

Title (en)  
Double-acting cylinder

Title (de)  
Doppeltwirkender Arbeitszylinder

Title (fr)  
Vérin à double effet

Publication  
**EP 1403530 A3 20041124 (DE)**

Application  
**EP 03450214 A 20030924**

Priority  
AT 14352002 A 20020925

Abstract (en)  
[origin: EP1403530A2] A dual-action hydraulic cylinder has a piston (4) with a hollow piston rod (7) emerging through a cap (5, 6, 9) at each end. The hollow piston rod incorporates an enclosed gas spring (12) which acts on the rod and cylinder base (1). The gas spring (12) is located within a coaxial separation pipe (3) and fixed to the base (1).

IPC 1-7  
**F15B 15/14; F15B 11/072**

IPC 8 full level  
**F15B 15/14** (2006.01)

CPC (source: EP)  
**F15B 15/1476** (2013.01)

Citation (search report)  
• [AD] AT 406600 B 20000626 - HYGRAMA AG [CH]  
• [A] DE 3017403 A1 19811112 - STABILUS GMBH [DE]  
• [AD] GB 1586577 A 19810318 - COLT INT LTD  
• [A] FR 2638828 A1 19900511 - CYBERNETIX [FR]  
• [AD] EP 1225345 A1 20020724 - HOERBIGER HYDRAULIK [DE]

Cited by  
EP1916427A3; WO2011130863A3; US11584187B2

Designated contracting state (EPC)  
AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HU IE IT LI LU MC NL PT RO SE SI SK TR

DOCDB simple family (publication)  
**EP 1403530 A2 20040331; EP 1403530 A3 20041124; EP 1403530 B1 20060510**; AT 412114 B 20040927; AT A14352002 A 20040215; DE 50303274 D1 20060614

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