

The invention relates to the wind-power engineering, for obtaining electric power, and may be used in the air engineering – in the air ventilation and conditioning systems, in the hydraulic engineering – in the pump, turbine constructions and other hydraulic devices, as well as in the aviation and shipbuilding – in the motive turbines and helical screws constructions.

The process for flow vortex conversion includes direction of the incoming three-dimensional flow toward the concave inside of the blade, formation of vortex “braids” by means of formers placed thereon at a certain angle with the blade axis. Novelty consists in that it is additionally carried out rotation of the blade, made helical and fixed onto the axis with axial play, at the same time the cross-section of the blade is close to the form of the Kelly spiral of sixth order. The formers of vortex “braids” are made converging to the region of the axis of rotation and oriented toward the incoming flow direction.

The flow vortex converter comprises an axis of rotation (1) and one or more helical blades (2), made arch-shaped in cross-section and joined with the axis (1) by means of tiered up holders (3). Novelty consists in that the axis (1), the blade (2) and each holder (3) are made pre liminarly compressed-stretched. The blade (2), made thin, the cross-section of which is close to the form of the Kelly spiral of sixth order, comprises at least two layers joined between them, one of which, exterior – with convex outside (6), the other one, precast – with concave inside (10), made of separate elements, the lateral edges of which are joined between them. Onto the surface of the precast layer, across each blade (2), there are placed, oriented toward the incoming flow direction and converging to the axis of rotation (1), the vortex “braid” formers (11), the cross-section of each of which being sawtooth, with asymmetrical parts, at the same time the smaller part is concave arched, and the end edges of each former are cut at an angle.

The profile of the aerodynamic projection of the vortex converter may be narrow-cylindrical with conic end on one side, fusiform or conic.

The axis of rotation (1) may be installed horizontally or vertically.

Each blade (2) is made reinforced, at the same time the form of each separate element of the blade’s precast layer is close to the form of a trapezium.

The holders (3) of the blade (2) are made in the form of racks, fixed onto the axis of rotation (1) in a helical line with variable angular displacement.

The rack comprises a tube, including reinforcing elements, and a coaxially placed therein rod, the ends of which are jammed into the tube ends, at the same time the rod and the tube are made preliminarily compressed-stretched.

Claims: 16

Fig.: 20

