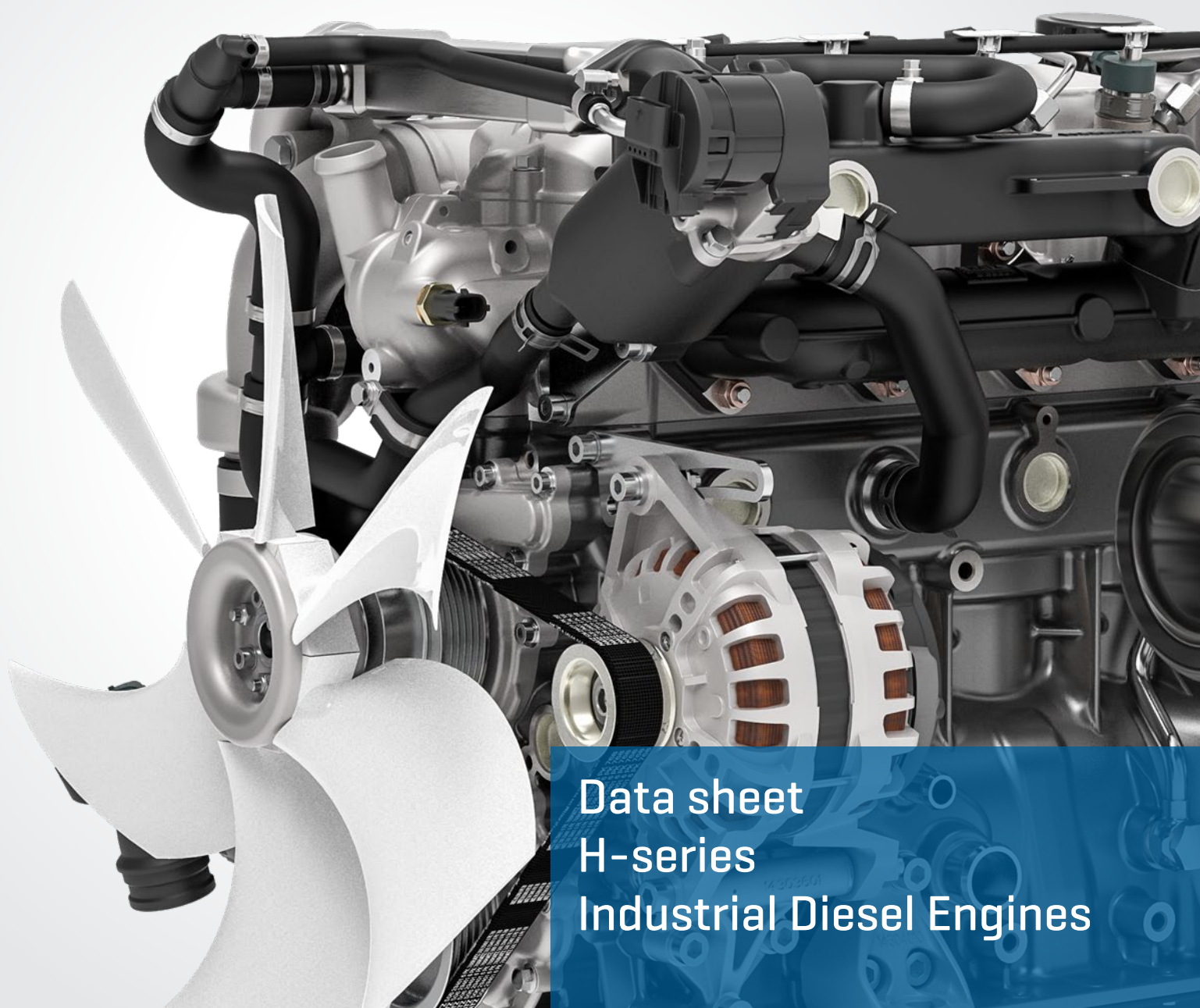
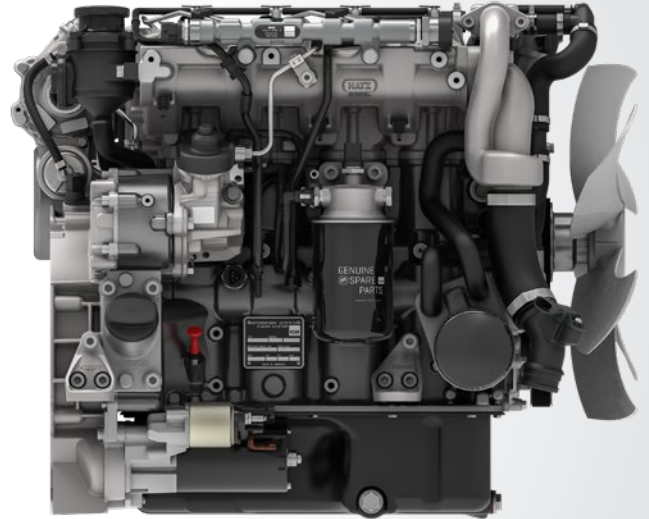
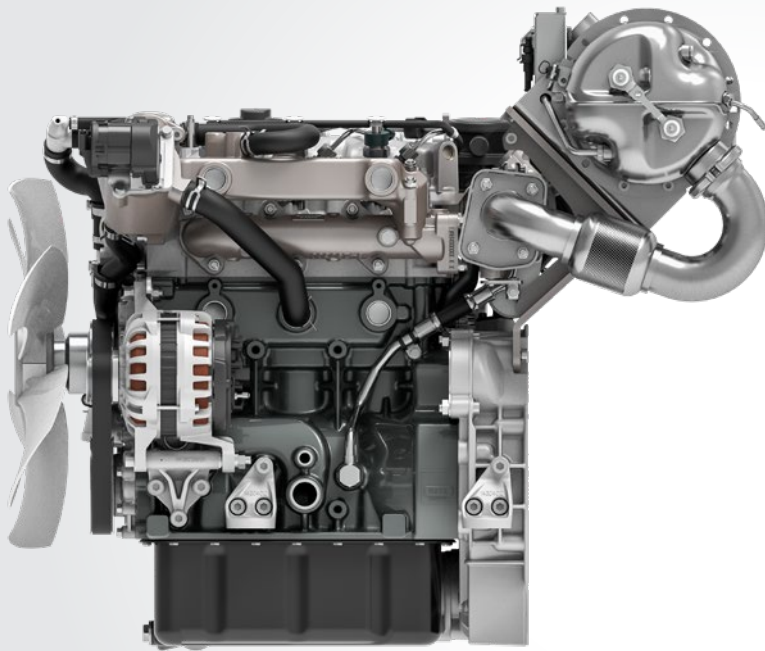


CREATING  
POWER  
SOLUTIONS



# Data sheet H-series Industrial Diesel Engines

**Hatz Drive Solutions**



### The Modern Three- and Four-Cylinder Power Packages

Compact, light, economical, robust and environmentally friendly: Hatz common-rail diesel engines offer everything that is expected of powerful and modern industrial engines. They are characterized by their quiet running, dynamics and maintenance friendliness. Their constantly low fuel consumption over a wide load and speed range is unrivalled. Only high quality parts are used in the H-series engines. These include an injection system and sensors 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 OPU's [Open Power Units] and were completely tested by the manufacturer. In addition to the engine itself, the air filter, radiators, charged air radiators (if fitted), hosing and cable loom including fuses, relays, etc. are already pre-installed in the delivery state.



### 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 maximum ambient temperature is the same as the OPU.

# 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 engines [depending on version], that reach a maximum output of 64 kilowatts, setting benchmarks in their performance classes.

## Conservative-innovative engine for a long service life

The Hatz H-series 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

The H-series also scores highly in terms of user friendliness. Firstly, all maintenance points are accessible on one side of the engine; secondly, the maintenance intervals of 500 engine hours are largely spaced. A hydraulic valve play compensation and generously sized filters make it possible. Longer maintenance intervals of up to 3000 hours can also be approved for defined applications.

## Environmental compliance

The Hatz H-series is up to 90 kilograms lighter compared to its nearest competitor. This weight saving not only results in a lower power-to-weight ratio, but also in a reduced need for raw materials. The engine family meets all emission requirements of the EU and the USA, the latter even without the use of a particulate filter. The 4H50N0, equipped only with an oxidation catalytic converter, even has CARB TRU 2023 certification and thus the world's strictest exhaust gas regulations in the transport refrigeration sector.

## Common-rail system

One of the key factors for the high efficiency of the Hatz H-series is its injection technology: the Bosch common rail system in the more robust off-highway version. In conjunction with other ideally matched system components, the perfect balance between dynamics, quiet combustion noise, low emissions and economy is reached.

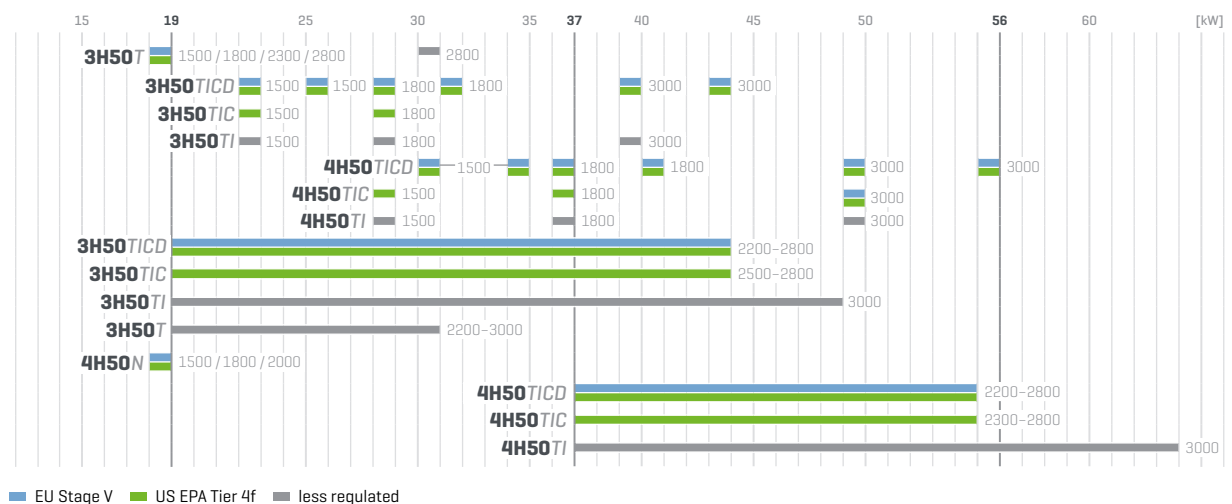
## Extraordinarily high fuel efficiency

When it comes to fuel efficiency, the Hatz H-series models with a specific fuel consumption of less than 210 grams per kilowatt hour at the most effective level set new standards. However, the special feature is that consumption economy values close to the optimum are also achieved over a large load and speed range. A key to the exceptionally high fuel efficiency is the reduction of internal friction, which is largely due to the conservative design with few moving parts. This makes each H-series model the most efficient engine in its power class.

## 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. Hatz Digital Solutions, featuring remote diagnostics capabilities, will be available starting in 2025.

## H-series – power ranges, emission classes and rated speeds



Technical Data, Performance Table

Technical data		3H50T	3H50TICD	3H50TIC	3H50TI	4H50N	4H50TICD	4H50TIC	4H50TI	
Engine	Type	Liquid-cooled 4 stroke diesel engine								
	Cylinder	3				4				
	Injection system	Direct injection with Bosch off-highway common-rail system								
	Injection pressure [bar]	1800								
	Aspiration	Turbo without charge air cooling	Turbocharger with charge air cooling			Naturally aspi- rated engine	Turbocharger with charge air cooling			
	Exhaust emission after-treatment	—	gAGR, DOC, DPF	gAGR, DOC	—	gAGR, DOC, DPF	gAGR, DOC	—		
	Bore x stroke [mm]	84 x 88								
	Displacement [l]	1.464				1.952				
	Mean piston speed @ 3000 rpm [m/s]	8.8								
	Compression ratio	17.5:1				20.0:1		17.5:1		
	Lubrication oil consumption, related to full load	max. 0.5 % of fuel consumption								
	Oil filling	max. [l]	5.0				9.0		7.0	
		min. [l]	4.2				8.0		6.0	
	Speed control	Lowest idle speed [rpm]	900							
		Control method	CAN J1939 or multi-stage switch							
Installation information	Amount of combustion air @ 2800rpm approx. [kg/h]	199 <sup>6</sup>	260			108 @ 2000		340		
	Amount of cooling air @ 2800 rpm approx. [kg/h]	3500 <sup>7</sup>	7122			3500 <sup>7</sup>		7122		
	Mass moment of inertia J <sub>engine</sub> [kg m²]	0.217				0.234				
	Starter [V]	12 [2.2 kW / 3.0 PS]   24 [3.0 kW / 4.1 PS]								
	Cold start temperature [°C]	-25 [12 V]   -32 [24 V]								
	Alternator charging [A]	110 [14 V] / 150 [14V. Option]   60 [28 V]								
	Battery capacity max. [Ah]	110 [12 V - 450 A DIN]   66 [24 V - 300 A DIN]								
Dimensions	Weight [kg]	Basic engine	132	140	154 <sup>1</sup>	133	159	158	173 <sup>1</sup>	152
		as Open Power Unit	147	222	236 <sup>1</sup>	215	174	240	255 <sup>1</sup>	234
		as New Silent Pack	—	339 <sup>1</sup>	327 <sup>1</sup>	306	—	360 <sup>1</sup>	348 <sup>1</sup>	327
	L x W x H [mm] <sup>5</sup>	Basic engine	583 x 558 x 654	585 x 558 x 601	585 x 613 x 601 <sup>1</sup>	583 x 570 x 601	675 x 536 x 660	673 x 558 x 601	673 x 613 x 601 <sup>1</sup>	670 x 570 x 601
		as Open Power Unit	700 x 570 x 652	806 x 660 x 807	806 x 685 x 807 <sup>1</sup>	806 x 660 x 807	789 x 538 x 719	893 x 660 x 807	893 x 685 x 807 <sup>1</sup>	893 x 663 x 807
		as New Silent Pack	918 x 712 x 922	1122 x 712 x 922 <sup>1</sup>	918 x 712 x 922 <sup>1</sup>	918 x 712 x 922	—	1213 x 712 x 922 <sup>1</sup>	1009 x 712 x 922 <sup>1</sup>	1009 x 712 x 922
Engine output max. [kW / hp]		[rpm]	3H50T	3H50TICD	3H50TIC	3H50TI	4H50N	4H50TICD	4H50TIC	4H50TI
			Blocked ISO fuel stop power [ICFN] for intermittent loading according to ISO 3046-1. <sup>2</sup> Applies to variable speed. 3H50TICD   3H50TIC Also available with 36.4 kW / 49.4 hp @ 2500 rpm for use in California without registra- tion requirements.	3000	—	—	—	44.2 / 59.2	—	55.4 / 74.2
			2800	18.4 / 24.7	43.7 / 58.6	43.6 / 58.4	—	55.4 / 74.2	55.4 / 74.2	—
			2300	18.4 / 24.7	42.8 / 57.4	41.5 / 55.6	—	55.4 / 74.2	55.4 / 74.2	—
			1800	18.4 / 24.7	35.4 / 47.4	35.4 / 47.4	—	45.7 / 61.2	45.4 / 61.2	—
			1500	18.4 / 24.7	28.6 / 38.3	28.6 / 38.3	—	37.4 / 50.1	37.4 / 50.1	—
			3000	—	43.6 / 58.4	—	—	55.4 / 74.2	—	—
			1800	—	31.3 / 41.9	—	31.3 / 41.9	—	41.0 / 55.0	—
			1500	—	25.5 / 34.2	—	25.5 / 34.2	—	35.0 / 46.9	—
			2800	—	43.7 / 58.6 <sup>4</sup>	43.6 / 58.4 <sup>4</sup>	48.2 / 64.6	—	—	63.7 / 85.4
			2300	—	42.8 / 57.4 <sup>4</sup>	42.5 / 57.0 <sup>4</sup>	47.5 / 63.7	—	—	62.2 / 83.3
			1800	—	38.2 / 51.2 <sup>4</sup>	—	38.2 / 51.2	—	—	50.2 / 67.3
			1500	—	29.3 / 39.3 <sup>4</sup>	29.3 / 39.3 <sup>4</sup>	31.4 / 42.1	—	—	41.1 / 55.1
			3000	—	—	—	39.8 / 53.3	—	49.9 / 66.9	49.5 / 66.3
			2800	18.4 / 24.7	39.3 / 52.7	39.2 / 52.5	—	49.9 / 66.9	49.9 / 66.9	—
			2300	18.4 / 24.7	38.3 / 51.3	37.4 / 50.1	—	49.9 / 66.9	49.9 / 66.9	—
			1800	18.4 / 24.7	31.9 / 42.7	31.9 / 42.7	18.4 / 24.7	41.1 / 55.1	41.3 / 54.3	—
			1500	18.4 / 24.7	25.7 / 34.4	25.7 / 34.4	18.4 / 24.7	33.7 / 45.2	33.7 / 45.2	—
			3000	—	39.2 / 52.5	—	—	49.9 / 66.9	—	49.9 / 66.9
			1800	18.4 / 24.7	28.5 / 38.2	—	28.5 / 38.2	18.4 / 24.7	36.4 / 48.8	36.4 / 48.8
			1500	18.4 / 24.7	22.6 / 30.3	—	22.6 / 30.3	18.4 / 24.7	31.0 / 41.6	31.0 / 41.5

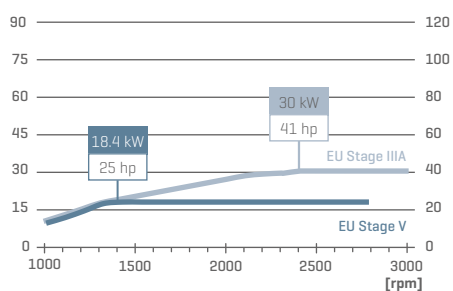
<sup>1</sup> Including engine mounted aftertreatment <sup>2</sup> 2300/1800/1500: Based on 2800 rpm recordset, other settings on request. <sup>3</sup> 2300/1800/1500: Based on 2800 rpm recordset, other engine speed only with CAN limitation. <sup>4</sup> Same engine output as IFN, but higher torque. <sup>5</sup> Spread at box dimensions ± 3 millimeters due to tolerance. <sup>6</sup> @ 2800 rpm ca. <sup>7</sup> Value estimated



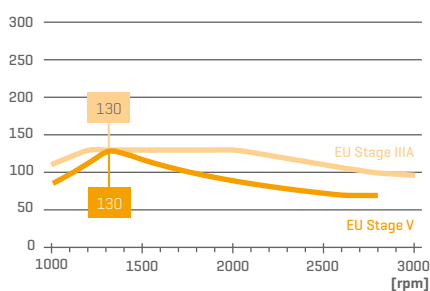
# Power Output, Torque and Fuel Consumption

## 3H50T

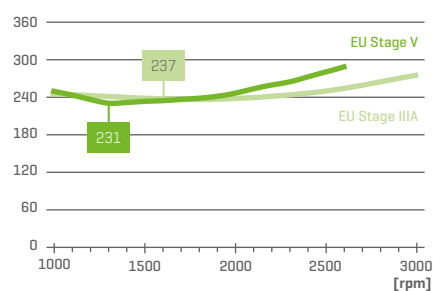
Output [kW / hp]



Torque [Nm]

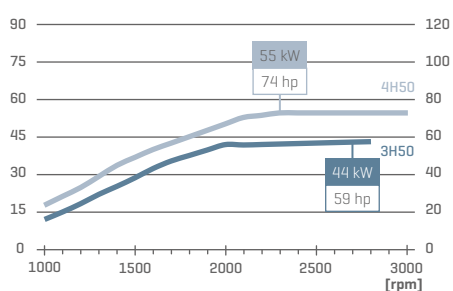


Fuel consumption [g/kWh]

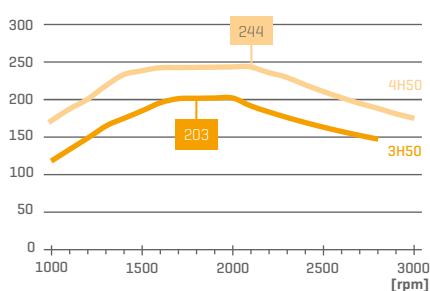


## 3H50TIC/TICD | 4H50TIC/TICD

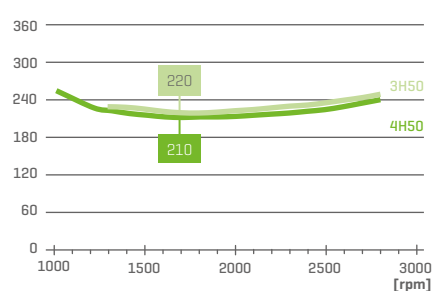
Output [kW / hp]



Torque [Nm]

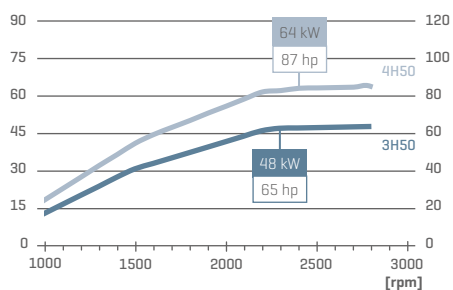


Fuel consumption [g/kWh]

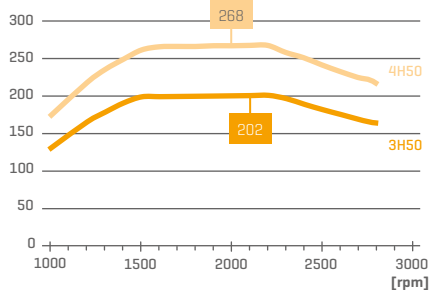


## 3H50TI | 4H50TI

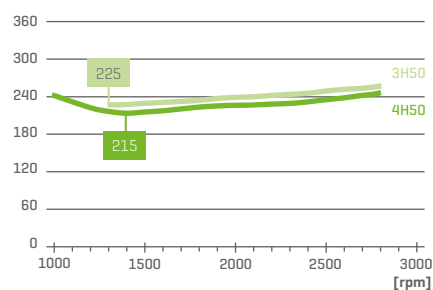
Output [kW / hp]



Torque [Nm]

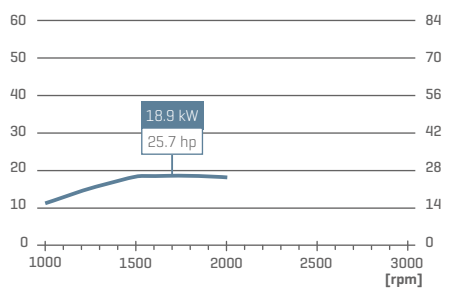


Fuel consumption [g/kWh]

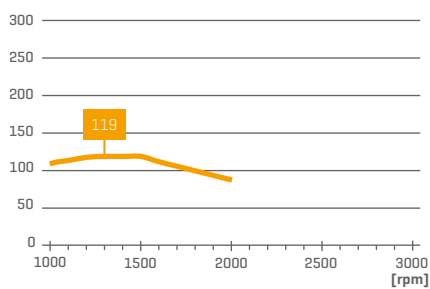


## 4H50N

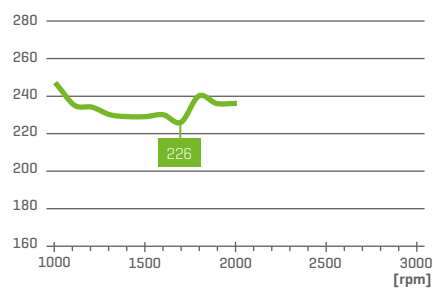
Output [kW / hp]



Torque [Nm]



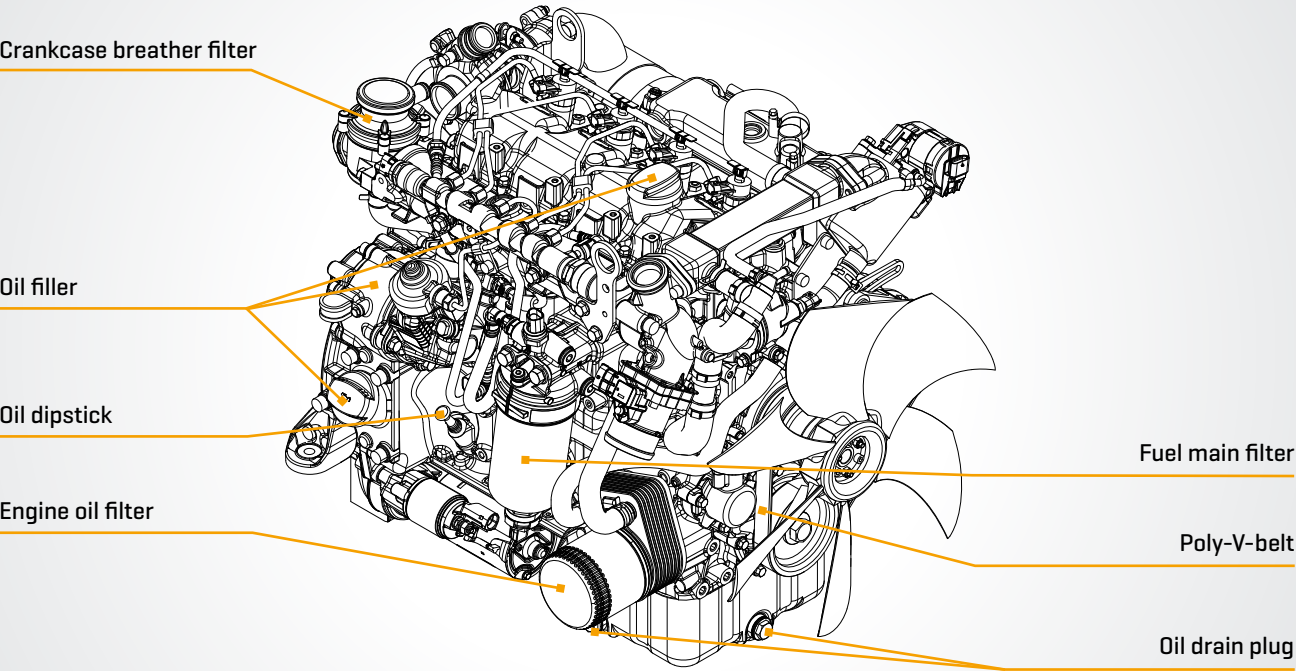
Fuel consumption [g/kWh]



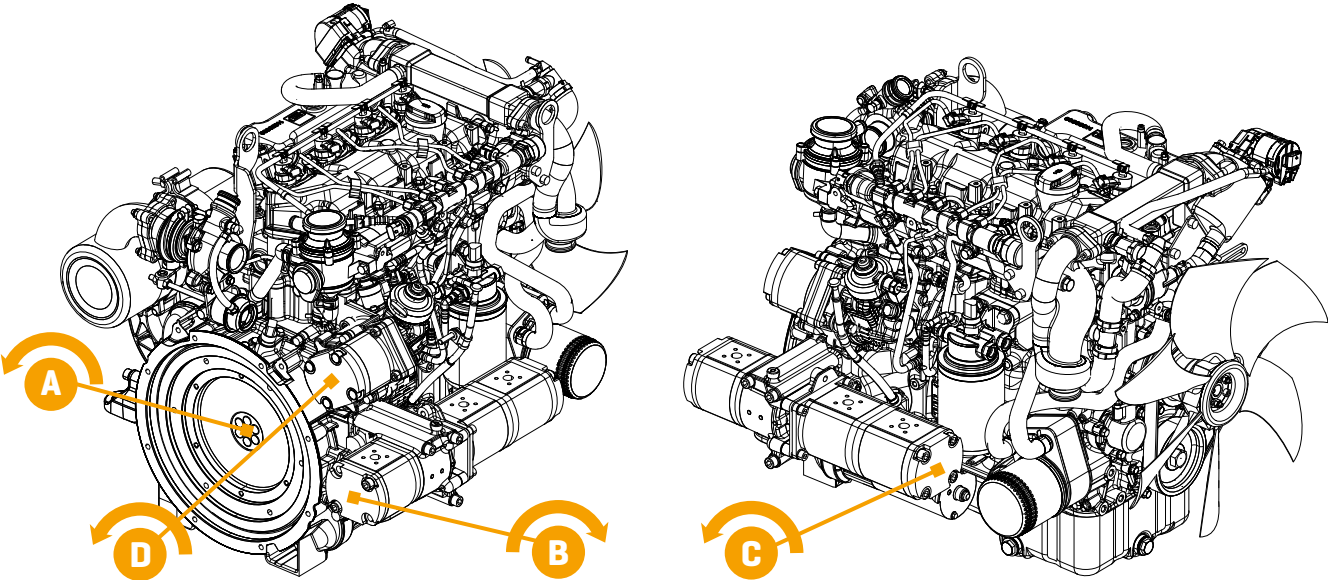
### Power ratings

Power reduction chart available on request. Up to 1460 metres no power reduction. No power reduction necessary up to the released maximum ambient temperature. The power requirement of the alternator is already considered in the charts above.

# Maintenance and Operating Points



## Power Take-off

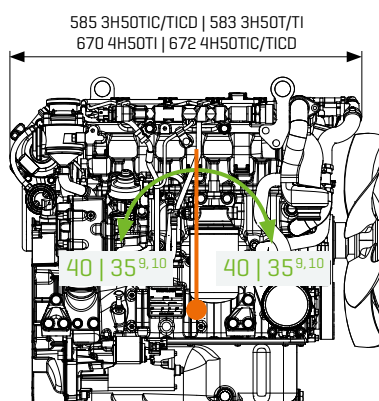
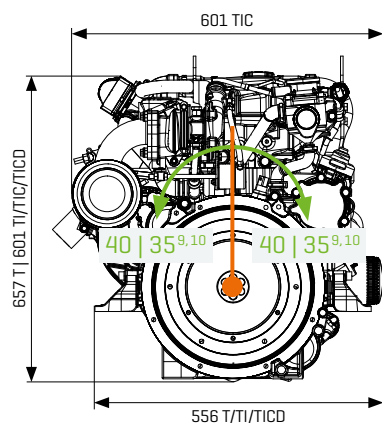


Power take-off		3H50T	3H50TICD	3H50TIC	3H50TI	4H50N	4H50TICD	4H50TIC	4H50TI
Transmittable torque	A				100 %				
	B				$\Sigma = 100 \text{ Nm}; i = 1.1$				
	C								
	D				$\Sigma = 80 \text{ Nm}; i = 1.0$				

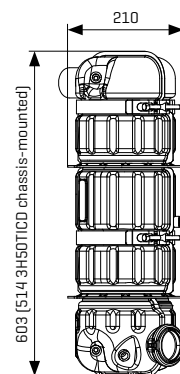
## Dimensions [mm] and Inclinations [°]

Dimensions for DPF on request.  
Spread at box dimensions  $\pm 3$  millimeters due to tolerance.  
Drawings with detail and connection dimensions as PDF and DXF  
can be found at [hatz.com](http://hatz.com).

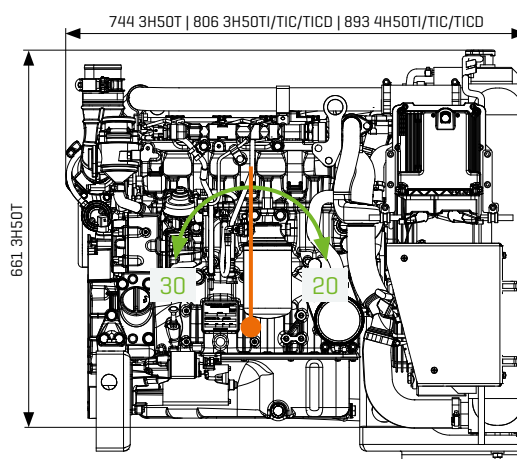
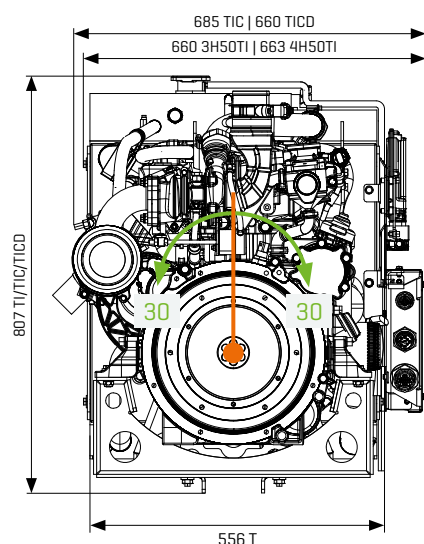
### Basic Engine



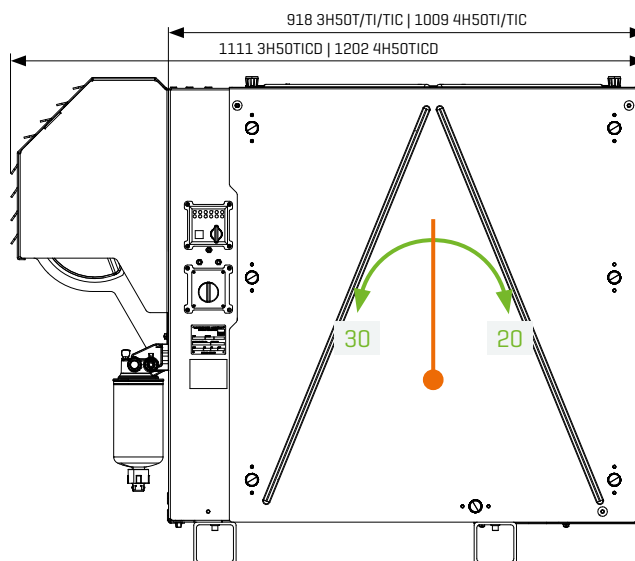
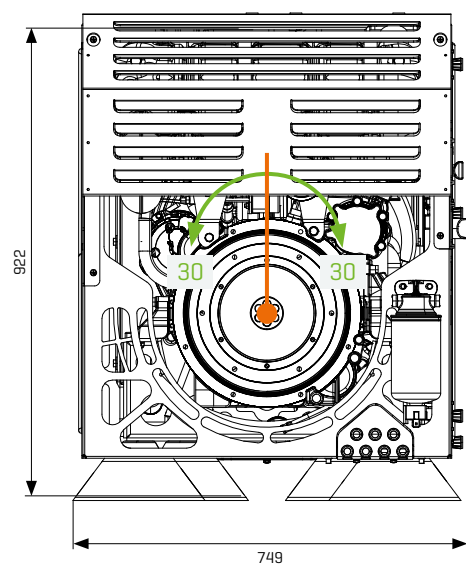
### DPF



### OPU (Open Power Unit)



### New Silent Pack



<sup>9</sup> Applies to 4H50 models only <sup>10</sup> Higher lean angles possible with optional lean angle package. Continuous lean angle without time limit 30° in each case

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