

Title (en)
VARIABLE-VOLUME INTERNAL GEAR PUMP

Title (de)
VOLUMENVERÄNDERBARE INNENZAHNRADPUMPE

Title (fr)
POMPE À ENGRENAGE INTÉRIEUR, À VOLUME VARIABLE

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Abstract (en)
[origin: US2011038746A1] The invention relates to a variable-volume internal gear pump, in particular for use as an engine lubrication pump for automobiles. The internal gear pump comprises a housing (7, 10) and a rotor set chamber (40) formed therein comprising a low pressure chamber (17) and a high pressure chamber (18) for a fluid. Inside the rotor set chamber (40) are an inner rotor (2) that can be rotatably driven by a shaft (1) about an axis of rotation (Di) and a rotatable outer rotor (3) with an outer rotor axis of rotation (Da) that is arranged eccentric with respect to the axis of rotation (Di). When a rotational force is applied, conveyance cells (30, 31) form between the inner rotor (2) and the outer rotor (3) in which the fluid is conveyed from the low pressure chamber (17) to the high pressure chamber (18). An adjusting member (5) upon which axial springs (8) act and which is guided in the internal gears (34) of the outer rotor (3) in axial motion causes a pressure-related axial movement of the inner rotor (2). The outer rotor (3) comprises radial channels (41) in the gaps between the teeth of the internal gears (34) thereof proximate to the low pressure chamber (17) and the high pressure chamber (18). The axial position of the inner rotor (2) relative to the outer rotor (3) can be adjusted by the axial motion of the adjusting member (5), whereupon the volume of the conveyance cells (30, 31) changes depending on the pressure.

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