Linear Guide with an Air Bearing

ABSTRACT

A linear guide (1) comprises a support element (2) and a carriage (3) sliding on the support element (2). The carriage (3) has two hollow cylinders (4) and (5) sliding on an air bearing on the support element (2) and a body (6) arranged between them. The support element (2) and the two hollow cylinders (4) and (5) of the carriage (3) are separated by a gap (7) to which compressed air can be applied. A linear motor formed from a u-shaped stator (8) and an armature (9) is foreseen as drive mechanism for the carriage (3). During operation, heat dissipation occurs in the armature (9) which heats the carriage (3). In order to maintain changes in the thickness of the gap (7) within predetermined limits, the support element and/or those parts of the carriage (3) whose temperature influence the thickness of the gap (7) are heated to a predetermined temperature.

(Fig. 1)