

Ship Efficiency

- Efficiency: general definition & relevance to ships
- Ship cost structure & incentives for ship efficiency
- Ship specialization: design for purpose
- Ship types: according to cargo & technique of support
- Ship structure: main elements
- Ship size parameters: tonnage, deadweight and displacement
- Ship carrying capacity & cargo stowage factor
- Ship Hull: Dimensions & Form
- Ship Motions
- Ship Stability: Intact & Damage
- Ship Stresses
- Ship Design for Efficiency: General Cargo Ships, Container Ships, Bulk carriers (incl. OBO, OO and Ore Carriers), Bulk Cargo Stability (IMSBC Code), Oil carriers (Crude and Product), Chemical Carriers (incl. Parcel Carriers), LNG & LPG carriers
- Merchant Fleet Supply (number & tonnage by type)
- Merchant Fleet Demand (transport work: total & by Type)
- Fleet safety (incl. security) performance
- Fleet environmental performance (oil, air and ballast pollution)
- Marine bunkering market
- Fuel consumption and specific energy efficiency by ship type
- Ship fuel energy distribution & utilisation
- Ship Fuel Consumption Vs Ship Size & Speed
- Ship resistance: Wave resistance, Friction resistance, Pressure resistance, Air resistance, Appendage resistance
- Distribution of ship resistance components for low & high speed ships
- Ship resistance reduction measures (design & operational)
- Ship propulsion selection criteria
- Mechanical ship propulsion configurations (direct & indirect)
- Marine engine options, comparison & applications
- Ship propulsion system efficiency
- Efficiency and specific fuel consumption of marine engines
- High efficiency marine propulsion diesel engine
- Conventional marine fuels: types, costs, uses and onboard processing
- Ship propulsors (propellers and water-jets): types, uses and efficiency
- Ship propulsion system configurations (mechanical & electrical)
- Shipboard auxiliary services: Engine lubrication, Electricity production and usage.
- Ship exhaust SOX & NOX emissions: Regulations & Measures
- Ship exhaust CO2 emissions: Regulations (EEDI & SEEMP), IMO Initial GHG Strategy, SEEMP Framework & EEOI calculation example, EEDI & SEEMP Measures (incl. EEXI and CII), EU MRV & IMO DCS, Transition to zero carbon marine fuels and energy
- BWM Convention & Treatment systems