

**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](#)

**Guidance heading:** **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

**Guidance heading:** 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 ( <a href="#">arrester hooks B64C 25/68</a> )
B64C 2025/325	..	{ <a href="#">specially adapted for helicopters</a> }
B64C 25/34	..	wheeled type, e.g. multi-wheeled bogies
B64C 2025/345	...	{ <a href="#">Multi-wheel bogies having one or more steering axes</a> }
B64C 25/36	...	Arrangements or adaptations of wheels, tyres, or axles in general ( <a href="#">construction of wheels or axles B60B</a> ; <a href="#">construction of tyres in general B60C</a> )
B64C 25/38	..	Endless-track type
B64C 25/40	..	the elements being rotated before touch-down
B64C 25/405	...	{ <a href="#">Powered wheels, e.g. for taxiing</a> }
B64C 25/42	..	Arrangements or adaptations of brakes ( <a href="#">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</a> )
B64C 25/423	...	{ <a href="#">Braking devices acting by reaction of gaseous medium (B64C 25/426 takes precedence; using rockets B64D 27/023)</a> }
B64C 25/426	...	{ <a href="#">Braking devices providing an automatic sequence of braking</a> }
B64C 25/44	...	Actuating mechanisms
B64C 25/445	.....	{ <a href="#">Brake regulators for preventing somersaulting</a> }
B64C 25/46	.....	Brake regulators for preventing skidding or aircraft somersaulting {( <a href="#">anti-skidding regulators; electric or electronic controllers therefor B60T 8/1703</a> )}
B64C 25/48	.....	differentially operated for steering purposes
B64C 25/50	..	Steerable undercarriages; Shimmy damping ( <a href="#">steering devices applicable to land vehicles B62D</a> )
B64C 25/505	...	{ <a href="#">Shimmy damping</a> }
B64C 25/52	..	Skis or runners
B64C 25/54	..	Floats
B64C 25/56	...	inflatable ( <a href="#">connection of valves to inflatable elastic bodies B60C 29/00</a> )
B64C 25/58	..	Arrangements or adaptations of shock-absorbers or springs ( <a href="#">shimmy dampers B64C 25/50</a> ; <a href="#">vehicle suspension arrangements in general B60G</a> ; <a href="#">shock absorber per se F16F</a> )
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](#))

**Guidance heading:** **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 }
<b>B64C 29/00</b>		<b>Aircraft capable of landing or taking-off vertically</b> ( attitude, flight direction, or altitude control by jet reaction <a href="#">B64C 15/00</a> ; rotorcraft <a href="#">B64C 27/00</a> ; air-cushion vehicles <a href="#">B60V</a> )
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	.....	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 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