Title (en)

AXIAL PISTON MACHINE, ESPECIALLY A PUMP OF THE INCLINED PLATE TYPE

Publication

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Application

EP 85103801 A 19850329

Priority

DE 3413059 A 19840406

Abstract (en)

[origin: US4602554A] The invention is concerned with an axial piston machine, preferably an axial piston pump of the inclined disc or skew axis type, with a cylinder (9) which rotates about an axis of rotation and in which, on a pitch circle, several pistons (8) are movably guided in piston bores (11) extending substantially along the axis of rotation (3), by means of an inclined or driving disc, or the like, the piston bores (11) opening at the face of the cylinder (9) which is remote from the inclined or driving disc (5), the face resting against a control surface (13) in which there are arranged control openings (14), positioned on the pitch circle of the pistons (8) which, in set positions of rotation of the cylinder (9) are covered by the openings of the piston bores (11), loading cylinders (24) being distributed over the circumference and acting upon the cylinder (9) against the control surface (13), and of which loading cylinders the working spaces are connected, by means of connecting channels (27), each with a respective piston bore (11) and the cylinder (9) being supported radially, directly or indirectly, on a support (18) which is fixed relative to the housing (2) and which is spaced axially from the control surface. It is the purpose of the invention, to so arrange the axial piston machine that a balanced axial and radial guidance of the cylinder (9) is possible with maximum use of the piston performance. For achieving this it is arranged that the piston bores (11) open, without narrowing of cross section, at said face (23); that said face (23) is spherically concave and the control surface (13) is correspondingly spherically convex; that the axial portion (FSK) of a control surface force (FS), which acts upon the cylinder (9) in the direction of the inclined or driving disc, or counterbalances a loading force (FER) which acts upon the cylinder in the opposite direction; and that the size of the radius (R) of the control surface (13) is such that the intersecting point (s) of the control surface force (FS) perpendicular to the control surface (13) and of the loading force (FER) lies in a plane (A) which extends transversely to the axis of rotation (3) and which is arranged in the region of the support (18) of the cylinder (9).

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