

Industry Trends and News

High Tech Isn't Always High Tech

There is an inherent difficulty in the valuation of certain high tech manufacturing equipment. The difficulty lies with the fact that such cutting-edge technology can transform amazingly fast, leaving modern, once-valuable pieces of equipment worth a tiny fraction of their original cost. Traditional methods of ascertaining value such as replacement cost analysis, comparison sales evaluation, or investment approaches need to be applied with great caution due to the unique circumstances of these types of assets.

Semiconductor manufacturing facilities and equipment present an excellent example of the dynamic circumstances affecting value. Semiconductors are produced by processing round silicon wafers upon which multiple individual semiconductors are arrayed. The size of these wafers typically is 100 mm, 150 mm, 200 mm and up to the current state of the art 300 mm.

Manufacturers generally concentrate production in a single wafer size. Processing equipment, as well as precise carriers and handling equipment, are all designed to process very specific wafer sizes. The individual machines are extremely expensive, often in excess of several million dollars each. The capacities of ancillary equipment such as de-ionized water sources, heaters, chillers, humidifiers, chemical handling equipment and waste treatment equipment are all sized for the requirements of these individual machines.

Change of industry standard wafer size is the subject of intense research and development, with large sums of money invested into the development of next generation (larger) wafer sized equipment. Trade associations, equipment builders, and semiconductor manufacturers all play an active role in moving this process of ever-expanding wafer sizes along.

Historically the wafer size transitions have occurred on average every ten years. Upon the development of reliable equipment and process designs, manufacturers shift their production to

the new sized machinery. Production and support of the older (smaller) equipment versions declines due both to shifted demand and reduced economic feasibility of that equipment. Resale values of individual machines falls off precipitously at that point. For valuation purposes it is critically important to evaluate both where the industry is currently situated along the evolutionary curve, and where the specific equipment in question fits in along that curve.

Due to the extremely precise nature of high tech manufacturing, with clean rooms and sophisticated facilities, individual machines are maintained in excellent condition, often appearing brand new. Standard appraisal “condition” definitions are modified to include both physical condition and the technological status of each unit evaluated. A production facility may appear very sophisticated and up to date while actually being several generations behind the industry standard. A professional equipment valuation must include a thorough discussion of the technological status of the facility relative to its industry in order to present accurate values.

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