



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/w/o foup	mini env/w/o foup	mini env/w/o foup	43,800	43,800	43,800		
MACHINE TIME NOT AVAILABLE											
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	\$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		