

Title (en)

Rotary hydraulic converting and distributing device with multiple synchronized cylinders.

Title (de)

Mit mehreren synchronisierten Arbeitsräumen ausgestattetes rotationshydraulisches Gerät zum Umformen und Verteilen.

Title (fr)

Dispositif hydraulique rotatif convertisseur et répartiteur à multi-cylindrées synchronisées.

Publication

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Application

EP 80401063 A 19800715

Priority

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Abstract (en)

1. Hydraulic converter/distributor device designed to transform hydraulic energy into kinetic rotation energy and reciprocally, containing a stator (1), rotor (2), in which equidistant, radial grooves (3) are provided each designed to house a vane (4) whose active surface moves on the circumference of the stator the which contains recesses forming the cubic capacities (A, B, C, D), two side flanges mounted on bearings (19, 20) and rigidly locked to the rotor (2) enclosing and sealing the assembly, each cubic capacity communicating via two ducts (10) with the high and low pressures (HP, BP), wherein : - the stator (1) containing the cubic capacities (A, B, C, D) is annular and has no hub, and in cooperation with the rotor (2), closing flanges (17, 18) and retaining flanges (21, 22), it forms a motor or fully annular pump, - the radii (R) of the stator (1) and (R1) of the rotor (2) are defined by the number of cubic capacities, by the pitch between the vanes (4) and by the thickness of the aforesaid vanes, resulting in a length of the radius r active cylindrical section of the base of the cubic capacities (A, B, C, D), a length of the cubic capacities inlet and outlet ramps (Ra1 , Ra2 , Rb1 , Rb2 , Rc1 , Rc2 , Rd1 , Rd2) and a length of the radius R cylindrical sections of the aforesaid stator, in such a way that the aforesaid cubic capacities are sealed by one vane upline and one vane downline on the aforesaid radius R, - the maximum power of the aforesaid converter depends on the number of cubic capacities simultaneously active and hence on the value of radius R, - the flow of the fluid is practically constant at all speeds of rotation whilst, to avoid jerks when changing gears, accepting a variation in the flow of around +- 15%, - the inlet of the fluid is controlled separately for each of the cubic capacities (A, B, C, D) when their number is odd, as their volume may be different, or separately for each diametrically opposite pair of cubic capacities when their number is even, - the inactive cubic capacities are not subjected to a fluid flow, - the vanes are constructed in the form of dual effect differential valves (4), which are made active, in contact with radius (r) of the base of their cubic capacities, directly by the high pressure (HP) in the active cubic capacities, or else returned to the bottom of their housing by a differential pressure (Pi) or pressure of the casing acting directly on the differential valves (4) - and instantaneous free wheeling is obtained by increasing the pressure (Pi) of the casing or cutting off the supply of high pressure (HP) in the active cubic capacities.

Abstract (fr)

Dispositif comportant un stator (1), un rotor (2) et des flasques de fermeture (17, 18) formant ensemble un tore de section sensiblement rectangulaire pouvant atteindre plusieurs mètres de diamètre. Le rotor (1) comporte des rainures radiales (3) recevant chacune une valve (4) dont la face inférieure, de surface plus faible que celle de la face supérieure, se déplace sur la périphérie du stator laquelle comporte des évidements ou cylindrées (A,B,C,D) limités par une partie cylindrique de rayon r raccordée à la périphérie de rayon R par des rampes identiques. Les valves différentielles (4) reçoivent, au travers de canalisations (HP) débouchant dans les cylindrées, la poussée du fluide moteur lorsqu'elles sont actives sur le fond r des cylindrées, ledit fluide s'écoulant ensuite par les canalisations (BP) en basse pression, les valves étant alors inactives. Les valves (4) sont rendues actives par une poussée différentielle résultant de la différence des surfaces inférieure et supérieure de valve, s'appliquant sur la face supérieure pour la maintenir en appui sur le rayon r.

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