

Title (en)
ROTARY VANE MACHINE

Title (de)
DREHSCHIEBERMASCHINE

Title (fr)
MACHINE ROTATIVE À PALETTE COULISSANTE

Publication
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Application
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Abstract (en)
The invention refers to mechanical engineering and can be used in rotor vane pumps, hydromotors, hydrostatic differentials and transmissions with increased efficiency at high pressure. The invention is aimed to improve insulation of a working chamber and force chambers of variable length in a wide range of deformations and tolerances as well as to improve efficiency at high pressure. A rotor vane machine consists of two units, a housing and a rotor installed with the possibility of reciprocal rotation. At least one of the two units is adaptive, that is it includes force chambers of variable length kinematically connecting the working and supporting parts of the adaptive unit with the possibility of their reciprocal axial displacements and tilts sufficient to provide a sliding insulating contact between the working parts of both units of the rotor vane machine during their reciprocal rotation, wherein the variation of the force chambers length is resulting in the mentioned reciprocal movements of the working and supporting parts of the adaptive unit. Every force chamber of variable length includes a force cavity hydraulically connected to the working chamber and the means of its insulation, including at least two moving elements installed with formation of sliding insulating contacts between the following pairs of the surfaces: between the insulating surface of one of the moving elements and the insulating surface of one of the parts of the adaptive unit, between the insulating surface of another moving element and the insulating surface of another part of the adaptive unit and between the insulating surfaces of the moving elements. At least in one of the contacts both insulating surfaces are cylindrical and at least in one of them they are spherical. Reciprocal sliding of cylindrical surfaces provides insulation during reciprocal axial movements of the working and supporting parts of the adaptive unit while reciprocal sliding of the spherical surfaces provides insulation during reciprocal tilted movements of the parts. To provide insulation during reciprocal transverse movements of these parts at least in one of other insulating contacts both insulating surfaces are either flat or spherical.

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