

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

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.

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 [H02K 5/00](#)) }
- 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 [F16F 1/00](#)) }
- H02N 2/0065 ... { Friction interface (friction linings [F16D 69/00](#)) }
- 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, piezoelectric 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 6/00** **Generators in which light radiation is directly converted into electrical energy** (solar cells or assemblies thereof [H01L 25/00](#), [H01L 31/00](#))
  
- 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**