



# Leica swing-arm stands

User manual

# ESD swing-arm stand

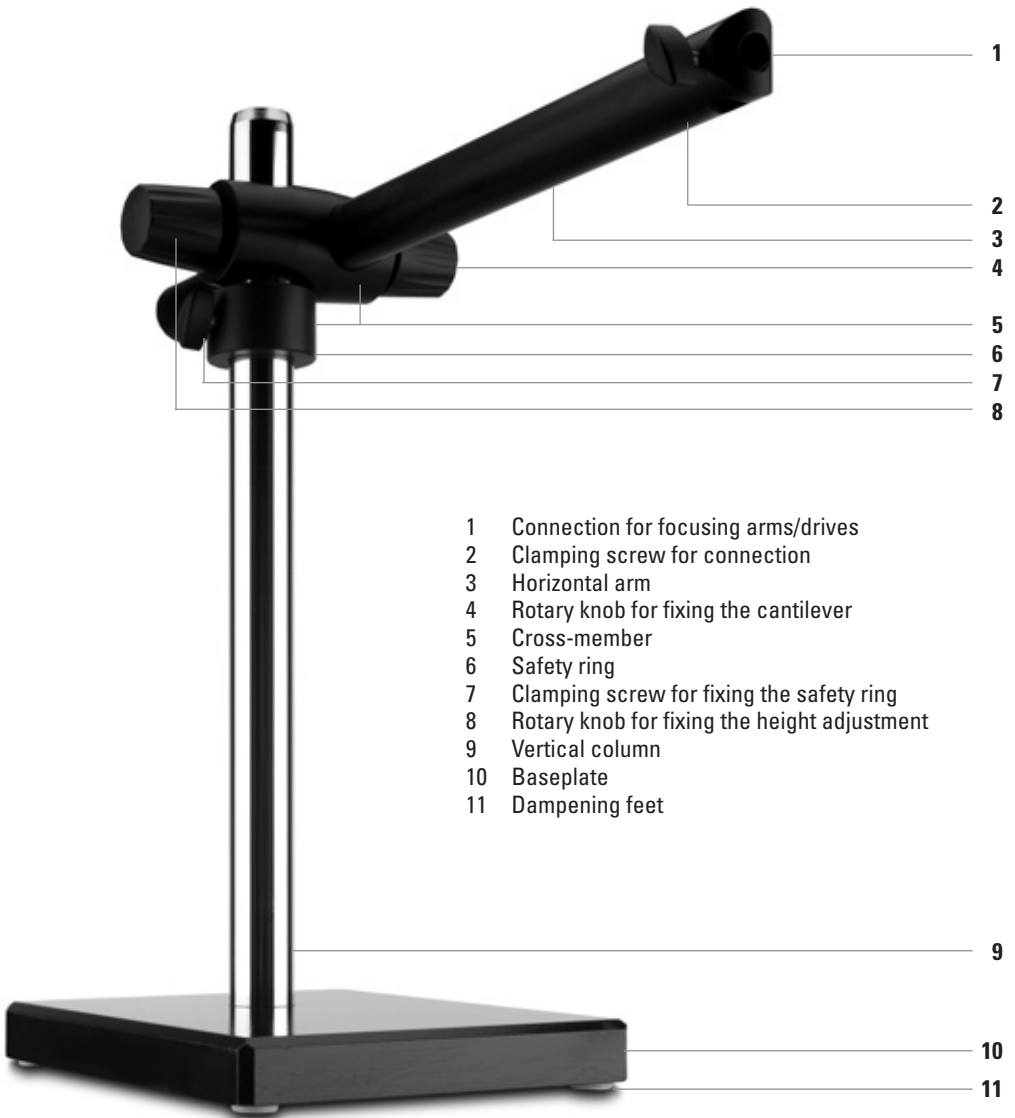


Fig. 1

# Standard swing-arm stand



Fig. 2

# Large swing-arm stand



Fig. 1





Dear User,

Thank you for your choosing our products. We hope that you will enjoy the quality and performance of Leica Microsystems products.

In developing our instruments, we place great value on simple, self-explanatory operation. Nevertheless, please take the time and read the operating instructions so that you know the benefits and possibilities your Leica swing-arm stand offers and can utilize them to your advantage. Should you ever have any questions, please consult your local Leica representative. You will find the address of the closest local representative as well as valuable information about products and services from Leica Microsystems on our homepage at [www.leica-microsystems.com](http://www.leica-microsystems.com)

We are gladly at your service. Customer service is a big thing with us. Not only before the sale, but afterwards as well.

Leica Microsystems (Switzerland) Ltd.  
Stereo & Macroscopy Systems  
[www.stereomicroscopy.com](http://www.stereomicroscopy.com)

## The user manual

These operating instructions are available in 20 additional languages on the interactive CD-ROM. User manuals and updates are available for you to download from our web site at [www.stereomicroscopy.com](http://www.stereomicroscopy.com).

The present operating instructions contain descriptions of the safety instructions, setup, handling and accessories of the ESD, standard and large swing-arm stands.

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# Safety concept

- General notes** **Before startup, read the operating instructions and safety instructions.**
- Intended use** The Leica swing-arm stands are mechanical devices that help in expanding the range of your stereomicroscopes and macroscopes and to move them across large work specimens. Illuminations and various accessory modules, e.g. for photography, TV, second-observer tube and more, complement the equipment.
- Improper use**
- If the instrument is used in any other way than described in these instructions, it may result in injuries to persons or damages to property.
  - Never disassemble mechanical parts if not specifically instructed to in this manual.
- Place of use**
- The Leica swing-arm stands are intended primarily for use in closed rooms.
  - If the swing-arm stand is used outdoors, it must be protected against dust and moisture. Electrically operated illuminations must not be used outdoors.
- Use in ESD-protected rooms** The ESD standard and large swing-arm stands consist of an ESD-discharging material so that they counteract the buildup of electrostatic charges.

# General safety instructions

**Service work** Repair work must only be performed by Leica-trained service technicians. Only original Leica spare parts may be used.

**Responsibilities of the person(s) in charge of instrument**

- Ensure that the operating personnel has read and understood this manual and particularly the safety instructions.
- Ensure that only authorized and trained personnel operates, services and maintains the Leica swing-arm stands.



Workplaces with swing-arm stands facilitate and improve working with large specimens, but they also impose demands on concentration ability, viewing and muscular support on part of the user. Depending on the duration of uninterrupted work, asthenopia and musculoskeletal problems may occur. For this reason, appropriate measures for reduction of the workload must be taken:

- optimal arrangement of workplace, work assignments and work flow (changing tasks frequently).
- thorough training of the personnel, giving consideration to ergonomic and organization aspects.

The ergonomic optics concept of the Leica stereomicroscopes and the design of the swing-arm stands aim to limit the strain on the user to the lowest possible level.

**Integration in third-party products**

When installing Leica products into third-party products, note the following:  
The manufacturer of the complete system or its dealer is responsible for following all applicable safety instructions, laws and guidelines.

**Legal requirements**

Adhere to general and local regulations relating to accident prevention and environmental protection.

**Disposal**

The product must be disposed of in accordance with locally applicable laws and regulations.

**Symbol used in the operating instructions****Safety instructions**

This symbol indicates especially important information that, if not observed,

- **can cause hazards to personnel**
- **can lead to functional disturbances and damaged instruments**

**Important information**

This symbol indicates additional information or explanations that intend to provide clarity.

**Action**

► This symbol refers to actions described in the text that are to be carried out.

**Explanatory notes**

- This symbol indicates additional notes and explanations provided in the text.

# General safety instructions of swing-arm stands



**The use of your Leica swing-arm stand requires adhering to the safety instructions in this manual to prevent injuries to yourself or damages to your Leica stereomicroscope equipment and work environment.**

## Setup of swing-arm stands



The baseplate of the swing-arm stands consists of heavy metal parts. If it is used improperly, it can cause injuries or damages to the work environment or your Leica stereomicroscope equipment due to its weight.

- Perform the setup of the swing-arm stand with two persons so that one person can always secure the parts to be assembled. (Fig. 1)
- Use a slipfree underlay (e.g. a rubber mat) for the assembly of the vertical column on the baseplate so that the baseplate cannot slide or slip.
- Always use a flat even surface for the baseplate.



The safety ring (for ESD and standard horizontal arms) protects the horizontal arm from inadvertently falling down.

- Reposition the retaining ring (Fig. 2.2) after every change in position at the horizontal arm and tighten the clamping screw or lever (Fig. 2.1).



The retaining washer (Fig. 3.1) allows for freely swinging the focusing drive across the object, even if the plug is mounted from below. It also protects your stereomicroscope from inadvertently falling out if you want to open the clamping lever (Fig. 3.2) during your work.



The clamping lever or screw at the focusing arm (Fig. 3.3) must be tightened before inserting the stereomicroscope in the carrier.

## Use of flange and stage clamp



Flange and stage clamp are accessories for mounting the vertical column at your workplace. Since they support the entire stereomicroscope equipment, special care must be paid when attaching them.

- To fasten the stage clamp (Fig. 4.1), use a sufficiently thick (21-70mm) and solid worktop.
- Check the correct seat of the stage clamp at regular intervals and retighten, if necessary.
- Ensure that technical personnel selects the correct type of screws and screw lengths for the respective support during the assembly of the flange.

## During the work



Leica swing-arm stands are optimized to provide maximum flexibility with minimum weight and space requirements. To be able to use the full performance of your swing-arm stand, the following steps must be observed:

- Before changing the stereomicroscope, bring your stand to the starting position. (See page 31)
- Before you continue to work with a modified equipment, observe the notes about horizontal swinging. (Page 32)



## Transport of swing-arm stands

Please read the notes on p. 30 concerning the safe disassembly and transport of the swing-arm stand.



Fig. 1

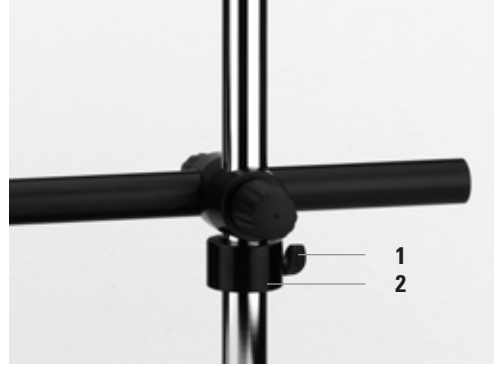


Fig. 2

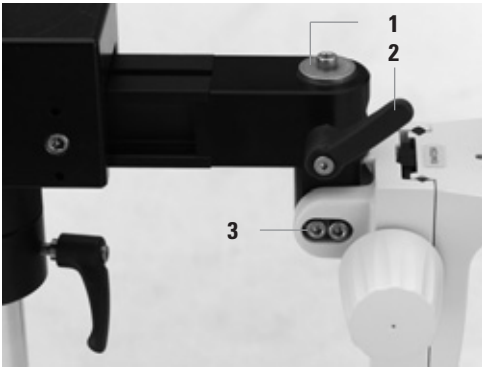


Fig. 3



Fig. 4

**Fig. 1** Assembly of vertical column to the base plate with two persons

**Fig. 2** ESD horizontal arm with cross-member and safety ring on column 470/35

**Fig. 3** Standard horizontal arm with focusing arm mounted from the top

**1** Clamping screw at safety ring  
**2** Safety ring

**1** Retaining washer  
**2** Clamping lever at horizontal arm  
**3** Hexagon-head screw for fixing the tilt at the focusing arm

**Fig. 4** Stage clamp for ESD and standard horizontal arm

# Assembly of ESD and standard swing-arm stands



**Corresponding to their function, the swing-arm stands consist of solid, heavy metal parts. While unpacking, ensure that nobody can be injured by falling or tipping parts.**

**The assembly of baseplate and vertical column must always be performed by two persons. Additional safety instructions on page 12 must be observed.**

## Vertical column → baseplate



Two persons are needed for the assembly of the small and midsize baseplates to the vertical column 470/35 to prevent the plate from tipping over and causing any damages!

- ▶ Place the baseplate on a slipfree surface.
- ▶ Slide the threaded bolt from underneath through the baseplate.
- ▶ Place the serrated lock washer on the bolt (Fig. 2.1).
- ▶ While one person secures the base, the second person tightens the vertical column (Fig. 1)!

## Vertical column → flange

- ▶ Slide the threaded bolt from underneath through the correct bore hole.
- ▶ Place the serrated lock washer on the bolt.
- ▶ Bolt the vertical column and flange together using the Allen key.



The flange (Fig. 4) must be fastened at the workplace by qualified personnel and regularly checked for firm seat.



The four screws for fastening the flange are not part of the standard delivery since length and type of screw must be adapted to the supporting surface.

## Vertical column → stage clamp

- ▶ Slide the threaded bolt from underneath through the correct bore hole.
- ▶ Place the serrated lock washer on the bolt.
- ▶ Screw the vertical column and stage clamp together. (Fig. 3)
- ▶ Fasten the stage clamp together with the vertical column to the desired position on your worktop.



Ensure that the worktop (thickness: 21-70mm) is suitable to provide sufficient support for the swing-arm stand including the equipment.



Check the firm seat of the stage clamp at the worktop at regular intervals.



Fig. 1

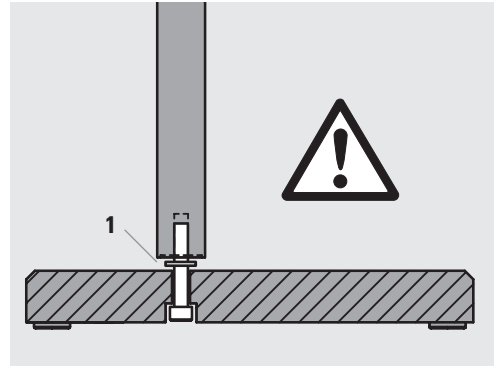


Fig. 2



Fig. 3



Fig. 4

**Fig. 1** Assembly of vertical column to the base plate with two persons

**Fig. 2** Baseplate with hexagon-head screw and serrated lock washer for the assembly of the ESD and standard horizontal arms

**Fig. 3** Assembly of the vertical column 470/35 to the stage clamp

**1** Serrated lock washer

**Fig. 4** Flange for permanent assembly of the vertical column 470/35

### Safety ring → vertical column

- ▶ Slide the safety ring over the column (Fig. 1.3).
- ▶ Tighten the clamping screw (ESD) or the clamping lever (standard) (Fig. 1.2).

### Horizontal arm → vertical column

- ▶ Open the rotary knob for the height adjustment (Fig. 1.1).
- ▶ Carefully place the horizontal arm on the vertical column until it sits on the safety ring.
- ▶ Align the horizontal arm parallel to the long side of the baseplate.
- ▶ Retighten the rotary knob (Fig. 1.1) for the height adjustment.

### Alignment of clamping levers

- At the standard and large horizontal arms, the clamping levers can be turned to any position after tightening to provide you with the largest possible freedom of movement:
  - ▶ Tighten the respective clamping lever.
  - ▶ Pull the clamping lever out in its axis (Fig. 2).
  - ▶ Turn the lever to the desired position and release it.

### Assembly of focusing arms and drives

To assemble the focusing arms and drives, please continue on page 20.

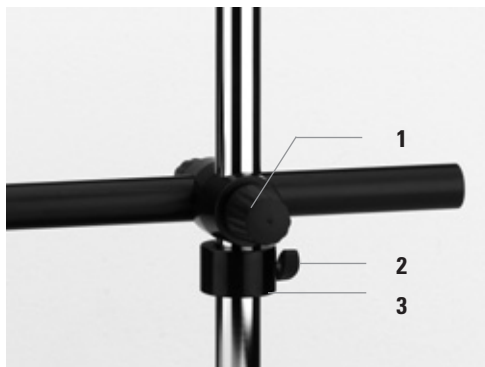


Fig. 1



Fig. 2

**Fig. 1** ESD horizontal arm with cross-member and safety ring on vertical column 470/35

- 1 Rotary knob for fixing the cantilever
- 2 Clamping screw at safety ring
- 3 Safety ring

**Fig. 2** Clamping lever at safety ring of the standard horizontal arm



# Assembly of the large swing-arm stand

## Vertical column → baseplate



Two persons are needed for the assembly of the large baseplate to the vertical column 560/57 and 800/57 to prevent the column from tipping over and causing any damages!

- ▶ Position the vertical column with the rack (Fig. 1.1) towards the cutout of the base so that the four bore holes in the base align with the four threaded holes on the plate.
- ▶ While one person secures the vertical column, the second person tightens the column with the four hexagon-head screws. (Fig.1.2)

## Horizontal arm → vertical column

- ▶ Open the rotary knob for the height adjustment (p. 4, Fig. 1.4).
- ▶ Remove the screw at the head of the vertical column (Fig. 2.1).
- ▶ Carefully place the horizontal arm on the vertical column until it sits on the rack (Fig. 3).
- ▶ Carefully turn the crank several turns until the worm in the cross-member is completely meshed with the rack and the upper end of the rack reappears.
- ▶ Reinsert the previously removed screw at the head of the vertical column (Fig. 2.1).
- ▶ Retighten the rotary knob for the height adjustment (p. 4, Fig. 1.4).

## Use of clamping levers

To use the clamping levers, please continue on page 16.

## Assembly of focusing arms and drives

To assemble the focusing arms and drives, please continue on page 20.

**Fig. 1** Assembly of vertical column 560/57 or 800/57 onto the large baseplate

- 1 The rack is positioned in the direction of the cutout of the base
- 2 The vertical column is fastened with four hexagon-head screws

**Fig. 2** Hexagon-head screw at the head of the vertical column 560/57 or 800/57

**Fig. 3** The cross-member at the large horizontal arm is carefully placed on the vertical column.

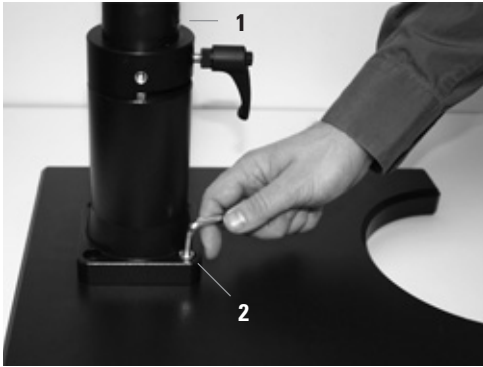


Fig. 1

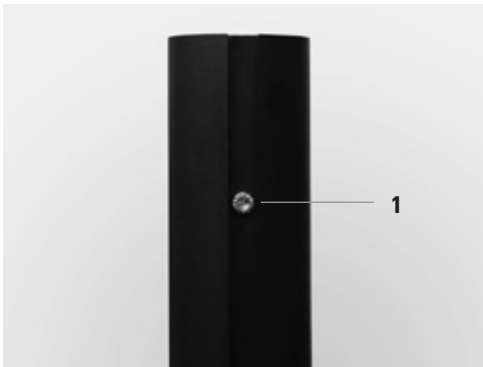


Fig. 2



Fig. 3

# Assembly of focusing arms and drives

## Focusing arm → horizontal arm

- ▶ Ensure that the horizontal arm is in the starting position. (See p. 31).
- ▶ Fasten all levers and screws.
- ▶ Open the lever or the screw at the focusing arm connection of the horizontal arm.
- ▶ Remove the retaining washer from the connecting plug of the focusing arm.
- ▶ Insert the plug (Fig. 1.2) into the socket (Fig. 1.1) at the horizontal arm.
- ▶ Close the clamping lever or screw again at the horizontal arm.

- A special case is the combination of carrier rod (10 447 259) with focusing arm (10 446 344):
  - ▶ Remove the retaining washer from the carrier rod.
  - ▶ Open the safety screw at the focusing arm.
  - ▶ Slide the focusing arm onto the column.
  - ▶ Close the safety screw.
  - ▶ Fasten the retaining washer again.
  - ▶ Close the clamping lever or screw again at the horizontal arm.

## Assembly of focusing arm plug from the bottom

- On principle, the plug of the focusing arms can be inserted at the horizontal arm from the top, the bottom or the front.
- If the plug is attached to the horizontal arm from the bottom, you must use the retaining washer (Fig. 2.1):
  - ▶ Screw the retaining washer with the corresponding hexagon-head screw into the threaded hole of the plug at the focusing arm (Fig.2.1).

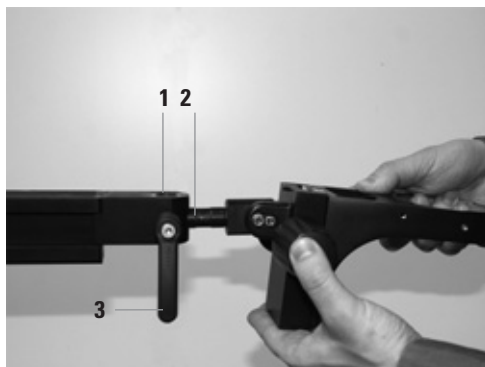


Fig. 1

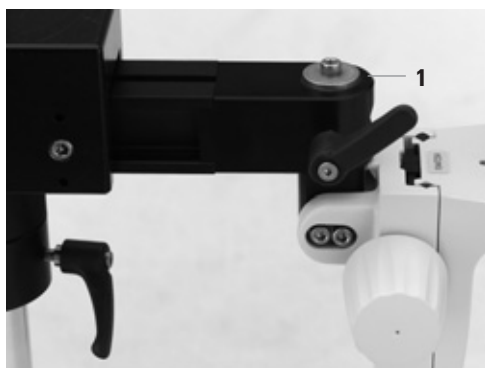


Fig. 2

**Fig. 1** Placing the focusing arm on the horizontal arm

- 1 Socket at the horizontal arm
- 2 Plug of the focusing arm
- 3 Clamping lever for fixing the focusing arm

**Fig. 2** Focusing arm with plug mounted from the bottom

- 1 Retaining washer

### Focusing drive → horizontal arm

- ▶ Ensure that the horizontal arm is in the starting position (see p. 31).
- ▶ Fasten all levers and screws.
- ▶ Open the clamping lever at the focusing drive connection (Fig. 1.1).
- ▶ Remove the retaining washer from the connecting plug of the focusing drive.
- ▶ Insert the plug (Fig. 1.2) into the socket at the horizontal arm.
- ▶ Close the clamping lever again (Fig. 1.1).

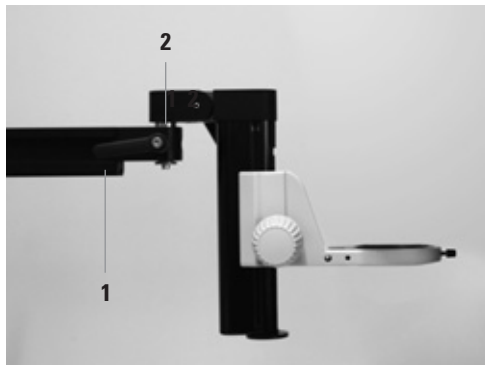


Fig. 1

**Fig. 1** Focusing drive at the large horizontal arm

- 1 Clamping lever at horizontal arm
- 2 Plug of the focusing drive

# Assembly of microscope carrier and stereomicroscope

## Microscope carrier → focusing drive

- ▶ Remove the safety screw from the front side of the focusing drive.
- ▶ Position the microscope carrier so that the two positioning plugs (Fig. 1.1) lock into the corresponding recesses at the microscope carrier.
- ▶ Insert the safety screw into the bore hole in the microscope carrier and retighten it with the Allen key. (Fig. 1.2)

## Stereomicroscope → optics carrier

- ▶ Check and fix all levers and screws at the swing-arm stand and the focusing drive/arm before inserting the stereomicroscope into the microscope carrier.
- ▶ Open the screw (Fig. 2.1) at the ring of the microscope carrier.
- ▶ Use both hands and carefully insert the stereomicroscope into the microscope carrier. (Fig. 2)
- ▶ Retighten the screw (Fig. 2.1) at the microscope carrier.

**i** Additional notes about the assembly of microscope carriers and swing-arm stands can be found in the operating instructions M2-105-0en.

They also contain additional adapters and accessories for attaching illumination to the Leica swing-arm stands (see the example on page 37).

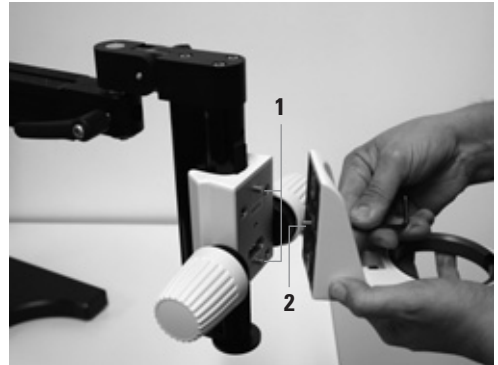


Fig. 1



Fig. 2

**Fig. 1** Placing the optics carrier on the horizontal arm

- 1 Connecting plug at the focusing drive
- 2 Hexagon-head screw for fixing the carrier

**Fig. 2** Inserting the stereomicroscope into the optics carrier

- 1 Screw for fixing the stereomicroscope



# Operation of swing-arm stands



The following operating notes show the correct use of your swing-arm stand. Ensure that only personnel who has read and understood these operating instructions and particularly the safety instructions is working with a Leica swing-arm stand. In addition, check the correct seat of all levers and screws before every operating step.

## ESD swing-arm stand



Leica swing-arm stands are optimized for stability and safe use. Nevertheless, the wrong combination of equipment, cantilever and swinging angle can cause the stand to tip over. For this reason, it is absolutely necessary to read the safety instructions on page 12-13.

### Changing the cantilever

- ▶ Close all levers and screws.
- ▶ Open the rotary knob for the cantilever adjustment. (Fig. 1.1)
- ▶ Pull the horizontal arm out of the cross-member to the required cantilever.
- ▶ Close the rotary knob at the cross-member.

### Changing the working height

- Reducing the working height:
  - ▶ Open the clamping screw (Fig. 1.3) at the safety ring (Fig. 1.4) and fix it to the desired working height.
  - ▶ Open the rotary knob for the height adjustment (Fig. 1.2) and lower the horizontal arm to the desired height.
- Increasing the working height:
  - ▶ Hold the horizontal arm with one hand.
  - ▶ Open the rotary knob for the height adjustment. (Fig. 1.2)
  - ▶ Push the horizontal arm up until the desired working height is reached.

- ▶ Retighten the rotary knob for the height adjustment (Fig. 1.2).
- ▶ Reposition the safety ring (Fig. 1.4) until it is below the cross-member.

### Changing the equipment

- ▶ Bring the horizontal arm into the starting position (see p. 31) before changing the stereomicroscope or adding additional equipment to the swing-arm stand.
- ▶ Ensure that the stand supports the modified equipment. Notes about equipment weight and permissible total weights can be found on pages 32 to 37.

### Lateral swinging of the equipment



Before you swing the stereomicroscope across your specimen, it is absolutely necessary to reposition the safety ring up to the cross-member and tighten it. Otherwise, the horizontal arm could fall down if the rotary knob is loosened (Fig. 1.2) and cause injuries or damages to equipment and specimens.

- ▶ Reposition the safety ring (Fig. 1.3) up to the cross-member and fix it in place.
- ▶ Open the rotary knob for the height adjustment (Fig. 1.1) at the cross-member.
- ▶ Swing your equipment into the desired position.
- ▶ Fix the height adjustment again.

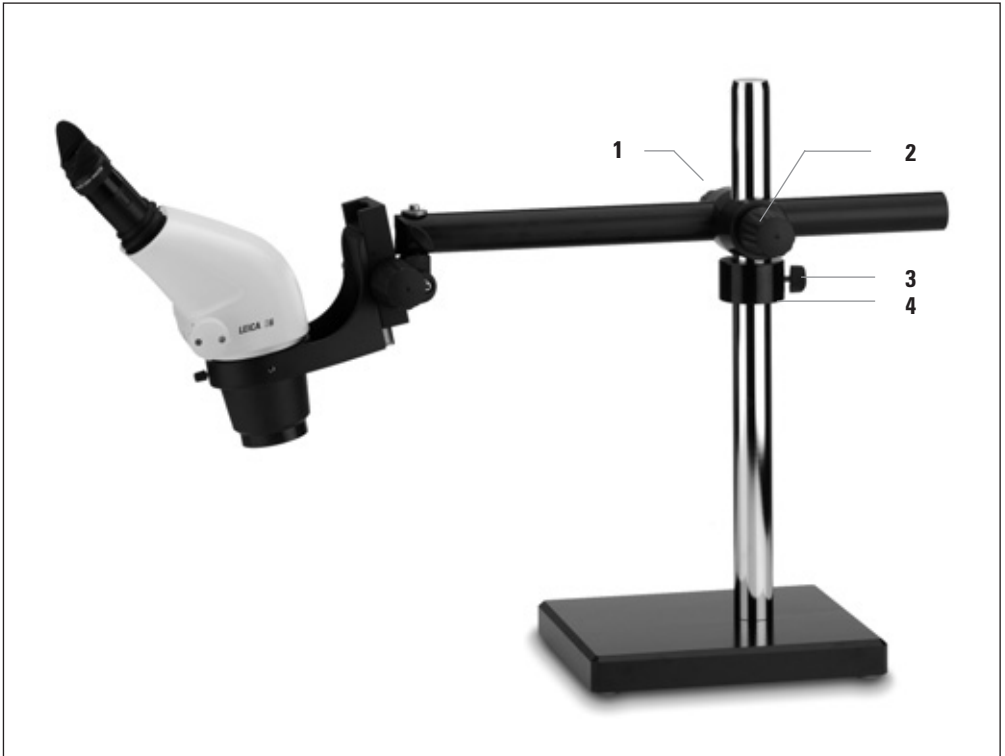


Fig. 1

**Fig. 1** Leica S6 at the ESD horizontal arm  
with safety ring on vertical column 470/35


- 1** Rotary knob for fixing the cantilever
- 2** Rotary knob for fixing the height adjustment
- 3** Clamping screw for fixing the safety ring
- 4** Safety ring

## Standard swing-arm stand

### Swinging and changing the cantilever

- Swinging and changing the cantilever work similar to the description of the ESD horizontal arm. (See p. 24)

### Limiting the swiveling range


 By using the special safety ring, you can limit the swiveling range of the horizontal arm to a 90° section. This function is particularly useful to

- conveniently reposition the equipment with the limitation
- remain within a certain swiveling range during your work

To be able to use this function, the plug (Fig. 1.4) at the safety ring (Fig. 1.5) must point upward. If this is not the case, the following steps are to be performed:

- ▶ Open the screw at the microscope carrier (Fig. 1.6).
- ▶ Remove the stereomicroscope.
- ▶ Open the rotary knob to fix the height adjustment (Fig. 1.3).
- ▶ Remove the horizontal arm including cross-member from the vertical column.
- ▶ Remove the safety ring (Fig. 1.5) from the vertical column.
- ▶ Position it on the vertical column with the plug pointing upward.
- ▶ Retighten the clamping screw at the safety ring (Fig. 1.5).
- ▶ Position the horizontal arm on the vertical column so that the plug at the safety ring fits into the cutout at the cross-member (Fig. 1.1).
- ▶ Fasten all rotary knobs at the cross-member.

### Limiting the cantilever

 The maximum extension for the horizontal arm can be adjusted using the limiting screw. This is particularly useful to

- conveniently reposition the equipment
  - prevent the system from tilting due to excessive equipment
- ▶ Bring the stand to its starting position. (See page 31).
  - ▶ Open the lever of the cantilever adjustment at the cross-member.
  - ▶ Move the stereomicroscope to the desired extension.
  - ▶ Reposition the adjustable stop (Fig. 1.2) up to the cross-member (Fig. 1.1).




**Fig. 1** MS5 with coarse/fine focusing drive, lamp L2, double gooseneck, lamp holder for vertical column 470/35, standard swing-arm stand and midsize baseplate

- 1 Cross-member
- 2 Adjustable stop
- 3 Rotary knob for fixing the height adjustment
- 4 Plug for limiting the swiveling range
- 5 Safety ring
- 6 Screw for fixing the optics carrier

## Large swing-arm stand

### Changing the working height

- ▶ Close the rotary knob to fix the cantilever (Fig. 1.2).
- ▶ Open the rotary knob to fix the height adjustment at the cross-member (Fig. 1.1).
- ▶ Use the crank (Fig. 1.4) to move the system to the desired working height.
- ▶ Close the rotary knob again to fix the height adjustment (Fig. 1.1)

 The rheostat of the crank can be adjusted continuously using the supplied Allen key. This is necessary depending upon the desired force expenditure and weight of the equipment.

- ▶ Adjust the hexagon-head screw with the supplied key using quarter turns. (Fig. 1.3)
- Tightening the screw clockwise increases the rheostat, loosening the screw counterclockwise reduces it.



Never force the crank; otherwise, it may damage the rack or pinion. If it is very difficult to turn, check the following items:

- Is the upper screw at the cross-member closed? If so, open it.
- Is the hexagon-head screw at the crank tightened too much? If so, open it in increments.

### Changing the cantilever

- ▶ Close the rotary knob to fix the height adjustment (Fig. 1.1)
- ▶ Open the rotary knob to fix the cantilever (Fig. 1.2).
- ▶ Pull the horizontal arm out of the cross-member to the intended cantilever.
- ▶ Close the rotary knob to fix the cantilever (Fig. 1.2).

### Limiting the cantilever


The maximum extension for the horizontal arm can be adjusted using the adjustable stop. The procedure is identical to the standard horizontal arm described on page 26.

### Swinging the horizontal arm

The lateral swinging is enabled via the lever at the base of the vertical column:

- ▶ Close the two rotary knobs at the cross-member (Fig. 1.1 and 1.2).
- ▶ Open the clamping lever at the base of the vertical column. (Fig. 1.8)
- ▶ Rotate the stereomicroscope to the desired position.
- ▶ Close the clamping lever again.

### Limiting the swiveling range

 The swiveling range can also be limited at the large swing-arm stand to a freely selectable 90° sector. This function is performed by the ring at the base of the vertical column (Fig. 1.7):

- ▶ Open the clamping lever for the lateral swiveling limitation. (Fig. 1.6)
- ▶ Swing the stereomicroscope to the desired starting position as described above.
- ▶ Turn the ring (Fig. 1.7) up to one of the two stops.
- ▶ Close the clamping lever again. (Fig. 1.6)
- ▶ Leave the clamping lever open if you do not want to limit the swiveling range.



The ring at the base of the vertical column (Fig. 1.7) must be fixed with the clamping lever so that it rests on the base (Fig. 1.9). Other assembly positions can damage the rack (Fig. 1.5) at the vertical column.

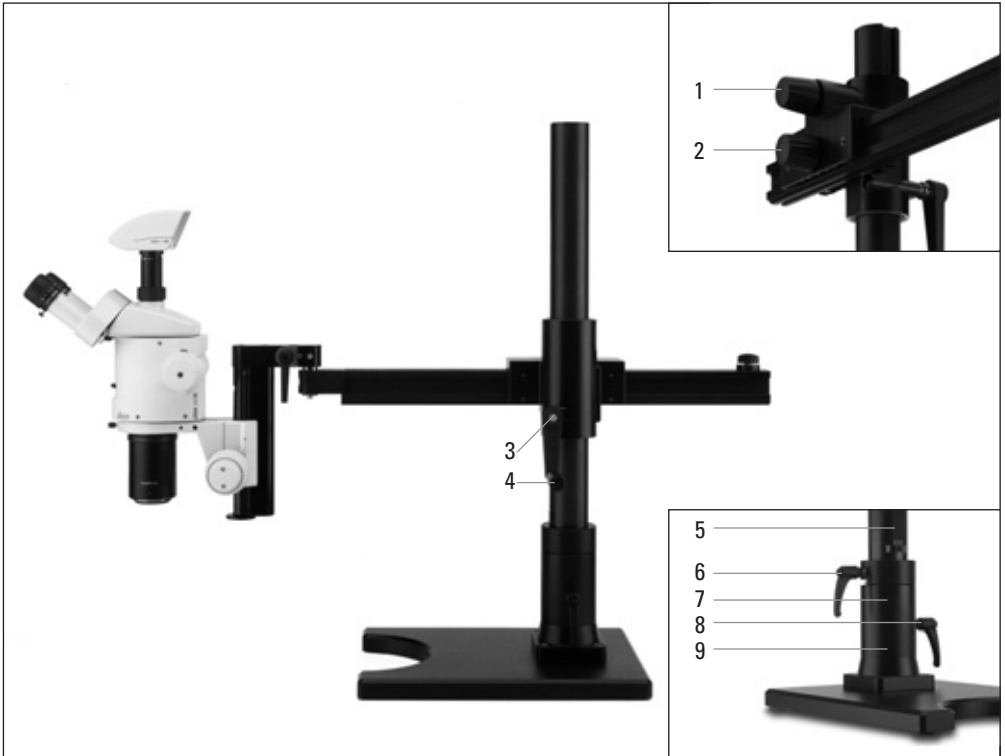


Fig. 1

**Fig. 1** MZ16 with Leica digital camera DFC300, coarse/fine focusing drive and large swing-arm stand

- 1 Rotary knob for fixing the height adjustment
- 2 Rotary knob for fixing the cantilever
- 3 Hex bit for adjusting the rheostat
- 4 Crank for height adjustment
- 5 Rack
- 6 Clamping lever at the ring
- 7 Ring at the base of the vertical column
- 8 Clamping lever for fixing the vertical column
- 9 Base of vertical column

## Leaving the workplace



Protect other persons and your workplace against injuries or damages by securing your swing-arm stand before leaving the workplace:

- ▶ Return the swing-arm stand to the starting position (see p. 31).
- ▶ Fix all rotary knobs, clamping levers and screws to prevent any inadvertent movement of the swing-arm stand.

## Transport of swing-arm stands



Leica swing-arm stands consist of heavy metal parts. If you intend to disassemble a stand at one workplace and move it to another workplace, please observe the following notes:

- ▶ Always transport the baseplate with mounted vertical column using two persons.
- ▶ Remove the stereomicroscope from the focusing drive/arm.
- ▶ Remove the horizontal arm including cross-member from the vertical column.
- ▶ The large baseplate features a recessed grip at one side that facilitates the transport. (Fig. 1)
- ▶ For transport over longer distances use a suitable transport tool, such as a trolley.



Fig. 1

**Fig. 1** Large baseplate with recessed grip

# Starting position



The following operating instructions can be used to determine whether the total weight of your stereomicroscope equipment is suitable for the intended cantilever and the swiveling range. These instructions must be followed and you must ensure that all personnel working with Leica swing-arm stands have read and understood these instructions.



The starting position prevents damages from a tilting stand. The swing-arm stand must be brought to the starting position (Fig. 2) before you:

- remove your stereomicroscope from the microscope carrier.
  - change accessories such as illumination or ErgoModules.
  - leave your workplace.
- ▶ Align the horizontal arm parallel to the long side of the baseplate. (Fig. 1)
- ▶ Retract the cantilever of the horizontal arm up to the cross-member. (Fig. 2)
- ▶ Ensure that all rotary knobs and clamping levers or screws are fixed.



Fig. 1



Fig. 2

**Fig. 1** Large horizontal arm aligned parallel to the long side of the baseplate

**Fig. 2** Large horizontal arm in starting position

# Notes about horizontal swinging



**Leica swing-arm stands are optimized for maximum range and stability. Nevertheless, the wrong combination of weight, cantilever and swinging angle can cause the stand to tip over.**

## Selecting a safe swinging angle

- The maximum permissible carrying load of your Leica swing-arm stand can be found in the corresponding table on page 34/35.
  - Starting with the zero position (Fig. 1.1), you can swing up to  $\pm 30^\circ$  with the maximum carrying load. (Fig. 1)
  - For swinging angles  $>30^\circ$  (Fig. 2), you must reduce either the weight or the cantilever at the stand. (Fig. 2)
  - A list of typical equipment weights can be found on page 36/37.
- Before you continue working at the swing-arm stand with a modified equipment, you must carefully test the combination of intended cantilever and required swinging angle.

## Examples for a typical application

The following example demonstrates how you can determine whether the planned combination of stereomicroscope, equipment and swing-arm stand is permissible:

- You want to use a standard horizontal arm with midsize base and inclinable focusing drive (10 447 256).
- The table on page 34 shows that this combination allows for a maximum carrying load of 5.2kg in the zero position (Fig. 1.1).
- You intend to use the following stereomicroscope equipment with this swing-arm stand:

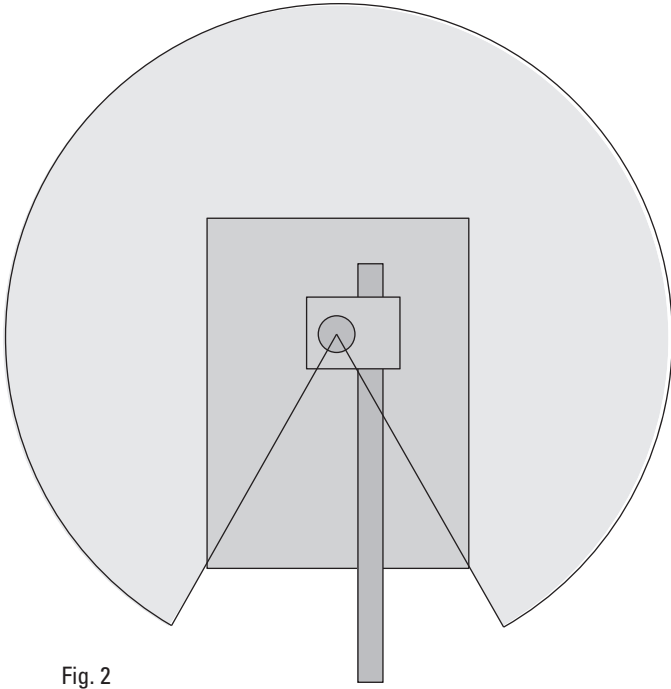
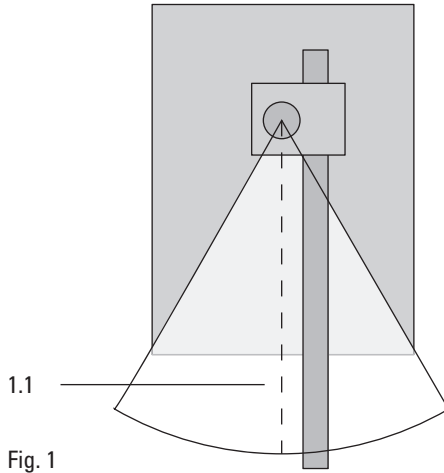
### Leica MZ6

10 445 614	Leica MZ6 optics carrier
10 445 619	Inclined binocular tube $45^\circ$
10 447 160	2 eyepieces 10x/21B, adjustable
10 422 563	Objective achromat 0.5x, M-series

This combination has a total weight of 1.8kg (list on page 36) and, therefore, can be used without problems in the range of  $\pm 30^\circ$  at full cantilever!

**Fig. 1** Optimum swiveling range of the horizontal arm with maximum carrying load












**Fig. 2** Swiveling range in which cantilever and swinging angle must be carefully matched to the selected carrying load












## Table of permissible equipment weights




The following table provides information about the permissible carrying load dependent upon the horizontal arm, vertical column, baseplate and focusing arm or drive used. The maximum value applies to the respective swing-arm stand in the starting position (page 29).

Horizontal arm with column		 10 447 097 with 10 447 008		 10 447 098 with 10 447 008	
Baseplate		 10 447 260	 10 446 436	 10 447 260	 10 446 436
Focusing arm / focusing drive	 10 447 254/ 10 447 255	3.2kg	6.6kg	3.2kg	6.6kg
	 10 447259 & 10 446 344	3.6kg	8kg	3.6kg	4.6kg
	 10 447 256	X	X	2kg	5.2kg
	 10 447 257	X	X	X	4.6kg
	 10 447 258	X	X	X	X

<b>Horizontal arm with column</b>			
		10 447 099 with 10 447 014	10 447 099 with 10 447 230
<b>Baseplate</b>			
		10 446 437	10 446 437
<b>Focusing arm / focusing drive</b>	 10 447 254/ 10 447 255	14kg	13kg
	 10 447259 & 10 446 344	14.5kg	13.5kg
	 10 447 256	13.5kg	12.5kg
	 10 447 257	11kg	11kg
	 10 447 258	11kg	10.5kg

## List of typical equipment weights

 The following listing provides an overview of the total weight of different typical types of equipment. Together with the table on page 34/35, it provides you with an estimate of whether the required swinging angle and the cantilever are compatible with the intended equipment.

### Leica S8 APO

10 446 298	Leica S8 APO StereoZoom
10 446 261	Video objective 0.63x
10 446 337	Objective apochromate 2.0x
12 730 044	DFC 480, including cable
10 447 131	2 eyepieces 10x/23

**Total weight of outfit 2.9kg**

### Leica S6 E

10 446 294	Leica S6 E StereoZoom
10 447 130	Eyepiece 10x/23
10 447 131	Eyepiece 10x/23,
10 446 323	ErgoLens® 0.6x-0.75x

**Total weight 1.7kg**

### Leica MZ6

10 445 614	Leica MZ6 optics carrier
10 445 619	Inclined binocular tube 45°
10 447 160	2 eyepieces 10x/21B, adjustable
10 422 563	Objective achromat 0.5x, M-series

**Total weight 1.8kg**

### Leica MZ75

10 446 371	Leica MZ75, optics carrier
10 446 275	Objective plan 1.0x, M-series
10 445 822	ErgoTube® 10°-50°
10 447 160	2 eyepieces 10x/21B, adjustable
10 446 309	Leica photo tube HD F
10 446 261	Video/photo objective 0.63x
12 730 044	DFC480

**Total weight 4.8kg**

### Leica MZ95

10 446 272	Leica MZ95 optics carrier
10 446 275	Objective plan, 1.0x, M-series
10 445 924	Trinocular tube, M-series
10 447 160	2 eyepieces 10x/21B, adjustable
10 446 261	Video/photo objective 0.63x
12 730 044	DFC 480
30 120 201	Ringlight RL-66/750

**Total weight 4.6kg**

### Leica MZ125

10 446 370	Leica MZ125 optics carrier
10 447 160	2 eyepieces 10x/21B, adjustable
10 445 819	Objective plan 1.0x, M-series,
10 445 822	ErgoTube® with variable angle 10°-50°

**Total weight 3.7kg**

### Leica MZ125

10 446 370	Leica MZ125 optics carrier
10 445 924	Trinocular tube, M-series
10 447 160	2 eyepieces 10x/21B, adjustable
10 445 819	Objective plan 1.0x, M-series,
10 446 123	ErgoWedge® 5-25°
10 446 261	Video/photo objective 0.63x
12 730 018	DC500
30 120 201	Ringlight RL-66/750

**Total weight 5.2kg**

### Leica MZ16

10 447 102	Leica MZ16 optics carrier with zoom
10 447 160	2 eyepieces 10x/21B, adjustable
10 447 157	Objective planapo 1.0x, M-series, WD=55mm
10 445 924	Trinocular tube, M-series
10 446 261	Video/photo objective 0.63x
12 730 044	DFC480
30 120 201	Ringlight RL-66/750

**Total weight 5.7kg**

### **Leica MZ16 A**

- 10 447 103 Leica MZ16 A optics carrier
- 10 447 160 2 eyepieces 10x/21B, adjustable
- 10 445 822 ErgoTube® 10°-50°
- 10 446 309 Docu Tube HD V
- 10 447 075 Objective plan 0.8x LWD, M-series
- 10 446 261 Video/photo objective 0.63x
- 12 730 044 DFC480
- 30 120 201 Ringlight RL-66/750

**Total weight 6.9kg**

### **Leica MZ16 FA**

- 10 447 063 Leica MZ16 FA optics carrier
- 11 504 069 Lamp housing
- 10 447 160 2 eyepieces 10x/21B, adjustable
- 10 445 924 Trinocular tube, M-series
- 10 447 157 Objective planapo 1.0x, M-series,  
WD=55m
- 10 446 261 Video/photo objective 0.63x
- 12 730 044 DFC480

**Total weight 9.2kg**

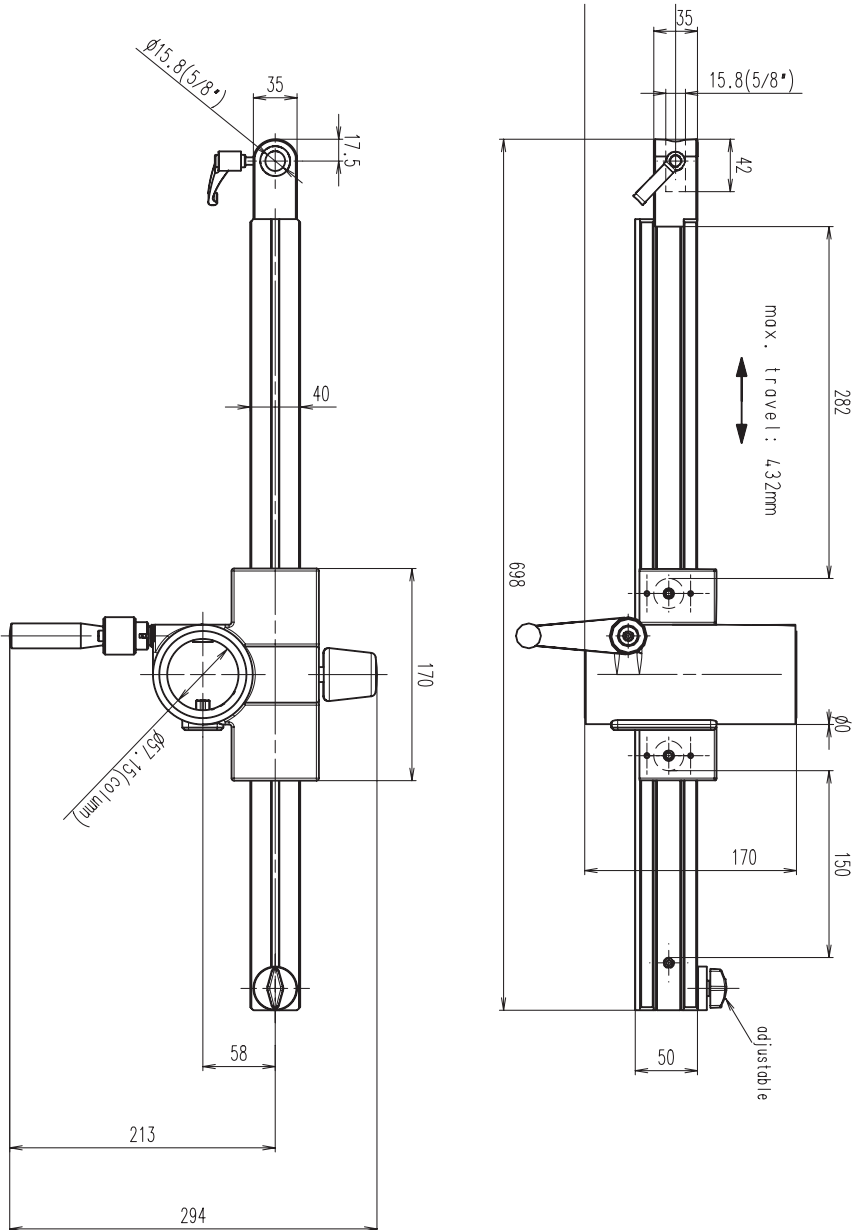


## Technical data

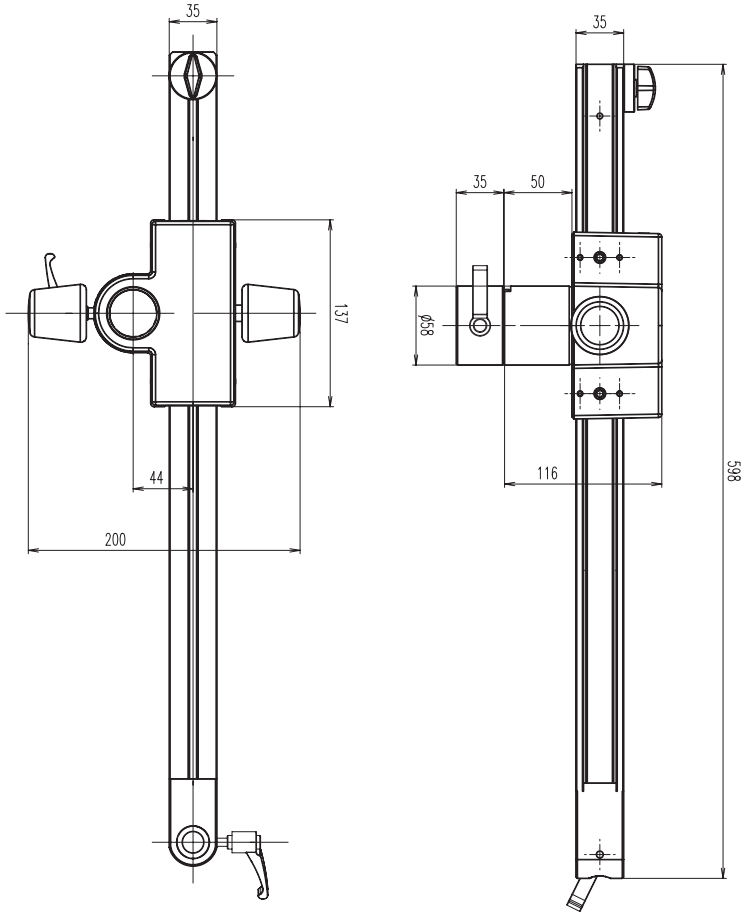
Large horizontal arm	
Type	Horizontal swing arm for Leica stereomicroscopes and macroscopes; 360° swinging angle with optional 90° sector limitation Adjustable stop to limit the cantilever Height adjustment via rack
Max. cantilever:	560mm
Max. carrying load:	20kg (without focusing arm or drive)
Standard horizontal arm	
Type	Horizontal swing arm for Leica stereomicroscopes and macroscopes; 360° swinging angle with optional 90° sector limitation Adjustable stop to limit the cantilever
Max. cantilever:	476mm
Max. carrying load:	13.2kg (without focusing arm or drive, with midsize baseplate)
ESD horizontal arm	
Type	Horizontal swing arm for Leica stereomicroscopes and macroscopes; 360° swinging angle
Max. cantilever:	452mm
Max. carrying load:	6.6kg (without focusing arm or drive; with small baseplate)
Vertical columns	
Vertical column 800/57	Vertical column for large horizontal arm Height: 800mm, diameter: 57mm Anodized aluminum; rack for height adjustment; Clamping lever for fixing horizontal swinging Clamping lever for fixing swinging range
Vertical column 560/57	Vertical column for large horizontal arm Height: 560mm, diameter: 57mm Anodized aluminum; Rack for height adjustment Clamping lever for fixing horizontal swinging Clamping lever for fixing swinging range
Vertical column 470/35	Vertical column for ESD/standard horizontal arm Height: 470mm, diameter: 35mm Chrome-plated steel
Baseplates	
Large baseplate	Baseplate for large horizontal arm WxHxD: 400x300x28.5mm Weight: 20kg
Midsize baseplate	Baseplate for standard and ESD horizontal arm WxHxD: 330x220x33.5mm Weight: 17kg
Small baseplate	Baseplate for standard and ESD horizontal arm WxHxD: 260x220x33.5mm Weight: 13.5kg

## Dimensions

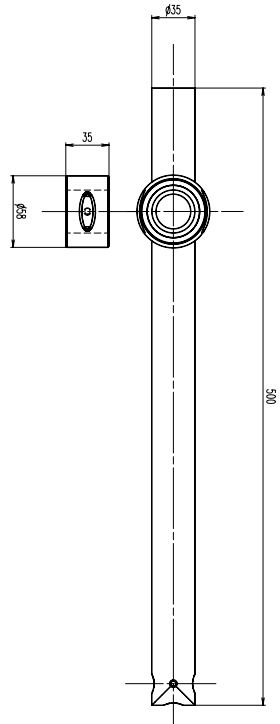
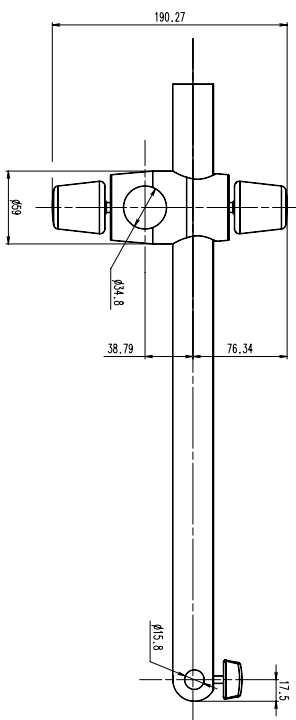
### Large horizontal arm



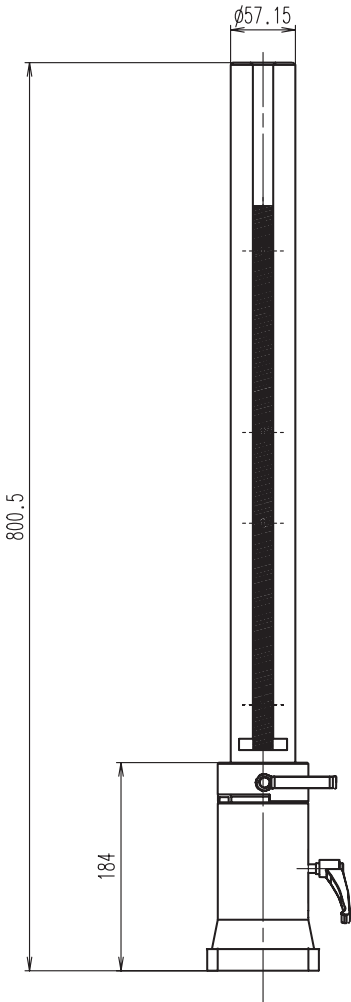
# Standard horizontal arm



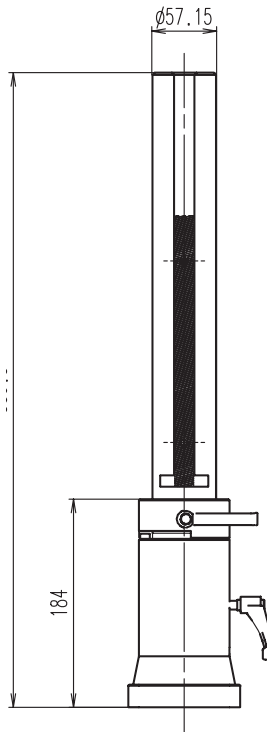
# ESD horizontal arm



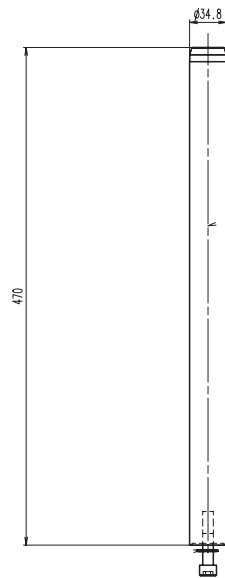
**Vertical column 800/57**



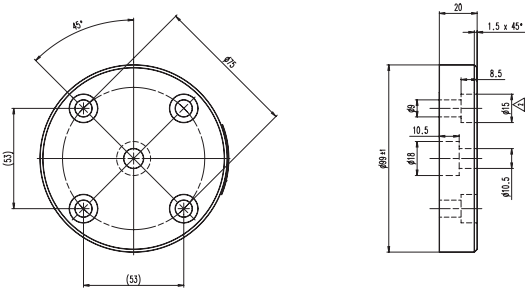
**Vertical column 560/57**



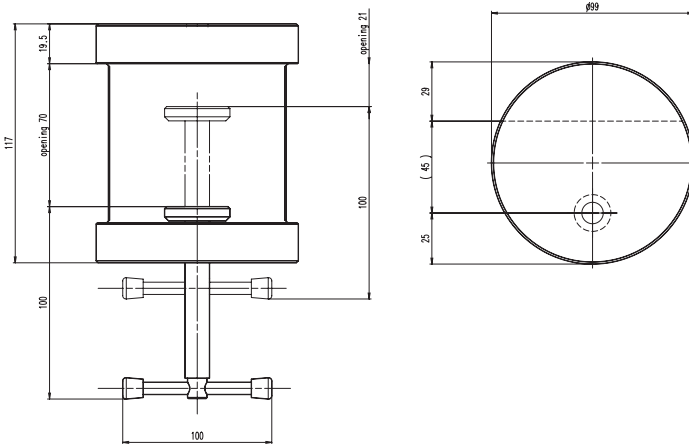
**Vertical column 470/35**



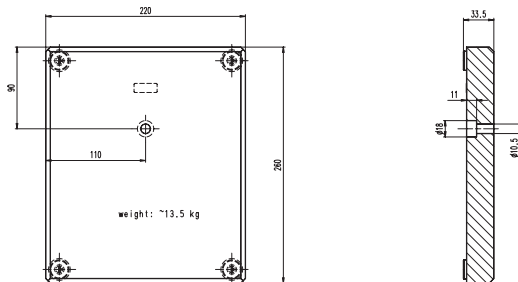
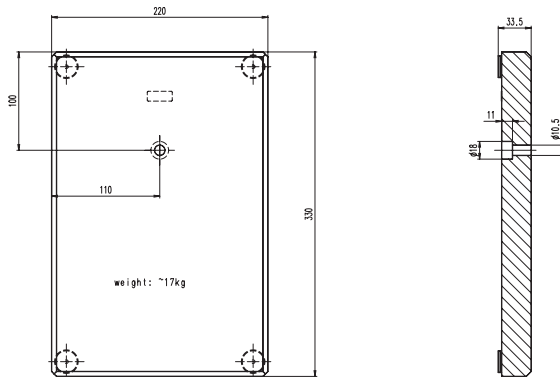
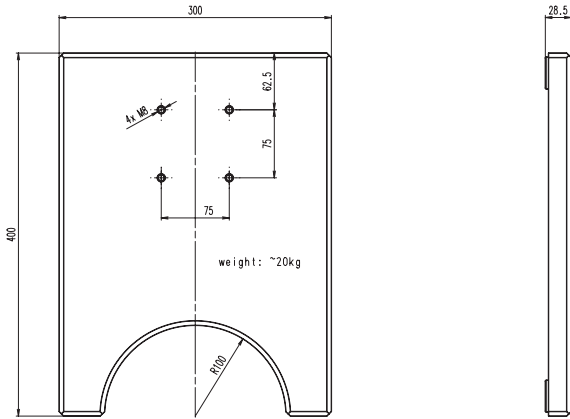
## Flange



## Stage clamp



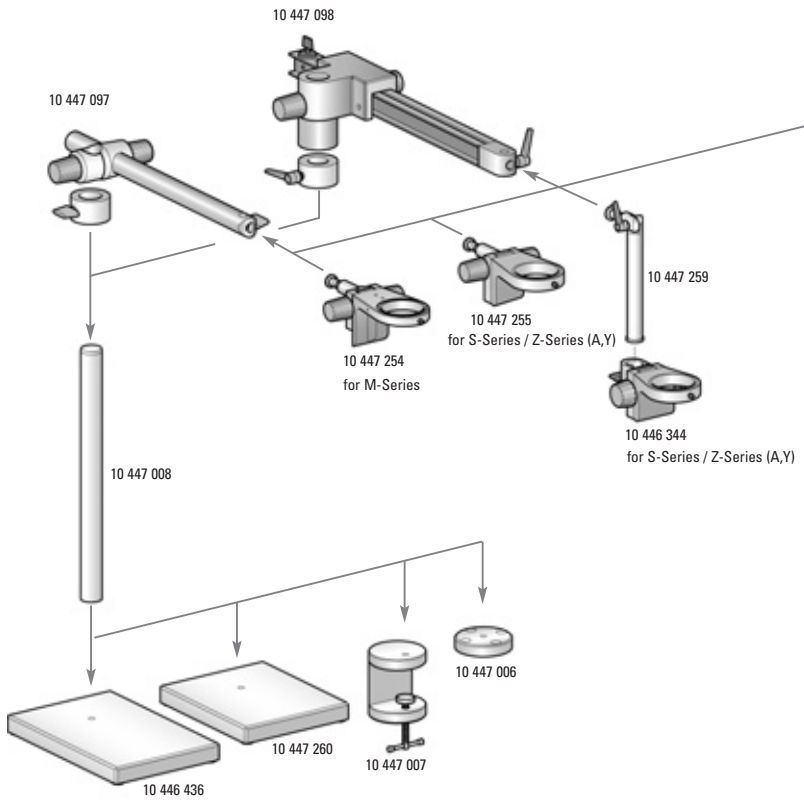
## Large, midsize and small baseplates

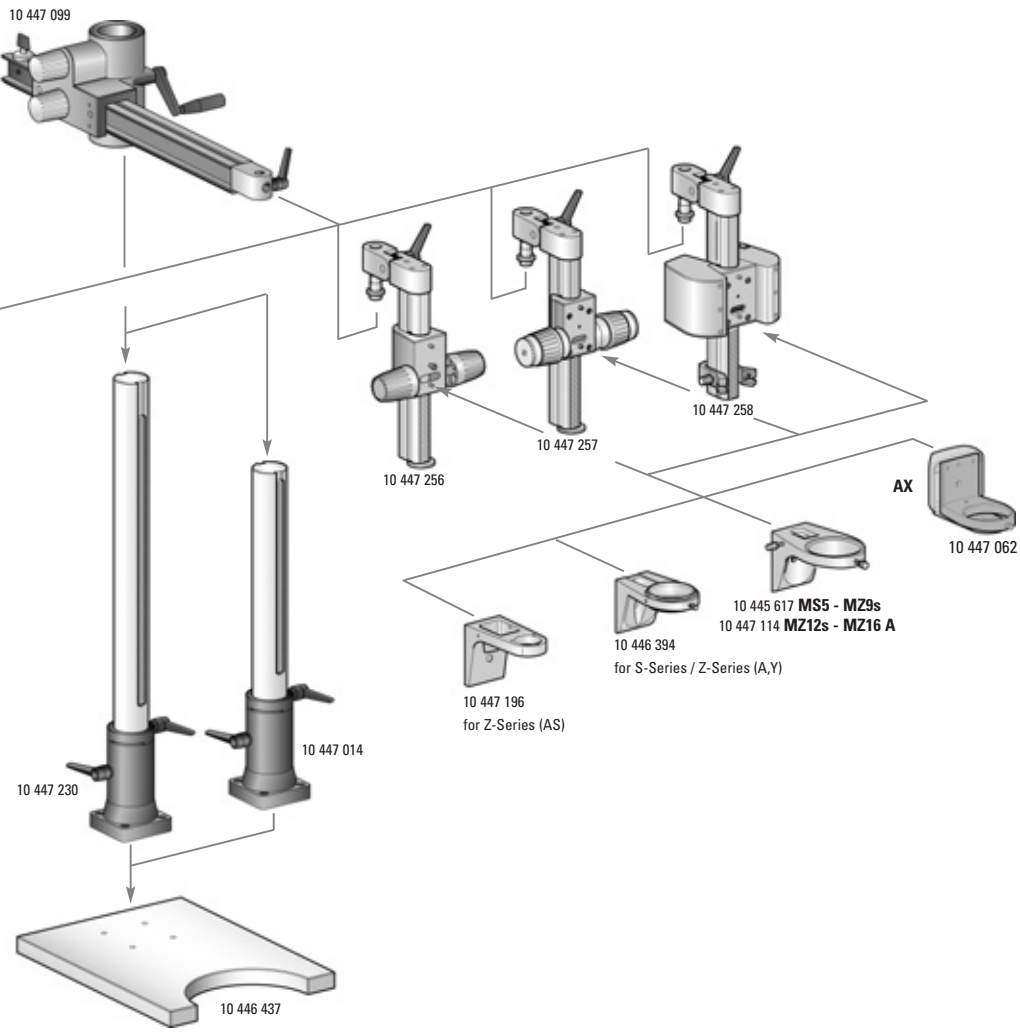


## Part numbers with short descriptions

10 447 097	ESD horizontal arm
10 447 098	Standard horizontal arm
10 447 008	Vertical column 470/35mm
10 447 260	Baseplate, small
10 446 436	Baseplate, midsize
10 447 006	Flange
10 447 007	Table clamp
10 447 254	Focusing drive, inclinable, M series
10 447 255	Focusing drive, inclinable, S series / Z series
10 447 259	Carrier rod, inclinable, $\varnothing$ 25mm
10 446 344	Focusing arm, for columns with $\varnothing$ 25mm
10 447 099	Horizontal arm, large
10 447 014	Vertical column 560/57mm
10 447 230	Vertical column 800/57mm
10 446 437	Baseplate, large
10 447 256	Focusing drive, inclinable
10 447 257	Coarse/fine focusing drive, inclinable
10 447 258	Motorized focus, inclinable, 300mm
10 447 196	Microscope carrier for Z series
10 446 394	Microscope carrier for S-series / Z-series
10 445 617	Microscope carrier for MS5 – MZ95
10 447 114	Microscope carrier for MZ125 – MZ16 A
10 447 062	Microscope carrier AX for MZ125 – MZ16 A

# Assembly diagram of swing-arm stands





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