

# Engine Announcement: The iCER diesel Tier III mode execution for the X72DF-2.1 and X72DF-2.2

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## 1 Introduction

WinGD, the marine industry's leading low-speed engine developer, recently introduced new versions of the popular X72DF engine model, which are prepared for the optional iCER (Intelligent Control by Exhaust Recycling) technology. For engine design details, please see TIN 021, released February 2021.

In addition to the iCER gas mode operation, which was previously announced, this Technical Information Note introduces the iCER diesel Tier III mode execution for the X72DF-2.1 and X72DF-2.2 engines. The iCER diesel Tier III mode allows engine operation in liquid mode fulfilling IMO Tier III NO<sub>x</sub> compliance without additional exhaust gas aftertreatment.

## 2 Main engine parameters

The engine parameters remain unchanged with the introduction of the iCER diesel Tier III mode execution. Only iCER diesel Tier III mode performance values are changing. The GTD 2.14.0.1 release introduced the iCER diesel Tier III mode performance data.

## 3 Engine availability

The first X72DF-2.1 iCER engine shoptest is targeted for 2022-Q3 with delivery expected to be late 2022-Q3.

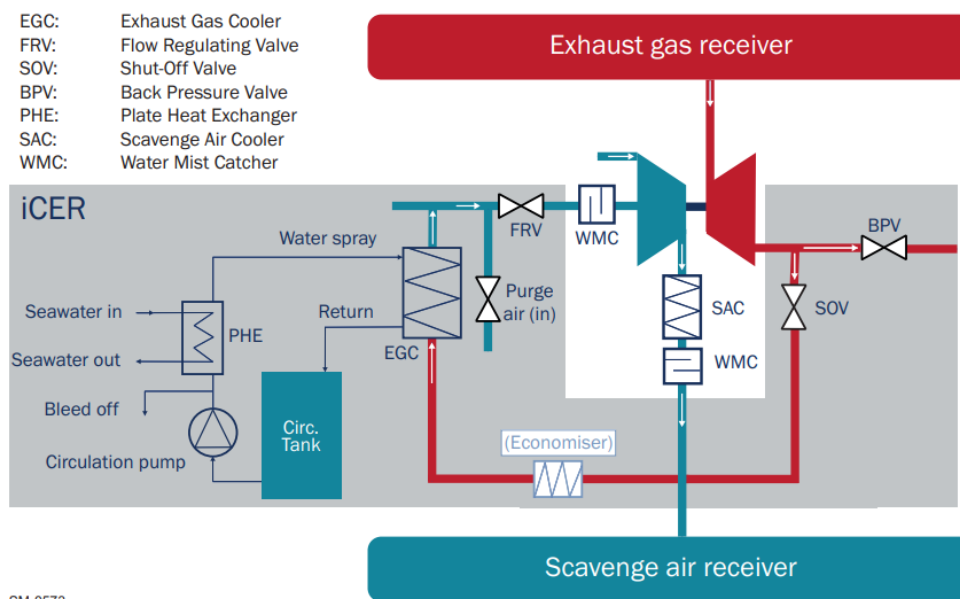
#### 4 X-DF2.0 iCER technology

The engine upgrades introduced with the new X72DF variants are fully compatible with the optional X-DF2.0 iCER technology (see Figure 4-1 visualization). Details are described in TIN 018.



Figure 4-1: Example of an iCER system arrangement on a 5X72DF-2.1 engine

Figure 4-2 shows the main iCER components, consisting of an Exhaust Gas Cooler (EGC) with dedicated shut-off valves in the exhaust gas piping and circulation tank.



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Figure 4-2: Overview of the iCER system

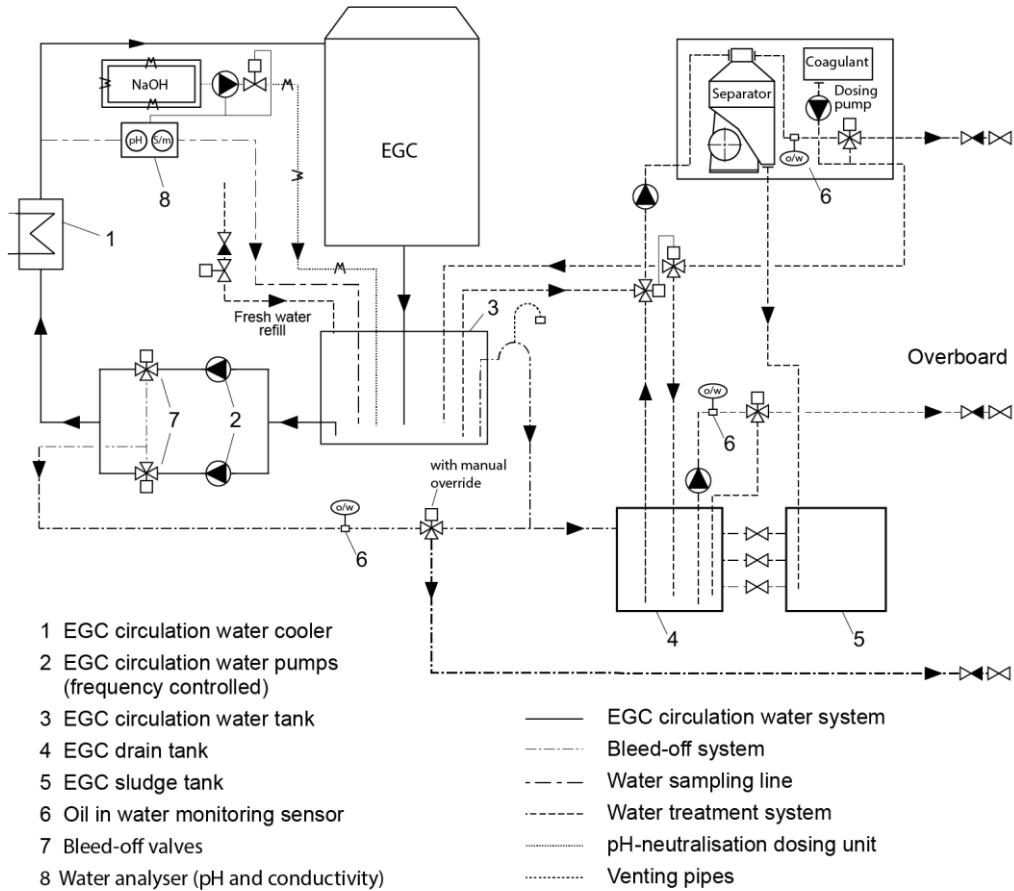
#### 4.1 The iCER diesel Tier III mode (combined iCER gas and diesel Tier III mode operation)

Further to the iCER gas technology, WinGD introduces now the iCER diesel Tier III mode execution for the X72DF-2.1 and X72DF-2.2 type engines. This combined iCER system, which is capable of handling both gas and liquid (diesel) mode, ensures full IMO Tier III NO<sub>x</sub> compliance in both operating modes without an SCR system.

There are certain changes required for an application with iCER diesel Tier III mode:

- Due to a certain soot contamination (from liquid mode) an exhaust gas cooling water treatment plant is required (see Figure 4-3). The EGC cooler maker can typically provide such plants.
- The Turbocharger (TC) compressor wheel to be configured as per TC maker recommendations.
- The TC silencer to be specified as per TC maker to accommodate iCER interface (both on iCER gas and iCER diesel Tier III mode layout).
- In principle, the engine remains the same as without the iCER diesel Tier III mode execution, except the Scavenge Air Cooler (SAC) which is made up of stainless steel. This affects the cooling water flow requirement (see GTD for details).
- An additional water trap in front of the TC (return pipe) is required, same as was recently introduced on the iCER gas mode execution.
- Note: The iCER diesel Tier III mode option is only applicable for distillate fuels with <0.1% sulphur m/m.

The iCER diesel Tier III mode execution is a selectable option in WinGD's GTD program.



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Figure 4-3: The iCER drainage system for installations with gas and diesel Tier III mode operation