

**CPC****COOPERATIVE PATENT CLASSIFICATION****H02N****ELECTRIC MACHINES NOT OTHERWISE PROVIDED FOR****NOTES**

1. This subclass covers:
  - electrostatic generators, motors, clutches, or holding devices;
  - other non-dynamo-electric generators or motors;
  - holding or levitation devices using magnetic attraction or repulsion;
  - arrangements for starting, regulating, braking, or otherwise controlling such machines unless in conjoint operation with a second machine.
2. Specific provision for generators, motors, or other means for converting between electric and other forms of energy also exists in other subclasses, e.g. in subclasses [H01L](#), [H01M](#), [H02K](#), [H04R](#).

**H02N 1/00****Electrostatic generators or motors using a solid moving electrostatic charge carrier****H02N 1/002**

- . {Electrostatic motors}

**H02N 1/004**

- . . {in which a body is moved along a path due to interaction with an electric field travelling along the path}

**H02N 1/006**

- . . {of the gap-closing type ([H02N 1/004](#) takes precedence)}

**H02N 1/008**

- . . . {Laterally driven motors, e.g. of the comb-drive type}

**H02N 1/04**

- . Friction generators

**H02N 1/06**

- . Influence generators

**H02N 1/08**

- . . with conductive charge carrier, i.e. capacitor machines

**H02N 1/10**

- . . with non-conductive charge carrier

**H02N 1/12**

- . . . in the form of a conveyer belt, e.g. van de Graaff machine

**H02N 2/00****Electric machines in general using piezo-electric effect, electrostriction or magnetostriction ([generating mechanical vibrations in general B06B](#); [piezo-electric, electrostrictive or magnetostrictive devices in general H01L 41/00](#))****WARNING**

This group is not complete pending reorganisation; see provisionally also [H01L 41/00](#)

**H02N 2/0005**

- . {producing non-specific motion; Details common to machines covered by [H02N 2/02](#) to [H02N 2/16](#)}

**H02N 2/001**

- . . {Driving devices, e.g. vibrators}

**H02N 2/0015**

- . . . {using only bending modes}

**H02N 2/002**

- . . . {using only longitudinal or radial modes}

**H02N 2/0025**

- . . . . {using combined longitudinal modes}

**H02N 2/003**

- . . . {using longitudinal or radial modes combined with bending modes}

**H02N 2/0035**

- . . . . {Cylindrical vibrators}

H02N 2/004	. . . . {Rectangular vibrators}
H02N 2/0045	. . . {using longitudinal or radial modes combined with torsion or shear modes}
H02N 2/005	. . {Mechanical details, e.g. housings (casings for dynamo-electric machines <a href="#">H02K 5/00</a> )}
H02N 2/0055	. . . {Supports for driving or driven bodies; Means for pressing driving body against driven body}
H02N 2/006	. . . . {Elastic elements, e.g. springs (in general <a href="#">F16F 1/00</a> )}
H02N 2/0065	. . . {Friction interface (friction linings <a href="#">F16D 69/00</a> )}
H02N 2/007	. . . . {Materials}
H02N 2/0075	. . {Electrical details, e.g. drive or control circuits or methods}
H02N 2/008	. . . {Means for controlling vibration frequency or phase, e.g. for resonance tracking}
H02N 2/0085	. . . {Leads; Wiring arrangements}
H02N 2/009	. . {Thermal details, e.g. cooling means}
H02N 2/0095	. {producing combined linear and rotary motion, e.g. multi-direction positioners}
H02N 2/02	. producing linear motion, e.g. actuators; Linear positioners; {Linear motors}
H02N 2/021	. . {using intermittent driving, e.g. step motors, piezoeleg motors}
H02N 2/023	. . . {Inchworm motors}
H02N 2/025	. . . {Inertial sliding motors}
H02N 2/026	. . {by pressing one or more vibrators against the driven body}
H02N 2/028	. . {along multiple or arbitrary translation directions, e.g. XYZ stages}
H02N 2/04	. . Constructional details
H02N 2/043	. . . {Mechanical transmission means, e.g. for stroke amplification}
H02N 2/046	. . . . {for conversion into rotary motion}
H02N 2/06	. . Drive circuits; Control arrangements {or methods}
H02N 2/062	. . . {Small signal circuits; Means for controlling position or derived quantities, e.g. for removing hysteresis}
H02N 2/065	. . . {Large signal circuits, e.g. final stages}
H02N 2/067	. . . . {generating drive pulses}
H02N 2/08	. . using travelling waves {i.e. Rayleigh surface waves}
H02N 2/10	. producing rotary motion, e.g. rotary motors
H02N 2/101	. . {using intermittent driving, e.g. step motors}
H02N 2/103	. . {by pressing one or more vibrators against the rotor}
H02N 2/105	. . {Cycloid or wobble motors; Harmonic traction motors}
H02N 2/106	. . {Langevin motors}
H02N 2/108	. . {around multiple axes of rotation, e.g. spherical rotor motors}
H02N 2/12	. . Constructional details
H02N 2/123	. . . {Mechanical transmission means, e.g. for gearing}
H02N 2/126	. . . . {for conversion into linear motion}
H02N 2/14	. . Drive circuits; Control arrangements {or methods}
H02N 2/142	. . . {Small signal circuits; Means for controlling position or derived quantities, e.g. speed, torque, starting, stopping, reversing}

- H02N 2/145 . . . {Large signal circuits, e.g. final stages}
- H02N 2/147 . . . . {Multi-phase circuits}
- H02N 2/16 . . using travelling waves {i.e. Rayleigh surface waves}
- H02N 2/163 . . . {Motors with ring stator}
- H02N 2/166 . . . {Motors with disc stator}
- H02N 2/18 . producing electrical output from mechanical input, e.g. generators (for measurement devices [G01](#))
- H02N 2/181 . . {Circuits; Control arrangements or methods}
- H02N 2/183 . . {using impacting bodies (high voltage generators in spark lighters [F23Q](#))}
- H02N 2/185 . . {using fluid streams}
- H02N 2/186 . . {Vibration harvesters}
- H02N 2/188 . . . {adapted for resonant operation}
- H02N 2/22 . {Methods relating to manufacturing, e.g. assembling, calibration}

**H02N 3/00** **Generators in which thermal or kinetic energy is converted into electrical energy by ionisation of a fluid and removal of the charge therefrom** (discharge tubes functioning as thermionic generators [H01J 45/00](#))

**H02N 10/00** **Electric motors using thermal effects** {(motors using expansion or contraction of bodies due to heating or cooling [F03G 7/06](#))}

**H02N 11/00** **Generators or motors not provided for elsewhere; Alleged perpetua mobilia obtained by electric or magnetic means** (by hydrostatic pressure [F03B 17/04](#); {by mechanical means [F03G 7/10](#);} by dynamo-electric means, {including arrangements of permanent magnets interacting with other permanent magnets,} [H02K 53/00](#))

- H02N 11/002 . {Generators}
- H02N 11/004 . . {adapted for producing a desired non-sinusoidal waveform}
- H02N 11/006 . {Motors}
- H02N 11/008 . {Alleged electric or magnetic perpetua mobilia}

**H02N 13/00** **Clutches or holding devices using electrostatic attraction, e.g. using Johnson-Rahbek effect**

**H02N 15/00** **Holding or levitation devices using magnetic attraction or repulsion, not otherwise provided for** (electric or magnetic devices for holding work on machine tools [B23Q 3/15](#); {monorail vehicle propulsion or suspension [B60L 13/00](#)}; sliding or levitation devices for railway systems [B61B 13/08](#); material handling devices associated with conveyers incorporating devices with electrostatic or magnetic grippers [B65G 47/92](#); separating thin or filamentary articles from piles using magnetic force [B65H 3/16](#); delivering thin or filamentary articles from magnetic holders by air blast or suction [B65H 29/24](#); bearings using magnetic or electric supporting means [F16C 32/04](#); relieving bearing loads using magnetic means [F16C 39/06](#); magnets [H01F 7/00](#); dynamo-electric clutches or brakes [H02K 49/00](#); {electric furnaces with simultaneous levitation and heating [H05B 6/32](#)})

- H02N 15/02 . by Foucault currents
- H02N 15/04 . Repulsion by the Meissner effect (superconductors or hyperconductors in general [H01L 39/00](#))

**H02N 99/00**

**Subject matter not provided for in other groups of this subclass**