

Title (en)  
HYDRAULIC DEVICE

Title (de)  
HYDRAULIKVORRICHTUNG

Title (fr)  
DISPOSITIF HYDRAULIQUE

Publication  
**EP 1600642 A1 20051130 (EN)**

Application  
**EP 04716722 A 20040303**

Priority  
• JP 2004002660 W 20040303  
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Abstract (en)  
A fluid pressure apparatus is obtained whose installation position is not restricted. The fluid pressure apparatus is provided with a fluid pressure pump (1) driven by an electric motor (6) and rotatable in both directions. Both ports of the fluid pressure cylinder are respectively connected to both ports of a fluid pressure pump (1) through a pair of pipe lines. A sliding cavity (38) is formed between an outer cylinder (32) and the inner cylinder (34), and is divided into a preload chamber (50) and a tank chamber (18) by the piston (44) slidably inserted in the sliding cavity (38). The tank chamber (18) and the pair of pipe lines are connected through check valves respectively provided in directions so as to allow discharge from the tank chamber (18). The tank chamber (18) is preloaded with air pressure introduced into the preload chamber (50). In addition, a fluid pressure pump (1) is disposed in the inner cylinder (34). The fluid pressure pump (1) is a swash plate piston pump. The outer cylinder (32) and the inner cylinder (34) are arranged coaxially with the rotating shaft 42 of the electric motor (6). The outer cylinder (32) and the inner cylinder (34) are mounted on the electric motor (6). <IMAGE>

IPC 1-7  
**F15B 11/08**; **F15B 15/18**

IPC 8 full level  
**F15B 11/08** (2006.01); **F04B 23/02** (2006.01); **F15B 7/10** (2006.01); **F15B 15/18** (2006.01)

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**US 2005175467 A1 20050811**; DE 602004017135 D1 20081127; EP 1600642 A1 20051130; EP 1600642 A4 20070704; EP 1600642 B1 20081015; JP 2004263806 A 20040924; KR 20050105971 A 20051108; WO 2004079205 A1 20040916

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