

## SECTION B — PERFORMING OPERATIONS; TRANSPORTING

### B63 SHIPS OR OTHER WATERBORNE VESSELS; RELATED EQUIPMENT

**B63H MARINE PROPULSION OR STEERING** (propulsion of air-cushion vehicles B60V 1/14; peculiar to submarines, other than nuclear propulsion, B63G; peculiar to torpedoes F42B 19/00)

#### Subclass index

#### PROPULSIVE ELEMENTS; ARRANGEMENTS THEREOF

Acting directly on water: elements; arrangements.....1/00, 3/00, 5/00  
 Arrangements of means acting directly on air.....7/00  
 Acted on by wind propulsive devices.....9/00

#### PARTICULAR MEANS

by reaction; by muscle power; by anchored cable; wind motors driving water-engaging devices.....11/00, 16/00, 15/00, 13/00  
 Other.....19/00

OUTBOARD PROPULSION UNITS.....20/00

PROPULSION POWER PLANT.....21/00

TRANSMISSION FROM POWER PLANT TO PROPULSIVE ELEMENTS.....23/00

STEERING, DYNAMIC ANCHORING.....25/00

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|------|---|---|---|
| 1/00 | <b>Propulsive elements directly acting on water</b> (jet propulsion B63H 11/00; attachment of propellers on shafts B63H 23/34)                          | 1/38  | • characterised solely by flotation properties, e.g. drums  |
| 1/02 | • of rotary type (endless-track type B63H 1/34)   | <b>3/00 Propeller-blade pitch changing</b>  |   |
| 1/04 | • • with rotation axis substantially at right angles to propulsive direction, e.g. paddle wheels  | 3/02  | • actuated by control element coaxial with propeller shaft, e.g. the control element being rotary   |
| 1/06 | • • • with adjustable vanes or blades   | 3/04  | • • the control element being reciprocable  |
| 1/08 | • • • • with cyclic adjustment  | 3/06  | • characterised by use of non-mechanical actuating means, e.g. electrical   |
| 1/10 | • • • • • with blades extending axially from a disc-shaped rotary body  | 3/08  | • • fluid   |
| 1/12 | • • with rotation axis substantially in propulsive direction  | 3/10  | • characterised by having pitch control conjoint with propulsion-plant control  |
| 1/14 | • • • Propellers (pitch changing B63H 3/00)   | 3/12  | • the pitch being adjustable only when propeller is stationary  |
| 1/15 | • • • • having vibration damping means (anti-vibration mounting of propulsion plant B63H 21/30; means for damping vibration in general F16F) <b>[4]</b> | <b>5/00 Arrangements on vessels of propulsion elements directly acting on water</b> |   |
| 1/16 | • • • • having a shrouding ring attached to blades  | 5/02  | • of paddle wheels, e.g. of stern wheels  |
| 1/18 | • • • • with means for diminishing cavitation, e.g. supercavitation   | 5/03  | • • movably mounted with respect to the hull, e.g. having means to reposition paddle wheel assembly, or to retract paddle or to change paddle attitude <b>[4]</b>                 |
| 1/20 | • • • • Hubs; Blade connections   | 5/04  | • • with stationary water-guiding elements  |
| 1/22 | • • • • • the blades being foldable   | 5/07  | • of propellers (forming part of outboard propulsion units B63H 20/00) <b>[6]</b>   |
| 1/24 | • • • • • • automatically foldable or unfoldable  | 5/08  | • • of more than one propeller  |
| 1/26 | • • • • Blades  | 5/10  | • • • of coaxial type, e.g. of counter-rotative type  |
| 1/28 | • • • • Other means for improving propeller efficiency (water-guiding elements formed by shape of hull B63H 5/00)                                       | 5/125   | • • movably mounted with respect to hull, e.g. adjustable in direction (movably mounted for steering purposes only B63H 25/42) <b>[6]</b>   |
| 1/30 | • of non-rotary type  | 5/14  | • • characterised by being mounted in non-rotating ducts or rings, e.g. adjustable for steering purposes (shrouding ring attached to blades B63H 1/16; jet propulsion B63H 11/00) |
| 1/32 | • • Flaps, pistons, or the like, reciprocating in propulsive direction  | 5/15  | • • • Nozzles, e.g. Kort-type <b>[4]</b>  |
| 1/34 | • • of endless-track type   |   |   |
| 1/36 | • • Swinging flaps, e.g. fishtail type <b>[4]</b>   |   |   |
| 1/37 | • • Moving-wave propellers, i.e. wherein the propelling means comprise a flexible undulating structure <b>[4]</b>                                       |   |   |

- 5/16 • • characterised by being mounted in recesses; with stationary water-guiding elements; Means to prevent fouling of the propeller, e.g. guards, cages or screens (anti-fouling paints C09D 5/16)
- 5/18 • • of emergency propellers, e.g. arranged at the side of the vessel
- 5/20 • • • movable from a working position to a non-working position [4]
- 7/00 Arrangements of propulsive devices directly acting on air** (jet propulsion B63H 11/00)
- 7/02 • using propellers (air-screws of aircraft type B64C)
- 9/00 Propulsive devices directly acted on by wind; Arrangements thereof** (air-driven propellers driving underwater propulsive elements B63H 13/00)
- 9/02 • using Magnus effect
- 9/04 • using sails or like wind-catching surfaces (sailing sledges or ice boats B62B 15/00)
- 9/06 • • Construction or types of sails; Arrangements thereof on vessels
- 9/08 • • Connections of sails to masts, spars, or the like
- 9/10 • • • Spars; Running rigging, e.g. reefing equipment (staying of masts B63B 15/02)
- 11/00 Effecting propulsion by jets, i.e. reaction principle** (steering by jet action B63H 25/46; power plant per se, see the relevant classes)
- 11/01 • having means to prevent foreign material from clogging fluid passageway [4]
- 11/02 • the propulsive medium being ambient water
- 11/04 • • by means of pumps
- 11/06 • • • of reciprocating type
- 11/08 • • • of rotary type
- 11/09 • • • by means of pressure pulses applied to a column of liquid, e.g. by ignition of an air/gas or vapour mixture [4]
- 11/10 • • having means for deflecting jet or influencing cross-section thereof
- 11/103 • • • having means to increase efficiency of propulsive fluid, e.g. discharge pipe provided with means to improve the fluid flow [4]
- 11/107 • • • Direction control of propulsive fluid [4]
- 11/11 • • • • with bucket or clamshell-type reversing means [4]
- 11/113 • • • • Pivoted outlet [4]
- 11/117 • • • • Pivoted vane [4]
- 11/12 • the propulsive medium being steam or other gas
- 11/14 • • the gas being produced by combustion
- 11/16 • • the gas being produced by other chemical processes
- 13/00 Effecting propulsion by wind motors driving water-engaging propulsive elements**
- 15/00 Effecting propulsion by use of vessel-mounted driving mechanisms co-operating with anchored chains or the like**
- 16/00 Effecting propulsion by muscle power** (swimming frameworks with swimmer-operated driving mechanisms A63B 35/00; land-based training equipment for rowing or sculling A63B 69/06)
- 16/02 • Movable thwarts; Foot-rests
- 16/04 • Oars; Sculls; Paddles; Poles
- 16/06 • Rowlocks; Mountings therefor
- 16/067 • • Rowlocks mounted on a structure extending beyond the gunwale of the vessel [4]
- 16/073 • • having oar shaft restraining means [4]
- 16/08 • • Other apparatus for converting muscle power into propulsive effort (general features of propulsion elements, see the relevant groups)
- 16/10 • • for bow-facing rowing
- 16/16 • • using reciprocating pull cable, i.e. a strand-like member movable alternately backward and forward [4]
- 16/18 • • using sliding handle or pedal, i.e. the motive force being transmitted to a propelling means by means of a lever operated by the hand or foot of the occupant [4]
- 16/20 • • using rotary cranking arm [4]
- 19/00 Effecting propulsion of vessels, not otherwise provided for**
- 19/02 • by using energy derived from movement of ambient water, e.g. from rolling or pitching of vessels
- 19/04 • • propelled by water current
- 19/06 • by discharging gas into ambient water (with jet action B63H 11/12; for reducing surface friction B63B 1/38)
- 19/08 • by direct engagement with water-bed or ground
- 20/00 Outboard propulsion units, i.e. propulsion units having a substantially vertical power leg mounted outboard of a hull and terminating in a propulsion element, e.g. "outboard motors", Z-drives** (power plants per se, see the relevant classes); **Arrangements thereof on vessels [6]**
- 20/02 • Mounting of propulsion units (B63H 20/08 takes precedence) [6]
- 20/04 • • in a well [6]
- 20/06 • • on an intermediate support [6]
- 20/08 • Means enabling movement of the position of the propulsion element, e.g. for trim, tilt, or steering (transmissions allowing movement of the propulsion element B63H 20/14); Control of trim or tilt (initiating means for steering B63H 25/02) [6]
- 20/10 • • Means enabling trim or tilt, or lifting of the propulsion element when an obstruction is hit; Control of trim or tilt [6]
- 20/12 • • Means enabling steering [6]
- 20/14 • Transmission between propulsion power unit and propulsion element [6]
- 20/16 • • allowing movement of the propulsion element in a horizontal plane only, e.g. for steering [6]
- 20/18 • • allowing movement of the propulsion element about a longitudinal axis, e.g. the through transom shaft (B63H 20/22 takes precedence) [6]
- 20/20 • • with provision for reverse drive [6]
- 20/22 • • allowing movement of the propulsion element about at least a horizontal axis without disconnection of the drive, e.g. using universal joints [6]
- 20/24 • Exhaust gas outlets [6]
- 20/26 • • passing through the propeller or its hub [6]
- 20/28 • Cooling-water intakes [6]
- 20/30 • • for flushing [6]
- 20/32 • Housings [6]
- 20/34 • • comprising stabilising fins [6]
- 20/36 • Transporting or testing stands; Protection of power legs [6]

- 21/00 Use of propulsion power plant or units on vessels** (use of outboard propulsion units B63H 20/00; hull reinforcements for carrying propulsion power plant or units B63B 3/70; propulsion power plant or units per se, see the relevant classes) [6]
- Note(s)**  
This group covers:
- arrangements of propulsion power plant or units on vessels;
  - to some extent, adaptations of such plant or units to facilitate such arrangements.
- 21/02 • the vessels being steam-driven (B63H 21/18 takes precedence)
- 21/04 • • relating to positive-displacement steam engines
- 21/06 • • relating to steam turbines
- 21/08 • • relating to steam boilers
- 21/10 • • relating to condensers or engine-cooling fluid heat-exchangers
- 21/12 • the vessels being motor-driven (B63H 21/175, B63H 21/18 take precedence) [4]
- 21/14 • • relating to internal-combustion engines
- 21/16 • • relating to gas turbines
- 21/165 • • by hydraulic fluid motor, i.e. wherein a liquid under pressure is utilised to rotate the propelling means [4]
- 21/17 • • by electric motor (electrically-propelled vehicles B60L) [4]
- 21/175 • the vessel being powered by land vehicle supported by vessel [4]
- 21/18 • the vessels being powered by nuclear energy
- 21/20 • the vessels being powered by combinations of different types of propulsion units
- 21/21 • Control means for engine or transmission, specially adapted for use on marine vessels [4]
- 21/22 • the propulsion power units being controlled from exterior of engine room, e.g. from navigation bridge; Arrangements of order telegraphs (order telegraphs per se G08B 9/00)
- 21/30 • Mounting of propulsion plant or unit, e.g. for anti-vibration purposes (hull reinforcements therefor B63B 3/70; vibration-dampers, suppression of vibration in systems F16F; engine beds F16M)
- 21/32 • Arrangements of propulsion power-unit exhaust uptakes; Funnels peculiar to vessels (engine exhausts in general F01N; flue devices for furnaces in general F23J)
- 21/34 • • having exhaust-gas deflecting means
- 21/36 • Covers or casing arranged to protect plant or unit from marine environment (hull construction B63B 3/00) [4]
- 21/38 • Apparatus or methods specially adapted for use on marine vessels, for handling power plant or unit liquids, e.g. lubricants, coolants, fuels or the like [4]
- 23/00 Transmitting power from propulsion power plant to propulsive elements** (changing pitch of propellers B63H 3/00; adaptation of transmission to allow adjustment in direction of propellers B63H 5/125; transmission between wind motors and propulsive elements B63H 13/00, in outboard propulsion units B63H 20/14; adaptation of transmission to allow adjustment of location of propellers B63H 20/08; for vehicles in general B60K; driving auxiliary machinery B63J; transmission elements per se F16)
- 23/02 • with mechanical gearing
- 23/04 • • the main transmitting element, e.g. shaft, being substantially vertical
- 23/06 • • for transmitting drive from a single propulsion power unit
- 23/08 • • • with provision for reversing drive
- 23/10 • • for transmitting drive from more than one propulsion power unit (for synchronisation of propulsive elements B63H 23/28)
- 23/12 • • • allowing combined use of the propulsion power units
- 23/14 • • • • with unidirectional drive or where reversal is immaterial
- 23/16 • • • • characterised by provision of reverse drive
- 23/18 • • • for alternative use of the propulsion power units
- 23/20 • • • • with separate forward and astern propulsion power units, e.g. turbines
- 23/22 • with non-mechanical gearing
- 23/24 • • electric
- 23/26 • • fluid
- 23/28 • with synchronisation of propulsive elements
- 23/30 • characterised by use of clutches
- 23/32 • Other parts
- 23/34 • • Propeller shafts; Paddle-wheel shafts; Attachment of propellers on shafts (shafts in general F16C; attachment of a member on a shaft in general F16D 1/06)
- 23/35 • • • Shaft braking or locking, i.e. means to slow or stop the rotation of the propeller shaft or to prevent the shaft from initial rotation [4]
- 23/36 • • Shaft tubes (propeller-shaft tunnels B63B 11/06; shaft-tube seals F16J)
- 25/00 Steering; Slowing-down otherwise than by use of propulsive elements** (using adjustably-mounted propeller ducts or rings for steering B63H 5/14; using movably-installed outboard propulsion units B63H 20/00); **Dynamic anchoring, i.e. positioning vessels by means of main or auxiliary propulsive elements** (anchoring, other than dynamic, B63B 21/00; equipment to decrease pitch, roll, or like unwanted vessel movements by auxiliary jets or propellers B63B 39/08)
- 25/02 • Initiating means for steering
- 25/04 • • automatic, e.g. reacting to compass
- 25/06 • Steering by rudders (by rudders carrying propellers B63H 25/42)
- 25/08 • • Steering gear
- 25/10 • • • with mechanical transmission
- 25/12 • • • with fluid transmission
- 25/14 • • • power assisted; power driven, i.e. using steering engine
- 25/16 • • • • with alternative muscle or power-operated steering
- 25/18 • • • • Transmitting of movement of initiating means to steering engine
- 25/20 • • • • • by mechanical means
- 25/22 • • • • • by fluid means
- 25/24 • • • • • by electrical means
- 25/26 • • • • • Steering engines
- 25/28 • • • • • of fluid type
- 25/30 • • • • • • hydraulic
- 25/32 • • • • • • steam
- 25/34 • • • • • Transmitting of movement of engine to rudder, e.g. using quadrants, brakes
- 25/36 • • Rudder-position indicators
- 25/38 • • Rudders (stern posts B63B 3/40)
- 25/40 • • • using Magnus effect

**B63H**

- 25/42 • Steering or dynamic anchoring by propulsive elements (by jets B63H 25/46); Steering or dynamic anchoring by propellers used therefor only; Steering or dynamic anchoring by rudders carrying propellers **[2]**
- 25/44 • Steering or slowing-down by extensible flaps or the like

- 25/46 • Steering or dynamic anchoring by jets **[2]**
- 25/48 • Steering or slowing-down by deflection of propeller slip-stream otherwise than by rudder
- 25/50 • Slowing-down means not otherwise provided for
- 25/52 • Parts for steering not otherwise provided for