

Title (en)
PROBE WITH A DIFFRACTION GRATING FOR +1, 0 AND -1 ORDERS

Title (de)
TASTER MIT BEUGUNGSGITTER FÜR +1, 0 UND -1 ORDNUNGEN

Title (fr)
PALPEUR DOTE D'UN RESEAU DE DIFFRACTION DES ORDRES +1, 0 ET -1

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Application
EP 01943100 A 20010518

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Abstract (en)
[origin: WO0190698A1] A measuring device using interference optics, for detecting and tracking the movement of a mechanical element (4) has a light source (31) for emitting a light bundle that is capable of interference, a diffraction grating and a sensor arrangement (33). A beam path leads from the light source to the sensor arrangement (33) via the diffraction grating (32). Said diffraction grating divides the light bundle into at least three partial components, so that a light patch with three overlapping peaks, the middle, zero peak and the minus one and plus one peaks either side thereof, is formed. The light beams producing the three brightness peaks interfere with each other so that the resulting superimposed luminous spot (46) contains interference bands which run in one direction or another when the diffraction grating is moved. The movement of the interference bands is detected with the sensor arrangement (33) and evaluated in an evaluation circuit. This enables each movement of the diffraction grating (32) to be detected precisely. The arrangement makes use of almost the entire interference figure generated by the light from the light source. As a result, light-intensive interference figures can be produced even with low capacities of the light source (31). This enables low-capacity components to be used.

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