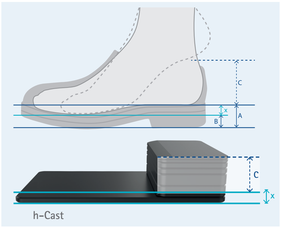
e-Cast

FIOR & GENTZ
ORTHOPÄDIETECHNIK MIT SYSTEM

Making the Negative Cast with e-Cast

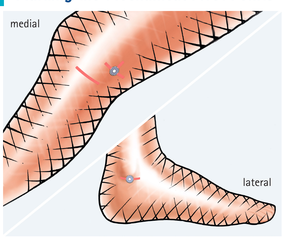
1 Determining the Pitch – Very Important Step!



Compensate the pitch x of the shoe (difference between heel height A and sole thickness B in ball area) and a possible leg length discrepancy. This is how it works:

- Measure the heel height A.
- Measure the sole thickness B in ball area.
- Calculate the pitch x with the formula x = A - B.
- Determine the height compensation C, if necessary.
- Transfer the pitch and, if required, the height compensation to the h-Cast.

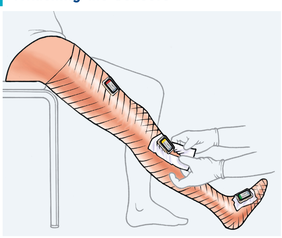
2 Marking the Mechanical Pivot Points



Mark the mechanical pivot points by using self-adhesive washers. They remain in the cast and enable you later on to stick the alignment aids through the negative cast at the correct height.

- Insulate the patient's leg with compression film. Important! Ensure that the angle position of the ankle and knee joint is correct.
- Mark the medial mechanical pivot point at knee height with a self-adhesive washer.
- Mark the lateral mechanical pivot point at ankle height with a self-adhesive washer.

3 Attaching the Sensors

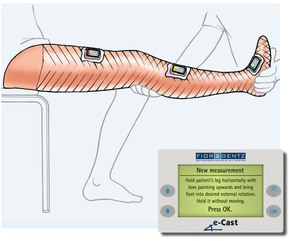


Use all three sensors if you want to produce a KAFO. For the production of an AFO you need the yellow and the green sensor, for the production of a KO the yellow and the red sensor.

- Attach the sensors to the leg according to the marking (red sensor to the thigh, yellow one to the lower leg, green one to the foot).
- Stabilise the sensors with longuettes.

The e-Cast operator device shows you the dorsiflexion and plantar flexion of the ankle as well as the extension and flexion of the knee. In the menu item Display options you can choose if you would also like to see the pronation and supination of the ankle and the varus/valgus position of the knee.

4 Performing a New Measurement



When all sensors are connected, the e-Cast is ready for use and you can perform a new measurement.

- Bring the leg in a horizontal position with the toes pointing upwards and the foot in the desired external rotation.
- Keep the position for a few seconds.
- Save the measurement by pressing OK.

5 Determining the Individual Normal Posture and Saving the Joint Angles

example of an individual normal posture in mid stance

Important! Take sufficient time to bring the patient in their individual normal posture. In this step, the joint angles are determined to ensure an optimal functioning of the orthosis. Thus, time-consuming follow-up work will not be necessary.

- Place the patient in a standing position on the h-Cast. Make sure that the patient stands on the h-Cast with the heel placed completely on it. Use orthopaedic devices, if necessary.
- Bring the patient into the optimal position (green line) and provide support, if necessary. Bring the knee into the functional joint angle. Respect the line of gravity (blue line). This results in a correct ankle joint angle.
- Save the individual normal posture by pressing OK.

In the following steps, it will no longer be necessary for the patient to remain standing.

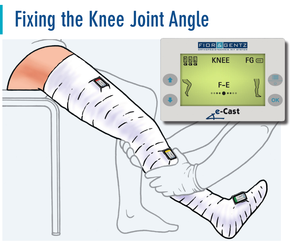
6 Fixing the Ankle Joint Angle

The ankle joint angle determined while standing will now be fixed while the patient is sitting. The ankle joint angle changes if you shift the patient's foot on the h-Cast in dorsal or ventral direction. Wrap the cast loosely over the foot, the ankle joint and the calf ensuring that the sensors for the foot and the lower leg are plastered in.

- Place the foot on the h-Cast.
- The operator device helps you find the determined angle:
  too excessive dorsiflexion = dot moves towards the D
  too excessive plantar flexion = dot moves towards the P
- Important! Mind the external rotation of the foot.

When the cast has hardened, the ankle joint angle is fixed.

7 Fixing the Knee Joint Angle



For this step, bring the leg into an extended position. Wrap the cast loosely over lower leg and thigh. Plaster the sensor in.

- The operator device helps you find the determined angle:
  too excessive flexion = dot moves towards the F
  too excessive extension = dot moves towards the E
- Hold the leg in the correct position until the cast has hardened.

When the cast has hardened, the knee joint angle is fixed.

In the next step, you define the alignment of the mechanical axes by using the alignment aids.

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