



PERFORMANCE OPTIMIZATION FOR WÄRTSILÄ 46 & 38A ENGINES



Replacement of the existing turbocharger can be an economically sound investment. In most cases, at 50,000 hour intervals turbochargers require a major overhaul and the rotating parts need to be replaced. However, instead of carrying out this extensive maintenance work, it can make more sense to utilize Wärtsilä's upgrade package and exchange the turbocharger to the latest generation technology. An upgrade to the latest compressor design can also be a sound and profitable investment.

PERFORMANCE OPTIMIZATION FOR POWER PLANT APPLICATIONS

The benefits of the efficiency improvements are considerable. Fuel consumption reduction up to 4 percent can be achieved, thanks to optimized engine tuning and higher boost. This has an obvious positive impact on operational costs.

The flexibility and reliability of the operations are also increased. Not least, maintenance costs are reduced through the decreased need for parts and fewer man hours needed for maintenance work. The service intervals can also be planned with greater flexibility than before.

The turbocharger upgrade will improve the installation's flexibility through:

- Increased engine output and improved certainty of operation
 - Improved turbocharger speed margin

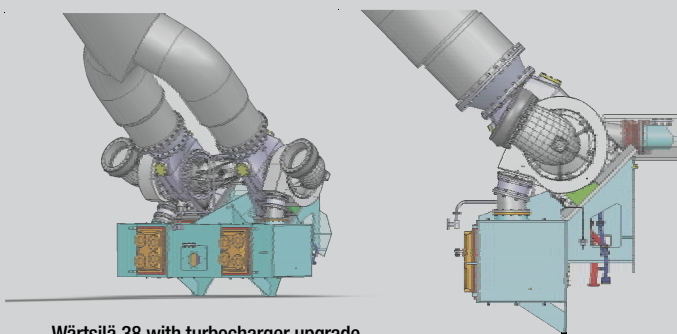
- Reduced need for altitude de-rating
- Continuous output at higher air intake temperatures
- Lower combustion area temperatures and less thermal load on valves
- Increased safety margin on components and less de-rating
- Lower exhaust gas emissions
- Improved lifecycle support
 - Latest generation turbocharger with a full service lifetime



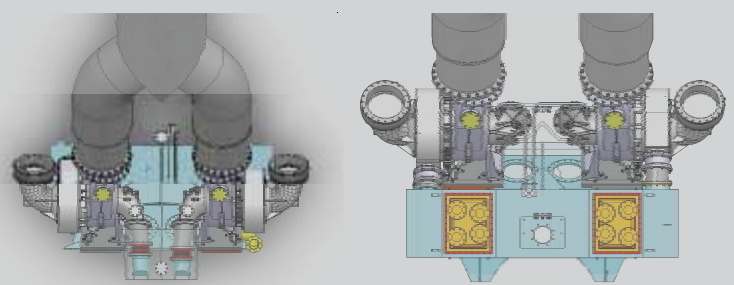
Wärtsilä 46 with turbocharger upgrade



Wärtsilä 38A with turbocharger upgrade



Wärtsilä 38 with turbocharger upgrade



THE NEW GENERATION TURBOCHARGER

The performance upgrade packages are based on the latest, state-of-the-art TPL-C turbocharger featuring higher efficiency and a higher pressure ratio capability. The simple and robust design is based on a cartridge principle and it requires fewer parts throughout its lifecycle. This new generation turbocharger, combined with the advanced valve timing, improves engine efficiency, while the optimized combustion reduces exhaust gas emissions.

APPLICATION FIELD

The turbocharger upgrade is for power plant applications with Wärtsilä 46 and 38A engines.

SCOPE OF SUPPLY

Available performance upgrade packages:

Wärtsilä 46 with TPL77-A30 turbocharger

New cartridges and parts necessary for the exchange

Wärtsilä 46 with VTR 454 or TPL77 turbocharger / Wärtsilä 38A with VTR454/NA547 turbocharger

New turbochargers and tuning parts necessary for optimum performance

If the turbocharger conversion is combined with advanced timing, then engine tuning is required. Therefore we recommend that the conversion be combined with a major service interval overhaul.