



Oil & Gas

MTU Series 4000 Tier 4i:
Designed for the future.
Built for your success.



Power. Passion. Partnership.

MTU next generation Series 4000 Tier 4i: Built to Frac.

The oil and gas sector is as tough a business as it gets. And the demands being put on the diesel engines powering the business are just as tough. Uncompromising performance and economy, excellent power-to-weight ratios and maximum reliability: as the driving force behind frac pumps, the engines of the MTU Series 4000 have been meeting these demands, performing reliably for decades. Now the frac engine of the future has arrived with the new, next generation Series 4000. This engine is engineered to meet Tier 4 interim requirements through the use of internal engine technology alone, requiring no aftertreatment, additives or related infrastructure. As the key emissions control technology, MTU Exhaust Gas Recirculation (EGR) is tried and tested in the field and has successfully proven its reliability in even the toughest situations. Combined with MTU’s refined third-generation Common Rail injection system and 2-stage turbocharging, it’s one reliable and proven system.

The new Series 4000 makes no compromise: Reliable, economical and powerful. Despite much lower emissions, the engine offers better fuel efficiency than their Tier 2 predecessor, contributing to lower overall life-cycle costs. At the same time, the performance map has been optimized to improve low-end torque, offering ideal characteristics for frac operations.

Designed to meet EPA Tier 4i, MTU’s Series 4000 engine is also the technological base for the future requirements of Tier 4 final. Offering a solid platform to ensure your current and future success, MTU is committed to the oil and gas business as your long-term partner.



MTU Series 4000 Tier 4i – your advantages:

Cost-effectiveness

- No additives needed for emissions control due to in-engine technologies
- Up to 5% better fuel economy*
- Lower life-cycle costs*
- Uncompromising durability, availability and reliability for more uptime
- Maintenance intervals optimized for individual application

Performance

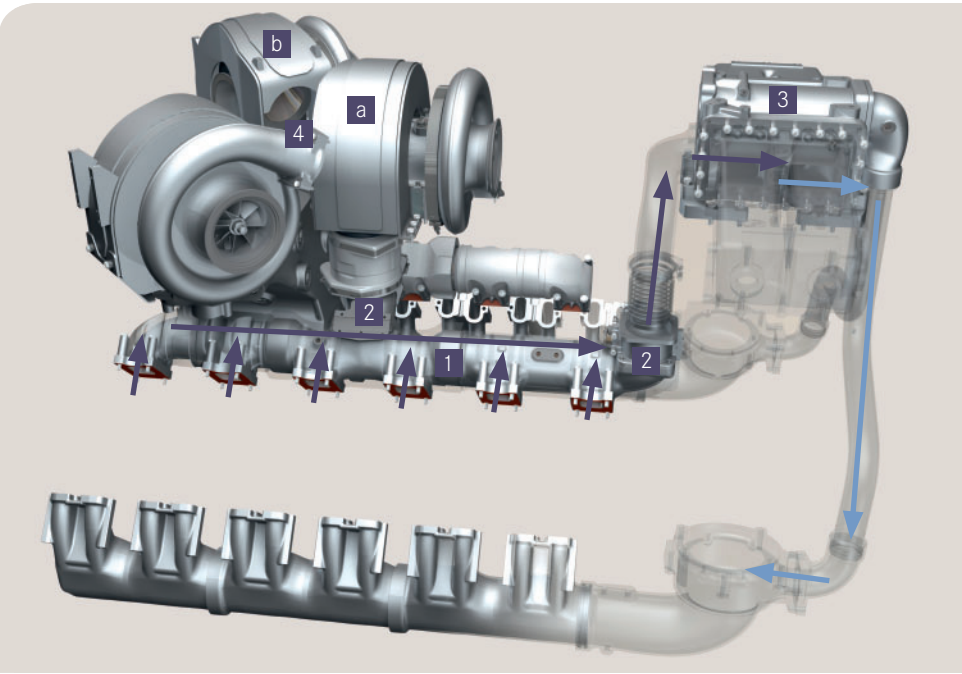
- 12V 4000 T94L rated at 2500 bhp (1865 kW)
- Performance map optimized for frac application: more low-end torque
- Full performance available beyond 4,000 m (13,000 ft)
- Optimized power-to-weight ratio
- Intelligent fit of the performance map with downstream components enhances rig performance by utilizing max frac pump capabilities, which allows for high frac rig utilization

Support

- MTU’s extensive sales and service network provides swift, skilled and professional service, no matter where, when or why you need us
- Experienced MTU specialists are your local, reliable partners

* compared to Tier 2 engine

With the next generation Series 4000, MTU provides the perfect Tier 4-ready frac engine – hitting the sweet spot in terms of performance, reliability and life-cycle costs.



EGR Technology

- 1 Donor Cylinder**
Feeds exhaust gas to the EGR cooler
- 2 Control Flaps**
Automatic control of the exhaust gas recirculation rate up to max. 30%
- 3 EGR Cooler**
Cools recirculated exhaust gas, which is then mixed with the charge air, lowering the combustion temperature
- 4 Two-Stage Turbocharging**
Produce high power density and low soot emissions
4a High-Pressure Exhaust Turbocharger
4b Low-Pressure Exhaust Turbocharger

Exhaust Gas Recirculation (EGR)

Technology

MTU’s current engines > 560 kW (751 bhp), have been ideally designed to achieve EPA Tier 4i emissions with integrated cooled Exhaust Gas Recirculation (EGR).

Engines with EGR offer excellent product characteristics that turn into customer value, while meeting the latest emissions limits. Controlled cooled exhaust gas recirculation means exhaust gas from a donor cylinder is fed into the EGR cooler, then returned to the cylinders. This lowers the combustion temperature, significantly reducing the production of harmful exhaust gases. Control flaps allow the EGR rate to be ideally set for the engine’s operating point, while maintaining the required emissions limits. The two-stage compression of the charge air ensures low soot emissions, high power density and reliable mapping of engine characteristics.

Additionally, these engines with EGR and two-stage turbocharging are the platform for smart solutions for the future – to meet Tier 4 final.

Benefits

EGR, in conjunction with our other core technology, two-stage turbo-charging, offers many benefits:

- High design flexibility of exhaust piping system
- Optimized maintenance costs and operating costs
- Excellent transient behavior – quick load pickup
- Wide engine performance map – full torque curve
- Full power output available even at high altitudes
- Full power output available even at high ambient temperatures
- Accurate adjustment of EGR rate according to load conditions

The next generation Series 4000 is another example of MTU’s overall commitment to the environment and to your success.



MTU's emissions control strategy is future-proof and reliable, combining proven EGR technology with MTU’s third-generation Common Rail fuel injection and two-stage turbocharging.

