

LaboPol-1

LaboPol-2

LaboPol-4

LaboPol-5

LaboPol-6



Manual No.: 15207001

Date of Release 13.09.2013

Instruction Manual
Gebrauchsanweisung
Mode d'emploi
Spare Parts and Diagrams



Instruction Manual

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.

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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LaboPol Safety Precaution Sheet

To be read carefully before use

1. The operator(s) should be fully aware of the use of the machine according to the Instruction Manual.
2. The machine must be placed in an adequate working position.
3. Be sure that the actual voltage corresponds to the voltage stated on the back of the machine. The machine must be earthed.
4. Be sure that the water connections are without leaks.
5. Struers recommend that the mains water supply is shut off or disconnected if the machine is to be left unattended.
6. When using MD-Disc and MD-Consumables the machine must not be used at speeds higher than 600 rpm.
7. If you observe malfunctions or hear unusual noises - stop the machine and call technical service.
8. The machine must be disconnected from the mains prior to any service. Wait until residual potential on the capacitors is discharged.
9. Do not cycle mains power more than once every three minutes. Damage to the drive will result.


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.).



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 the Contents of Packing

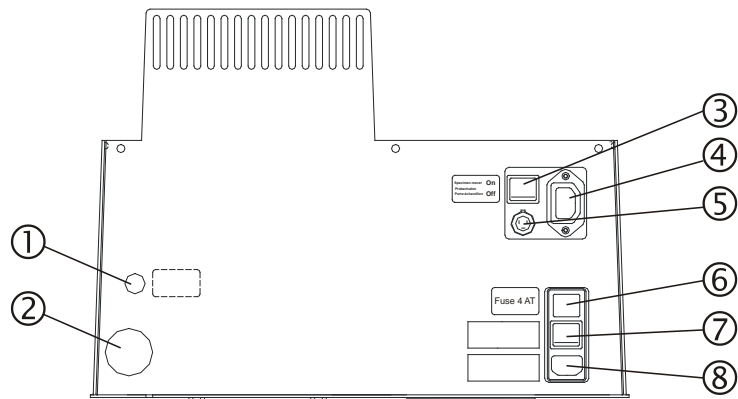
In the packing box you should find the following parts:

- 1 LaboPol-1/-2/-4/-5 or -6, complete with inlet hose
- 1 or 2 Mains cables (depending on voltage version)
- 1 Disposable bowl liner (clear plastic)
- 1 Splash ring
- 1 Outlet hose
- 1 Hose clamp \varnothing 25-40 mm
- 1 Reduction ring
- 1 Union nut
- 1 Gasket
- 1 Hose clamp
- 1 Instruction Manual Set

Placing LaboPol

The LaboPol machines should be placed on a steady table with an adequate working height. The machines must be placed close to the power supply, water mains and water outlet facilities.

Back View of LaboPol



- ① Water inlet
- ② Water outlet
- ③ On/off switch for specimen mover
- ④ Power supply socket for specimen mover
- ⑤ Communication socket for specimen mover
- ⑥ Fuse
- ⑦ Main switch
- ⑧ Power inlet

Supplying Power

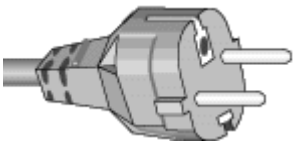
Always remember to switch the power off when installing electrical equipment.

IMPORTANT

Check that the mains voltage corresponds to the voltage stated on the type plate on the back of the machine.

The LaboPol is shipped with 2 types of Mains cables:

Single-phase Supply



The 2-pin (European Schuko) plug is for use on single-phase connections.

If the plug supplied on this cable is not approved in your country, then the plug must be replaced with an approved plug. The leads must be connected as follows:

Yellow/green: earth
Brown: line (live)
Blue: neutral

2-phase Supply



The 3-pin (North American NEMA) plug is for use on 2-phase power connections.

If the plug supplied on this cable is not approved in your country, then the plug must be replaced with an approved plug. The leads must be connected as follows:

Green: earth
Black: line (live)
White: line (live)

Connection to the Machine



Both cables are on the other end equipped with an IEC 320 cable connector that has to be connected to the LaboPol.

WARNING!

The output voltage from this cable is 200 – 240V and not 110V. DO NOT use this cable to connect equipment that use an 110V power supply. Failure to adhere to this may result in material damage.



DANGER!

The machine must be earthed

IMPORTANT

If no specimen mover is connected to the LaboPol machine, remember to set the switch “specimen mover” into the **off** position. Otherwise the LaboPol can not be started.

Supplying Water

Water Outlet

Connect the outlet hose to the water outlet on the back of the machine and secure the hose using the hose clamp. Lead the other end of the outlet hose to the drain. Be absolutely sure to place the outlet hose with a steady slope to prevent the water from being discharged too slowly, which may cause overflow or blocking the water outlet. Please avoid sharp bends on the outlet hose.

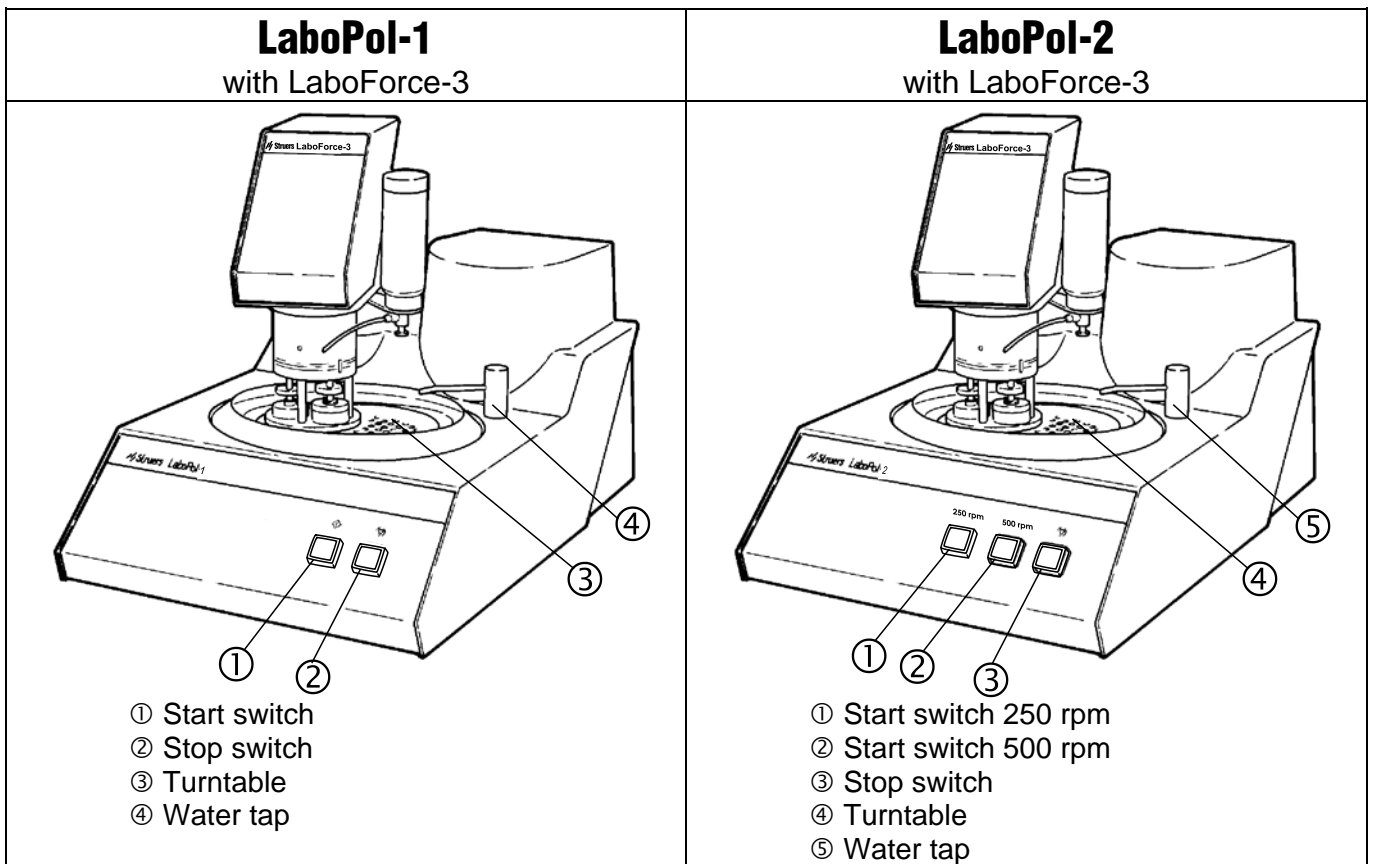
Water Inlet

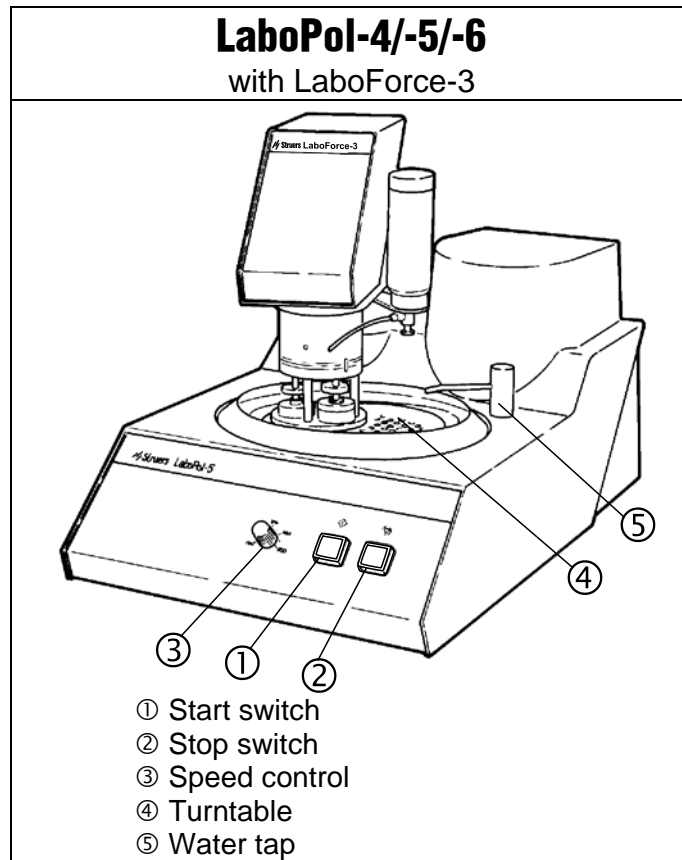
Connect the inlet hose to the water tap and secure with a hose clamp. The fittings (gasket, union nut and reduction ring) supplied with the machine may also be used for the connection.

2. Operation

Getting Acquainted with LaboPol

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





Mounting a Disc

Place the preparation disc on the turntable and turn it until the three pins of the preparation disc engage with the holes in the turntable.

Starting the Machine

LaboPol-1

- Press the start switch. The machine starts operating

LaboPol-2

- Press the 250 rpm or 500 rpm start switch.

LaboPol-4/-5 /-6

- Set the speed control to the desired speed.
- Press the start switch. The machine starts operating

Stopping the Machine

- Press the stop switch.

Reference Guide

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1. Advanced Operations

Selection of Disc

LaboPol is designed for use with wet grinding and polishing discs.

The diameter of wet grinding discs with ring should be 230 mm. When using polishing cloths, MD-Piano, MD-Primo, MD-Allegro, MD-Largo or SiC-paper / SiC-Foil, discs with 200 mm dia. must be used.

Mounting of Specimen Mover (Optional)

LaboPol can be equipped with either LaboForce-3 or LaboForce-1 specimen mover.

Please Note

To mount the specimen mover, see the LaboForce Instruction Manual.

2. Struers Metalog Guide™

LaboPol is designed for preparation of most materials. In Struers Metalog Guide™ you will find a detailed description of grinding/polishing methods for automated mechanical specimen preparation.

Struers Metalog Guide™ offers preparation methods for the most common materials, based on a simple analysis of two key properties: hardness and ductility. Finding the right method is easy, including choice of consumables. Always consult Struers Metalog Guide™ on the Struers website for the correct preparation method for the actual specimens.

Metalog Guide™

A complete guide to materialographic specimen preparation.
[www.struers.com/KNOWLEDGE/Metalog Guide](http://www.struers.com/KNOWLEDGE/Metalog%20Guide).

3. Accessories and Connected Equipment

Accessories

Specification	Cat. No:
<i>Wet Grinding Disc with Ring</i> 230 mm dia., Aluminium	02426936
<i>Polishing Discs</i> 200 mm dia., aluminium	03756902
<i>Disc for Magnetic Fixation</i> MD-Disc, 200 mm dia.	02426920
Disposable bowl liner, 5 pcs	49900041

Connected Equipment

Specification	Cat. No:
<i>LaboForce-3, specimen mover</i> 1 x 100-120 V / 50-60 Hz 1/3 x 200-240 V / 50-60 Hz	05216117 05216227
<i>LaboForce-1, specimen mover</i> 1 x 100-120 V / 50-60 Hz 1/3 x 200-240 V / 50-60 Hz	05276116 05276227
<i>LaboDoser, dosing unit</i> 1 x 100-240 V / 50-60 Hz	05406116

Consumables

Please refer to the [Consumables Catalogue](#) for details of the range available.

Remember...
 Struers offers a comprehensive range of consumables for grinding and polishing.

4. Trouble-Shooting

Error	Cause	Action
Noise when the machine starts or the turntable will not turn.	The belt is not tight enough	Call a Struers service technician. The belt must be tightened.
The machine does not operate when the start switch is pressed.	<ul style="list-style-type: none"> - The main switch is off - The fuse at the rear of LaboPol is blown - The switch for the specimen mover at the back of LaboPol is set to "on", but no specimen mover is connected. 	<ul style="list-style-type: none"> - Turn the main switch on - Replace the fuse - Set the switch to "off"
Water is not draining away	<ul style="list-style-type: none"> - Drain hose squeezed - Drain hose clogged - Drain hose does not slope away 	<ul style="list-style-type: none"> - Straighten the hose - Clean the hose - Adjust the hose to an even slope
Water dripping underneath the machine	The water does not drain away	See above
Cooling water stops	<ul style="list-style-type: none"> - Water tap on mains closed - Built-in water tap closed - Built in water tap blocked - Filter at the water inlet blocked 	<ul style="list-style-type: none"> - Turn the water on - Turn the water on - Clean water tap - Clean filter
The preparation disc vibrates	Dirt on the underside of the disc or on the turntable	Clean the contact face between the disc and the turntable.
Continuous, irregular wear on a grinding/polishing surface.	Coupling on either the specimen holder/mover plate or the specimen mover head of the polishing machine is worn.	Please contact a Struers Service Technician to replace the coupling.

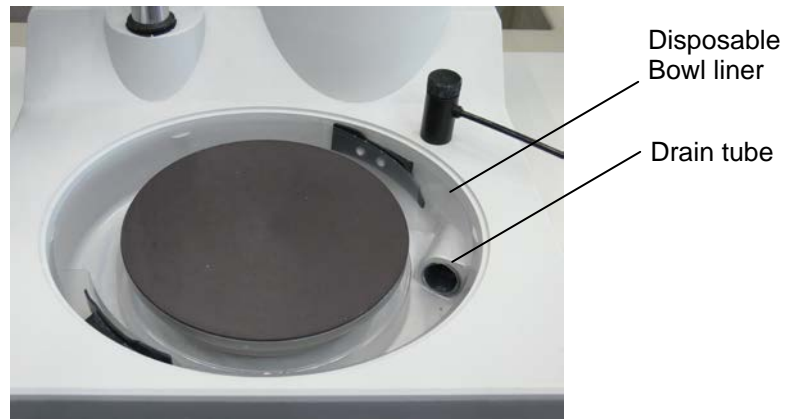
5. Maintenance

Daily Service

- Clean all accessible surfaces with a moist cloth.
- Check the bowl liner frequently and clean or dispose of when filled with debris.

Weekly Service

- Remove the grinding/polishing disc, the splash guard and the bowl liner.
- Clean and dry, or dispose of, the liner, clean and dry the bowl and remove all dirt from the drain tube.
- Replace the bowl liner, splash guard and grinding/polishing disc.



6. Technical Data

Subject		Specifications				
		LaboPol-1	LaboPol-2	LaboPol-4	LaboPol-5	LaboPol-6
Disc	Diameter	200-230mm / 8-9"				
	Speed	250 rpm	250/500 rpm	10-120 rpm	50-500 rpm	120-1200 rpm
	Rotational direction	Counter-clockwise				
	Motor	250 W	250 W	80 W	250 W	250 W
	Torque at disc Continuous	9.5 Nm	9.5/4.2 Nm	9.5 Nm @ 60 rpm	9.5 Nm @ 250 rpm	4.0 Nm @ 600 rpm
	Max.	> 12 Nm	> 12/6 Nm	> 12 Nm @ 60 rpm	> 12 Nm @ 250 rpm	> 5 Nm @ 600 rpm
Noise level	at idle running at a distance of 1.0 m/39.4" from the machine	Approx. 58 dB(A)	Approx. 58 dB(A)	Approx. 53 dB(A)	Approx. 65 dB(A)	Approx. 65 dB(A)
Surrounding temperature		5-40°C / 41-104°F				
Humidity	Non condensing	0-95%RH				
Directives and Standards	Please refer to the Declaration of Conformity					
Supply	Power	1 (N+L+PE) or 2 (L+L+PE) phase				
	Power consumption	320 W	320 W	150 W	320 W	320 W
	Voltage / frequency	Max. load				
	200-240V / 50-60 Hz	3.3 A	3.3 A	1.9 A	3.3 A	3.3 A
	Pressure for water tap	1-10 bar / 14.5-145 psi				
	Water inlet	ø13mm / 1/2"				
	Water outlet	ø32mm / 1 1/4"				
Dimensions and weight	Width	410 mm / 16.1"				
	Depth	670 mm / 26.4"				
	Height	315 mm / 12.4"				
	Weight	22 kg / 48.5 lbs	28 kg / 61.7 lbs	22.5 kg / 49.6 lbs	22.5 kg / 49.6 lbs	27.5 kg / 60.6 lbs

English

Declaration of Conformity

 **Struers**

**Manufacturer,
responsible for
Technical File**

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

Herewith declares that

<i>Product Name:</i>	LaboPol-1
<i>Type No:</i>	518
<i>Machine Type:</i>	Grinding and polishing machine

is in conformity with the provisions of the following directives:

Safety of Machinery 2006/42/EC according to the following standard(s):
EN ISO 12100:2010, EN ISO 13849-1:2008/AC:2009, EN ISO 13849-2:2012,
EN 60204-1:2006/AC:2010, EN ISO 13857:2008, EN 349:1993+A2:2008,
EN 1037:1995+A1:2008.

EMC-Directive 2014/30/EU according to the following standard(s):
EN 61000-6-1:2007, EN 61000-6-3:2007/A1:2011/AC:2012.

RoHS 2011/65/EU according to the following standard(s):
EN 50581:2012.

Supplementary Information The equipment complies with the American standards:
UL508, NFPA79:2012.

The above has been declared according to the global method, module A

Date: 23.02.2016


Christian Skjold Heyde,
Vice President, R & D and Production, Struers ApS

Dansk

Overensstemmelseserklæring

 **Struers**

**Fabrikant,
ansvarlig for Teknisk
Dossier**

Struers ApS
Pederstrupvej 84
DK-2750 Ballerup, Danmark
Telefon 44 600 800

erklærer herved, at

<i>Produktnavn:</i>	LaboPol-1
<i>Type nr.:</i>	518
<i>Maskintype:</i>	Slibe og polér maskine

er i overensstemmelse med følgende EU-direktiver:

Maskindirektivet 2006/42/EF efter følgende norm(er):
EN ISO 12100:2010, EN ISO 13849-1:2008/AC:2009, EN ISO 13849-2:2012,
EN 60204-1:2006/AC:2010, EN ISO 13857:2008, EN 349:1993+A2:2008,
EN 1037:1995+A1:2008.

EMC-direktivet 2014/30/EU efter følgende norm(er):
EN 61000-6-1:2007, EN 61000-6-3:2007/A1:2011/AC:2012.

RoHS 2011/65/EU efter følgende norm(er):
EN 50581:2012.

Supplerende oplysninger Endvidere overholdes de amerikanske nomer:
UL508, NFPA79:2012.

Ovenstående overensstemmelse(r) er erklæret iflg. den globale metode, modul A

Dato: 23.02.2016


Christian Skjold Heyde,
Vice President, Udvikling og Produktion, Struers ApS

English

Declaration of Conformity**Manufacturer,
responsible for
Technical File**Struers A/S
Pederstrupvej 84
DK-2750 Ballerup, Denmark
Telephone +45 44 600 800

Herewith declares that

<i>Product Name:</i>	LaboPol-1/-2/-4/-5
<i>Type No:</i>	518/542/543/520
<i>Machine Type:</i>	Grinding and polishing machine

is in conformity with the provisions of the following directives:

Safety of Machinery 2006/42/EC according to the following standard(s):
EN ISO 12100:2011, EN ISO 13849-2:2014, EN ISO 13857:2008, EN 349+A1:2010,
EN 1037+A1:2010, EN 60204-1:2006/AC:2010.

EMC-Directive 2004/108/EC according to the following standard(s):
EN 61000-6-1:2007, EN 61000-6-3:2007/A1:2011.

RoHS 2011/65/EU according to the following standard(s):
EN 50581:2012.

Supplementary Information The equipment complies with the American standards:
UL508, NFPA79:2012.

The above has been declared according to the global method, module A

Date: 13.02.2015

Christian Skjold Heyde,
Vice President, R & D and Production, Struers A/S

Dansk

Overensstemmelseserklæring**Fabrikant,
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Dossier**Struers A/S
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DK-2750 Ballerup, Danmark
Telefon 44 600 800

erklærer herved, at

<i>Produktnavn:</i>	LaboPol-1/-2/-4/-5
<i>Type nr.:</i>	518/542/543/520
<i>Maskintype:</i>	Slibe og polér maskine

er i overensstemmelse med følgende EU-direktiver:

Maskindirektivet 2006/42/EF efter følgende norm(er):
EN ISO 12100:2011, EN ISO 13849-2:2014, EN ISO 13857:2008, EN 349+A1:2010,
EN 1037+A1:2010, EN 60204-1:2006/AC:2010.

EMC-direktivet 2004/108/EF efter følgende norm(er):
EN 61000-6-1:2007, EN 61000-6-3:2007/A1:2011.

RoHS 2011/65/EU efter følgende norm(er):
EN 50581:2012.

Supplerende oplysninger Endvidere overholdes de amerikanske normer:
UL508, NFPA79:2012.

Ovenstående overensstemmelse(r) er erklæret iflg. den globale metode, modul A

Dato: 13.02.2015

Christian Skjold Heyde,
Vice President, Udvikling og Produktion, Struers A/S

English

Declaration of Conformity



**Manufacturer,
responsible for
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Telephone +45 44 600 800

Herewith declares that

<i>Product Name:</i>	LaboPol-6
<i>Type No:</i>	541
<i>Machine Type:</i>	Grinding and polishing machine

is in conformity with the provisions of the following directives:

Safety of Machinery 2006/42/EEC according to the following standard(s):
EN ISO 12100:2011, EN ISO 13849-2:2014, EN 60204-1:2006/AC:2010,
EN ISO 13857:2008, EN 349+A1:2010, EN 1037+A1:2010.

EMC-Directive 2004/108/EEC according to the following standard(s):
EN 61000-6-1:2007, EN 61000-6-3:2007/A1:2011.

RoHS 2011/65/EU according to the following standard(s):
EN 50581:2012.

Supplementary Information The equipment complies with the following standards:
UL508A.

The above has been declared according to the global method, module A



Date: 13.02.2015

Christian Skjold Heyde,
Vice President, R & D and Production, Struers A/S

Dansk

Overensstemmelseserklæring



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DK-2750 Ballerup, Danmark
Telefon 44 600 800

erklærer herved, at

<i>Produkt navn:</i>	LaboPol-6
<i>Type nr.:</i>	541
<i>Maskintype:</i>	Slibe og polér maskine

er i overensstemmelse med følgende EU-direktiver:

Maskindirektivet 2006/42/EF efter følgende norm(er):
EN ISO 12100:2011, EN ISO 13849-2:2014, EN 60204-1:2006/AC:2010,
EN ISO 13857:2008, EN 349+A1:2010, EN 1037+A1:2010.

EMC-direktivet 2004/108/EF efter følgende norm(er):
EN 61000-6-1:2007, EN 61000-6-3:2007/A1:2011.

RoHS 2011/65/EU efter følgende norm(er):
EN 50581:2012.

Supplerende oplysninger Endvidere overholdes følgende normer:
UL508A.

Ovenstående overensstemmelse(r) er erklæret iflg. den globale metode, modul A



Dato: 13.02.2015

Christian Skjold Heyde,
Vice President, Udvikling og Produktion, Struers A/S



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Denmark

Spare Parts and Diagrams

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Circuit diagram, LaboPol-2.....	15423105B
Circuit diagram, LaboPol-5/-4/-6	15203110B
Wiring diagram	15863450C

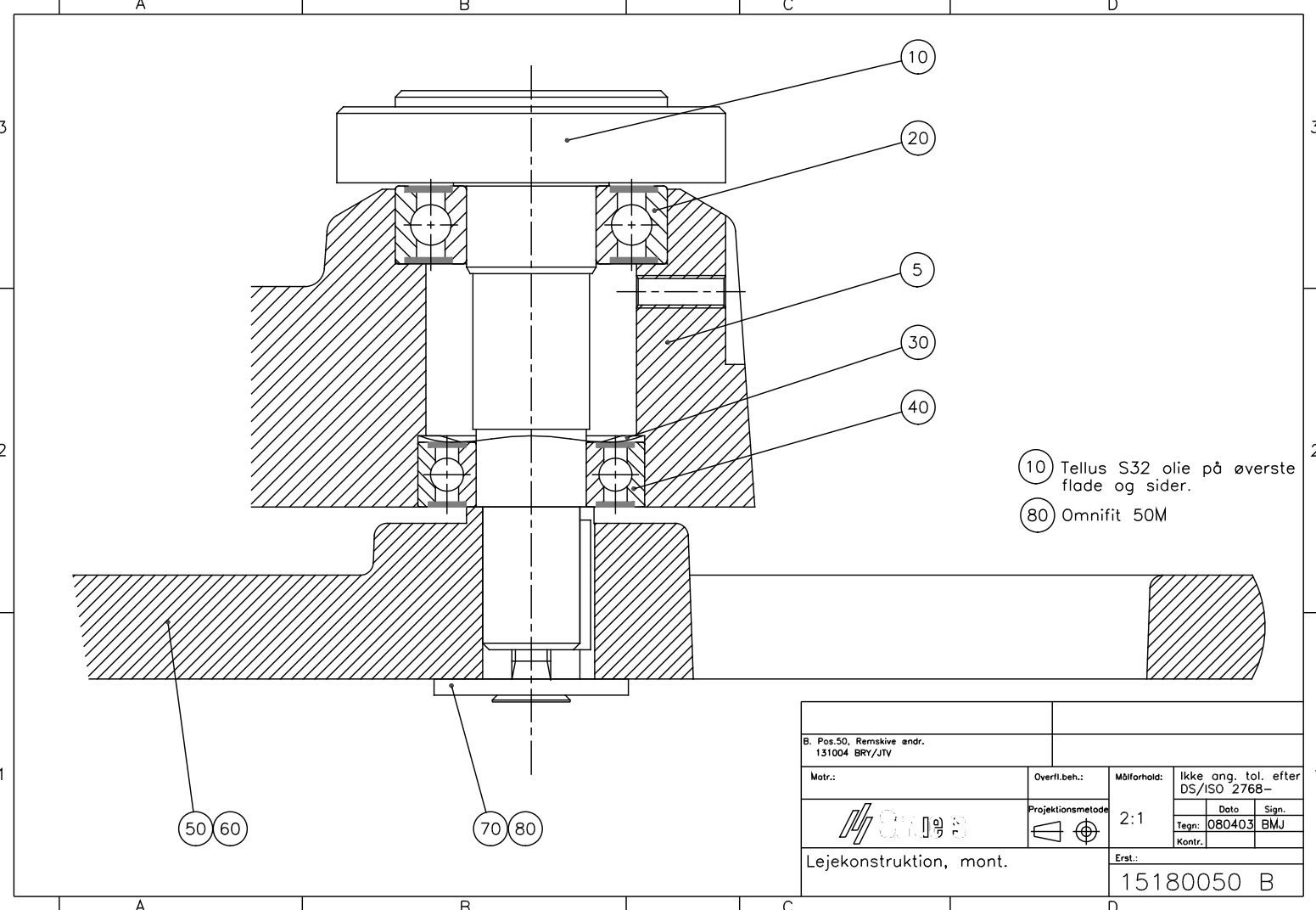
Some of the drawings may contain position numbers
not used in connection with this manual.

LaboPol-1/-2/-4/-5/-6
Spare Parts and Diagrams

Drawing	Pos.	Spare Part	Part No.
15180060		Bottom cabinet, assembled	
		Rubber foot grey ø20x20	2GB00009
		Sealing strip Grey 1.5x10	2IP10151
		Splash ring ø250	15180101
		Splash ring ø200	15180102
14920065		Water tap, assembly	
		Water tap, assembled	R5200050
15180050		Bearing Assembly	
LaboPol-1,-2,-4,-5,-6		Disc shaft	15180200
		Ball bearing, 6004-2RSR	2BK00045
		Wave spring wash., 28x34.5x0.5	2GF60020
		Ball bearing, 6003-2RS1, ø17xø35	2BK00040
		Pulley ø230, machined	15180520
		FEDER A 5x5x20	2ZF10520
		Washer 10 A2 DIN9021A	2ZA20010
LaboPol-1,-2,-5		Poly-V belt XXX PJ4 (L=1041)	2JD31041
LaboPol-4		Poly-V belt 390 PJ4 (L=1016)	2JD30991
LaboPol-6		POLY-V-REM 430 PJ4 (L=1092)	2JD31092

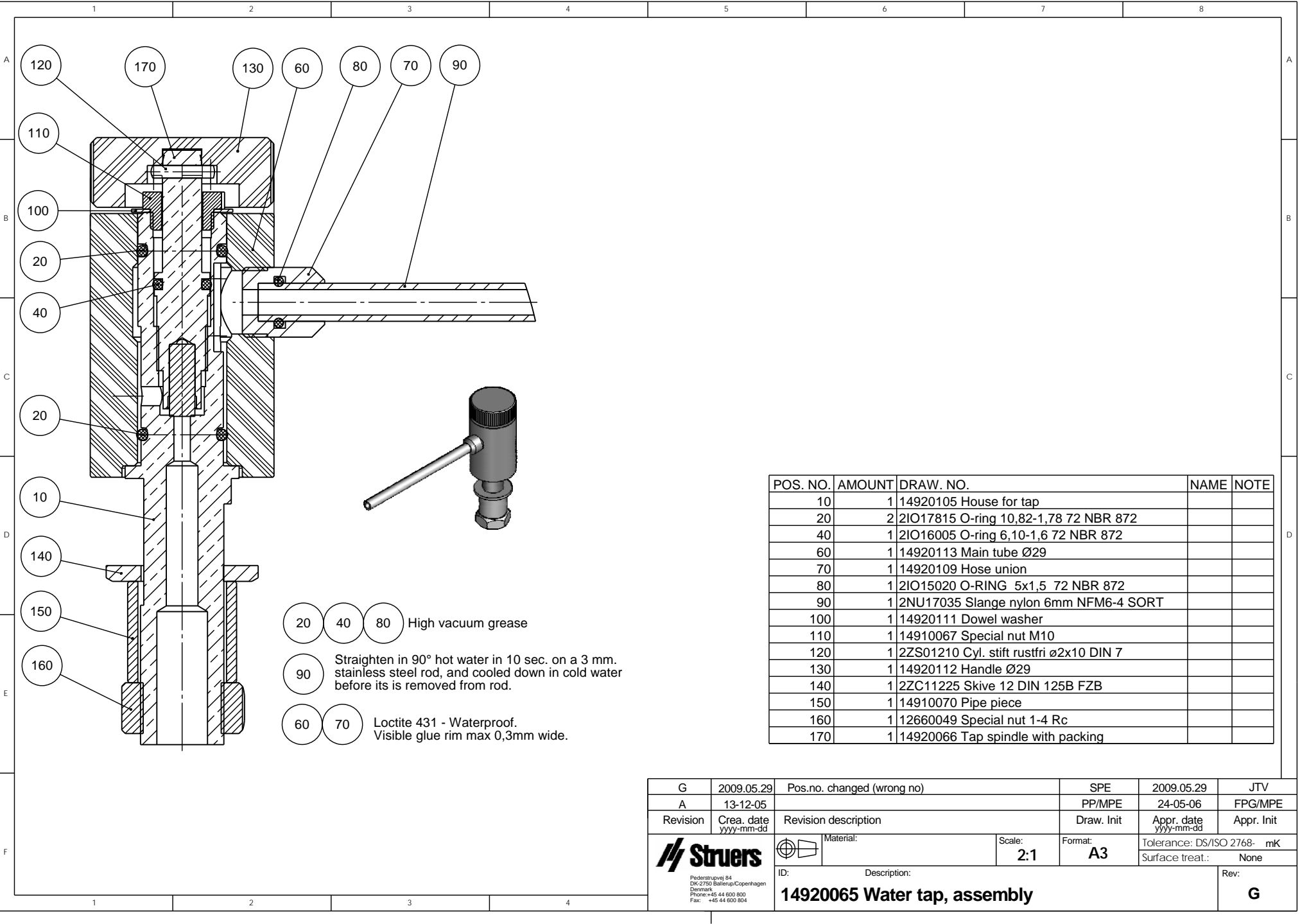
LaboPol-1/-2/-4/-5/-6
Spare Parts and Diagrams

Drawing	Pos.	Spare Part	Part No.
15863450		LaboPol Series wiring Diagram	
LaboPol-1		EPM Modul V2.0 LaboP-1, progr.	15183902
LaboPol-2		EPM Module V2.0 LP2, programmed	15423902
LaboPol-4		EPM Module V2.1 LP4, programmed	15433902
LaboPol-5		EPM Module V2.2 LP5, programmed	15203903
LaboPol-6		EPM Module V2.0 LP6, programmed	15413902
		LenzeFrq.conv.8200smd370W16kHz, A1	2PU81372
		Switch 1804.1102 Black, S4	2SA60104
		Connector 3-POL. Female S678, X3	2XM00403
		3-POL Female, X2	2XN11032
		Solid State Relay 10A 4-30Vdc, K1	2KL81310
		Mains socket w. fuse + switch, X1	2XN32107
		Insul.cap, Mains connection, (X1)	2XN30001
		Fuse holder, Mains socket, (X1)	2XN32901
		4.00A T Fuse glass 6.3x32 250V, (X1)	2FU14200
		Module holder. 3 elem. MHR-3, S1,S2	2SA41603
		Contact block 1 NC 1/2. MTO, S2	2SB10071
		Contact block 1 NO 3/4. MTI, S1	2SB10072
		Eco.push butt.head RTR (red), S2	2SA00415
		Eco.push butt.head RTG (green), S1	2SA00410
		Motor 71C4 250W 240 60CSA klix, M1	2ME51654
LaboPol-4 only		Motor 3x240/415-60CSA M1 ,	15240149
		Rotary switch, machined, S32	15420077
Service Kits		Service Kit LaboPol-1	15182999
		Service Kit LaboPol-2	15422999
		Service Kit LaboPol-4	15432999
		Service Kit LaboPol-5	15202999
		Service Kit LaboPol-6	15412999



- 10 Tellus S32 olie på øverste flade og sider.
- 80 Omnifit 50M

B. Pos.50. Remskeve ændr. 131004 BRV/JTV				
Matr.:	Overfl.beh.:	Målforhold:	Ikke ang. tol. efter DS/ISO 2768-	
		2:1	Dato	Sign.
			Tegn: 080403	BMJ
			Kontr.	
Lejekonstruktion, mont.		Erst.:		
		15180050 B		



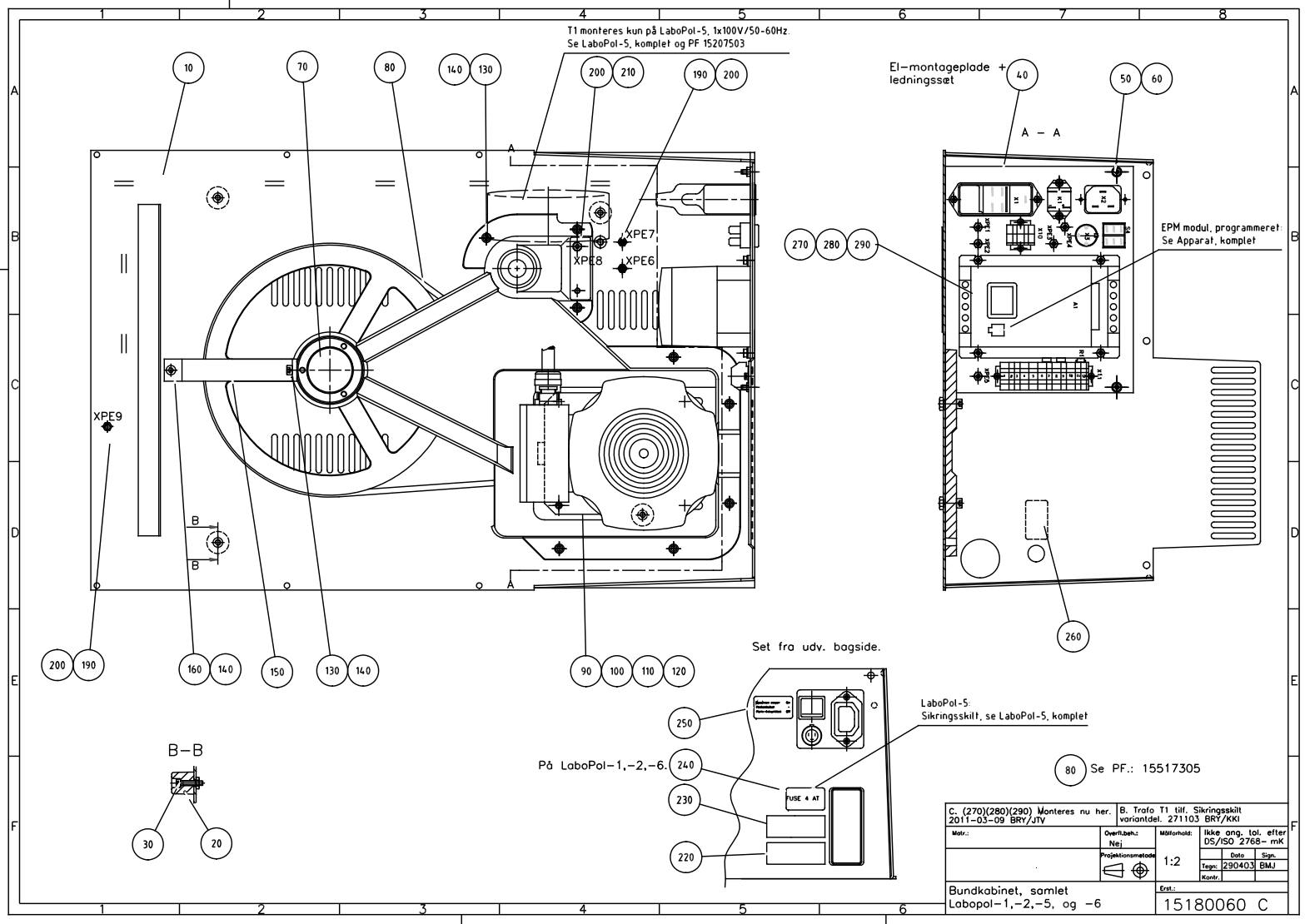
20 40 80 High vacuum grease

90 Straighten in 90° hot water in 10 sec. on a 3 mm. stainless steel rod, and cooled down in cold water before its is removed from rod.

60 70 Loctite 431 - Waterproof. Visible glue rim max 0,3mm wide.

POS. NO.	AMOUNT	DRAW. NO.	NAME	NOTE
10	1	14920105	House for tap	
20	2	2IO17815	O-ring 10,82-1,78 72 NBR 872	
40	1	2IO16005	O-ring 6,10-1,6 72 NBR 872	
60	1	14920113	Main tube Ø29	
70	1	14920109	Hose union	
80	1	2IO15020	O-RING 5x1,5 72 NBR 872	
90	1	2NU17035	Slange nylon 6mm NFM6-4 SORT	
100	1	14920111	Dowel washer	
110	1	14910067	Special nut M10	
120	1	2ZS01210	Cyl. stift rustfri ø2x10 DIN 7	
130	1	14920112	Handle Ø29	
140	1	2ZC11225	Skive 12 DIN 125B FZB	
150	1	14910070	Pipe piece	
160	1	12660049	Special nut 1-4 Rc	
170	1	14920066	Tap spindle with packing	

G	2009.05.29	Pos.no. changed (wrong no)	SPE	2009.05.29	JTV
A	13-12-05		PP/MPE	24-05-06	FPG/MPE
Revision	Crea. date yyyy-mm-dd	Revision description	Draw. Init	Appr. date yyyy-mm-dd	Appr. Init
 <small>Pedersbølvej 84 DK-2750 Ballerup/Copenhagen Denmark Phone: +45 44 600 800 Fax: +45 44 600 804</small>	Material:		Scale: 2:1	Format: A3	Tolerance: DS/ISO 2768- mK Surface treat.: None
	ID:	Description: 14920065 Water tap, assembly	Rev: G		



T1 monteres kun på LaboPol-5, 1x100V/50-60Hz.
Se LaboPol-5, komplet og PF 15207503

EI-montageplade +
ledningsset

EPM modul, programmeret.
Se Apparat, komplet

Set fra udv. bagside.

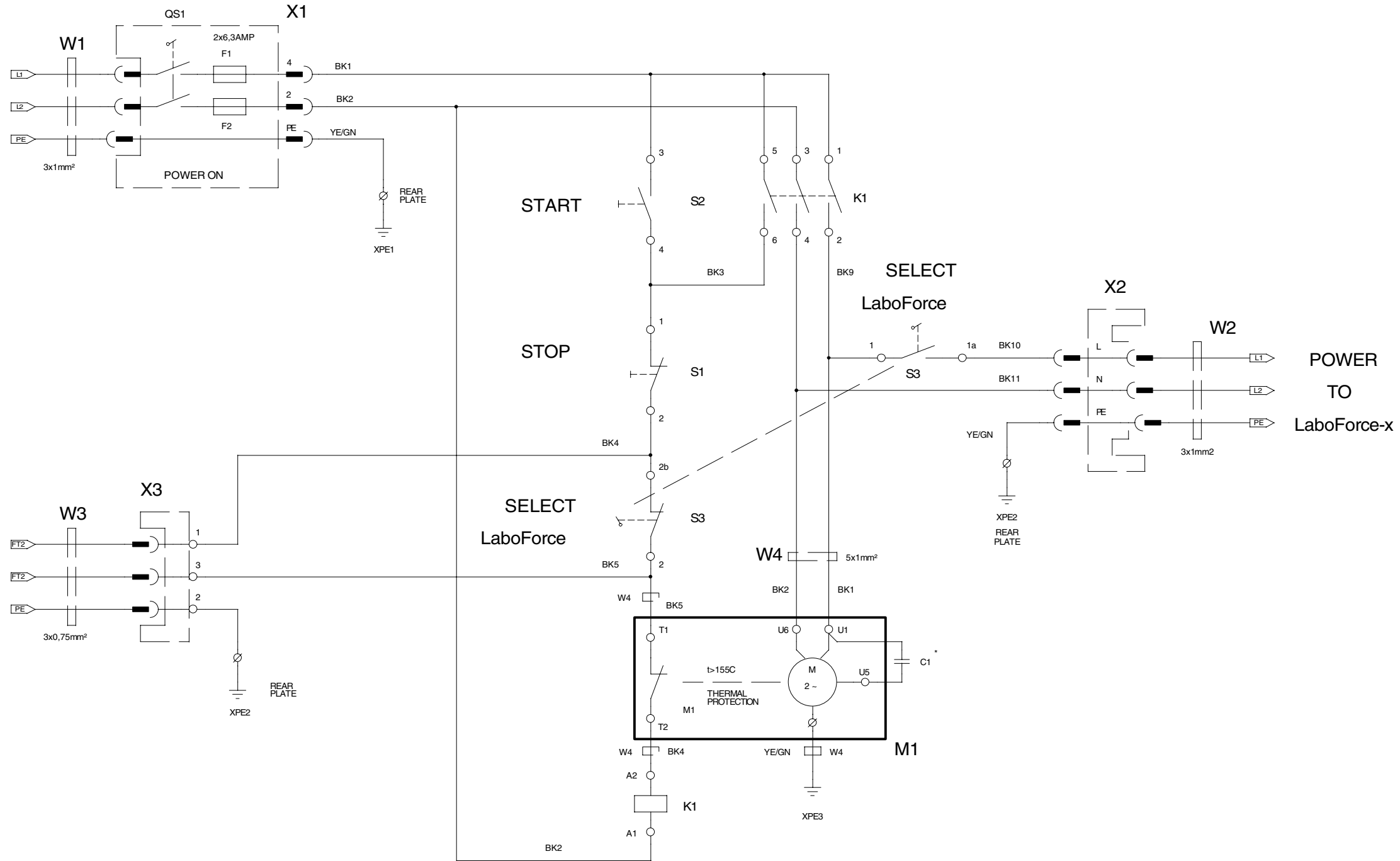
LaboPol-5
Sikringskit, se LaboPol-5, komplet

80 Se PF.: 15517305

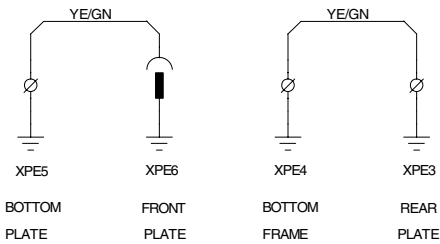
På LaboPol-1,-2,-6.

C. (270)(280)(290) Monteres nu her.		B. Trafo T1 til Sikringskit variantdel. 271103 BRY/KKI	
Mærk:	Overtjek:	Målestok:	Ikke eng. løl. efter DS/ISO 2768-mK
	Nej	1:2	Date Sign. 290403 BMJ
Projektionsmetode			Erst.:
Bundkabinet, samlet Labopol-1,-2,-5, og -6			15180060 C

MUST BE SHORT CIRCUIT PROTECTED WITH EXTERNAL FUSES ACCORDING TO LOCAL REGULATIONS
F = 16Amp MAXIMUM

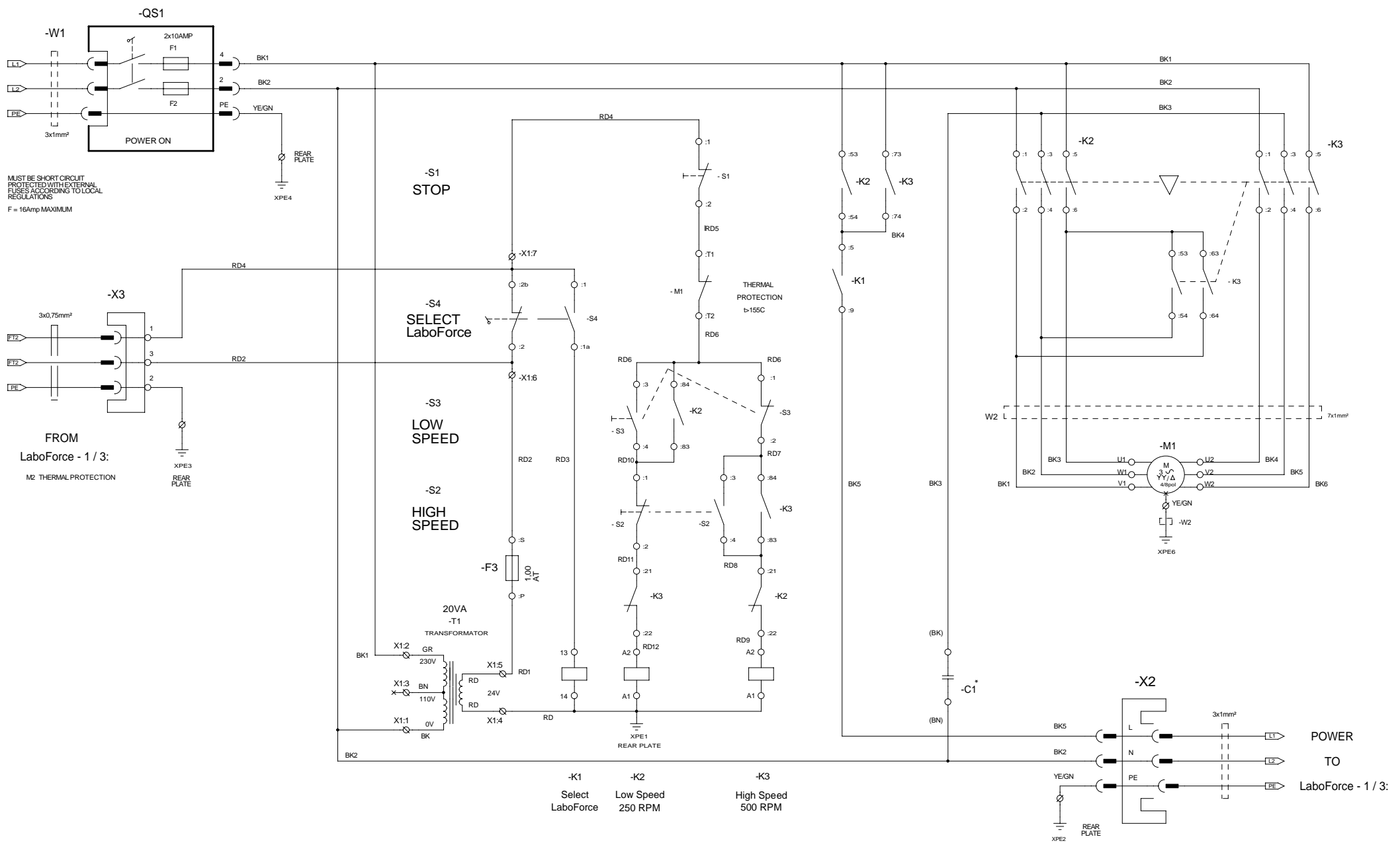


ALL WIRINGS 1², EXCEPT OTHERWISE MARKED.
COLOR CODES:
BK = BLACK
BN = BROWN
RD = RED
YE = YELLOW
GN = GREEN
BL = BLUE
GY = GREY
WH = WHITE

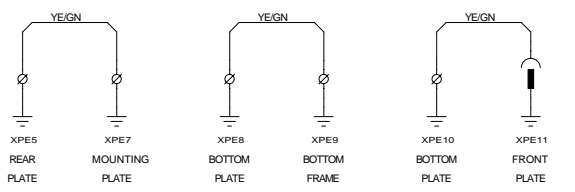


MAINS SUPPLY:	* C1
100V/50Hz.	50µF
100V/60Hz.	40µF
110-120V/60Hz.	30µF
220-240V/50Hz.	10µF
220-240V/60Hz.	8µF

Rev. A (04-09-97 FTH): F1, F2 changed from 5,0A to 6,3A		STRIERS A/S VALHOEJSSALLE 176 DK-2610 ROEDOVRE DENMARK PHONE: +45 3670 3500	
		CIRCUIT DIAGRAM	
		LABO POL-1	
Size A2	CAGE CODE	DWG NO 15183100 A	Rev
Friday, September 29, 1995		SCALE	DEMDEM
		Sheet	1 of 1

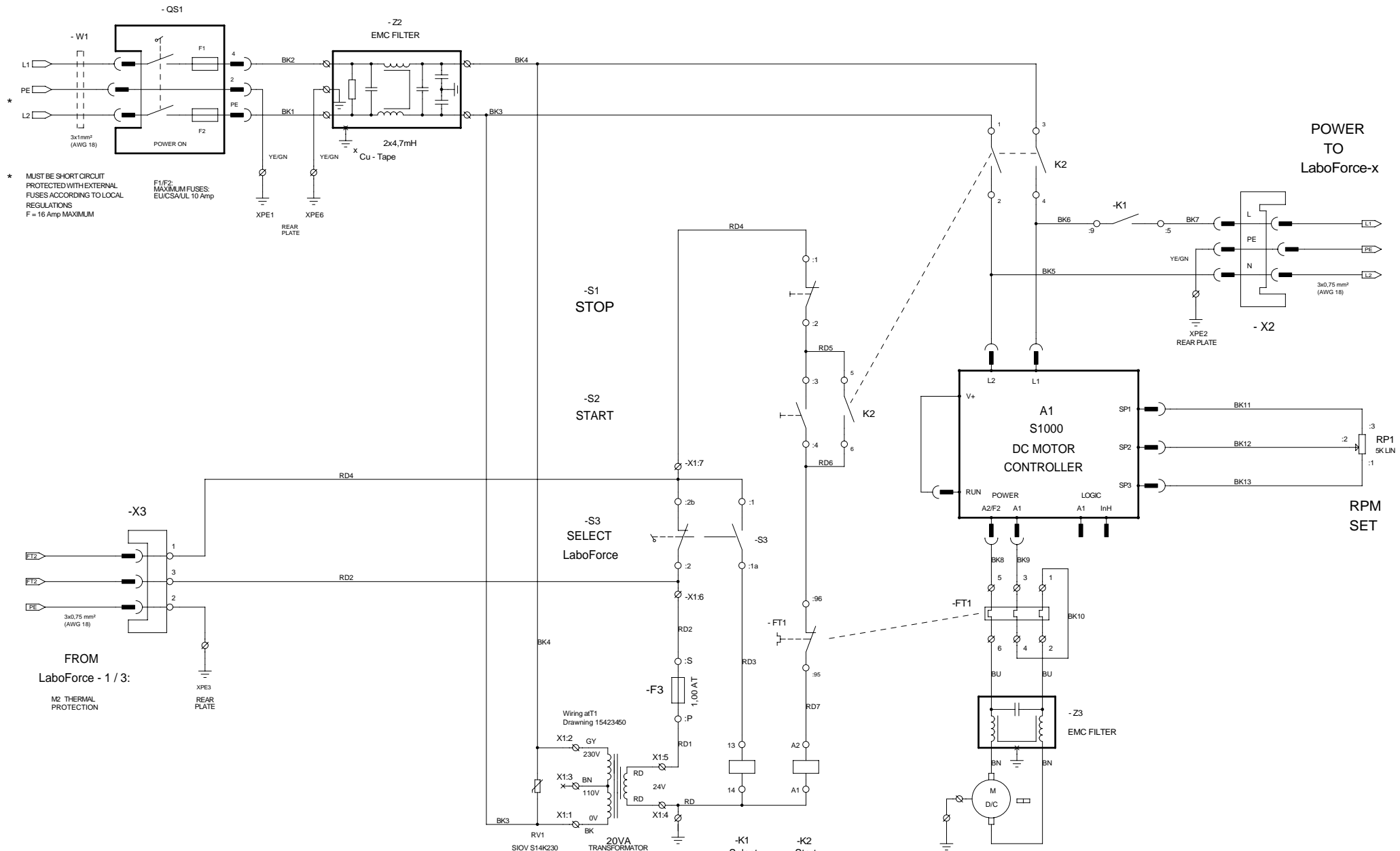


ALL WIRINGS 1 (AWG16), EXCEPT OTHERWISE MARKED.
 COLOR CODES:
 BK = BLACK
 BN = BROWN
 RD = RED
 OG = ORANGE
 YE = YELLOW
 GN = GREEN
 BU = BLUE
 VT = VIOLET
 GY = GREY
 WH = WHITE



MAINS SUPPLY:		* -C1
100V/50Hz.		60µF
100V/60Hz.		60µF
110-120V/60Hz.		60µF
220-240V/50Hz.		16µF
220-240V/60Hz.		16µF

Rev.:B (DEM 08-03-02) Wiring to M1 modify. C1 Change. Rev.: A Edition: XPE1 -> -4, -2 -> -1, XPE3 -> -2, -4 -> -3.		STRUERS A/S VALHOEJSALLE 176 DK-2810 ROEDOVRE DENMARK PHONE: +45 3670 3500	
CIRCUIT DIAGRAM:		LaboPol - 2: Rpm: 250 / 500	
Size A2	CAGE Code	DWG NO 15423105	Rev I B
Tuesday, March 12, 2002		Scale	29 MAY 88 / DEM Sheet 1 of 1



* MUST BE SHORT CIRCUIT PROTECTED WITH EXTERNAL FUSES ACCORDING TO LOCAL REGULATIONS
F = 16 Amp MAXIMUM

F1/F2 MAXIMUM FUSES: EU/CSA/UL 10 Amp

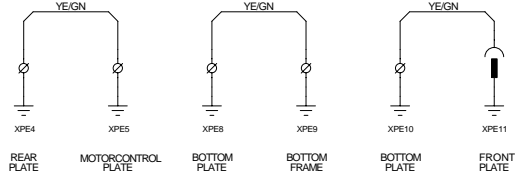
FROM LaboForce - 1 / 3:
M2 THERMAL PROTECTION

POWER TO LaboForce-x

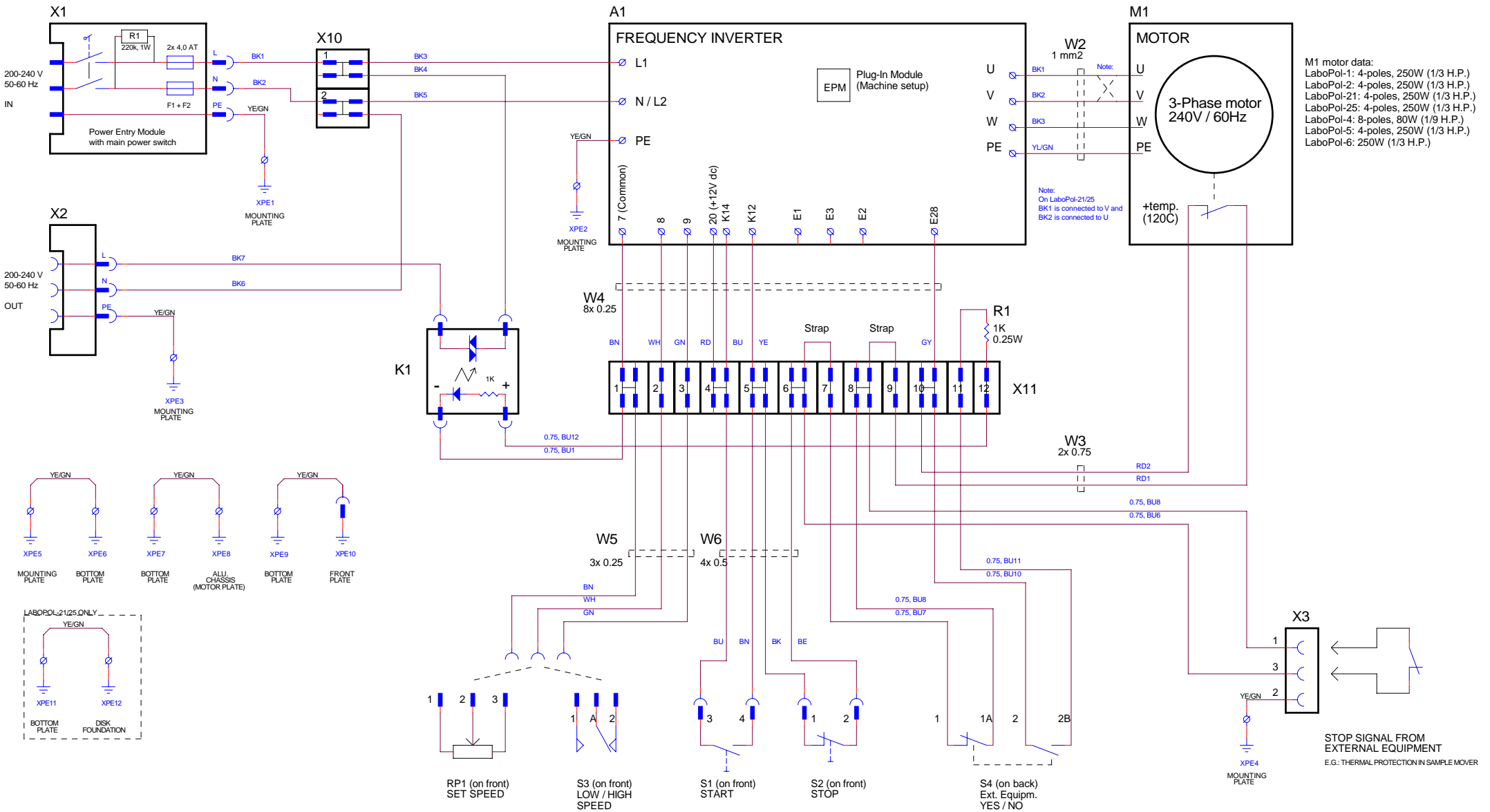
RPM SET

BK WIRINGS AWG16 (1.3 mm²), RD WIRINGS 0.75mm² (AWG18).

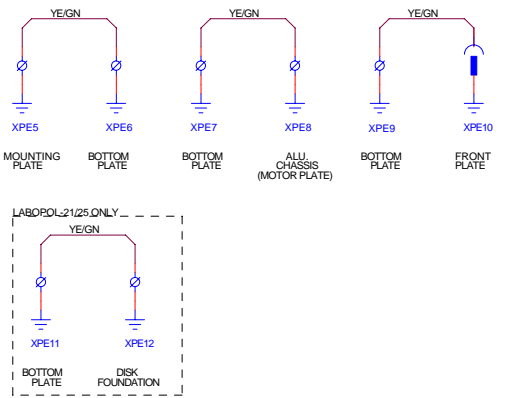
COLOR CODES:
BK = BLACK
BN = BROWN
RD = RED
YE = YELLOW
GN = GREEN
BU = BLUE
GY = GREY
WH = WHITE



Rev.: A: Insert model - 6		Sivara A/S Valhøjs Alle 176 DK 2610 Roedovre Denmark Phone +45 3670 3500	
Rev.: B: Text Change.		Circuit Diagram	
LaboPol - 4, - 5 and - 6:			
Size	CAGE Code	DWG NO	Rev
A2	EK	15203110	B
Tuesday, August 01, 2000		Scale	08.10.98 / DEM D.E.M.
		Sheet	1 of 1



M1 motor data:
 LaboPol-1: 4-poles, 250W (1/3 H.P.)
 LaboPol-2: 4-poles, 250W (1/3 H.P.)
 LaboPol-21: 4-poles, 250W (1/3 H.P.)
 LaboPol-25: 4-poles, 250W (1/3 H.P.)
 LaboPol-4: 8-poles, 80W (1/9 H.P.)
 LaboPol-5: 4-poles, 250W (1/3 H.P.)
 LaboPol-6: 250W (1/3 H.P.)



ALL WIRINGS AWG-16, EXCEPT OTHERWISE MARKED.

COLOR CODES:
 BK = BLACK
 BN = BROWN
 RD = RED
 OG = ORANGE
 YE = YELLOW
 GN = GREEN
 BU = BLUE
 VT = VIOLETT
 GY = GREY
 WH = WHITE
 BE = BEIGE

Only on:
 LaboPol-4
 LaboPol-5
 LaboPol-6
 LaboPol-25

Only on:
 LaboPol-2

RP1 (on front)
 SET SPEED

S3 (on front)
 LOW / HIGH
 SPEED

S1 (on front)
 START

S2 (on front)
 STOP

S4 (on back)
 Ext. Equipm.
 YES / NO

STOP SIGNAL FROM
 EXTERNAL EQUIPMENT
 E.G.: THERMAL PROTECTION IN SAMPLE MOVER

Rev.B: FTH 10-07-2003 Wire identifications added. Rev.C: FTH 15-02-2008 R1 resistor added in Power Switch X1		STRUERS A/S VALHOJES ALLÉ 176 DK-2810 ROEDOVRE DENMARK PHONE: +45 3670 3500	
LABOPOL-SERIES, WIRING DIAGRAM			
Size A2	CAGE Code <Cage Code>	DWG NO 15863450	Rev C
Friday, February 15, 2008	Scale	FTH/FTH	Sheet 1 of 1



Pederstrupvej 84
DK-2750 Ballerup
Denmark