

# LaboDoser

## Instruction Manual

Manual No.: 15407001

Date: 06.08.2013



*LaboDoser*  
*Instruction Manual*

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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 front cover of this manual or on an attached label below. If in doubt consult the rating 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.

The following restrictions should be observed, as violation of the restrictions may cause cancellation of Struers legal obligations:

**Instruction Manuals:** Struers Instruction Manual may only be used in connection with Struers equipment covered by the Instruction Manual.

**Service Manuals:** Struers Service Manual may only be used by a trained technician authorised by Struers. The Service Manual may only be used in connection with Struers equipment covered by the Service Manual.

Struers assumes no responsibility for errors in the manual text/illustrations. The information in this manual is subject to changes without notice. The manual may mention accessories or parts not included in the present version of the equipment.

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## **LaboDoser**

### **Safety Precaution Sheet**

#### **To be read carefully before use**

1. The operator should be fully aware of the use of the apparatus according to the Instruction Manual.
2. The apparatus must be placed in an adequate working position.
3. Alcohol based consumables: follow the current safety rules for handling, mixing, filling, emptying and disposal of the alcohol-based liquids. Struers recommend the use of an external exhaust system.
4. Disconnect the power to LaboDoser when changing tubes.
5. If you observe malfunctions or hear unusual noises - stop the apparatus and call technical service.

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The equipment should only be used for its intended purpose and as detailed in the Instruction Manual.


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.).

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## **Disposal**

Equipment marked with a WEEE symbol  contain electrical and electronic components and must not be disposed of as general waste.

Please contact your local authorities for information on the correct method of disposal in accordance with national legislation.

# User's Guide

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## 1. Getting Started

### Checking Contents of Packing

- 1 LaboDoser
- 1 Nozzle Block, complete
- 1 Finger screw
- 4 Bottles, 500ml
- 1 Set of Instruction Manuals

### Getting Acquainted

Take a moment to familiarise yourself with the location and names of all the LaboDoser components.

LaboDoser with LaboPol and LaboForce

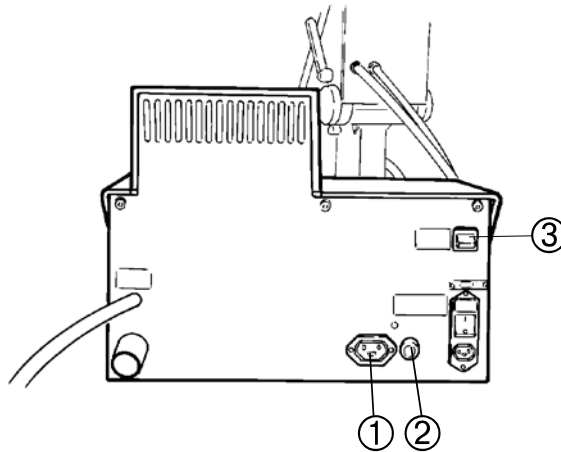


- ① Front panel with display
- ② Nozzle block
- ② Grinding/Polishing machine with specimen mover

## Setting Up

### Electrical Connection and Communication

- Connect LaboDoser to both sockets on the back of the grinder/polisher marked:  
The cables of LaboDoser should be connected as follows:  
The power cord must be plugged into socket ①, and the communications cable into the socket ②.



- To enable communication set switch ③ to 'on'.
- Then connect the appropriate cables from the LaboForce to the Y-extensions on the cables from the LaboDoser.

## Mounting the Nozzle Block

The nozzle block is mounted underneath the LaboForce.

- Loosely fit the finger screw into the pre-drilled hole underneath LaboForce.
- Guide the bottom plate of the nozzle block onto the finger screw and the positioning pin underneath the LaboForce, and re-tighten the finger screw.

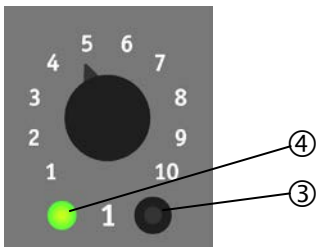
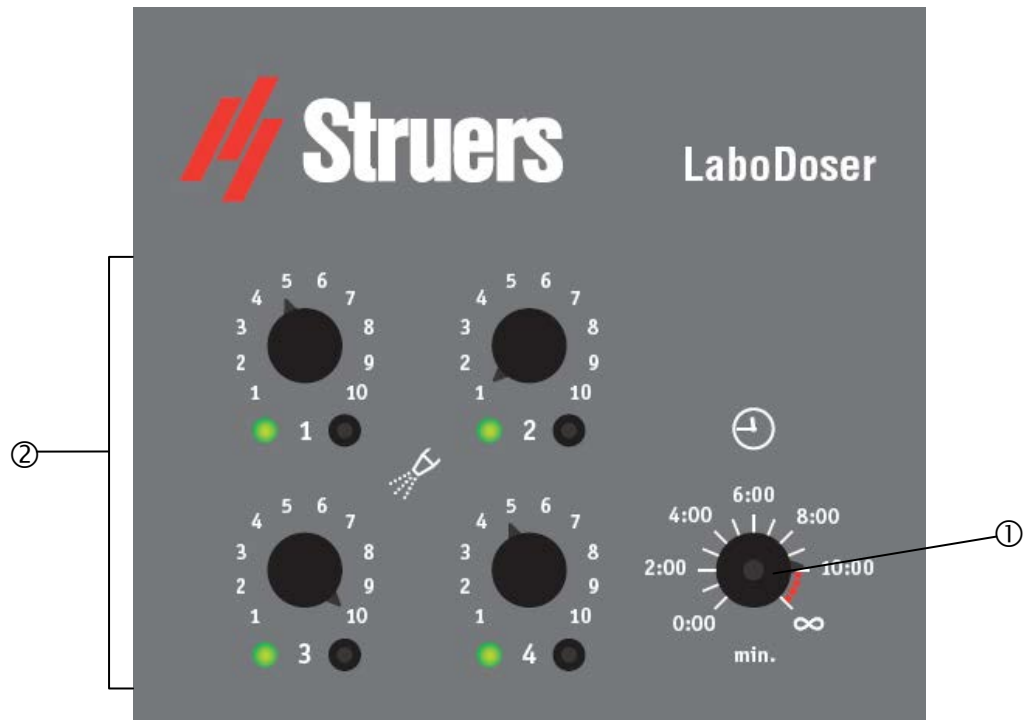
## Filling with Consumables

The Bottles can be used for DP-Suspension, DP-Lubricant or the all-in-one suspensions DiaPro or DiaDuo.

- When filling with DP-Suspension, start with the coarse grain sizes in bottle no.1, for example, and move to the finer grain sizes in the bottle no. 2, 3, or 4. So the change will be from the coarse grain size towards the finer, as in the preparation process.
- The same process applies to the lubricants: start with the lubricant to be used first, followed by the lubricant used for final polishing

## 2. Basic Operations

### Using the Controls Front Panel Controls of LaboDoser

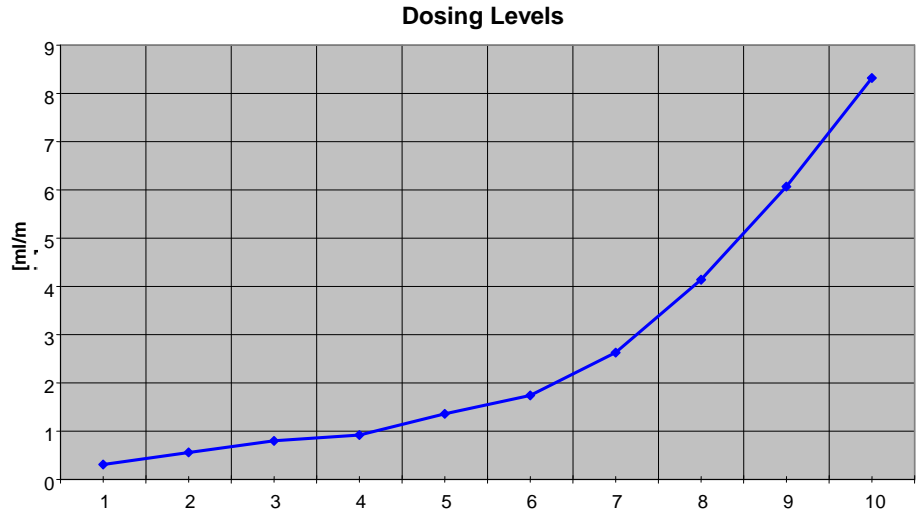


	Name	Function
①	Timer	Allows to set the preparation time between 0:00 and up to 10:00 :
②	Dosing Controls	Sets the dosing level for suspension and lubricants between 1 and 10.
③	Selection button	Starts/stops the peristaltic pump.
④	LED indicator	A green LED next to each selection button indicates the selected pump.



**Before the Preparation**  
*Adjusting the Dosing Level*

- On the controls, turn the knob of the respective bottle to the desired dosing level.  
Levels 1-5 are used for diamond suspensions and levels 5-10 are used for lubricants and all-in-one suspensions.



*Adjusting the Preparation Time*

- Turn the knob for the timer to the required preparation time.

*Pre-Dosing*

The preparation discs should be pre-dosed to ensure that they are lubricated before starting the preparation process.

**Note:**

New preparation discs should be dosed with an appropriate amount of abrasive as well as lubricant before using for the first time.

- Move the LaboForce into the upper position.
- Press Start to rotate the disc on LaboPol.
- Press the selection button for the bottle(s) containing the correct suspension and/or lubricant.
- Release the selection key after the correct amount has been applied.
- Press Stop on the LaboPol.

## **Running a Preparation Method**

### *Selecting the Bottles*

- Press START  $\diamond$  on the grinding/polishing machine and all connected machines will start simultaneously.
- Immediately after pressing start, select the bottles with the required suspension and/or lubricant by pressing the button.
- When the preset time has expired LaboPol, LaboForce and LaboDoser will stop simultaneously.

## **Other Functions**

### *Cleaning the Tubes*

When exchanging a bottle with one grain size of DP-Suspension for another grain size of DP-Suspension, or one lubricant for another lubricant, always clean the tubes of LaboDoser to avoid any cross contamination.

- Remove the suspension or lubricant bottle to be exchanged.
- Move the LaboForce into the upper position, set the timer on the LaboDoser to  $\infty$  and press Start on the LaboPol. Place the tube from the bottle to be exchanged in a container filled with water.
- Insert a container under the dosing nozzle and press and hold the selection button for the bottle to be exchanged. The pump is activated now and will pump water through the tube.
- When the tube has been cleaned sufficiently remove the container with water. Continue to run the pump to remove the water from the tube.
- Insert the bottle with the new suspension or lubricant and press the selection button to fill the tube with the new consumable.
- Press Stop on the LaboPol.

### **3. Maintenance**

#### **Daily**

- Clean all accessible surfaces with a moist cloth.

## 4. Trouble-shooting

Error	Cause	Action
Dosing active but no dosing liquid	Tube empty	Press the selection button until the liquid has filled the tube completely. (Remember first to start the LaboPol after moving the LaboForce into the upper position.)
Tubes clogged	LaboDoser has not been used for some time and the tubes are clogged	Clean the tubes as described in the section on <i>Cleaning the Tubes</i> .
	The tubes in the peristaltic pumps may be "glued" together, clogging the passage of any liquid.	<ul style="list-style-type: none"> <li>■ Fill a syringe with water and carefully press water into the inlet tube of the pump, while activating the selection button. (Remember first to start the LaboPol after moving the LaboForce into the upper position.)</li> <li>■ Keep pressing water into the tube until the adhesion loosens and the tube allows the water to pass through.</li> </ul>

## 5. Technical Data

<b>Subject</b>	<b>Specifications</b>	<b>Metric/International</b>	<b>US</b>
Dimensions and Weight	Width	165 mm	6.5"
	Depth	350 mm	13.8"
	Height	158 mm	6.2"
	Weight	2 kg	4.4 lbs
Dosing Levels	Suspensions	Levels 1–5: 0,20 – 1,15 ml	
	Lubricants and all-in-one suspensions	Levels 5–10: 1,15 – 8,50 ml	
<b>Subject</b>	<b>Specifications</b>		
Environment	Safety Standards	Please refer to the Declaration of Conformity	
	Surrounding temperature	5-40°C/41-104°F	
	Humidity	0-95% RH non condensing	
Supply Voltage	Voltage frequency	100 – 240V, 50/60Hz	
	Power consumption 50/60Hz	20VA	

# Quick Reference

## **Setting the Preparation Time**

- Set the required preparation time on the timer button.
- Press the selection button on the front panel section to select the desired suspension and/or lubricant type.

## **Dosing**

- Set the correct dosing level on the dosing controls for the respective bottle(s)
- Press Start on the LaboPol.
- Press the selection button for the respective bottles.
- Wait for the equipment to stop (process time expires).

English

## Declaration of Conformity

**Manufacturer**

Struers ApS  
 Pederstrupvej 84  
 DK-2750 Ballerup, Denmark  
 Telephone +45 44 600 800

**Herewith declares that**

<i>Name:</i>	LaboDoser
<i>Cat. No.:</i>	05406116
<i>Function:</i>	Dosing unit
<i>Type No.:</i>	540

**fulfils all the relevant provisions of the:**
**Machinery Directive  
 2006/42/EC**

according to the following standard(s):  
 EN ISO 12100:2010, EN 60204-1:2006/AC:2010.

**and is in conformity with the:**
**EMC Directive  
 2014/30/EU**

according to the following standard(s):  
 EN 61000-6-1:2007, EN 61000-6-3:2007/A1:2011.

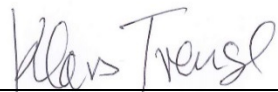
**RoHS Directive  
 2011/65/EU**

according to the following standard(s):  
 EN 50581:2012.

**Supplementary Information**

The equipment complies with the following standards:  
 NFPA70:2014, FCC 47 CFR Part 15.

**The above has been declared according to the global approach, module A.**

**Authorized to compile the Technical File:**


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Date of Issue: 2017.10.05



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# LaboDoser



## Spare Parts and Diagrams

Manual No.: 15407001

Date of Release 06.08.2013



*LaboDoser*  
*Spare Parts and Diagrams*

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**Always state *Serial No* and *Voltage/frequency*  
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# Spare Parts and Diagrams

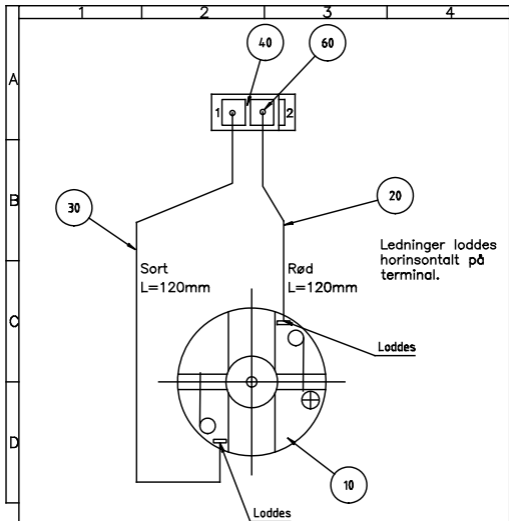
Table of contents	Drawing
<i>Drawings</i>	
LaboDoser, complete .....	15400001E
Pump, complete .....	15400020C
Cat's paw, complete .....	15400010A
Bottle 0.5 liter, complete.....	15400030B
<i>Diagrams</i>	
Block Diagram .....	15403100A

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

## Spare Part list for LaboDoser

Drawing	Pos.		Cat no.
15400001		<b>LaboDoser, complete</b>	
	020	Foil front plate, LaboDoser	15400110
	030	PCB, complete	15403010
	070	Button $\varnothing 6.5/\varnothing 2.5 \times 4$ , black	2GH00020
	080	Button $\varnothing 14.5-\varnothing 3$ ELMA	2GD13225
	090	Arrow $\varnothing 14.5$ ELMA	2GD63025
	100	Cover $\varnothing 14.5$ ELMA black	2GD53025
	110	Pump, complete	15400020
	230	SILICONE-TUBE $\varnothing 2/\varnothing 4$	2NU11452
	240	SILICONE-TUBE $\varnothing 2/\varnothing 4$	2NU11452
	15400020		<b>Pump, complete</b>
010		Pump 24Vdc SR10/30, 38ml/min	2YP01030
		Pump cartridge, detachable, 38ml/min	2YP01031
		Pump cartridge, detachable, 38ml/min, silicone	2YP01032
050		SILICONE-TUBE $\varnothing 2/\varnothing 4$	2NU11452
15400010		<b>Cat's paw, complete</b>	
	020	$\varnothing 3$ pipe, short	15600141
15400030		<b>Bottle 0.5 liter, complete</b>	
	010	Plastic bottle $\frac{1}{2}$ l natural, without cap	71000044
	020	PU HOSE PU-3 BLACK $\varnothing 2.9/\varnothing 4.3$	2NU14032
	030	Lid for bottle, drilled for $\varnothing 7$	15090710
	040	O-ring 39.70-3.53, 70 NBR	2IO35353
	050	Neopren nipple $\varnothing 2/\varnothing 6.5/\varnothing 11-1.5$	2GK90102
	060	Pipe for bottle	15400120
	070	PU HOSE PU-3 BLACK $\varnothing 2.9/\varnothing 4.3$	2NU14032





- 50 Slangen i pumpen udskiftes med 120 mm Silicone-slange  $\varnothing 2/\varnothing 4$ . Der skal være 70 mm imellem hver clips, og slangen skal sidde symmetrisk i pumpen.

Matr.:	Overfl.beh.:	Målforhold:	Ikke ang. tol. efter DS/ISO 2768-mK	
	Nej	2:1	Date	Sign.
	Projektionsmetode		Tegn:	081003 BRY
			Kontr:	081003 FTH
Pumpe, mont.		Eret:	15400020 C	

C. Tekst: Ledninger  
 230604 BRY/SPE  
 B. Stk vandt.  
 230604 BRY/FTH

1

2

3

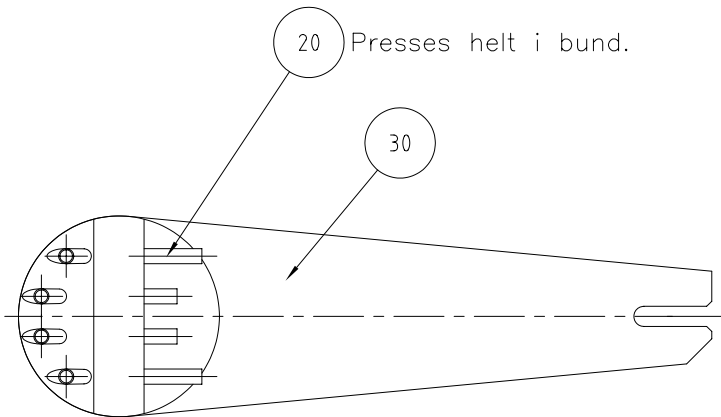
4

A

B

C

D



20

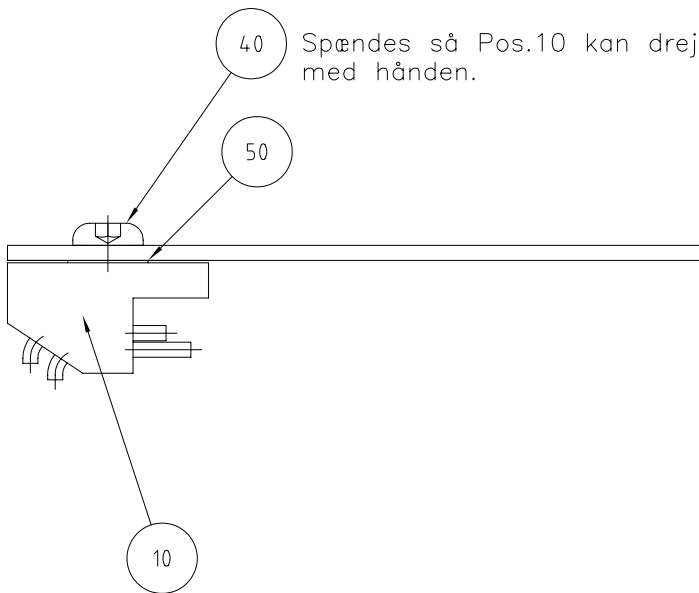
Presses helt i bund.

30


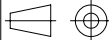
40

Spændes så Pos.10 kan drejes med hånden.

50

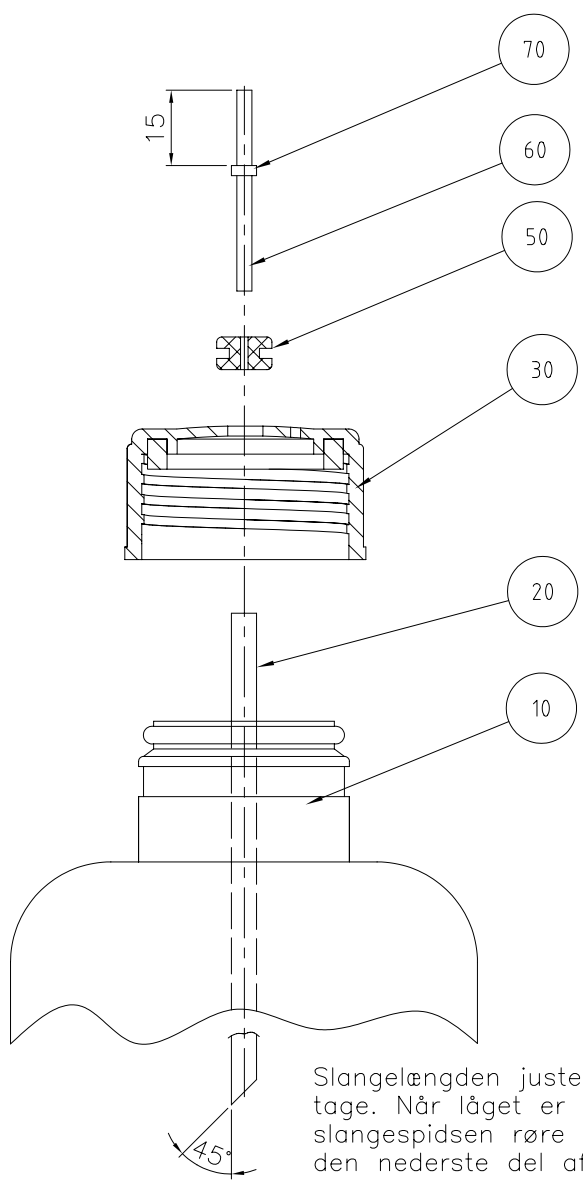


10

Matr.:	Overfl.beh.: Nej	Målforhold:	Ikke ang. tol. efter DS/ISO 2768- mK	
	Projektionsmetode 	1:1	Dato	Sign.
			Tegn:	071003 BRY
			Kontr.	071003 KKI
Kattepote, saml.		Erst.:	15400010A	

1                      2                      3                      4

A  
  
B  
  
C  
  
D



Slangelængden justeres efter montage. Når låget er monteret, skal slangespidsen røre ved bunden i den nederste del af flasken.

Matr.:	Overfl.beh.:	Målforhold:	Ikke ang. tol. efter DS/ISO 2768-	
	Projektionsmetode	1:1	Dato	Sign.
			Tegn:	041203 BRY
			Kontr:	041203 KKI
Flaske, monteret		Erst.:	15400030 B	

B: Pos 30 nyt låg.  
220305 JTV/JTV



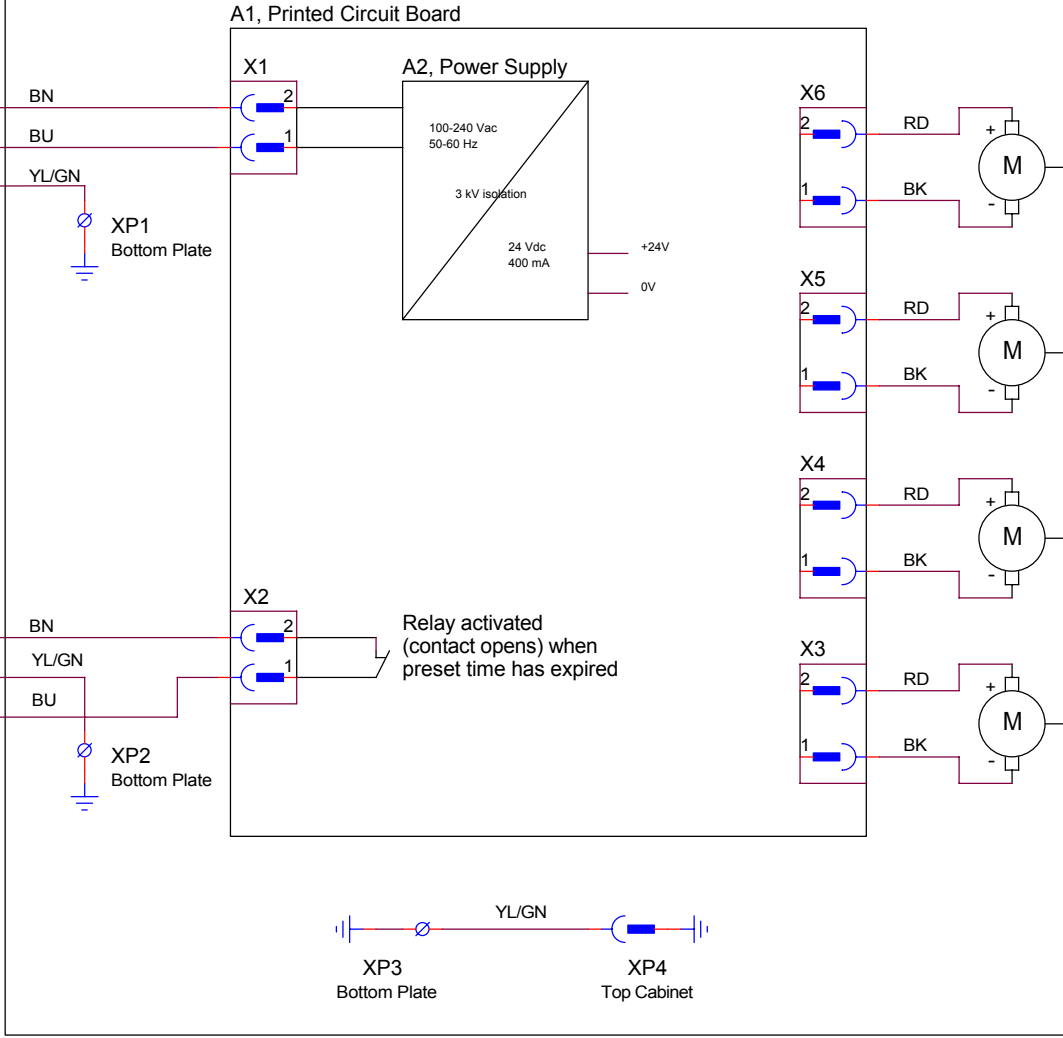
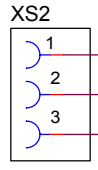
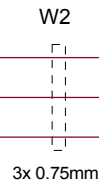
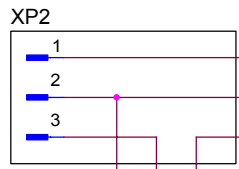
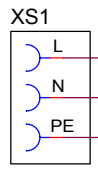
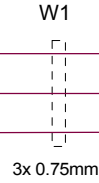
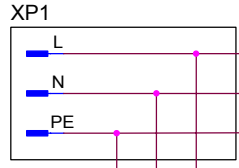
LABODOSER

Power In from LaboPol  
(100-240V /50-60Hz)

Power Out to LaboForce  
(100-240V /50-60Hz)

Control Signal  
to/from LaboPol

Control Signal  
to/from LaboForce



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**LaboDoser Circuit diagram**

Size A3	CAGE Code <Cage Code>	DWG NO 15403100	Rev A
Scale		Sheet 1 of 1	

Tuesday, December 16, 2003



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