

# 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](#))

<b>1/00</b>	<b>Fuselages; Constructional features common to fuselages, wings, stabilising surfaces and the like (aerodynamical features common to fuselages, wings, stabilising surfaces, and the like <a href="#">B64C 23/00</a>; flight-deck installations <a href="#">B64D</a>)</b>	1/1438	. . . . {of the sliding type}
		1/1446	. . . {Inspection hatches (for engine cowls <a href="#">B64D 29/08</a> )}
		1/1453	. . . {Drain masts}
		1/1461	. . . {Structures of doors or surrounding frames}
		1/1469	. . . {Doors between cockpit and cabin}
		1/1476	. . {Canopies; Windscreens or similar transparent elements}
1/0009	. {Aerodynamic aspects}	1/1484	. . . {Windows ( <a href="#">B64C 1/1492</a> takes precedence)}
2001/0018	. {comprising two decks adapted for carrying passengers only}	1/1492	. . . {Structure and mounting of the transparent elements in the window or windscreen}
2001/0027	. . {arranged one above the other}	1/16	. specially adapted for mounting power plant
2001/0036	. . {arranged side by side at the same level}	1/18	. Floors
2001/0045	. {Fuselages characterised by special shapes}	1/20	. . specially adapted for freight
2001/0054	. {Fuselage structures substantially made from particular materials}	1/22	. Other structures integral with fuselages to facilitate loading {, e.g. cargo bays, cranes (cargo door type ramps <a href="#">B64C 1/1415</a> )}
2001/0063	. . {from wood}	1/24	. Steps mounted on, and retractable within, fuselages (readily removable <a href="#">B64D 9/00</a> )
2001/0072	. . {from composite materials}	1/26	. Attaching the wing or tail units or stabilising surfaces
2001/0081	. . {from metallic materials}	1/28	. Parts of fuselage relatively movable to improve pilots view
2001/009	. {comprising decompression panels or valves for pressure equalisation in fuselages or floors}	1/30	. Parts of fuselage relatively movable to reduce overall size for storage
1/06	. Frames; Stringers; Longerons; {Fuselage sections}	1/32	. Severable or jettisonable parts of fuselage facilitating emergency escape (ejector seats <a href="#">B64D 25/10</a> )
1/061	. . {Frames}	1/34	. comprising inflatable structural components (connection of valves to inflatable elastic bodies <a href="#">B60C 29/00</a> )
1/062	. . . {specially adapted to absorb crash loads}	1/36	. adapted to receive aerials or radomes (aerials or radomes per se <a href="#">H01Q</a> )
1/063	. . . {Folding or collapsing to reduce overall dimensions, e.g. foldable tail booms (folding or collapsing wings <a href="#">B64C 3/56</a> )}	1/38	. Constructions adapted to reduce effects of aerodynamic or other external heating {(cooling structural parts of aircrafts with air flow <a href="#">B64D 13/006</a> )}
1/064	. . {Stringers; Longerons}	1/40	. Sound or heat insulation, {e.g. using insulation blankets (insulating elements for vehicles, in general <a href="#">B60R 13/08</a> )}
1/065	. . {Spars}	1/403	. . {Arrangement of fasteners specially adapted therefor, e.g. of clips (in vehicles in general <a href="#">B60R 13/0206</a> )}
1/066	. . {Interior liners}		
1/067	. . . {comprising means for preventing icing or condensation conditions}		
1/068	. . {Fuselage sections}		
1/069	. . . {Joining arrangements therefor}		
1/08	. . Geodetic or other open-frame structures		
1/10	. . Bulkheads		
1/12	. . Construction or attachment of skin panels		
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 <a href="#">B64C 25/16</a> ; bomb doors <a href="#">B64D 1/06</a> )		
1/1407	. . {Doors; surrounding frames}		
1/1415	. . . {Cargo doors, e.g. incorporating ramps}		
1/1423	. . . {Passenger doors}		
1/143	. . . . {of the plug type}		

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 <a href="#">B60R 16/00</a> ; supports for pipes, cables or protective tubing <a href="#">F16L 3/00</a> ; installations of electric cables or lines in vehicles <a href="#">H02G 3/00</a> )}	3/56	. . Folding or collapsing to reduce overall dimensions of aircraft
<b>3/00</b>	<b>Wings</b> (stabilising surfaces <a href="#">B64C 5/00</a> ; ornithopter wings <a href="#">B64C 33/02</a> )	3/58	. provided with fences or spoilers (adjustable for control purposes <a href="#">B64C 9/00</a> )
3/10	. Shape of wings	<b>5/00</b>	<b>Stabilising surfaces</b> (attaching stabilising surfaces to fuselage <a href="#">B64C 1/26</a> )
3/14	. . Aerofoil profile	5/02	. Tailplanes (fins <a href="#">B64C 5/06</a> )
3/141	. . . {Circulation Control Airfoils}	5/04	. Noseplanes
2003/142	. . . {with variable camber along the airfoil chord}	5/06	. Fins (specially for wings <a href="#">B64C 5/08</a> )
2003/143	. . . {comprising interior channels}	5/08	. mounted on or supported by wings
2003/144	. . . {including a flat surface on either the extrados or intrados}	5/10	. adjustable
2003/145	. . . {comprising 'Gurney' flaps}	5/12	. . for retraction against or within fuselage or nacelle
2003/146	. . . {comprising leading edges of particular shape}	5/14	. . Varying angle of sweep
2003/147	. . . {comprising trailing edges of particular shape}	5/16	. . about spanwise axes
2003/148	. . . {comprising protuberances, e.g. for modifying boundary layer flow}	5/18	. . in area (attaching stabilising surfaces to fuselage <a href="#">B64C 1/26</a> )
2003/149	. . . {for supercritical or transonic flow}	<b>7/00</b>	<b>Structures or fairings not otherwise provided for</b>
3/16	. . Frontal aspect	7/02	. Nacelles
3/18	. Spars; Ribs; Stringers (attaching wing unit to fuselage <a href="#">B64C 1/26</a> )	<b>9/00</b>	<b>Adjustable control surfaces or members, e.g. rudders</b> (trimming stabilising surfaces <a href="#">B64C 5/10</a> )
3/182	. . {Stringers, longerons}	2009/005	. {Ailerons}
3/185	. . {Spars}	9/02	. Mounting or supporting thereof
3/187	. . {Ribs}	9/04	. with compound dependent movements
3/20	. Integral or sandwich constructions (layered products or sandwich constructions in general <a href="#">B32B</a> )	9/06	. with two or more independent movements
3/22	. Geodetic or other open-frame structures	9/08	. bodily displaceable (varying camber of wings <a href="#">B64C 3/44</a> )
3/24	. Moulded or cast structures	9/10	. one surface adjusted by movement of another, e.g. servo tabs ( <a href="#">B64C 9/04</a> takes precedence; adjusting surfaces of different type or function <a href="#">B64C 9/12</a> )
3/26	. Construction, shape, or attachment of separate skins, e.g. panels	9/12	. surfaces of different type or function being simultaneously adjusted
3/28	. Leading or trailing edges attached to primary structures, e.g. forming fixed slots	9/14	. forming slots (boundary-layer control <a href="#">B64C 21/00</a> )
3/30	. comprising inflatable structural components (connection of valves to inflatable elastic bodies <a href="#">B60C 29/00</a> )	2009/143	. . {comprising independently adjustable elements for closing or opening the slot between the main wing and leading or trailing edge flaps}
3/32	. specially adapted for mounting power plant	9/146	. . {at an other wing location than the rear or the front (wings provided with fixed fences or spoilers <a href="#">B64C 3/58</a> )}
3/34	. Integrally-constructed tanks, e.g. for fuel (other aircraft fuel tanks or fuel systems <a href="#">B64D</a> )	9/16	. . at the rear of the wing
3/36	. Structures adapted to reduce effects of aerodynamic or other external heating {(cooling structural parts of aircrafts with air flow <a href="#">B64D 13/006</a> )}	9/18	. . . by single flaps
3/38	. Adjustment of complete wings or parts thereof	9/20	. . . by multiple flaps
3/385	. . {Variable incidence wings}	9/22	. . at the front of the wing
3/40	. . Varying angle of sweep	9/24	. . . by single flap
3/42	. . Adjusting about chordwise axes	9/26	. . . by multiple flaps
3/44	. . Varying camber	9/28	. . by flaps at both the front and rear of the wing operating in unison
2003/445	. . . {by changing shape according to the speed, e.g. by morphing}	9/30	. Balancing hinged surfaces, e.g. dynamically
3/46	. . . by inflatable elements (connection of valves to inflatable elastic bodies <a href="#">B60C 29/00</a> )	9/32	. Air braking surfaces (braking by parachutes <a href="#">B64D 17/80</a> )
3/48	. . . by relatively-movable parts of wing structures	9/323	. . {associated with wings}
3/50	. . . by leading or trailing edge flaps (ailerons <a href="#">B64C 9/00</a> )	9/326	. . {associated with fuselages}
3/52	. . Warping	9/34	. collapsing or retracting against or within other surfaces or other members
3/54	. . Varying in area (flaps extendable to increase camber <a href="#">B64C 3/44</a> )	9/36	. . the members being fuselages or nacelles
2003/543	. . . {by changing shape according to the speed, e.g. by morphing}	9/38	. Jet flaps
3/546	. . . {by foldable elements}		

**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](#)

- 11/001 . {Shrouded propellers}
- 11/002 . {Braking propellers, e.g. for measuring the power output of an engine}
- 11/003 . {Variable-diameter propellers; Mechanisms thereof}
- 11/005 . {Spiral-shaped propellers}
- 11/006 . {Paddle wheels}
- 11/007 . {Propulsive discs, i.e. discs having the surface specially adapted for propulsion purposes}
- 11/008 . {characterised by vibration absorbing or balancing means (for rotorcraft [B64C 27/001](#))}
- 11/02 . Hub construction
- 11/04 . . Blade mountings
- 11/06 . . . for variable-pitch blades
- 11/065 . . . . {variable only when stationary}
- 11/08 . . . for non-adjustable blades
- 11/10 . . . . rigid
- 11/12 . . . . flexible
- 11/14 . . Spinners
- 11/16 . Blades
- 11/18 . . Aerodynamic features
- 11/20 . . Constructional features
- 11/205 . . . {for protecting blades, e.g. coating}
- 11/22 . . . Solid blades
- 11/24 . . . Hollow blades
- 11/26 . . . Fabricated blades
- 11/28 . . . Collapsible or foldable blades
- 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](#)

- 11/301 . . {characterised by blade position indicating means}
- 11/303 . . {characterised by comprising a governor}
- 11/305 . . {characterised by being influenced by other control systems, e.g. fuel supply}
- 11/306 . . {specially adapted for contrarotating propellers}
- 11/308 . . . {automatic}
- 11/32 . . mechanical
- 11/325 . . . {comprising feathering, braking or stopping systems}
- 11/34 . . . automatic
- 11/343 . . . . {actuated by the centrifugal force or the aerodynamic drag acting on the blades}
- 11/346 . . . . {actuated by the centrifugal force or the aerodynamic drag acting on auxiliary masses or surfaces}
- 11/36 . . . non-automatic
- 11/38 . . fluid, e.g. hydraulic

- 11/385 . . . {comprising feathering, braking or stopping systems}
- 11/40 . . . automatic
- 11/42 . . . non-automatic
- 11/44 . . electric
- 11/46 . Arrangements of or constructional features peculiar to multiple propellers {([B64C 11/306](#) takes precedence)}
- 11/48 . . Units of two or more coaxial propellers
- 11/50 . . Phase synchronisation between multiple propellers

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

- 13/02 . Initiating means
- 13/04 . . actuated personally
- 13/06 . . . adjustable to suit individual persons
- 13/08 . . . Trimming zero positions
- 13/10 . . . comprising warning devices
- 13/12 . . . Dual control apparatus
- 13/14 . . . lockable (locking in position to suit individual persons [B64C 13/06](#))
- 13/16 . . actuated automatically, e.g. responsive to gust detectors
- 13/18 . . . using automatic pilot
- 13/20 . . . using radiated signals
- 13/22 . . . readily revertible to personal control
- 13/24 . Transmitting means
- 13/26 . . without power amplification or where power amplification is irrelevant
- 13/28 . . . mechanical
- 13/30 . . . . using cable, chain, or rod mechanisms
- 13/32 . . . . using cam mechanisms
- 13/34 . . . . using toothed gearing
- 13/36 . . . fluid
- 13/38 . . with power amplification
- 13/40 . . . using fluid pressure
- 13/42 . . . . having duplication or stand-by provisions
- 13/44 . . . . overriding of personal controls; with automatic return to inoperative position
- 13/46 . . . . with artificial feel
- 13/48 . . . . characterised by the fluid being gaseous
- 13/50 . . . using electrical energy
- 13/503 . . . . {Fly-by-Wire}
- 2013/506 . . . . {using electro-hydrostatic actuators (EHA's)}

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

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

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

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

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

- 19/02 . Conjoint controls

**Influencing air-flow over aircraft surfaces, not otherwise provided for****21/00 Influencing air-flow over aircraft surfaces by affecting boundary-layer flow (boundary-layer control in general F15D)**

- 21/02 . by use of slot, ducts, porous areas, or the like
- 21/025 . . {for simultaneous blowing and sucking}
- 21/04 . . for blowing ([B64C 21/08](#) takes precedence)
- 21/06 . . for sucking ([B64C 21/08](#) takes precedence)
- 21/08 . . adjustable
- 21/10 . using other surface properties, e.g. roughness

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

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

**WARNING**

Group [B64C 23/065](#) is impacted by reclassification into groups [B64C 23/069](#), [B64C 23/072](#), [B64C 23/076](#).

All groups listed in this Warning should be considered in order to perform a complete search.

- 23/069 . . . {using one or more wing tip airfoil devices, e.g. winglets, splines, wing tip fences or raked wingtips}

**WARNING**

Group [B64C 23/069](#) is incomplete pending reclassification of documents from group [B64C 23/065](#).

All groups listed in this Warning should be considered in order to perform a complete search.

- 23/072 . . . . {the wing tip airfoil devices being moveable in their entirety}

**WARNING**

Group [B64C 23/072](#) is incomplete pending reclassification of documents from group [B64C 23/065](#).

All groups listed in this Warning should be considered in order to perform a complete search.

- 23/076 . . . . {the wing tip airfoil devices comprising one or more separate moveable members thereon affecting the vortices, e.g. flaps}

**WARNING**

Group [B64C 23/076](#) is incomplete pending reclassification of documents from group [B64C 23/065](#).

All groups listed in this Warning should be considered in order to perform a complete search.

- 23/08 . using Magnus effect

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

- 25/001 . {Devices not provided for in the groups [B64C 25/02](#) - [B64C 25/68](#)}
- 2025/003 . . {Means for reducing landing gear noise, or turbulent flow around it, e.g. landing gear doors used as deflectors}
- 2025/005 . . {Tail skids for fuselage tail strike protection on tricycle landing gear aircraft}
- 2025/006 . . {Landing gear legs comprising torque arms}
- 2025/008 . . {Comprising means for modifying their length, e.g. for kneeling, for jumping, or for leveling the aircraft}
- 25/02 . Undercarriages
- 25/04 . . Arrangement or disposition on aircraft
- 25/06 . . fixed
- 25/08 . . non-fixed, e.g. jettisonable
- 25/10 . . . retractable, foldable, or the like
- 25/12 . . . . sideways
- 2025/125 . . . . . {into the fuselage, e.g. main landing gear pivotally retracting into or extending out of the fuselage}
- 25/14 . . . . fore-and-aft
- 25/16 . . . . Fairings movable in conjunction with undercarriage elements
- 25/18 . . . . Operating mechanisms
- 25/20 . . . . . mechanical
- 25/22 . . . . . fluid
- 25/24 . . . . . electric
- 25/26 . . . . . Control or locking systems therefor
- 25/28 . . . . . with indicating or warning devices
- 25/30 . . . . . emergency actuated
- 25/32 . characterised by the ground or like engaging elements ([arrestor hooks B64C 25/68](#))
- 2025/325 . . {specially adapted for helicopters}
- 25/34 . . wheeled type, e.g. multi-wheeled bogies
- 2025/345 . . . {Multi-wheel bogies having one or more steering axes}
- 25/36 . . . Arrangements or adaptations of wheels, tyres, or axles in general ([construction of wheels or axles B60B](#); [construction of tyres in general B60C](#))
- 25/38 . . Endless-track type
- 25/40 . . the elements being rotated before touch-down
- 25/405 . . . {Powered wheels, e.g. for taxiing}
- 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](#))



- 25/423 . . . {Braking devices acting by reaction of gaseous medium ([B64C 25/426 takes precedence](#); using rockets [B64D 27/023](#))}
- 25/426 . . . {Braking devices providing an automatic sequence of braking}
- 25/44 . . . Actuating mechanisms
- 25/445 . . . . {Brake regulators for preventing somersaulting}
- 25/46 . . . . Brake regulators for preventing skidding or aircraft somersaulting {(anti-skidding regulators; electric or electronic controllers therefor [B60T 8/1703](#))}
- 25/48 . . . . differentially operated for steering purposes
- 25/50 . . Steerable undercarriages; Shimmy damping (steering devices applicable to land vehicles [B62D](#))
- 25/505 . . . {Shimmy damping}
- 25/52 . . Skis or runners
- 25/54 . . Floats
- 25/56 . . . inflatable (connection of valves to inflatable elastic bodies [B60C 29/00](#))
- 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](#))
- 25/60 . . . Oleo legs
- 25/62 . . . Spring shock-absorbers; Springs
- 25/64 . . . . using rubber or like elements
- 25/66 . . Convertible alighting gear; Combinations of different kinds of ground or like engaging elements
- 25/68 . . Arrestor hooks (arresting gear, e.g. on aircraft carriers [B64F](#))
- 27/06 . . with single rotor
- 27/08 . . with two or more rotors
- 27/10 . . . arranged coaxially
- 27/12 . . Rotor drives
- 2027/125 . . . {including toroidal transmissions, e.g. of the CVT type}
- 27/14 . . . Direct drive between power plant and rotor hub
- 27/16 . . . Drive of rotors by means, e.g. propellers, mounted on rotor blades
- 27/18 . . . . the means being jet-reaction apparatus
- 27/20 . Rotorcraft characterised by having shrouded rotors, e.g. flying platforms
- 27/22 . Compound rotorcraft, i.e. aircraft using in flight the features of both aeroplane and rotorcraft
- 27/24 . . with rotor blades fixed in flight to act as lifting surfaces
- 27/26 . . characterised by provision of fixed wings
- 27/28 . . with forward-propulsion propellers pivotable to act as lifting rotors
- 27/30 . . with provision for reducing drag of inoperative rotor
- 27/32 . Rotors (features common to rotors and propellers [B64C 11/00](#))
- 27/322 . . {Blade travel limiting devices, e.g. droop stops}
- 27/325 . . {Circulation-control rotors}
- 27/327 . . {Retention means relieving the stress from the arm, e.g. tie-bars}
- 27/33 . . having flexing arms
- 27/35 . . having elastomeric joints
- 27/37 . . having articulated joints ([B64C 27/33](#), [B64C 27/35 take precedence](#))
- 27/39 . . . with individually articulated blades, i.e. with flapping or drag hinges
- 27/41 . . . with flapping or universal joint, common to the blades
- 27/43 . . . . see-saw type, i.e. two-bladed rotor
- 27/45 . . . with a feathering hinge only
- 27/46 . . Blades
- 27/463 . . . {Blade tips}
- 27/467 . . . Aerodynamic features {([B64C 27/463 takes precedence](#))}
- 27/473 . . . Constructional features {([B64C 27/463 takes precedence](#))}
- 2027/4733 . . . . {Rotor blades substantially made from particular materials}
- 2027/4736 . . . . . {from composite materials}
- 27/48 . . . . Root attachment to rotor head
- 27/50 . . . . Blades foldable to facilitate stowage of aircraft
- 27/51 . Damping of blade movements
- 27/52 . Tilting of rotor bodily relative to fuselage (of see-saw type construction [B64C 27/43](#))
- 27/54 . Mechanisms for controlling blade adjustment or movement relative to rotor head, e.g. lag-lead movement
- 27/56 . . Initiating means, e.g. actuated personally
- 27/57 . . . automatic or condition responsive, e.g. responsive to rotor speed, torque or thrust
- 27/58 . . Transmitting means
- 27/59 . . . mechanical
- 27/605 . . . . including swash plate, spider or cam mechanisms
- 27/615 . . . . including flaps mounted on blades

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

- 27/00 Rotorcraft; Rotors peculiar thereto (alighting gear [B64C 25/00](#))**
- 27/001 . {Vibration damping devices}
- 2027/002 . . {mounted between the rotor drive and the fuselage}
- 2027/003 . . {mounted on rotor hub, e.g. a rotary force generator}
- 2027/004 . . {using actuators, e.g. active systems}
- 2027/005 . . {using suspended masses}
- 27/006 . {Safety devices}
- 27/007 . . {adapted for detection of blade cracks}
- 27/008 . {Rotors tracking or balancing devices}
- 27/02 . Gyroplanes
- 27/021 . . {Rotor or rotor head construction (for helicopters [B64C 27/32](#))}
- 27/022 . . . {Devices for folding or adjusting the blades}
- 27/023 . . . {Construction of the blades; Coating of the blades}
- 27/024 . . . {Devices for shifting the rotor axis}
- 27/025 . . . {Rotor drives, in particular for taking off; Combination of autorotation rotors and driven rotors}
- 27/026 . . . {Devices for converting a fixed wing into an autorotation rotor and viceversa}
- 27/027 . . {Control devices using other means than the rotor}
- 27/028 . . {Other constructional elements; Rotor balancing}
- 27/04 . Helicopters

27/625	. . . . including rotating masses or servo rotors	29/005	. . . {the motors being fixed relative to the fuselage}
27/635	. . . . specially for controlling lag-lead movements of blades	29/0058	. . . {with vertical jet}
27/64	. . . . using fluid pressure	29/0066	. . . {with horizontal jet and jet deflector}
27/68	. . . . using electrical energy	29/0075	. . . {the motors being tiltable relative to the fuselage}
27/72	. . Means acting on blades	29/0083	. . {the lift during taking-off being created by several motors of different type}
2027/7205	. . . {on each blade individually, e.g. individual blade control [IBC]}	29/0091	. {Accessories not provided for elsewhere}
2027/7211	. . . . {without flaps}	29/02	. having its flight directional axis vertical when grounded
2027/7216	. . . . . {using one actuator per blade}	29/04	. . characterised by jet-reaction propulsion
2027/7222	. . . . . {using airfoil deformation}	<b>30/00</b>	<b>Supersonic-type aircraft</b>
2027/7227	. . . . . {using blowing slots actuated by piezoelectric actuators}	<b>31/00</b>	<b>Aircraft intended to be sustained without power plant; Powered hang-glider-type aircraft; Microlight-type aircraft</b>
2027/7233	. . . . . {using higher-harmonic control [HHC]}	31/02	. Gliders, e.g. sailplanes ( <a href="#">hang-gliders B64C 31/028</a> )
2027/7238	. . . . . {by controlling existing swash plate actuators}	31/024	. . with auxiliary power plant
2027/7244	. . . . . {by using dedicated actuators}	31/028	. Hang-glider-type aircraft; Microlight-type aircraft
2027/725	. . . . . {using jets controlled by piezoelectric actuators}	31/0285	. . {Safety devices}
2027/7255	. . . . . {using one or more swash plates}	31/032	. . having delta shaped wing
2027/7261	. . . . . {with flaps}	31/036	. . having parachute-type wing ( <a href="#">parachutes B64D 17/00</a> )
2027/7266	. . . . . {actuated by actuators}	31/04	. Man-powered aircraft ( <a href="#">ornithopters B64C 33/00</a> )
2027/7272	. . . . . {of the electro-hydraulic type}	31/06	. Kites ( <a href="#">hang-gliders B64C 31/028</a> ; toy aspects <a href="#">A63H 27/08</a> ; towed targets <a href="#">F41J</a> {for propelling boats <a href="#">B63H 9/0685</a> ; for propelling wind driven boards, control means and harnesses therefor <a href="#">B63B 35/7976</a> })
2027/7277	. . . . . {of the magnetostrictive type}	2031/065	. . {of inflatable wing type}
2027/7283	. . . . . {of the piezoelectric type}	<b>33/00</b>	<b>Ornithopters</b>
2027/7288	. . . . . {of the memory shape type}	33/02	. Wings; Actuating mechanisms therefor
2027/7294	. . . . . {actuated mechanically, e.g. by means of linkages}	33/025	. . {the entire wing moving either up or down}
27/78	. . in association with pitch adjustment of blades of anti-torque rotor	<b>35/00</b>	<b>Flying-boats; Seaplanes (<a href="#">alighting gear B64C 25/00</a>)</b>
27/80	. . for differential adjustment of blade pitch between two or more lifting rotors	35/001	. {with means for increasing stability on the water}
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	35/002	. . {using adjustable auxiliary floats}
2027/8209	. . {Electrically driven tail rotors}	35/003	. . {using auxiliary floats at the wing tips}
2027/8218	. . {wherein the rotor or the jet axis is inclined with respect to the longitudinal horizontal or vertical plane of the helicopter}	35/005	. {with propellers, rudders or brakes acting in the water}
2027/8227	. . {comprising more than one rotor}	35/006	. {with lift generating devices}
2027/8236	. . {including pusher propellers}	35/007	. {Specific control surfaces therefor}
2027/8245	. . {using air jets}	35/008	. {Amphibious sea planes}
2027/8254	. . {Shrouded tail rotors, e.g. "Fenestron" fans}	<b>37/00</b>	<b>Convertible aircraft (vehicles capable of travelling in or on different media <a href="#">B60F</a>)</b>
2027/8263	. . {comprising in addition rudders, tails, fins, or the like}	37/02	. Flying units formed by separate aircraft ( <a href="#">towing, air-refuelling, or aircraft-carrying aircraft B64D</a> )
2027/8272	. . . {comprising fins, or movable rudders}	<b>39/00</b>	<b>Aircraft not otherwise provided for</b>
2027/8281	. . . {comprising horizontal tail planes}	39/001	. {Flying saucers}
2027/829	. . . {comprising a V-tail units}	39/003	. {with wings, paddle wheels, bladed wheels, moving or rotating in relation to the fuselage ( <a href="#">rotorcraft B64C 27/00</a> , <a href="#">ornithopters B64C 33/00</a> )}
<b>29/00</b>	<b>Aircraft capable of landing or taking-off vertically (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>)</b>	39/005	. . {about a horizontal transversal axis}
29/0008	. {having its flight directional axis horizontal when grounded}	39/006	. . {about a vertical axis}
29/0016	. . {the lift during taking-off being created by free or ducted propellers or by blowers}	39/008	. . {about a longitudinal axis}
29/0025	. . . {the propellers being fixed relative to the fuselage}	39/02	. characterised by special use
29/0033	. . . {the propellers being tiltable relative to the fuselage}	39/022	. . {Tethered aircraft}
29/0041	. . {the lift during taking-off being created by jet motors}	39/024	. . {of the remote controlled vehicle type, i.e. RPV}
		39/026	. . {for use as personal propulsion unit}
		39/028	. . {Micro-sized aircraft}

- 39/04 . having multiple fuselages or tail booms
- 39/06 . having disc- or ring-shaped wings {(B64C 39/001 takes precedence)}
- 39/062 . . {having annular wings}
- 39/064 . . . {with radial airflow}
- 39/066 . . {having channel wings}
- 39/068 . . {having multiple wings joined at the tips}
- 39/08 . having multiple wings {(B64C 39/06 takes precedence)}
- 39/10 . All-wing aircraft {(B64C 39/001 takes precedence)}
- 2039/105 . {of blended wing body type}
- 39/12 . Canard-type aircraft

## 2201/00 Unmanned aerial vehicles; Equipment therefor

- 2201/02 . characterized by type of aircraft
- 2201/021 . . Airplanes, i.e. having wings and tail planes
- 2201/022 . . Balloons, blimps or airships
- 2201/024 . . Helicopters, or autogiros
- 2201/025 . . Ornithopters, i.e. generating lift and propulsion by flapping wings or insect like means
- 2201/027 . . Flying platforms
- 2201/028 . . of all-wing types
- 2201/04 . characterised by type of power plant
- 2201/042 . . by electric motors; Electric power sources therefor, e.g. fuel cells, solar panels or batteries
- 2201/044 . . by internal combustion engines, e.g. oscillating piston or rotary piston engines
- 2201/046 . . by rocket engines, ramjets, or pulse-reactors
- 2201/048 . . by jet turbines, or turbofans
- 2201/06 . characterised by in-flight supply of energy
- 2201/063 . . by refueling
- 2201/066 . . by recharging of batteries, e.g. by induction
- 2201/08 . characterised by the launching method
- 2201/082 . . Released from other aircraft
- 2201/084 . . using catapults
- 2201/086 . . by taking-off horizontally by own power, e.g. from a runway
- 2201/088 . . Vertical take-off using special means (for helicopters B64C 2201/024; for balloons B64C 2201/022)
- 2201/10 . characterised by the lift producing means
- 2201/101 . . Lifting aerostatically, e.g. using lighter-than-air gases in chambers
- 2201/102 . . Deployable wings, e.g. foldable or morphing wings
- 2201/104 . . Fixed wings
- 2201/105 . . Inflatable wings
- 2201/107 . . Parachutes; Parasails; Kites; Membranes
- 2201/108 . . using rotors, or propellers
- 2201/12 . adapted for particular use
- 2201/121 . . for dropping bombs; for electronic warfare; Flying bombs
- 2201/122 . . as communication relays, e.g. high altitude platforms
- 2201/123 . . for imaging, or topography
- 2201/125 . . for meteorology
- 2201/126 . . adapted for performing different kinds of missions, e.g. multipurpose use
- 2201/127 . . for photography, or video recording, e.g. by using cameras
- 2201/128 . . for transporting goods other than bombs

- 2201/14 . characterised by flight control
- 2201/141 . . autonomous, i.e. by navigating independently from ground or air stations, e.g. by using inertial navigation systems [INS]
- 2201/143 . . . adapted for flying in formations
- 2201/145 . . . using satellite radio beacon positioning systems, e.g. GPS
- 2201/146 . . Remote controls
- 2201/148 . . . using tethers for connecting to ground station
- 2201/16 . characterised by type of propulsion unit
- 2201/162 . . using ducted fans or propellers
- 2201/165 . . using unducted propellers
- 2201/167 . . using rockets, ramjets, pulse jets, plasma, or the like
- 2201/18 . characterised by landing method
- 2201/182 . . by being caught in mid-air, or next to the ground, e.g. using a net
- 2201/185 . . by deploying parachutes, or the like
- 2201/187 . . by landing horizontally, e.g. on a runway
- 2201/20 . Methods for transport, or storage of unmanned aerial vehicles
- 2201/201 . . in containers
- 2201/203 . . in rucksacks, or bags to be carried by persons
- 2201/205 . . by waterborne vehicles, e.g. ships or submarines or by hovercraft
- 2201/206 . . by airborne vehicles, e.g. airplanes or helicopters
- 2201/208 . . by landborne vehicles, e.g. trucks, lorries, tanks or cars
- 2201/22 . having stealth characteristics
- 2203/00 **Flying model aircraft, flying toy aircraft**
- 2211/00 **Modular constructions of airplanes or helicopters**
- 2220/00 **Active noise reduction systems**
- 2230/00 **Boundary layer controls**
- 2230/02 . by using acoustic waves generated by transducers
- 2230/04 . by actively generating fluid flow
- 2230/06 . by explicitly adjusting fluid flow, e.g. by using valves, variable aperture or slot areas, variable pump action or variable fluid pressure
- 2230/08 . by influencing fluid flow by means of surface cavities, i.e. net fluid flow is null
- 2230/10 . by influencing fluid flow by heating using other means than combustion
- 2230/12 . by using electromagnetic tiles, fluid ionizers, static charges or plasma
- 2230/14 . achieving noise reductions
- 2230/16 . by blowing other fluids over the surface than air, e.g. He, H, O<sub>2</sub> or exhaust gases
- 2230/18 . by using small jets that make the fluid flow oscillate
- 2230/20 . by passively inducing fluid flow, e.g. by means of a pressure difference between both ends of a slot or duct
- 2230/22 . by using a surface having multiple apertures of relatively small openings other than slots
- 2230/24 . by using passive resonance cavities, e.g. without transducers
- 2230/26 . by using rib lets or hydrophobic surfaces
- 2230/28 . at propeller or rotor blades