

Title (en)
HYDRAULIC CONTROL ASSEMBLY FOR CONTROLLING THE DIRECTION AND SPEED OF A SINGLE-ACTION HYDRAULIC CONSUMER
AND A DIRECTIONAL CONTROL VALVE THEREFOR

Title (de)
HYDRAULISCHE STEUERANORDNUNG MIT WEGEVENTIL ZUR STEUERUNG EINES EINFACHWIRKENDEN HYDRAULISCHEN
VERBRAUCHERS HINSICHTLICH RICHTUNG UND GESCHWINDIGKEIT

Title (fr)
DISPOSITIF DE COMMANDE HYDRAULIQUE DESTINE A LA COMMANDE DE LA DIRECTION ET DE LA VITESSE D'UN CONSOMMATEUR
HYDRAULIQUE A ACTION SIMPLE ET DISTRIBUTEUR CORRESPONDANT

Publication
EP 1386084 A2 20040204 (DE)

Application
EP 02742885 A 20020411

Priority
• DE 10121924 A 20010505
• EP 0204022 W 20020411

Abstract (en)
[origin: WO02090778A2] The invention relates to a hydraulic control assembly for controlling a single-action hydraulic cylinder comprising a directional control valve that can be proportionally adjusted. Said valve is located in a piston housing, which has a piston bore with a central supply chamber, two consumer chambers adjacent thereto and usually two outlet chambers. A control piston can be displaced in the piston bore from a central position axially in a first and a second direction by means of an arbitrarily predetermined control force. A measuring piston co-operates with the control piston in such a way that a compensatory force directed against the control force can be exerted on the control piston by means of a pressure prevailing on the measuring piston during the displacement of the control piston in the second direction. A known control assembly of this type controls a double-action hydraulic cylinder. The measuring piston allows the speed of the hydraulic cylinder to be reduced when a predetermined control force acts on the control piston, as the load pressure of the hydraulic cylinder increases. The aim of the invention is to improve the aforementioned hydraulic control assembly in such a way that even for a single-action hydraulic cylinder a significant increase in the lowering speed of the hydraulic consumer is prevented as the load pressure accumulates, in a simple manner. To achieve this, the measuring piston can be subjected to the pressure prevailing in the first consumer chamber during a displacement of the control piston in the second direction. During the lowering operation, the load pressure prevailing in the first consumer chamber thus impinges on the measuring piston. The compensatory force thus created increases with the accumulating load pressure and displaces the control piston to reduce the flow rate cross-section between the first consumer chamber and the outlet chamber. A pressure differential, which increases by means of an accumulating load pressure can therefore be partially or wholly compensated, or even overcompensated by the reduction of the flow rate cross-section, thus limiting the lowering speed.
[origin: WO02090778A2] The aim of the invention is to improve a hydraulic control assembly comprising a directional control valve that can be proportionally adjusted, in such a way that even for a single-action hydraulic cylinder a significant increase in the lowering speed of the hydraulic consumer is prevented as the load pressure accumulates, in a simple manner. To achieve this, a measuring piston (82) can be subjected to a pressure prevailing in a first consumer chamber (38) during a displacement of a control piston (32) in the second direction. During the lowering operation, the load pressure prevailing in the first consumer chamber thus impinges on the measuring piston. The compensatory force thus created increases with the accumulating load pressure and displaces the control piston to reduce the flow rate cross-section between the first consumer chamber and the outlet chamber (44). A pressure differential, which increases by means of an accumulating load pressure can therefore be partially or wholly compensated, or even overcompensated by the reduction of the flow rate cross-section, thus limiting the lowering speed.

IPC 1-7
F15B 13/04

IPC 8 full level
F15B 13/04 (2006.01); **F15B 13/00** (2006.01)

CPC (source: EP)
F15B 13/0418 (2013.01); **F15B 2013/006** (2013.01)

Citation (search report)
See references of WO 02090778A2

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)
WO 02090778 A2 20021114; **WO 02090778 A3 20030220**; AT E315728 T1 20060215; DE 10121924 A1 20021107; DE 50205586 D1 20060406; DK 1386084 T3 20060522; EP 1386084 A2 20040204; EP 1386084 B1 20060111

DOCDB simple family (application)
EP 0204022 W 20020411; AT 02742885 T 20020411; DE 10121924 A 20010505; DE 50205586 T 20020411; DK 02742885 T 20020411; EP 02742885 A 20020411