

Title (en)
Hydraulic pump.

Title (de)
Hydraulikpumpe.

Title (fr)
Pompe hydraulique.

Publication
EP 0199833 A1 19861105 (DE)

Application
EP 85105181 A 19850427

Priority
EP 85105181 A 19850427

Abstract (en)
1. Hydraulic pump, intended especially for power steering systems and exhibiting the following features : the hydraulic pump has a rotor (7), driven at varying rotation speeds (n) and, with stationary pump components, forming one or more displacement regions (11, 12), to which inlet openings (20) and outlet openings (33) lead ; the inlet openings (20) of each displacement region are connected to a supply system (17, 18) and the outlet openings (33) of each displacement region are connected to a pressure chamber (35) ; the pressure chamber (35) and the supply system intercommunicate via a flow-regulating valve (40) which discharges an unregulated delivery flow into a discharge duct (19) associated with the supply system (17, 18), and which releases a regulated, usable flow (Q) to an external pump outlet (37) ; the flow-regulating valve (40) comprises a valve spool (41) which is guided in a valve bore (55), this valve spool (41) having a first spool face (53), which is subjected to relatively high pressure, and a second spool face (54), which is subjected to relatively low pressure, this flow-regulating valve (40) further comprising a valve spring (42) and a metering orifice (36) at which a pressure drop associated with the regulated, usable flow (Q) is tapped off and supplied to the two faces (53, 54) of the valve spool (41) ; the valve spool (41) has a prolongation (49), the position of this prolongation reducing the effective width of the metering orifice (36) as the pump rotation-speed (n) rises, thus generating a negative-slope portion of the usable flow versus pump rotation-speed characteristic, i.e. a portion that exhibits a negative slope overall, characterized in that the metering orifice (36) is formed on a bore (38) which constitutes the usable flow duct and extends in a generally radial orientation towards the flow-regulating valve (40), in that the said flow-duct bore (38) is separated from the associated discharge duct (19) by an axial distance (c) which, reckoned in the direction in which the valve spool (41) slides, is smaller than the width (b) of an annular space (52) that is formed on the valve spool (41), between the first spool face (53) and a third spool face (56) ; and in that the annular space (52) is connected to the pressure chamber (35) via a cavity (50) in the valve spool (41).

Abstract (de)
Hydraulikpumpe mit fallender Kennlinie des Nutzstromes über der Drehzahl. Ein Stromregelventil (40) besitzt einen Schieberkolben (41) mit einem hohlen (50) Fortsatz (49) und einen Ringraum (52) mit zwei Steuerecken (53, 56), die mit den Nutzstrombohrungskanal (38) und einem Entladekanal (19) zur Bildung von gegenläufigen Drosseln zusammenarbeiten. Der Nutzstrombohrungskanal (38) und der Entladekanal (9) sind im wesentlichen radial zum Schieberkolben angeordnet.

IPC 1-7
F04C 15/04; F16K 11/065

IPC 8 full level
F04C 14/26 (2006.01); **F04C 2/344** (2006.01); **F04C 15/06** (2006.01); **F16K 11/065** (2006.01)

CPC (source: EP)
F04C 14/26 (2013.01)

Citation (search report)
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Designated contracting state (EPC)
DE FR GB IT SE

DOCDB simple family (publication)
EP 0199833 A1 19861105; EP 0199833 B1 19880824; CA 1253771 A 19890509; DE 3564603 D1 19880929; JP H0749797 B2 19950531; JP S61250391 A 19861107

DOCDB simple family (application)
EP 85105181 A 19850427; CA 506074 A 19860408; DE 3564603 T 19850427; JP 9592586 A 19860426