

Title (en)  
AXIAL THRUST REDUCING DEVICE FOR PUMPS

Publication  
**EP 0121053 B1 19870520 (EN)**

Application  
**EP 84101200 A 19840206**

Priority  
JP 3450883 A 19830304

Abstract (en)  
[origin: EP0121053A1] A thrust load reducing device of a pump unit including a pump section (P) having a main impeller (1), a motor section (M) for driving the impeller (1), a thrust disc (7) serving concurrently as an auxiliary impeller located at one end of a motor shaft (4) in the motor section (M) for supplying motor cooling water flowing in circulation to the motor section (M), and thrust bearings (10A, 10B) mounted on an inner surface of the casing (3) in positions in which they are juxtaposed against a front surface of the thrust disc (7) located on its suction side and a rear surface of the thrust disc (7) located on its discharge side, respectively. The thrust load reducing device includes a first fine gap defining member (12) located on the inner surface of the casing (3) and cooperating with an outer peripheral surface of the thrust disc (7) to define therebetween a first fine gap (G1) constituting a passage for a fluid discharged by the thrust disc (7) and returning thereto in return flow.

IPC 1-7  
**F04D 29/04**

IPC 8 full level  
**F04D 15/00** (2006.01); **F04D 7/08** (2006.01); **F04D 29/04** (2006.01)

CPC (source: EP)  
**F04D 29/0413** (2013.01); **F04D 29/0416** (2013.01)

Cited by  
US5340272A; US6071091A; CN103195745A; US5531564A; CN111998005A; CN110454509A; US7820761B2; US7612143B2; US7785082B2; WO9010161A1; WO2007104526A1; WO9941505A1

Designated contracting state (EPC)  
AT DE GB

DOCDB simple family (publication)  
**EP 0121053 A1 19841010; EP 0121053 B1 19870520**; AT E27341 T1 19870615; DE 3463824 D1 19870625; JP S59160093 A 19840910; JP S626119 B2 19870209

DOCDB simple family (application)  
**EP 84101200 A 19840206**; AT 84101200 T 19840206; DE 3463824 T 19840206; JP 3450883 A 19830304