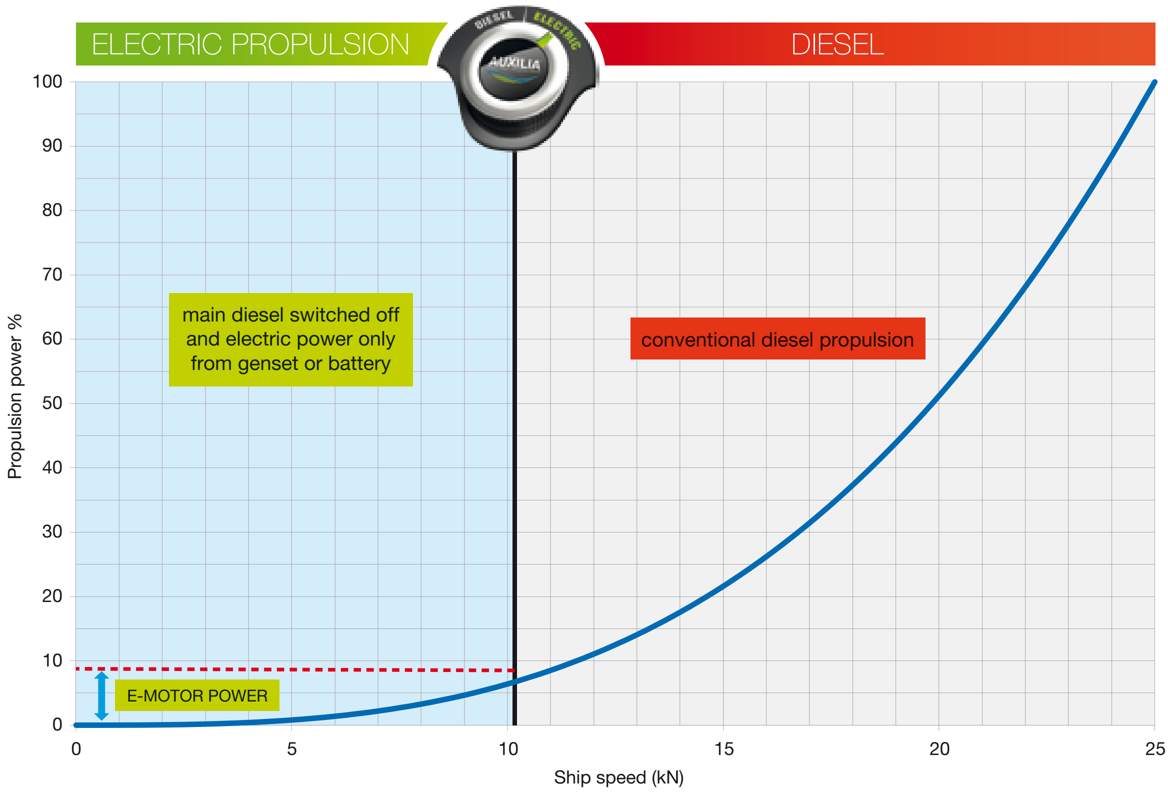
Hybrid Drive for Commercial Vessels

Main engines 400 kW - 2000 kW

Your future is driving our present

Auxilia technology

Auxilia is a RTN brand that identifies two types of marine electric propulsion systems: **auxiliary propulsion system** and **main electric propulsion system**.
For the commercial vessels, Auxilia offers an auxiliary propulsion system consisting of e-motors, drivers, PMS (Power Management Systems) gensets and control levers. Furthermore Auxilia could supply all components of the propulsion system in a complete package (reduction gearboxes, shafts and propellers or POD systems).
The electric motor, up to 200 kW, is solid mounted with the diesel engine housing (direct mounted). For the versions over 200 kW only the clutch is coupled to the diesel engine but the e-motor is connected to the main engine through a shaft and installed on rigid mountings (remote mounted). Both versions act on the same shaft and on the same propeller; the clutch between the e-motor and the diesel engine permit to disengage the main engine from the propulsion system when the e-motor is on. Auxilia can be used in alternative to the main diesel engine. With the clutch disengaged, the e-motor can take the ship from the harbour out into the open sea (shutdown of main engines, power from gensets or batteries) and cruising at 6-10 knots with excellent fuel economy, low emissions, faster accelerations.
If the captain then decides to go at full throttle, he will deploy the full power of his diesel engines. The clutch will engage and the combustion engines take over the ship's propulsion. During this phase the e-motor can works in two propulsion modes: as a generator recharging the batteries or producing electricity for the ship load or in booster mode to increase the speed/acceleration.
For long distances when cruising at moderate speed, in order to save fuel (and CO_2 emissions) the captain may shut down one diesel engine and drive the second propeller using the electric motor (e-shaft mode with two shaft line).



Main Advantages of Hybrid Electric Propulsion

THE BIG FOUR

CONSUMPTIONS

- cruising until 10 knots with excellent fuel economy
- economic navigation with “e-shaft mode” (two propellers with only one engine running).

EMISSIONS

- significantly CO_2 and NOx reduction
- maneuvering in harbour without emissions.
- minimal emissions with gensets

LOW SPEED

- easy dynamic position mode (DP) especially with FPP
- patrolling at low and very low speed (below idle engine speed) with excellent fuel economy

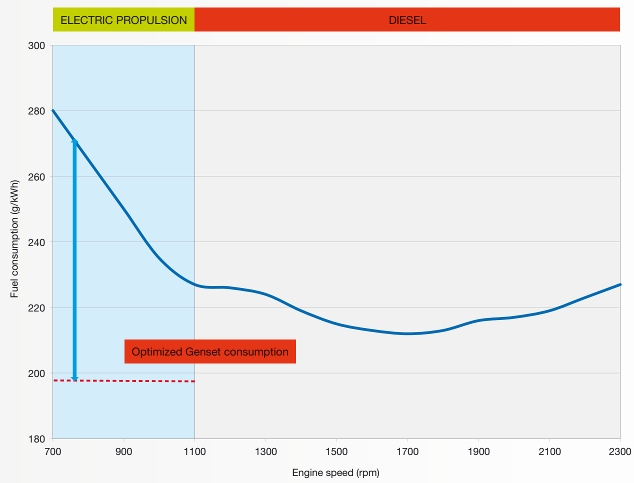
COMFORT

- low noise and vibrations
- night cruising in full comfort

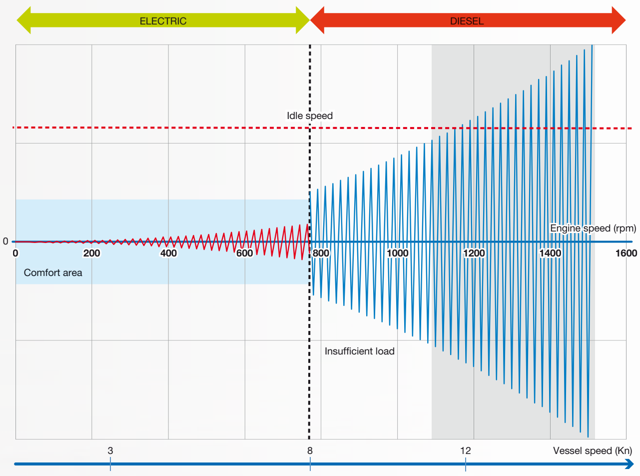
OTHER BENEFITS

- redundancy of propulsion
- longer engines service life and consequently reduction of maintenance costs
- easy installation
- possible retrofit
- universal connection with all gearboxes (V-drive, Inline, freestanding) and propulsion systems (POD, CPP,WJ)
- sea water cooling (easy piping)
- change of the propellers sense of rotation without load pick on the e-motor

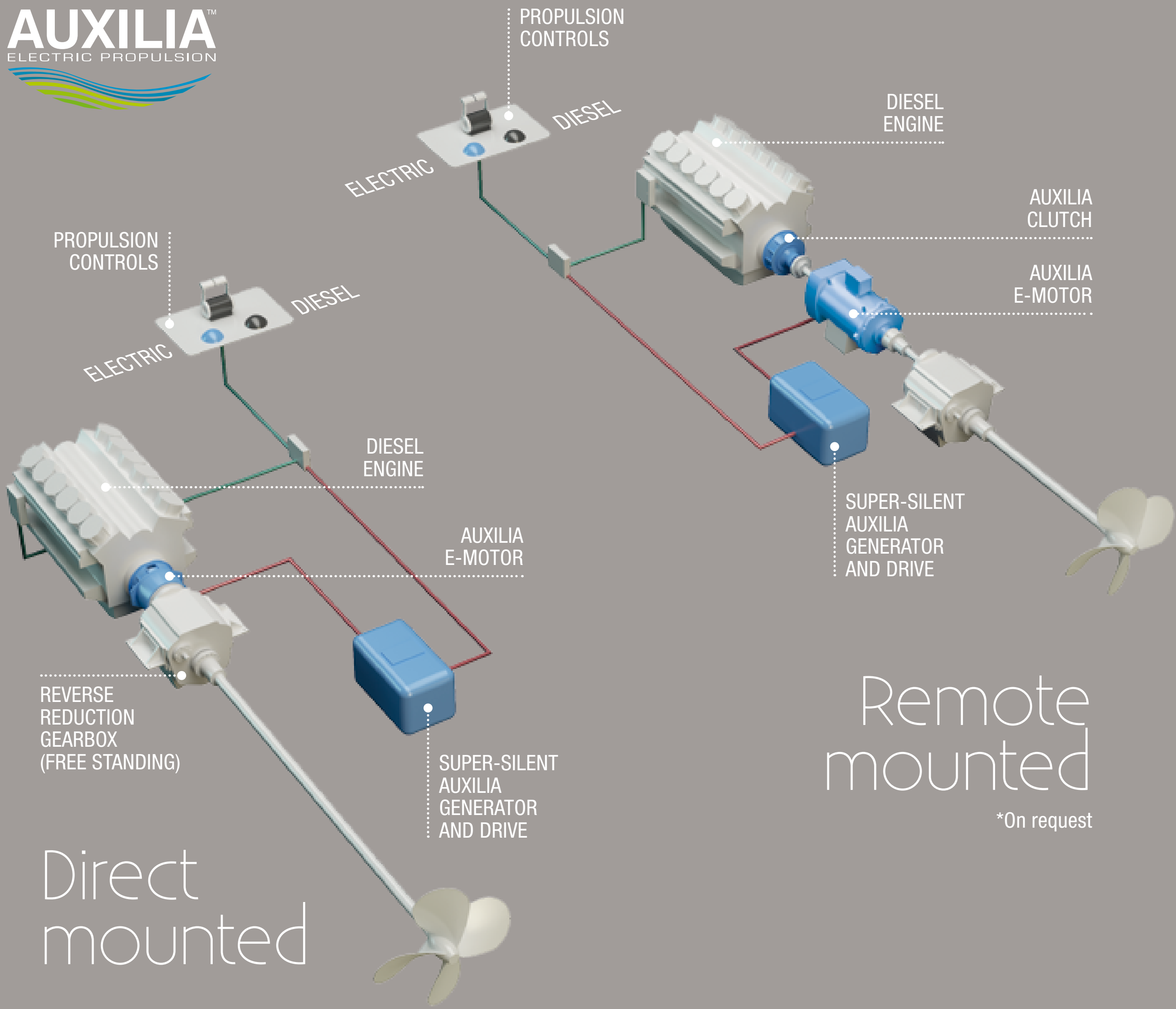
EXAMPLE OF SPECIFIC FUEL CONSUMPTION FOR PROPELLER



COMFORT (VIBRATIONS AND NOISE)



AUXILIA™
ELECTRIC PROPULSION



OPTIONAL

- Batteries
- Shaft generators
- Full Automation and controls for the vessel
- Control stations for diesel and electric motors
- DP Dynamic Positioning
- Variable speed generators
- Electric shaft solutions (inverter-less)
- Booster mode (max speed with extra power from E-motors)

AUXILIA SCOPE OF SUPPLY

- Power Generation (gensets: fixed speed 1500-1800 rpm) or variable speed
- Power distribution and drives with DC-BUS
- PMS (Power Management System)
- Marine E-Motors
- Power transmission (reverse reduction gearboxes)
- Propulsion (shaft and propellers)
- Automation and controls

DUTY PROFILE: CONTINUOS DUTY

- Continuos operation with little or no variations in engine speed and power
- Average engine operating hours: unlimited
- Allowable hull forms: semi-displacement, displacement
- Allowable applications: commercial vessels

Marine Market for Hybrid Electric Propulsion

Hybrid propulsion solutions can be installed in most marine applications, such as Ferries, Offshore Supply vessels and many more. Through the unique configuration and the use of standard components it is possible to create highly efficient hybrid propulsion solutions, allowing highest flexibility for customized installation.

DEFENCE & SECURITY

- Patrol
- Combatants
- Auxiliary Support Ship

OFFSHORE

- Oil & gas
- Research
- Supporting Service

PUBLIC TRANSPORT

- Passengers & Ferry

OFFSHORE WIND

- Supporting Service

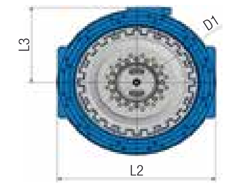
HARBOUR & TERMINAL

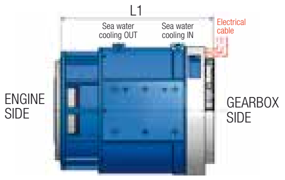
- Towage & Movement
- Harbour services

FISHING

- Fishing

AUXILIA MOT

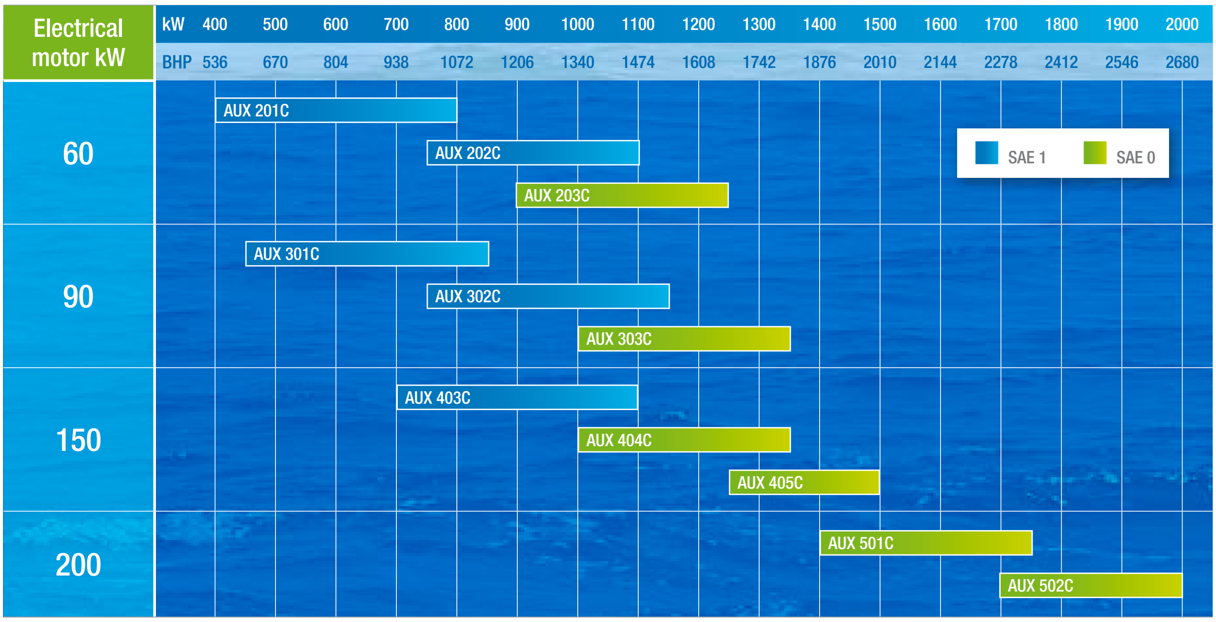




AUXILIA	SAE	E. motor	L1	L2	L3	D1	Weight
TYPE		kW	mm	mm	mm	mm	Kg
201C, 202C	1	60	545	600	320	530,2	700
303C	0	60	500	760	410	647,7	780
301C, 302C	1	90	585	600	320	530,2	750
303C	0	90	525	760	410	647,7	910
403C	1	150	645	600	320	530,2	850
404C, 405C	0	150	595	760	410	647,7	1070
501C, 502C	0	200	645	760	410	647,7	1250

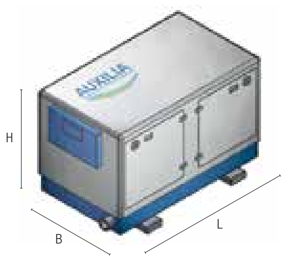
HYBRID SELECTION FOR DIRECT MOUNTED VERSION

Diesel engine speed 1800 rpm (for different engine speed please contact AUXILIA technical office)



* Remote mounted version from 200 kW to 500 kW on request

AUXILIA GEN



POWER (kW)	L	B	H
	mm	mm	mm
200	1618	983	974
300	1618	983	974
400	2094	969	1005
500	2516	969	1005

Note 1: Main dimensions including **Super-Silent Sound insulation** capsule

Dimensions and weights not strictly binding and subject to change without notice.

The proper selection has to be done including “Hotel load”.
Please, ask to Auxilia for a Genset selection according to your necessity.

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The Auxilia warranty

Service Stations Worldwide

AUXILIA™
ELECTRIC PROPULSION

Località Cà Verde snc
I-29011 Borgonovo Val Tidone (PC)
Italy
Tel.: +39 0523 86 96 11
Fax.: +39 0523 86 10 77

info@auxilia-propulsion.com
www.auxilia-propulsion.com