

# Positioning Inspiration for CT



Applications, pictures and tips:

**Alex Riemer**

Trainer and lecturer for computed tomography, textbook author

Winner of the Eugenie and Felix Wachsmann Prize of the  
German Radiological Society

[www.alex-riemer.de](http://www.alex-riemer.de)



# Challenges in CT



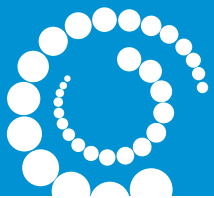
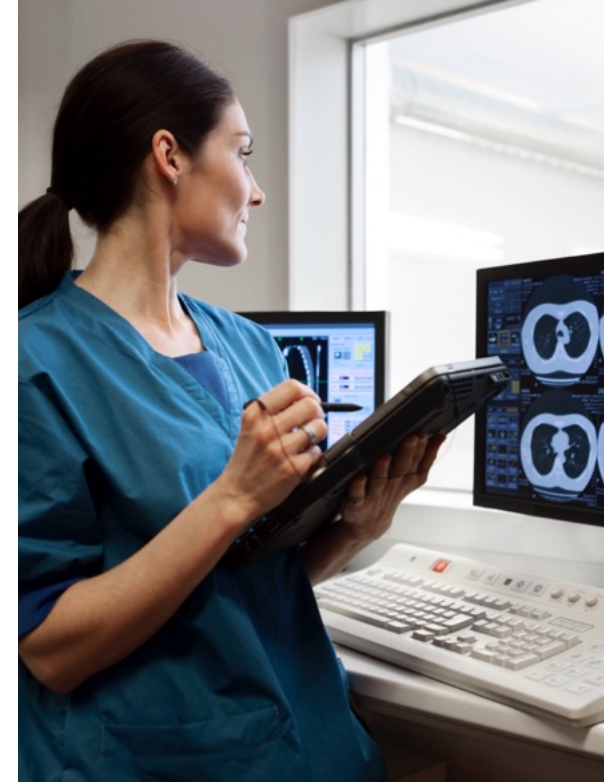
Pain, immobility and **restlessness** can complicate exams and reduce image quality.



High **patient volume**, especially in emergencies, requires fast and consistent workflows.



Balancing quality and dose – small inaccuracies lead to **artifacts**, **retakes**, and avoidable exposure to sensitive organs.



# The Pearl Technology Solution

Quick, precise, and perfectly hygienic patient positioning



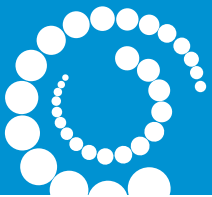
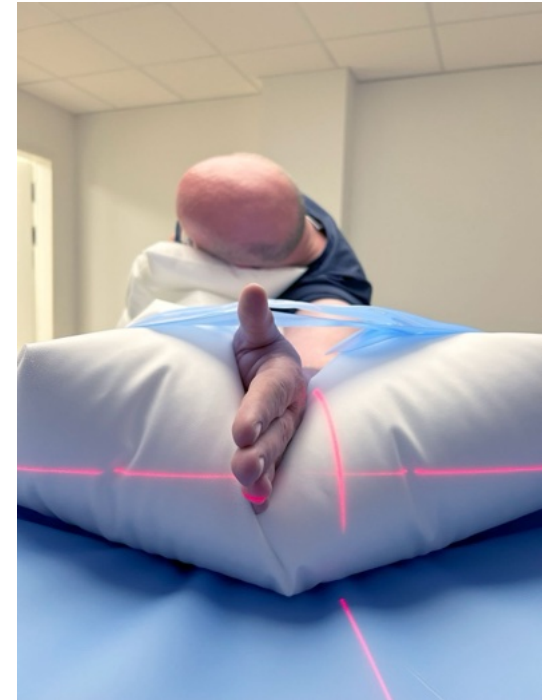
Individually positioned patients undergo examinations **calmly** and **satisfied** without complications.



**Durable** Materials with **smooth surfaces** are easy to clean, ensuring **perfectly hygienic workflows**.



Simple, standardized positioning speeds up exams and reduces **time pressure**.



# What Our Customers Say

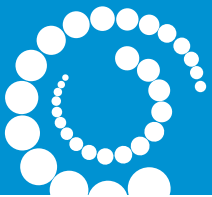
“Pearltec positioning aids provide welcome **relief** during even the most challenging examinations.

The intuitive design allows us to work in a **standardized** and **simple way** while achieving excellent image quality.











And instead of fabric, Velcro, or brittle plastic coatings, everything is made of **smooth, high-quality** plastic - much **easier to clean.**”

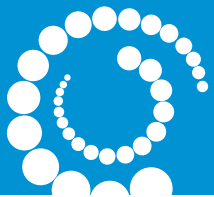


Alex Riemer



# Contents

	Head	6		Wrist	20
	Paranasal Sinuses	9		Pelvic-Leg Angiography	22
	Maxilla, Mandible, and Teeth	10		Foot and Upper Ankle	23
	Neck and cervical spine	11		Thorax / Abdomen	24
	PRT / Infiltration	13		Appendix – Hygiene in CT	26
	Shoulder	14			
	Elbow	16			



Example::

- 1132 PearlFit Wedge 56x50x25 below the legs
- 5005 PearlFit Forehead
- 1119 PearlFit Flex 3

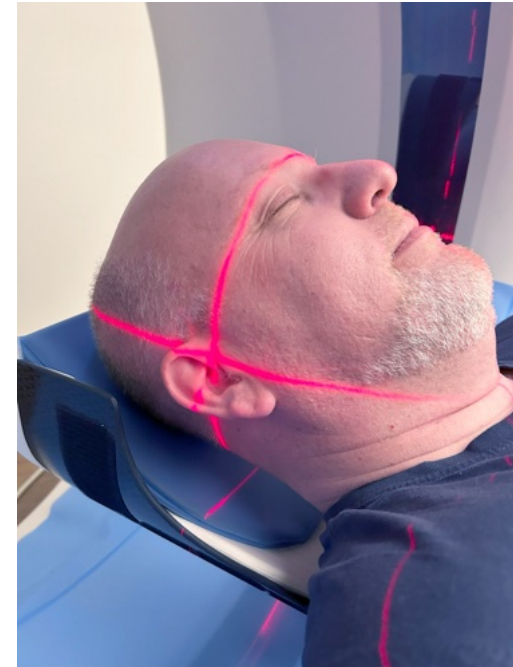


Find product information  
to order here!

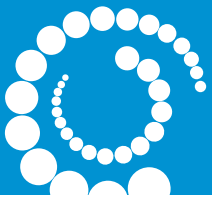
# Head

Accurate head positioning is essential to protect the eye lenses from direct X-ray exposure.

If a tiltable head holder is not available, positioning wedges can be used to achieve the required head tilt.



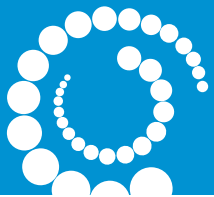
The line between the orbital roof and the external auditory canal should be parallel to the scan plane, passing through both corners of the eyes. The patient's eyes should remain closed during alignment to avoid laser exposure.



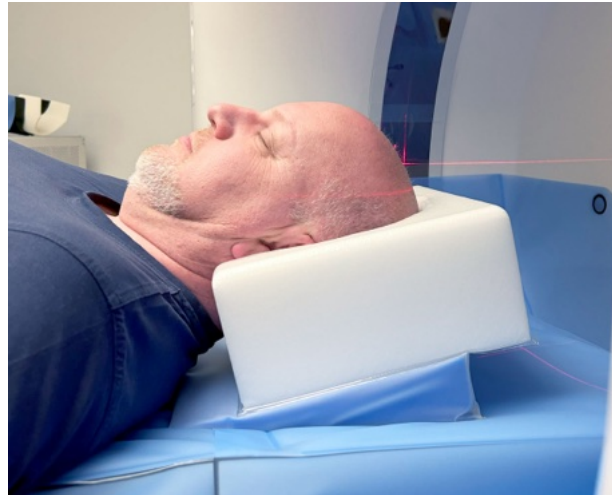
- [ProFoam Wedge Inclination](#): With different angles of 15, 30 or 40 degrees (1273, 1274 oder 1275)
- Optional: 1105 [CT HeadFix](#) and [ProBelt 50](#) (5008, 5009, or 5012 for different manufacturers)
- Not in the image: 1113 [PearlFit](#) Roll 50 to set below the legs

# Head - Emergencies

In urgent cases or when patients struggle to stay still, the inflatable CT HeadFix offers a fast and reliable positioning solution. A demonstration video is available on the [website](#).



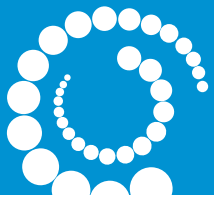
# Head – without Head Holder



In exceptional cases where a head holder is not available, positioning aids are needed to achieve proper head tilt.

The ProFoam Head Foam Mold, the blue ProFoam Wedge, or the white PearlFit Cushion can be used to support the head and maintain inclination.

Note: Positioning directly on the CT table should only be done in rare cases, as it may cause slight artifacts and increase dose.



- 1160 [ProFoam Wedge 26x25x7 DS](#)
- 1246: [ProFoam Head/Neck](#)
- Optional: 1116 [PearlFit Cushion 50x30x10](#)
- Not in the image: 1113 [PearlFit Roll 50](#) to set below the legs

# Paranasal Sinuses

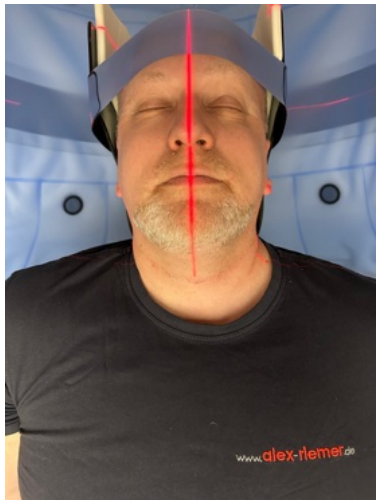


The skull should be positioned so the hard palate is parallel to the scan plane.

To achieve this, the head must be reclined until the line between the forehead and incisors is parallel to the table.

For stabilization, use a strap (ProBelt 50) and cushion (Multipad) during the examination.

To protect the eyes, lens protection or organ dose modulation should be used.



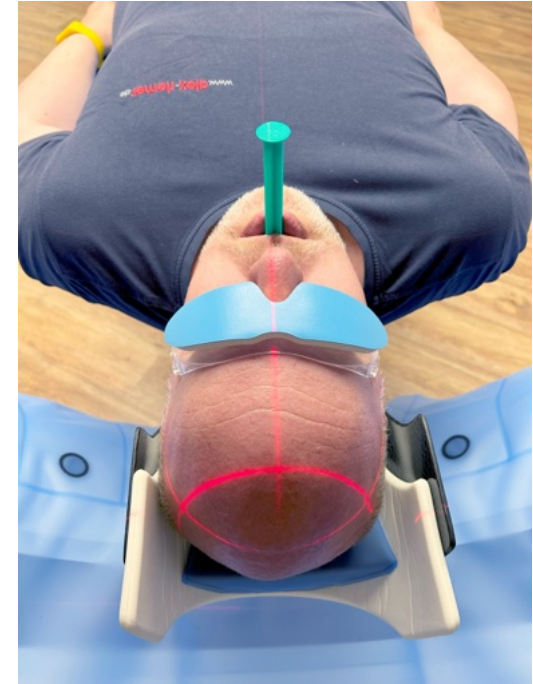
- 5008 ProBelt 50 VL for Canon, Siemens, and Philips CTs
- 5009 ProBelt 50 VH for GE CTs
- 1012 MULTIPAD Standard or 1071 MULTIPAD Slim or 1022 MULTIPAD Plus
- Not in the image: 1113 PearlFit Roll 50 to set below the legs

# Maxilla, Mandible, and Teeth

The patient should bite on the indentation of a new, unused 5 ml syringe plunger with their incisors to distinguish between the upper and lower jaws.

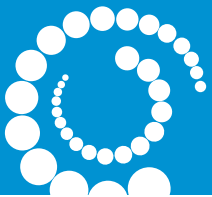
The head should be aligned so the occlusal plane is perpendicular to the table.

If a tiltable head holder is not available, positioning wedges can help achieve the necessary inclination.



To protect the eyes, use lens protection or organ dose modulation.

Note: For implant planning, use the lens protector only if it does not interfere with the software.



- [ProFoam Wedge](#) Inklination: Je nach Winkel 15, 30 oder 40 Grad (1273, 1274 oder 1275)
- Optional: 1105 [CT HeadFix](#) and [ProBelt 50](#) (5008, 5009, or 5012 for different manufacturers)
- Not in the image: 1113 [PearlFit](#) Roll 50 to set below the legs

# Neck and Cervical Spine

The head should be positioned so the cervical spine is as parallel as possible to the CT table.

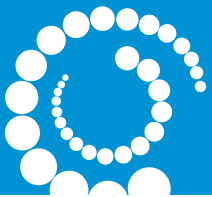
If possible, recline the head so the lower orbital edge aligns with the external auditory canal.



A pillow provides comfortable positioning and helps prevent movement.

For additional stabilization, a Multipad can be used in the head holder.

The arms should be gently secured with straps so the patient can relax.



- 1114 [PearlFit Cushion 30x20x4](#)
- 1172 [ProBelt 200 T5 for Canon](#)
- Optional: 1105 [CT HeadFix 1071 MULTIPAD Slim](#) and [ProBelt 50](#) (5008, 5009, 5012 je nach Hersteller)
- Not in the image: 1113 [PearlFit Roll 50](#) to set below the legs

# Neck and Cervical Spine – Swimmer's View

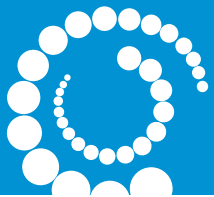


In muscular or obese patients, image artifacts can occur at the cervico-thoracic transition.

The swimmer's position is an effective alternative to standard neck or cervical spine CT positioning.

It improves image quality and reduces CTDI values by moving the humeral heads out of the scan plane.

A drawback is that right-to-left comparisons can become more difficult.



- 1114 [PearlFit](#) Cushion 30x20x4
- 1115 [PearlFit](#) Cushion 50x30x7
- Not in the image: 1113 [PearlFit](#) Roll 50 to set below the legs

# PRT / Infiltration



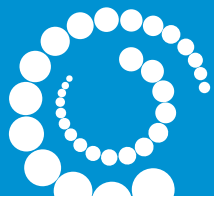
In PRT/spinal infiltration, the person is placed head-first in a prone position on the examination table.

In cervical procedures, a straight head position with face down is usually preferred for optimal treatment.

The PearlFit Forehead with recess and breathing slits allows the patient to lie quietly in the correct position for the entire duration.

To compensate for the curvature of the table and the relatively hard mat, a PearlFit Flex is placed in the upper body and hip area.

The feet are lifted slightly to avoid unpleasant pressure on the kneecap.



- 5005 [PearlFit Forehead](#)
- 1119 [PearlFit Flex 3](#)
- 1115 [PearlFit Cushion 50x30x7](#) oder optional 1113 [PearlFit Roll 50](#)

# Shoulder – Both Shoulders

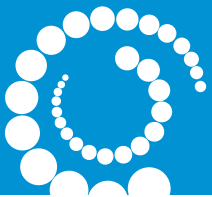


For bilateral shoulder CT, the patient should be positioned supine, centered on the CT table.

Ensure the arms are placed comfortably at the patient's sides or slightly abducted if the scanner bore size allows. Most CT scanners have a 50 cm field of view, which may limit full visualization of very broad shoulders.

Secure the arms with straps to minimize movement and ensure consistent positioning.

A PearlFit Cushion provides additional stability and reduces the risk of motion artifacts.



- 1116 [PearlFit](#) Cushion 50x30x10
- 1172 [ProBelt](#) 200 T5 for Canon

# Shoulder – Single



Position the patient so the target shoulder (region of interest) aligns with the CT table seam.

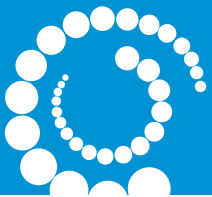
This centers the area of interest within the scanner's field of view.

If possible:

- Shift the patient slightly toward the non-target (healthy) side.
- Extend the arm of the side being examined.
- Rotate the palm upward (supination).

Alternatively, the forearm can rest on the stomach if needed.

For stable positioning, use a ProBelt and sandbag.



- 1132 [PearlFit Wedge 56x50x25](#)
- 1163 [ProFoam Wedge 60x25x12 DS](#)
- 1172 [ProBelt 200 T5](#)
- 1262 [Sandbag 30x20, 2 kg](#)
- [CT Table Cover](#)

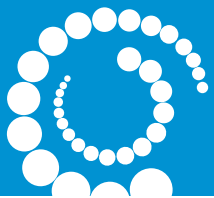
# Elbow – Superman Extended

Position the patient so the examined arm is fully extended forward.

Place a PearlFit Cushion or Roll under the shoulder to increase comfort, maintain proper arm alignment, and reduce movement artifacts.

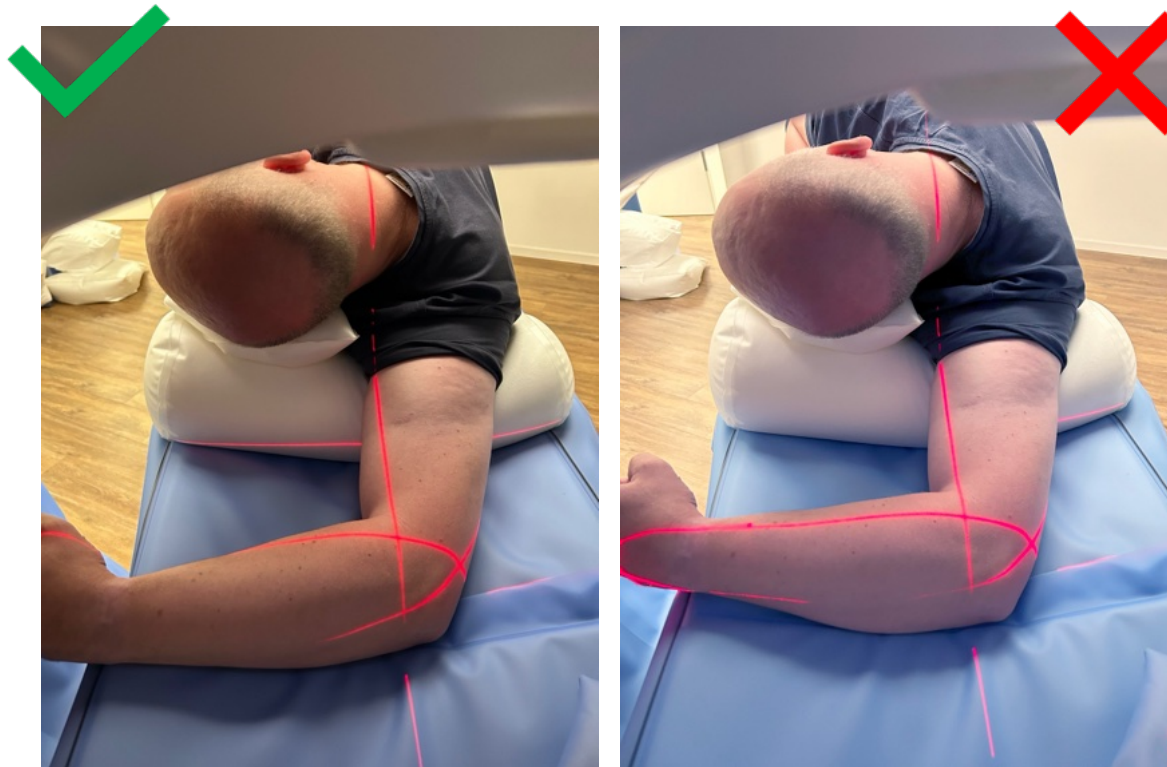
Ask the patient to tuck their chin toward the chest to ensure the head and eyes are outside the scan area.

Stabilize the distal forearm with a sandbag to minimize involuntary movement.

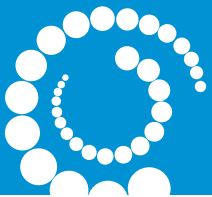


- 1113 [PearlFit Roll 50](#)
- 1115 [PearlFit Cushion 50x30x7](#)
- 1262 [Sandbag 30x20, 2 kg](#)

# Elbow – Superman Bent



If full arm extension is not possible, the elbow can be bent and positioned at an angle.  
Ensure the forearm is not parallel to the scan plane to avoid imaging artifacts.



- 1113 [PearlFit](#) Roll 50
- 1115 [PearlFit](#) Cushion 50x30x7

# Elbow – Arm Next to Body



If the patient is unable to extend their arm due to injury or limited mobility, the elbow can be positioned next to the body. Shift the patient toward the healthy (non-target) side until the soft tissues of the examined elbow align with the table seam. This positioning keeps the elbow within the scanner's field of view.

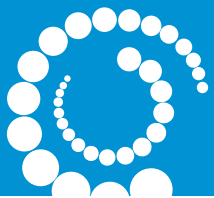
Ensure the forearm is not parallel to the scan plane.

Adjust the table height so the entire elbow is fully captured.

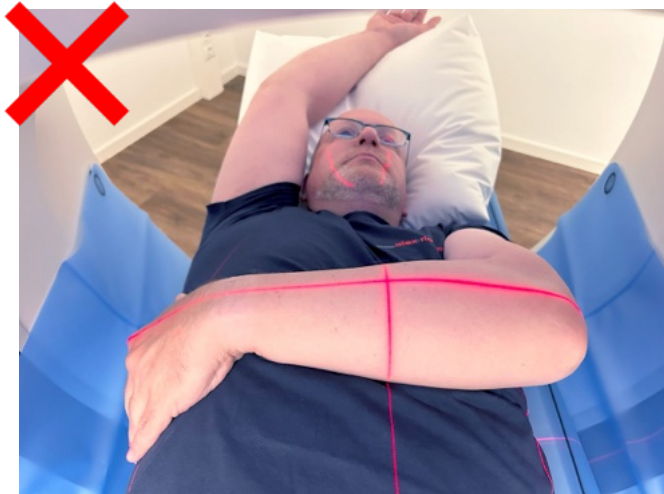


If no specific protocol exists, use the CT shoulder protocol.

Breathing instruction: expiration.



# Elbow – Arm on Stomach

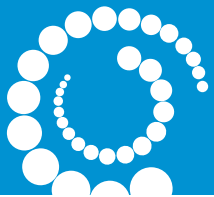
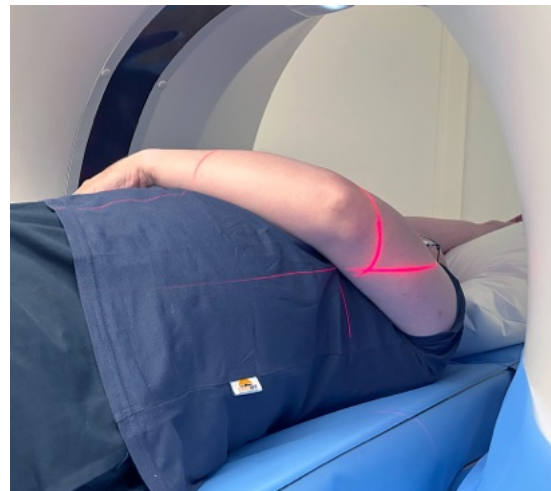
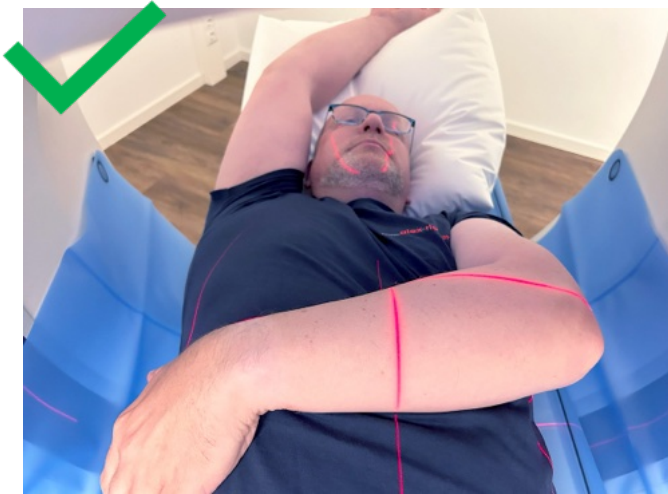


For patients who cannot extend their arm due to injury or limited mobility, the elbow can be positioned on the stomach.

Ensure the forearm is not parallel to the scan plane.

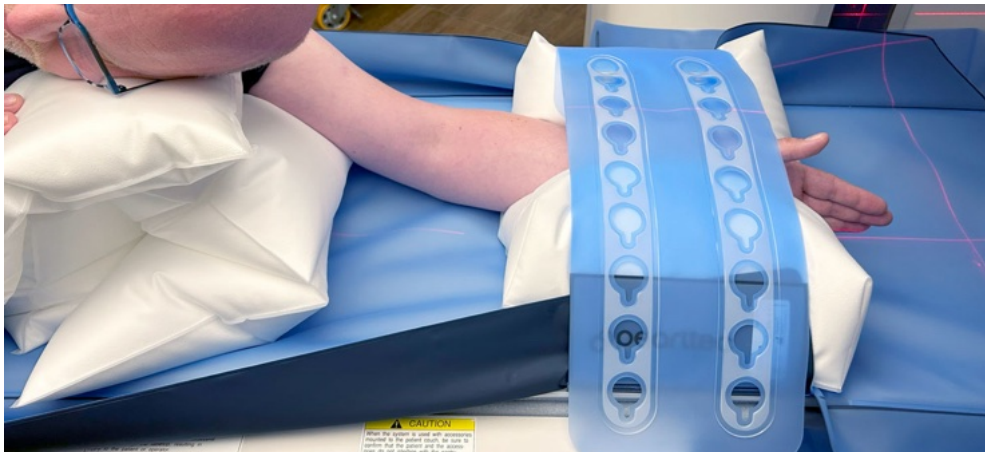
Adjust the table height so the entire elbow is fully captured in the field of view.

Breathing instruction: Breath-hold at expiration.



- 1132 [PearlFit Wedge 56x50x25](#)
- Not in the image: 1113 [PearlFit Roll 50](#) to set below the legs

# Wrist



Position the patient so the examined arm is fully extended forward.

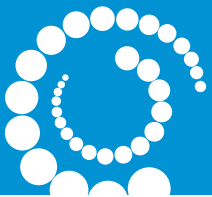
Place a PearlFit Flex 3 under the shoulder for comfort and to reduce motion artifacts.

The wrist should rest in a PearlFit Cushion to ensure stable positioning.

Align the palm perpendicular to the table for optimal visualization of the carpal bones.

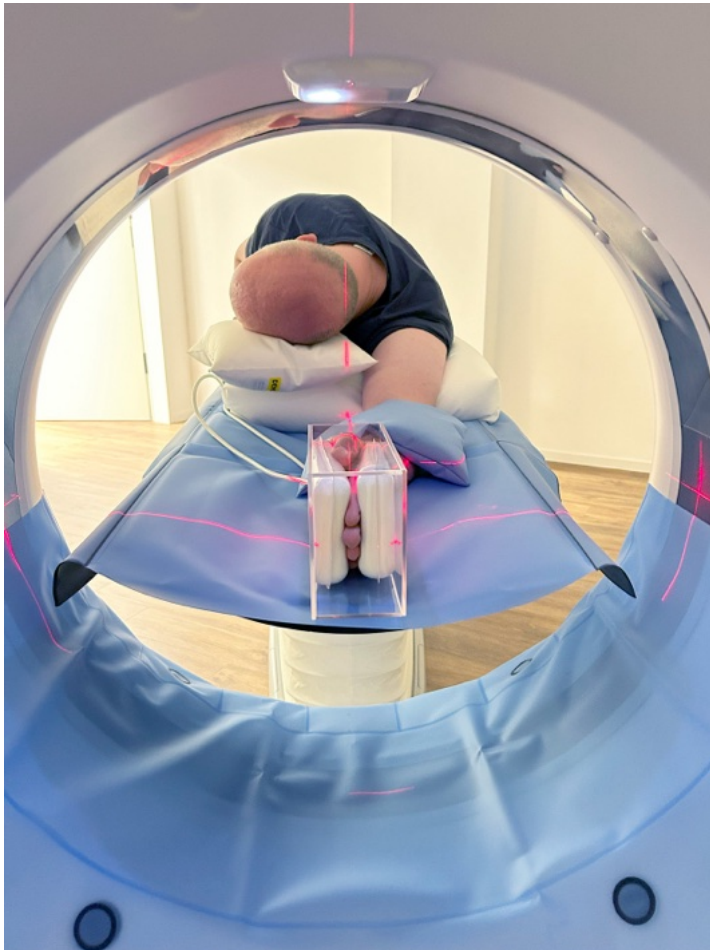
Alternatively, the hand can be positioned parallel to the tabletop if needed.

Use a ProBelt for additional stabilization.



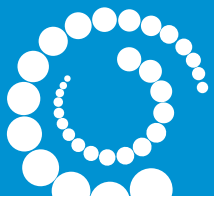
- 1116 [PearlFit Cushion 50x30x10](#)
- 1119 [PearlFit Flex 3](#)
- 1172 [ProBelt 200 T5 for Canon](#)

# Wrist - Alternative



For lateral positioning of the wrist and hand, the Multipad combined with a PearlFit Cushion provides effective support.

This setup helps maintain full extension of the hand and fingers throughout the examination.



- 1116 [PearlFit Cushion 50x30x10](#)
- 1119 [PearlFit Flex 3](#)
- 1022 [MULTIPAD Plus](#)

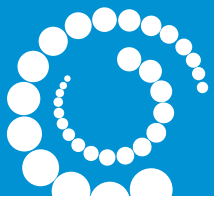
# Pelvic-Leg Angiography

For pelvic-leg vessel imaging, the legs should be fully extended.

A flat PearlFit cushion placed under the knees increases comfort and reduces involuntary movement.

Secure the forefeet together to maintain steady leg positioning during acquisition.

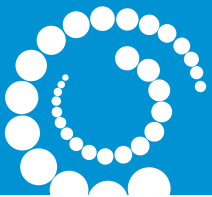
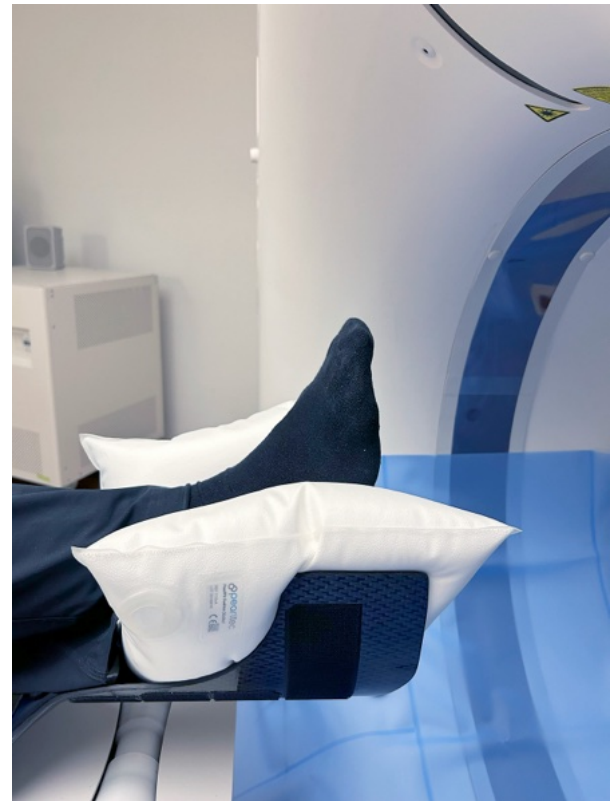
The arms can rest comfortably on a PearlFit Wedge.



- 1115 [PearlFit Cushion](#) 50x30x7
- 1132 [PearlFit Wedge](#) 56x50x25
- Optional: 1220 [ProBelt Wrap](#) 70 to stabilize the feet

# Foot and Upper Ankle

Bend the non-examined leg for comfort. Use a cushion to position the examined foot as centrally and stably as possible, either in the head holder or directly on the tabletop. If possible, rotate the leg slightly inward. Ensure the sole is perpendicular to the tabletop to minimize the scan area length.



- 1115 [PearlFit Cushion 50x30x7](#) within the head holder and below the knee
- 1116 [PearlFit Cushion 50x30x10](#) on the table
- 1132 [PearlFit Wedge 56x50x25](#)

# Thorax / Abdomen



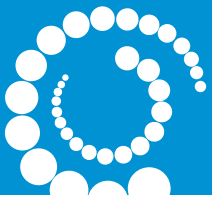
The patient can be positioned head-first or feet-first on the CT table.

The head should rest on a pillow, with the arms positioned above the head.

This arm position is standard for optimal image quality at the lowest possible dose.

If the patient has difficulty raising their arms, secure them with a belt or adjust to a higher angle for better support.

Use a PearlFit Roll to support the legs for comfortable positioning.



- 1132 [PearlFit Wedge 56x50x25](#)
- 1113 [PearlFit Roll 50 – Knee Roll](#)
- 1172 [ProBelt 200 T5](#)

# Thorax/Abdomen: Alternative Arm Positioning



If the patient cannot place their arms above the head during torso imaging, an alternative position is needed to avoid artifacts.

The arms should be positioned in front of the body (see top image).



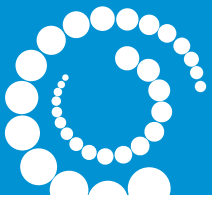
The ProBelt Thorax is ideal for this:

It holds the arms securely in front of the body with built-in straps to prevent slipping.

This setup reduces artifacts and helps maintain optimal image quality.



It also minimizes automatic kV increases, preserving iodine contrast effectiveness.



- 1132 [PearlFit Wedge 56x50x25](#)
- 1113 [PearlFit Roll 50](#)
- 1173 [ProBelt 200 Thorax PFC](#)

# Hygiene in CT

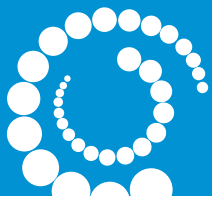
Thorough cleaning and disinfection are essential to protect staff and patients from cross-contamination.

Contrast media, blood, and other body fluids require additional cleaning and can cause workflow delays.

Pearl Technology products are designed with robust, easy-to-clean PU foil.

They are Velcro-free and withstand disinfection with up to 90% alcohol.

These features support efficient hygiene practices.



- [CT Table Cover](#) for all common manufacturers
- [CT Gantry Cover](#) for all common manufacturers
- [ProBelt](#) for all common manufacturers



Pearl Technology AG  
Wiesenstrasse 33  
8952 Schlieren  
Switzerland

[www.pearl-technology.com](http://www.pearl-technology.com)

[info@pearl-technology.ch](mailto:info@pearl-technology.ch)

T: +41 43 535 08 40

LinkedIn: [Pearl Technology](#)

Instagram: [pearl\\_technology\\_ag](#)

