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ISO 9001
Certified on designing and manufacturing energy saving devices for ships and model ships for model tests.

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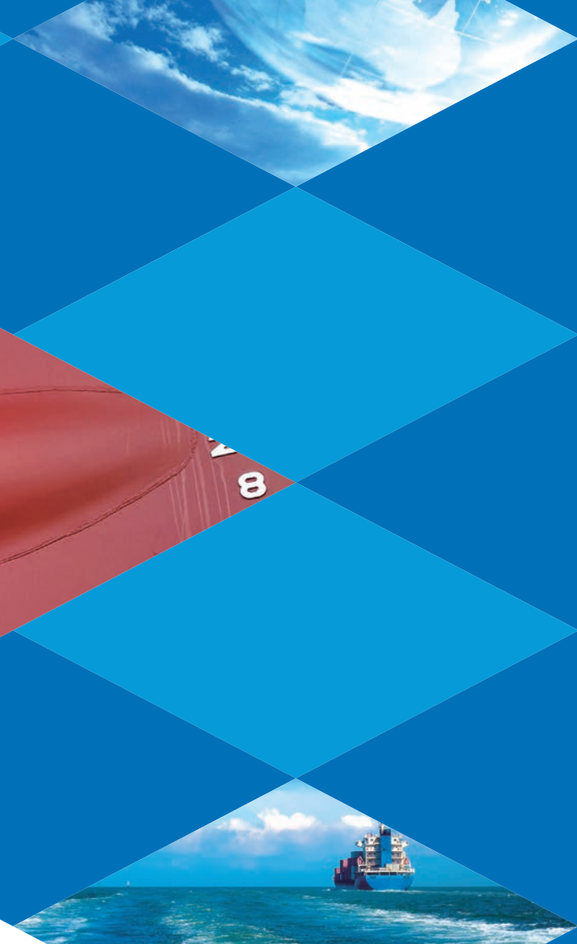
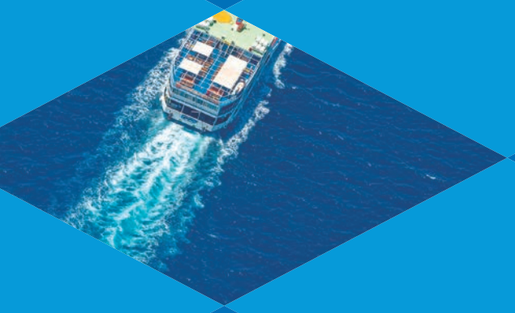


Eco-Stator

Pre-swirl Energy-Saving Device



iFTC FLUID TECHNO Co., Ltd.

Eco-Stator

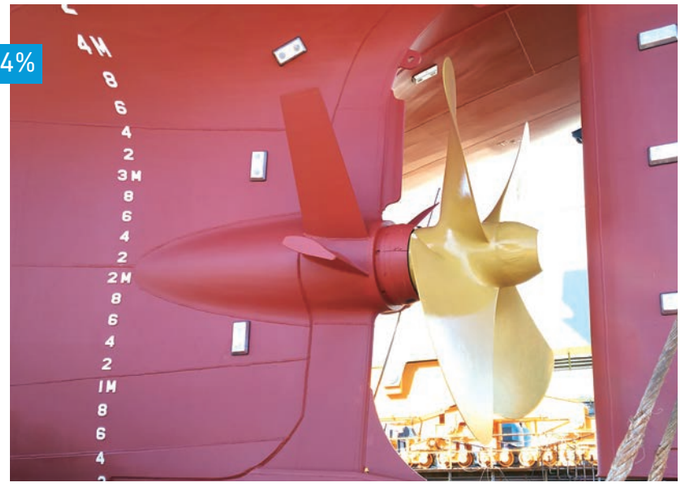
SAVE FUEL OIL CONSUMPTION BY 3-4%

"Eco-Stator" is one of pre-swirl type of energy saving devices installed in front of propeller, which has four or five stator fins fixed radially around stern tube and upper side of propeller shaft. It works as to rectify a water stream flowing around the stern and helps the propeller to enhance its thrust at minimized propulsion main engine output.
The noteworthy effects are following;

Keeping same speed,
fuel oil consumption is saved by 3-4%

Vessel can sail at a faster speed
without raising fuel cost.

Stern vibration is improved by
rectified inflow into the propeller.



Eco Device's Principle

Energy saving devices to improve the rotational flow behind propeller have been developed since more than 100 years ago. "Eco-Stator" is categorized in pre-swirl stator, Zone 1. By arranging"Eco-Stator" in front of propeller, a inflow into propeller is rectified, then slipstream is lessened.

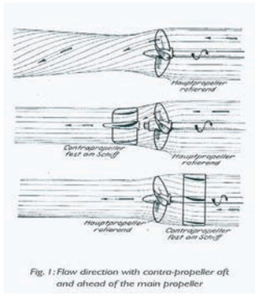
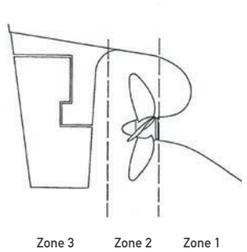
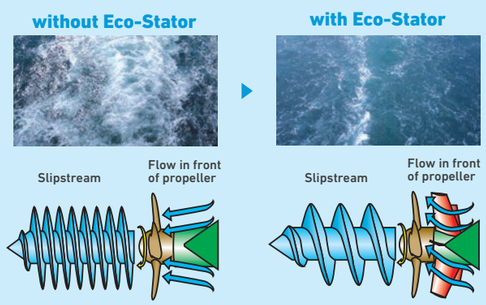


Fig. 1: Flow direction with contra-propeller aft and ahead of the main propeller

Dr.Rudolf Wagner,"Retrospective and prospective view on the development of the contra-propeller", presented at the general meeting of the German Society of Naval Architects(STG) ,1929



by J.S.Carlton

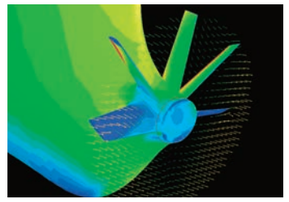


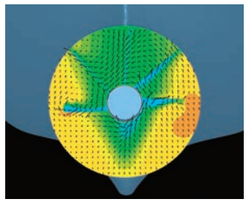
Design

Main dimensions of "Eco-Stator" are span and chord length of stator, installing positions and setting angles. These are designed according to accumulated data base, tank test results and full scale sea trial. CFD is a strong tool for the designing.

CFD

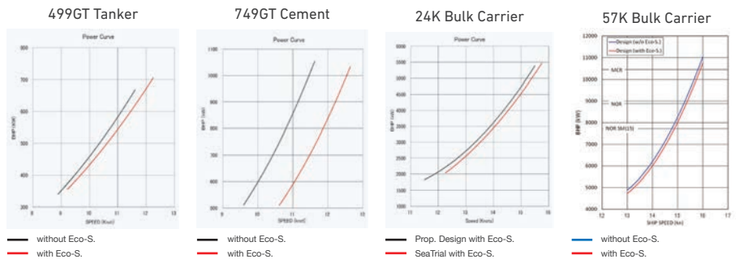
Flow field around stern can be estimated using CFD tool. Especially, flow direction over installation positions(or propeller planes) which exists in wake field is applied to the design.
※CFD (Computational Fluid Dynamics)





Full Scale Sea Trial

Sea trial results include roughness allowance on surfaces of hull and propeller. In case that the device is installed to vessel retroactively, horsepower is reduced by 3-4% at same speed. Also, when newbuilding has Eco-Stator, it does not affect load of main engine as the propeller is designed with the consideration of the device influence.



Tank Test

Setting angles and positions of Eco-Stator are planned on basis of the wake distribution measured on propeller plane with using model ship. We also ascertain the energy-saving effect by the device through tank test .

Ablog analysis

According to results recorded on Ablog data, fuel oil consumption is improved by 3-4% at same speed.

Ship Kind	Domestic Vessel
Ship age	Retrofit