



Cost of Ownership

LEIRS300 Sheet Resistance and Thickness Mapping 200mm and 300mm Wafers

This excel spreadsheet gives two costs of ownership estimates that use the following assumptions:

1: Click on the image to download the spreadsheet

1. List price for the RS300 as of 9/26/2001.
 - a. A 3 range system without mini-environment or FOUP was used.
2. This version adds a preliminary estimate for a mini-environment with FOUP.

Number 1:

The estimate results in a total cost per measured wafer of \$0.09 for a system used during all available time.

Number 2:

Even for a system price near \$700,000 the total cost per measured wafer would be \$.23.

Please use these estimates with caution. System costs will depend on customer requirements. The estimates we are using here do not include items like:

- edge gripping
- robotic wafer handling
- full compliance with Gem Secs for 300mm

DATA CATEGORY	UNITS	YRS	MULTI-PLIER	DATA			5 YEAR TOTALS		
				LEI 1	LEI - 2 herma	Therma	LEI - 1	LEI 2	Therma
VOLUME/THROUGHPUT DATA				RS300	RS300	Optprobe	RS300	RS300	Optprobe
TOTAL TIME BASIS	HOURS			w/o mini env	mini env	w/o foup	43,800	43,800	43,800
MACHINE TIME NOT AVAILABLE				3 ranges	3 ranges				
SCHED. REPAIRS/MAINTENANCE	HRS/WK	5	260	0	2	2	0	520	520
ENGINEERING USAGE	HRS/WK	5	260	2	2	2	520	520	520
OTHER NON-PRODUCT USAGE	HRS/WK	5	260	2	2	2	520	520	520
MTBF	HOURS		1	5000	1500	1500			
MTTR	HOURS		1	24	24	24			
TOTAL TIME LOST DUE TO UNRELIABILITY							209	682	682
MTBA	HOURS		1	100	100	100			
MTTA	HOURS		1	0.1	0.1	0.1			
TOTAL TIME LOST DUE TO ASSIST							44	43	43
TOTAL AVAILABLE TIME	HOURS						42,507	41,515	41,515
THRUPUT AT CAPACITY, 9 SITES/WFR	WFRS/HR		1	147	147	33			
TOTAL WAFERS PROCESSED	UNITS						6,248,530	6,102,733	1,370,001
YIELD LOSS	WFRS/WK	5	260	0	1	1	0	260	260
LOADING FACTOR	FRACTION			1	1	1			
WAFERS PROCESSED/LIFETIME	UNITS						6,248,530	6,102,473	1,369,741
EQUIPMENT DATA									
ORIGINAL COST OF EQUIPMENT									
CAPITAL COST /UNIT	DOLLARS		1	396457	693800	318000	\$396,457	\$693,800	\$318,000
TRANSPORTATION COST	DOLLARS		1	0	0	0	\$0	\$0	\$0
INSTALLATION COST	DOLLARS		1	0	20000	20000	\$0	\$20,000	\$20,000
OTHER DEPRECIABLE COSTS	DOLLARS		1	0	10000	10000	\$0	\$10,000	\$10,000
EQUIPMENT QUALIFICATION COSTS									
TIME REQUIRED	MAN-HRS		\$100	100	100	100	\$10,000	\$10,000	\$10,000
CONSUMABLES	DOLLARS		1	0	2000	2000	\$0	\$2,000	\$2,000
MATERIAL (WAFERS ETC.)	DOLLARS		1	0	1000	1000	\$0	\$1,000	\$1,000
OTHER COSTS	DOLLARS		1	0	1000	1000	\$0	\$1,000	\$1,000
FLOOR SPACE REQUIREMENTS									
CLASS 1	SQ. FT.		\$510	24	30	55	\$12,240	\$15,300	\$28,050
CLASS 10	SQ. FT.		\$330				\$0	\$0	\$0
OTHER	SQ. FT.		\$250	0	0	0	\$0	\$0	\$0
TRAINING REQUIREMENTS									
TIME REQUIRED	MAN-HRS		\$100	4	200	200	\$400	\$20,000	\$20,000
OPERATING COSTS									
OPERATORS PER SYSTEM	FRACTION	5	\$600,000	0.1	0.3	0.3	\$60,000	\$180,000	\$180,000
ENGINEERING OVERHEAD	FRACTION	5	\$1,500,000	0.05	0.05	0.05	\$75,000	\$75,000	\$75,000
ELECTRICITY	KWH	5	\$1,750	1	1	1	\$1,750	\$1,750	\$1,750
CHILLED WATER	GPH	5	\$2,630	0	0	0	\$0	\$0	\$0
DRY NITROGEN	CF/H	5	\$440	0	0	0	\$0	\$0	\$0
DRY AIR	CF/H	5	\$440	0	0	0	\$0	\$0	\$0
CLEAN ROOM OVERHEAD	\$/SQFT/WI	5	260	5	5	5	\$31,200	\$39,000	\$71,500
OTHER CONSUMABLES	\$/WEEK	5	260	0	100	100	\$0	\$26,000	\$26,000
MAINTENANCE COSTS									
SPARE PARTS	\$/YEAR	5	5	1000	25000	25000	\$5,000	\$125,000	\$125,000
VENDOR SERVICE CONTRACT	\$/YEAR	5	4	0	25000	25000	\$0	\$100,000	\$100,000
VENDOR TRAINING	DOLLARS		1				\$0	\$0	\$0
MAINTENANCE PERSONNEL	FRACTION	5	\$675,000	0	0.1	0.1	\$0	\$67,500	\$67,500
TOTAL COST DURING LIFETIME							\$592,047	\$1,387,350	\$1,056,800
COST/WAFER MEASURED/LEVEL							\$0.09	\$0.23	\$0.77