

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](#))}

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

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 (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
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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 (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 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 (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
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 ₂ 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