

CREATING  
POWER  
SOLUTIONS



# Air- And Liquid-Cooled Industrial Diesel Engines

Hatz Drive Solutions







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 140 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**. The diesel engines are used in all application fields, for instance in construction machinery, compressors, commercial vehicles, agricultural machinery, systems, material handling equipment. 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, pump systems as well as special applications in the military sectors.

The Hatz **Digital Solutions** division develops and sells digital products and solutions for

machine drives. Many Hatz engines can be linked to the Hatz digital solutions. This allows key information on machine operation to be integrated into fleet management, thereby enabling machine operators to make better decisions. Also possible: optimization of the machine disposition and maintenance, localization and geofencing, and maximization of machine productivity.

The **Service** division develops and sells service solutions such as tracking systems and ensures that customers are supplied with maintenance kits, genuine parts and exchange engines over the long term, either by service partners or online. Likewise, Hatz offers a unique level of support both during and after the warranty period in service centers around the world.

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 genuine parts and replacement systems, and also quickly carry out repairs.



**CREATING  
POWER  
SOLUTIONS**

## **Drives**

Air-Cooled Engines  
Liquid-Cooled Engines  
Additional Equipment

## **Energy/Systems**

Power Generation  
Pumps  
Special Applications

## **Digital**

Performance Tracking

## **Service**

Repairs  
Reconditioning  
Genuine Parts  
Academy  
Diagnostics

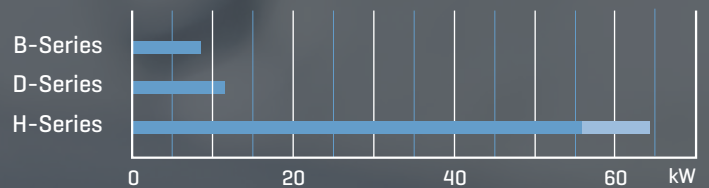


Reliable in All Conditions:  
Hatz Is More than a Brand,  
It Is a Quality Promise.

Hatz Drive Solutions

#### The Diesel 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- and H-Series and feature their special qualities for every need.



# Hatz Drive Solutions: 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 or exceeded. For example, Hatz offers a diesel particulate filter for single-cylinder engines of Stage V that is not mandated by law.

Engine series	less regulated	US EPA	EU 2016/1628	EU 97/68/EG		
		Tier 4 final	Stage V	Stage IIIB	Stage IIIA	Stage II
B-Series	■	■	■	no requirement < 19 kW		
D-Series	■	■	■			
H-Series	■	■	■	■	■	■



**1B30, 1B40, 1B50 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.



**1B50E DPF with Diesel Particulate Filter**

Although not required by law, Hatz offers the 1B50E engine with an optional passive diesel particulate filter for EU Stage V for defined applications. This makes it possible to work in critical environments such as trenches.



**First Full Electronic and Full Variable Speed Control < 19 KW**

The models 1B30E, 1B30VE and 1B50E being part of the E1 family can be controlled by with standard J1939 CAN protocols – thanks to the ECU controlling the engine. It is also possible to use CAN-Displays to monitor the engine performance.



# Hatz B-Series: Flexible Solution for All Areas

The Hatz B-Series scores highly in mobile and stationary operation with a power requirement of up to 8 kilowatts thanks to its compact installation dimensions and low weight. With its robustness and longevity, the series sets standards in the market. Regardless of whether on vibration plates or in the inhospitable environment of the Antarctic, the Hatz B-Series has been tried and tested a hundred thousand times in harsh surroundings.

## 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. The E1 models meet all EPA Tier 4 final requirements and are the only drive solution that offers variable engine speed.

## 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.

## Unique Selling Points

- Balance for Hatz 1B40 and 1B50 available as an option
- Engine diagnostics, CAN J1939 speed control and integrated engine protection for E1 variants
- Smoke suppression under overload
- Optional diesel particulate filter for 1B50E

Engine variations	1B20	1B30E	1B30	1B30VE	1B40	1B50E	1B50	
Cylinders	1							
Displacement [l / cu in]	0.243 / 0.015	0.347 / 0.021	0.347 / 0.021	0.462 / 0.028	0.517 / 0.032			
IFN rating ISO 3046-1 max. [kW / hp]	3.4 / 4.6	4.5 / 6.0	5.0 / 6.8	4.5 / 6.0	7.3 / 9.9	7.9 / 10.7	8.1 / 10.9	
Weight [kg / lb]	28.0 / 61.7	40.8 / 90.0	35.0 / 77.2	42.8 / 94.4	48.0 / 105.8	57.5 / 126.8	51.2 / 112.9	
Power class [kW] of certification	EU Stage V		0-8			0-8	8-19	0-8
	EPA Tier 4 final	—	0-8	—	0-8	—	0-8	—



**1D90E DPF with Diesel Particulate Filter**

Although not required by law, Hatz offers the 1D90E engine with an optional passive diesel particulate filter for EU Stage V for defined applications. This makes it possible to work in critical environments such as trenches.



**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.



**First Full Electronic and Full Variable Speed Control < 19 KW**

The 1D90E being part of the E1 family can be controlled by with standard J1939 CAN protocols – thanks to the ECU. It is also possible to use CAN-Displays to monitor the engine performance.



# Hatz D-Series: Revolutionary Single Cylinder Technology

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.

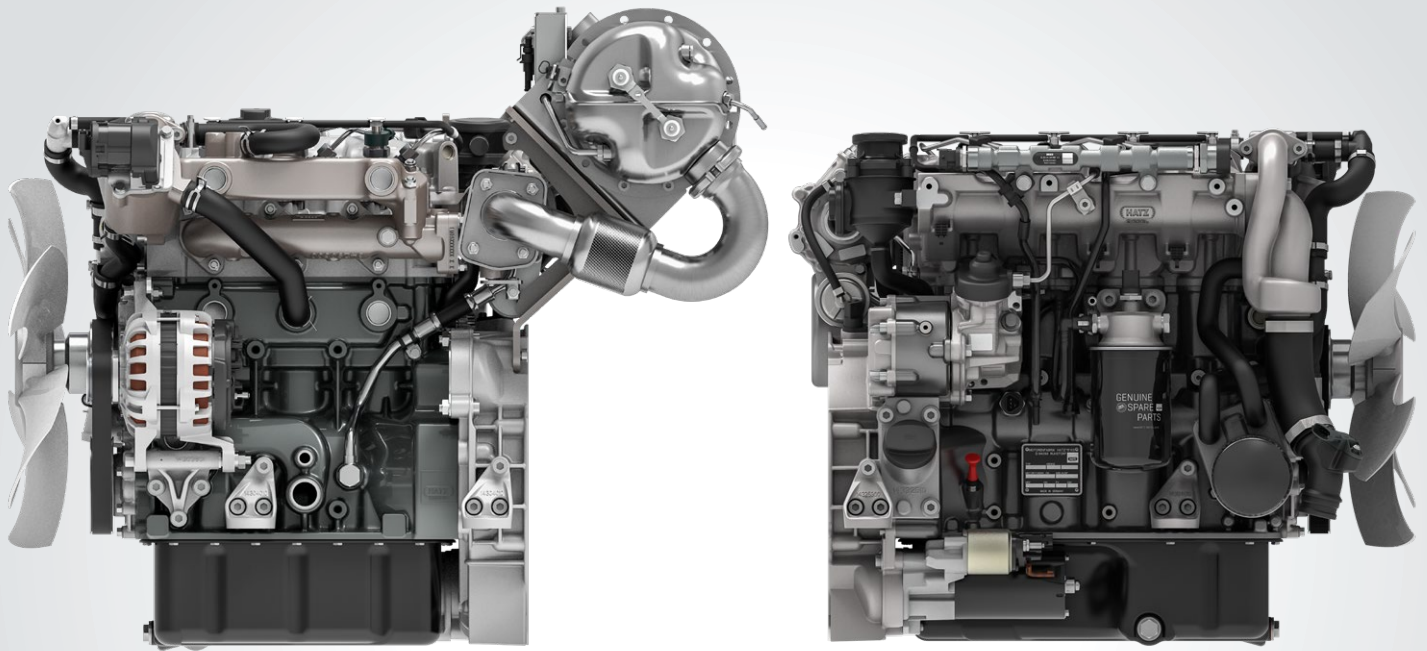
## Power range

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.

## Unique Selling Points

- 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
- Engine diagnostics, CAN J1939 speed control and integrated engine protection for E1 variants
- Optional diesel particulate filter for 1D90E

Engine variations	1D42	1D50	1D81	1D81C	1D90E	1D90	1D90V
Cylinders	1						
Displacement [l / cu in]	0.445 / 27.2	0.517 / 31.5	0.667 / 40.7	0.667 / 40.7		0.722 / 44.0	
IFN rating ISO 3046-1 max. [kW / hp]	7.0 / 9.5	7.5 / 10.2	10.1 / 13.7	9.6 / 12.9	10.5 / 14.1	11.2 / 15.0	
Weight [kg / lb]	71.0 / 156.5	80.0 / 176.4	97.0 / 213.8	118.0 / 260.0	107 / 235.9	98.0 / 216.0	106 / 233.6
Power class [kW] of certification	EU Stage V 0-8		0-19			0-19	
	EPA Tier 4 final —		—			—	
Features	horizontal crank shaft			Silent Pack	horizontal crank shaft		vertical crank shaft



### 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.

Supported by:



Federal Ministry  
for Economic Affairs  
and Energy

on the basis of a decision  
by the German Bundestag



### 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.



### 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 1,800 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.

## Raising digital potentials

The engines can be linked to the Hatz Digital Solutions. These allow key information on machine operation to be integrated into fleet management, thereby enabling machine operators to make better decisions. Also possible: optimization of the machine disposition and maintenance, localization and geofencing, and maximization of machine productivity.

Engine variations	3H50T	3H50TICD	3H50TIC	3H50TI	4H50N <sup>2</sup>	4H50TICD	4H50TIC	4H50TI		
Cylinders	3			4						
Displacement [l / cu in]	1.464 / 89.32			1.952 / 119.10						
IFN rating ISO 3046-1 max. [kW / hp]	18.4 / 24.7	30.5 / 40.9	44.0 / 59.0	48.0 / 64.4	18.4	55.0 / 73.8	64.0 / 85.8			
Weight [kg / lb]	132 / 291	140 / 309	154 / 340 <sup>3</sup>	133 / 293	159 / 350	158 / 348	173 / 381 <sup>3</sup>	152 / 335		
Power class [kW] of certification	EU Stage V	8-19	–	19-56	–	–	8-19	19-56	–	–
	EPA Tier 4 final	8-19	–	19-56	19-56	–	8-19	19-56	19-56	–
	EU Stage IIIB	–	–	–	37-56	–	–	–	37-56	–
	EU Stage IIIA	–	19-37	–	19-37	19-37	–	–	19-37	19-37
	EU Stage II	–	–	–	–	37-75	–	–	–	37-75
Features	TC	TC, IC, cEGR, DOC/DPF	TC, IC, cEGR, DOC	TC, IC	–	TC, IC, cEGR, DOC/DPF	TC, IC, cEGR, DOC	TC, IC		

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

<sup>2</sup> available as of 2024 <sup>3</sup> Including engine mounted aftertreatment

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