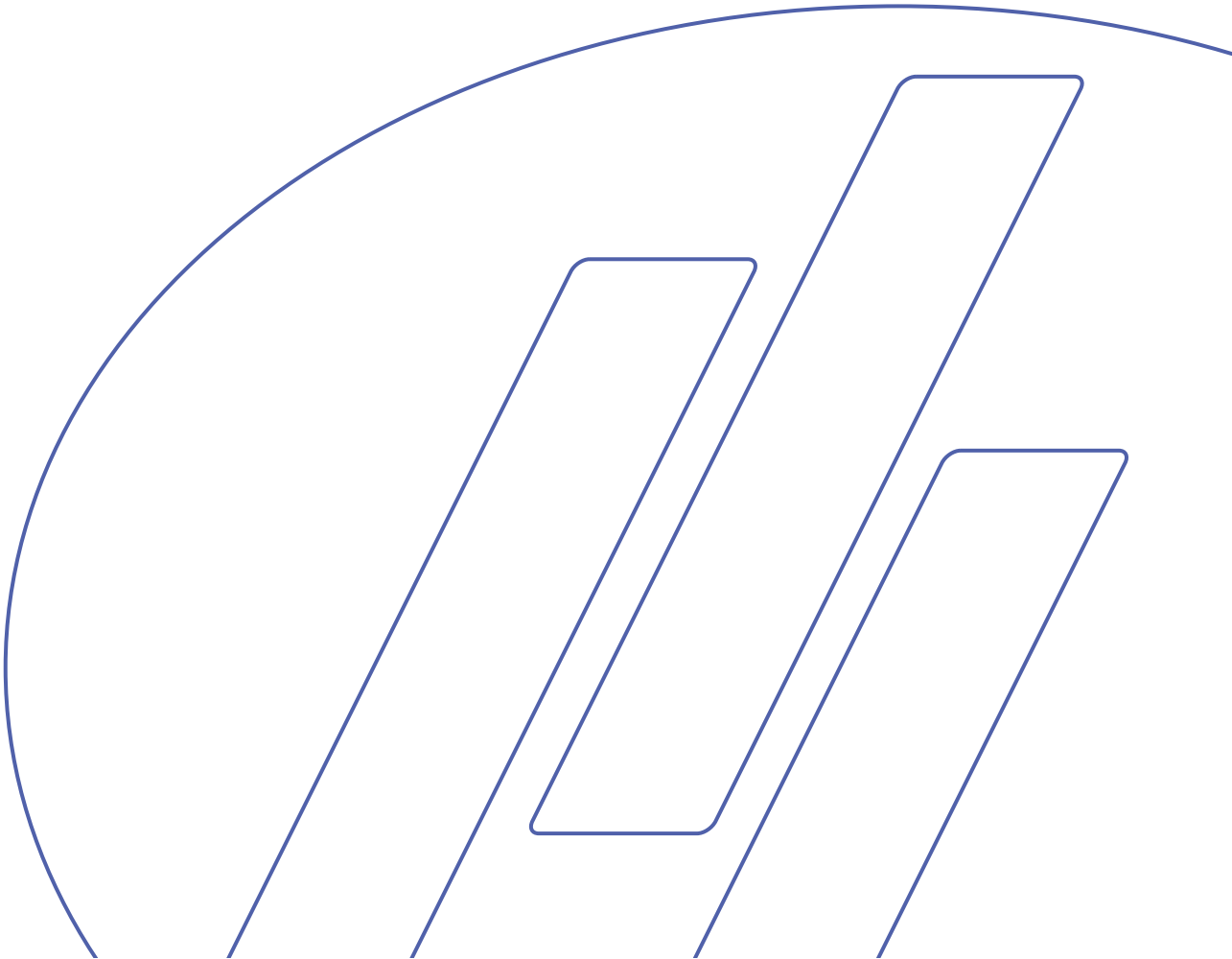
# Uniforce

## Instruction Manual

Manual No.: 14887001

Date of Release 17.02.2014



*Uniforce*
*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 changes without notice. The manual may mention accessories or parts not included in the present version of the equipment.



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# Uniforce
# Safety Precaution Sheet

## To be read carefully before use

1. The operator should be fully aware of the use of the machine according to the Instruction Manual. The machine must be placed in an adequate working position.

2. Only use original spacing rings. Never use more than one spacing ring at a time. Do not insert specimens that are so high that they cannot easily be placed under the pressure foot (max. 40 mm).

3. Spring housing and pressure foot contain built-in loaded springs and must only be disassembled by persons authorised by Struers.

4. Do not move the handle until the specimen holder disc is placed correctly and the coupling stud goes easily up into the spring housing. Never leave the apparatus with the handle in working position.

5. Keep your hand away from the specimen holder disc when moving the handle towards yourself and down.

6. Do not push the handle with a force higher than normal work pressure (max. 200 N). Hold the handle back while leading it back to original position.

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

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

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

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# User's Guide

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# 1. Installation

**Checking the Contents of Packing**

In the packing box you should find the following parts:

*Basic model*

1 **Uniforce** basic model
1 T-key, 4 mm
1 T-key, 6 mm
1 Spacing ring for 3 mm distance specimen/holder
1 Spacing ring for 6 mm distance specimen/holder

1 **Uniforce for Hexamatic** basic model
1 T-key, 4 mm
1 T-key, 6 mm
1 Spacing ring for 3 mm distance specimen/holder
1 Spacing ring for 6 mm distance specimen/holder

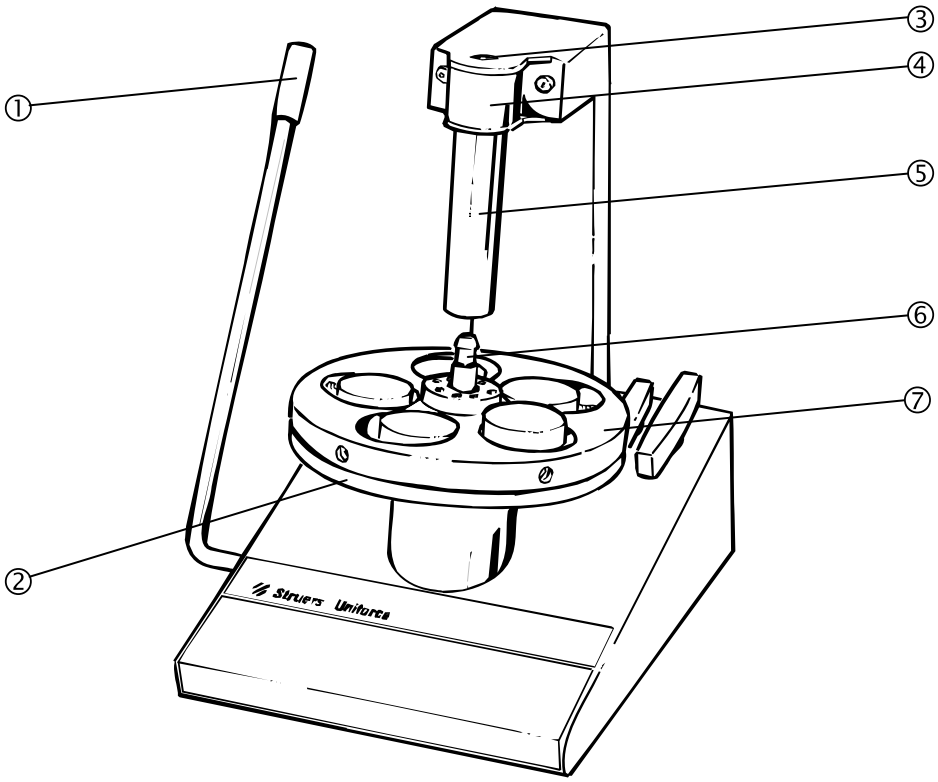
*Advanced model*

1 **Uniforce** basic model
1 T-key, 4 mm
1 T-key, 6 mm
1 Spacing ring for 3 mm distance specimen/holder
1 Spacing ring for 6 mm distance specimen/holder
1 Uniforce pressure foot module
1 Allen key, 5 mm
1 Washer

**Getting Aquainted with Uniforce**

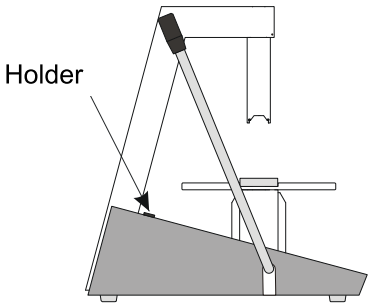
Take a moment to familiarise yourself with the location and names of the Uniforce components.

*Uniforce (Basic Model)*



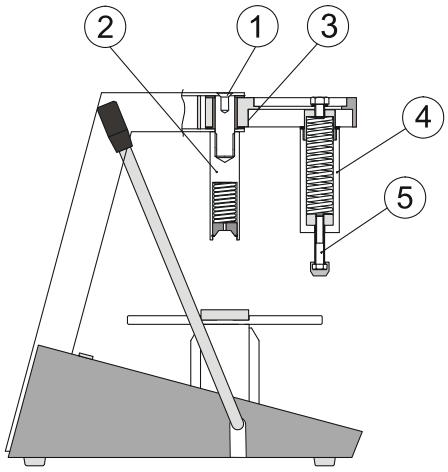

① Handle
② Levelling disc
③ Allen screw
④ Bush
⑤ Thrust pad
⑥ Coupling stud
⑦ Specimen holder disc

**Installation of Uniforce**
(all Models)




- Remove the three screws, securing Uniforce onto the bottom of the crate, using a 13 mm Allen key.
- Place Uniforce on a sturdy table at a comfortable working height and close to the grinding and polishing apparatus.
- Place the T-keys in the holders on the right side in the back of the apparatus.
- Place one of the spacing rings in the hole in the middle of the levelling disc, and the other one on the holder in the left corner of the rear of the apparatus.

**Mounting the Pressure Foot Module**
(Advanced Model)




- Unscrew the Allen screw ① with the 5 mm Allen key. Hold the thrust pad ② back with your hand.
- Dismount the thrust pad ② by pulling it down.
- Remove the bush.
- Place the washer upon the lower plate ③.
- Insert the Pressure Foot module in place of the bush.
  The cylinder ④ and the pressure foot ⑤ must point downwards.
- Lift the thrust pad ② to its upper position.
- Mount the Allen screw again and tighten it, so that the arm for the pressure foot can move with an adequate friction.

# 2. Operation

**Introduction**

Uniforce is a levelling apparatus for materialographic specimens in specimen holder discs, capable of specimen and specimen holder disc distances of 3 or 6 mm.

Uniforce is available in three models:
Basic model: the specimen is manually pressed against the levelling disc, when fixing the specimen.

Advanced model: a spring-loaded pressure foot keeps the specimen in position.

**Spacing Rings**

A distance of 3 mm is normally used between specimen and specimen holder disc, but if a stock removal of more than 2 mm is required, the 6 mm spacing ring is recommended.

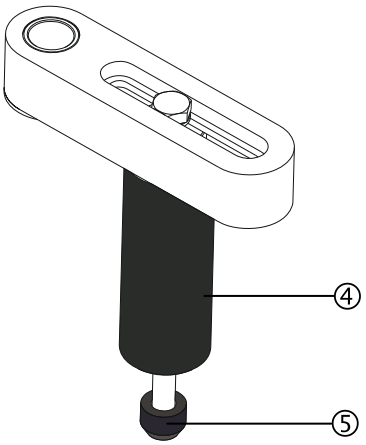
**Securing the Specimens**
*Basic Models*

- Place a spacing ring in the hole in the levelling disc.
  *Do not use more than 1 spacing ring at a time!*
- Place the specimen holder disc upon the spacing ring, approximately in the centre. Fit the coupling stud into the thrust pad.
- Move the handle towards yourself and then down to secure the specimen holder disc.

| ***IMPORTANT*** |
| --- |
| Never leave the apparatus with the handle in working position. |

- Press a specimen against the side of the holes in the specimen holder disc.
- Fix the specimen in place with the T-keys.
  Always choose a length of screw which will leave a minimum part of the screw projecting from the disc and which uses the whole length of the thread thorough the specimen holder.
  After clamping, make sure that the fixation of the specimens is absolutely firm.
- Move the handle carefully backwards to release the pressure.
- Turn the levelling disc and repeat for the next specimen.
- When all specimens are levelled and fixed, remove the specimen holder disc:
  - Move the handle carefully backwards.
  - Lift the specimen holder disc free of the spacing ring and remove.

*Advanced model*




- Place a spacing ring in the hole in the levelling disc.
  *Do not use more than 1 spacing ring at a time!*
- Place the specimen holder disc upon the spacing ring, approximately in the centre. Check that the coupling stud fits into the thrust pad.
- Loosen the pressure foot by turning the black cylinder ④ counter-clockwise.
- Slide the cylinder along the arm until the pressure foot ⑤ is positioned in the centre of the specimen to be secured.
- Move the handle towards yourself and then down to secure the specimen holder disc.

| ***IMPORTANT*** |
| --- |
| Never leave the apparatus with the handle in working position. |

- Press a specimen against the side of the holes in the specimen holder disc.
- With the pressure foot over the centre of the specimen, tighten the cylinder to fix the position.
- Tighten the pressure foot against the specimen by turning it clockwise so that the specimen is held firmly against the levelling disc.
- Fix the specimen in place with the T-keys.
  Always choose a length of screw which will leave a minimum part of the screw projecting from the disc and which uses the whole length of the thread thorough the specimen holder.
  After clamping, make sure that the fixation of the specimens is absolutely firm.
- Loosen the pressure foot, then move the handle carefully backwards to release the pressure.
- Turn the levelling disc and repeat for the next specimen.
- When all specimens are levelled and fixed, remove the specimen holder disc:
  - Move the handle carefully backwards.
  - Lift the specimen holder disc free of the spacing ring and remove.

**Removing the Specimens from the Specimen Holder Disc**

- Place the specimen holder disc on the levelling disc.
  - Remove the spacing ring if the specimens are below the surface of the specimen holder disc.
  - Use an appropriate spacing ring if the specimens are higher than the specimen holder disc.
- Turn the specimen holder disc so that the prepared surface faces upwards and lead the coupling stud down into the hole in the middle of the levelling disc.
- Holding the specimen holder disc with one hand, loosen the specimens with the T-keys.
- Carefully lift the specimen holder disc and remove.
- Remove the specimens.

# 3. Maintenance

**Adjustment**

If necessary, adjust the rotation movement of the pressure foot module by tightening or loosening the fixing screw with the 5mm Allen key.

**Lubrication**

The moving parts of Uniforce are lubricated during assembly. Depending on the level of use, the movement may become slightly stiff and require lubrication with eg. Shell Albida EP2 grease.

- Dismount the thrust pad.
- Lift the levelling disc.
- Grease the sides and the bottom of the piston.
- Re-mount the levelling disc.

| ***IMPORTANT*** |
| --- |
| Press the levelling disc straight down when mounting it again. |

*Advanced model*

- Lubricate the thread of the pressure foot as required.

# Reference Guide

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# 1. Trouble-Shooting

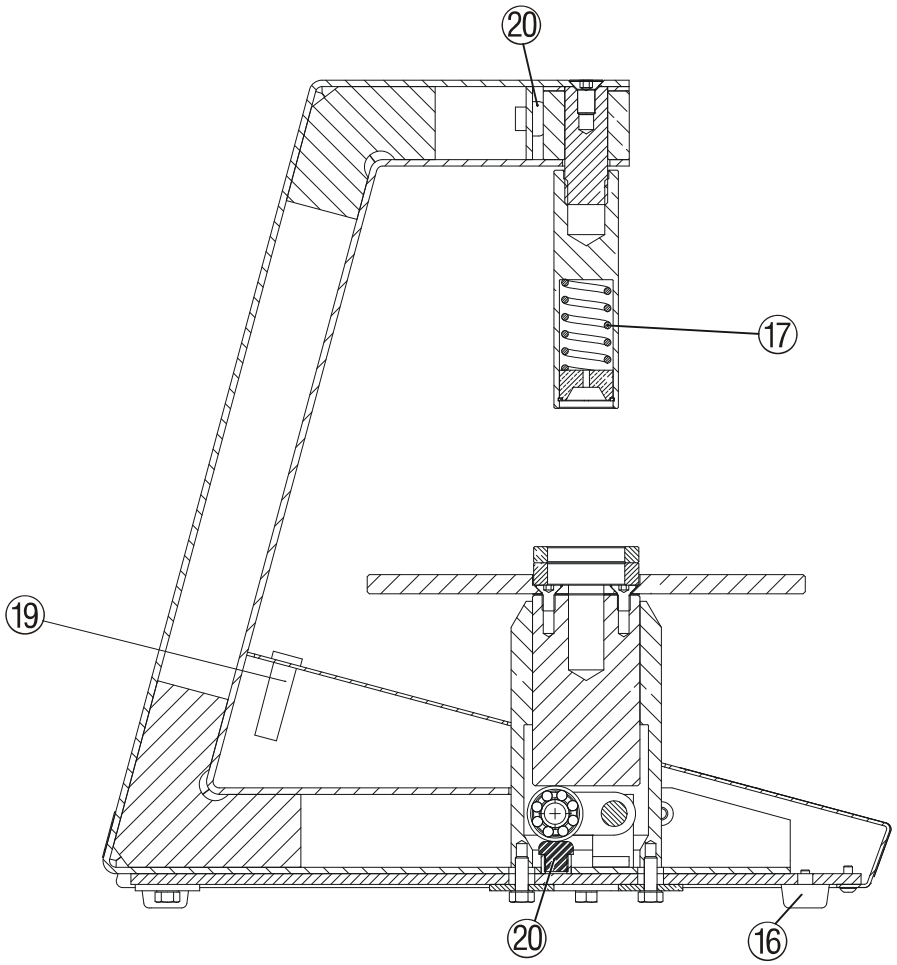
| Error | Cause | Action |
|---|---|---|
| Cylinder blocked | Piston and slide bearing runs too tightly | Dismantle piston and slide bearing for cleaning and greasing |
| Thrust pad blocked | Sample holder cannot be locked | Dismantle thrust pad and check for defect spring etc. Grease all parts |
| Pressure foot blocked | Lock ring cannot lock sample holder | Dismantle pressure foot and check for defect spring etc. Grease all parts |

# 2. Technical Data

| Subject | Specifications |
|---|---|
| Specimen holder disc | All Specimen holder discs for cylindrical and unmounted specimens can be used (with the exception of 02606921 and 02606924) |
| Specimen height | 15-40 mm |
| Force | Pressure on specimen holder disc: 450 N<br>Pressure on specimen: 250-450 N (Advanced model) |
| Dimensions | Height: 390 mm<br>Width: 300 mm<br>Depth: 360 mm |
| Weight | Basic model: 15 kg<br>Advanced model: 16.5 kg |

# 3. Spare Parts

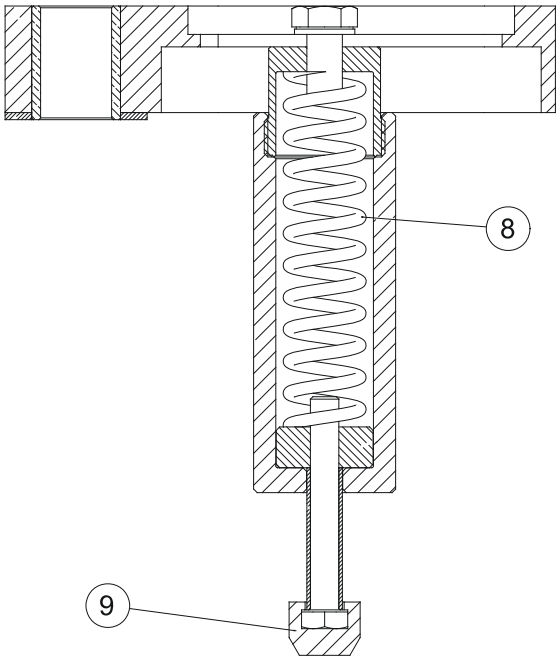
Basic Model




| Pos. | Part | Cat. no |
|---|---|---|
| | Grease Albida EP2, Syringe 10ml | 16080831 |
| | Spacing Ring 3 mm | 14880127 |
| | Spacing Ring 6 mm | 14880128 |
| | Handle, black | 2GH00195 |
| 17 | Thrust Pad Spring | 2GF10230 |
| 19 | Grommet sleeve | 2GK90752 |
| 20 | Buffer 106 A, black | 2GS00106 |
| 16 | Rubber foot, gray | 2GB00010 |

Pressure Foot Module

| Pos. | Part | Cat. no |
|---|---|---|
| 8 | Pressure foot assembly spring | 2GF10270 |
| 9 | Thrust pad cover | 2GR29004 |



*English*

# Declaration of Conformity

**Manufacturer**

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**Herewith declares that**

| | |
|---|---|
| *Name:* | Uniforce |
| *Cat. No.:* | 04886101, 04886102, 05946200 |
| *Function:* | Levelling device |
| *Type No.:* | 488 |

**is in conformity with the:**

**RoHS Directive 2011/65/EU**

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

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

## Authorized to compile the Technical File:

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