

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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| <p>1/00 Propulsive elements directly acting on water (jet propulsion B63H 11/00; attachment of propellers on shafts B63H 23/34)</p> <p>1/02 • of rotary type (endless-track type B63H 1/34)</p> <p>1/04 • • with rotation axis substantially at right angles to propulsive direction, e.g. paddle wheels</p> <p>1/06 • • • with adjustable vanes or blades</p> <p>1/08 • • • • with cyclic adjustment</p> <p>1/10 • • • • • with blades extending axially from a disc-shaped rotary body</p> <p>1/12 • • with rotation axis substantially in propulsive direction</p> <p>1/14 • • • Propellers (pitch changing B63H 3/00)</p> <p>1/15 • • • • having vibration damping means (anti-vibration mounting of propulsion plant B63H 21/30; means for damping vibration in general F16F) [4]</p> <p>1/16 • • • • • having a shrouding ring attached to blades</p> <p>1/18 • • • • • with means for diminishing cavitation, e.g. supercavitation</p> <p>1/20 • • • • • Hubs; Blade connections</p> <p>1/22 • • • • • the blades being foldable</p> <p>1/24 • • • • • • automatically foldable or unfoldable</p> <p>1/26 • • • • • Blades</p> <p>1/28 • • • • • Other means for improving propeller efficiency (water-guiding elements formed by shape of hull B63H 5/00)</p> <p>1/30 • of non-rotary type</p> <p>1/32 • • Flaps, pistons, or the like, reciprocating in propulsive direction</p> <p>1/34 • • of endless-track type</p> <p>1/36 • • Swinging flaps, e.g. fishtail type [4]</p> <p>1/37 • • Moving-wave propellers, i.e. wherein the propelling means comprise a flexible undulating structure [4]</p> | <p>1/38 • characterised solely by flotation properties, e.g. drums</p> <p>3/00 Propeller-blade pitch changing</p> <p>3/02 • actuated by control element coaxial with propeller shaft, e.g. the control element being rotary</p> <p>3/04 • • the control element being reciprocable</p> <p>3/06 • characterised by use of non-mechanical actuating means, e.g. electrical</p> <p>3/08 • • fluid</p> <p>3/10 • characterised by having pitch control conjoint with propulsion-plant control</p> <p>3/12 • the pitch being adjustable only when propeller is stationary</p> <p>5/00 Arrangements on vessels of propulsion elements directly acting on water</p> <p>5/02 • of paddle wheels, e.g. of stern wheels</p> <p>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 [4]</p> <p>5/04 • • with stationary water-guiding elements</p> <p>5/07 • of propellers (forming part of outboard propulsion units B63H 20/00) [6]</p> <p>5/08 • • of more than one propeller</p> <p>5/10 • • • of coaxial type, e.g. of counter-rotative type</p> <p>5/125 • • • movably mounted with respect to hull, e.g. adjustable in direction (movably mounted for steering purposes only B63H 25/42) [6]</p> <p>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)</p> <p>5/15 • • • Nozzles, e.g. Kort-type [4]</p> |
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- 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 <u>per se</u> , <u>see</u> the relevant classes) [6]	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
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 <u>per se</u> 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 <u>per se</u> F16)		
23/02	• with mechanical gearing		
23/04	• • the main transmitting element, e.g. shaft, being substantially vertical		

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