The H-Family
3H50
4H50
Hatz Diesel – Made in Germany
The H-Family

Rightsizing engines!
Family values

Bore/stroke ratio

- Ideal bore/stroke ratio delivers an optimal thermodynamic surface to volume ratio, and therefore results in lower thermal losses at the cylinder walls.
Valve train

Hydraulic valve adjustment reduces maintenance costs
Family values

Bosch injector
- High-precision injection quantity control
- Highest injection pressures [1800 bar]
- Multiple injection for minimum noise emissions
- Worldwide use through special high-strength coatings for poor quality fuels

Wastegate turbo charger
- Optimized for highest charge air pressures, best efficiencies and widest usable speed range
- Large height reserve
Family values

EGR mixing nozzle
- Perfect mixture of fresh air and recirculated exhaust gas
- Homogeneous combustion over all cylinders
- Optimized load on components and uniform wear

EGR cooler
High-quality stainless steel radiator with optimal cooling capacity and low pressure loss

Pre-cooling unit
- Guaranteed highest long-term stability
- Outstanding cooling capacity with small installation space
- Low pressure losses
- Consistent component protection
Family values

iHACS

- Intelligent Hatz Advanced Combustion Strategy
- A Bosch ECU controls the torque-optimized combustion process developed by Hatz, with a focus on best real drive consumption and minimized noise emissions

CAN-BUS

- Communication with High-End Panels
- Maximum information and comfort for the user
- Easy and transparent failure diagnostics
4H50TIC

H50TIC
ROBUST BASIC ENGINE
HIGH-QUALITY COMPONENTS
TIER 4F/STAGE IIIB COMPLIANCE WITHOUT DPF

PERFORMANCE
POWER
EFFICIENCY
TORQUE
more

WEIGHT
FUEL CONSUMPTION
EMISSIONS
MAINTENANCE
TCO
SIZE
WEAR PARTS
less
Features

• 3 and 4-Cylinder turbo common-rail diesel engine with 1.5 and 2.0 liter
• 1800 bar BOSCH Common-Rail System 12/24V
• Water-cooled, waster gate turbo charger, charge air cooled
• 2 valves per cylinder
• Externally cooled exhaust gas recirculation (EGR) and diesel oxidation catalyst (DOC)
• Tier 4 final and Stage IIIB compliance without DPF
• Auxiliary PTO for up to 3 hydraulic pumps, max. continuous load N=100Nm
Highlights

- Fuel consumption of only 210 g/kWh at bestpoint. Best characteristics in the industry in a wide load and speed range!
- Compact, lightweight design with only 173 kg (380lbs)
- Robust, reliable basic engine with high-quality components, e.g. Bosch Common-Rail-OHW technology [1800 bar]
- 500 hours maintenance interval
- Automatic valve adjustment
- Powerful alternator 14V/110A
<table>
<thead>
<tr>
<th>Version</th>
<th>Power Range</th>
<th>EPA Rating</th>
<th>Features</th>
</tr>
</thead>
<tbody>
<tr>
<td>3H50T</td>
<td>&lt;19kW/25HP</td>
<td></td>
<td>Common Rail, Turbo</td>
</tr>
<tr>
<td>3H50TI/4H50TI</td>
<td>19-62kW</td>
<td>EPA TIER 2</td>
<td>Common Rail, Turbo Intercooler</td>
</tr>
<tr>
<td>3H50TIC/4H50TIC</td>
<td>19-56kW</td>
<td>EPA TIER 4 final EU II (&gt;37kW) EU IIIa (&lt;37kW)</td>
<td>Common Rail, Turbo Intercooler, EGR, DOC</td>
</tr>
<tr>
<td>3H50TICD/4H50TICD</td>
<td>19-56kW</td>
<td>EU V</td>
<td>Common Rail, Turbo Intercooler, EGR, DOC/DPF</td>
</tr>
</tbody>
</table>
Dimensions – Flywheel side

Tier 4 final 19-56kW

- 595 mm
- 335 mm
- 262 mm
- 235.5 mm
- 459 mm
- 545 mm
Dimensions – Flywheel side

Tier 4 final < 19kW, Tier 2

- 241 mm
- 235.5 mm
- 460 mm
- 597 mm
- 541 mm
Dimensions – Air intake side

4H50TIC

Middle of 1st cylinder

484 mm

206 mm

411 mm

Middle of crankshaft

184 mm

674 mm
Dimensions – Fan side

Ø 410 mm

135 mm
Engine models H-Family

Dimensions

3H50

4H50

91mm shorter
<table>
<thead>
<tr>
<th>Engine type</th>
<th>4H50TICD</th>
<th>4H50TIC</th>
<th>4H50TI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cylinders</td>
<td>4</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Displacement [l]</td>
<td>1.952</td>
<td>1.952</td>
<td>1.952</td>
</tr>
<tr>
<td>Aftertreatment</td>
<td>EGR, DOC/DPF</td>
<td>EGR, DOC</td>
<td>-</td>
</tr>
<tr>
<td>Emission compliance</td>
<td>EU Stage V</td>
<td>19-56 kW</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>EPA Tier 4 final</td>
<td>-</td>
<td>19-56 kW</td>
</tr>
<tr>
<td>EU Stage IIIA</td>
<td>-</td>
<td>37-56 kW const.</td>
<td>19-37 kW</td>
</tr>
<tr>
<td>EU Stage IIIB</td>
<td>-</td>
<td>37-56 kW var.</td>
<td>-</td>
</tr>
<tr>
<td>EU Stage II</td>
<td>-</td>
<td>-</td>
<td>37-75 kW</td>
</tr>
<tr>
<td>L x W x H [mm]</td>
<td>667 x 545 x 603*</td>
<td>667 x 545 x 603*</td>
<td>667 x 545 x 603</td>
</tr>
<tr>
<td>Weight [kg]</td>
<td>180</td>
<td>173</td>
<td>152</td>
</tr>
<tr>
<td>Max. Leistung [kW @ min⁻¹]</td>
<td>55 @ 2,800</td>
<td>55 @ 2,800</td>
<td>62 @ 2,800</td>
</tr>
<tr>
<td>Max. torque [Nm @ min⁻¹]</td>
<td>240 @ 1,600-2,100</td>
<td>240 @ 1,600-2,100</td>
<td>265 @ 1,600-2,200</td>
</tr>
<tr>
<td>Option</td>
<td>OPU</td>
<td>OPU</td>
<td>OPU</td>
</tr>
<tr>
<td>Engine type</td>
<td>3H50TICD</td>
<td>3H50TIC</td>
<td>3H50TI</td>
</tr>
<tr>
<td>-------------------</td>
<td>--------------</td>
<td>-----------</td>
<td>-----------</td>
</tr>
<tr>
<td>Cylinders</td>
<td>3</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Displacement [l]</td>
<td>1.464</td>
<td>1.464</td>
<td>1.464</td>
</tr>
<tr>
<td>Aftertreatment</td>
<td>EGR, DOC/DPF</td>
<td>EGR, DOC</td>
<td>-</td>
</tr>
<tr>
<td>Emission compliance</td>
<td>EU Stage V</td>
<td>19-56 kW</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>-</td>
<td>19-56 kW</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>EU Stage IIIA</td>
<td>37-56 kW const.</td>
<td>19-37 kW</td>
</tr>
<tr>
<td></td>
<td>EU Stage IIIB</td>
<td>37-56 kW var.</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>EU Stage II</td>
<td>-</td>
<td>37-75 kW</td>
</tr>
<tr>
<td>L x W x H [mm]</td>
<td>576 x 541 x 603*</td>
<td>576 x 541 x 603*</td>
<td>576 x 541 x 603</td>
</tr>
<tr>
<td>Weight [kg]</td>
<td>161</td>
<td>154</td>
<td>133</td>
</tr>
<tr>
<td>Max. Leistung [kW @ min⁻¹]</td>
<td>42 @ 2,800</td>
<td>42 @ 2,800</td>
<td>46 @ 2,800</td>
</tr>
<tr>
<td>Max. torque [Nm @ min⁻¹]</td>
<td>185 @ 1,600-2,000</td>
<td>185 @ 1,600-2,000</td>
<td>200 @ 1,600-2,200</td>
</tr>
<tr>
<td>Option</td>
<td>OPU</td>
<td>OPU</td>
<td>OPU</td>
</tr>
</tbody>
</table>
Engine models H-Family

3H50T Turbo
Engine models H-Family

3H50T
Engine models H-Family

3H50T

- Basic engine (TIC) further developed for markets with low-quality fuel (no EGR, no DOC)
- No Intercooler needed
- Fuel with up to 5000 ppm sulfur content possible
- < 19kW Tier 4 final and Stange V without aftertreatment.

- Highest Torque in the Industry
- 140 Nm @ 1200 RPM
- 18,4kW @ 1400 RPM
Engine models H-Family

3H50T

Graph showing the performance characteristics of 3H50T and V1505E4B engines with respect to power (P [kW]) and torque (Md [Nm]) versus engine speed (N [min⁻¹]).
Engine models H-Family

3H50T

Max engine Power

ICFN 18,4kW Stage V, Tier 4 (1500&1800 RPM)
Engine models H-Family

3H50TI
4H50TI
Turbo Intercooled
Engine models H-Family

3H50TI, 4H50TI
Engine models H-Family

4H50TI

- Basic engine (TIC) further developed for markets with low-quality fuel
- Components which react sensitive to sulfur like exhaust gas recirculation (EGR) and diesel oxidation catalyst (DOC) are avoided
- Fuel with up to 5000 ppm sulfur content possible
- Higher output compared to TIC model
- Higher ambient temperatures
- Complies to EPA Tier 2/EU Stage II emissions regulations
- EU Stage IIIA (19–37 kW) certified
Engine models H-Family

H50TI – Specific characteristics

Re-Export / 2nd Machine Life

- Remove DOC
- Remove/disable EGR, flash new Dataset on ECU

Stage IIIB  Stage IIIA  Stage II
## Engine models H-Family

### 3H50TI, 4H50TI

Suitable for following areas:

<table>
<thead>
<tr>
<th>Area</th>
<th>19-37 kW</th>
<th>37-56 kW</th>
</tr>
</thead>
<tbody>
<tr>
<td>Middle &amp; South America</td>
<td>Yes.</td>
<td>Yes.</td>
</tr>
<tr>
<td>Middle East &amp; Africa</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Russian, Asia, Australia</td>
<td></td>
<td></td>
</tr>
<tr>
<td>USA &amp; Canada, Korea</td>
<td>No.</td>
<td>No.</td>
</tr>
<tr>
<td>Europe, Turkey, Hongkong</td>
<td>Yes.</td>
<td>No.</td>
</tr>
<tr>
<td>China</td>
<td>Not certified.</td>
<td>Not certified.</td>
</tr>
<tr>
<td>Japan</td>
<td>Yes But not SPM*!</td>
<td>Yes But not SPM*!</td>
</tr>
</tbody>
</table>

*SPM* = self propelled machines
Engine models H-Family

3H50TI

IFNs 46kW Stage 2
IFN 42kW Stage 2
IFN 36,4kW Stage IIIA
Engine models H-Family

4H50TI

IFNsi 62kW Stage 2
IFN 55kW Stage 2
IFN 36,4kW Stage IIIA
Engine models H-Family

3H50TIC
4H50TIC

_Turbo_ Intercooled_ CooledEGR
Engine models H-Family

3H50TIC, 4H50TIC
Engine models H-Family

3H50TIC, 4H50TIC

4H50TIC

- Turbo common-rail diesel engine
- World first downsizing industrial diesel engine
- Lowest consumption values in its class thanks to iHACS technology [intelligent Hatz Advanced Combustion Strategy]
- Thin-wall molding cylinder block, therefore most compact in size and lowest weight
- Lowest vibration in the market thanks to ideal engine sizing
- Lowest noise in the market
- EPA Tier 4 final and EU Stage IIIB compliance
### Engine models H-Family

**3H50TIC, 4H50TIC**

<table>
<thead>
<tr>
<th>Suitable for following areas</th>
<th>19-37 kW</th>
<th>37-56 kW</th>
</tr>
</thead>
<tbody>
<tr>
<td>Middle &amp; South America</td>
<td>No.</td>
<td>No.</td>
</tr>
<tr>
<td>Middle East &amp; Africa</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Russian, Asia, Australia</td>
<td></td>
<td></td>
</tr>
<tr>
<td>USA &amp; Canada</td>
<td>Yes.</td>
<td>Yes.</td>
</tr>
<tr>
<td>Europe, Turkey, Hong Kong</td>
<td>No.</td>
<td>Yes.</td>
</tr>
<tr>
<td>China, Korea, Japan</td>
<td>Not certified.</td>
<td>Not certified.</td>
</tr>
</tbody>
</table>
Engine models H-Family

4H50TIC

IFN 55kW Tier 4/IIIB
Engine models H-Family

3H50TIC – Tier 4 final

IFN 42kW Tier 4
IFN 36,4kW Tier 4
Engine models H-Family

3H50TICD
4H50TICD

Turbo Intercooled CooledEGR DPF
New engine version

3H50TICD, 4H50TICD – Stage V
Engine models H-Family

3H50TICD, 4H50TICD – Stage V

- Basic engine (TIC) additionally equipped with separable DOC/DPF combination filter
- DPF system optiHEAT [optimised Hatz Exhaust Aftertreatment Technology] optimally customisable to vehicle-/machine design
- Optimised for long periods between two regeneration intervals
- Delivery as a complete system ex works
- Engineered for the proposed EU Stage V emission regulation
**Engine models H-Family**

**4H50TICD – Stage V**

Suitable for following areas:

<table>
<thead>
<tr>
<th></th>
<th>19-37 kW</th>
<th>37-56 kW</th>
</tr>
</thead>
<tbody>
<tr>
<td>Middle &amp; South America</td>
<td>No.</td>
<td>No.</td>
</tr>
<tr>
<td>Middle East &amp; Africa</td>
<td>Yes.</td>
<td>Yes.</td>
</tr>
<tr>
<td>Russia, Asia, Australia, Turkey, Hongkong</td>
<td>No.*</td>
<td>No.*</td>
</tr>
<tr>
<td>Europe</td>
<td>Not certified.</td>
<td>Not certified.</td>
</tr>
<tr>
<td>USA &amp; Canada</td>
<td>Not certified.</td>
<td>Not certified.</td>
</tr>
</tbody>
</table>

* Possible but no requirement!
Engine models H-Family

4H50TICD – Stage V

IFN 55kW Stage V
Engine models H-Family

3H50TICD – Stage V

IFN 42kW Stage V
Engine models H-Family

OPU
Open Power Unit
Engine models H-Family

OPU (For 4H50TI, 4H50TIC)
Engine models H-Family

OPU – Open Power Unit

- Compliance depending on engine typ: Stage V, Tier 4 final, Stage IIIB, Stage IIIA or Tier 2
- Radiator and intercooler mounted vibration-isolated
- Delivery as a complete system ex works; Customer just needs to connect application and all application-based external parts
- Flexible fields of use like hydraulic lifts, hydraulic powerunits, forestry machinery, drilling rigs and stationary applications such as pumps and generators
- Extremely robust design
- High ambient temperature performance
Max. ambient temperature release:

<table>
<thead>
<tr>
<th>RPM</th>
<th>4H50TIC 75% load</th>
<th>4H50TIC 100% load</th>
<th>4H50TI 75% load</th>
<th>4H50TI 100% load</th>
</tr>
</thead>
<tbody>
<tr>
<td>1500 RPM</td>
<td>56°C</td>
<td>50°C</td>
<td>64°C</td>
<td>57°C</td>
</tr>
<tr>
<td>1800 RPM</td>
<td>60°C</td>
<td>53°C</td>
<td>64°C</td>
<td>55°C</td>
</tr>
<tr>
<td>2300 RPM</td>
<td>60°C</td>
<td>52°C</td>
<td>66°C</td>
<td>60°C</td>
</tr>
<tr>
<td>2800 RPM</td>
<td>55°C</td>
<td><strong>47°C</strong></td>
<td>63°C</td>
<td>55°C</td>
</tr>
<tr>
<td>3000 RPM</td>
<td></td>
<td></td>
<td>67°C</td>
<td>60°C</td>
</tr>
</tbody>
</table>
Engine models H-Family

OPU – A real solution

• Heavy Duty, robust steel brackets
• Lifting with engine hooks still possible
• ECU radiator mounted
• Completely wired up to 3 standard sockets [speed, diagnostics, control]
• All fuses and relays included.
• Fan cover, belt guard
• Suction & Pressure fan optimized
LeeBoy benefits

Providing solutions!

• Hatz has supplied engines for the industry for decades
• Brand name is well recognized
• Service, parts and replacement engines have never been an issue
• For export engines, Hatz always took care around the globe
• We know how tough paving is – and designed our engines for it!
LeeBoy benefits

Providing solutions for paving!

4H50TIC – Silent-Pack Option
4H50TIC – Semi-Silent

Key Facts – Noise Level [7m]
4H50TIC – Silent-Pack

Key Facts – Noise Level [1m]

4H50TIC Semi-Silent
LeeBoy benefits

Providing solutions for paving!

- Tier 4 final: EGR+DOC
- Stage IIIA: EGR
- Tier 2: None.
- Stage V: EGR+DOC+DPF

Same Software
Same controls
Same drivability
Optimized costs
LeeBoy benefits

Providing solutions for paving!

Low profile
Good visibility around the machine!