

Title (en)

SPRING ELEMENT AND CORRESPONDING PISTON PUMP FOR DELIVERING FLUIDS

Title (de)

FEDERELEMENT UND KORRESPONDIERENDE KOLBENPUMPE ZUR FÖRDERUNG VON FLUIDEN

Title (fr)

ÉLÉMENT ÉLASTIQUE ET POMPE À PISTON CORRESPONDANTE POUR LE REFOULEMENT DE FLUIDES

Publication

**EP 2665932 A1 20131127 (DE)**

Application

**EP 11785681 A 20111122**

Priority

- DE 102011002982 A 20110121
- EP 2011070687 W 20111122

Abstract (en)

[origin: WO2012097901A1] The invention relates to a spring element (10), in particular for a piston pump, having a disc-shaped basic body (11), in which at least one spring bridge (16) is inserted. According to the invention, in order to throttle a fluid flow (8), the basic body (11) has at least one dynamic throttle point (14), wherein the basic body (11) is of resilient configuration in the region of the at least one throttle point (14), with the result that the opening cross section of the at least one throttle point (14) can be set variably depending on a pressure difference.

IPC 8 full level

**F04B 1/04** (2006.01); **B60T 8/40** (2006.01); **F04B 11/00** (2006.01); **F04B 39/10** (2006.01); **F04B 53/10** (2006.01); **F16K 47/08** (2006.01)

CPC (source: EP KR US)

**B60T 8/40** (2013.01 - KR); **B60T 8/4031** (2013.01 - EP US); **B60T 8/4068** (2013.01 - EP); **F04B 1/04** (2013.01 - KR);  
**F04B 1/0404** (2013.01 - EP US); **F04B 11/00** (2013.01 - KR); **F04B 11/0033** (2013.01 - EP); **F04B 11/0091** (2013.01 - EP US);  
**F04B 39/10** (2013.01 - EP KR); **F04B 49/225** (2013.01 - US); **F04B 53/10** (2013.01 - EP KR); **F04B 53/1077** (2013.01 - US);  
**F16K 15/046** (2013.01 - US); **F16K 17/0493** (2013.01 - US); **F16K 47/08** (2013.01 - KR); **G05D 7/012** (2013.01 - US);  
**F04B 2205/172** (2013.01 - US)

Citation (search report)

See references of WO 2012097901A1

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

DOCDB simple family (publication)

**WO 2012097901 A1 20120726**; CN 103314213 A 20130918; CN 103314213 B 20160817; DE 102011002982 A1 20120726;  
DE 102011002982 B4 20220525; EP 2665932 A1 20131127; JP 2014509373 A 20140417; JP 5681816 B2 20150311;  
KR 20130141650 A 20131226; US 2014030125 A1 20140130; US 9394898 B2 20160719

DOCDB simple family (application)

**EP 2011070687 W 20111122**; CN 201180065468 A 20111122; DE 102011002982 A 20110121; EP 11785681 A 20111122;  
JP 2013549733 A 20111122; KR 20137019113 A 20111122; US 201113978808 A 20111122