

**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 <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, 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 <a href="#">G01</a> )
H02N 2/181	..	{ Circuits; Control arrangements or methods }
H02N 2/183	..	{ using impacting bodies (high voltage generators in spark lighters <a href="#">F23Q</a> ) }
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 }
<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 (discharge tubes functioning as thermionic generators <a href="#">H01J 45/00</a>)</b>
<b>H02N 6/00</b>		<b>Generators in which light radiation is directly converted into electrical energy (solar cells or assemblies thereof <a href="#">H01L 25/00</a>, <a href="#">H01L 31/00</a>)</b>
<b>H02N 10/00</b>		<b>Electric motors using thermal effects { (motors using expansion or contraction of bodies due to heating or cooling <a href="#">F03G 7/06</a>) }</b>
<b>H02N 11/00</b>		<b>Generators or motors not provided for elsewhere; Alleged perpetua mobilia obtained by electric or magnetic means (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>)</b>
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 }
<b>H02N 13/00</b>		<b>Clutches or holding devices using electrostatic attraction, e.g. using Johnson-Rahbek effect</b>

**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**