

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.

| | | | |
|-------------|--|----------|--|
| 1/00 | Cosmonautic vehicles | | |
| 1/002 | . {Launch systems} | 1/226 | . . {Special coatings for spacecraft} |
| 1/005 | . . {Air launch} | 2001/228 | . . {Damping of high-frequency vibration effects on spacecraft elements, e.g. by using acoustic vibration dampers} |
| 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) | 1/24 | . . 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) |
| 1/1007 | . . {Communications satellites (communications aspects H04B 7/185)} | | |
| 1/1014 | . . {Navigation satellites (navigation systems G01S 5/145)} | | |
| 1/1021 | . . {Earth observation satellites} | | |
| 2001/1028 | . . . {using optical means for mapping, surveying or detection, e.g. of intelligence} | | |
| 2001/1035 | . . . {using radar for mapping, surveying or detection, e.g. of intelligence} | 1/242 | . . . {Orbits and trajectories} |
| 2001/1042 | . . . {specifically adapted for meteorology} | 1/244 | . . . {Attitude control} |
| 1/105 | . . {Space science} | | |
| 2001/1057 | . . . {specifically adapted for astronomy} | | |
| 2001/1064 | . . . {specifically adapted for interplanetary, solar or interstellar exploration} | | |
| 2001/1071 | {Planetary landers intended for the exploration of the surface of planets, moons or comets} | | |
| 1/1078 | . . {Maintenance satellites} | | |
| 1/1085 | . . {Swarms and constellations} | 2001/245 | . . . {Attitude control algorithms for spacecraft attitude control} |
| 2001/1092 | . . {Special features of modular spacecraft systems} | 2001/247 | . . . {Advanced control concepts for autonomous, robotic spacecraft, e.g. by using artificial intelligence, neural networks or autonomous agents} |
| 1/12 | . . manned | | |
| 1/14 | . Space shuttles | | |
| 1/16 | . Extraterrestrial cars (land vehicle aspects B60 - B62) | 1/26 | . . . using jets |
| 1/22 | . Parts of, or equipment specially adapted for fitting in or to, cosmonautic vehicles | 1/28 | . . . using inertia or gyro effect |
| 1/222 | . . {Appendage deployment mechanisms} | 1/281 | {Spin-stabilised spacecraft} |
| 2001/224 | . . {Inflatable space structures} | 1/283 | {using reaction wheels} |

WARNING

Group [B64G 1/24](#) is impacted by reclassification into group [B64G 1/244](#).

Groups [B64G 1/24](#) and [B64G 1/244](#) should be considered in order to perform a complete search.

WARNING

Group [B64G 1/244](#) is incomplete pending reclassification of documents from group [B64G 1/24](#).

Groups [B64G 1/24](#) and [B64G 1/244](#) should be considered in order to perform a complete search.

| | | | |
|----------|--|----------------|---|
| 1/285 | {using momentum wheels} | 1/56 | . . . Protection against meteorites (meteorite detectors B64G 1/68) |
| 1/286 | {using control momentum gyroscopes (CMGs)} | 1/58 | . . . Thermal protection, e.g. heat shields (thermal insulation in general F16L 59/00 ; chemical aspects, see the relevant classes) |
| 1/288 | {using gyroscopes as attitude sensors} | 1/60 | . . Crew or passenger accommodations |
| 1/32 | . . . using earth's magnetic field | 1/62 | . . Systems for re-entry into the earth's atmosphere; Retarding or landing devices |
| 1/34 | . . . using gravity gradient | 1/64 | . . Systems for coupling or separating cosmonautic vehicles or parts thereof, e.g. docking arrangements |
| 1/36 | . . . using sensors, e.g. sun-sensors, horizon sensors | 1/641 | . . . {Interstage or payload connectors} |
| 1/361 | {using star sensors} | 2001/643 | {Dispensers for arranging multiple satellites in a single launcher} |
| 1/363 | {using sun sensors} | 1/645 | . . . {Separators} |
| 1/365 | {using horizon or Earth sensors} | 1/646 | . . . {Docking or rendez-vous systems} |
| 1/366 | {using magnetometers} | 1/648 | . . . {Tethers} |
| 1/368 | {using gravimeters} | 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) |
| 1/38 | . . . damping of oscillations, e.g. nutation dampers | 1/68 | . . . of meteorite detectors |
| 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) | 3/00 | Observing or tracking cosmonautic vehicles (radio or other waves systems for navigating or tracking G01S) |
| 1/401 | . . . {Liquid propellant rocket engines (per se F02K 9/42)} | 4/00 | Tools specially adapted for use in space |
| 1/402 | . . . {Propellant tanks; Feeding propellants (in general F02K 9/44)} | 2004/005 | . {Robotic manipulator systems for use in space} |
| 1/403 | . . . {Solid propellant rocket engines (per se F02K 9/08)} | 5/00 | Ground equipment for vehicles, e.g. starting towers, fuelling arrangements (B64G 3/00 takes precedence) |
| 1/404 | {Hybrid rocket engines (per se F02K 9/72)} | 2005/005 | . {Systems for launching spacecraft from a platform at sea} |
| 1/405 | . . . {Ion or plasma engines (per se F03H 1/00)} | 6/00 | Space suits |
| 1/406 | . . . {Arcjets and other resistojets} | 7/00 | Simulating cosmonautic conditions, e.g. for conditioning crews (simulators for teaching or training purposes G09B 9/00) |
| 1/407 | . . . {Solar sailing (includes also attitude control using solar sailing)} | 2007/005 | . {Space simulation vacuum chambers} |
| 1/408 | . . . {Nuclear spacecraft propulsion} | 9/00 | {Cosmonautics not otherwise provided for} |
| 1/409 | . . . {Unconventional spacecraft propulsion systems} | 2700/00 | Space travel; artificial satellites; space exploration |
| 1/42 | . . Arrangements or adaptations of power supply systems (power supply systems per se, see the relevant subclasses) | 2700/24 | . Stabilisation, orientation and oscillation damping of spacecraft |
| 1/421 | {Non-solar power generation} | 2700/66 | . Aerials and collapsible aerials of spacecraft |
| 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} | | |