Discoplan-TS

Struers

Instruction Manual

Manual No.: 13727001

Date of Release 01.06.2010

Discoplan-TS
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 Manuals may only be used in connection with Struers equipment covered by the Instruction Manual.
Service Manuals: Struers Service Manuals 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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Discoplan-TS
Safety Precaution Sheet

To be read carefully before use

1. The operator should be fully instructed in the use of the apparatus according to the manual. The operator should be fully instructed in the use of cut-off wheels and grinding discs for Discoplan-TS.

2. Use only intact diamond cut-off wheels and grinding discs. If Struers cut-off wheels are not used, it should be noticed whether they contain materials which give off harmful vapours or dust requiring special ventilation. If Struers cut-off wheels are not used, the wheels must be approved for a spindle speed of minimum 1680 rpm.

3. Make sure to have suitable ventilation when cutting materials which give off harmful dust particles or vapors. See Safety Data Sheet for the materials in question.

4. Observe the current safety regulations for handling, mixing, filling, emptying and disposal of the cutting fluid in question.

5. Store the cutting fluid and use it as indicated in the instructions for the cutting fluid in question so that harmful bacterial growth and contact with the skin is avoided.

6. Always use safety goggles in connection with manual cutting. Use safety goggles when dressing the cut-off wheel or the grinding disc with a dresser stick. Use hearing protector when cutting.

7. Adjust the wheel guard according to the thickness of the specimen, so that it covers as much of the cut-off wheel as possible.

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.)

Table of Contents **Page**

1. Installation

Checking Contents of Packing

In the packing case you should find the following parts:

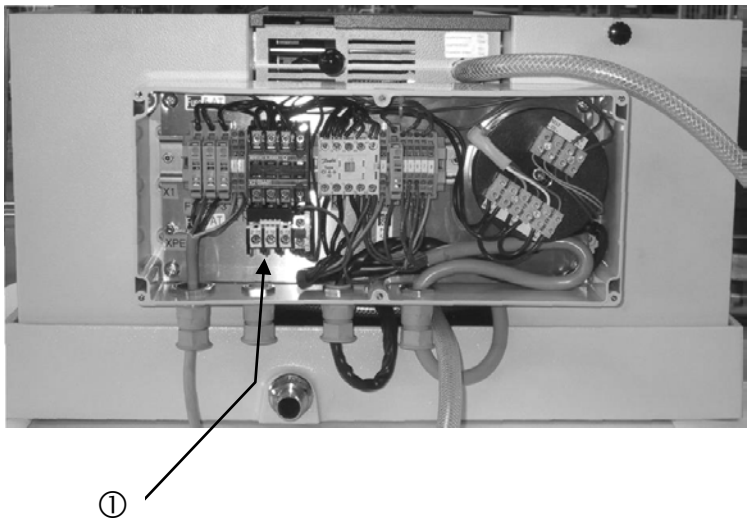
1 Discoplan-TS bolted to the bottom of the transport case
1 Key for mounting of diamond cut-off wheel, width 27mm
1 Hook-spanner for mounting of diamond cut-off wheel
1 Allen key width 2.5, 3, 4 and 5mm
1 T-piece, for vacuum connection
1 Plastic tube, 1/2" x 1500mm with hose clamps
1 Plastic tube, 3/4" x 1500mm with hose clamps
1 Reinforced plastic tube 3/8" x 1500mm with hose clamp for vacuum pump
1 Dial gauge with holder for lining up diamond cup wheel
1 Holder for specimens of irregular shapes (max. 75x75mm)
1 Movable stop
1 Vacuum chuck for re-sectioning
1 Splash guard for the cutting module
6 Polyethylene washers for the diamond cup wheel
3 Screws M6 x 20 for mounting of diamond cup wheel

Placing Discoplan-TS

- Remove the protecting film with kerosene or petrol.
- Place Discoplan-TS on top of a sturdy table. Make sure that the machine is in level to avoid warping.

Supplying Power

- The cable from the Recirculation Cooling Unit is connected to Discoplan-TS in the connection box ①.
  See diagram in the lid of the connection box.



- The mains cable is connected to a plug switch.

IMPORTANT
Before Discoplan-TS is connected, check that the mains voltage corresponds to the voltage indicated on the type plate on the rear of the machine.

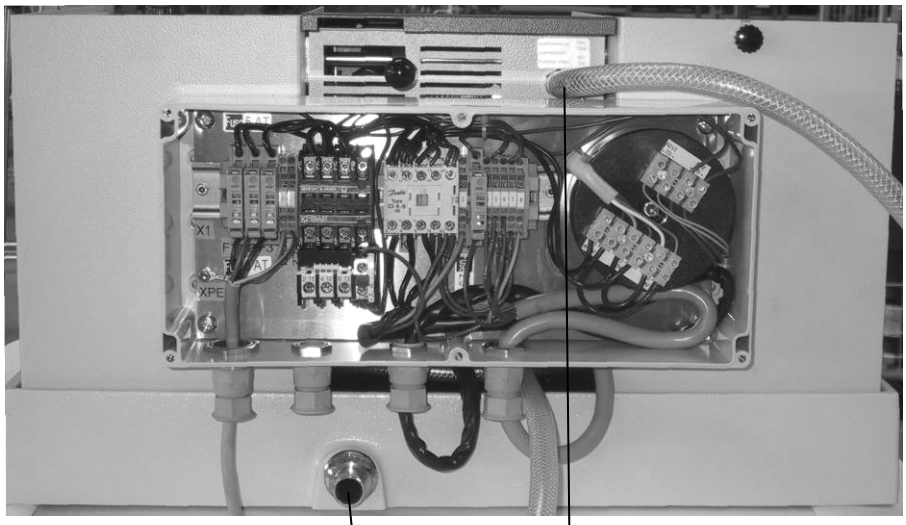
Supplying Vacuum

Discoplan-TS obtains the vacuum effect through an exterior vacuum pump.

- Mount the vacuum hose from the pump to the inlet at the back of Discoplan-TS.
- Remember to tighten the hose clamps!

Recirculation Cooling Unit

- Place the recirculation unit on either side of the machine where you find it the most convenient.
- Mount the non-return valve on the pump of the recirculation unit.
- Mount the inlet hose from the machine on the non-return valve.
- Connect the electric cable from the pump to the machine.
- Mount the outlet hose on the underside of the tray.
- Mount the drain angle on the other end of the outlet hose by means of the hose fitting and lead it down into the hole of the recirculation unit.
- Check that there is a steady fall on the whole course of the outlet hose.
- Place a plastic liner in the tank and fill with water and additive.



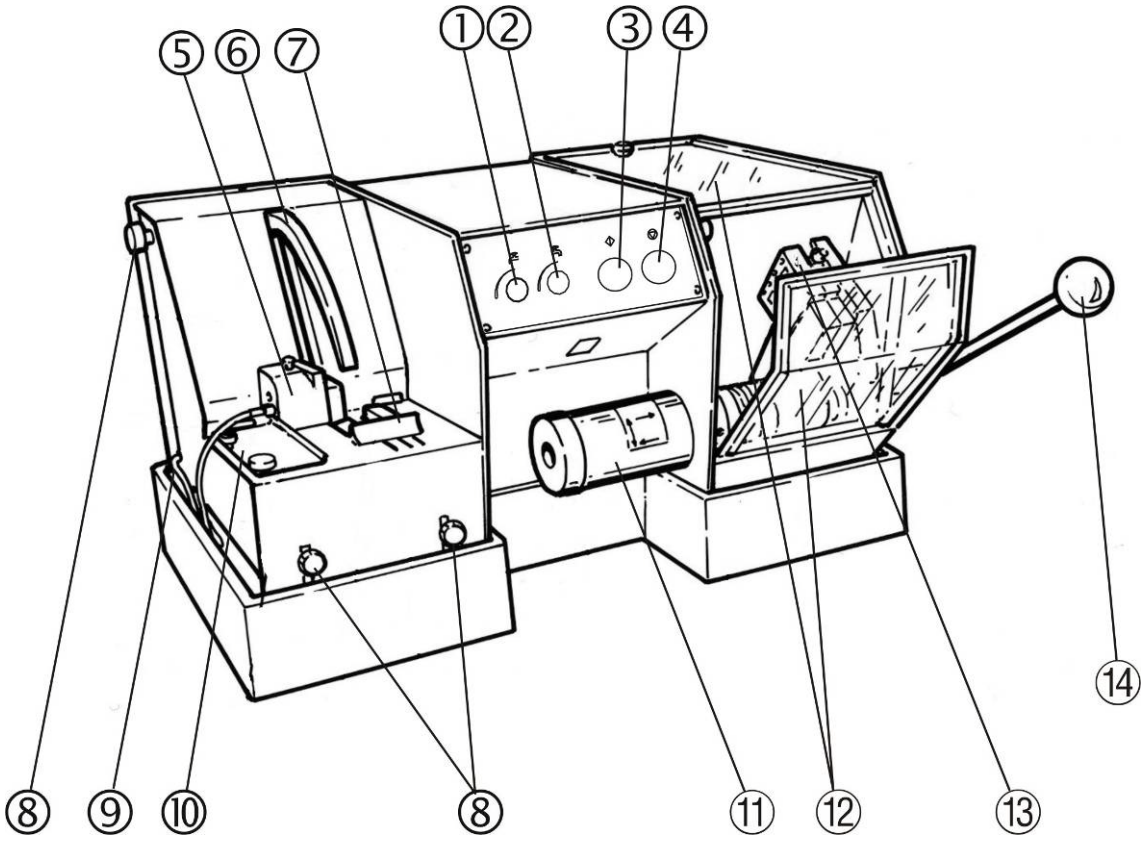
Reset Button

If the recirculation pump is overloaded or blocked, a thermal cut-out will switch the pump off. This safety cut-out must be reset by pushing the red button on the back of the Discoplan-TS before the machine can be restarted.

2. Operation

Getting Acquainted

Take a moment to familiarise yourself with the location and names of all the Discoplan-TS components:



Cutting Module **Grinding Module**

① Controls for cooling water for cutting module
② Controls for cooling water for grinding module
③ Stop
④ Start
⑤ Vacuum chuck for cutting
⑥ Safety guard
⑦ Movable stop
⑧ Thumb screws
⑨ Vacuum branch
⑩ Guide bar for resectioning
⑪ Micrometer screw
⑫ Protection guard
⑬ Vacuum chuck for grinding
⑭ Handle for grinding

The TS-Method for Preparing Thin Sections

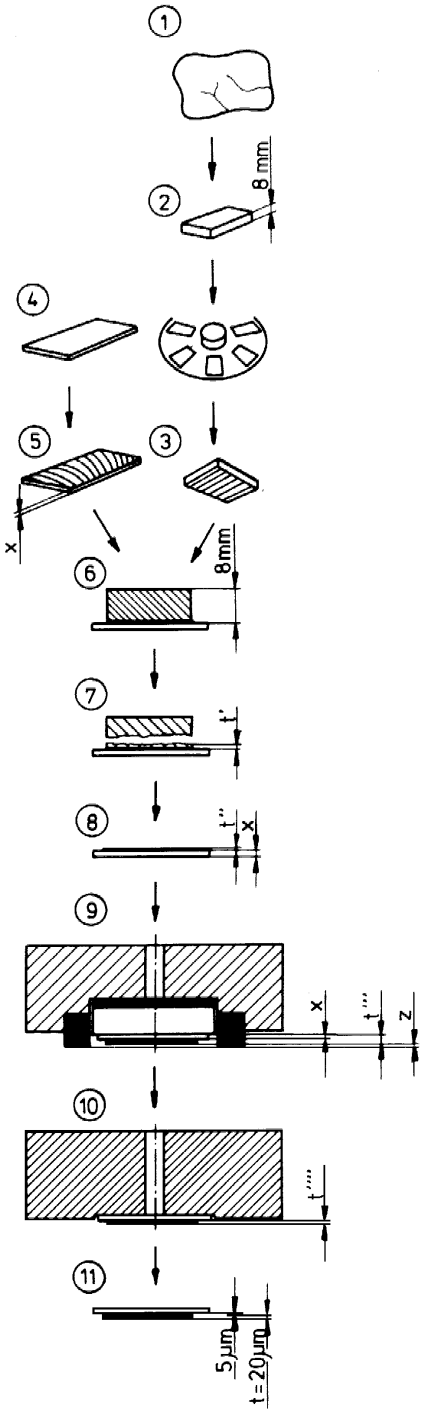
Necessary Struers Equipment

The TS-Method (Thin Section Method) developed by Struers involves the following Struers equipment:

- A Discoplan-TS mineralogical cutting and grinding machine (the machine described in this Instruction Manual)
- Glass slides and mounting resin for the specimens[*)]
- A RotoPol-35[*)] lapping/polishing machine with a PdM-Force-20 specimen mover.
- Lapping tools comprising cast iron disc and lapping powder[*)].
- Thin Section Holders[*)] with boron carbide sticks and Thin Section Holders for Polishing[*)].
- CitoVac[*)] vacuum impregnation apparatus.
- Drybox-2[*)] specimen drier.
- Glass slides[*)].

[*)] To be purchased separately - Please refer to the *Mineralogical Specimen Preparation brochure* for details of the range available.

The TS-Method Steps



① Sampling on Discoplan-TS[*)].

② Cutting of specimens 8x20x30mm on Discoplan-TS.

③ Automatic lapping of one side of specimen on RotoPol-35 with PdM-Force-20.

④ Glass slide.

⑤ Grinding of glass slide in Discoplan-TS to a known thickness x, (e.g. x = 1.164mm).

⑥ Mounting lapped side of specimen onto the ground glass slide in Struers vacuum impregnation apparatus CitoVac.

⑦ Cutting off surplus material of specimen on Discoplan-TS (e.g. t' = 0.5 -1mm).

⑧ Grinding of thin section in Discoplan-TS to the thickness t" including glue (e.g. t" = 0.080mm).

⑨ Automatic lapping of thin section on RotoPol-35 with PdM-Force-20 and Thin Section Holder with boron carbide sticks. Lapping to thickness t"' including glue (e.g. 1.204 = x + t"' + z, where z is 10µm, which is the amount removed by the abrasive particles below the level of the boron carbide sticks with 1000 grit, z is normally approx. t"' = 1.204 -1.164 - 0.010 = 0.030mm = 30µm).

⑩ Automatic polishing of thin section in thin section holder on RotoPol-35 with PdM-Force-20 or mounting of cover glass [**)]. During polishing approx. 10µm are removed (e.g. t"" = t"' = 20µm).

The finished specimen ⑪ is now 20µm, provided the stated figures are used (the 5µm Epofix glue layer is determined experimentally).

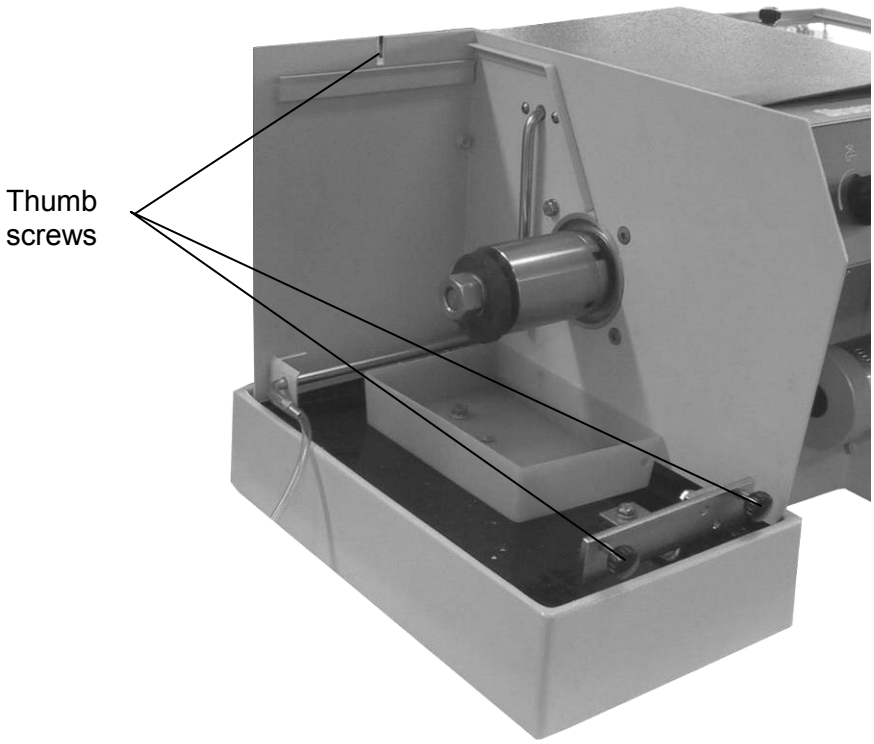
*) Vacuum impregnation in Struers CitoVac may be necessary. Use Struers Epofix for mounting.

**) Polishing may be omitted and the specimen covered with a cover glass instead. The required end thickness t"' (specimen + cement) in point 9 must then be approx. 30µm.

Mounting the Wheels

Mounting the Diamond Cut-off Wheel

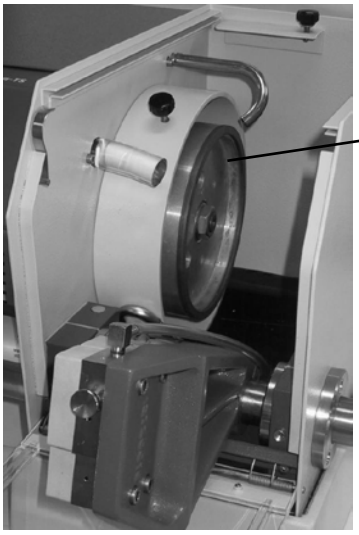
- Loosen the thumb screws and remove the cutting table.



- Remove nut, washer and flange and mount the cut-off wheel, flange and washer.
- Tighten the nut with the spanners supplied with Discoplan-TS and mount the cutting table.

Mounting the Diamond Cup Wheel

- Tilt the 3 vacuum chucks outward with the handle and dismount the splash guard.
- Remove the screws and washers from the flange with the 5mm Allen key supplied with Discoplan-TS.



- Introduce the screws through the holes in the diamond grinding wheel, and put 3 polyethylene washers round the screws from the rear side. (The washers must be of equal thickness which is ensured by measuring and sorting out the washers.)
- Place the diamond cup wheel on the flange and tighten it.
- Clamp the holder for the dial gauge on the protection guard.
- Place the dial gauge in the holder (the placing of the dial gauge can be modified vertically).
- Adjust the diamond cup wheel by tightening the screws and by compressing the 3 polyethylene washers. This has to be done gradually.

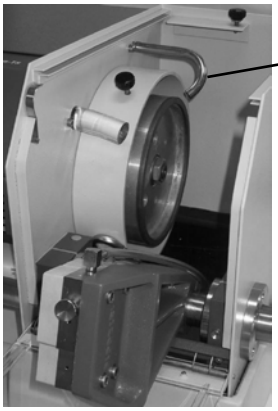
IMPORTANT
The adjustment should be carried out meticulously and within 1/100mm.
Struers recommends that you check the adjustment regularly.
When the diamond cup wheel has been adjusted, the vacuum chucks should be plane ground.

Starting Discoplan-TS

- Turn the MOTOR knob to ON. The motor driving both the cutting and grinding module starts.
- Turn both cooling water knobs on and let Discoplan-TS run for about half an hour. This ensures that all parts of the machine have obtained thermal equilibrium.

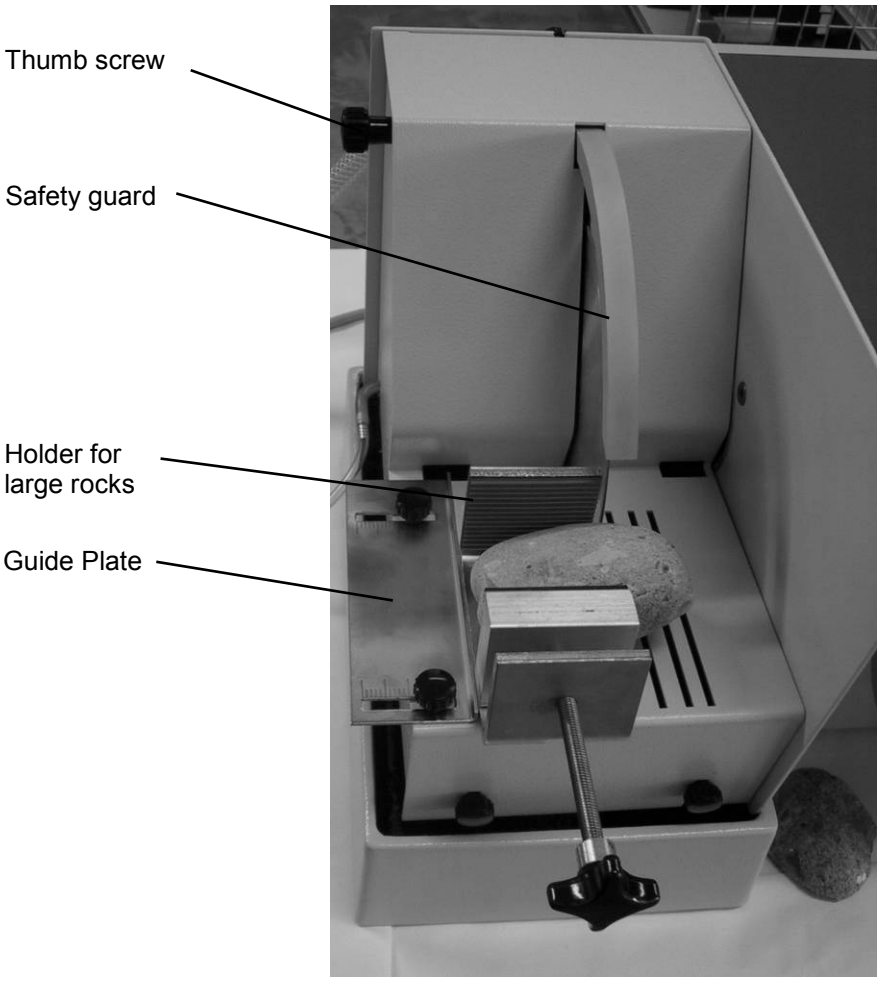
Cooling Water

- Adjust the position of the left (cutting module) and right (grinding module) cooling water tubes manually to fit the size and position of the specimen.
- Adjust the water pressure on the cooling knobs to the left (cutting module) and the right (the grinding module). Make sure that the water tap points to the diamond cup-wheel.



Cutting a Specimen

- Loosen the guide bar thumb screws and make room for the specimen. Place the specimen pointing at the diamond cut-off wheel. Adjust the position of the specimen by moving the guide bar and the holder.
- Fasten the guide bar and the holder with the thumb screws.
- Cut the specimen by manually pressing it against the cut-off wheel.
  Always wear safety goggles when working with Discoplan-TS.

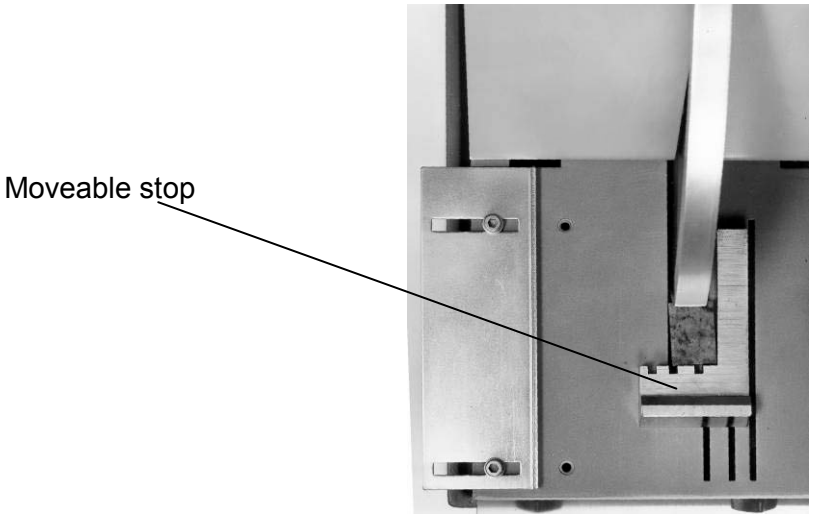


Large Rocks

Large rocks (max. 75x75mm) are either led by hand or in the holder. The holder is guided by the adjustable guide plate.

Standard specimens (8x20x30mm)

After having cut out an adequate specimen of the rock, standard specimens can be cut using the movable stop:



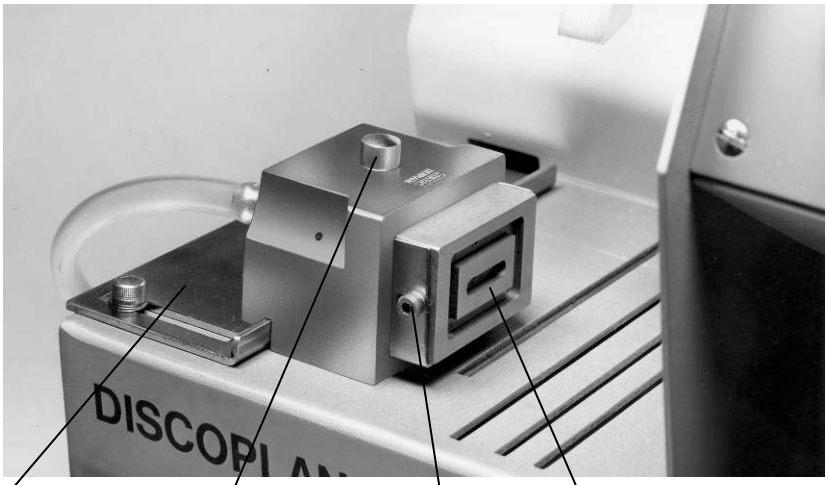
- Hold the specimen against the inner corner of the movable stop.
- Cut the specimen by moving the stop in the feed track. The track to the far right controls the length, the middle track controls the width and the left track controls the depth of the specimen.
- The specimens are now ready for lapping (see the TS-Method description).

Grinding the Glass Slides

- Make sure that the vacuum chuck surface is plane. The vacuum chucks should be dressed regularly at each 20 glass slide grinding session (see Section Maintenance, Dressing of Vacuum chucks).
- Check the planeness of the glass slide with a straight rail. Unplane glass slides should be scrapped.
- Lower the handle to open the splash guard. Mount the glass slides on the vacuum chucks. Raise the handle again to close the splash guard.
- Move the handle lightly (use 2-3 fingers and do not press hard!) while adjusting the micrometer screw in small steps until you can hear the characteristic sound of the glass slides against the diamond cup wheel.
  (The Micrometer screw controls the grinding depth of the diamond cup wheel in the grinding module).
- Grind at a steady and even feed in order to permit the diamond cup wheel to cut the glass slide.
- Do not move the micrometer screw more than ± 0.01mm because of deflections in the machine.
- Grind the slides 10-20 times to ensure complete planeness.
- Adjust the micrometer screw again and grind another 10 times.
- Repeat the adjusting/grinding until the desired glass thickness has been reached.
- After grinding the glass slide to the desired thickness, set the micrometer scale to zero. A glass slide sample has been enclosed with Discoplan-TS for your convenience. The glass slide sample enables you to double-check the correct thickness of your glass slides.
- Remove the glass slides by pressing the vacuum button
- Cement the lapped standard specimen to the ground face of the glass slide (see the TS-Method). Allow the cement to harden, and carry out the resectioning on the cutting module of Discoplan-TS.

Resectioning

- Mount the glass slide with the specimen in the vacuum chuck. Place and adjust the guide-bar.
- Cut the vacuum chuck with the specimen against the rotating diamond cut-off wheel.
- After the cutting process release the glass slide with the specimen by pushing the vacuum button. The specimen is now ready for grinding in the grinding module (See the TS-Method).



Grinding a Thin Section

- As the micrometer scale has been set to zero after the grinding of the glass slide it is possible to read the final thickness of cement + specimen directly on the scale during the grinding of the thin section (normally 80µm).
- Lower the handle to open the splash guard and mount the thin section on the vacuum chucks.
- Turn the micrometer screw 5-10 turns away from the diamond cup wheel. Count the number of turns and write down the total. Raise the handle again to close the splash guard.
- Move the handle lightly (use 2-3 fingers and do not press hard!) while adjusting the micrometer screw in small steps until you can hear the characteristic sound of the thin section against the diamond cup wheel.
- Grind at a steady and even feed in order to permit the diamond cup wheel to cut the specimen.
- As the thickness of the thin section decreases you decrease the micrometer screw steps accordingly until you are close to the final thickness.
- When you get close to the final thickness of the specimen, you should grind the thin section 10-20 times per step to ensure complete planeness. Do not move the micrometer screw more than ± 0.01mm because of deflections in the machine.
- When you have removed the material to the final thickness of the thin section the micrometer screw should be back in the zero position from the grinding of the glass slide plus 80µm.
- Remove the thin section by pressing the vacuum push button.
- Proceed with lapping and polishing on RotoPol-35 according to the TS-Method.

3. Equipment, Accessories and Consumables

Accessories and Consumables for Discoplan-TS

Please refer to the *Mineralogical Specimen Preparation brochure* for details of the range available.

The cutting module takes diamond cut-off wheels in the range of ø150mm to ø230mm, with a thickness from 0.5 - 1.5mm. Struers, however, recommends a diamond cut-off wheel ø200mm x 1mm in order to obtain the required flexibility. Center hole 22mm.

The ø200 x 1 x 22mm is a quality cut-off wheel with the diamond grains bonded in metal along the wheel periphery.

For the grinding module we recommend a metal-bonded diamond cup wheel (max. ø180mm). Struers diamond cup wheel (Cat. No. 40800013), ø150mm, metal bonded, 70µm, specially made for Discoplan-TS, has good free-cutting qualities.

A 35µm bakelite bond diamond cup wheel (Cat. No. 40800014) is also available.

Equipment and Accessories for the TS-Method

Please refer to the *Mineralogical Specimen Preparation brochure* for details of the range available.

4. Maintenance

Daily (8 Hours of Use)

Dressing the Diamond Wheels

Dress the diamond wheels with a dressing stick (aluminium oxide) in order to ensure that the wheels always have the same good cutting properties.

Plane Grinding of the Vacuum Chucks (Grinding Module)

The ceramic vacuum chucks must be dressed after adjustment of the diamond cup wheel or before grinding of plan parallel glass slides.

- Draw a cross on the surface of the vacuum chucks with a pen.
- Carefully grind the vacuum chucks with the diamond cup wheel without stressing the handle, the micrometer shaft or the machine itself.
- Do not remove more than 10-20µm at a time as a maximum.
- After the last turn of the micrometer screw, grind at least 10 times.
- The truing level is correct when the whole cross drawn with the pen has disappeared and a parallelism has been obtained.

Weekly (40 Hours of Use)

- Discoplan-TS and the recirculation cooling unit should be cleaned regularly.
- Discoplan-TS must be kept free from rust and it is important to follow the instructions on the bottle with cooling liquid additive.
- Grease the feed shaft with the grease gun.

Monthly (160 Hours of Use)

The bearings can be readjusted, if needed, with the Allen key supplied with Discoplan-TS, width 5mm. The micrometer shaft must not run too tight in the bearings.

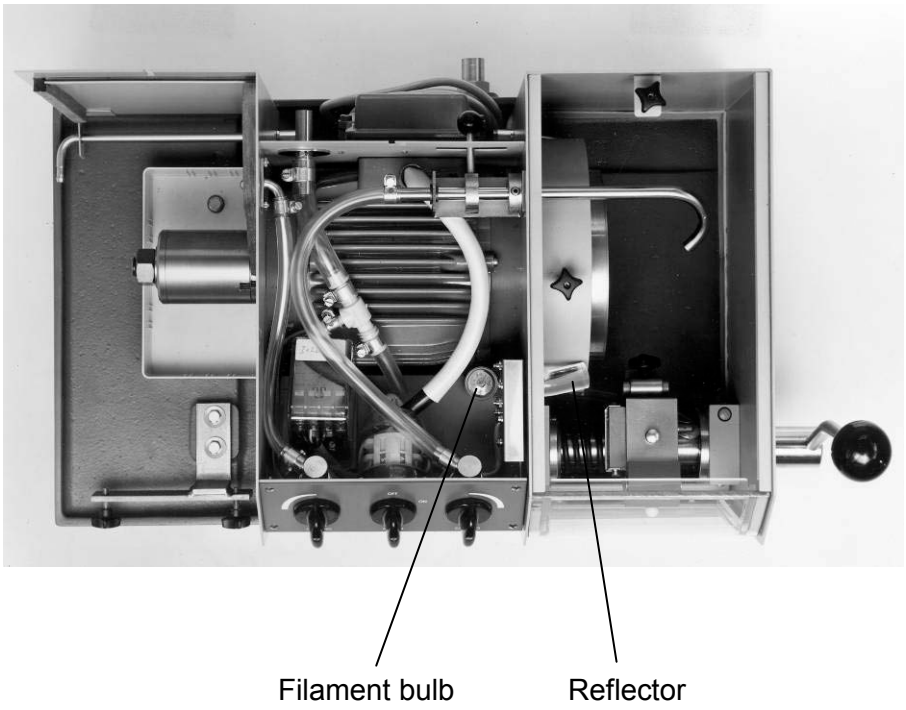
Replacements

Bulb

The bulb (15 W) can be replaced after the cover plate has been removed. This is done by loosening the screw at the rear of the cover and drawing the plate backwards and upwards.

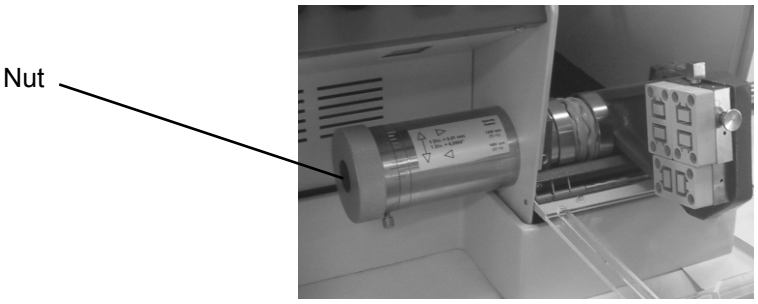
Reflector

The same applies to the reflector (light conductor), which can be adjusted or removed for cleaning after the screwhas been loosened (use the 3mm Allen key supplied with Discoplan-TS).



Micrometer Screw

Adjusting axial play in the micrometer screw is done by tightening the end nut after removing the cover.



5. Technical Data

Discoplan-TS

Subject	Specifications	
Voltage	3 x 200-210V, 50-60Hz 3 x 220-240V, 50-60Hz 3 x 380-415V, 50-60Hz	
Cable Specification	3 x AWG14 + PE	
Recommended Fuse size: 3 x 200-210V, 50-60Hz 3 x 220-240V, 50-60Hz 3 x 380-415V, 50-60Hz	min. 10 A 10 A 6 A	max. 20 A 20 A 20 A
Residual Current Circuit Breaker	type A, 30 mA (or higher) is recommended	
Power	400W / 50 Hz - 460W / 60 Hz (3-phase)	
Rotational Speed	1400 rpm at 50 Hz 1700 rpm at 60 Hz	
Diamond cut-off wheel	ø150mm - ø230mm Thickness: 0.5-1.5mm (0.02"-0.06")	
Diamond cup wheel	Max. ø180mm	
Micrometer Screw	Precision scale including vernier: 1µm	
Vacuum chucks	3 chucks 30 x 50mm	
Weight	65 kg	
Dimensions	Height: 320mm Width: 700mm Depth: 370mm	

Recirculation Cooling Unit

Subject	Specifications	
Voltage	3 x 200-240V 3 x 345-415V 3 x 420-480V	
Cable Specification	3 x1.5mm² + PE	
Recommended Fuse size: 3 x 200-240V 3 x 345-415V 3 x 420-480V	min. 2 A 1 A 1 A	max. 20 A 20 A 20 A
Power	140 Watt	
Dimensions	Height: 410mm Width: 500mm Depth: 400mm	
Tank Volume	35 l	
Weight	7 kg	

PdM-Force-20

Subject	Specifications
Voltage	220/115 V single phase, 50/60 Hz.
Dimensions	Height: 315mm Width: 140mm Depth: 355mm
Weight	12 kg

English

Declaration of Conformity

Manufacturer

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

Herewith declares that

Name:	Discoplan-TS
Cat. No.:	03726546, 03726229, 03726246, 03726235, 03726529, 03726535
Function:	Grinding machine
Type No.:	372

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:
UL508.

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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Denmark

Discoplan-TS

Struers

Spare Parts and Diagrams

Manual No.: 13727001

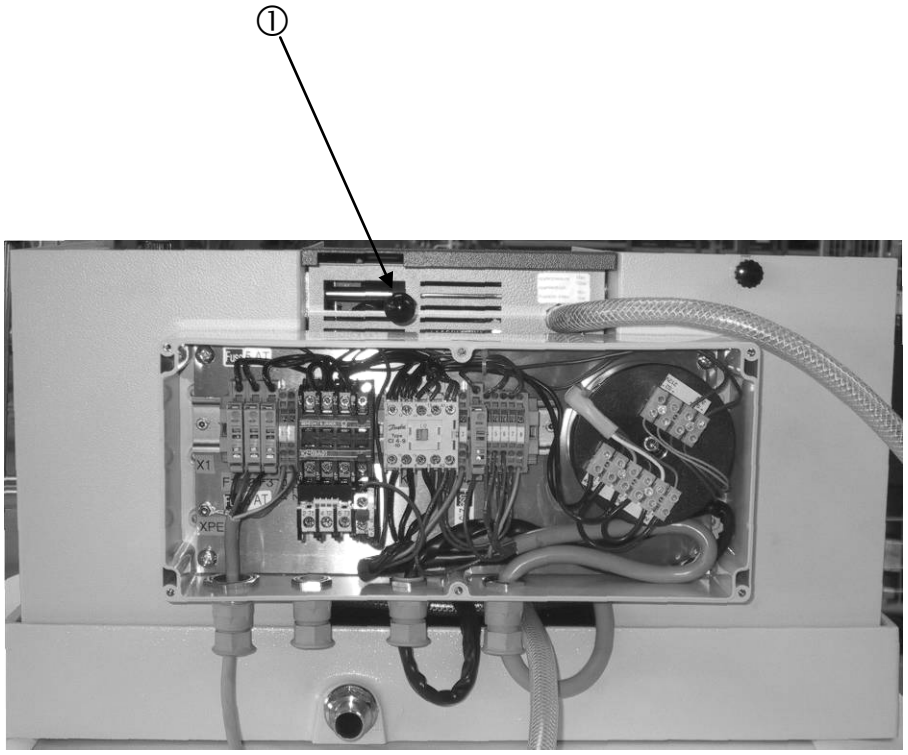
Date of Release 01.06.2010

Table of contents **Drawing**

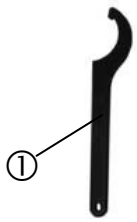
Note
The drawings are not to scale. Some of the drawings may contain position numbers not used in connection with this manual.

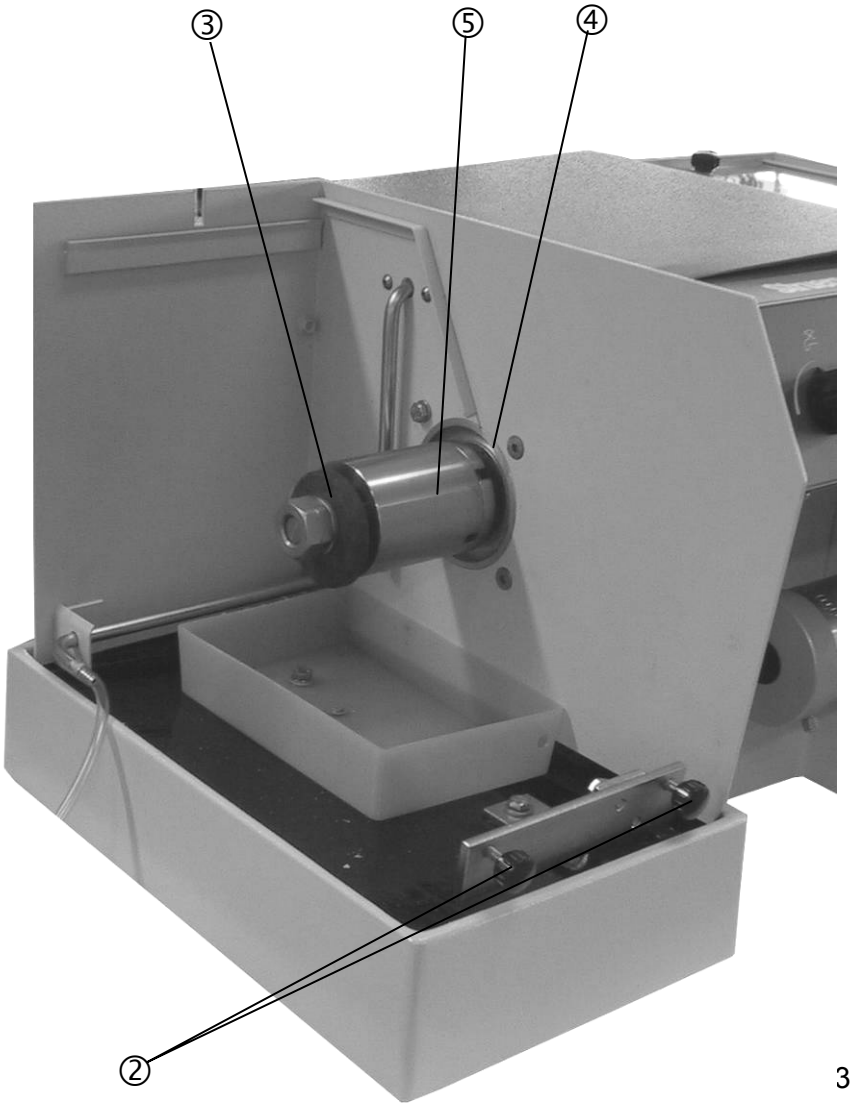
Drawing	Pos.	Description	Cat no.
Front Panel		Arm, complete with valves and ceramic plates	372MP001
		Front splash guard	372MP035
		Set of vacuum hoses (external)	372MP087

Drawing	Pos.	Description	Cat no.
Back; Fig. 1	1	Adjusting screw complete	372MP020



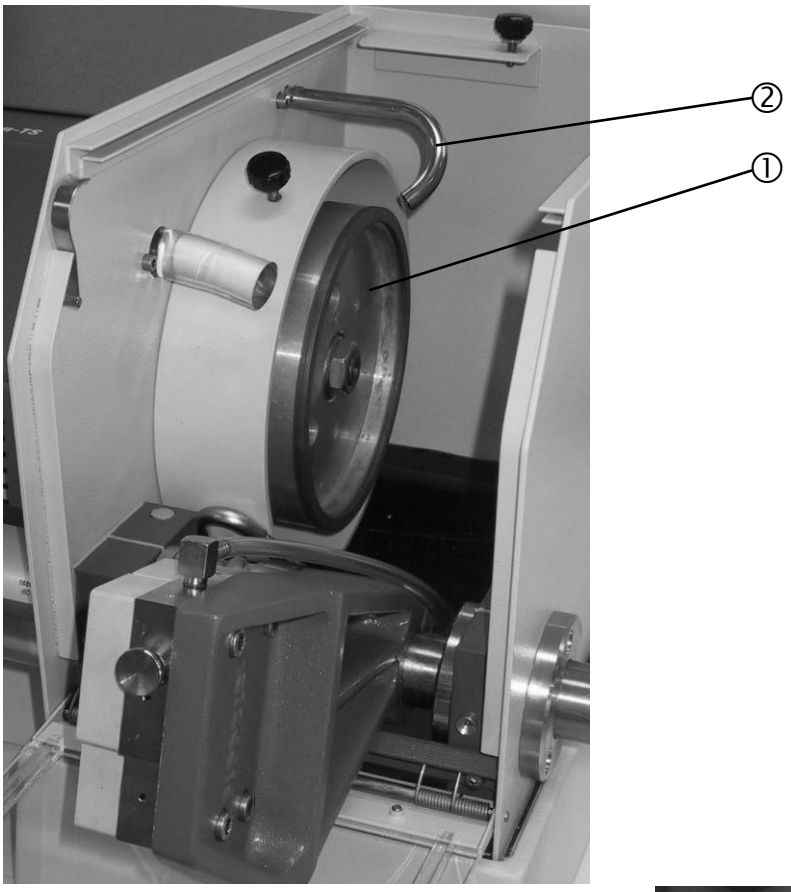
Drawing	Pos.	Description	Cat no.
Cutting Module; Fig. 2	1	Hook-spanner for mounting of diamond cut-off wheel	372MP040
	2	Thumb screw	372MP088
		Cutting table	372MP081
		Spanner for mounting of diamond cut-off wheel	372MP041
	3	Outside flange	372MP037
		Nut and disk	372MP038
	4	Inside flange	372MP039
		Motor (state voltage and cycles)	372MP003
		Ring for oil seal, 2 pcs. (placed in each end of the motor spindle)	372MP093
	5	Axle	372MP036

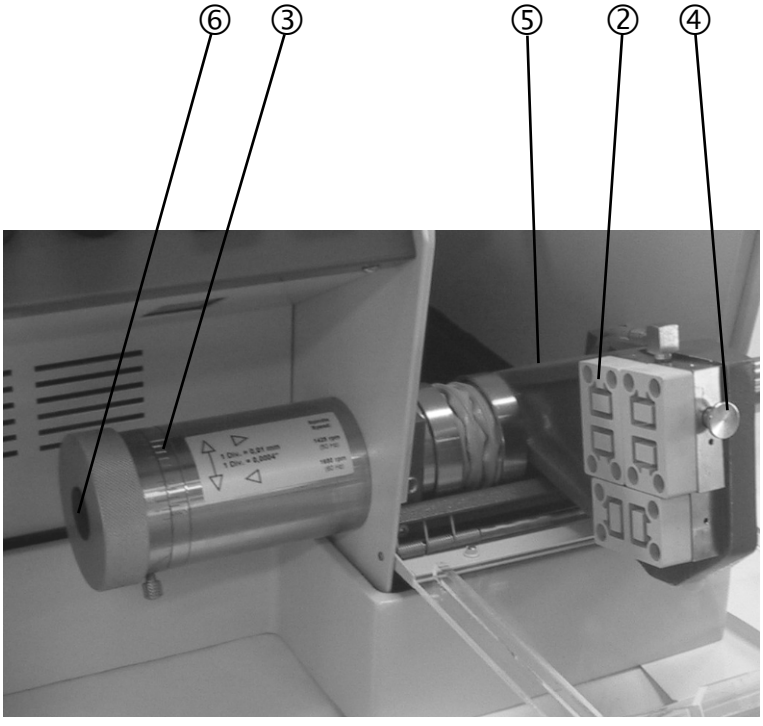




Drawing	Pos.	Description	Cat no.
Grinding Module; Fig. 3		Screws for diamond cup wheel	372MP091
		Polyethylene washers (6 pcs.)	372MP092
	1	Mounting flange for wheel	372MP022

Grinding Module; Fig. 3



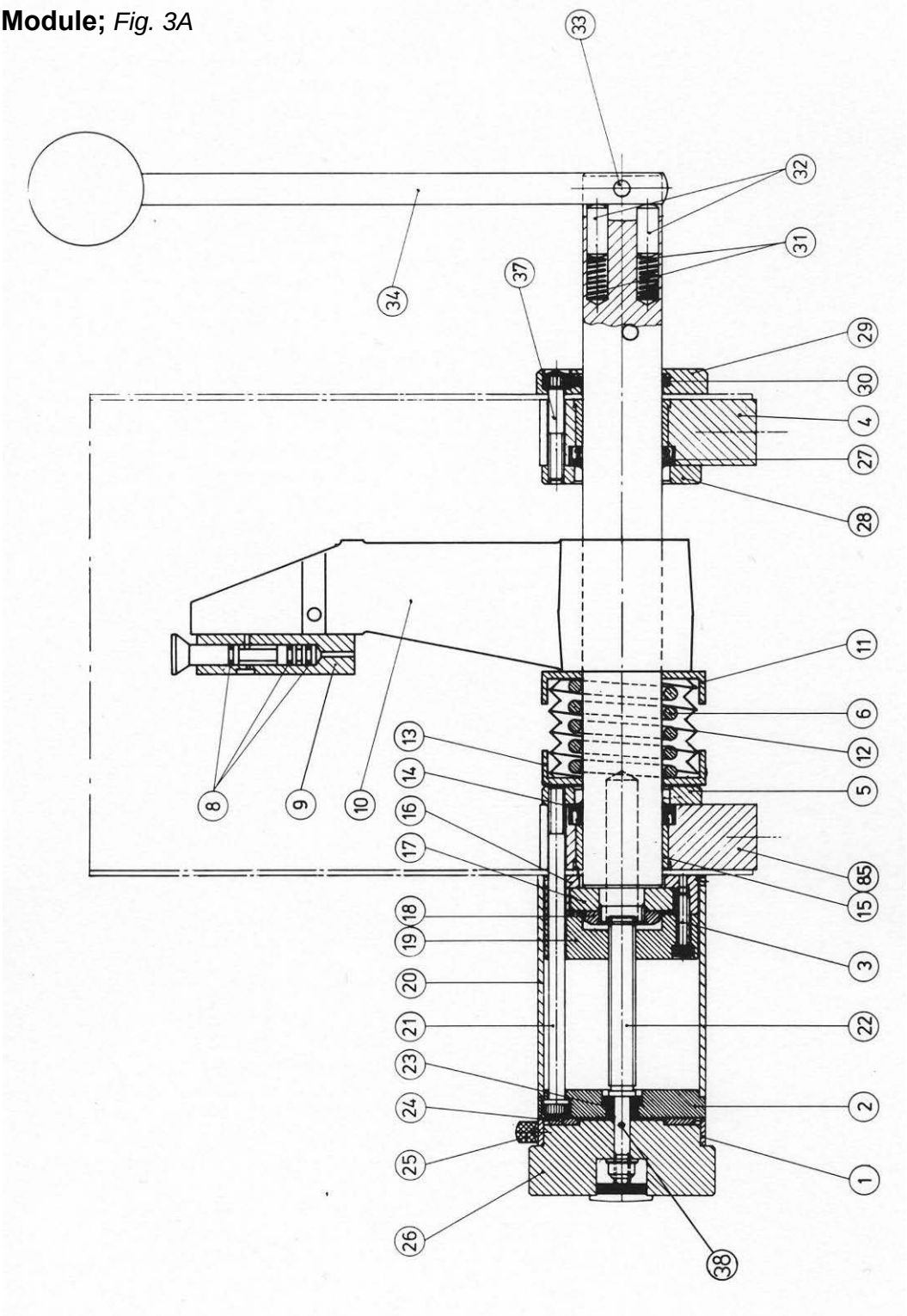


Grinding Module

Drawing	Pos.	Description	Cat no.
Grinding Module; Fig. 3A	1	Turntable scale	372MP042
	2	Spindle guide	372MP043
	3	Hexagon-headed screw MC4x20	372MP044
	4	Bearing frame, right	372MP045
	85	Bearing frame, left	375MP085
	5	Retaining ring	372MP046
	6	Pressure spring	372MP047
	8	O-ring ø3.3x2.4	372MP049
	9	Value plate	372MP050
	3	Hexagon-headed screw MSF 3x5	
	4	Hexagon-headed screw MC 6x20	
	10	Arm for vacuum holder	372MP051
	2	Hexagon headed screws MC 6x16	
	11	Spring retainer	372MP052
	12	Protecting hose	372MP053
	13	Spring retainer(=372MP052)	372MP054
	14	Sealing ring	372MP055
	15	Bearing	372MP056
	16	Cover for bearing housing	372MP057
	17	Bearing ring	372MP058
	18	Axle nut	372MP059
	19	Bearing housing	372MP060
	20	Spindle tube	372MP061
	21	Hexagon-headed screws (3 pcs.)	372MP062
	22	Spindle with bronze bearing and safety nut	372MP063
	23	Bronze bearing	372MP064
	24	Intermediate disk, bronze	372MP065
	25	Clamping screw	372MP066
	26	Thumb screw	372MP067
	27	Sealing ring (=372MP055)	372MP068
	28	Retaining ring (=372MP046)	372MP069
	29	Stop disk	372MP070
	30	O-ring ø3.53x29.75	372MP071
	31	Spring (2 pcs.)	372MP072
	32	Cylindrical pin ø8x18	372MP073

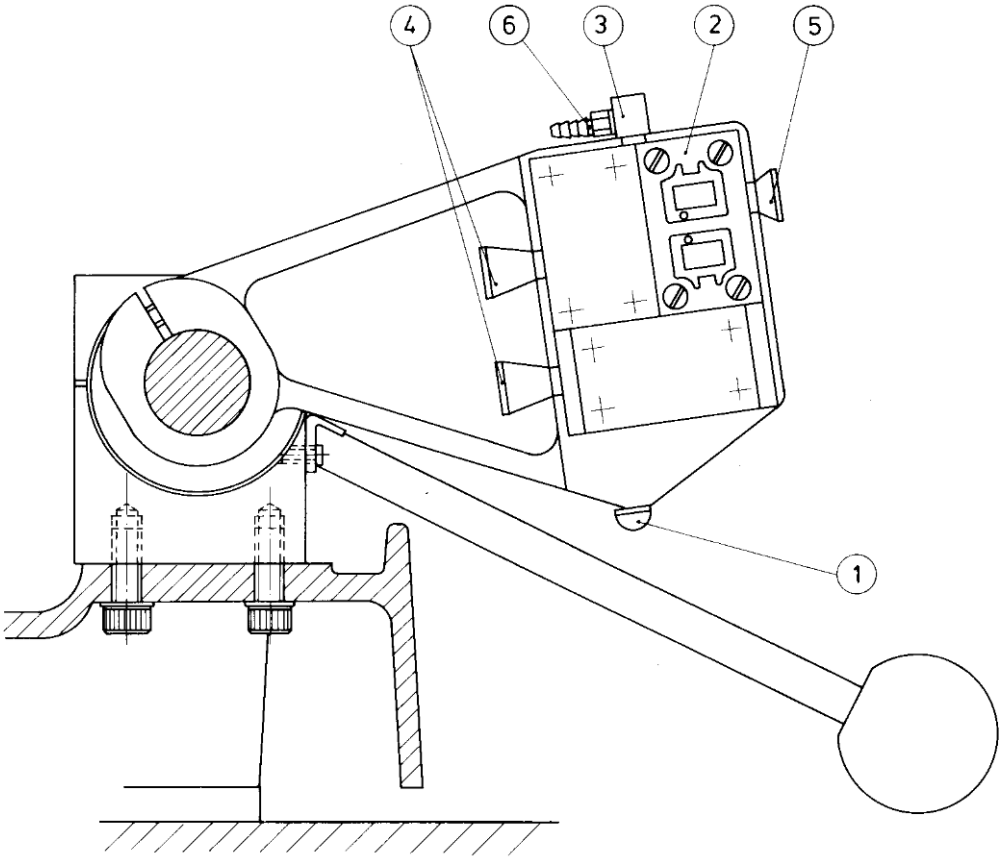
Drawing	Pos.	Description	Cat no.
	33	Cylindrical pin ø6x30	372MP074
	34	Lever arm with handle	372MP075
	37	Hexagon-headed screw (2 pcs.)	372MP076
		Grease gun with grease	372MP090
	38	Cylindrical pin ø2x14	2ZS01214
	39	Axle	13720038

Grinding Module; *Fig. 3A*



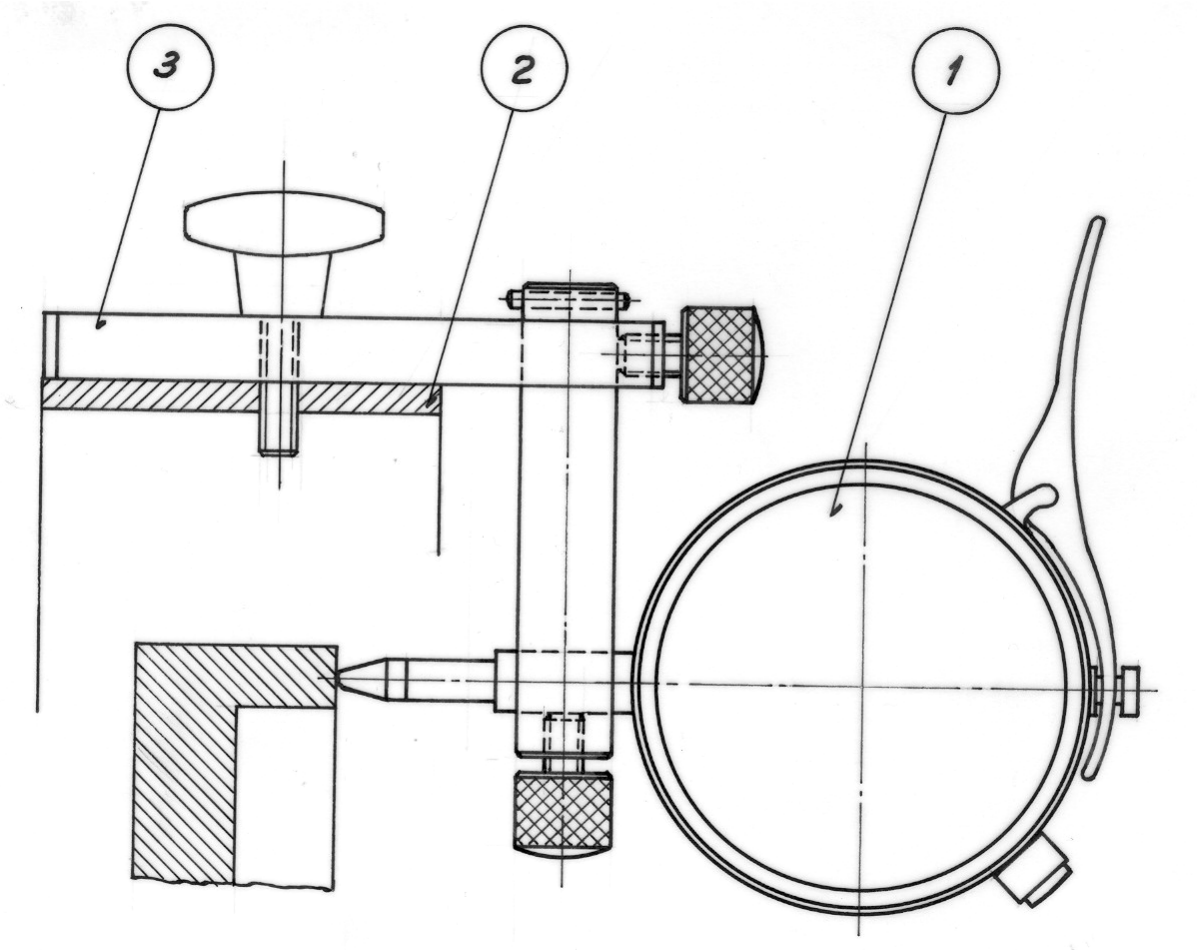
Grinding Module

Drawing	Pos.	Description	Cat no.
Grinding Module; Fig. 3B	1	Foot-lever	12480410
	2	Ceramic vacuum plate with 4 head-screws M4x16, stainless 4 Nylon discs ø7xø4x1	
		High vacuum grease (TISPA)	372MP078
	3	L-Fitting 1500 2-2	372MP079
	4	Valve spindle, long	372MP080
	5	Valve spindle, short	13728011
	6	Hose fitting 11752-1	13728049
		Vacuum holder complete, including arm	372MP001



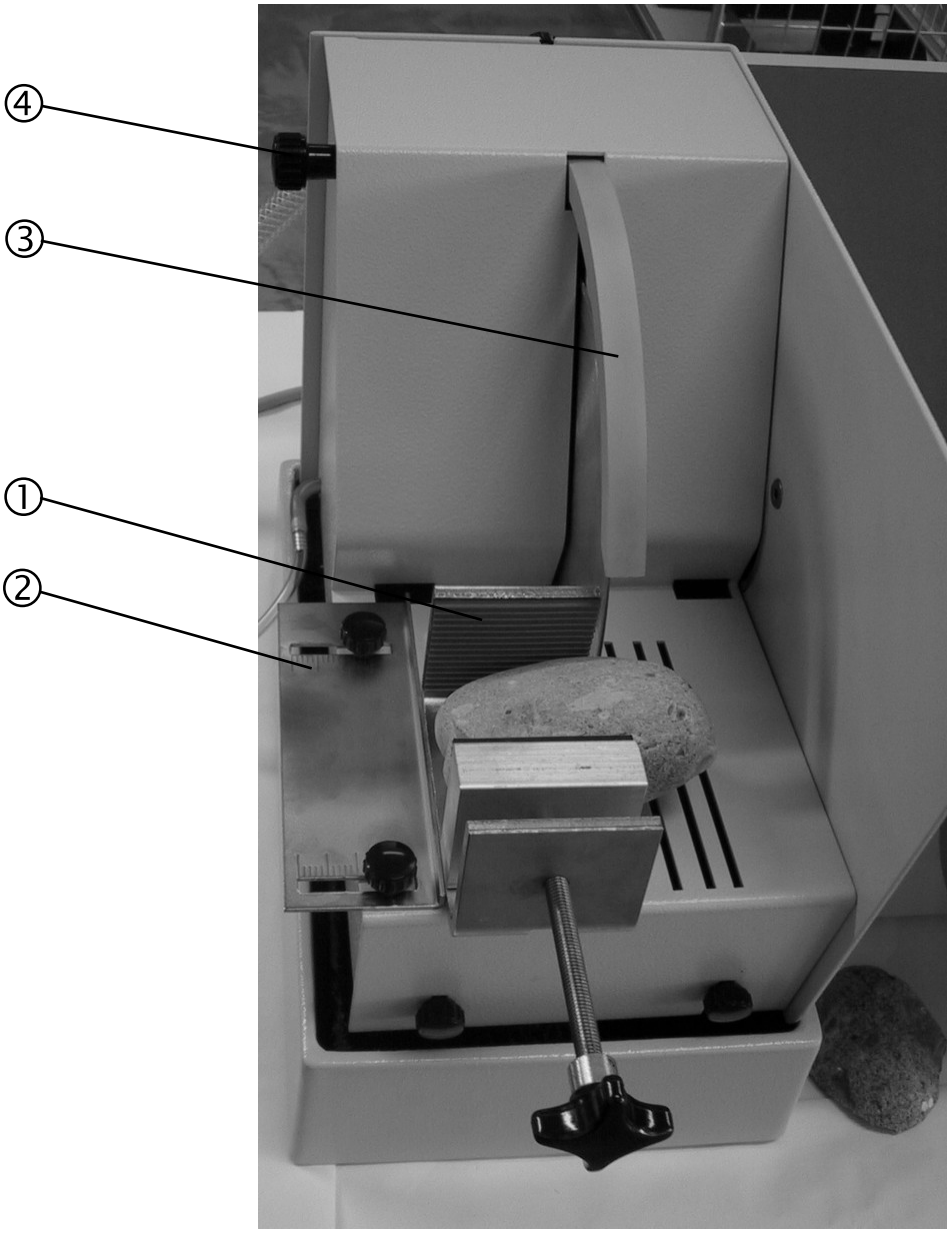
Micrometer Screw

Drawing	Pos.	Description	Cat no.
Micrometer Screw, Fig. 4	1	Dial gauge	398MP007
	3	Dial gauge incl. holder, complete	372MP026



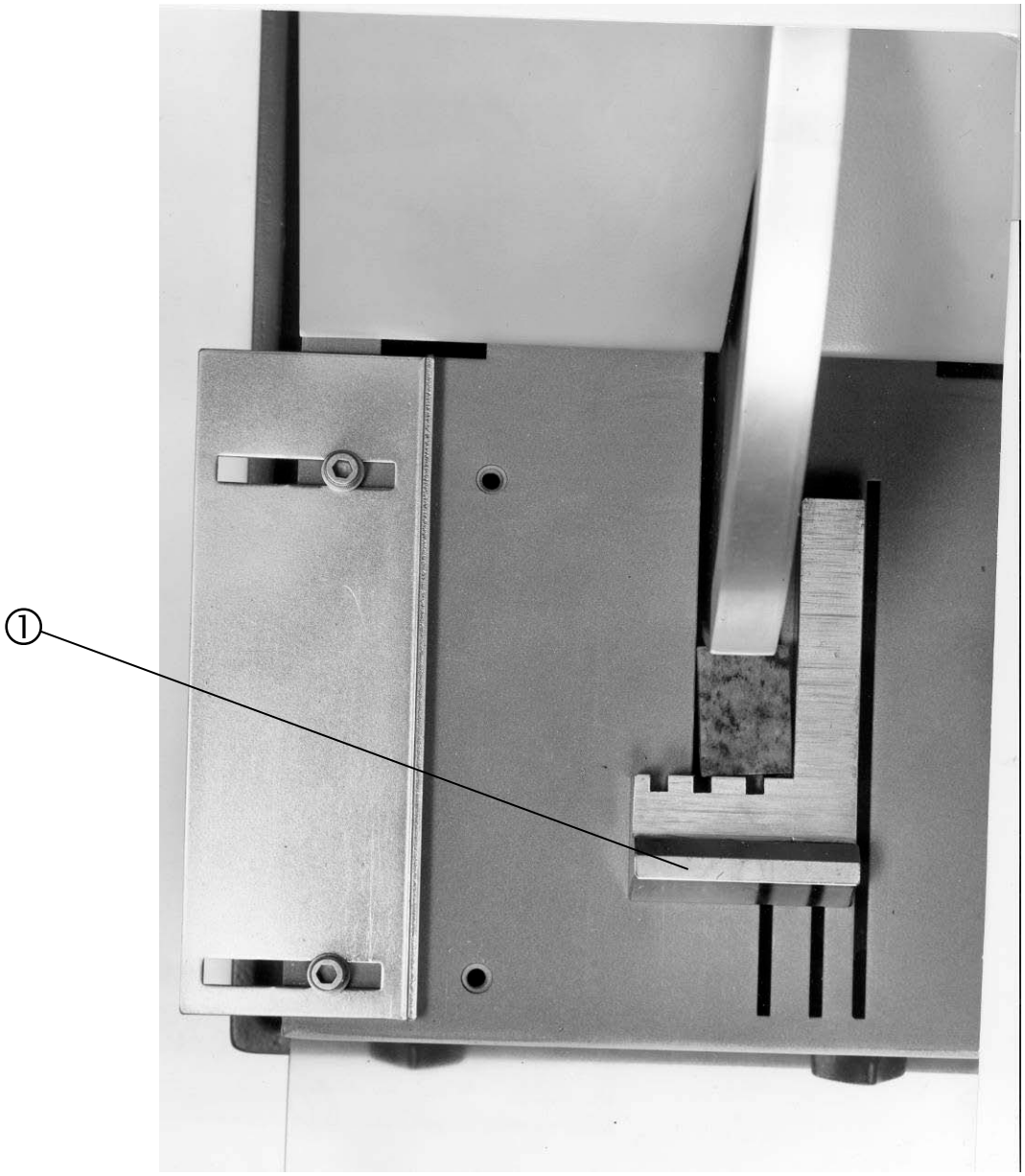
Cutting Module, details

Drawing	Pos.	Description	Cat no.
Cutting Module, Details; Fig. 5	1	Holder for large rocks	372MP033
	2	Guide plate	372MP032
	4	Safety guard, cutting module	372MP029
	3	Thumb screw	372MP028



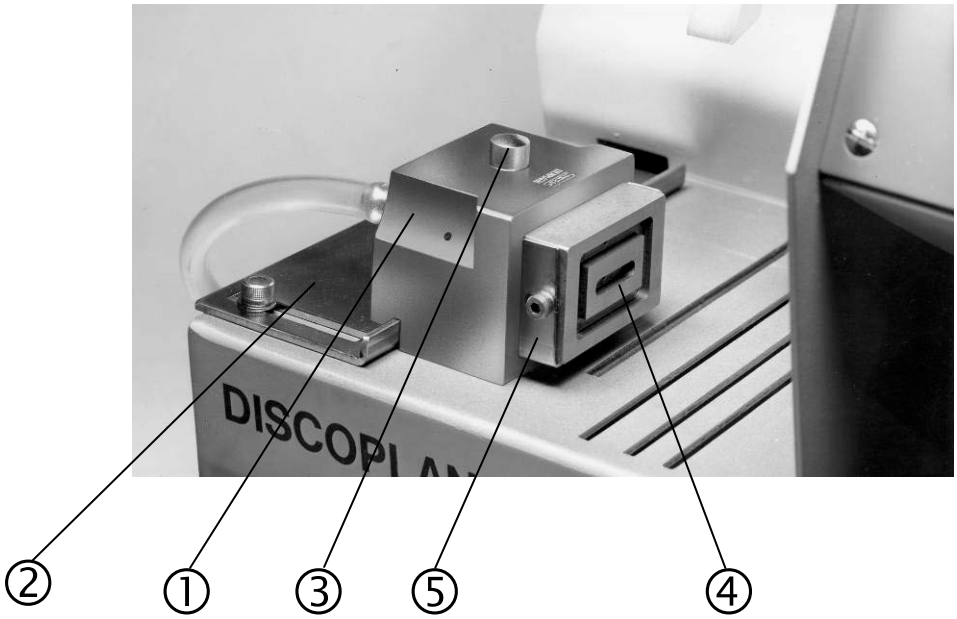
Cutting Module, Holder

Drawing	Pos.	Description	Cat no.
Cutting Module, Holder; Fig. 6	1	Movable stop	372MP034



Vacuum Holder, Left

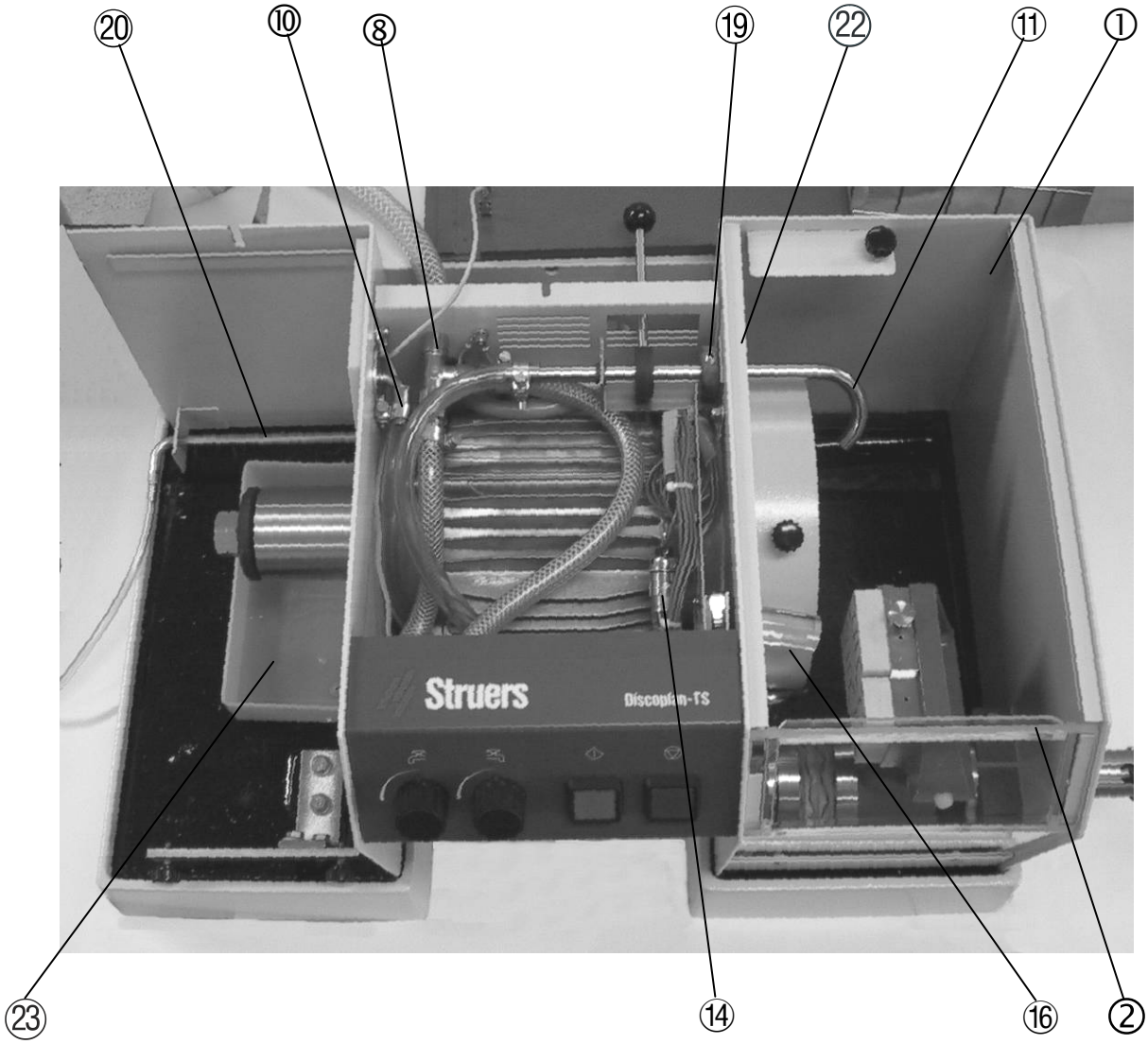
Drawing	Pos.	Description	Cat no.
Vacuum Holder, Left; Fig. 7	1	Vacuum Holder, complete (TISOM)	03726902
	2	Guide plate	372MP032
	3	Vacuum release button (valve spindle)	13728011
		O-rings for valve spindle	372MP049
	4	Vacuum chuck	372MP078
	5	Guard fixture	13140281



Inside view

Drawing	Pos.	Description	Cat no.
Inside view; Fig. 8	1	Splash guard, top	372MP024
	2	Splash guard, outer	372MP086
		Contactor, state voltage and cycles	372MP004
		Thermal switch, state voltage and cycles	372MP089
		Switch	372MP005
		Water cock, Cutting Module	372MP006
		Water cock, Grinding Module	372MP006
	8	Inlet tube, complete	372MP012
		Outlet tube, complete	372MP013
		Inlet hose	372MP014
		Outlet hose	372MP015
		Set of internal hoses	372MP016
	10	Tube for cooling water, left side	372MP027
	11	Water nozzle, right side	372MP019
		Circuit board, complete (state motor voltage and cycles)	372MP010
	14	Filament bulb	372MP009
	16	Reflector (light conductor)	372MP011
		Arm for microswitch	372MP018
		Microswitch with arm	372MP008
	19	Adjusting screw, complete	372MP020
	20	Vacuum tube, complete	372MP030
	22	Vacuum tube, complete	372MP021
		Mounting flange for diamond cup wheel, complete	372MP022
		Spring for splash guard	372MP023
	23	Vessel for cooling water	372MP031

Inside view; *Fig. 8*



Various

Description	Cat no.
Vacuum pump TISPU (230V / 50Hz)	03726433
Vacuum pump TISPU (115V / 60Hz)	03726421
Filter for vacuum pump	13722901
Vacuum hose. PVC tube, clear, 3/16” (10 M)	RNU19306

Recirculation Cooling Unit

See accompanying Manual accompanying the Recirculation Cooling Unit (TRECI)

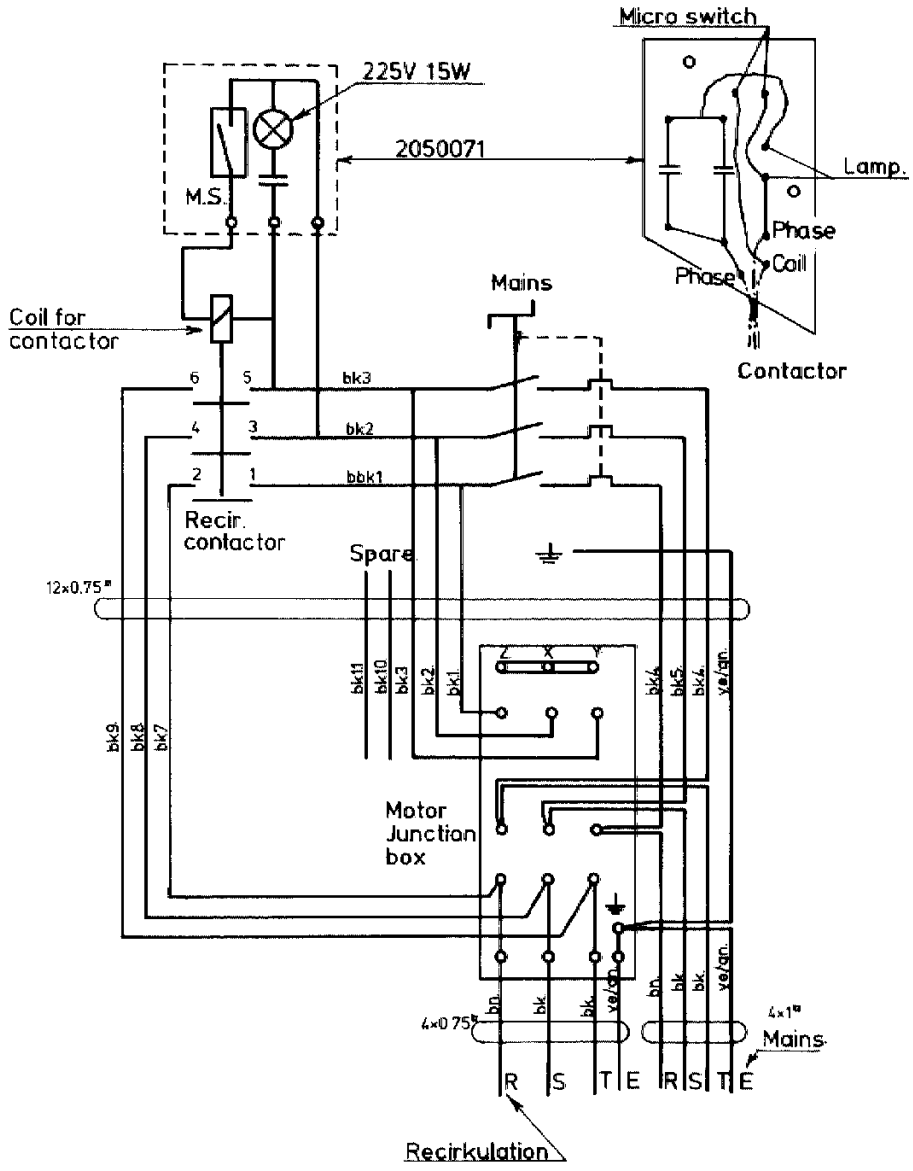
Diagrams

Table of Contents **Drawing**

Diagram 13720095

Electrical diagram, 3-phase

Mains Voltage		Current adjust	Capacitors for lamp	Coil for conductor K6-A40 Type	Voltage	
220	50	3.5	Direct connection	K6/4	220-240/50	240/60
220	60	3.5	Direct connection	K6/41	200-220/50	220-240/60
380	50	2.0	0.62µF/600V	K6/4	380-415/50	415-440/60
415	50	2.0	0.57µF/600V	K6/41	415-440/50	440-480/60
440	50	1.8	0.47µF/600V	K6/41	440-480/50	550-575/60
440	60	2.0	0.47µF/600V	K6/4	380-415/50	415-440/60
480	60	2.0	0.43µF/600V	K6/41	415-440/50	440-480/60
500	50	1.5	0.43µF/600V	K6/41	500-550/50	550-600/60



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