Air- and liquid-cooled power packages

Hatz industrial diesel engines
Over 110 years of experience in engine production make Hatz a valuable partner.

Hatz industrial diesel engines
The diesel engine is the core competence

In its history lasting over 135 years Hatz has developed into being a specialist for diesel engines rated up to 64 kilowatts. 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 operates worldwide as an independent specialist for single- to four-cylinder diesel engines. Our diesel engines are used in all application fields, for instance in construction machinery, compressors, commercial vehicles, agricultural machinery, systems, material handling equipment, as well as in ships. Hatz develops and manufactures diesel engines in a power spectrum from 1.5 to 64 kilowatts. Hatz gives jobs to more than 1,100 employees, over 5 percent of them in research and development. Production is carried out in the company's headquarters in Ruhstorf an der Rott in southern Germany.

The Hatz systems business division develops and produces special systems based on industrial engines. The focuses are on all aspects of solutions for power and energy supply, scalable electricity stations, pump systems as well as special applications in the maritime and military sectors.

The components business division manufactures high-precision metal components designed especially for the automotive and commercial vehicles industry, agriculture, mechanical engineering, and industry, during which Hatz has acquired the special expertise needed for the serial precision machining from titanium.

The global service network includes over 500 service centers, of which 12 are wholly owned subsidiaries and 114 are Hatz agencies in 120 countries. This means we can ensure fast supply of spare parts and replacement systems, and also quickly carry out repairs.
The engines
Motorenfabrik Hatz is the specialist for single- to four-cylinder diesel engines in a power range from 1.5 to 64 kilowatts. Engines are categorised into the Hatz B-, D-, G-, L-, M- and H-series and feature their special qualities for every need.

Reliable in all conditions: Hatz is more than a brand, it is a quality promise.
Hatz industrial diesel engines: Full power for full satisfaction

As an engine manufacturer with over 110 years of presence we are well known and in demand throughout the world. The goal of all our activities is the development and production of high-quality and rugged products, in order to achieve the guarantor for long-term corporate success: satisfied customers.

Our design and development always focus on the following aspects:

**Economic**
Two essential qualities characterise the economy of Hatz diesel engines: Optimum fuel consumption and unparalleled long service life.

**Fail-safe and reliable**
Our engines have proven ultimate safe operability in even extreme climatic conditions. Hatz engines are famous for their good starting even in low temperatures.

**Rugged and indestructible**
Hatz engines are designed for service life and ruggedness. Top quality materials and production guarantee this. Operation and maintenance of our engines are problem-free even for non-specialists.

**Universal use**
The compact design, the many options for power take-off, as well as an extensive program of additional equipment provide an ideal solution for all applications.

**Sustainability is our formula for success**
All Hatz engines are developed with maximum care, also when it comes to their environmental compatibility. This is not an empty phrase at Hatz, rather it is the corporate philosophy we live by. This is why Hatz is the only manufacturer that offers exhaust-reduced and air-cooled diesel engines over the entire product portfolio. The limits in the US emission standard EPA Tier 4 final and the Regulation (EU) 2016/1628 Stage V are in special focus for off-highway engines. In addition, compliance with other standards is also achieved.

### Engine series

<table>
<thead>
<tr>
<th>Engine series</th>
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<tr>
<td>H-series</td>
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<td>■</td>
<td></td>
</tr>
<tr>
<td>L-/M-series</td>
<td></td>
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</tbody>
</table>

**Engine series**

- **B-series**: No requirement < 19 kW
- **D-series**: No requirement < 19 kW
- **G-series**: No requirement < 19 kW
- **H-series**: No requirement < 19 kW
- **L-/M-series**: No requirement < 19 kW
Unmistakable design
The Hatz B-series is characterised by a uniquely matched overall design. The entire series is structured uniformly and therefore ensure an unparalleled recognition value. The engine on any machine can be recognised from far away, and with its round shape it provides an optical highlight.

1830, 1840, 1850 Silent
Depending on the engine type the already low noise level can be significantly reduced further, by 2 to 4 decibels, by an optional silent noise package, decreased power, and speed. This is possible thanks to optimisations in the area of intake and exhaust components.

Flexibility through additional equipment
The Hatz B-series can be fully customised to the needs of the customer with an almost endless list of accessory parts. Among other things, there are different output shafts for each type, an electric start with 12 or 24 volts as well as various options for fuel tanks and filters, to name but the most important ones.
Small, lightweight, rugged and IoT ready
The realisation of these development goals, which at first glance seemed manageable, entailed a number of technical refinements that are still unrivalled by our competitors. For instance, the injection pump and valves of the mechanically controlled models are actuated by the patented SCS [Single Cam System], which requires only a single cam and also includes an automatic decompression system. The B-series models with Hatz E1 technology are electronically controlled. The reliability of the proven core engines meets the benefits provided by state-of-the-art electronics and, for the first time in this performance class, offers completely new potential. In combination with networked solutions, machine manufacturers and operators can simplify their business and increase its efficiency. These and further innovations ensure that the Hatz B-series is well known and in demand when it comes to ruggedness, a long service life and future viability. Additionally, the cylinder head, crankcase, and governor housing are manufactured from die-cast aluminum and therefore ensure high strength and low weight especially for use in mobile machinery.

Environmental aspects
All B-series engines have been designed with regard to sustainability and environmental compatibility and undergo continuous further development. For many years, all engines of this series were produced and sold exclusively in accordance with the requirements of the strict US exhaust emission standard EPA Tier 4 and exported in this version to countries where no exhaust emission regulations exist. Models of the B-series meet the North American requirements as well as the EU Stage V.

Power range
The Hatz B-series is available in a power range from 1.5 to 8 kilowatts at a maximum speed of 3600 revolutions per minute.

Additional features
• Air cooling with flywheel blower fan
• Recoil and/or electric start with 12 or 24 volts
• Counter balance for Hatz 1B40 and 1B50 available as an option

<table>
<thead>
<tr>
<th>Engine variations</th>
<th>1B20</th>
<th>1B30E</th>
<th>1B30</th>
<th>1B30VE</th>
<th>1B30V</th>
<th>1B40</th>
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<td>7.3 / 9.9</td>
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<td>37.0 / 81.6</td>
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</table>

1 EU Stage V only
Five engines, two sizes, one design, zero problems. The modular design principle of the Hatz D-series opens up an unending range of capabilities. The ideal engine can always be selected according to the power requirement and installation space.

1D81C – Silent Pack
For decades Hatz Silent Packs have been setting benchmarks for quiet and reliable diesel engines. Silent Pack is more than just an engine, it is a complete installation solution where the customer no longer has to take care of anything. Position, connect, start.

1D90V/W
For installations with special requirements regarding outer dimensions, Hatz has also alternatively developed the 1D90 engine with vertical crankshaft. This allows the best possible use of the available installation space, thus avoiding unnecessary power deflections.
The Hatz D-series is best suited for challenging tasks. With 11.2 kilowatts, the Hatz 1D90 engine is the world’s most powerful single-cylinder diesel engine. Compensation and balance weight ensure that the Hatz D-series runs especially smoothly. Counter-rotating balancer shafts are available as an option and even ensure a 100 percent first-order counterbalance.

**Unbeatably flexible and future-proof**

The D-series engines can be configured as required and in the basic version limited only to the core engine. By adding the numerous available options, the engines can however also be upgraded to truly high-tech products. With up to three different power take offs on a single engine, the model range provides more options for machine customisation than any other engine in the market. Equipped with Hatz E1 technology, the 1D90E is electronically controlled. State-of-the-art technology meets a core engine that has proven its worth hundreds of thousands by now. For the first time in this performance class, machine manufacturers and operators benefit from networked solutions. These enable simpler business processes and thus an increase in efficiency.

**Environmental aspects**

Even without legal provisions the Hatz D-series engines have been produced and sold in accordance with the strict US emissions standard EPA Tier 4 for many years. The Hatz 1D90E thus meets both North American requirements and EU Stage V. All engines in the D-series comply with European specifications.

**The Silent Pack**

The Hatz D-series is the first single-cylinder diesel engine series that can be equipped with an organically adapted, sound-insulated noise encapsulating housing, the Silent Pack. The Silent Pack reduces the radiated noise emission by up to 12 decibels in a 7 meter radius. The capsule consists of a sheet metal construction mounted on the engine with structure-borne noise insulation. All control and service points are accessible from the outside. The sound suppressor is housed in a separate capsule over the flywheel. Due to the cooling air circulation, Silent Pack engines – like all other Hatz engines – can be used under virtually all climatic conditions.

**Power range**

The Hatz D-series is available in a power range from 3.5 to 11.2 kilowatts at a maximum speed of up to 3600 revolutions per minute.

**Additional features**

- Air cooling with flywheel blower fan
- Crankhandle start and/or electric start with 12 or 24 volts
- 1D90 optionally available as vertical model
- Noise reduced by 95 percent with optional Silent Pack

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### Engine variations

<table>
<thead>
<tr>
<th>Cylinders</th>
<th>1D42</th>
<th>1D50</th>
<th>1D81</th>
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<th>1D90V</th>
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<td>97.0 / 213.8</td>
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<td>0–19</td>
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</tbody>
</table>

Features:

- horizontal crank shaft
- Silent Pack
- horizontal crank shaft
- vertical crank shaft

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9
The 2G40 is an all purpose industrial diesel engine. It convinces through its low weight due to the lightweight alloy construction, its low fuel consumption, and its high operating reliability as, for instance, it does not have a V-belt.

On the 2G40, power take off possibilities are available on the crankshaft (conical drive shaft) and directly on the flywheel. The 2G40H version also provides a power take off with gear wheels for operating hydraulic pumps. The matching hydraulic pumps can, of course, also be obtained from Hatz.

Oil bath or dry air filter, additional oil sump, instrument box, fuel tanks, 12 or 24 volts electrics and a number of connection housings. The list of standard available options is virtually endless.
Lightweight and compact
Like all other Hatz diesel engines, the extremely compactly built two-cylinder engine is distinguished by its high reliability and, not least, flexible in application thanks to its dimensions. The light metal construction of the housing and die-cast aluminum cylinder heads keep the weight low, between 88 and 105 kilograms depending on the version.

Environmental aspects
The Hatz 2G40 has been exclusively produced and marketed for many years to the specification of the strict US exhaust standard of the EPA, even in countries where no limits are imposed on exhaust emission. That is why the engines will fulfill the requirements of EU Stage V as well. Measures for reducing inner engine friction losses result in higher efficiency, and thus also in an extremely low specific fuel consumption.

Low operating costs
The air-cooled Hatz 2G40 is the absolute front runner in terms of low total operating costs. This is due not only to the low fuel and engine oil consumption, but also to the remarkably low maintenance costs. For example, the engine does without any belts at all. In the basic version with oil bath filter, just the fuel filter and engine oil filter as well as the engine oil are all that need to be changed regularly.

Power range
The 2G40 delivers a maximum 15.6 kilowatts at a speed of 3600 revolutions per minute [IFN according to DIN ISO 3046-1].

Additional features
- Air cooling and alternator integrated in flywheel blower fan
- Pressurised lubrication with gear pump
- Electric start with 12 or 24 volts
- Self bleeding injection pump

### Engine variations

<table>
<thead>
<tr>
<th>Features</th>
<th>2G40</th>
<th>2G40H</th>
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<td>96.8 / 213.4</td>
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<tr>
<td>Features</td>
<td>Power take off possible on both sides</td>
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</table>
L41C noise-encapsulated engines
The innovative Hatz Silent Pack is still unrivaled today by competitors. The engine capsule reduces radiated noise emission by 90 percent. This means, 10 Silent Pack engines emit no more noise than a single non-encapsulated engine.

Wide power range, one engine platform
The L-series of the Hatz diesel engines is available as two-cylinder (2L41C) with 15 up to 24 kilowatts, three-cylinder (3L41C) with 23 up to 37 kilowatts and four-cylinder (4L41C) with 30 up to 49 kilowatts. This saves both time and money for the development and construction of entire machinery series.

Unique automatic engine protection
The integrated, intelligent, mechanical automatic engine protection protects the engine. When a cooling fan malfunctions, there is not enough oil, or the inclination is too high, the engine is automatically stopped to prevent engine damage.
Hatz L-series:
Economic, fail-safe, quiet

These are the qualities that characterise Hatz L-series engines. Their rugged design gives them an extremely long service life. The crankcase and single cylinders are made from indestructible gray cast iron, the power train and bearing points are generously dimensioned giving them an extremely long service life. This allows L-series engines to be operated in even remote areas or for applications without constant monitoring.

The rugged construction is achieved through use of a crankcase and single cylinders made from indestructible gray cast iron. The power train and bearing points are also generously dimensioned giving them an extremely long service life. The L-series has two power take off points allowing connection of accessory equipment on the governor side as well as the flywheel side.

The Silent Pack
The innovative Hatz Silent Pack is still unrivaled today by competitors. Radiated noise emission is reduced by 90 percent due to use of the engine capsule. This means, 10 Silent Pack engines emit no more noise than a single non-encapsulated engine. The capsule consists of a sheet metal construction mounted on the engine with structure-borne noise insulation. All control and service points have easy outside accessibility. Due to the cooling air circulation, Silent Pack engines – like all other Hatz engines – can be used under virtually all climatic conditions.

Environmental aspects
The engines fulfil the strict emission standards of EU Stage IIIA as well as the regulations of the US EPA Tier 4 interim. In the configuration below 19 kilowatts the Hatz 2L41C even fulfils the requirements of EU Stage V.

Power range
L-series engines are available in a power range from 15.0 to 48.8 kilowatts, depending on the number of cylinders and speed setting (IFN according to DIN ISO 3046-1). The maximum torque lies between 100 and 195 newton metres.

<table>
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<th>3L41C</th>
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<td>EU Stage V</td>
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</tr>
<tr>
<td>Features</td>
<td>90 percent sound insulation</td>
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</table>

const. constant speed
Simple operation
The M-series engines are fitted with an automatic hydraulic belt tensioner, self-bleeding injection pump, automatic cold start feed, and a signal transmitter for air filter maintenance as standard. Operation is therefore easy even for non-specialists without long familiarisation.

Wide power range, one engine platform
The M-series of the Hatz diesel engines is available as two-cylinder (2M41) with 15 up to 28 kilowatts, three-cylinder (3M41) with 22 up to 43 kilowatts and four-cylinder (4M41) with 30 up to 56 kilowatts. This saves both time and money for the development and construction of entire machinery series.

Robust and durable design
Hatz engines are designed for an exceptionally long service life. The best possible materials and components coupled with uncompromising quality assurance contribute to the fact that Hatz engines have been setting the benchmark in the industry for many years when it comes to robustness and service life.
The qualities of the L-series can also be transferred to the M-series; both engines have a nearly identical construction. The only difference for engines in the Hatz M-series over the L-series is the Silent Pack. Without the engine capsule the M engines are ideal for installation in machine rooms. When it comes to operating reliability and ruggedness, these engines – like all Hatz engines – set the industry benchmark. The Hatz M-series has three power take off points. Therefore accessory equipment can be operated at the crankshaft and pulley on the flywheel side, as well as on the governor side.

**Fuel consumption and cold start**
Hatz M-series engines are among the most efficient in the market. Fuel consumptions of 212 grams per kilowatt hour testify to the optimised combustion process. 6-hole VCO nozzles, as well as the monoblock single pumps, and the optimised combustion chamber geometry all make their contribution to this. Without a pre glow system the engines start reliably as low as –10 degrees Celsius; with a pre glow system and corresponding resources even –32 degrees Celsius is no problem.

**Maintenance and repair with little effort**
Maintenance of the M-series does not cause any great effort, because it has easy outside accessibility for all points necessary for oil checks, oil refill, oil change, and oil filter change as well as for valve adjustment and cleaning/changing of the integrated air filter. The M-series is built with a modular construction principle. Length-independent components such as cylinder heads, cylinders, conrods, bearing shells, injection nozzles, injection pumps, air filters, engine regulators, starter, and alternator are identical for all engines. Engine repair is easier and more cost effective. Furthermore, storekeeping for wearing parts is much easier to organise.

**Power range**
M-series engines are available in a power range from 16.4 to 53.1 kilowatts, depending on the number of cylinders and speed setting (IFN according to DIN ISO 3046-1). The maximum torque lies between 105 and 220 newton metres.

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**Engine variations**

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<th>2M41</th>
<th>3M41</th>
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*const. constant speed*
**The modern three-and four-cylinder power packages**

Compact, light, economical, robust and environmentally friendly. The new Hatz common-rail diesel engine provides everything expected from a powerful and modern industrial engine. It impresses through its quiet running, dynamics and maintenance friendliness. Its constantly low fuel consumption over a wide load range sets the benchmark. Only high quality parts are used in the H-series engines. These include an injection system and sensor system from well-known manufacturers.

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**Open Power Unit – the plug & play solution**

All variants of the H-series are available as a ready-to-install and fully factory-tested OPU (Open Power Unit). In addition to the standard scope of delivery, air filter, radiators, charged air radiators, hosing and cable loom are mounted on delivery.

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**New Silent Pack – the most quiet Hatz multi-cylinder engines**

Based on the OPU version [see left] the Silent Packs are up to 60 percent more quiet. The powder-coated canopy made from sheet metal provides an efficient weather and touch protection as well. Nevertheless the released ambient temperature of the Silent Packs and the OPU are the same.
Hatz H-series: Innovation meets reliability

A groundbreaking downsizing approach was adopted in the development of the Hatz H-series. The outcome are extremely compact, turbocharged 1.5 and 2 litres engines that reach a maximum output of 64 kilowatts, setting benchmarks in their performance classes.

Conservative-innovative engine for a long service life
All mechanical components were designed and developed with a conservative-innovative approach. The Hatz H-series therefore has two valves per cylinder, which achieves high efficiency, mechanical robustness and functional simplicity. This – as well as the exclusive use of premium products for all important components – leads to the long service life customary from Hatz.

Maintenance-friendly
A maintenance interval of 500 hours means the engine scores top points with regard to customer friendliness and reliability. The extended intervals are attributed to hydraulic valve play compensation and large sized filters. The engine also has a sensor-controlled engine protection system which is able to switch off the engine in an emergency to prevent major damage.

Common rail system for maximum fuel efficiency
One of the key factors for the high performance compactness of the Hatz H-series is the common-rail system. Hatz has decided upon the off highway CRS from Bosch with 1800 bar. In conjunction with the other, ideally combined system components, the perfect balance is reached between dynamics, quiet combustion noise, low emissions and economy. The result: with a specific consumption of just 210 grams per kilowatt hour at the most effective level over a wide load and speed range, the H-series sets new standards.

New potential thanks to IoT ready
With the electronic engine control, the H-series is ideally equipped for networked solutions in the Internet of Things (IoT). Machine manufacturers can expand their customer relationships, rental companies can optimise the utilisation of their fleets and machine operators can ensure more efficient processing of their contracts.

<table>
<thead>
<tr>
<th>Engine variations</th>
<th>3H50T</th>
<th>3H50TICD</th>
<th>3H50TIC</th>
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<td>Cylinders</td>
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<tr>
<td>Displacement [l / cu in]</td>
<td>1.464 / 89.32</td>
<td>1.952 / 119.10</td>
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<tr>
<td>IFN rating ISO 3046 -1 max. [kW / hp]</td>
<td>18.4 / 24.7</td>
<td>30.5 / 40.9</td>
<td>44.0 / 59.0</td>
<td>48.0 / 64.4</td>
<td>55.0 / 73.8</td>
<td>64.0 / 85.8</td>
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<tr>
<td>Weight [kg / lb]</td>
<td>132 / 291</td>
<td>140 / 309</td>
<td>154 / 340³</td>
<td>133 / 293</td>
<td>158 / 348</td>
<td>173 / 381³</td>
<td>152 / 335</td>
</tr>
<tr>
<td>Power class [kW] of certification</td>
<td>EU Stage V</td>
<td>8–19</td>
<td>19–56</td>
<td>–</td>
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<tr>
<td></td>
<td>EU Stage IIIB</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>37–56</td>
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<tr>
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<td>EU Stage II</td>
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<td>–</td>
<td>–</td>
<td>–</td>
<td>37–75</td>
<td>–</td>
</tr>
<tr>
<td>Features</td>
<td>TC</td>
<td>TC, IC, cEGR, DOC/DPF</td>
<td>TC, IC, cEGR, DOC</td>
<td>TC, IC</td>
<td>TC, IC, cEGR, DOC/DPF</td>
<td>TC, IC, cEGR, DOC</td>
<td>TC, IC</td>
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</table>

TC Turbocharger  IC Intercooler  cEGR cooled exhaust gas recirculation  DOC diesel oxidation catalyst  DPF diesel particulate filter

³ Available mid 2020  ³ Including engine mounted aftertreatment
Fast and reliable service is not an empty phrase for us, rather it is the reality we live.

Hatz Service
Hatz Service: Worldwide and quickly there

The global service network includes over 500 service centers, of which 12 are wholly owned subsidiaries and 114 are Hatz agencies in 120 countries. This means we can ensure fast supply of spare parts and replacement engines, and also quickly carry out repairs.

Short paths in sales and service are an important requirement in international business. This is why customer proximity is important for Hatz. We are active in all important markets with sales and service companies so that we can react quickly and flexibly to our customers’ requirements.

**Repair, maintenance, conditioning**
The repair, regular servicing, or even the complete conditioning of Hatz engines can be carried out competently at the over 500 service centers worldwide. Well trained personnel, the worldwide and fast supply of original spare parts, and the right tools make the certified Hatz partner workshops the reliable professional for your Hatz products.

**It only remains original with an original**
Only the use of Hatz Genuine Spare Parts guarantees a long service life, high availability, and smooth operability of your engines and systems. The initial installation of high-quality wearing parts ensures a reliable and long service life. By using Hatz genuine spare parts, the original performance of the engines is guaranteed beyond maintenance.

**Training courses**
Certified Hatz authorized workshops regularly receive the latest product documentation and training by our specialists so that they stay at the forefront of the state of the art. In this way we guarantee a constantly high level in servicing and repair by our specialist partners.

**Digital service: fast, global, modern**
Hatz develops new networked solutions that go far beyond what is familiar today. Automated communication between machine operators, manufacturers and Hatz, predictive maintenance planning with automatic ordering of maintenance and spare parts or an online spare parts shop are not just fictional scenarios for the future – Service 4.0 at work for you.

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North America
- 113 Partners

Europe
- 237 Partners

Asia
- 53 Partners

South America
- 21 Partners

Middle East & Africa
- 30 Partners

Australia & Oceania
- 61 Partners

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- Hatz headquarters
- Hatz branches