

FIG. 1

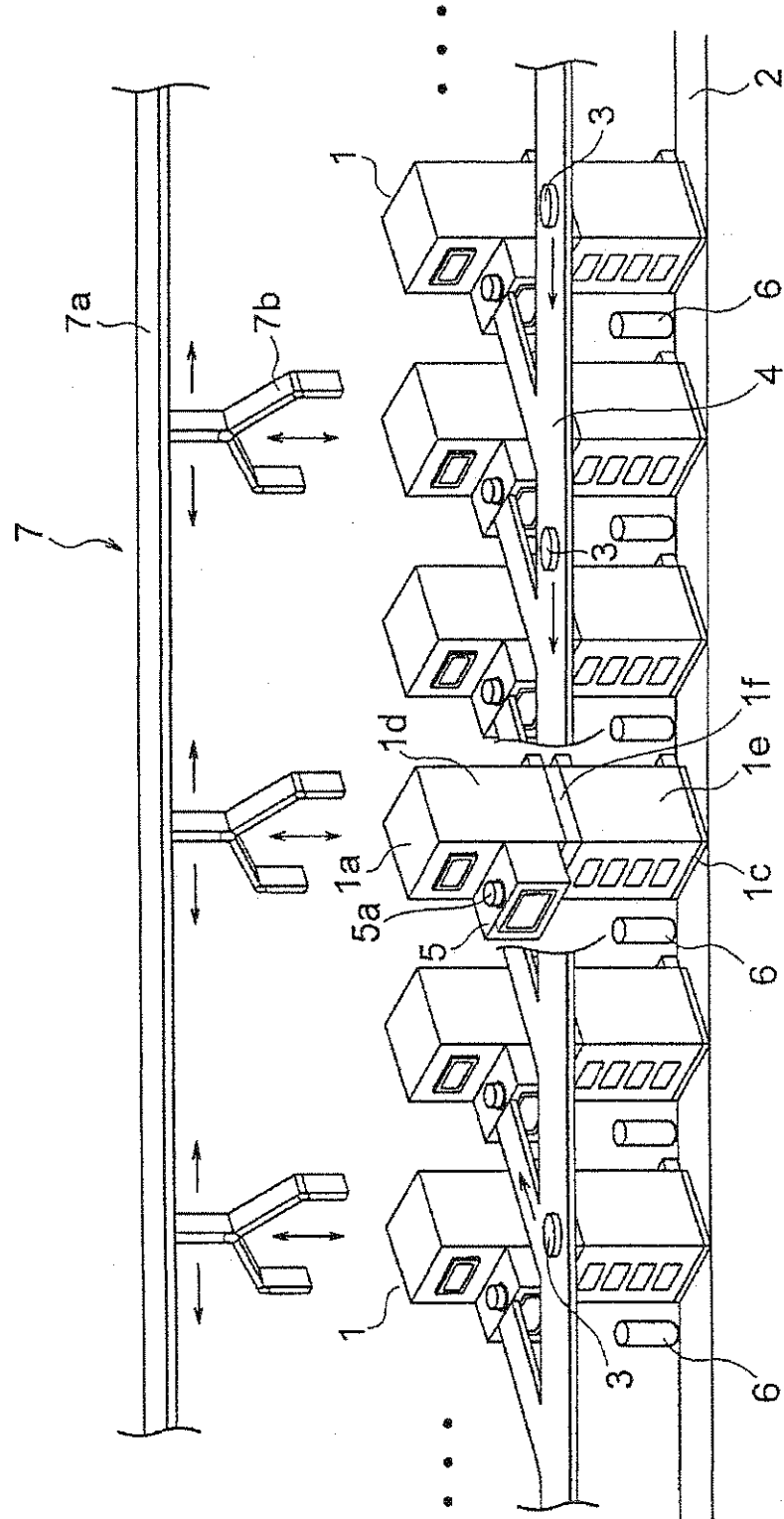


FIG. 2

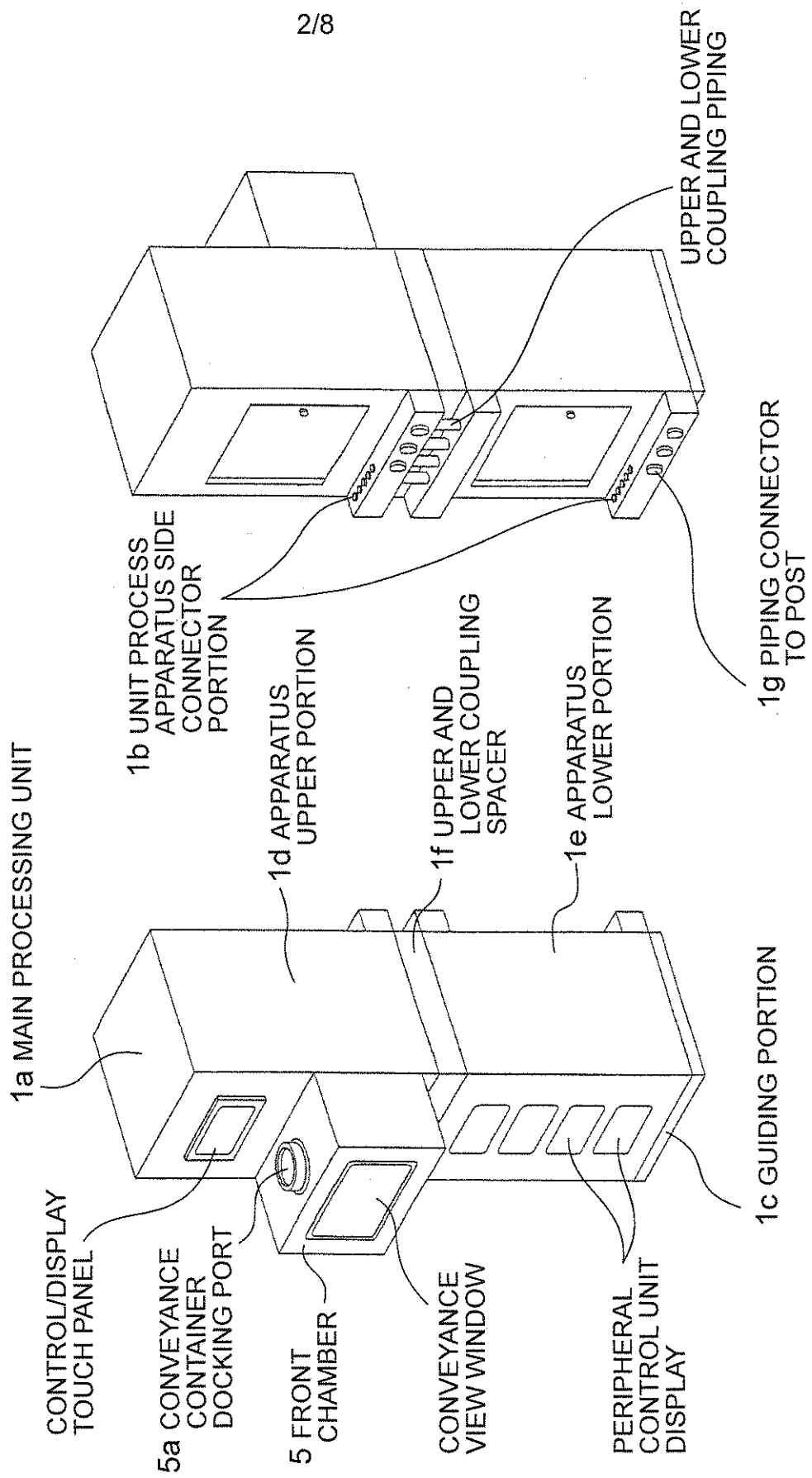


FIG. 3

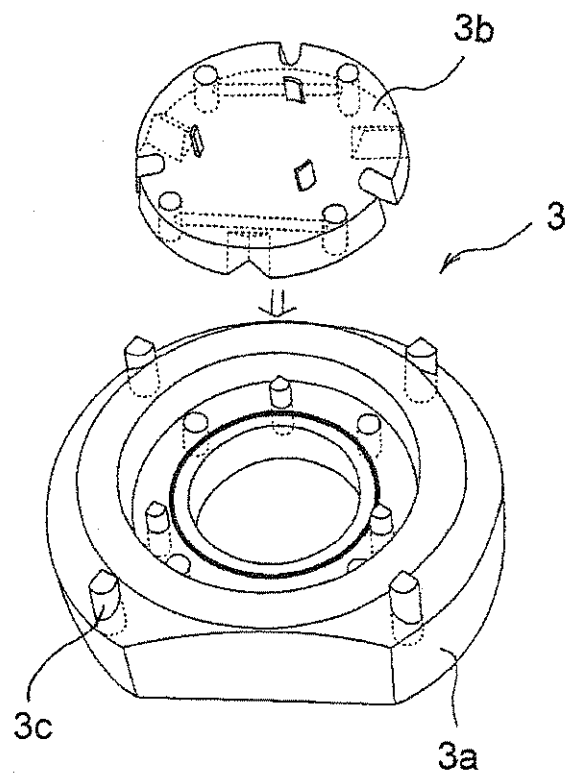


FIG. 4

FLOW SHOP LAYOUT

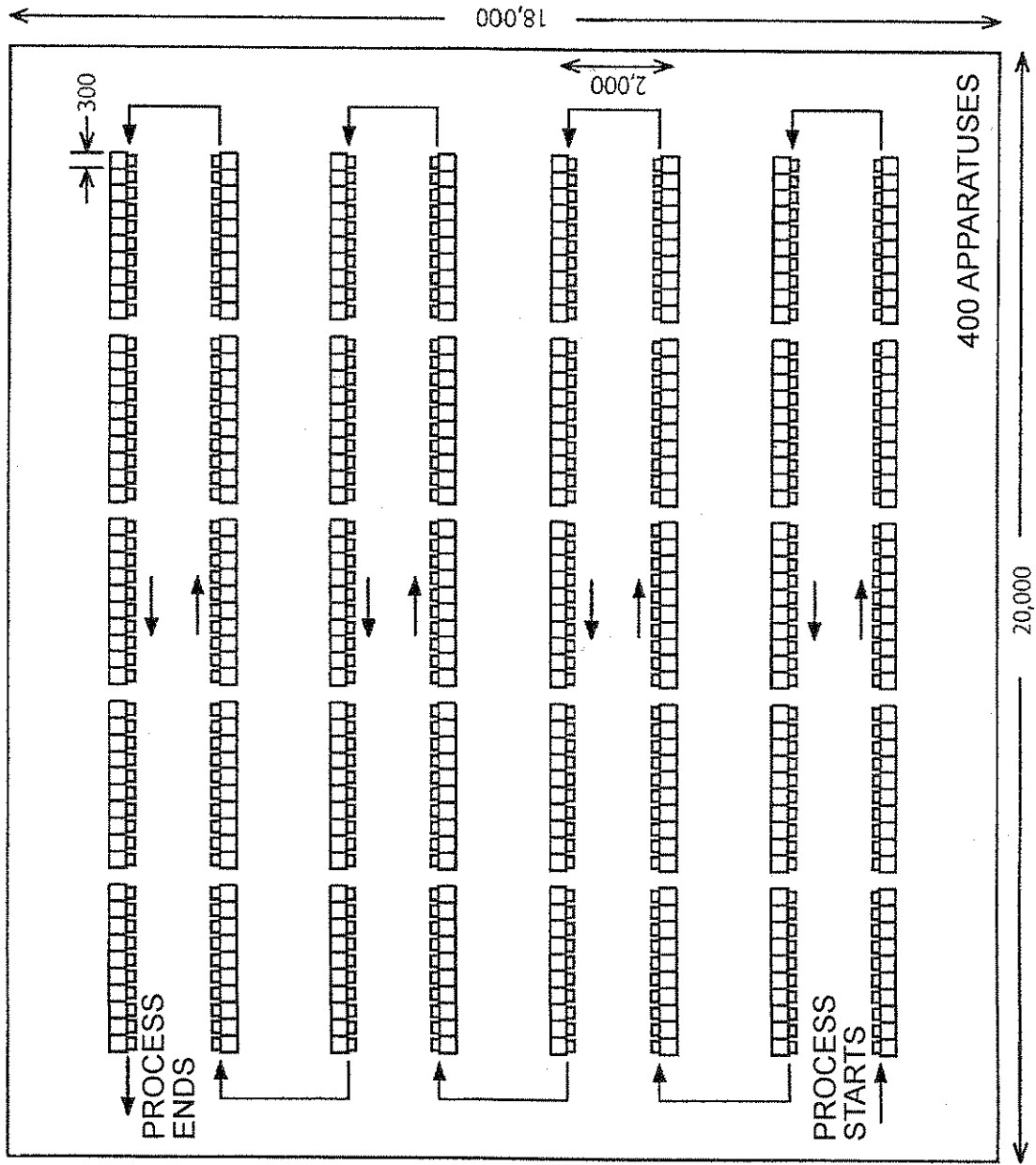


FIG. 5

CLASS SHOP LAYOUT

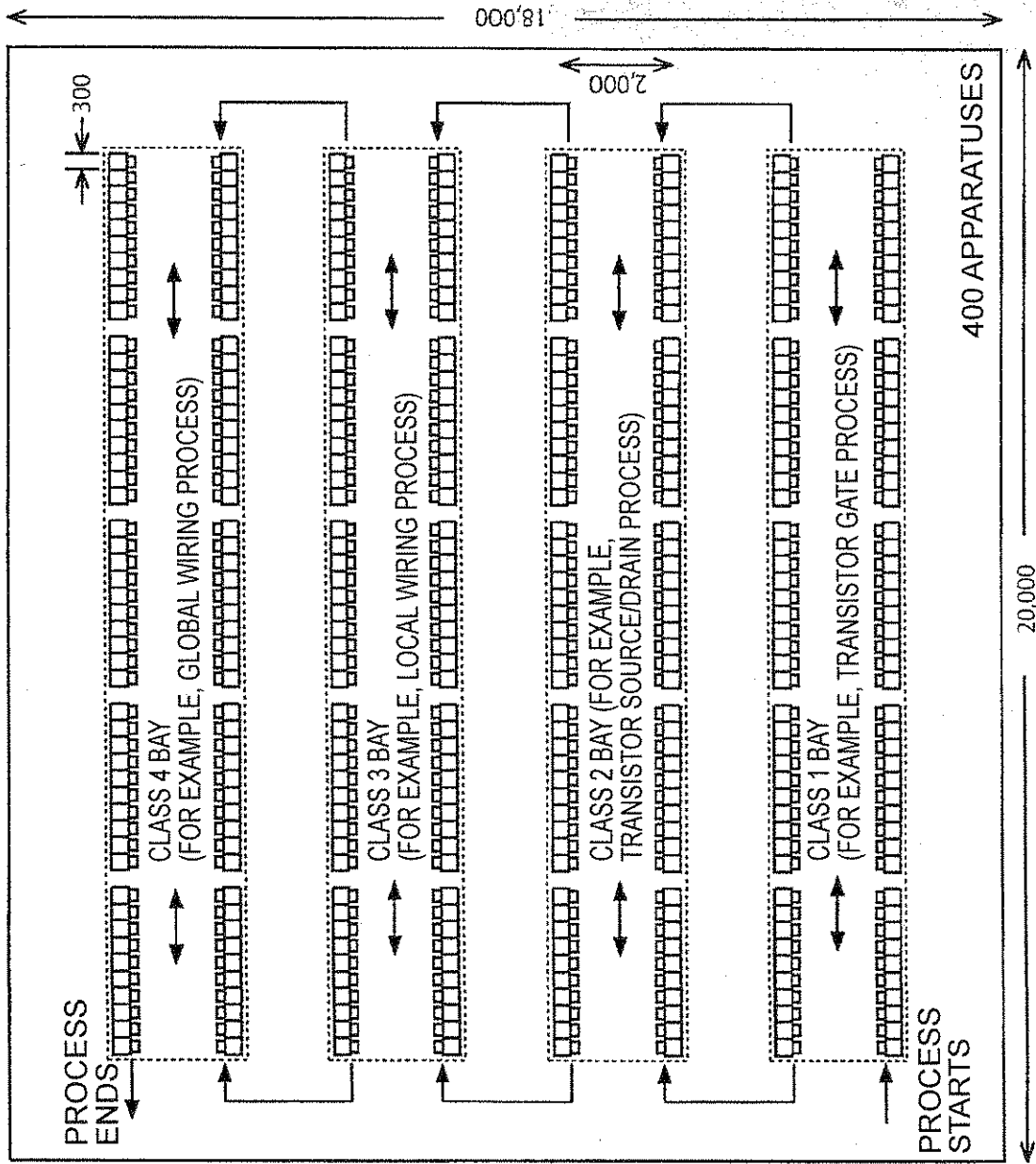


FIG. 6

MULTI CELL SHOP LAYOUT

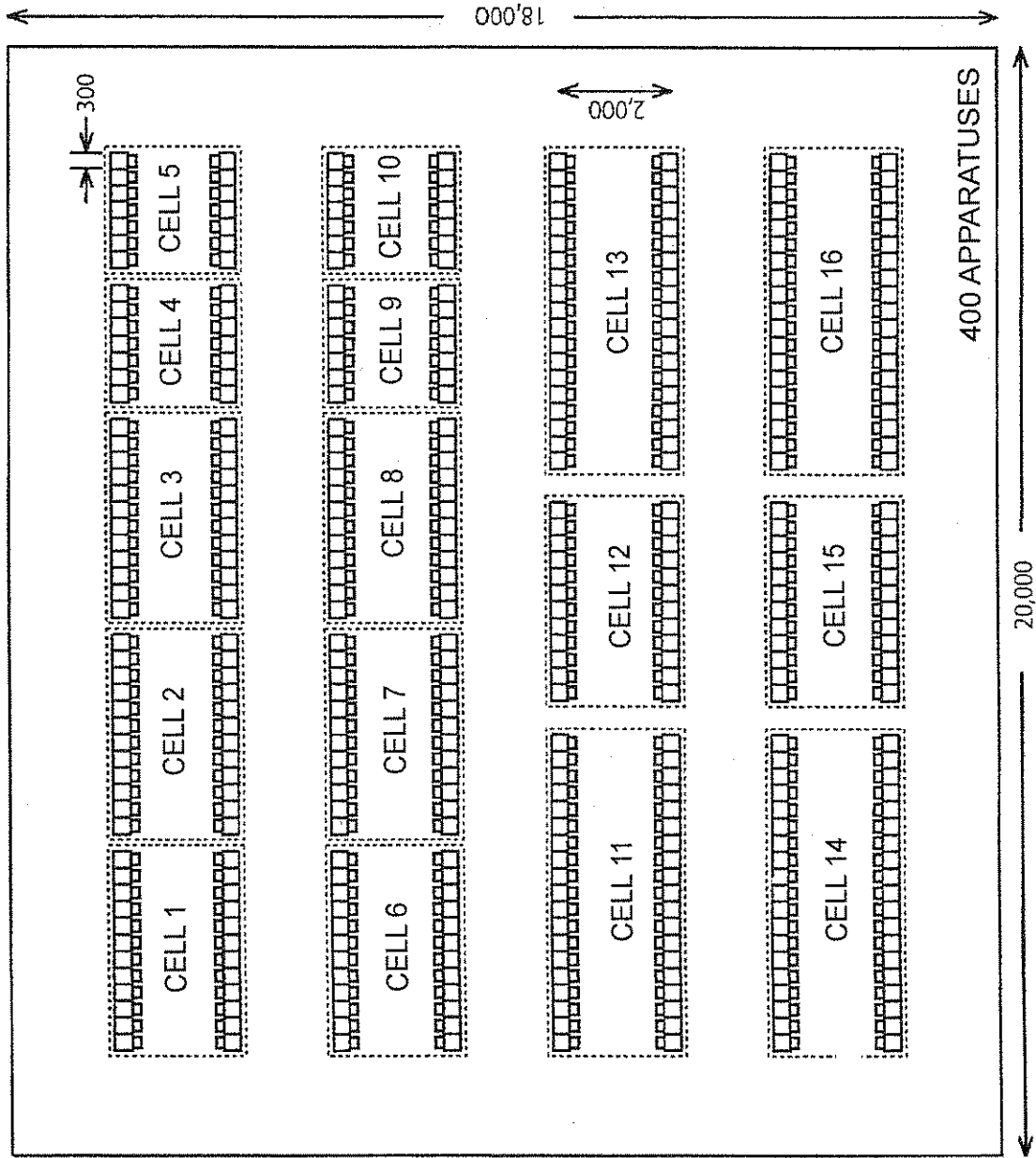


FIG. 7

SIZE EFFECT OF SEMICONDUCTOR SYSTEM

	MEGAFAB	MINIMAL FAB 1	MINIMAL FAB 2	MINIMAL FAB 3	MINIMAL FAB 4
FAB TYPE		FLOW SHOP	CLASS SHOP	MULTICELL	CELL
FLOOR SPACE OF FAB	20,000m ²	360m ²	360m ²	360m ²	30m ²
DIAMETER OF WAFER	12 INCHES	0.5 INCH	0.5 INCH	0.5 INCH	0.5 INCH
NUMBER OF CHIPS/WAFER (1 cm ² CHIP)	600	1	1	1	1
WIDTH OF APPARATUS	3m	30cm	30cm	30cm	30cm
NUMBER OF MASKS	34	MASKLESS	MASKLESS	MASKLESS	MASKLESS
NUMBER OF PROCESSES	600	400	400	20 TO 400	20 TO 200
NUMBER OF PRODUCT TYPES PROCESSED AT THE SAME TIME	500 TO 2000	1	2 TO 400	8 TO 16	1 TO 2
NUMBER OF WAFERS IN PROGRESS	17,000	400	400	16	2
NUMBER OF APPARATUS	300	400	400	400	22
AMOUNT OF FACILITY INVESTMENT	300 BILLION YEN	600 MILLION YEN	600 MILLION YEN	600 MILLION YEN	50 MILLION YEN
LAYOUT OF APPARATUS	JOB SHOP	FLOW	CLASS	MULTICELL	CELL
TOTAL CONVEYANCE DISTANCE	50Km	160m	4km	DEPENDING ON THE NUMBER OF PROCESSES	DEPENDING ON THE NUMBER OF PROCESSES
OPERATION RATE OF WAFER (PROCESS TIME/TOTAL TIME)	LESS THAN 1%	40%	40%	10%	5%
OPERATING TIME PER DAY	24 HOURS	24 HOURS	24 HOURS	10 HOURS	10 HOURS
PRODUCTION CAPACITY OF CHIPS PER YEAR	140 MILLION	500 THOUSAND	200 THOUSAND	1,500	100
RESOURCE UTILIZATION EFFICIENCY	0.10%	0.20%	0.20%	0.20%	0.20%

FIG. 8

