APPLIED iDURABLES™

DURABLE MANAGEMENT SYSTEM

An automated durable management system that tracks and manages durables throughout their life cycle, resulting in improved asset utilization.

iDurables

Industries

> Semiconductor wafer manufacturing
> Semiconductor assembly and test
> Display manufacturing

Features

> Reticle count, location, status and activity tracking
> Cycle monitoring for preventative maintenance
> User configurable state models for each durable type
> Web-based services for accessing up-to-date durable information
> Out-of-the-box reporting

Benefits

> Improves quality control and reduces scrap through prescheduled, event-based durable maintenance
> Increases production yield and throughput to meet "delivery-to-promise" commitments
> Alleviates redundant inspection and qualification steps
> Improves staging decisions by making durable compatibility more visible
> Consolidates staging resources
> Improves management of tool usage and line balance

Challenges

In today's complex manufacturing facilities, improving asset utilization is critical to reducing costs. Durables such as reticles, probe cards, pumps and AMHS assemblies impact yield, represent a significant investment and require maintenance over the course of their life times.
Various assemblies requiring complex maintenance may need state models developed to track cycles or hours in operation. Without counters correctly associated with durables for tracking usage, monitoring is less effective. And manually tracking durables inside and outside a facility leads to extensive overhead, further increasing costs.

This complexity can only be managed through a more cost effective and real-time durable management solution capable of ensuring that critical production assets run at peak efficiency.

Solution Description

Applied iDurables is an off-the-shelf durables management system that allows users to define a state model to track and manage the life cycle of any durable. It automates durable management by providing accurate, real-time location updates, quality control and state transitions.

FAMILY ASSOCIATIONS. A major advantage of iDurables is its ability to define families. Engineers can associate specific durables within a family to a preferred piece of equipment. This is particularly useful in cases where several durables, such as reticles or probe cards, can be used interchangeably. If engineering can outline a higher yield with a specific reticle, operators who are staging reticles can easily identify the optimal reticle and make sure that it is ready for use.

POWERFUL STATE MODELING TOOLS. iDurables modeling tools allow engineers to easily configure a state model for each type of durable, without any programming. State models allow engineers to track cycles or events that affect the durable along with hours in operation.
These models help engineers take quick and appropriate action when certain criteria are met. State change conditions can be based on equipment locations or by evaluating analytic values such as statistical process control (SPC). A state change can be triggered by simply moving a durable from one location to another.

iDurables ensures that critical production assets are managed to gain optimum efficiency. You can define state models for each type of durable, track reticle count, location and status, and easily integrate with factory systems.

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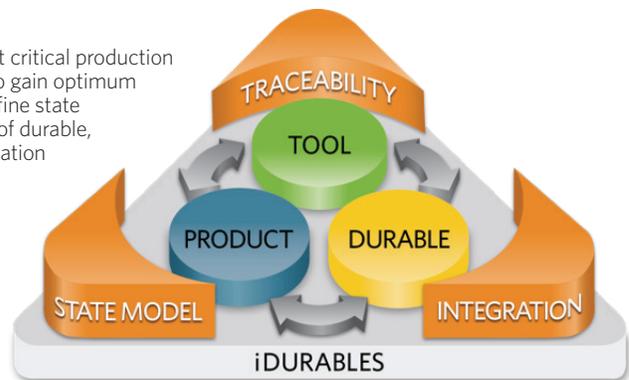
APPLIED iDURABLES™

DURABLE MANAGEMENT SYSTEM

By using an effective durable management system, how many additional wafers can you produce in your factory?

5913
Wafers

The number of additional wafers produced in one year as reported by one manufacturer using iDurables.

From the State Model window, you can define a state model for durables such as reticles, probe cards and other durables typically used in photolithography.

From the Family Structure window, you can associate specific durables within a family to a preferred piece of equipment.

Customer Results

Engineers using iDurables can improve asset utilization, which drives greater returns on investment (ROI) and profitability. Historical data from implementing iDurables at customer sites have shown:

> **50%** reduction of reticles "not found at track-in" at steppers
> **3%** improvement in equipment utilization
> Reduced staging resources in photo area, allowing operators to focus in other areas
> Increased productivity due to less information look up

iDurables Capabilities for Increasing ROI	
✓ **Event notification**	Provides event driven notifications, which enables engineers to take timely actions. If a durable remains in its Incoming Qualification state, iDurables sends an e-mail to the engineering team to request a follow-up to **reduce incoming durable inspection cycle-time.**
✓ **Real-time reticle management**	Optimizes reticle management by providing specific tools including mask multilayer support, exposure counters, handling and exposure dosage counters.
✓ **Real-time decision-making control**	Enables iDurables data to be used by Applied APF RTD® for real-time decision-making control and WIP management, **reducing litho-cell idle time** for misplaced reticles and probe cards or inaccurate use states. The "look-ahead" functionality of APF RTD allows iDurables to identify and group durables used for a specific shift, further **reducing operator search time.**
✓ **Easy deployment and integration**	Can be deployed as a stand-alone solution or integrated with MES, MCS, APC, dispatching, maintenance management and other factory systems. This integrated approach **removes variances** of durable qualification tactics from shift to shift, **eliminates unreliable manual updates** and significantly **reduces the amount of time** spent searching for improperly stored durables.
✓ **Web-based services**	Includes a Web-based service that lets authorized users access the iDurables database for **up-to-date durable information.** iDurables allows users to enter data manually or using the Web service definition language (WSDL) interface and populate data fields from SPC solutions or other applications to be used by the state model to evaluate transitions.

APPLIED MATERIALS EXPERTISE. With a deep knowledge base and a rich history of providing products and solutions specifically for the semiconductor and display industries, Applied Materials experts deliver turnkey solutions for enhancing manufacturing value in a timely manner. These solutions are backed by strong development and support teams to ensure continuous product growth and low cost of ownership.

APPLIED GLOBAL SERVICES

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