

CPC COOPERATIVE PATENT CLASSIFICATION

B PERFORMING OPERATIONS; TRANSPORTING

(NOTES omitted)

TRANSPORTING

B64 AIRCRAFT; AVIATION; COSMONAUTICS

B64G COSMONAUTICS; VEHICLES OR EQUIPMENT THEREFOR (apparatus for, or methods of, winning materials from extraterrestrial sources [E21C 51/00](#))

NOTES

1. This subclass covers only vehicles, equipment or the like, which are specially adapted for cosmonautics.
2. This subclass does not cover vehicles and equipment applicable to both cosmonautics and aeronautics, which are covered by the appropriate aeronautical subclasses of class [B64](#).
3. In this subclass, the following term is used with the meaning indicated:
 - "cosmonautics" includes all transport outside the earth's atmosphere, and thus includes artificial earth satellites, and interplanetary and interstellar travel.

1/00	Cosmonautic vehicles	1/24	. . Guiding or controlling apparatus, e.g. for attitude control (jet-propulsion plants F02K ; navigation or navigational instruments, see the relevant subclass, e.g. G01C ; automatic pilots G05D 1/00)
1/002	. {Launch systems}		
1/005	. . {Air launch}		
1/007	. . {Orbit transfer}		
1/10	. Artificial satellites; Systems of such satellites; Interplanetary vehicles (space shuttles B64G 1/14 ; radio transmission systems using satellites H04B 7/185)	1/242	. . . {Orbits and trajectories}
		2001/245	. . . {Spacecraft attitude control, e.g. attitude control algorithms}
		2001/247	. . . {Advanced control concepts for autonomous, robotic spacecraft, e.g. by using artificial intelligence, neural networks or autonomous agents}
1/1007	. . {Communications satellites (communications aspects H04B 7/185)}		
1/1014	. . {Navigation satellites (navigation systems G01S 5/145)}	1/26	. . . using jets
1/1021	. . {Earth observation satellites}	1/28	. . . using inertia or gyro effect
2001/1028	. . . {using optical means for mapping, surveying or detection, e.g. of intelligence}	1/281	. . . . {Spin-stabilised spacecraft}
2001/1035	. . . {using radar for mapping, surveying or detection, e.g. of intelligence}	1/283	. . . . {using reaction wheels}
2001/1042	. . . {specifically adapted for meteorology}	1/285	. . . . {using momentum wheels}
1/105	. . {Space science}	1/286	. . . . {using control momentum gyroscopes (CMGs)}
2001/1057	. . . {specifically adapted for astronomy}	1/288	. . . . {using gyroscopes as attitude sensors}
2001/1064	. . . {specifically adapted for interplanetary, solar or interstellar exploration}	1/32	. . . using earth's magnetic field
2001/1071	. . . . {Planetary landers intended for the exploration of the surface of planets, moons or comets}	1/34	. . . using gravity gradient
		1/36	. . . using sensors, e.g. sun-sensors, horizon sensors
1/1078	. . {Maintenance satellites}	1/361	. . . . {using star sensors}
1/1085	. . {Swarms and constellations}	1/363	. . . . {using sun sensors}
2001/1092	. . {Special features of modular spacecraft systems}	1/365	. . . . {using horizon or Earth sensors}
1/12	. . manned	1/366	. . . . {using magnetometers}
1/14	. Space shuttles	1/368	. . . . {using gravimeters}
1/16	. Extraterrestrial cars (land vehicle aspects B60 - B62)	1/38	. . . damping of oscillations, e.g. nutation dampers
1/22	. Parts of, or equipment specially adapted for fitting in or to, cosmonautic vehicles	1/40	. . Arrangements or adaptations of propulsion systems (B64G 1/26 takes precedence; propulsion plants per se, see the relevant subclasses, e.g. F02K, F03H)
1/222	. . {Appendage deployment mechanisms}	1/401	. . . {Liquid propellant rocket engines (per se F02K 9/42)}
2001/224	. . {Inflatable space structures}	1/402	. . . {Propellant tanks; Feeding propellants (in general F02K 9/44)}
1/226	. . {Special coatings for spacecraft}	1/403	. . . {Solid propellant rocket engines (per se F02K 9/08)}
2001/228	. . {Damping of high-frequency vibration effects on spacecraft elements, e.g. by using acoustic vibration dampers}	1/404	. . . . {Hybrid rocket engines (per se F02K 9/72)}
		1/405	. . . {Ion or plasma engines (per se F03H 1/00)}

- 1/406 . . . {Arcjets and other resistojets}
- 1/407 . . . {Solar sailing (includes also attitude control using solar sailing)}
- 1/408 . . . {Nuclear spacecraft propulsion}
- 1/409 . . . {Unconventional spacecraft propulsion systems}
- 1/42 . . Arrangements or adaptations of power supply systems (power supply systems per se, see the relevant subclasses)
- 1/421 . . . {Non-solar power generation}
- 1/422 {Nuclear power generation}
- 1/423 {Fuel cells}
- 1/425 . . . {Power storage}
- 1/426 {Flywheels}
- 1/427 {Thermal power storage}
- 1/428 . . . {Power distribution and management}
- 1/44 . . . using radiation, e.g. deployable solar arrays (solar cells per se [H01L 31/00](#))
- 1/443 {Photovoltaic cell arrays}
- 1/446 {Thermal solar power generation}
- 1/46 . . Arrangements or adaptations of devices for control of environment or living conditions (space suits [B64G 6/00](#))
- 1/48 . . . for treatment of the atmosphere ([B64G 1/50](#) takes precedence; air conditioning in general [F24F](#))
- 1/50 . . . for temperature control (temperature control in general [G05D 23/00](#))
- 1/503 {Radiator panels}
- 1/506 {Heat pipes}
- 1/52 . . Protection, safety or emergency devices; Survival aids (life-saving in general [A62](#))
- 2001/525 . . . {Survival aids}
- 1/54 . . . Protection against radiation (against radiation in general [G21F](#))
- 1/543 {protecting the crew in manned spacecraft}
- 1/546 {shielding electronic equipment}
- 1/56 . . . Protection against meteorites (meteorite detectors [B64G 1/68](#))
- 1/58 . . . Thermal protection, e.g. heat shields (thermal insulation in general [F16L 59/00](#); chemical aspects, see the relevant classes)
- 1/60 . . Crew or passenger accommodations
- 1/62 . . Systems for re-entry into the earth's atmosphere; Retarding or landing devices
- 1/64 . . Systems for coupling or separating cosmonautic vehicles or parts thereof, e.g. docking arrangements
- 1/641 . . . {Interstage or payload connectors}
- 2001/643 {Dispensers for arranging multiple satellites in a single launcher}
- 1/645 . . . {Separators}
- 1/646 . . . {Docking or rendez-vous systems}
- 1/648 . . . {Tethers}
- 1/66 . . Arrangements or adaptations of apparatus or instruments, not otherwise provided for (instruments per se, see the relevant classes, e.g. antennas for use in satellites [H01Q 1/28](#))
- 1/68 . . . of meteorite detectors
- 3/00** **Observing or tracking cosmonautic vehicles (radio or other waves systems for navigating or tracking [G01S](#))**
- 4/00** **Tools specially adapted for use in space**
- 2004/005 . {Robotic manipulator systems for use in space}
- 5/00** **Ground equipment for vehicles, e.g. starting towers, fuelling arrangements ([B64G 3/00](#) takes precedence)**
- 2005/005 . {Systems for launching spacecraft from a platform at sea}
- 6/00** **Space suits**
- 7/00** **Simulating cosmonautic conditions, e.g. for conditioning crews (simulators for teaching or training purposes [G09B 9/00](#))**
- 2007/005 . {Space simulation vacuum chambers}
- 9/00** **{Cosmonautics not otherwise provided for}**
- 2700/00** **Space travel; artificial satellites; space exploration**
- 2700/24 . Stabilisation, orientation and oscillation damping of spacecraft
- 2700/66 . Aerials and collapsible aerials of spacecraft