

X-Ray FLUORESCENCE  
NON-DESTRUCTIVE & NON-CONTACT  
COATING THICKNESS TESTER

# **EX-3000**

Ex WIN  
Ver.1.00

INSTRUCTION MANUAL

ELEC FINE INSTRUMENTS CO., LTD  
2-31-5 CHUO, NAKANO-KU, TOKYO, JAPAN  
PHONE : (03) 3365-4411  
FAX : (03) 3371-1287

## Table of Contents

1 .	INTRODUCTION	1 – 1
	1.1 Principle of X Fluorescence Coating Thickness Tester	1 - 1
	1.2 Model EX-3000 FEATURES	1 - 2
	1.3 EX-3000 ( ExWin )menu item list	1 - 4
	1.4 Instruments start-up	1 – 6
	1.5 Overall operation method	1 – 6
	1.6 Instruments ( system ) end	1 - 7
2 .	FILE	2 - 1
	2.1 Outline of calibration curve file . Measurement file	2 - 1
	2.2 Calibration curve file ( make, change, delete, copy )	2 - 2
	2.2.1 Selection of calibration curve file	2 - 2
	2.2.2 Make Calibration curve file	2 - 3
	2.2.3 Change calibration curve file	2 - 6
	2.2.4 Delete calibration curve file	2 - 6
	2.2.5 Copy calibration curve file	2 - 6
	2.3 Measurement file ( make, change, delete, copy )	2 - 7
	2.3.1 Selection of measurement file	2 - 7
	2.3.2 Make manual measurement file	2 - 9
	2.3.3 Make auto measurement file . Random point auto measurement file	2 – 12
	2.3.3.1 Auto measurement and Random point auto measurement	2 – 12
	2.3.3.2 Conditions of Calibration curve	2 - 13
	2.3.3.3 Coordinates entry method	2 – 14
	2.3.3.4 Setting of basic Coordinates for position and rotation correction	2 – 15
	2.3.3.5 Setting of measurement position ( auto measurement )	2 – 16
	2.3.3.6 Setting of measurement position ( random point auto measurement )	2 – 18
	2.3.4 Change measurement file	2 – 19
	2.3.5 Delete measurement file	2 – 19
	2.3.6 Copy measurement file	2 - 19
	2.4 Input of password	2 - 20
3.	CALIBRATION · CORRECTION	3 – 1
	3.1 Standard calibration	3 - 2
	3.2 Base correction	3 - 4
	3.3 Coating correction	3 - 5
	3.4 2.3.4. points correction	3 - 5
	3.5 X spectrum calibration	3 - 6
	3.6 Regular calibration	3 - 6

4. MEASUREMENT	4 - 1
4.1 Outline of coating thickness measurement	4 - 1
4.2 Measurement mode start	4 - 2
4.3 Indication of measurement mode	4 - 3
4.4 Simple measurement	4 - 6
4.5 Measurement mode end	4 - 6
4.6 Statistics process	4 - 7
4.6.1 Statistics process selection	4 - 7
4.6.2 Statistics volume	4 - 9
4.6.3 Measurement data	4 - 10
4.6.4 Histogram	4 - 10
4.6.5 Profile	4 - 11
4.6.6 3-dimensional profile	4 - 11
4.6.7 -R control chart	4 - 12
4.7 Spectrum measurement	4 - 13
4.8 Between 2 points distance measurement	4 - 14
4.9 Transmission method of measurement results	4 - 15
5. TABLE	5 - 1
5.1 Move to random point	5 - 1
5.2 Move to specified point	5 - 1
5.3 Move to the origin	5 - 1
5.4 Table position entry	5 - 2
6. INDICATION	6 - 1
6.1 Latest spectrum	6 - 1
6.2 Indication of regular calibration status	6 - 1
6.3 Other items	6 - 1
7. MAINTENANCE	7 - 1
7.1 Indication of calibration curve data	7 - 1
7.2 Life of X tube	7 - 1
7.3 Self check	7 - 1
7.4 Fe55 count check	7 - 1
7.5 Ag count check	7 - 1
7.6 Auto table constant	7 - 1
7.7 Special setting	7 - 2

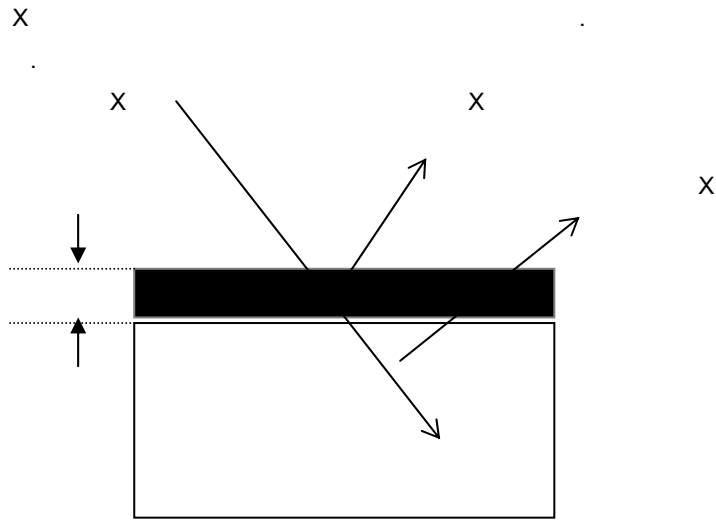
01. INTRODUCTION

1.1 X

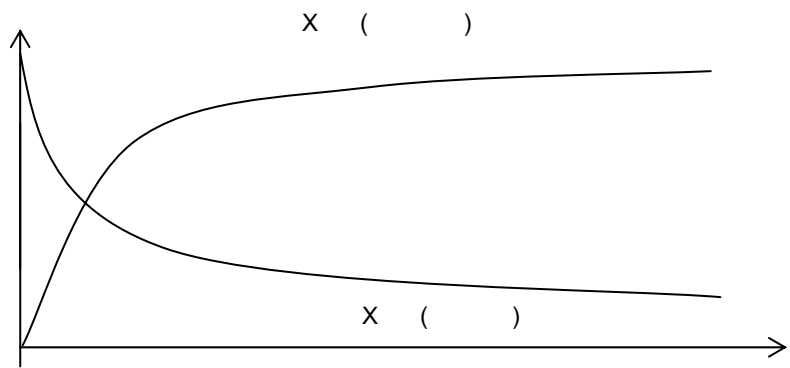
X ( , ) 가 X  
 X X X  
 X X  
 X 가 (Excitation method :  
 X ) , (Absorption method : )  
 . ( See Fig. 1-1 ).

(Excitation method) : 가 X 가  
 ( See Fig. 1-2 )  
 (Absorption method) : 가 가 ( ) X

X 가 (differentiation)



. 1-1 X



. 1-2 X

1.2 EX-3000

EX - 3000

X

가

1-1

EX-3000

가

X

X

X

X

, vapor deposition

가

, EX-3000

X

0.05mm (Option)

가

가

가

X

( )

EX-3000

ExWin

98

가

\*

\*

가

: 100 files

: 500 files ( , , )

\*

가 가

\*

, 多 가

1.3 EX-3000(ExWin)

( , 가 )

File (F)

(M)  
(A)  
(F)  
(C)  
VS (T)  
(P)  
ExWin (X)

(M)  
(M)  
(A)  
(F)  
( ) (H)  
( ) (G)  
(T)  
(S)  
(X)  
2 (D)  
(O)

(Calibration)(C)  
(C)  
X (X)  
(R)

(S)  
(J)  
(P)  
(H)  
(M)

(表示) (V)  
가 (N)  
(R)  
(tool) (M)  
(P)  
X (X)  
(Collimator) (C)  
(F)  
(tool bar) (T)  
(bar) (S)

(A)  
(C)  
X Life of X tube (X)  
가 (D)  
Fe55 (F)  
Ag (A)  
Auto stage constant (S)  
(P)

Help (H)  
Help (H)  
(Version) (A)

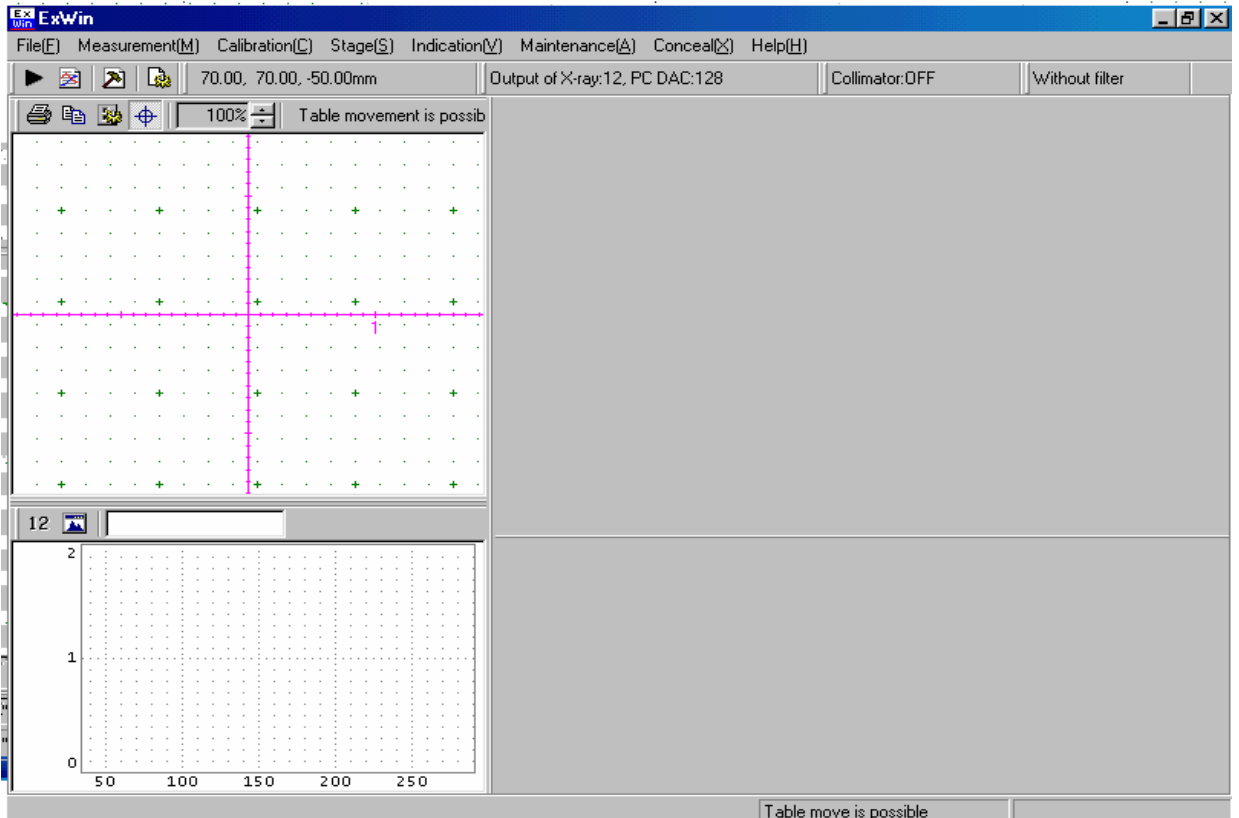
1.4 가 (start up)

1). (unit) .(model EX-3000)

2). PC , 가 .

3). ExWin . ( . 1-3 )

4). ExWin , (unit) X  
X 30



. 1-3 ( . )

1.5

help file which is available at general book stores .

PC

(Click) ; (cursor) ,



(Double click) ;

(Drag) ; ,  
가 .



ExWin

File

ExWin End

(Input of set up value)

가

Delete key

가

Tab key

Back Space key

(operation)

;

가

;

;

OK

Cancel

X

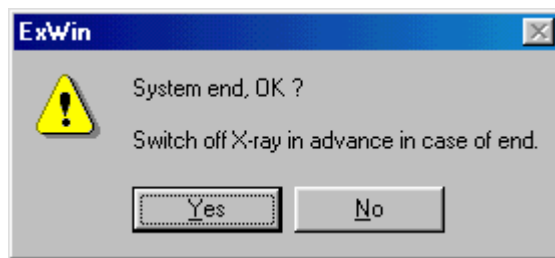
;

가

가

1.6 ( )

1) File ExWin end ExWin



. 1-4 ExWin end

- 2) X
- 3) Yes ; ExWin ( )
- 4) PC
- 5) (unit)

02.

2.1

가

\_\_\_\_\_ (Calibration curve file)

\_\_\_\_\_ (Calibration curve file)

(Coating and Base)

X (intensity of X ),

(Measurement file)

“ Measurement file “

(Measurement file name)

(lot) (Data saving, setting of lot control Yes/No)

(position)

Note) 가

2.2 \_\_\_\_\_ ( , , , )(make, change, delete, copy)

가 가  
100 가

2.2.1 \_\_\_\_\_ (Selection)

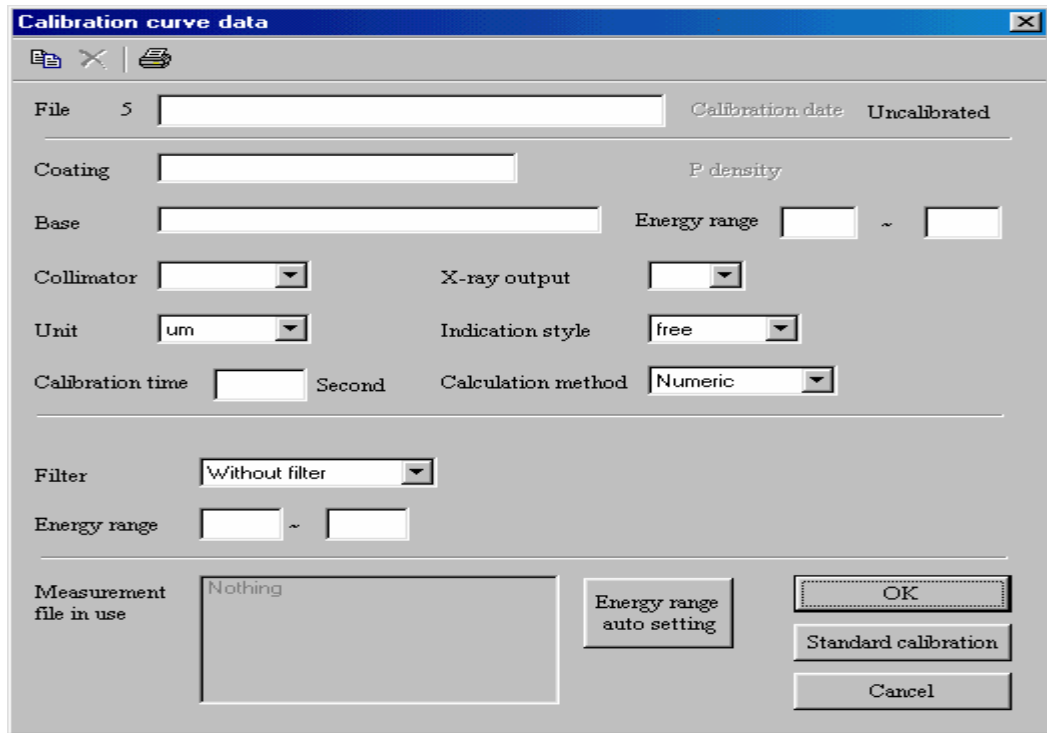
“ Calibration curve data “  
File → ( .2-1)

No.	Coating	Base	Calibration date	File name
1	Au	Cu	2001/05/25	iuuuu
2	Au-Ni 2-layer	Cu	2001/05/25	ljkhj
3	Au-Ni 2-layer	Cu	2001/05/25	JJIN
4	Au	Cu	2001/05/25	YUUY
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
16				
17				
18				
19				
20				
21				
22				
23				
24				
25				
26				

.2-1

가  
가 “ Selection of calibration curve file “  
가 ( .2-2) 가  
, ( .2-6)

2.2.2 \_\_\_\_\_  
가



. 2-2

P (only for Ni-P, Ni-B coating)

1-

가

2

63

2-

가

( Fig . 2-3 )

(enter)

가

(substance)

가 (Input of free name)

2 6

가

OK

2

,

“ Type of coating”

2

2

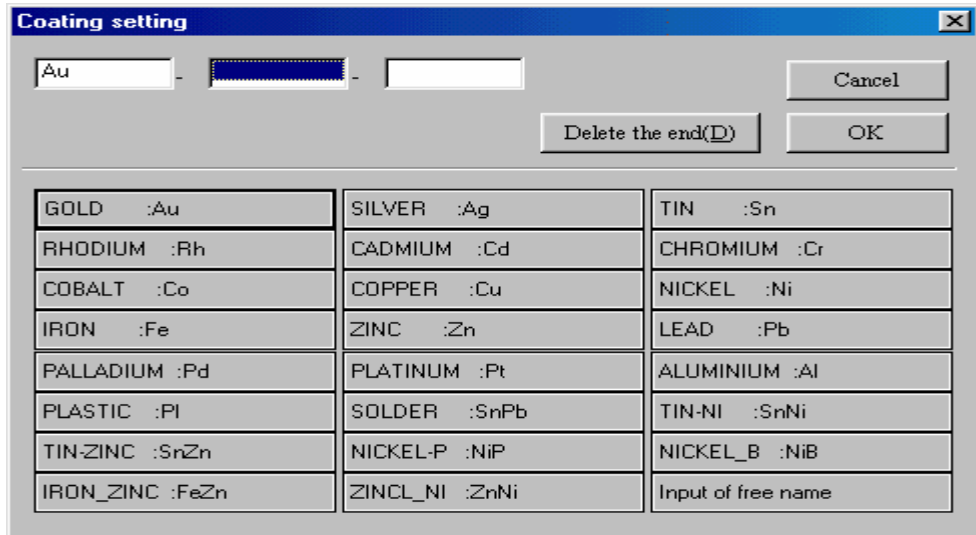
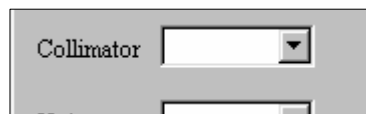


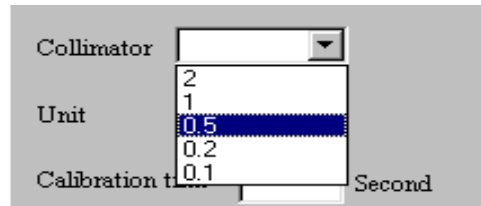
Fig . 2-1 Coating setting

3- 가 , 가 " " (input of base name) 가 , ,

4- (collimator) X



. 2-4



. 2-5

5- X 가 , X 가 , X 가 , X 가 , X 가 , X 가 , X

6-

um ( =  $\mu\text{m}$  )      mil      MI ( = micro-inch )  
 $\text{g}/\text{m}^2$        $\text{oz}/\text{ft}^2$        $\text{mg}/\text{c m}^2$       ( = )

7- (Indication style) ( ) " Free " 가 가 가

8- Calibration time  
 (entry column)  
 (1 999 seconds)

9- Calculation method

X 가 X  
 (metal, etc.)

10- Filter

X 가 (overlapping),

X

X (fluorescence

X emitting from specific )

가 : Co (Cobalt) Ni (nickel) .

Co (Copper (Cu)) X (Ni / Cu-base or Ni / Brass-base)

Ni (Zinc (Zn)) X (Cu / Zn-base or Cu / Brass-base)

11- Energy range

가

38 290

가 (

) 가

가

Energy range auto setting

가

“ Energy range auto set “

가

가 (free name material)

가

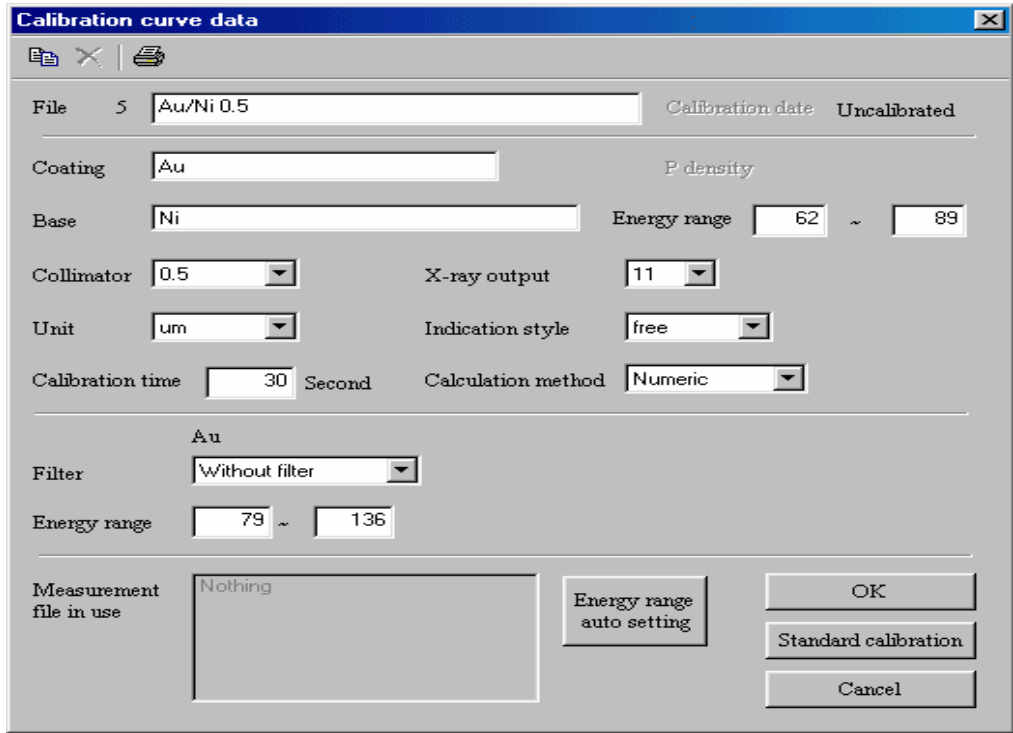
가

Standard calibration

3.1(3.1.Standard calibration page)

가

가



. 2-6 Calibration curve file entry (already entered)

2.2.3

“ Selection of calibration curve file “

“ Calibration curve data ” (Fig. 2-6)



‘ Making calibration curve file ’

가

“ Measurement file in use

(Require re-calibration) :  
(the calibration curve file entry)

가 (correction)



(correction)

가

2.2.4

“ Selection of calibration curve file “ ( . 2-1)

가 “ Calibration curve data “ ( . 2-6 )



2.2.5

가 “ Selection of calibration curve file “ ( . 2-1)

가

?”

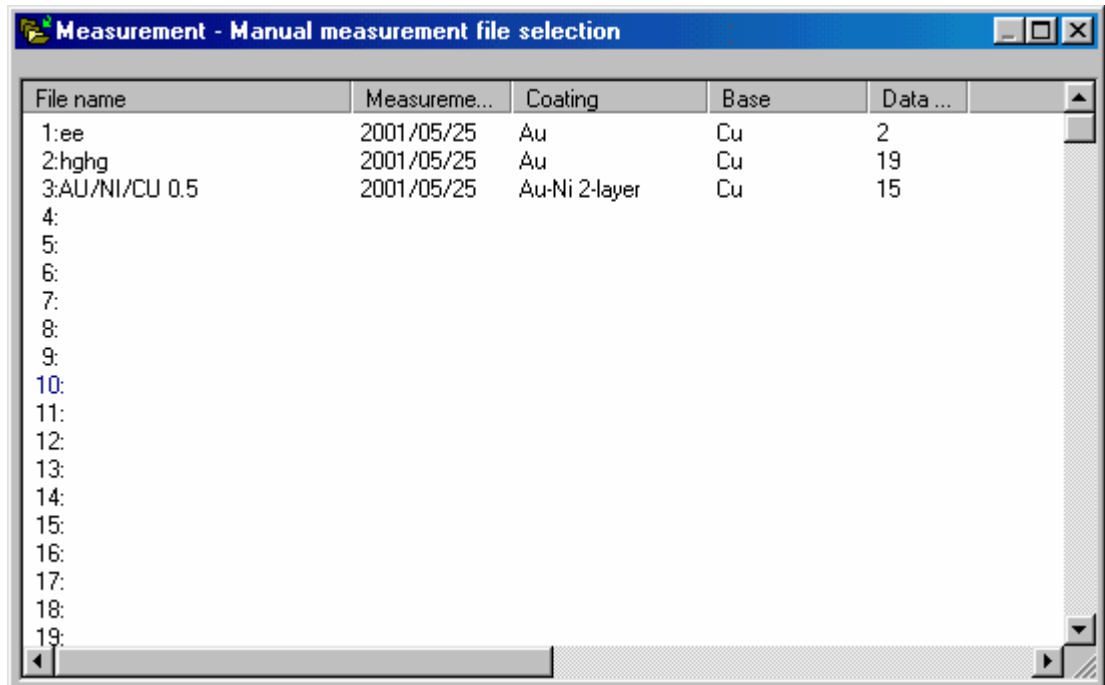


2.3 \_\_\_\_\_ ( , , , )

(unit)가 가  
 “ Measurement file “  
 (Auto table type' s measurement position program)  
 300 가 100  
 가 ..  
 2.2 Calibration curve file

2.3.1 \_\_\_\_\_

(type)  
 File Manual measurement file  
 File Auto measurement file  
 File Random point auto measurement file  
 2-7: ( .2-7 Selection of Manual measurement file)  
 2-8: ( .2-8 Selection of Auto measurement file)  
 2-8 4



2-7 ( Fig . 2-7 Selection of manual measurement file)



File name	Measureme...	Coating	Base	Data ...
1:fbhf	2001/05/25	Au	Cu	54
2:AU/NI/CU 0.5	2001/05/25	Au	Cu	124
	2001/05/25	Au-Ni 2-layer	Cu	16
3:				
4:				
5:				

2-8

(Fig . 2-8 Selection of Auto measurement file)

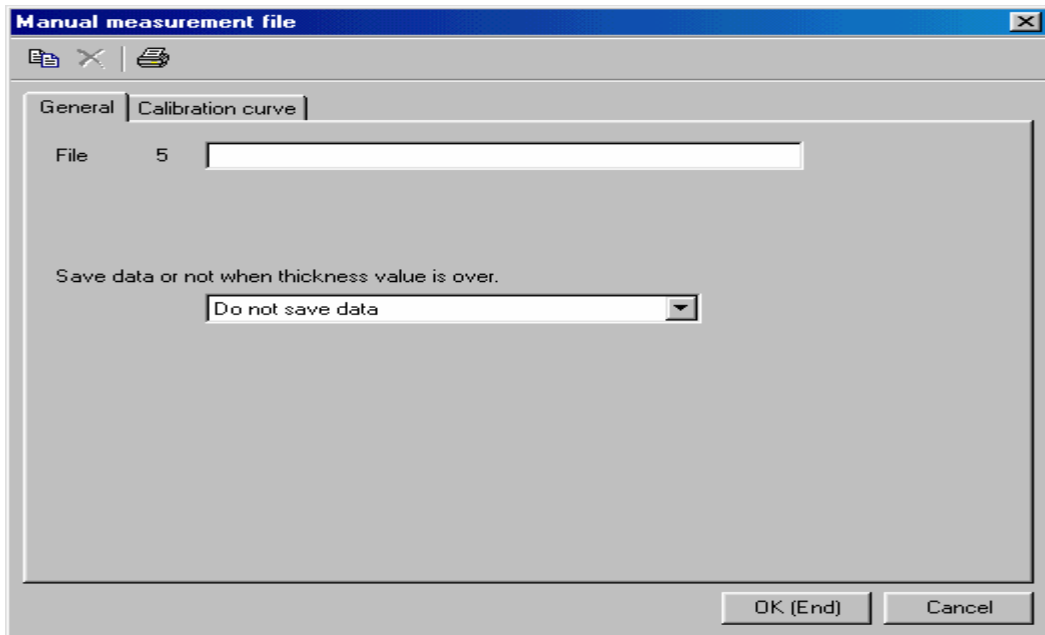
“ Selection of measurement file “ a selecting  
 measurement line” 가 , ,  
 . ( 2-9 ; ) . , 가 ,

2.3.2

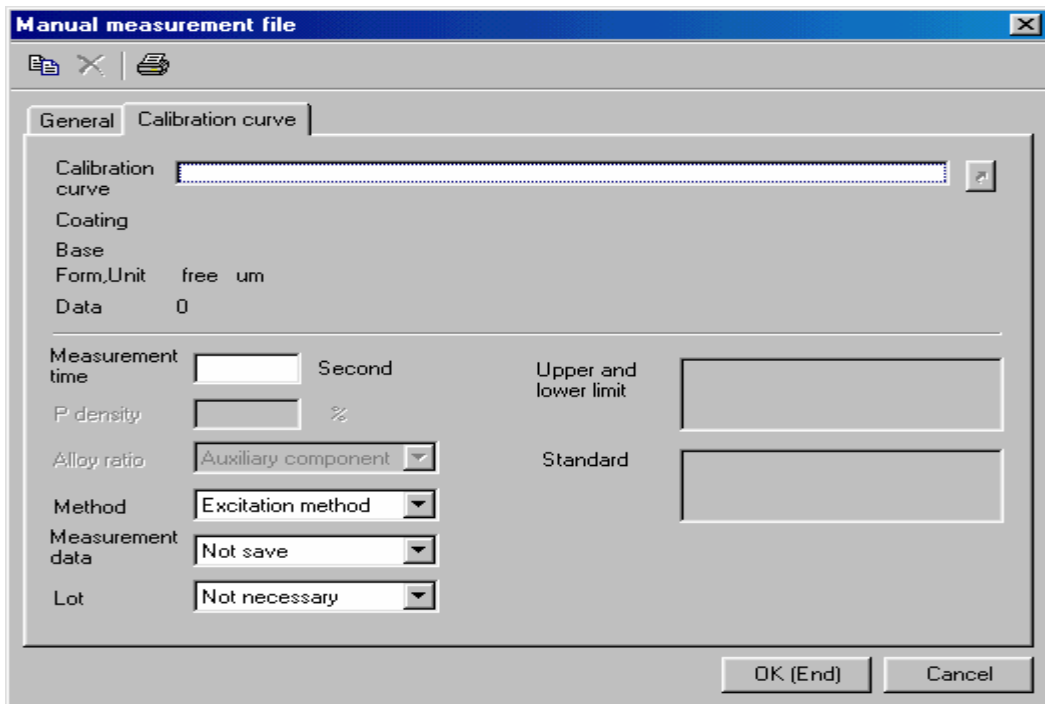
(Make manual measurement file)

가

.( 2-9)



2-9 ( ) (Fig.2-9 Manual measurement file ( General ))



2-10 ( ) (Fig. 2-10 Manual measurement file (Calibration curve))

“ ” “ ” “ ” 가 . 가  
 , “ :General” “ :Calibration curve”

2 (page)

( )



1- (File name) 가  
.2 63

2- X (coating saturation) X (enter the indication of measurement result and data saving.) 2  
\* (Do not save data) : , “ :  
Measurement result is over “ 2, 3  
\* 가  
\* (Max. value of specified style) :  
(style) . ( Indication style of 2.2.2 Make calibration curve file )  
(2.2.2. 7-) . >In case of free, indicating as 999.99

3- 가 “ Selection of calibration curve file”  
가 “ Selection of calibration curve file”  
가  Yes 가

4- (Measurement time)  
. 1 999 seconds

5- P  
Ni-P Ni-B , P B

6- (Alloy ratio)  
(auxiliary component)(element and ingredient **specified in the second**)  
가 (element and ingredient specified at first)

7- (Measurement method)  
, ( . 2.2.2 Make calibration curve file , )

\* Excitation method : X

\* (Absorption method) : (atomic number)

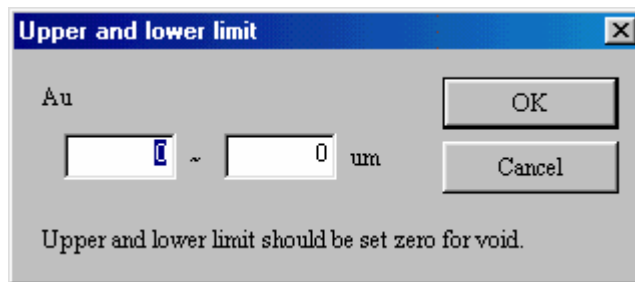
X X

X X

8- 가 , : 가  
 “ Do not save data” , “ Save data”  
 , 가 .

9- (lot control)  
 가 “ Necessary” , (Lot number)가  
 (lot control) , “ Save” “  
 measurement data” (lot number) 0 .

10- Upper and lower limit



. 2-11 Upper and lower limit

, /  
 , OK /  
 / 0 .

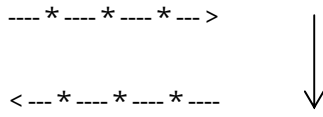
11- Standard  
 , Cpk  
 “ / ”  
 / 0 .



(  
measurement position .) 2.3.3.5 Setting of

2.3.3. \_\_\_\_\_

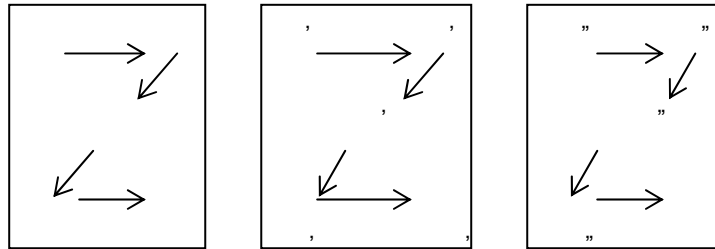
2.3.3.1 \_\_\_\_\_



3 , 4 0 , 3 , 4  
 (the number of division)  
 4 X 6 가

가 , 300 가 >One section' s division number can be set

from 0 to 99.

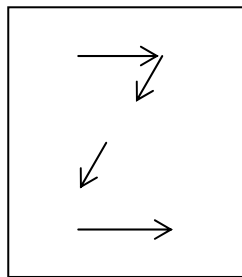


5 , ' & " 가 15 가

(specifying only , ' & " ), No.1

(the number of division) 가 , ' & " 가

1



& 가 (measurement position)



300

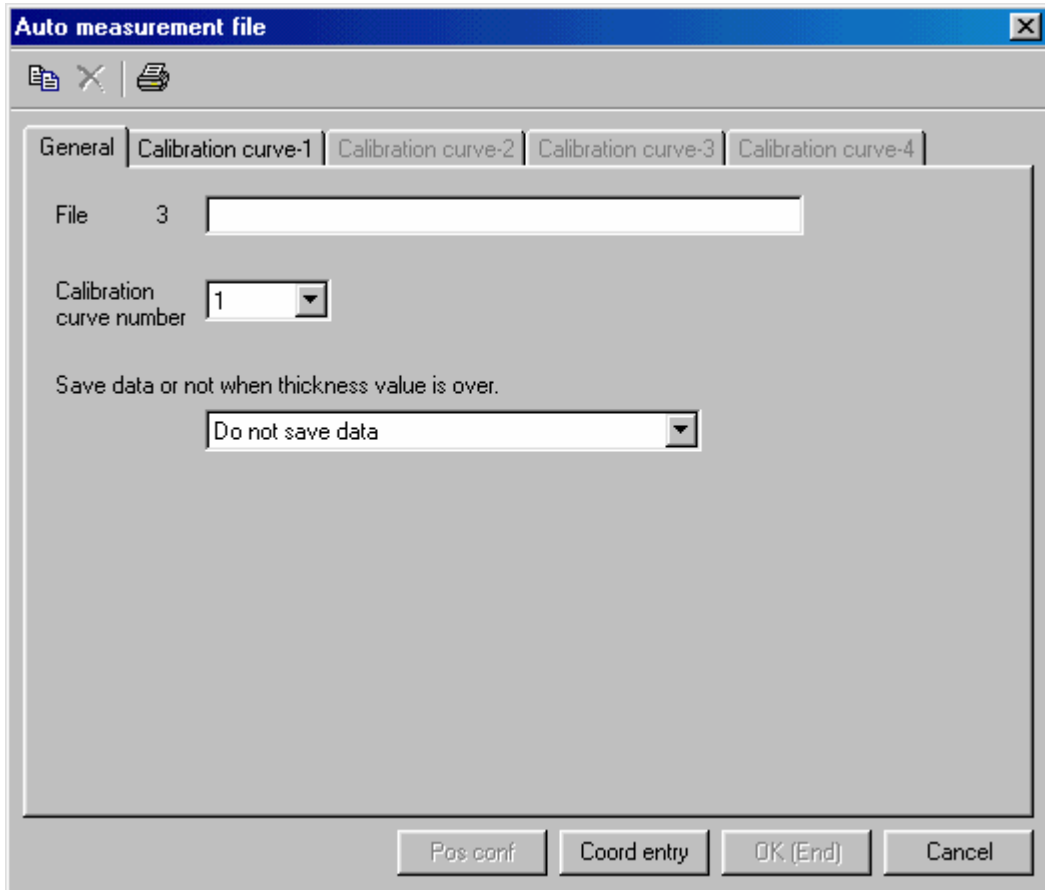
4 가 (can be specified) .

, 2 4

“ Calibration curve “ (page) 가

(Coordinates entry)

, 2.3.2 (Make manual Measurement file)



. 2 - 12 ( general )

“ General “ , “ Calibration curve “ ordinates  
entry (Coordinates entry method)

2.3.3.3 (Coordinates entry method)

가 “ General” “ Calibration curve” “ Coordinates entry”  
 “ Method of coordinates entry” 2-13  
 “ & position & rotation correction” “  
 repeat of pattern”

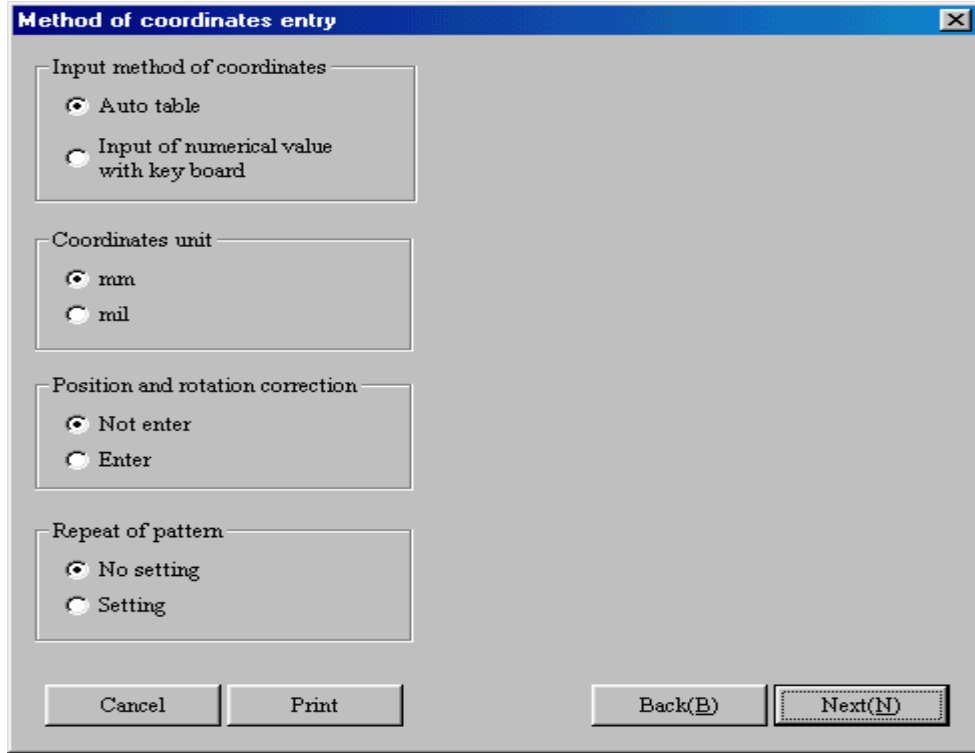
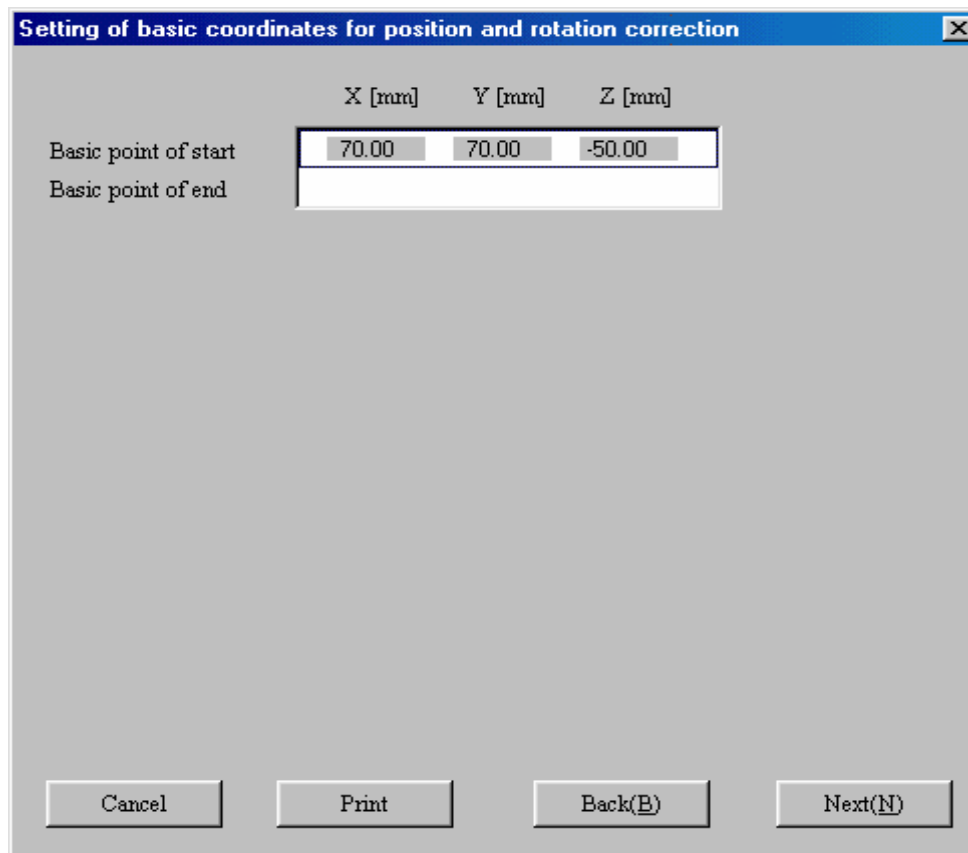


Fig . 2-13 Method of coordinates entry ( Auto measurement )

- 1)
  - \* Auto table ; (coordinates)
  - \* .Input of numeric value with keyboard ;
- 2)
  - “ mm” “ mil”
- 3)
  - Position and rotation correction
  - “ enter” “ Not enter”
- 4)
  - Repeat of pattern
  - “ the repeat of pattern” “ setting” “ No setting”
  - “ ” Next

2.3.3.4 “ / ”  
2-13  
setting”



. 2-14 /

/

“ ”



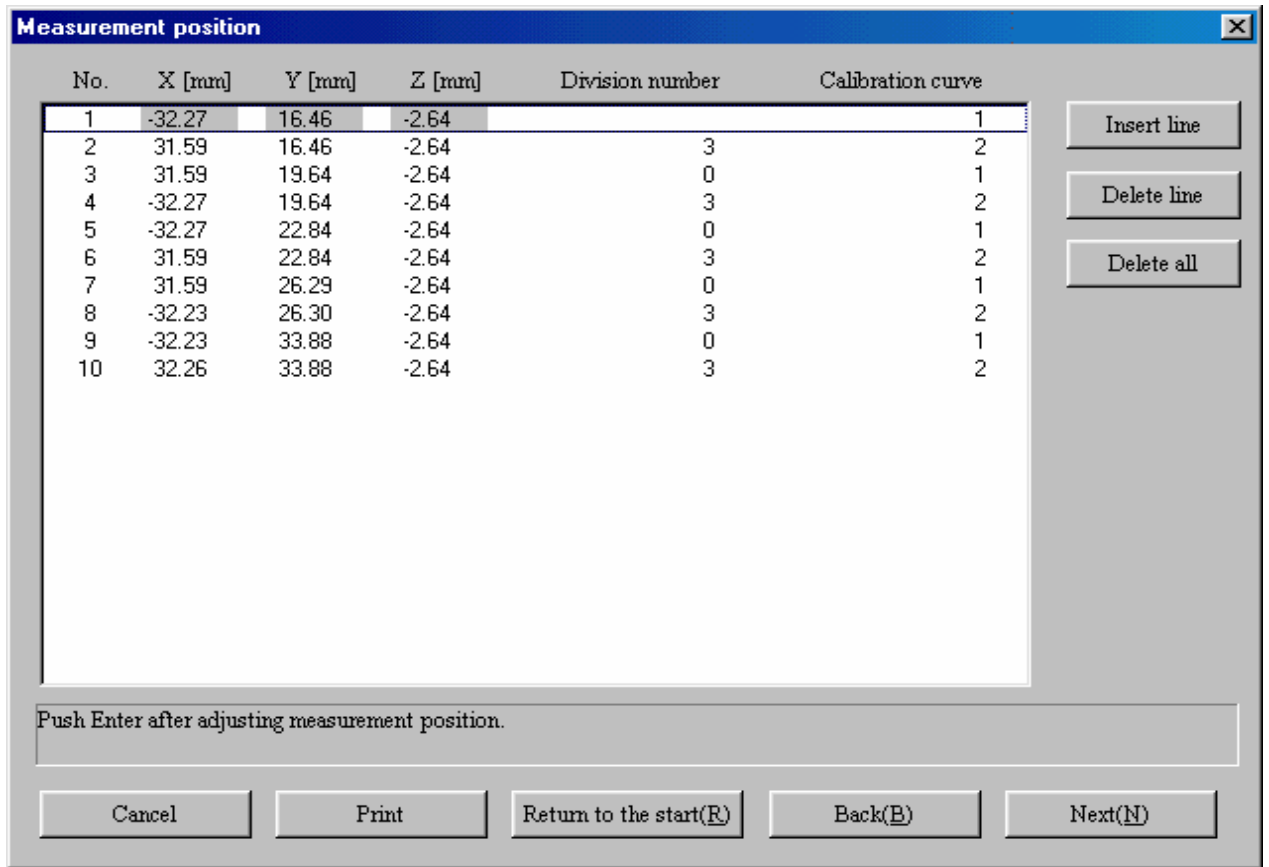


Fig. 2-15 Entry of measurement position ( auto measurement )

1) X, Y, Z

(has been specified),

Enter

2) " Division number"

please set how many measurement points from the coordinates of last to this lines to be tested on a straight line . 0 99 가 0(zero)

3) 가 "

" general" No.1 4

No.1

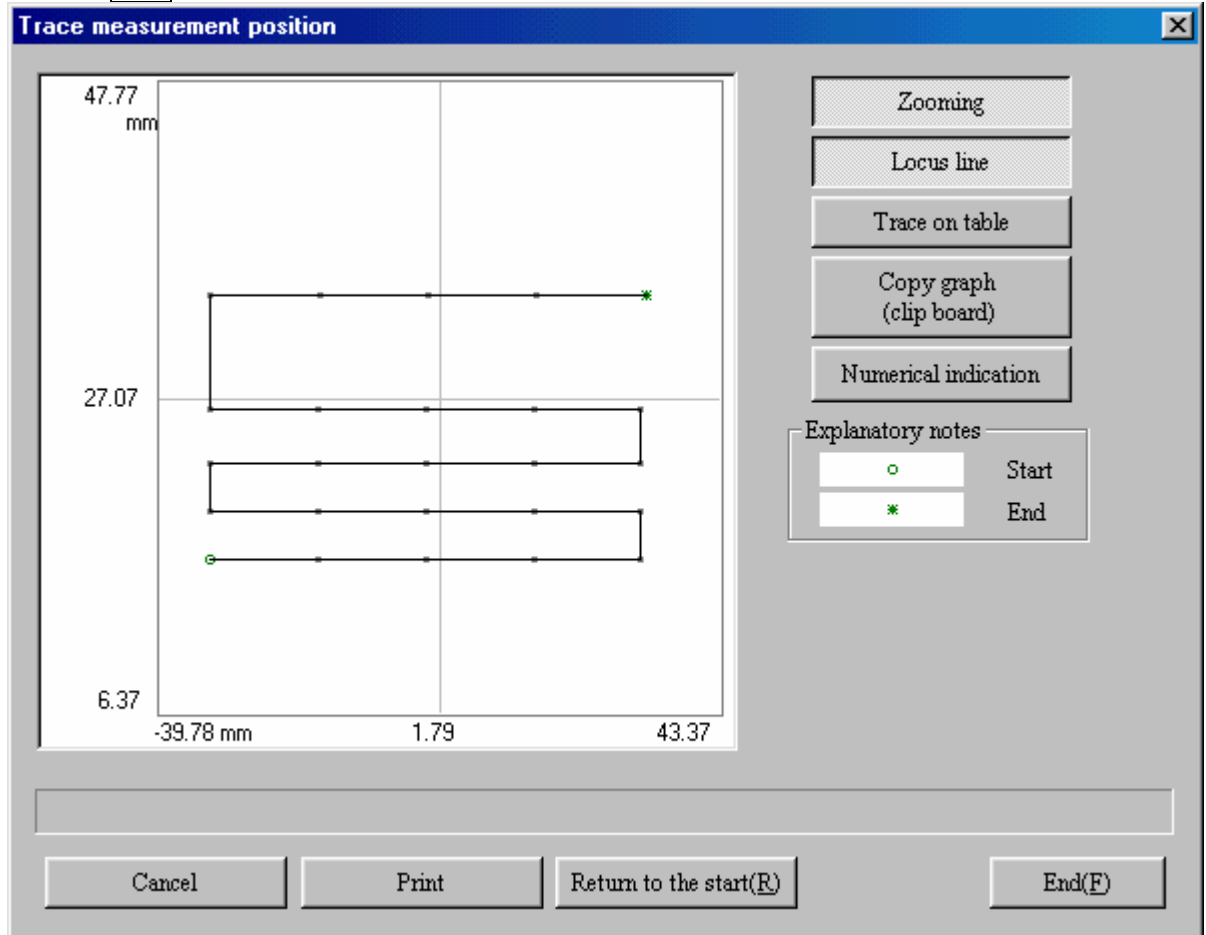
4) 1) 3)

5) , NEXT

" repeat of pattern" , " repeat position set"  
 " repeat of pattern" , " the coordinates entry"

6) “ repeat of pattern” “ Repeat position set”  
 (Set up method) 1) 4)  
 , 3) 가  
 ,

7) “ Trace measurement position “ ( . 2-16)  
 가 ,  가



. 2-16 Trace measurement position

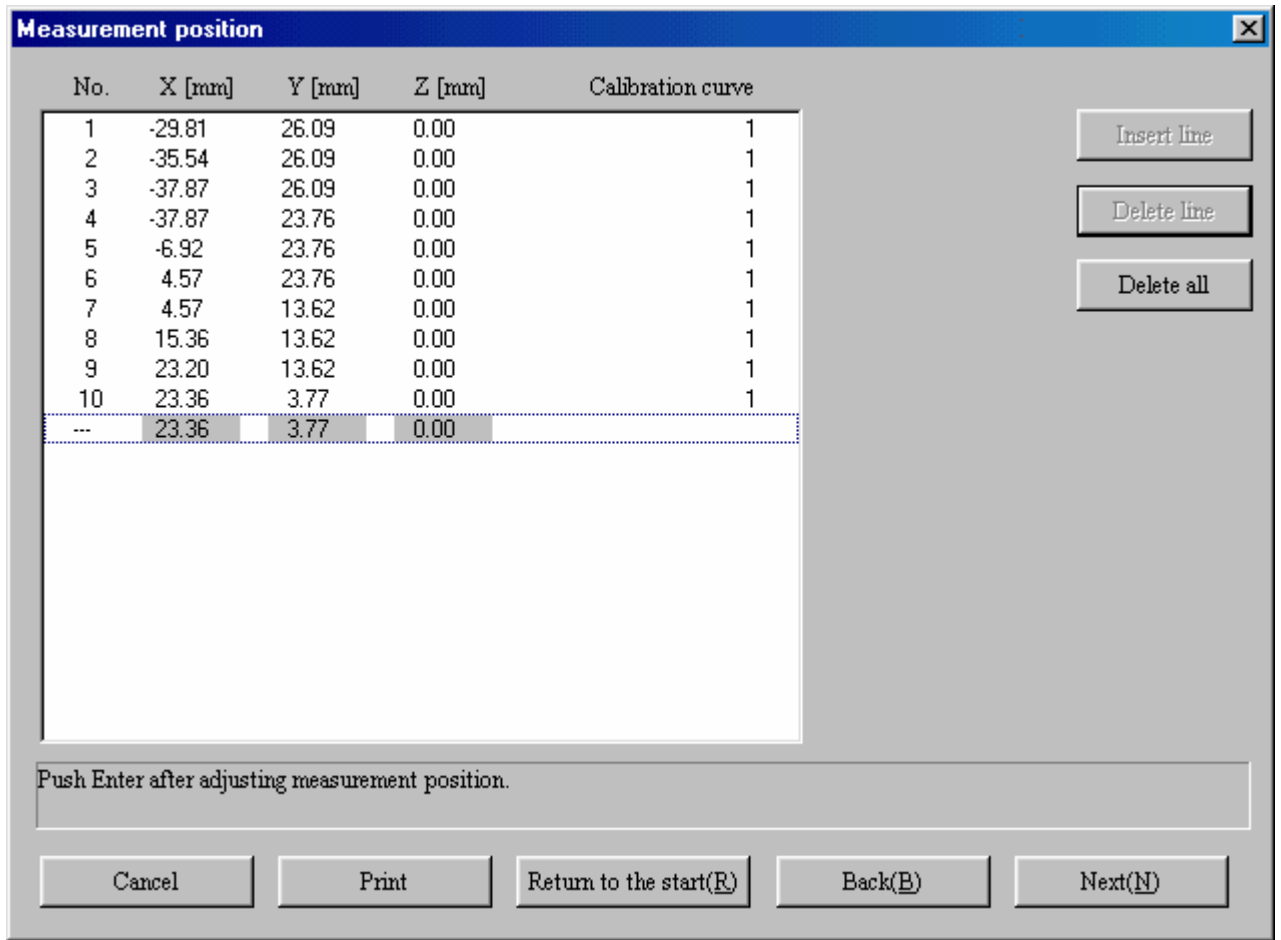


Fig. 2-17 ( )

1) X, Y, Z (has been specified),

Enter

가

2) 가

2.3.3.2 Conditions of calibration curve.

(1~4)

(specifying).

가

No.1

3) 1) 2)

4) (measurement point set)

NEXT

5) “ ” ( . 2-16 ) ,

가

OK

2.3.4

“ Select measurement file” ( .. 2-7, etc. )

“ measurement file” ( . 2-9, etc.)

2.3.2 Make manual file

“ ” , , “ general”

“ ” ,

Coordinate entry

Next

2.3.5. Delete measurement file

“ Select measurement file window” ( .. 2-7 )

“ Measurement file” ( 2 )



Copy Delete Print  
. 2-18 ( )

2.3.6

“ Select measurement file” ( . 2-7,etc.)

“ ” (Copy)

“ Select measurement file “

가

“ If you make a copy, this data will be lost , OK ? “ , so please click

2.4.

가

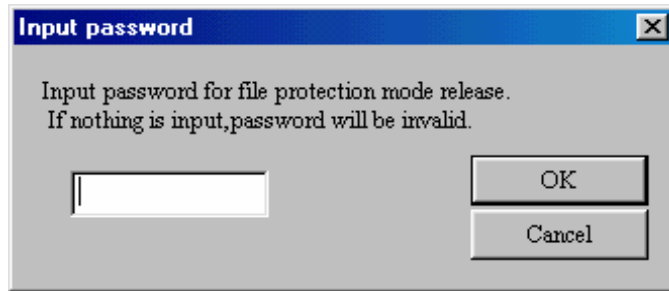


Fig . 2-19 Input of password

File

Input password

2-19

OK

OK

03. & ( CALIBRATION & CORRECTION)

X

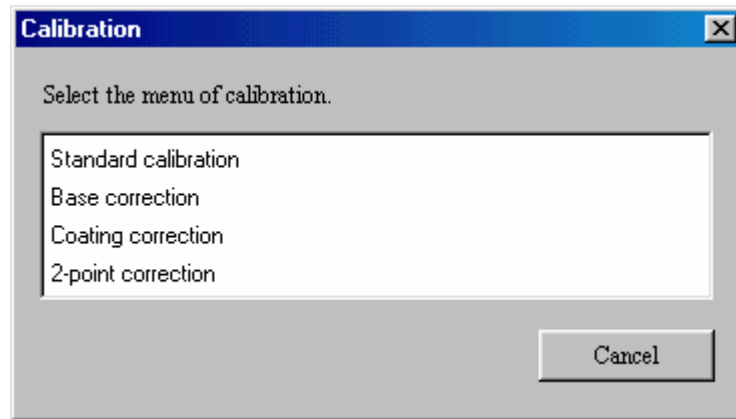
" Calibration" 가

Calibration

X X spectrum calibration

Regular calibration ON/OFF

3-1 , " Calibration" , (standard calibration or correction)



3- 1 Selection of Calibration & Correction ( for Single layer )

, , ( 3-1)" &

Calibration

( 3-2) ' Selection of calibration curve'

가 . ( 3-1) .

No.	Coating	Base	Data nu...	Measurement date
1	Au	Cu	124	2001/05/25~2001/05/25
2	Au-Ni	Cu	16	2001/05/25~2001/05/25

Fig . 3- 2 Selection of calibration curve

3.1. \_\_\_\_\_

X (quantity; count number)

(1.2.3

) 가 가

3-1

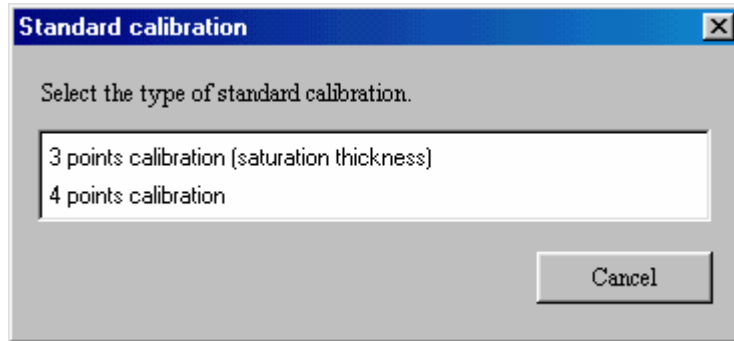
Coating Type	Standard Calibration Method	Required Standard	
Single layer	Linear 2 points calibration	Base Standard coating	
	3 points calibration (without saturation)	Base Standard coating ( 2 points )	
	3 points calibration ( with saturation )	Base Standard coating coating	
	4 points calibration	Base Standard coating ( 2 points ) coating	
	Multi points calibration ( 10 points )	Base Standard coating ( Max. 10 points ) coating	
2 layers	Short calibration ( 6 points )	Base 1-layer coating 2-layer coating 1- layer Standard coating/Base 2-layerStandard coating/Base 2-layer Standard coating/1-layer coating	
	Long calibration ( 9 points )	Base 1-layer coating 2-layer coating ----- 1-layer Standard coating /Base (2 points ) , 2-layer standard coating/Base (2 points)	
		----- 2- layer Standard coating / 1-layer coating (2 points )	
3 layers	Short calibration ( 10 points )	Base 1-layer coating, 2-layer coating, 3-layer coating ----- 1-layer Standard coating /Base, 2-layer Standard coating/1-layer coating	
		----- 2-layer Standard coating/Base, 3-layer Standard coating/1-layer coating	
		----- 3-layer Standard coating / Base 3-layer Standard coating/2-layer coating	
		-----	
Alloy	Short calibration ( 7 points )	Base coating of No.1 material No.2 material coating ----- Alloy coating No.1 material coating ----- No.2material Standard coating Alloy Standard Coating	
		Long calibration-1 ( 9 points )	Base No.1 material coating No.2 material coating ----- Alloy coating (ratio 2 points), No.1 material Standard coating ----- No.2 material Standard coating Alloy Standard Coating( ratio 2 points)
			Long calibration-2 ( 11points )

: , 2 , 3 , ( 가 )  
 多 (point) 3 ( )  
 X ( ) 가  
 가

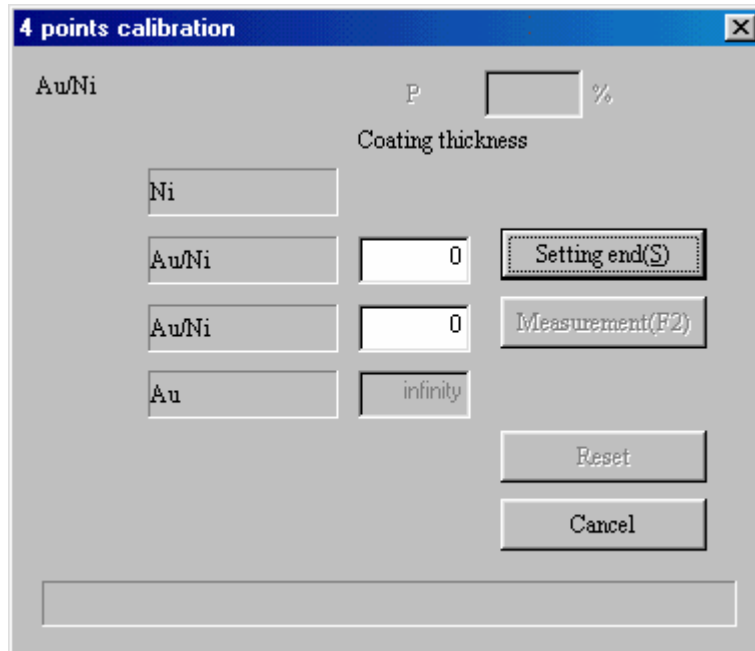
Table 3-1 Calibration method

( Operation method )

가 ( 3-3)



3-3 ( for single layer numeric )



3-4 ( 4 points calibration )

가 , 0(zero) , Ni-P,

Electro-less Nickel(Ni-P) ' P-density'

Ni-B P B density , EX-3000 P, B

P ratio

Setting end (S)



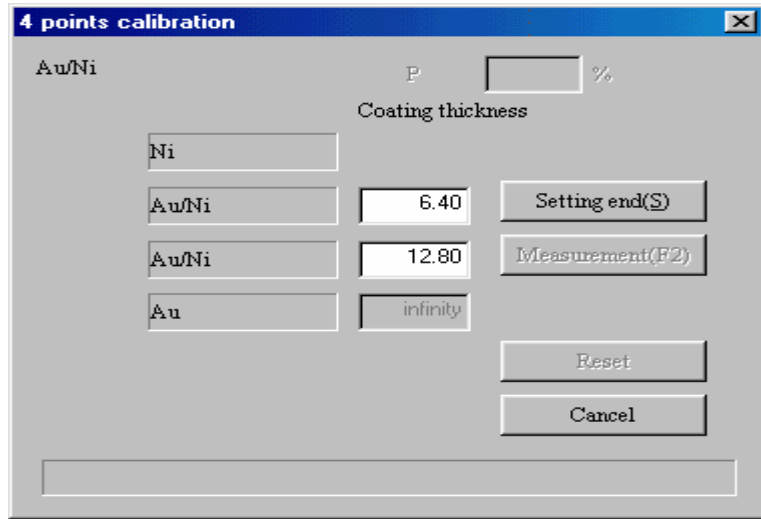


Fig. 3-5 Measurement of standard for calibration ( 4 points calibration)

(( 3-5 ) ) Measurement (F2) (unit)  
 Selection of  
 standard calibration” “ Full auto calibration” 가

가  
 3. 2. (Base correction)

(base) , Stainless Steel (Ag/SS)  
 Ag/Fe 가 Ag Stainless Steel  
 가 SS Brass  
 (base correction)  
 가

( ) ( 3-1), “ Base Correction”  
 (Base) , Enter

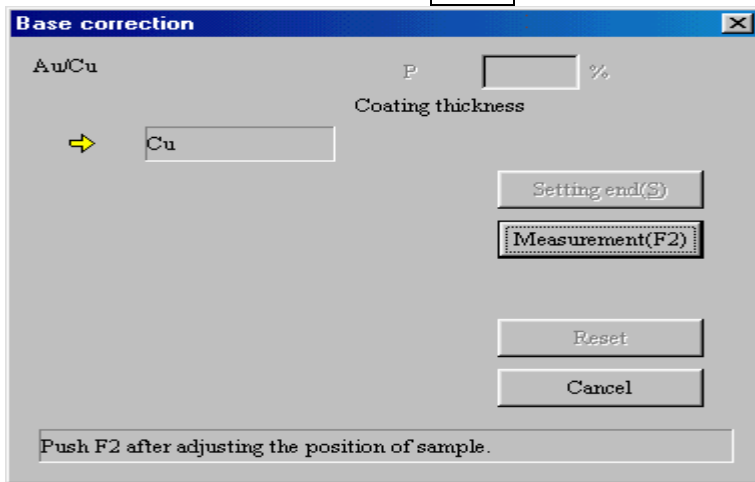


Fig. 3-6 Base correction

3.3

가, 가 , (infinity coating) F.1 . 多 ,

“ Coating Correction” “ 3.4 2.3.4 points correction”

( Operation method )

( 3-1) “ Coating correction”

Enter

3.4 2.3.4 points correction

X

\* , 2

\* 2, 3 , 3 4

( Operation method )

, 2 , 3 , 4

( 3-1)

Setting

end

Enter

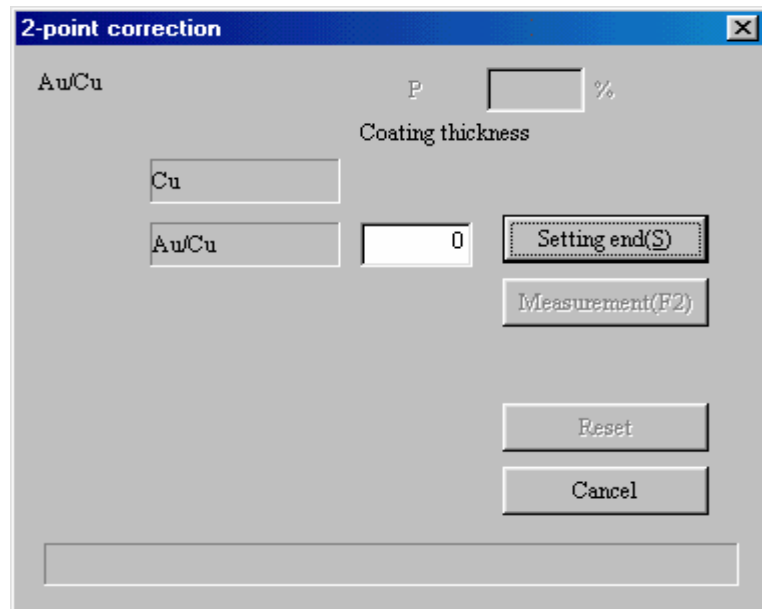
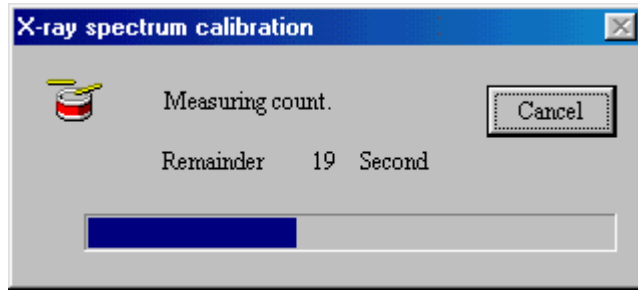


Fig . 3-7 2 points correction

3.5 X \_\_\_\_\_

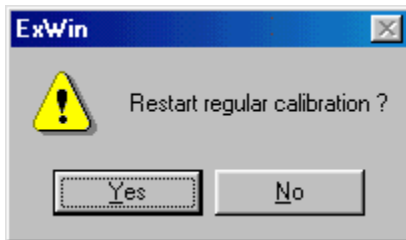
가 (out of position), X , ON 3.6 (Regular calibration)

( ) ; “ Calibration” “ X X spectrum calibration”

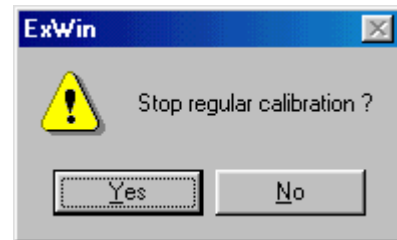


. 3-10 X spectrum calibration

3.6 \_\_\_\_\_



. 3-11 ON



. 3-12 OFF

Calibration Regular calibration ON /OFF .  
 OFF , 3-11 ,  
 ON , 3-12 .  
 가 Yes , OFF ON ,  
 ON OFF .

04. MEASUREMENT

4.1 \_\_\_\_\_

가 .) ( " 2.2 "

" 2.3 "

가 , ,

1) Manual measurement

2) Auto measurement

3) 가 ,

4) (Semi auto measurement)

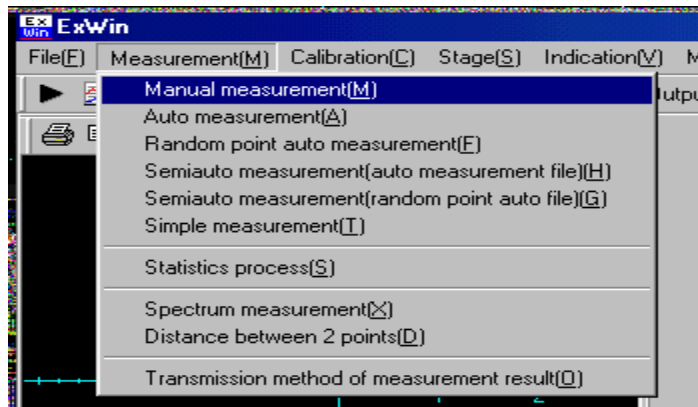
F.2

5) Simple measurement

가 ,

4.2 Measurement mode start

1) “ Measurement ” “ Measurement ”



. 4-1 Measurement menu

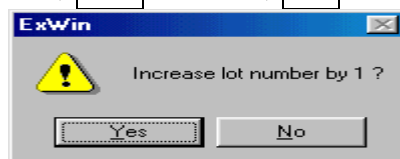
2) “ Measurement ” 가 4-2 가 , 4

File name	Measureme...	Coating	Base	Data ...
1:ee	2001/05/25	Au	Cu	2
2:hghg	2001/08/07	Au	Cu	23
3:AU/NI/CU 0.5	2001/08/07	Au-Ni 2-layer	Cu	40
4:				
5:				
6:				
7:				
8:				
9:hghg	2001/08/07	Au	Cu	23
10:				
11:				
12:				
13:				
14:				
15:				
16:				
17:				
18:				
19:				

. 4-2 -

3) 가 . ( . 4-4 )  
 4) 가 “ ” , “ 2.3.2. Make manual measurement file ” 가

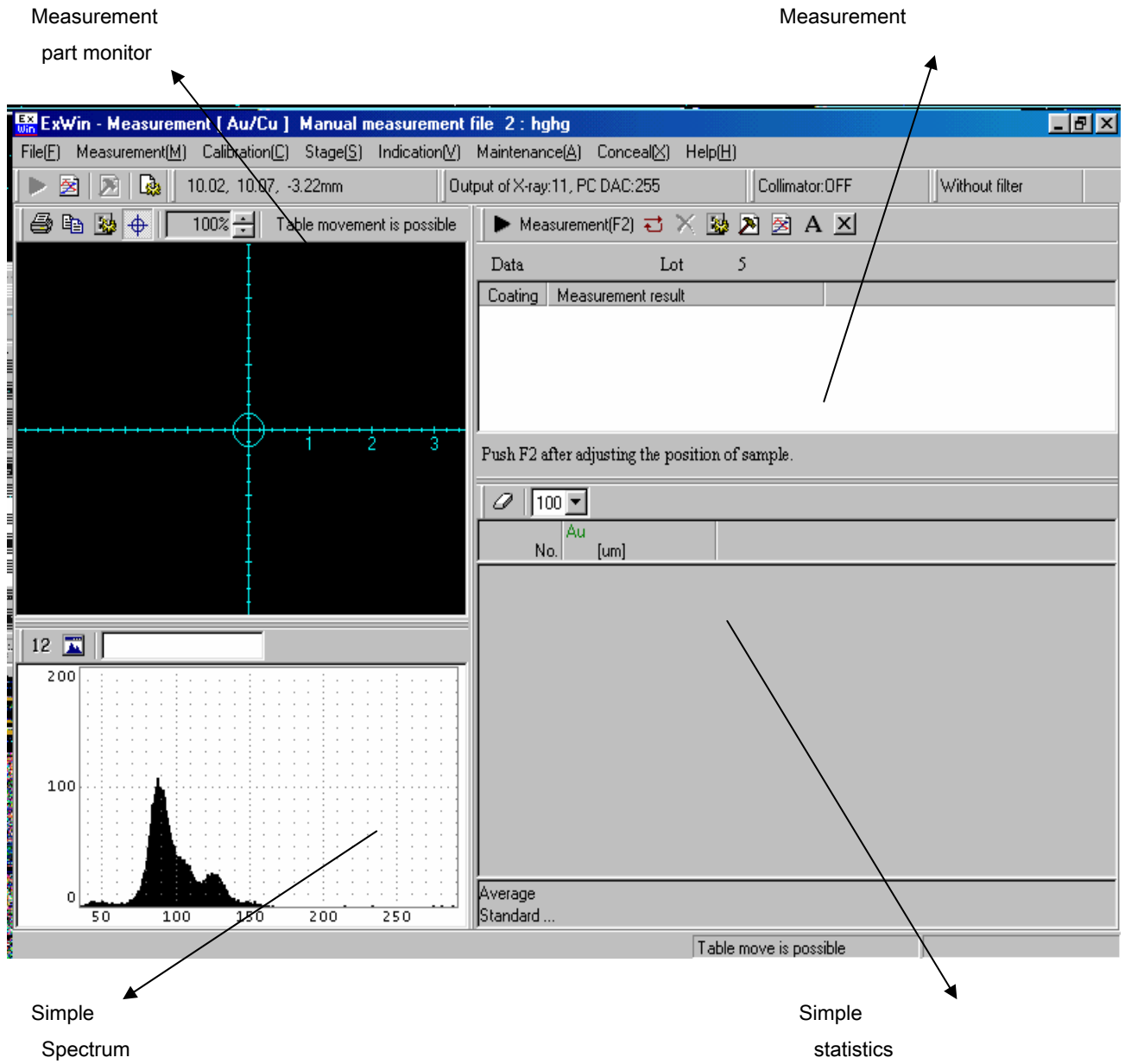
5) (lot control) , ( 4-3 )  
 (a lot number)가 , Yes , No



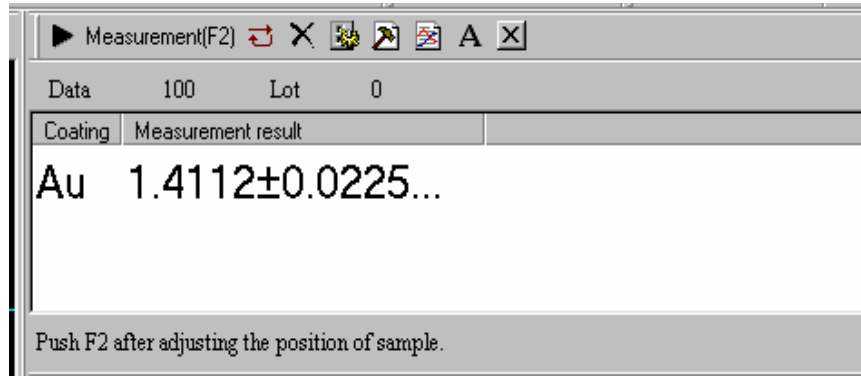
. 4-3 Confirmation of lot number

6) Measurement

가 , ; . 4-4 “ Measurement “  
 “ Simple statistics” .  
 “ Measurement” 가 .

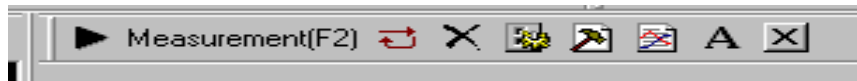


. 4-4



4-5 Indication of measurement

, ( 4-6)  
가

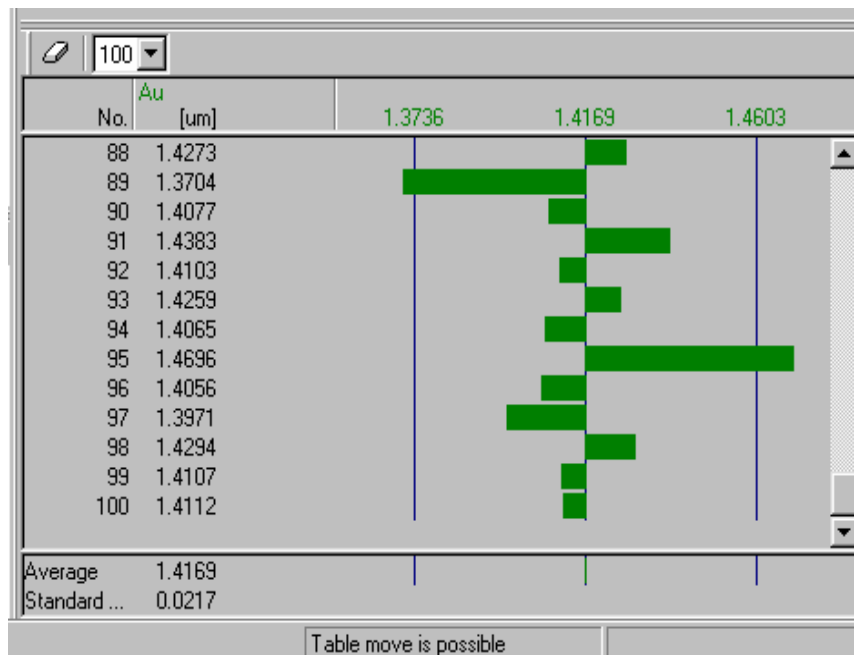


4-6 Measurement mode icon

Cancel the measurement result of just before obtained.  
Change a measurement condition ( ).  
Execute calibration . correction .  
Indicating a window for statistics process .

, 가  
“ execute” 가  
2, 3 가 2, 3  
가 가  
( ), 가 “ F2 ”  
가 ..

( .4-7)



.4-7

가

5, 10, 20, 30, 4, 50 100

가

가

가

Left side tip

가

.2, 3

가

2

가



4.4 Simple measurement

가

“ Measurement Simple measurement”

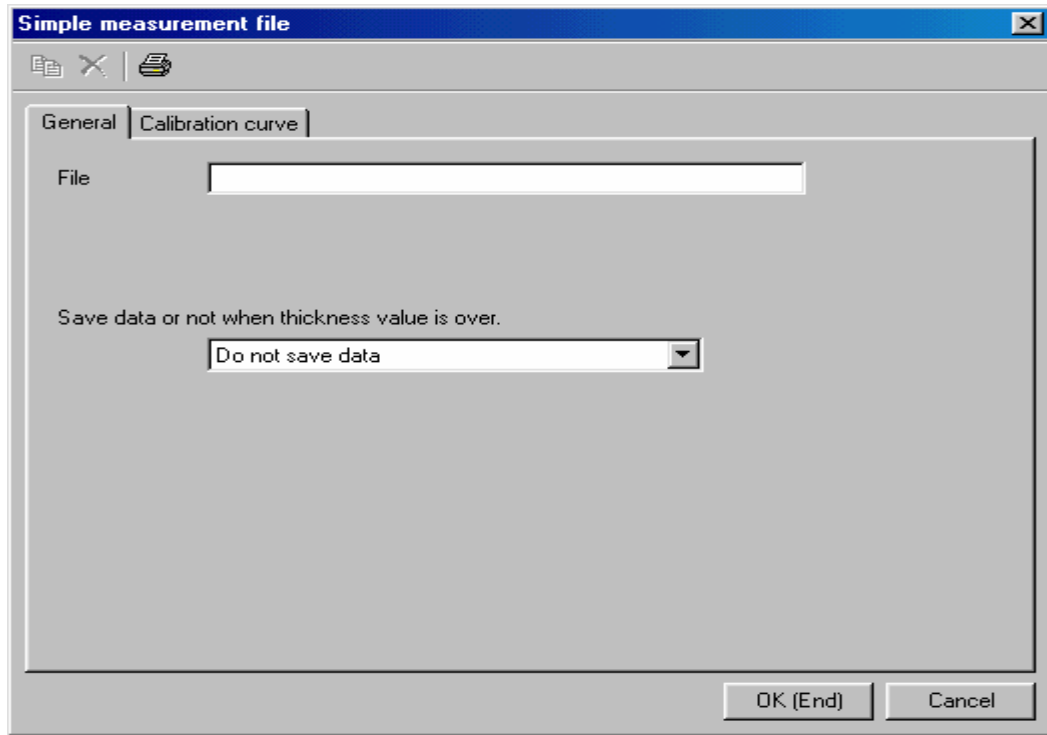


Fig.. 4-8

“ 2.3.2. Make manual measurement file”  
(lot control)

OK

가

( )

measurement (F2)

F.2

4.5. Measurement mode end

X

4.6 Statistics process

Statistics process window is indicating the mean, standard deviation, calculation of statistics volume for index number of process capacity etc., histogram, profile, x-R control list .

4.6.1. Statistics process selection

- 1)
- 2)

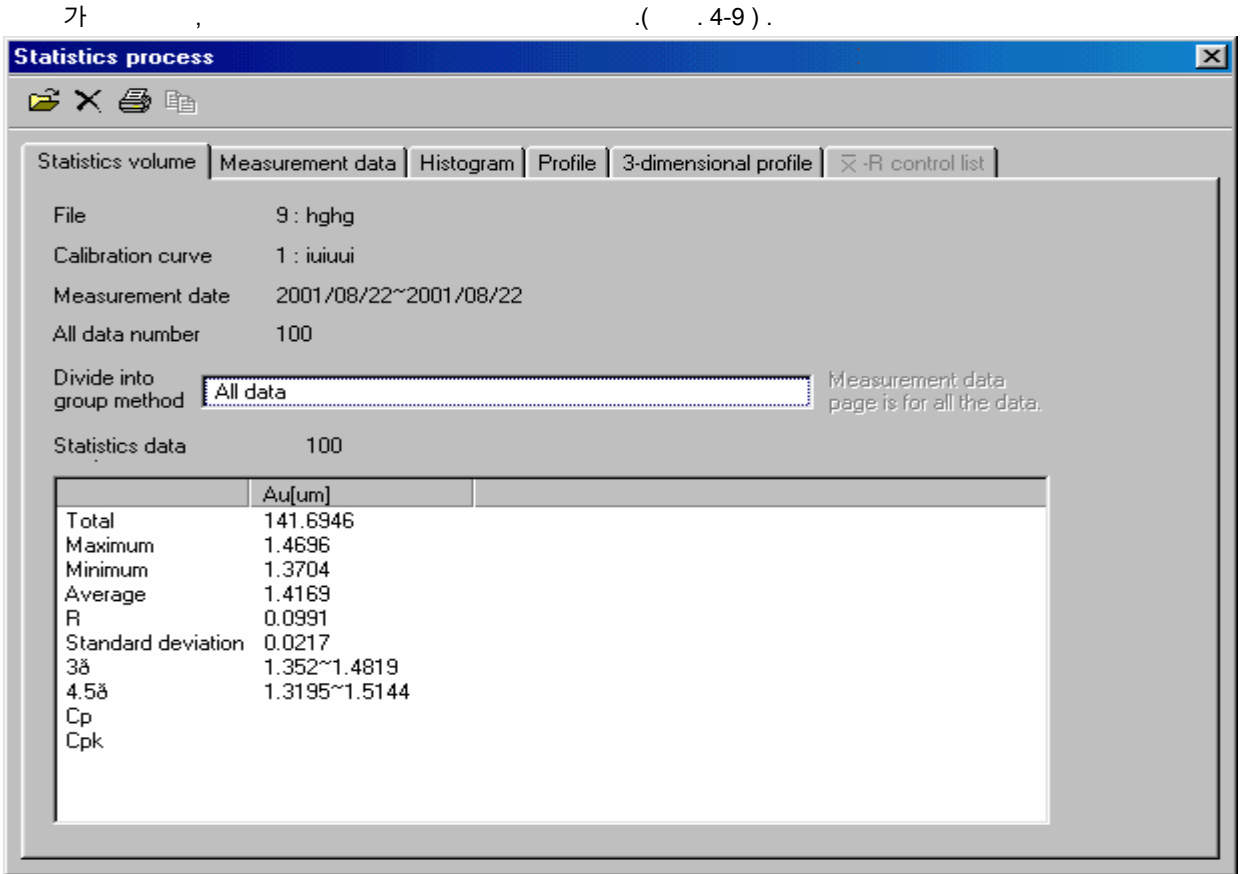
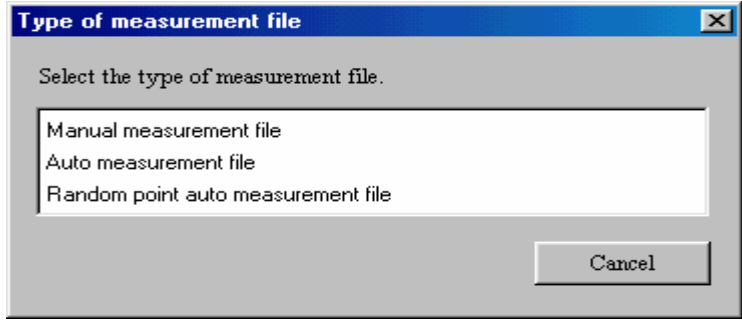


Fig.4-9 (statistics volume)

가

“ Open the file”

No.2

( )  
“ Save” the “ Measurement  
data”



. 4-10

[1] Select the file for statistics

[2] , “ measurement data  
“ “ delete”

[3]

[4] 가

4.6.2 Statistics volume

( 4-9) “ Statistics volume” . “ Statistics volume”  
, (mean), , “ Divide  
into groups” , , x-R

“ divide into groups method” :

All the data

Divide into groups for all the data saved and presently specified in measurement file.

Partial data

가

Data at regular spaces

Specify the “ data of started” and “ space” , and then select each data at regular spaces .

The mean values of each regular data

The mean values for each lot number

“ Doing lot control” ..

x-R , 4~6 , “ the divide into groups  
method” 가 ,  
가

4.6.3 Measurement data

“ divide into groups method”

Change Delete Text output 가 가 ..

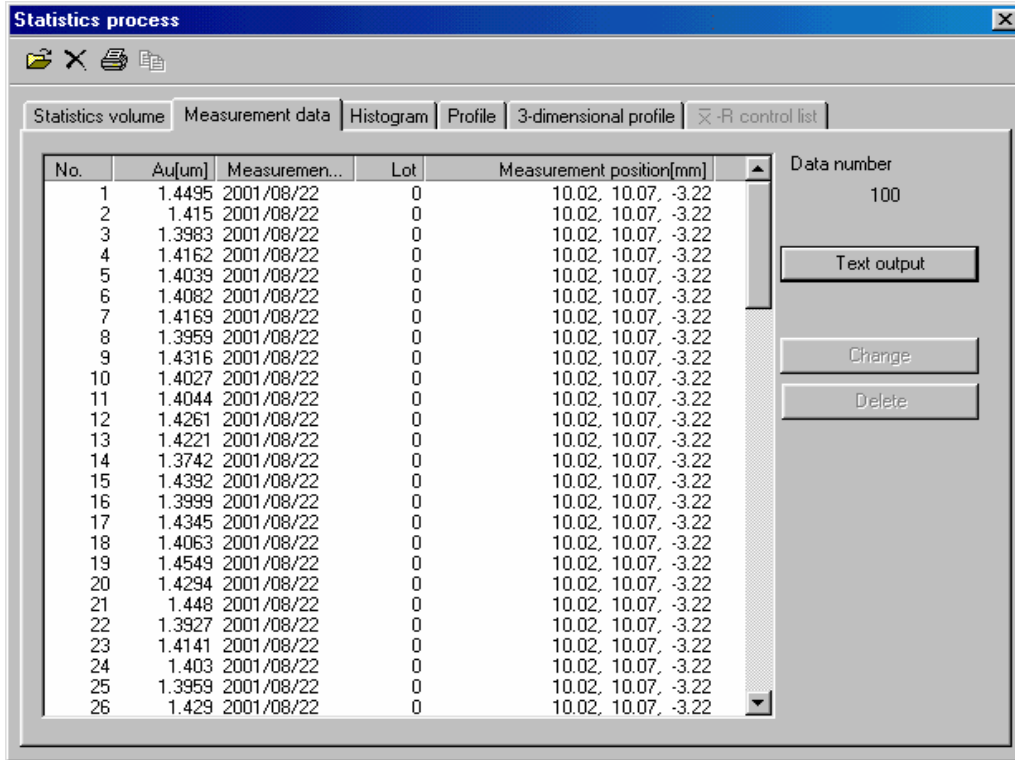
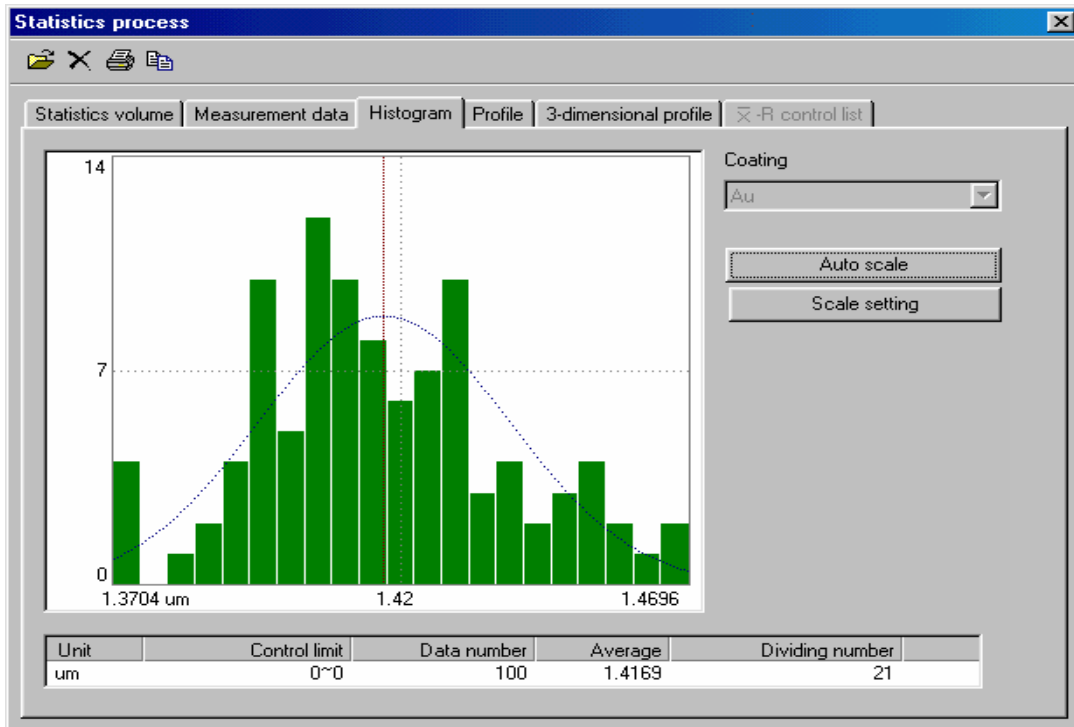


Fig. 4-11 Statistics process ( measurement data )

4.6.4. Histogram:

가 ..



4-12 Statistics process ( histogram )

4.6.5 Profile

가

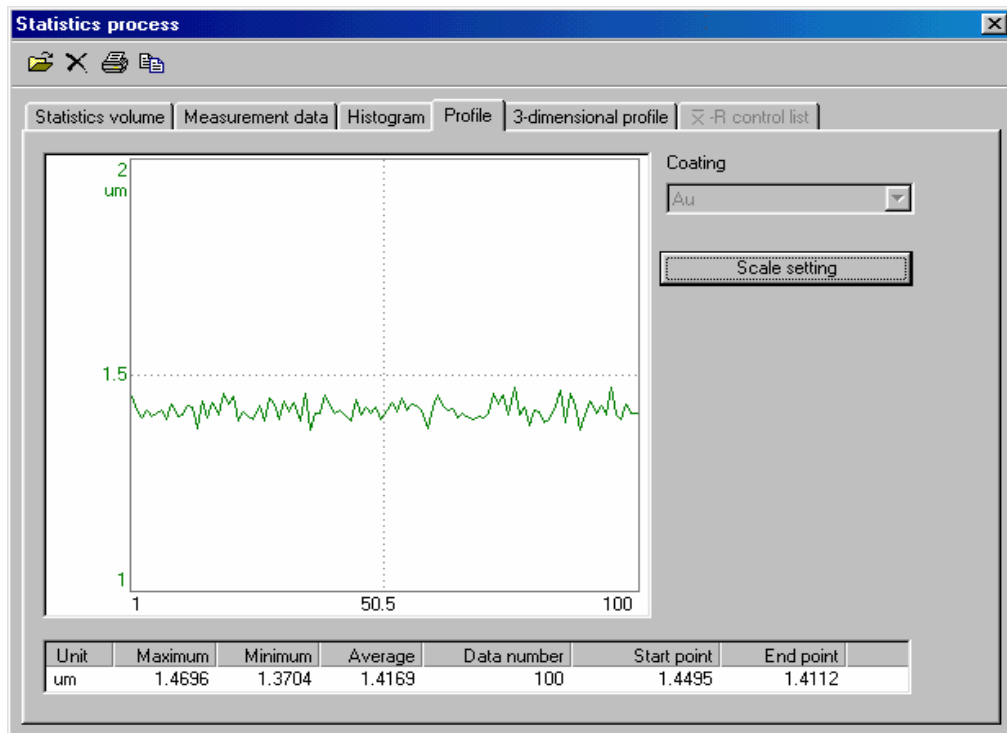
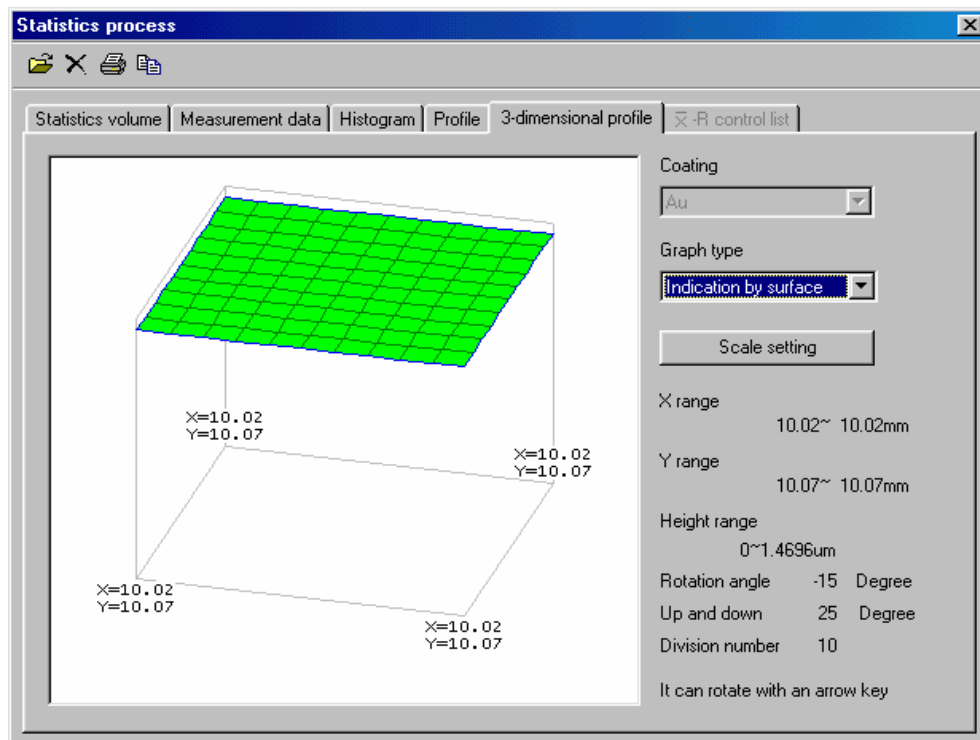


Fig. 4-13 Statistics process ( profile )

4.6.6 3 : 3

3

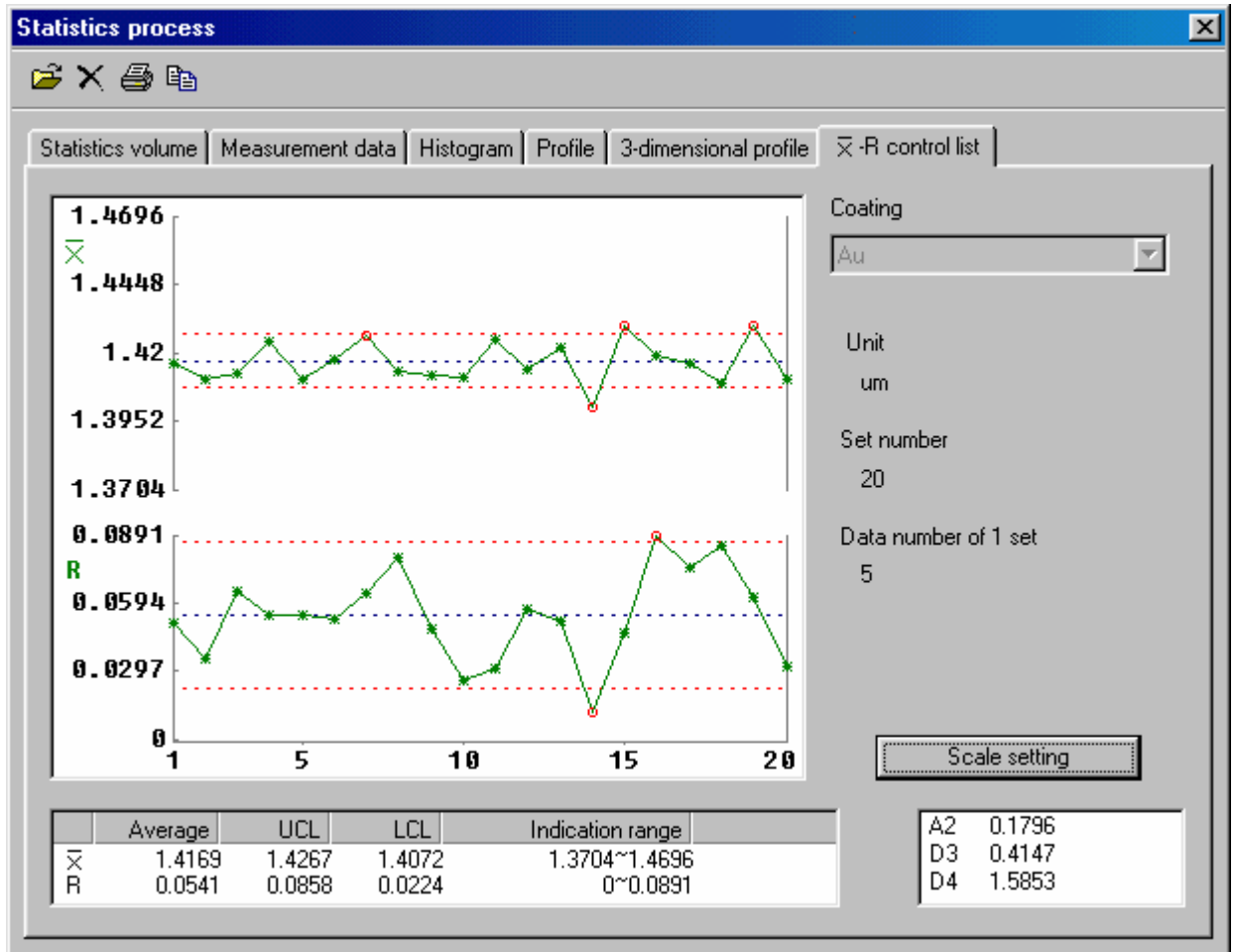


.4-14 Statistics process ( three dimensional profile)

4.6.7 x-R control chart

x-R (the mean value) (R=Max. - Min. values) .

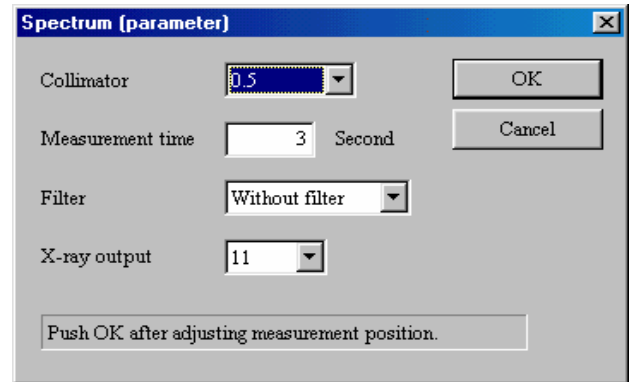
x-R 가 : “ divide into groups method” “ the mean value from each regular data ” “ the mean value from each lot” “ the mean value of each measurement date” .



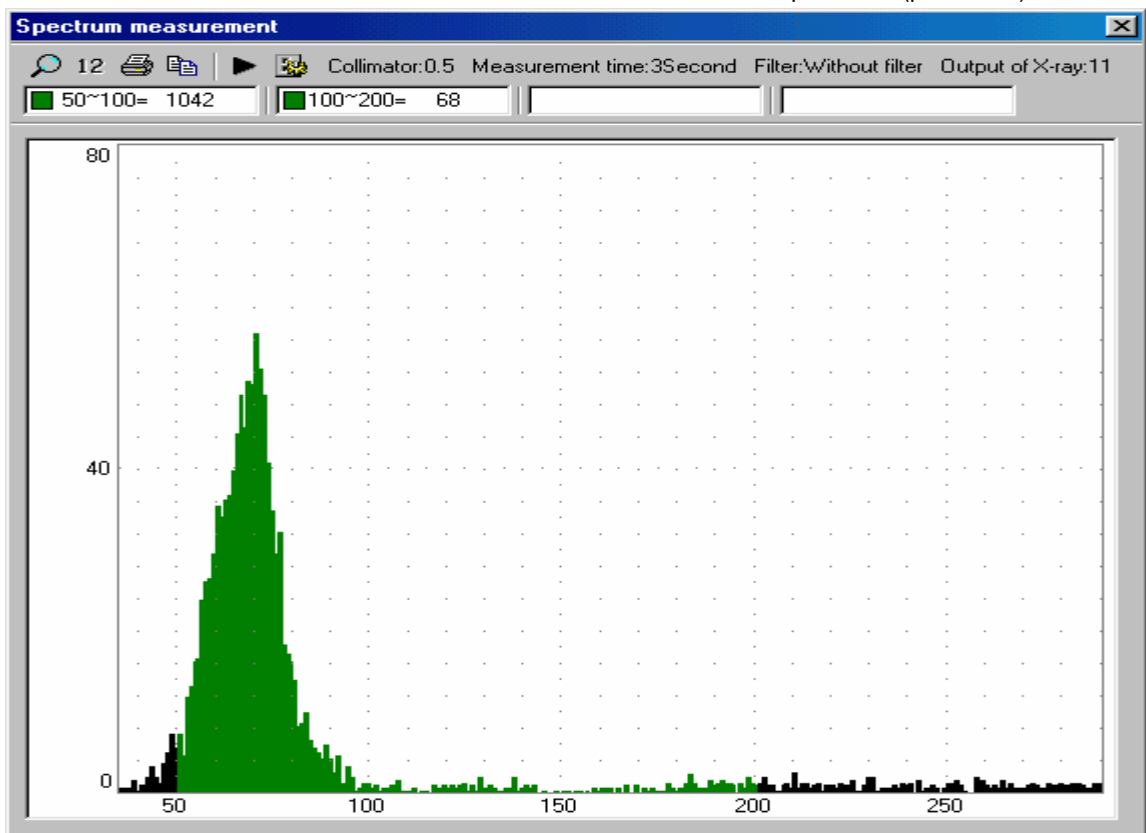
. 4-15 Statistics process ( x-R control chart )

4.7 Spectrum measurement

X  
 《      》  
 \*  
 Measurement      Spectrum measurement  
 \* ( 4-16)  
 4 ; , X  
 \*  
 OK ( 4-17)

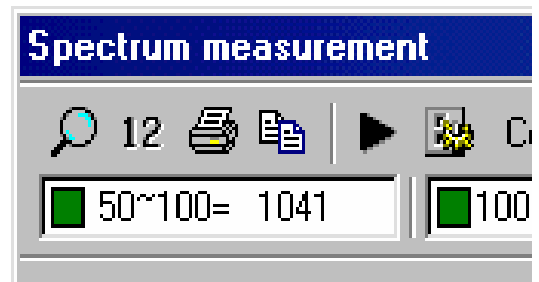


. 4-16 Spectrum (parameter)



( .. 4-17) Spectrum measurement

“      ”      가 ;  
 Enlarge ;  
 “ count”  
 MCA



. 4-18 Icons for spectrum measurement



( 4-16) , , 가 .

. 4 가 .

가 , 가 .

#### 4.8 2 Between 2 points distance measurement

X-Y

Z

1) “ Measurement” “ 2 Distance between 2 points”  
, ( 4-19)가

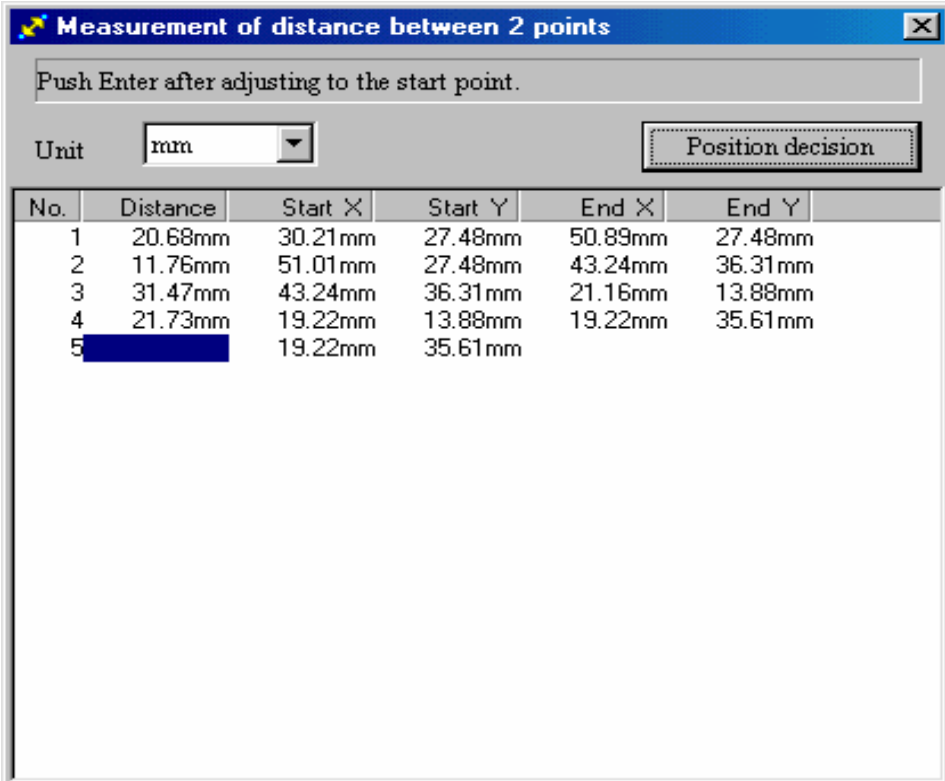
2)

Enter

3)

가

Enter



Measurement of distance between 2 points

Push Enter after adjusting to the start point.

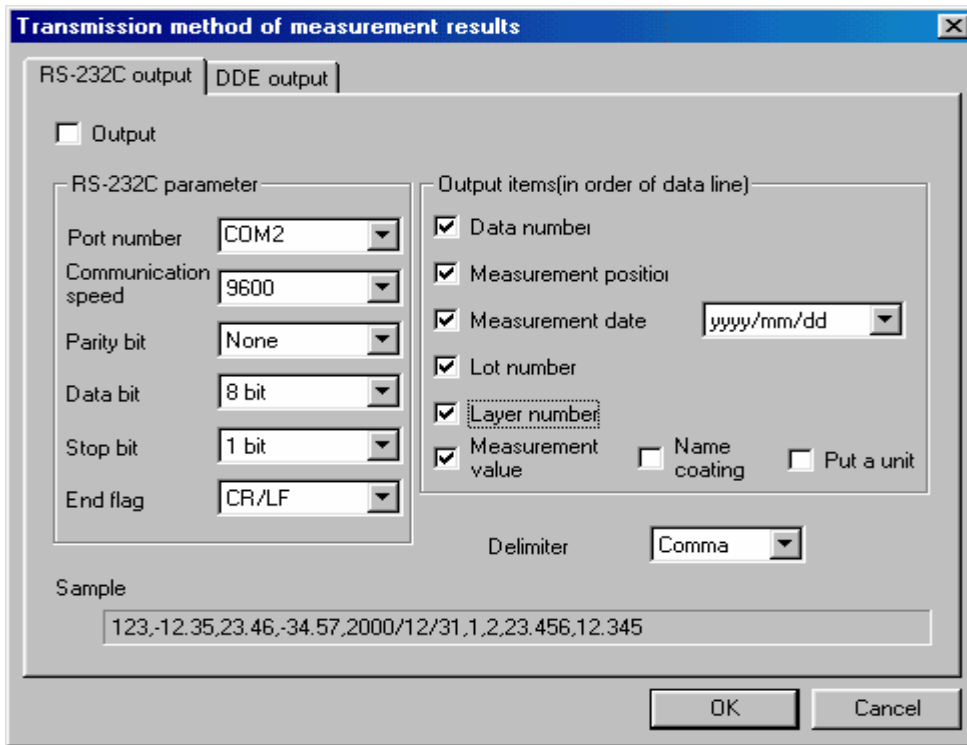
Unit: mm

Position decision

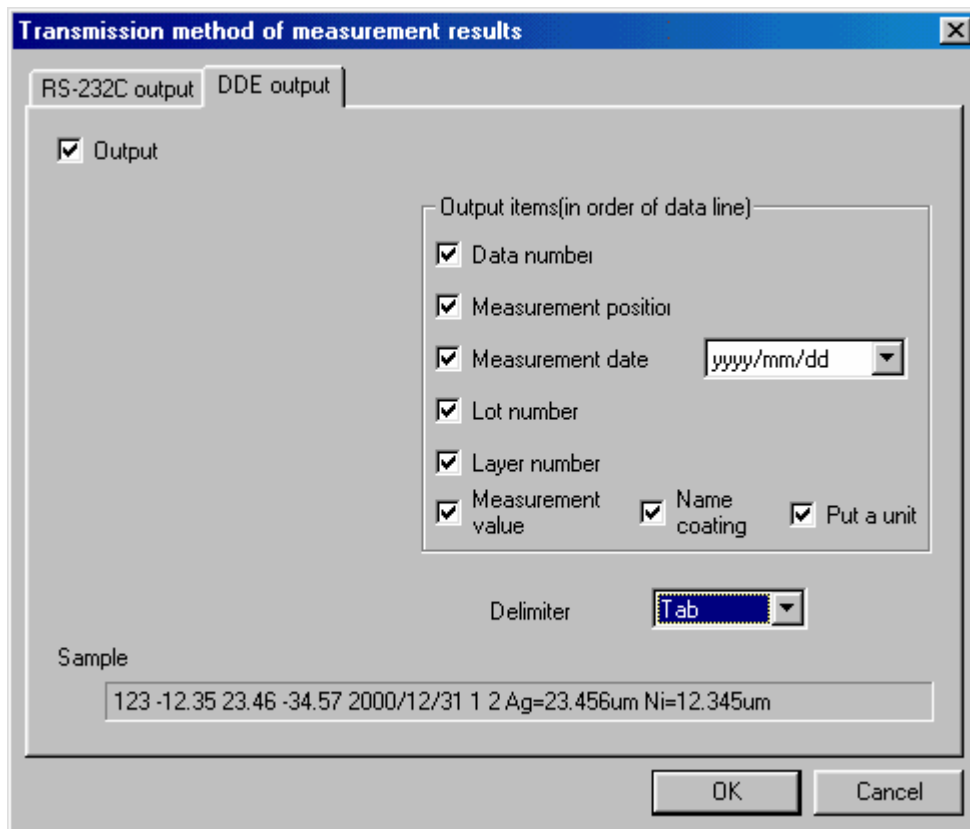
No.	Distance	Start X	Start Y	End X	End Y
1	20.68mm	30.21mm	27.48mm	50.89mm	27.48mm
2	11.76mm	51.01mm	27.48mm	43.24mm	36.31mm
3	31.47mm	43.24mm	36.31mm	21.16mm	13.88mm
4	21.73mm	19.22mm	13.88mm	19.22mm	35.61mm
5		19.22mm	35.61mm		

. 4-19 Distance between 2 points

RS-232C ( 4-20) DDE ( 4-21)



4-20 Transmission method of measurement results (RS-232C output)



4-21 Transmission method of measurement results (DDE output)

05. TABLE

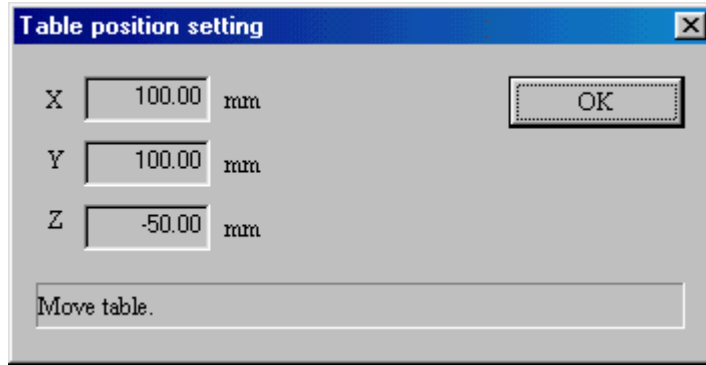
" original point"

5.1 Move to random point

가

Table Move to random point from the menu of main window. ( 5-1)

가



5-1 Move to random point

5.2 Move to specified point

( 5-2)가

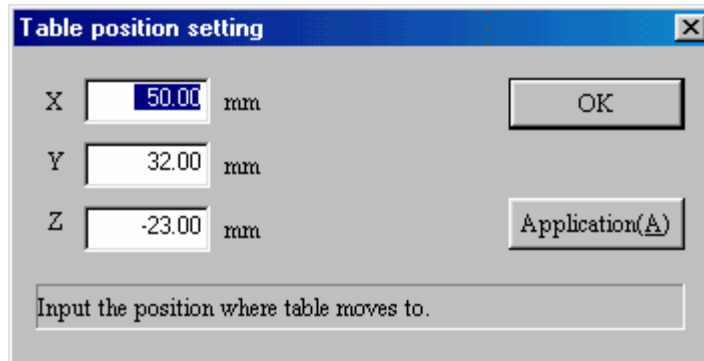
Application

so please enter coordinates of point to be moved,

OK

OK

Application



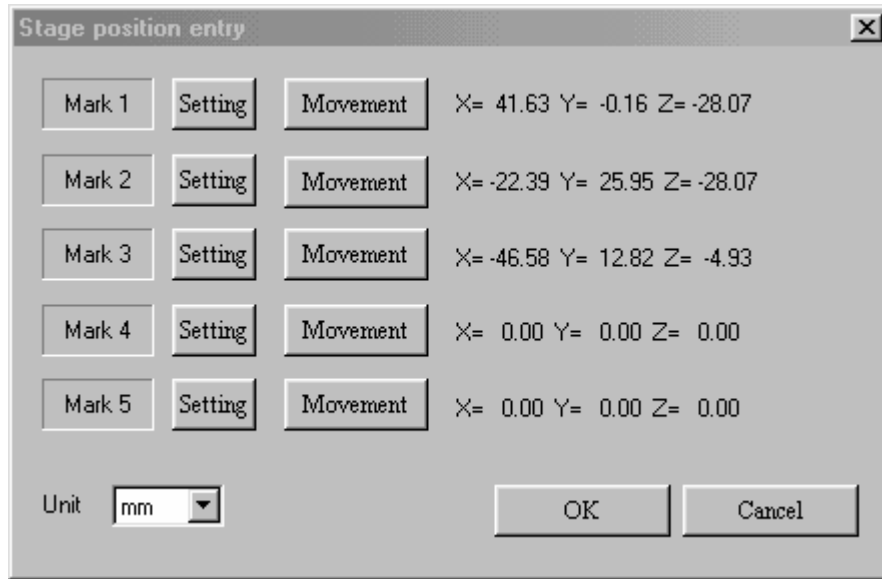
5-2 Move to specified point

5.3 Move to the origin

(X, Y, Z) = (0, 0, 0)

가

가 Table Position entry , ( 5-3)



5-3 Stage/table position entry

《 Table position entry 》

Set up

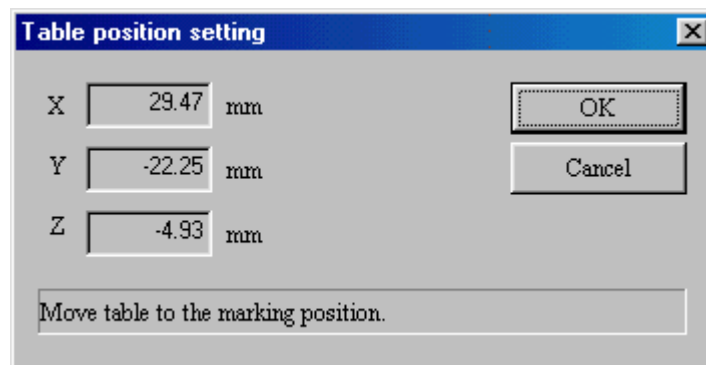
, ( 5-4)가

OK

《 Move the table 》

, ( 5-3)

가 Move



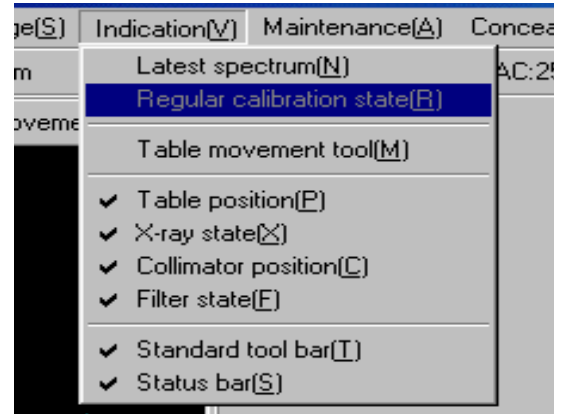
5-4 Position entry (Movement)

06.

“ Indication”  
( 6-1)

6.1 Latest spectrum

indication functions  
가



6.1 Indication of regular calibration status

X

222

6.2 Other items

2 , 7 가 가 가 가

가

1) Table movement tool

2)

X, Y, Z

3) X

X

4)

0.5

0.5

OFF

5)

( )

6)



7)

07. MAINTENANCE

가 가

7.1 Indication of calibration curve data

7.2 X

, X , X

7.3 가

7.4 Fe55

Fe55 ,

7.5 Ag

7.6 Auto table constant

	Low speed	Middle speed 1	Middle speed 2	High speed
Table speed(PPS)	100	500	1200	2500
Movement distance(um) /step	5			
Collimator speed(PPS)	500	50	(Speed from origin)	
Correction of collimator position	-10 step			
From center to start point of the sample(step)	X	Y	Z	
	20000	20000	10000	
From center to origin(step)	20000	20000		
Correction value of center position(step)	-4327	-3773	-405	
Current table position(step)	-5893	4449	-987	
Move to origin		Center point correction	OK	
Move to specified point		Center correction reset	Cancel	
Move to random point		Move collimator	Print	

\* : 가

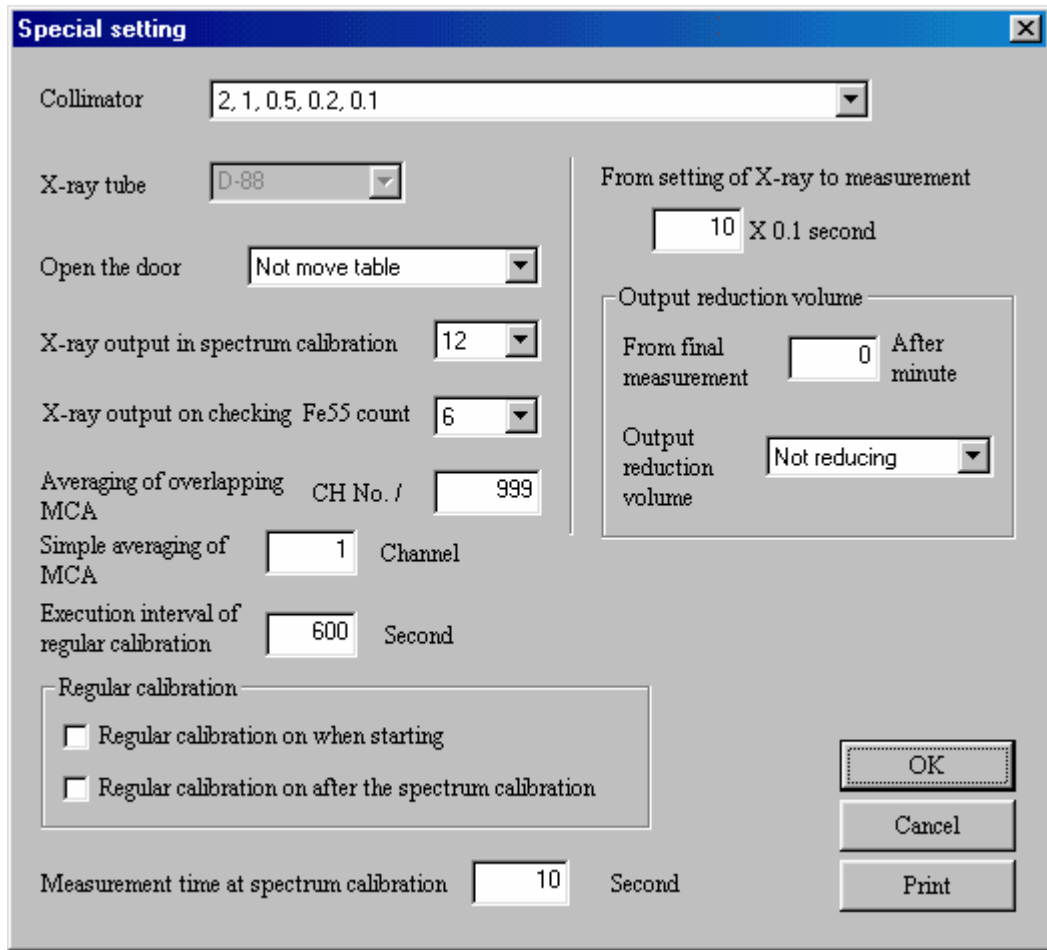
\* : [ ( X, Y, Z ) = 0, 0, 0 ]

Center point correction

OK

7.7 Special setting

X



\* Open the door :

가 , 가 , 가  
가 .

[ Move table] ; 가 , , ,

[Not move table]; , ,

[Not return table]; 가 , ,

\* Regular calibration: 가 , (check) 가 On Off

가 On , ,

ON

ON , ,

X

가 , , , ,

ON , , , ,

”