

CPC COOPERATIVE PATENT CLASSIFICATION

F MECHANICAL ENGINEERING; LIGHTING; HEATING; WEAPONS; BLASTING (NOTE omitted)

ENGINES OR PUMPS

F03 MACHINES OR ENGINES FOR LIQUIDS; WIND, SPRING, OR WEIGHT MOTORS; PRODUCING MECHANICAL POWER OR A REACTIVE PROPULSIVE THRUST, NOT OTHERWISE PROVIDED FOR

F03D WIND MOTORS

NOTES

1. This subclass covers wind motors, i.e. mechanisms for converting the energy of wind into useful mechanical power, and the transmission of such power to its point of use.
2. This subclass does not cover electrical power generation or distribution aspects of wind-power plants, which are covered by section H, e.g. H02J or H02P.
3. In this subclass, the following terms or expressions are used with the meanings indicated:
 - "rotor" means the wind-engaging parts of the wind motor and the rotary member carrying them;
 - "rotation axis" means the axis of rotation of the rotor.

1/00	Wind motors with rotation axis substantially parallel to the air flow entering the rotor (controlling thereof F03D 7/02)	3/0436	. . {having shield means on one side of the rotor}
		3/0445	. . . {fixed with respect to rotor, orientable together}
1/02	. having a plurality of rotors	3/0454 {and only with concentrating action, i.e. only increasing the airflow speed into the rotor (F03D 3/0463 takes precedence)}
1/025	. . {coaxially arranged}		
1/04	. having stationary wind-guiding means, e.g. with shrouds or channels (F03D 9/35 takes precedence)	3/0463 {with augmenting action, i.e. the shield means intercepting an area greater than the effective rotor area}
1/06	. Rotors		
1/0608	. . {characterised by their form}	3/0472	. . . {orientable with respect to the rotor}
1/0616	. . . {using the Magnus effect}	3/0481 {and only with concentrating action, i.e. only increasing the airflow speed into the rotor (F03D 3/049 takes precedence)}
1/0625	. . . {of the whole rotor, i.e. form features of the rotor unit}		
1/0633	. . . {of the blades}	3/049 {with augmenting action, i.e. the shield means intercepting an area greater than the effective rotor area}
1/0641 {of the section profile of the blades}		
1/065	. . {characterised by their construction, i.e. structural design details (F03D 13/10 takes precedence)}	3/06	. Rotors
1/0658	. . . {Fixing wind-engaging parts to rotor}	3/061	. . {Form}
1/0666	. . . {of the whole rotor}	3/062	. . {Construction}
1/0675	. . . {of the blades}	3/064	. . . {Fixing wind engaging parts to rest of rotor}
1/0683 {of the section profile of the blades}	3/065	. . . {the wind engaging parts having no movement relative to the rotor during its rotation}
1/0691	. . . {of the hub}	3/067	. . . {the wind engaging parts having a cyclic movement relative to the rotor during its rotation}
3/00	Wind motors with rotation axis substantially perpendicular to the air flow entering the rotor (controlling thereof F03D 7/06)	3/068 {the cyclic relative movement being coupled to the movement of rotation; Controlling same, e.g. according to wind direction or force}
3/002	. {axis horizontal}		
3/005	. {axis vertical}		
3/007	. . {using the Magnus effect}		
3/02	. having a plurality of rotors		
3/04	. having stationary wind-guiding means, e.g. with shrouds or channels (F03D 9/35 takes precedence)	5/00	Other wind motors (controlling thereof F03D 7/00)
3/0409	. . {having stationary guiding vanes surrounding the rotor (F03D 3/0427 takes precedence)}	5/005	. {Wind motors having a single vane which axis generate a conus or like surface}
3/0418	. . . {the vanes being adjustable}	5/02	. the wind-engaging parts being attached to endless chains or the like
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)}	5/04	. the wind-engaging parts being attached to carriages running on tracks or the like

5/06	<ul style="list-style-type: none"> the wind-engaging parts swinging to-and-fro and not rotating 	9/00	Adaptations of wind motors for special use; Combinations of wind motors with apparatus driven thereby; Wind motors specially adapted for installation in particular locations (hybrid wind-photovoltaic energy systems for the generation of electric power H02S 10/12)
7/00	Controlling wind motors	9/007	<ul style="list-style-type: none"> {the wind motor being combined with means for converting solar radiation into useful energy}
7/02	<ul style="list-style-type: none"> the wind motors having rotation axis substantially parallel to the air flow entering the rotor 	9/008	<ul style="list-style-type: none"> {the wind motor being combined with water energy converters, e.g. a water turbine}
7/0204	<ul style="list-style-type: none"> . . {for orientation in relation to wind direction} 	9/10	<ul style="list-style-type: none"> Combinations of wind motors with apparatus storing energy
7/0208	<ul style="list-style-type: none"> . . . {Orientating out of wind} 	9/11	<ul style="list-style-type: none"> . . storing electrical energy
7/0212	<ul style="list-style-type: none"> {the rotating axis remaining horizontal} 	9/12	<ul style="list-style-type: none"> . . storing kinetic energy, e.g. using flywheels
7/0216	<ul style="list-style-type: none"> {the rotating axis changing to vertical position} 	9/13	<ul style="list-style-type: none"> . . storing gravitational potential energy
7/022	<ul style="list-style-type: none"> . . {Adjusting aerodynamic properties of the blades} 	9/14	<ul style="list-style-type: none"> . . . using liquids
7/0224	<ul style="list-style-type: none"> . . . {Adjusting blade pitch} 	9/16	<ul style="list-style-type: none"> . . . using weights
7/0228	<ul style="list-style-type: none"> {of the blade tips only} 	9/17	<ul style="list-style-type: none"> . . storing energy in pressurised fluids
7/0232	<ul style="list-style-type: none"> . . . {with flaps or slats (with aerodynamic drag devices on the blades for braking F03D 7/0252)} 	9/18	<ul style="list-style-type: none"> . . storing heat
7/0236	<ul style="list-style-type: none"> . . . {by changing the active surface of the wind engaging parts, e.g. reefing, telescoping, furling or coning} 	9/19	<ul style="list-style-type: none"> . . storing chemical energy, e.g. using electrolysis
7/024	<ul style="list-style-type: none"> . . . {of individual blades} 	9/20	<ul style="list-style-type: none"> Wind motors characterised by the driven apparatus (F03D 9/10 takes precedence)
7/0244	<ul style="list-style-type: none"> . . {for braking} 	9/22	<ul style="list-style-type: none"> . . the apparatus producing heat
7/0248	<ul style="list-style-type: none"> . . . {by mechanical means acting on the power train} 	9/25	<ul style="list-style-type: none"> . . the apparatus being an electrical generator (F03D 9/22 takes precedence)
7/0252	<ul style="list-style-type: none"> . . . {with aerodynamic drag devices on the blades} 	9/255	<ul style="list-style-type: none"> . . . {connected to an electrical general supply grid; Arrangements therefor}
7/0256	<ul style="list-style-type: none"> . . {Stall control (adjusting the blades in stall position F03D 7/0224)} 	9/257	<ul style="list-style-type: none"> {the wind motor being part of a wind farm}
7/026	<ul style="list-style-type: none"> . . {for starting-up} 	9/28	<ul style="list-style-type: none"> . . the apparatus being a pump or a compressor
7/0264	<ul style="list-style-type: none"> . . {for stopping or in emergency situation (orientating out of wind F03D 7/0208)} 	9/30	<ul style="list-style-type: none"> Wind motors specially adapted for installation in particular locations (means for mounting or supporting wind motors F03D 13/20)
7/0268	<ul style="list-style-type: none"> . . . {Parking or storm protection} 	9/32	<ul style="list-style-type: none"> . . on moving objects, e.g. vehicles
7/0272	<ul style="list-style-type: none"> . . {by measures acting on the electrical generator (controlling electric generator per se H02P)} 	9/34	<ul style="list-style-type: none"> . . on stationary objects or on stationary man-made structures
7/0276	<ul style="list-style-type: none"> . . {Controlling rotor speed, e.g. variable speed} 	9/35	<ul style="list-style-type: none"> . . . within towers, e.g. using chimney effects
7/028	<ul style="list-style-type: none"> . . {Controlling motor output power} 	9/37	<ul style="list-style-type: none"> with means for enhancing the air flow within the tower, e.g. by heating
7/0284	<ul style="list-style-type: none"> . . . {in relation to the state of the electric grid (supplying or distributing electric power H02J)} 	9/39	<ul style="list-style-type: none"> by circulation or vortex formation
7/0288	<ul style="list-style-type: none"> . . . {to prevent instantaneous damage to any part of the motor} 	9/41	<ul style="list-style-type: none"> by using the wind outside the tower, e.g. using ejectors
7/0292	<ul style="list-style-type: none"> . . . {to increase fatigue life} 	9/43	<ul style="list-style-type: none"> . . . using infrastructure primarily used for other purposes, e.g. masts for overhead railway power lines
7/0296	<ul style="list-style-type: none"> . . {to prevent, counteract or reduce vibration or noise} 	9/45	<ul style="list-style-type: none"> Building formations
7/04	<ul style="list-style-type: none"> . . Automatic control; Regulation 	9/46	<ul style="list-style-type: none"> Tunnels or streets
7/041	<ul style="list-style-type: none"> . . . {by means of a mechanical governor} 	9/48	<ul style="list-style-type: none"> . . using landscape topography, e.g. valleys
7/042	<ul style="list-style-type: none"> . . . {by means of an electrical or electronic controller} 	13/00	Assembly, mounting or commissioning of wind motors; Arrangements specially adapted for transporting wind motor components
7/043	<ul style="list-style-type: none"> {characterised by the type of control logic} 	13/10	<ul style="list-style-type: none"> Assembly of wind motors; Arrangements for erecting wind motors
7/044	<ul style="list-style-type: none"> {with PID control} 	13/20	<ul style="list-style-type: none"> Arrangements for mounting or supporting wind motors; Masts or towers for wind motors
7/045	<ul style="list-style-type: none"> {with model-based controls} 	13/22	<ul style="list-style-type: none"> . . {Foundations specially adapted for wind motors}
7/046	<ul style="list-style-type: none"> {with learning or adaptive control, e.g. self-tuning, fuzzy logic or neural network} 	13/25	<ul style="list-style-type: none"> . . specially adapted for offshore installation
7/047	<ul style="list-style-type: none"> {characterised by the controller architecture, e.g. multiple processors or data communications} 	13/30	<ul style="list-style-type: none"> Commissioning, e.g. inspection, testing or final adjustment before releasing for production
7/048	<ul style="list-style-type: none"> {Controlling wind farms} 	13/35	<ul style="list-style-type: none"> . . Balancing static or dynamic imbalances
7/06	<ul style="list-style-type: none"> the wind motors having rotation axis substantially perpendicular to the air flow entering the rotor 	13/40	<ul style="list-style-type: none"> Arrangements or methods specially adapted for transporting wind motor components
		15/00	Transmission of mechanical power

F03D

- 15/05 . {using hollow exhausting blades}
- 15/10 . using gearing not limited to rotary motion, e.g. with oscillating or reciprocating members
- 15/15 . . {Changing or adjusting stroke}
- 15/20 . Gearless transmission, i.e. direct-drive

17/00 **Monitoring or testing of wind motors, e.g. diagnostics** (testing during commissioning of wind motors [F03D 13/30](#))

80/00 **Details, components or accessories not provided for in groups [F03D 1/00](#) - [F03D 17/00](#)**

- 80/10 . Arrangements for warning air traffic
- 80/20 . Arrangements for avoiding shadow flicker
- 80/30 . Lightning protection
- 80/40 . Ice detection; De-icing means
- 80/50 . Maintenance or repair
- 80/55 . . Cleaning ([F03D 80/40](#) takes precedence)
- 80/60 . Cooling or heating of wind motors
- 80/70 . Bearing or lubricating arrangements
- 80/80 . Arrangement of components within nacelles or towers
- 80/82 . . {of electrical components}
- 80/85 . . . {Cabling}
- 80/88 . . {of mechanical components}