B63H

MARINE PROPULSION OR STEERING ([N: arrangement of propulsion or steering means on amphibious vehicles B60F3/0007;] propulsion of air-cushion vehicles B60V1/14; peculiar to submarines, other than nuclear propulsion, B63G; peculiar to torpedoes F42B19/00)

Definition statement

This subclass/group covers:

Propulsive elements directly acting on water, e.g.:

- Paddle wheels.
- Voith-Schneider propellers.
- Propellers and propeller blades.
- Endless-track type propulsive elements.
- Fishtail-type propulsive elements.
- Propeller-blade pitch changing.
- Arrangements of propulsive elements directly acting on water.

Effecting propulsion by jets, e.g. using reaction principle.

- Jet propulsion using ambient water as propulsive medium.
- Jet propulsion using steam or gas as propulsive medium.
- Arrangements of propulsive elements directly acting on air.

Propulsive devices directly acted on by wind, e.g.:

- Sails
- Magnus-rotors
- Arrangements of propulsive devices directly acted on by wind
- Wind motors driving water-engaging propulsive elements.

Effecting propulsion by use of vessel-mounted driving mechanisms co#operating with anchored chains or the like.

Effecting propulsion by muscle power

Effecting propulsion of vessels, not otherwise provided for, e.g.

- Using energy from ambient water.
- By direct engagement of the ground.

Outboard propulsion units and Z-drives.

Use of propulsion power plant or units on vessels:

- Use of e.g. steam, internal combustion, electric or nuclear power plants
- Arrangements of power plant control exterior of the engine room
- Mounting of propulsion plant or unit
- Arrangements of propulsion-unit exhaust uptakes
- 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

Transmitting power from propulsion power plant to propulsive elements, e.g.

- Mechanical power transmission
- Electric or hydraulic power transmission
- Propeller or paddle-wheel shafts
- Bearings and seals for propeller shafts
- Attachment of propellers on shafts

Steering and dynamic anchoring

- Initiating means for steering
- Steering gear
- Rudders
- Steering or dynamic anchoring by propulsive elements, like propellers or jets

Slowing down of vessels other than by propulsive elements

Relationship between large subject matter areas

B63H is the general home of means for propelling, steering and dynamic positioning, as well as for slowing down of ships and other floating structures, and covers in particular propulsive elements like propellers, jets, sails, oars and their respective arrangement on vessels, as well as arrangements and

adaptations of propulsion power plants, and of the power transmission to the propulsive elements. The means for steering and dynamic anchoring cover in particular steering gear, rudders and propulsive elements.

Whilst marine propulsive devices directly acted on by wind and the arrangement thereof on vessels are found in B63H, B63B provides for masts of sailing boats and for sail arrangements, sails and masts for wind-driven boards, land-borne wind-propelled vehicles are classified in B62B, shaping of substances in plastic state and after-treatment of shaped products in general is found in B29C, and B32B provides for layered products in general.

While the propulsion and steering of ships and other waterborne vessels is classified in B63H, B63C 11/42 provides for diving chambers with independent propulsion or direction control, as well as for unmanned underwater vessels remotely operated by using an umbilical, marine propulsion and steering peculiar to submarines, other than nuclear propulsion is provided for in B63G, arrangements for propulsion and steering of amphibious vehicles are classified in B60F, B60V provides for propulsion and control of air-cushion vehicles, aircraft propellers and aircraft flight control are covered by B64C, B64D provides for aircraft power plants and power transmission, and propulsion and steering peculiar to torpedoes is found in F42B 19/00.

Whilst the mounting of propulsion power plants or units is classified in B63H, B63B 7/087 provides for motor mountings in inflatable boats, e.g. transom panels for outboard motors, and motor-driven surf-boards are classified in B63B 35/7943

Whilst B63H covers jets and thrusters for propulsion and steering, as well as for wind-driven propellers, F03B provides for machines or engines for liquids, like water turbines or water wheels, wind motors are found in F03D, and F04D provides for non-positive displacement pumps in general.

While B63H covers marine propulsion by muscle power, swimming frameworks with swimmer operated driving mechanism are provided for in A63B 35/00, and land-based training equipment for rowing or sculling is found in A63B 69/06.

While B63H covers outboard propulsion units, the cooling of outboard marine engines is found in F01P 3/202, engines of outboard propulsion units are classified in F02B 61/045 and air intakes for outboard marine engines are provided for in F02M 35/16A.

While the use of propulsion power plant or units on vessels is covered by B63H, B63J provides for driving of vessel auxiliaries, and propulsion power plants or units per se are classified in the respective relevant sub-classes, e.g. internal-combustion piston engines and combustion engines in general in F02B, their control in F02D, gas-turbine power plants in F02C, nuclear power plant in G21D, and dynamo-electric machines in H02K.

References relevant to classification in this subclass

This subclass/group does not cover:

Marine propulsion or steering peculiar to submarines, other than nuclear propulsion	B63G 8/00
Marine propulsion or steering peculiar to torpedoes	F42B 19/00

Traffic control systems for marine craft	G08G 3/00

Informative references

Attention is drawn to the following places, which may be of interest for search:

Arrangement of propulsion or steering means on amphibious vehicles	B60F 3/0007
Propulsion of air-cushion vehicles	B60V 1/14
Machines or engines for liquids, e.g. water turbines or water wheels	F03B
Wind motors	F03D
Non-positive displacement pumps	F04D
Systems acting by means of fluids in general; fluid-pressure actuators, e.g. servomotors; details of fluid-pressure systems, not otherwise provided for	F15B
Transmission elements per se	F16

Special rules of classification within this subclass

In this subclass, two different Indexing Schemes are used:

The first Indexing Scheme represents a further sub-division of the CPC scheme (breakdown codes). The symbols of this first Indexing Scheme are hierarchically arranged under CPC groups. They are in their scope limited by the scope of the respective symbols CPC scheme under which they are

indented. This first Indexing Scheme is used for invention information and additional information.

The second Indexing Scheme is arranged under the subclass B63B, and covers the range B63B 2201/00 to B63B 2241/00. This second Indexing Scheme is used in all subclasses under the class B63 "Ships or other waterborne vessels; Related equipment". This second Indexing Scheme is used for indexing non-trivial information related to the invention information as far as for this information no place is provided for in a particular group in the class B63.

The use of both Indexing Schemes is obligatory for documents published after July 2011. The contents of these groups is not complete before this date.

Glossary of terms

In this subclass/group, the following terms (or expressions) are used with the meaning indicated:

Dynamic anchoring	Positioning of vessels or floating structures by means of propulsive elements.
Magnus effect	The phenomenon of a rotating object moving in a fluid generating a circulation and thus a lift perpendicular to the axis of rotation and to the direction of movement of the object.
Outboard drive	An outboard propulsion unit.
Outboard motor	An outboard propulsion unit comprising a motor mounted outboard integral with the power leg.
Outboard propulsion unit	A propulsion unit comprising a substantially vertical power leg mounted outboard of a hull and supporting a propulsive element.
Propeller slipstream	The current of water driven backward by a propeller.
Shrouding ring	A circular co-rotating band attached circumferentially, or at a given radius, to the rotor of a turbine, or to the blades of a propeller.

Tilt	Angular lifting movement of the outboard motor, or of the power leg from its operating position into an inoperative position with the propulsion element out of the water, and vice versa.
Trim	Angular position of the power leg relative to the boat's vertical axis when the power leg is in operating position.
Trolling plate	A plate movable in a position perpendicular to a vessel's longitudinal axis so as to slow down a moving vessel.
Universal joint	A joint between two shafts that allows for two angular degrees of freedom while being adapted for transmitting torque about the shafts' longitudinal axes between the two shafts, e.g. Cardan joint or Hooke's joint.
Z-drive	An in-board-outboard propulsion arrangement comprising an inboard motor, typically exhibiting a horizontal motor shaft, and a substantially vertical outboard power leg supporting a propulsive element, typically driven by a horizontal propeller shaft.

Synonyms and Keywords

In patent documents the following abbreviations are often used:

GPS	Global Positioning System

In patent documents the following expressions "universal joint", "U-joint", "Cardan joint", Hooke's joint" and "gimbal" are often used as synonyms.

B63H 1/00

Propulsive elements directly acting on water (jet propulsion B63H11/00; attachment of propellers on shafts B63H23/34)

Definition statement

This subclass/group covers:

Propulsive elements of rotary type

- With rotation axis substantially perpendicular to the propulsive direction
- Paddle wheels
- Cycloïdal propellers, e.g. Voith-Schneider propellers
- With rotation axis substantially in propulsive direction
- Propellers
- Propeller blades

Propulsive elements of non-rotary type, e.g.

- Of endless-track type
- Of fishtail type

Relationship between large subject matter areas

While B63H 1/00 is the general home of propulsive elements directly acting on water, methods and apparatus for propeller pitch changing is provided for in B63H 3/00, B63H 5/00 provides for the arrangement of such propulsive elements on vessels, and for stationary water-guiding elements, water-jets and magneto-hydrodynamic propulsors are classified in B63H 11/00, B63H 16/00 provides for oars, sculls, paddles and the like elements for converting muscular power into propulsive action, and the attachment of propellers on shafts is found in B63H 23/34.

References relevant to classification in this group

This subclass/group does not cover:

Propeller-blade pitch changing	B63H 3/00
Stationary water-guiding elements, e.g. formed by the shape of the ship's hull	B63H 5/00
Effecting propulsion by jets, i.e. reaction principle	B63H 11/00

Oars, sculls, paddles and the like elements for converting muscular power into propulsive action	B63H 16/00

Informative references

Attention is drawn to the following places, which may be of interest for search:

Arrangement of propulsion means on amphibious vehicles	B60F 3/0007
Attachment of propellers on shafts	B63H 23/34

Glossary of terms

In this subclass/group, the following terms (or expressions) are used with the meaning indicated:

Voith-Schneider propeller	A propulsor comprising a disk, typically mounted flush with the ship's bottom, and rotating about an axis perpendicular to the propulsive direction, and a plurality of vanes projecting from said disk substantially parallel to the axis or rotation and cyclically varying their angle of attack, so a to follow, in operation, a cycloidal path through the water. Cycloïdal propeller.

B63H 3/00

Propeller-blade pitch changing [N: (Aircraft propellers B64C11/30; Rotors of turbines F01D7/00; Axial wind motors F03D7/022; Axial-flow pumps F04D29/00)]

Definition statement

This subclass/group covers:

Apparatus and methods for changing the pitch of propeller-blades, e.g.

- With pitch changing elements coaxial with propeller shaft

- Using non-mechanical actuators
- With conjoint control of propeller pitch and propulsion power plant
- With propeller pitch being adjustable when the propeller is stationary

Relationship between large subject matter areas

Whilst B63H 3/00 is the home of apparatus und methods for propeller-blade pitch changing of marine propellers, B64C 11/30 provides for blade pitch-changing mechanisms of aircraft propellers, machines or engines for liquids, like water turbines or water wheels are covered by F03B, wind motors are found in F03D, and F04D provides for non-positive displacement pumps in general.

Informative references

Attention is drawn to the following places, which may be of interest for search:

Blade pitch-changing mechanisms for aircraft propellers and for rotors of rotorcraft	B64D 11/30
Machines or engines for liquids, e.g. water turbines or water wheels	F03B
Kaplan turbines	F03B 3/06
Wind motors	F03D
Non-positive displacement pumps	F04D

Glossary of terms

In this subclass/group, the following terms (or expressions) are used with the meaning indicated:

Pitch	A measure of the angle of the blades of a screw propeller, equal to the distance forward a blade would move in one revolution if it exerted no thrust on the medium.

Synonyms and Keywords

In patent documents the following abbreviations are often used:

CP propeller or CPP	Controllable-Pitch propeller

In patent documents the expression "pitch" is often used with the meaning "oscillating angular motion of a ship about its horizontal transverse axis", or with the meaning "distance between any two successive identical parts in a series, e.g. of teeth of a cogwheel, rack, pinion, etc., or of successive paddles of a paddle wheel, measured along a circle passing through their centres".

B63H 5/00

Arrangements on vessels of propulsion elements directly acting on water

Definition statement

This subclass/group covers:

Arrangements on vessels of propulsion elements directly acting on water, e.g.

- Arrangements of paddle wheels, e.g. of stern wheels.
- Arrangements of propellers
- Of a plurality of propellers
- Of propellers movably mounted with respect to the hull
- Mounted in ducts or rings, e.g. adjustable for steering purposes
- Mounted in recesses
- With stationary water guiding elements
- Particularly adapted for emergency situations
- Means to prevent fouling of propellers.

Relationship between large subject matter areas

B63H 5/00 is the home of arrangements of propellers, water wheels and other propulsive elements directly acting on water, in particular of propellers movably mounted with respect to the hull, e.g. of podded azimuthing propellers and the like, however, arrangements of jet propulsors are found in B63H 11/00, arrangements of water engaging propulsive elements driven by wind motors are classified in B63H 13/00, arrangements of water engaging propulsive elements driven by muscular power are provided for in B63H 16/00, outboard propulsion units and Z-drives are found in B63H 20/00, and

B63H 25/42 provides for arrangements of movable propellers used for steering purposes only as well as for rudders carrying propellers.

References relevant to classification in this group

This subclass/group does not cover:

Effecting propulsion by jets, i.e. reaction principle	B63H 11/00
Effecting propulsion by wind motors driving water-engaging propulsive elements	B63H 13/00
Effecting propulsion by muscle power	B63H 16/00
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; Arrangements thereof on vessels	B63H 20/00
Steering or dynamic anchoring by propulsive elements other than jets; Steering or dynamic anchoring by propellers used therefor only; Steering or dynamic anchoring by rudders carrying propellers	B63H 25/42

Glossary of terms

In this subclass/group, the following terms (or expressions) are used with the meaning indicated:

Fouling	The process of causing - an anchor, a propeller, a cable - to become entangled, or to be rendered immovable or incapable of working.
Podded azimuthing thruster	A propeller arrangement with a faired submerged housing carrying a propeller and comprising a drive motor or gearing, which is suspended from a substantially vertical, typically faired, strut, and which is orientable about a substantially vertical axis.

Synonyms and Keywords

In patent documents the following expressions "podded azimuthing thruster", and "podded azimuthing propulsor" are often used as synonyms.

In patent documents the expressions "Kort-nozzle" and "ducted propeller" are often used instead of "non-rotating duct or ring" which is used in the classification scheme of this group.

In patent documents the expression "contra-propeller" is often used with the meaning "a set of stationary vanes arranged in the propeller slipstream for recovering propulsive force from swirl energy".

In patent documents the expression "fouling" is often used with the meaning "the growth or marine organisms such as barnacles in the underwater portion of a ship's hull".

B63H 7/00

Arrangements of propulsive devices directly acting on air (jet propulsion B63H11/00)

Definition statement

This subclass/group covers:

Arrangements on vessels of propulsive devices directly acting on air such as of propellers of air-screw type for aircraft.

Relationship between large subject matter areas

B63H 7/00 covers the arrangements of propulsive device directly acting on air, e.g. of air propellers, however, effecting marine propulsion by means of jets, i.e. using the reaction principle, e.g. by means of gas jets, is provided for in B63H 11/00, and air-screws of aircraft type as such are classified in B64C 11/00

References relevant to classification in this group

This subclass/group does not cover:

Effecting marine propulsion by jets	B63H 11/00

Informative references

Attention is drawn to the following places, which may be of interest for search:

Air-screws of aircraft type	B64C 11/00

Glossary of terms

In this subclass/group, the following terms (or expressions) are used with the meaning indicated:

Air-screw	A helical propeller for operation in air.

B63H 9/00

Propulsive devices directly acted on by wind; Arrangements thereof (air driven propellers driving underwater propulsive elements B63H13/00)

Definition statement

This subclass/group covers:

This main group covers:

Propulsive devices directly acted on by wind, and arrangements thereof on vessels.

Magnus rotors.

Sails and the like wind-catching surfaces, e.g.

- Construction of sails
- Arrangements of sails on vessels
- Connection of sails to masts, spars, or the like
- Running rigging, e.g. reefing equipment

Relationship between large subject matter areas

B63H 9/00 is the general home of devices which directly convert wind energy into marine propulsive force, and of the arrangements of such devices on vessels, however, sailing sledges or ice boats are found in B62B 15/00, B63B 15/00 provides for masts for sailing boats, and the staying thereof, while wind-driven boards and respective sail construction and arrangements are provided for in B63B 35/7953, while wind driven motors driving water-engaging propulsion elements are found in B63H 13/00.

References relevant to classification in this main group

This subclass/group does not cover:

Wishbones for sailing boards	B63B 35/7966
Sail arrangements particularly adapted for sailing boards, e.g. kite sails, or sails with detachable sections, e.g. to change the sail area]	B63B 35/7973
Harnesses or handgrips for use on sailing boards	B63B 35/7993

Informative references

Attention is drawn to the following places, which may be of interest for search:

Toy kites	A63H 27/08
Arrangements in connection with propulsion power supply from nature, e.g. from wind, in general	B60K 16/00
Ice boats or sailing sledges	B62B 15/00
Kites per se	B64C 31/06
Wind motors with wind-engaging parts attached to carriages running on tracks or the like	F03D 5/04

Glossary of terms

In this subclass/group, the following terms (or expressions) are used with the meaning indicated:

Furling	Rolling up a sail neatly upon its respective yard or boom.
Harness	An assembly of straps and the like for attaching a trapeze or a kite-sail control bar to the trunk of a user
Kite sail	A light sail air-borne by its own lift, and connected to the propelled ship,

	or user in case of kite-surfing, by means of control lines only.
Running rigging	The part of an installation for ship propulsion by means of sails, which is used for raising, lowering, reefing and controlling the sails.
Sail batten	A long, thin strip of elastic material, e.g. of fibreglass, used to support the roach of a sail, or to keep a sail flat.
Spinnaker	A large three-cornered sail of lightweight fabric, to be boomed out from the vessel's side, used for sailing on a reaching course to a downwind course.
Spinnaker pole	A boom to keep the tack of a spinnaker out from the vessel's side.
Stay	An inclined rope or cable forming part of the standing rigging, used for imparting lateral stability to a mast or the like.
Trapeze	A sliding support or a wire suspended from high on the mast, hooked on to a sailor's harness, and used for outboard balancing of wind forces.

Synonyms and Keywords

In patent documents the expression "Flettner rotor" is often used with the meaning "a rotating cylinder using the Magnus effect".

In patent documents the expression "harness" is often used with the meaning " an assembly of straps and the like for attaching objects like a personal flotation device, or a self contained breathing appartus to the trunk of a user".

B63H 11/00

Effecting propulsion by jets, i.e. reaction principle (steering by [N: auxiliary] jet action, [N: rudders carrying jets] B63H25/46 ; power plant per se, see the relevant classes)

Definition statement

This subclass/group covers:

Effecting marine propulsion by means of jet, i.e. using the reaction principle

Jet propulsion using ambient water as propulsive medium, e.g.

- By means of pumps
- Having means for deflecting the jet, e.g. for direction control of propulsive fluid
- Having means for influencing the cross-section of the jet
- Jet propulsion using steam or other gas as propulsive medium, e.g. combustion gas

Relationship between large subject matter areas

While B63H 11/00 is the general home of marine propulsion by means of jets, steering or dynamic anchoring by means of jets, the jets being used for this purpose only, as well as rudders carrying jets are classified in B63H 25/46, combustion gas jet-propulsion plants in general are provided for in F02K, further, F04 provides for positive and non-positive displacement pumps in general, and steam generation in general is provided for in F22.

References relevant to classification in this main group

This subclass/group does not cover:

Steering or dynamic anchoring by jets, or by rudders carrying jets	B63H 25/46

Informative references

Attention is drawn to the following places, which may be of interest for search:

Engines or pumps in general	F01 to F04
Combustion gas jet-propulsion plants in general	F02K
Positive and non-positive displacement pumps in general	F04
Steam generation in general	F22

Special rules of classification within this group

Outboard propulsion units comprising jets as propulsive elements are also classified in B63H 20/00 and sub-groups.

Glossary of terms

In this subclass/group, the following terms (or expressions) are used with the meaning indicated:

Bucket-type reversing means	A single piece jet stream reversing device, e.g. Pelton bucket-shaped, which can be swivelled about a from an inoperative position outside the jet stream to an active position behind the jet.
Clamshell-type reversing means	A two-piece jet stream reversing device which comprises two half-buckets, which can be swayed from an inoperative position outside the jet stream to an active position behind the jet to jointly form a reversing bucket.

Synonyms and Keywords

In patent documents the expression/word "Gill-type jet" is often used with the meaning "a jet propulsor with an azimuthally orientable jet, and having an inlet opening and an outlet opening of the pump being substantially coplanar".

B63H 13/00

Effecting propulsion by wind motors driving water-engaging propulsive elements

Definition statement

This subclass/group covers:

Methods, apparatus and installations for converting wind energy into driving power for water-engaging propulsive elements.

Relationship between large subject matter areas

While B63H 13/00 is the home of installations and methods using wind turbines and other wind-driven motors for generating power, e.g. mechanical

or electric, which power is used, via respective drive trains, for driving water-engaging propulsive elements, like propellers, B63H 9/00 provides for propulsive devices directly acted on by wind, e.g. sails, and arrangements thereof on vessels in general, and wind motors as such are found in F03D.

Informative references

Attention is drawn to the following places, which may be of interest for search:

Arrangements in connection with propulsion power supply from nature, e.g. from wind, in general	B60K 16/00
Wind motors	F03D

B63H 15/00

Effecting propulsion by use of vessel-mounted driving mechanisms co-operating with anchored chains or the like

Definition statement

This subclass/group covers:

Apparatus, installations and methods for effecting marine propulsion by means of vessel-mounted diving mechanism which co-operate with anchored chains or the like.

Relationship between large subject matter areas

While B63H 15/00 is the home of installations and methods in which marine propulsion is effected by cooperation between a ship-borne driving mechanism and an anchored chain or the like, effecting propulsion of vessels by direct engagement with the water-bed or ground is provided for in B63H 19/08.

Informative references

Attention is drawn to the following places, which may be of interest for search:

Effecting propulsion of vessels by direct engagement with the water-bed or ground	B63H 19/08

Special rules of classification within this group

Effecting marine propulsion by means of vessel-mounted muscle powered diving mechanism which co-operate with anchored chains or the like are also classified in B63H 16/00.

Synonyms and Keywords

In patent documents the expression "chain towing" is often used with the meaning "shipping or marine propulsion using a chain extended along the water- or river-bed for effecting propulsion".

In patent documents the expression "chain tug" is often used with the meaning "tug using a chain extended along the water- or river-bed for effecting propulsion".

B63H 16/00

Effecting propulsion by muscle power (swimming frameworks, [N: i.e. apparatus fixed to or held by the swimmer or diver] with swimmer-operated driving mechanism A63B35/00; land-based training equipment for rowing or sculling A63B69/06)

Definition statement

This subclass/group covers:

Devices and methods for effecting propulsion by muscle power

Movable seats for oarsmen

Footrests

Oars, sculls, paddles and setting poles

Rowlocks and mountings therefor

Other apparatus for converting muscle power into propulsive effort

- For bow-facing rowing
- Using reciprocating pull cable, i.e. a strand-like member movable alternately backward and forward
- 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
- Using rotary cranking arm

Relationship between large subject matter areas

While B63H 16/00 covers devices and methods for converting muscle power into vessel propulsion, and covers also water engaging propulsive elements like oars, paddles or poles, other marine propulsive elements as such are found in the respective main groups of this subclass B63H, swimming framework, i.e. apparatus fixed to or held by the swimmer or diver, with driving mechanisms operated e.g. by muscular effort from the user is found in A63B 35/00, hand-propelled vehicles as well as sledges are classified in B62B, vehicles drawn by animals are covered by B62C, B62K provides for cycles, and B62M covers propulsion of wheeled vehicles by immediate effort from the rider.

Informative references

Attention is drawn to the following places, which may be of interest for search:

Swimming framework	A63B 35/00
Hand-propelled vehicles; Sledges	B62B
Vehicles drawn by animals	B62C
Cycles	B62K
Rider propulsion	B62M

Special rules of classification within this group

Effecting marine propulsion by means of vessel-mounted muscle powered driving mechanisms which co-operate with anchored chains or the like is also classified in B63H 15/00.

Groups B63H 16/12, and its sub-group B63H 16/14 are no longer used for classification. Documents in the backlog are in the process of being reclassified to B63H 16/16 to B63H 16/20.

Glossary of terms

In this subclass/group, the following terms (or expressions) are used with the meaning indicated:

Oar	A long slender bar used for propelling a boat, widened and flattened at one end into a blade for interaction with the water, pivotally supported in the middle portion of its length, and actuated by muscular force application onto the other end.

Paddle	A handheld propulsion device comprising a slender bar with a broad, spade-like water-engaging blade on one end, or on both ends.
Pole	A stake used for pushing boats in shallow water by interaction with the ground.
Scull	An oar used in pairs by a single user sitting midway between the sides of the boat.
Sculling	Effecting ship propulsion by muscular power using pairs of sculls.
Thwart	A seat across a boat, on which the rower sits; a rower's bench; an oarsmen's seat.

Synonyms and Keywords

In patent documents the expression/word "pedalo" is often used with the meaning "small muscle propelled watercraft with rotating cranking arm mechanism for driving a propulsion element".

B63H 16/12

using hand levers, cranks, pedals, or the like, e.g. water cycles, boats propelled by boat-mounted pedal cycles

Special rules of classification within this sub-group

This group and its sub-group B63H 16/14 are no longer used for classification. Documents are in the process of being reclassified to B63H 16/16 to B63H 16/20.

B63H 19/00

Effecting propulsion of vessels, not otherwise provided for

Definition statement

This subclass/group covers:

Effecting marine propulsion by using energy derived from movement of

ambient water, e.g.

- From rolling or pitching of the vessel
- Propelled by water current

Effecting marine propulsion by discharging gas into ambient water, other than by jet action

Effecting marine propulsion by direct engagement with water-bed or ground

Other devices and methods for effecting marine propulsion

Relationship between large subject matter areas

B63H 19/00 is the residual place for devices, arrangements and methods for effecting marine propulsion, and covers propulsion effected by using energy form movement of ambient water, by gas discharge into the ambient water, other than by jets, and by direct engagement with the water-bed or ground, however pushing a boat by muscular power using poles interacting with the ground is provided for in B63H 16/04.

References relevant to classification in this group

This subclass/group does not cover:

Effecting propulsion by muscular power using poles	B63H 16/04

Places in relation to which this main group is residual:

Wind- and motor-driven boards	B63B 35/7943, B63B 35/7953
Propulsive elements directly acting on water and arrangements thereof on vessels; propeller pitch changing	B63H 1/00 - B63H 5/00
Arrangements of propulsive devices directly acting on air	B63H 7/00
Propulsive devices directly acted on by wind	B63H 9/00
Effecting propulsion by jets	B63H 11/00
Wind motors driving water-engaging propulsive elements	B63H 13/00

Vessel-mounted driving mechanisms co-operating with anchored chains or the like	B63H 15/00
Effecting propulsion by muscle power	B63H 16/00

Informative references

Attention is drawn to the following places, which may be of interest for search:

Arrangements in connection with propulsion power supply from nature, e.g. from wind, in general	B60K 16/00

Synonyms and Keywords

In patent documents the expressions "flying bridge", "trail-flying bridge" and "flying ferry" is often used with the meaning "a ferryboat moving along a cross-river sheerline, propelled by water current generated lift on the hull".

B63H 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 i.e. with level bridging shaft arranged substantially outboard; Arrangements thereof on vessels

Definition statement

This subclass/group covers:

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
- Trolling propulsion units

Arrangements of outboard propulsion units on vessels

Mounting of outboard propulsion units, e.g.

- Mounting in a well
- Mounting on an intermediate support

Means enabling movement of the position of the propulsion element, e.g. for trim, tilt, or steering

Transmission between propulsion power unit and propulsion element, e.g.

- Transmissions allowing for movement of the propulsion element
- Transmissions with provision for reverse drive

Arrangements, apparatus and method for handling fluids in outboard propulsion units, e.g.

- For handling lubrication liquids
- For handling exhaust gas

For handling cooling-water

Housings of outboard propulsion units, e.g. with stabilizing fins or rudders

Transporting or testing stands for outboard propulsion units

Use for outboard propulsion units as pumps

Protection of power legs, e.g. when not in use

Relationship between large subject matter areas

While B63H 20/00 is the home of propulsion units which comprise a substantially vertical power leg arranged outboard of the vessel, which power terminates in a propulsion element, which typically engages the ambient water, wherein the power leg may carry a power generator, such as in IC-engine, or wherein an inboard motor co-operates with the propulsion element by a transmission line in Z-configuration, as well as of the arrangement thereof on vessels, hand carts for transporting outboard units are classified in B62B; B63B 7/087 provides for transom panels on inflatable boats for mounting outboard motors, B63B 35/665 provides for floating tug-type propeller units, inboard arrangements of propellers movably mounted with respect to the hull, e.g. podded azimuthing thrusters are classified in B63H 5/125, rudders carrying propellers are provided for in B63H 25/42, rudders carrying jets have their home in B63H 25/46, and F02B 61/045 provides for outboard marine engines per se.

References relevant to classification in this main group

This subclass/group does not cover:

Hand carts for transporting outboard propulsion units	B62B
Rudders carrying propellers	B63H 25/42
Rudders carrying jets	B63H 25/46
Cooling circuits for marine outboard engines	F01P 3/202
Air intakes for marine outboard engines	F02M 35/167

Informative references

Attention is drawn to the following places, which may be of interest for search:

Transom panels for mounting outboard motors on inflatable boats	B63B 7/087
Floating propeller units of tug-type	B63B 35/665
Inboard arrangements of propellers movably mounted with respect to the hull, e.g. podded azimuthing thrusters	B63B 5/125
Initiating means for steering	B63H 25/02
Trolling plates for slowing down	B63H 25/50
Lubricating of machines or engines in general; lubricating internal combustion engines	F01M
Gas-flow silencers or exhaust apparatus for machines or engines in general, and for internal-combustion engines	F01N
Marine outboard engines	F02B 61/045
Measuring torque per se	G01L 3/00
Measuring thrust of propellers per se	G01L 5/133

Testing in general	G01M
Dynamo-electric machines of trolling units	H02K

Special rules of classification within this group

Outboard propulsion units comprising jets as propulsive elements are also classified in B63H 11/00 and sub-groups.

The surface formed by the output flange of the engine of the outboard propulsion unit and the virtual nutshell around the engine form the interface between engine related classes F01 - F04 and the outboard drive related aspects in B63H 20/00

Glossary of terms

In this subclass/group, the following terms (or expressions) are used with the meaning indicated:

In this main group, the following terms (or expressions) are used with the meaning indicated:

Marine outboard engine	An engine particularly adapted for use in an outboard motor.
Trolling propulsion unit	A small outboard motor, typically electric, particularly adapted for low speed propulsion, e.g. of fishing boats.

Synonyms and Keywords

In patent documents the expression "trolling" is often used with the meaning "trawling" or "low speed towing of a trawl".

B63H 21/00

Use of propulsion power plant or units on vessels (use of outboard propulsion units B63H20/00; hull reinforcements for carrying propulsion power plant or units B63B3/70; [N: propulsion of submarines B63G8/08 ;] propulsion power plant or units per se, see the relevant classes)

Definition statement

This subclass/group covers:

Use of propulsion power plant or units on vessels, i.e. arrangements of propulsion power plant or units on vessels and to some extent it includes adaptations of such plant or units to facilitate such arrangements, e.g. for

- Steam driven vessels
- Motor-driven vessels
- By internal-combustion engines
- By gas turbines
- By electric motor
- Vessels powered by land vehicles supported by the vessel
- Vessels powered by nuclear energy
- Vessels powered by combinations of different types or propulsion units

Propulsion power units controlled from exterior of the engine room, e.g. from the navigation bridge

Mounting of propulsion power plant or unit, e.g. for anti-vibration purposes

Arrangements of propulsion-unit exhaust uptakes.

Apparatus or methods for handling power plant or unit liquids, specially adapted for use on marine vessels.

Relationship between large subject matter areas

B63H 21/00 is the general home of arrangements of propulsion power plant or units on vessels, as well as, to some extent, of adaptations of apparatus and methods for use on marine vessels for facilitating such arrangements, however, propulsion power plant or units per se are classified in the classes F01 to F04, F22, G21 and H02, further, electrically-propelled vehicles in general are classified in B60L, B60W provides for conjoint control of vehicle sub-units of different type or different function, hull reinforcements for carrying propulsion power plant or units are provided for in B63B 3/70, the propulsion of submarines, with the exception of propulsion by nuclear power, is classified in B63G 8/08, B63H 20/00 provides for the use of outboard propulsion units, such as outboard motors and Z-drives, electric power transmission from power plant or unit to propulsive elements is found in B63H 23/24, lubrication of machines or engines in general is found in F01M, F01P 3/207 provides for cooling circuits with liquid-to-liquid heat exchanging relative to marine vessels, controlling of engines peculiar to engines driving variable pitch propellers is found in F02D 29/02, control levers in general are classified in G05G, and G08B 9/00 provides for order telegraphs per se.

References relevant to classification in this main group

This subclass/group does not cover:

Reinforcements of ship hulls for carrying localised loads, e.g. propulsion plant	B63B 3/70
Propulsion of submarines, except for nuclear propulsion	B63G 8/08
Use of outboard propulsion units, e.g. of outboard motors or Z-drives	B63H 20/00
Electric power transmission from propulsion power plant to propulsive element	B63H 23/24
Cooling circuits with liquid-to-liquid heat exchanging relative to marine vessels	F01P 3/207

Informative references

Attention is drawn to the following places, which may be of interest for search:

Arrangements in connection with power supply from force of nature, e.g. sun, in vehicles in general	B60K 16/00
Electric equipment or propulsion of electrically-propelled vehicles in general	B60L
Conjoint control of vehicle sub-units of different type or different function	B60W
Engines or pumps in general	F01 - F04
Lubricating machines or engines in general	F01M
Liquid cooling of machines or engines in general	F01P 3/00
Controlling of engines peculiar to	F02D 29/02

engines driving vehicles or variable pitch propellers	
Steam generation in general	F22
Control devices or systems characterised by mechanical features only, e.g. control levers, in general	G05G
Order telegraphs per se	G08B 9/00
Nuclear power plant	G21D
Generation, conversion, or distribution of electric power	H02

Special rules of classification within this group

Group B63H 21/26, and its sub-groups B63H 21/265 and B63H 21/28 are no longer used for classification. Documents in the backlog are in the process of being reclassified to B63H 20/00 and sub-groups.

Glossary of terms

In this subclass/group, the following terms (or expressions) are used with the meaning indicated:

Flue	A smoke duct of a fireplace.
Funnel	A chimney.
Order telegraph	A communicating device to transfer orders of change in speed or direction from the bridge to the engine control room, and to confirm order execution back to the bridge.

Synonyms and Keywords

In patent documents the following abbreviations are often used:

IC engine	Internal-Combustion engine

In patent documents the following expressions "outboard motor", and "outboard propulsion unit" are often used as synonyms.

In patent documents the expression "joystick" is often used instead of "single hand control lever" which is used in the classification scheme of this group.

B63H 21/26

[N: IPC5] of outboard type; Outboard propulsion power units movably installed for steering, reversing, tilting, or the like [N: (transom panels for outboard motors for inflatable boats B63B7/087; floating propeller units B63B35/665)]

Special rules of classification within this group

This group and its sub-groups B63H 21/265 and B63H 21/28 are no longer used for classification. Documents are in the process of being reclassified to B63H 20/00 and sub#groups.

B63H 23/00

Transmitting power from propulsion power plant to propulsive elements (changing pitch or propellers B63H3/00; adaptation of transmission to allow adjustment in location or direction of propellers B63H5/125; transmission between wind motors and propulsive elements B63H13/00; in outboard propulsion units B63H20/14; adaptation of transmission to allow adjustment of location of propeller B63H20/08; [N: adaptations of transmissions to allow steering or dynamic anchoring by propellers carried on rudders B63H25/42 ;] for vehicles in general B60K; driving auxiliary machinery B63J; transmission elements per se F16

Definition statement

This subclass/group covers:

Devices, arrangements and methods for transmitting power from propulsion power plant to propulsive elements, e.g.

- By mechanical gearing
- By non-mechanical gearing, e.g. electric or fluid
- With synchronisation of propulsive elements
- Characterised by use of clutches

Propeller or paddle wheel shafts, and devices or arrangements for use with

the same, e.g.

- Bearings or seals specially adapted for propeller shafts
- Propeller attachment on shafts
- Shaft tubes and shaft tube seals

Relationship between large subject matter areas

While B63H 23/00 is the home of devices, arrangements and methods adapted for marine propulsion power transmission between power generator or prime mover and propulsive elements, propeller-shaft tunnels in ship's hulls are classified in B63B 11/06, B63H 3/00 provides for arrangements and methods for propeller-blade pitch changing, adaptations of transmissions to allow adjustment in location or direction of propellers arranged in-board, e.g. in podded azimuthing propulsors, are classified in B63H 5/125, transmissions between wind motors and propulsive elements are found in B63H 13/00, transmissions in apparatus fro converting muscle power into propulsive effort are covered by B63H 16/08, B63H 20/08 provides for adaptations of transmission in outboard propulsion units to allow for adjustment of the location of the propulsive element, e.g. for trim, tilt or steering, and B63H 20/14, provides for transmissions in outboard propulsion units between propulsion power unit and propulsive element, e.g. including means for moving propulsion element in a horizontal plane only, such as for steering, or with provision for reverse drive, and B63H 25/42 covers adaptations of transmissions to allow steering or dynamic anchoring by propellers carried on rudders, B63J 3/00 covers driving auxiliaries on vessels, B60K provides for arrangement and mounting of transmissions in vehicles in general, and transmission elements per se are found in F16, in particular, in F16C shafts in general, in F16D 1/06 attachments or members on a shaft in general, in F16H gearing, e.g. toothed gearing, per se, and in F16J shaft-tube seals per se.

References relevant to classification in this group

This subclass/group does not cover:

Transmissions in in-board arrangements of propellers to allow adjustment in location or direction of the propeller	B63H 5/125
Transmissions between wind motors and propulsive elements	B63H 13/00
Apparatus for converting muscle power into propulsive effort	B63H 16/08
Adaptations of transmission in outboard propulsion units to allow	B63H 20/08

adjustment of the propeller, e.g. for trim, tilt or steering	
Transmission in outboard propulsion units between propulsion power unit and propulsive element	B63H 20/14
Adaptations of transmission to allow steering or dynamic anchoring by propellers carried on rudders	B63H 25/42

Informative references

Attention is drawn to the following places, which may be of interest for search:

Arrangement or mounting of transmissions in vehicles in general	B60K
Propeller-shaft tunnels	B63B 11/06
Propeller-blade pitch changing	B63H 3/00
Transmissions for driving auxiliary machinery on vessels	B63J 3/00
Transmission elements per se	F16
Shafts and bearings in general	F16C
Attachment of a member on a shaft in general	F16D 1/06
Gearing, e.g. toothed gearing per se	F16H
Shaft-tube seals per se	F16J
Dynamo-electric machines per se	H02K

Glossary of terms

In this subclass/group, the following terms (or expressions) are used with the meaning indicated:

Propeller slipstream	The current of water driven backward

	by a propeller.
Shaft tube	A tubular structure, in particular in the stern post or stern frame of a vessel, which is adapted for sealing and bearing the tail shaft of a propeller-shaft; a stern tube.
Stern post	A strong structural member extending upward from the keel at the stern, often comprising a rudder shoe and a stern boss.

Synonyms and Keywords

In patent documents the expression "prime mover" is often used with the meaning "main engine" or "main power generator (of propulsive energy)".

In patent documents the expression "tail shaft" is often used with the meaning "part of the propeller shaft which extends through the shaft tube".

B63H 25/00

Steering; Slowing-down otherwise than by use of propulsive elements (using adjustably-mounted propeller ducts or rings for steering B63H5/14; using movably-installed outboard propulsion units B63H20/00); Dynamic anchoring, i.e. positioning vessels by means of main or auxiliary propulsive elements (anchoring, other than dynamic B63B21/00; equipment to decrease pitch, roll or like unwanted vessel movements by auxiliary jets or propellers B63B39/08; [N: systems for waterborne vessel position control G05, e.g. G05D1/00])

Definition statement

This subclass/group covers:

Steering

- Initiating means for steering, e.g. steering wheels, joysticks, or by automatic means

Steering by rudders

- Steering gear, e.g. power assisted

- Rudder position indicators
- Rudders
- Rudders using Magnus effect

Steering or dynamic anchoring using active propulsive elements

- By propulsive elements other than jets, e.g. propellers
- By propellers used therefor ony
- by rudders carrying propellers
- By jets
- By rudders carrying jets

Steering or slowing down otherwise than by propulsive elements

- By extensible flaps
- By deflection of the propeller slipstream otherwise than by rudder

Parts for marine steering not otherwise provided for

Relationship between large subject matter areas

While B63H 25/00 is the general home for marine steering, dynamic anchoring of vessels by means of propulsive elements, and for slowing down of vessels other than by propulsive elements, stern posts are provided for in B63B 3/40, B63B 21/00 covers anchoring other than dynamic, B63B 39/08 provides for auxiliary jets or propellers used for decreasing pitch, roll or the like unwanted vessel movements, B63G 8/14 provides for control of attitude or depth of underwater vessels, e.g. submarines, steering using adjustably-mounted propeller ducts or rings is classified in B63H 5/14, B63H 11/00 covers main propulsion jet which can be deflected or directed for steering or dynamic anchoring purpose, steering using movably installed outboard propulsion units is provided for in B63H 20/00, and B63H 20/34 covers housings or outboard propulsion units comprising rudders and the like, levers or the like for controlling the engine or the transmission, e.g. single hand control levers or joysticks are provided for in B63H 21/22B, F42D 19/01 covers steering control of torpedoes, e.g. of depth, G05D 1/00 provides for control aspects of position, course, altitude, or attitude control of water vehicles, and G08G 3/00 covers traffic control systems for marine craft.

References relevant to classification in this main group

This subclass/group does not cover:

Control or attitude or depth of	B63G 8/14

underwater vessels, e.g. submarines	
Non-rotating propeller ducts or rings adjustably mounted, e.g. for steering purpose	B63H 5/14
Steering or dynamic anchoring by deflecting or directing main propulsion jets	B63H 11/00
Outboard propulsion units, e.g. movably mounted for steering purpose	B63H 20/00
Rudders mounted on housings of outboard propulsion units	B63H 20/34
Control aspects of systems for waterborne vessel position control	G05D 1/00
Traffic control systems for marine craft	G08G 3/00

Informative references

Attention is drawn to the following places, which may be of interest for search:

Anchoring, other than dynamic	B63B 21/00
Arrangement of propulsion or steering means on amphibious vehicles	B60F 3/0007
Equipment to decrease pitch, roll, or like unwanted vessel movements by using auxiliary jets or propellers	B63B 39/08
Levers or the like for controlling the engine or the transmission, e.g. single hand control levers or joysticks	B63H 21/22B
Steering control of torpedoes, e.g. of depth	F42B 19/01
Stern posts	B63B 3/40

Special rules of classification within this group

In this main group, subject-matter concerning the control of position or course of vehicles in two dimensions, in particular for waterborne vehicles and for dynamic anchoring, is also classified in the respective subgoups of G05D 1/02 (reference is made to the Special rules of classification within main group G01D 1/00).

Glossary of terms

In this subclass/group, the following terms (or expressions) are used with the meaning indicated:

Pitch	The oscillating angular motion of a ship about its horizontal transverse axis.
Roll	The oscillating angular motion of a ship about its longitudinal axis.
Propeller slipstream	The current of water driven backward by a propeller.

Synonyms and Keywords

In patent documents the following abbreviations are often used:

GPS	Global Positioning System

In patent documents the expression "Flettner rotor" is often used with the meaning "a rotating cylinder using the Magnus effect".

In patent documents the word "joystick" is often used with the meaning "a single hand control lever for controlling vessel position, course and propulsion".

In patent documents the expression "propeller wake" is often used instead of "propeller slipstream" which is used in the classification scheme of this group.

In patent documents the expression "pitch" is often used with the meaning "a measure of the angle of the blades of a screw propeller, equal to the distance forward a blade would move in one revolution if it exerted no thrust on the medium", or with the meaning "distance between any two successive identical parts in a series, e.g. of teeth of a cogwheel, rack, pinion, etc., or of successive paddles of a paddle wheel, measured along a circle passing through their centres".

In patent documents the expression "marine traffic control system" is often used with the meaning "arrangements, located in marine craft or external thereof, for controlling marine craft within a traffic environment, e.g. anti-collision systems".