


CREATING POWER SOLUTIONS.



## Power Solutions

Hatz Systems – Made in Germany



A detailed, close-up photograph of a Hatz diesel engine's internal components. The image shows a piston with its rings, a connecting rod, and the cylinder head. The metal surfaces are polished and show signs of wear. The lighting is dramatic, highlighting the textures and shapes of the engine parts. A semi-transparent blue box is overlaid on the left side of the image, containing white text. Below the box, a grey bar contains the text 'Hatz Diesel'.

Expertise from Hatz  
diesel engines forms  
the basis for our  
system solutions.

**Hatz Diesel**



# Diesel engines are our core area of expertise

In its history lasting over 130 years Hatz has developed into being a specialist for diesel engines rated up to 56 kW. The basis of all corporate activities is the development and production of high-quality and rugged diesel engines. The performance and reliability of our products are valued by our customers around the globe.

Hatz is an independent specialist in 1 to 4-cylinder **Diesel Engines** and operates on a global scale. Our diesel engines are used in all manner of applications, such as construction machinery, compressors, utility vehicles, agricultural equipment, generating sets, conveying and transportation equipment and in ships. Hatz develops and produces diesel engines in a performance range from 1.5 to 56 kW. Hatz employs around 1,000 staff, over 5% of which work in the Research and Development division. Production is carried out in the company's headquarter in Ruhstorf, Germany.

The Hatz **Systems** business unit develops and produces special systems based on industrial engines. Key areas of focus

include solutions relating to power and energy supply, scalable electricity stations, pumping, generating sets and special applications for the maritime and military sector.

The **Components** business unit produces high-precision metal components especially for the automotive and utility vehicles industry, agriculture, mechanical engineering and industry. Hatz has acquired considerable expertise in the field of serial precision processing from titanium.

The worldwide **Service** network spans more than 500 service centres, 13 of which are the company's own branches and 94 Hatz agencies in 115 countries. This means that we can supply spare parts and replacement generating sets quickly and carry out repairs speedily.



CREATING POWER SOLUTIONS.

## Diesel Engines

Air-cooled engines  
Water-cooled engines  
Additional equipment

## Systems


Power systems  
Pumps  
Marine applications  
Special applications

## Components

Automotive  
Agriculture  
Industry  
Commercial vehicles

## Service

Repair  
Reconditioning  
Spare parts  
Training

A close-up photograph of a server component, likely a power supply or a specialized module. It features a prominent silver-colored heat sink with multiple vertical fins. Below the heat sink, a black plastic connector is visible, with several multi-colored cables (red, orange, yellow, green, blue, purple) plugged into it. The background is dark and out of focus, showing other server components.

Hatz Systems develops  
and produces customer-  
specific, comprehensive  
solutions.

**Hatz Systems**

# Hatz Systems: solutions that inspire

The Hatz Systems business unit develops and produces special systems based on industrial engines. Key areas of focus include solutions relating to power and energy supply, scalable electricity stations, pumping generating sets and special applications for the maritime and military sector.

As a manufacturer of diesel engines with over 100 years of experience, our name is known and in demand all over the world. Less known to a wider audience, but nevertheless for more than 30 years, we have been developing and producing customer-specific systems based on industrial engines in our Hatz Systems business unit.

The range of Hatz systems stretches from 2 kW to several 100 kW of power. The standard range includes popular output levels, all of which can be supplied quickly, in the power generation, pumping technology and marine propulsion product groups. All of our systems can also be fully customised. The Specialist Applications division particularly focuses on individual concepts and custom-

er requirements in relation to systems that have industrial engines as their source of power.

The many years' experience and specific know-how of our engineers, technicians and fitters, and not least our outstanding products, have afforded Hatz a unique position as a generating sets manufacturer.

Our customers really appreciate the fact that they are not only able to choose from a wide range of high-quality, "Made in Germany" products, but also that our Systems team offers project-specific advice, develops customised solutions, manufactures locally and is able to offer rapid assistance through a worldwide service and branch network.

Areas of application Hatz Systems
<ul style="list-style-type: none"> <li>• Industry</li> <li>• Telecommunications</li> <li>• Construction, mining</li> <li>• Craft work</li> <li>• Forestry and agriculture</li> <li>• Harbours and maritime applications</li> <li>• Military</li> <li>• Railways</li> <li>• Special transport</li> <li>• Aid and technical assistance organisations, fire departments, local authorities</li> </ul>

Product areas Hatz Systems	Standard range	Customised design
Power Systems		
• Conventional generators	■	■
• PMG generators	■	■
• APU, battery chargers		■
• Small scalable electricity stations (SES)		■
Pumps	■	■
Maritime applications	■	■
Special applications		■
Hatz Universal Power System HUPS [concept study]	■	■



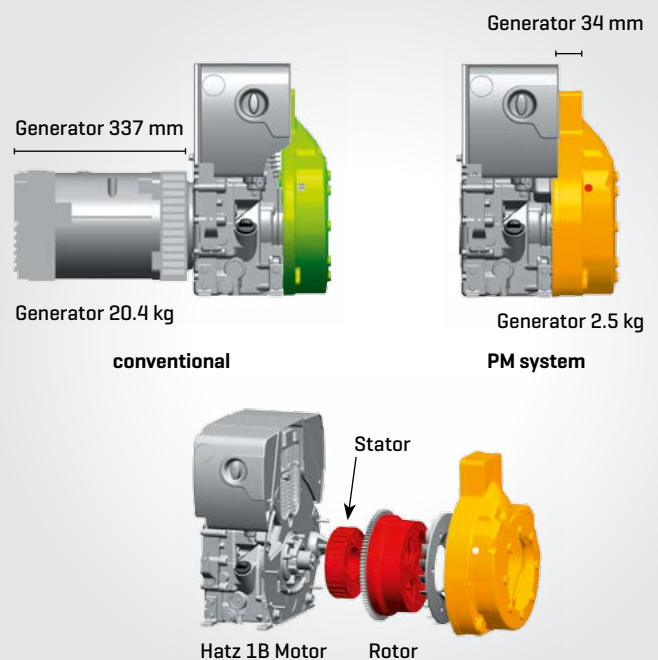
# Conventional or high-end: generating sets

We know what counts. Having the performance and availability of the generating sets right when you need them. This demands high-quality components. So we can supply both conventional technology and permanent magnet generators and state-of-the-art inverter technology.



## Mobile power supply

On site quickly, flexible in use: mobile generating sets from Hatz in conventional and robust designs cover the entire output range up to 35 kVA (230/400 V, 50/60 Hz).



## Engine/generator/system comparison: Conventional vs. permanent magnet [PM]

Compared to the conventional design of the engine / generator unit, the PM construction is 303 mm shorter and 19.9 kg lighter. The contactless PM generator system has a high degree of efficiency at over 80%.

### Hatz generating sets

Whether it is on a building site, in agricultural situations or for garden landscaping, in buildings or on assistance interventions – in fact anywhere where an independent power supply is needed – generating sets from Hatz are the ideal straightforward and reliable power generators.

The various designs are used as mains failure solutions, grid in-feed solutions or as permanent power solutions.

Based on the motto “everything is possible”, we offer you the best solution for your application. Our standard range of conventional generating sets covers a performance spectrum from 2 to 35 kVA delivering 230 or 400 V. Various robust engines are available to choose from.

If you have special requirements in your catalogue of specifications, your generating set is designed as a customised system. We are able to adopt a flexible approach to accommodating space requirements, particular seals, sound insulation, service life, electronics or frame constructions, to name but a few.

### High-end power generation

These generating sets allow us to offer unique performance advantages over conventional generating sets. They combine all the advantages of the systems available on the market in a single generating set.

The intelligent, high-performance electronics combined with powerful and reliable engines and the use of permanent magnet generators result in a family of generating sets that satisfy even the toughest demands in terms of energy generation, consumption, reliability and space requirements.

Hatz PM generators are available in the modular construction system and can therefore be produced and configured to perfectly suit customers' specifications.

### Hatz Systems product range:

- Generating sets
- Battery chargers
- Permanent magnet (PM) generators
- APU (Auxiliary Power Unit)
- Comprehensive systems or components
- Accessories



### High-end generator systems with Silent Pack

Equipped with state-of-the-art electronic technology and the noise-reducing Silent Pack, the extremely compact high-end generator systems are tailored to customers' needs.



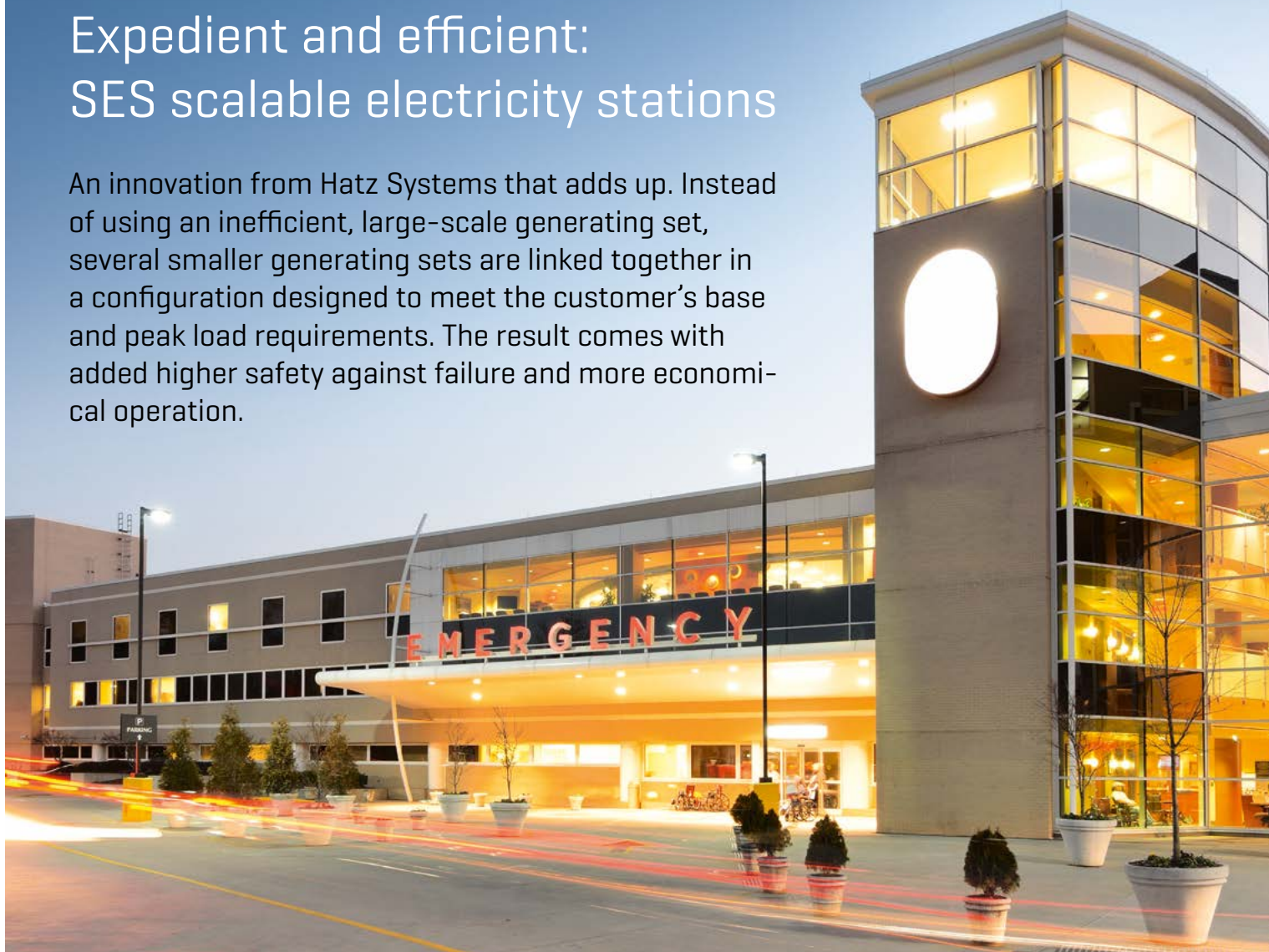
### iPP Intelligent Power Pack up to 3.5 kVA

Compact, low-noise and economical: the iPP from Hatz offers fully-automatic load detection and load control of the engine speed. The models available are 28 V DC, as well as 230 and/or 400 V (50/60 Hz).



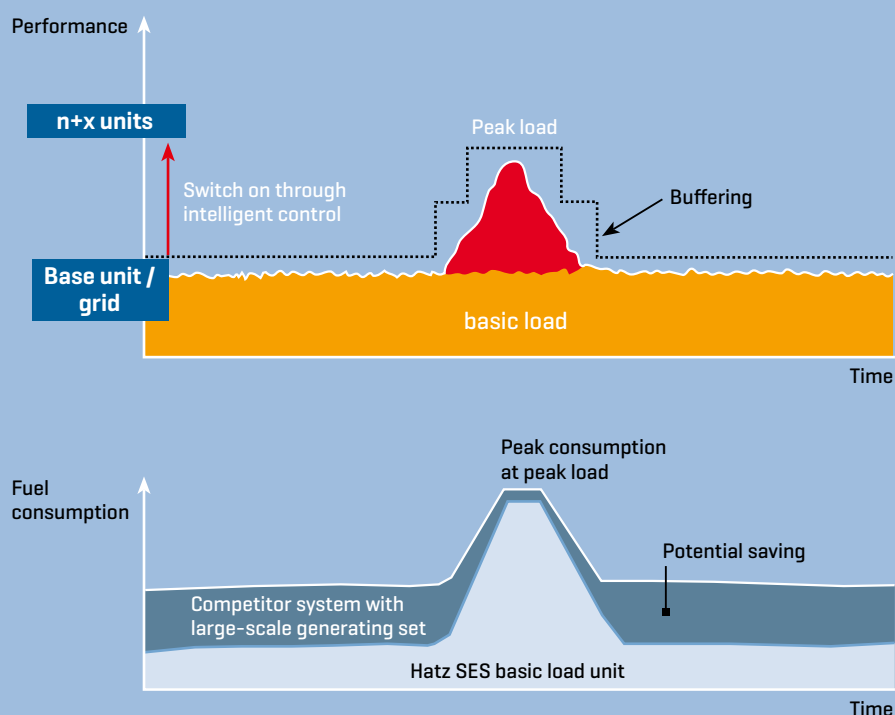
# Expedient and efficient: SES scalable electricity stations

An innovation from Hatz Systems that adds up. Instead of using an inefficient, large-scale generating set, several smaller generating sets are linked together in a configuration designed to meet the customer's base and peak load requirements. The result comes with added higher safety against failure and more economical operation.



## Greater efficiency and flexibility with scalable electricity stations

Hatz SES (Scalable Electricity Stations) are put together in accordance with the basic and peak load. Up to 16 power box units of two generators each can be linked together to form a single system. Intelligent powering up and down controls the demand-led supply of electricity. This ensures that the system constantly achieves its ideal operating point. The result is fuel savings and minimised wear. Where maintenance is required to one single unit, the rest of the system remains operational. Hatz SES can be used as emergency electricity stations or supplier power stations.





### Intelligent load distribution thanks to numerous small units

For the majority of powerful applications, very large engines are normally needed. Their output is only required at peak times, however, and so a large-scale engine primarily runs at less than full load, but still incurs high running costs and fails to meet its optimum operating point.

Hatz has come up with the SES (Scalable Electricity Stations) as a solution to this, which comprises up to 32 generator units.

The system is designed in accordance with the basic and peak loads. As well as making economic sense, the solution features higher safety against failure, significantly smaller space requirements and the customisable module principle which grows with your needs. We have also integrated other advantages into our scalable electricity stations, such as reliability and a long service life thanks to intelligent system control, which will bring you long-term benefits.

The system is ideally suited for use in applications with a high load spread, such as heavy demand during the day and less consumption during the night.

### Scalable electricity stations from Hatz

A power box unit is equipped with two Hatz diesel engines with Silent Packs. In the maximum configuration of 16 units, 1 Megawatt with a response time of less than 10 seconds is possible. The intelligent system control manages the load-dependent automatic switch-on and switch-off of the units. The optional combined heat and power module makes the system even more cost effective.



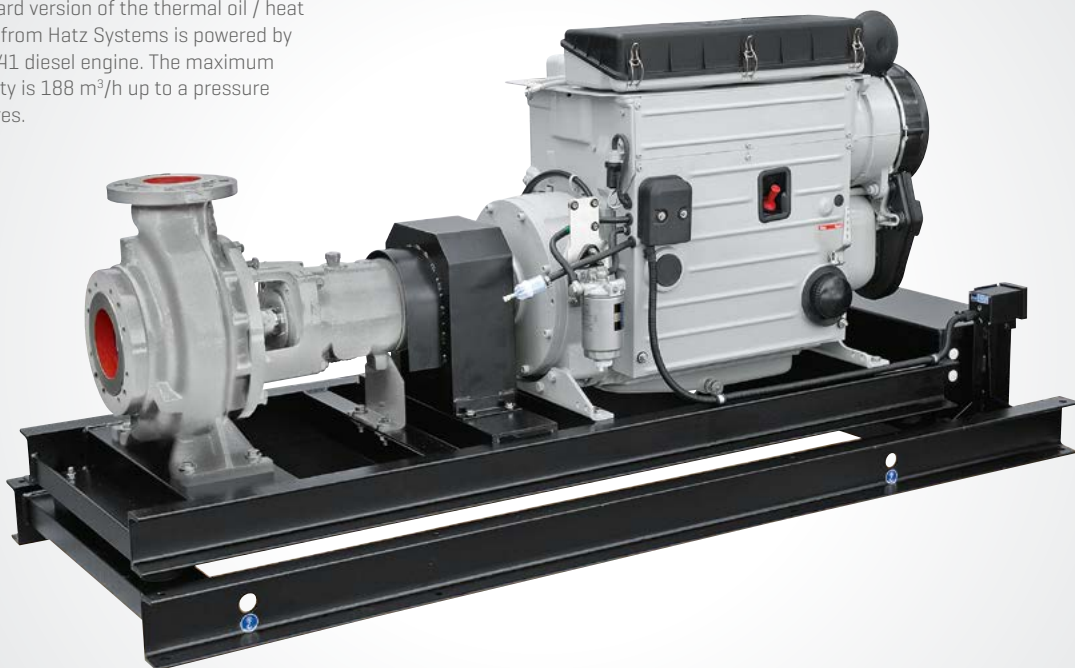
# Long-lasting and powerful: diesel pumps

Hatz supplies robust, resilient, diesel-powered pumps for operation in tough conditions in the construction trade, industry, local authorities, agriculture and deployments of national and international aid organisations.



## Thermal oil pumps

The large standard version of the thermal oil / heat transfer pumps from Hatz Systems is powered by a 4-cylinder 4M41 diesel engine. The maximum pumping capacity is 188 m<sup>3</sup>/h up to a pressure head of 43 metres.





### Optimum pump technology for professionals

From small, easy-to-transport pumps to large, powerful dirt and heat transfer pumps – Hatz offers a broad spectrum of engine-powered pumps for a variety of applications. Ideal for anyone who wants to work quickly, reliably and efficiently when there's no power supply.

Hatz water pumps are equipped with industrial diesel engines and deliver dependability and a long service life.

They operate in accordance with the circulating pump principle and, depending on the design, pump between 45 and 830 cubic metres of liquid per hour in the standard construction.

Whether it be fresh water for irrigating gardens or crops, dirty water or mud on construction sites, drainage in the case of floods or chemicals and cleaning agents in industry – Hatz has the perfect pump for the job, whatever it is.

As well as the rapidly-available standard range, Hatz Systems also develops customised solutions such as mounted pumps on trailers with road approval or Bronze pumps for critical media.

### Hatz Systems product range:

- Clean water pumps
- Trash water pumps
- Sludge pumps
- Sea water pumps
- Chemical liquid pumps
- Thermal oil / heat transfer pumps



#### Mobile dirty water pumps

Hatz Systems' standard range includes self-priming dirty water pumps with tube frames or chassis, covering pumping capacities of up to 140 m³/h.



#### More pressure in the pipe network

Hatz booster pumps stabilise the water pressure in the supply networks of residential homes and industrial buildings. If the pressure falls due to high demand, booster pumps kick in to restore the normal level.

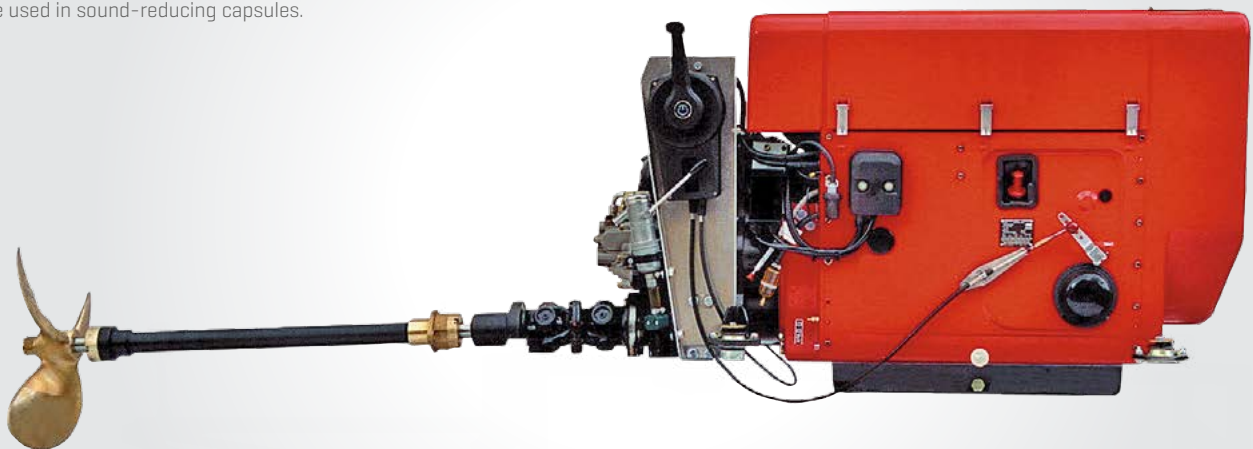
# Compact and versatile: systems for maritime applications

Whether it is on board a simple boat, a barge or on a giant of the high seas - thanks to its compact and robust diesel engines, Hatz offers a variety of systems for the generation of energy, for example, pumps or complete propulsion systems.



## **Complete propulsion systems**

Hatz develops and produces complete boat propulsion systems up to 50 kW, including gears, steering, shaft and propeller. Tried-and-tested, robust and certified industrial engines are used in sound-reducing capsules.





**The Marine Centre of Excellence in Hamburg – the specialist in Hatz systems in relation to Marine**

Propulsion systems and systems for maritime applications are developed and designed at Hatz by specialists in its Hamburg Centre of Excellence. With over 30 years' experience, the experts factor the particular requirements associated with use on water into their designs.

The maritime systems are based on air-cooled diesel engines, which are also certified to class DNV/GL ex engine factory. Consequently, no further remodelling is required. Hatz diesel engines satisfy the exhaust gas standards IMO and BinSchUO and can be equipped with the Hatz Silent Pack depending on noise emissions requirements.

The compact systems are easy to install, taking up only a small amount of space thanks not least to the air-cooling of the engines, which means that no front-end radiator or interface to the ship's cooling system are needed.

In accordance with the modular principle, Hatz offers its customers a broad spectrum of products and services: from individual engine types to complete systems and propulsion units in standard designs or in customised configurations.

The individual generating sets cover a performance range from 2 to 50 kW. All systems are designed according to the type of boat, water or application, in order to deliver maximum cost effectiveness.

As well as personalised, customer-focused consulting services, Hatz offers a global service network with reliable, rapid spare parts supplies and maintenance.

**Hatz Systems product range:**

- Propulsion systems up to 50 kW including gears, control, shaft and propeller
- On-board generating sets up to 30 kW
- Auxiliary systems (e.g. pumps)
- Diesel engines for emergency generating sets such as compressors, pumps and electricity generation



**Ready to go from the factory: engines for customised solutions on board**

Flexible, DNV/GL-certified and low-emissions engines are the basis for all our generating sets – regardless of whether they be emergency pumps, on-board generating sets or emergency generating sets.



**Propulsion solution for small vessels**

The Hatz 1B50 engine with ZF transmission, matching shaft and propeller adapted to your boat. The low-consumption alternative for professional users.

# Modular and flexible: Hatz Universal Power System HUPS

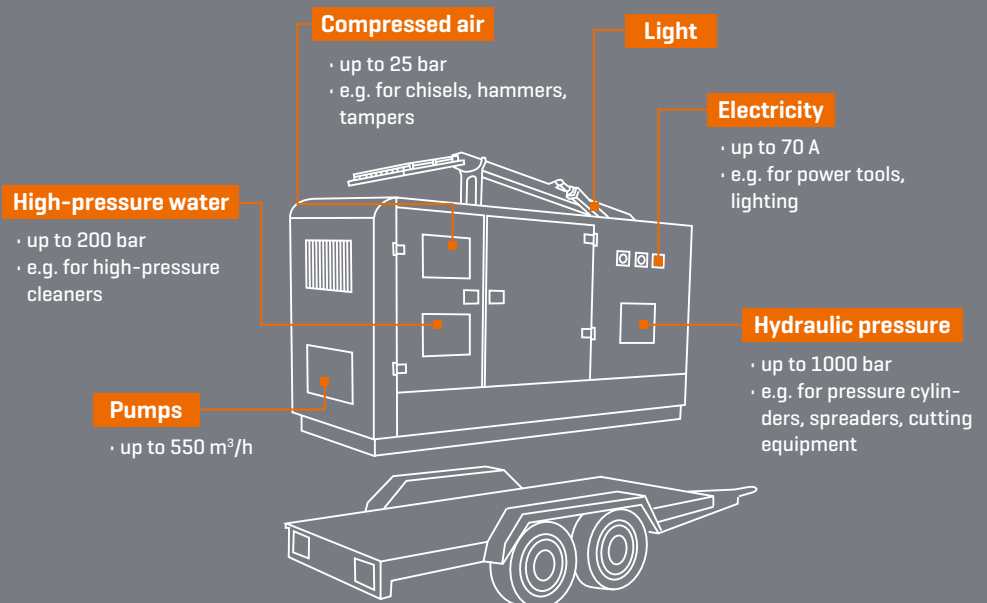
The latest concept study from Hatz Systems combines all the key sources of energy for efficient working in a single mobile generating set: electricity, compressed air, hydraulic pressure, high-pressure water or pumping – all designed with complete flexibility and constant availability.



## The HUPS concept

A system contains all of the key sources of energy needed to operate standardised tools wherever they are needed: electricity, compressed air, hydraulic pressure, high-pressure water and pumps. The freely-configurable modular construction means that only the sources that are actually needed have to be installed.

HUPS can be designed in various sizes as a self-propelling device or as a generating set for mounting on a trailer or loading surface.



Self-propelling or mounted on trailers / loading surfaces

Various sizes of model available



### The combined source of energy for all areas of application

With this application, we are able to resolve all of your energy problems, be they static or mobile. Our Universal Power System combines all kinds of sources of energy in a single generating set. Electricity, compressed air, hydraulic pressure and high-pressure water are freely configurable and can be installed into the HUPS depending on how the generating set is to be used. You therefore no longer need several different basic units, but rather just one system to which everything can be connected. Simple, powerful and supremely professional.

As well as the freely-configurable, compact modular construction which opens up every possibility for combining individual generating sets, you can also connect and use a full range of standard tools.

Self-propelling mobile, mountable on a trailer or on a loading surface, you can finally

carry out your work independently of your main plant. No main engine on a large-scale unit needs to run ever again. You can reduce its operating hours, consume less fuel and stay gratifyingly flexible. Cable reels ensure clean working, even at a distance.

The right solution for all types of work in any environment:

- **Heavy-duty** with 5 different energy sources
- **Mid-size** for anyone wishing to remain mobile and yet needs more than 2 sources of energy
- **Micro** – compact and powerful

HUPS can be used in many different ways and is ideal for:

- Industry
- Agriculture
- Construction
- Craft work
- Military applications
- Aid organisations, fire departments
- Local authorities
- Railways
- Open-cast mining
- Special transport



The Hatz HUPS concept study [Hatz Universal Power System] as a trailer-mounted design. The mobile system includes a 150-bar, high-pressure cleaner, two hydraulic pressure modules delivering 200 or 700 bar, an electricity supply up to 63 A and a 15-bar compressed air compressor. A LED light tower mast is mounted on the roof. The basic energy is supplied by a Hatz 3L41C 25 kW diesel engine and a 25 kVA generator. The system can be operated using a touchscreen display or using the UMTS/GPS module and remote control.

# Customised and focused on the job: special applications

Special needs call for special solutions. Hatz Systems also develops and produces special equipment tailored to specific technical and geographical requirements – from individual items to small batches.



## **Power supply for aid organisations**

A robust and well-protected generating set in a sound-insulating and weather-proof housing. Depending on requirements, 2 to 4-cylinder engines are used providing an output from 15 to 35 kVA.



## **Ultra-compact and mobile generating set**

Small but mighty. This small, portable generating set is simply perfect for use anytime and anywhere. In a sound-proofing shell and uniquely compact, this little power house has been used as a source of energy for mobile surgical vehicles.



### Only the quality is standard here

Generally speaking, individual adaptations to Hatz Systems products can be carried out using system components that are already commonly available. The Special Applications Construction division, on the other hand, also develops and produces solutions that have to satisfy special, somewhat out-of-the-ordinary requirements which cannot be covered with standard components.

This means, for example, that all of the steel parts such as the frame, housing or containers, must be drawn and produced on a customer-specific basis and adapted to the environmental conditions.

This can also include the development and certification of systems which have to be designed in accordance with special standards or particular regulations in relation to noise emissions, electromagnetic compatibility or failsafe operation.

In order to satisfy special requirements relating to generating sets, we work closely with generator manufacturers. This means that even the toughest demands in terms of

voltage accuracy, parallel operation or mains synchronisation can be met.

We have gained considerable expertise over the last few decades in the production of generating sets used in extreme weather conditions. Whether it be  $-40^{\circ}$  or  $+50^{\circ}$  Celsius, be it dusty or soaking wet – if no standard generating set can take the pace of the operating environment, Hatz Systems has the solution. By way of example, Hatz special pumps deliver 15,000 to 20,000 operating hours without a single problem in the harshest conditions imaginable in Africa.

No matter how sensitive the location is, how special the needs are in terms of reliability, size, operability, service or performance, Hatz Systems is your problem-solver for special systems of the highest quality.

### Hatz Systems – areas of application for special systems:

- Aid organisations
- Telecommunications
- Military
- Railways



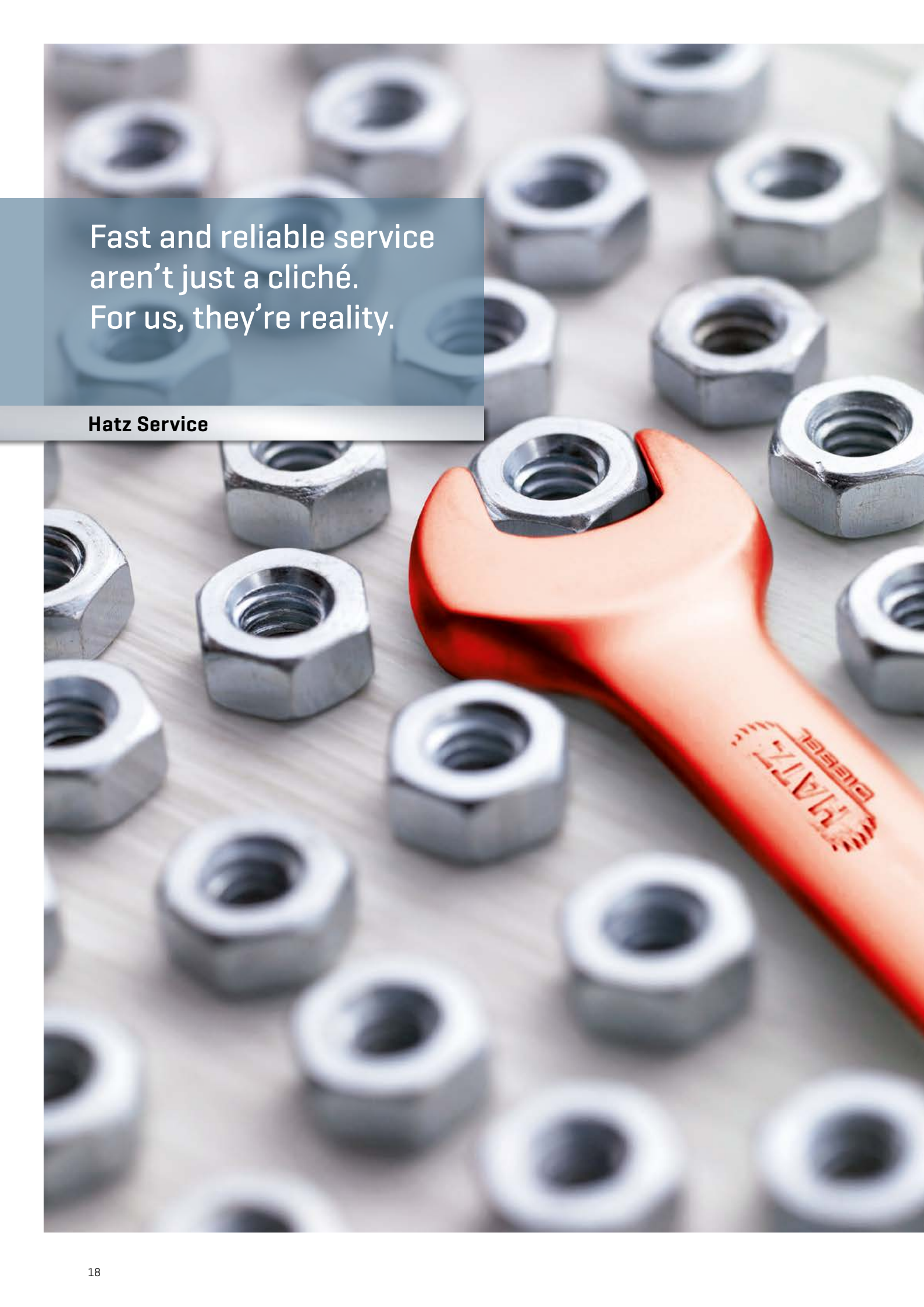
### Volume pumps for irrigation projects

Hatz has particular expertise in the construction of special pumps for the irrigation of dryer regions. These pumps demand a reliable construction and the lowest possible risk of failure.



### Special design for living containers

The space-saving, low-maintenance construction of these generating sets has been developed especially for their installation in living containers in the desert. Special sound-proofing and seals were needed for this.



Fast and reliable service  
aren't just a cliché.  
For us, they're reality.

**Hatz Service**





# Hatz Service: fast and worldwide presence

The worldwide service network spans more than 500 service centres, 13 of which are the company's own branches and 94 Hatz agencies in 115 countries. This means that we can supply spare parts and replacement systems quickly and carry out repairs speedily.

Short sales and service pathways are an essential requirement for international business. Closeness to the customer is paramount for Hatz. We are represented on all the key markets with sales and service companies so that we are able to respond quickly and flexibly to our customers' needs. The central hub for all of our activities is our base in Germany.

## **Repairs, maintenance, conditioning**

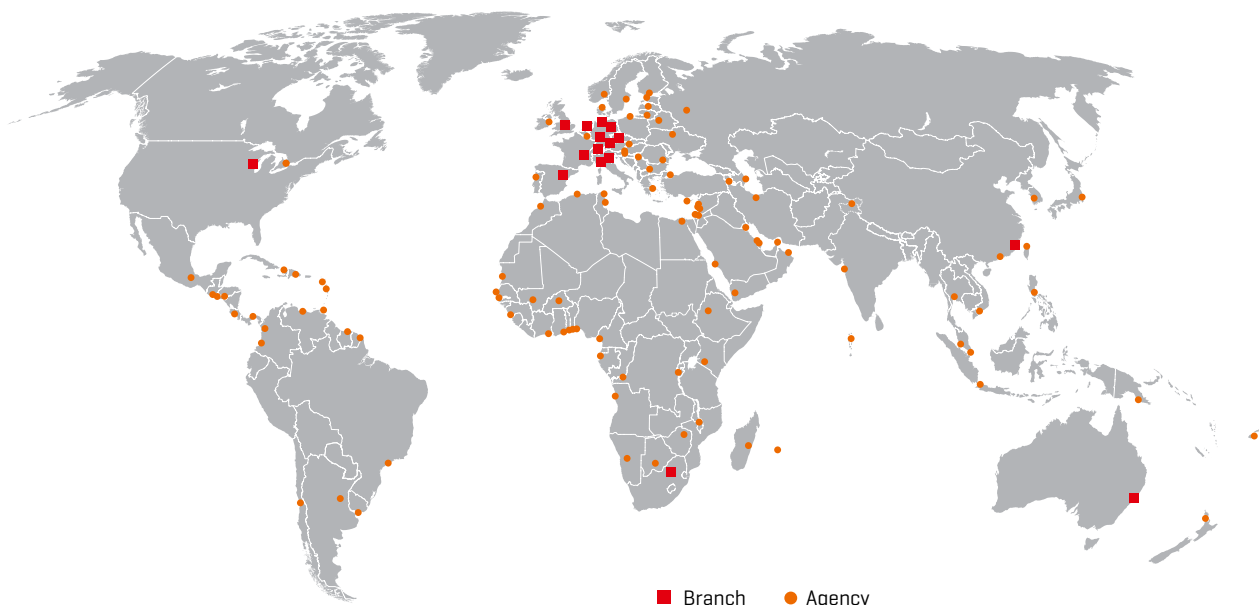
Repairs, regular inspections or even the entire conditioning of Hatz generating sets can be carried out expertly at over 500 service points worldwide. Well-trained staff, comprehensive and speedy supplies of original spare parts and the right tools make certified Hatz partner workshops the dependable professionals for your Hatz generating sets.

## **It only remains an original with an original**

Only the use of original Hatz spare parts guarantees a long service life, excellent availability and the flawless functioning of your engines and generating sets. Even the original equipping of our products with high-quality wear parts ensures reliable and long service. After servicing, the best way to maintain the original performance of your systems is with quality spare parts from Hatz.

## **Training**

Certified Hatz contracted workshops regularly receive the latest product documentation and training courses from our specialists, in order to keep them at the cutting edge of technology. This enables us to maintain a consistently high level of quality in our specialist partners' servicing and repairs.



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