Title of the invention:

Method for measuring the tension of elevator suspension ropes, especially in an electric elevator

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Description:

The essence of the method for measuring the tension of elevator suspension ropes, especially in an electric elevator equipped with a strain-gauge system according to the invention, is that a strain-gauge measuring system with holes is mounted in the upper part of the elevator frame. The ends of the suspension ropes are passed through these holes, rigid hemispherical washers are attached to the rope ends, and the rope ends are fastened with nuts. The elevator frame is then loaded with a load ranging from 450 to 1000 kg, causing deformation of the strain-gauge measuring system. The information is then transmitted from the control unit connected to the strain-gauge measuring system to the elevator control system.

A beneficial effect of the invention is that the method for measuring the tension of elevator suspension ropes, especially in an electric elevator, can be applied in elevators with 1:1 and 2:1 roping systems, and allows the use of 4 to 10 ropes arranged radially.

Industrial application:

Until now, devices used to measure the tension of elevator suspension ropes have been installed under the cabin. This causes certain difficulties in the production of the elevator, and especially in its subsequent maintenance. The proposed device, operating on a completely new principle, can be used in traction elevators both with and without a machine room, eliminating the above-mentioned disadvantages. Placing the measuring device in an accessible location above the cabin reduces the time required by technical personnel or maintenance staff to perform the necessary maintenance activities. This is important due to the decreasing rates for maintenance services.

Moreover, the universality of the device, meaning the possibility of measuring different nominal load capacities, enables its use in elevators intended for various purposes, i.e. passenger and freight elevators, which ultimately reduces the cost of elevator production.