

# 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.

### WARNING

In this subclass non-limiting references (in the sense of paragraph 39 of the Guide to the IPC) may still be displayed in the scheme.

<b>1/00</b>	<b>Cosmonautic vehicles</b>	1/226	. . {Special coatings for spacecraft}
1/002	. {Launch systems}	2001/228	. . {Damping of high-frequency vibration effects on spacecraft elements, e.g. by using acoustic vibration dampers}
1/005	. . {Air launch}		
1/007	. . {Orbit transfer}	1/24	. . Guiding or controlling apparatus, e.g. for attitude control (jet-propulsion plants <a href="#">F02K</a> ; navigation or navigational instruments, <u>see the relevant subclass, e.g. <a href="#">G01C</a>; automatic pilots <a href="#">G05D 1/00</a></u> )
1/10	. Artificial satellites; Systems of such satellites; Interplanetary vehicles ( <a href="#">space shuttles <a href="#">B64G 1/14</a>; radio transmission systems using satellites <a href="#">H04B 7/185</a></a> )	1/242	. . . {Orbits and trajectories}
1/1007	. . {Communications satellites ( <a href="#">communications aspects <a href="#">H04B 7/185</a></a> )}	1/244	. . . {Attitude control}
1/1014	. . {Navigation satellites ( <a href="#">navigation systems <a href="#">G01S 5/145</a></a> )}	2001/245	. . . {Attitude control algorithms for spacecraft attitude control}
1/1021	. . {Earth observation satellites}	2001/247	. . . {Advanced control concepts for autonomous, robotic spacecraft, e.g. by using artificial intelligence, neural networks or autonomous agents}
2001/1028	. . . {using optical means for mapping, surveying or detection, e.g. of intelligence}	1/26	. . . using jets
2001/1035	. . . {using radar for mapping, surveying or detection, e.g. of intelligence}	1/28	. . . using inertia or gyro effect
2001/1042	. . . {specifically adapted for meteorology}	1/281	. . . . {Spin-stabilised spacecraft}
1/105	. . {Space science}	1/283	. . . . {using reaction wheels}
2001/1057	. . . {specifically adapted for astronomy}	1/285	. . . . {using momentum wheels}
2001/1064	. . . {specifically adapted for interplanetary, solar or interstellar exploration}	1/286	. . . . {using control momentum gyroscopes (CMGs)}
2001/1071	. . . . {Planetary landers intended for the exploration of the surface of planets, moons or comets}	1/288	. . . . {using gyroscopes as attitude sensors}
1/1078	. . {Maintenance satellites}	1/32	. . . using earth's magnetic field
1/1085	. . {Swarms and constellations}	1/34	. . . using gravity gradient
2001/1092	. . {Special features of modular spacecraft systems}	1/36	. . . using sensors, e.g. sun-sensors, horizon sensors
1/12	. . manned	1/361	. . . . {using star sensors}
1/14	. Space shuttles	1/363	. . . . {using sun sensors}
1/16	. Extraterrestrial cars ( <a href="#">land vehicle aspects <a href="#">B60 - B62</a></a> )	1/365	. . . . {using horizon or Earth sensors}
1/22	. Parts of, or equipment specially adapted for fitting in or to, cosmonautic vehicles	1/366	. . . . {using magnetometers}
1/222	. . {Appendage deployment mechanisms}	1/368	. . . . {using gravimeters}
2001/224	. . {Inflatable space structures}	1/38	. . . damping of oscillations, e.g. nutation dampers
		1/40	. . Arrangements or adaptations of propulsion systems ( <a href="#">propulsion plants <u>per se</u>, see the relevant subclasses, e.g. <a href="#">F02K</a>, <a href="#">F03H</a></a> )

1/401	. . . {Liquid propellant rocket engines ( <a href="#">per se F02K 9/42</a> )}	1/66	. . Arrangements or adaptations of apparatus or instruments, not otherwise provided for ( <a href="#">instruments per se, see the relevant classes, e.g. antennas for use in satellites H01Q 1/28</a> )
1/402	. . . {Propellant tanks; Feeding propellants (in general <a href="#">F02K 9/44</a> )}	1/68	. . . of meteoroid or space debris detectors
1/403	. . . {Solid propellant rocket engines ( <a href="#">per se F02K 9/08</a> )}	<b>3/00</b>	<b>Observing or tracking cosmonautic vehicles</b> ( <a href="#">radio or other waves systems for navigating or tracking G01S</a> )
1/404	. . . . {Hybrid rocket engines ( <a href="#">per se F02K 9/72</a> )}	<b>4/00</b>	<b>Tools specially adapted for use in space</b>
1/405	. . . {Ion or plasma engines ( <a href="#">per se F03H 1/00</a> )}	2004/005	. {Robotic manipulator systems for use in space}
1/406	. . . {Arcjets and other resistojets}	<b>5/00</b>	<b>Ground equipment for vehicles, e.g. starting towers, fuelling arrangements</b> ( <a href="#">B64G 3/00 takes precedence</a> )
1/407	. . . {Solar sailing (includes also attitude control using solar sailing)}	2005/005	. {Systems for launching spacecraft from a platform at sea}
1/408	. . . {Nuclear spacecraft propulsion}	<b>6/00</b>	<b>Space suits</b>
1/409	. . . {Unconventional spacecraft propulsion systems}	<b>7/00</b>	<b>Simulating cosmonautic conditions, e.g. for conditioning crews</b> ( <a href="#">simulators for teaching or training purposes G09B 9/00</a> )
1/42	. . Arrangements or adaptations of power supply systems ( <a href="#">power supply systems per se, see the relevant subclasses</a> )	2007/005	. {Space simulation vacuum chambers}
1/421	. . . {Non-solar power generation}	<b>99/00</b>	<b>Subject matter not provided for in other groups of this subclass</b>
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 ( <a href="#">solar cells per se H01L 31/00</a> )		
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 ( <a href="#">space suits B64G 6/00</a> )		
1/48	. . . for treatment of the atmosphere ( <a href="#">B64G 1/50 takes precedence; air conditioning in general F24F</a> )		
1/50	. . . for temperature control ( <a href="#">temperature control in general G05D 23/00</a> )		
1/503	. . . . {Radiator panels}		
1/506	. . . . {Heat pipes}		
1/52	. . Protection, safety or emergency devices; Survival aids ( <a href="#">life-saving in general A62</a> )		
2001/525	. . . {Survival aids}		
1/54	. . . Protection against radiation ( <a href="#">against radiation in general G21F</a> )		
1/543	. . . . {protecting the crew in manned spacecraft}		
1/546	. . . . {shielding electronic equipment}		
1/56	. . . Protection against meteoroids or space debris ( <a href="#">meteoroid or space debris detectors B64G 1/68</a> )		
1/58	. . . Thermal protection, e.g. heat shields ( <a href="#">thermal insulation in general F16L 59/00; chemical aspects, see the relevant classes</a> )		
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}		