CLAIMS

1. An azimuth thruster (1) for propelling a vessel, having a thruster housing (11) around which water flows, and comprising:

- a standardized core unit (2) having a core unit housing (21) forming part of the thruster housing,
- a transmission line (6) arranged within in the core unit housing, comprising a propeller shaft (61) extending in a longitudinal direction (13) of the thruster housing, and
- a propeller (3) arranged outside the thruster housing and being operationally connected to the propeller shaft,

wherein, the azimuth thruster is configurable as both a pulling azimuth thruster and a pushing azimuth thruster by comprising first and second hydrodynamic elements (4,5) mounted on matching first (9a) and second (9b) core unit interfaces defined by exterior surface areas (211) of the core unit housing, the hydrodynamic elements forming part of the thruster housing to control the flow of water around the thruster housing, and the core unit interfaces being adapted for receiving different hydrodynamic elements having different hydrodynamic properties.

2. An azimuth thruster according to claim 1, wherein the transmission line further comprises bearings (62) and gears (63), all of which are fully contained within the core unit housing.

3. An azimuth thruster according to any of claims 1 or 2, wherein the thruster housing comprises a stub part (7), one end of which is adapted for being rotatably mounting on a vessel, and a torpedo part (8) arranged at an opposite end of the stub part, and wherein the hydrodynamic elements constitute a part of both the stub part and of the torpedo part.

4. An azimuth thruster according to claim 3, wherein a torpedo section (81) of the core unit housing forming part of the torpedo part, is wider than a stub section (71) of the core unit housing forming part of the stub part in the longitudinal direction of the thruster housing.

5. An azimuth thruster according to any of the preceding claims, wherein each of the core unit interfaces are defined by one or more end faces (222) of the core unit housing.

6. An azimuth thruster according to any of the preceding claims, wherein the core unit housing is symmetrical about a plane of symmetry (14) intersecting a centre axis (12) of the core unit housing and extending in a direction transversal to the longitudinal direction of the thruster housing.

7. An azimuth thruster according any of the preceding claims, wherein the core unit housing is adapted for providing the structural integrity of the azimuth thruster by absorbing structural loads and bearing loads induced by the weight and operation of the azimuth thruster itself and hydro induced forces acting on the thruster housing during use.

8. An azimuth thruster according to any of the preceding claims, wherein the hydrodynamic elements are made from non-metallic materials, such as composites, polymers, glass- or carbon fibre reinforced polymers or polyurethane.

9. An azimuth thruster according to any of the preceding claims, wherein the hydrodynamic elements partly overlap or enclose the standardized core unit.

10. An azimuth thruster according to any of the preceding claims, wherein a maximum width, W_{cu} of the core unit housing in the longitudinal direction is 1/3 to 1/4 of a maximum width, W_{th} of the thruster housing in the longitudinal direction.

11. An azimuth thruster according to any of the preceding claims, wherein a t/c-ration of the thruster housing is configurable in the range from 0,2 to 0,6.

12. An azimuth thruster according to claim 3, wherein a width of the torpedo part of the core unit housing in the longitudinal direction is 12-17 times the diameter of the propeller shaft.

13. An azimuth thruster according to any of the preceding claims, wherein a driving means for driving the propeller is an electrical motor in the form of a permanent magnet motor.

14. An azimuth thruster according to claim 13, wherein the propeller is rim-driven by first permanent magnets 163 being provided in the propeller nozzle and second permanent magnets 162 being arranged in connection with the propeller thereby providing a bearing for the propeller able to absorb axial and radial loads, and wherein the permanent magnet motor is integrated in the propeller nozzle by the propeller nozzle comprising windings for providing a rotating magnetic field adapted rotate the propeller.

15. A vessel comprising an azimuth thruster according to any of the preceding claims.

16. A method for configuring or re-configuring the hydrodynamic characteristics of an azimuth thruster according to any of claims 1-14, comprising the steps of:

- providing a standardized core unit
- specifying hydrodynamic characteristics of the azimuth thruster,
- mounting hydrodynamic elements on the standardized core unit to meet the specified hydrodynamic characteristics.

17. A method according to claim 16, further comprising the step of:

- replacing a first and/or a second hydrodynamic element already mounted on the standardized core unit with a third and/or a fourth hydrodynamic element having different hydrodynamic properties.