

Title (en)  
Two-step telescopic cylinder

Title (de)  
Zweistufen-Teleskopzylinder

Title (fr)  
Cylindre télescopique à deux étages

Publication  
**EP 2058528 A2 20090513 (EN)**

Application  
**EP 08167038 A 20081020**

Priority  
JP 2007289374 A 20071107

Abstract (en)  
A two-step telescopic cylinder 5 of the present invention is provided with a piston rod 11, an inner cylinder tube 12, an outer cylinder tube 13, an inner extension oil chamber 17, an outer extension oil chamber 18, an inner stowage oil chamber 19 and an outer stowage oil chamber 20. The inner extension oil chamber and the outer extension oil chamber do not communicate with each other, and the inner stowage oil chamber and the outer stowage oil chamber communicate with each other. A first oil path 25 communicating with the inner extension oil chamber, a second oil path 26 communicating with the outer extension oil chamber and a third oil path 27 communicating with the inner stowage oil chamber are formed in the piston rod so as not to communicate with each other. A communication line 28 is provided in a bottom portion of the inner cylinder tube. One end of this communication line is inserted into the second oil path. When the piston rod and the inner cylinder tube relatively perform an extension action, insertion length of the communication line into the second oil path is accordingly changed. Size of the two-step telescopic cylinder of the present invention is small so as to enhance usability.

IPC 8 full level  
**F15B 15/16** (2006.01)

CPC (source: EP)  
**F15B 15/149** (2013.01); **F15B 15/16** (2013.01)

Citation (applicant)  
• JP 2002070809 A 20020308 - KOMATSU MFG CO LTD  
• JP 2618768 B2 19970611

Cited by  
CN111017783A; CN112503055A; CN102852133A; CN101806315A; CN112320635A; CN102562709A; CN102678654A; EP3199485A3; CN107021424A; ITUB20160363A1; CN110296123A; AU2016269490B2; US10017363B2

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