

Title (en)  
Multistage centrifugal pump

Title (de)  
Mehrstufige Zentrifugalpumpe

Title (fr)  
Pompe centrifuge à plusieurs étages

Publication  
**EP 0947701 B1 20041110 (DE)**

Application  
**EP 98810274 A 19980330**

Priority  
EP 98810274 A 19980330

Abstract (en)  
[origin: EP0947701A1] The running wheel (9) formed as a hollow shaft (6) is located on the drive shaft (5) and rotates at a speed  $n_2$  different to that  $n_1$  of the drive shaft. The hollow shaft is driven by a mechanical convertor, which takes mechanical power from the drive shaft in the housing (1) and imparts the different speed to the hollow shaft, so that the speed of the first running wheel which is lower produces a lower net positive suction head value for the multistage pump. The mechanical convertor is a gearwheel gear.

IPC 1-7  
**F04D 1/06**; **F04D 29/66**

IPC 8 full level  
**F04D 1/06** (2006.01); **F04D 13/02** (2006.01); **F04D 29/22** (2006.01); **F04D 29/66** (2006.01)

CPC (source: EP US)  
**F04D 1/06** (2013.01 - EP US); **F04D 13/021** (2013.01 - EP US); **F04D 13/028** (2013.01 - EP US); **F04D 29/2277** (2013.01 - EP US);  
**F04D 29/669** (2013.01 - EP US)

Cited by  
CN102606523A

Designated contracting state (EPC)  
DE FR GB

DOCDB simple family (publication)  
**EP 0947701 A1 19991006**; **EP 0947701 B1 20041110**; DE 59812247 D1 20041216; US 6179553 B1 20010130

DOCDB simple family (application)  
**EP 98810274 A 19980330**; DE 59812247 T 19980330; US 27340099 A 19990322