Fig.1

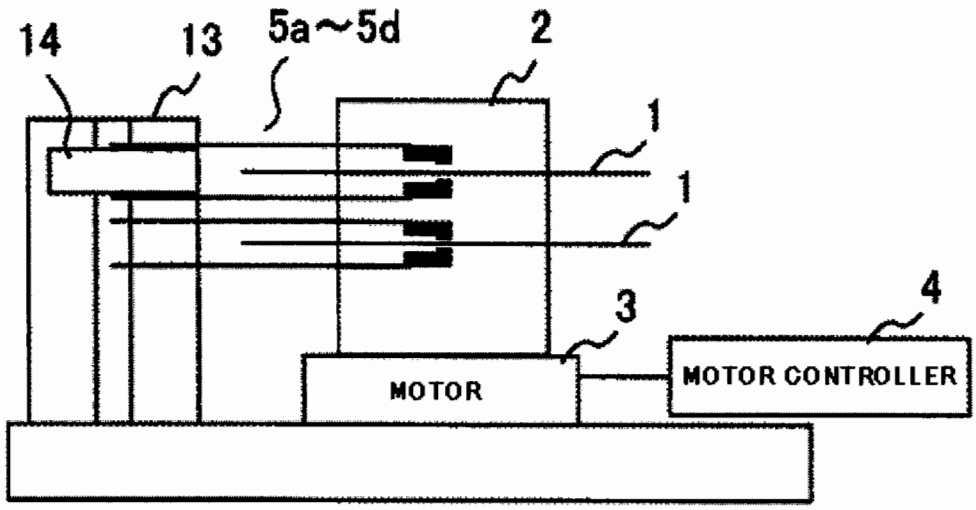

14
13
5a~5d
2
1
1
3
4
MOTOR
MOTOR CONTROLLER

Fig.2

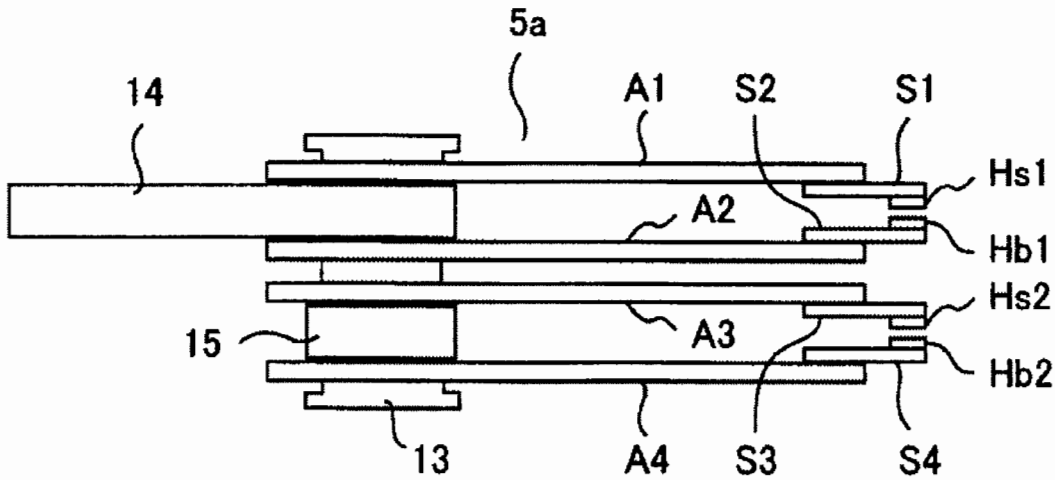

5a
14
A1
S2
S1
Hs1
A2
Hb1
Hs2
15
A3
Hb2
13
A4
S3
S4

Fig.3

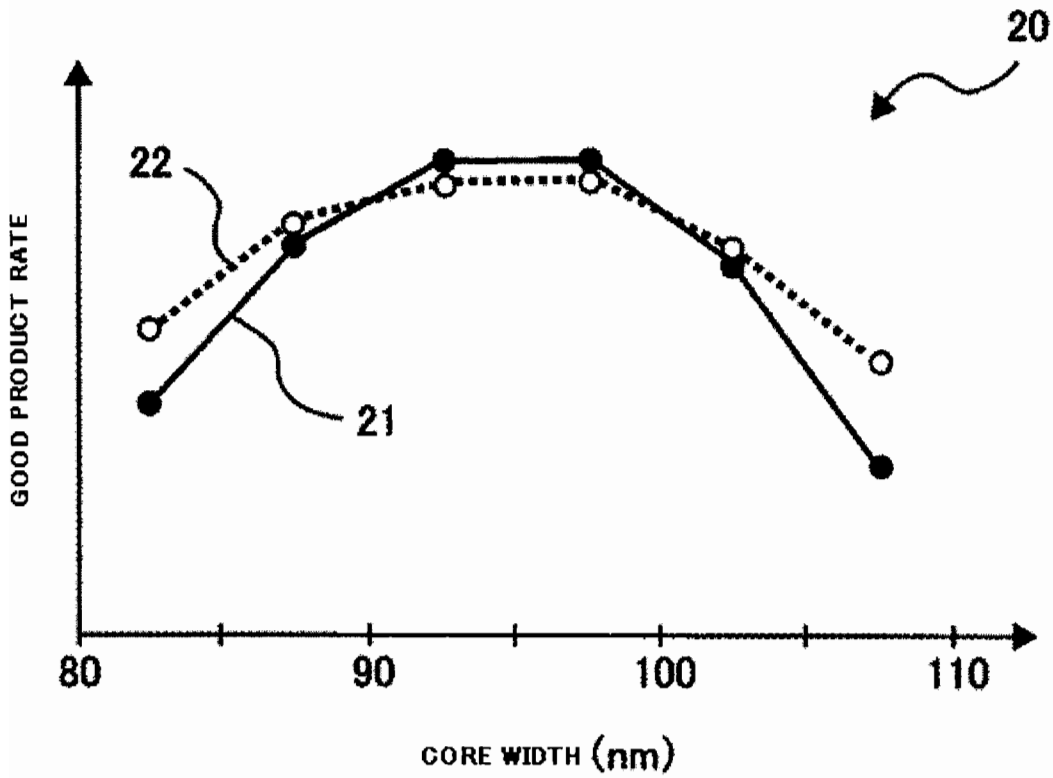


Fig.4

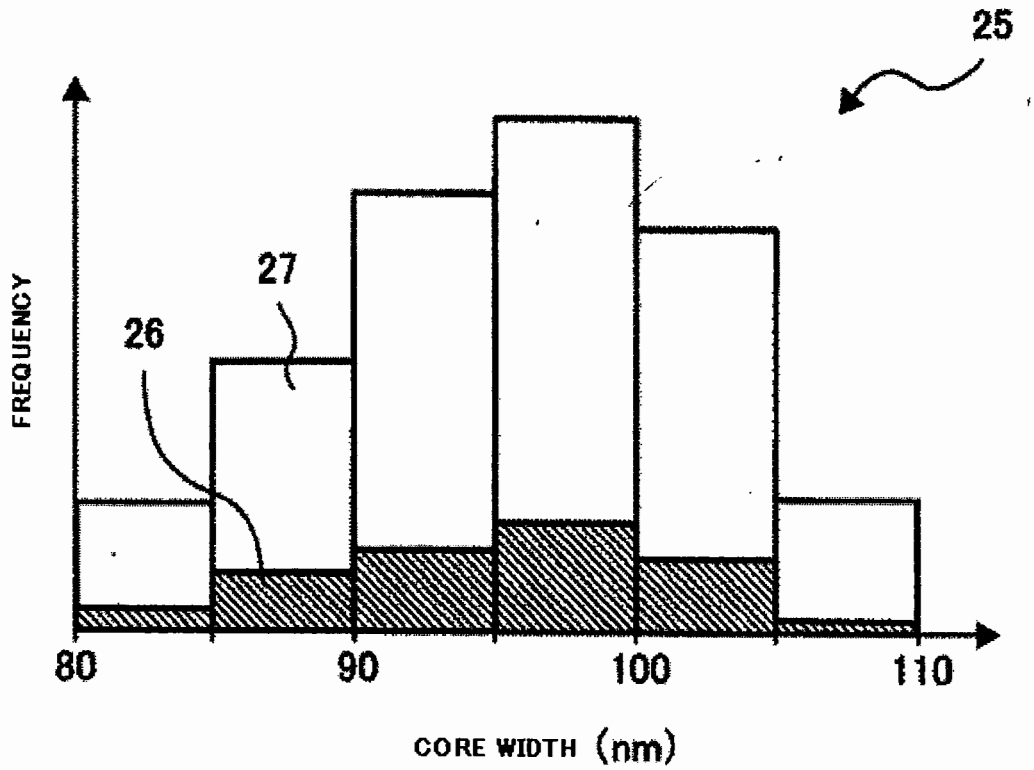

25
FREQUENCY
27
26
80
90
100
110
CORE WIDTH (nm)

Fig.5

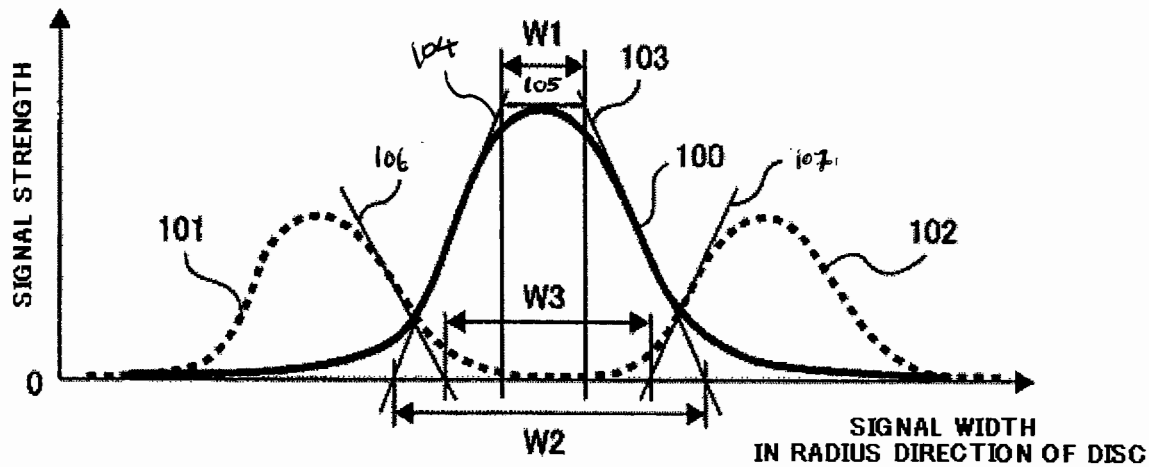

SIGNAL STRENGTH
0
W1
104
105
103
106
100
107
101
102
W3
W2
SIGNAL WIDTH
IN RADIUS DIRECTION OF DISC

Fig.6

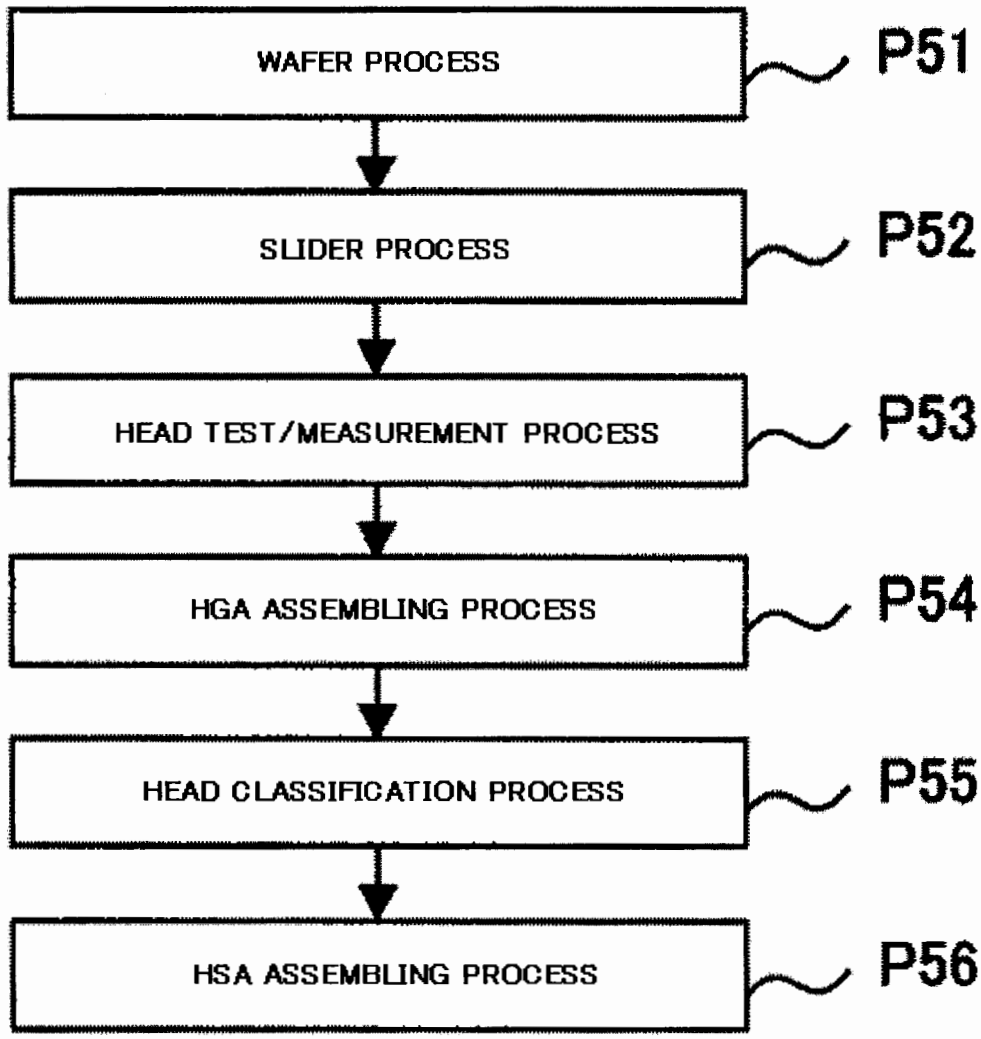

WAFER PROCESS
P51
SLIDER PROCESS
P52
HEAD TEST/MEASUREMENT PROCESS
P53
HGA ASSEMBLING PROCESS
P54
HEAD CLASSIFICATION PROCESS
P55
HSA ASSEMBLING PROCESS
P56

Fig.7

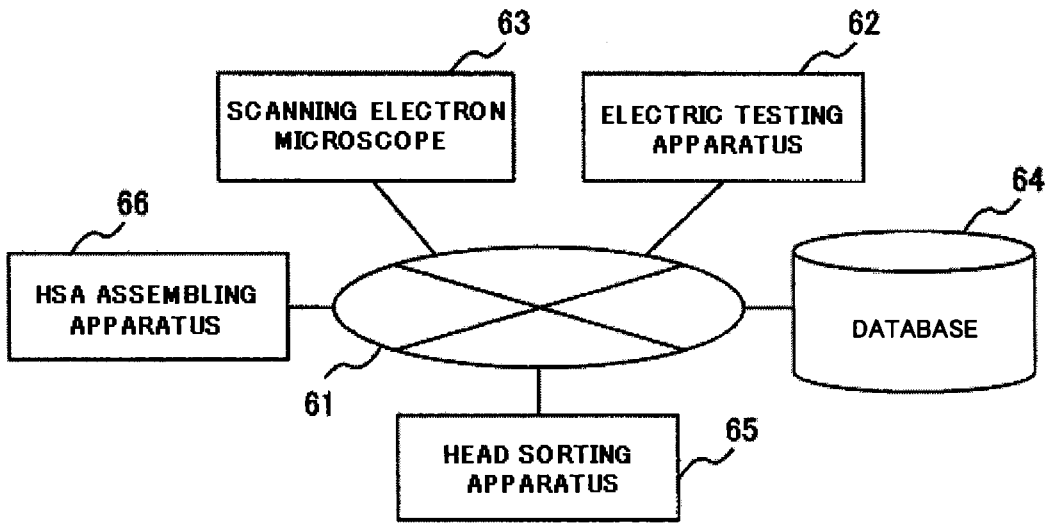

63
SCANNING ELECTRON MICROSCOPE
62
ELECTRIC TESTING APPARATUS
64
66
HSA ASSEMBLING APPARATUS
DATABASE
61
HEAD SORTING APPARATUS
65

Fig.8

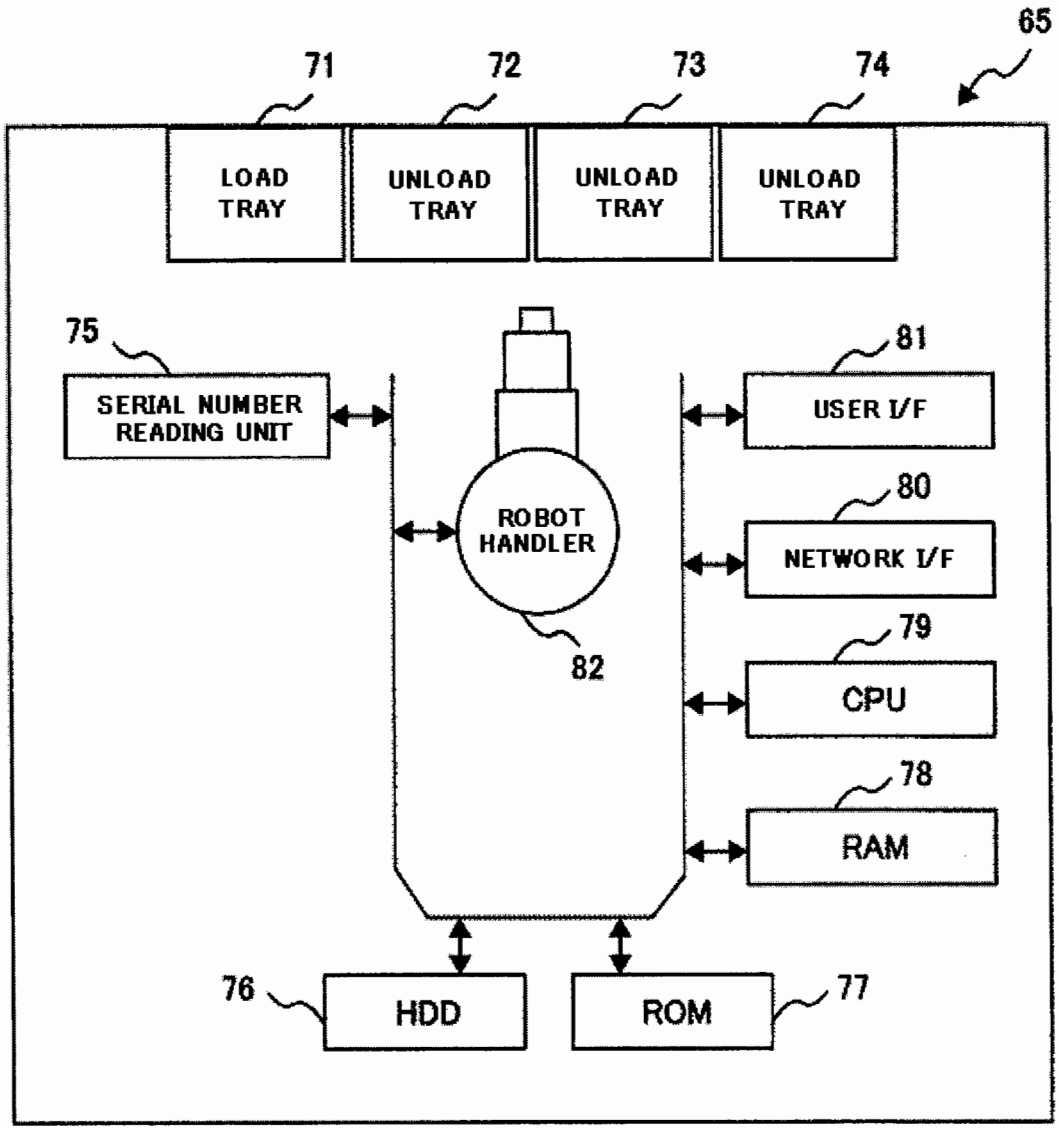

65
71
72
73
74
LOAD TRAY
UNLOAD TRAY
UNLOAD TRAY
UNLOAD TRAY
75
SERIAL NUMBER READING UNIT
81
USER I/F
ROBOT HANDLER
80
NETWORK I/F
82
79
CPU
78
RAM
76
HDD
ROM
77

Fig.9

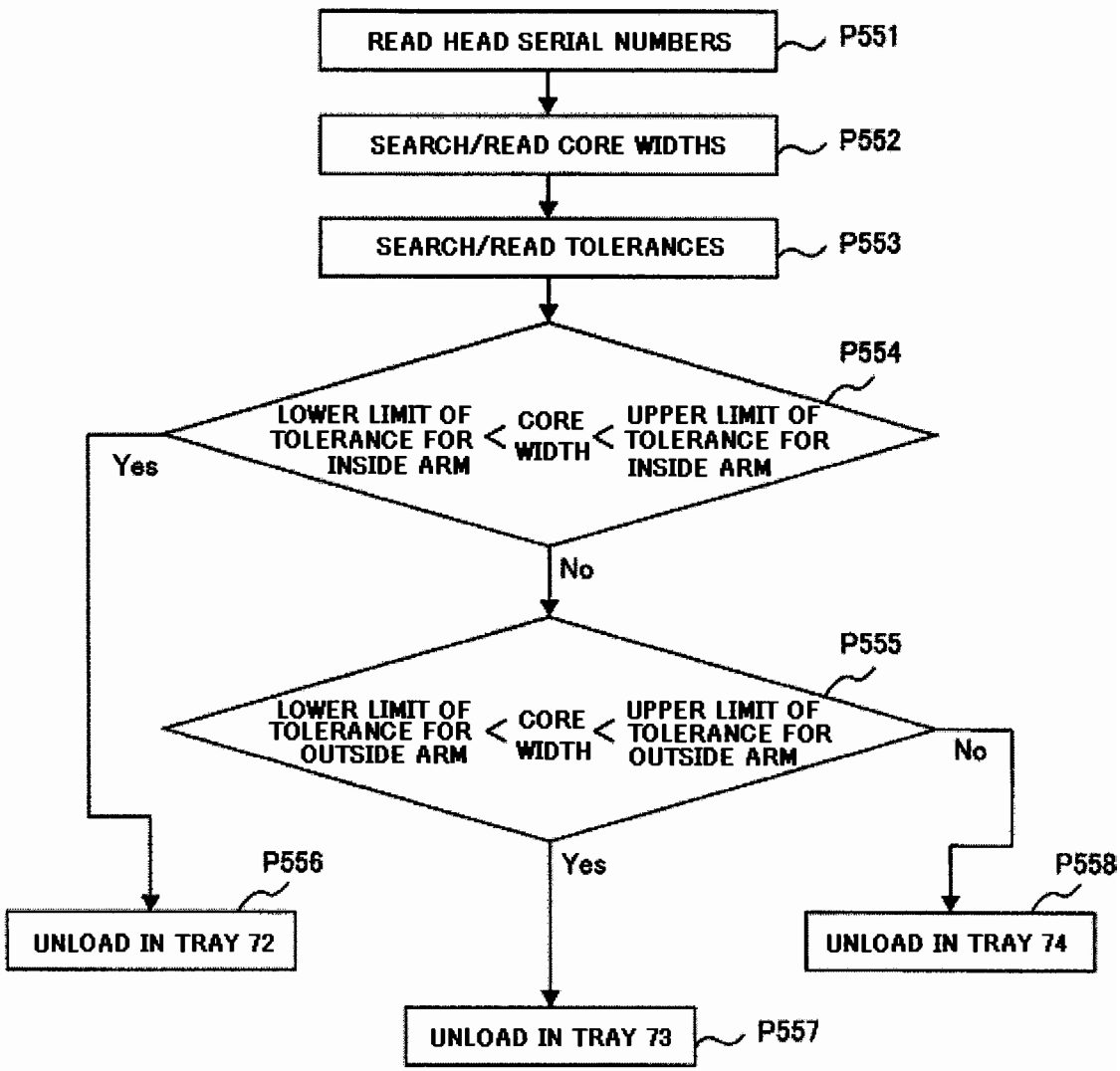

READ HEAD SERIAL NUMBERS
P551
SEARCH/READ CORE WIDTHS
P552
SEARCH/READ TOLERANCES
P553
P554
LOWER LIMIT OF TOLERANCE FOR INSIDE ARM < CORE WIDTH < UPPER LIMIT OF TOLERANCE FOR INSIDE ARM
Yes
No
P555
LOWER LIMIT OF TOLERANCE FOR OUTSIDE ARM < CORE WIDTH < UPPER LIMIT OF TOLERANCE FOR OUTSIDE ARM
No
Yes
P556
UNLOAD IN TRAY 72
P558
UNLOAD IN TRAY 74
UNLOAD IN TRAY 73
P557

Fig.10

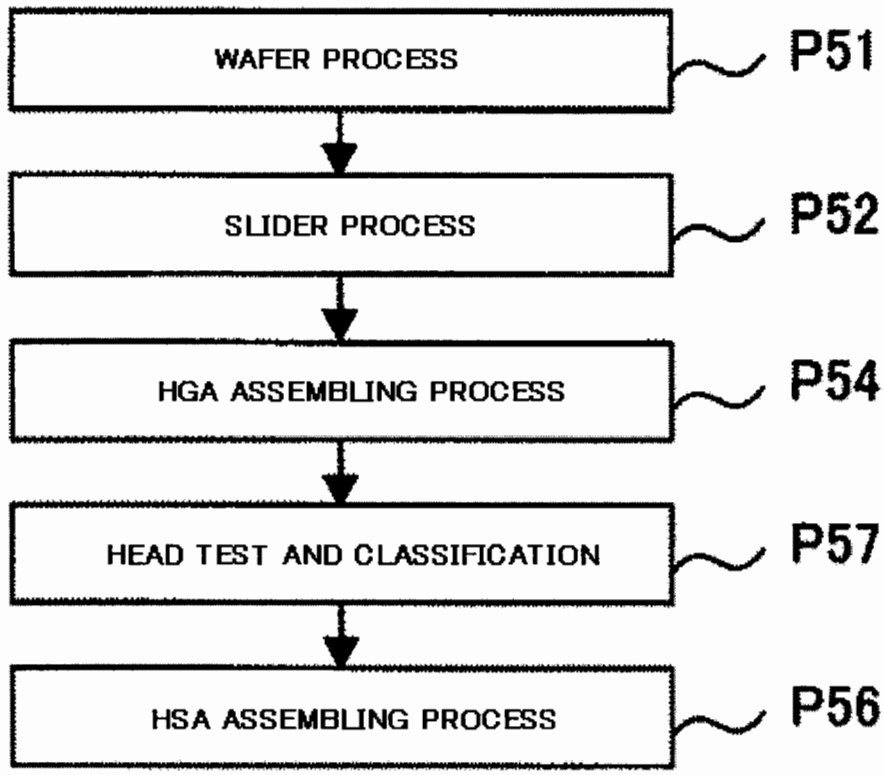

WAFER PROCESS
P51
SLIDER PROCESS
P52
HGA ASSEMBLING PROCESS
P54
HEAD TEST AND CLASSIFICATION
P57
HSA ASSEMBLING PROCESS
P56

Fig.11

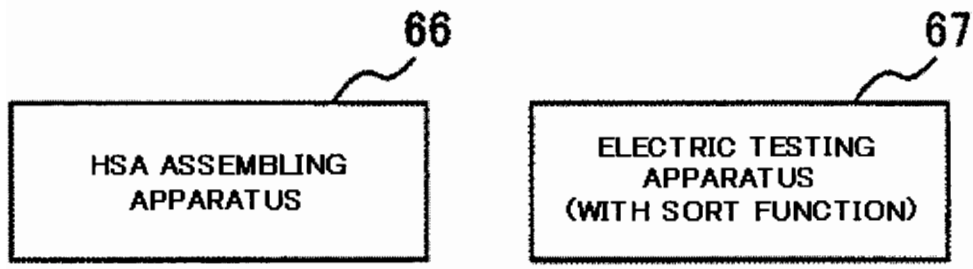

66
HSA ASSEMBLING APPARATUS
67
ELECTRIC TESTING APPARATUS (WITH SORT FUNCTION)

Fig.12

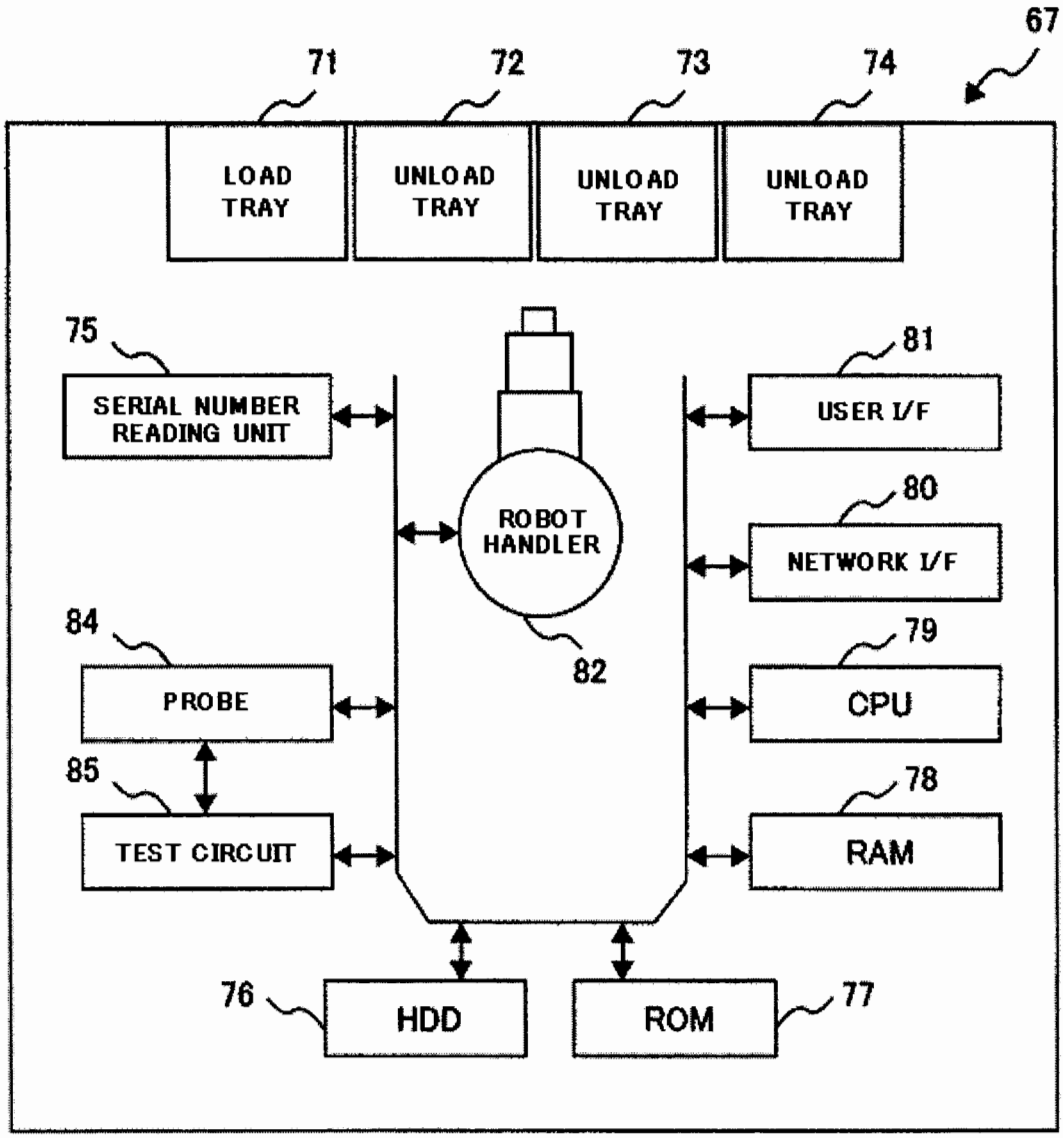

67
71
72
73
74
LOAD TRAY
UNLOAD TRAY
UNLOAD TRAY
UNLOAD TRAY
75
SERIAL NUMBER READING UNIT
81
USER I/F
ROBOT HANDLER
80
NETWORK I/F
82
84
PROBE
79
CPU
85
TEST CIRCUIT
78
RAM
76
HDD
ROM
77

Fig.13

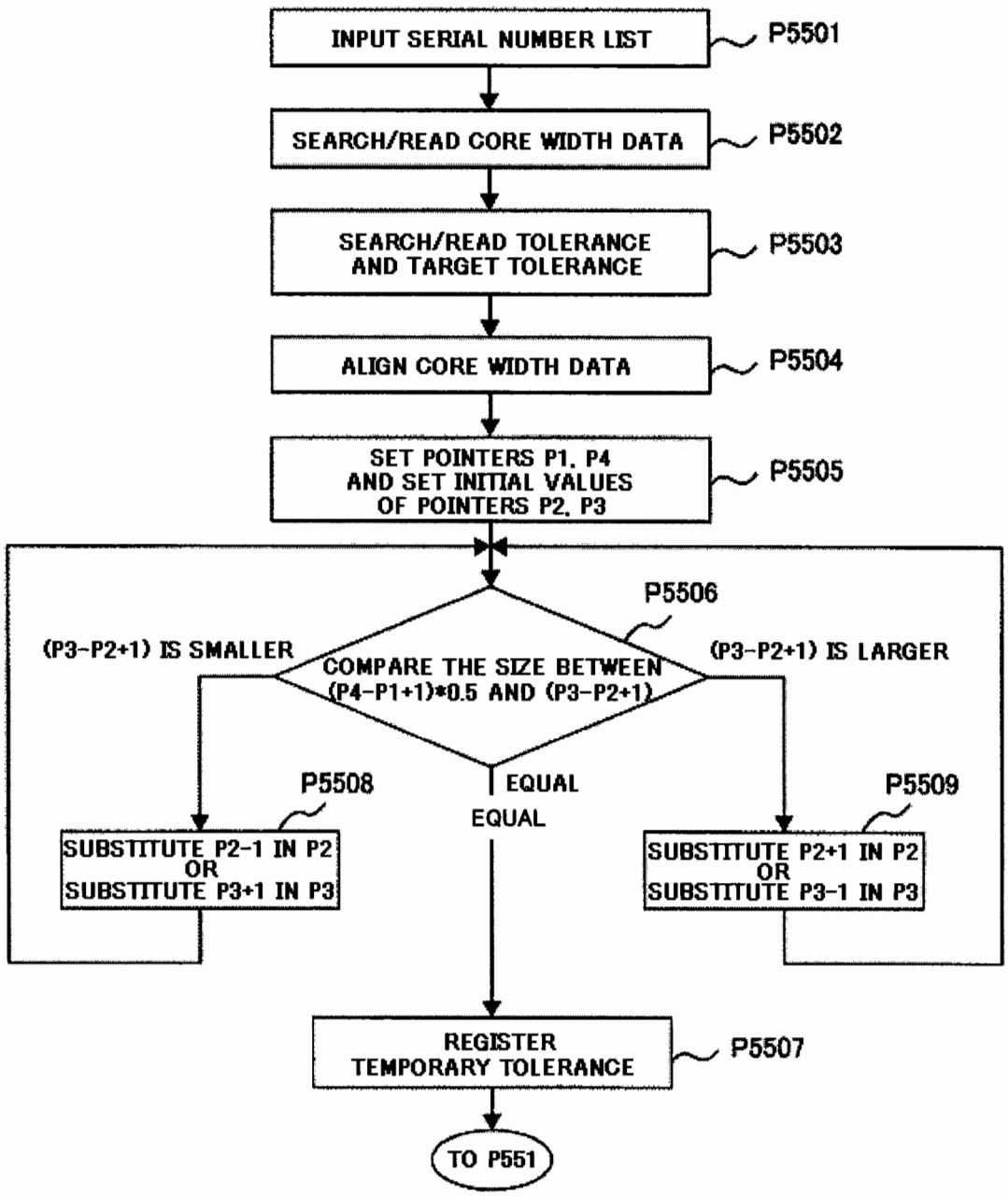

INPUT SERIAL NUMBER LIST
P5501
SEARCH/READ CORE WIDTH DATA
P5502
SEARCH/READ TOLERANCE AND TARGET TOLERANCE
P5503
ALIGN CORE WIDTH DATA
P5504
SET POINTERS P1, P4 AND SET INITIAL VALUES OF POINTERS P2, P3
P5505
P5506
COMPARE THE SIZE BETWEEN (P4-P1+1)*0.5 AND (P3-P2+1)
(P3-P2+1) IS SMALLER
EQUAL
(P3-P2+1) IS LARGER
P5508
SUBSTITUTE P2-1 IN P2 OR SUBSTITUTE P3+1 IN P3
EQUAL
P5509
SUBSTITUTE P2+1 IN P2 OR SUBSTITUTE P3-1 IN P3
REGISTER TEMPORARY TOLERANCE
P5507
TO P551

Fig.14

RANK	HEAD SERIAL NUMBER	CORE WIDTH(nm)	
1	AA1118715	83.53	← P1
2	AA1118893	84.01	
3	AA1116584	84.33	
4	AA1115315	84.35	
・ ・ ・	・ ・ ・	・ ・ ・	
12007	AA1115318	89.70	
12008	AA1116088	89.73	← P2 AFTER CHANGE
12009	AA1116791	89.88	
12010	AA1116855	89.97	
12011	AA1118895	90.15	← INITIAL VALUE OF P2
12012	AA1117903	90.20	
・ ・ ・	・ ・ ・	・ ・ ・	
37000	AA1117789	99.98	
37001	AA1118100	100.01	← INITIAL VALUE OF P3
37002	AA1118811	100.05	
37003	AA1118903	100.10	
37004	AA1118662	100.17	
37005	AA1118559	100.20	
37006	AA1118707	100.26	
37007	AA1117334	100.27	← P3 AFTER CHANGE
37008	AA1118035	100.35	
・ ・ ・	・ ・ ・	・ ・ ・	
49998	AA1118548	118.1	
49999	AA1117765	118.5	
50000	AA1116901	119.2	← P4

Fig.15

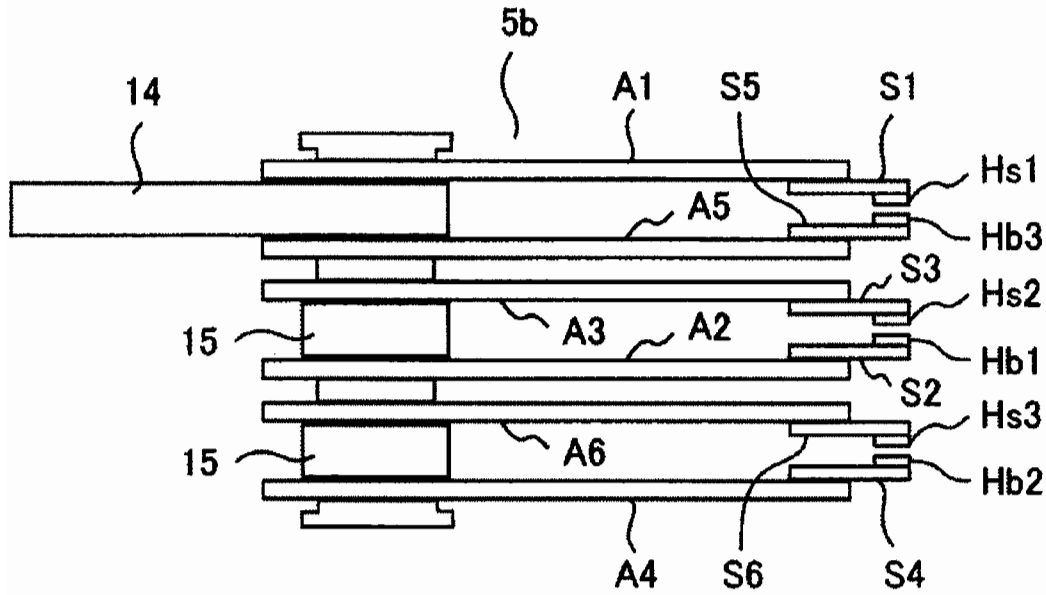

5b
14
A1
S5
S1
Hs1
A5
Hb3
S3
Hs2
15
A3
A2
Hb1
S2
Hs3
15
A6
Hb2
A4
S6
S4

Fig.16

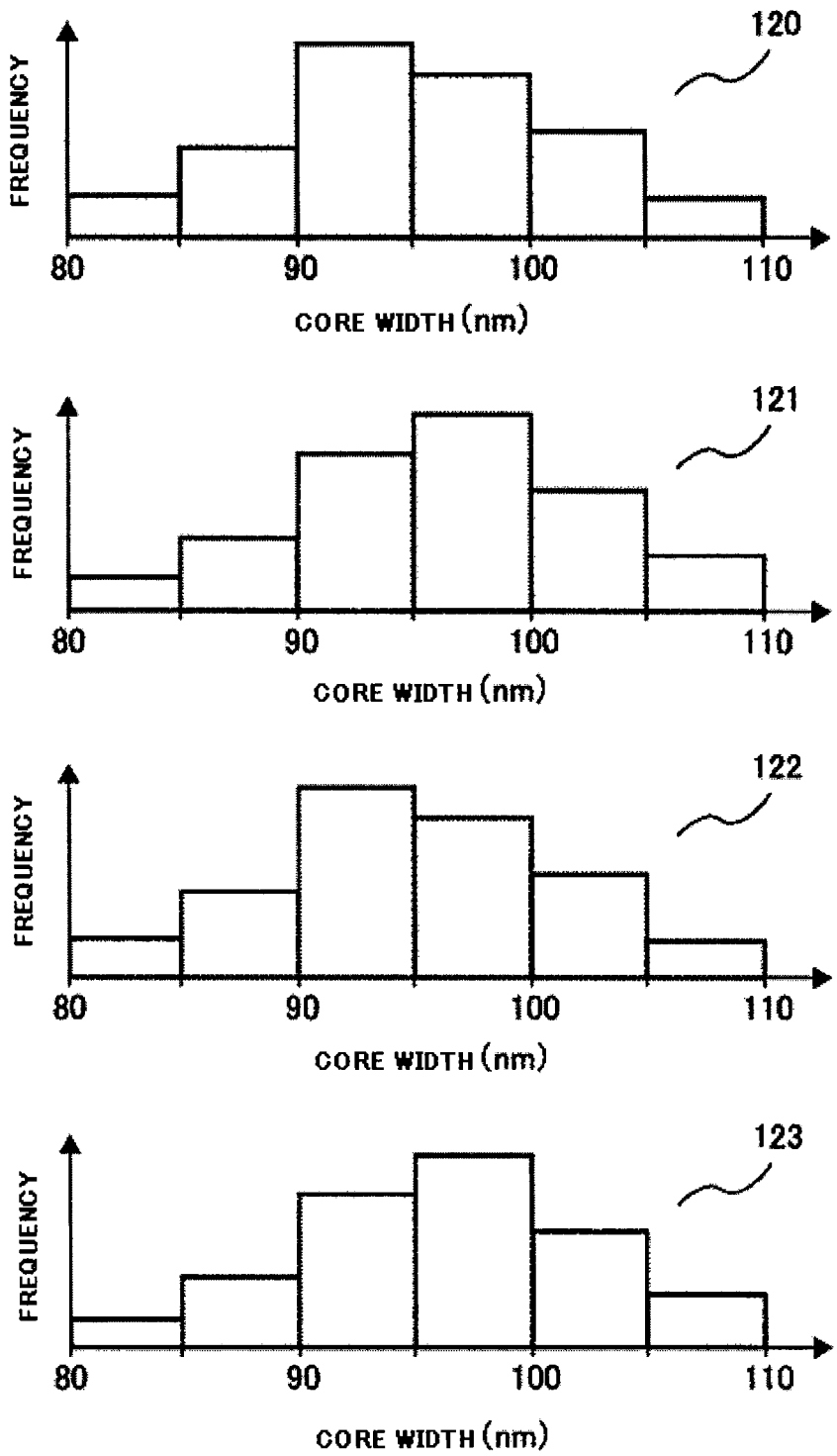
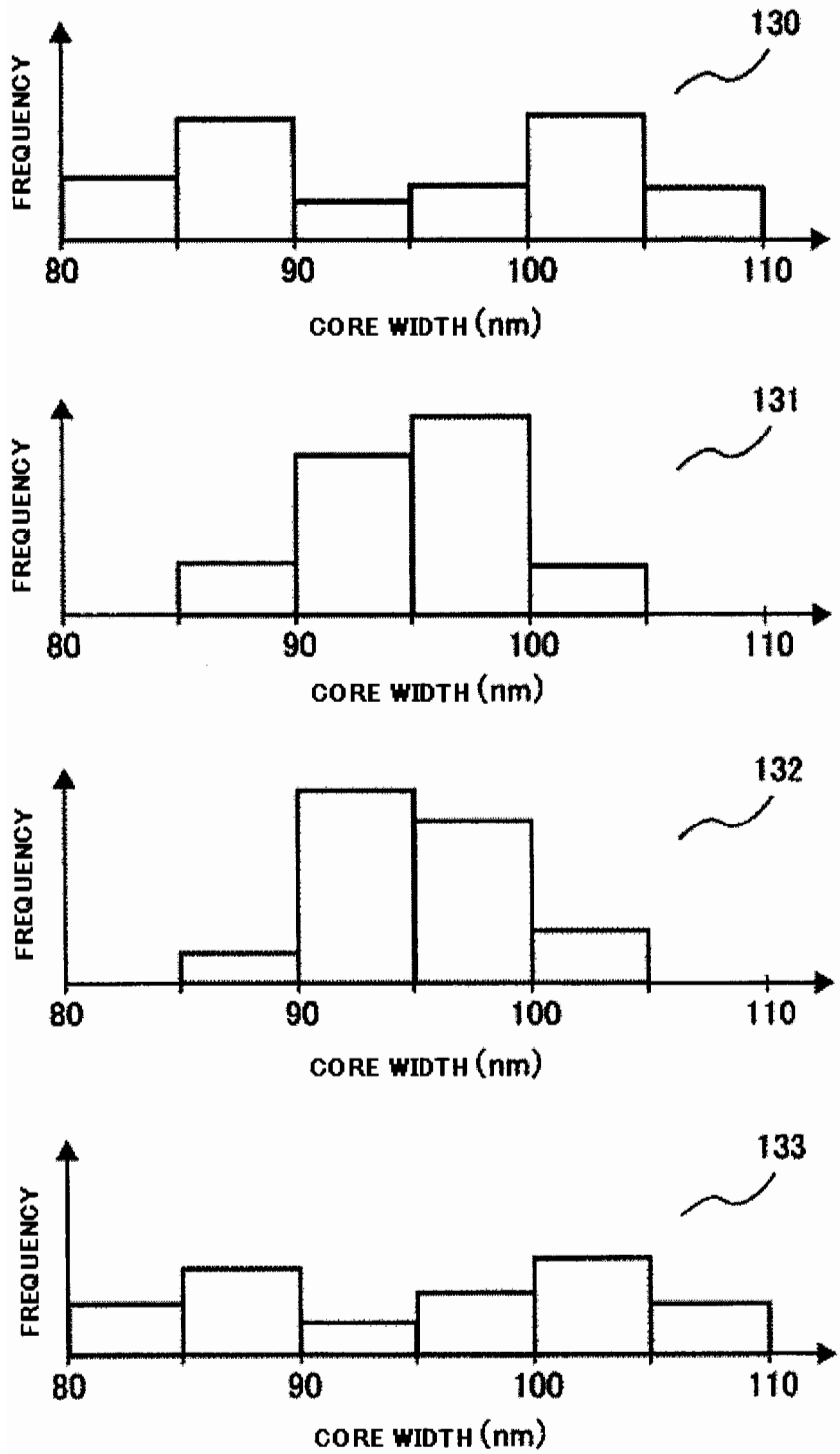

120
FREQUENCY
80
90
100
110
CORE WIDTH (nm)
121
FREQUENCY
80
90
100
110
CORE WIDTH (nm)
122
FREQUENCY
80
90
100
110
CORE WIDTH (nm)
123
FREQUENCY
80
90
100
110
CORE WIDTH (nm)

Fig.17


130
FREQUENCY
80
90
100
110
CORE WIDTH (nm)
131
FREQUENCY
80
90
100
110
CORE WIDTH (nm)
132
FREQUENCY
80
90
100
110
CORE WIDTH (nm)
133
FREQUENCY
80
90
100
110
CORE WIDTH (nm)