

Title (en)

VALVE APPARATUS FOR CONTROLLING A FLUID FLOW THROUGH A DUCT OR OPENING

Title (de)

VENTILVORRICHTUNG ZUR STEUERUNG EINES FLUIDSTROMS DURCH EINEN KANAL ODER EINE ÖFFNUNG

Title (fr)

APPAREIL À SOUPAPE POUR RÉGULER UN FLUX DE FLUIDE À TRAVERS UN CONDUIT OU UNE OUVERTURE

Publication

**EP 4047249 A1 20220824 (EN)**

Application

**EP 21158183 A 20210219**

Priority

EP 21158183 A 20210219

Abstract (en)

Valve apparatus for controlling fluid flow through a duct or opening, the valve apparatus comprising:• a valve seat body (2) having a valve seat hole (3) being configured to allow the fluid to flow through it,• a damper body (4) for closing the valve seat hole (3),• wherein the valve seat body (2) and the damper body (4) are movable relative to each other between an open configuration and a closed configuration, wherein in the open configuration the fluid may flow through the valve seat hole and in the closed configuration the damper body interacts with the valve seat body in a sealing manner such that the fluid may not flow through the valve seat hole,• wherein the valve seat hole has a hole contour formed by a hole edge (5) and the damper body has a damper contour formed by a damper edge (6), the hole edge and the damper edge being configured to interact with each other in the sealing manner thereby forming a circumferential sealing line having a circumferential sealing length,• wherein the hole contour has a plurality of hole protuberances (7) and the damper contour has a plurality of damper protrusions (8), so that the circumferential sealing length is larger than a reference length being defined by a length of a circumference of an equal area circle (EAC) having an area equal to an area of the valve seat hole (3),• wherein the valve apparatus comprises a solenoid actuator (9) having an actuator rod (10) for transmitting an actuator force, the solenoid actuator being mounted for moving the damper body relative to the valve seat body towards the closed or open configuration, and• wherein force transmission means (11) are arranged between the actuator rod and the damper body, the force transmission means being configured to apply a closing force to the damper body that is larger than the actuator force.

IPC 8 full level

**F16K 1/36** (2006.01); **B61D 27/00** (2006.01); **F16K 1/42** (2006.01); **F16K 31/06** (2006.01); **F16K 31/10** (2006.01); **F24F 13/10** (2006.01)

CPC (source: EP)

**B61D 27/0009** (2013.01)

Citation (search report)

- [Y] JP S4992048 U 19740809
- [Y] DE 2315626 A1 19741010 - BRAUKMANN ARMATUREN
- [Y] DE 102014204160 A1 20150910 - BOSCH GMBH ROBERT [DE]
- [Y] DE 4438250 A1 19960502 - BOSCH GMBH ROBERT [DE]
- [Y] US 4557185 A 19851210 - HARRIMAN RONALD M [US]
- [A] CN 108386585 A 20180810 - ZHUHAI LIGAO SEIKO MFG CO LTD, et al
- [A] DE 10162604 B4 20040226 - DANFOSS AS [DK]
- [A] EP 0704363 A1 19960403 - FAIVELEY TRANSPORT [FR]

Designated contracting state (EPC)

AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO RS SE SI SK SM TR

Designated extension state (EPC)

BA ME

DOCDB simple family (publication)

**EP 4047249 A1 20220824; EP 4047249 B1 20240508; EP 4047249 C0 20240508**

DOCDB simple family (application)

**EP 21158183 A 20210219**