



Improve your CII rating with **Frese FUELSAVE™**

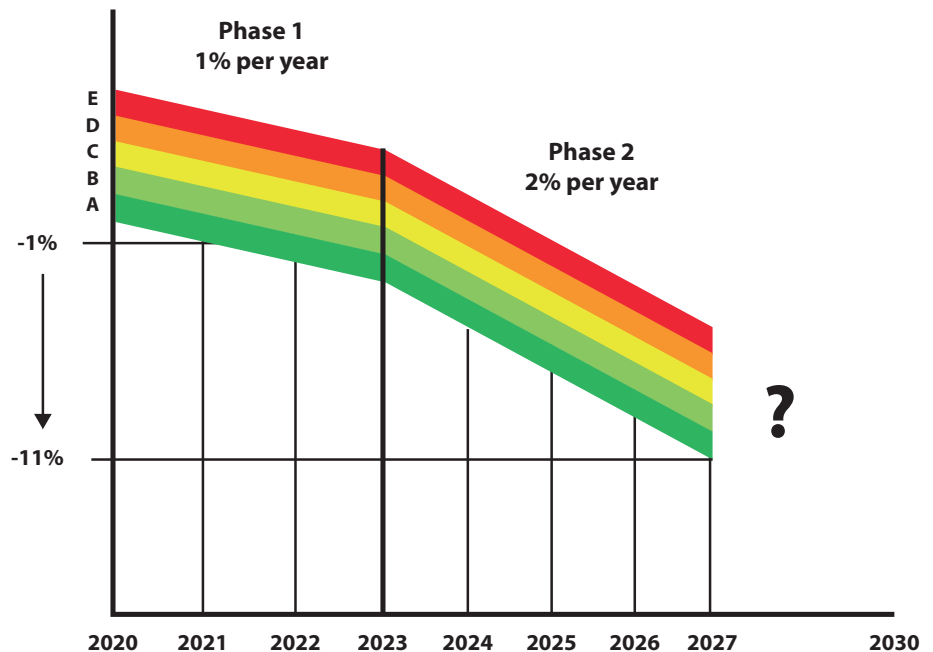
EEXI - How the ships are equipped or designed • **CII** - How the ships operate

The CII derives from the Annual Efficiency Ratio which measures the carbon emissions of a ship's operations over the course of a year.

$$\text{AER} = \frac{\text{Annual CO}_2 \text{ emissions}}{\text{Annual distance sailed x Capacity}} = \frac{\text{gCO}_2}{\text{Capacity x mile}}$$

CII rating indicates the performance of the vessel over the previous year:

- A** Major Superior
- B** Minor Superior
- C** Moderate
- D** Minor Inferior
- E** Inferior



HOW TO REDUCE CARBON INTENSITY

Five strategies available in the market with pros and cons:

1. DWT Increase
2. Voyage Optimisation
3. Hydrodynamics
4. Main Propulsion Optimisations
5. Onboard Energy Optimisations
→ Frese FUELSAVE™

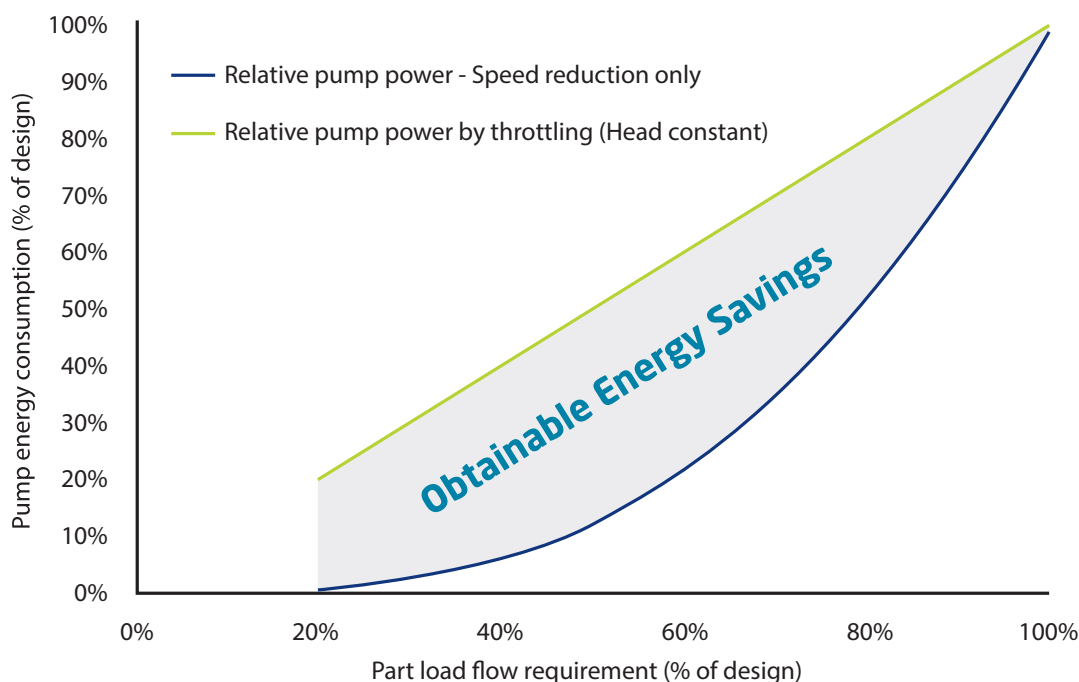


Typical impact of Frese FUELSAVE™ on various ship types

Vessel type	Existing installations			Vessel operation					Frese FUELSAVE		CII reduction
	M/E MCR (kW)	SW Pump - Design (kW)	LTFW - Design (kW)	Annual CO2 emission (tonnes)	Capacity	Distance sailed (n. miles)	CII reference line value	CII attained	LTFW pump Fuel saving (MT/year)	SW pump Fuel saving (MT/year)	CII attained reduction %
Bulk Carrier - Handysize	7,050	45	62	3,972	27,000	18,153	8.3	8.1	65	55	9%
Tanker - MR2	9,480	74	90	9,056	60,000	24,094	6.4	6.3	94	91	6%
Containership - 3000 TEU Class	25,270	113	130	24,546	43,127	49,575	10.7	11.5	137	139	3.5%
Containership - 10000 TEU Class	60,200	200	202	30,180	115,800	36,507	6.6	7.1	212	245	5%
LNG carrier (< 100,000 DWT)	25,040	133	133	26,433	80,000	38,872	11.3	8.5	139	163	4%
Ro-Ro passenger ship	24,000	92	91	23,839	13,000	67,817	26.2	27.0	96	113	3%

How can Frese FUELSAVE™ Save Energy Onboard?

In the above calculations it is assumed that 70% pump energy can be saved on SW pumps and 60% on LTFW pumps. Contact us to hear more about how the patented Frese FUELSAVE™ can achieve this.



Contact

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