

RotoCom

Instruction Manual



Manual No.: 15107001

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Table of Contents	Page
User's Guide	1
Reference Guide.....	11
Quick Reference Card	56

Always state *Serial No* and *Voltage/frequency* if you have technical questions or when ordering spare parts. You will find the Serial No. and Voltage on the type plate of the machine itself. We may also need the *Date* and *Article No* of the manual. This information is found on the front cover.

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RotoCom

Safety Precaution Sheet

To be read carefully before use

1. The operator should be fully instructed in the use of RotoCom and all connected machines.

The equipment is designed for use with consumables supplied by Struers. If subjected to misuse, improper installation, alteration, neglect, accident or improper repair, Struers will accept no responsibility for damage(s) to the user or the equipment.

Dismantling of any part of the equipment, during service or repair, should always be performed by a qualified technician (electromechanical, electronic, mechanical, pneumatic, etc.).

User's Guide

Table of Contents	Page
1. Getting Started	
Checking Contents of Packing	2
Getting Acquainted.....	2
Setting Up	3
Placing RotoCom	3
Connection to the Preparation Equipment	3
Setting the Language	4
Setting the Communication	5
All RotoPol and all RotoForce	5
Multidoser	5
2. Basic Operations	
Using the Controls.....	6
Acoustic Signals.....	6
Display	6
Front Panel Controls	7
Running a Preparation Method	8
RotoPol	10
RotoForce	10
Multidoser	10

1. Getting Started

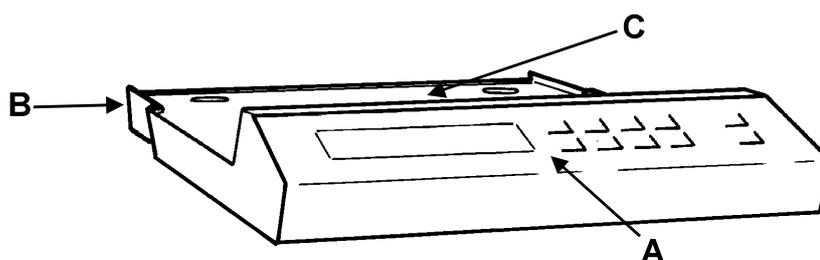
Checking Contents of Packing

In the packing case you should find the following parts:

- 1 RotoCom
- 1 Disc 3½"
- 1 VW 10 cable RotoCom to PC
- 1 VW 20 communication cable
- 1 Set of Instruction Manuals

Getting Acquainted

Take a moment to familiarise yourself with the location and names of all the RotoCom components:



- A** Display and front panel controls.
- B** Electrical connections on the back of RotoCom.
- C** Base plate for mounting of Multidoser.

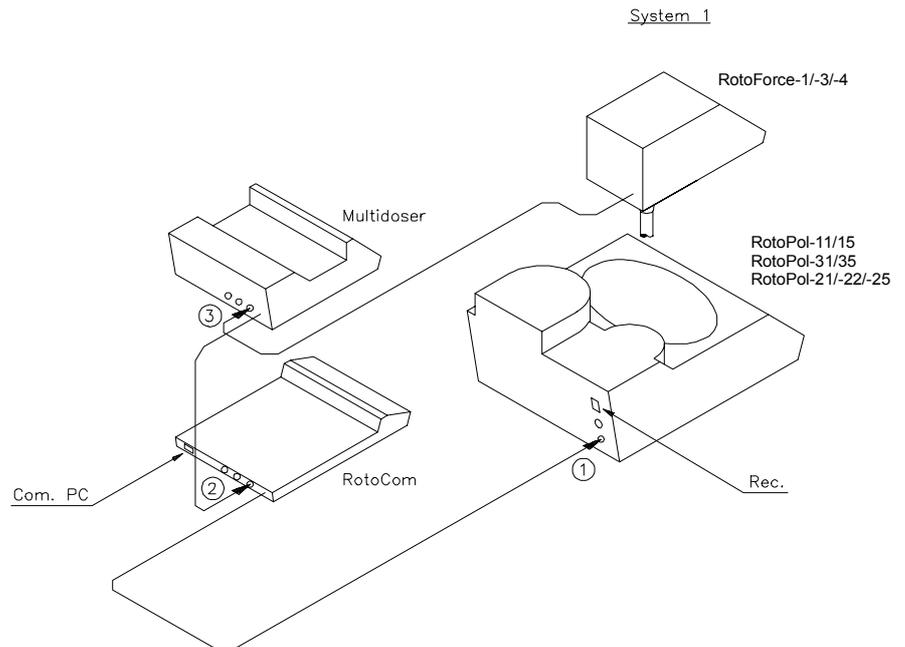
Setting Up

Placing RotoCom

RotoCom is placed underneath Multidoser, immediately next to the RotoPol grinder/polisher.

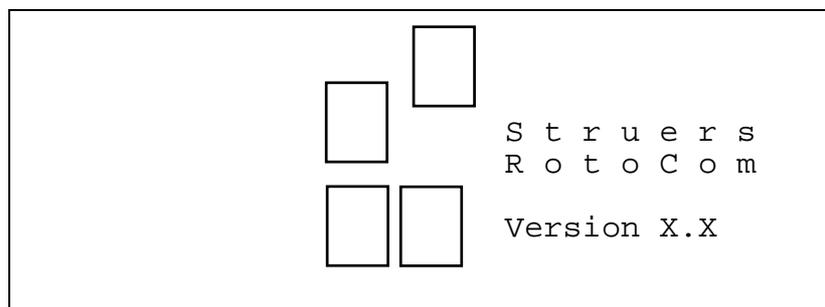
Connection to the Preparation Equipment

- Switch off the main switch on RotoPol and RotoForce.
- Connect the plugs in the order illustrated below:

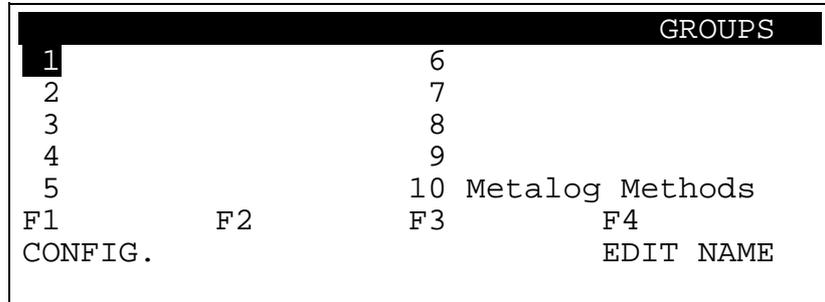


For Connection of RotoCom to RotoPol-22, use the socket marked "Specimen mover. Right disc".

- Switch RotoPol and RotoForce on again. The following screen appears on RotoCom:



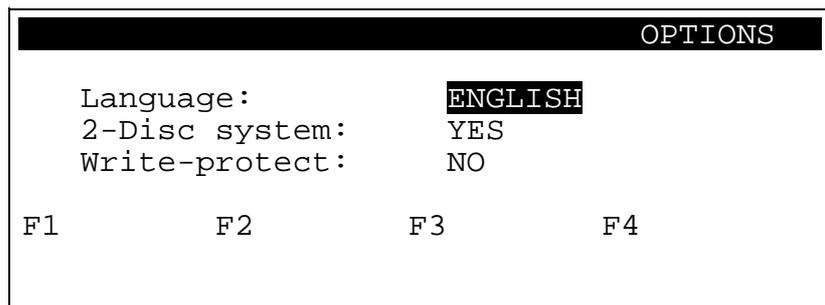
Setting the Language



Press F1 on RotoCom to reach the CONFIGURATION menu. The following screen will appear:



Select OPTIONS by using the DOWN arrow  and press ENTER ↵.



- Select Language: by pressing ENTER ↵, to change from English to Deutsch, Francais or Japanese.
- After selecting the correct language, press Esc to return to the Configuration Menu.
- Press Esc again, to return to the overview of Method Groups.

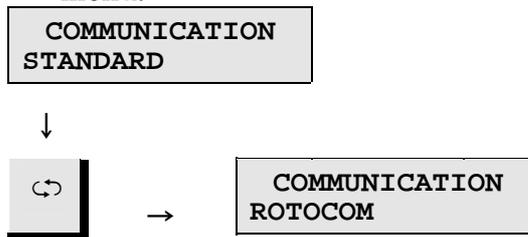
Remember to set the same language on all the connected RotoSystem modules.

Setting the Communication

All connected machines have to be configured correctly to be able to communicate with RotoCom. The communication has to be set to ROTOCOM.

All RotoPol and all RotoForce

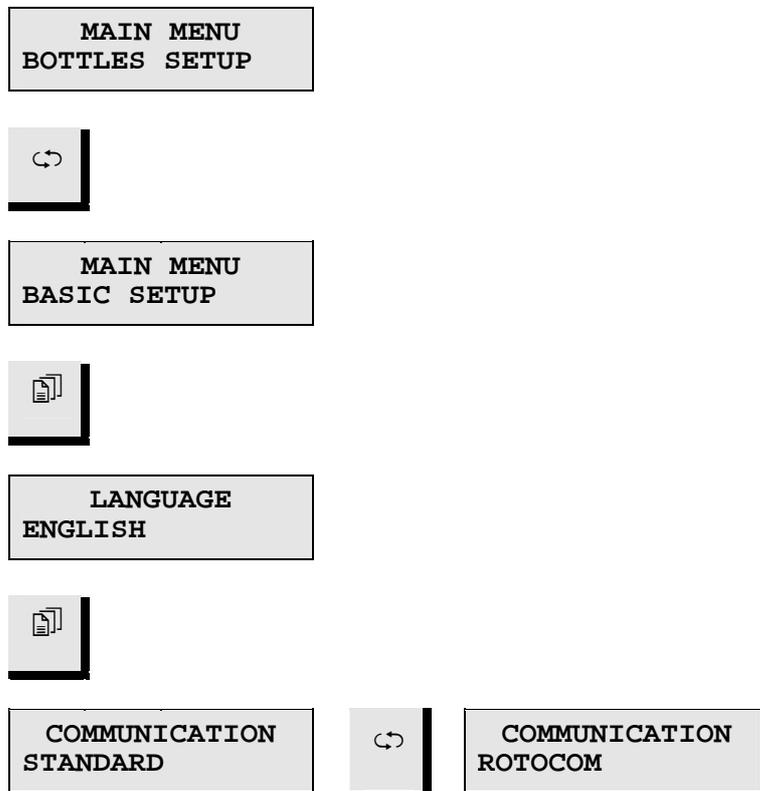
- Press MENU  until you reach the COMMUNICATION menu.
- When in the COMMUNICATION menu, press ↻ SELECT.
- Press MENU  twice until you reach the COMMUNICATION menu.



- Press STOP  when the ROTOCOM setting appears.

Multidoser

- Press MENU  to activate MAIN menu.
- Press SELECT ↻ to choose BASIC SETUP.
- Press MENU  twice until you reach the COMMUNICATION menu.

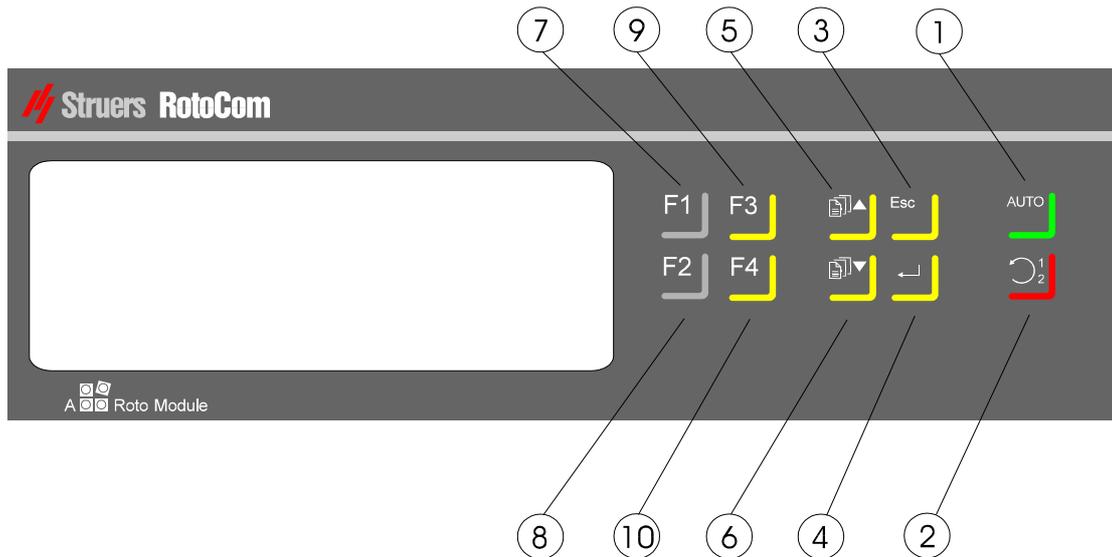


- Press STOP  when the ROTOCOM setting appears.

2. Basic Operations

Using the Controls

The Front Panel of RotoCom

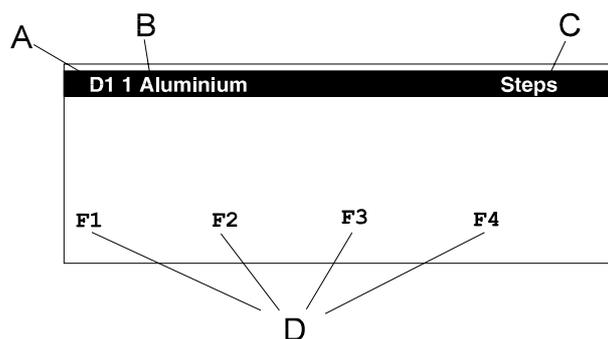


Acoustic Signals

When a key is pressed, a short beep indicates that the command has been accepted, whereas a long beep indicates that the key is inactive at the moment.

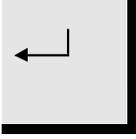
Display

Possible texts on the RotoCom display:



- A** *Disc No.:* only available if RotoCom is set to 2-Disc System
- B** *Description of Method*
- C** *Groups, Methods, Steps, View*
- D** *Explanation of Function keys*

Front Panel Controls

Name	Key	Function	Name	Key	Function
① AUTO		Turn AUTO mode on or off on RotoCom and connected RotoSystem equipment.	⑦ FUNCTION KEY		Control for various purposes.
② 1/2		Choose between disc 1 or 2. The feature is only available when RotoCom is used in a 2-disc system.	⑧ FUNCTION KEY		Control for various purposes.
③ Esc		Leave the present menu, go one step back or cancel changes.	⑨ FUNCTION KEY		Control for various purposes.
④ ENTER		Move one step down in the menu structure or toggle parameters.	⑩ FUNCTION KEY		Control for various purposes.
⑤ UP		Move the cursor up.			
⑥ DOWN		Move the cursor down.			

Running a Preparation Method

Move the cursor, using , to the desired group of methods, e.g. 10 (Group No. 10 consists of the 10 Metalog Guide methods included with RotoCom).

GROUPS			
1		6	
2		7	
3		8	
4		9	
5		10 Metalog Methods	
F1	F2	F3	F4
CONFIG.			EDIT NAME

- Press ENTER ↵ to see the individual methods.

10 Metalog Methods		METHODS	
1 Metalog Method A	6 Metalog Method F		
2 Metalog Method B	7 Metalog Method G		
3 Metalog Method C	8 Metalog Method X		
4 Metalog Method D	9 Metalog Method Y		
5 Metalog Method E	10 Metalog Method Z		
F1	F2	F3	F4
COPY			

- Move the cursor, using , to the correct preparation method, e.g. X.
- Press ENTER ↵ to see the individual steps.

10 8 Metalog Method X		STEPS	
1 SiC-Paper #220	6		
2 MD-Largo 9µm	7		
3 MD/DP-Nap 1µm	8		
4	9		
5	10		
F1	F2	F3	F4

To see the details of a preparation step, press ENTER ↵:

```

10  8 Metalog Method X      STEP 1 VIEW
    SiC-Paper #220
Time:      01:00 Lev.:
Force:     150N/25N
Speed:     300RPM Dir.:   >>
Water:     ON
F1         F2         F3         F4
  
```

To run the preparation method:

- Press Auto.

Pressing Auto sets all connected machines to Auto Mode and sends the preparation data for the actual step to the machines.

The following screen will appear on RotoCom:

```

10  8 Metalog Method X      AUTO
  1 SiC-Paper #220         6
  2 MD-Largo      9µm      7
  3 MD/DP-Nap    1µm      8
  4                                     9
  5                                     10
  ▲                                     ▼
REPEAT STEP          OMIT STEP
  
```

The **AUTO** indicator in the top right corner will start blinking.

The following screens will appear on the preparation equipment:

RotoPol

<p>WATER ON 300RPM SiC-Paper #220</p>
--

RotoForce

<p>150N 01:00 STOP/AUTO</p>
--

RotoForce-3

<p>>> 25N 01:00 SINGLE SAMPLES</p>

RotoForce-4

or

<p>>> 150N 01:00 SAMPLE HOLDER</p>

Multidoser

<p>NO SUSPENSION NO LUBRICANT</p>
--

- Make sure that you have the correct suspension/lubricant in Multidoser.
- Mount the requested preparation disc, as shown on the RotoPol display, and insert the specimens/specimen holder.
- Press Start on the RotoPol grinding/polishing machine.

- | |
|--|
| <ul style="list-style-type: none"> ■ When the time has elapsed and all the machines have stopped, the data for the next step will be sent to the machines. ■ When all steps have been carried out, RotoCom will automatically send the data of the first step of the method again. |
|--|

Repeating a Preparation Step

- Press ▲ to repeat a preparation step.

Omitting a Preparation Step

- Press ▼ to omit a preparation step.

To select a New Preparation Method

- Press Auto on RotoCom to release all machines from the Auto mode, then select a new preparation method on RotoCom.

Reference Guide

Table of Contents	Page
1. Advanced Operations	
Establishing a Preparation Method.....	13
Establish a Method on the Preparation Equipment.....	13
RotoPol	13
RotoForce	13
Multidoser	13
Copying a Preparation Method.....	14
Editing Names	16
Modifying a Preparation Method.....	18
Updating a Step.....	19
Inserting a Step	19
Deleting a Step	20
Write Protection.....	21
Setting the Display Contrast	21
Communication with the PC.....	21
2. The 2-Disc System	
Installation.....	22
Connection to the Preparation Equipment	22
Configuration of RotoCom.....	22
Operation	23
Toggle between D1 and D2	23
Running Preparation Methods	23
3. Configuration of RotoPol-22	
Parallel Operation	24
Separate Operation.....	24
2-Disc Operation	25
4. Consumables List	
Editing Consumables List.....	26
Surfaces.....	26
Suspensions	27
Lubricants.....	28

5. RotoCom PC Software™

Installation.....	29
System Requirements	29
Connection between RotoCom and PC	29
Install Program.....	29
Starting the RotoCom PC Software™	30
DOS	30
Windows.....	30
Mouse Problems.....	30
Operation	31
Keyboard Operation	32
Mouse Operation	32
File Management.....	33
New (File Menu)	34
Save as (File Menu).....	35
Open (File Menu).....	36
Save (File Menu).....	36
Close (File Menu).....	36
Import and Export of files	37
Import (File Menu)	37
Export (File Menu)	38
Change dir (File Menu)	41
Print file (File Menu).....	42
Exit	42
Up/download Commands.....	43
Uploading.....	43
Downloading	45
Options	46
Communication port.....	46
Screen size	46
Window.....	47
Resize/move.....	47
Next.....	47
Close	47
Communication state	47
Modifying Preparation Methods	48
Naming methods.....	51
Editing the consumables list.....	52

6. Trouble-Shooting 54

7. Technical Data 55

1. Advanced Operations

Establishing a Preparation Method

The easiest way of establishing a new preparation method is to copy an existing method and modify it. The other possibility is to set up a method on the equipment and save it on RotoCom, step by step.

Establish a Method on the Preparation Equipment

To establish a totally new method, follow these steps:

- On RotoPol-22: always use the disc on the left-hand side when establishing a method.
- Set the correct parameters on all machines, for example:

RotoPol

```
WATER ON 300RPM
SiC-Paper #320
```

RotoForce

```
200N 01:00
STOP
```

RotoForce-1/-3

```
>> 200N 01:00
SAMPLE HOLDER
```

RotoForce-4

Multidoser

```
NO SUSPENSION
NO LUBRICANT
```

- Make sure that RotoCom is *not* in Auto mode.
- Select the group, method No. and step No. in which you want to save the new method.
- Press F4 to update the actual step with the new values.

1	1	STEPS	
1		6	
2			
3		UPDATE (F4 / Esc) ?	
4			
5		10	
F1	F2	F3	F4
	INSERT	DELETE	UPDATE

- Press F4 to confirm the update.

```

1 1 STEPS
1 SiC-Paper #320 6
2
3
4
5
F1 F2 F3 F4
INSERT DELETE UPDATE

```

- Program the next step on the preparation machines.
- Move to the next step in the preparation method and press F4 again.
- Repeat the procedure for all steps in the method.

The new preparation method should be named for easier identification; see Editing Names.

Copying a Preparation Method

- Move the cursor to the preparation method you want to copy:

```

10 Metalog Methods METHODS
1 Metalog Method A 6 Metalog Method F
2 Metalog Method B 7 Metalog Method G
3 Metalog Method C 8 Metalog Method X
4 Metalog Method D 9 Metalog Method Y
5 Metalog Method E 10 Metalog Method Z
F1 F2 F3 F4
COPY

```

- Press F1.

```

10 Metalog Methods METHODS
1 Metalog method A 6 Metalog method F
2 Met hod G
3 Met Copy to buffer (F1/Esc)? hod X
4 Met hod Y
5 Metalog method E 10 Metalog method Z
F1 F2 F3 F4
COPY

```

- Press F1 to confirm that you want to copy this method.
- If you want to save the method in a different group, press Esc to return to the group screen.

- Select the group in which you want to save the method, e.g. group 1, and press ENTER ↵.

1 METHODS			
1		6	
2		7	
3		8	
4		9	
5		10	
F1	F2	F3	F4
COPY	INSERT	DELETE	EDIT NAME

- Select the method number, for example 1, in which you want to save the method, and press F2 to insert the method.

1 METHODS			
1		6	
2			
3	Insert from buffer (F2/Esc)?		
4			
5		10	
F1	F2	F3	F4
COPY	INSERT	DELETE	EDIT NAME

- Press F2 to confirm the insertion.

IMPORTANT

Please note: As you are inserting a method, the other methods will be moved down to the next method no. If method no. 10 is occupied and you insert a method, method no. 10 will be deleted.

METHODS				
1	Metalog method A			6
2				7
3				8
4				9
5				10
F1	F2	F3	F4	
COPY	INSERT	DELETE	EDIT NAME	

When the method is inserted, the above screen will appear. To change the name of the method, see the section below.

Editing Names

The names of all user defined method groups, methods and consumables can be edited and changed to suit your own preference.

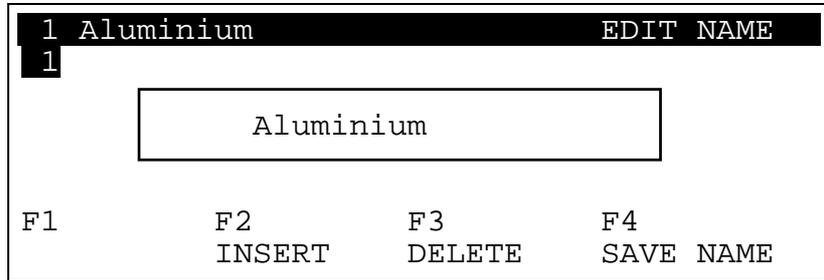
- Press F4, Edit Name.

Metalog method A			EDIT NAME
<div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 0 auto;">Metalog method A</div>			
F1	F2	F3	F4
	INSERT	DELETE	SAVE NAME

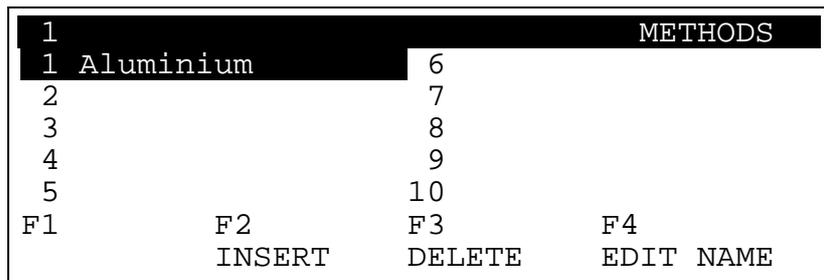
- To insert or delete the character at the cursor position, press F2 INSERT or F3 DELETE.
- Move the cursor by using the arrow keys .
- Press ENTER ↵ to show the standard IBM ASCII character set.

CHAR SELECT			
<div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 0 auto;"> ABCDEFGHIJKLMNOPQRSTUVWXYZ abcdefghijklmnopqrstuvwxyz 0123456789#%,.:;()+-*/<>` </div>			
F1	F2	F3	F4
LEFT		RIGHT	

- Move the cursor left or right by pressing F1 or F3.
- Move the cursor up or down by using the arrow keys .
- Press ENTER ↵ to select the chosen character.
- Repeat the above until the whole name has been created.



- Press F4 twice to save the name.
- If you do not want to change the name, press Esc instead of F4.
- If you have made any changes to the name, the message ABANDON CHANGES? (ENTER/Esc) will appear. If you do not want to save the changes, press Esc again.



Modifying a Preparation Method Select the preparation method you want to modify.

1		METHODS	
1	Aluminium	6	
2		7	
3		8	
4		9	
5		10	
F1	F2	F3	F4
COPY	INSERT	DELETE	EDIT NAME

■ Press ENTER ↵ to see the individual steps.

1		1 Aluminium		STEPS	
1	SiC-Paper #220	6			
2	DP-Pan	15µm	7		
3	DP-Dur	6µm	8		
4	DP-Mol	3µm	9		
5	OP-Chem	OP-S	10		
F1	F2	F3	F4		
	INSERT	DELETE	UPDATE		

■ Move the cursor to the step of the method you want to modify.

1		1 Aluminium		STEPS	
1	SiC-Paper #220	6			
2	DP-Pan	15µm	7		
3	DP-Dur	6µm	8		
4	DP-Mol	3µm	9		
5	OP-Chem	OP-S	10		
F1	F2	F3	F4		
	INSERT	DELETE	UPDATE		

- Press Auto to send the data to all connected machines.
- Press Auto again to release all machines from Auto mode.
- Change all the necessary preparation data on all machines (e.g. from 3µm DP-Suspension to 1µm DP-Suspension on Multidoser).

Updating a Step

Press F4 twice to update the actual step with the new values.

1		1 Aluminium		STEPS
1	SiC-Paper	#220	6	
2	DP-Pan	15µm	7	
3	DP-Dur	6µm	8	
4	DP-Mol	1µm	9	
5	OP-Chem	OP-S	10	
F1	F2	F3	F4	
	INSERT	DELETE	UPDATE	

- Repeat the above for all relevant steps, until the method is set up correctly for your material.

Inserting a Step

To insert a preparation step, press F2.

1		1 Aluminium		STEPS
1	SiC-Paper	#220	6	
2	DP-Pan			
3	DP-Dur			
4	DP-Mol			
5	OP-Chem	OP-S	10	
F1	F2	F3	F4	
	INSERT	DELETE	UPDATE	

- Press F2 to confirm the insertion.

1		1 Aluminium		STEPS
1	SiC-Paper	#220	6	OP-Chem OP-S
2	DP-Pan	15µm	7	
3	DP-Dur	6µm	8	
4			9	
5	DP-Mol	1µm	10	
F1	F2	F3	F4	
	INSERT	DELETE	UPDATE	

- Set the connected machines to the correct parameters, then press F4 to update the "empty" preparation step with the new values.

Deleting a Step

To delete a preparation step, press F3.

1 1 Aluminium				STEPS
1	SiC-Paper #220		6	
2	DP-Pan			
3	DP-Dur			
4	DP-Mol			
5	OP-Chem	OP-S	10	
F1	F2	F3	F4	
	INSERT	DELETE	UPDATE	

■ Press F3 to confirm the deletion.

1 1 Aluminium				STEPS
1	SiC-Paper #220		6	
2	DP-Pan	15µm	7	
3	DP-Dur	6µm	8	
4	OP-CHEM	OP-S	9	
5			10	
F1	F2	F3	F4	
	INSERT	DELETE	UPDATE	

Write Protection

To protect the preparation methods from accidental change or deletion, write protection can be enabled.

The Metalog Guide Methods are permanently write protected and cannot be changed or deleted. To enable or disable write protection for the other methods or consumables, take the following steps:

- Press F1 CONFIGURATION in the group screen.
- Select OPTIONS and press ENTER ↵.
- Select Write Protect: press ENTER ↵ to toggle between YES and NO.
- After selecting the correct setting, press Esc to return to the CONFIGURATION Menu.
- Press Esc again to return to the overview of Method Groups.

With write protection enabled, it is not possible to copy, insert or delete preparation methods, steps or consumables. These functions will therefore not be assigned to F-keys. To copy and change methods or add consumables, the write protection must be set to: NO.

Setting the Display Contrast

From the CONFIGURATION Menu select LCD CONTRAST.

- Use the ▲▼ keys to adjust the contrast to your liking.
- Press F4 to save the setting.
- Press F1 to restore the default value.

Communication with the PC

RotoCom is prepared for communication with a PC.

- Install the RotoCom PC Software™ as described in the section RotoCom PC Software™.
- Connect RotoCom with the PC using the enclosed RS232 communication line.

Make sure that both RotoCom and the PC are switched off when you connect the communication line.

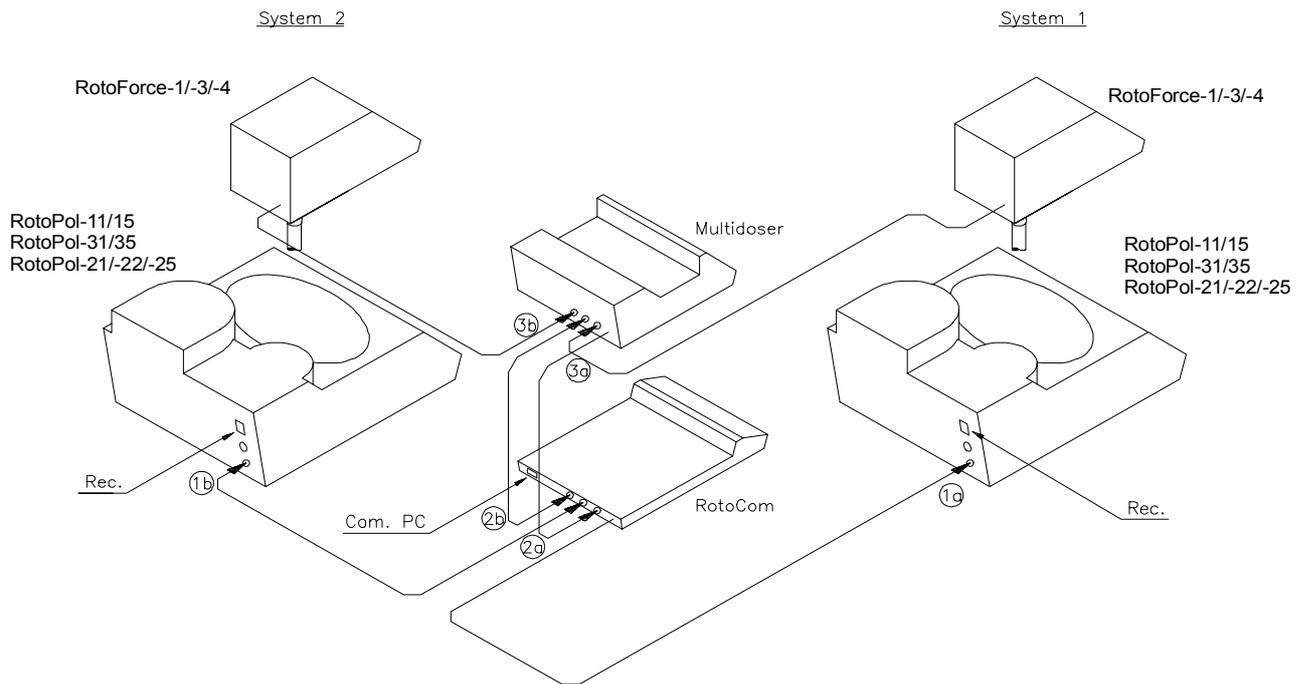
- Start the PC and switch the RotoSystem on again
- See section RotoCom PC Software™ for operational details

2. The 2-Disc System

Installation

Connection to the Preparation Equipment

- Switch off the Main Switch on the RotoPol and RotoForce machines.
- Connect the plugs in the order illustrated below:



- Switch the RotoPol and RotoForce machines on again.

Configuration of RotoCom

From the CONFIGURATION Menu, select OPTIONS

OPTIONS			
Language :		ENGLISH	
2-Disc system:		NO	
Write-protect :		NO	
F1	F2	F3	F4

- Select 2-Disc system.
- Press ENTER ↵ to toggle from NO to YES.
- Press Esc twice to return to the GROUPS menu.

Operation

When RotoCom has been set to 2-Disc system, an indication of D1 or D2 will appear in the top left corner of the display. Pressing \odot_1^1 toggles between the two systems.

Toggle between D1 and D2

When RotoCom is set to 2-Disc System, RotoCom works as two separate units sharing the same methods and consumable database. Pressing the \odot_2^1 key simply allows you to change between the two "units".

D1 1 Aluminium				STEPS
1	SiC-Paper #220			6
2	DP-Pan	15 μ m		7
2	DP-Pan	6 μ m		7
4	DP-Mol	3 μ m		9
5	OP-Chem	OP-S		10
F1		F2	F3	F4
		INSERT	DELETE	UPDATE

Running Preparation Methods

To start the first system:

- Press \odot_2^1 to select system 1 or system 2.
- Select a preparation method on RotoCom.
- Press Auto to send the preparation data to the machines in system 1. Now you can start the preparation process on that system.

To start the second system running concurrently:

- Press \odot_1^1 again to change to the other system.
- Select a preparation method on RotoCom.
- Press Auto to send the preparation data to the machines in system 2.

Note:

It is possible to run the same preparation method with all its steps on both systems independently. To run one method with, for example, step 1 on system 1, step 2 on system 2, step 3 on system 1 and so on, the method should be saved as two individual methods, one containing steps 1, 3 and 5 and the other method containing steps 2 and 4.

3. Configuration of RotoPol-22

As RotoPol-22 contains two individually controlled discs, connection with RotoCom offers additional possibilities:

Parallel Operation

Parallel operation is the standard set-up for the most convenient way of working with RotoPol-22.

- RotoCom is set to "2-Disc System: NO".

- On RotoPol-22: press MENU  to reach AUTO MODE.
- Set AUTO MODE to ON.
- Press MENU  again until you reach 2-DISC SYSTEM.
- Set 2-DISC SYSTEM to NO.
- Press STOP  to return to the operation menu.
- Repeat the above procedure for the second disc.

When RotoCom has sent the preparation data to all machines, both discs on RotoPol-22 will be ready for execution of the method.

- Put on the requested disc and adjust the RotoForce over the disc you want to use.
- Press Start on the disc you want to use.
- When the step has started, RotoCom will send the preparation data for the next step to the other disc. You then know which disc to mount in order to be ready for the next step.

Separate Operation

To use one disc on RotoPol-22 for manual preparation and the other one for automatic preparation with a RotoForce, select separate operation.

- RotoCom is set to "2-Disc System: NO".

The disc for manual preparation on RotoPol-22:

- Press MENU  to reach AUTO MODE.
- Set AUTO MODE to OFF.
- Press MENU  again until you reach 2-DISC SYSTEM.
- Set 2-DISC SYSTEM to NO.
- Press STOP  to return to the operation menu.

The disc for automatic preparation on RotoPol-22:

- Press MENU  to reach AUTO MODE.
- Set AUTO MODE to ON.
- Press MENU  again until you reach 2-DISC SYSTEM.
- Set 2-DISC SYSTEM to NO.
- Press STOP  to return to the operation menu.

All preparation data will now be sent to the disc which has been set to AUTO MODE ON.

2-Disc Operation

For totally independent operation of both discs, each disc equipped with its own specimen mover with communication (future option), select 2-Disc operation:

- RotoCom is set to "2-Disc System: YES".

- On RotoPol-22: press MENU  to reach AUTO MODE.
- Set AUTO MODE to ON.
- Press MENU  again until you reach 2-DISC SYSTEM.
- Set 2-DISC SYSTEM to YES.
- Press STOP  to return to the operation menu.
- Repeat the above procedure for the second disc.

Two different preparation methods can now be sent to the two stations of RotoPol-22.

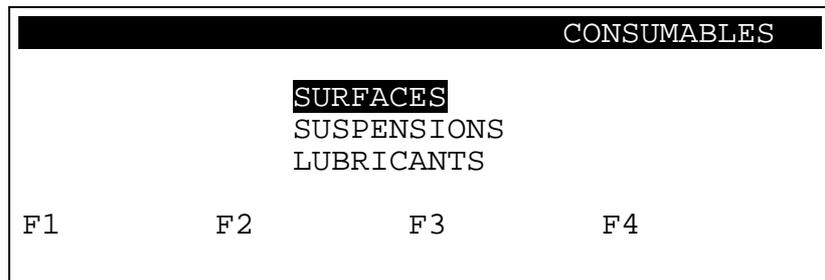
4. Consumables List

Editing Consumables List

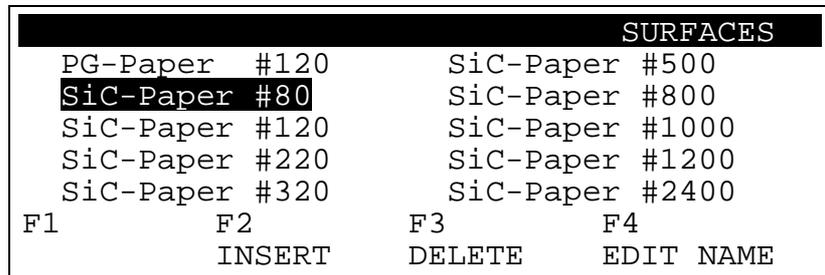
All consumables available from Struers are listed. To add your own consumables, carry out the following steps:

Surfaces

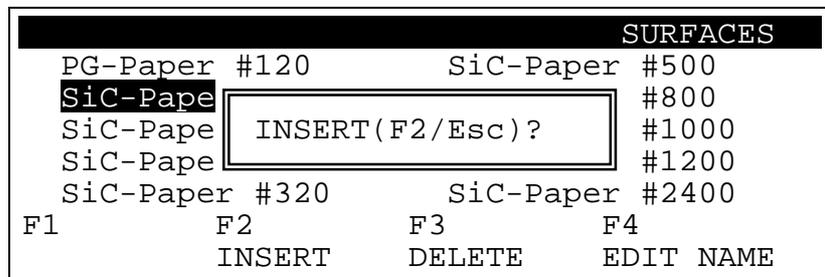
From the CONFIGURATION Menu, select CONSUMABLES and press ENTER ↵:



- Select SURFACES and press ENTER ↵.



- Move to the position at which you want to insert a new surface. You can insert up to 14 surfaces of your own choice.
- Press F2.



- Press F2 again, to confirm the insertion.

You will now see a parameter marked: "* User defined".

SURFACES			
PG-Paper #120		SiC-Paper #320	
* User defined		SiC-Paper #500	
SiC-Paper #80		SiC-Paper #800	
SiC-Paper #120		SiC-Paper #1000	
SiC-Paper #220		SiC-Paper #1200	
F1	F2	F3	F4
	INSERT	DELETE	EDIT NAME

- To change the text, see "Editing Names".
- To delete a surface, press F3 DELETE. Only the surfaces you have inserted yourself can be deleted.

Suspensions

From the CONFIGURATION Menu, select CONSUMABLES and press ENTER ↵:

- Select SUSPENSIONS and press ENTER ↵.

SUSPENSIONS			
15µm		0.25µm	
9µm		OP-S	
6µm		OP-U	
3µm		OP-A	
1µm			
F1	F2	F3	F4
INSERT-DP	INSERT-OP	DELETE	EDIT NAME

- Move to the position at which you want to insert a suspension of your own. (You can insert up to 2 types of each of your own suspensions).
- Press F1 to insert a DP-Suspension and F2 to insert an OP-Suspension.
- Press F1 or F2 to confirm the insertion of either a DP or OP-Suspension.

An OP-Suspension locks the suspension type to bottle position 6 in Multidoser, automatically adding the pre-set flush time to the preparation time.

Now you will see a parameter marked: * User defined DP/OP

- To change the text, see "Editing Names".
- To delete a suspension, press F3 DELETE. Only the suspensions you have inserted yourself can be deleted.

Lubricants

From the CONFIGURATION Menu, select CONSUMABLES and press ENTER ↵:

- Select LUBRICANTS and press ENTER ↵.

LUBRICANTS			
BLUE			
RED			
GREEN			
F1	F2	F3	F4
	INSERT	DELETE	EDIT NAME

- Move to the position at which you want to insert a lubricant of your own. (You can insert up to 6 lubricants of your own).
- Press F2.
- Press F2 again, to confirm the insertion.

You will now see a parameter marked: * User defined.

- To change the text, see "Editing Names".
- To delete a lubricant, press F3 DELETE. Only the lubricants you have inserted yourself can be deleted.

When deleting consumables you have inserted yourself, make sure that they are not used in any of your preparation methods.

5. RotoCom PC Software™

RotoCom is prepared for communication with a PC.

The RotoCom PC Software™ contains the same functions as the RotoCom unit itself, with the added advantages of a computer keyboard and the unlimited capacity for storing preparation methods. In addition, the transfer of methods between laboratories is possible.

Installation

To set up the system and install the necessary software, please follow the steps described below:

System Requirements

- IBM compatible PC with MS-DOS
- Min. 512 Kb free memory
- Optional Windows version 3.1.

Connection between RotoCom and PC

- Switch off the power on both the PC and RotoPol.
- Connect RotoCom with the PC through the enclosed RS232 communication cable. Select a free communication port (e.g. COM2:). If you are using a mouse on your PC, select a port other than the mouse port for connection to RotoCom.
- Start the PC and switch RotoPol on again.

Install Program

- Insert the disk with the RotoCom PC Software™ into drive A.
 - Type A:\INSTALL
 - The installation program will now copy the necessary files to a new directory named ROTOCOM on drive C.

JAPANESE SCREEN TEXTS

It is not possible to use RotoCom PC Software when the connected RotoSystem modules are set to Japanese screen texts. When you want to use the RotoCom PC-Software, set the screen texts on all RotoSystem modules to English.

Starting the RotoCom PC Software™

If you want to operate the RotoCom PC Software™ using a mouse, make sure that a mouse driver has been properly installed before starting the program.

DOS

- At the MS-DOS prompt, type **CD \ROTOCOM** (the directory where the RotoCom files are placed).
- Type **ROTOCOM -1, -2, -3** or **-4**. (ROTOCOM [comtype]). Comtype is the number of the communication port to be used between RotoCom and the PC. (1=COM1:, 2=COM2:, 3=COM3: or 4=COM4:). Do not use a COM port which is already used for other purposes, such as a mouse or a printer.

Windows

- In the Program Manager, activate the File menu and select New.
 - Tick Program Item and click on OK.
 - Fill in the requested information and click on OK. The Command Line should read **ROTOCOM -1, -2, -3** or **-4**. (ROTOCOM [comtype]). Comtype is the number of the communication port to be used between RotoCom and the PC. (1=COM1:, 2=COM2:, 3=COM3: or 4=COM4:). Do not use a COM port which is already used for other purposes, such as a mouse or a printer.
 - Start RotoCom PC Software™ by double clicking on the icon.

Mouse Problems

When running under Windows, the RotoCom PC Software™ can be displayed either full screen or in a separate window (see your Windows manual for details). Displayed in a window, the Windows mouse will be displayed and can be used, provided that an MS-DOS mouse driver has been installed. (See your MS-DOS manual for details)

If the mouse does not respond when you start the RotoCom PC Software™, there might be a conflict due to the same communication port being used or a mouse driver missing.

In this case, exit from the RotoCom PC Software™. Install the correct mouse driver and start the RotoCom PC Software™ again, using an alternative free communication port

Operation

The first screen to appear will look like the example below. This screen is only displayed the first time that the software is used.



When the system has been configured, the screen below will be displayed whenever the RotoCom PC Software™ is started.



The small window *Comm. State* will inform you about the connection from the PC to RotoCom.

Communication OK. shows that the transmission of data between both machines is working.

No communication! indicates that there is no data transfer between PC and RotoCom. Please check that the RotoSystem is switched on and the RS232 communication line connected properly.

RotoCom PC Software™ can be operated both by using the keyboard and/or by using a mouse.

Keyboard Operation

- To activate the menu hold the **Alt** key and press one of the highlighted letters.
 - To activate the **F**ile menu, for example, hold **Alt** and press **F**
 - The **arrow keys** can be used to move the cursor
 - **ENTER** is used to accept a choice and move down in the menu structure
 - **Esc** is used to cancel a choice or to move backwards in the menu structure
 - The **TAB** key is used to jump between the different fields

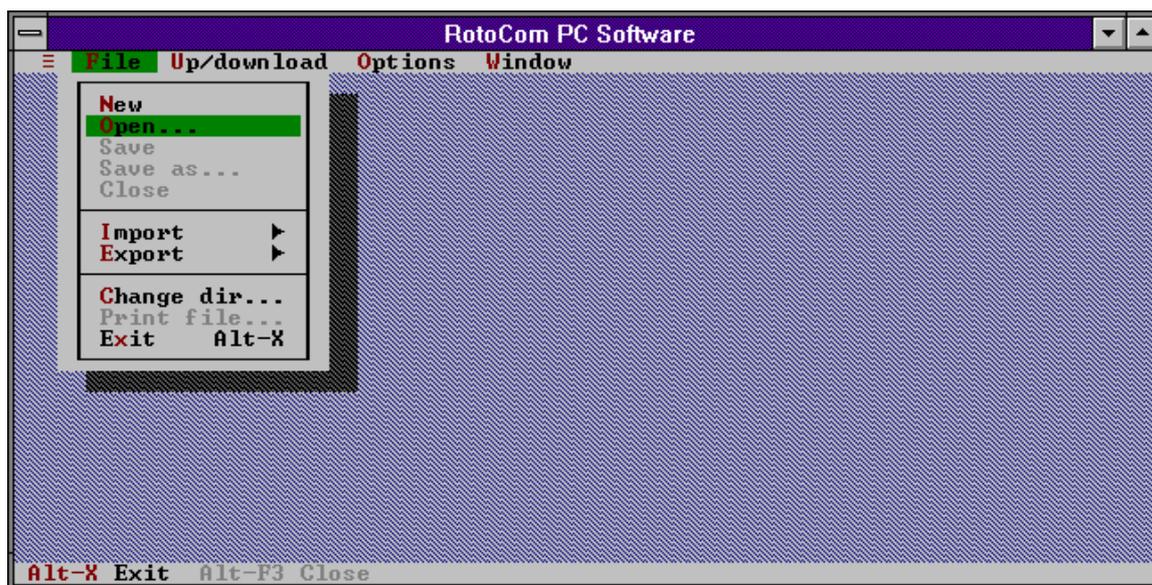
Mouse Operation

- Move the mouse to the appropriate choice and click the left mouse key to select the item.
 - Double click has the same function as the **ENTER** key on the keyboard
 - When in the *RotoCom* window, clicking the *right* mouse key, has the same function as the **Esc** key on the keyboard.

File Management

RotoCom PC Software™ provides you with several different ways of handling files. These are all included in the File Menu.

To activate the File Menu press **Alt F** or click the left mouse key on **F**ile. The following screen will appear:



In the File Menu, the following choices are available:

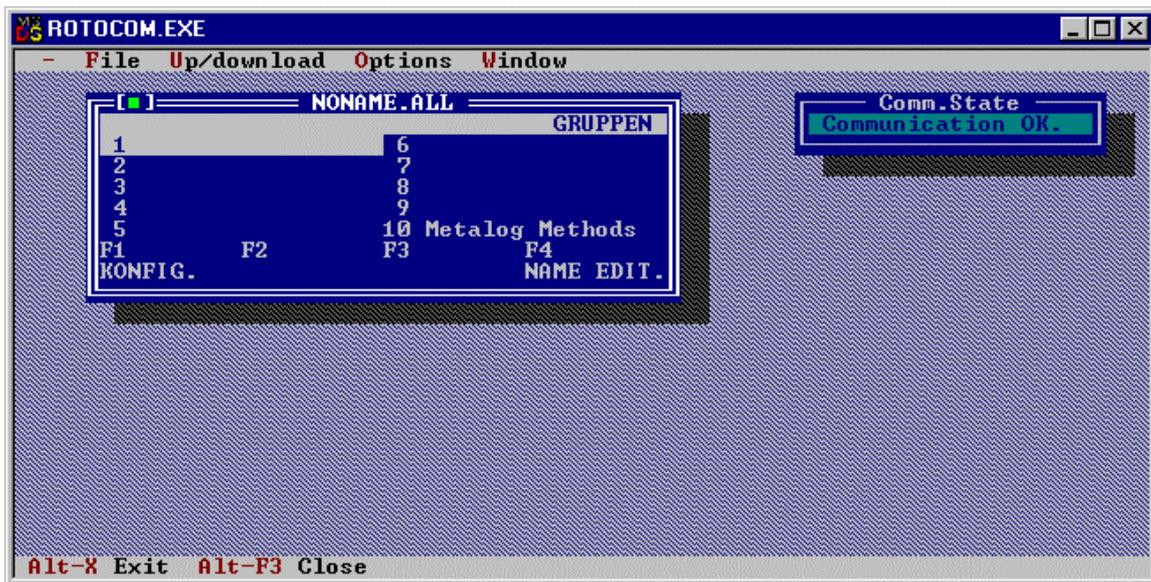
- *New*: create a new RotoCom setup.
- *Open*: open an existing RotoCom setup from the disk.
- *Save*: save an open RotoCom setup.
- *Save as*: save an open RotoCom setup under a new name.
- *Close*: close an open RotoCom setup.
- *Import*: import methods or consumables from disk into the open setup.
- *Export*: export methods or consumables to disk.
- *Change dir*: Change to a different directory.
- *Print file*: write all data from the RotoCom setup to a text file.
- *Exit*: leave the RotoCom PC Software™.

The accessible commands are shown in black, whereas the inaccessible commands are shown in gray.

New (File Menu)

New must be chosen to create a RotoCom setup, when the RotoCom PC Software™ is used for the very first time.

- When the window appears, operation is exactly the same as on RotoCom, except that the keyboard and the mouse can be used to move the cursor and enter the commands.
- When editing names, the keyboard is used for input.

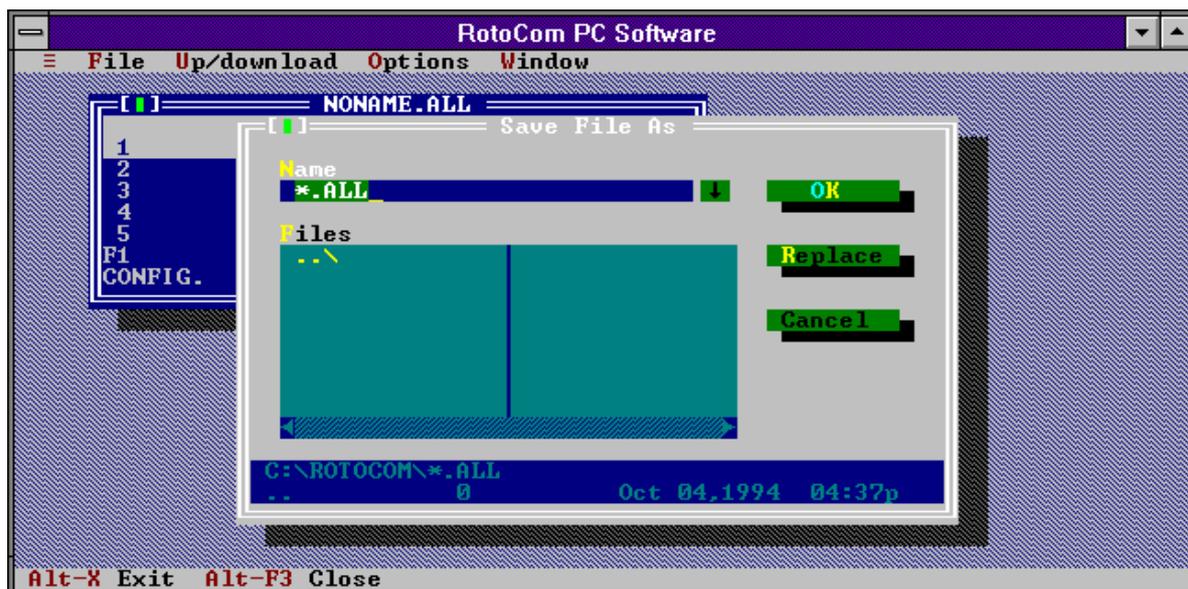


- The file name of this new setup is NONAME.ALL (see title line of the new window). This file contains all the information on the preparation methods and consumables. One file contains the same amount of information as a RotoCom unit.

Save as (File Menu)

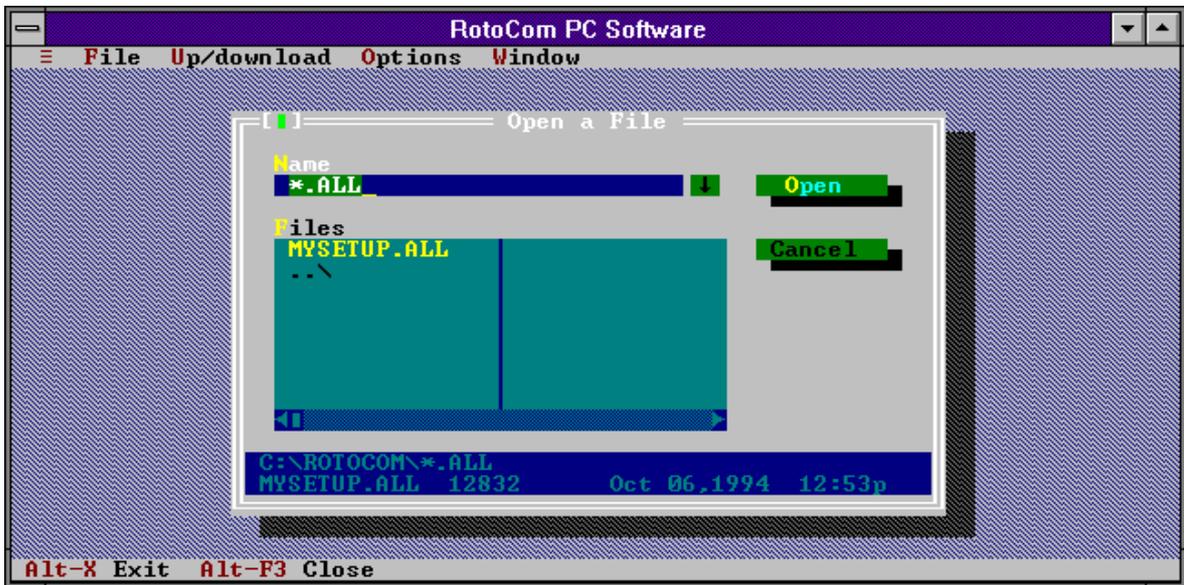
To save the setup open the File Menu: only the *Save as* function can be used, as this is a new setup.

- Enter a new file name with a maximum of eight characters, (e.g. **MYSETUP**): the extension **.ALL** is added automatically when you select **OK**.



Open (File Menu)

- Next time you want to load a setup, open the File Menu.
- Select **Open** and the following screen will appear.



- Highlight the setup you want to use, then select **Open**.

Save (File Menu)

To save a setup after modifying a preparation method or the consumables list:

- Open the File Menu.
- Select **Save**, and the changed setup will be saved under the same name.

Close (File Menu)

To close a setup:

- Open the File Menu.
- Select **Close** and the setup will be closed.
 - If there have been any changes to the setup which have not been saved, you will have to confirm that you really want to close without saving the changes.
 - If nothing has been changed, the setup will be closed immediately.

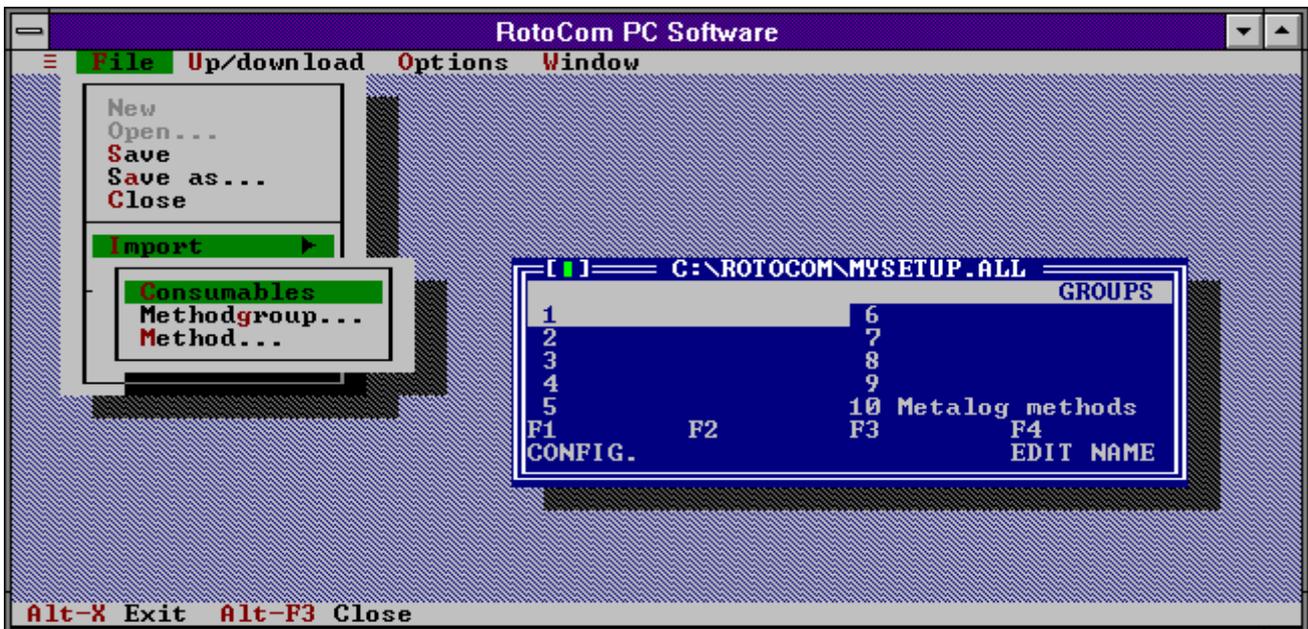
Import and Export of files

The RotoCom PC Software™ has a built-in Import/Export facility, which makes it possible to save/recall consumable lists, method groups or even single methods in separate files. This facility makes it possible to easily distribute preparation methods to other laboratories in the same company, to suppliers or even from Struers direct to you. It also makes updating of the RotoCom unit very easy.

Import (File Menu)

With the **Import** facility you can, after opening a setup file with the extension **.ALL**, (e.g. **MYSETUP.ALL**), import data on consumables, a method group or a single preparation method.

- Activate the File Menu
- Select Import and the following screen will appear:



Consumables: The extension of a consumables file will always be **.CON**

Methodgroup: The extension of a method group file will always be **.GRP**

Method: The extension of a single method file will always be **.MET**

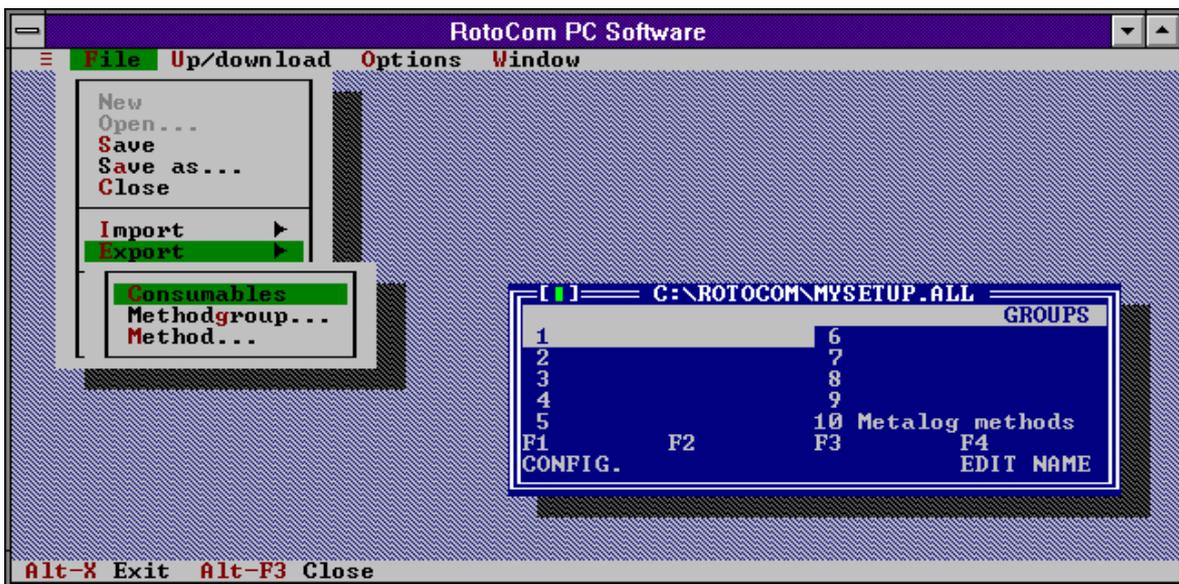
- Select one of the above and a list displaying the existing files will appear.

Export (File Menu)

Files must be exported before they can be imported. This is done using the Export command.

From an open setup file with the extension **.ALL**, (for example **MYSETUP.ALL**), you can use the **Export** facility to export data on consumables, a method group or a single preparation method.

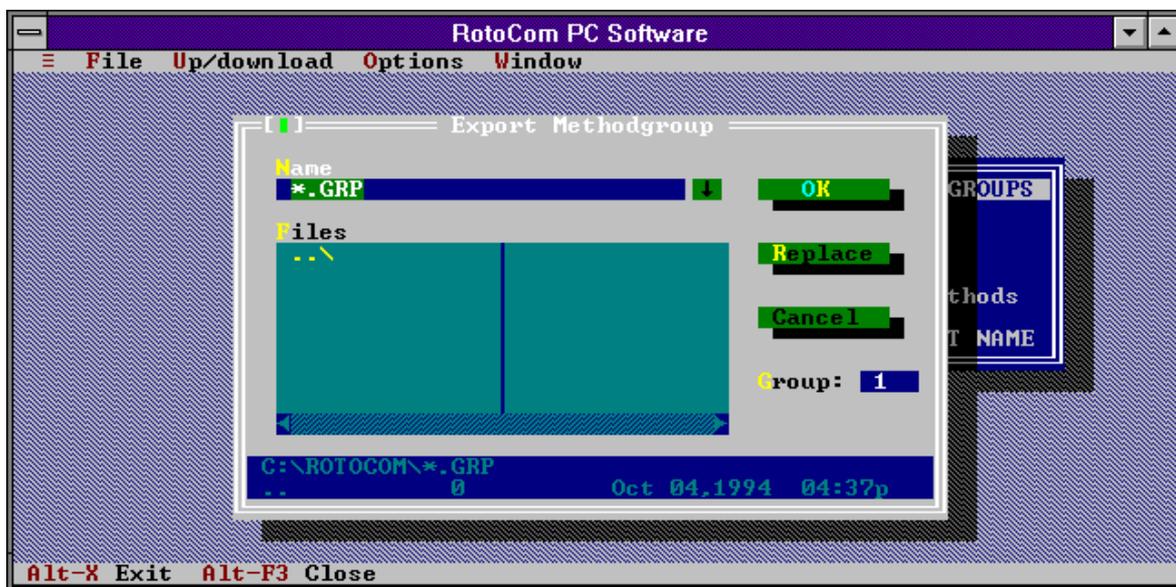
- Activate the File Menu
- Select Export and the following screen will appear:



Consumables: to export a complete list of all existing consumables in the setup open at the moment (e.g. **MYSETUP.ALL**):

- Select Consumables and type a name specifying the consumables list. The extension **.CON** will be added automatically.

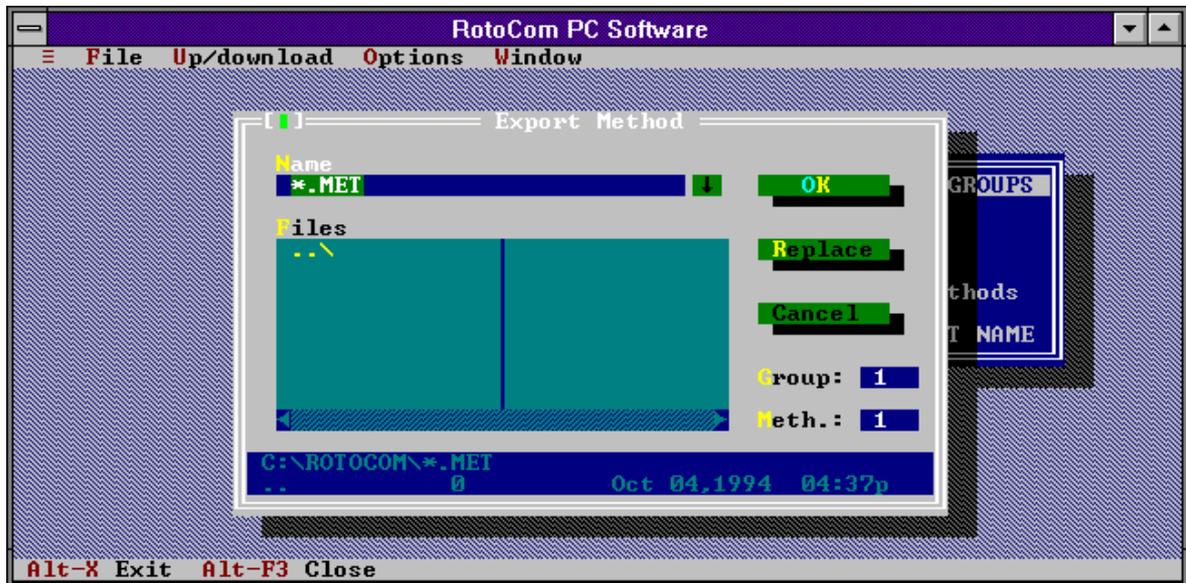
- Methodgroup*: to export a complete method group:
- Select Methodgroup, and the following screen will appear:



- Enter the group No. to be exported.
- Type a name specifying the method group. The extension **.GRP** will be added automatically.

Method: to export a single method:

- Select method, and the following screen will appear:

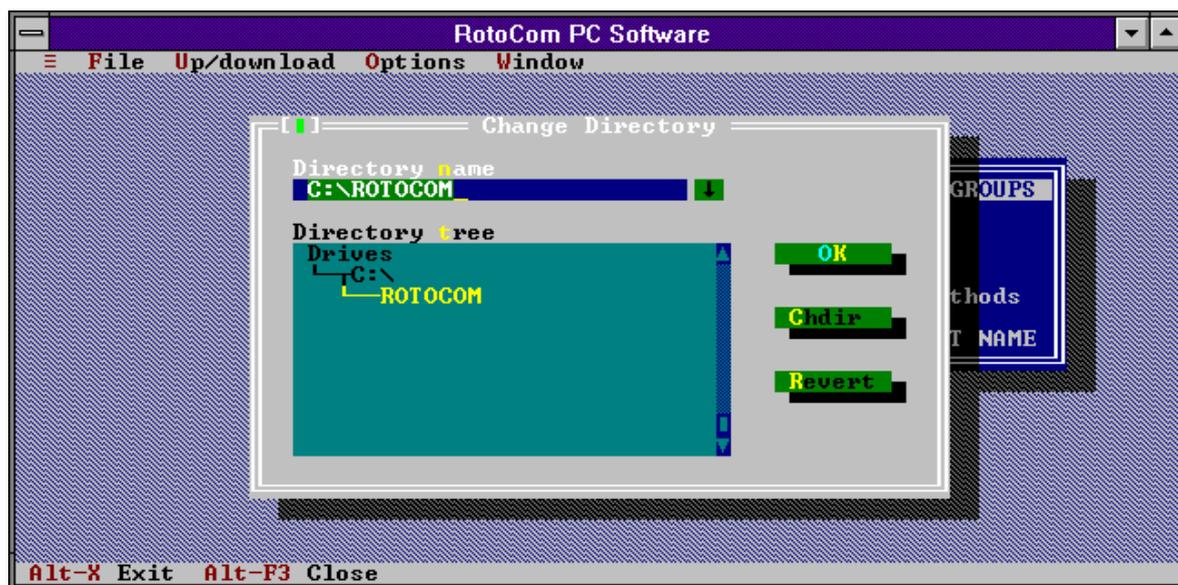


- Enter the group and method No. to be exported.
- Type a name specifying the method. The extension **.MET** will be added automatically.

Change dir (File Menu)

Use this function to change the default directory in which files are loaded and saved, e.g. to keep the data files separate from the system files.

- Activate the File Menu
- Select Change dir and the following screen will appear:

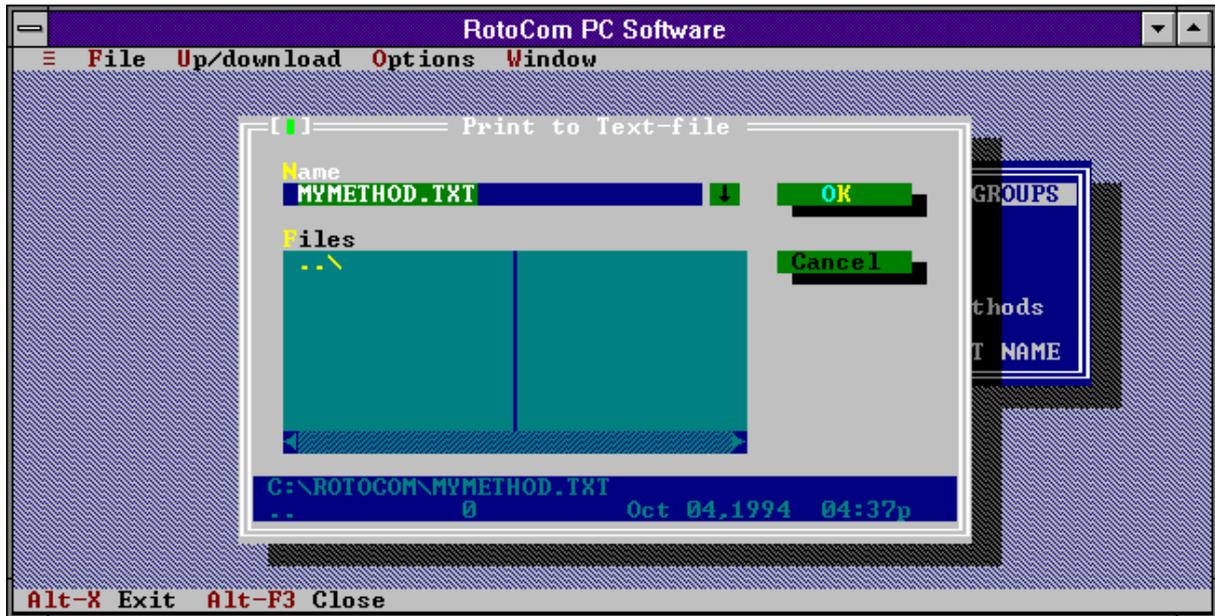


- Use the mouse and double click on the directory to which you want to change or move the cursor using the **TAB** key and press **ENTER**.
- Select OK to accept the new choice.

Print file (File Menu)

Sends all data from the open setup file (e.g. **MYSETUP.ALL**) to an ASCII text file.

- Activate the File Menu
- Select Print file and the following screen will appear:



- Select OK and press **ENTER** or double click on OK if you want to keep the suggested name.
- Move to the Name field and change the name to a different one if necessary. Then save the file by selecting OK.

The text file can be imported by a word processor. The file contains all preparation methods followed by the consumables list.

Exit

To leave the RotoCom PC Software™ and return to the operating system:

- Activate the File Menu and select Exit or hold the **Alt** key and press **X** and the program will be terminated.

If there have been any changes to the setup which have not been saved, you will have to confirm that you really want to exit without saving the changes. If nothing has been changed the program will terminate immediately.

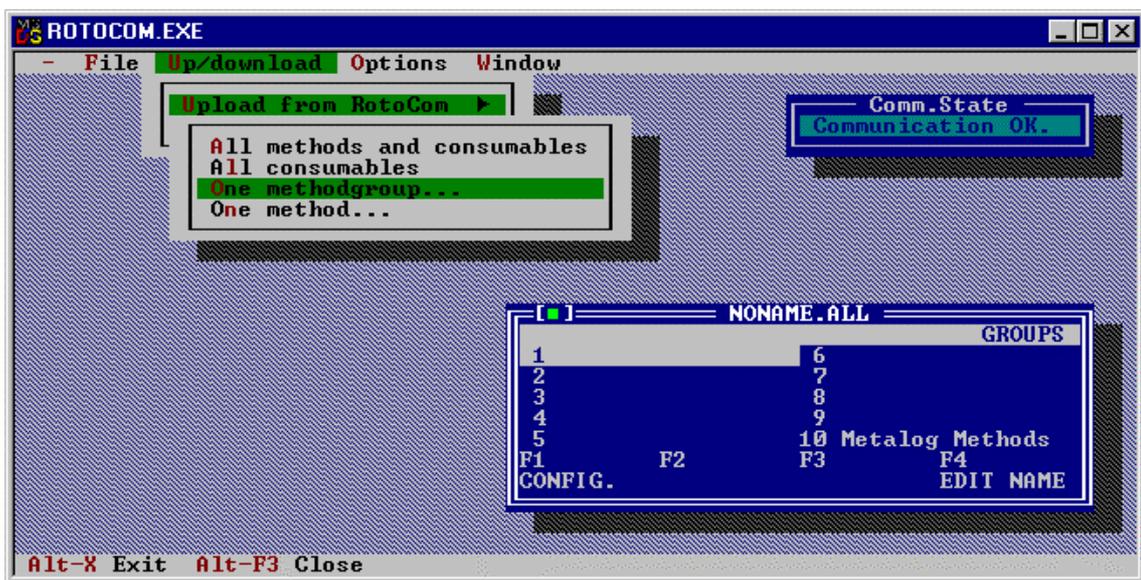
Up/download Commands

The up/download facilities are used to exchange preparation methods and list of consumables between the RotoCom unit and the PC.

Uploading

This function transfers the data from RotoCom to the PC

- To activate the Up/download Menu press **Alt U** or click left on **Up/download**
- Select Upload from RotoCom
- The following screen will appear:



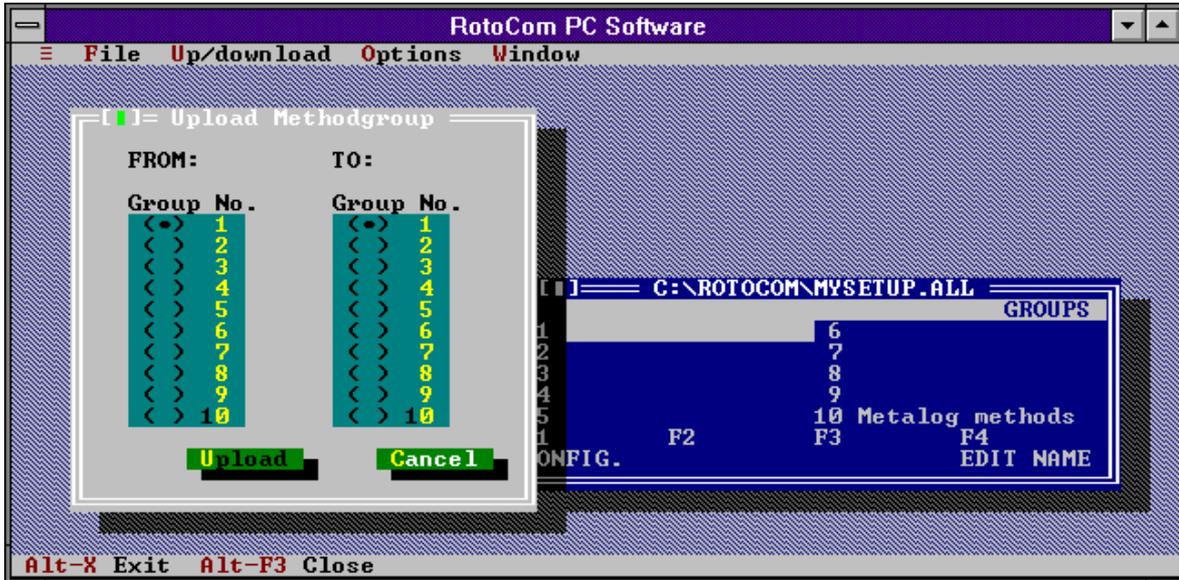
You may choose four different options:

All methods and consumables: the complete setup is transferred from RotoCom to the PC

All consumables: the complete consumables list is transferred from RotoCom to the PC.

One Methodgroup: one group of methods is transferred from RotoCom to the PC

- Select One method group and the following screen will appear:

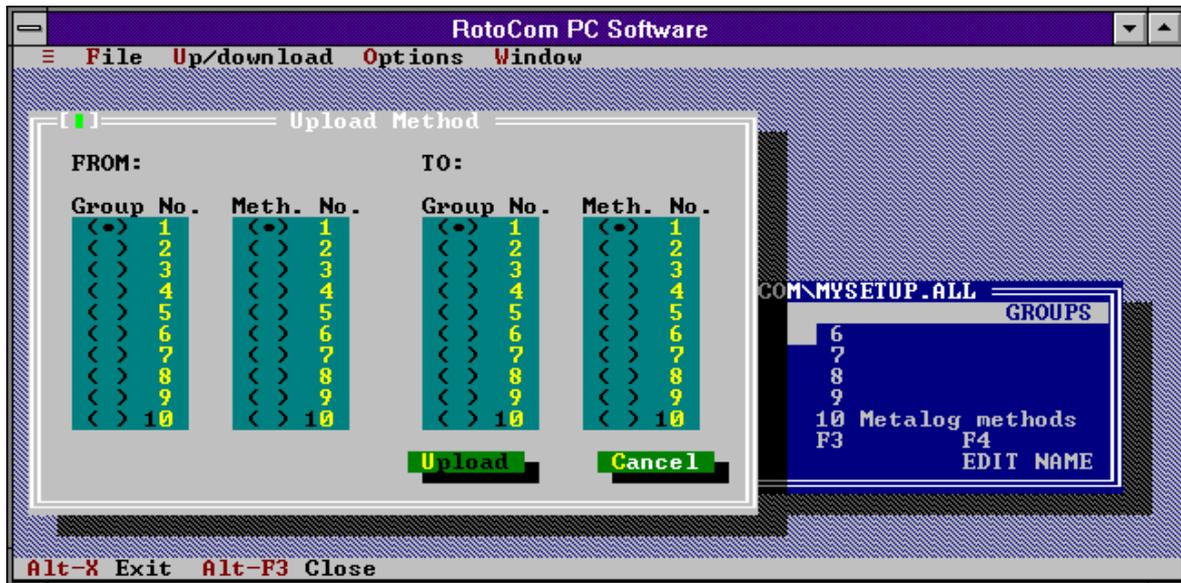


- Mark the method group you want to copy from and also the group you want to copy to.
- Select Upload to transfer the data

Now you have an exact copy of a group of methods which you can store in the setup on the PC or export to a separate file using the Export function.

One Method: One single method is transferred from RotoCom to the PC:

- Select One method and the following screen will appear:



- Mark the method group and the method you want to copy from and the group and method you want to copy to.
- Select Upload to transfer the data

Now you have an exact copy of a method which you can store in the setup on the PC or export to a separate file using the Export function.

Downloading

This function is an exact copy of the Uploading operation, except that the data are transferred in the opposite direction, from the PC to RotoCom. All options explained under Uploading are also valid here and will work in exactly the same way.

Options

In the Options Menu, the communication port and the screen size can be changed.

Communication port

The communication port can be set to COM1 - COM4. Usually only COM1 and COM2 are available. To change the communication port:

- Activate the Options Menu by pressing **Alt O** or by clicking left mouse button on **Options**.
- Select **Communication port**.

IMPORTANT

Make sure that there is no conflict with the mouse. If the mouse is set to COM1, set the RotoCom communication to COM2. If the mouse does not respond when you start the RotoCom PC Software™, there may be a conflict due to the same communication port being used.

See Installation in this section.

- Mark the correct communications port.
- Select OK.

Screen size

The screen size is usually set to 25 lines, but it can be set to 43 lines in EGA and 50 lines in VGA. To change the screen size:

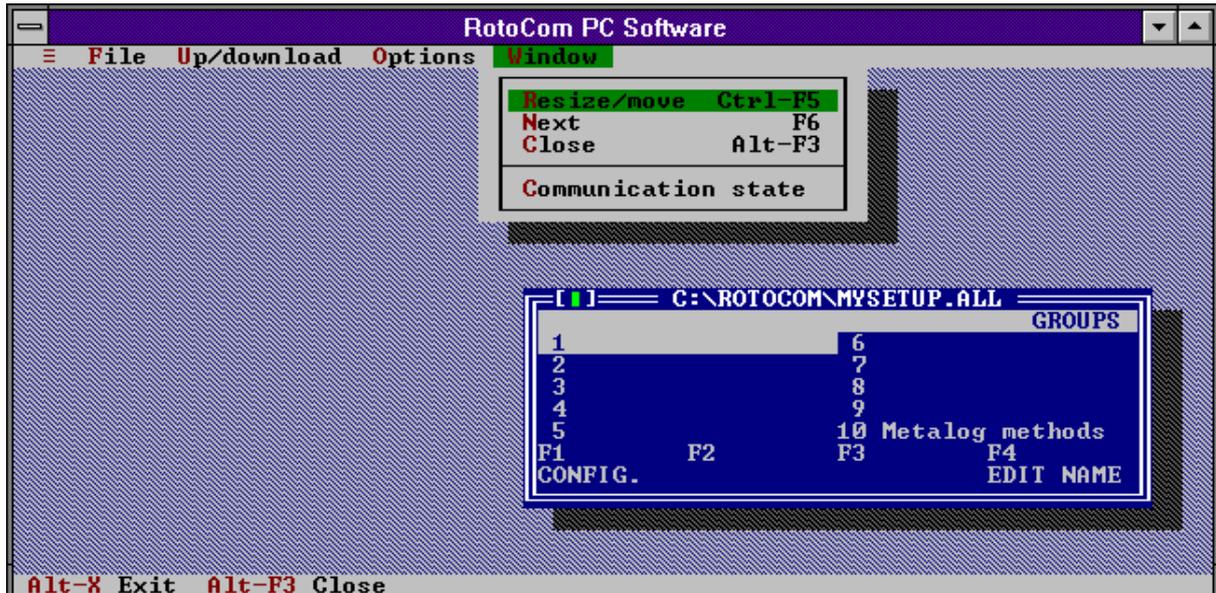
- Activate the Options Menu by pressing **Alt O** or click left on **Options**.
- Select **Screen size**.
- Choose between 25 lines or 43/50 lines.
- Select OK.

Window

In the Window Menu various options regarding size and position of the windows are displayed.

- To activate the Window Menu press **Alt W** or click left on **Window**

The following screen will appear:



Resize/move

Select this option, or press **Ctrl F5**, if you want to move the window to another location on the screen. When you work with several open windows, they may all be visible at the same time.

Next

Select this option or press **F6** to change between *open windows*.

Close

Select this option, or press **Ctrl F3**, if you want to close an open window.

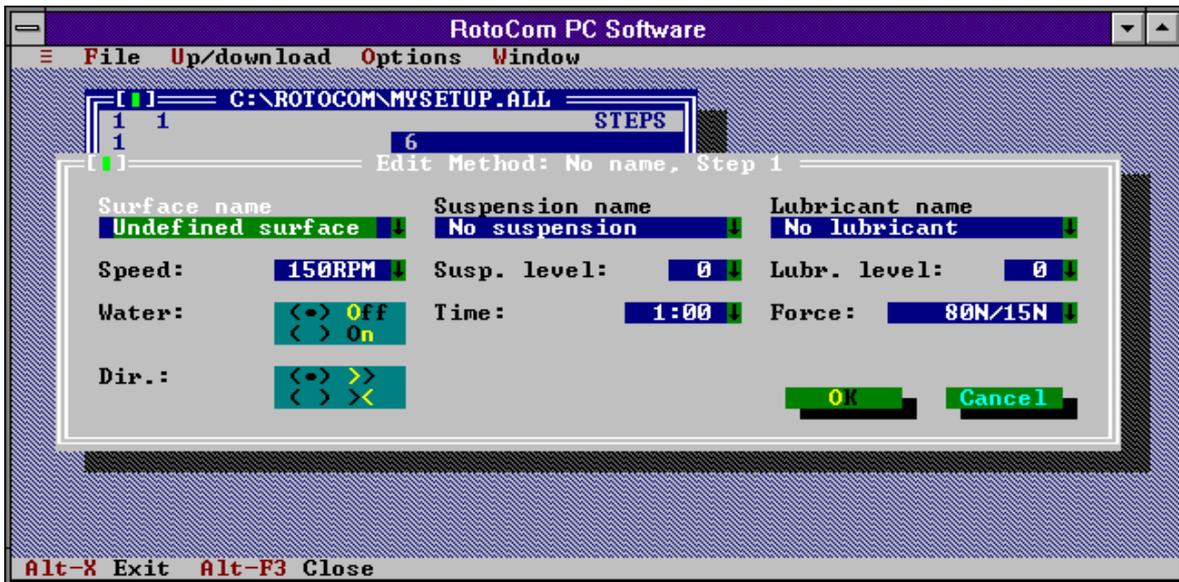
Communication state

Select this option to open the window indicating the state of communication between RotoCom and the PC.

Modifying Preparation Methods With the RotoCom PC Software™ it is possible to edit or create complete preparation methods independently of RotoCom and the preparation machines .

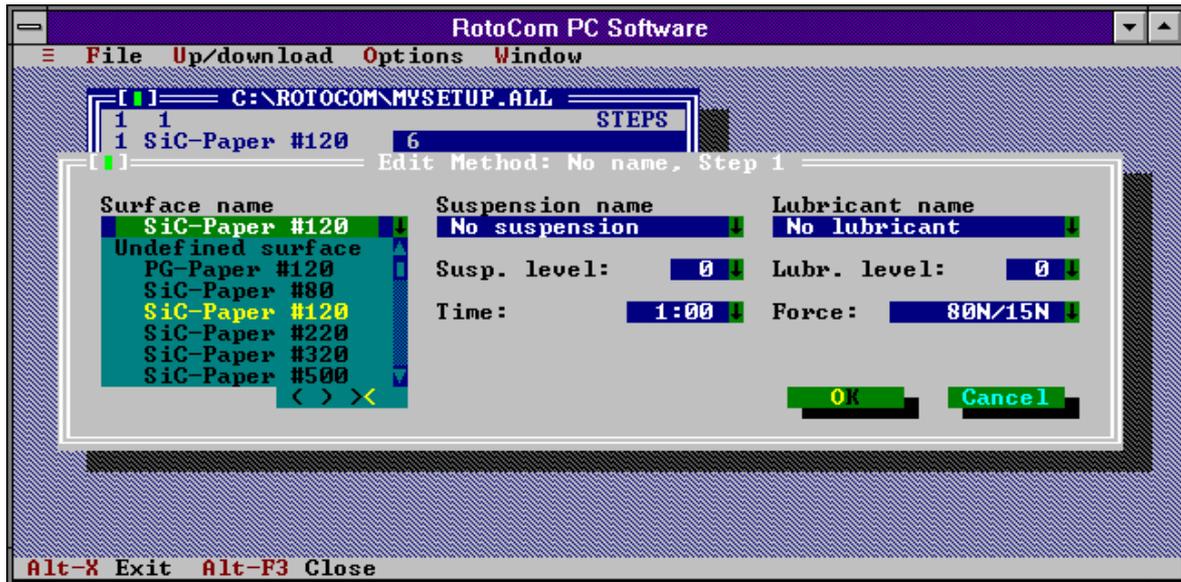
Instead of programming every single step on a RotoSystem and saving it to RotoCom, all parameters can be written directly onto the PC:

- Activate the File Menu.
- Select New to create a new RotoCom setup, or Open to open a RotoCom setup saved on disk.
- Select the method group, method and step you want to edit or create.
- Press or click on F4 UPDATE; the following window will appear:



This is the standard window, showing the default values of all the parameters in a single step.

- Move from one parameter to the next using the **TAB** key or the mouse.
- To select the correct surface, suspension or lubricant, press **ENTER** or click with the mouse on the downward arrow for a list of all available parameters, or use the arrow keys on the keyboard to change the values.



- Under Force two values can be seen, 80N/15N. The parameters are calculated according to the Metalog Methods which is based on a standard of 6 specimens clamped in a specimen holder. So that the setup on RotoForce-4 can be used with single specimens as well this value is divided by 6 and adjusted to the possible values on RotoForce-4.

Depending on the setup of the RotoForce-4, either value may be used.

- Select OK after having set all parameters and the following screen will appear:

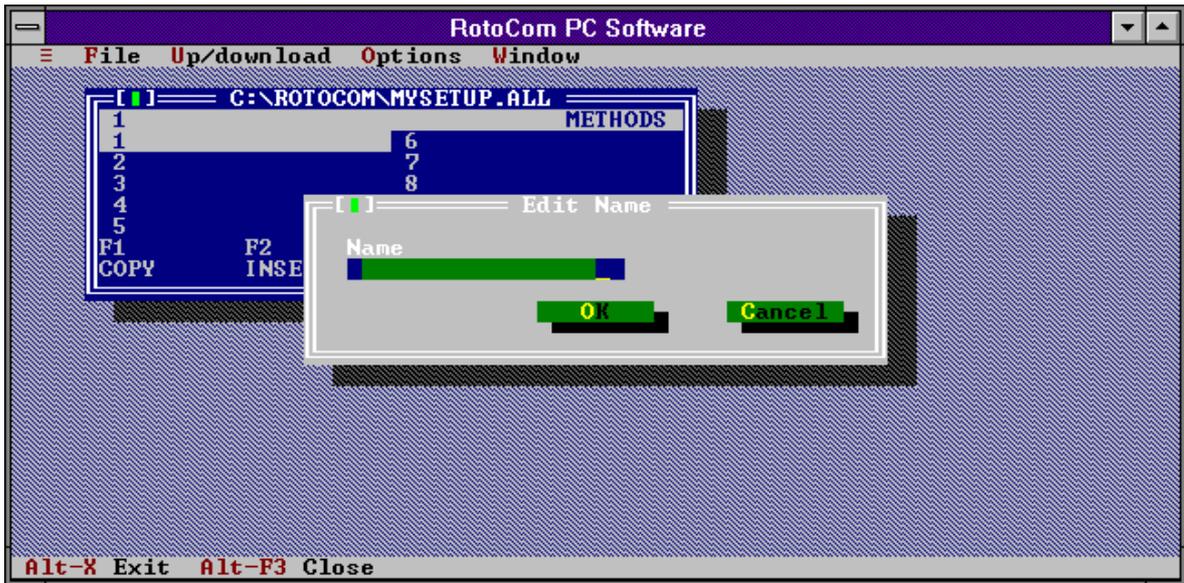


- Repeat the above for all the following steps until a complete method has been created.

Naming methods

To assign a name to the preparation method for future identification, carry out the following steps:

- Press **Esc** to return to the METHODS screen.
- Press **F4** EDIT NAME and the following screen will appear:



- Type a descriptive name, e.g. Stainless Steel and select OK.

Remember to assign a name to the method group when going back to the GROUPS screen. This is performed in the same way.

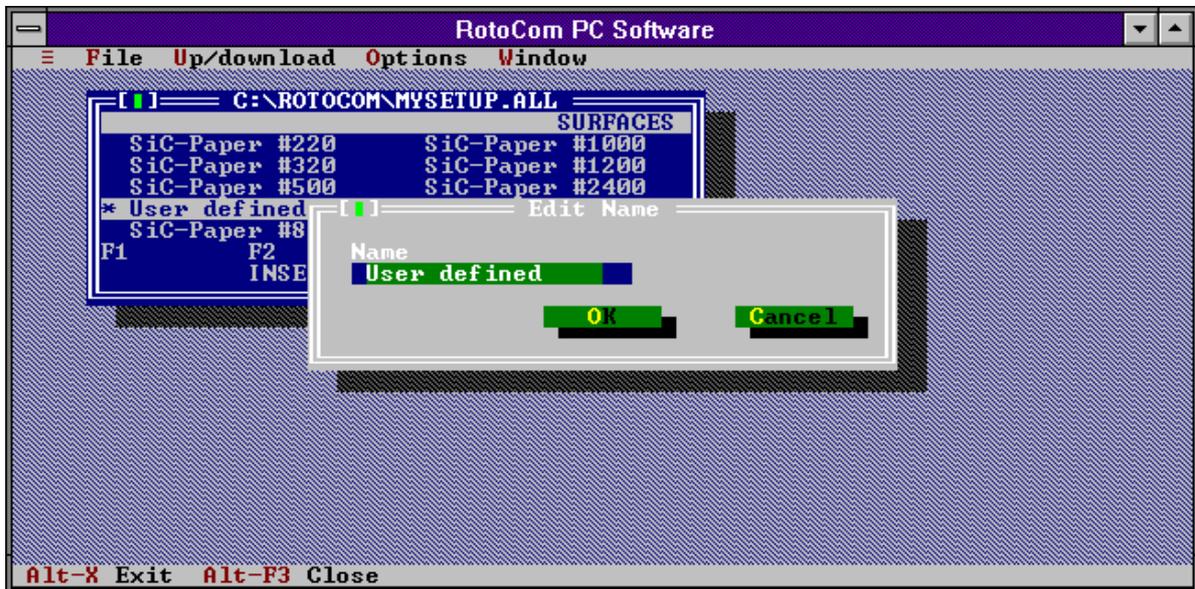
Be sure to save the setup:

- Use **Save as** to select a new name so as to keep the previous version of the setup.
- Use **Save** to overwrite the previous version of the setup.

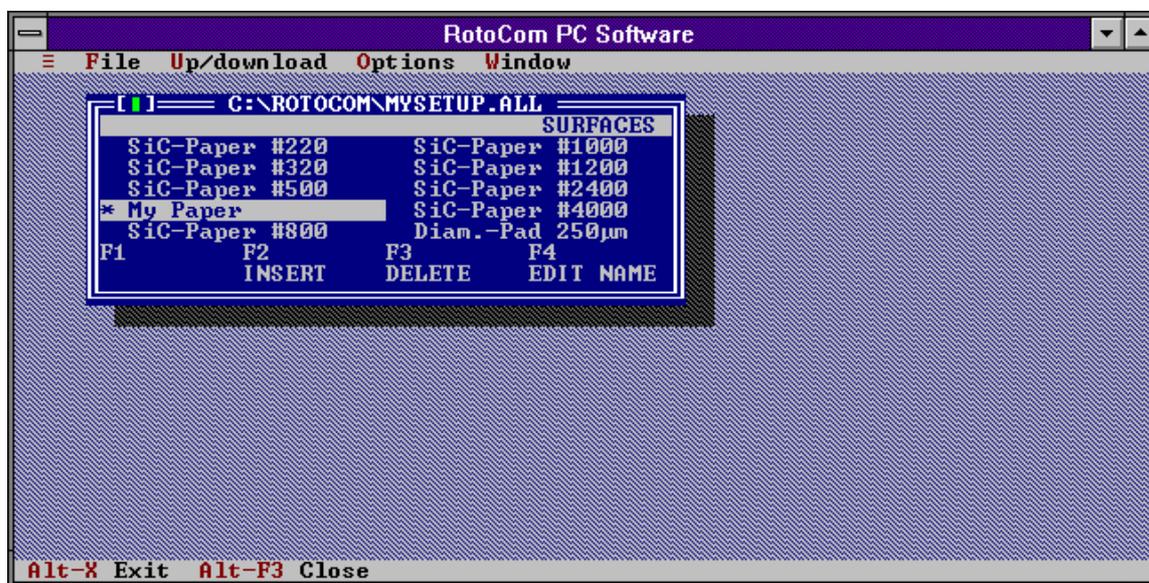
You can also download the new method to RotoCom or export it to a file for easy distribution.

Editing the consumables list

- Press **Esc** until you are in the Group screen.
- Press **F1 CONFIG**.
- Select **CONSUMABLES**.
- Select, for example, **SURFACES**.
- Move to the position at which you want to insert a new surface. Use the arrow keys on the keyboard or the mouse to position the cursor. When using the mouse, double click on the first or last line to change to the next page.
- Press **F2** twice and a ***User defined** will show up above the cursor.
- Press **F4 EDIT NAME** and the following screen will appear:



- Type the name of the new surface and select OK. The following screen will appear:



- The * mark will always be displayed in front of a user defined item, and only these can be deleted or edited. The standard consumables included in the list cannot be deleted or edited.

6. Trouble-Shooting

Display/Error	Cause	Action
The connected machines do not receive any data when RotoCom is set to Auto.	Equipment not set up to ROTOCOM communication.	Change the communication to ROTOCOM.
	Equipment not connected properly.	Connect the machines as described in section Installation.
	Machines are running.	Stop all connected machines.
Message on Multidoser: Bottles Setup Insufficient.	The suspension and/or lubricant required in the preparation method is not available at Multidoser.	Insert the correct suspension/lubricant and change the setup in Multidoser.
RotoCom is locked in AUTO mode.	A connected machine has been switched off during preparation.	Press start and stop on RotoPol or switch the complete system off and back on again.
JAPANESE TEXTS	RotoCom has the possibility of showing the screen texts in Japanese. When choosing a European language in the LANGUAGE menu, you might accidentally press Esc at the Japanese option.	To return to English, German or French texts, just follows this procedure: <ul style="list-style-type: none"> ■ Switch off the main switch on RotoPol and wait for 5 sec. ■ Switch on the main switch on RotoPol. ■ Press F1. ■ Move the cursor to the text in the middle and press ↵ ENTER. ■ Press ↵ ENTER until you reach the language you prefer. ■ Press Esc 2 times.

7. Technical Data

Subject		Specifications	
		Metric/International	US
Dimensions and Weight	Width	350 mm	13.8"
	Depth	500 mm	19.7"
	Height	85 mm	3.4"
	Weight	4 kg	8.8 lbs
Subject		Specifications	
Software/ electronics	LC display	64x240 dots	
	Controls	Touch pad	
	Memory	EPROM, RAM and non-volatile RAM	
	Data exchange	RotoPol-11/15 RotoPol-31/35 RotoPol-21/-22/-25 RotoForce-1 RotoForce-3 RotoForce-4 Multidoser	
	PC Connection	Via RS232	
	Power inlet	From: RotoPol-11/15 RotoPol-31/35 RotoPol-21/22/25	
	Envi- ronment	Safety Standard	89/293/EEC (Safety of Machines) 89/336/EEC (EMC)
Surrounding temperature		10-40°C/50-104°F	
Humidity		0-95% RH non condensing	
Supply Voltage	Voltage / frequency:	Max. continuous load:	
	24V AC/50Hz 24V AC/60Hz	2.5VA 2.5VA	

Quick Reference Card

- Running a Preparation Method**
- Move the cursor using ▲ or ▼, to the correct group of methods and press ENTER ↵.
 - Move the cursor to the correct preparation method and press ENTER ↵.
 - Press Auto on RotoCom.
 - Put on the correct preparation disc as displayed on RotoPol and press START ◊ on RotoPol.
- Repeating a Preparation Step*
- Press UP ▲ to repeat a preparation step.
- Omitting a Preparation Step*
- Press DOWN ▼ to omit a preparation step.
- To select a New Preparation Method*
- Press Auto on RotoCom to release all machines from the Auto mode, then select a new preparation method on RotoCom.
- Copying a Preparation Method**
- Move the cursor, using UP ▲ or DOWN ▼, to the preparation method you want to copy
 - Press F1 twice to copy the method.
 - Select the group in which you want to save the method and press F2 twice to insert the method.
- Editing Names**
- Select the name you want to edit.
 - Press F4, Edit Name.
 - Use F2 to insert or F3 to delete a character.
 - Press ENTER ↵ to show the character set.
 - Move the cursor left or right by pressing F1 or F3.
 - Move the cursor up or down by using UP ▲ or DOWN ▼.
 - Press F4 twice to save the name.
- Modifying a Preparation Method**
- Select the Preparation Method and the Step you want to change
 - Press Auto to send the data to the connected machines.
 - Press Auto again to release all machines from Auto mode.
 - Change all the necessary preparation data on the machines (e.g. time, force, surface, abrasive or lubricant).
 - Press F4 twice to update RotoCom with the new values.
- Inserting a Preparation Step*
- Press F2 twice to insert a new preparation step.
- Deleting a Preparation Step*
- Press F3 twice to delete a preparation step.

Spare Parts and Diagrams

Table of contents	Drawing
<i>Drawings</i>	
RotoCom, Complete.....	15100001B
<i>Diagrams</i>	
X6 connected to W1+W3+W4+W5	15103410
PCB component illustration.....	15103373
Main control board connections	15103200
Connection of cables (RotoCom with 1 RotoPol).....	15107601
Connection of cables (RotoCom with 2 RotoPol).....	15107602

Some of the drawings may contain position numbers
not used in connection with this manual.

RotoCom
Spare Parts and Diagrams

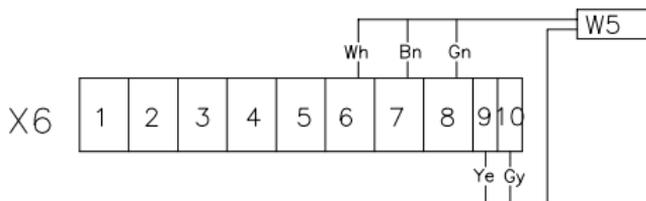
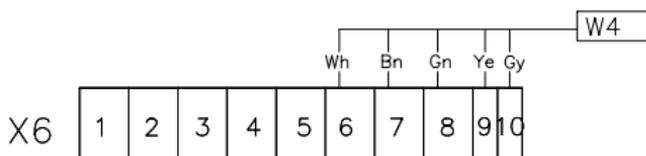
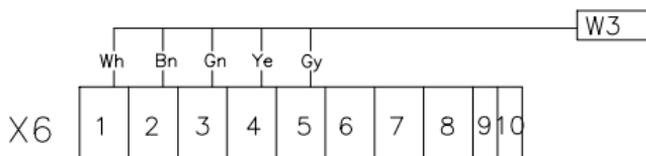
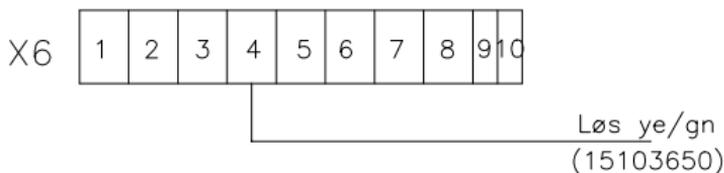
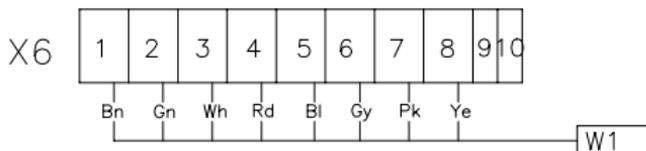
The following is a list of the spare parts that may need replacement during the lifetime of the equipment.

To check the availability of other replacement parts, please contact your local Struers Service Technician. It may help identify the part by referral to its position number on the assembly drawings included in this manual.

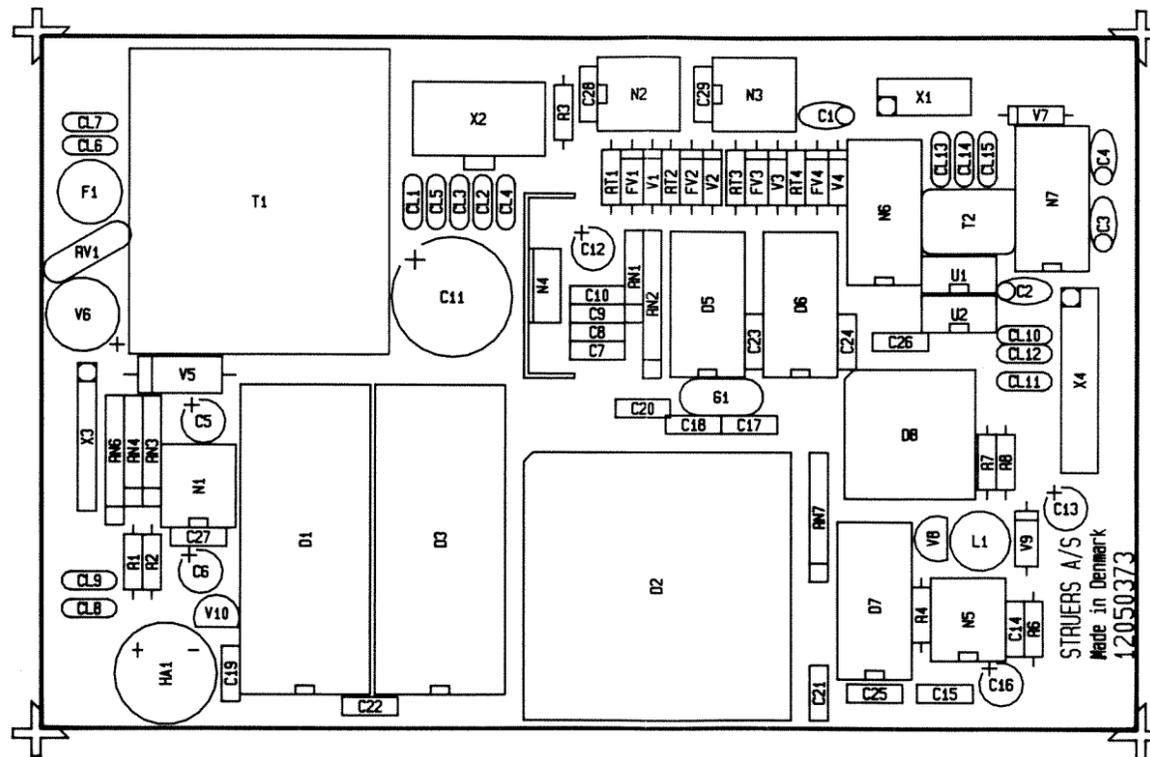
Spare part list for RotoCom

Drawing	Pos.	Spare Part	Cat no:
<i>15100001B</i>		RotoCom, Complete	
	010	Cabinet cover	15109001
	015	Touch pad keyboard	15100005
	020	Display window	15100110
	030	Display 240x65 BK/WH DMF5005NF	15103350
	060	PCB RotoCom main control board	R5103373
		PROM (software)	15103902
		315mA fuse sub-miniature TR5	2FU30450
	090	W7 display flat cable	15103607
	100	Cabinet bottom	15109002
	110	Rubber foot ø30x15	2GB00001
		W1 internal cable	15103601
		W3 cable	15103603
		W4 cable	15103604
		W5 cable	15103605
	220	W2 supply + communication cable	15103602
	260	W6 PC communication cable	15103606
		Program disk 3.1/2" (RotoCom PC Software™)	15103900
		W10 cable PC to RotoCom	R5103610
		W20 communication cable	14600505

8 stk. Wago 260-331 (2XL00331)
 2 stk. Wago 260-301 (2XL00301)
 1 stk. Wago 260-361 (2XL10361)



	Matr.:	Overfl.beh.: Nej	Målforhold:	Ikke ang. tol. efter DS/ISO 2768- mK
		Projektionsmetode	1:1	Dato
				Sign.
	X6 påmonteret W1+W3+W4+W5			Erst.:
				15103410 A
				Tegn: 050994 BMJ
				Kontr.



PRINT-TEGN
JSTRU62
940221

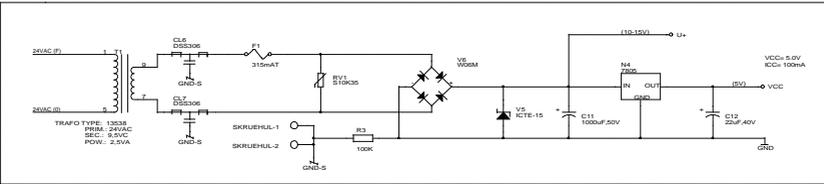
ASSEMBLY
COMPONENT SIDE
12050373



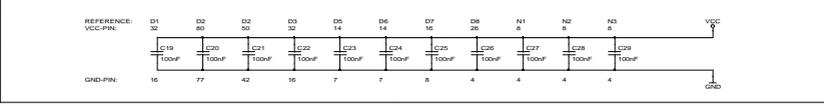
Mont. af R9-R12: Se tegn.nr. 15103400

	MATR. 12050373	MÅLESTOK 1:1
		NAVN B.J
		DATO 030894
	ANVENDES I TYPE	ERSTATTER
	PCB Component ill.	15103373

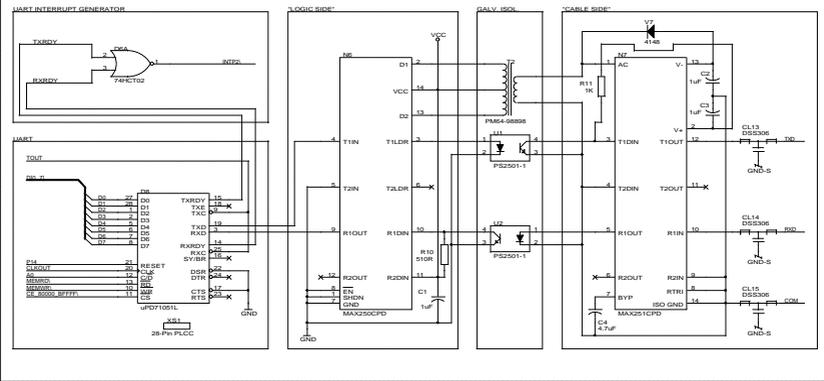
POWERSUPPLY



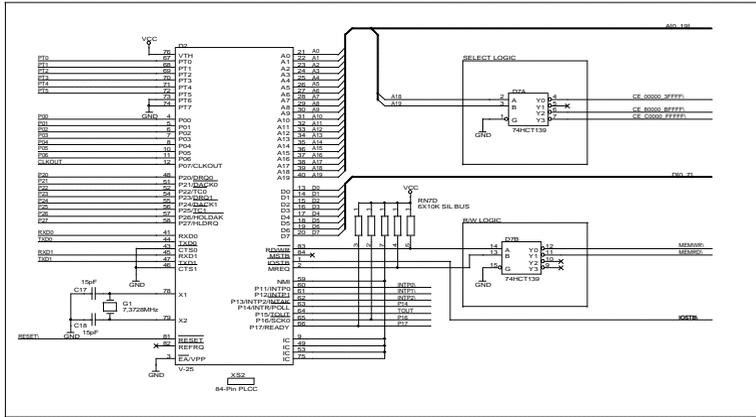
DECOUPLING



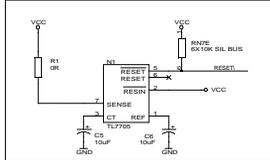
PC INTERFACE



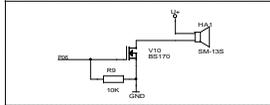
µP-CIRCUIT



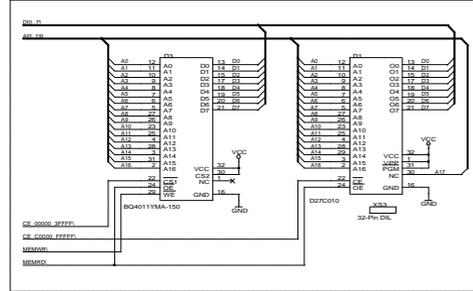
RESET GENERATOR



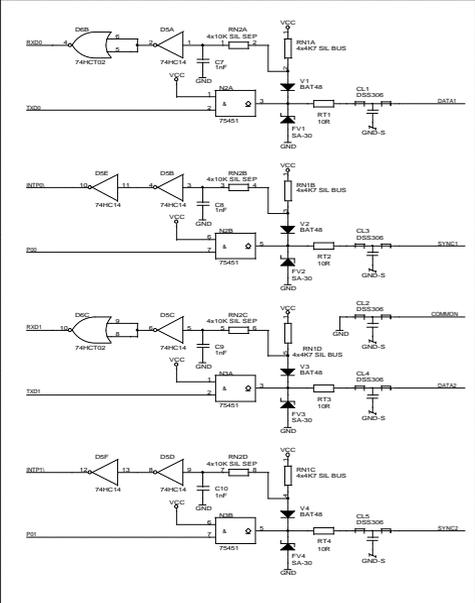
BEEPER



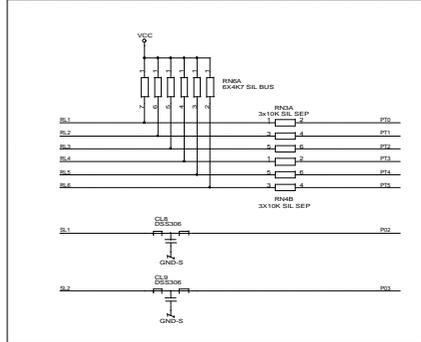
MEMORY



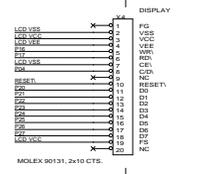
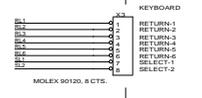
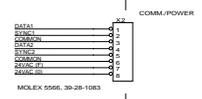
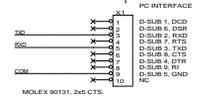
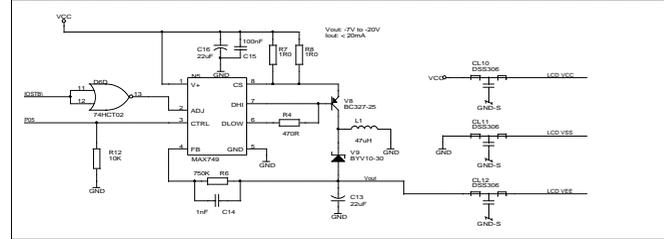
COMMUNICATION INTERFACE



KEYBOARD INTERFACE



DISPLAY INTERFACE



STUEBENS A/S VALBØRGEALLE 17E DENMARK PHONE: 45 2622 3600		ROTOCOM MAIN CONTROL BOARD	
SIZE	SCALE	DWG NO	REV
		15103200	B
Wednesday, September 11, 1996			

A

B

C

D

3

3

2

2

1

1

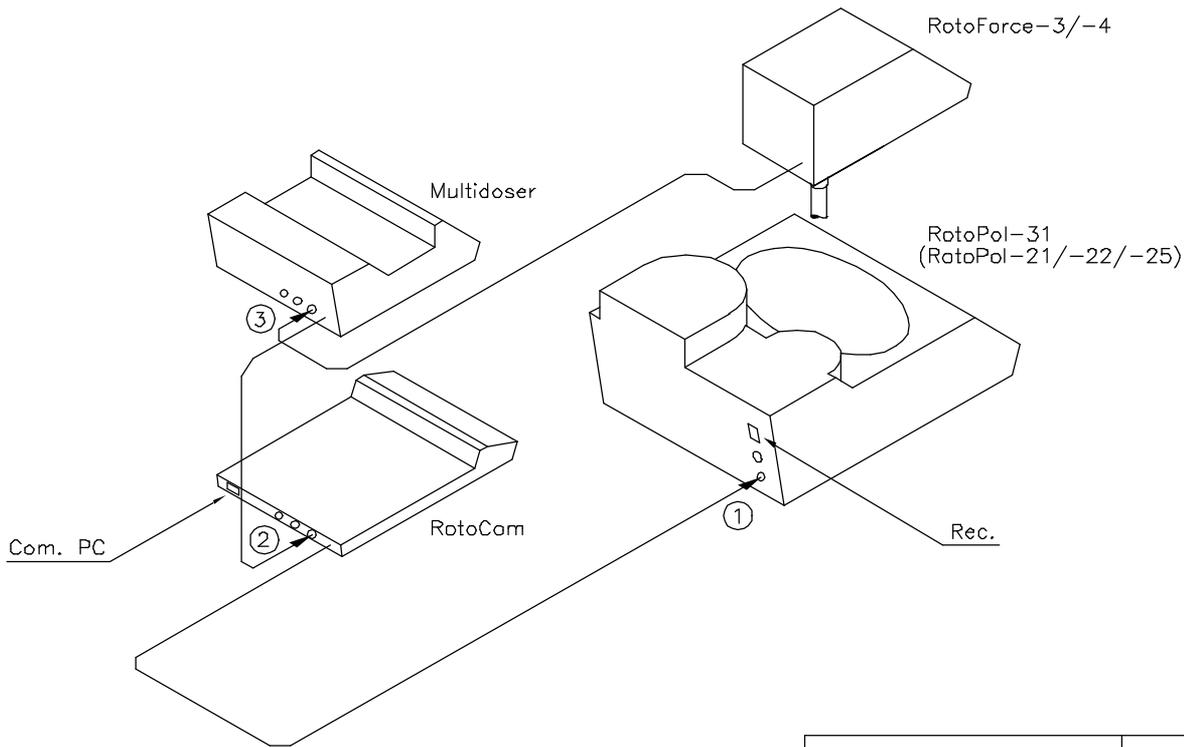
A

B

C

D

System 1



Matr.:		Overfl.beh.:	Målforsold:	Ikke ang. tol. efter DS/ISO 2768-	
			1:10	Tegn: 250894 BR	
				Kontr.:	
Placering af kabler Roto Module m. 1 RotoPol			Erst.:		15107601

A

B

C

D

3

3

System 2

System 1

RotoForce-3/-4

RotoForce-3/-4

RotoPol-31
(RotoPol-21/-22/-25)RotoPol-31
(RotoPol-21/-22/-25)

Multidoser

Rec.

1b

Com. PC

2b

2a

RotoCom

3b

3a

1a

Rec.

2

2

1

1

Matr.:		Overfl.beh.:	Målforholds:	Ikke ang. tol. efter DS/ISO 2768-	
			1:10	Dato	Sign.
				Tegn.:	250894
Placering af kabler Roto Module m. 2 RotoPol			Erel.:	15107602	
Kont.					

A

B

C

D