

Title (en)
DISTRIBUTING VALVE FOR THE LOAD-INDEPENDENT CONTROL OF A HYDRAULIC CONSUMER IN TERMS OF DIRECTION AND SPEED

Title (de)
WEGEVENTIL ZUR LASTUNABHÄNGIGEN STEUERUNG EINES HYDRAULISCHEN VERBRAUCHERS HINSICHTLICH RICHTUNG UND GESCHWINDIGKEIT

Title (fr)
DISTRIBUTEUR POUR LA COMMANDE INDEPENDANTE DE LA CHARGE D'UN CONSOMMATEUR HYDRAULIQUE EN CE QUI CONCERNE LA DIRECTION ET LA VITESSE

Publication
EP 1360419 A1 20031112 (DE)

Application
EP 02702315 A 20020125

Priority
• DE 10107532 A 20010217
• EP 0200792 W 20020125

Abstract (en)
[origin: US2004069359A1] The invention is based on a directional control valve which is used for the control, in particular the load-independent control, of a hydraulic load in terms of direction and speed. A known directional control valve of this kind has, in a piston bore of a valve housing, a control piston which can be displaced axially in opposite directions from a central position and which has first fine control grooves for opening a connection between a load chamber and a feed chamber under control, and second fine control grooves for opening a connection between a load chamber and a discharge chamber of the piston bore under control. In its central position, there is a restricted relief connection from a load chamber to the discharge chamber via the control piston. The restricted relief connection is obtained in the known directional control valve by the second fine control grooves being lengthened to such an extent that they already project into the load chambers in the rest position of the control piston. The invention is based on the object of developing such a directional control valve in such a way that, even at the start of opening the first fine control grooves, precise control of the hydraulic load is possible, and that the effort for the design of the fine control grooves is reduced. This object is achieved by the relief connection existing via a recess in the control piston, independently of the second fine control grooves, and, in the event of displacement of the control piston with the effect of connecting the load chamber to the discharge chamber, by the relief connection being interrupted before the second fine control grooves open a flow cross section. Accordingly, the second fine control grooves no longer have anything to do with relieving a load chamber. Their design can therefore be based only on the dimensions necessary for the desired control of the hydraulic load. At a predefined maximum flow rate, the second fine control grooves of the control piston can be the same as those on a control piston for a directional control valve with a blocked central piston.

IPC 1-7
F15B 13/04

IPC 8 full level
F15B 11/16 (2006.01); **F15B 13/04** (2006.01)

CPC (source: EP US)
F15B 11/163 (2013.01 - EP US); **F15B 13/0417** (2013.01 - EP US); **F15B 2211/3144** (2013.01 - EP US); **F15B 2211/351** (2013.01 - EP US); **F15B 2211/76** (2013.01 - EP US); **Y10T 137/8671** (2015.04 - EP US); **Y10T 137/87185** (2015.04 - EP US)

Citation (search report)
See references of WO 02066842A1

Designated contracting state (EPC)
AT BE CH CY DE DK ES FI FR GB GR IE IT LI LU MC NL PT SE TR

DOCDB simple family (publication)
US 2004069359 A1 20040415; **US 6994116 B2 20060207**; AT E281602 T1 20041115; DE 10107532 A1 20020829; DE 50201462 D1 20041209; DK 1360419 T3 20050314; EP 1360419 A1 20031112; EP 1360419 B1 20041103; WO 02066842 A1 20020829

DOCDB simple family (application)
US 46817503 A 20030816; AT 02702315 T 20020125; DE 10107532 A 20010217; DE 50201462 T 20020125; DK 02702315 T 20020125; EP 0200792 W 20020125; EP 02702315 A 20020125