

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

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 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, 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