

Title (en)

DOWNHOLE ACTUATION BALL, METHODS AND APPARATUS

Title (de)

BOHRLOCHBETÄTIGUNGSKUGEL, VERFAHREN DAFÜR UND VORRICHTUNG DAMIT

Title (fr)

BILLE D'ACTIONNEMENT DE FOND DE TROU, PROCÉDÉS ET APPAREIL

Publication

**EP 2766560 A4 20150826 (EN)**

Application

**EP 12840174 A 20121004**

Priority

- US 201161545860 P 20111011
- CA 2012050704 W 20121004

Abstract (en)

[origin: WO2013053055A1] An actuation ball for a downhole tool, the actuation ball includes a ball body having an outer surface defining a seating surface with a substantially circular shape in section encircling an axis of the actuation ball; and a flexible protrusion attached to the ball body and extending substantially coaxially relative to the seating surface. Another actuation ball for a downhole tool, the actuation ball includes a body having an outer surface defining a seating surface, the body having a specific gravity less than 2.6.

IPC 8 full level

**E21B 23/10** (2006.01); **E21B 34/00** (2006.01); **E21B 34/14** (2006.01)

CPC (source: EP US)

**E21B 34/00** (2013.01 - US); **E21B 34/142** (2020.05 - EP US); **E21B 43/12** (2013.01 - US); **E21B 2200/06** (2020.05 - EP US)

Citation (search report)

- [X] US 5611671 A 19970318 - TRIPP JR RALPH N [US]
- [I] WO 2008146012 A2 20081204 - CHURCHILL DRILLING TOOLS LTD [GB], et al
- [I] EP 2333232 A2 20110615 - CORPRO SYSTEMS LTD [GB]
- [I] WO 2010127457 A1 20101111 - PACKERS PLUS ENERGY SERVICES I [CA], et al
- See also references of WO 2013053055A1

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)

**WO 2013053055 A1 20130418**; CA 2852779 A1 20130418; EP 2766560 A1 20140820; EP 2766560 A4 20150826; US 2014332231 A1 20141113

DOCDB simple family (application)

**CA 2012050704 W 20121004**; CA 2852779 A 20121004; EP 12840174 A 20121004; US 201214350936 A 20121004