

**CPC****COOPERATIVE PATENT CLASSIFICATION****B64C****AEROPLANES; HELICOPTERS** ([air-cushion vehicles B60V](#))**NOTE**

As far as possible, classification is made according to constructional features; classification according to particular kinds of aircraft is normally regarded as being of secondary importance, except in cases where this is considered to be the characteristic feature.

**WARNING**

The following IPC groups are not used in the CPC scheme. Subject matter covered by these groups is classified in the following CPC groups:

– [B64C 35/02](#) covered by [B64C 35/00](#)

**Aircraft structures or fairings** ([boundary-layer controls B64C 21/00](#))**B64C 1/00**

**Fuselages; Constructional features common to fuselages, wings, stabilising surfaces and the like** ([aerodynamical features common to fuselages, wings, stabilising surfaces, and the like B64C 23/00](#); [flight-deck installations B64D](#))

- B64C 1/0009 . {Aerodynamic aspects}
- B64C 2001/0018 . {comprising two decks adapted for carrying passengers only}
- B64C 2001/0027 . . {arranged one above the other}
- B64C 2001/0036 . . {arranged side by side at the same level}
- B64C 2001/0045 . {Fuselages characterised by special shapes}
- B64C 2001/0054 . {Fuselage structures substantially made from particular materials}
- B64C 2001/0063 . . {from wood}
- B64C 2001/0072 . . {from composite materials}
- B64C 2001/0081 . . {from metallic materials}
- B64C 2001/009 . {comprising decompression panels or valves for pressure equalisation in fuselages or floors}
- B64C 1/06 . Frames; Stringers; Longerons; {Fuselage sections}
- B64C 1/061 . . {Frames}
- B64C 1/062 . . . {specially adapted to absorb crash loads}
- B64C 1/063 . . . {Folding or collapsing to reduce overall dimensions, e.g. foldable tail booms ([folding or collapsing wings B64C 3/56](#))}
- B64C 1/064 . . {Stringers; Longerons}
- B64C 1/065 . . {Spars}
- B64C 1/066 . . {Interior liners}
- B64C 1/067 . . . {comprising means for preventing icing or condensation conditions}
- B64C 1/068 . . {Fuselage sections}
- B64C 1/069 . . . {Joining arrangements therefor}
- B64C 1/08 . . Geodetic or other open-frame structures

- B64C 1/10 . . Bulkheads
- B64C 1/12 . . Construction or attachment of skin panels
- B64C 1/14 . Windows; Doors; Hatch covers or access panels; Surrounding frame structures; Canopies; Windscreens {accessories therefor, e.g. pressure sensors, water deflectors, hinges, seals, handles, latches, windscreen wipers} (fairings movable in conjunction with undercarriage elements [B64C 25/16](#); bomb doors [B64D 1/06](#))
- B64C 1/1407 . . {Doors; surrounding frames}
- B64C 1/1415 . . . {Cargo doors, e.g. incorporating ramps}
- B64C 1/1423 . . . {Passenger doors}
- B64C 1/143 . . . . {of the plug type}
- B64C 1/1438 . . . . {of the sliding type}
- B64C 1/1446 . . . {Inspection hatches (for engine cowls [B64D 29/08](#))}
- B64C 1/1453 . . . {Drain masts}
- B64C 1/1461 . . . {Structures of doors or surrounding frames}
- B64C 1/1469 . . . {Doors between cockpit and cabin}
- B64C 1/1476 . . {Canopies; Windscreens or similar transparent elements}
- B64C 1/1484 . . . {Windows ([B64C 1/1492](#) takes precedence)}
- B64C 1/1492 . . . {Structure and mounting of the transparent elements in the window or windscreen}
- B64C 1/16 . specially adapted for mounting power plant
- B64C 1/18 . Floors
- B64C 1/20 . . specially adapted for freight
- B64C 1/22 . Other structures integral with fuselages to facilitate loading {e.g. cargo bays, cranes (cargo door type ramps [B64C 1/1415](#))}
- B64C 1/24 . Steps mounted on, and retractable within, fuselages (readily removable [B64D 9/00](#))
- B64C 1/26 . Attaching the wing or tail units or stabilising surfaces
- B64C 1/28 . Parts of fuselage relatively movable to improve pilots view
- B64C 1/30 . Parts of fuselage relatively movable to reduce overall size for storage
- B64C 1/32 . Severable or jettisonable parts of fuselage facilitating emergency escape (ejector seats [B64D 25/10](#))
- B64C 1/34 . comprising inflatable structural components (connection of valves to inflatable elastic bodies [B60C 29/00](#))
- B64C 1/36 . adapted to receive aerals or radomes (aerals or radomes per se [H01Q](#))
- B64C 1/38 . Constructions adapted to reduce effects of aerodynamic or other external heating {(cooling structural parts of aircrafts with air flow [B64D 13/006](#))}
- B64C 1/40 . Sound or heat insulation, {e.g. using insulation blankets (insulating elements for vehicles, in general [B60R 13/08](#))}
- B64C 1/403 . . {Arrangement of fasteners specially adapted therefor, e.g. of clips (in vehicles in general [B60R 13/0206](#))}

- B64C 1/406
  - . . . {in combination with supports for lines, e.g. for pipes or cables (arrangement of elements of electric or fluid circuits specially adapted for vehicles, in general [B60R 16/00](#); supports for pipes, cables or protective tubing [F16L 3/00](#); installations of electric cables or lines in vehicles [H02G 3/00](#))}
- B64C 3/00**
  - Wings** (stabilising surfaces [B64C 5/00](#); ornithopter wings [B64C 33/02](#))
- B64C 3/10
  - . Shape of wings
- B64C 3/14
  - . . Aerofoil profile
- B64C 3/141
  - . . . {Circulation Control Airfoils}
- B64C 2003/142
  - . . . {with variable camber along the airfoil chord}
- B64C 2003/143
  - . . . {comprising interior channels}
- B64C 2003/144
  - . . . {including a flat surface on either the extrados or intrados}
- B64C 2003/145
  - . . . {comprising 'Gurney' flaps}
- B64C 2003/146
  - . . . {comprising leading edges of particular shape}
- B64C 2003/147
  - . . . {comprising trailing edges of particular shape}
- B64C 2003/148
  - . . . {comprising protuberances, e.g. for modifying boundary layer flow}
- B64C 2003/149
  - . . . {for supercritical or transonic flow}
- B64C 3/16
  - . . Frontal aspect
- B64C 3/18
  - . Spars; Ribs; Stringers (attaching wing unit to fuselage [B64C 1/26](#))
- B64C 3/182
  - . . {Stringers, longerons}
- B64C 3/185
  - . . {Spars}
- B64C 3/187
  - . . {Ribs}
- B64C 3/20
  - . Integral or sandwich constructions (layered products or sandwich constructions in general [B32B](#))
- B64C 3/22
  - . Geodetic or other open-frame structures
- B64C 3/24
  - . Moulded or cast structures
- B64C 3/26
  - . Construction, shape, or attachment of separate skins, e.g. panels
- B64C 3/28
  - . Leading or trailing edges attached to primary structures, e.g. forming fixed slots
- B64C 3/30
  - . comprising inflatable structural components (connection of valves to inflatable elastic bodies [B60C 29/00](#))
- B64C 3/32
  - . specially adapted for mounting power plant
- B64C 3/34
  - . Integrally-constructed tanks, e.g. for fuel (other aircraft fuel tanks or fuel systems [B64D](#))
- B64C 3/36
  - . Structures adapted to reduce effects of aerodynamic or other external heating {(cooling structural parts of aircrafts with air flow [B64D 13/006](#))}
- B64C 3/38
  - . Adjustment of complete wings or parts thereof
- B64C 3/385
  - . . {Variable incidence wings}
- B64C 3/40
  - . . Varying angle of sweep
- B64C 3/42
  - . . Adjusting about chordwise axes
- B64C 3/44
  - . . Varying camber
- B64C 2003/445
  - . . . {by changing shape according to the speed, e.g. by morphing}

- B64C 3/46 . . . by inflatable elements (connection of valves to inflatable elastic bodies [B60C 29/00](#))
- B64C 3/48 . . . by relatively-movable parts of wing structures
- B64C 3/50 . . . by leading or trailing edge flaps (ailerons [B64C 9/00](#))
- B64C 3/52 . . . Warping
- B64C 3/54 . . . Varying in area (flaps extendable to increase camber [B64C 3/44](#))
- B64C 2003/543 . . . {by changing shape according to the speed, e.g. by morphing}
- B64C 3/546 . . . {by foldable elements}
- B64C 3/56 . . . Folding or collapsing to reduce overall dimensions of aircraft
- B64C 3/58 . . . provided with fences or spoilers (adjustable for control purposes [B64C 9/00](#))

**B64C 5/00****Stabilising surfaces** (attaching stabilising surfaces to fuselage [B64C 1/26](#))

- B64C 5/02 . . . Tailplanes (fins [B64C 5/06](#))
- B64C 5/04 . . . Noseplanes
- B64C 5/06 . . . Fins (specially for wings [B64C 5/08](#))
- B64C 5/08 . . . mounted on or supported by wings
- B64C 5/10 . . . adjustable
- B64C 5/12 . . . for retraction against or within fuselage or nacelle
- B64C 5/14 . . . Varying angle of sweep
- B64C 5/16 . . . about spanwise axes
- B64C 5/18 . . . in area (attaching stabilising surfaces to fuselage [B64C 1/26](#))

**B64C 7/00****Structures or fairings not otherwise provided for**

- B64C 7/02 . . . Nacelles

**B64C 9/00****Adjustable control surfaces or members, e.g. rudders** (trimming stabilising surfaces [B64C 5/10](#))

- B64C 2009/005 . . . {Ailerons}
- B64C 9/02 . . . Mounting or supporting thereof
- B64C 9/04 . . . with compound dependent movements
- B64C 9/06 . . . with two or more independent movements
- B64C 9/08 . . . bodily displaceable (varying camber of wings [B64C 3/44](#))
- B64C 9/10 . . . one surface adjusted by movement of another, e.g. servo tabs ([B64C 9/04](#) takes precedence; adjusting surfaces of different type or function [B64C 9/12](#))
- B64C 9/12 . . . surfaces of different type or function being simultaneously adjusted
- B64C 9/14 . . . forming slots (boundary-layer control [B64C 21/00](#))
- B64C 2009/143 . . . {comprising independently adjustable elements for closing or opening the slot between the main wing and leading or trailing edge flaps}
- B64C 9/146 . . . {at an other wing location than the rear or the front (wings provided with fixed fences or spoilers [B64C 3/58](#))}
- B64C 9/16 . . . at the rear of the wing
- B64C 9/18 . . . . by single flaps
- B64C 9/20 . . . . by multiple flaps

- B64C 9/22 . . at the front of the wing
- B64C 9/24 . . . by single flap
- B64C 9/26 . . . by multiple flaps
- B64C 9/28 . . by flaps at both the front and rear of the wing operating in unison
- B64C 9/30 . Balancing hinged surfaces, e.g. dynamically
- B64C 9/32 . Air braking surfaces ([braking by parachutes B64D 17/80](#))
- B64C 9/323 . . {associated with wings}
- B64C 9/326 . . {associated with fuselages}
- B64C 9/34 . collapsing or retracting against or within other surfaces or other members
- B64C 9/36 . . the members being fuselages or nacelles
- B64C 9/38 . Jet flaps

**B64C 11/00** **Propellers, e.g. of ducted type; Features common to propellers and rotors for rotorcraft** ([rotors specially adapted for rotorcraft B64C 27/32](#))

**NOTE**

Documents classified in [B64C 11/001](#) - [B64C 11/008](#) which also contain relevant information, covered by other subgroups of [B64C 11/00](#), are also classified in the appropriate subgroup of [B64C 11/00](#)

- B64C 11/001 . {Shrouded propellers}
- B64C 11/002 . {Braking propellers, e.g. for measuring the power output of an engine}
- B64C 11/003 . {Variable-diameter propellers; Mechanisms therefor}
- B64C 11/005 . {Spiral-shaped propellers}
- B64C 11/006 . {Paddle wheels}
- B64C 11/007 . {Propulsive discs, i.e. discs having the surface specially adapted for propulsion purposes}
- B64C 11/008 . {characterised by vibration absorbing or balancing means ([for rotorcraft B64C 27/001](#))}
- B64C 11/02 . Hub construction
- B64C 11/04 . . Blade mountings
- B64C 11/06 . . . for variable-pitch blades
- B64C 11/065 . . . . {variable only when stationary}
- B64C 11/08 . . . for non-adjustable blades
- B64C 11/10 . . . . rigid
- B64C 11/12 . . . . flexible
- B64C 11/14 . . Spinners
- B64C 11/16 . Blades
- B64C 11/18 . . Aerodynamic features
- B64C 11/20 . . Constructional features
- B64C 11/205 . . . {for protecting blades, e.g. coating}
- B64C 11/22 . . . Solid blades
- B64C 11/24 . . . Hollow blades

- B64C 11/26 . . . Fabricated blades
- B64C 11/28 . . . Collapsible or foldable blades
- B64C 11/30 . Blade pitch-changing mechanisms

**NOTE**

Groups [B64C 11/301](#), [B64C 11/303](#), [B64C 11/305](#) and [B64C 11/306](#) take precedence over [B64C 11/32](#), [B64C 11/38](#) and [B64C 11/44](#)

- B64C 11/301 . . {characterised by blade position indicating means}
- B64C 11/303 . . {characterised by comprising a governor}
- B64C 11/305 . . {characterised by being influenced by other control systems, e.g. fuel supply}
- B64C 11/306 . . {specially adapted for contrarotating propellers}
- B64C 11/308 . . . {automatic}
- B64C 11/32 . . mechanical
- B64C 11/325 . . . {comprising feathering, braking or stopping systems}
- B64C 11/34 . . . automatic
- B64C 11/343 . . . . {actuated by the centrifugal force or the aerodynamic drag acting on the blades}
- B64C 11/346 . . . . {actuated by the centrifugal force or the aerodynamic drag acting on auxiliary masses or surfaces}
- B64C 11/36 . . . non-automatic
- B64C 11/38 . . fluid, e.g. hydraulic
- B64C 11/385 . . . {comprising feathering, braking or stopping systems}
- B64C 11/40 . . . automatic
- B64C 11/42 . . . non-automatic
- B64C 11/44 . . electric
- B64C 11/46 . Arrangements of or constructional features peculiar to multiple propellers  
{[B64C 11/306](#) takes precedence}
- B64C 11/48 . . Units of two or more coaxial propellers
- B64C 11/50 . . Phase synchronisation between multiple propellers

**B64C 13/00 Control systems or transmitting systems for actuating flying-control surfaces, lift-increasing flaps, air brakes, or spoilers**

- B64C 13/02 . Initiating means
- B64C 13/04 . . actuated personally
- B64C 13/06 . . . adjustable to suit individual persons
- B64C 13/08 . . . Trimming zero positions
- B64C 13/10 . . . comprising warning devices
- B64C 13/12 . . . Dual control apparatus
- B64C 13/14 . . . lockable ([locking in position to suit individual persons B64C 13/06](#))
- B64C 13/16 . . actuated automatically, e.g. responsive to gust detectors
- B64C 13/18 . . . using automatic pilot
- B64C 13/20 . . . using radiated signals

- B64C 13/22 . . . readily revertible to personal control
- B64C 13/24 . Transmitting means
- B64C 13/26 . . without power amplification or where power amplification is irrelevant
- B64C 13/28 . . . mechanical
- B64C 13/30 . . . . using cable, chain, or rod mechanisms
- B64C 13/32 . . . . using cam mechanisms
- B64C 13/34 . . . . using toothed gearing
- B64C 13/36 . . . fluid
- B64C 13/38 . . with power amplification
- B64C 13/40 . . . using fluid pressure
- B64C 13/42 . . . . having duplication or stand-by provisions
- B64C 13/44 . . . . overriding of personal controls; with automatic return to inoperative position
- B64C 13/46 . . . . with artificial feel
- B64C 13/48 . . . . characterised by the fluid being gaseous
- B64C 13/50 . . . using electrical energy
- B64C 13/503 . . . . {Fly-by-Wire}
- B64C 2013/506 . . . . . {using electro-hydrostatic actuators (EHA's)}

#### **B64C 15/00 Attitude, flight direction, or altitude control by jet reaction**

- B64C 15/02 . the jets being propulsion jets
- B64C 15/12 . . the power plant being tiltable
- B64C 15/14 . the jets being other than main propulsion jets ([jet flaps B64C 9/38](#))

#### **B64C 17/00 Aircraft stabilisation not otherwise provided for**

- B64C 17/02 . by gravity or inertia-actuated apparatus
- B64C 17/04 . . by pendular bodies
- B64C 17/06 . . by gyroscopic apparatus ([automatic pilot control B64C 13/18](#))
- B64C 17/08 . by ballast supply or discharge ([for lighter-than-air aircraft B64B](#))
- B64C 17/10 . Transferring fuel to adjust trim

#### **B64C 19/00 Aircraft control not otherwise provided for**

- B64C 19/02 . Conjoint controls

#### **Influencing air-flow over aircraft surfaces, not otherwise provided for**

#### **B64C 21/00 Influencing air-flow over aircraft surfaces by affecting boundary-layer flow ([boundary-layer control in general F15D](#))**

- B64C 21/02 . by use of slot, ducts, porous areas, or the like
- B64C 21/025 . . {for simultaneous blowing and sucking}
- B64C 21/04 . . for blowing ([B64C 21/08 takes precedence](#))
- B64C 21/06 . . for sucking ([B64C 21/08 takes precedence](#))



- B64C 21/08 . . adjustable
- B64C 21/10 . using other surface properties, e.g. roughness

### **B64C 23/00 Influencing air-flow over aircraft surfaces, not otherwise provided for**

- B64C 23/005 . {by other means not covered by groups [B64C 23/02](#) to [B64C 23/08](#), e.g. by electric charges, magnetic panels, piezoelectric elements, static charges or ultrasounds}
- B64C 23/02 . by means of rotating members of cylindrical or similar form
- B64C 23/04 . by generating shock waves
- B64C 23/06 . by generating vortices
- B64C 23/065 . . {at the wing tip, e.g. winglets, splines}
- B64C 23/08 . using Magnus effect

### **B64C 25/00 Alighting gear (air-cushion alighting gear [B60V 3/08](#))**

- B64C 25/001 . {Devices not provided for in the groups [B64C 25/02](#) to [B64C 25/68](#)}
- B64C 2025/003 . . {Means for reducing landing gear noise, or turbulent flow around it, e.g. landing gear doors used as deflectors}
- B64C 2025/005 . . {Tail skids for fuselage tail strike protection on tricycle landing gear aircraft}
- B64C 2025/006 . . {Landing gear legs comprising torque arms}
- B64C 2025/008 . . {Comprising means for modifying their length, e.g. for kneeling, for jumping, or for leveling the aircraft}
- B64C 25/02 . Undercarriages
- B64C 25/04 . . Arrangement or disposition on aircraft
- B64C 25/06 . . fixed
- B64C 25/08 . . non-fixed, e.g. jettisonable
- B64C 25/10 . . . retractable, foldable, or the like
- B64C 25/12 . . . . sideways
- B64C 2025/125 . . . . . {into the fuselage, e.g. main landing gear pivotally retracting into or extending out of the fuselage}
- B64C 25/14 . . . . fore-and-aft
- B64C 25/16 . . . . Fairings movable in conjunction with undercarriage elements
- B64C 25/18 . . . . Operating mechanisms
- B64C 25/20 . . . . . mechanical
- B64C 25/22 . . . . . fluid
- B64C 25/24 . . . . . electric
- B64C 25/26 . . . . . Control or locking systems therefor
- B64C 25/28 . . . . . with indicating or warning devices
- B64C 25/30 . . . . . emergency actuated
- B64C 25/32 . characterised by the ground or like engaging elements ([arrestor hooks](#) [B64C 25/68](#))
- B64C 2025/325 . . {specially adapted for helicopters}
- B64C 25/34 . . wheeled type, e.g. multi-wheeled bogies



- B64C 2025/345 . . . {Multi-wheel bogies having one or more steering axes}
- B64C 25/36 . . . Arrangements or adaptations of wheels, tyres, or axles in general (construction of wheels or axles [B60B](#); construction of tyres in general [B60C](#))
- B64C 25/38 . . . Endless-track type
- B64C 25/40 . . . the elements being rotated before touch-down
- B64C 25/405 . . . {Powered wheels, e.g. for taxing}
- B64C 25/42 . . . Arrangements or adaptations of brakes (the ground braking force being regulated, at least in part, by a speed condition, e.g. acceleration or deceleration of the ground engaging alighting gear, [B60T 8/32](#))
- B64C 25/423 . . . {Braking devices acting by reaction of gaseous medium ([B64C 25/426](#) takes precedence; using rockets [B64D 27/023](#))}
- B64C 25/426 . . . {Braking devices providing an automatic sequence of braking}
- B64C 25/44 . . . Actuating mechanisms
- B64C 25/445 . . . . {Brake regulators for preventing somersaulting}
- B64C 25/46 . . . . Brake regulators for preventing skidding or aircraft somersaulting ({anti-skidding regulators; electric or electronic controllers therefor [B60T 8/1703](#)})
- B64C 25/48 . . . . differentially operated for steering purposes
- B64C 25/50 . . . Steerable undercarriages; Shimmy damping (steering devices applicable to land vehicles [B62D](#))
- B64C 25/505 . . . {Shimmy damping}
- B64C 25/52 . . . Skis or runners
- B64C 25/54 . . . Floats
- B64C 25/56 . . . inflatable (connection of valves to inflatable elastic bodies [B60C 29/00](#))
- B64C 25/58 . . . Arrangements or adaptations of shock-absorbers or springs (shimmy dampers [B64C 25/50](#); vehicle suspension arrangements in general [B60G](#); shock absorber per se [F16F](#))
- B64C 25/60 . . . Oleo legs
- B64C 25/62 . . . Spring shock-absorbers; Springs
- B64C 25/64 . . . . using rubber or like elements
- B64C 25/66 . . . Convertible alighting gear; Combinations of different kinds of ground or like engaging elements
- B64C 25/68 . . . Arrestor hooks (arresting gear, e.g. on aircraft carriers [B64F](#))

#### **Aircraft kinds and components not otherwise provided for**

- B64C 27/00** Rotorcraft; Rotors peculiar thereto ([alighting gear B64C 25/00](#))
- B64C 27/001 . . {Vibration damping devices}
- B64C 2027/002 . . {mounted between the rotor drive and the fuselage}
- B64C 2027/003 . . {mounted on rotor hub, e.g. a rotary force generator}
- B64C 2027/004 . . {using actuators, e.g. active systems}
- B64C 2027/005 . . {using suspended masses}

- B64C 27/006 . {Safety devices}
- B64C 27/007 . . {adapted for detection of blade cracks}
- B64C 27/008 . {Rotors tracking or balancing devices}
- B64C 27/02 . Gyroplanes
- B64C 27/021 . . {Rotor or rotor head construction (for helicopters [B64C 27/32](#))}
- B64C 27/022 . . . {Devices for folding or adjusting the blades}
- B64C 27/023 . . . {Construction of the blades; Coating of the blades}
- B64C 27/024 . . . {Devices for shifting the rotor axis}
- B64C 27/025 . . . {Rotor drives, in particular for taking off; Combination of autorotation rotors and driven rotors}
- B64C 27/026 . . . {Devices for converting a fixed wing into an autorotation rotor and viceversa}
- B64C 27/027 . . {Control devices using other means than the rotor}
- B64C 27/028 . . {Other constructional elements; Rotor balancing}
- B64C 27/04 . Helicopters
- B64C 27/06 . . with single rotor
- B64C 27/08 . . with two or more rotors
- B64C 27/10 . . . arranged coaxially
- B64C 27/12 . . Rotor drives
- B64C 2027/125 . . . {including toroidal transmissions, e.g. of the CVT type}
- B64C 27/14 . . . Direct drive between power plant and rotor hub
- B64C 27/16 . . . Drive of rotors by means, e.g. propellers, mounted on rotor blades
- B64C 27/18 . . . . the means being jet-reaction apparatus
- B64C 27/20 . Rotorcraft characterised by having shrouded rotors, e.g. flying platforms
- B64C 27/22 . Compound rotorcraft, i.e. aircraft using in flight the features of both aeroplane and rotorcraft
- B64C 27/24 . . with rotor blades fixed in flight to act as lifting surfaces
- B64C 27/26 . . characterised by provision of fixed wings
- B64C 27/28 . . with forward-propulsion propellers pivotable to act as lifting rotors
- B64C 27/30 . . with provision for reducing drag of inoperative rotor
- B64C 27/32 . Rotors ([features common to rotors and propellers B64C 11/00](#))
- B64C 27/322 . . {Blade travel limiting devices, e.g. droop stops}
- B64C 27/325 . . {Circulation-control rotors}
- B64C 27/327 . . {Retention means relieving the stress from the arm, e.g. tie-bars}
- B64C 27/33 . . having flexing arms
- B64C 27/35 . . having elastomeric joints
- B64C 27/37 . . having articulated joints ([B64C 27/33](#), [B64C 27/35 take precedence](#))
- B64C 27/39 . . . with individually articulated blades, i.e. with flapping or drag hinges
- B64C 27/41 . . . with flapping or universal joint, common to the blades
- B64C 27/43 . . . . see-saw type, i.e. two-bladed rotor
- B64C 27/45 . . . with a feathering hinge only

- B64C 27/46 . . Blades
- B64C 27/463 . . . {Blade tips}
- B64C 27/467 . . . Aerodynamic features {(B64C 27/463 takes precedence)}
- B64C 27/473 . . . Constructional features {(B64C 27/463 takes precedence)}
- B64C 2027/4733 . . . . {Rotor blades substantially made from particular materials}
- B64C 2027/4736 . . . . . {from composite materials}
- B64C 27/48 . . . . Root attachment to rotor head
- B64C 27/50 . . . . Blades foldable to facilitate stowage of aircraft
- B64C 27/51 . Damping of blade movements
- B64C 27/52 . Tilting of rotor bodily relative to fuselage (of see-saw type construction B64C 27/43)
- B64C 27/54 . Mechanisms for controlling blade adjustment or movement relative to rotor head, e.g. lag-lead movement
- B64C 27/56 . . Initiating means, e.g. actuated personally
- B64C 27/57 . . . automatic or condition responsive, e.g. responsive to rotor speed, torque or thrust
- B64C 27/58 . . Transmitting means
- B64C 27/59 . . . mechanical
- B64C 27/605 . . . . including swash plate, spider or cam mechanisms
- B64C 27/615 . . . . including flaps mounted on blades
- B64C 27/625 . . . . including rotating masses or servo rotors
- B64C 27/635 . . . . specially for controlling lag-lead movements of blades
- B64C 27/64 . . . . using fluid pressure
- B64C 27/68 . . . . using electrical energy
- B64C 27/72 . . Means acting on blades
- B64C 2027/7205 . . . {on each blade individually, e.g. individual blade control [IBC]}
- B64C 2027/7211 . . . . {without flaps}
- B64C 2027/7216 . . . . . {using one actuator per blade}
- B64C 2027/7222 . . . . . {using airfoil deformation}
- B64C 2027/7227 . . . . . {using blowing slots actuated by piezoelectric actuators}
- B64C 2027/7233 . . . . . {using higher-harmonic control [HHC]}
- B64C 2027/7238 . . . . . . {by controlling existing swash plate actuators}
- B64C 2027/7244 . . . . . . {by using dedicated actuators}
- B64C 2027/725 . . . . . {using jets controlled by piezoelectric actuators}
- B64C 2027/7255 . . . . . {using one or more swash plates}
- B64C 2027/7261 . . . . . {with flaps}
- B64C 2027/7266 . . . . . {actuated by actuators}
- B64C 2027/7272 . . . . . . {of the electro-hydraulic type}
- B64C 2027/7277 . . . . . . {of the magnetostrictive type}
- B64C 2027/7283 . . . . . . {of the piezoelectric type}
- B64C 2027/7288 . . . . . . {of the memory shape type}

- B64C 2027/7294 . . . . . {actuated mechanically, e.g. by means of linkages}
- B64C 27/78 . . in association with pitch adjustment of blades of anti-torque rotor
- B64C 27/80 . . for differential adjustment of blade pitch between two or more lifting rotors
- B64C 27/82 . characterised by the provision of an auxiliary rotor or fluid-jet device for counter-balancing lifting rotor torque or changing direction of rotorcraft
- B64C 2027/8209 . . {Electrically driven tail rotors}
- B64C 2027/8218 . . {wherein the rotor or the jet axis is inclined with respect to the longitudinal horizontal or vertical plane of the helicopter}
- B64C 2027/8227 . . {comprising more than one rotor}
- B64C 2027/8236 . . {including pusher propellers}
- B64C 2027/8245 . . {using air jets}
- B64C 2027/8254 . . {Shrouded tail rotors, e.g. "Fenestron" fans}
- B64C 2027/8263 . . {comprising in addition rudders, tails, fins, or the like}
- B64C 2027/8272 . . . {comprising fins, or movable rudders}
- B64C 2027/8281 . . . {comprising horizontal tail planes}
- B64C 2027/829 . . . {comprising a V-tail units}

**B64C 29/00**

**Aircraft capable of landing or taking-off vertically** (attitude, flight direction, or altitude control by jet reaction [B64C 15/00](#); rotorcraft [B64C 27/00](#); air-cushion vehicles [B60V](#))

- B64C 29/0008 . {having its flight directional axis horizontal when grounded}
- B64C 29/0016 . . {the lift during taking-off being created by free or ducted propellers or by blowers}
- B64C 29/0025 . . . {the propellers being fixed relative to the fuselage}
- B64C 29/0033 . . . {the propellers being tiltable relative to the fuselage}
- B64C 29/0041 . . {the lift during taking-off being created by jet motors}
- B64C 29/005 . . . {the motors being fixed relative to the fuselage}
- B64C 29/0058 . . . {with vertical jet}
- B64C 29/0066 . . . {with horizontal jet and jet deflector}
- B64C 29/0075 . . . {the motors being tiltable relative to the fuselage}
- B64C 29/0083 . . {the lift during taking-off being created by several motors of different type}
- B64C 29/0091 . {Accessories not provided for elsewhere}
- B64C 29/02 . having its flight directional axis vertical when grounded
- B64C 29/04 . . characterised by jet-reaction propulsion

**B64C 30/00**

**Supersonic-type aircraft**

**B64C 31/00**

**Aircraft intended to be sustained without power plant; Powered hang-glider-type aircraft; Microlight-type aircraft**

- B64C 31/02 . Gliders, e.g. sailplanes ([hang-gliders B64C 31/028](#))
- B64C 31/024 . . with auxiliary power plant
- B64C 31/028 . Hang-glider-type aircraft; Microlight-type aircraft
- B64C 31/0285 . . {Safety devices}

- B64C 31/032 . . . having delta shaped wing
- B64C 31/036 . . . having parachute-type wing ([parachutes B64D 17/00](#))
- B64C 31/04 . Man-powered aircraft ([ornithopters B64C 33/00](#))
- B64C 31/06 . Kites ([hang-gliders B64C 31/028](#); toy aspects [A63H 27/08](#); towed targets [F41J](#) {for propelling boats [B63H 9/0685](#); for propelling wind driven boards, control means and harnesses therefor [B63B 35/7976](#)})
- B64C 2031/065 . . . {of inflatable wing type}

**B64C 33/00****Ornithopters**

- B64C 33/02 . Wings; Actuating mechanisms therefor
- B64C 33/025 . . . {the entire wing moving either up or down}

**B64C 35/00****Flying-boats; Seaplanes** ([alighting gear B64C 25/00](#))

- B64C 35/001 . {with means for increasing stability on the water}
- B64C 35/002 . . . {using adjustable auxiliary floats}
- B64C 35/003 . . . {using auxiliary floats at the wing tips}
- B64C 35/005 . {with propellers, rudders or brakes acting in the water}
- B64C 35/006 . {with lift generating devices}
- B64C 35/007 . {Specific control surfaces therefor}
- B64C 35/008 . {Amphibious sea planes}

**B64C 37/00****Convertible aircraft** ([vehicles capable of travelling in or on different media B60F](#))

- B64C 37/02 . Flying units formed by separate aircraft ([towing, air-refuelling, or aircraft-carrying aircraft B64D](#))

**B64C 39/00****Aircraft not otherwise provided for**

- B64C 39/001 . {Flying saucers}
- B64C 39/003 . {with wings, paddle wheels, bladed wheels, moving or rotating in relation to the fuselage ([rotorcraft B64C 27/00](#), [ornithopters B64C 33/00](#))}
- B64C 39/005 . . . {about a horizontal transversal axis}
- B64C 39/006 . . . {about a vertical axis}
- B64C 39/008 . . . {about a longitudinal axis}
- B64C 39/02 . characterised by special use
- B64C 39/022 . . . {Tethered aircraft}
- B64C 39/024 . . . {of the remote controlled vehicle type, i.e. RPV}
- B64C 39/026 . . . {for use as personal propulsion unit}
- B64C 39/028 . . . {Micro-sized aircraft}
- B64C 39/04 . having multiple fuselages or tail booms
- B64C 39/06 . having disc- or ring-shaped wings {([B64C 39/001](#) takes precedence)}
- B64C 39/062 . . . {having annular wings}
- B64C 39/064 . . . . {with radial airflow}
- B64C 39/066 . . . {having channel wings}
- B64C 39/068 . . . {having multiple wings joined at the tips}

- B64C 39/08 . having multiple wings {(B64C 39/06 takes precedence)}
  - B64C 39/10 . All-wing aircraft {(B64C 39/001 takes precedence)}
  - B64C 2039/105 . {of blended wing body type}
  - B64C 39/12 . Canard-type aircraft
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**B64C 2201/00 Unmanned aerial vehicles; Equipment therefor**

- B64C 2201/02 . characterized by type of aircraft
- B64C 2201/021 . . Airplanes, i.e. having wings and tail planes
- B64C 2201/022 . . Balloons, blimps or airships
- B64C 2201/024 . . Helicopters, or autogiros
- B64C 2201/025 . . Ornithopters, i.e. generating lift and propulsion by flapping wings or insect like means
- B64C 2201/027 . . Flying platforms
- B64C 2201/028 . . of all-wing types
- B64C 2201/04 . characterised by type of power plant
- B64C 2201/042 . . by electric motors; Electric power sources therefor, e.g. fuel cells, solar panels or batteries
- B64C 2201/044 . . by internal combustion engines, e.g. oscillating piston or rotary piston engines
- B64C 2201/046 . . by rocket engines, ramjets, or pulse-reactors
- B64C 2201/048 . . by jet turbines, or turbofans
- B64C 2201/06 . characterised by in-flight supply of energy
- B64C 2201/063 . . by refueling
- B64C 2201/066 . . by recharging of batteries, e.g. by induction
- B64C 2201/08 . characterised by the launching method
- B64C 2201/082 . . Released from other aircraft
- B64C 2201/084 . . using catapults
- B64C 2201/086 . . by taking-off horizontally by own power, e.g. from a runway
- B64C 2201/088 . . Vertical take-off using special means (for helicopters B64C 2201/024; for balloons B64C 2201/022)
- B64C 2201/10 . characterised by the lift producing means
- B64C 2201/101 . . Lifting aerostatically, e.g. using lighter-than-air gases in chambers
- B64C 2201/102 . . Deployable wings, e.g. foldable or morphing wings
- B64C 2201/104 . . Fixed wings
- B64C 2201/105 . . Inflatable wings
- B64C 2201/107 . . Parachutes; Parasails; Kites; Membranes
- B64C 2201/108 . . using rotors, or propellers
- B64C 2201/12 . adapted for particular use
- B64C 2201/121 . . for dropping bombs; for electronic warfare; Flying bombs
- B64C 2201/122 . . as communication relays, e.g. high altitude platforms
- B64C 2201/123 . . for imaging, or topography

- B64C 2201/125 . . . for meteorology
- B64C 2201/126 . . . adapted for performing different kinds of missions, e.g. multipurpose use
- B64C 2201/127 . . . for photography, or video recording, e.g. by using cameras
- B64C 2201/128 . . . for transporting goods other than bombs
- B64C 2201/14 . . . characterised by flight control
- B64C 2201/141 . . . autonomous, i.e. by navigating independently from ground or air stations, e.g. by using inertial navigation systems [INS]
- B64C 2201/143 . . . . adapted for flying in formations
- B64C 2201/145 . . . . using satellite radio beacon positioning systems, e.g. GPS
- B64C 2201/146 . . . Remote controls
- B64C 2201/148 . . . . using tethers for connecting to ground station
- B64C 2201/16 . . . characterised by type of propulsion unit
- B64C 2201/162 . . . using ducted fans or propellers
- B64C 2201/165 . . . using unducted propellers
- B64C 2201/167 . . . using rockets, ramjets, pulse jets, plasma, or the like
- B64C 2201/18 . . . characterised by landing method
- B64C 2201/182 . . . by being caught in mid-air, or next to the ground, e.g. using a net
- B64C 2201/185 . . . by deploying parachutes, or the like
- B64C 2201/187 . . . by landing horizontally, e.g. on a runway
- B64C 2201/20 . . . Methods for transport, or storage of unmanned aerial vehicles
- B64C 2201/201 . . . in containers
- B64C 2201/203 . . . in rucksacks, or bags to be carried by persons
- B64C 2201/205 . . . by waterborne vehicles, e.g. ships or submarines or by hovercraft
- B64C 2201/206 . . . by airborne vehicles, e.g. airplanes or helicopters
- B64C 2201/208 . . . by landborne vehicles, e.g. trucks, lorries, tanks or cars
- B64C 2201/22 . . . having stealth characteristics

**B64C 2203/00 Flying model aircraft, flying toy aircraft**

**B64C 2211/00 Modular constructions of airplanes or helicopters**

**B64C 2220/00 Active noise reduction systems**

**B64C 2230/00 Boundary layer controls**

- B64C 2230/02 . . . by using acoustic waves generated by transducers
- B64C 2230/04 . . . by actively generating fluid flow
- B64C 2230/06 . . . by explicitly adjusting fluid flow, e.g. by using valves, variable aperture or slot areas, variable pump action or variable fluid pressure
- B64C 2230/08 . . . by influencing fluid flow by means of surface cavities, i.e. net fluid flow is null
- B64C 2230/10 . . . by influencing fluid flow by heating using other means than combustion
- B64C 2230/12 . . . by using electromagnetic tiles, fluid ionizers, static charges or plasma
- B64C 2230/14 . . . achieving noise reductions



- B64C 2230/16 . by blowing other fluids over the surface than air, e.g. He, H, O<sub>2</sub> or exhaust gases
- B64C 2230/18 . by using small jets that make the fluid flow oscillate
- B64C 2230/20 . by passively inducing fluid flow, e.g. by means of a pressure difference between both ends of a slot or duct
- B64C 2230/22 . by using a surface having multiple apertures of relatively small openings other than slots
- B64C 2230/24 . by using passive resonance cavities, e.g. without transducers
- B64C 2230/26 . by using rib lets or hydrophobic surfaces
- B64C 2230/28 . at propeller or rotor blades

**B64C 2700/00****Codes corresponding to the former IdT classification**

- B64C 2700/62 . Codes corresponding to the former IdT classification of class 62
- B64C 2700/6201 . . Airplanes, helicopters, autogyros
- B64C 2700/6202 . . . Characteristics not limited to an aircraft type
- B64C 2700/6204 . . . . Materials
- B64C 2700/6205 . . . . Protection means, e.g. against rust, water, fire
- B64C 2700/6207 . . . . Stabilisation
- B64C 2700/6208 . . . . . Longitudinal and transversal stability
- B64C 2700/6209 . . . . . automatically controlled
- B64C 2700/6211 . . . . . with movable weight not acting as pendulum
- B64C 2700/6212 . . . . . with weight acting as pendulum
- B64C 2700/6214 . . . . . with parts of the aircraft acting as pendulum
- B64C 2700/6215 . . . . . with fluid acting as pendulum
- B64C 2700/6216 . . . . . by gyroscopical effect (also in combination with pendulum)
- B64C 2700/6218 . . . . . by other pulse power source, e.g. aerodynamical effect, propellers
- B64C 2700/6219 . . . . . by auxiliary fixed or movable surfaces or other special devices, or surfaces acting as parachutes
- B64C 2700/6221 . . . . . manually controlled
- B64C 2700/6222 . . . . . with movable weight not acting as pendulum
- B64C 2700/6223 . . . . . with weight acting as pendulum
- B64C 2700/6225 . . . . . by gyroscopical effect (also in combination with pendulum)
- B64C 2700/6226 . . . . . by other pulse power source; e.g. aerodynamical effect, popeller
- B64C 2700/6228 . . . . . by auxiliary planes or parachutes
- B64C 2700/6229 . . . . . Special devices to stabilise or to compensate a helicopter rotor by other means than counter rotating rotor
- B64C 2700/623 . . . . . Special devices to stabilise or to compensate a gyroplane pivoting torque
- B64C 2700/6232 . . . Airplanes with fixed or movable wings
- B64C 2700/6233 . . . . Design, structure or mounting of wings
- B64C 2700/6235 . . . . . Guy-wires assemblies; Connections between wings and fuselage

B64C 2700/6236	. . . . .	Honeycomb stiffeners
B64C 2700/6238	. . . . .	Pressure equalising devices between the inside of the wing and the atmosphere
B64C 2700/6239	. . . . .	Ful wing structures
B64C 2700/624	. . . . .	Wings or parts thereof movable during flight
B64C 2700/6242	. . . . .	adjustable about several axes
B64C 2700/6243	. . . . .	Control systems
B64C 2700/6245	. . . . .	by warping of wings tips
B64C 2700/6246	. . . . .	by auxiliary surfaces at the wings tips
B64C 2700/6247	. . . . .	by auxiliary surfaces outside the wings tips
B64C 2700/6249	. . . . .	by propellers
B64C 2700/625	. . . . .	by jet flaps
B64C 2700/6252	. . . . .	Control systems assemblies
B64C 2700/6253	. . . . .	Feedback compensation devices
B64C 2700/6254	. . . . .	Control systems or transmitting systems for actuating control surfaces
B64C 2700/6256	. . . . .	Control devices for fins or rudders
B64C 2700/6257	. . . . .	by hydraulical, pneumatical or electrical means
B64C 2700/6259	. . . . .	Control devices for feed-back compensating and guiding surfaces
B64C 2700/626	. . . . .	by hydraulical, pneumatical or electrical means
B64C 2700/6261	. . . . .	Transmission systems
B64C 2700/6263	. . . . .	Servo actuators; Auxiliary motors
B64C 2700/6264	. . . . .	Vibrations suppressing devices
B64C 2700/6266	. . . . .	Safety devices
B64C 2700/6267	. . . . .	Control devices for a special position of the flying aircraft or a special position of the pilot
B64C 2700/6269	. . . . .	Control from outside the aircraft
B64C 2700/627	. . . . .	Influencing airflow over aircraft surfaces
B64C 2700/6271	. . . . .	by fluid flow around the aircraft
B64C 2700/6273	. . . . .	lift being provided by static devices, e.g. balloons
B64C 2700/6274	. . . . .	by other means, e.g. propellers, rotors, air jets
B64C 2700/6276	. . . . .	Rotorcraft
B64C 2700/6277	. . . . .	with driven or windmilling propellers
B64C 2700/6278	. . . . .	Features common for any type of rotorcraft
B64C 2700/628	. . . . .	Devices for the adjustment of the blades; Folding blades
B64C 2700/6281	. . . . .	Helicopters
B64C 2700/6283	. . . . .	Rotor construction
B64C 2700/6284	. . . . .	Blades control devices
B64C 2700/6285	. . . . .	Drag reducing devices for an inoperative rotor
B64C 2700/6287	. . . . .	Rotor drives

B64C 2700/6288	. . . . .	Hydraulic, electric or man powered rotorcrafts
B64C 2700/629	. . . . .	Rotors which can be used as propulsion means
B64C 2700/6291	. . . . .	Rotors stowable in the wings
B64C 2700/6292	. . . . .	Control means using other devices than the rotor
B64C 2700/6294	. . . . .	Construction parts, e.g. frames; Balancing; Flight control; Brakes
B64C 2700/6295	. . .	Aircraft specially adapted for special uses
B64C 2700/6297	. . . .	for military uses
B64C 2700/6298	. . .	Gliders