7.4 Handling and operating

- When the mechanical partner can readjust itself by a free suspension (floating axis) according actuator's plane face, no problems will occur.

- Coupling of piezo-actuators to guided mechanisms (axis orientation not floating):
  One of most widespread design mistake is coupling a plain-faced actuator directly to a plainfaced guided mechanism (fig. 7.3). Even the slightest misalignment between the orientations of the both plains leads immediately to edge squeezing with very high local spot pressures and subsequent ceramic damaging (fig. 7.1) especially under high force loaded conditions.

In a similar way, the plain-plain coupling of an axially acting stack with a rotating lever arrangement will lead to a fundamental edge squeezing situation in any case (fig. 7.4).

In the above cases, it is a must to decouple the axis orientations by using spherical / plain coupling or flex hinges or other means!

- The above requirements are valid at any time and any state of the system during set up and operation.

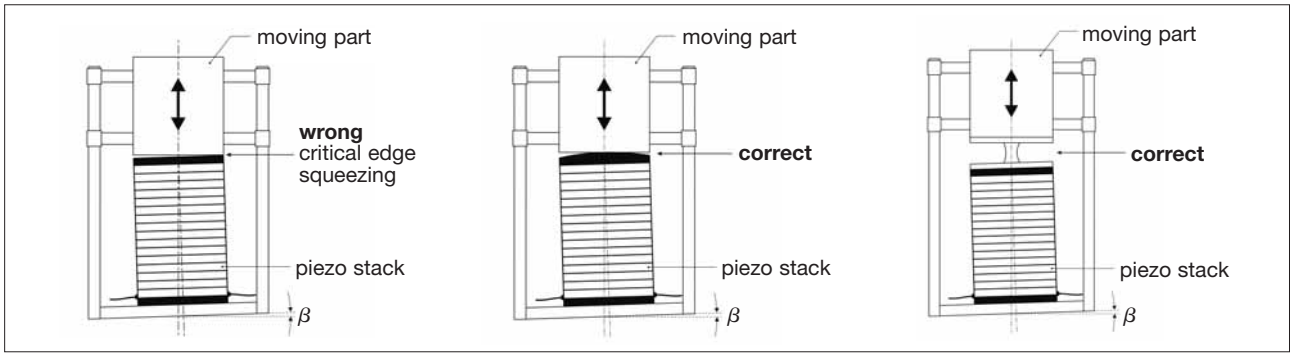

Fig. 7.3: *In correct/correct coupling of linear guided mechanics*

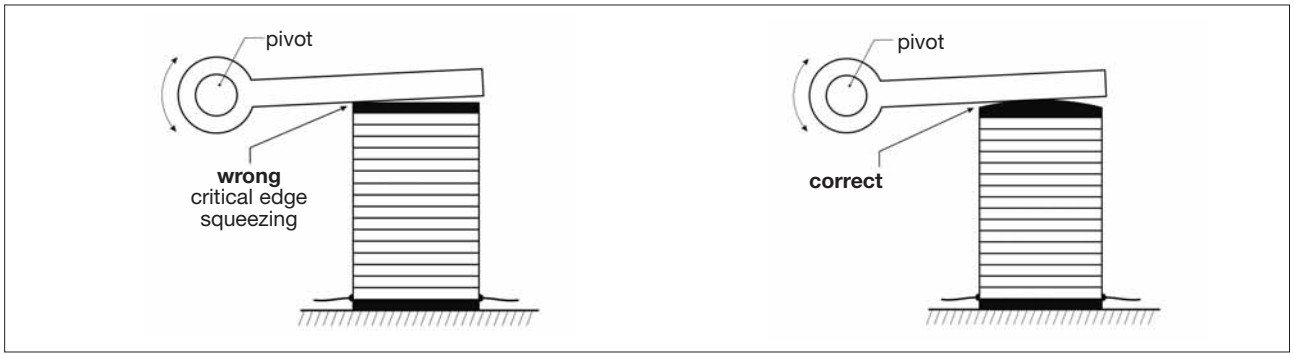

Fig. 7.4: *Incorrect/correct coupling of a rotating mechanism*