



## Micromechanical precision silicon weight sensor

### Solution and its benefits

The weight sensor has an elastically suspended upper electrode and a lower electrode. The upper electrode, or a structure connected to it, acts as a pan surface. A device keeps the electrodes at a constant spacing, irrespective of a mass being weighed. The mass can be resolved from a feedback signal.

### Competitive advantage

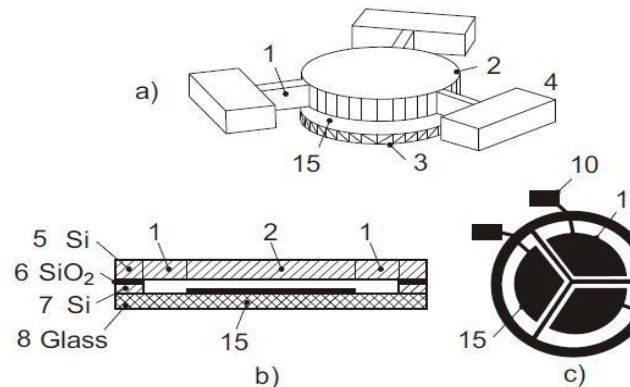
Has improved stability and small size. Can measure one gram with an accuracy of one millionth part per gram, or better.

### Technical description

At least one electrode is divided into at least two areas, to electrically control the electrode surfaces, so that they remain parallel, by separately adjusting the force on each partial electrode surface. The upper electrode is suspended on three symmetrical radial beams (1). The beams act as springs, yielding elastically vertically. The other ends of the beams are connected to a silicon substrate (4). The lower electrode (15) is circular. The device is formed by bonding a micromachined substrate on a glass plate (8), on which the lower electrode is patterned.

### Intellectual property rights

- OJA A; SEPPÄ H; SILLANPÄÄ T: MICROMECHANICAL PRECISION SILICON SCALE,
- Priority date: 19981230
- WO 9967605 A1, FI 9802832 A, FI 105237 B1, US 6513388 B1
- IPC RECLASSIF.: G01G0003-00 [I,C]; G01G0003-12 [I,A]; G01G0007-00 [I,C]; G01G0007-06 [I,A]



### Why partner with VTT?

#### 10 reasons for technology partnering with VTT

1. Key factor in Finland's success story with a track record to prove it
2. Licensing and co-venturing opportunities
3. Portfolio of more than 1,000 patents and inventions
4. New business and product concepts based on strong IP and world class research
5. Combined experience of more than 2,000 motivated researchers in eight focused areas of technology
6. Active member in hundreds of scientific & business communities
7. Excellent track record as coordinator and partner in EU projects
8. Collaboration with TOP 50 R&D companies in Finland
9. Global R&D partnership with 50 Fortune 500 companies
10. Market driven multi-disciplinary solutions

### Additional information

VTT Technical Research Centre of Finland  
 Timo Joutseonoja  
 Business Development Manager  
 Tel: +358 20 722 3009  
 timo.joutsenoja@vtt.fi  
 P.O. Box 1300, FI-33101 Tampere, Finland