN

All components are stored in the canopy and synchronized with each other

CONTINUOUS POWER

Solar power combining with 24 unit 48 Volt batteries and two units diesel generators provide continuous power



KUNZ's unique SOLAR HYBRID MOBILE GENERATOR design consists of following components;

- 9, 234 W solar system
- 43, 68 kWh lead acid long lasting batteries
- 53 kW synchronized diesel generator set

WHEREVER, WHENEVER AND HOWEVER IT IS NEEDED..

This unique design provides innovative solutions for a variety of applications;

Off-grid buildings

KUNZ Mobile Solar generator has been designed especially for residential areas where the utility grid is unavailable. These off-grid house owners are demanding our mobile solar generator, because it is easy to install and use and it saves their money.



Telecommunication industry

Telecommunication is a well-developed industry which inquires not only continuous but also mobile and remote power stations. At this point, KUNZ's this design exactly suits with our customers which needs power at top of the mountain for their base stations or remote areas without utility power.



Disaster areas

Natural disasters are inevitable and immediate power supply has always been requested. This superior technology provides immediate power supply and it is a perfect match for disaster recovery. Because it is mobile and provides constant power.



Construction sites

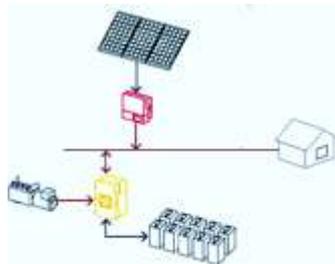
Construction areas tend to demand high loads at instant times and our mobile aggregate is capable of providing enough power to sites which need stable Energy.



BY COMBINING DIFFERENT ENERGY SOURCES, KUNZ STRIVES TO PROVIDE BEST POWER SOLUTIONS TO SUIT CUSTOMERS' POWER NEEDS.

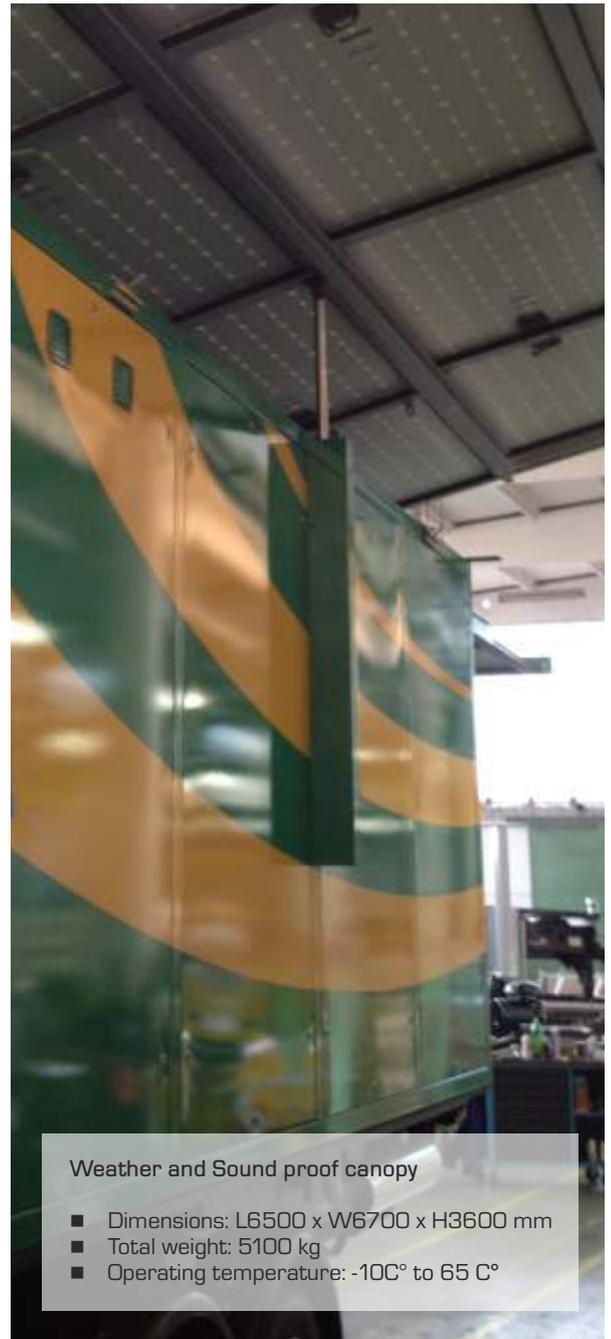
Solar Photovoltaic System

- 28 monocrystalline solar modules each with 333 Wp,
- 96 cells / module
- Total system output: 9324 Wp
- 28 panels in 3 different strings: 12 panels, 12 panels, 4 panels
- Inverters: 3 battery and 1 unit PV inverter
- DC Inputs: DC1a-12 panel, DC1b-12 panel and DC2 4 panel
- Voltage/Current: DC1a-656, 4 V / 6, 09 A
DC1b-656, 4 V / 6, 09 A
DC2-218, 8 V / 6, 09 A
- 910 Ah battery capacity



Diesel Generator

- 2 units Perkins 1103A-33G diesel engine
- 2 units Stamford BCI184G alternator
- Synchronization Control Panel
- Rated power 66 kVA, 1500 rpm
- Deepsea 7320 AMF control module
- 3 pole protection circuit breaker
- Integrated fuel tank



Weather and Sound proof canopy

- Dimensions: L6500 x W6700 x H3600 mm
- Total weight: 5100 kg
- Operating temperature: -10C° to 65 C°

Batteries

Due to their closed gel technology, the solar batteries enable maintenance-free operation. The excellent cycle stability provides the greatest reliability for the supply of stand-alone systems or consumers away from the grid. In addition, the closed cycle of potential recyclables within a certified recycling system protects the environment.

- Solar lead gel battery, each 2.00V
- Rated voltage: 48 V
- Capacity: 910 Ah
- Energy storage capacity: 43, 6 kWh



Battery and PV module Inverters with Remote Control

This unique design is equipped with two different type inverters which are for PV module and battery. PV inverters are one-way inverters with a broad input voltage range and a maximum DC voltage of 1,000 V, as well as an extremely large MPP voltage range of 150 to 800 V.

Battery off-grid inverters are designed to control the most important charging and discharging processes and it increases the electrical endurance of our lead batteries. KUNZ Mobile Solar unit provides remote control to configure the system remotely.

AUTOMATIC LOAD DISTRIBUTION PANEL

This panel allows the formation of off-grid and hybrid system. As the main AC distribution for the connection of generators and for supplying loads of up to 300 kW, between two and 12 three-phase clusters, each consisting of three battery inverters and connected in parallel using this panel. To simplify installation, all panels are completely wired and have a main connector for generators, the load distribution and PV systems.

Technically, KUNZ's Automatic Load Distribution Panel is equipped with three Solar(PV) and two units diesel generator inputs while it allows input and output for battery charger, battery inverters and grid for consumers.

- Rated voltage: 230 V (LN), 400 V (L1, L2)
- AC Voltage range: 172,5 V - 265 V, 300 V - 433 V
- AC current: 3x80 Amper



PV Modules

KUNZ's PV modules are European origin and they are as unique as like the whole design. 28 panels are supplying over 9 kW.



Batteries

24 units, each 2 V batteries, are providing 910 Ah and 2000 A with highest longevity and cycle stability. It saves the sun or daytime energy to provide enough power at night time.



Diesel Generator

Two units synchronized 33 kW diesel generators are consist of Perkins engine and Stamford alternator to provide continuous power no matter what.

STAND ALONE OFF-GRID SOLUTIONS

PROJECT

With years of experience in projecting and implementing, we have experienced that increasing performance starts in the planning phase. Our power team has gained various skills in order to evaluate, plan and develop projects to realize optimal solutions for your energy requirements.

- Evaluate and plan feasible projects
- Design and development
- Process execution
- Risk management

INVESTMENT

After all, we are very sure that only the best solar system also offers a secure investment and if you invest in the most feasible and efficient system, you can look forward to long-term yields. KUNZ team tracks global developments in solar markets as well as financial markets and regulations. This expertise allow us to make decisions and to ensure providing professional services to our valuable customers.

- Investment analyzes and consultation
- Asset management
- Risk management

TECHNOLOGY

KUNZ's standardized system concept stands for excellent products. We offer top-quality "made in Germany" technology at competitive prices. As a pioneer in system design, we are always ahead of every new development so that KUNZ customers can easily keep up with the solar industry's rapid technological advancements.

- Cutting edge technology
- Top quality German made PV modules
- Efficient Inverters
- Remote monitoring and controlling equipments
- Cables and connectors

ENGINEERING

All the stages of engineering , from projecting to implementing and finishing, were established at the German production site in Mannheim. This is precisely how KUNZ ensures the best quality throughout the entire engineering process.

- Full system design
- Mechanical and Electrical assembly
- Construction management
- Comprehensive test run

SERVICE

Although quality of KUNZ products is certified by external and independent testing institutions, we provide fully integrated power plant service. We make this happen by turning data into powerful analytics so we can resolve events in real time and provide comprehensive service solutions.

- Integrated maintenance
- Remote monitoring
- Comprehensive support
- Repair work



DESIGNED FOR COMMERCIAL BUILDING, HOSPITALS, SCHOOLS, REMOTE COMMUNITIES, DEFENCE, MINING, OIL APPLICATIONS AND SO ON...

KUNZ Solar systems are your reliable power supplier anywhere in the world where access to a public grid is not available. Wherever and however it is needed, KUNZ's experienced solar team can deliver comprehensive solutions to you. Our exclusive project value chain allow us to support your projects from very beginning and provide solutions which are reliable and cost effective.



SOLAR FLOOD LIGHT GENERATOR

NOT ONLY A TOWER LIGHT BUT ALSO SOLAR GENERATOR...

KUNZ flood light solar generator provides both lighting and at electricity at construction and mining sites, road works, civil engineering, emergency rescue, defense, industrial, government and events applications worldwide and many other places of work.

This SKZL series portable solar tower which light up a large area without making any noise and without having any external power supply. These High-Performance LED lights can be raised to 7 m to cover the large area easily with a bright light. You can easily choose the appropriate combination of solar power and lights for the best performance you require. This product does not require Gas, Petrol or Diesel to run and it is totally noise free.

Mobility

Because solar energy is located on-site, close to a customer's consumption, solar can limit inefficient waste of heat from central electric power plants as well as the expense and energy losses associated with distribution to the end users. Solar power is a viable choice for almost everyone because it can be implemented easily in urban, suburban and rural environments.



**SKZL327**

Lights:
4x55 W, 24 Volt DC SMD-LED flood lights

Luminosity:
100 lumens per watt, 22.000 total lumens

Telescopic Mast:
8 meter and lights operate at any height

Solar:
2 x 327 W mono-crystal PV module

Battery:
2 x 180 Ah Lead Gel Battery

Trailer:
3,14m x 1,65m x 3,7 m (L x W x H)

Air Compressor:
24 Volt DC compressor at 1.8 bar: 9 Amps

Charge Controller:
65 A MPPT Charge Controller

Battery Watch:
60 A Battery Watch

Inverter:
230 V Pure sine-wave 1000 Watt Continuous power



Control Panel

No Fuel and No Noise

Solar energy has no fuel price volatility like fossil and nuclear fuels. Solar energy systems can be properly sized and configured to be highly reliable and in turn will provide long-term fixed prices for your electric power needs. This product is totally noise free.

Maintenance free

Solar roof and ground mount systems require minimal maintenance as there are limited moving parts.

Retail Benchmark

Solar energy in some areas are directly competitive with retail prices at the customer's site and can supplement a customer's electricity purchased from the local utility. Moreover, solar power is well-suited to match peak energy needs as sunlight hours typically correspond to peak demand periods when electricity prices are at their highest.

This correlation increases the value of solar solutions in comparison with other types of renewable energy that are not in alignment with peak demand periods.

CONTROL SYSTEMS

Control Panel

All Kunz's products are supplied as standard with a comprehensive digital control panel offering a user friendly interface. Whether it's a simple Manual Start Control Module or a complex Synchronizing Controller with Advanced PLC functionality,

We have right solutions to meet and exceed customer expectations.



- Kunz's digital control panels are providing integrated digital governing and voltage regulation with both analog and digital metering.
- All Kunz DCP's are electrically robust and give you fully reliable cost effective solutions.
- Suitable for use premium control, flexibility for demanding applications paralleling and power transfer control for generator sets.

Automatic Transfer Panel

Automatic Transfer Panels are an integral part of our power control systems. Kunz Power Systems provides a complete range of separate standby and emergency automatic transfer panels. Key features of our standard transfer panels include;

- Cost effective and ease of installation and service
- Microprocessor based control technology for easy operation
- Design of the control units and boxes enables thousands of switching cycles
- All our control panels are either three or four pole
- Provides all paralleling functions including generator control and protection, synchronizing, load sharing and load governing.
- Panels are available from 40 Amps to 4000 Amps.



Kunz Synchronization Systems

Kunz Synchronization Systems are designed and developed to meet complex power system requirements with simple and flexible operational performance.

The use of new technology controllers for both single and multiple gen-sets operating in standby or parallel modes with various HW modifications allow the Customer to select the optimum type for a particular application.

Built-in synchronizer and digital isochronous load sharer offer total integrated solution for gen-sets in standby, island parallel or mains parallel with native cooperation of up to 32 gen-sets.

Powerful graphic display with user-friendly control allows even new users to find quickly the required information.

Integrated fixed and configurable protections;

- 3 phase integrated generator protections (U + f)
- IDMT overcurrent + Short current protection
- Overload protection
- Reverse power protection
- Earth fault protection
- 3 phase integrated mains protections (U + f)
- Vector shift protection
- All binary/analogue inputs free configurable for various protection types:
 - History Record Only
 - Alarm Only
 - Warning
 - Offload
 - Slow stop
 - Breaker Open & Cool down
 - Shutdown
 - Mains protect
 - Sensor fail
- Additional 160 programmable protections configurable for any measured value to create customer-specific protections

Features

- Support of engines with ECU (J1939, Modbus and other proprietary interfaces); alarm codes displayed in text form
- AMF function
- Automatic synchronizing and power control (via speed governor or ECU)
- Base load, Import/Export
- Peak shaving
- Voltage and PF control (AVR)
- Generator measurement: U, I, Hz, kW, kVA, PF, kWh, kVAhr
- Mains measurement: U, I, Hz, kW, kVA, PF
- Inputs and outputs configurable for various customer needs
- RS232/RS485 interface with Modbus support; Analog/GSM/ISDN/CDMA modem support; SMS messages; ECU Modbus interface
- Event-based history (up to 500 records) with customer-selectable list of stored values; RTC; statistic values
- Integrated PLC programmable functions
- Interface to remote display unit (IG-Display)



ENCLOSURES

Kunz Power Systems is fabricator, manufacturer and supplier of weatherproof enclosures and container packages for outdoor usage in harsh weather conditions. Kunz's engineers have been developing advanced acoustic performances to meet with all requested technical specifications.

The power generators are large, noisy and complex machines that require special care where they are sited. Our enclosures are manufactured 'ready to connect' in order to ease and speed up site installation and commissioning. This eventually reduces costs even in remote parts of the world where installation equipment, material and specialists are mostly limited and costly.

Kunz supplies factory tested complete packaged Enclosures with high standards, complying with complex, safe and environmental regulations of very critical rural areas where these strict environmental and safety requirements limits our customers operations and costly.





ENCLOSURES

DUMMY LOAD TESTS

Kunz Power Systems provides the capacity to meet acceptance, loading, testing and data recording requirements for the following standards of emergency and stand - by power systems.

European: ISO8528, IEC364-7-710, EN60034-9.
USA: NFPA70, NFPA110.

These standards require emergency power supplies used in buildings, hospitals, construction areas and public gathering places etc. to undergo regular maintenance procedures.



At Kunz we are testing our generators at a supplemental load of 25% of nameplate rating for 30 minutes, followed by 50% of nameplate rating for 30 minutes, followed by 75% of nameplate rating for 60 minutes, for a total of two continuous hours. Furthermore, KUNZ tests its sets by dummy loads again running at 100% of the rated power capacity for 15 minutes.



LOAD TESTS

SALES FORCE



The innovative and challenging Kunz Sales Force can meet your power needs wherever, whenever and however it is needed. Kunz's high spirited young generation is committed to work with enthusiasm, persistence and pride in order to suit business requirements.

This young and time oriented Sales Force provides a vital and constant support structure to our customers with an advanced engineering skills and experiences.

The philosophy behind all Kunz Power System sales is based upon the basic principle that we exist in business to provide goods and services to customers who have a need.

Within our business, we promote a culture which attracts people who welcome change, one which gives freedom for experimenting, innovation and constant improvement in self and product.

We have as an integral part of our organization, an inside Sales Force that is our link to our customer base as well as our principals. Our people provide sales support to our field engineers with immediate access to sales files, quotations, and current order status. We are committed to this level of communication within our organization as well as our customers and principals.

AFTER SALES SUPPORT

The times are long past that machineries were judged solely on the basis of power output and price. In a competitive world today, customers are looking for that how they can make a profit from the machines they run. At this point, readiness for use, operating costs and availability are playing a significant role. The vital ingredient in all of these things is service.

Kunz's perception of service concept is being differentiated itself from classical machinery service concepts and this perception exceeds customers' expectations. Kunz Power Systems is serving its customers not only situation based problem solving but also comprehensive support. Our comprehensive support consists of following activities;



Spare Parts

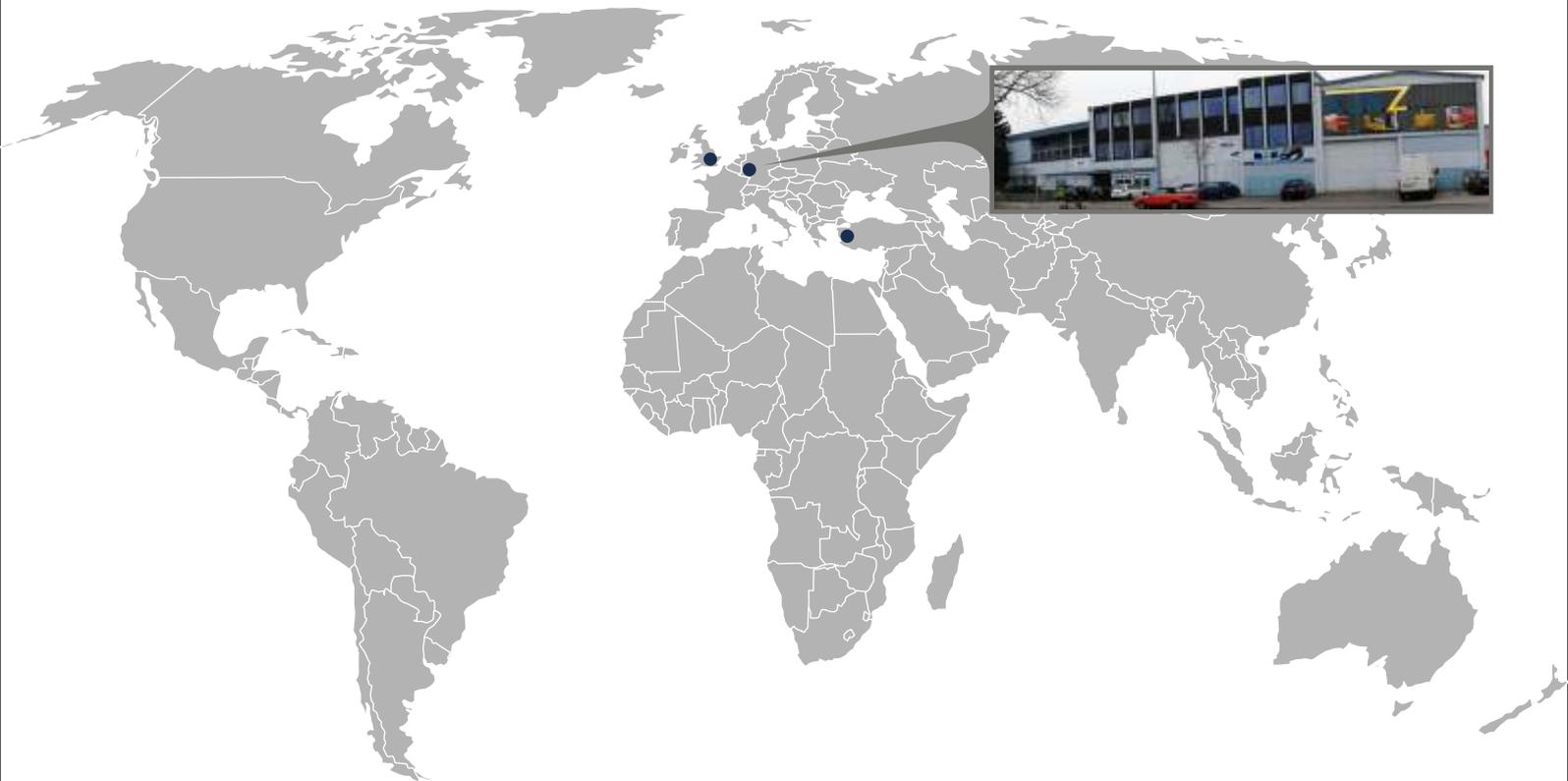
We are ensuring spare parts availability and this includes organizing shipment and fast delivery to ensure you receive the right parts at right time.

Globally Accessible

Kunz has offices in U.K., Turkey, Germany and Iraq where we set up workshops, trained personnel, invested in tools and spare parts and organized a 24/7 service. In other areas where there is no adequate service structure in place, we cooperate with reliable companies which we provide them with qualifications and the authorization to carry out service so they can maintain the service.



Truly Global, Fully Reliable



KUNZ

HANDELS - & PRODUKTIONS GMBH

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