



⚙️ Title

COMPLIANT MINI-GRIPPER WITH HIGH FLEXIBILITY

⚙️ Inventor/s - Contact

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⚙️ Short presentation

The compliant minigripper (1) with piezoelectric actuator type stack (2), is made with ten flexible couplings (4), identical, with rectangular profile with fillets, arranged symmetrically on the single-block structure, having attached piezoelectric actuators of type band (3) to the clamping kinematic elements (6). The flexible couplings (4) are made by thinning the section of kinematic elements (5), so as to ensure the movement by elastic deformation of the material from which they are made. The body of the compliant mini-gripper (1) is operated by the piezoelectric actuator (2), positioned on the symmetry axis of the structure, which by means of flexible couplings (4) and kinematic elements (5), transmit movement to the clamping kinematic elements (6), which perform the manipulation of objects. The piezoelectric actuators type band (3) fixed to the clamping kinematic elements (6) allow the extension of the workspace. The attachment of the assembly is carried out by the fastening holes (7), which are positioned in such a way that both the piezoelectric actuator and the mini-gripper frame ensure optimal operation.

⚙️ Applicability

The compliant minigripper with high flexibility is used for precise handling of small objects in mini and microsystem-specific applications, micromanipulation of various shapes objects in different environments. By modifying the geometric shape of the flexible couplings (elliptical, rectangular, parabolic, circular or rectangular with different fillet radii), the choice of the material from which the compliant minigripper is made (steel, brass, polymethylmethacrylate, polytetrafluorethylene, etc.), as well as by the variation of the supply voltage of piezoelectric actuators ensures a wider range of manipulated objects and its use in different environments.

⚙️ Images

