

# Uniforce-2

## Instruction Manual

**Original Instructions**



**CE**

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# 1 About this manual



**CAUTION**

Struers equipment must only be used in connection with and as described in the Instruction Manual supplied with the equipment.



**Note**

Read the Instruction Manual carefully before use.



**Note**

If you want to view specific information in detail, see the online version of this manual.

## 2 Safety

### 2.1 Intended use

Uniforce-2 is used for leveling specimens to ensure parallel specimens and balanced specimen holders used in semi-automatic or automatic (grinding/polishing) equipment for materialographic inspection.

The device is intended to be used with Struers specimen holders designed for this purpose.

The device must be operated only by skilled/trained personnel.

The device is intended to be used in a professional working environment (for example, a materialographic laboratory).

**Do not use the device for the following**

Any other specimen holders than stated in the section: [Technical data ▶ 19](#)

The device must not be used for fixation of any type of explosive and/or flammable material, or materials that are not stable during machining, heating or pressure.

**Model**

Uniforce-2

Uniforce-2 with pressure foot

### 2.2 Safety messages

Struers uses the following signs to indicate potential hazards.

**ELECTRICAL HAZARD**

This sign indicates an electrical hazard which, if not avoided, will result in death or serious injury.

**DANGER**

This sign indicates a hazard with a high level of risk which, if not avoided, will result in death or serious injury.

**WARNING**

This sign indicates a hazard with a medium level of risk which, if not avoided, could result in death or serious injury.

**CAUTION**

This sign indicates a hazard with a low level of risk which, if not avoided, could result in minor or moderate injury.

**CRUSHING HAZARD**

This sign indicates a crushing hazard which, if not avoided, could result in minor, moderate or serious injury.

**HEAT HAZARD**

This sign indicates a heat hazard which, if not avoided, can result in minor, moderate or serious injury.

**Emergency stop**

Emergency stop

**General messages****Note**

This sign indicates that there is a risk of damage to property, or a need to proceed with special care.

**Hint**

This sign indicates that additional information and hints are available.

**2.3 Safety messages in this manual****CRUSHING HAZARD**

Take care of your fingers when handling the device.

**CRUSHING HAZARD**

Wear safety shoes when handling heavy machinery.



**CAUTION**

Struers equipment must only be used in connection with and as described in the Instruction Manual supplied with the equipment.



**CAUTION**

Wear suitable gloves to protect fingers from warm/sharp specimens.



**CAUTION**

Protective footwear is recommended when you handle heavy specimen holders.



**CAUTION**

Never leave the device with the handle in working position.



**CAUTION**

If the equipment is subjected to misuse, incorrect installation, alteration, neglect, accident or incorrect repair, Struers will accept no responsibility for damage to the user or the equipment.

## 3 Get started

### 3.1 Device description

Uniforce-2 is a leveling device designed to ensure parallel specimens and a balanced specimen holder when fixating the specimens in a specimen holder for materialographic preparation. The specimen holder is placed on the plate and secured by the centering cylinder. The specimens are placed in the specimen holder holes so it is balanced after fixation of the specimens.

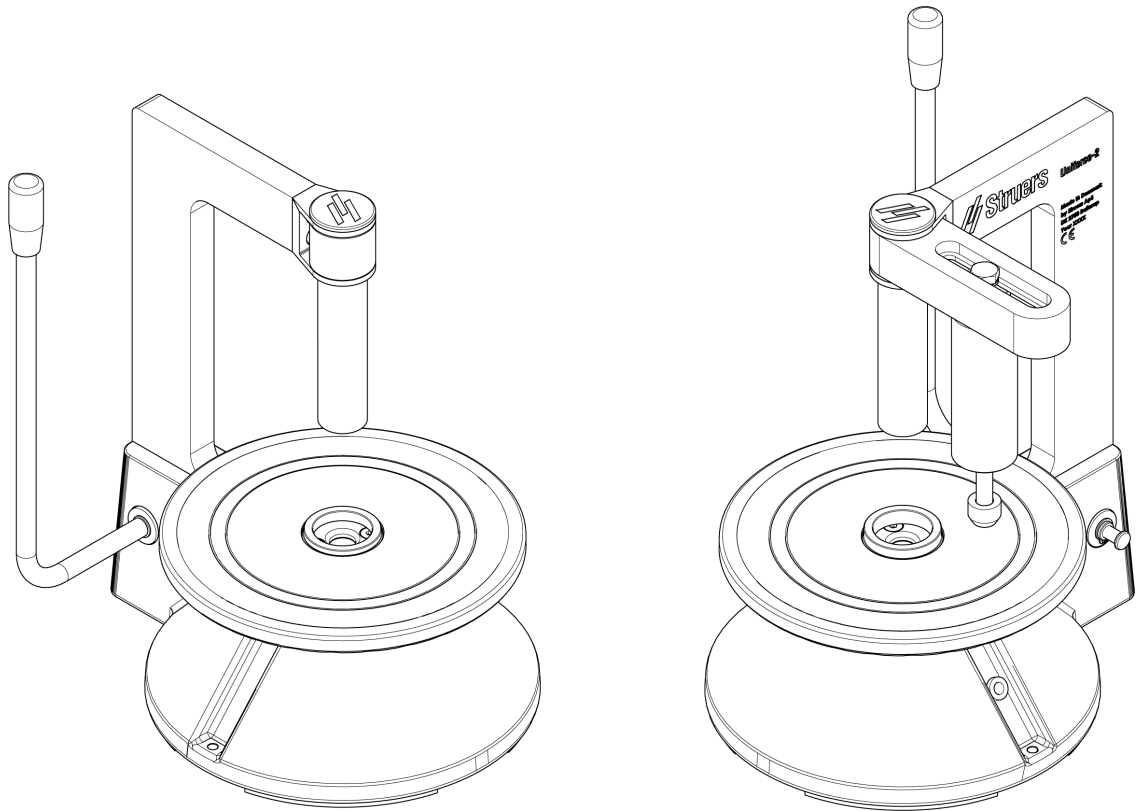
The operator places the spacing ring according to the desired distance between the preparation surface and the specimen holder.

The operator places the specimen holder in the center of the plate with the coupling stud facing upwards and secures it by lowering the centering cylinder using the handle.

The operator places the specimens in the holes of the specimen holder, presses the specimens down either with the fingers or, if installed, using the pressure foot to ensure that they stay parallel to the holder. The specimens are secured with the screws, using an Allen key.

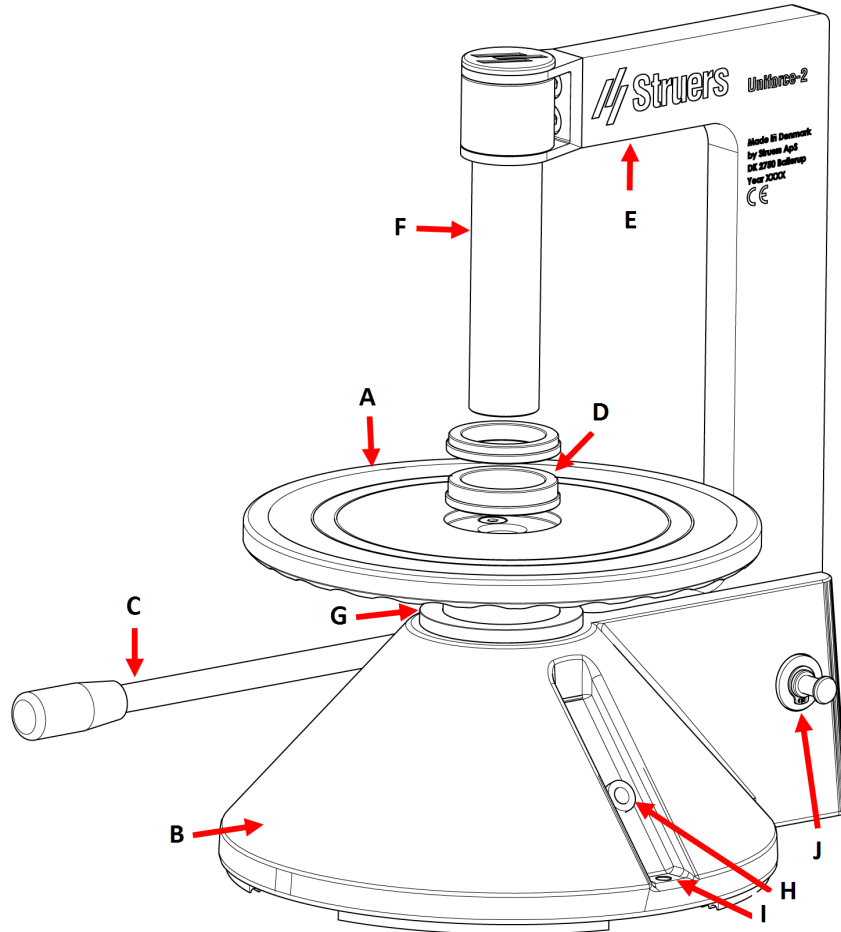
The centering cylinder is lifted, and the specimens in the specimen holder are now ready to be processed in the grinding/polishing equipment.

To remove the specimens after the grinding/polishing process has been completed, the operator places the specimen holder in the center of the plate with the coupling stud in the center hole. The surface of the prepared specimens is facing upwards. The operator loosens the screws with an Allen key, and the specimens can be removed.



## 3.2 Overview

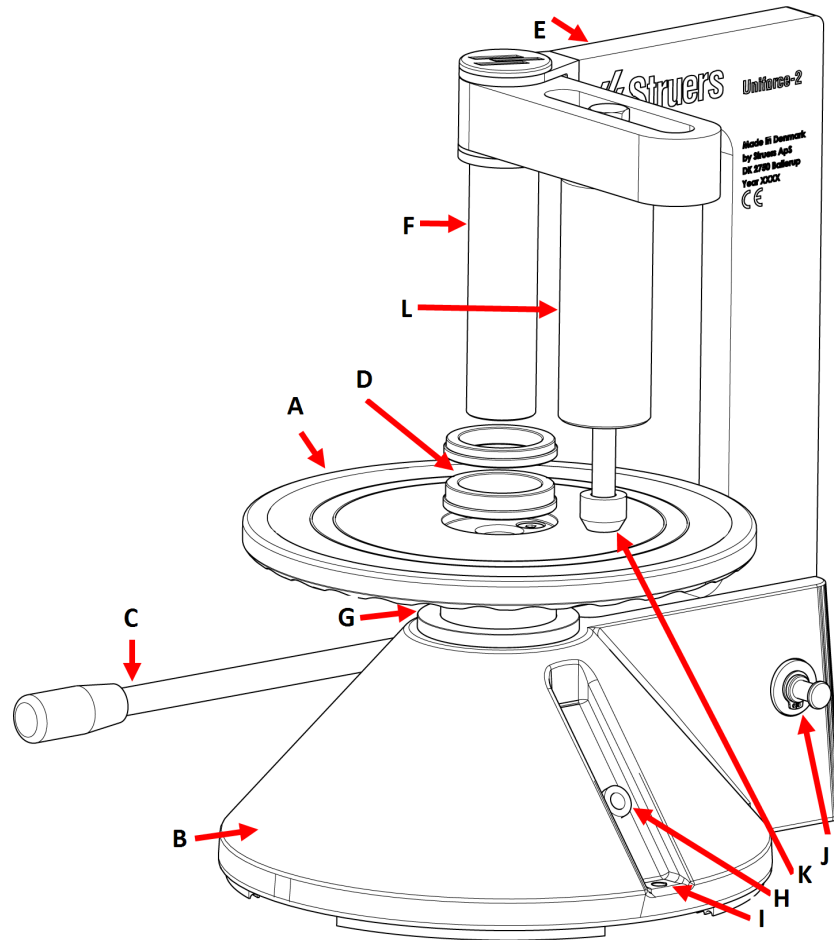
### Isometric view - Uniforce-2



- |                         |  |
|-------------------------|--|
| <b>A</b> Leveling disc  | <b>F</b> Centering cylinder                                |
| <b>B</b> Base           | <b>G</b> Pressure cylinder                                 |
| <b>C</b> Handle         | <b>H</b> Storage for Allen key                             |
| <b>D</b> Spacing rings  | <b>I</b> Holes on both sides for fixation to the workbench |
| <b>E</b> Cylinder frame | <b>J</b> Space for the unused spacing ring                 |



## Isometric view - Uniforce-2 with pressure foot



- |                             |  |
|-----------------------------|--|
| <b>A</b> Leveling disc      | <b>G</b> Pressure cylinder                                 |
| <b>B</b> Base               | <b>H</b> Storage for Allen key                             |
| <b>C</b> Handle             | <b>I</b> Holes on both sides for fixation to the workbench |
| <b>D</b> Spacing rings      | <b>J</b> Space for the unused spacing ring                 |
| <b>E</b> Cylinder frame     | <b>K</b> Pressure foot                                     |
| <b>F</b> Centering cylinder | <b>L</b> Black cylinder                                    |

## 4 Transport and storage

If, at any time after the installation, you have to move the device or place it in storage, there is a number of guidelines we recommend that you follow.

- Package the device securely before transportation. Insufficient packaging could cause damage to the device and will void the warranty. Contact Struers Service.
- We recommend that you use the original packaging and fittings.

## 4.1 Long-term storage or shipping

Before storage or shipping, place the device in its original packaging.

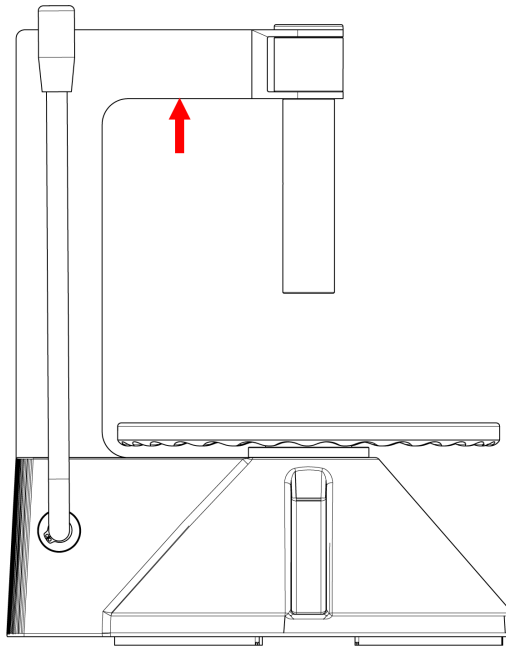
## 4.2 Move the device



### CRUSHING HAZARD

Wear safety shoes when handling heavy machinery.

Lift the device in the cylinder frame.



# 5 Installation

## 5.1 Unpack the device



### CRUSHING HAZARD

Take care of your fingers when handling the device.



### CRUSHING HAZARD

Wear safety shoes when handling heavy machinery.

**CAUTION**

If the equipment is subjected to misuse, incorrect installation, alteration, neglect, accident or incorrect repair, Struers will accept no responsibility for damage to the user or the equipment.

**Note**

We recommend that you keep all original packaging and fittings for future use.

1. Open the box.
2. Remove the loose parts and the manual set.
3. Remove the packaging material in the box on top of Uniforce-2.
4. Remove the device from the box by lifting it in the cylinder frame.

## 5.2 Check the packing list

The packing box contains the following items:

Pcs.	Description - Uniforce-2 and Uniforce-2 with pressure foot
1	Uniforce-2 / Uniforce-2 with pressure foot
1	Spacing ring for 3 mm distance
1	Spacing ring for 6 mm distance
1	Allen key 4 mm
1	Instruction Manual set

## 5.3 Lift the device

**CRUSHING HAZARD**

Take care of your fingers when handling the device.

**CRUSHING HAZARD**

Wear safety shoes when handling heavy machinery.

Weight	
Uniforce-2 without pressure foot	12 kg/26,4 lbs
Uniforce-2 with pressure foot	13 kg/28,6 lbs

## 5.4 Install the device



### CRUSHING HAZARD

Wear safety shoes when handling heavy machinery.

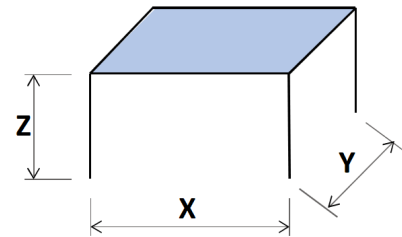


### Hint

Place the device close to the grinding and polishing equipment.

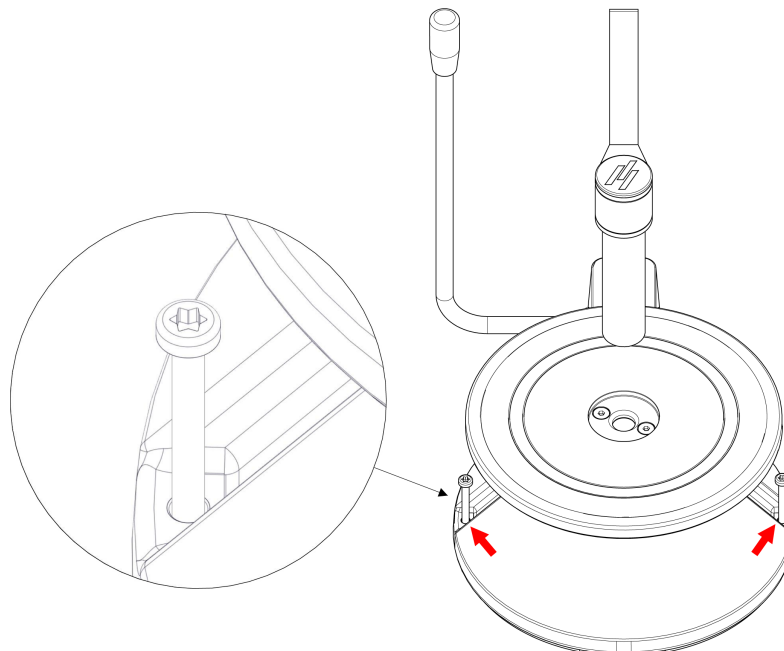
### Minimum workbench dimensions

<b>X:</b>	<b>50 cm (19.7")</b>
<b>Y:</b>	<b>50 cm (33")</b>
<b>Z:</b>	<b>Recommended: 80 cm (31.5")</b>

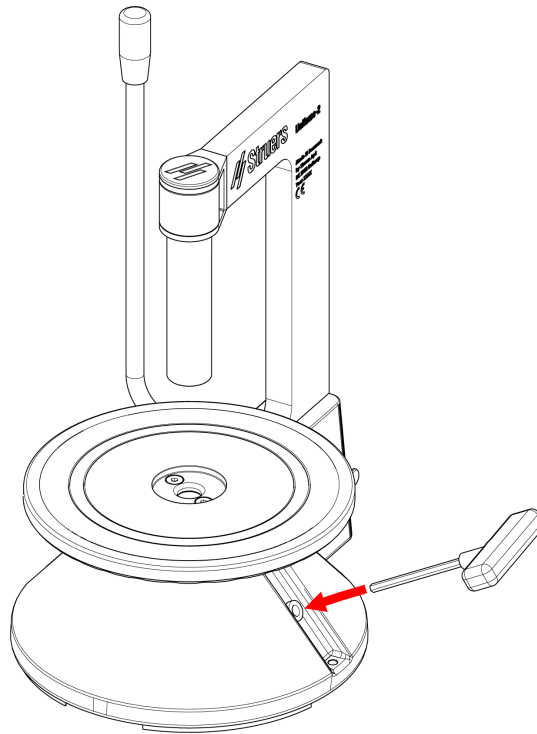


The workbench must be able to carry at least 125 kg/276 lbs.

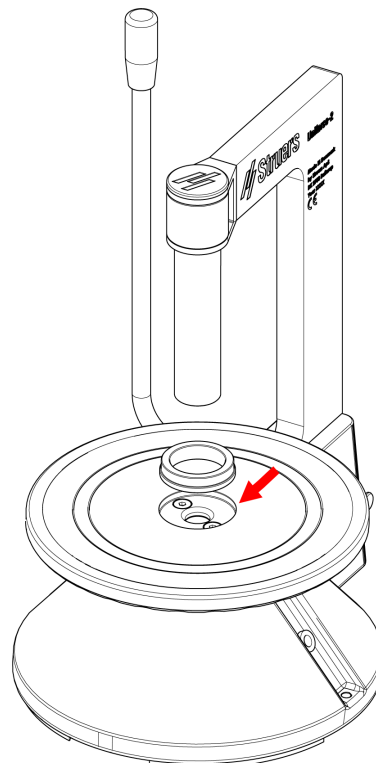
1. Place the device on a stable workbench at a comfortable working height. There must be an appropriate distance to the workbench edge so that the handle does not extend beyond the workbench when activated to a horizontal position.



2. The device is provided with holes, so it is possible to fasten it to the workbench.



3. Place the Allen key in the holder on the right side of the device.



4. Place one of the spacing rings in the hole in the middle of the leveling disc. Place the spacing ring according to the desired distance between the preparation surface and the specimen holder.

## 6 Operate the device



**CAUTION**

Protective footwear is recommended when you handle heavy specimen holders.



**CAUTION**

Wear suitable gloves to protect fingers from warm/sharp specimens.



**CAUTION**

If the equipment is subjected to misuse, incorrect installation, alteration, neglect, accident or incorrect repair, Struers will accept no responsibility for damage to the user or the equipment.

Uniforce-2 is a device for leveling materialographic specimens in a specimen holder with specimen and specimen holder distances of 3 and 6 mm.

It can be used for different specimen holder variants:

- Struers standard specimen holders
- Struers specimen holder with RFID

On the Uniforce-2 with pressure foot, a spring-loaded pressure foot keeps the specimens in position so when tightening the specimen holder screw, the specimens will not move.

### Spacing rings

A distance of 3 mm is usually used between the preparation surface and the specimen holder. Still, if removal of more than 2 mm material is required, the 6 mm spacing ring is recommended.

On some specimen holders, a special spacing ring is used. It must be used the same way as those supplied with the device.

### 6.1 Securing the specimens with Uniforce-2



**CAUTION**

Never leave the device with the handle in working position.



**Note**

Do not use more than one spacing ring at a time!



**Note**

Place the specimens so they are balanced in the specimen holder.

1. Place a spacing ring in the hole in the leveling disc.
2. Place the specimen holder upon the spacing ring, in the center of the leveling disc.

3. Place the specimens in the specimen holder so that the specimen holder is in balance.
4. Move the handle towards yourself, then down to secure the specimen holder. Doing so, the handle will move smoothly.
5. Fix the specimen in place with the Allen key while pressing the specimen against the side of the hole. Always choose a length of the screw that will leave a minimum part of the screw projecting from the specimen holder and uses the entire length of the thread through the specimen holder.
6. Move the handle carefully backwards to release the pressure.
7. Turn the leveling disc and repeat for the next specimen.
8. When all specimens are leveled, fixed, and the specimen holder is balanced, then remove the specimen holder:
  - Move the handle carefully backwards.
  - Lift the specimen holder and remove it.
9. Make sure that all specimens are correctly fixed.

## 6.2 Securing the specimens with Uniforce-2 with pressure foot



### CAUTION

Never leave the device with the handle in working position.



### Note

Do not use more than one spacing ring at a time!



### Note

Place the specimens so they are balanced in the specimen holder.



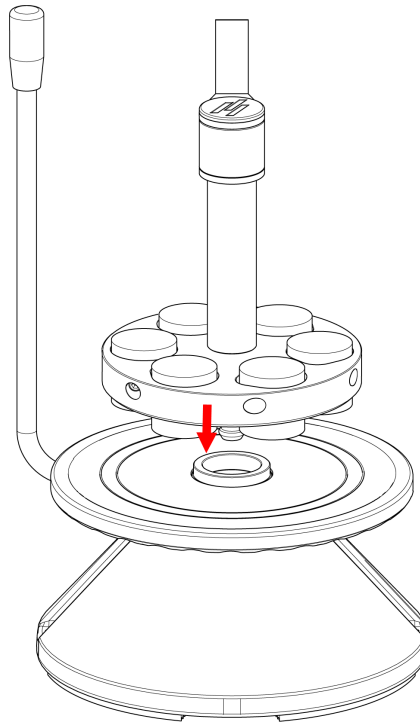
### Note

Do not insert specimens so high that they cannot easily be placed under the pressure foot (max. 40 mm).

1. Place a spacing ring in the hole in the leveling disc.
2. Place the specimen holder upon the spacing ring, in the center of the leveling disc.
3. Place the specimens in the specimen holder so that the specimen holder is in balance.
4. Slide the pressure foot cylinder along the arm (if fixated, turn the black cylinder counterclockwise) until the pressure foot is positioned in the center of the specimen to be fixated, and then tighten the black cylinder.
5. Move the handle towards yourself, then down to secure the specimen holder while pressing the specimen against the side of the holes. Doing so, the handle will move smoothly. (If the pressure foot is not correctly adjusted and thereby does not fixate the specimen correctly, release the force by moving the handle carefully backward, then adjust the pressure foot to

- the specimen height by turning the pressure foot clockwise for more force and counterclockwise for less force.)
6. Fix the specimen in place with the Allen key. Always choose a length of the screw that will leave a minimum part of the screw projecting from the specimen holder and uses the entire length of the thread through the specimen holder.
  7. Move the handle carefully backward to release the pressure.
  8. Turn the leveling disc and repeat for the next specimen.
  9. When all specimens are leveled, fixed, and the specimen holder is balanced, then remove the specimen holder:
    - Move the handle carefully backwards.
    - Lift the specimen holder and remove it.
  10. Make sure that all specimens are correctly fixed.

### 6.3 Removing the specimens from the specimen holder



1. Place the spacing ring on the leveling disc.
  - Remove the spacing ring if the specimens are below the surface of the specimen holder.
  - Use an appropriate spacing ring if the specimens are higher than the specimen holder.
2. Turn the specimen holder so the prepared surface faces upwards, and lead the coupling stud down into the hole in the middle of the leveling disc.
3. Hold the specimen holder with one hand and loosen the specimens with the Allen key.
4. Carefully lift the specimen holder and remove it.
5. Remove the specimens.



# 7 Maintenance and service

Maintenance is important in ensuring continued safe operation of your device.



## Note

Service must only be performed by a qualified technician.  
Contact Struers Service.

Only use original loose parts and spare parts.

## Adjustment

If necessary, adjust the rotation movement of the pressure foot module by tightening or loosening the fixing screw. Use a 4 mm Allen key.

## Technical questions and spare parts

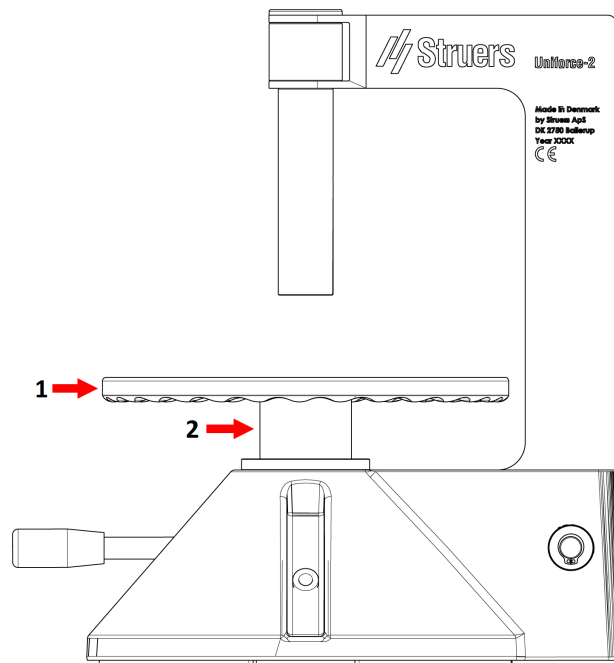
If you have technical questions or when you order spare parts, state the year of production. The year of production is engraved on the cylinder frame.

## 7.1 Lubrication

The moving parts of Uniforce-2 have been lubricated during factory assembly.

Depending on the level of use, the movement can become slightly stiff and require lubrication with Shell Gadus S3 V220 C2.

### Pressure cylinder



1. Lift the leveling disc.
2. Lubricate the sides of the pressure cylinder with Shell Gadus.

## 8 Spare parts

### Technical questions and spare parts

If you have technical questions or when you order spare parts, state the year of production. The year of production is engraved on the cylinder frame.

For further information, or to check the availability of spare parts, contact Struers Service. Contact information is available on [Struers.com](https://www.struers.com).

## 9 Service and repair



### CAUTION

If the equipment is subjected to misuse, incorrect installation, alteration, neglect, accident or incorrect repair, Struers will accept no responsibility for damage to the user or the equipment.



### Note

Service must only be performed by a qualified technician.  
Contact Struers Service.

If the device does not perform as expected, contact Struers Service.

## 10 Disposal

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

Uniforce-2 is made of metal, rubber, and plastic and does not contain any components classified as hazardous.

# 11 Technical data

## 11.1 Technical data - Uniforce-2

Subject	Specifications	
<b>Safety standards</b>	See the Declaration of Conformity	
<b>Specimen holder</b>	Specimen holders compatible with Uniforce-2: 06066917, 06066920, 06066906, 06066903, 02606952, 06066909, 06066912, 02606917, 02606918, 02606920, 02606954, 02606955, 02606963, 06066914, 02606922, 02606956, 02606957, 02606958	
<b>Specimen height</b>	It depends on the type of specimen holder and equipment used. Use specimens with a maximum height of 40 mm in Uniforce-2.	
<b>Operating environment</b>	Surrounding temperature	5-40°C (41-104°F)
	Humidity	< 85 % RH non-condensing
<b>Storage and transport conditions</b>	Surrounding temperature	-30 – 60°C (-22 – 140°F)
	Humidity	< 85 % RH non-condensing
<b>Dimensions and weight</b>	Height	360 mm (12.2")
	Width	120 mm (4.7")
	Depth	175 mm (6.9")
	Weight	12 kg (26.4 lbs) without pressure foot 13 kg (28.6 lbs) with pressure foot
<b>REACH</b>	For information about REACH, contact your local Struers office.	

# 12 Manufacturer

Struers ApS  
 Pederstrupvej 84  
 DK-2750 Ballerup, Denmark  
 Telephone: +45 44 600 800  
 Fax: +45 44 600 801  
[www.struers.com](http://www.struers.com)

**Responsibility of the manufacturer**

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

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

The manufacturer is to be considered responsible for effects on safety, reliability, and performance of the equipment only if the equipment is used, serviced, and maintained in accordance with the instructions for use.

# Declaration of Conformity

Manufacturer	Struers ApS • Pederstrupvej 84 • DK-2750 Ballerup • Denmark
Name	Uniforce-2
Model	N/A
Function	Uniforce-2 is used for leveling specimens to ensure parallel specimens and balanced specimen holders.
Type	N/A
Cat. no.	07046101 Uniforce-2 07046102 Uniforce-2, with pressure foot
Year of production	



Module H, according to global approach



We declare that the product mentioned is in conformity with the following legislation, directives and standards:

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**2006/42/EC**

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Authorized to compile technical file/  
Authorized signatory

Date: [Release date]

en For translations see  
bg За преводи вижте  
cs Překlady viz  
da Se oversættelser på  
de Übersetzungen finden Sie unter  
el Για μεταφράσεις, ανατρέξτε στη διεύθυνση  
es Para ver las traducciones consulte  
et Tõlked leiate aadressilt  
fi Katso käännökset osoitteesta  
fr Pour les traductions, voir  
hr Za prijevode idite na  
hu A fordítások itt érhetők el  
it Per le traduzioni consultare  
ja 翻訳については、  
lt Vertimai patalpinti  
lv Tulkojumus skatīt  
nl Voor vertalingen zie  
no For oversettelser se  
pl Aby znaleźć tłumaczenia, sprawdź  
pt Consulte as traduções disponíveis em  
ro Pentru traduceri, consultați  
se För översättningar besök  
sk Preklady sú dostupné na stránke  
sl Za prevode si oglejte  
tr Çeviriler için bkz  
zh 翻译见

[www.struers.com/Library](http://www.struers.com/Library)