



## Diesel-electric propulsion plants: Questionnaire

### 1. Diesel-electric propulsion plant layout data

In order to provide you with appropriate project material and to carry out proposals promptly and accurately, we would kindly request you to fill in as many of the following details as possible and return it with a complete set of arrangement drawings to your sales representative.

#### 1.1 General data

Name: \_\_\_\_\_

Address: \_\_\_\_\_

Phone: \_\_\_\_\_

E-mail: \_\_\_\_\_

Project: \_\_\_\_\_

Type of vessel: \_\_\_\_\_

Propulsion principle:

Diesel-electric     CODLAD     CODLAG     \_\_\_\_\_

Main particulars:

Length, overall [m]: \_\_\_\_\_

Length, pp [m]: \_\_\_\_\_

Breadth, moulded [m]: \_\_\_\_\_

Depth, moulded [m]: \_\_\_\_\_

Draught, design [m]: \_\_\_\_\_

Draught, scantling [m]: \_\_\_\_\_

DWT, at sct draught [t]: \_\_\_\_\_

Gross tonnage [GRT]: \_\_\_\_\_

Crew + Passengers: \_\_\_\_\_ + \_\_\_\_\_



Classification society: \_\_\_\_\_ Class notation: \_\_\_\_\_

Additional class notations: \_\_\_\_\_ Redundancy: \_\_\_\_\_

Ice class: \_\_\_\_\_

Ambient conditions:

Max. machinery room temperature [°C]: \_\_\_\_\_

Max. sea water temperature [°C]: \_\_\_\_\_

Max. fresh water temperature [°C]: \_\_\_\_\_

## 1.2 Speed and margins

Speed:

Ship design speed [kn] : \_\_\_\_\_ (at maximum propulsion shaft power)

Sea margin [%] : \_\_\_\_\_

Max. allowed load of engines [%] : \_\_\_\_\_ % MCR

## 1.3 Propulsion system and power demand

Main Propulsion:

- Shaft propulsion:     Single Screw:     Single in – single out  
 Tandem  
 Twin in – single out  
 Twin Screw:     Two shaft lines  
 2x Twin in – single out

Steerable rudder propellers (= Azimuth thrusters)

Pods

\_\_\_\_\_



Data for main propulsion:

FPP:            Number: \_\_\_\_\_  
Max. shaft power on propulsion E-motor (per propeller; including sea margin)  
[kW]: \_\_\_\_\_  
Propeller revolution [RPM]: \_\_\_\_\_  
Input speed (= E-motor RPM): \_\_\_\_\_  
Reduction gearbox:  yes             no

CPP:            Number: \_\_\_\_\_  
Max. shaft power on propulsion E-motor (per propeller; including sea margin)  
[kW]: \_\_\_\_\_  
Propeller revolution [RPM]: \_\_\_\_\_  
Input speed (= E-motor RPM): \_\_\_\_\_  
Reduction gearbox:  yes             no

Azi. thruster:    Number: \_\_\_\_\_  
Max. shaft power on propulsion E-motor (per thruster; including sea margin)  
[kW]: \_\_\_\_\_  
Input speed (= E-motor RPM): \_\_\_\_\_  
Propeller type:         FPP             CPP

Pod:            Number: \_\_\_\_\_  
Max. shaft power on propulsion E-motor (per pod; including sea margin)  
[kW]: \_\_\_\_\_  
E-motor speed [RPM]: \_\_\_\_\_

\_\_\_\_\_ Number: \_\_\_\_\_  
Max. shaft power on propulsion E-motor (each; including sea margin)  
[kW]: \_\_\_\_\_  
Propeller revolution [RPM]: \_\_\_\_\_  
Input speed (= E-motor RPM): \_\_\_\_\_  
Reduction gearbox:  yes             no



Data for manoeuvring propulsors:

Bow thruster: Number: \_\_\_\_\_  
Max. shaft power on propulsion E-motor (each; including sea margin)  
[kW]: \_\_\_\_\_  
Input speed (= E-motor RPM): \_\_\_\_\_  
Propeller type:     FPP             CPP

Stern thruster: Number: \_\_\_\_\_  
Max. shaft power on propulsion E-motor (each; including sea margin)  
[kW]: \_\_\_\_\_  
Input speed (= E-motor RPM): \_\_\_\_\_  
Propeller type:     FPP             CPP

\_\_\_\_\_ Number: \_\_\_\_\_  
Max. shaft power on propulsion E-motor (each; including sea margin)  
[kW]: \_\_\_\_\_  
Input speed (= E-motor RPM): \_\_\_\_\_  
Propeller revolution [RPM]: \_\_\_\_\_  
Propeller type:     FPP             CPP

#### 1.4 Electrical load balance

Max. total electrical power demand at sea:

for main propulsion [ $kW_{el}$ ]: \_\_\_\_\_  
for vessel's consumers [ $kW_{el}$ ]: \_\_\_\_\_

Max. total electrical power demand at manoeuvring:

for main propulsion [ $kW_{el}$ ]: \_\_\_\_\_  
for manoeuvring propulsors [ $kW_{el}$ ]: \_\_\_\_\_  
for vessel's consumers [ $kW_{el}$ ]: \_\_\_\_\_



Max. total electrical power demand at port:

for vessel's consumers [ $kW_{el}$ ]: \_\_\_\_\_

The five biggest electrical consumers of the vessel  
(apart from main propulsion and maneuvering propulsors):

Name: \_\_\_\_\_ ;  $kW_{el}$ : \_\_\_\_\_

Name: \_\_\_\_\_ ;  $kW_{el}$ : \_\_\_\_\_

Name: \_\_\_\_\_ ;  $kW_{el}$ : \_\_\_\_\_

Name: \_\_\_\_\_ ;  $kW_{el}$ : \_\_\_\_\_

Name: \_\_\_\_\_ ;  $kW_{el}$ : \_\_\_\_\_

Please provide us with a complete E-Load-Balance of the vessel.

### 1.5 Electrical system and motors

Number of generators: \_\_\_\_\_

Power per generator [ $kW_{el}$ ]: \_\_\_\_\_

Power factor: \_\_\_\_\_

Revolution of generators [RPM]: \_\_\_\_\_

Frequency [Hz]: \_\_\_\_\_

Voltage level of generator and MSB [V]: \_\_\_\_\_

Voltage levels of sub-switchboards [V]: \_\_\_\_\_

System grounding of MSB:  3-phase, 3-wire, isolated from hull  
 3-phase, 3-wire, isolated via high-resistive resistor  
 \_\_\_\_\_

Main propulsion E-motors:

Number of winding systems:  1  2

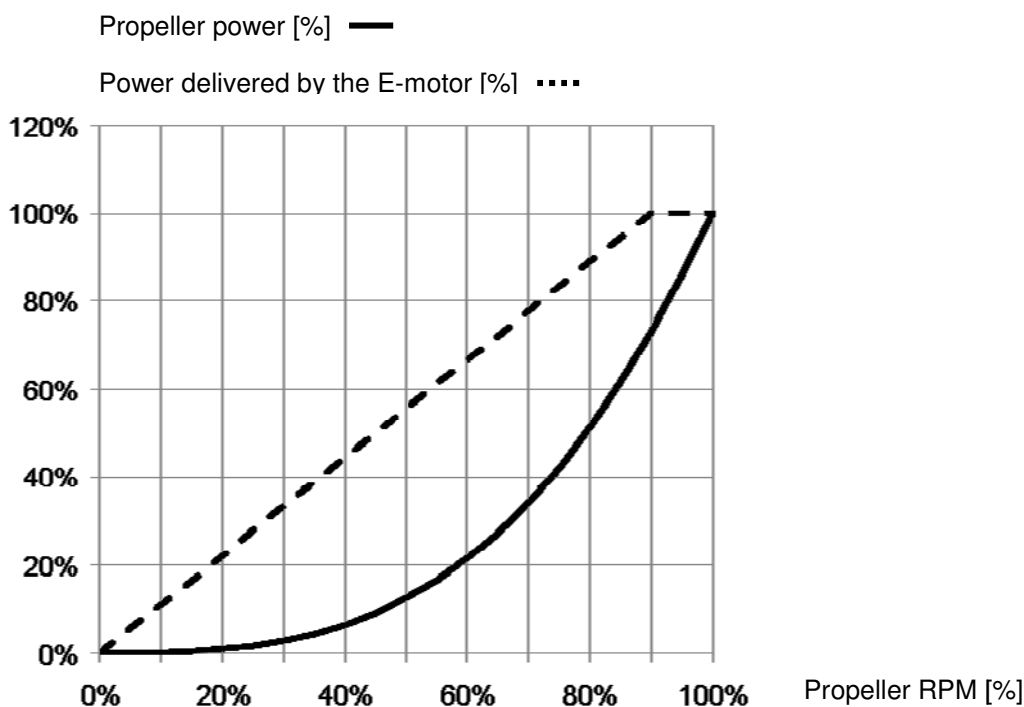
Speed control:  variable speed via frequency converter  
 \_\_\_\_\_

Manoeuvring E-motors (i.e. bow thrusters):

- variable speed via frequency converter
- constant speed (Start via Y/ $\Delta$ -unit)
- constant speed (Start via Softstarter)
- \_\_\_\_\_

### 1.6 Dimensioning of frequency converter and propulsion E-motor

The design of the frequency converters and the torque capability of the propulsion E-motors is usually rated to a constant power range of 90% ...100% of the propeller revolution (i.e. for a FPP-driven vessel).



Torque capability:

- Standard: Constant power from 90%...100% of propeller RPM
- Individual: Constant power form \_\_\_\_\_ % to 100% of propeller RPM
- Individual: Max. over-torque capability of the E-motor: \_\_\_\_\_ %



## 1.7 Single line diagram

Please provide us with a complete single line diagram of the vessel.