Title: Direct-connected Low-speed Small Mixed Flow Type Water Turbine Applied in Hydrodynamic Energy-saving Cooling Tower

Abstract

The invention relates to a direct-connected low-speed small mixed flow type water turbine applied in a hydrodynamic energy-saving cooling tower, which comprises a water inlet scroll case (1), a seat ring (2) provided with single column of guide vanes annularly, a runner (12), a straight tapered water outlet pipe (9) and a side water outlet box (10), wherein the seat ring (2) is mounted on the inner side of the scroll case (1), a water outlet among the guide vanes in the seat ring (2) is communicated with a water inlet formed among curved surface blades (4), the water outlet formed among the curved surface blades (4) is communicated with the water inlet of the straight tapered water outlet pipe (9), the water outlet of the straight tapered water outlet pipe (9) is communicated with the water inlet of the side water outlet box (10), and the direct-connected low-speed small mixed flow type water turbine is characterized in that a bearing seat (6) is mounted on the runner (12), a shaft (7) is mounted in the bearing seat (6), and blades of a cooling fan are directly mounted on the shaft (7); and the value of unit rotational speed $n_{11}=\frac{nD_1}{\sqrt{H}}$ is 28-42, in the formula, n is the rated rotational speed of the blades of the cooling fan, D1 is the diameter of the water inlet of the runner (12), and H is the inlet water pressure. The invention has the advantages of small size, high efficiency and low noise.