Title (en)

PACKAGED STRAIN ACTUATOR

Title (de)

GEHÄUSTER ZUGAKTUATOR

Title (fr)

ENSEMBLE ACTIONNEUR D'EXTENSION

Publication

EP 1159768 A1 20011205 (EN)

Application

EP 00914695 A 20000225

Priority

- US 0004774 W 20000225
- US 26147599 A 19990226
- US 30013799 A 19990427

Abstract (en)

[origin: WO0051190A1] A modular actuator assembly includes one or more plates or elements of electro-active material bonded to an electroded sheet, preferably by a structural polymer to form a card. The card is sealed, and may itself constitute a practical device, such as a vane, shaker, stirrer, lever, pusher or sonicator for direct contact with a solid or immersion in a fluid, or may be bonded by a stiff adhesive to make a surface-to-surface mechanical coupling with a solid workpiece, device, substrate machine or sample. The structural polymer provides a bending stiffness such that the thin plate does not deform to its breading point, and a mechanical stiffness such that shear forces are efficiently coupled from the plate to the workpiece. In further embodiments, the card may include active circuit elements for switching, powering or processing signals, and/or passive circuit elements for filtering, matching or damping signals, so that few or no connection to outside circuitry are required. The actuator assembly can be manufactured in quantity, to provide a versatile actuator with uniform mechanical and actuation characteristics, that introduces negligible mass loading to the workpiece. The cards themselves may be arranged as independent mechanical actuators, rather than strain-transfer actuators, in which the induced strain changes the position of the card. Various arrangements of pinned or cantilevered cards may act as a pusher, bender or other motive actuator, and structures such as powered bellows may be formed directly by folding one or more suitably patterned cards.

IPC 1-7

H01L 41/09

IPC 8 full level

H01L 23/12 (2006.01); **G03F 7/20** (2006.01); **H02N 2/00** (2006.01); **H10N 30/20** (2023.01)

CPC (source: EP)

G03F 7/70725 (2013.01); **H10N 30/204** (2023.02); **H10N 30/2041** (2023.02); **H10N 30/2042** (2023.02); **H10N 30/2044** (2023.02); **H10N 30/208** (2023.02); **H10N 30/87** (2023.02); **H10N 30/88** (2023.02)

Designated contracting state (EPC)

AT BE CH CY DE DK ES FI FR GB GR IE IT LI LU MC NL PT SE

DOCDB simple family (publication)

WO 0051190 A1 20000831; BR 0008500 A 20030225; CA 2363949 A1 20000831; EP 1159768 A1 20011205; JP 2003527046 A 20030909

DOCDB simple family (application)

US 0004774 W 20000225; BR 0008500 A 20000225; CA 2363949 A 20000225; EP 00914695 A 20000225; JP 2000601697 A 20000225