

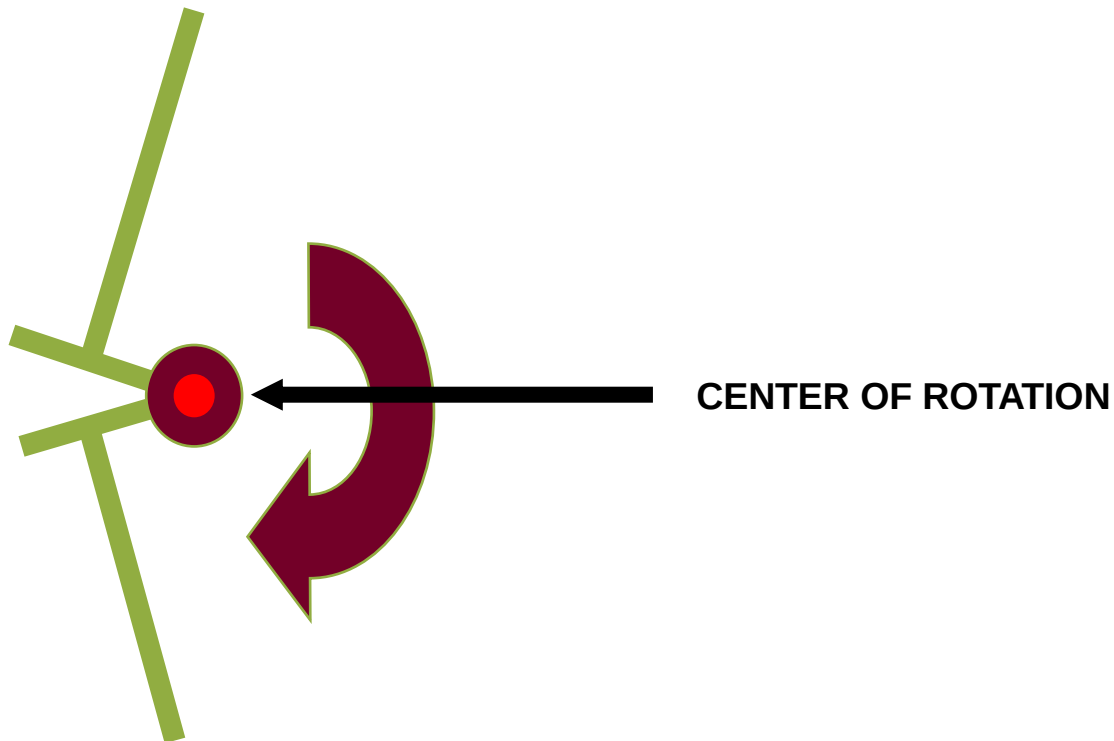
Ottobock Modular Knee Joints



Quality for life

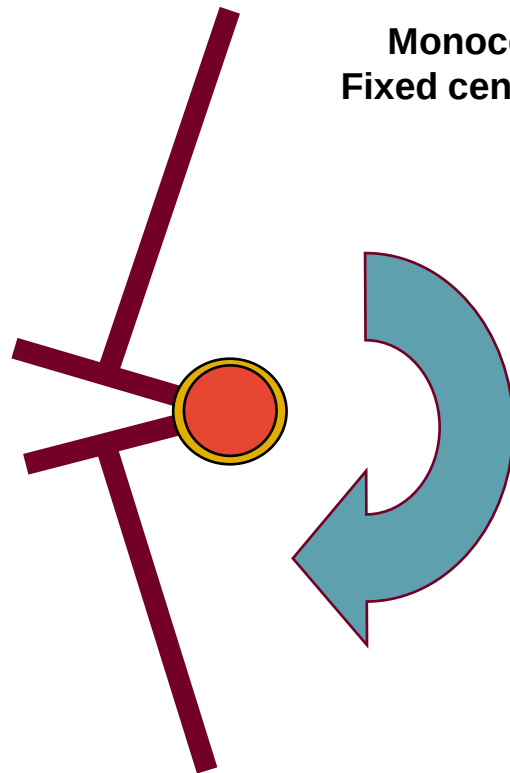
Ottobock Modular Knee Joints

Joint / Hinge

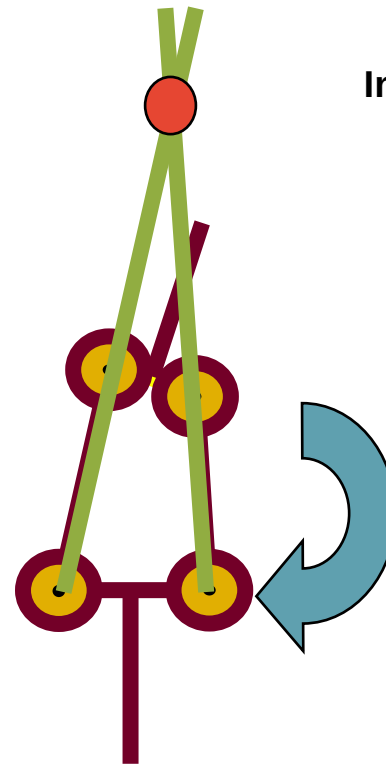


Ottobock Modular Knee Joints

Joint / Hinge



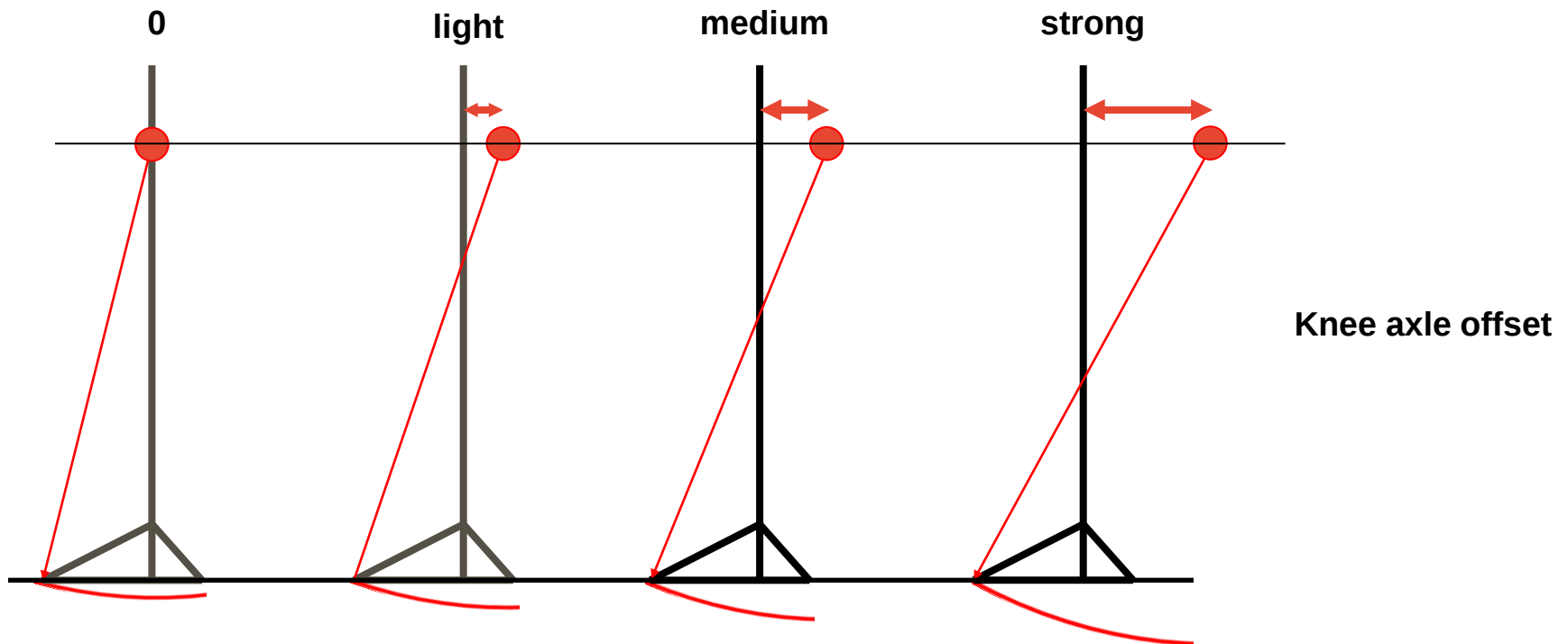
Monocentric Joint
Fixed center of rotation



Polycentric Joint
**Instantaneous center
of rotation**

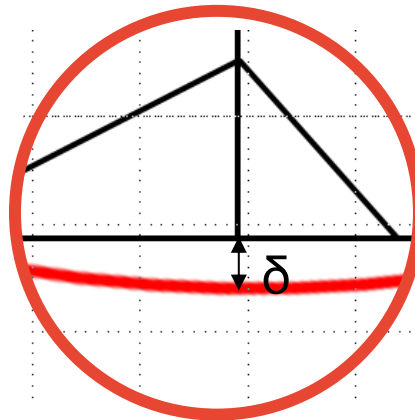
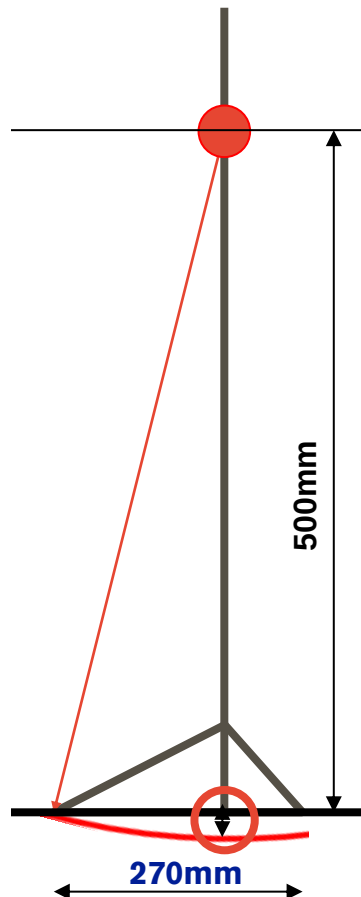
Ottobock Modular Knee Joints

Centre of Rotation (Monocentric)



Ottobock Modular Knee Joints

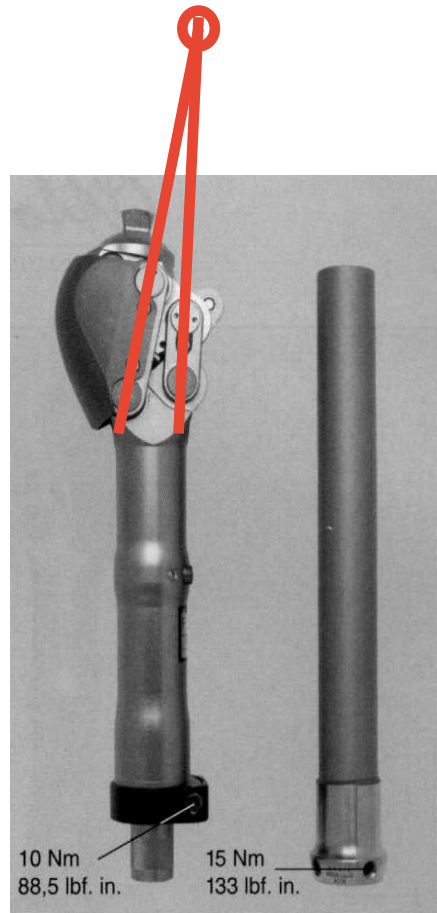
Centre of Rotation (Monocentric)



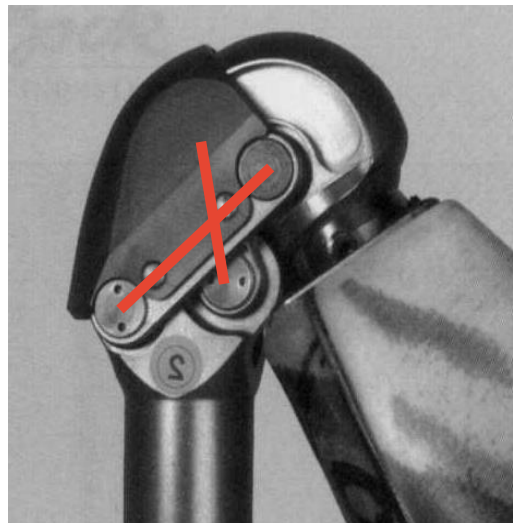
Offset	δ
0mm	27mm
5mm	28mm
15mm	31mm
25mm	35mm

Ottobock Modular Knee Joints

Instantaneous Centre of Rotation

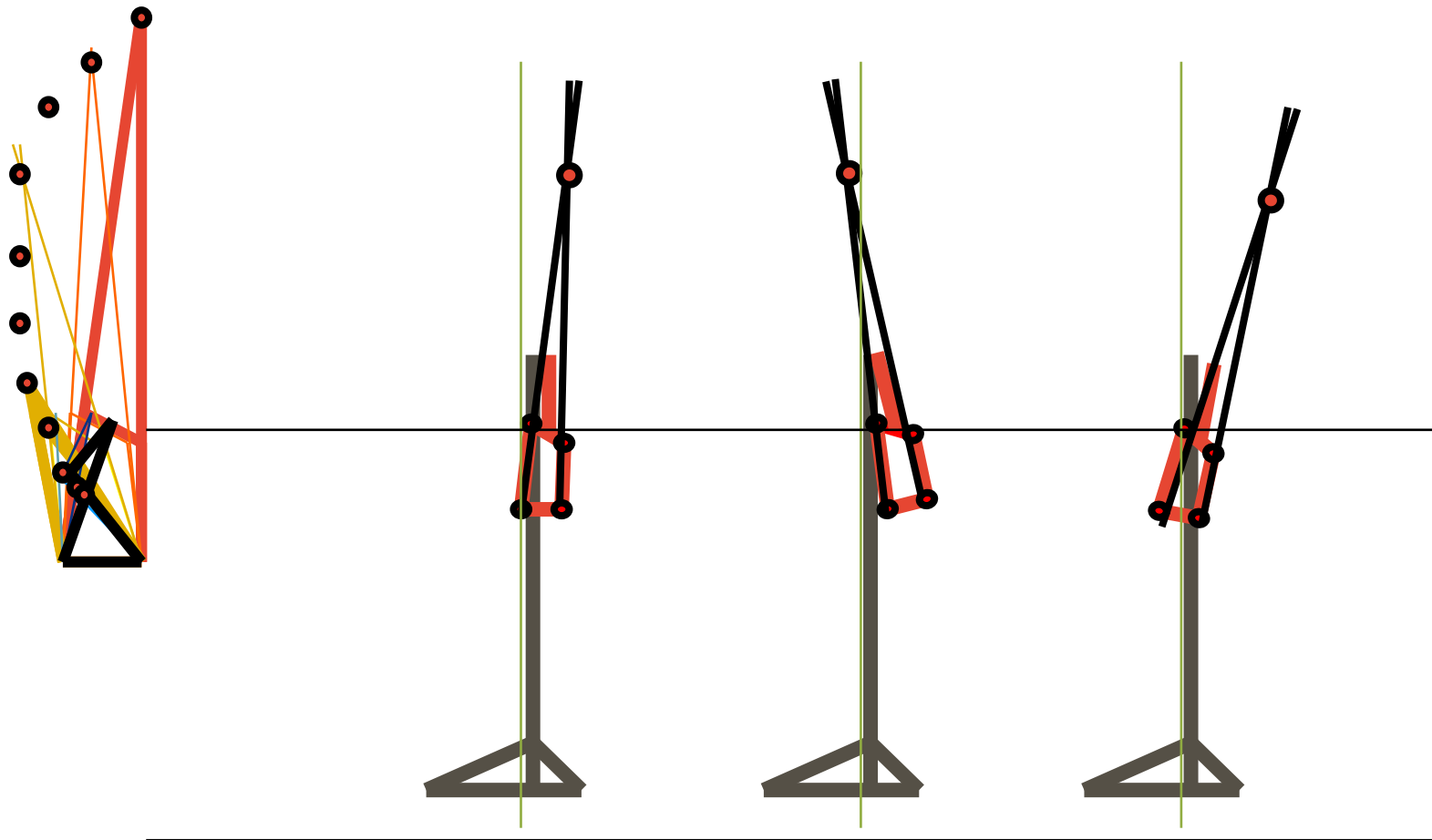


During flexion
center of rotation
transfers into the joint



Ottobock Modular Knee Joints

Centre of Rotation (Polycentric)



Ottobock Modular Knee Joints



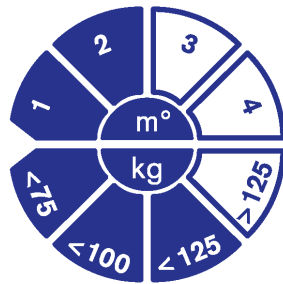
3R90 & 3R92



Field of application according to MOBIS®

3R90

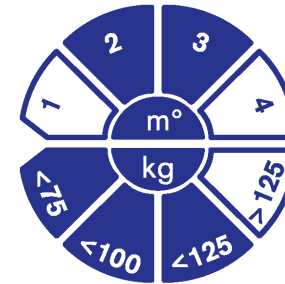
Mobility Grade **1 and 2**
Max. weight 125 kg / 275 lbs



For Amputees who require a moderate to high degree of stability and safety during stance and a low to moderate swing phase control.

3R92

Mobility Grade **2 and 3**
Max. weight 125 kg / 275 lbs



For Amputees who require a moderate to high degree of stability and safety during stance and a moderate swing phase control.



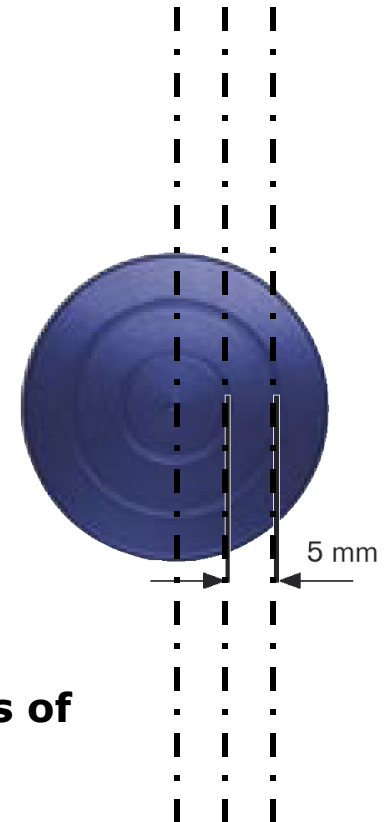
Important:

The new braking mechanism deactivates on forefoot load. This is a big benefit for many amputees because their gait pattern will improve.

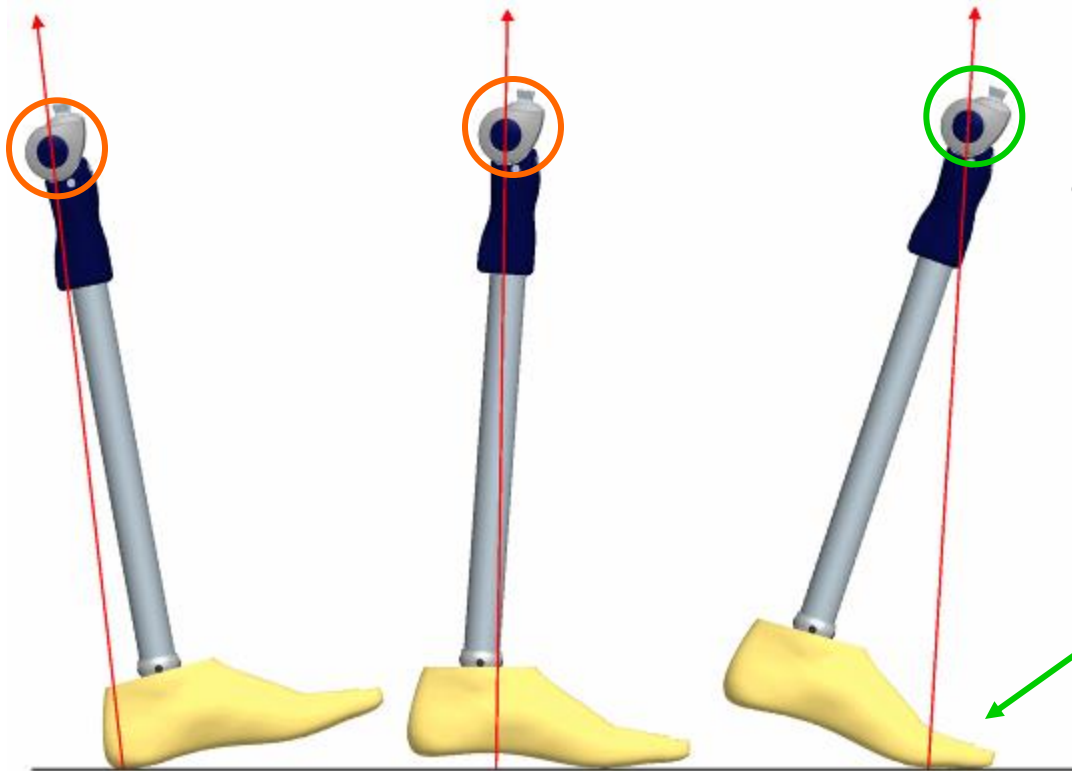
However for amputees who – due to their poor physical/mental fitness – are not able to systematically use/control the new brake (very small steps/low load on knee joint) these knees are contra- indicated!
(they will have to use 3R15/49 or lock knees for even higher safety)



- **Blue ring disc, divided into 5 mm steps, helps with the alignment**
- **The blue cover protects the mechanical parts of the Knee and preserves the cosmesis**



Advantage over other Brake Knee Joints:



- brake **releases** on **forefoot**, therefore no extra hip raise necessary to release brake and initiate swing phase, resulting in a more natural gait pattern

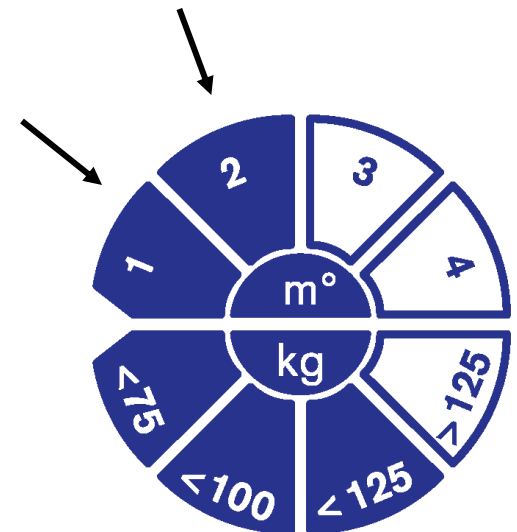


3R90

Field of application according to the Otto Bock MOBIS®:

Recommended for Amputees with Mobility Grade (m°) **1** and **2**

Maximum Weight Limit: **125** kg



Next Generation of Brake Knee - What is new ?

- **Only one very easy adjustment of Swing Phase Control - No other adjustments necessary**



**3R90 – mechanical swing phase control is now integrated into the Knee Joint and can be adjusted
(now 5 different forces of spring extension assist)**

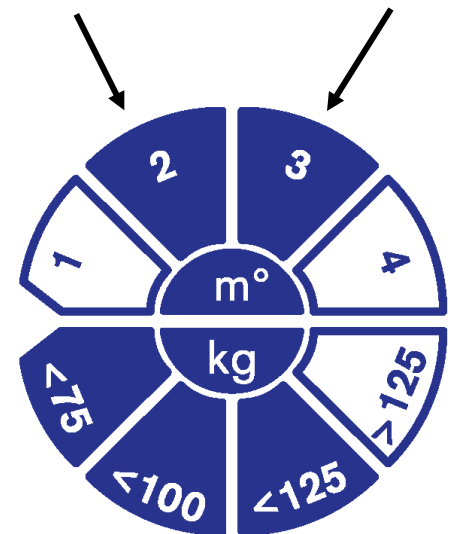


3R92

Field of application according to the Otto Bock MOBIS®:

Recommended for Amputees with Mobility Grade (m°) **2** and **3**

Maximum Weight Limit: **125** kg



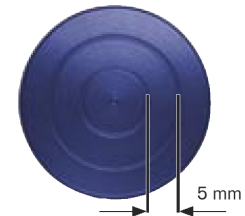
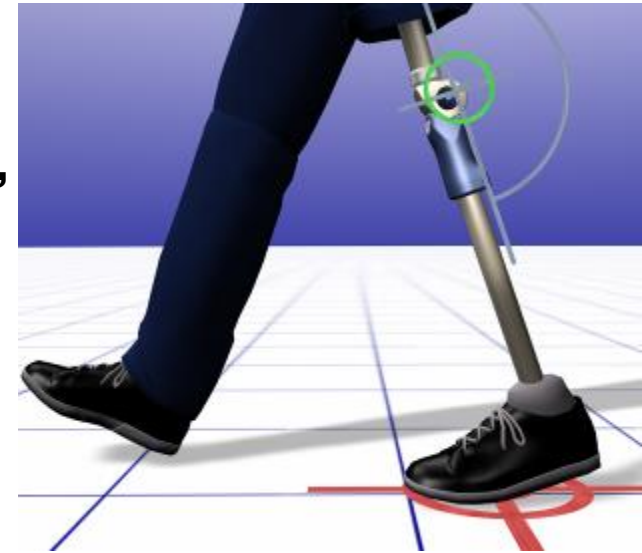
Next Generation of Brake Knee - What is new ?

- **Only one very easy adjustment of Swing Phase Control - No other adjustments necessary**

3R92 – pneumatic swing phase control can be adjusted like every other Otto Bock Knee Joint



- Friction brake **releases on forefoot**, therefore no extra hip raise necessary to initiate swing phase, resulting in a more natural gait pattern
- The blue covers protect the mechanical parts of the Knees and preserve the cosmesis
- Easy adjustments, durable, less wear
- Blue ring disc, divided into 5 mm steps, helps with the alignment
- friction not adjustable (see instructions for use)
- Trouble-free exchange of 3R15/3R49 to 3R90/3R92 in existing prostheses due to same height





New 3R106

Field of application according to the Otto Bock MOBIS®:

Recommended for Amputees with Mobility Grade (m°) **2** and **3**

New Maximum Weight Limit: **100** kg





new powerful dual chamber pneumatic

progressively acting for wider
range of speeds

very easy initiation of swing phase

very high flexion angle of 170°

due to its design – 3R106 knee
can be set up very stable

also available as 3R106=KD, =ST and
=HD for all levels of amputation

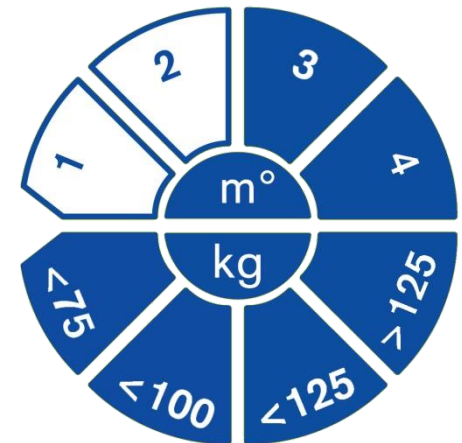


New 3R95

Field of application according to the Otto Bock MOBIS®:

Recommended for Amputees with Mobility Grade (m°) **3** and **4**

Maximum Weight Limit: **150** kg / 330 lbs

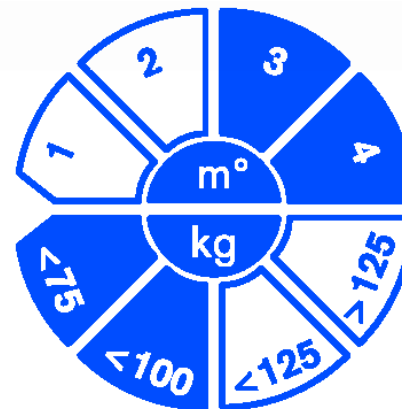


Ottobock Modular Knee Joints

3R80 Knee With Rotary Hydraulic

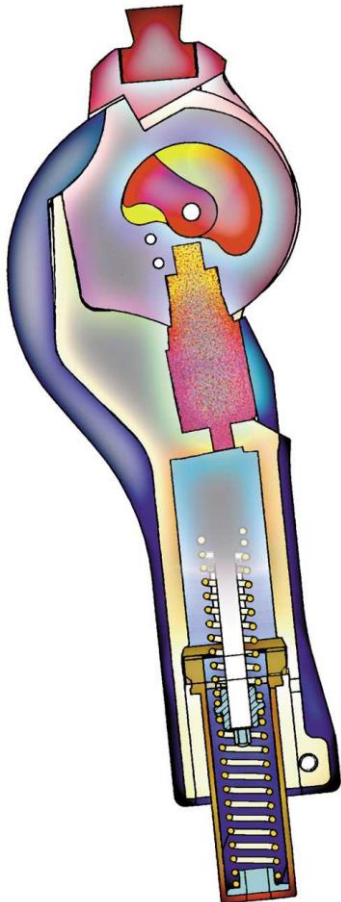


Weight: 1190g
Flexion angle: 150°



Ottobock Modular Knee Joints

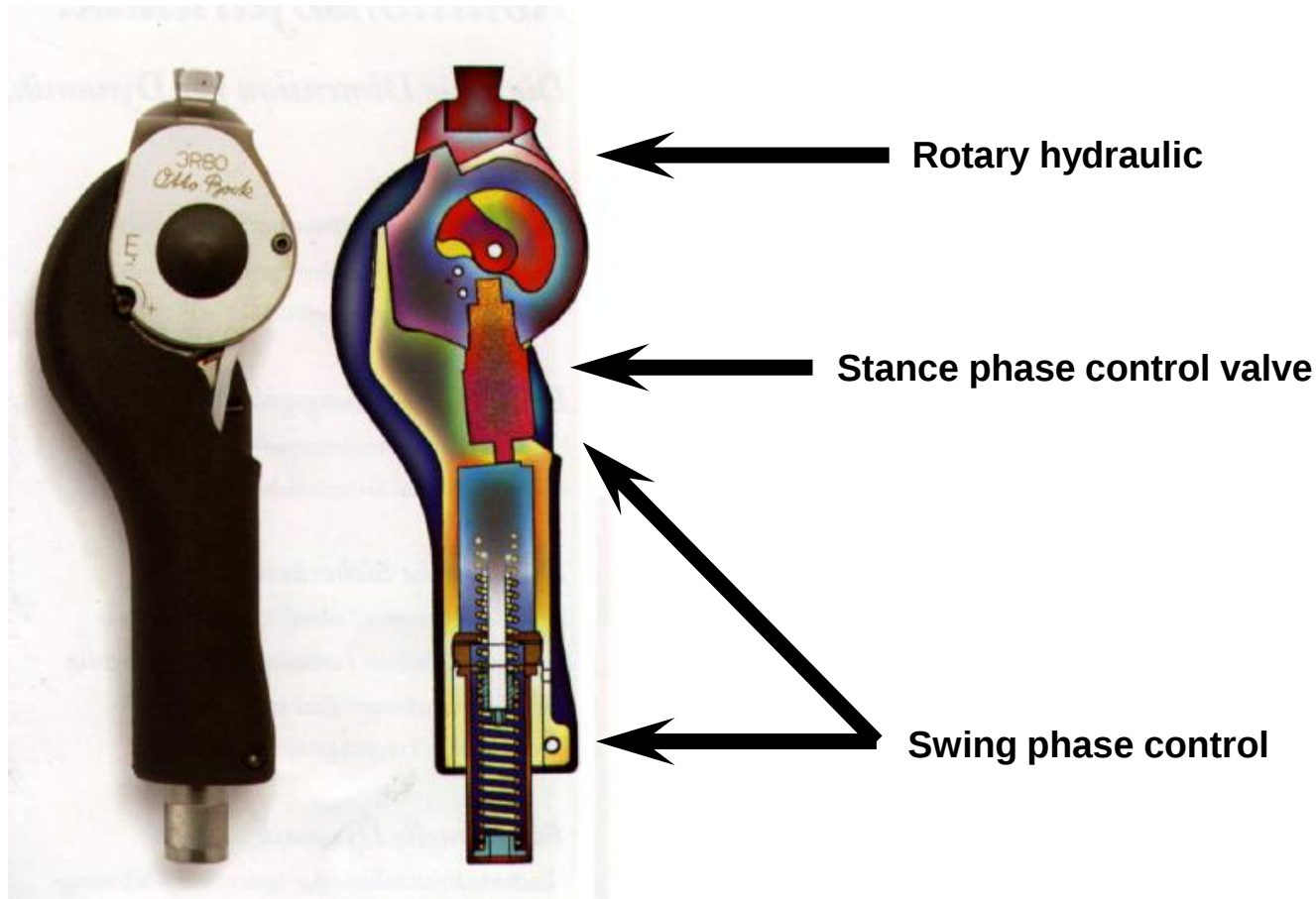
3R80



- Swing phase control through rotary hydraulic.
- Independent adjustment of flexion and extension control
- Maximum knee bending angle: 150°
- Swing phase control function inversion: 100°
- Technical specifications:
 - Weight 1100g
 - System height 176mm
 - Material Aluminum

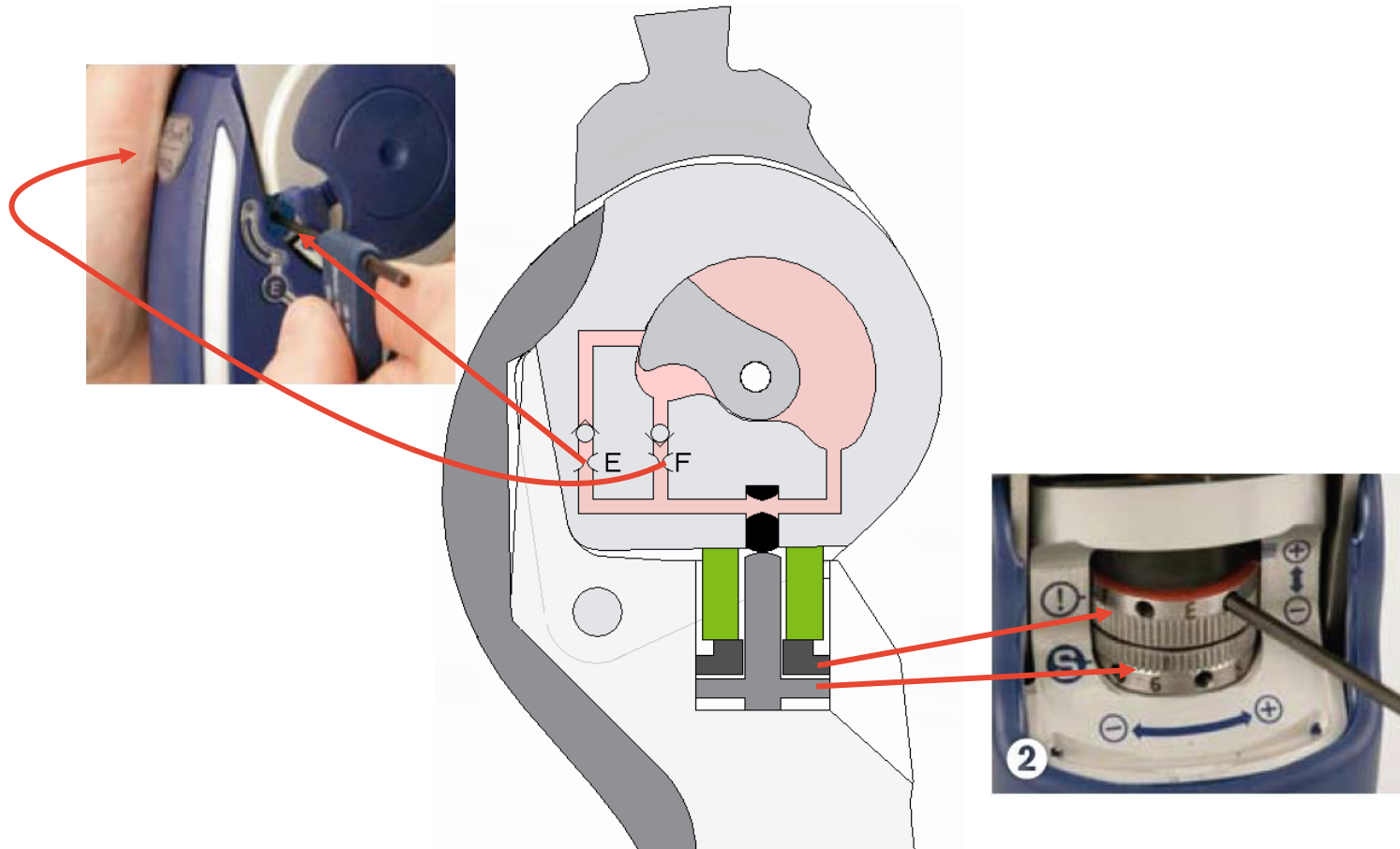
Ottobock Modular Knee Joints

3R80 Functional Components



Ottobock Modular Knee Joints

Swing & Stance Phase Adjustment



Ottobock Modular Knee Joints

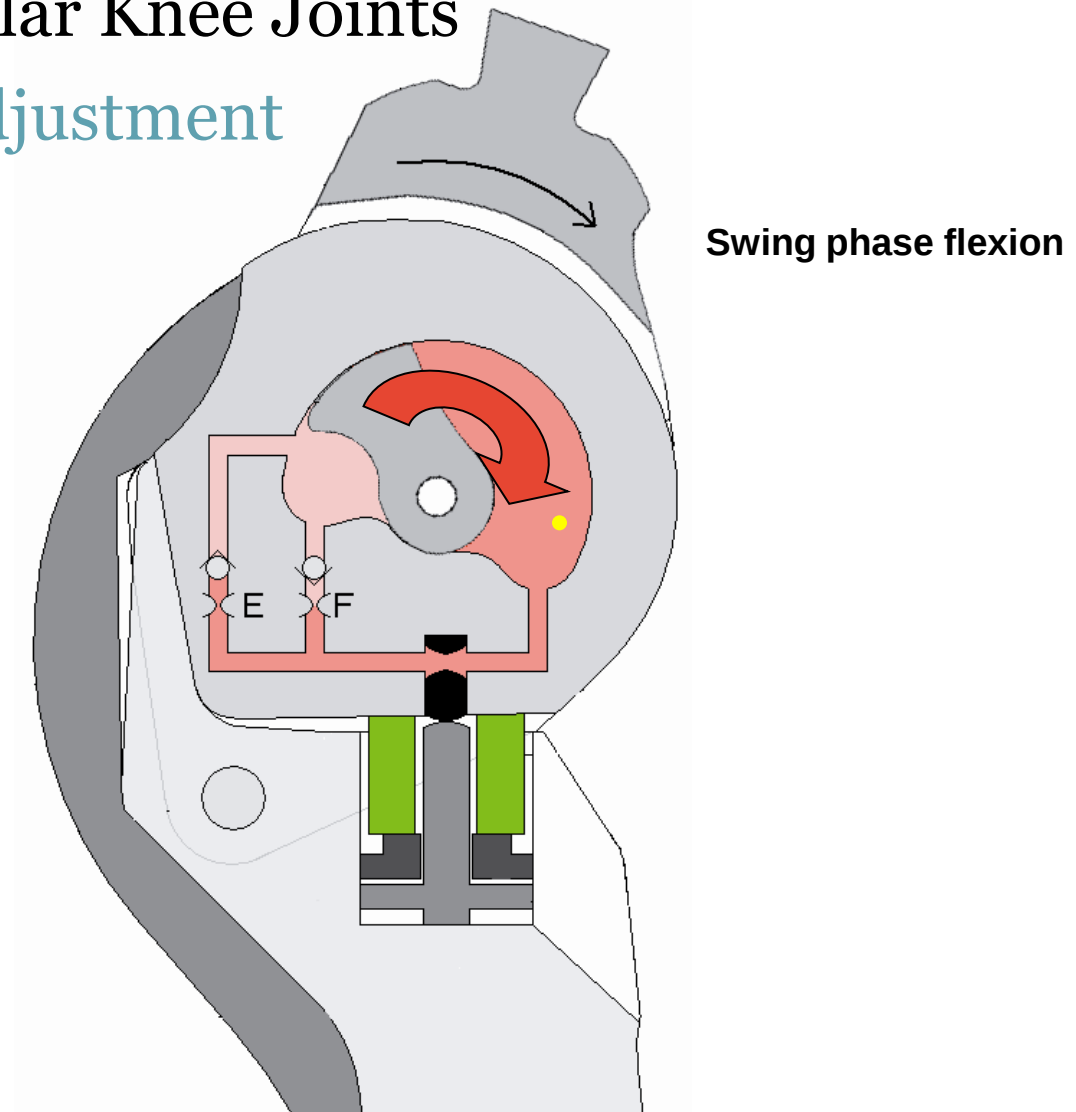
Swing Phase Adjustment



**Swing Flexion / Extension
independently adjustable**

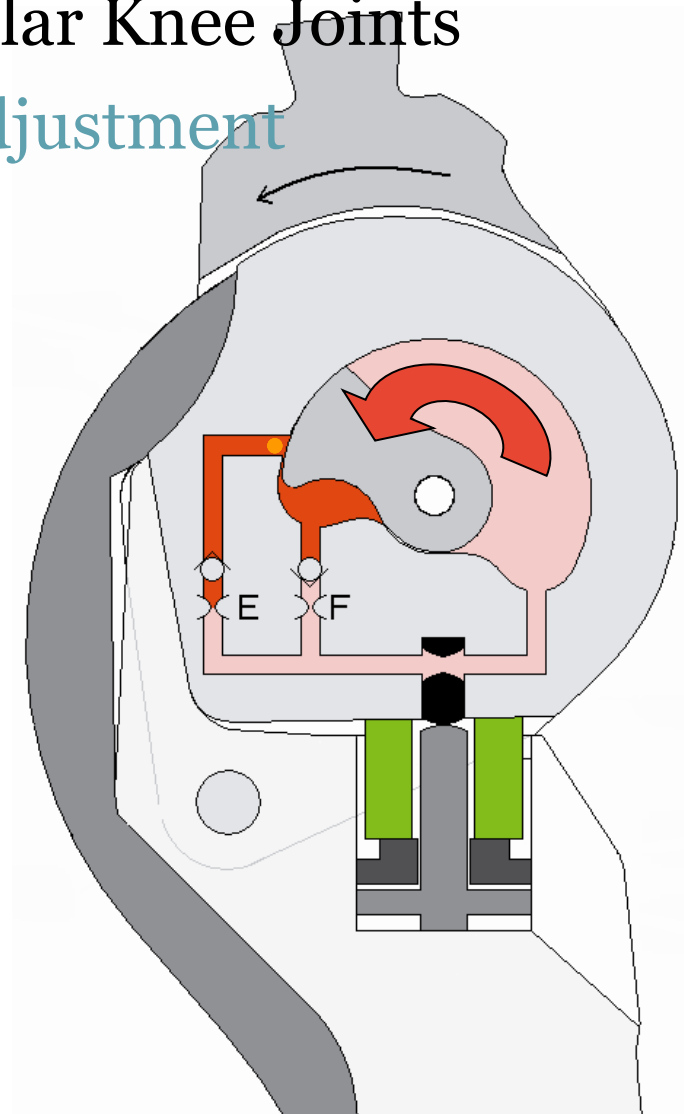
Ottobock Modular Knee Joints

Swing Phase Adjustment



Ottobock Modular Knee Joints

Swing Phase Adjustment



Swing phase extension

Ottobock Modular Knee Joints

Stance Phase Adjustment

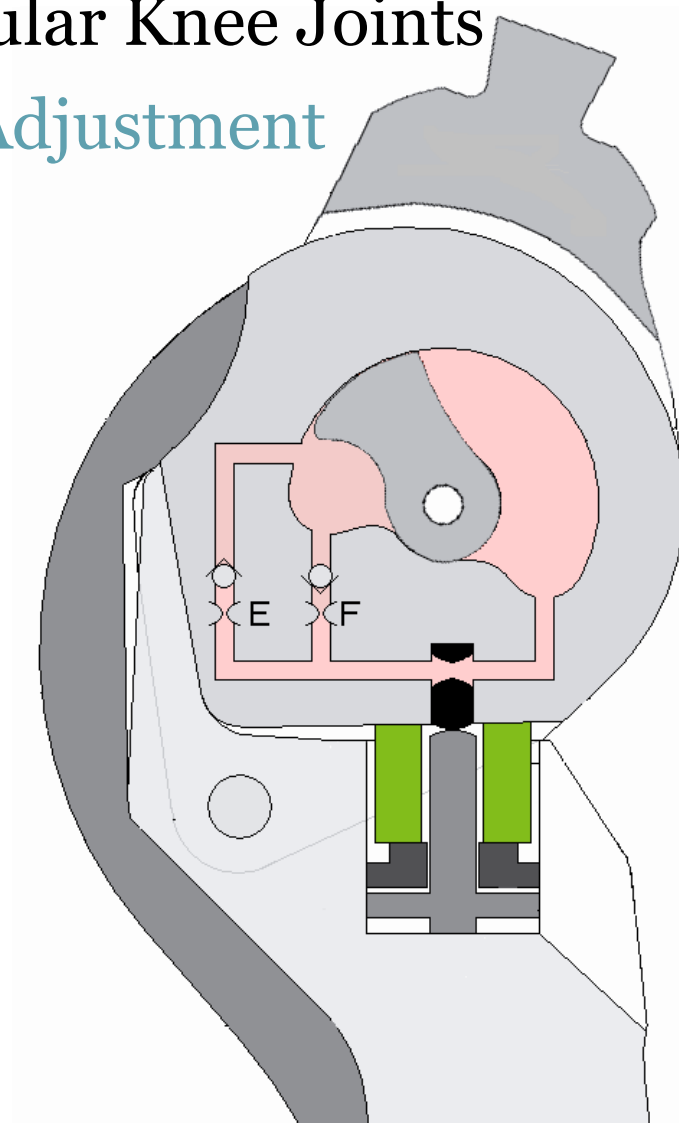


**Trigger level:
upper adjustment ring**

**Hydraulic-Dampening:
lower adjustment ring**

Ottobock Modular Knee Joints

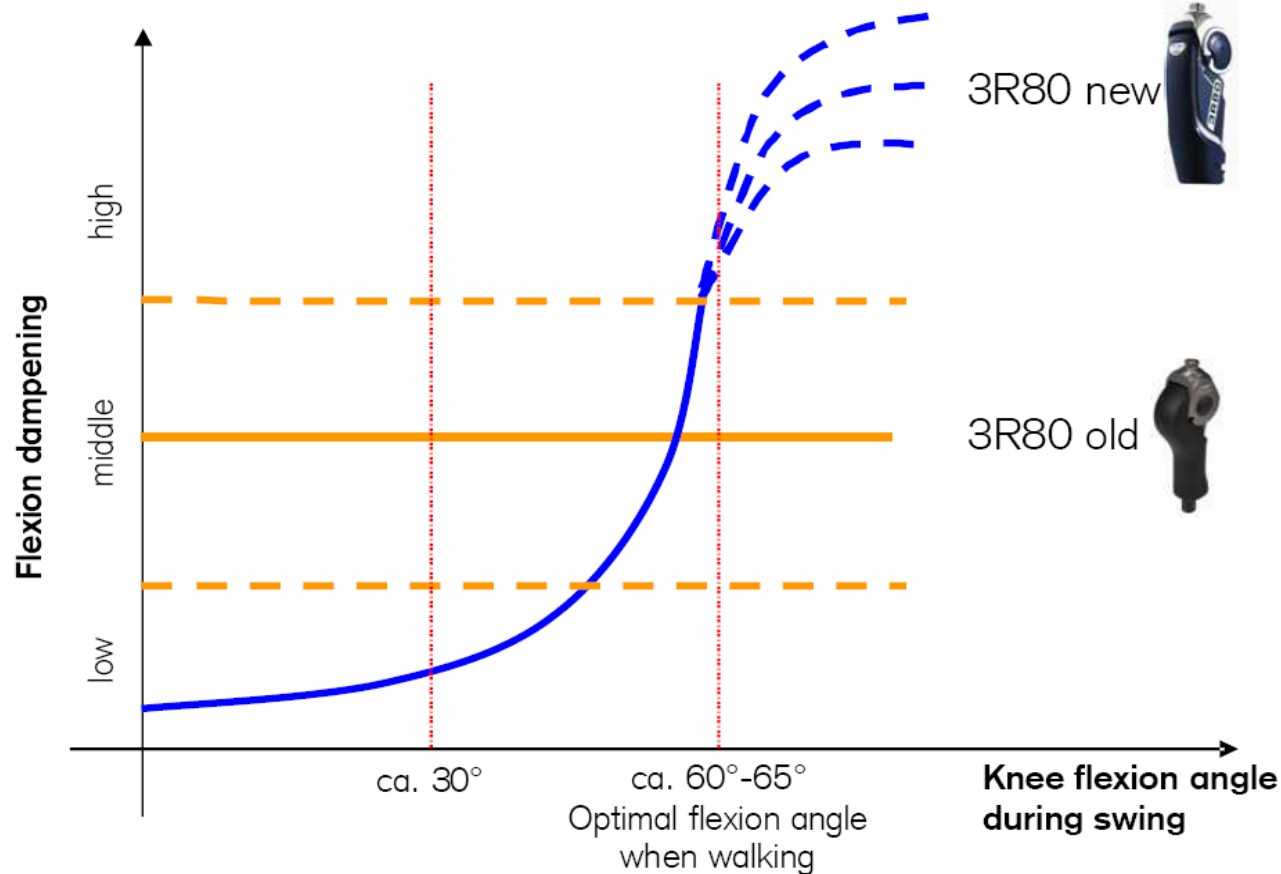
Stance Phase Adjustment



Stance phase yielding

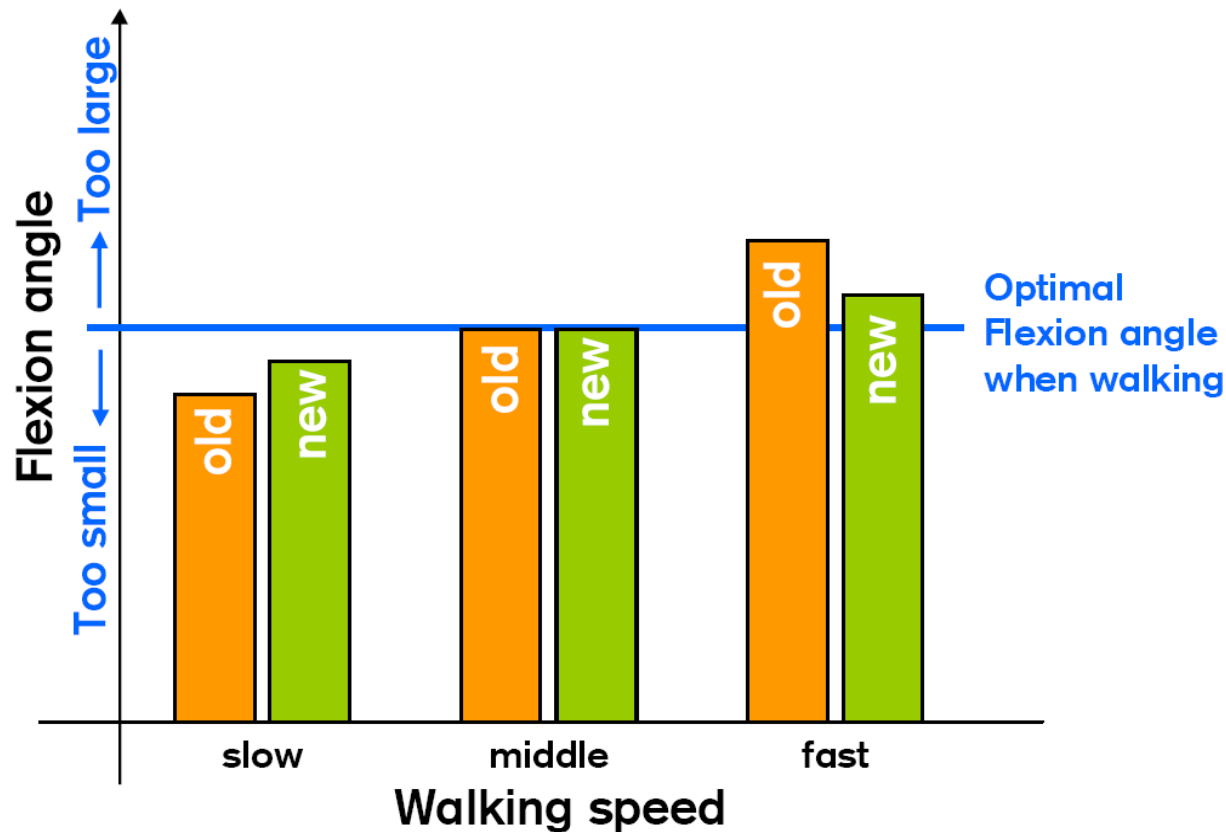
Ottobock Modular Knee Joints

3R80 Progressive Dampening



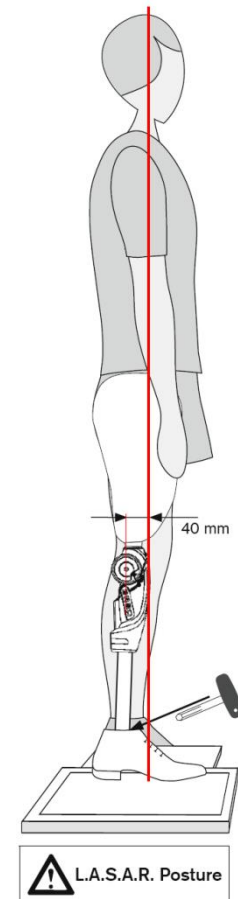
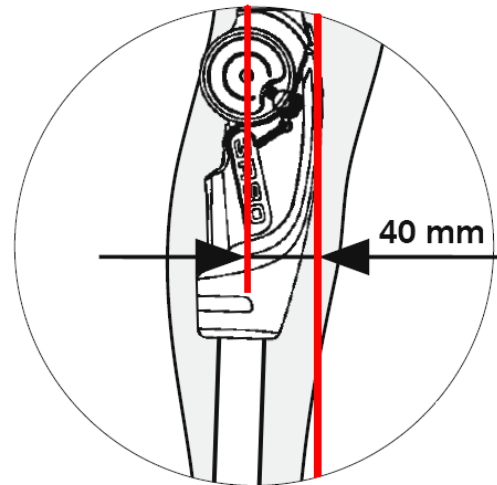
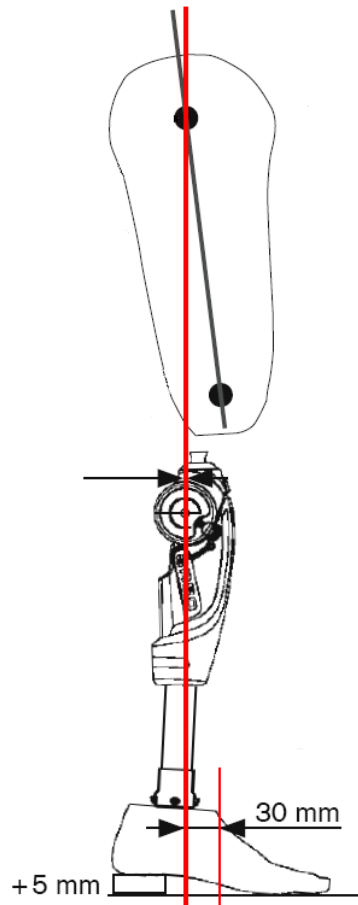
Ottobock Modular Knee Joints

3R80 Progressive Dampening



Ottobock Modular Knee Joints

3R8o Alignment



Ottobock Modular Knee Joints

3R60 EBS Knee Joint



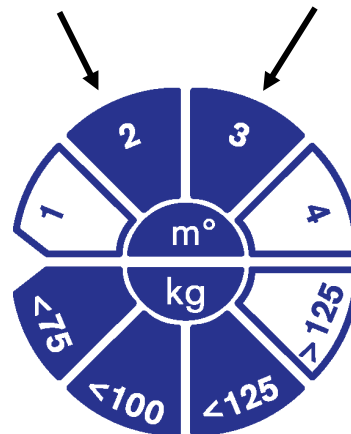
Ottobock Modular Knee Joints

New 3R60 EBS Knee Joint



Field of application according to the Otto Bock MOBIS:

- Recommended for Amputees with Mobility Grade (m°) 2 and 3
- Maximum weight limit: 125 kg / 275 lbs



Ottobock Modular Knee Joints

3R60 EBS Knee Joint



Biomechanical advantages in swing and stance phase

Ottobock Modular Knee Joints

3R60 EBS Knee Joint – Swing Phase



- New powerful and easy to adjust swing phase hydraulic



- Now very easy initiation of swing phase and high extension dampening for a much greater range of various speeds
- Damping pattern of new hydraulics are generated from gate lap test results evaluating the human gate at different speeds

Ottobock Modular Knee Joints

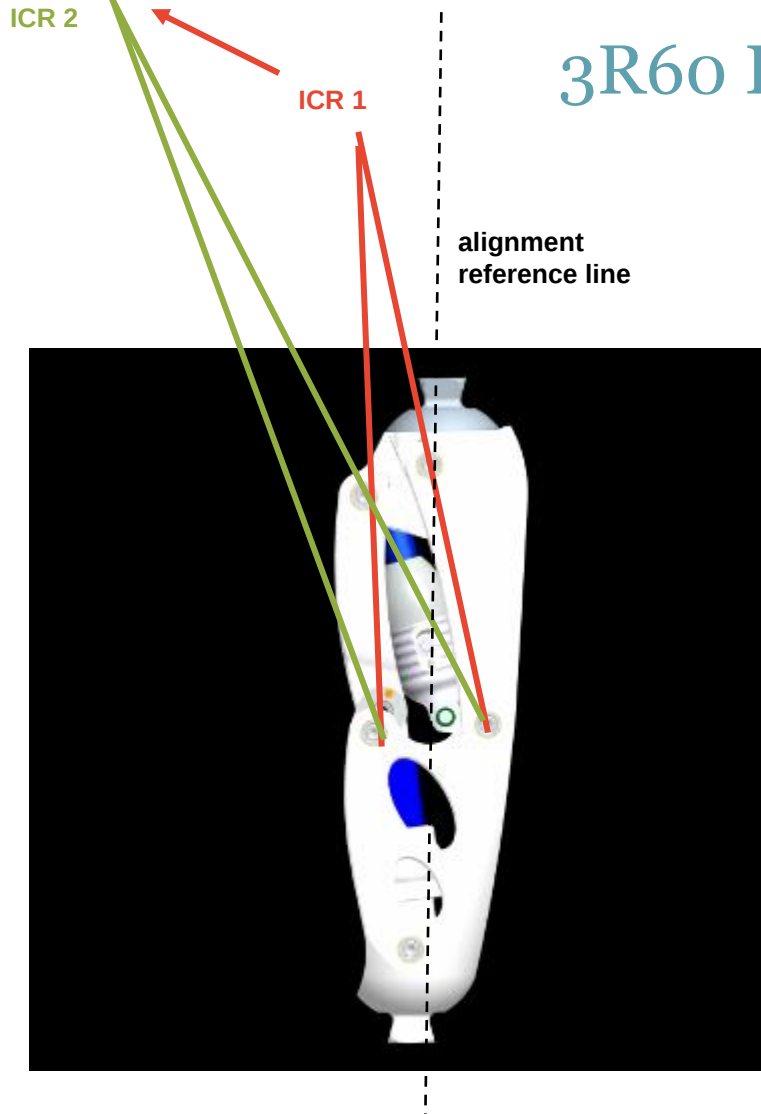
3R60 EBS Knee Joint – Stance Phase

Why is it so safe?

With polycentric knee joints, the center of rotation (ICR) lies at the cross over point of the lines through the posterior and the anterior linkage axis (fig). The center of rotation influences the stability and safety at heel contact. The further the ICR lies behind the weight bearing line the safer the prosthesis is.

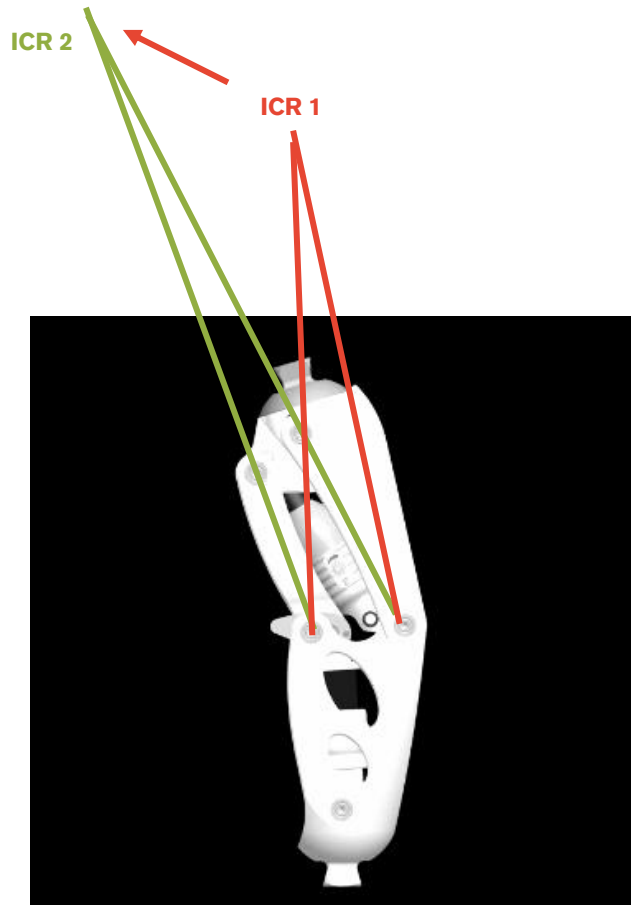
At loading response phase the knee shifts the ICR automatically backwards due to it's unique design.

Thus in contrast with other prosthetic knee joints the stability of the prosthesis improves noticeably with knee flexion according to both, the mechanical principle itself and the patients' feeling.



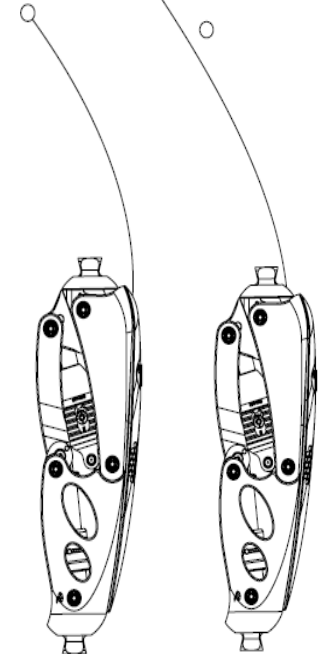
Ottobock Modular Knee Joints

3R60 EBS Knee Joint – Stance Phase



Course of instantaneous center of rotation

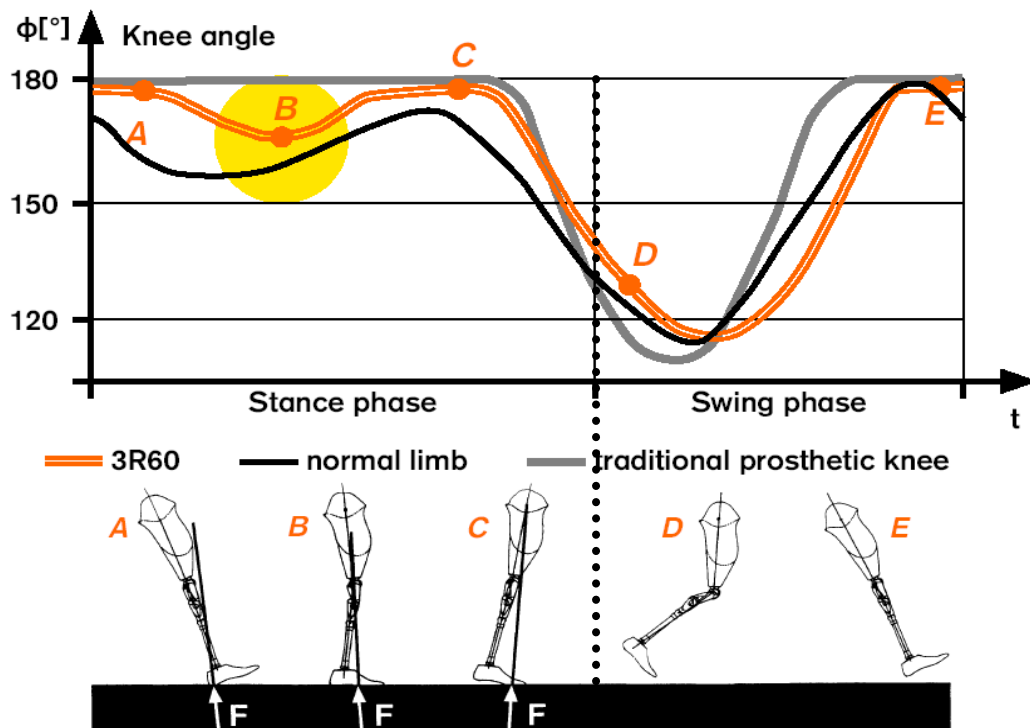
without and with EBS



Ottobock Modular Knee Joints

3R60 EBS Knee Joint – Stance Phase

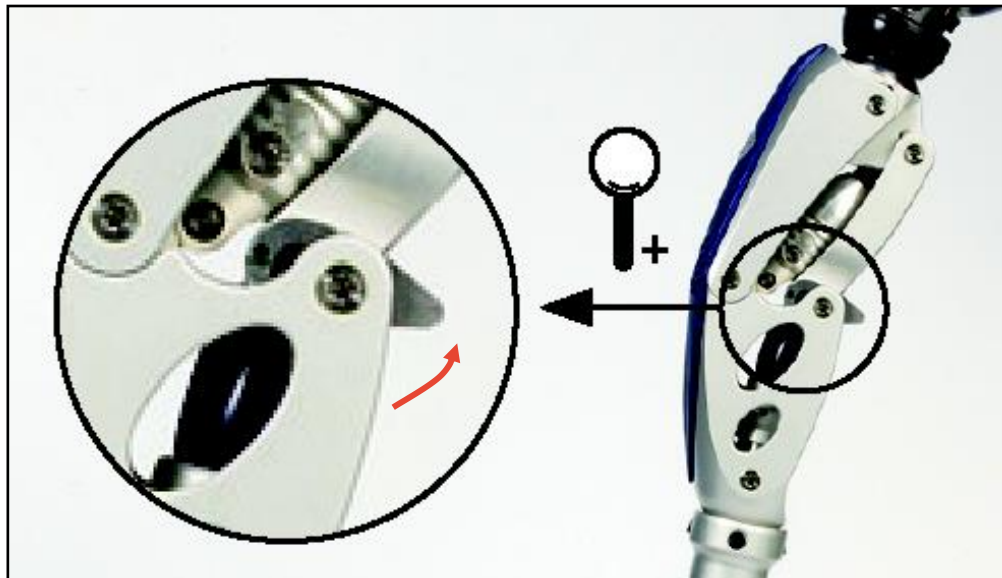
Another advantage of the EBS mechanism is that it copies the natural gait pattern – thus **EBS** stands for “**E**rgonomically **B**allanced **S**tride”



Controlled “bouncing “ up to 15° =
Safety, Comfort and Reduction of
impact on stump, hip and spine

Ottobock Modular Knee Joints

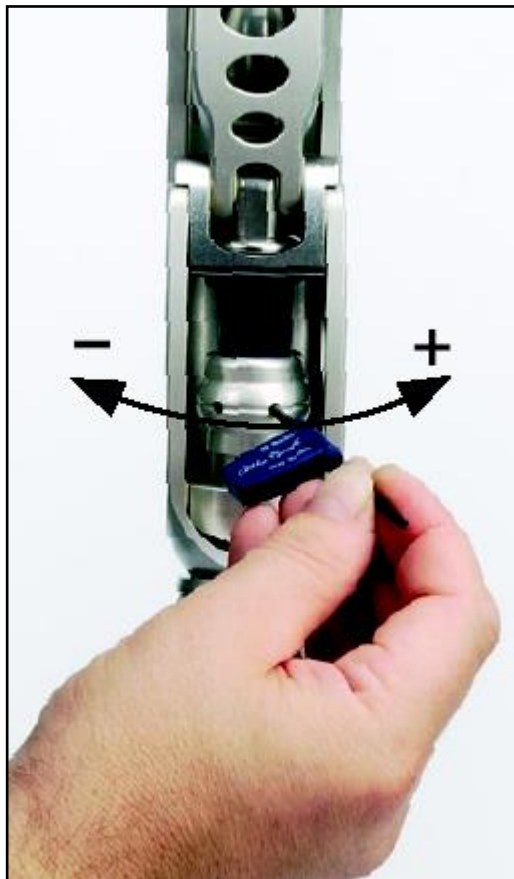
3R60 EBS Knee Joint – Stance Phase



- The blue rubber bumper of the EBS unit is compressed as the pivoting rocker rotates upwards
- This rocker can be used to check how much the patient uses the EBS function (fig.)
- Hydraulic system within the EBS provides a dampening effect during late stance phase (Stance extension), for a more comfortable gait.

Ottobock Modular Knee Joints

3R60 EBS Knee Joint – Stance Phase



- EBS function individually adjustable to the weight and activity of the amputee
- Only mechanical knee worldwide with individually adjustable stance flexion up to 15° and hydraulically controlled stance extension
- For more comfort but still high safety, especially on uneven terrain, inclines or declines because of EBS.
- Ideal knee for amputees who walk/hike long ways and who stand for long periods of time (e.g. at work)

Ottobock Modular Knee Joints

New 3R60 EBS Knee



- Improved durability
- 4 different types of modular connectors for all types of amputation levels (fig.)
- Max. weight limit now 125 kg
- Reduction of weight to approx. 850g
- Reduction of size by 10 mm
- Large flexion angle of more than 175° depending on socket (fig.)



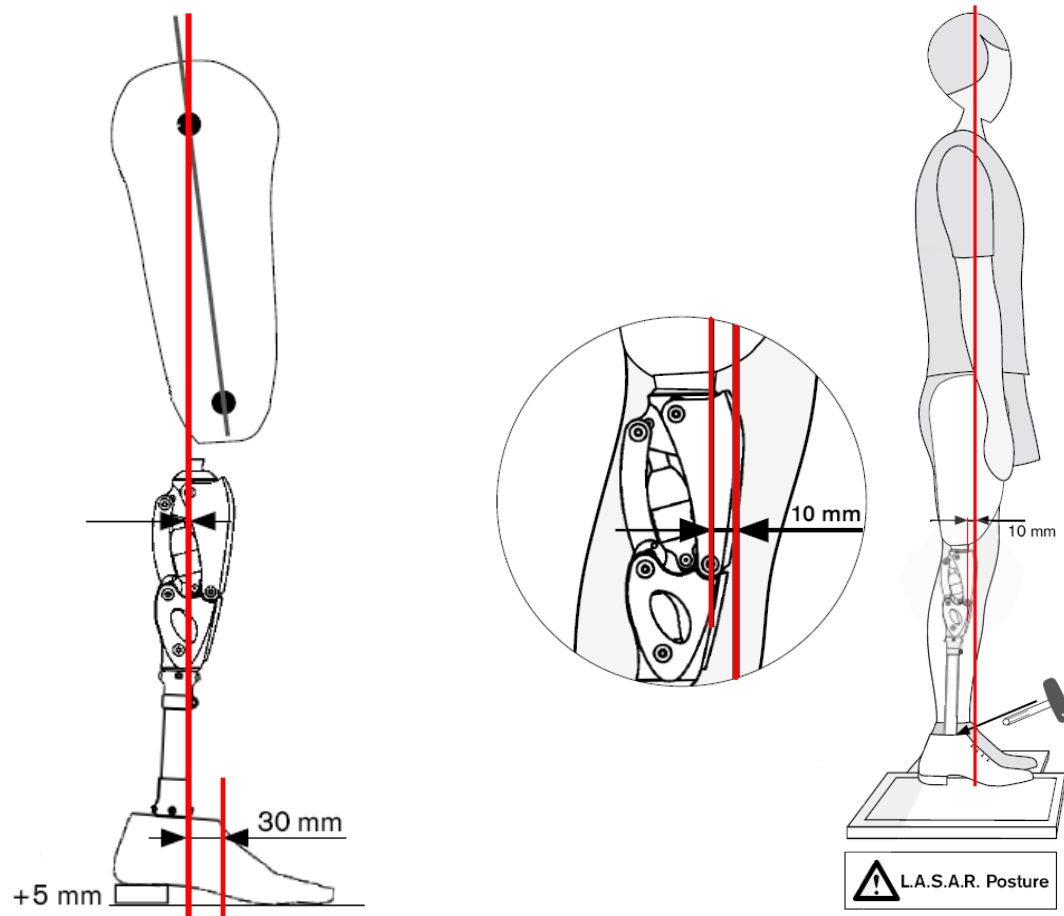
Ottobock Modular Knee Joints

Technical Data

Knee	Weight	Installation height (front axis – upper edge)	Width
3R60	842 g	31 mm	48 mm
3R60=KD	939 g	20 mm	48 mm
3R60=ST	845 g	22 mm	48 mm
3R60=HD	865 g	34 mm	48 mm



Ottobock Modular Knee Joints



www.ottobock.com

Quality for life

