

# NUTRON 4.0

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## OPERATING INSTRUCTIONS



CINETICA

Cinetica NU.TRON 4.0 Operating Instructions

Version from 15/03/2023

English | Original

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# Safety information

## Explanation of hazard pictograms used in this document

Hazard pictograms are used in this document. The meanings of these hazard pictograms will be explained in the following section. A distinction is made between mandatory safety signs and warning signs.

### Mandatory instructions



Observe operating instructions



Protective footwear must be worn

### Warnings



General warning symbol



Warning – electrical voltage



Warning – danger of crushing of hands



Warning – danger of crushing



Warning – risk of falling

# Safety information

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## Observing the Operating Instructions

Before the NU.TRON is assembled and used, the operating instructions must have been read and understood.



The Cinetica NU.TRON must always be set up and used in accordance with the manufacturer's operating and assembly instructions. The limits specified by the manufacturer (operating limits and permissible loads) must always be observed. These limits must not be exceeded.

## Guarantee:

The manufacturer accepts no liability for damages or injuries resulting from failure to observe the operating instructions or improper/negligent use of the product.

## Assembly and operation of the NU.TRON:

The NU.TRON must only be assembled and operated by personnel with appropriate levels of experience and training. At least two people are required to transport and assemble the NU.TRON. The NU.TRON must be secured after you are finished using it, in order to prevent it from being used by untrained personnel.

Operating the NU.TRON while under the influence of alcohol, drugs or any other intoxicating substances is strictly prohibited. Personal protective equipment must be worn. (protective footwear etc.).

Always ensure that the correct amount of counter weight is used during the assembly process and during operation.

## Stability of the NU.TRON system:

It is highly recommended that the NU.TRON is used in conjunction with the Cinetica BASE floor stand or a static equivalent. The NU.TRON system must be aligned so that it is perfectly horizontal to its substructure, i.e. the base stand.

Before the NU.TRON is used, ensure that the ground is stable and there is no risk of the NU.TRON sinking into the ground. The ground must have a load-bearing capacity of at least 1000 kg/m<sup>2</sup>. The ground on which the base or an equivalent substructure is standing must be flat and must not have a slope of more than 2%.

The NU.TRON must only be transported on a level, even and stable surface using solid rubber tyres or castors in accordance with safety guidelines.

## Proper use of the NU.TRON/NU.TRON system:

The NU.TRON is a camera guidance system for the filming of scenic representations in staging and production facilities in buildings or outdoors and is designed for use on ground that is mostly even and level.

It is designed for use on the Cinetica BASE floor stand and Cinetica Risers or stationary equivalent stands and stand columns or moveable dolly systems for the mounting of film cameras. In normal operation, it is designed for manual movement of a camera by only one person at the front of the NU.TRON by using their hands on the camera, the mounted fluid head and/or the handle.

The NU.TRON is approved for use in temperatures ranging from -20° C to +40° C.

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## Safety information

Operation of the NU.TRON on a dolly is only permitted with studio wheels (solid rubber) or track wheels. Operating the NU.TRON with pneumatic tyres is not permitted in this case. The wheels of the dolly must be checked before and during operation.

The NU.TRON system must only be set up and commissioned on level, even and stable ground in accordance with the relevant safety guidelines.

The NU.TRON is moved at the camera connection by a trained and authorised person using their hands on the camera or using the handle.

Proper use of the NU.TRON requires that the NU.TRON is only used within the permissible operating limits, as specified in these Operating Instructions.

The NU.TRON system must only be moved in a horizontal position on a stable surface or with an appropriate dolly. Both when a stationary base is used and when a moveable substructure is used, the ground or the track of the dolly must be completely level, even and free from obstacles. The substructure must be absolutely level and secured against any type of slipping.

It is recommended to use the Cinetica BASE floor stand with Cinetica RISERS. Alternatively, comparable stands or dollies can be used. However, these alternative options must have a payload capacity of at least 200 kg!

A great deal of caution must be used when moving the NU.TRON system (walking pace)!



Operating the NU.TRON while it is on a vehicle is strictly prohibited! The manufacturer rules out any warranty claims and accepts no liability for damages resulting from the NU.TRON being used on a vehicle.

The NU.TRON must never be used as a lifting crane! This means that attaching load-handling equipment such as ropes or similar to the camera connection or other components of the device and then lifting or lowering impermissible loads in this way is prohibited. Correct operation of the device involves connecting cameras and camera/film accessories to the device using the provided connection elements and performing tracking shots within the secured area.

Attaching objects – such as equipment, grips, cables, monitors, batteries etc. – to the NU.TRON and its components (e.g. on the profiles of the arms) is not permitted. It does not matter whether these objects are attached via permanent screw connections or flexible attachment elements such as straps, adhesive tape or cable ties. All types of equipment must only be mounted on the designated interface of the Euro mount. If this instruction is not followed, the proper function of the NU.TRON cannot be guaranteed, as this significantly disrupts the weight counterbalancing.

The NU.TRON must not be immersed in water or used under water! Water penetrating into the NU.TRON will damage it.

We strongly recommend refraining from using the NU.TRON in heavy rain or snow. If the NU.TRON becomes wet or moist due to weather conditions, including due to condensation resulting from rapid changes in temperature, it must be dried as quickly as possible. To dry the NU.TRON, leave it in a room with adequate heating and ventilation while assembled and in an extended position for at least 24 hours until it is completely dry.

# Safety information

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Operating the NU.TRON:

The entire camera movement range and swivel range of the NU.TRON must be kept free of all obstacles at all times. A safety distance of at least 1m must be maintained on all sides. The NU.TRON must be at least 1 m away from other objects or physical structures during operation. The NU.TRON system must only be operated by authorised personnel.

If there is a chance of misbehaviour or improper conduct by the public, the area around the NU.TRON must be protected by means of cordons or security personnel.



Danger of tripping and slipping

- a) The movement area of the cameraman/camerawoman or camera operator must be free from obstacles.
- b) Ensure that the flooring is slip-resistant.
- c) Test out the movement sequences where critical positions are approached while considering other structures.

Please allow for safe distances in the production process.

Operating the NU.TRON while under the influence of alcohol, drugs or any other intoxicating substances is strictly prohibited. Personal protective equipment must be worn (protective footwear, gloves etc.).

In order to prevent accidents resulting from approaching overhead power lines in an impermissible manner, always maintain a safe distance from overhead power lines.



Operating the NU.TRON close to high-voltage power lines is not permitted. If the rated voltage is unknown, a minimum safety distance of 5 m at all sides must be maintained.

When this safety distance is not observed, there is a risk to life.

You must not perform any jerky movements or use force to overcome the resistance at the movement end point of the extended arm.

The camera system and all of its components, such as the jib arm and fluid head, must be mounted securely and properly and must be secured in place.



Attention: Objects on the payload side must only be dismantled/removed after the appropriate amount of counter weight has been removed from the counter weight connection and there is no risk of the camera arm jumping up suddenly. Failure to observe this instruction could result in personal injury.

To ensure safe operation of the NU.TRON, jerky or sudden movements must be avoided. Residual risks may arise as a result of persons being situated in the movement and swivel range of the NU.TRON arm. NU.TRON operators must receive appropriate training on this issue and must only perform movements with the NU.TRON in the safe movement range.

Before commencing operation, all screw joints and locking bolts must be checked to ensure they are fitted properly and securely.

NU.TRON accessories:

For safety reasons, the NU.TRON must only be operated with original accessories from Cinetica.

# Safety information

Conduct in the event of accidents or damage:

If failure to observe the operating instructions or other circumstances result in an accident, please proceed as follows:

- In the event of damage to the NU.TRON, the manufacturer should be informed, and the degree of damage and course of events that caused the damage should be explained as truthfully as possible. Consult the manufacturer to clarify next steps. Generally, the damaged parts are sent to the manufacturer to be repaired or replaced.

Operating the camera system with a damaged NU.TRON or damaged individual components is prohibited. The manufacturer accepts no liability for damages or injuries that arise as a result of the system being used with damaged material.

- In the event of damage or accidents (injured persons), the locally applicable health and safety regulations must be observed!

If anything is unclear, please contact us for clarification.

The NU.TRON should be taken out of operation in the event of thunderstorms, hail, heavy rain and snow. In the event of thunderstorms, seek shelter in closed vehicles (lightning protection).

General safety information regarding operation of the NU.TRON:

Attention: Always ensure that the movement range of the NU.TRON is kept free, in order to avoid collisions and crushing injuries!

When attaching the payload, camera and camera accessories, such as the boom or fluid head, always ensure that the correct order – as specified in the assembly instructions – is followed and that counter weights are used appropriately to prevent the risk of injuries! The maximum load-bearing capacity must not be exceeded!

Generally, the NU.TRON must never be left unattended.

Always use the locking function provided by the transport strap for the NU.TRON when the device is not in use. This prevents unintentional movement of the NU.TRON, e.g. due to wind on the film set. Ensure that the device is handled with care.

General safety information regarding assembly of the NU.TRON:

Attention: During assembly of the NU.TRON or during the mounting of attachments or other devices such as a camera and camera equipment on the NU.TRON, the castor/wheel brakes of moveable substructures (stand with wheels/castors or dolly) must always be applied in order to prevent the system from rolling away and to prevent the risk of body parts or components being crushed!

General safety information regarding transport of the NU.TRON:



Attention: In order to avoid impacts and crushing hazards while transporting the NU.TRON or its accessories, we recommend using the corresponding transport case, securing the case properly and transporting it in accordance with the operating instructions.



The lock of the NU.TRON must be secured in order to transport the NU.TRON.

In general, when transporting goods (devices, machines, components and accessories), appropriate care should always be taken to ensure the load is secured in accordance with the relevant statutory provisions!

**EC declaration of conformity**

in accordance with

**EC Machinery Directive 2006/42/EC,**

Annex II 1 A, OJ L 157/24 from 09/06/2006

We, the manufacturer, declare under our sole responsibility that the load-handling device described below complies with the relevant provisions and harmonisation legislation of the above-mentioned directive.

**Product designation**

Product for lifting and guiding film cameras up to a maximum of 20 kg on side loaders with a Euro mounting stud interface up to a maximum length of 350 mm, which are not part of this Declaration of Conformity, an also on an

- Optional CINETICA camera stand with Euro mounting stud or Mitchell mount interface and
- Optional CINETICA camera counter weights.

In the event of the integration of this product on other camera stand or the integration of other camera counter weights, the integrator is responsible for the conformity of the overall system.

**Product designation**

**NU.TRON**  
FM4

**Identification**

Type plate on the main arm

**Drawing number**

CN004

**Production date**

2022 - 2029

**Serial number**

CN004.22.001 - CN004.29.999

**Manufacturer and address**

**Cinetica GmbH**  
St.-Martin-Str. 7  
81541 Munich, Germany

**Authorised representative**

Herr Jan Riepert

**Harmonised standards used in full or in part, in particular****Safety of machinery**EN ISO 12100:2010 – *Risk assessment and risk reduction*EN 1005-2:2003+A1:2008 – *Manual handling of objects*EN 1005-3: 2002+A1:2008 – *Force limits for actions during machine operation*EN ISO 13854:2019 – *Minimum gaps to avoid crushing of parts of the human body*EN ISO 20607:2019 – *Instruction handbook***Design of protective devices**

on the basis of

EN 619:2002+A1:2010 – *Equipment for mechanical handling of unit loads*

**Munich**  
Location

*15.12.2022*

Date

*Jan Riepert*

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Mr Jan Riepert, Technical Director





CINETICA

# Contents

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<i>Page</i>	
3 - 7	<b>Safety information</b>
8 - 9	<b>EC declaration of conformity</b>
10	<b>Contents</b>
11	<b>Warranty</b>
12	<b>Checklist</b>
13	<b>Components</b>
14 - 22	<b>Technical description</b>
23	<b>Technical data</b>
24	<b>Floor stand / substructure</b>
25	<b>Transport/flight case</b>
26 - 55	<b>Assembly &amp; operation</b>
26 - 41	Assembly
42 - 47	Operation
48 - 55	Disassembly
56 - 58	<b>Servicing / maintenance</b>
59	<b>Taking out of service</b>

Thank you for purchasing the Cinetica NU.TRON!  
Please carefully follow the instructions to ensure that your time spent using the system is a purely positive experience.



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Serial number

Date

Assessor

Cinetica GmbH offers a warranty for 12 months after the date of purchase and a warranty scope in accordance with the current statutory provisions.

# Checklist ---

## Contents – NU.TRON 4.0 flight case

- 1 x NU.TRON
- 1x Cinetica AXIS 360 + NU.TRON mount
- 1 x flat base/Mitchell mount nut
- 1 x NU.TRON mount strap
- 1 x Cinetica-Euro-Mount
- 2 x Fixed weights A + B
- 1 x Weight rod + spring clip
- 2 x Weight holding pins
- 8 x Weight plates
- 1 x Operating Instructions

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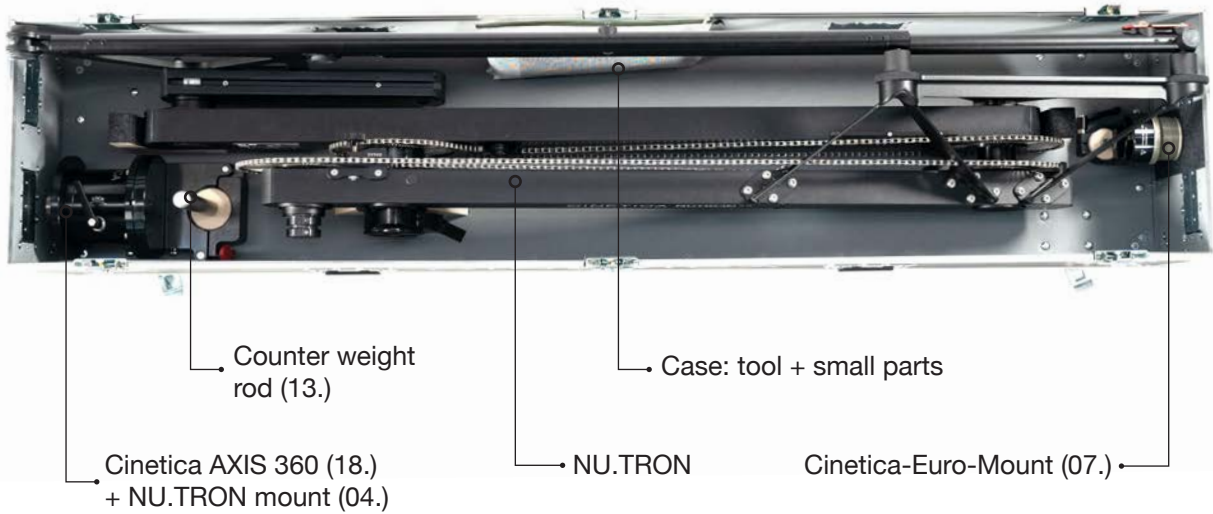
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Packed on date

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Signature

# Components

## Contents – NU.TRON 4.0 flight case

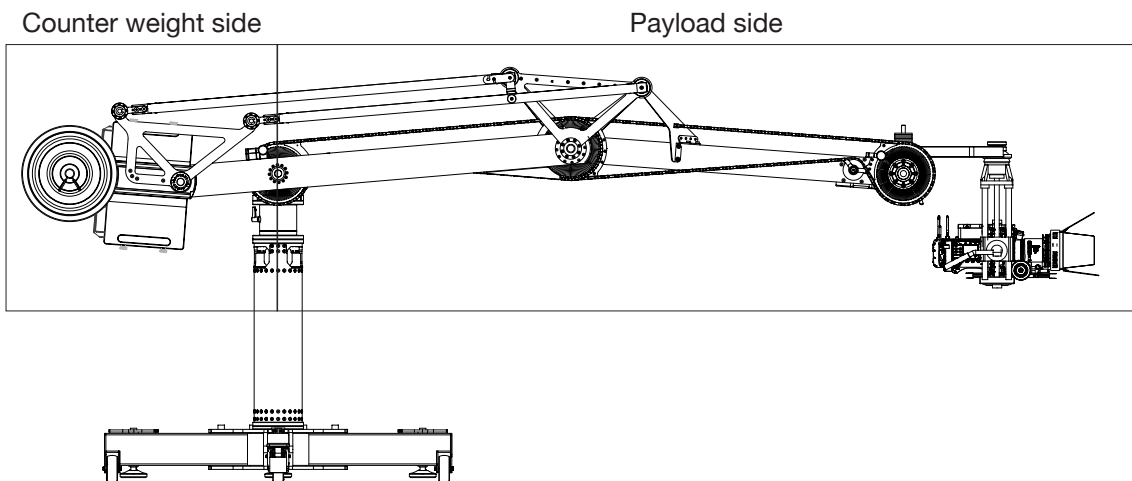
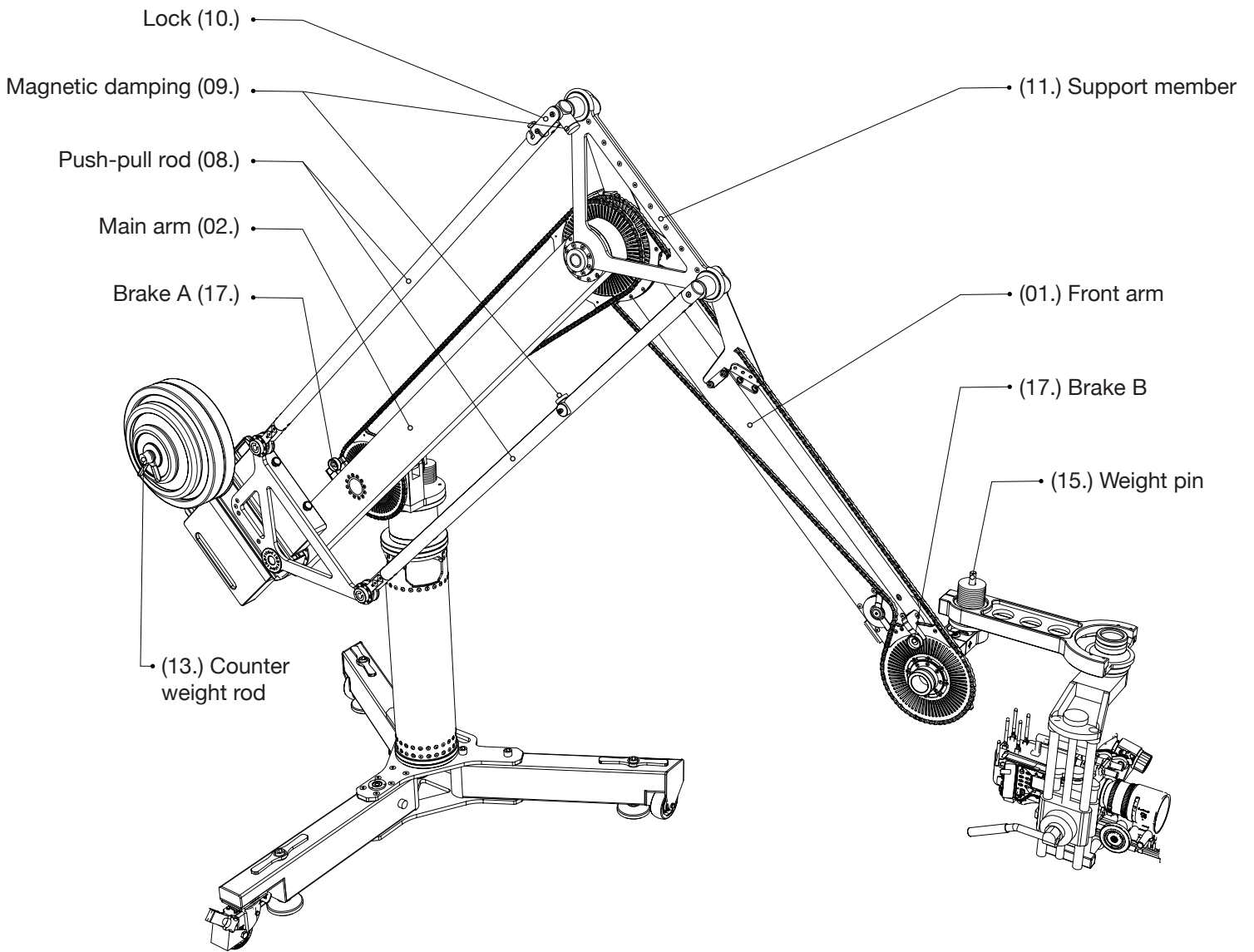


## Case: tool + small parts

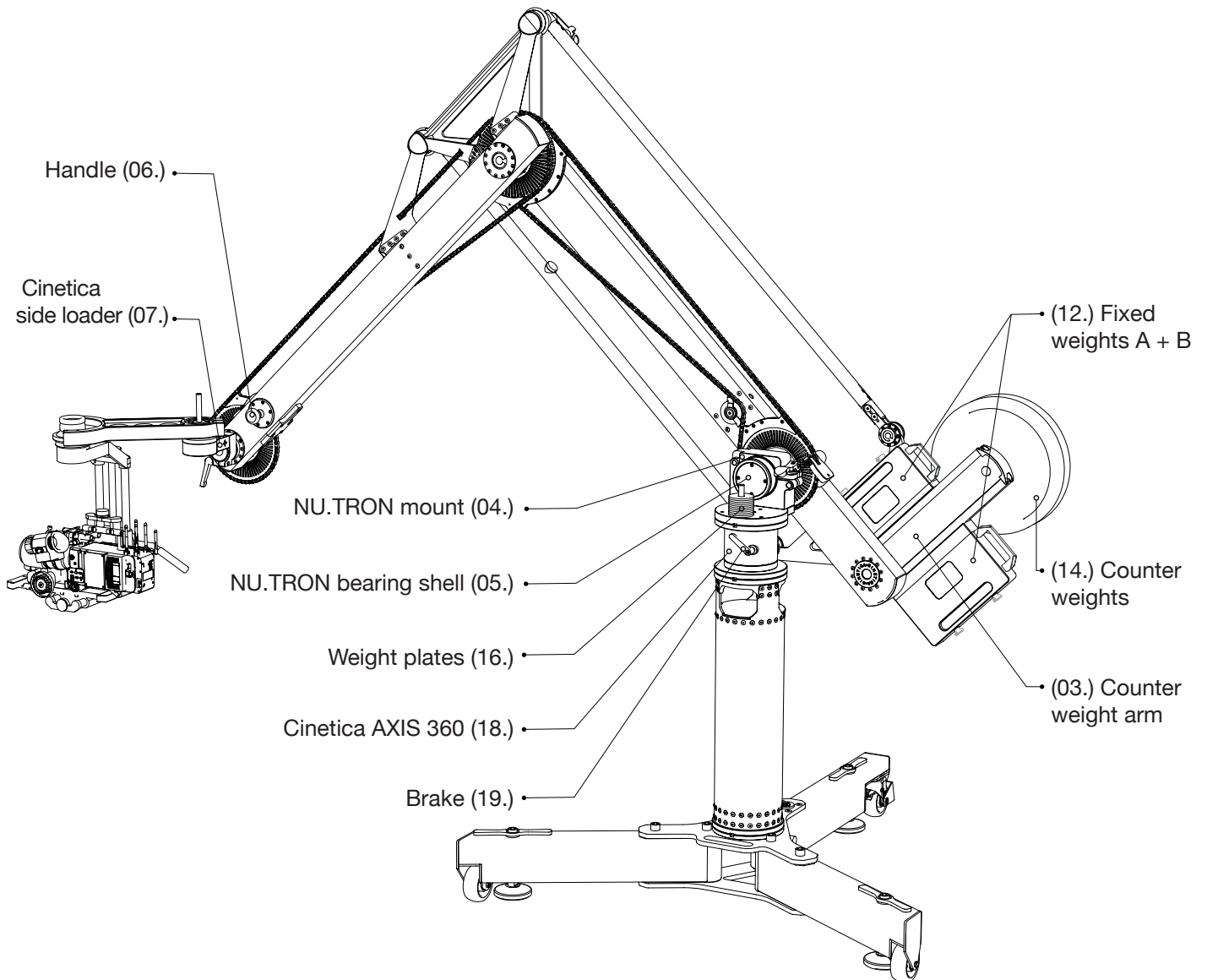


# Technical description

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# Technical description

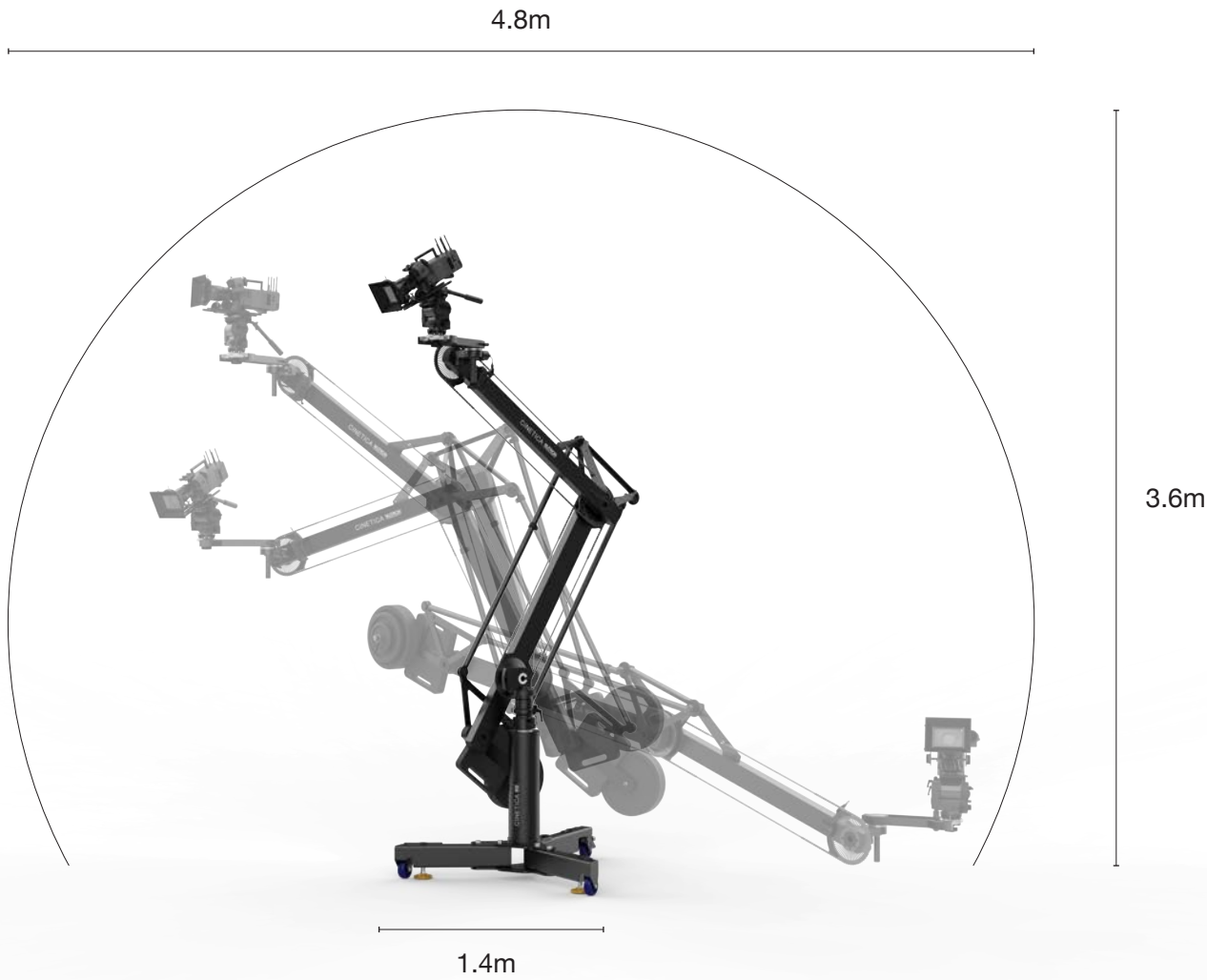


# Technical description

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## Reach and dimensions

In the transport position, i.e. in the pack size, the NU.TRON measures approx. 210 x 50 x 350 cm. When extended up to the end position, the reach from the base centre point is approx. 250 cm. The total length of the extended arm including the mounted counter weights approx. 340 cm. The vertical reach depends on the substructure, i.e. the base, and the height of the risers used and is calculated from the height of the mounted NU.TRON mount (04.) and the 250 cm of the extended NU.TRON.





# Technical description

## Horizontal reach

The horizontal reach is calculated from the dimensions between the movement axes of the NU.TRON. The NU.TRON can be extended by around 2.5 m from the centre point of the base. From one side of the movement radius to the other, this enables a movement range of around 5 m.

When the camera side is extended horizontally, the opposite weight arm extends at the same ratio. Based on this, the required safety distance from other objects and the structural surroundings is at least 1 m and the recommended safety distance is 1.5 m.



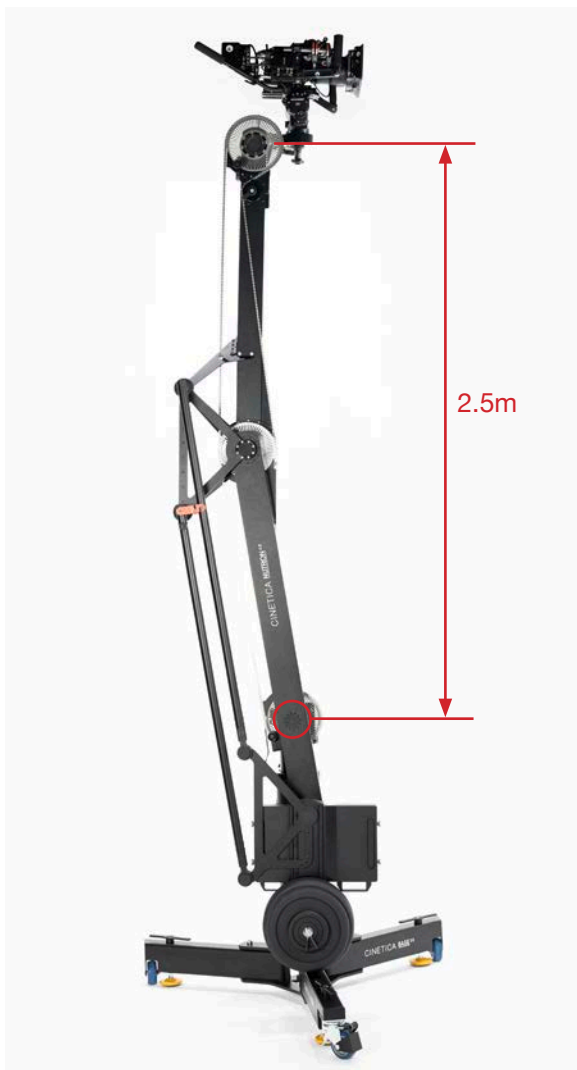
# Technical description

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## Vertical reach

The vertical reach of the camera on the NU.TRON depends on the individual assembly. The reach of the NU.TRON measured from the central axle bearing is approx. 2.5 m when fully extended.

The fully extended length can only be achieved when the stand column provides a minimum distance of 1 m between the centre point of the NU.TRON bearing shell (05.) and the floor stand or the dolly. For assemblies with a smaller distance between these points, when the assembly is extended vertically, the counter weight arm or the counter weights collide with the stand or dolly. This collision can damage the system.



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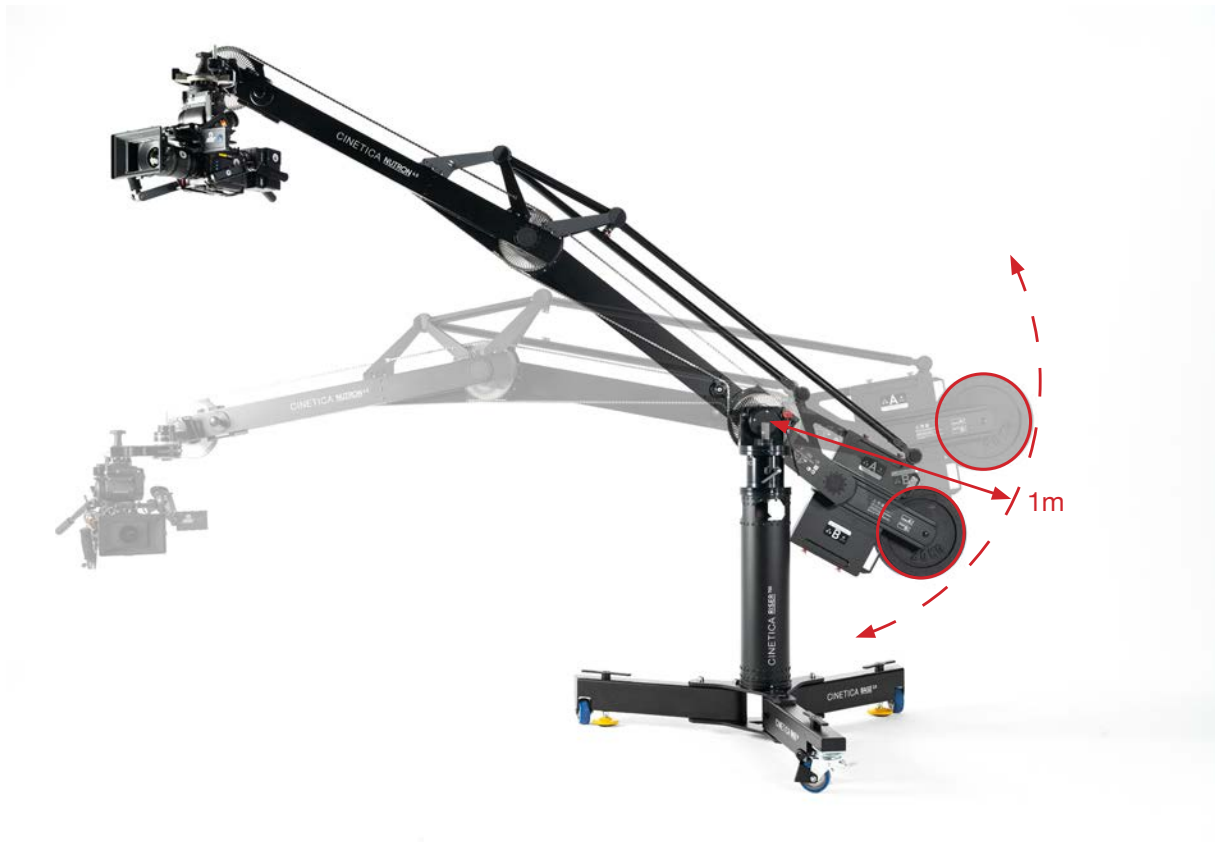
## Technical description

For this reason, it is important to plan the desired movement and reach and to design the assembly accordingly.

An assembly with 70–100 cm columns is recommended in order to ensure the appropriate distance is maintained. Attachments with shorter columns should only be used in special circumstances that require a lower assembly, e.g. in rooms with low ceilings, in areas around doors or if hanging objects are present. In this case, a great deal of care and attention is required to avoid potential collisions.

### Distance – walls and objects

Attention: The minimum distance between the NU.TRON mount, i.e. the rotation axis of the centre point of the stand, and the nearest object or spatial boundaries such as walls, furniture or other objects must be at least 100 cm. The distance must never fall below this under any circumstances. If this instruction is not observed, there is a risk of collisions that could result in personal injury.



# Technical description

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## Use of the stand columns (risers / bazookas)

The NU.TRON must only be used on substructures that allow the counter weight arm to pass by unobstructed when the system is moved. This means that classic tripods are ruled out. On every substructure, whether it is a floor stand or a dolly, columns, risers or bazookas must be used to build up the assembly to allow the rear section with mounted counter weights to pass by unobstructed with a clearance of at least 25 mm. The Cinetica risers are specifically recommended!

Attention: If this instruction is not observed, there is a risk of crushing injuries and a risk of components colliding with each other, which could cause material to fail and even cause the whole system to tip over.



## Distance – floor and substructure

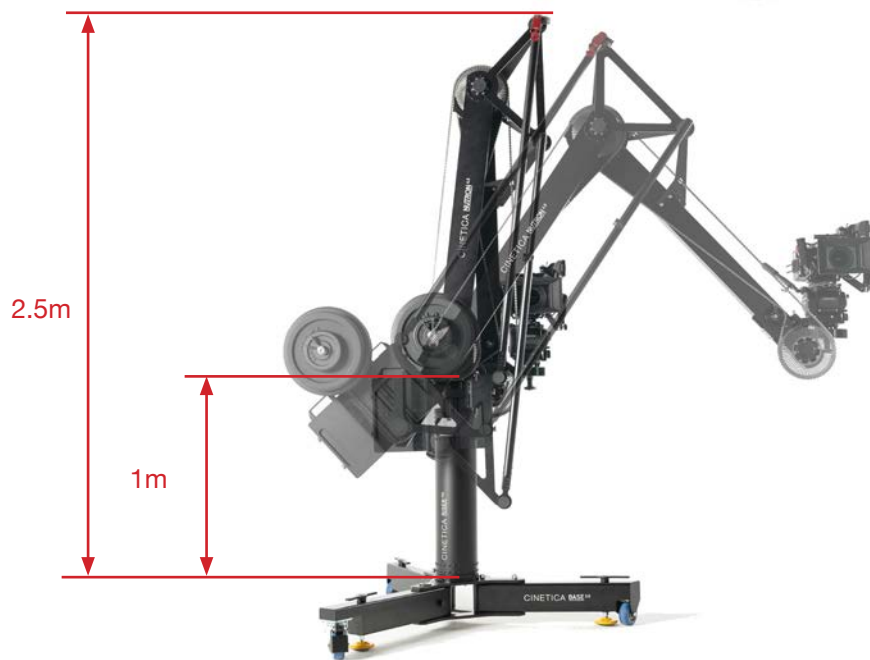
Depending on your requirements, the height of the main joint of the NU.TRON can be adjusted by changing the height of the column. Here, the planned movement of the camera, the required tracking shots and the associated movement of the counter weight side must be taken into account. Depending on space requirements, e.g. in areas with low ceilings, a low assembly using short columns may be required. In this case, a great deal of attention must be paid to ensuring that the movements performed do not pose a risk of collision with the ground, the floor stand, the dolly or other objects. A technical trial run of the tracking shot should always be performed with a great deal of care. The movement should be observed and appropriate modifications should be made if there is a collision risk.

## Distance from ceiling

In an example assembly (see image) with the Cinetica BASE 2.0 and a Cinetica RISER 700, the free movement of the NU.TRON in all directions is guaranteed for a ceiling height of 2.55 m.

For lower ceiling heights, smaller stand columns can be used.

For all attachments, a technical trial run should always be carried out to check for sufficient freedom of movement.



## Assembly height

Attention: The maximum assembly height of the NU.TRON from the NU.TRON mount to the floor stand or the dolly must be no more than 1.40 m. This corresponds to a maximum height of the column assembly of 1.20 m. When using high assemblies like these, the ratio of the total assembly height and the width of the stand should always be taken into account and the specifications from the manufacturer of the stand or dolly should be observed. Failure to do so may result in a risk of the system tipping over.

# Technical description

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## Payload

The Cinetica NU.TRON 4.0 is a lightweight construction made of special rectangular aluminium profiles. Despite the low overall weight of 33.5 kg, the NU.TRON 4.0 can support maximum camera weights of 20 kg.

Cinetica NU.TRON 4.0	Product weight:	33.5 kg
	Payload:	max. 20 kg
	Counter weight:	max. 60 kg

## Stand and ground

The stand must have a load-bearing capacity of at least 200 kg. The ground must be level and firm and must have a load-bearing capacity of at least 1t/m<sup>2</sup>. There must be no possibility of the contact points of the base sinking into the ground. Measures must be taken to prevent this depending on the ground conditions. The stand must be levelled so that it is absolutely horizontal.

We specifically recommend using the Cinetica BASE floor stand with Cinetica RISERS.

In order to use the recommended Cinetica RISERS, the stand or dolly must have a flat base/Mitchell mount. As described under "Use of the stand columns (p. 20)", the substructure must be structured in such a way that it enables the counter weight arm to pass by unobstructed in every movement and position of the NU.TRON.

When all of these prerequisites are met, it is possible to use equivalent substructures to the Cinetica BASE in combination with Cinetica risers or to use a dolly to further extend the reach of the NU.TRON.

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## Technical description

### NU.TRON Technical specifications

- Max. payload: 20 kg
- Max. horizontal reach: approx. 5 m
- Max. vertical reach: approx. 3.6 m
- Product weight: 33.5 kg
- Pack size: 2.1 x 0.5 x 0.35 m
- Max. counter weight: 60 kg
- Total counter weight: 40 kg (1x18 kg + 1x25 kg)
- Stand connection: Mitchell
- Camera connection: Euro
- Min. stand load-bearing capacity: 200 kg

### CINETICA Product family

Cinetica NU.TRON 4.0  
Cinetica WEIGHTS (set: 2x20kg, 1x15kg, 1x10kg, 1x5kg, 1x2.5kg, 1x1.25kg, 2x0.5kg)  
Cinetica BASE 2.0  
Cinetica RISER 150, RISER 200, RISER 300, 400, 500, 700, 1000  
Cinetica FLAT BASE EURO Adapter  
Cinetica AXIS 360°  
Cinetica SIDE LOADER 20, SIDE LOADER 35  
Cinetica STEADIBAM  
Cinetica FLIGHTCASE

# Floor stand / substructure

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## Cinetica BASE and Cinetica RISERs

The ideal substructure for the NU.TRON is the Cinetica BASE with the Cinetica RISERs. This floor stand and the stand column are developed especially for use with the Cinetica NU.TRON 4.0. Not only does this configuration guarantee a high load capacity with a high level of safety, it also results in a low-oscillation and low-vibration system. This ensures the lowest levels of camera shake during all kinds of tracking shots with the NU.TRON.

The Cinetica RISER devices are designed in such a way that they guarantee that the counter weight side of the NU.TRON can travel freely in every position. The RISER series makes it possible to achieve all desired heights with the assembly.

The Cinetica BASE and Cinetica RISER devices also provide a particularly stable and rigid subsurface for other attachments, such as jibs, lightweight camera cranes and sliders.

## Floor stands

Floor stands used with the Cinetica NU.TRON 4.0 must have a minimum load capacity of 200 kg. The span width must not be below 80 cm. The stand must have a levelling function, so that the base can be absolutely horizontal. When using the Cinetica RISER devices, it is recommended to use a flat base/Mitchell mount. Alternatively, a stand with a Euro mount can also be used in conjunction with the Cinetica FLAT BASE to EURO adapter. However, this option is less stable. Stands with heavy-duty castors (min. load capacity of 200 kg) for transporting the system can only be used if the castors can be braked.

## Dollies

Dollies used with the Cinetica NU.TRON 4.0 must – like the floor stand – have a minimum load capacity of 200 kg. The span width of the wheels must be at least 80 cm. Moving the dolly while using the NU.TRON is only permitted when the dolly has solid rubber tyres or track wheels on tracks with a width of 100 cm. The use of lift units or scissor units on dollies must always be implemented in accordance with the specifications from the safety information and the description and representation in the section “Technical description” – “Use of the stand columns” and “Distance from floor and substructure” (p. 20).

Attention: In most cases, lifting columns need to be extended with stand columns in order to ensure that the counter weight section of the NU.TRON can safely pass by.

The ideal assembly on a dolly is assembly on the dolly base without a lifting unit and with an appropriately sized stand column that rules out a collision between the counter weight section of the NU.TRON and components of the dolly.

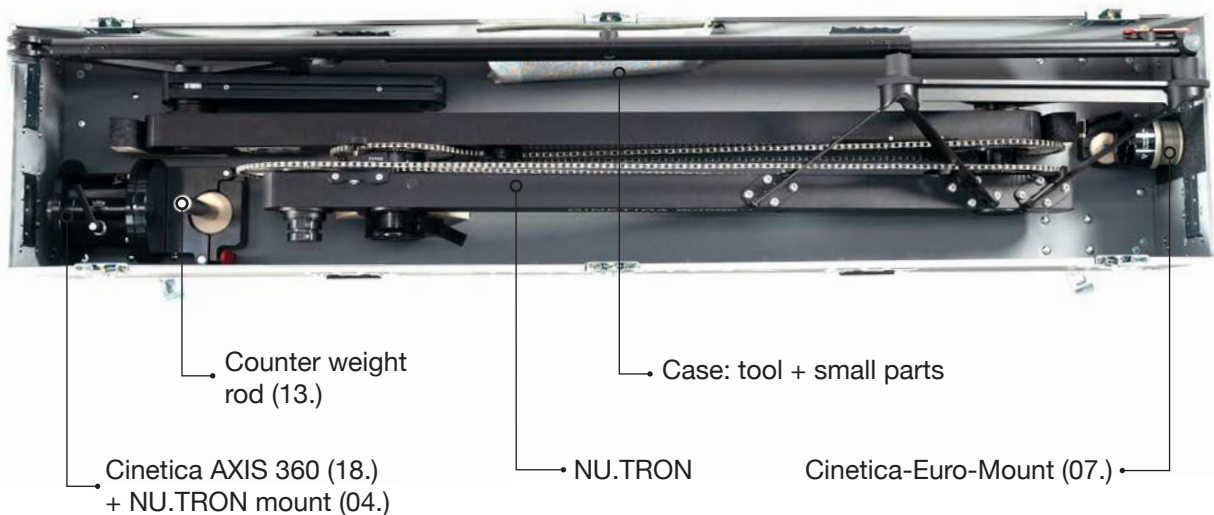


# Transport/flight case

## Transport

The NU.TRON is delivered in the Cinetica flight case. The Cinetica flight case provides optimal protection for the NU.TRON and should be used every time the NU.TRON is transported. The case is equipped with swivel castors that can be braked and enables easy and safe transport of the system. The arm and its components that are disassembled for transport weigh approx. 33 kg in total. The lightweight flight case weighs 25 kg. The packed transport case has a total weight of 58 kg and must be lifted by a minimum of 2 persons using the provided handles. The flight case must always be secured using the brakes on the castors. When transporting the BASE with motor vehicles, the usual rules of transport and load securing apply.

## Contents – NU.TRON flight case



# Assembly & operation

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## Assembly

1. For the assembly, the substructure (Cinetica BASE + Cinetica RISER, floor stand + column or dolly + column) must be set up and levelled on an appropriate surface (see “Safety information” and “Technical data”).



## Assembly & operation

2. Then take the pre-assembled Cinetica AXIS 360 (18.) with the NU.TRON mount (04) out of the flight case and attach this to the column via the flat base/Mitchell mount. Use the supplied flat base wrench and ensure that the connection is secure. Turn the NU.TRON mount (04.) to the desired position and lock the rotation on the AXIS 360 (18.) using the brake handle (19.).



## Assembly & operation

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3. Open the mounting clip of the NU.TRON mount (04.) using the cam lever.

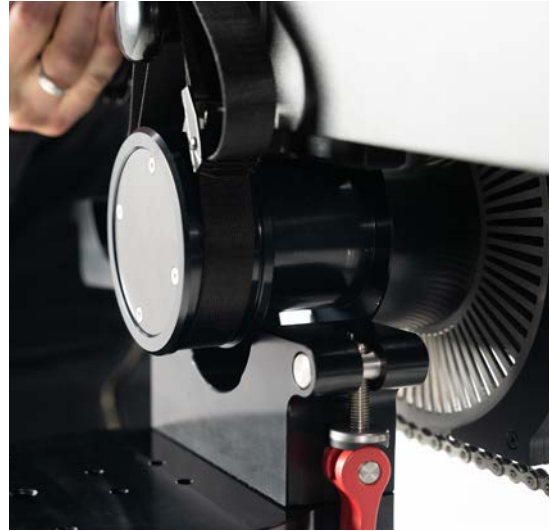


4. With two people, lift the NU.TRON evenly out of the flight case via the push-pull rods (08.).



## Assembly & operation

5. Lift the NU.TRON so that the NU.TRON bearing shell (05.) is over the open NU.TRON mount (04.) and set it down so that the two elements interlock.





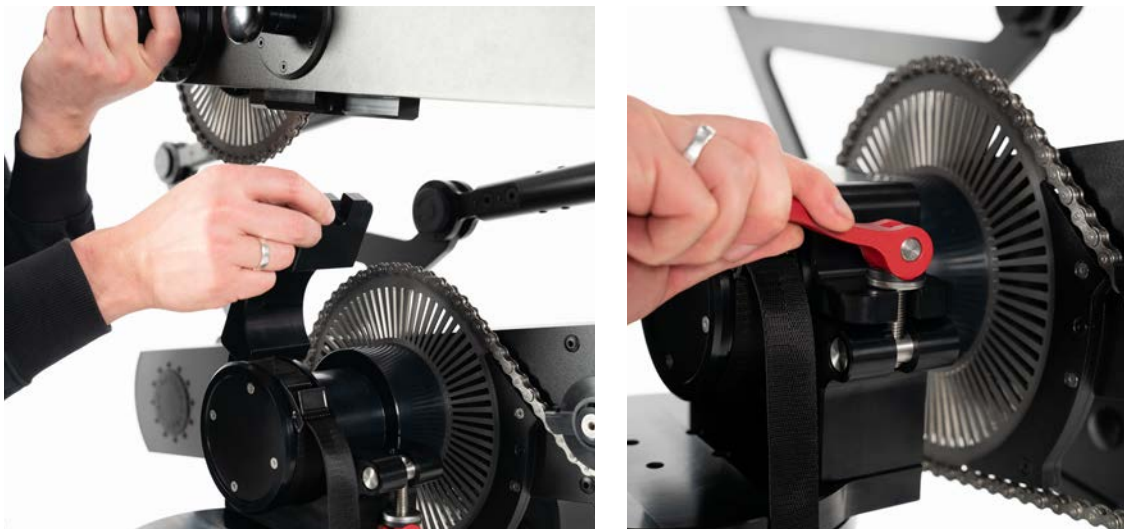
## Assembly & operation

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6. Open the transport strap while a second person secures the NU.TRON by holding the front supporting structure (11) in a horizontal position. Then the strap can be cleared away and stored in the strap groove as shown in the image.



7. Lift the front arm of the NU.TRON via the handle (06.) or the Cinetica side loader mounting stud and lock the mounting clip using the cam lever. The second person keeps the NU.TRON in position by holding the support member (11.). Ensure that the components interconnect cleanly and that the clamp is securely fastened.



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## Assembly & operation

8. Lift the front arm of the NU.TRON via the handle (06.) and move it forwards to extend the NU.TRON to its full length.



9. Set the arm down with the front chain ring resting on the floor, on the flight case or on an apple box, for example.



## Assembly & operation

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10. Secure the arm using the lock (10.). To do this, push the push-pull rods (08.) against the resistance of the magnetic damping (09.) and turn the lock (10.) clockwise into the catch.





## Assembly & operation

11. Mount the fixed weights on the weight arm. While doing so, ensure that fixed weight A and fixed weight B (12.) are positioned correctly. The fixed weights (12.) can be carried and lifted via the plastic handles and the recessed grips in the body of the weight and inserted into the slot on the counter weight arm (03.). Ensure that the fixed weight is inserted into the slot until it securely locks into place.



Attention – danger of crushing! Please be aware of the risk of your hand/fingers getting jammed between the fixed weight and the support member on the counter weight arm.

As soon as the weight is inserted as far as it will do, the fixed weight locking mechanism engages.



## Assembly & operation

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12. Then, first hand-tighten the thumb screws and then tighten them using the supplied Allen wrench AF5 to a tightening torque of 20 NM. Using a reasonable amount of force, attempt to pull the weights out (opposite direction to direction of insertion) in order to ensure that the fixed weights are securely locked in place and protected against slipping out. Repeat this process for the second fixed weight.



13. Remove the counter weight rod (13.) from the flight case and screw this into the opening on the counter weight arm (03.).



## Assembly & operation

14. Remove the Cinetica-Euro-Mount (07.) and mount this on the Cinetica mounting stud. To do this, the securing pin must be pulled out as far as it will go in order to be able to push the side loader onto the mounting stud. Use the spirit level to ensure that the side loader is level. Then tighten the thumb screw so that there is no chance of the side loader twisting when a load is attached.

The Cinetica-Euro-Mount (07.) can also be mounted in an underslung position – i.e. rotated by 180 ° with the Euro mount facing downwards. However, in this case, the subsequent attachments must be mounted with a Euro mount clamp!



## Assembly & operation

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15. The required equipment can now be installed via the Euro mount. When doing this, it can be useful to set the NU.TRON down with the front chain ring resting on the flight case or on an apple box. The maximum payload of 20 kg must not be exceeded! If you are unsure, always weigh the equipment. This number applies to the total weight of all components attached after the Euro mount, such as the extension arm, bowls, fluid heads, gimbals, cameras and all camera attachments, such as lenses, handles, monitors or batteries. At this point, it can be useful to work with extension arms in order to ensure the required freedom of movement of the camera and the operator. In this case, the length of the extension arm from the centre of the Euro mount on the Cinetica-Euro-Mount (07.) must not exceed 350 mm.





## Assembly & operation

16. Screw the weight pin (15.) into the central thread on the Euro mount. If the Cinetica side loader (07.) is mounted in an underslung position – rotated by 180 ° and with the Euro mount facing downwards – then the weight pin (15.) must be screwed into the central thread on the underside of the Cinetica-Euro-Mount (07.). The second weight pin (15.) can be screwed into the designated thread on the NU.TRON mount (04.) so that the weight plates (16.) can be stored on the second weight pin for quick access.



## Assembly & operation

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17. Now put the counter weights (14.) on the counter weight rod (13.). During this process, a second person must stand at the Cinetica-Euro-Mount (07.) and must hold the entire system securely in place via the handle (06.). First put the larger weights on the rod and gradually add smaller weights until the mounted payload slightly raises.  
Attention! Secure the weights on the counter weight rod (13.) using the spring clips.



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## Assembly & operation

18. Use the weight plates (16.) to equalise the weights on both sides and prevent the payload from rising by putting them on the weight pin (15.) on the Cinetica-Euro-Mount (07.) until the NU.TRON is balanced, i.e. when it neither rises nor lowers. Once the NU.TRON is fully balanced, the LOCK can be opened again. To do this, push the push-pull rods against the resistance of the magnetic damping (09.) and turn the LOCK anti-clockwise and out of the catch. Then unlock the brake handle (19.) on the AXIS 360 (18.)



## Assembly & operation

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19. The NU.TRON is now ready for use and filming can begin.



To ensure that the unit continues to function exactly as it should, you should always handle your equipment with care (during assembly, operation and disassembly).

After successfully assembling the unit, all connections, fasteners and locking pins should be checked.

Ensure that there are no unauthorised persons situated within the working area of the NU.TRON.

Always warn all people in the vicinity of the NU.TRON before you move it. When dismantling the NU.TRON or modifying the assembly, a second person must hold the camera in position. Lower the NU.TRON until it rests on the ground or on a solid surface. Only then can you remove the counter weights.



**Warning: During the disassembly process, if you remove the camera before the counter weights, the NU.TRON will jump up suddenly. This could cause the NU.TRON to tip over! This could result in injuries to people!**



## General information

The NU.TRON is an independent camera guidance system that can not be compared to a traditional camera jib or camera crane. Its special movement dynamics make it stand out from other systems.

The relevant ability and basic knowledge in the operation of camera guidance systems, such as camera cranes and dollies, are prerequisites for working with the NU.TRON.

## Moving the camera with the NU.TRON

After the NU.TRON has been properly assembled and set up in accordance with the relevant instructions, it offers the user a stable and weightless camera in every position within the operating range for hand-guided filming processes. This enables a wide variety of tracking shots. The system is incredibly intuitive and makes it easy to move the camera in any direction.

However, it is important to note that jerky movements and particularly quick movements with abrupt stops must be avoided, as these place a great deal of stress on the system due to inertia, and in extreme cases, they can cause the system to become unbalanced.

In addition, all specifications provided in the safety information and the “Assembly” section (p. 26 – p. 41) must be observed at all times and the operating environment must be adjusted accordingly. When working with the NU.TRON, always remain aware of the people around you.

We recommend moving the camera using your hands via the camera itself or the swivel head, and also via the handle if necessary.



## Assembly & operation

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### Using different heads with the NU.TRON

Provided that they are within the payload limit of 20 kg, a wide range of different camera heads can be used for the pan and tilt movements (horizontal and vertical movements) on the NU.TRON. It is your choice which head you use – be it classic fluid heads, Lambda heads, gimbals, remote heads or even the Steadicam.

When making your decision, you should choose an option that offers sufficient freedom of movement of the swivel head. Make sure the head moves freely in all positions of the NU.TRON to prevent a collision between the moving parts on the NU.TRON and the head. Particularly suitable for this are extension arms that create a sufficient distance from the CINETICA-Euro-Mount (07.).

We also recommend Cinetica equipment here. The CINETICA SIDELOADER variants are lighter than traditional side loaders and therefore take up less of the payload so the other equipment can be heavier.

The Cinetica STEADIBAM is a side loader that is specifically designed for the combination of the NU.TRON and the Steadicam.



### Travel distances and end stop

As described in the technical description (p. 14 – 22), the NU.TRON enables the mounted camera to move within a movement radius. The limits of this movement radius are at the end of the extended arm of the NU.TRON (also shown in the technical description on p. 14 – 22). Great care must always be taken when approaching this position with the camera. Forcefully or quickly moving to the end position places a great deal of stress on the system and can damage it.

The magnetic damper (09.) ensures that the user can feel when they are approaching this position, however it does not cushion the load when this position is approached forcefully. Therefore, it is strongly recommended to visualise the limits of the movement radius before using the system, in order to avoid accidentally going beyond these limits.

In addition, a test run of the desired tracking shots should be carried out with a particular focus on assessing and avoiding potential collision hazards.



### Rotation axis of the stand column

In order to ensure that the NU.TRON offers its excellent freedom of movement in all axes, it must be mounted on a pivot mount. The relevant product must be designed to handle the corresponding payload and should have a brake! However, it is important that the brake is not a lock. Instead, the braking mechanism should slip when it is forcefully moved. This is to prevent the system from tipping over when the arm is used incorrectly, which could pose a hazard. We recommend the Cinetica AXIS 360 (18.).

The Axis 360 (18.) also has a brake to stop rotation. This brake handle is only used to secure the system when the NU.TRON is not actively being used to freely move the camera.

When the camera is being moved, the brake must always be open.

The brake is only used to fix the system in position while it is in standby or not in use. It is also used to fix the camera in position when there is a risk of the camera position being moved by external influences, e.g. wind.

# Assembly & operation

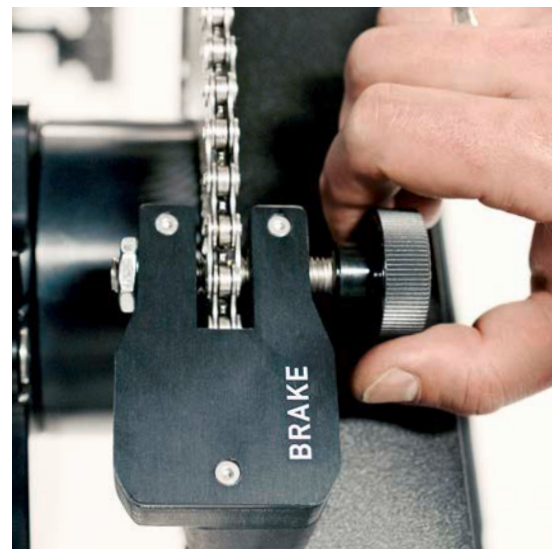
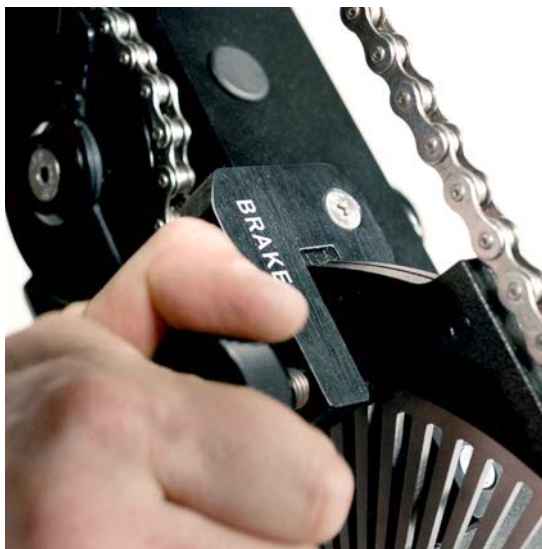
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## Brakes

The NU.TRON is equipped with a front brake (B) and a rear brake (A) (17.) to lock the camera position or NU.TRON position in standby or when the camera is not being moved.



The brakes must always be open when the NU.TRON system is being moved. If this instruction is not observed, there is a risk of the entire system tipping over, which could result in injuries to people in the vicinity of the device and damage to the device itself. The brakes (17.) are not suitable for use as a friction setting.



## Use of the brake on the AXIS 360:

In addition to the function of the brakes (17.) (brakes A+B), the brake on the AXIS 360 (18.) can be used to fix the NU.TRON in position in its rotational axis around the centre point of the stand or dolly. After this, all movement axes of the NU.TRON are locked.

The brake (19.) on the AXIS 360 (18.) is also not suitable for use as a friction setting. When the brake is applied, the system must not be rotated/moved against braking effect. The brake (19.) must only be hand-tightened or tightened to a max. tightening torque of 35 Nm.

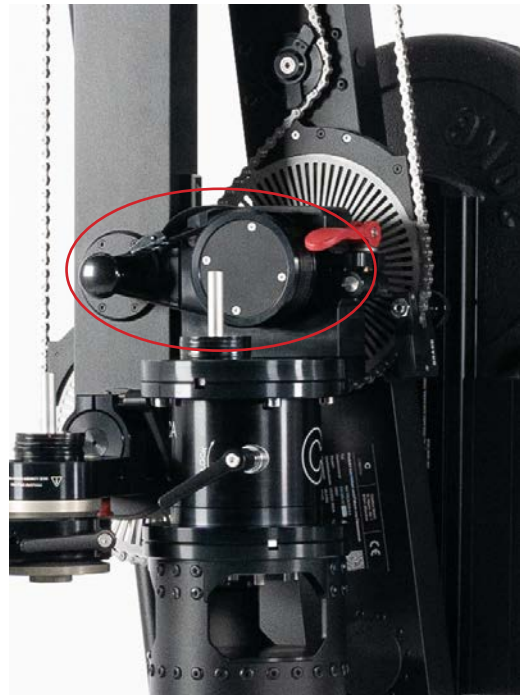


### Parking position / standby

If the NU.TRON is not due to be used for a period but will be used again and is therefore not dismantled, it can be secured and stored with the camera still mounted and unchanged counter weights.

To do this, the front arm (01.) is moved via the handle (06.) on the NU.TRON mount (04.) so that the plastic part on the underside of the arm rests on the vertical of the NU.TRON mount (04.). Loosen the transport strap from the strap groove on the NU.TRON bearing shell (05.) and attach the strap around the strap groove and the handle (06.). Tighten the strap.

In this state, the NU.TRON can be moved on a moveable base. Apply the brake on the base or equivalent component. The NU.TRON is now folded together in a space-saving manner and secured against accidental movement.





## Assembly & operation

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### Jib mode

The NU.TRON can also be used as a jib/camera crane. To do this, the NU.TRON must be fully extended horizontally to apply the LOCK (10.). To do this, push the push-pull rods (08.) against the resistance of the magnetic damping (09.) and turn the lock (10.) clockwise into the latch.

The NU.TRON is now rigid and can be used as a camera crane/camera jib with a reach of approx. 2.5 m.



## Disassembly

In general, the NU.TRON should be disassembled by following the steps for assembly in reverse order.

1. As with the assembly, the disassembly requires at least two persons. The NU.TRON is extended and moved to the end position. Push the push-pull rods (08.) together against the resistance of the magnetic damping (09.) and close the lock (10.).



## Assembly & operation

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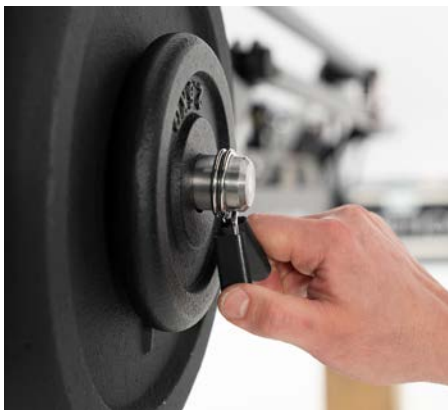
2. Look for a suitable object (e.g. apple box or flight case) to set down the front part of the NU.TRON for the disassembly process.



3. Remove the counter weights while the second person secures the NU.TRON by holding the camera.



**Attention! - When dismantling the unit, always remove the counter weights (14.) before removing any of the load from the camera side!**





## Assembly & operation

4. After this, all attachments can be removed from the Cinetica-Euro-Mount (07.), e.g. camera, fluid head and extension arm.



5. Remove the fixed weights (12.) one after the other. To do this, unscrew the thumb screws, open the fixed weight locking device and pull the fixed weight (12.) out of the track while the second person continues to support the NU.TRON on the front side.



## Assembly & operation

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5. Then unscrew the counter weight rod (13.) from the counter weight arm (03.).  
Screw this into the designated slot in the flight case.



6. Disassemble the weight pins (15.) and weight plates (16.) from the Cinetica side loader (07.) and the NU.TRON mount (04.).



## Assembly & operation

7. Disassemble the Cinetica-Euro-Mount (07.). To do this, unscrew the thumb screw and pull the locking pin out while pulling the Cinetica-Euro-Mount (07.) off the mounting stud. Store the Cinetica-Euro-Mount (07.) in the provided slot in the flight case.



Cinetica side loader (07.)

8. Open the lock (10.) by pushing the push-pull rods together against the resistance and opening the lock (10.).





## Assembly & operation

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- Using the handle (06.), move the NU.TRON to the NU.TRON bearing shell (05.) and place the underside of the front arm with scuff protection on the top part of the NU.TRON mount (04.) to fold the NU.TRON up, while the second person holds the NU.TRON securely in place by holding the supporting member (11.).

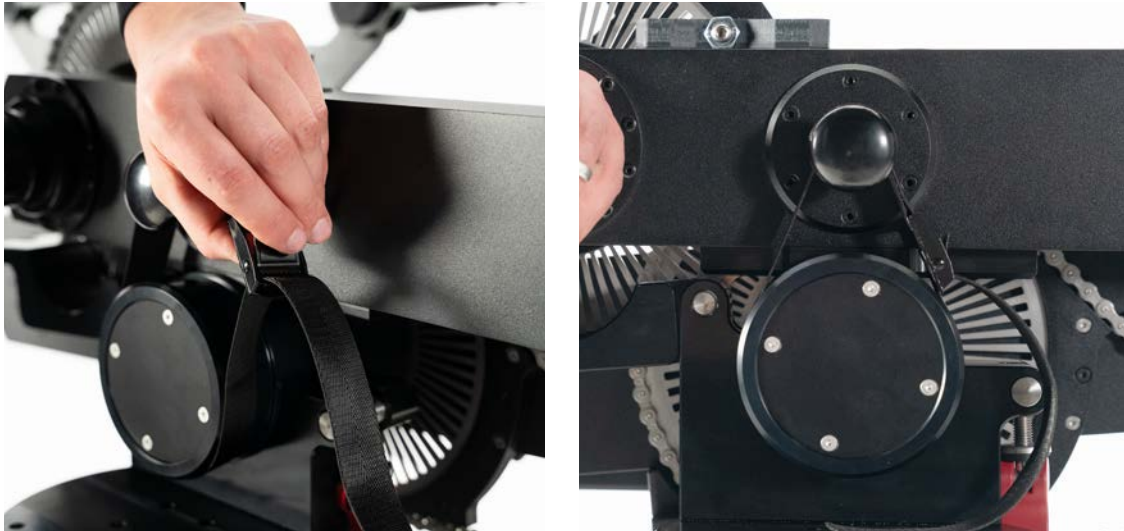


- Lift the front arm (01.) by hand and open the mounting clip on the NU-TRON mount with the other hand.



## Assembly & operation

11. Loosen the transport strap from the strap groove on the NU.TRON bearing shell (05.) and attach the strap around the strap groove and the handle (06.). Tighten the strap.



12. With two people on opposite sides, lift the NU.TRON out of the NU.TRON mount (04.) via the push-pull rods (08.) or the support members (11.).



## Assembly & operation

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13. Lift the NU.TRON into the provided support in the flight case to secure it against slipping during transportation.

Attention: If the NU.TRON becomes wet as a result of rain, for example, then it must be dried before it is stored in the flight case. (see safety information)



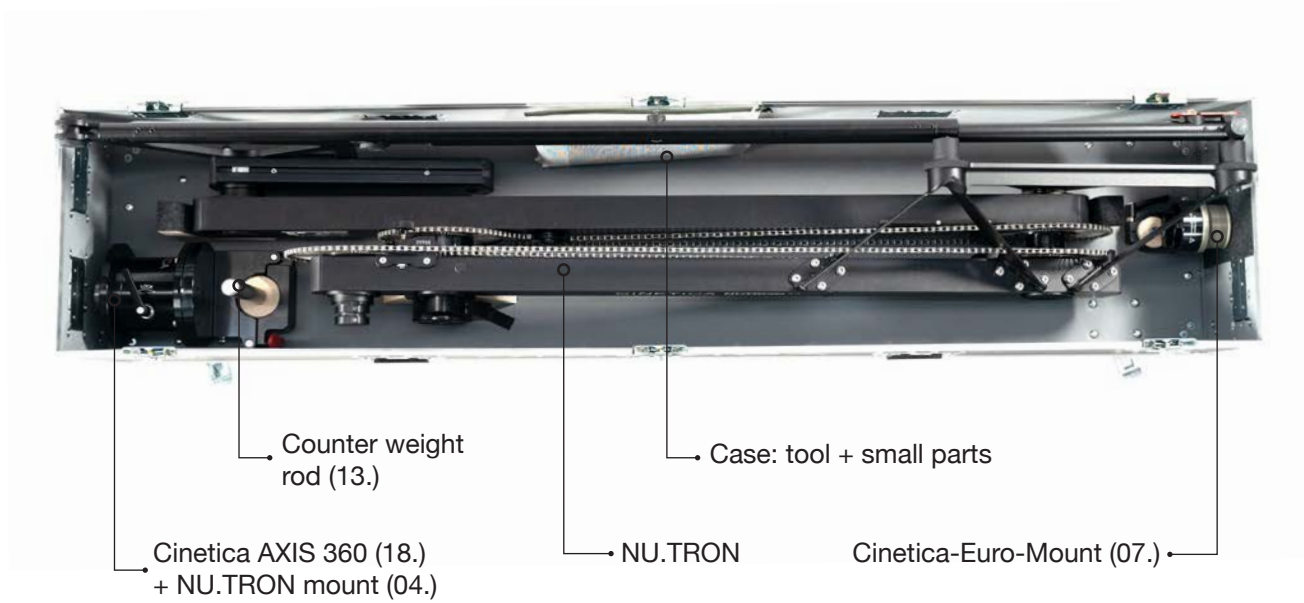
14. Disassemble the combination of the NU.TRON mount (04.) and the Cinetica AXIS 360 (18.) by loosening the flat base/Mitchell mount nut. Place the components in the flight case.



— Cinetica AXIS 360 (18.)  
+ NU.TRON mount (04.)

## Assembly & operation

15. The NU.TRON is disassembled, put away and ready for transport when the flight case is filled with the components as shown in the image.



Case: tool + small parts





# Servicing & maintenance

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## General information

Generally, maintenance work should only be carried out by trained personnel and in accordance with the relevant accident prevention regulations and generally recognised safety rules and regulations.

Recommended maintenance interval: 1 year

Of course, we suggest that the owner / operator performs a visual inspection and functional check of the components listed below multiple times per year in order to ensure that the NU.TRON remains in perfect working order.

The amount of maintenance required for the NU.TRON is manageable. During the design phase, a great deal of focus was placed on a simple design and a high level of wear resistance.

## Simple maintenance tasks

- Checking that all screws are securely fixed in place
- Cleaning the running components (dry, lint-free cloth) – chain and chain rings must NOT be greased!
- Checking the mobility of the arms and smooth running of all axes
- Visual check: hidden, dented components
- Visual check: cracks, parallelism of parallel components
- Checking the labels with warnings and the type plate
- Checking the chain ring safety guards



Attention! Operation must be stopped immediately when damages or deviations on the device are identified.

## Repairs

If problems are identified during the simple maintenance checks, e.g. grinding noises in the axes, then the required maintenance work/repairs must only be carried out by Cinetica GmbH or its service representatives. The NU.TRON is an almost maintenance-free and closed system that must only be opened by specialist personnel. If you notice any changes in the functionality of the system, please contact the manufacturer Cinetica GmbH.

Please feel free to contact us if you have any questions about maintenance or repairs.

In the event of damage to the NU.TRON, the manufacturer should be informed, and the degree of damage and course of events that caused the damage (if known) should be explained. Consult the manufacturer to clarify next steps. Generally, the damaged parts are sent to the manufacturer or the appropriate service partner/sales representative to be repaired or replaced.

Operating the system with damaged components is prohibited. The manufacturer accepts no liability for damages or injuries that arise as a result of the system being used with damaged material.



Attention: For reasons of safety, only genuine spare parts and accessories from the manufacturer Cinetica GmbH must be used for maintenance work and repairs.

## Inspections

The manufacturer Cinetica GmbH recommends periodic inspections to be carried out at least once a year by a competent person or an expert.

The performed inspections must be documented.

The experts or competent persons commissioned to perform the inspections must meet the requirements of Cinetica GmbH as set out below:

A competent person is a person who, by virtue of their professional training and experience, has adequate knowledge in the field of safety equipment and mechanical equipment and is familiar with the relevant state occupational health and safety regulations, regulations issued by the institutions for statutory accident insurance and recognised and generally accepted good engineering practice (e.g. DIN standards, VDE regulations, technical rules issued by other European Union member states or other states which are party to the agreement on the European Economic Area or the applicable regulations of the local authorities and institutions) to such an extent that they are able to assess whether safety equipment and mechanical equipment is safe.

An expert is someone who, by virtue of their professional training and experience, has particular expertise in the field of safety equipment and mechanical equipment and is familiar with the relevant state occupational health and safety regulations, accident prevention regulations, directives and recognised and generally accepted good engineering practice (e.g. DIN standards, VDE regulations, technical rules issued by other European Union member states or other states which are party to the agreement on the European Economic Area or the applicable local rules and regulations). They must be able to inspect safety equipment and mechanical equipment and provide an expert opinion on whether it is safe.

Experts for the inspection of safety equipment and mechanical equipment are the authorised experts approved by the statutory accident insurance institution for the relevant sector or by country-specific institutions. Generally, being approved as an expert for inspection requires the following:

- a) A successfully completed degree in engineering
- b) At least three years of experience in the design, construction or servicing of safety equipment and mechanical equipment.

We recommend having the NU.TRON periodically inspected by sending it to the manufacturer Cinetica or a certified service partner of Cinetica, or to have the inspection performed on site by an authorised competent person or expert.

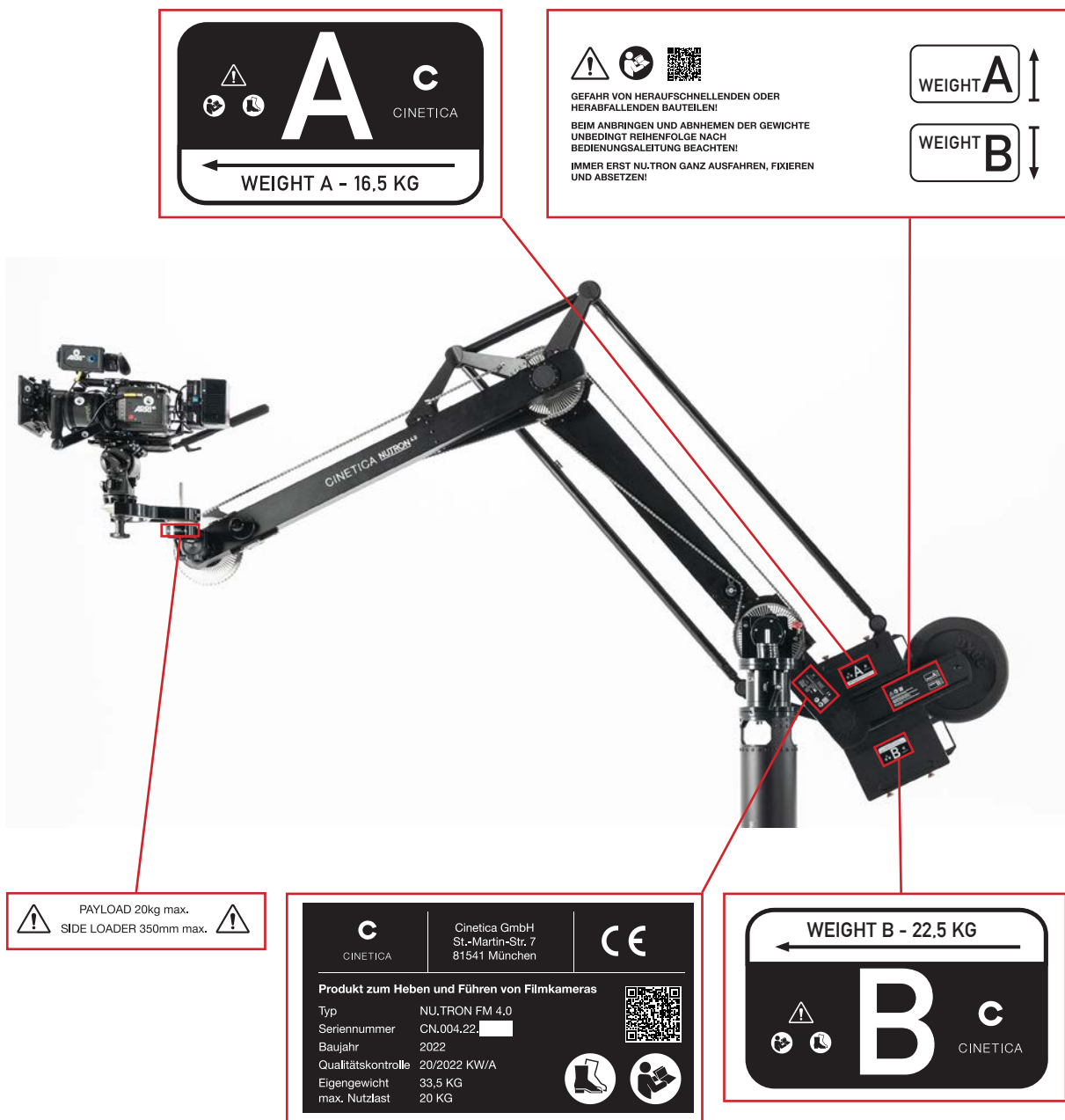
Authorised experts or competent persons can be requested within Germany and abroad from the nationally recognised technical inspection associations (e.g. TÜV).

# Servicing & maintenance

## Label layout

If, over time, the warning labels or the type plate become partly or fully illegible as a result of intensive use, these labels must be replaced. Only use original labels from the manufacturer Cinetica.

For a plan showing which labels should be placed in which areas, see the image below:



## Taking out of service

- Store the NU.TRON 4.0, the accessories and components in the flight case as shown in the “Transport” section (p. 25) and lock the case.
- Clean the NU.TRON 4.0 as described in the “Servicing & maintenance” section (p. 56).
- Store the NU.TRON 4.0 in its flight case in a dry condition and secured against access by unauthorised individuals.

## Disposal

General information:

Ensure that you consider environmental impacts, risks to health, disposal requirements and your local options for disposing of the product in accordance with regulations. Contact your district’s waste management department for more information.

Metals, non-metals, composites and auxiliary materials must be separated by type and disposed of in an environmentally friendly manner.



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