

CPC COOPERATIVE PATENT CLASSIFICATION

B PERFORMING OPERATIONS; TRANSPORTING

(NOTES omitted)

TRANSPORTING

B64 AIRCRAFT; AVIATION; COSMONAUTICS

B64U UNMANNED AERIAL VEHICLES [UAV]; EQUIPMENT THEREFOR

NOTES

1. This subclass covers:
 - vehicles which are specially adapted for unmanned aeronautical use and the equipment therefor.
2. This subclass does not cover:
 - computer control systems for the control of position, course, altitude or attitude, which are covered by group [G05D 1/00](#);
 - traffic control of UAVs, which is covered by group [G08G 5/00](#).
3. Aircraft or equipment applicable to both manned and unmanned use should be classified in this subclass and in the subclasses of class [B64](#) which are appropriate for the manned use.
4. Details or features of UAVs and their equipment which are not covered by this subclass should be classified in the relevant subclasses of class [B64](#).
5. In this subclass it is desirable to add the indexing codes of group [B64U 2101/00](#), covering particular uses or applications of the UAVs.

10/00	Type of UAV	20/75	. . . the body formed by joined shells or by a shell overlaying a chassis
10/10	. Rotorcrafts		
10/11	. . Autogyros	20/77	. . the body being formed integrally with wings or rotor supports
10/13	. . Flying platforms		
10/14	. . . with four distinct rotor axes, e.g. quadcopters	20/80	. Arrangement of on-board electronics, e.g. avionics systems or wiring
10/16	. . . with five or more distinct rotor axes, e.g. octocopters	20/83	. . Electronic components structurally integrated with aircraft elements, e.g. circuit boards carrying loads
10/17	. . Helicopters (flying platforms B64U 10/13)		
10/20	. Vertical take-off and landing [VTOL] aircraft (flying platforms B64U 10/13 ; helicopters B64U 10/17)	20/87	. . Mounting of imaging devices, e.g. mounting of gimbals
10/25	. Fixed-wing aircraft (VTOL aircraft B64U 10/20)	20/90	. Cooling
10/30	. Lighter-than-air aircraft, e.g. aerostatic aircraft	20/92	. . of avionics
10/40	. Ornithopters	20/94	. . of rotors or rotor motors
10/50	. Glider-type UAVs, e.g. with parachute, parasail or kite (for landing B64U 70/83)	20/96	. . using air
		20/98	. . using liquid, e.g. using lubrication oil
10/60	. Tethered aircraft	30/00	Means for producing lift; Empennages; Arrangements thereof
10/70	. Convertible aircraft, e.g. convertible into land vehicles	30/10	. Wings
10/80	. UAVs characterised by their small size, e.g. micro air vehicles [MAV]	30/12	. . Variable or detachable wings, e.g. wings with adjustable sweep
20/00	Constructional aspects of UAVs (of lift-producing means B64U 30/00)	30/14	. . . detachable
		30/16	. . . movable along the UAV body
20/10	. for stealth, e.g. reduction of cross-section detectable by radars	30/20	. Rotors; Rotor supports
		30/21	. . Rotary wings
20/20	. for noise reduction	30/24	. . Coaxial rotors
20/30	. for safety, e.g. with frangible components (rotor guards B64U 30/299)	30/26	. . Ducted or shrouded rotors
		30/27	. . Rim-driven rotors
20/40	. Modular UAVs	30/29	. . Constructional aspects of rotors or rotor supports; Arrangements thereof
20/50	. Foldable or collapsible UAVs (with frangible components B64U 20/30)	30/291	. . . Detachable rotors or rotor supports
20/60	. UAVs characterised by the material	30/292 Rotors or rotor supports specially adapted for quick release
20/65	. . Composite materials		
20/70	. Constructional aspects of the UAV body	30/293	. . . Foldable or collapsible rotors or rotor supports
20/73	. . Monocoque body	30/294	. . . Rotors arranged in the UAV body

30/295	. . . Rotors arranged in the wings	70/00	Launching, take-off or landing arrangements
30/296	. . . Rotors with variable spatial positions relative to the UAV body (foldable or collapsible rotors B64U 30/293)	70/10	. for releasing or capturing UAVs by hand
30/297 Tilting rotors	70/20	. for releasing or capturing UAVs in flight by another aircraft
30/298	. . . Helicopter flybars	70/30	. for capturing UAVs in flight by ground or sea-based arresting gear, e.g. by a cable or a net
30/299	. . . Rotor guards (ducted or shrouded rotors B64U 30/26 ; guards used as ground propulsion B64U 60/60)	70/40	. Landing characterised by flight manoeuvres, e.g. deep stall
30/30	. Lift-producing means using radial airflow	70/50	. Launching from storage containers, e.g. from submarine missile tubes
30/40	. Empennages, e.g. V-tails (foldable or collapsible UAVs B64U 20/50)	70/60	. Take-off or landing of UAVs from a runway using their own power
40/00	On-board mechanical arrangements for adjusting control surfaces or rotors; On-board mechanical arrangements for in-flight adjustment of the base configuration (control of position, course, altitude or attitude of air or space vehicles, e.g. automatic pilot, G05D 1/00)	70/70	. Launching or landing using catapults, tracks or rails (launching from storage containers B64U 70/50)
40/10	. for adjusting control surfaces or rotors	70/80	. Vertical take-off or landing, e.g. using rockets (rotorcrafts B64U 10/10 ; VTOL aircraft B64U 10/20)
40/20	. for in-flight adjustment of the base configuration	70/83	. . using parachutes, balloons or the like
50/00	Propulsion; Power supply	70/87	. . using inflatable cushions
50/10	. Propulsion (rotors specially adapted for rotorcraft or VTOL B64U 30/20)	70/90	. Launching from or landing on platforms
50/11	. . using internal combustion piston engines	70/92	. . Portable platforms
50/12	. . using turbine engines, e.g. turbojets or turbofans	70/93	. . . for use on a land or nautical vehicle
50/13	. . using external fans or propellers	70/95	. . Means for guiding the landing UAV towards the platform, e.g. lighting means
50/14	. . . ducted or shrouded	70/97	. . Means for guiding the UAV to a specific location on the platform, e.g. platform structures preventing landing off-centre
50/15	. . using combustion exhausts other than turbojets or turbofans, e.g. using rockets, ramjets, scramjets or pulse-reactors	70/99	. . Means for retaining the UAV on the platform, e.g. dogs or magnets
50/16	. . using means other than air displacement or combustion exhaust, e.g. water or magnetic levitation	80/00	Transport or storage specially adapted for UAVs
50/18	. . Thrust vectoring	80/10	. with means for moving the UAV to a supply or launch location, e.g. robotic arms or carousels
50/19	. . using electrically powered motors	80/20	. with arrangements for servicing the UAV
50/20	. Transmission of mechanical power to rotors or propellers	80/25	. . for recharging batteries; for refuelling
50/23	. . with each propulsion means having an individual motor	80/30	. with arrangements for data transmission
50/27	. . with a single motor serving two or more rotors or propellers	80/40	. for two or more UAVs
50/30	. Supply or distribution of electrical power	80/50	. the UAVs being disassembled
50/31	. . generated by photovoltaics	80/60	. by wearable objects, e.g. garments or helmets
50/32	. . generated by fuel cells	80/70	. in containers (B64U 80/60 takes precedence)
50/33	. . generated by combustion engines	80/80	. by vehicles
50/34	. . In-flight charging (photovoltaics B64U 50/31)	80/82	. . Airborne vehicles
50/35	. . . by wireless transmission, e.g. by induction	80/84	. . Waterborne vehicles
50/36	. . . by wind turbines, e.g. ram air turbines [RAT]	80/86	. . Land vehicles
50/37	. . Charging when not in flight		
50/38	. . . by wireless transmission		
50/39	. . Battery swapping		
60/00	Undercarriages		
60/10	. specially adapted for use on water		
60/20	. specially adapted for uneven terrain		
60/30	. detachable from the body		
60/40	. foldable or retractable		
60/50	. with landing legs		
60/55	. . the legs being also used as ground propulsion		
60/60	. with rolling cages		
60/70	. Movable wings, rotor supports or shrouds acting as ground-engaging elements		
		Indexing scheme associated with groups B64U 10/00 - B64U 80/00	
		2101/00	UAVs specially adapted for particular uses or applications
		2101/05	. for sports or gaming, e.g. drone racing
		2101/10	. for generating power to be supplied to a remote station, e.g. UAVs with solar panels
		2101/15	. for conventional or electronic warfare
		2101/16	. . for controlling, capturing or immobilising other vehicles
		2101/17	. . for detecting, disrupting or countering communications
		2101/18	. . for dropping bombs; for firing ammunition
		2101/19	. . for use as targets or decoys
		2101/20	. for use as communications relays, e.g. high-altitude platforms
		2101/21	. . for providing Internet access
		2101/23	. . for providing telephone services

- 2101/24 . . for use as flying displays, e.g. advertising or billboards
- 2101/25 . for manufacturing or servicing
- 2101/26 . . for manufacturing, inspections or repairs
- 2101/28 . . for painting or marking
- 2101/29 . . for cleaning
- 2101/30 . for imaging, photography or videography
- 2101/31 . . for surveillance
- 2101/32 . . for cartography or topography
- 2101/35 . for science, e.g. meteorology
- 2101/40 . for agriculture or forestry operations
- 2101/45 . for releasing liquids or powders in-flight, e.g. crop-dusting
- 2101/47 . . for fire fighting
- 2101/55 . for life-saving or rescue operations; for medical use
- 2101/56 . . for locating missing persons or animals
- 2101/57 . . for bringing emergency supplies to persons or animals in danger, e.g. ropes or life vests
- 2101/58 . . for medical evacuation, i.e. the transportation of persons or animals to a place where they can receive medical care
- 2101/60 . for transporting passengers; for transporting goods other than weapons
- 2101/61 . . for transporting passengers
- 2101/64 . . for parcel delivery or retrieval
- 2101/66 . . . for retrieving parcels
- 2101/67 . . the UAVs comprising tethers for lowering the goods
- 2101/69 . . the UAVs provided with means for airdropping goods, e.g. deploying a parachute during descent
- 2101/70 . for use inside enclosed spaces, e.g. in buildings or in vehicles
- 2101/75 . for extra-terrestrial use, e.g. on the Moon or Mars

2201/00 UAVs characterised by their flight controls

- 2201/10 . autonomous, i.e. by navigating independently from ground or air stations, e.g. by using inertial navigation systems [INS]
- 2201/102 . . adapted for flying in formations
- 2201/104 . . using satellite radio beacon positioning systems, e.g. GPS
- 2201/20 . Remote controls
- 2201/202 . . using tethers for connecting to ground station