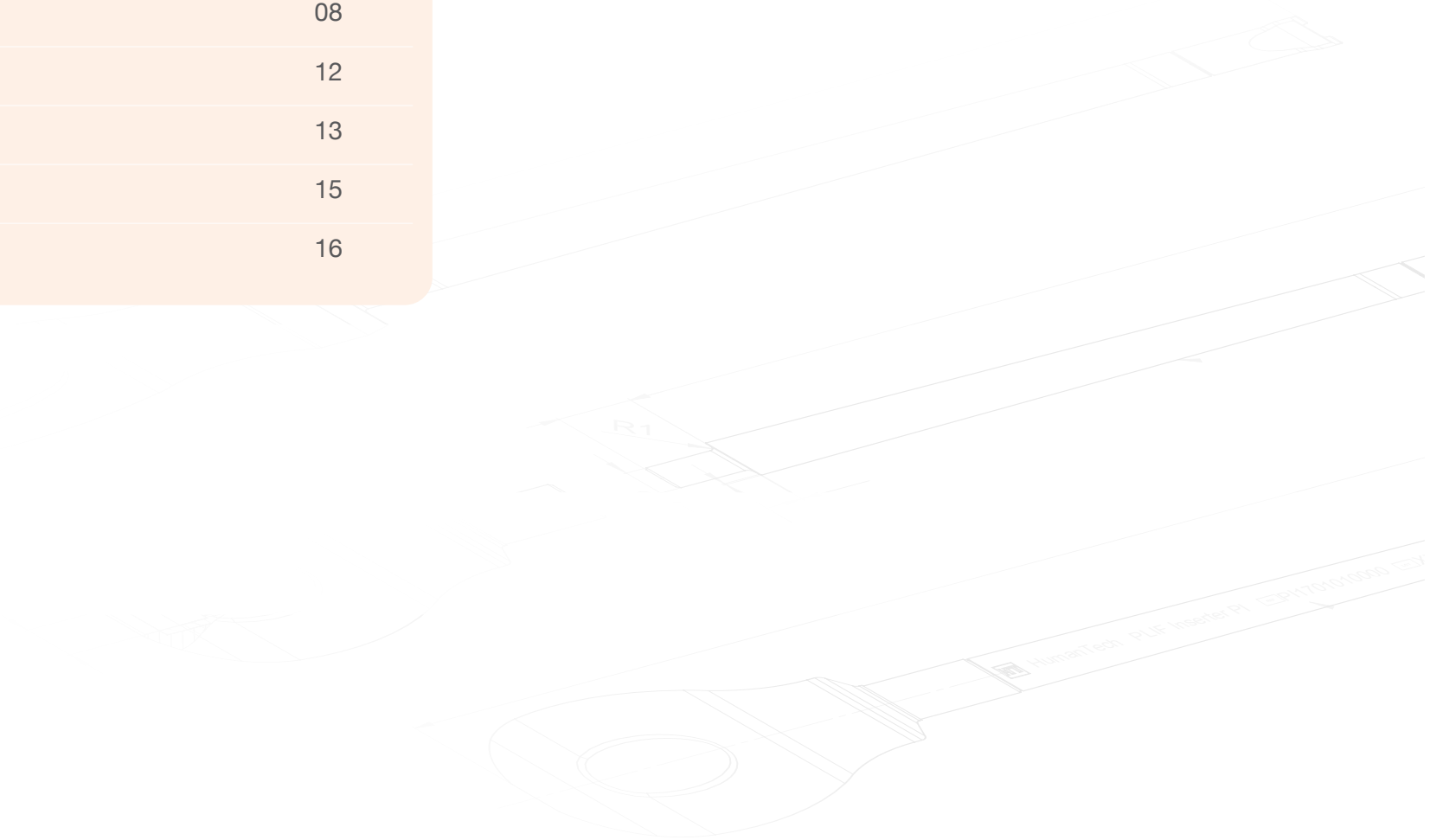
HumanTech Spine

ADONIS®

Anterior Lumbar Interbody Fusion

ALIF

Content



The German family company HumanTech Spine, based in Baden Württemberg, develops, manufactures and sells high-quality, innovative spine systems worldwide.

Our traditional group of companies, which was founded in 1948, is a reliable employer for around 500 employees and has a production area of approx. 15000 m² in which our complete product portfolio is manufactured. Our high-tech production facilities as well as the most modern, environmetally friendly production and logistics processes guarantee high-quality and in-time production and delivery processes.

The independent medical division with a focus onSpine and Dental was founded in 2010 and is now well-known represented on the national and international markets. Together with renowned spinal surgeons, our development team breaks new ground every day to ensure that every patient receives uncompromisingly high quality care. The design of our systems follows the goal of maximum user-friendliness, security and completeness.

That is why HumanTech Spine counts as a reliable partner in the field of spine - in research, development, production and marketing as well as in advanced training through our HumanTech Academy. All from a single source. This is how we ensure our quality promise 100% Made in Germany.

ADONIS®-ALIF cages are indicated for anterior lumbar and lumbosacral vertebral body fusion. The implants are designed to adapt to vertebral body anatomy to reliably restore the sagittal and frontal alignment of the spine, providing stability and optimal conditions for fusion of the following indications:

- herniated vertebral disc
- hard vertebral disc herniation
- mechanical instabilities
- calcification of the posterior longitudinal ligament
- osteochondrosis
- spinal canal stenosis

ADONIS®-ALIF is an intelligent and, by virtue of the associated set of instruments, highly rational interbody device system that is a widely recognised and accepted product line offering the following benefits:

Anatomical

- The geometry is identical to the patient's own sectional and sagittal anatomy
- Generous contact surface – reduced risk of migration

Stable

- Antegrade toothing for stable anchoring
- Significantly increased extraction forces
- Extremely high friction coefficient

Fillable

- Large filling apertures for rapid fusion
- Internal annular groove holds the filling material in the cage and increases the filling volume

Modular

3 freely selectable material options:

• Titanium alloy Ti6Al4V

The titanium alloy Ti6Al4V has proven to be particularly biocompatible.

• PEEK

This material has high biocompatibility and is characterised by elasticity similar to that of bone. Another advantage is the fact that the material does not cause artefacts.

• PEEK titanium-coated

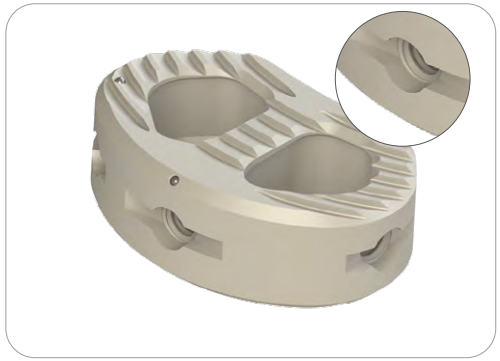
The titanium coating applied to the PEEK base body is intended to support the bone growing directly onto the implant.

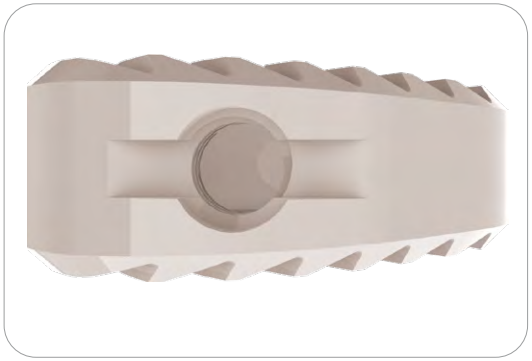
Made in Germany

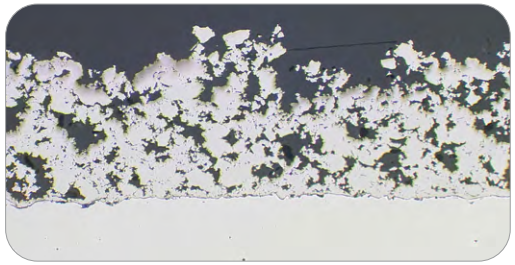
ADONIS® -ALIF

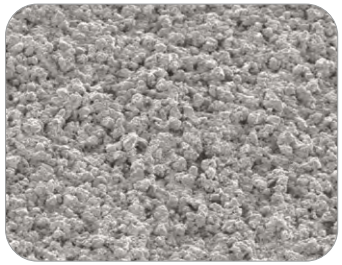
Interbody Device System

Product-specific benefits

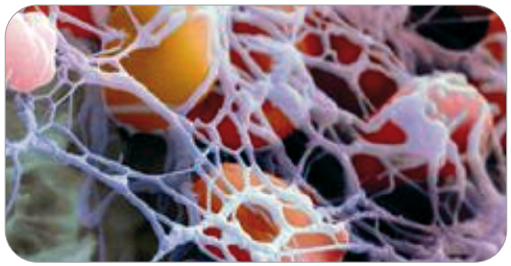


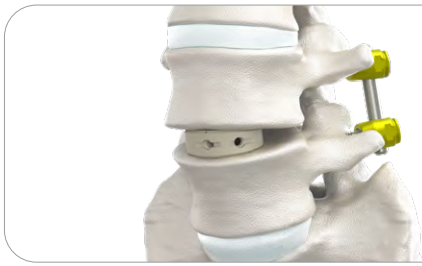






- Anatomical
- Stable
- Fillable
- Modular





ADONIS®-ALIF Titanium

ADONIS®-ALIF Titanium is a solid titanium interbody device system, making it a universally recognised product line for lumbar and lumbosacral indications. Combined with reliable and simple instrumentation, ADONIS®-ALIF Titan becomes the solution for lumbar interbody fusion. Only titanium alloy Ti6Al4V (DIN EN ISO 5832-3) is used. The titanium cages are available both as sterile-packed implants andin non-sterile form, stored directly in the implant tray.

TITANIUM

ADONIS®-ALIF PEEK

ADONIS®-ALIF PEEK is an implant made of biocompatible PEEK-Optima® for lumbar and lumbosacral interbody fusion and is used for degenerative disc disease and instability.

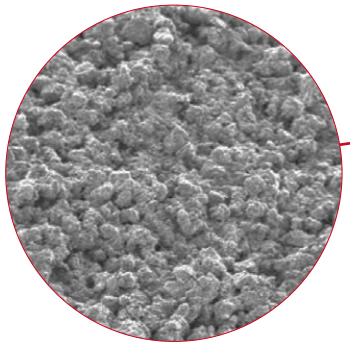
PEEK-OPTIMA® is a polyaromatic, semicrystalline thermoplastic, based on the formula (-C6H4-O-C6H4-O-C6H4-CO-)n, commonly known as polyetheretherketone. The radiotranslucent material allows quick and easy assessment of the bone structure and the fusion process. X-ray markers serve to verify positioning. A mechanical stability of 3.6 GPa allows for optimal load transmission between the implant material and natural bone.

PEEK

ADONIS®-ALIF R-PEEK-Ti

The titanium coatings of the ADONIS® cages exploit the advantages of different materials in one implant. The basis of the implant is a solid PEEK core. This core is coated with titanium to increase the surface area and thus maximize the contact zone between the implant and the vertebral body surface.

R-PEEK-Ti

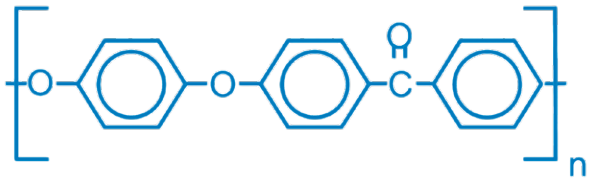


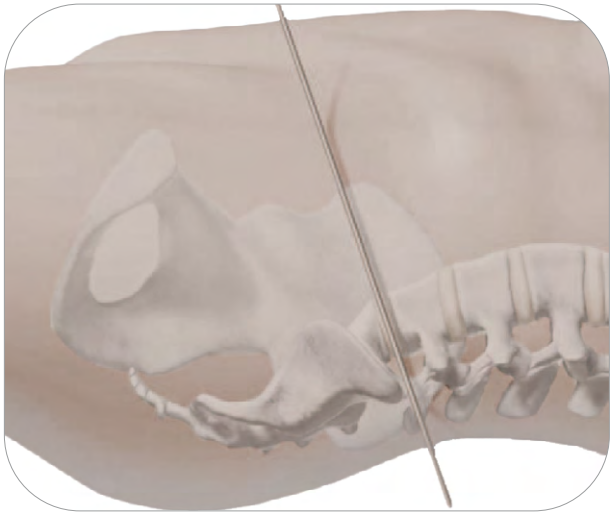
The titanium coating offers an optimal base, thanks to its balance of pore depth, porosity and roughness, and is the ideal surface for bone cells to attach to the implant. The osteoinductive properties of titanium allow the bone to attach directly to the implant.

Properties of PEEK and R-PEEK-Ti

- PEEK is radiotranslucent and does not produce artefacts
- Position verification using X-ray markers
- Anatomical shape and toothed surface
- It can optionally be filled with bone or bone replacement material for improved bone grafting
- Fixed connection to the insertion instrument
- R-PEEK-Ti implants have the same positive properties as the PEEK implants in combination with an improvement in osseointegration due to the Ti-coated surface.

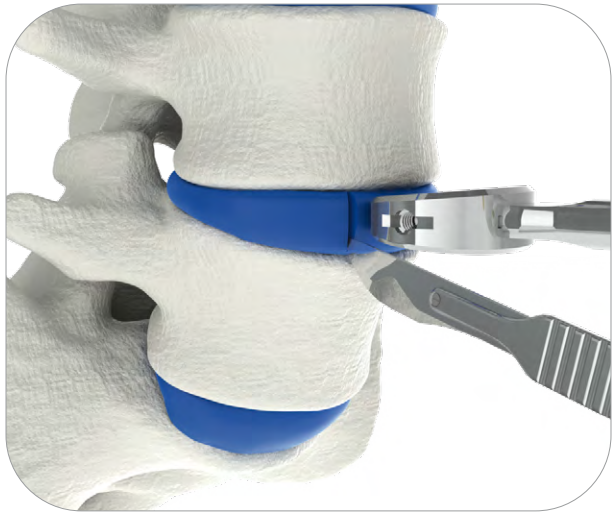
PEEK-OPTIMA® is a polyaromatic semicrystalline thermoplastic based on the basic formula (-C6H4-O-C6H4-O-C6H4-CO-)n and commonly known as polyetheretherketone.





Anterior approach

Surgical approach depends on the segment to be treated. The correct intervertebral disc level is identified by means of an image intensifier and a corresponding linear metal axis at the patient's side. This ensures crisp delimitation of the intervertebral disc space on both sides of the vertebral body centre line. Depiction of the vertebral disc segment to be operated on via a standard retroperitoneal approach.



Preparation of an anterior window

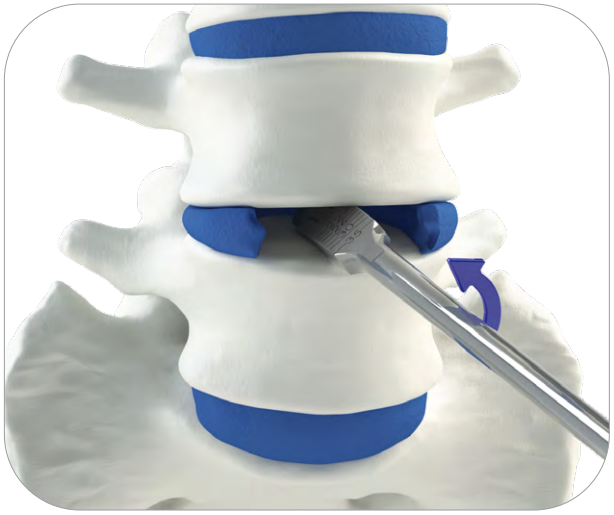
For the anterior approach, the disc space must be designed to leave sufficient space on both sides of the vertebral body midline, corresponding to the implant width. If the vessels and/or tissue cannot be adequately prepared, access from the anterolateral direction is recommended. Cut a rectangular aperture in the anterior longitudinal ligament and the fibrous ring, corresponding to the width of the implant. With a trial implant, the window width can be controlled. As much as possible of the anterolateral, lateral and posterior annulus should be obtained to ensure the necessary stability of the segment to be instrumented.

Preparation of the intervertebral disc space

Remove the disc material and the cartilaginous layer of the endplates to expose the bony endplate structure. Improper preparation can result in weakening of the end plates and collapse of the cage.

Note:
It is important that the nucleus and the inner annulus are removed to prevent displacement of this material into the spinal canal during implantation and to leave bone ingrowth unaffected.

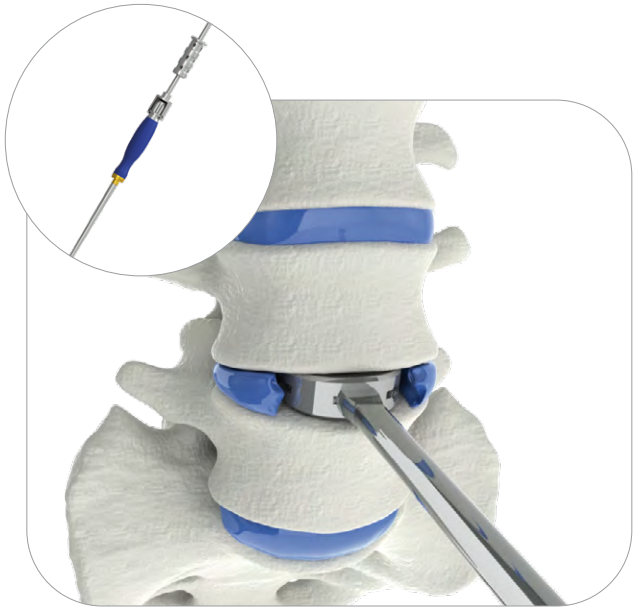
Note:
Corresponding preparation instruments such as curettes in various embodiments and sharp spoons are included in the optionally available Disc Evacuation Set.



Distraction

The distraction is essential for the recovery of disc height and the initial stability of the implant. For this purpose, the sharp or blunt spreader (Reamer Distractor sharp or blunt) can be introduced horizontally into the intervertebral space and rotated by 90 degrees.

Note:
The sharp and blunt spreaders (Reamer Distractor, sharp and blunt) are available in various dimensions according to implant heights in the optionally available Disc Evacuation Set.



Determine the implant size I

With the help of the trial implants (ALIF Trial), the implant size to be selected can be determined under X-ray monitoring. To connect the trial implant to the insertion instrument (ALIF Inserter), the bar of the insertion instrument must be positioned in the groove of the trial implant. By screwing the inner part of the insertion instrument into the trial implant, the insertion instrument is fixed to the trial implant. The trial implant can be attached to the insertion device according to the selected access (0°, 45° or 90°). Subsequently, the trial implant is optionally introduced by light hammer taps into the intervertebral disc space. If the seat is unsatisfactory, the next size trial implant should be used. The trial implant should sit in the intervertebral space with a light press-fit and can be removed with the Extractor Handle or Slap Hammer.

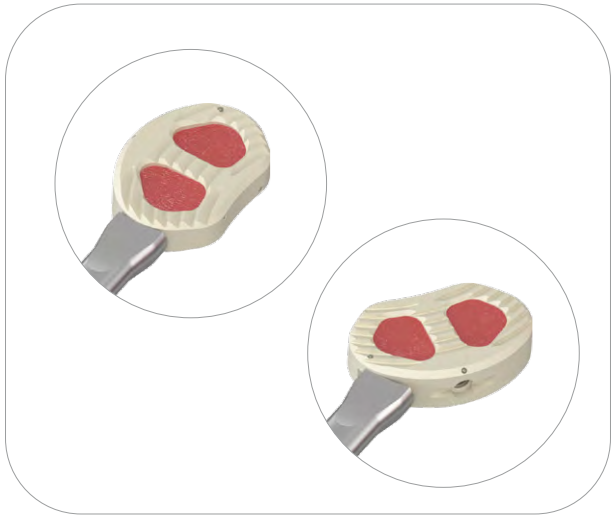
Determine implant size II

Note:
It must be ensured that the screwing-in of the inner part is carried out smoothly, since otherwise deformations of the threads can occur. If necessary, the alignment of the instruments with each other must be corrected. To avoid jamming when screwing in the inner part, first turn anti-clockwise until there is a clear "snapping in" of the thread. Subsequently, the inner part is screwed fully into the trial implant.

Preparation of the implant I

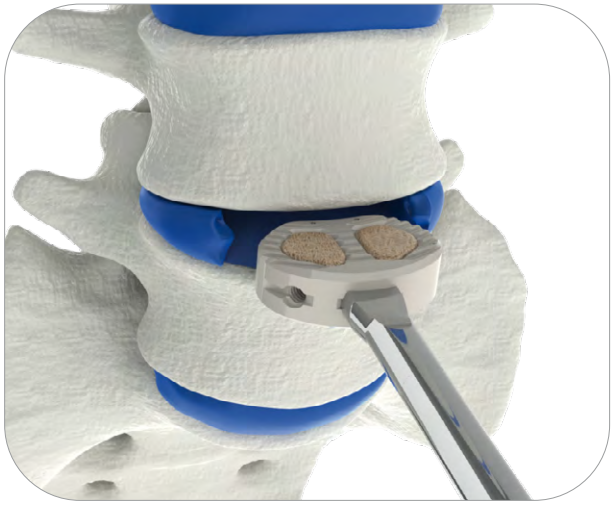
The implant corresponding to the trial implant is selected and the bar of the insertion instrument (ALIF Inserter) is positioned in the groove of the implant. By screwing the inner part of the insertion instrument into the implant, the insertion instrument is fixed to the implant.
The implant can be attached to the insertion device according to the selected access (0°, 45° or 90°). After the implant has been mounted on the insert instrument, it can be filled with bone material.

Note:
To avoid damaging the implant, the implant must be firmly connected to the insertion instrument.
It must be ensured that the screwing-in of the inner part is carried out smoothly, since otherwise



Preparation of the implant II

deformations of the threads can occur. If necessary, the orientation of the instrument to the implant should be corrected. To avoid jamming when screwing in the inner part, first turn anti-clockwise until there is a clear "snapping in" of the thread. Subsequently, the inner part is screwed fully into the implant.



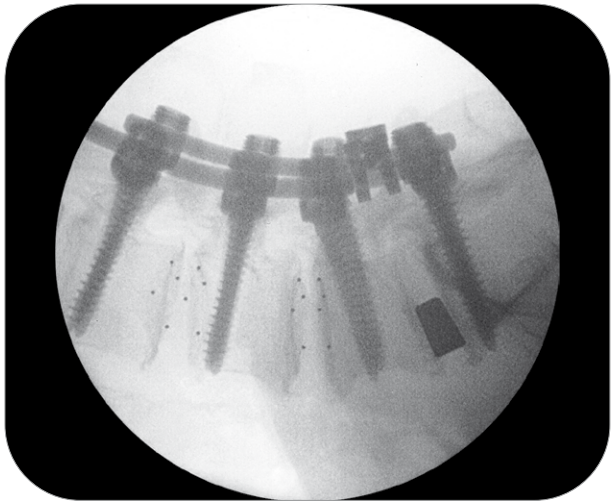
Insertion of the implant

The implant is placed in the intervertebral space. The implant is moved by means of light hammer blows. The implant must sit, with a light press-fit, in the intervertebral space.

Remove the instruments and verify the implant seat

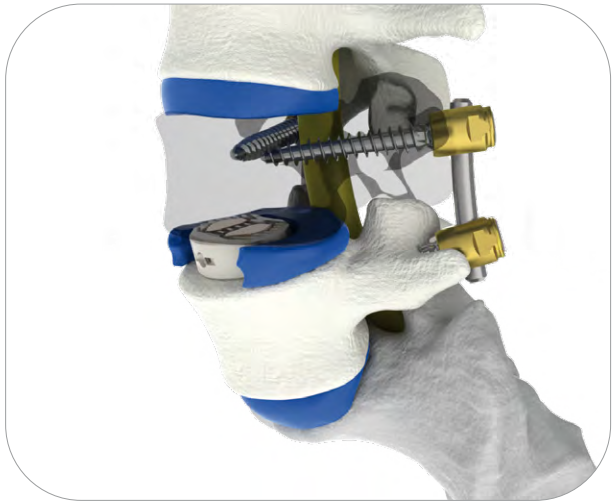
After the implant has been correctly positioned, the insertion instrument can be gently removed, leaving the implant in its optimal position. To do this, loosen the inner part of the insertion instrument by turning it anti-clockwise and then remove the insertion instrument from the implant.

The optimal implant seat is located exactly centrically between the endplate periphery. Depending on the vertebral size, the anterior edge of the implant should be approx. 3 mm from the anterior edge of the adjacent vertebrae.



X-ray monitoring

The position of the cage must be checked with respect to the vertebral bodies from the anterior and lateral directions. X-ray markers inserted into the PEEK and coated PEEK implants allow accurate intraoperative radiographic assessment of the position.



Additional fixation

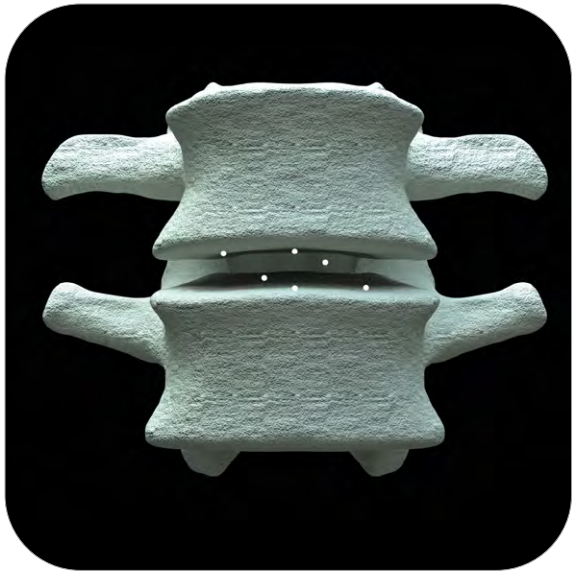
For stabilisation, an additional dorsal fixation (e.g. with the VENUS® screw rod system) is necessary. Details can be found in the respective surgical technique of the dorsal system used.

AP view
of a centrally positioned ALIF cage

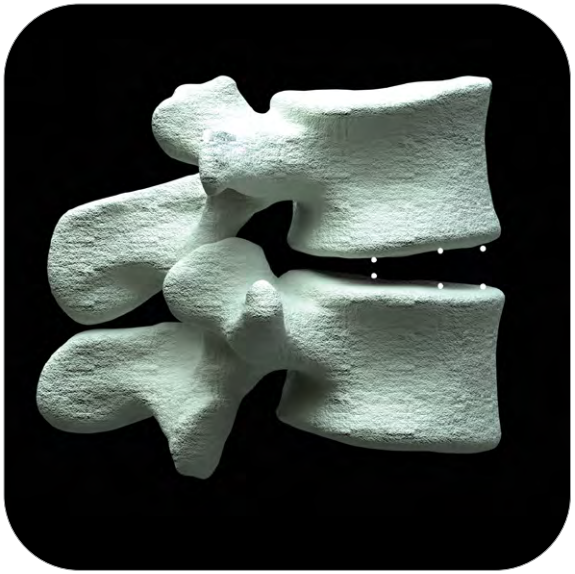
Sagittal view
of a centrally positioned ALIF cage

Positioning the markers

To ensure the correct position of the cage, the cage must be placed in a central position after insertion into the intervertebral disc space. The six tantalum markers in the illustrated ALIF PEEK cage are used for fluoroscopic visualisation of the implant position. This allows the exact location of the cage to be assessed by X-ray images. In the ALIF, two markers are located medially anteriorly, two markers laterally and two markers medially on the posterior implant margin. The two lateral markers show the maximum width of the cage. In combination with the anterior and posterior markers, the implant depth can be estimated. For the ALIF PEEK and R-PEEK-Ti implants, the markers appear in an implant positioned centrally in the disc space, as shown on the radiograph.



AP X-ray view
of a centrally positioned ALIF cage



Sagittal X-ray view
of a centrally positioned ALIF cage

Titanium sterile

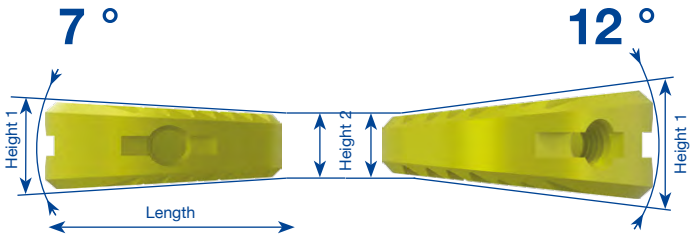
STERILE

Item no.	Name	Length	Width	Height 1	Height 2	Angle
1901122207-S	Adonis ALIF Ti 32x22x07 7° sterile	22	32	7	4.3	7 °
1901122209-S	Adonis ALIF Ti 32x22x09 7° sterile			9	6.3	
1901122211-S	Adonis ALIF Ti 32x22x11 7° sterile			11	8.3	
1901122213-S	Adonis ALIF Ti 32x22x13 7° sterile			13	10.3	
1901122215-S	Adonis ALIF Ti 32x22x15 7° sterile			15	12.3	
1901162209-S	Adonis ALIF Ti 32x22x09 12° sterile	22	32	9	4.3	12 °
1901162211-S	Adonis ALIF Ti 32x22x11 12° sterile			11	6.3	
1901162213-S	Adonis ALIF Ti 32x22x13 12° sterile			13	8.3	
1901162215-S	Adonis ALIF Ti 32x22x15 12° sterile			15	10.3	
1901162217-S	Adonis ALIF Ti 32x22x17 12° sterile			17	12.3	

available soon

Titanium non-sterile

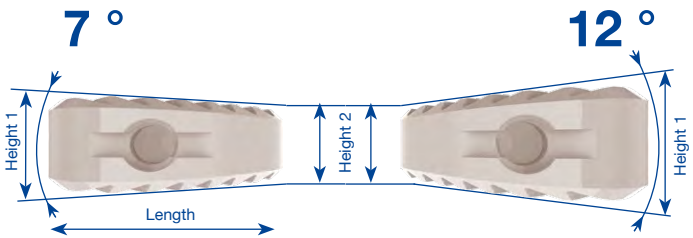
Item no.	Name	Length	Width	Height 1	Height 2	Angle
1901122207	Adonis ALIF Ti 32x22x07 7°	22	32	7	4.3	7 °
1901122209	Adonis ALIF Ti 32x22x09 7°			9	6.3	
1901122211	Adonis ALIF Ti 32x22x11 7°			11	8.3	
1901122213	Adonis ALIF Ti 32x22x13 7°			13	10.3	
1901122215	Adonis ALIF Ti 32x22x15 7°			15	12.3	
1901162209	Adonis ALIF Ti 32x22x09 12°	22	32	9	4.3	12 °
1901162211	Adonis ALIF Ti 32x22x11 12°			11	6.3	
1901162213	Adonis ALIF Ti 32x22x13 12°			13	8.3	
1901162215	Adonis ALIF Ti 32x22x15 12°			15	10.3	
1901162217	Adonis ALIF Ti 32x22x17 12°			17	12.3	



PEEK

STERILE

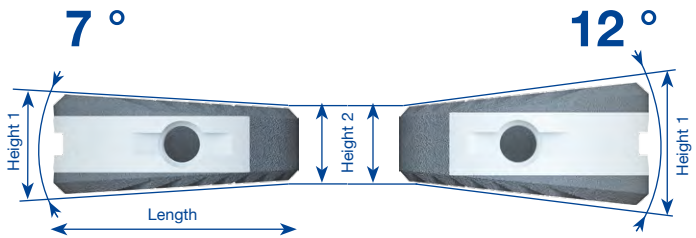
Item no.	Name	Length	Width	Height 1	Height 2	Angle
1902112209	Adonis ALIF PEEK 32x22x09 7°	22	32	9	6.3	7 °
1902112211	Adonis ALIF PEEK 32x22x11 7°			11	8.3	
1902112213	Adonis ALIF PEEK 32x22x13 7°			13	10.3	
1902112215	Adonis ALIF PEEK 32x22x15 7°			15	12.3	
1902152211	Adonis ALIF PEEK 32x22x11 12°	22	32	11	6.3	12 °
1902152213	Adonis ALIF PEEK 32x22x13 12°			13	8.3	
1902152215	Adonis ALIF PEEK 32x22x15 12°			15	10.3	
1902152217	Adonis ALIF PEEK 32x22x17 12°			17	12.3	



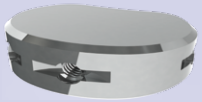
R-PEEK-Ti

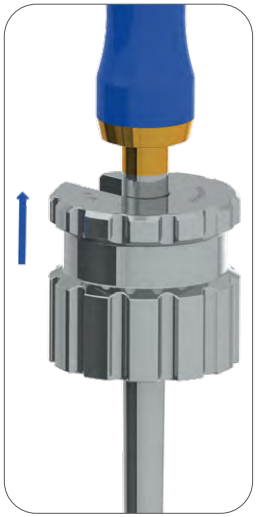
STERILE

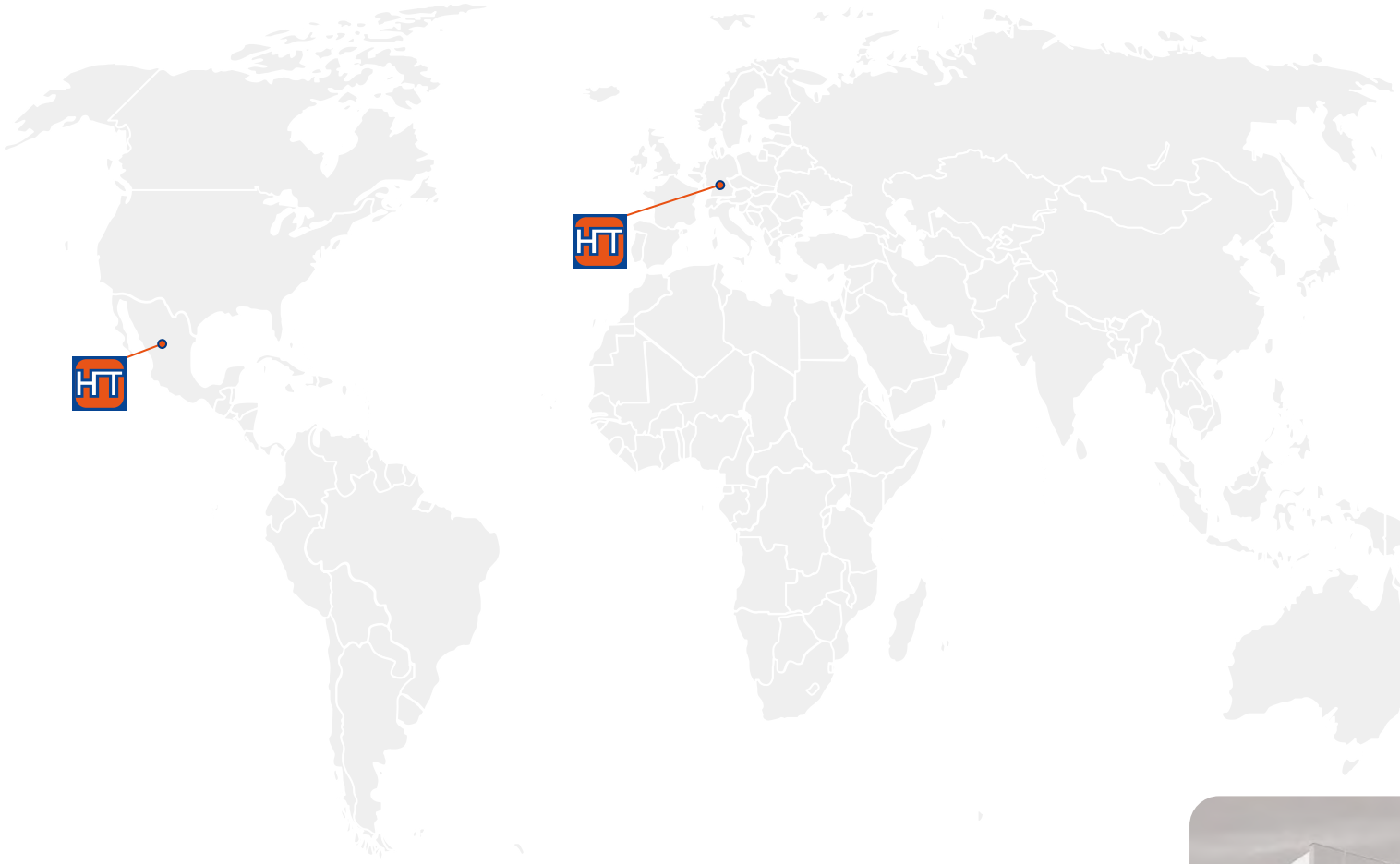
Item no.	Name	Length	Width	Height 1	Height 2	Angle
1903142209	Adonis ALIF R-PEEK-Ti 32x22x09 7°	22	32	9	6.3	7 °
1903142211	Adonis ALIF R-PEEK-Ti 32x22x11 7°			11	8.3	
1903142213	Adonis ALIF R-PEEK-Ti 32x22x13 7°			13	10.3	
1903142215	Adonis ALIF R-PEEK-Ti 32x22x15 7°			15	12.3	
1903172211	Adonis ALIF R-PEEK-Ti 32x22x11 12°	22	32	11	6.3	12 °
1903172213	Adonis ALIF R-PEEK-Ti 32x22x13 12°			13	8.3	
1903172215	Adonis ALIF R-PEEK-Ti 32x22x15 12°			15	10.3	
1903172217	Adonis ALIF R-PEEK-Ti 32x22x17 12°			17	12.3	



Instruments
ADONIS®-ALIF

Item no.	Name	Illustration
1901011007	ALIF Trial 32x22x07 7°	
1901011009	ALIF Trial 32x22x09 7°	
1901011011	ALIF Trial 32x22x11 7°	
1901011013	ALIF Trial 32x22x13 7°	
1901011015	ALIF Trial 32x22x15 7°	
1901011109	ALIF Trial 32x22x09 12°	
1901011111	ALIF Trial 32x22x11 12°	
1901011113	ALIF Trial 32x22x13 12°	
1901011115	ALIF Trial 32x22x15 12°	
1901011117	ALIF Trial 32x22x17 12°	
1901011001	ALIF Inserter	
1701010600	Extractor Handle	 Optional
1801010002	Slap Hammer	





Manufacturing and Sales

HumanTech Spine GmbH

Gewerbestr. 5
D-71144 Steinenbronn

Germany

Phone: +49 (0) 7157/5246-71
Fax: +49 (0) 7157/5246-66
sales@humantech-spine.de
www.humantech-spine.de

Sales Latin America

HumanTech Mexico, S. DE R.L. DE C.V.

Rio Mixcoac No. 212-3
Acacias del Valle
Del. Benito Juárez
C.P. 03240 Mexico, D.F.
Mexico

Phone: +52 (0) 55/5534 5645
Fax: +52 (0) 55/5534 4929
info@humantech-solutions.mx
www.humantech-spine.de

Follow us on:

CE 0297
Made in Germany

Edition 10/2020 - Änderung vorbehalten