

Mainstream MEMS

Applied Materials
MEMS Equipment Solutions

Enabling the enabler...



think it. apply it.™

MEMS Industry Trends



MEMS Equipment Market to exceed \$500M by 2012

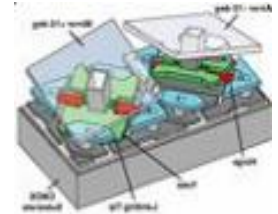
- Production volume is ramping
- Device complexity is growing with increased functionality
- Yield and device lifetimes become increasingly important as price sensitivity rises

Device and Process Complexity

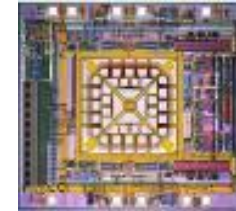


(Bulk Pressure Sensor)

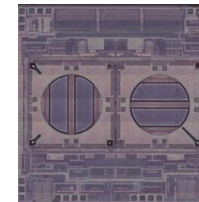
1990's



Texas Instruments
(MEMS Mirrors)



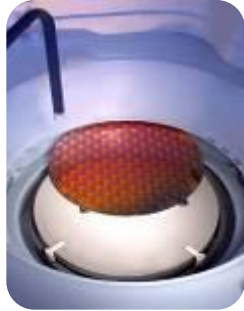
MEMSIC
(CMOS MEMS Accelerometer)



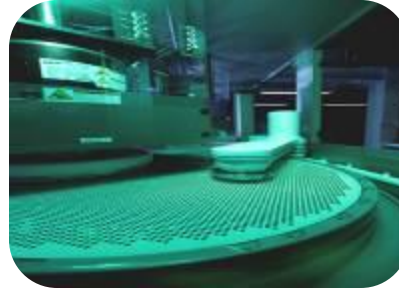
InvenSense
(MEMS Gyro)

. 2010 & Beyond

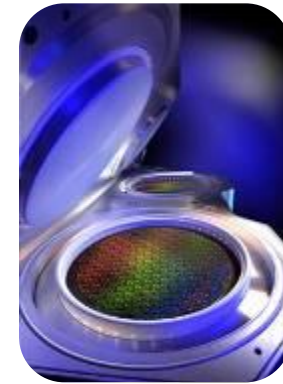
MEMS Equipment Portfolio



HFv Release Etch
(HF/IPA Batch Process)



CMP
(Wafer Flatness Control,
End Point Detection)



CVD
(Low Stress, Thick Films)



DRIE
(Etch Rate, Uniformity and
Sidewall Profile)



PVD
(High Throughput, Low
Temp Processes)



Metrology
(Deep Trench and Sidewall
Profile Inspection)

We offer a complete MEMS equipment solution...and continue to expand our portfolio to support critical MEMS processes in R&D and production

MEMS R&D At Applied Materials



New Materials Under Development



**Amorphous Silicon
& Silicon Germanium**
(CMOS Integration)

Silicon Carbide
(Harsh Environments)

Thick Aluminum
(High Power)



Aluminum Nitride
(RF and Mechanical)

Applied's Partners in MEMS R&D



MEMS INDUSTRY GROUP™





think it. apply it.™

APPLIED MATERIALS.