

**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 aerials or radomes ([aerials 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](#))}

<b>B64C 3/00</b>	<b>Wings</b> (stabilising surfaces <a href="#">B64C 5/00</a> ; ornithopter wings <a href="#">B64C 33/02</a> )
<a href="#">B64C 3/10</a>	. Shape of wings
<a href="#">B64C 3/14</a>	.. Aerofoil profile
<a href="#">B64C 3/141</a>	... {Circulation Control Airfoils}
<a href="#">B64C 2003/142</a>	... {with variable camber along the airfoil chord}
<a href="#">B64C 2003/143</a>	... {comprising interior channels}
<a href="#">B64C 2003/144</a>	... {including a flat surface on either the extrados or intrados}
<a href="#">B64C 2003/145</a>	... {comprising 'Gurney' flaps}
<a href="#">B64C 2003/146</a>	... {comprising leading edges of particular shape}
<a href="#">B64C 2003/147</a>	... {comprising trailing edges of particular shape}
<a href="#">B64C 2003/148</a>	... {comprising protuberances, e.g. for modifying boundary layer flow}
<a href="#">B64C 2003/149</a>	... {for supercritical or transonic flow}
<a href="#">B64C 3/16</a>	.. Frontal aspect
<a href="#">B64C 3/18</a>	. Spars; Ribs; Stringers ( <a href="#">attaching wing unit to fuselage B64C 1/26</a> )
<a href="#">B64C 3/182</a>	.. {Stringers, longerons}
<a href="#">B64C 3/185</a>	.. {Spars}
<a href="#">B64C 3/187</a>	.. {Ribs}
<a href="#">B64C 3/20</a>	. Integral or sandwich constructions ( <a href="#">layered products or sandwich constructions in general B32B</a> )
<a href="#">B64C 3/22</a>	. Geodetic or other open-frame structures
<a href="#">B64C 3/24</a>	. Moulded or cast structures
<a href="#">B64C 3/26</a>	. Construction, shape, or attachment of separate skins, e.g. panels
<a href="#">B64C 3/28</a>	. Leading or trailing edges attached to primary structures, e.g. forming fixed slots
<a href="#">B64C 3/30</a>	. comprising inflatable structural components ( <a href="#">connection of valves to inflatable elastic bodies B60C 29/00</a> )
<a href="#">B64C 3/32</a>	. specially adapted for mounting power plant
<a href="#">B64C 3/34</a>	. Integrally-constructed tanks, e.g. for fuel ( <a href="#">other aircraft fuel tanks or fuel systems B64D</a> )
<a href="#">B64C 3/36</a>	. Structures adapted to reduce effects of aerodynamic or other external heating { <a href="#">cooling structural parts of aircrafts with air flow B64D 13/006</a> }
<a href="#">B64C 3/38</a>	. Adjustment of complete wings or parts thereof
<a href="#">B64C 3/385</a>	.. {Variable incidence wings}
<a href="#">B64C 3/40</a>	.. Varying angle of sweep
<a href="#">B64C 3/42</a>	.. Adjusting about chordwise axes
<a href="#">B64C 3/44</a>	.. Varying camber
<a href="#">B64C 2003/445</a>	... {by changing shape according to the speed, e.g. by morphing}
<a href="#">B64C 3/46</a>	... by inflatable elements ( <a href="#">connection of valves to inflatable elastic bodies B60C 29/00</a> )
<a href="#">B64C 3/48</a>	... by relatively-movable parts of wing structures
<a href="#">B64C 3/50</a>	... by leading or trailing edge flaps ( <a href="#">ailerons B64C 9/00</a> )
<a href="#">B64C 3/52</a>	.. 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**

B64C 11/30  
(continued)

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 ( <a href="#">jet flaps B64C 9/38</a> )

**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 ( <a href="#">automatic pilot control B64C 13/18</a> )
B64C 17/08	. by ballast supply or discharge ( <a href="#">for lighter-than-air aircraft B64B</a> )
B64C 17/10	. Transferring fuel to adjust trim

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

B64C 19/02	. Conjoint controls
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**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 ( <a href="#">B64C 21/08 takes precedence</a> )
B64C 21/06	.. for sucking ( <a href="#">B64C 21/08 takes precedence</a> )
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 taxiing}



- 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 ( <a href="#">features common to rotors and propellers B64C 11/00</a> )
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 ( <a href="#">B64C 27/33</a> , <a href="#">B64C 27/35</a> 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 ( <a href="#">B64C 27/463</a> takes precedence)
B64C 27/473	...	Constructional features ( <a href="#">B64C 27/463</a> 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}
<b>B64C 35/00</b>	<b>Flying-boats; Seaplanes</b> (alighting gear <a href="#">B64C 25/00</a> )
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}
<b>B64C 37/00</b>	<b>Convertible aircraft</b> (vehicles capable of travelling in or on different media <a href="#">B60F</a> )
B64C 37/02	. Flying units formed by separate aircraft (towing, air-refuelling, or aircraft-carrying aircraft <a href="#">B64D</a> )
<b>B64C 39/00</b>	<b>Aircraft not otherwise provided for</b>
B64C 39/001	. {Flying saucers}
B64C 39/003	. {with wings, paddle wheels, bladed wheels, moving or rotating in relation to the fuselage (rotorcraft <a href="#">B64C 27/00</a> , ornithopters <a href="#">B64C 33/00</a> )}
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 {( <a href="#">B64C 39/001</a> 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 {( <a href="#">B64C 39/06</a> takes precedence)}
B64C 39/10	. All-wing aircraft {( <a href="#">B64C 39/001</a> takes precedence)}
B64C 2039/105	. {of blended wing body type}
B64C 39/12	. Canard-type aircraft
<b>B64C 2201/00</b>	<b>Unmanned aerial vehicles; Equipment therefor</b>
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 ( <a href="#">for helicopters B64C 2201/024</a> ; <a href="#">for balloons B64C 2201/022</a> )
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
<b>B64C 2203/00</b>	<b>Flying model aircraft, flying toy aircraft</b>
<b>B64C 2211/00</b>	<b>Modular constructions of airplanes or helicopters</b>
<b>B64C 2220/00</b>	<b>Active noise reduction systems</b>
<b>B64C 2230/00</b>	<b>Boundary layer controls</b>
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	.... Full 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 hydraulic, pneumatic or electrical means
B64C 2700/6259	.....	Control devices for feed-back compensating and guiding surfaces
B64C 2700/626	.....	by hydraulic, pneumatic 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