

CREATING POWER SOLUTIONS.



Propulsion and special systems solutions for maritime applications

Hatz Marine Competence Centre



# Hatz diesel engines: Reliable under all circumstances.

Worldwide Hatz engines are in operation ashore – reliably and frequently under the most difficult conditions. The requirements in maritime applications are not any less challenging. Decades of experience make Hatz a valuable engine technology partner in the marine sector as well.



## Specialist for robust diesel engines

In its history lasting over 130 years Hatz has developed into being a specialist for one- to four-cylinder diesel engines rated up to 62 kilowatts (84 hp). The basis of all global corporate activities is the development and production of high quality and rugged diesel engines for industrial applications. Furthermore, on this basis Hatz Systems has been developing and producing tailor-made aggregates in the area of power supply, pumps and compressor technology for more than 30 years.

Worldwide over 500 service centres, 13 with their own subsidiaries and 114 Hatz agents in 120 countries, guarantee a full coverage and responsive service network for repairs and spare parts supply.



## A historically grown marine competence

The long tradition in marine propulsion dates back to the beginning of the 1920s, when Hatz delivered the first engines – at the time powered by crude oil – for fishing boats and even exported to Turkey, Africa and South America. In 1977 Hatz became engine supply partner for BMW Marine and delivered marinised diesel engines for the propulsion of BMW sail yachts and motor boats. This marked the beginning of the high volume engine production for marine applications.

Within the company and for some 40 years the Hatz Marine Competence Centre in Hamburg is the specialist for marinised models of Hatz diesel engines and systems.

## Hatz products for marine applications

### Diesel engines

Main/auxiliary propulsion, from 4 to 62 kW, air-/liquid-cooled

### Application areas

Open working boats, small ferries, small fishing boats, rescue boats, motor gliders, etc.

### Special systems

Power generators (board/emergency supply), pumps (water, hydraulics, fire)

### Application areas

Authority vessels, special ships, yachts, barges, passenger ships, container ships, etc.



# Compact and versatile: Power solutions 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.



## Individual special system solutions

Hatz Systems develops and produces special aggregates based on industrial engines. The focus is set on custom-fit solutions for power supply, pump units and compressors for all application areas in the maritime environment – on vessels as well as on offshore facilities.



Propulsion systems and aggregates for maritime applications from Hatz are developed and designed by the specialists at the Marine Competence Centre in Hamburg. The experiences range from emergency installations such as fire pumps, power generators or compressors to main propulsion engines and other systems with diesel engines on board of boats and ships. In the offshore industry Hatz engines are used as well.

The basis for the marine aggregates is provided by the proven and rugged Hatz diesel engines that are certified according to DNV GL ex works. Thus, no further modifications are necessary. Generally low exhaust gas emissions and the use of modern technologies for aftertreatment enable the compliance with all current thresholds. Depending on the requirements of noise emissions, the engines can be equipped with the Hatz sound insulation capsules "Silent Pack".

The compact systems can be installed easily and within the smallest space: on the one hand because of the engines' air cooling and, thus, the prevention of a front end cooler or an interface with the ship-based cooling system. On the other hand through the use of liquid cooled turbo diesel engines of the new Hatz H-series and their extremely compact installation dimensions.

Thanks to the modular design Hatz offers its customers a wide range of products and services: from individual motor types up to complete aggregates and propulsion systems, in standard or customised design. The single motor series cover a power range from 4 to 62 kilowatts [5 to 84 hp], onboard power supply units are offered up to 30 kilowatts [40 hp]. All systems are designed at optimal cost, depending on the type of vessel, waters or application.

## All from one source

Optionally Hatz delivers additional equipment for boat propulsion such as control levers, instrument boxes, drive shafts, propellers, connection couplings, manual starters, fuel tanks, and much more. If requested, Hatz offers the complete propulsion system from one source.



## Optimised for marine applications

The already robust Hatz series engines are modified for the challenging use in marine applications in order to comply with DNV GL requirements. Thus, for example double-walled injection lines, special insulations or flame-resistant cables and tubes are used.



# Hatz H-series: The modern generation of efficient diesel power packages.

The new generation of compact and lightweight Hatz industrial engines demonstrates its benefits in the power range between 18 and 62 kilowatts [25 to 84 hp]. The liquid cooled diesel engines score in the machine room with the well known duration of Hatz as well as with the smallest space requirements and the lowest weight of their class.

The automotive industry has been successfully practicing downsizing for years. The Hatz H-series – the world's first downsizing industrial diesel engines – inherited this concept. Thus, with ease it replaces engines which need one and a half more displacement for the same output. Furthermore, in terms of torque, response behaviour and smoothness the Hatz H-series is considerably superior. At the same time the consumption values are significantly reduced. Compared to similar engines the Hatz H-series diesel are up to 90 kilograms lighter. In a word: right-sizing.

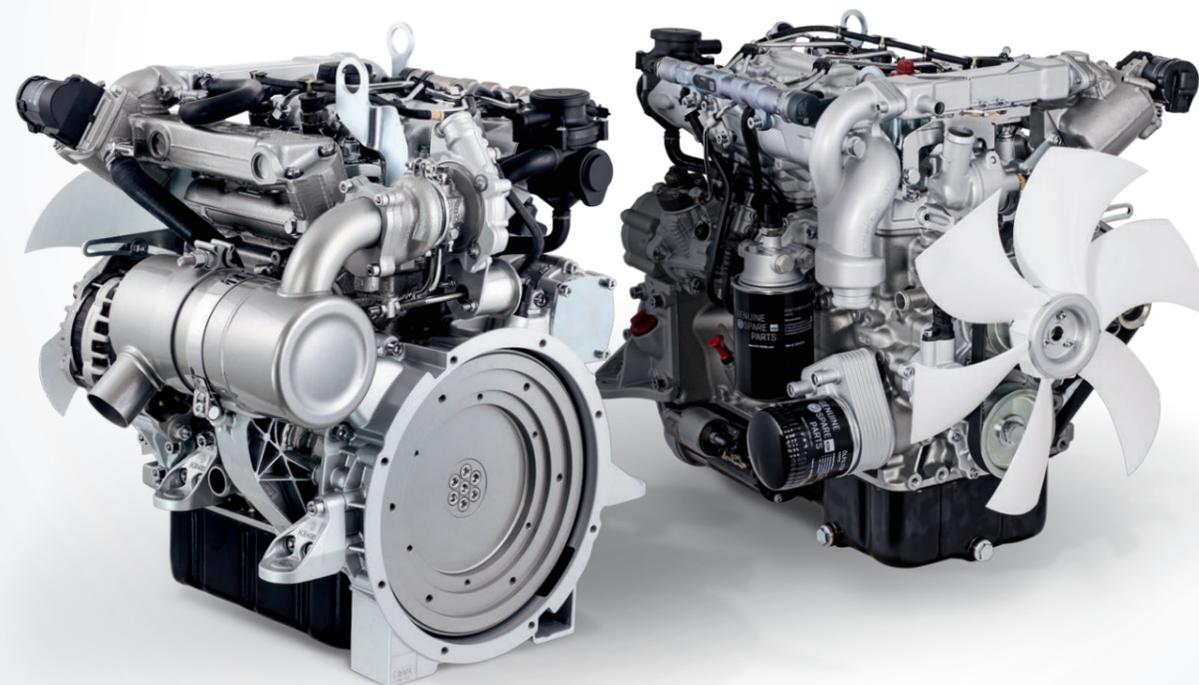
## Newly engineered from scratch

These excellent features could be achieved, among other factors, thanks to the iHACS technology (Intelligent Hatz Advanced Combustion Strategy) with its sophisticated

combustion chamber geometry, Bosch common-rail technology, minimised friction and a charge air pressure of 1.7 bar. But in spite of all the innovation, the developers particularly attached great importance to the well-known Hatz reliability.

## Conservative-innovative engine for a long service life

All mechanical components were developed and designed with a conservative innovative approach. The Hatz H-series engines are equipped with two valves per cylinder, achieving high efficiency, mechanical robustness and functional simplicity. This is expressed in turn by the familiar long service life and a generous maintenance interval of 500 hours. The use of premium products for all important components also underlines this.



**iHACS**  
Intelligent Hatz Advanced Combustion Strategy

## Features Hatz 3H50TIC (from 2018) / 4H50TIC

- Shut-off sensor system to avoid major damage
- Hydraulic valve adjustment
- Gear wheel driven camshaft
- Engine mounted diesel oxidation catalyst (DOC) after turbine
- External exhaust gas recirculation (EGR) for outstanding exhaust gas quality
- EPA Tier 4 final and EU Stage IIIB compliance
- Electric start 12/24 V

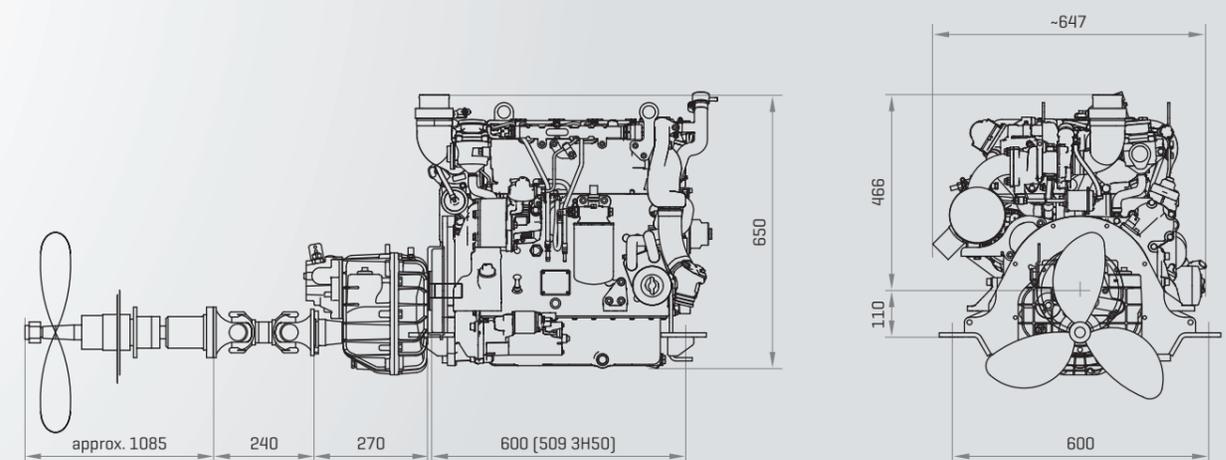
## Green lights worldwide

Whether in barges or pleasure crafts, Hatz diesel engines of the H-series comply with emission regulations worldwide. The engines are characterised in particular by their reliable and eminent low emission operation. It was no surprise that the Hatz 4H50TIC reached second place at the GreenTec Awards 2015 – Europe's most renowned environmental award. This exemplary result is mainly due to the combustion technology iHACS with the Bosch common rail injection optimised for industrial applications. With various options for the exhaust aftertreatment like external exhaust gas recirculation (EGR), diesel oxidation catalyst (DOC) or diesel particulate filter (DPF) the Hatz H-series is well prepared for the legal requirements of today and the future.

## Features Hatz 3H50TI (from 2018) / 4H50TI

- Based on TIC models
- Sulphur sensitive components like EGR and DOC are avoided
- Fuel with up to 5000 ppm sulphur content possible
- About 10% higher output and torque compared to TIC models
- Higher ambient temperatures possible
- Fulfills EPA Tier 2/EU Stage II emissions regulations
- Additionally EU Stage IIIA [19-37 kW] certified

Engine type	3H50TIC	3H50TI	4H50TIC	4H50TI
Cylinders	3	3	4	4
Displacement [l]	1.464	1.464	1.952	1.952
IFN power max. [kW/hp]	42/56	46/62	55/74	62/83
Weight [kg/lb]	154/340	133/293	173/381	152/335



# Hatz M-series: The perennial issue among the industrial diesel engines.

The robust basic drive train, notably the sturdiest crankshaft of all engines on the market, has been successfully established for around 30 years. The Hatz M-series is perfect for marine applications from 16 to 53 kilowatts [22 to 72 hp] and for running times of several ten thousand hours.

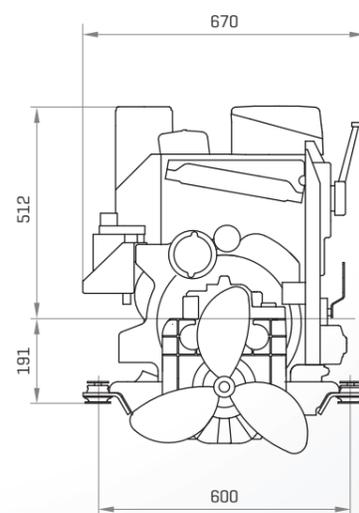
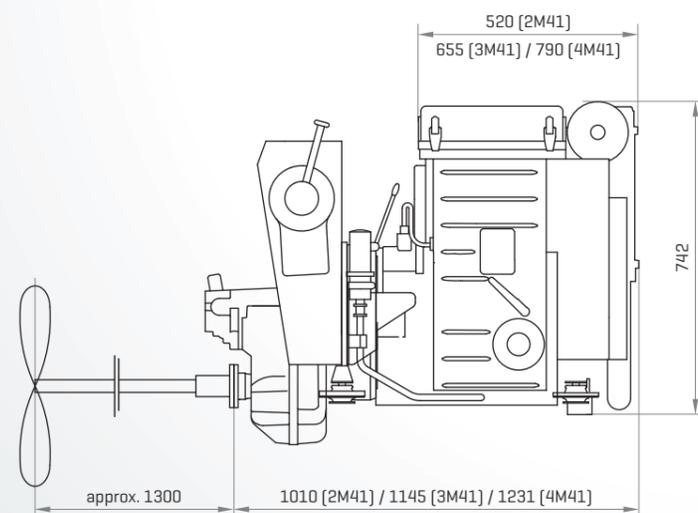
The Hatz M-series engines are among the most efficient in the market. In addition the engines start reliably as low as -10° Celsius [14° Fahrenheit] without a pre glow system. The intelligent, mechanical automatic engine protection prevents engine damage. When a cooling fan malfunctions, there is not enough oil, or the inclination is too high, the engine is automatically stopped. The easy access to all service parts and the modular construction of the series make maintenance and repair more convenient, faster and more efficient.



### Features Hatz M-series

- First industrial engine worldwide with integrated automatic engine protection feature
- Air-cooled with axial blower
- Gear wheels to drive the camshafts
- Hydraulic pump power take-off directly on the crankshaft
- Forced feed circulating lubrication
- Crank handle start and/or electric start 12/24 V
- With additional counter balance

Engine type	2M41	3M41	4M41
Cylinders	2	3	4
Displacement [l]	1.716	2.574	3.432
IFN power max. [kW/hp]	26.3/35.3	39.8/53.4	53.1/71.2
Weight [kg/lb]	258/569	308/679	373/822



# Hatz L-series: The efficient and less noisy diesel power source.

Economic, fail-safe, quiet – that characterises Hatz L-series engines in the power class from 15 to 49 kilowatts [20 to 66 hp]. Their rugged design gives them an extremely long service life. The high operation safety allows the engines to be reliably operated for marine applications without constant monitoring.

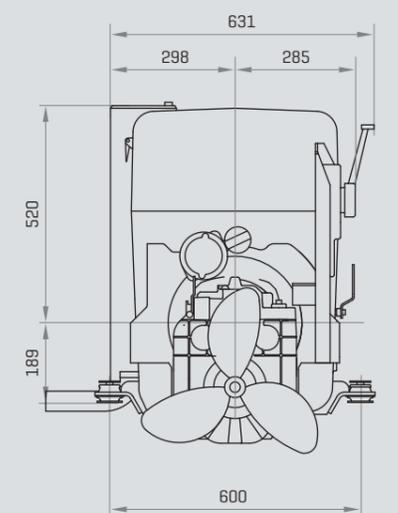
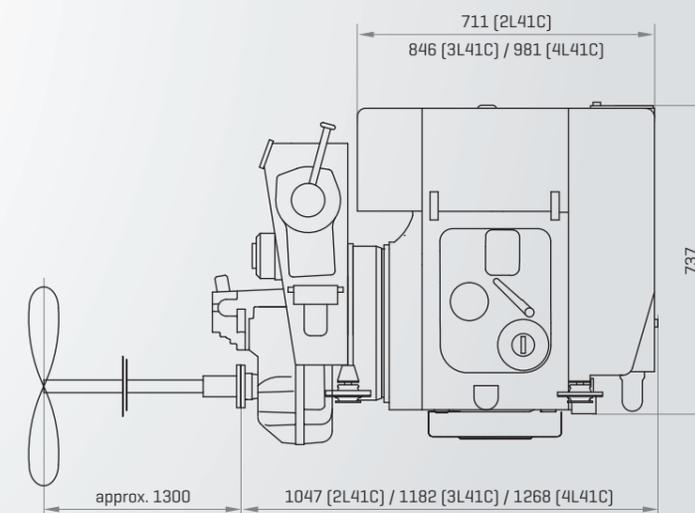
The Hatz L-series engines are one to one based on the Hatz M-series in a technical point of view. Additionally they offer the innovative Hatz Silent Pack which is still unrivalled. As a result radiated noise emissions are reduced. So one Hatz L-series engine is ten times quieter than a non-encapsulated engine. All control and service points have easy accessibility. Due to the optimised cooling air circulation, Silent Pack engines can also be used in virtually all climatic conditions.



### Features Hatz L-series

- Silent Pack reduces engine noise by 90%
- Automatic engine protection feature
- Air-cooled with axial blower
- Forced feed circulating lubrication
- With counter balance system as standard
- Crank handle start and/or electric start 12/24 V

Engine type	2L41C	3L41C	4L41C
Cylinders	2	3	4
Displacement [l]	1.716	2.574	3.432
IFN power max. [kW/hp]	24.4/32.7	36.7/49.2	48.8/65.4
Weight [kg/lb]	303/668	363/800	433/955



## Hatz D-series: The most powerful single-cylinder among industrial diesel engines.

The Hatz D-series is best suited for challenging tasks from 5 to 10 kilowatts [7.5 to 14 hp]. It is characterised by high flexibility and performance in particular. Hatz D-series engines rank among the highest performance single-cylinder diesel engines in the world.

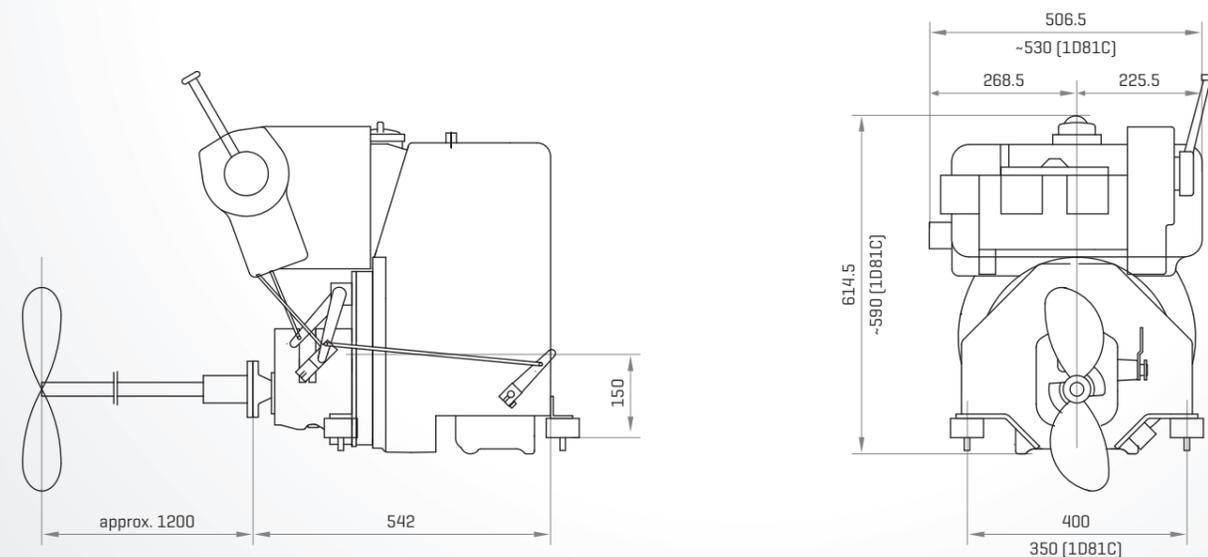
A compensation weight on the flywheel side crank arm as well as balance weights cast in the flywheel ensure the special quiet running of the Hatz D-series. With regular maintenance many thousands of hours are commonplace – using Hatz original spare parts. The Hatz D-series is the first single-cylinder diesel engine series world-wide which can be equipped with an organically adapted, noise-reducing encapsulation.



### Features Hatz D-series

- Revolutionary technology for single-cylinder diesel engines
- Air-cooled with flywheel blower fan
- Forced feed circulating lubrication
- Crank handle start and/or electric start 12/24 V
- Compliant with EPA Tier IV
- 100% balancing of 1st order inertia forces optional
- Available as 94% quieter Silent Pack as well

Engine type	1D81	1D81C
Cylinder	1	1
Displacement [l]	0.667	0.667
IFN power max. [kW/hp]	10.1/13.5	9.6/12.9
Weight [kg/lb]	97/214	118/260



## Hatz B-series: The flexible diesel power in a small space.

For all applications with a power requirement up to 8 kilowatts [11 hp] the Hatz B-series scores high marks with compact installation dimensions and due to its low weight. With its robustness and longevity, the series sets standards in the market.

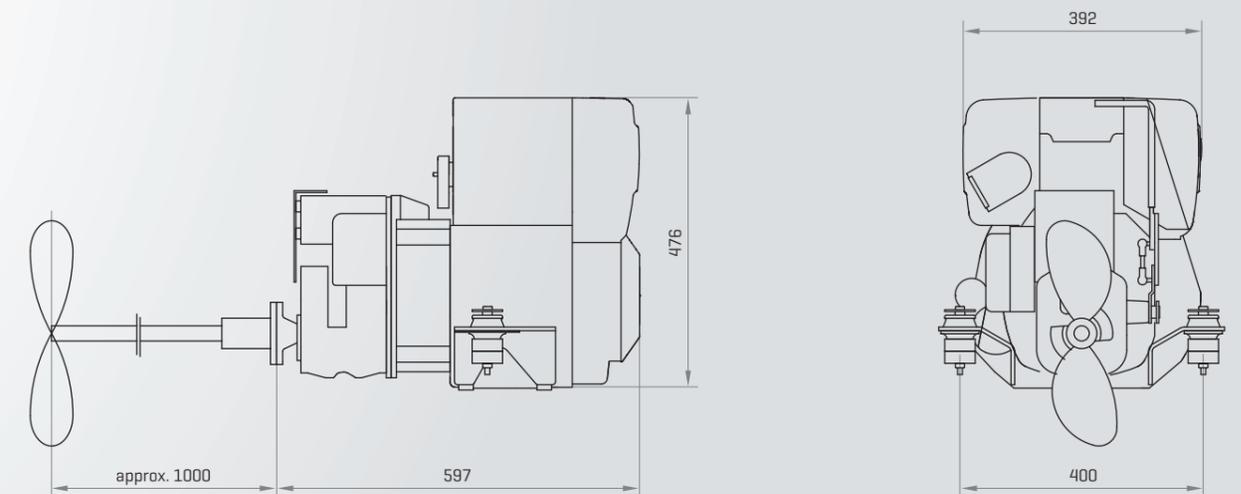
The Hatz B-series made its special mark as a customisable solution for any marine application. Regardless of whether aboard a fishing boat or in the inhospitable environment of the Antarctic, the B-series stood the test a hundred thousand times. That is not only due to its reliable and easy starting system. The extreme low emission level is also remarkable and fulfils the highest requirements with ease.



### Features Hatz B-series

- Small, lightweight, for universal application
- Air-cooled with flywheel blower fan
- Forced feed circulating lubrication
- Single Cam System [SCS]
- Recoil and/or electric start 12/24 V
- Compliant with EPA Tier IV
- With additional counter balance system available

Engine type	1B50
Cylinder	1
Displacement [l]	0.517
IFN power max. [kW/hp]	7.9/10.6
Weight [kg/lb]	51/112



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