Lavamin

Instruction Manual

Manual No.: 16237001

Date of Release 2016.10.17

Lavamin
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 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 change without notice. The manual may mention accessories or parts not included in the present version of the equipment.

Struers
Pederstrupvej 84
DK-2750 Ballerup
Denmark
Telephone +45 44 600 800
Fax +45 44 600 801

Lavamin
Safety Precaution Sheet

To be read carefully before use

1. The operator should be fully instructed in the use of the machine according to the Instruction Manual.

2. Lavamin should be placed on a safe and stable support table with an adequate working height. The table must be able to carry at least 20 kg / 45 lbs.

3. Use water as the cleaning media when using Lavamin. Do not use any liquids other than water as the cleaning media.

4. Do not use Lavamin to clean any types of explosives, flammable materials or materials that are not stable when exposed to ultrasound or water.

5. Stay clear of the lid when it is closing. Do not force the lid open after it has closed.

6. Check that all retention rings are in their correct positions on the specimens before and after a cleaning step is carried out.

7. When using a specimen mover plate and individual specimens, do not use specimens with a small diameter and a low density.
Small and/or light specimens may float out of the specimen mover plate and be forced to the sides of the bowl during spinning. This may result in damage to the bowl or the specimens.
Clamp the specimens in a specimen holder instead.

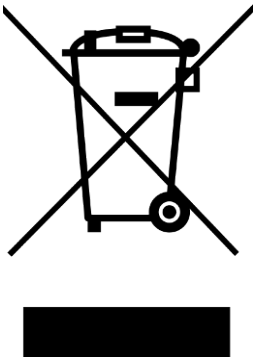
8. Wear appropriate clothing. Do not allow loose clothing or jewellery to hang into the bowl of Lavamin.

9. The machine must be disconnected from the mains prior to any service.

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

Table of Contents **Page**

1. Getting Started

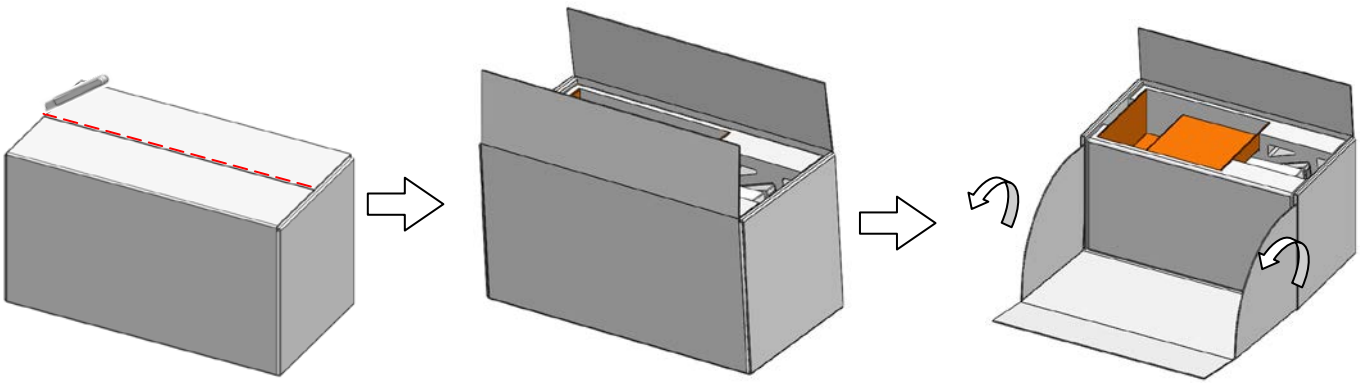
Checking the Contents

In the packing box you should find the following parts:

1 Lavamin
(Ultrasonic cleaning unit)
1 Connection piece (p6 to 1/8")
(to connect Lavamin to standard 1/8" compressed air supply)
1 Connection piece
(to connect Lavamin to a Tegramin air outlet)
1 Water inlet hose 19mm/ ¾" (2.5 m)
1 Y-connector for water inlet
1 Filter gasket
1 Reduction ring with gasket ¾" to ½"
1 Water outlet hose 30 mm/ 1¼" dia. (1.5 m)
2 Hose clamps 25-40 mm dia.
1 Hose clamp 11 mm dia.
2 Mains cables
1 Set of Retention rings for single specimens,
15 pcs of each size
25 mm - 1" dia.
30 mm – 1.25" dia.
40 mm – 1.5" dia.
50 mm – 2" dia.
1 Levelling Tool (for single specimens)
2 Rubber mats (for light specimens in Specimen mover plates)
1 Instruction Manual set

Unpacking Lavamin

- Cut the packing tape on the top of the box.
- Fold out the side of the box (see illustration).



- Remove the bag of loose parts.
- Remove Lavamin from the box.

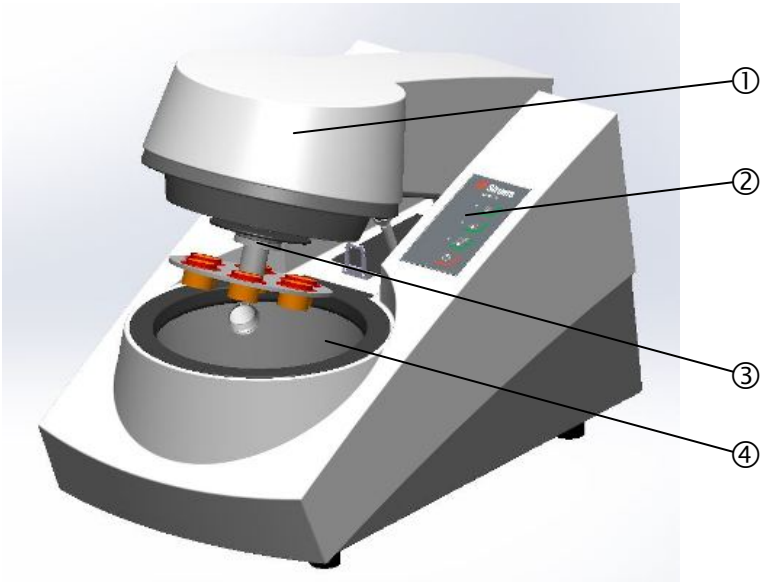
Placing Lavamin

Lavamin should be placed on a safe and stable support table with an adequate working height. The table must be able to carry at least 20 kg / 45 lbs.

Getting Acquainted with Lavamin

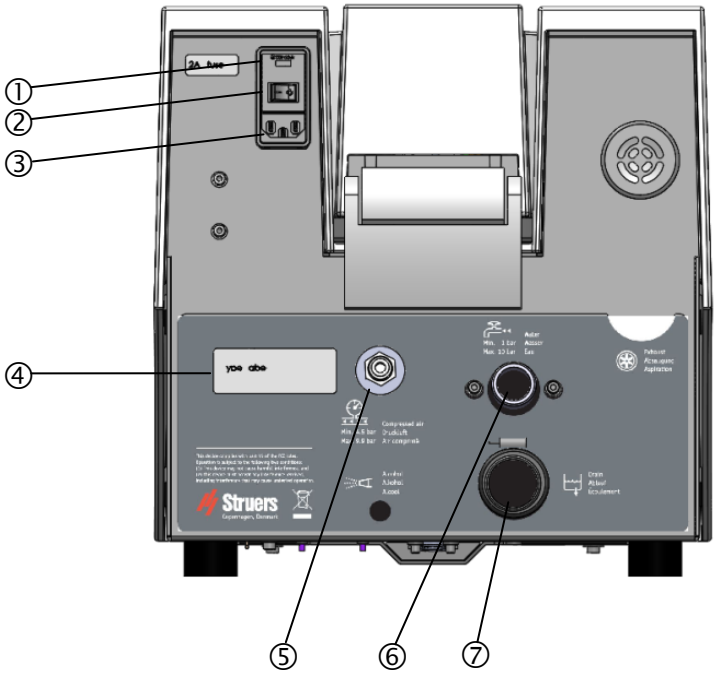
Lavamin is designed for specimen holders up to 160 mm dia. with a max. total weight of 2.5 kg (5.5 lb) and for specimen mover plates from Tegramin-25 /-30 and TegraForce-5 and RotoForce-4 up to 165 mm dia.

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



① Lid
② Control panel
③ Coupling flange
④ Bowl

Rear View



① Fuse
② Main switch
③ Mains connection
④ Type Plate
⑤ Compressed air inlet
⑥ Water inlet
⑦ Water outlet

Supplying Power

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

DANGER!

The machine must be earthed

IMPORTANT

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

Lavamin is shipped with 2 types of Mains cables:

Connection to the Machine

All cables are equipped with an IEC 320 cable connector that has to be connected to the Lavamin.

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

The 3-pin (North American NEMA 5-15P) 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:

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

Changing the Voltage Setting

The factory setting for Lavamin is 200-220 or 220-240V.

If the factory setting is not the correct setting for your mains supply the setting can be changed to 100-110 or 110-120V:

- Pull out the fuse holder at the back of the machine.
- Turn the fuse to the correct setting.

Voltage Required	**Setting**
200-220 or 220- 240V	230V
100-110 or 110-120V	115V

- Re-insert the fuse holder.

Supplying Water

Water may be supplied from the water mains.

> ***IMPORTANT***
> The cold water supply must have a head pressure in the range 1 – 10 bar (14.5 – 145 psi).

> ***Tip***
> With new water pipe installations, leave the water to run for a few minutes to flush any debris from the pipe, before connecting to Lavamin.

> ***Tip***
> Lavamin can be connected to the same water supply as e.g. Tegramin by using the Y-connector supplied.

- Mount the 90° end of the inlet hose onto the water inlet on the back of Lavamin (see Getting Acquainted with Lavamin):
  - Insert the filter gasket in the coupling nut with the flat side against the pressure hose.
  - Tighten the coupling nut completely.

Connection to Water Mains

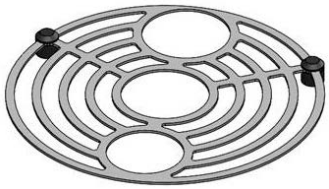
- Mount the straight end of the inlet hose on the water mains tap for cold water:
  - If required, mount the reduction piece with gasket on the water mains tap and tighten the coupling nut completely.

Connection to Water Outlet

- Mount the outlet hose onto the water outlet pipe. (Lubricate with grease or soap to facilitate insertion.) Use a hose clamp for fastening.
- Lead the other end of the drain hose to the water outlet. Arrange the hose so that it slopes downward towards the drain throughout its length. Shorten the hose, if necessary.

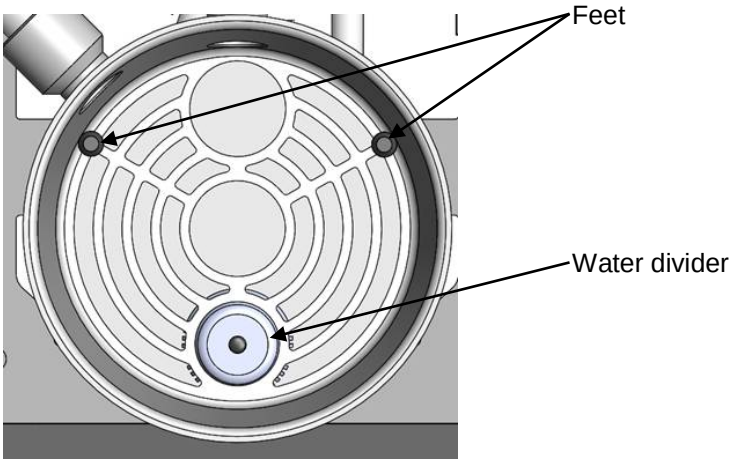
> ***REMEMBER***
> Make sure that the drain hose slopes downward towards the drain throughout its entire length and avoid sharp bends in the drain hose.

Inserting the Grate Plate



The grate plate will prevent damage to the ultrasound unit in the bottom of the bowl if a specimen holder is accidentally dropped.

- Place the Grate plate in the bowl such that the plate is horizontal.
  - The long section of the feet should be placed downwards.
  - Fit the smaller hole over the water divider.



Compressed Air Connections

To connect compressed air:

- Mount the quick coupling on the compressed air hose and secure it with the hose clamp supplied.
- Connect the air inlet hose to the quick coupling and fit the other end into the compressed air inlet on Lavamin.

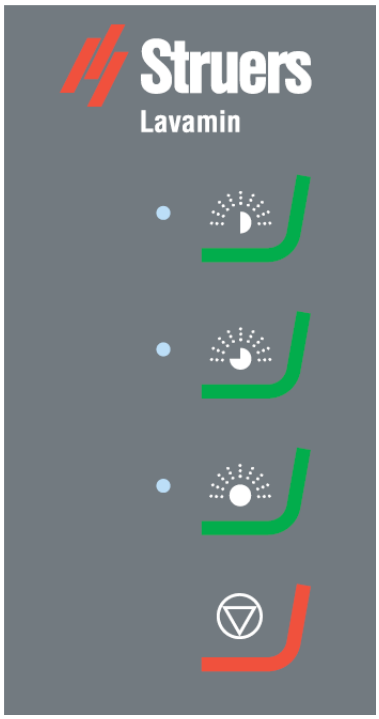
IMPORTANT
The air pressure must be between 5 bar (72 psi) and 10 bar (145 psi) and have a quality equal to or better than Class-3, as specified in ISO 8573-1. Cleaning program 3 requires an air flow of 200 l/min.

T-connection piece

Tip
If only one compressed air outlet is available, Lavamin can be connected to the same outlet as Tegramin by using the T-connection piece supplied.

2. Basic Operations

Front Panel Controls of Lavamin



Cleaning Program 1

Cleaning Program 2

Cleaning Program 3

STOP

Cleaning Programs

Lavamin has three cleaning programs:

Cleaning Program 1

For cleaning and drying in-between preparation steps.
(Approx. 1 min)
No air flushing, residual humidity can occur.

Cleaning Program 2

For cleaning and drying of dirty specimens.
(Approx. 1½ min)
No air flushing, residual humidity can occur.

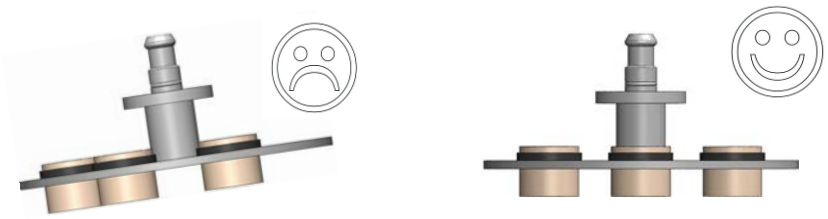
Cleaning Program 3

For final cleaning and drying of specimens.
(Approx. 2 min)
With air flushing, no residual humidity.

Clamping and Levelling Specimens

The specimens **must be evenly distributed** in the specimen holder/ specimen mover plate. They should have approximately the same size and weight.

Important:
If the specimen holder/ specimen mover plate is not balanced, this will result in excess vibration during cleaning.



In a Specimen Holder

If using a Uniforce Levelling device, please refer to the instructions in the Uniforce manual.

- Place the specimen holder on the Uniforce levelling device or on a levelling disc.
- Arrange at least three specimens symmetrically around the centre of the specimen holder to ensure an even and balanced rotation.
- Clamp the specimens by carefully tightening the screws. Always choose a length of screw which will leave a minimum part of the screw projecting from the specimen holder and which uses the whole length of the thread through the specimen holder.
- After clamping, make sure that the fixation of the specimens is absolutely firm.

Individual specimens

Individual specimens must be fitted with a retention ring and suspended from the specimen mover plate.

> ***Important!***
> Specimen mover plates of 4 mm thickness should be used.
> If specimen mover plates of 2 mm are used, the holes should fit the diameter of the specimens, otherwise the specimens may be flung out of the mover plate during spinning.

Specimen Weight/density:

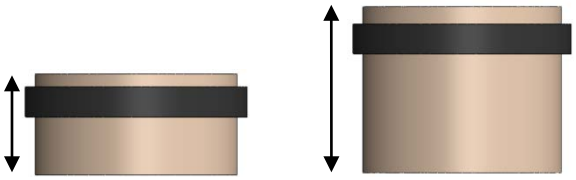
The specimens must have a density higher than water.
Specimens with a lower density will float out of the specimen mover plate and be forced to the sides of the bowl during spinning.
This may result in damage to the bowl or the specimens.

Use a Rubber mat to keep small and light specimens in place.

- Select the Rubber mat that fits the size of the specimen mover plate (140 or 160 mm dia.).
- Place the mat on the specimen mover plate and check that the holes (for the pressure feet) are directly over the specimens.
- Leave the mat in place during preparation.

Specimen Height:

Individual specimens should be between 20 – 28 mm.
(Taller specimens can also be used – see page 13 for details.)



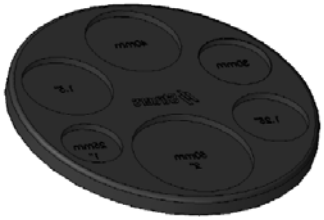
20 mm / 0.8" **28 mm / 1.1"**

Fitting a Retention Ring

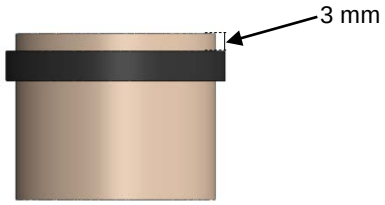
> ***Important!***
> The retention rings must fit tightly around the diameter of the specimen.

Retention rings can be fitted using the levelling tool supplied or an Applicator (optional accessory).

Levelling tool



- Place the specimen in the levelling tool - with the face to be prepared downwards.
- Slide the retention ring over the specimen and push a few millimetres down the side of the specimen.
- Turn the specimen upside down and place in the correct aperture of the levelling tool.
- Press the retention ring down until it rests on the surface of the levelling tool.
  The back of the specimen should protrude 3 mm through the retention ring.



Applicator for retention rings

- Place one or more retention rings on the Applicator.
- Place the Applicator on top of the specimen and slide a retention ring down, over the cone.
- Press the retention ring until it rests level with the bottom edge of the cone.

- Transfer the specimen to the specimen mover plate.

> ***Important:***
> Check that all retention rings are in their correct positions on the specimens before and after a cleaning step is carried out.
> If necessary, re-level the retention rings or exchange loose rings with new rings.

Taller Specimens
Specimens 28- 32 mm.

- Move the retention ring further away from the top of the specimen to reduce the portion that extends out of the specimen mover plate.
- Check that the specimen will not come into contact with the water inlet/outlet during cleaning.

> ***NB!***
> Because of the high rotation speed the specimen must not be "top-heavy" to avoid it being flung out of the mover plate.

Cleaning Specimens

- After the preparation step is finished, remove the specimen holder / specimen mover plate from the specimen mover head.
- On Lavamin, press the coupling flange downwards and insert the specimen holder / specimen mover plate.
- Rotate the specimen holder / specimen mover plate until the three pins from the coupling engage in the corresponding holes of the specimen holder / specimen mover plate.
- Release the flange.
  Check that the specimen holder / specimen mover plate is securely fixed in the coupling.

> ***Tip***
> Hold the specimen holder / specimen mover plate with one hand.
> Use the other hand to operate the coupling.

Starting the Cleaning Process

- Press the key of the appropriate cleaning program to start the cleaning process.

When the cleaning program is finished, the lid will open up automatically and the specimen holder / specimen mover plate can be removed.

3. Operator Maintenance

> ***WARNING!***
> Do not clean the bowl with compressed air.
> The water level sensor may be damaged if subjected to pressurised air.

Daily Maintenance

- Wipe the bowl with a damp cloth.
- Remove the magnetic particles collected by the small magnets underneath the bowl.
  Magnetic particles are removed from the water to avoid causing blockage of the pump. They appear as small, dark rings to the right and left hand side of the water outlet.
  The rings will not affect the functioning of the machine; regular cleaning will reduce, but not totally remove the marks left by the particles.

Weekly Maintenance

- Wipe the surface of Lavamin with a damp cloth and water with a dash of ordinary washing-up liquid.

> ***WARNING!***
> Do not use alcohol, acetone or similar solvents.

- Clean the bowl with a household scouring pad (do not use a metal scourer).
- Check the water and air connections.

4. Trouble-Shooting

LED Error Signals

	Explanation	Action required
● ○ ○	Vibrations are too high.	Check that specimen holder is balanced.
○ ● ○	Water inlet error.	Check water supply.
● ● ○	Water drainage error.	Check if water drain is blocked.
○ ○ ●	No air pressure.	Check air supply.
● ○ ●	Specimen holder is blocked.	Check for obstructions. Check that specimen holder is balanced.
○ ● ●	Lid not down after process start (15 sec. timeout)	Check for obstructions.
● ● ●	System error.	Press a cleaning program key to show the system error number*. Contact a Struers Service Technician.

■ Press STOP ⏀ to clear the signal.

System Error Number*

The system error number will help the Struers Service Technician identify the error.
To show the system error number:

- Press a cleaning program key.
  The three LEDs will start blinking.
  LED 1 shows the first digit
  LED 2 shows the second digit
  LED 3 shows the third digit

E.g:
LED 1 blinks once, LED 2 blinks three times, and LED 3 blinks twice:
System error number is #132.

- Press STOP ⏀ to clear the signal.
  (If the system error halted the software system, it will be necessary to switch Lavamin off at the Main switch.)

Reference Guide

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1. Accessories and Consumables

Please refer to the *Lavamin brochure* for details of the range available.

2. Technical Data

Subject		Specifications	
		Metric/International	**US**
Physical Specifications			
Water Supply	Tap Water		
	Pressure for tap water	1 - 10 bar	14.5 - 145 psi
	Inlet	¾"	¾"
Compressed Air	Pressure Flow	min. 5 max. 10 bar 200 l/min	min. 72 psi max. 145 psi 200 l/min
Electrical Supply and Consumption	Voltage/frequency	200-220 or 220-240V / 50-60Hz	100-110 or 110-120V / 50-60Hz
	Power phases	1-phase (N+L1+PE)	
	Power consumption: Idle Max	 2.5 W 140 W @ 200–220 or 220-240V	 2.5 W 140 W @100–110 or 110-120V
	Current	0.9 A @ 200–220 or 220-240V	1.5 A @100–110 or 110-120V
Dimensions and Weight	Width	313 mm	12.3”
	Depth	605 mm	23.8”
	Height	310 mm	12.2
	Weight	17 kg	37.5 lbs
	Capacity	1.7 l	0.45 Gallon
Standards Specifications			
EU Directives		Please refer to the Declaration of Conformity	
Environmental Specifications			
Noise Levels	Idle	60 dB (A)	
	Max	62 dB(A)	
Working Environment	Temperature (operational)	5–40°C	41–104°F
	Humidity (non-condensing)	0–95% RH	
Interface Specifications			
Controls		Touch pad	

English

Declaration of Conformity

Manufacturer

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

Herewith declares that

Name:	Lavamin
Cat. No.:	06236133
Function:	Cleaning unit
Type No.:	623

fulfils all the relevant provisions of the:

Machinery Directive 2006/42/EC

according to the following standard(s):
EN ISO 12100:2010, EN ISO 13849-1:2015, EN ISO 13850:2008, EN 60204-1:2006/AC:2010, EN ISO 14120:2015, EN 614-1:2006+A1:2009, EN 349:1993+A1:2008, EN 1037:1995+A1:2008, EN ISO 14119:2013.

and is in conformity with the:

EMC Directive 2014/30/EU

according to the following standard(s):
EN 61000-6-1:2007, EN 61000-6-2:2005 EN 61000-6-3:2007/A1:2011, EN 61000-6-4:2007/A1:2011, EN 61000-3-2:2014, EN 61000-3-3:2013.

RoHS Directive 2011/65/EU

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

Supplementary Information

The equipment complies with the following standards:
UL 508, NFPA79:2012, FCC 47 CFR PART 15.

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

Authorized to compile the Technical File:

Klavs Tvenge
Director of Business Development
Struers ApS
Pederstrupvej 84
DK-2750 Ballerup, Denmark

Date of Issue: 2017.10.05

Struers

Pederstrupvej 84
DK-2750 Ballerup
Denmark

Lavamin

Spare Parts and Diagrams

Manual No.: 16237001

Date of Release 26.06.2016

Lavamin
Spare Parts and Diagrams

Always state *Serial No* and *Voltage/frequency*
if you have technical questions or when ordering spare parts.

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Struers
Pederstrupvej 84
DK-2750 Ballerup
Denmark
Telephone +45 44 600 800
Fax +45 44 600 801

Spare Parts and Diagrams

Table of contents **Drawing**

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

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.

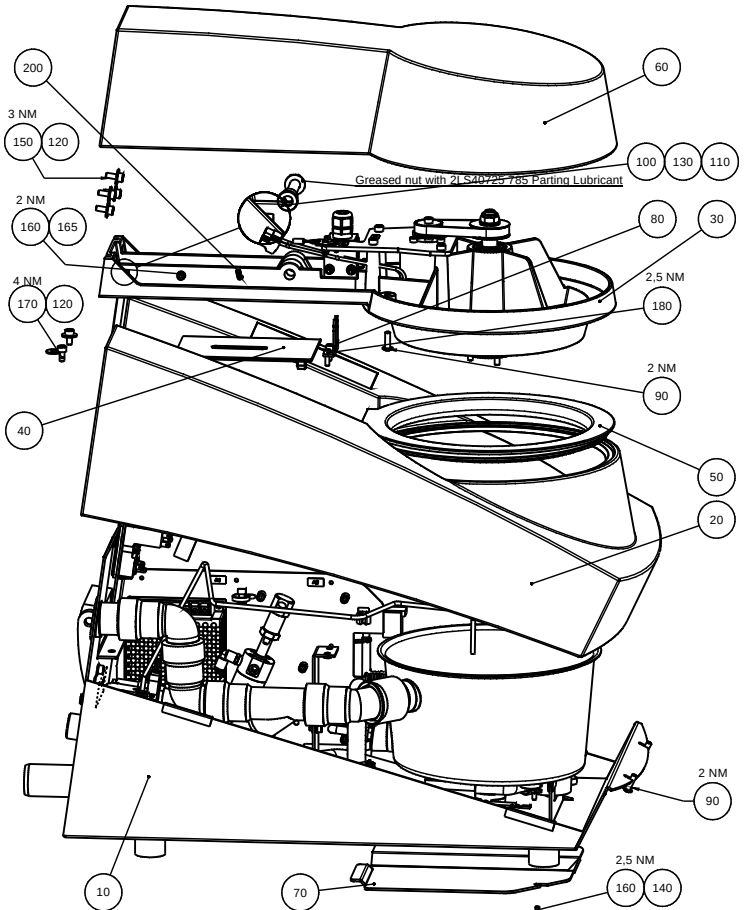
Spare part list for Lavamin

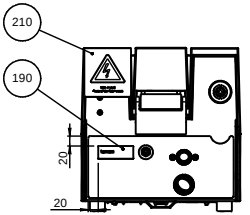
Drawing	Pos.	Spare Part	Cat no:
16230001		**Lavamin, assembled**	
	50	Flange, rubber	16230230
	60	Hood top, painted	16239300
16230010		**Bottom chassis, assembled**	
	40	Hose PVC, transp. ø5/ø8, 22 cm	2NU19306
	50	Hose PVC transp. ø8/ø12, 1.5 cm	2NU18080
	60	Hose PVC w. steel coil ø12/ø18, 25 cm	2NU21218
	80	Hose clamp Mini ø17 W1	2NS14169
	160	Water divider, moulded	16230260
		Wire set Lavamin	16233590
	30	HW plate, assembled	16230046
	40	Water pump with plug.	16233552
	50	Safety switch AZ17-11ZK	2SS00170
	70	Accelerometer, 3 axis, 5V	2HA10623
		HW plate, assembled	16230046
	20	PCB Ultrasonic gen., Tested	16233001
	30	PCB for Lavamin, Tested	16233000
	40	Power Supply 85-264V, 24V/3,2A	2PA90050
	50	Pressure Trans., 30mbar, 5V	2HP00030
	70	10R Break resistor HSD70A	2RK05701

16230015		**Bottom chassis, assembled**	
	30	Pneumatic system with plug.	16233560
	80	Sol. valve 24VDC Gn.337	2YM13337
	90	Complementary hinge, Pizzato	2SS48089
	170	Mains Socket, Sw+Fuse+Vol. Sw	2XN32623
	180	2.00A T Fuse glass 6.3x32 250V, 2 pcs.	2FU13950
	190	Press. hose. arm. PVC 3/8-ø10, 41.5 cm	2NU29312
	200	Hose clamp SL14-16/9 C7, W1, 2 pcs.	2NS14149
	210	Press. hose. arm. PVC ½-ø12,5, 18.5 cm	2NU29316
	215	Hose clamp Mini ø17 W1	2NS14169
	230	Water In-Out, moulded	16230270
	240	O-ring 30-4 NBR70	2IO04034
	250	Sealing band 31.021, 6 cm	2IP30000
	260	Sealing band 31.021, 30 cm	2IP30000
16230055		**Drain and exhaust, ass.**	
	20	Y-Drain w.sleeve ø32, 2 pcs.	2NG20323
	30	Drain w.sleeve ø32	16230520
	40	Elbow 45° with plug ø32 PP	2NG20430
	50	Drain plug, moulded	16230280
	60	Drain tube connector	16230510
	70	Worm hose clamp 25-40/9.0-C7W2, 2 pcs.	2NS22540
	80	Elbow 87° with plug ø32 PP, 2 pcs.	2NG20432
16230030		**Bowl. assembly**	
	40	O-ring 30-4 NBR70	2IO04034
16230040		**Cabinet, assembled**	
	20	Front foil, Lavamin	16230600
16230050		**Hood, assembled**	
	20	Coupling, assembled	16230060
	30	BallBear.6003-2RS1 17x35 (HQB)	2BK00040
	60	Ball bearing 6002-2RS1 (2RSR)	2BK00035
	160	Tooth. belt 225-3M-09	2JT20565
	180	BLDC motor w. gearwheel	16230080

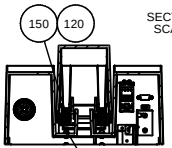
Loose parts Lavamin

Connection piece ø6 to 1_8 in	16230057
Washing machine hose 3/4 conn.	2NU93030
Trans.piece ½in int. ¾in ext.	2NG30013
Filter gasket ¾in	2IX20410
Mains cable. 0.75mm². Schuko	2WC04668
Mains cable. AWG16. Nema 5-15P	2WC02520
Hose Danflex K-126 ø32, 1.5m	2NU30232
Worm hose clamp 25-40/9.0-C7W2, 2 pcs.	2NS22540
Hose clamp Mini ø11 W1	2NS14109
Y-tube 3/4in with Union nut	2NF44433
T-branch KQT06-00A ø6	2NF40148

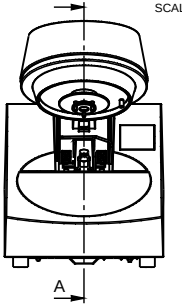




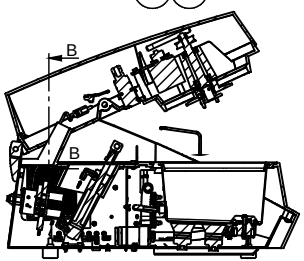
SCALE 1 : 5



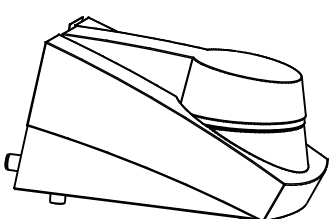
SECTION B-B
SCALE 1 : 5



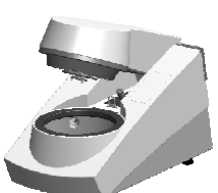
SCALE 1 : 5



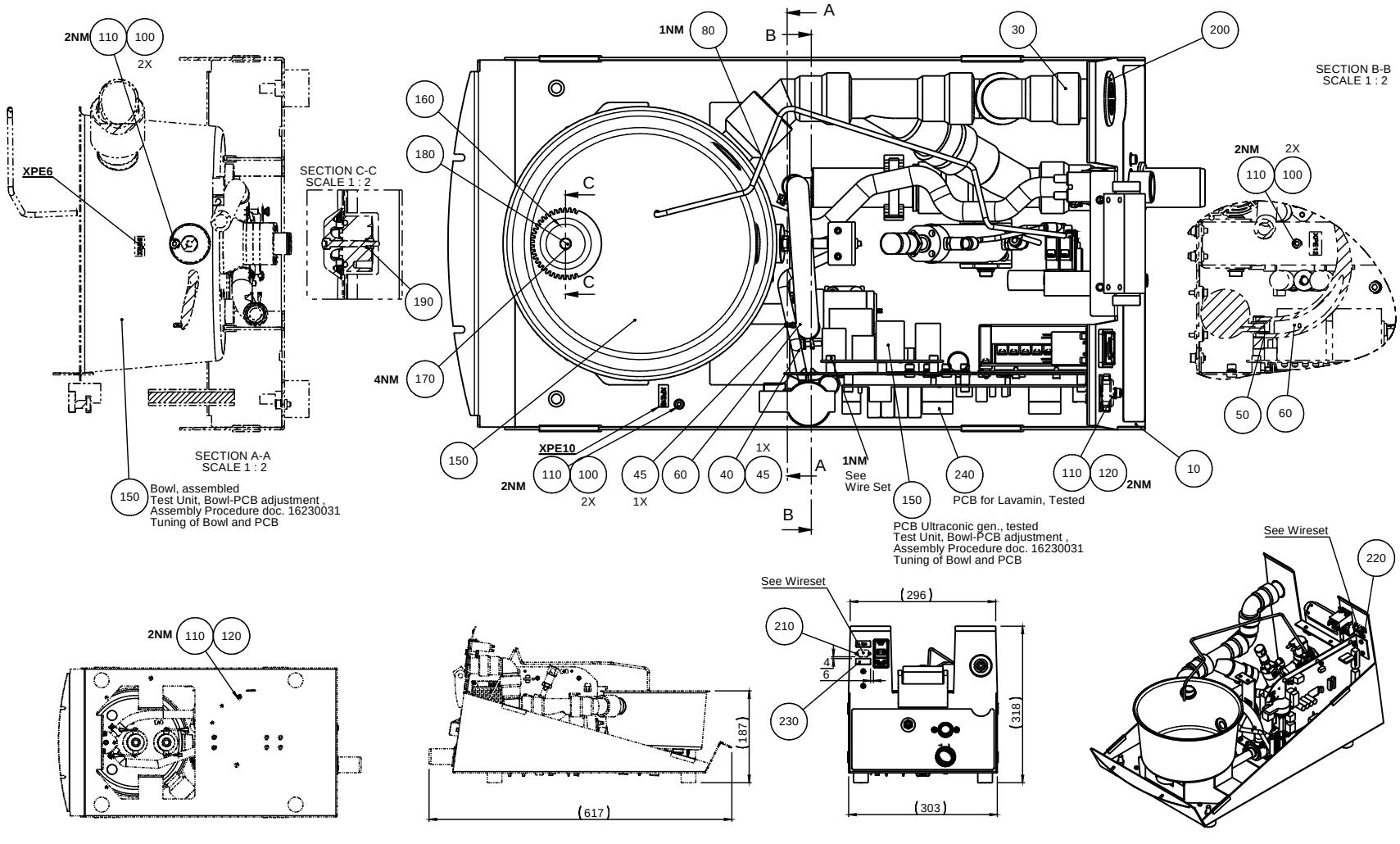
SECTION A-A
SCALE 1 : 5



SCALE 1 : 5



G	2016-05-26	No changes, PDM matching		OCR	2016-05-26	ABG
A	2013-12-12			OCR	2014-01-02	POP
Revision	Crea. date yyyy-mm-dd	Revision description		Draw. Init	Appr. date yyyy-mm-dd	Appr. Init
Struers		Material:	Scale: 2:5	Format: A2	Tolerance: DS/ISO 2768- mK Weight : 16913.5 g	
	ID:	Description:				Rev:
		16230001 Lavamin, assembled				G



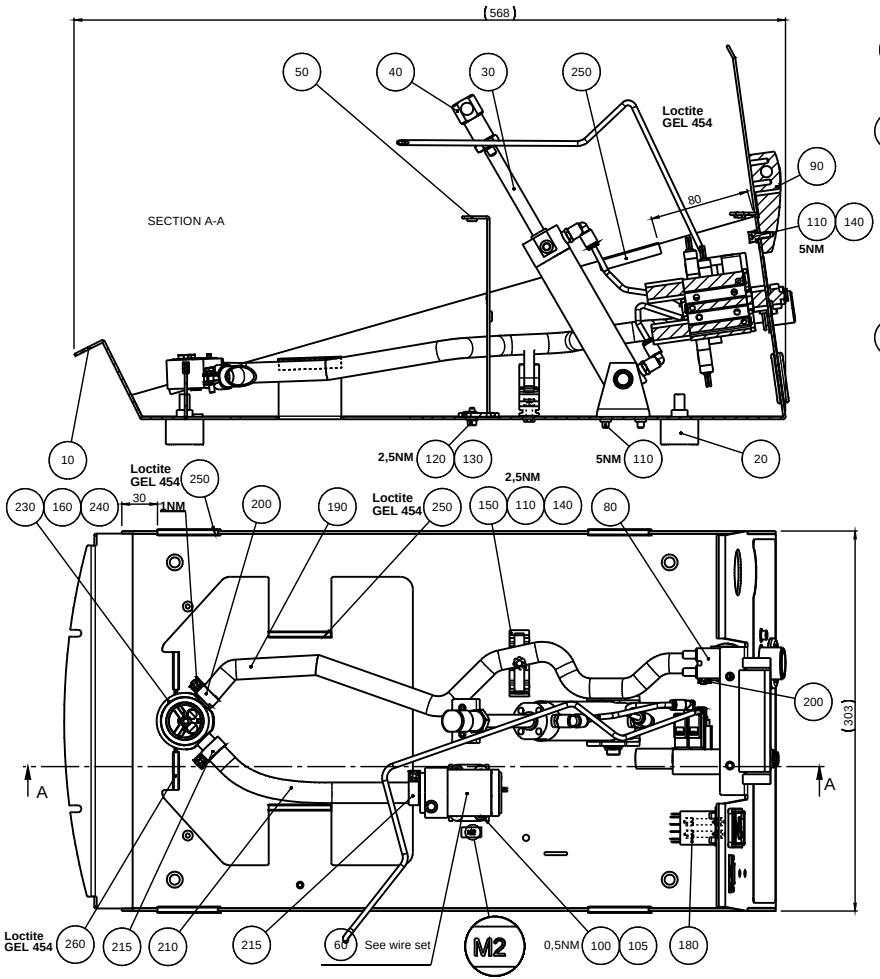
16233590 Wire Set

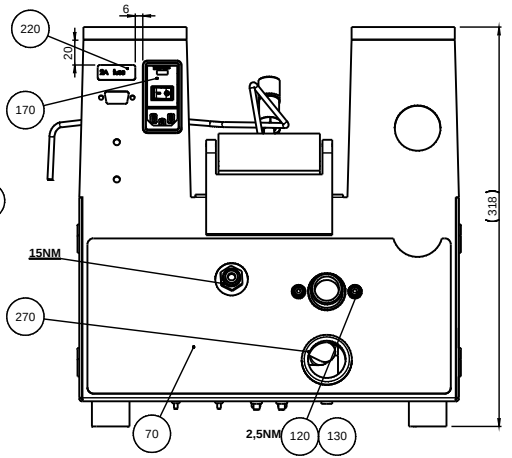
Revision	Crea. date yyyy-mm-dd	Revision description	Draw. Init	Appr. date yyyy-mm-dd	Appr. Init
H	2016-02-01	E8: pos.240 added	OCR	2016-02-01	CZO/AKR
A	2013-12-13		OCR	2014-03-20	FPG/POP

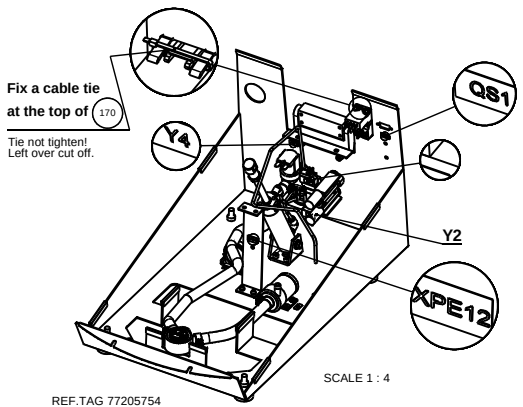
Struers
Pederstrupvej 84
DK-2750 Ballerup/Copenhagen
Denmark
Phone: +45 44 600 800
Fax: +45 44 600 801

Material:
Scale: 1:5
Format: A2
Tolerance: DS/ISO 2768- mK
Weight : 9360.9 g

ID:
Description: **16230010 Bottom chassis, asembled**
Rev: **H**







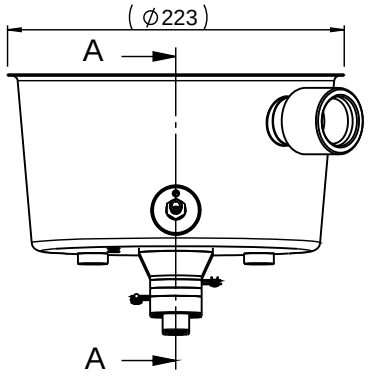
SCALE 1 : 4

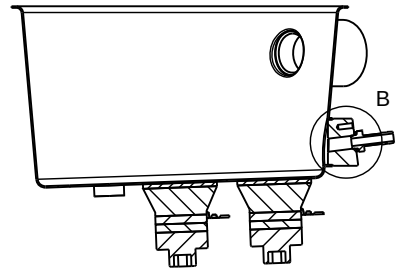
REF.TAG 77205754

I	2016-06-02	Pos.35 removed	JPO	2016-06-02	SCA
A	2014-03-05		OCR	2014-03-20	FPG/POP
Revision	Crea. date yyyy-mm-dd	Revision description	Draw. Init	Appr. date yyyy-mm-dd	Appr. Init

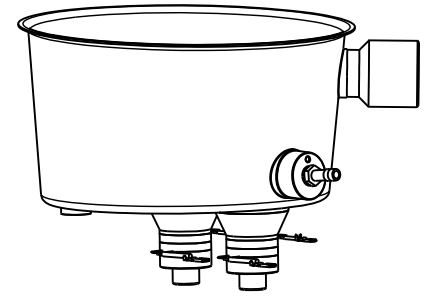
Struers — Material: — Scale: 1:2 — Format: A2 — Tolerance: DS/ISO 2768-mK — Weight: 6057.9 g

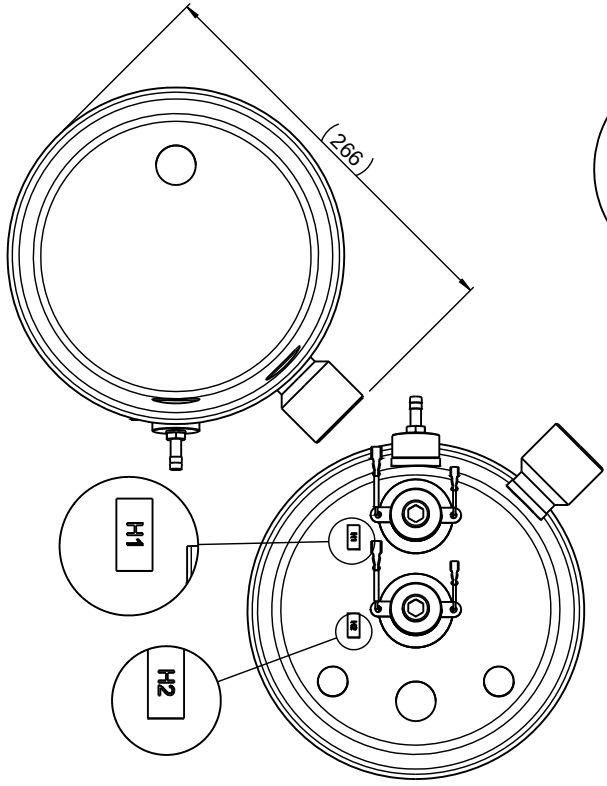
ID: **16230015 Bottom chassis, asembled** — Rev.: I

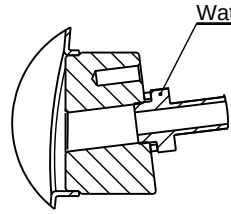




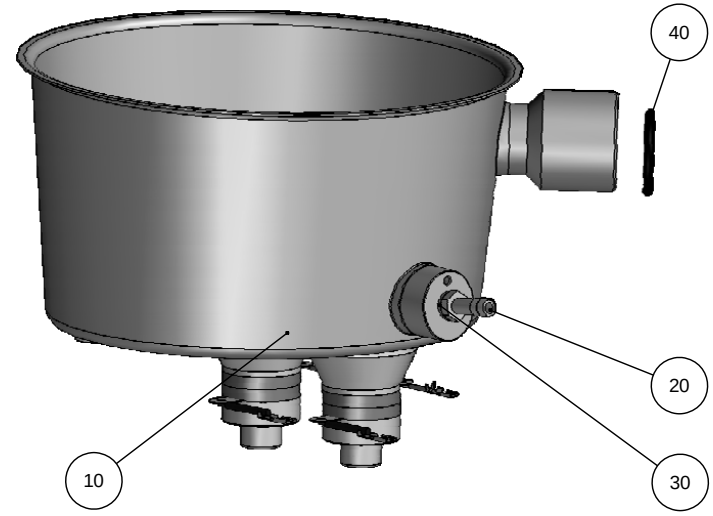
SECTION A-A







DETAIL B
SCALE 1 : 1



SCALE 1 : 2

B	2014-05-27	pos.40 changed	OCR	2014-06-4	POP
A	2014-01-08		OCR	2014-03-24	FPG
Revision	Crea. date yyyy-mm-dd	Revision description	Draw. Init	Appr. date yyyy-mm-dd	Appr. Init

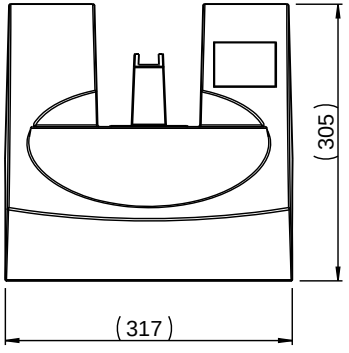
Material:
Scale: 1:3
Format: A3
Tolerance: DS/ISO 2768- mK
Weight : 2437.1 g

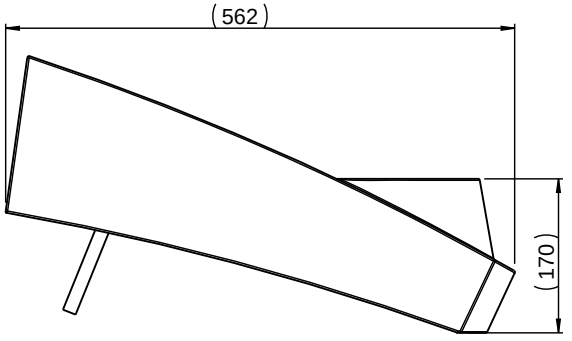
Pederstrupvej 84
DK-2750 Ballerup/Copenhagen
Denmark
Phone:+45 44 600 800
Fax: +45 44 600 804

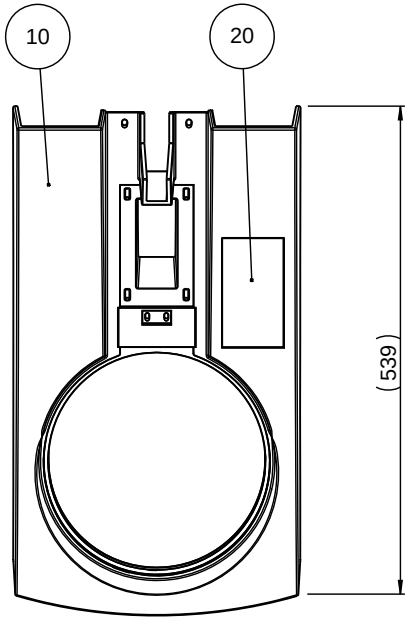
ID: Description:

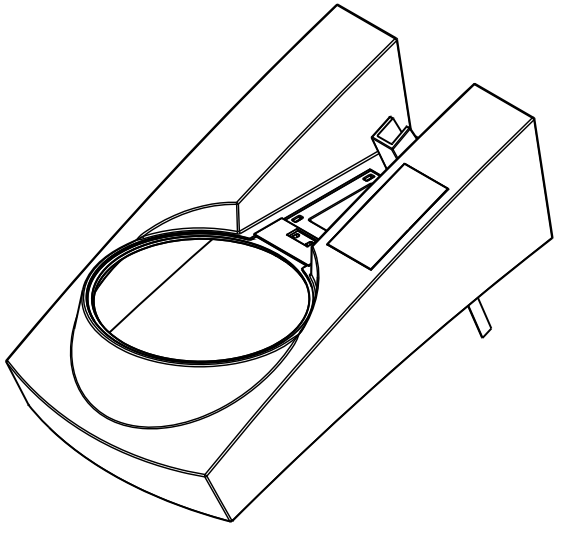
16230030 Bowl, assembly

Rev: **B**









B	2014-06-16	Small update	OCR	2014-06-16	POP
A	2014-01-20		OCR	2014-01-21	POP
Revision	Crea. date yyyy-mm-dd	Revision description	Draw. Init	Appr. date yyyy-mm-dd	Appr. Init

Material:

Scale: **1:5**

Format: **A3**

Tolerance: DS/ISO 2768- mK

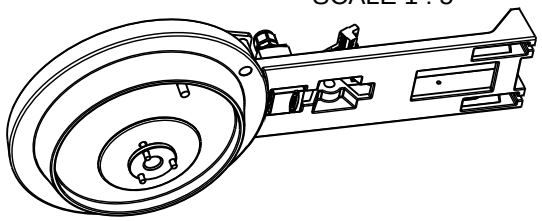
Weight : 2149.4 g

Pederstrupvej 84
DK-2750 Ballerup/Copenhagen
Denmark
Phone:+45 44 600 800
Fax: +45 44 600 804

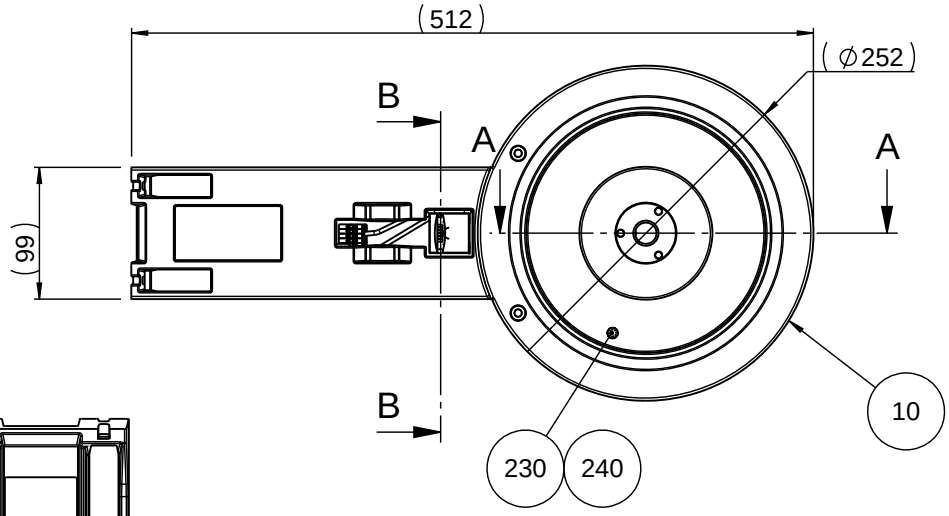
ID: Description:

16230040 Cabinet, assembled

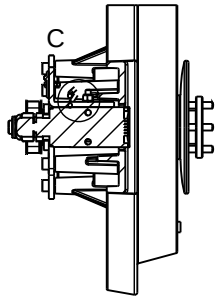
Rev: **B**

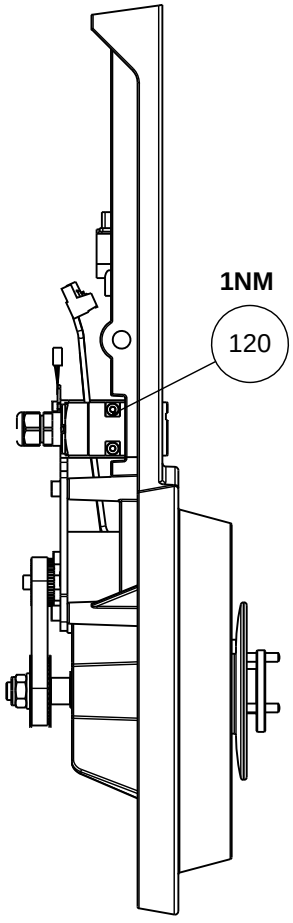


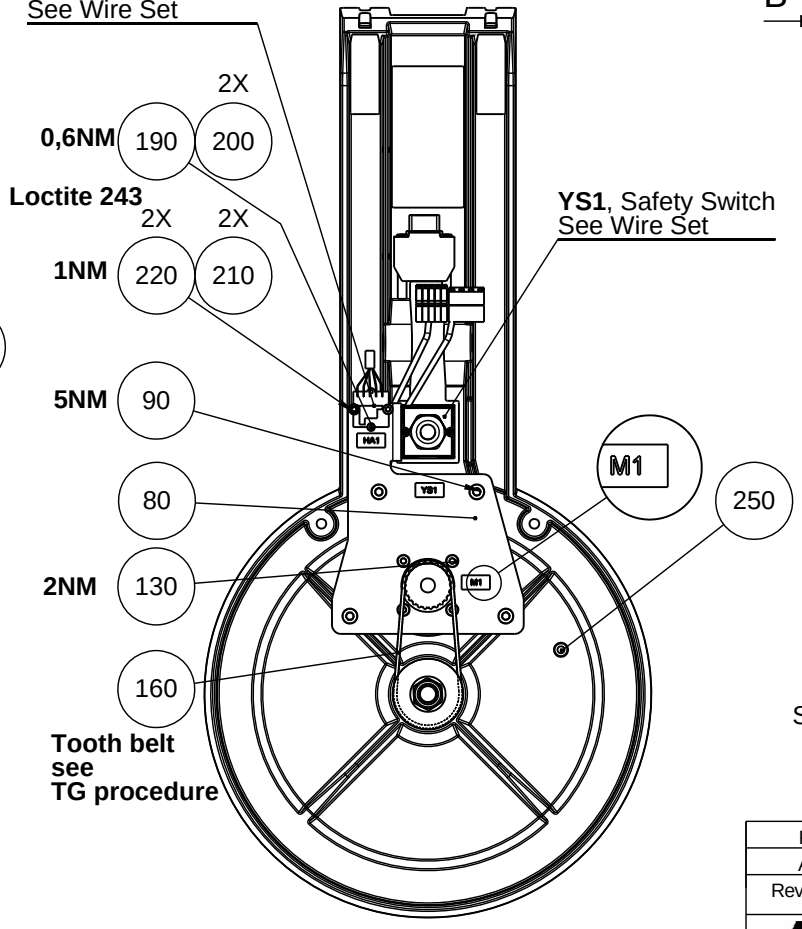
SCALE 1 : 5



SECTION B-B

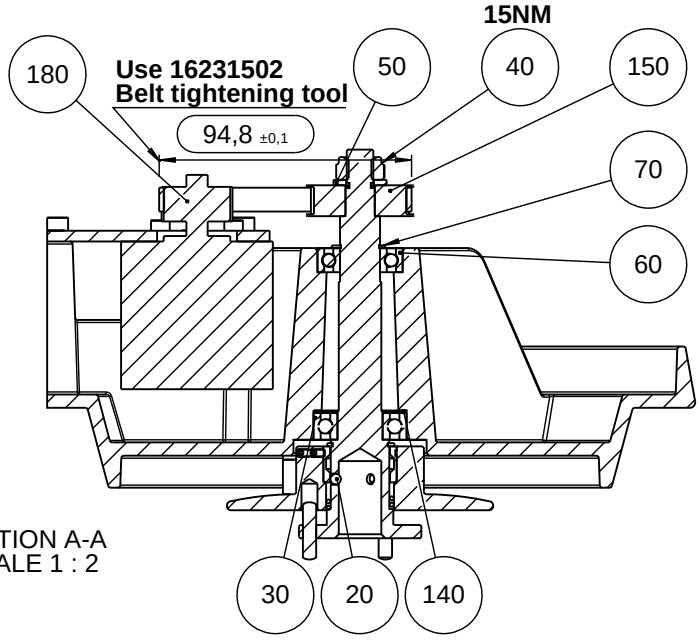




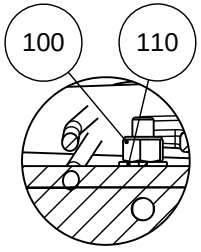


SCALE 1 : 3

SCALE 1 : 3



SECTION A-A
SCALE 1 : 2



DETAIL C
SCALE 1 : 1

F	2015-04-29	Inspection dim 94,8+/-0,1 added	OCR	2015-04-29	POP
A	2014-01-21		OCR	2014-03-24	FPG/AKR
Revision	Crea. date yyyy-mm-dd	Revision description	Draw. Init	Appr. date yyyy-mm-dd	Appr. Init

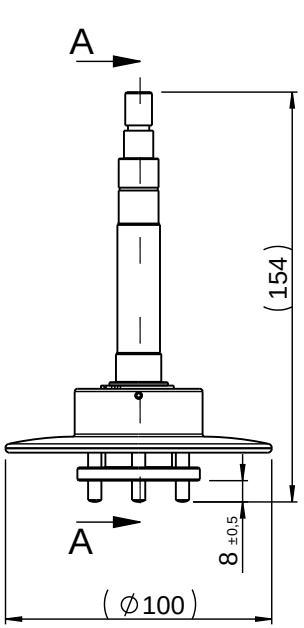
Struers
Pederstrupvej 84
DK-2750 Ballerup/Copenhagen
Denmark
Phone:+45 44 600 800
Fax: +45 44 600 804

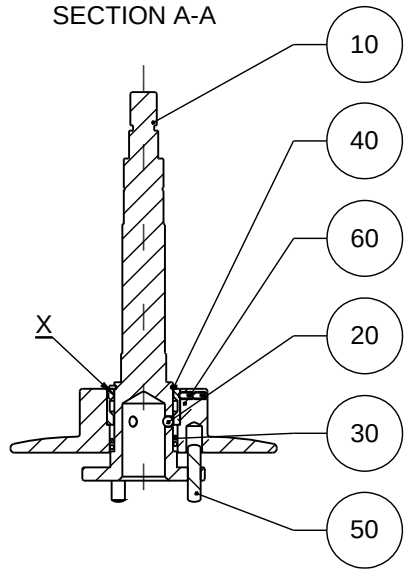
Material:	Scale: 1:4	Format: A3	Tolerance: DS/ISO 2768- mK	
			Weight : 3272.6 g	

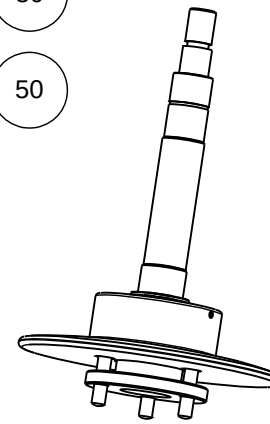
ID: Description:

16230050 Hood, assembled

Rev: **F**







X= Grease with oil (2LS10100 Shell Tellus Oil S100)

ITEM NO.	PART NUMBER	QTY.
10	16230291 Coupling, axle	1
20	2BA00040 Ball ø4 stainless steel	3
30	16230294 Compression spring ø1,5xø23,8 L=20	1
40	2ZL30220_External Circlip A22 DIN471 SS	1
50	2ZS01415 Dowel pin 5m6x20 stainl DIN 7	3
60	16230061 Ejector, Assembled	1

F	2014-09-15	pos. 60 updated		OCR	2014-06-11	POP
A	2013-10-15			POP	2013-10-15	FPG
Rev	Crea. date yyyy-mm-dd	Revision description		Draw. Init	Appr. date yyyy-mm-dd	Appr. Init

Struers

Pederstrupvej 84
DK-2750 Ballerup
Copenhagen
Denmark
Phone :+45 44600 800
Fax : +45 44600 804

Material:

Scale: **1:2**

Format: **A4**

Tolerance: DS/ISO 2768 - mK

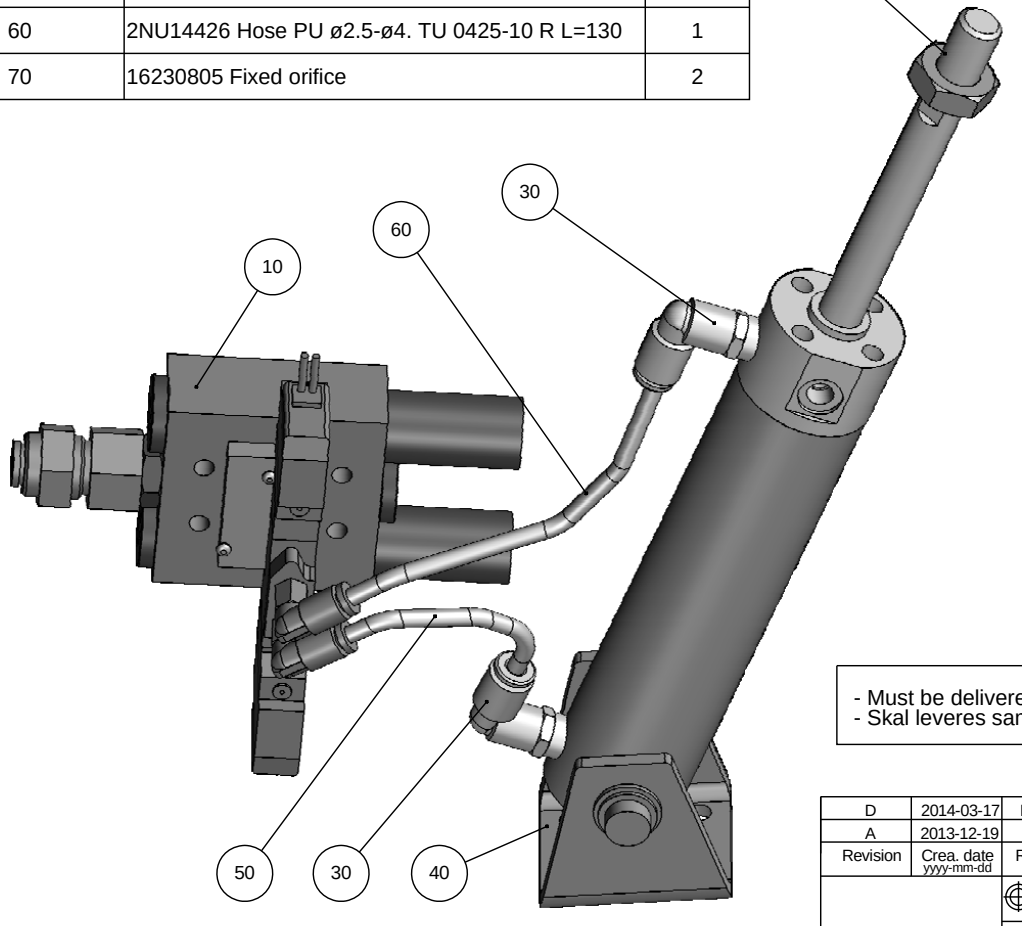
Weight : 359.8 g

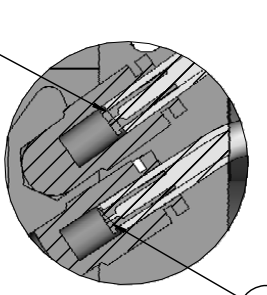
ID:

Description: **16230060 coupling, assembled**

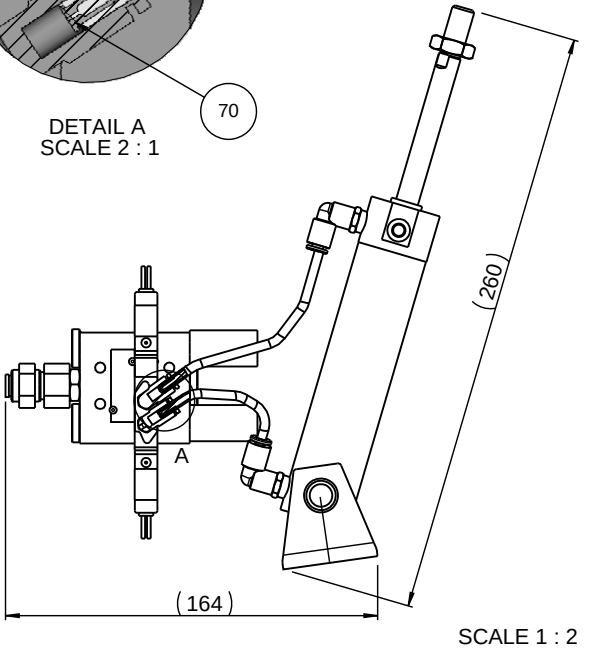
Rev: **F**

ITEM NO.	PART NUMBER	QTY.
10	16230011 Pneumatic block SS5Y3-20-02-SAR213	1
20	2YC25075 Cylinder ø25-75,CG1TN25-75	1
30	2NF10060 Coupler elbow, KQ2L04-01S	2
40	2YB25000 Bracket, CG-025-24A	1
50	2NU14426 Hose PU ø2.5-ø4. TU 0425-10 R L=130-2	1
60	2NU14426 Hose PU ø2.5-ø4. TU 0425-10 R L=130	1
70	16230805 Fixed orifice	2





DETAIL A
SCALE 2 : 1



SCALE 1 : 2

- Must be delivered assembled and placed in a plastic bag
- Skal leveres samlet i en plastik pose

D	2014-03-17	Pos 50+60: Lenght changed from 120=>130	FPG	2014-03-17	FPG
A	2013-12-19		OCR	2013-12-13	FPG
Revision	Crea. date yyyy-mm-dd	Revision description	Draw. Init	Appr. date yyyy-mm-dd	Appr. Init

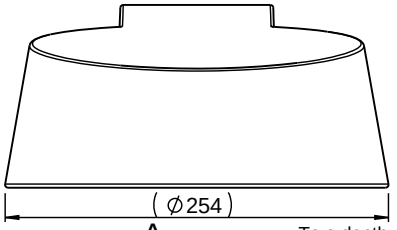
Material:
Scale: 1:1
Format: A3
Tolerance: DS/ISO 2768- mK
Weight : 176.4 g

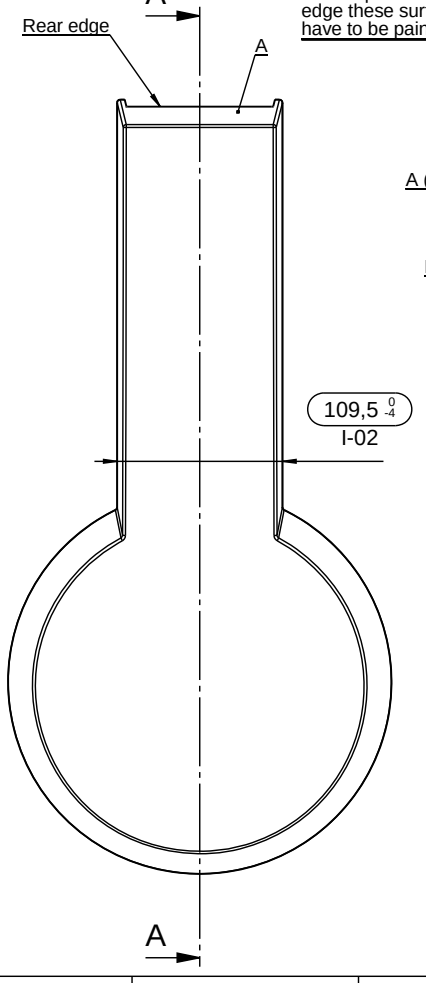
Pederstrupvej 84
DK-2750 Ballerup/Copenhagen
Denmark
Phone: +45 44 600 800
Fax: +45 44 600 804

ID: Description:

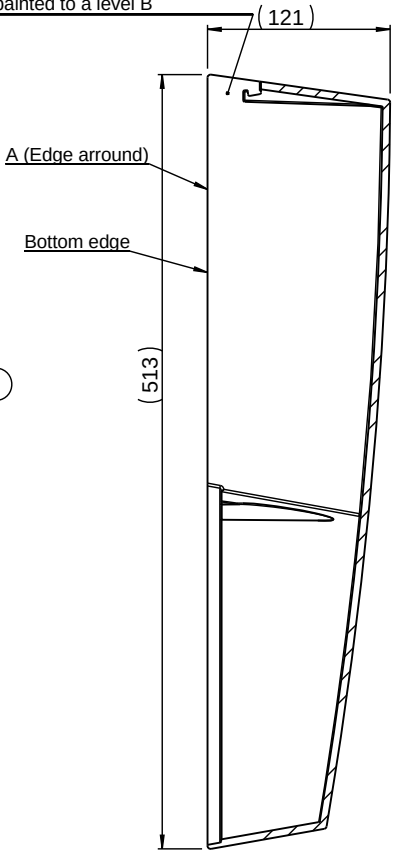
16230065 Pneumatic system, asembled

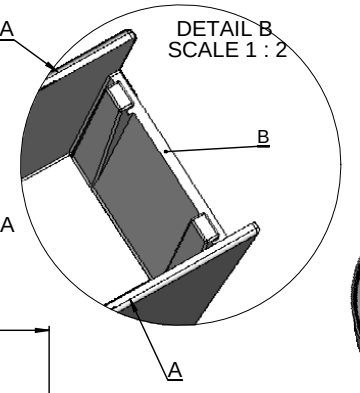
Rev: **D**

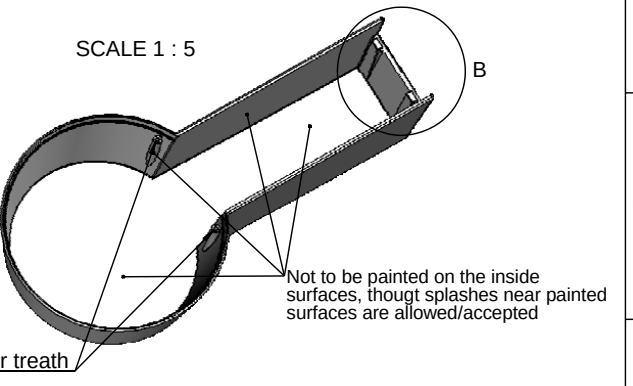


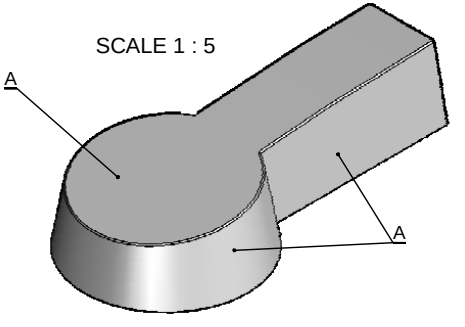


To a depth of 20 mm from rear and bottom edge these surfaces (both sides) have to be painted to a level B









Painting instruction :

Primer: Alexit Celerol 963-12
Paint: Alexit texture finish Z421 with Alexit-additive 459 (Mankiewicz)
Color: Light gray RAL 7035 Satin-gloss

Finish for Surface zones (A-B-C-D) : Use doc. 10160283
Use reference sample at LPM, but 10160283 must be followed

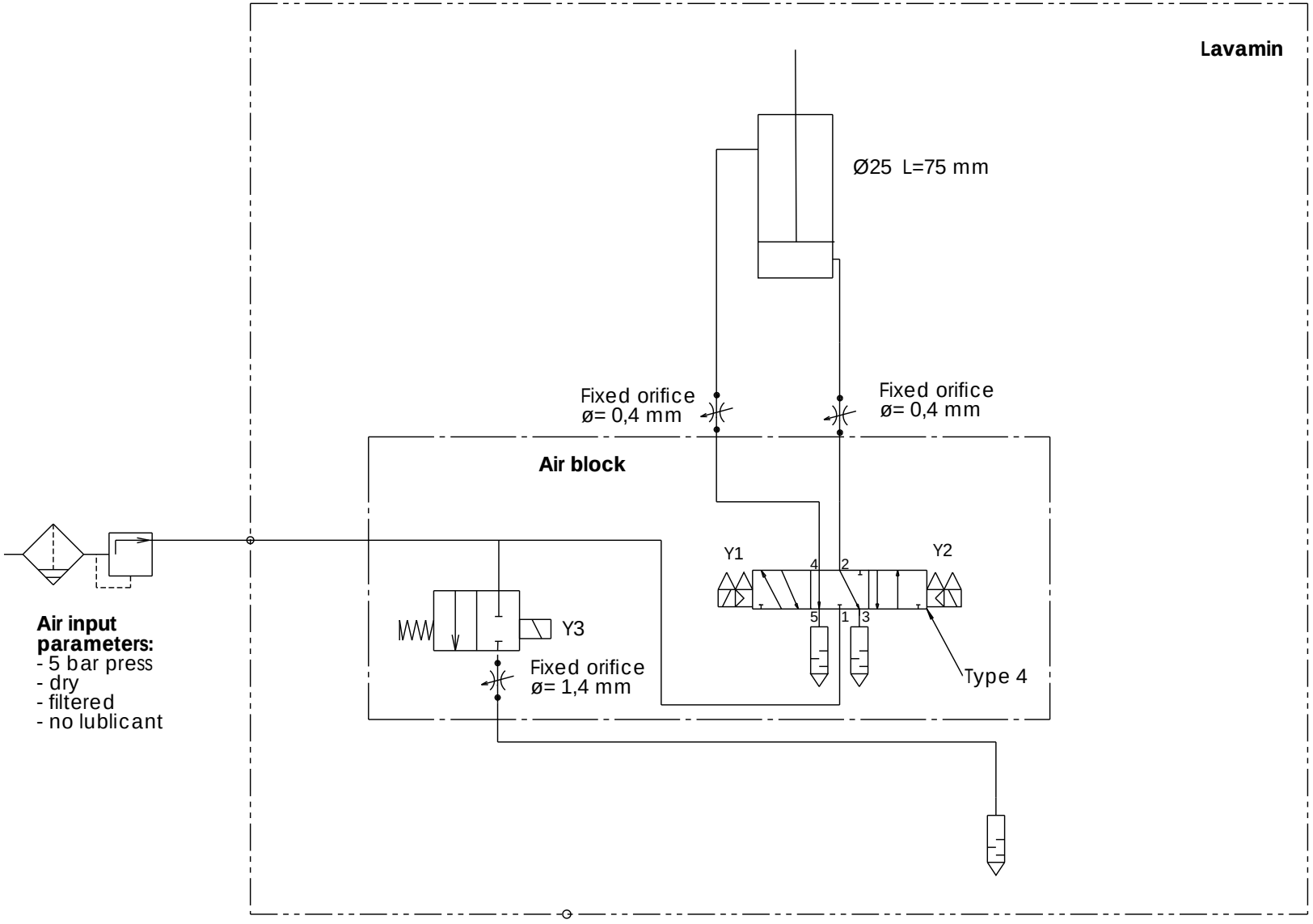
Bushings or threath holes must be covered

D	2014-05-28	Control tolerance added	OCR	2014-05-28	FPG
A	2011-11-08		POP	2013-11-29	FPG
Revision	Crea. date yyyy-mm-dd	Revision description	Draw. Init	Appr. date yyyy-mm-dd	Appr. Init

Material: 16230300	Scale: 1:3	Format: A3	Tolerance: DS/ISO 2768- mK	
			Weight : 1053.2 g	

ID: **16239300 Hood top, painted**
Description:
Rev: **D**

Pederstrupvej 84
DK-2750 Ballerup/Copenhagen
Denmark
Phone: +45 44 600 800
Fax: +45 44 600 804



C	2015-03-02	Fixed orifice ø 1,4 added	OCR	2015-03-02	FPG
A	2014-03-06		FPG	2014-03-21	FPG
Revision	Crea. date yyyy-mm-dd	Revision description	Draw. Init	Appr. date yyyy-mm-dd	Appr. Init

Struers
Pederstrupvej 84
DK-2750 Ballerup/Copenhagen
Denmark
Phone:+45 44 600 800
Fax: +45 44 600 804

Material:

Scale: 1:1

Format: A3

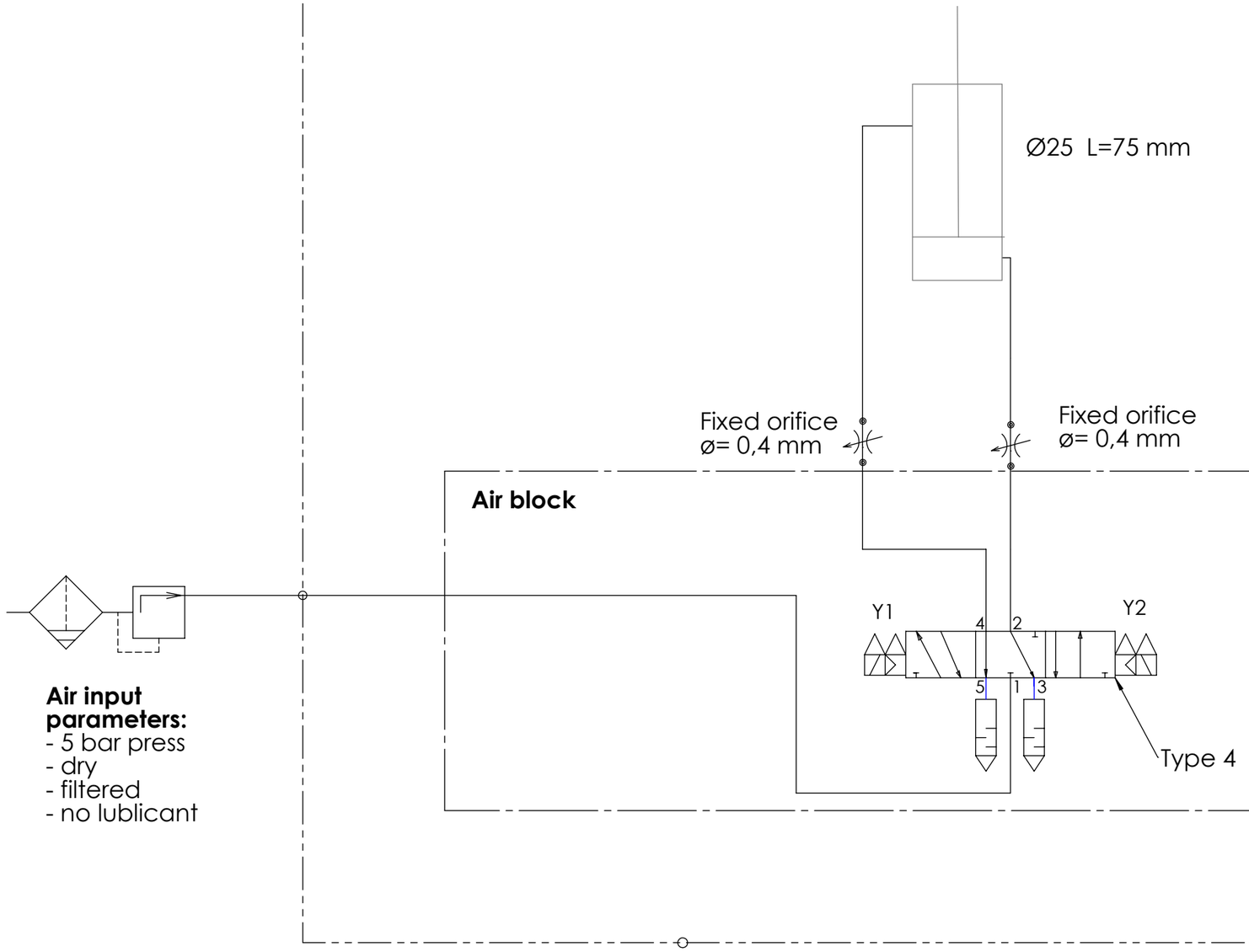
g

ID: Description:

16231000 Air diagram for Lavamin

Rev: C

Lavamin



Air input parameters:
- 5 bar press
- dry
- filtered
- no lublicant

B	2014-03-06		FPG	2014-03-21	FPG
Revision	Crea. date yyyy-mm-dd	Revision description	Draw. Init	Appr. date yyyy-mm-dd	Appr. Init

Struers
Pederstrupvej 84
DK-2750 Ballerup/Copenhagen
Denmark
Phone:+45 44 600 800
Fax: +45 44 600 804

Material:

Scale: 1:1

Format: A3

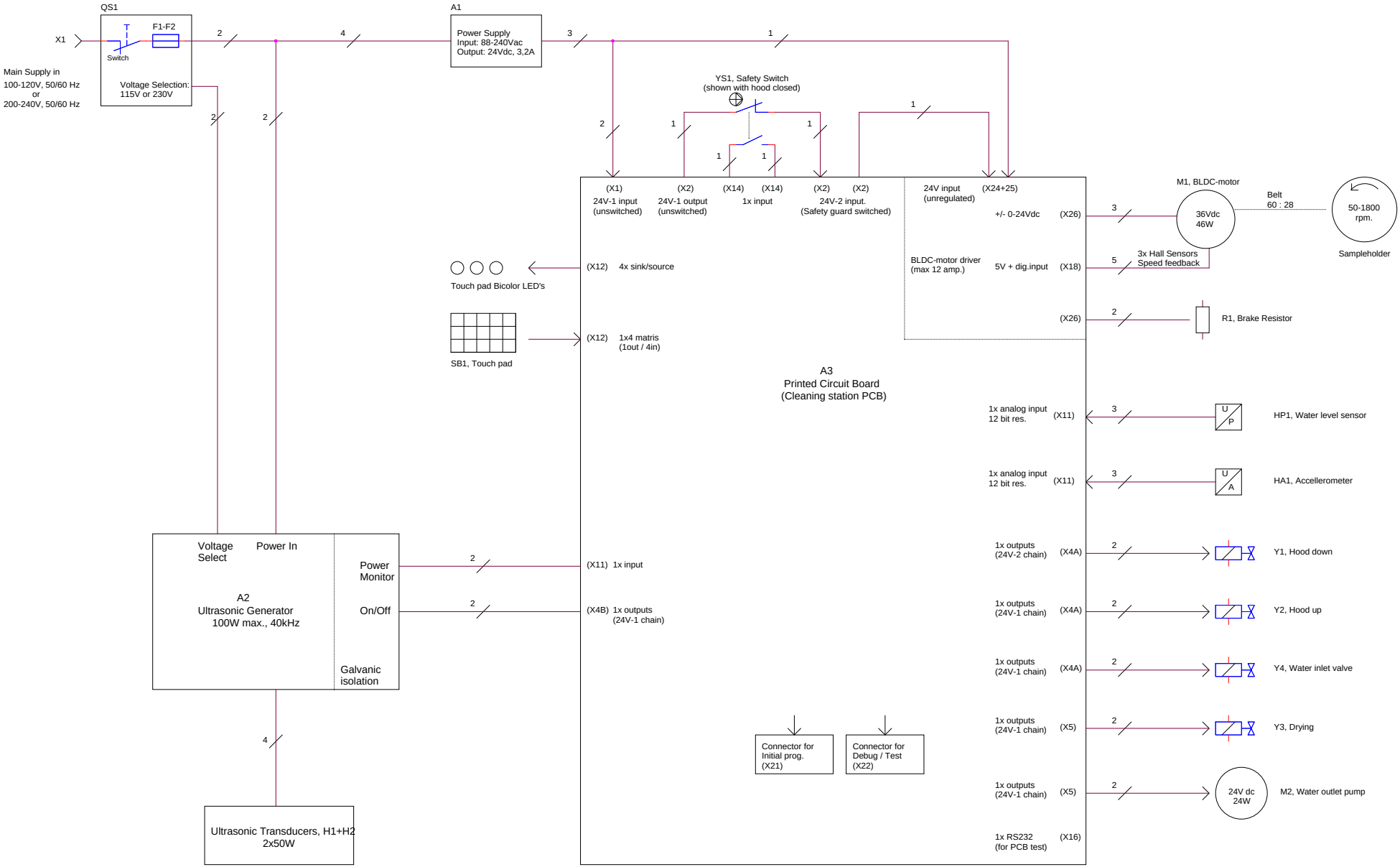
g

ID:

Description:

16231000 Air diagram for Lavamin

Rev: **B**



Rev.B 14-04-11 AKR. Y3 removed. X4A and X4B added. Rev.C 15-02-18 AKR. Y3 added.	Struers A/S Pederstrupvej 84 DK-2750 Ballerup Denmark telephone: +45 44 600 800
	Lavamin, Block Diagram - Total Overview
	Size A2 · CAGE Code · DWG NO 16233050 · Rev C
Wednesday, February 18, 2015	Scale AKR / AKR · Sheet 1 of 1

Struers

Pederstrupvej 84
DK-2750 Ballerup
Denmark