



SEMICONDUCTOR INDUSTRY

SEMICONDUCTOR VACUUM WAFER TRANSFER ROBOT

■ The Situation

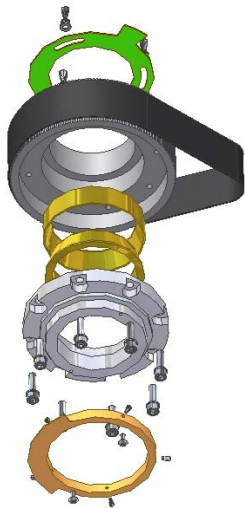
A leading manufacturer of semiconductor factory automation was presented with a significant revenue opportunity if they could quickly cost reduce their vacuum robot design. This would require a total redesign of the mechanisms below the mounting plate. Time was critical as an evaluation unit needed to be installed within 10 weeks.

■ The Challenge

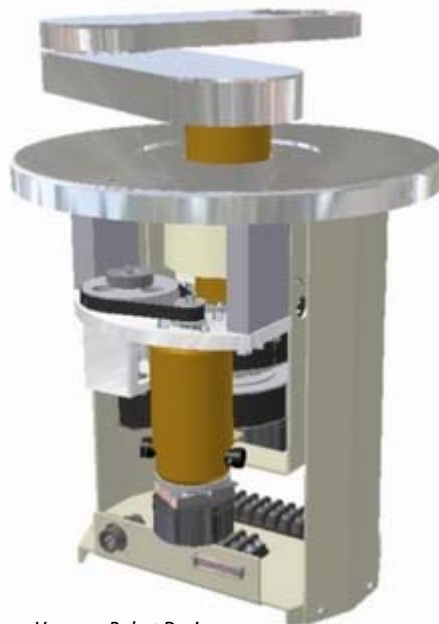
The challenges presented by designing for a vacuum environment are substantial. A ferrofluidic coupling was desired to simplify the power transmission into the vacuum environment, yet none were available to meet both cost and leadtimes. Due to competitive pressures, product cost was extremely aggressive, requiring an innovative approach to drive design.

■ The Solution

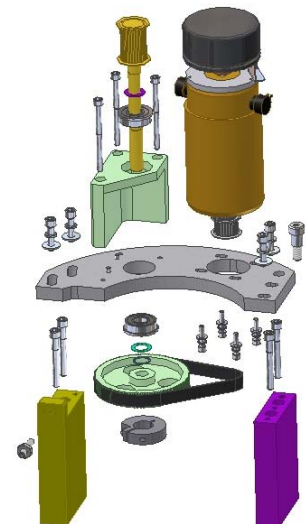
Owens Design delivered the first unit to our customer for evaluation within the necessary leadtime. Cost was reduced by mirroring the drive assemblies which increased quantities and reduced assembly times. The vacuum arm design was retained from the original robot minimizing the risk of the new unit. Owens Design worked closely with a ferrofluidic manufacturer to modify their design to meet the cost and leadtime requirements.



Exploded View



Vacuum Robot Design



Exploded View