

**CPC****COOPERATIVE PATENT CLASSIFICATION****G21D**

**NUCLEAR POWER PLANT** (electric or magnetic analogue computers, e.g. simulators, for nuclear physics [G06G 7/54](#))

**Guidance heading:****G21D 1/00**

**Details of nuclear power plant** (control [G21D 3/00](#))

- G21D 1/003 . {Nuclear facilities decommissioning arrangements (decontamination arrangements, treating radioactively contaminated material [G21F 9/00](#)) }
- G21D 1/006 . { primary side of steam generators (secondary side of steam generators F22B1, F22B35 or F22B37) }
- G21D 1/02 . Arrangements of auxiliary equipment
- G21D 1/04 . Pumping arrangements (within the reactor pressure vessel [G21C 15/24](#); electrodynamic pumps [H02K 44/02](#))

**G21D 3/00**

**Control of nuclear power plant** (control of nuclear reaction in general [G21C 7/00](#))

- G21D 3/001 . { Computer implemented control }
- G21D 2003/002 . . Core design; Core simulations
- G21D 2003/004 . . Fuel shuffle simulations
- G21D 2003/005 . . Thermo-hydraulic simulations
- G21D 2003/007 . Expert systems
- G21D 3/008 . {Man-machine interface, e.g. control room layout }
- G21D 3/02 . Manual control
- G21D 3/04 . Safety arrangements (emergency protection of reactor [G21C 9/00](#))
- G21D 3/06 . . responsive to faults within the plant (in the reactor [G21C 9/00](#))
- G21D 3/08 . Regulation of any parameters in the plant
- G21D 3/10 . . by a combination of a variable derived from neutron flux with other controlling variables, e.g. derived from temperature, cooling flow, pressure
- G21D 3/12 . . by adjustment of the reactor in response only to changes in engine demand
- G21D 3/14 . . . Varying flow of coolant
- G21D 3/16 . . . Varying reactivity
- G21D 3/18 . . by adjustment of plant external to the reactor only in response to change in reactivity

**G21D 5/00**

**Arrangements of reactor and engine in which reactor-produced heat is converted into mechanical energy**

- G21D 5/02 . Reactor and engine structurally combined, e.g. portable
- G21D 5/04 . Reactor and engine not structurally combined
- G21D 5/06 . . with engine working medium circulating through reactor core
- G21D 5/08 . . with engine working medium heated in a heat exchanger by the reactor coolant
- G21D 5/10 . . . Liquid working medium partially heated by reactor and vaporised by heat source external to the core, e.g. with oil heating
- G21D 5/12 . . . Liquid working medium vaporised by reactor coolant
- G21D 5/14 . . . and also superheated by reactor coolant
- G21D 5/16 . . . superheated by separate heat source

**G21D 7/00 Arrangements for direct production of electric energy from fusion or fission reactions** (obtaining electric energy from radioactive sources [G21H 1/00](#))

- G21D 7/02 . using magneto-hydrodynamic generators { (MHD-generators with thermodynamic cycles [F02C 7/00](#); magneto-hydrodynamic generators [H02K 44/08](#)) }
- G21D 7/04 . using thermoelectric elements {or thermoionic converters} (structural combination of fuel element with thermoelectric element {or with thermoionic converters} [G21C 3/40](#) {, [G21H 1/10](#) }; thermoelectric elements per se [H01L 35/00](#), [H01L 37/00](#))

**G21D 9/00 Arrangements to provide heat for purposes other than conversion into power, e.g. for heating buildings**

**Guidance heading:**

**G21D 2010/00 Protection of plant or environment from mutual hazards : means for monitoring the effects of plant or environment upon each other**