

INSTRUCTIONS FOR USE

IFU CODE: 44



Hydraulic Knee Joint

HHS



Fig. 1 (Flexion Resistance Adjustment)



1

Increasing swing phase flexion resistance

2

Decreasing swing phase flexion resistance

Fig. 2 (Extension Resistance Adjustment)



1

Increasing swing phase
extension resistance

2

Decreasing swing phase
extension resistance

Fig. 3 (Switching Threshold Adjustment)

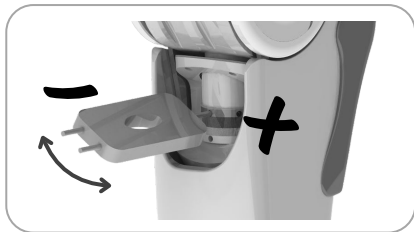


Fig. 4 (Stance Phase Flexion Resistance)

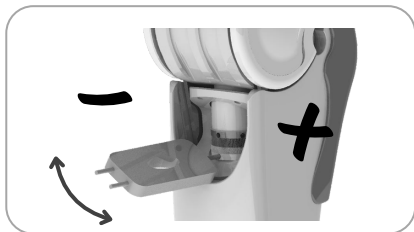
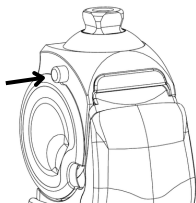


Fig. 5 (Tightening Torque for Clamp Bolts)

10 Nm
M5 Screw



Fig. 6 (Manual Lock Feature)



Unlocked state



Locked state

Fig. 7 (Bench Alignment of the Prosthesis)

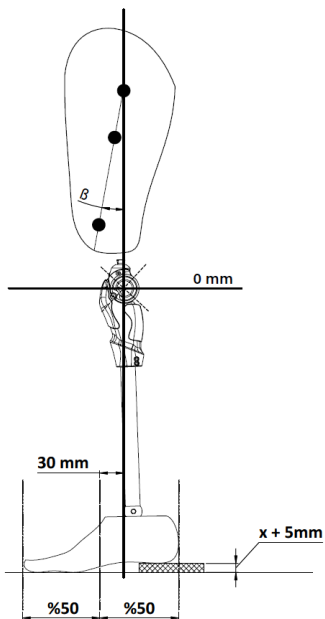


Fig. 8 (Mounting the Extra Spring)

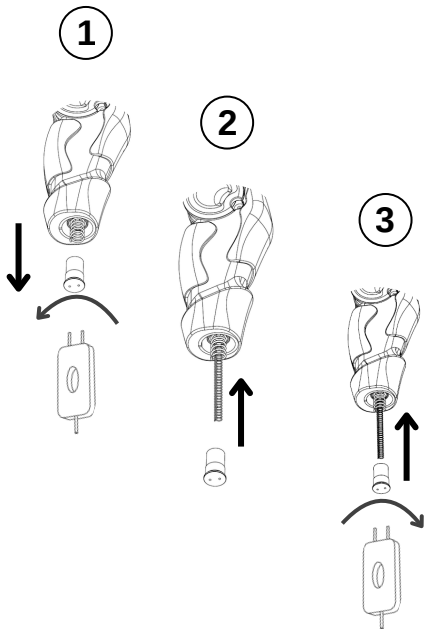


Fig. 9 (Scope of Delivery)

1



2



3



4



5



6



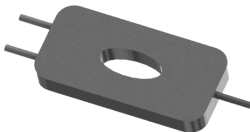
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Fig. 10 (Explanation of Adjustment Tools)

Wrench for adjusting
the extension spring

Stance adjustment can
be made with this pin



2 mm Allen Head
Extension and Flexion
adjustment is performed

INFORMATION

Last Update: 07.07.2026



- Please read this document carefully before using the product.
- Instruct the user in the appropriate and safe use of the product.
- Follow the safety instructions to avoid injuries and damage to the product.
- Please keep this document in a safe place.

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1. Description

High-performance rotational hydraulics provide independent control for both swing and stance phases. The system automatically adapts to changing walking speeds for a fluid and natural gait.

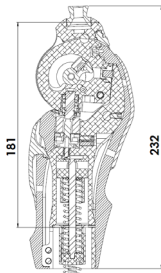
Controlled hydraulic yielding enables safe, step-over-step descent on stairs and ramps.

An integrated manual lock ensures maximum stability during periods of prolonged standing. The biomechanical design mimics physiological movement to reduce user fatigue and energy expenditure.

High-strength construction supports a wide range of motion and high-impact activity levels. Progressive damping at heel strike prevents accidental buckling for enhanced user security.

1.1. Features

Product Name	HHS
Advised Activity Level	K3 - K4
Material	Aluminum
Max. User Weight	125 kg
Max. Flexion Angle	140°
Product Weight	1167 g
System Height	181 mm
Total Height	232 mm



2. Assembly & Setting Instructions

2.1 Flexion Resistance Adjustment (Fig.1)

Use the adjustment screw (Figure 1) to increase or decrease flexion resistance and achieve your desired swing phase speed.

Decreasing swing phase flexion resistance	Turn the screw (-)
Increasing swing phase flexion resistance	Turn the screw (+)

2.2 Extension Resistance Adjustment (Fig.2)

Turning the adjustment screw (shown in Figure 2) increases or decreases the extension resistance during the extension phase. This allows the speed during the extension phase to be adjusted as desired.

Decreasing swing phase extension resistance	Turn the screw (-)
Increasing swing phase extension resistance	Turn the screw (+)

2.3 Switching Threshold Adjustment (Fig.3)

This setting determines the point at which the knee joint transitions from the stance phase to the swing phase (bending).

Turn the screw (+): Increases the threshold. More load is required to initiate the swing phase. The knee releases later, providing a higher sense of stability.

Turn the screw (-): Decreases the threshold. The knee releases earlier and more easily with less load. This enhances walking fluidity and ease of movement.

Note:

If the user has difficulty initiating the knee bend, turn (-). If the knee releases too early or feels unstable during toe-off, turn (+).

2.4 Stance Phase Flexion Resistance (Fig.4)

This adjustment controls how much the knee resists buckling when weight is applied. It is crucial for safety and comfort while walking down stairs or ramps.

Turn the screw (+): The knee becomes stiffer and slower to bend. Use this if the knee feels too "weak" or "collapses" too quickly under your weight. It provides maximum stability and control.

Turn the screw (-): The knee becomes softer and easier to bend. Use this if you find it too difficult to initiate a bend or if the knee feels "locked" while trying to descend stairs. It allows for a more fluid, effortless movement.

2.5 Tube Clamp Screw Assembly (Fig.5)

Tighten Clamp Screws (**Fig. 5**) using torque wrench.

Torque value: **10 Nm**



ATTENTION!

Secure screw thread with medium strength threadlocker adhesive.

2.6 Manual Lock Feature (Fig.6)

The hydraulic knee joint can be securely locked in the full extension position using the integrated push-button locking system.

Two push buttons are positioned on opposite sides of the knee joint:

- **Lock Button:** Engages the locking mechanism when the knee is in full extension.
- **Release Button:** Disengages the locking mechanism and allows the knee joint to move freely again.

This design provides a simple and controlled method for manually locking and releasing the knee joint when required.



CAUTION

When activating the knee joint lock, always check to ensure the knee joint is fully locked.



IMPORTANT

Trying to walk with the manual lock active may cause extra effort in the hip area as it prevents the prosthesis from swinging. This feature should generally only be used for support when standing or in very confined spaces.

2.7 Bench Alignment of the Prosthesis

For the dynamic performance of the prosthesis and the safety of the user, the following alignment criteria must be strictly followed during the assembly phase:

Alignment Steps:

I. Heel Height Adjustment:

When mounting the foot component, the heel height of the shoe must be taken into account. Place the necessary spacer under the heel according to the "**x + 5 mm**" formula indicated in Figure 7.

II. Establishing the Reference Line:

Establish a vertical alignment line (load line). This line must pass directly through the rotation center of the HHS knee joint (**0 mm** point).

III. 30 mm Axial Offset:

There must be a **30 mm** axial offset (anterior displacement) between the vertical reference line (passing through the knee center) and the weight center (reference point) of the foot/shoe. This offset is critical for knee stability and swing phase transitions.

IV. Socket Positioning:

The socket should be mounted at the appropriate flexion angle and aligned with the vertical reference line according to the patient's requirements.

2.8 Mounting the Extra Spring (Optional)

An extra spring can be added to the system to increase the resistance characteristics of the knee joint according to the user's specific needs. Follow the steps below in sequence for the installation.

- Required Tools: The special attachment included with the product (the attachment labeled No. 2 in Figure 9)

Installation Steps:

I. Removing the Bottom Cap:

Using the removal tool labeled "2" in Figure 9, insert it into the two small holes in the cap (plug) located at the bottom of the knee joint.

Loosen the cap and remove it completely from its housing. (As shown in Figure 8-1, pull downward to separate.)

II. Inserting the Extra Spring:

Once the cap is removed, push the extra spring upward into the opening. Ensure the spring is positioned vertically and is fully seated within the piston housing. (As shown in Figure 8-2, make sure the spring is properly aligned.)

III. Closing and Tightening the Cap:

Place the bottom cap back into its original position. Using the removal tool, turn the cap clockwise to tighten it securely. (As shown in Figure 8-3, ensure the cap is flush with the housing and securely fastened.)



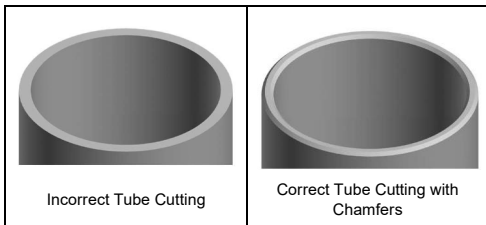
IMPORTANT NOTE

During installation, ensure that the spring is not kinked or pinched against the edges of the housing. After the assembly is complete, verify the joint's range of motion to ensure there is no mechanical interference or sticking.

2.9 Tube Assembly

The lower side connection of this knee joint is made with an aluminum tube. There are some points to consider for the aluminum tube to be used in assembly.

In order to provide safe construction, the cutting edge of the aluminum tube must be carefully deburred inside and outside after cutting.



TIP!

Don't clamp the tube in order to cut it at desired length, prefer to use cutting edge. Make sure that cut surface is flat and not cut slanting. Clean the burrs on edges after cutting the tube. Avoid any line formation that causes it to be broken.

3. Environmental Conditions

Acceptable Environmental Conditions
Fresh water (Splash & Rain)
Temperature use range: -10 °C to +45°C
Humidity: Allowable relative humidity 20% to 90%, non-condensing
Unsuitable Environmental Conditions
Salt water, sweat, urine, acids e.g.
Sand, dust, highly hygroscopic particles (e.g., talcum)
Mechanical vibrations, impacts
Cleaning agents containing solvents

4. Service Life

The service life of the product is about 3 - 4 years. This duration depends on the daily activity of the user.

5. General Safety Instructions

CAUTION!



To avoid the risk of injury and product damage, do not use for longer than the service life of the product.

The suitability of the device to the patient and the prosthesis should be evaluated by a healthcare professional.

The device must be fitted and adjusted by a healthcare professional.

There is a danger of pinching and injuring your finger or skin.
Do not insert your hand into the joint mechanism!

Avoid using this product in unsuitable environmental conditions. If the product has been exposed to unsuitable environmental conditions, check for damage.

Do not use the product that is damaged, has limited functionality or is in doubtful condition. Ensuring that appropriate measures are taken (e.g. control, cleaning, repair, replacement by the authorized workshop or manufacturer).

To prevent mechanical damage, be careful and cautious when working the product.

Use the product for a single patient to avoid injuries and product damage.

Products should be used in appropriate combinations. Using the product with unsuitable combinations may result in possible injury.

In case of feeling any space or sound, contact the rehabilitation center who installed the prosthesis.

Risk of Falling

Incorrect alignment or improper adjustment may result in loss of stability and falls causing injury.

The user must be instructed by a qualified prosthetist before initial use.

6. Maintenance

After the first 30 days of use, the prosthesis parts should be visually inspected and function checked.

Inspect the entire prosthesis for wear during normal consultations.

This prosthesis and its components should be checked for function by a prosthetist at regular intervals every six months. If the recommendations are followed properly, there is no risk.

7. Scope of Delivery

Image No.	Description	Quantity
1	HHS (Monocentric Knee Joint with Rotary Hydraulic)	1
2	Removal Tool (Extension Spring Adjustment Tool)	1
3	IFU 44 (Instructions for Use)	1
4	Extra Extension Spring	1
5	2 mm Allen Adjustment Tools	1
6	Spare Bumper	2
7	M5 Clamp Screw	2



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