Flexible **Turbocharger Cut-Out**

The Flexible Turbocharger Cut-Out system disconnects one or more turbochargers during slow steaming (low-load operation) to reduce specific fuel oil consumption (SFOC) and consequently CO_2 emissions.

Speed reduction can pay off well in cost savings on fuel as well as lowering CO_2 emissions due to the relationship between speed, fuel consumption and emissions. However, the engines have been designed for optimal performance within specific parameters. Operating them outside these parameters will reduce the benefits of slow steaming.

Improved combustion without dependence on auxiliary blowers reduces CO_2

The Flexible Turbocharger Cut-Out increases the efficiency of the remaining turbochargers without depending on auxiliary blowers when slow steaming. This allows for significant savings in SFOC, and consequently CO_2 emissions, when the engines are running within the low load range.

Cutting out one or more turbochargers will return the operating levels of the remaining turbochargers to the usual parameters for optimal performance.

The activation of the Flexible Turbocharger Cut-Out system improves the scavenge air pressure significantly, optimizing the combustion and contributing to SFOC reductions at 4–6 g/kWh at low load. Moreover, this can reduce the heat load, especially on the exhaust valves.

The auxiliary blower activation will be moved to a lower load range to reduce the power consumption of the blowers.

Simple, cost-effective solution, widely used worldwide

The Flexible Turbocharger Cut-Out consists of two pneumatically operated swing gate valves – one at the turbine inlet and one at the compressor outlet of the turbocharger.

The Flexible Turbocharger Cut-Out has been very well received in the maritime world with more than 500 systems in operation worldwide.

Please contact your Everllence PrimeServ office for more details.

Figure 1: Turbocharger Cut-Out

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Flexible Turbocharger Cut-Out

Improved fuel oil consumption and slow steaming capabilities

Key benefits

- Improved performance of the remaining turbochargers
- Improved combustion resulting in cleaner engine
- Fuel savings up to 6 g/kWh SFOC
- Potentially lower costs on fuel consumption for auxiliary blowers
- CO_2 reduction will help cutting carbon costs within the EU Emissions Trading System
- Short payback period
- High flexibility

Scope of supply

- 2 x cut-out swing gate valves for the turbocharger turbine and compressor sides
- Insulation for swing gate valves
- Pneumatic system to control the turbocharger cut-out swing gate valves
- Indicator panel for engine control room
- Amendment to Technical File and emission measurements if needed
- Engeneering package:
  1. Engine feasibility calculations
  2. Torsional Vibration Calculations (TVC)
  3. Gas Harmonics Calculations (GHC)
- Sealing air modification if needed

Applicable to

All Everllence B&W MC/MC-C and ME/ME-C engines with two or more turbochargers

More information

Contact your local Everllence PrimeServ office for more information about the product and how the upgrade can improve your specific engine.

Everllence PrimeServ

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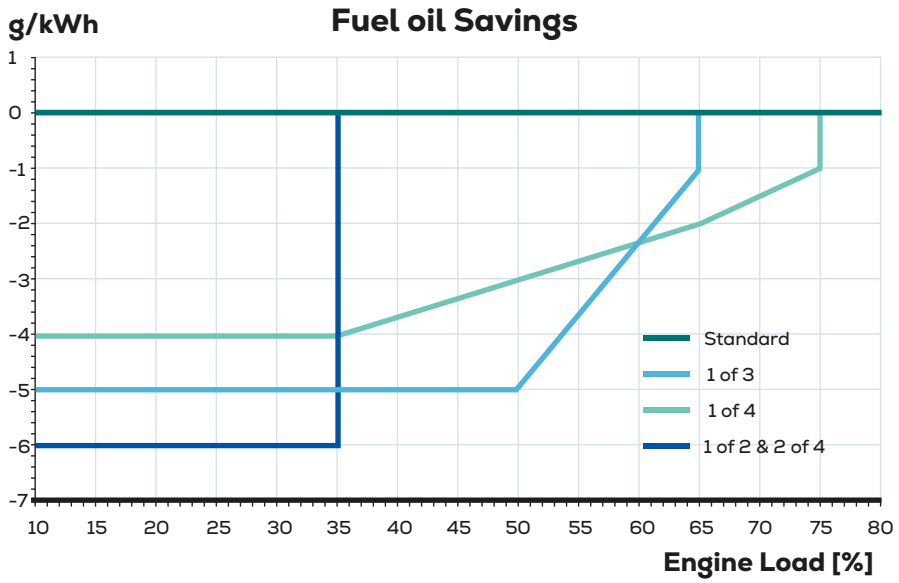

Figure 2: Fuel oil savings [g/kWh]

Obtainable SFOC reduction when turbochargers are cut out

Load range	10-35% of MCR	10-66%	10-74% of MCR	10-3% of MCR
Turbochargers in total	2	3	4	4
Turbochargers cut out	1	1	1	2
SFOC reduction at 25% engine load	6 g/kWh	5 g/kWh	4 g/kWh	6 g/kWh

Figure 3: Load range in %