Title (en)

CONTROL VALVE ASSEMBLY FOR AN INDIRECT PNEUMATIC CONTROL, AND METHOD FOR CONTROLLING A WORKING FLUID PRESSURE

Title (de)

STEUERVENTILANORDNUNG ZUR INDIREKTEN PNEUMATISCHEN STEUERUNG UND VERFAHREN ZUM STEUERN EINES ARBEITSFLUIDDRUCKS

Title (fr)

ENSEMBLE DE SOUPAPE DE COMMANDE PERMETTANT UNE COMMANDE PNEUMATIQUE INDIRECTE, ET PROCÉDÉ DE RÉGULATION DE LA PRESSION D'UN FLUIDE DE TRAVAIL

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Application

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Abstract (en)

[origin: WO2019149751A1] The invention relates to a control valve assembly (1) for an indirect pneumatic control and to a method for controlling a working fluid pressure. The aim of the invention is to provide a control valve assembly (1) and a method for controlling a working fluid pressure using a control fluid, said assembly and method allowing a precise, sensitive, speed-variable control without large output losses and control delays. This is achieved in that the control valve assembly (1) has two pneumatic valve units (2, 3) which are arranged one behind the other; a working fluid inlet (4); a control fluid inlet; a working fluid channel (6) which connects the working fluid inlet (4) to an outlet (5) by means of the two valve units (2, 3); a respective valve piston (9, 10) which is arranged within each valve cylinder (7, 8) of the first and second valve unit (2, 3) and which can be moved between an open position and a closed position; a respective spring element (11, 12) which biases the first and second valve piston (9, 10) towards the closed position; and a respective control pressure chamber (13, 14) which is connected to the control fluid inlet for applying a control pressure to each valve piston (9, 10), said control pressure counteracting the bias of the spring element (11, 12); wherein the first valve unit (2) is produced such that the first valve piston (9) is moved from the closed position to the open position when a control pressure is applied in the first control pressure chamber (13), and two opposite valve surfaces (16, 17) which are angled relative to each other are arranged on the surface of the valve cylinder (8) and the valve piston (10) so as to extend along the movement direction (V) in the second valve unit (3) in a blocking and control region (15) of the working fluid channel (6) such that the valve surfaces (16, 17) form a valve opening that is opened to varying widths when the valve piston (10) is moved in the valve cylinder (8) as a result of a changing control pressure, and the working pressure can be finely adjusted on the basis of the control pressure according to the valve opening.

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