

Qualität und Funktion

Gebrauchsanweisung
Instruction Manual



Polycentric Knee Joint
JT20 / JT20S / JT22 / JT22S

Rev.0-2021-07_JT20, JT20S, JT22, JT22S_106634



Uniprox GmbH & Co.KG
H.-Heine-Str.4
07937 Zeulenroda-Triebes

Tel. +49 (0) 36628-66-33 00
Fax +49 (0) 36628-66-33 55
E-Mail info@uniprox.de



unique prosthetic solutions
A company of the Bauerfeind Group





Please read the IFU carefully before fitting. Only correct usage will warrant the function.

1. Intended Use

The knee joints are the connection between a prosthetic socket and a modular prosthetic limb prosthesis with polycentric knee function.

2. Technical data

2.1 JT 20 / JT22

- Material: Titanium, aluminium, plastic, stainless steel
- Pneumatic extension stop and swing phase control
- Integrated spring extension
- Variable Axis Geometrics
- Separate adj. of flexion and extension
- Distal attachment: 34 mm
- Max. weight: 150 kg
- Mobility level: JT20: 2 / JT22: 2, 3
- JT22 with High Control Pneumatics

REF

Order No.	Material	Installation height (above the axis center of rotation)	Weight	Flexion angle	Article No.
JT20-PYR	Aluminium	15 mm / 132 mm	790 g	135°	4 170 010 01 00 000
JT20-M36	Aluminium	10 mm / 127 mm	790 g	135°	4 170 010 02 00 000
JT22-PYR	Aluminium	15 mm / 132 mm	820 g	135°	4 170 010 11 00 000
JT22-M36	Aluminium	10 mm / 127 mm	820 g	135°	4 170 010 12 00 000

2.2 JT20S / JT22S

Similar knees as the JT20/JT22, though with adjustable, heel-activated flexible Stance-Control (Bouncing) for additional stability.

REF

Order No.	Material	Installation height (above the axis center of rotation)	Weight	Flexion angle	Article No.
JT20S-PYR	Aluminium	15 mm / 132 mm	790 g	135°	4 170 010 01 10 000
JT20S-M36	Aluminium	10 mm / 127 mm	790 g	135°	4 170 010 02 10 000
JT22S-PYR	Aluminium	15 mm / 132 mm	820 g	135°	4 170 010 11 10 000
JT22S-M36	Aluminium	10 mm / 127 mm	820 g	135°	4 170 010 12 10 000

2.3 Recommended Attachment

E-JT20-01 Pyramidadapter for JT20 / JT22

Order No.	Material	Weight Limit	Weight	Article No.
E-JT20-01	Steel	< 150 kg	80 g	4 170 001 00 22 001

E-JT20-02 M36 Thread-adapter for JT20 / JT22

Order No.	Material	Weight Limit	Weight	Article No.
E-JT20-02	Steel	< 150 kg	80 g	4 170 001 00 22 002

A30 34 mm Reduction Adapter to 30 mm tube

Order No.	Material	Weight Limit	Weight	Article No.
A30	Aluminium	< 100 kg	91 g	4 610 070 00 00 008

A86 Knee disarticulation anchor (waterproof)

Order No.	Material	Weight Limit	Weight	Article No.
A86	Steel	< 150 kg	170 g	4 114 080 06 22 000

A4-Ti400 Tube adapter 34 mm, length 400 mm

Order No.	Material	Weight Limit	Weight	Article No.
A4-Ti400	Titanium	< 150 kg	435 g	4 113 050 34 33 400

3. Indication/ Contraindication

Indication:

- Transfemoral amputation
- Knee disarticulations

Contraindication:

- Residual muscular weakness, contractures or proprioceptive dysfunction including poor balance
- Inability to comprehend instructions
- Contra lateral joint instabilities or pathology
- Complicated conditions involving multiple disabilities

4. Side effects

There are no known side effects.

5. General safety instructions



- This medical device is designed for single patient, multiple use.
- Fitting/service of this medical device is only allowed by a certificated orthopedic professional.
- The professional should instruct the correct use of the device to the user.
- The joint must be protected against dust, moisture, aggressive media, and mechanical forces so its function is not affected.
- The joint is intended for use at temperatures from -10°C to 50°C.
- Do not longer use the knee joint if its function is impaired. This may be due to stiffness, restricted extension, noise generation, faulty swing phase control or stance phase safety, as well as impact from an external force (for example, if dropped). In such cases, it must be checked by a professional and, if necessary, sent to Uniprox GmbH & Co. KG.
- There is a risk of jamming when the joint is in use.
- The product must not be changed or applied in any improper way. Non-compliance can impair the function of the product and thus no liability will be accepted.
- The safety of the user is not guaranteed if the product is not used for its intended purpose. This will also terminate the warranty of the product.
- Joint components may heat up slightly during walking.
- Silicone spray should be used to prevent noises being generated by contact between the cosmetic foam and knee joint. Do not use Talcum powder as it removes lubricant from the bearings and may lead to impaired function as a result.

6. Assembly

Polycentric knee joints with geometric locking, integrated pneumatic end stop damping, and an adjustable mechanical spring extension assist to provide an extension moment.

Additional for JT22/ JT22S:

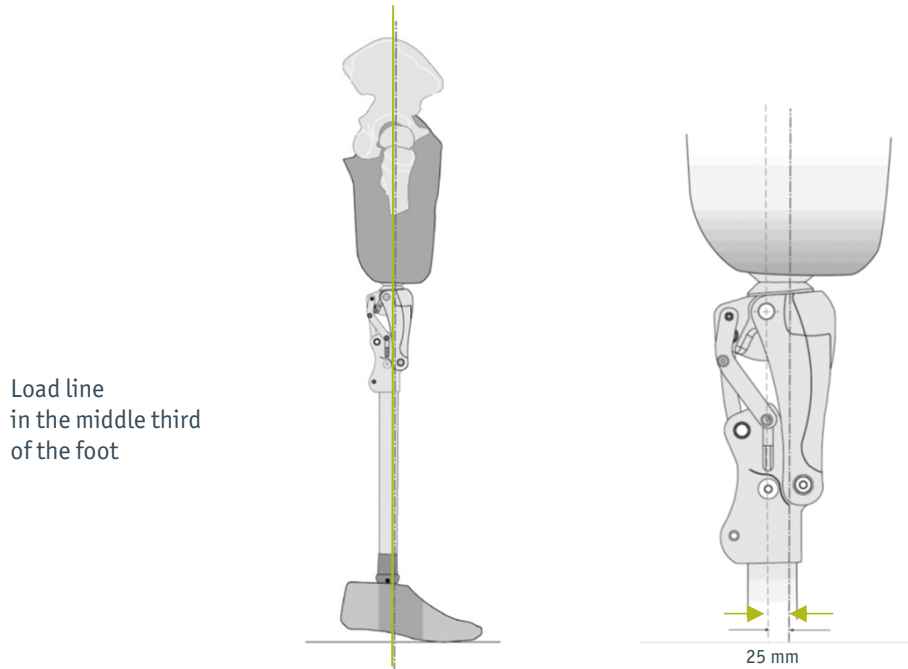
- The pneumatic swing phase damping has an integrated nozzle valve for self-adjustment per the individual user's walking speed.
- At low walking speeds, the nozzle valve offers slight damping resistance against flexion of the lower leg. As the speed increases, there is an increase in accumulated pressure before the nozzle, which increases the damping resistance against flexion of the lower leg. The damping effect restricts flexion of the lower leg. A high-performance extension unit accelerates the lower leg through the extension phase until the adjustable end stop damping gently absorbs the movement.

Additional for JT20S/ JT22S:

- The adjustable, heel-activated flexible Stance-Control (Bouncing) ensures additional stability. At heel strike at the start of the stance phase, the flexible element of the posterior rod contracts, whilst the adjustable primary flexion enabling a flexion angle of between 0° and 5° (bouncing). The intersection of the connecting lines of the front and rear axles can be set closer together. With more of the load being transferred to the prosthesis, the resulting instantaneous center of rotation of the 4-axle joint link chain experiences increasing dorsal-proximal displacement and is thereby more secure against unintentional flexion.

6.1 Alignment recommendation for JT20/ JT22

In principle, the prosthetic joint is secure for unintentional flexion if the load line (plumb line runs from mid-trochanter) is 25 mm in front of the posterior upper axle.



Load line
in the middle third
of the foot

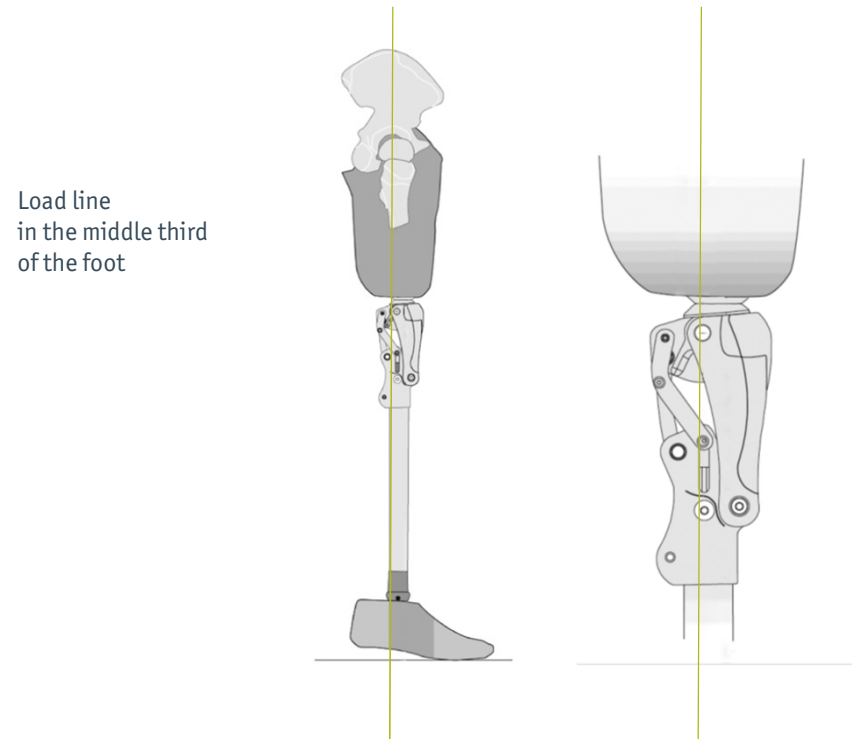
A possible variation on the above alignment recommendation would be to reduce rear displacement of the posterior upper axle up to 10 mm with respect to the load line. This only when the technical and individual requirements have been checked and confirmed by an orthopedic technician. This reduction of posterior displacement represents an exceptional scenario and requires the orthopedic technician to make a decision on a case-by-case basis. When posterior displacement of the joint is reduced, the amputee must be able to actively secure the prosthetic knee joint by extending the stump at the amputation side. If it is not advisable to reduce posterior displacement in various cases, there is a risk of unintentional flexion of the knee joint or locking, with the amputee being exposed to the associated dangers. It is the orthopedic technician's choice and must carefully be monitored before a decision regarding reduction is made.



Note: If the joint is tilted forward due to the set up of the foot, the joint becomes less secure and must be shifted further backwards!

6.2 Alignment recommendation for JT20S/ JT22S

In principle, the prosthetic joint is secure against unintentional flexion if the load line or lateral alignment line runs through the middle of the front upper axle (Plumb line runs from mid-trochanter).



Load line
in the middle third
of the foot

A high-performance extension unit accelerates the lower leg through the extension phase until the adjustable end stop damping gently absorbs the movement. At heel strike at the start of the stance phase, the flexible element of the posterior rod contracts, with the adjustable primary flexion enabling a flexion angle between 0° and 5° (bouncing). This brings the joint axles closer together. With more of the load being transferred to the prosthesis, the resulting instantaneous center of rotation of the 4-axle joint link chain experiences increased dorsal-proximal displacement and is therefore more secure against unintentional flexion. The integrated flexible posterior rod ensures a highly dynamic transition between the stance and swing phases.*

The JT20S and JT22S offer a better ground clearance during the swing phase.*
 Since the flexible posterior rod has excellent tensile strength, it barely increases in length when the stance phase ends and the swing phase begins.

* Since safety does not have to be established through the alignment, i.e. the lateral alignment line runs through the middle of the front upper axle.



Note: If the joint is tilted forward due to the set up of the foot, the joint becomes less secure and must be shifted further backwards!

6.3 Setting the pole curve

The knee joints have two pole curves that can be used to set a higher initial safety or greater initial dynamics of the joint. The respective desired pole curve can be individually adjusted by the anterior lower axis, which is eccentrically mounted.

By simply turning the eccentric, it is possible to switch from a safe to a dynamic geometry:

"S" >> high stability

"D" >> greater dynamics.



If the marking on the axis is above the inner hexagon (position S), a high initial safety setting of the knee joint is ensured.

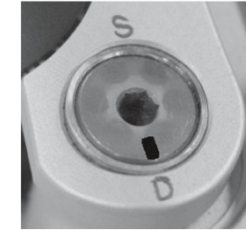
In this case, the instantaneous center of rotation is further proximal/posterior.

If the marking of the axis is in position D, a higher initial dynamic setting of the polycentric JT22/JT22S is achieved. In this case, the torque pivot point is more distal/anterior.

1. Loosening the locking screw
2. Use a hexagonal wrench (SW4) to set the posterior lower eccentrically mounted axis to S or D; an intermediate position is not permitted.
3. Secure the locking screw with Loctite 222 and tighten it to 12 Nm with a hexagonal wrench (SW4).



Position S
higher initial safety



Position D
higher initial dynamics



The JT22/JT22S has two pole curves, which can be used to set a higher initial safety level or a more dynamic initial movement setting of the joint. In each case, the pole curve required can be adapted to suit individual requirements by simply adjusting the eccentrically positioned posterior lower axle.

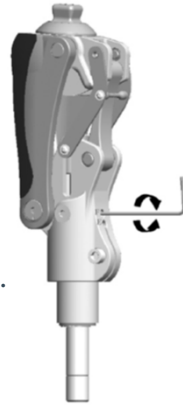
6.4 Adjusting the flexion resistance

The integrated spring extension assist is used to adjust the mechanical swing phase control. Flexion resistance can be changed by turning the upper set screw, marking F (Fig. 4), with an Allen key (SW 2 mm). Turn the screw clockwise to increase flexion resistance or counterclockwise to reduce it.

Turning the upper set screw (marking F) in a clockwise direction (maximum rotation is reached when a slight stop can be felt) increases the flexion resistance.

Turning the upper set screw (marking F) in a counterclockwise direction (maximum rotation is reached when a slight stop can be felt) reduces the flexion resistance.

The lowest possible flexion resistance is pre-set in the factory settings.



6.5 Adjusting extension resistance

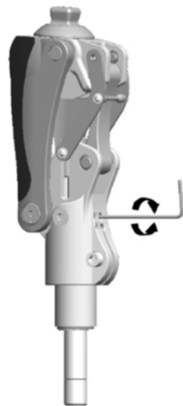
Extension damping is regulated by turning the lower set screw, marking E (Fig. 5). Turn the screw clockwise to increase extension damping or counterclockwise to reduce it. The set screw must not be screwed out by more than 3 full rotations. Change the setting incrementally, not exceeding a quarter of a rotation with any turn.

Turning the lower set screw (marking E) in a clockwise direction increases the extension damping.

Turning the lower set screw (marking E) in a counterclockwise direction (up to 3 rotations) reduces the extension damping.

The lowest possible extension damping is pre-set in the factory settings.

Adjust the extension damping before the first run test as follows: Close the extension valve with an Allen key clockwise until you feel the stop; then open the valve by half a turn. Starting with this setting, readjust the extension damping in small steps during the dynamic try-on.



Note: The extension valve must never be closed completely, as the enclosed air cushion presses the joint into flexion. Danger of falling! Complete joint extension must be guaranteed!

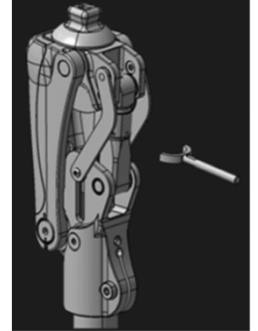
6.6 Adjusting the stance flexion control for the JT22S

The response threshold for activating the flexible rear handles can be set individually for the user; this setting is weight-dependent.

Insert the adjustment key at the back of the joint onto the adjustment ring.

Turning clockwise reduces the flexible stance control/damping resistance of the flexible rear handlebar.

Turning counterclockwise increases the flexible level control/the flexible rear handlebar damping resistance.

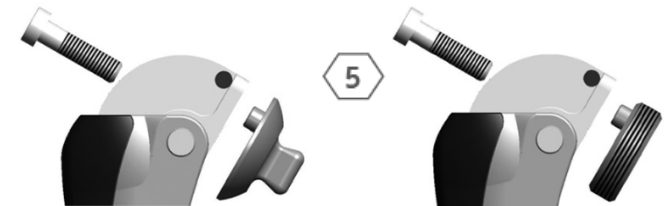


6.7 Adapter tightening torques

The 34 mm tube clamp of the knee joints must be secured with Loctite® 222 and tightened with an Allen key (SW 4) to a torque of 12 Nm.

The proximal adapter of the knee joints in the shape of a pyramid or the M36 thread connection must be secured using Loctite® 222 as a thread locking compound and tightened with an Allen key (SW5) to a torque of 20 Nm.

MA=20 Nm



7. Maintenance and Cleaning

The function of the prosthetic knee joint must be checked at regular intervals of no more than 12 months. For very active users, we recommend carrying out inspections at shorter intervals.

Maintenance or repair must be carried out when necessary.



The polycentric knee joints can be cleaned with a mild cleanser and a damp cloth at >30°C. Do not use any aggressive cleansers.

8. CE-Conformity

The product satisfies the requirements of Regulation (EU) 2017/745 of the European Parliament and of the Council (MDR) and bears the CE mark. All major incidents related to the product needs to be informed to Uniprox and the competence European Authority.

9. Warranty and Guarantee

We recommend to change/renew the liner after 6 month of usage.

Warranty is provided under the terms of sale and supply of Uniprox GmbH & Co. KG provided that the above conditions are met.

10. Storage and Disposal

This product has no special storage regulations.

The product is disposable with standard household garbage.

Please direct any questions to:

Customer Service: + 49 (0) 36628-66-33 70

Fax: + 49 (0) 36628-66-33 77

E-mail: export@uniprox.de