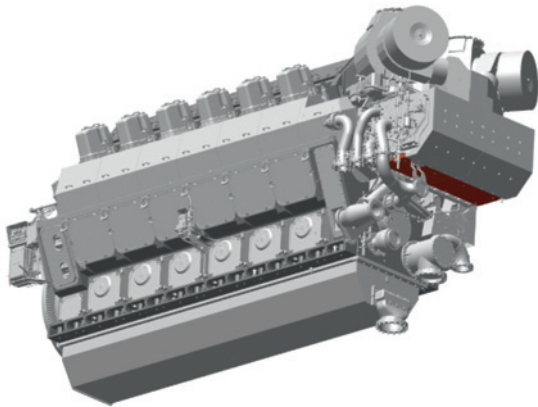


Product and Safety Improvements

Parts Product Solutions

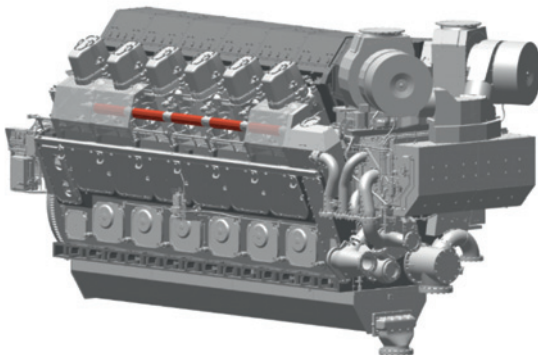
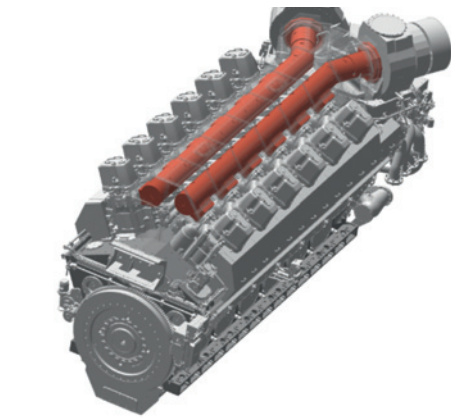


Additional Protections for M32, M43 and M46DF

Medium-speed engines of the Cat® and MaK™ brands – Your Benefits:

- Simple installation and maintenance
- Lower surface temperature (exceeding SOLAS requirements)
- Increased safety of both:
 - Equipment and machinery space
 - Operating personnel
- Reduced risk of engine room fires
- Reduced risk of personnel injury to crew members
- Third party benefits:
 - A safer working environment
 - Fulfills UMS requirements

For more detailed specifications and information please contact your authorized Caterpillar dealer.



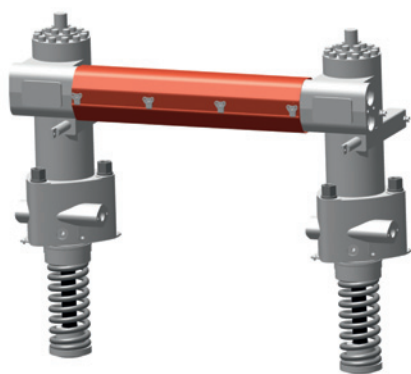
Splash Protection for Low Pressure Fuel Pipes for M43 and M46DF

System Description

The splash protection on the piping between injection pumps is meant to protect against leaking fuel in the event of damages. Furthermore, this additional splash protection shields against external influences. In case of a damaged fuel pipes, the pressurized fuel leaks through, bounces against the inner wall of the splash protection and flows back out in a controlled manner.

System Requirements

The system is available for all M43 and M46DF engine types which are not equipped with a splash protection.



Additional Exhaust Insulation M32, M43 and M46DF

System Description

An additional insulation layer creates a strong heat shield in the area of the exhaust pipes and the turbocharger, which reduces the temperature of the radiant heat. For engines with constant pressure charging the surface temperature of the exhaust manifold can be reduced to approximately 110 to 120°C. For pulse charging the surface temperature can even be decreased to a level of 80 to 90°C, with hot spots of 120°C.

System Requirements

The system is available for all M32, M43 and M46DF engine types which are equipped with both – pulse charging and constant pressure charging.



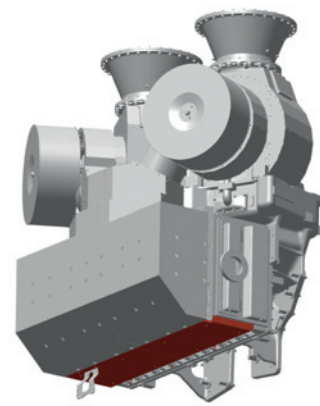
Additional Charge Air Cooler Insulation M43

System Description

The temperature of the radiant heat is minimized by additional insulation layer that creates a strong heat shield in the bottom area of the charge air cooler. Reduction of the surface temperature at the installed cover plate can be decreased to 60°C depending on the type of operation.

System Requirements

The system is available for block coolers installed on VM43 engine type.



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