

Title (en)  
ELECTROMAGNETIC DRIVING DEVICE

Publication  
**EP 0170894 B1 19890503 (DE)**

Application  
**EP 85108351 A 19850705**

Priority  
DE 3426688 A 19840719

Abstract (en)  
[origin: EP0170894A1] 1. Electromagnetic drive arrangement having a permanent magnet (10 ; 32) arranged in a movable manner between two magnet poles (1, 2 ; 22, 23) and an actuating element (9 ; 33), which is connected with the permanent magnet (10 ; 32), for a mechanical switching operation, - in which the two magnet poles (1, 2 ; 22, 23) are arranged with fixed spacing in respect of each other, said spacing limiting the range of movement of the permanent magnet (10 ; 32), are connected by a return yoke (3 ; 27) and can be excited electrically in like manner by means of an excitation coil (6, 7 ; 24, 25) which consists of two identical half-coils, - in which there is arranged centrally and laterally outside the clear space between the two magnet poles (1, 2 ; 22, 23) a third magnet pole (4, 26) which is connected with the return yoke (3 ; 27) and can be excited in unlike manner in respect of the two first-mentioned magnet poles (1, 2 ; 22, 23) in that the two half-coils of the excitation coil (6, 7 ; 24, 25) are arranged on both sides of the connecting point of the third magnet pole (4 ; 26) with the return yoke (3 ; 27) and can be excited in opposite senses, - in which the permanent magnet has on the two sides facing the two first-mentioned magnet poles, in each case, a plate (11, 12 ; 30, 31) of ferromagnetic material. - in which the permanent magnet (10 ; 32), including the two plates (11, 12 ; 30, 31), has a thickness which is greater than the sum of half the spacing of the two first-mentioned magnet poles (1, 2 ; 22, 23) and half the width of the third magnet pole (4 ; 26) lying in the direction of adjustment of the permanent magnet (10 ; 32), - and an air gap (13) exists between the permanent magnet (10 ; 32) and the third magnet pole (4 ; 26) characterized in that the actuating element (9), which is connected with the permanent magnet (10), is provided with at least one control element (21) for opening and closing a control opening conducting a fluid, - in that the thickness of the permanent magnet (10) is greater than the width of the third magnet pole (5) in the direction of adjustment of the permanent magnet (10), - in that the thickness of each plate (11, 12) arranged on the permanent magnet (10) is at most equal to that width of the third magnet pole (5) in the direction of adjustment of the permanent magnet - and in that in the two end positions of the permanent magnet (10) the projection of a plate (11, 12) over the corresponding outer edge of the third magnet pole (5) amounts to at most 7.5 % of the thickness of this plate.

IPC 1-7  
**H01F 7/16**

IPC 8 full level  
**H01F 7/16** (2006.01); **H01F 7/122** (2006.01)

CPC (source: EP)  
**H01F 7/14** (2013.01); **H01F 7/1615** (2013.01); **H01F 7/1646** (2013.01); **H01F 7/122** (2013.01); **H01F 2007/1692** (2013.01)

Cited by  
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