

**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	<ul style="list-style-type: none"> <li>. . . {Large signal circuits, e.g. final stages}</li> </ul>
H02N 2/147	<ul style="list-style-type: none"> <li>. . . . {Multi-phase circuits}</li> </ul>
H02N 2/16	<ul style="list-style-type: none"> <li>. . using travelling waves {i.e. Rayleigh surface waves}</li> </ul>
H02N 2/163	<ul style="list-style-type: none"> <li>. . . {Motors with ring stator}</li> </ul>
H02N 2/166	<ul style="list-style-type: none"> <li>. . . {Motors with disc stator}</li> </ul>
H02N 2/18	<ul style="list-style-type: none"> <li>. producing electrical output from mechanical input, e.g. generators (for measurement devices <a href="#">G01</a>)</li> </ul>
H02N 2/181	<ul style="list-style-type: none"> <li>. . {Circuits; Control arrangements or methods}</li> </ul>
H02N 2/183	<ul style="list-style-type: none"> <li>. . {using impacting bodies (high voltage generators in spark lighters <a href="#">F23Q</a>)}</li> </ul>
H02N 2/185	<ul style="list-style-type: none"> <li>. . {using fluid streams}</li> </ul>
H02N 2/186	<ul style="list-style-type: none"> <li>. . {Vibration harvesters}</li> </ul>
H02N 2/188	<ul style="list-style-type: none"> <li>. . . {adapted for resonant operation}</li> </ul>
H02N 2/22	<ul style="list-style-type: none"> <li>. {Methods relating to manufacturing, e.g. assembling, calibration}</li> </ul>
<b>H02N 3/00</b>	<b>Generators in which thermal or kinetic energy is converted into electrical energy by ionisation of a fluid and removal of the charge therefrom</b> (discharge tubes functioning as thermionic generators <a href="#">H01J 45/00</a> )
<b>H02N 10/00</b>	<b>Electric motors using thermal effects</b> {(motors using expansion or contraction of bodies due to heating or cooling <a href="#">F03G 7/06</a> )}
<b>H02N 11/00</b>	<b>Generators or motors not provided for elsewhere; Alleged perpetua mobilia obtained by electric or magnetic means</b> (by hydrostatic pressure <a href="#">F03B 17/04</a> ; {by mechanical means <a href="#">F03G 7/10</a> ;} by dynamo-electric means, {including arrangements of permanent magnets interacting with other permanent magnets,} <a href="#">H02K 53/00</a> )
H02N 11/002	<ul style="list-style-type: none"> <li>. {Generators}</li> </ul>
H02N 11/004	<ul style="list-style-type: none"> <li>. . {adapted for producing a desired non-sinusoidal waveform}</li> </ul>
H02N 11/006	<ul style="list-style-type: none"> <li>. {Motors}</li> </ul>
H02N 11/008	<ul style="list-style-type: none"> <li>. {Alleged electric or magnetic perpetua mobilia}</li> </ul>
<b>H02N 13/00</b>	<b>Clutches or holding devices using electrostatic attraction, e.g. using Johnson-Rahbek effect</b>
<b>H02N 15/00</b>	<b>Holding or levitation devices using magnetic attraction or repulsion, not otherwise provided for</b> (electric or magnetic devices for holding work on machine tools <a href="#">B23Q 3/15</a> ; {monorail vehicle propulsion or suspension <a href="#">B60L 13/00</a> }; sliding or levitation devices for railway systems <a href="#">B61B 13/08</a> ; material handling devices associated with conveyers incorporating devices with electrostatic or magnetic grippers <a href="#">B65G 47/92</a> ; separating thin or filamentary articles from piles using magnetic force <a href="#">B65H 3/16</a> ; delivering thin or filamentary articles from magnetic holders by air blast or suction <a href="#">B65H 29/24</a> ; bearings using magnetic or electric supporting means <a href="#">F16C 32/04</a> ; relieving bearing loads using magnetic means <a href="#">F16C 39/06</a> ; magnets <a href="#">H01F 7/00</a> ; dynamo-electric clutches or brakes <a href="#">H02K 49/00</a> ; {electric furnaces with simultaneous levitation and heating <a href="#">H05B 6/32</a> })
H02N 15/02	<ul style="list-style-type: none"> <li>. by Foucault currents</li> </ul>
H02N 15/04	<ul style="list-style-type: none"> <li>. Repulsion by the Meissner effect (superconductors or hyperconductors in general <a href="#">H01L 39/00</a>)</li> </ul>

**H02N 99/00**

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