

CPC**COOPERATIVE PATENT CLASSIFICATION****F03D****WIND MOTORS****NOTE**

In this subclass, the following words are used with the meanings indicated:

- "Wind motor" means a mechanism for converting the energy of natural wind into useful mechanical power, and the transmission of such power to its point of use;
- "Rotor" means the wind-engaging parts of the wind motor and the rotary member carrying them;
- "Rotations axis" means the axis of rotation of the rotor.

F03D 1/00

Wind motors with rotation axis substantially in wind direction (controlling [F03D 7/00](#))

- [F03D 1/001](#) . {Assembly thereof (fixing wind engaging part to rotor [F03D 1/0658](#)); Erecting methods; Equipments therefor (foundations [F03D 11/045](#))}
- [F03D 1/003](#) . {Maintenance or repair; Equipment therefor}
- [F03D 1/005](#) . {Transport; Equipments therefor}
- [F03D 1/006](#) . {Commisioning}
- [F03D 1/008](#) .. {Balancing static or dynamic imbalances}
- [F03D 1/02](#) . having a plurality of rotors
- [F03D 1/025](#) .. {coaxially arranged}
- [F03D 1/04](#) . having stationary wind-guiding means, e.g. with shrouds or channels ([F03D 1/02](#) takes precedence)
- [F03D 1/06](#) . Rotors
- [F03D 1/0608](#) .. {characterised by their form}
- [F03D 1/0616](#) ... {using the Magnus effect}
- [F03D 1/0625](#) ... {of the whole rotor, i.e. form features of the rotor unit}
- [F03D 1/0633](#) ... {of the blades}
- [F03D 1/0641](#) {of the section profile of the blades}
- [F03D 1/065](#) .. {characterised by their construction, i.e. structural design details ([F03D 1/001](#) takes preference)}
- [F03D 1/0658](#) ... {Fixing wind-engaging parts to rotor}
- [F03D 1/0666](#) ... {of the whole rotor}
- [F03D 1/0675](#) ... {of the blades}
- [F03D 1/0683](#) {of the section profile of the blades}
- [F03D 1/0691](#) ... {of the hub}

F03D 3/00

Wind motors with rotation axis substantially at right-angles to wind direction (controlling [F03D 7/00](#))

- [F03D 3/002](#) . {axis horizontal}
- [F03D 3/005](#) . {axis vertical}

- F03D 3/007 .. {using the Magnus effect}
- F03D 3/02 . having a plurality of rotors
- F03D 3/04 . having stationary wind-guiding means {or means stationary only with respect to the current wind direction}, e.g. with shrouds or channels ([F03D 3/02](#) takes precedence)
- F03D 3/0409 .. {having stationary guiding vanes surrounding the rotor ([F03D 3/0427](#) takes precedence)}
- F03D 3/0418 ... {the vanes being adjustable}
- F03D 3/0427 .. {with augmenting action, i.e. the guiding means intercepting an area greater than the effective rotor area ([F03D 3/0463](#), [F03D 3/049](#) take precedence)}
- F03D 3/0436 .. {having shield means on one side of the rotor}
- F03D 3/0445 ... {fixed with respect to rotor, orientable together}
- F03D 3/0454 {and only with concentrating action, i.e. only increasing the airflow speed into the rotor ([F03D 3/0463](#) takes precedence)}
- F03D 3/0463 {with augmenting action, i.e. the shield means intercepting an area greater than the effective rotor area}
- F03D 3/0472 ... {orientable with respect to the rotor}
- F03D 3/0481 {and only with concentrating action, i.e. only increasing the airflow speed into the rotor ([F03D 3/049](#) takes precedence)}
- F03D 3/049 {with augmenting action, i.e. the shield means intercepting an area greater than the effective rotor area}
- F03D 3/06 . Rotor
- F03D 3/061 .. {Form}
- F03D 3/062 .. {Construction}
- F03D 3/064 ... {Fixing wind engaging parts to rest of rotor}
- F03D 3/065 ... {the wind engaging parts having no movement relative to the rotor during its rotation}
- F03D 3/067 ... {the wind engaging parts having a cyclic movement relative to the rotor during its rotation}
- F03D 3/068 {the cyclic relative movement being coupled to the movement of rotation; Controlling same, e.g. according to wind direction or force}
- F03D 5/00** **Other wind motors** ([controlling F03D 7/00](#))
- F03D 5/005 . {Wind motors having a single vane which axis generate a conus or like surface}
- F03D 5/02 . the wind-engaging parts being attached to endless chains or the like
- F03D 5/04 . the wind-engaging parts being attached to carriages running on tracks or the like
- F03D 5/06 . the wind-engaging parts swinging to-and-fro and not rotating
- F03D 7/00** **Controlling wind motors**
- F03D 7/02 . the wind motors having rotation axis substantially in wind direction
- F03D 7/0204 .. {for orientation in relation to wind direction}
- F03D 7/0208 ... {Orientating out of wind}
- F03D 7/0212 {the rotating axis remaining horizontal}
- F03D 7/0216 {the rotating axis changing to vertical position}
- F03D 7/022 .. {Adjusting aerodynamic properties of the blades}

F03D 7/0224	...	{Adjusting blade pitch}
F03D 7/0228	....	{of the blade tips only}
F03D 7/0232	...	{with flaps or slats (with aerodynamic drag devices on the blades for braking F03D 7/0252)}
F03D 7/0236	...	{by changing the active surface of the wind engaging parts, e.g. reefing, telescoping, furling or coning}
F03D 7/024	...	{of individual blades}
F03D 7/0244	..	{for braking}
F03D 7/0248	...	{by mechanical means acting on the power train}
F03D 7/0252	...	{with aerodynamic drag devices on the blades}
F03D 7/0256	..	{Stall control (adjusting the blades in stall position F03D 7/0224)}
F03D 7/026	..	{for starting-up}
F03D 7/0264	..	{for stopping or in emergency situation (orientating out of wind F03D 7/0208)}
F03D 7/0268	...	{Parking or storm protection}
F03D 7/0272	..	{by measures acting on the electrical generator (controlling electric generator per se H02P)}
F03D 7/0276	..	{Controlling rotor speed, e.g. variable speed}
F03D 7/028	..	{Controlling motor output power}
F03D 7/0284	...	{in relation to the state of the electric grid (supplying or distributing electric power H02J)}
F03D 7/0288	...	{to prevent instantaneous damage to any part of the motor}
F03D 7/0292	...	{to increase fatigue life}
F03D 7/0296	..	{to prevent, counteract or reduce vibration or noise}
F03D 7/04	..	Automatic control; Regulation
F03D 7/041	...	{by means of a mechanical governor}
F03D 7/042	...	{by means of an electrical or electronic controller}
F03D 7/043	....	{characterised by the type of control logic}
F03D 7/044	.....	{with PID control}
F03D 7/045	.....	{with model-based controls}
F03D 7/046	.....	{with learning or adaptive control, e.g. self-tuning, fuzzy logic or neural network}
F03D 7/047	....	{characterised by the controller architecture, e.g. multiple processors or data communications}
F03D 7/048	....	{Controlling wind farms}
F03D 7/06	.	the wind motors having rotation axis substantially at right angle to wind direction {(F03D 3/068 takes precedence)}
F03D 9/00		Adaptations of wind motors for special use; Combinations of wind motors with apparatus driven thereby (aspects predominantly concerning driven apparatus)
F03D 9/001	.	{the apparatus being a pump or compressor; Producing under- or overpressure (F03D 9/028 takes precedence)}

- F03D 9/002 . {the apparatus being an electrical generator ([F03D 9/021](#) takes precedence; details of electrical generators specifically adapted to wind turbines [H02K 7/183](#))}
- F03D 9/003 . . {connected to an electrical general supply grid; Arrangements therefor}
- F03D 9/005 . . . {the wind motor being part of a wind farm}
- F03D 9/006 . {Adaptations for producing heat, e.g. in heat pump systems}
- F03D 9/007 . {the wind motor being combined with means for converting solar radiation into useful energy}
- F03D 9/008 . {the wind motor being combined with water energy converters, e.g. a water turbine}
- F03D 9/02 . the apparatus storing energy
- F03D 9/021 . . {in an electrical accumulator}
- F03D 9/023 . . {storing gravitational potential energy}
- F03D 9/025 . . . {using a liquid, e.g. water}
- F03D 9/026 . . . {using weights}
- F03D 9/028 . . {in a pressurised fluid accumulator}

- F03D 11/00** **Details, component parts, or accessories not provided for in, or of interest apart from, the preceding groups**
- F03D 11/0008 . {Bearing or lubricating arrangements (lubricating of machines in general [F01M](#); bearings per se [F16C](#))}
- F03D 11/0016 . {Cleaning}
- F03D 11/0025 . {Ice detection; Deicing means}
- F03D 11/0033 . {Lightning protection}
- F03D 11/0041 . {Warning systems for air traffic}
- F03D 11/005 . {Arrangement of components within nacelle or tower}
- F03D 11/0058 . . {of electrical components}
- F03D 11/0066 . . . {Cabling}
- F03D 11/0075 . . {of mechanical components}
- F03D 11/0083 . {Measures to avoid shadow flicker on surroundings}
- F03D 11/0091 . {Monitoring; Diagnostics; Testing; Equipments therefor}
- F03D 11/02 . Transmission of power, e.g. using hollow exhausting blades {([gearings per se F16H](#))}
- F03D 11/022 . . {Using hollow exhausting blades}
- F03D 11/024 . . {Transmission in alternative movement}
- F03D 11/026 . . . {Changing or adjusting stroke}
- F03D 11/028 . . {without gearing, i.e. gearless drive}
- F03D 11/04 . Mounting structures
- F03D 11/045 . . {Foundations specifically suited for wind motors}