

Abstract

Method for Applying a Measurement Scale to a Surface of a Guide Rail of a Linear Profile Rail Guide, Measurement Scale for a Linear Encoder, and Linear Encoder

5

~~The invention relates to a method for applying a measurement scale (15) to a surface of a guide rail of a linear profile rail guide, wherein the guide rail has a first side surface and wherein the measurement scale (15) comprises at least one track (SP1, SP2), which extends linearly in the longitudinal direction (X) of the guide rail, comprising several mirror regions (S; S1, S2, S3, S4, S5, S6, S7, S8, S9, S10, S11, S12, S13, S14, S15), which are arranged one behind the other so as to alternate, and marking regions (M; M1, M2, M3, M4, M5, M6, M7, M8, M9, M10, M11, M12, M13, M14). The method comprises a provision of a pulsed laser for generating a laser beam and a provision of at least one of the marking regions (M; M1, M2, M3, M4, M5, M6, M7, M8, M9, M10, M11, M12, M13, M14) by introducing a microstructure in a first region, which corresponds to the at least one marking region, of the first side surface of the guide rail, in that the laser generates the laser beam with a sequence of several light pulses, and the laser beam is directed at the first region of the first side surface in such a way that the laser beam is moved two-dimensionally relative to the first region and different subregions of the first region of the first side surface are thereby irradiated one after the other by means of the light pulses, wherein each of the different irradiated subregions in each case has an overlap in the longitudinal direction (X) or transverse to the longitudinal direction (X) of the at least one track (SP1, SP2), respectively, with at least one of the other ones of the irradiated subregions.~~

~~(FIG. 2)~~

~~A method for applying a measurement scale to a guide rail~~

surface of a linear profile rail guide, the guide rail having a first side surface and the measurement scale including at least one track extending linearly and longitudinally toward the guide rail, including several mirror regions arranged alternately one behind the other, and marking regions, uses a pulsed laser to generate a laser beam and introduces a microstructure in a first region corresponding to the at least one marking region of the first side surface. The laser generates the laser beam with a sequence of several light pulses that is directed at the first region so that the laser beam is moved two-dimensionally relative to the first region to irradiate different subregions of the first region one after the other by the light pulses. Each different irradiated subregion has an overlap in, or transverse to, the longitudinal direction with at least two other irradiated subregions.

(FIG. 2)