

Aesculap Spine A-Space PEEK

Anterior Lumbar Interbody Fusion System



One stop for maximum flexibility of approach

A-Space PEEK

Implant design



Position verification despite X-ray transparency



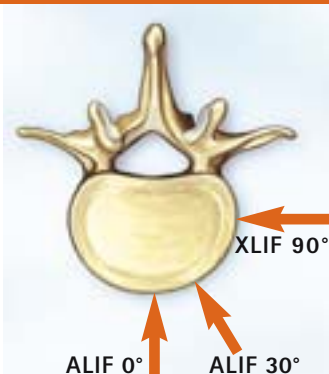
- PEEK-Optima® is transparent to X-rays.
- No artefacts.
- Tantal markers.
- Bone fusion can also be checked within the implant by X-ray.
- Easy, exact implant positioning and localisation.

Implant design



- Anatomical shape – the convex implant design fits almost perfectly into the anatomy of the vertebral body.
- Serrated profile – the implant base and top plate surfaces are serrated.
- Bevel – the bevel on the three possible approach facets eases insertion into the intravertebral space.
- Secure implant fit ensures primary stability.
- Firm anchorage in the vertebral body.
- Easier implantation.

Flexibility of approach



- The type of approach can be selected intraoperatively according to the anatomical situation, the position of the major vessels and the indication:
 - anterior approach 0°
 - anterolateral approach 30°
 - lateral approach 90°
- Implant design and instruments allow for each of these three approaches.
- Decreases the risk of injury to soft tissue or aorta.

Bone bridging



- Option of filling with bone or bone substitute to enhance bone bridging.
- Secondary stability is assured through secure fusion.

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Operating technique





Pre-operative planning – Size estimation

Measure the optimum implant bed area using CT-scan diagnostics with X-ray templates, making sure that the template scale factor is correct.

Assess the anatomy of the major vessels, especially the left common iliac vein. Can the vessels be mobilized sufficiently to provide the appropriate approach? Would a pararectus approach be easier?

Patient positioning

- ✦ The operating table should permit image intensifier images in 2 planes in the operating zone.
- ✦ Place the patient in a supine position with slightly flexed hips to relieve tension from the major blood vessels.
- ✦ If the operating table permits a spread leg position, this facilitates axially correct implantation of the implant.
- ✦ Alternatively, the patient is positioned with both legs together. In this case the surgeon stands on the approach side of the patient. A right side approach is recommended for the L5/S1 level and a left side approach for higher levels.

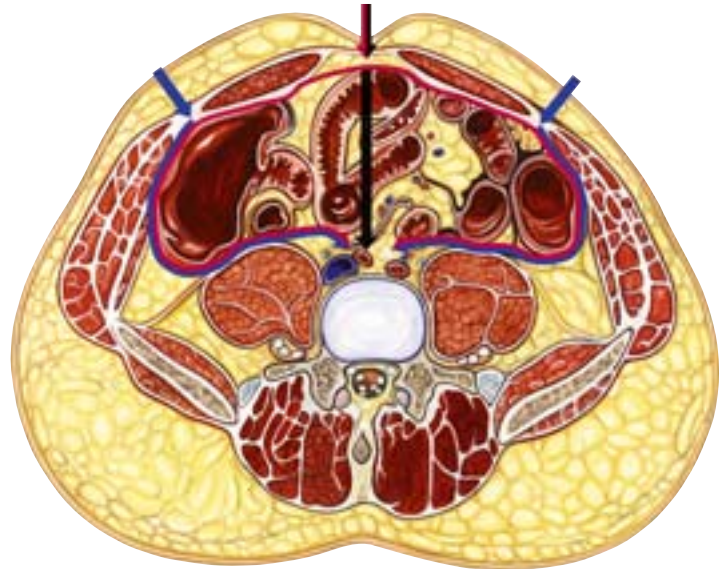
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Anatomical structures

Pararectus approach

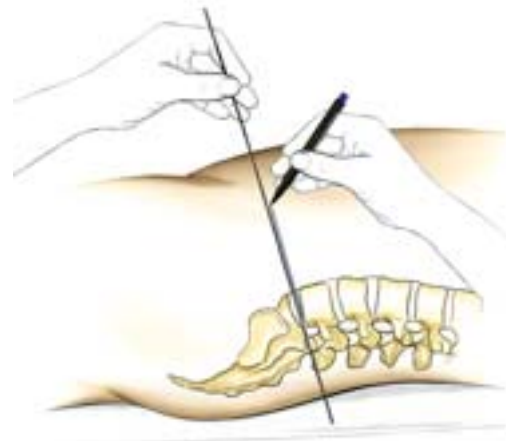
Midline approach, retroperitoneal

Midline approach, transperitoneal



Marking the approach

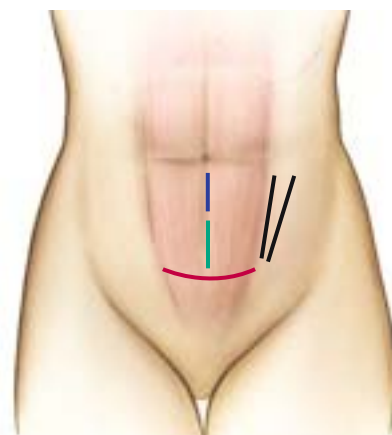
- ✦ To mark the incision a lateral image is taken with a metal rod parallel to the defective disc compartment. The extension of this marking corresponds to the midpoint of the skin incision.
- ✦ The skin incision is marked under X-ray control so that the incision lies along the extended line of the intervertebral space. 5 – 8 cm is usually adequate for single level treatment.

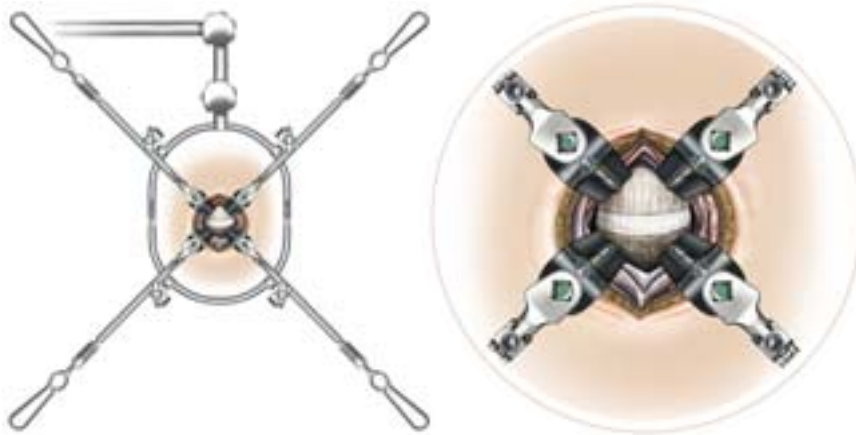


Skin incision

The approach should be retroperitoneal. Transperitoneal approaches carry a considerably higher complication risk (ileus, lesion of the presacral plexus).

Pararectus approach L2 - L5
Midline incision L2 - L5
Midline incision Male L5 - S1
Midline incision Female L5 - S1





Applying the activ O frame

The activ O frame can now be applied.

Midline approach L5/S1

- ✦ A midline approach is recommended for the L5/S1 level.
- ✦ A Pfannenstiel's incision or a linear midline incision are possible.
- ✦ Both sides are possible for the approach. If no other level is to be operated on, the right side may be preferred.

Pararectus approach L2/3, L3/4, L4/5

- ✦ A midline approach or a pararectus approach (generally left) are possible in the L2/3, L3/4 and L4/5 segments.



Advantages of the midline approach:

- Considerably easier implant positioning, less retraction of the abdominal muscles required.

Advantages of the pararectus approach:

- Simpler retroperitoneal preparation, less manipulation of the vessels in L4/5.



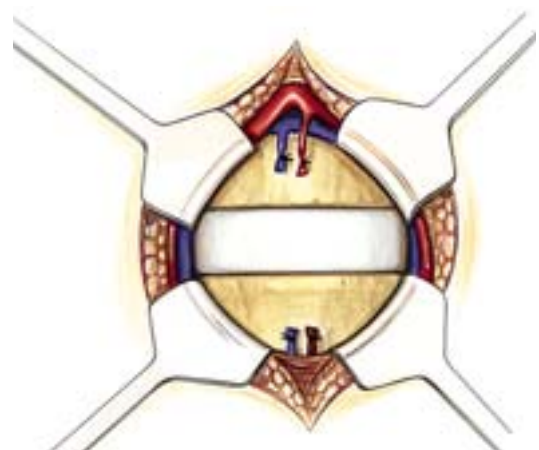
NB:

- All approaches demand the greatest care in the preparation of the major vessels.
- A vascular surgeon should be constantly available on call during this operation.

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Midline approach L5/S1

- ✦ After the skin incision: linear incision of the anterior fascia of the rectus abdominis muscle a few millimeters paramedially. A blunt instrument is used to push the peritoneum away in a medial direction, first from the rear surface of the muscle and then from the lateral abdominal wall.
- ✦ Epigastric blood vessels must be coagulated and dissected if necessary.
- ✦ The ureter and the presacral plexus are carefully mobilized and retracted together with the peritoneum (coagulation should be avoided).
- ✦ The medial sacral vessels are ligated and dissected in the bifurcation of the major vessels.
- ✦ The vessels are mobilized as far to the left as necessary (or possible) to facilitate implantation of the planned implant size.



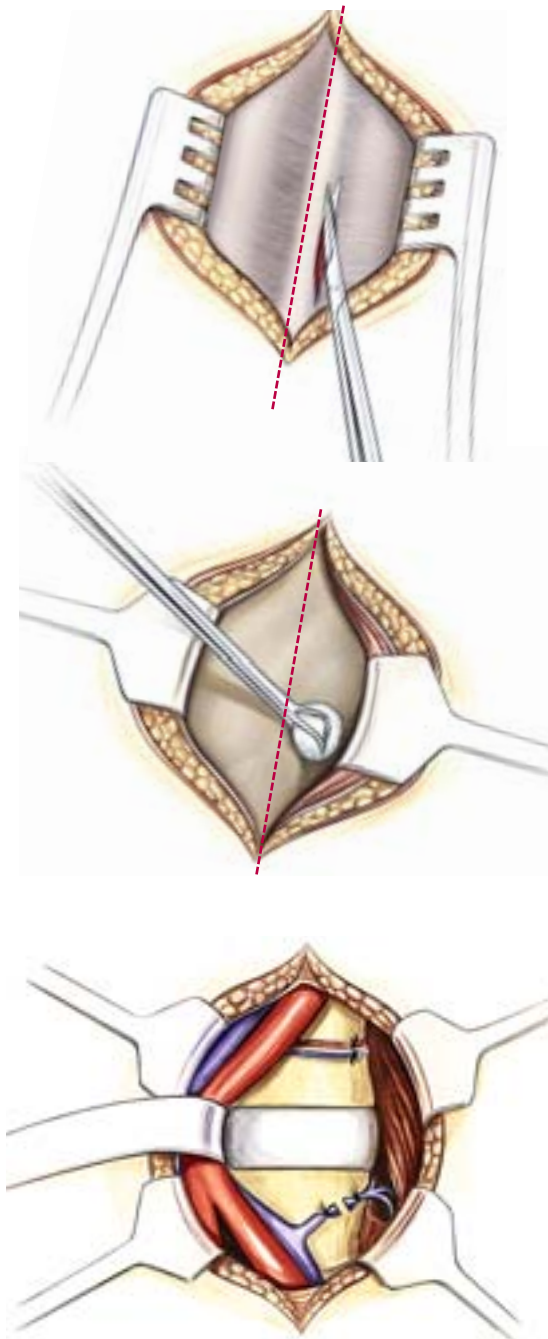
Midline approach L2/3, L3/4, L4/5

- ✦ As described for ventral L5/S1. The essential difference from the L5/S1 level is that the rectus abdominis muscle in the central and upper abdomen also possesses a rear fascia which it does not have in the lower abdomen. Since this can only be removed from the peritoneum with great difficulty, it should be opened as far laterally as possible after retraction of the muscle.



NB:

- The linea alba is not opened. The anterior fascia of the rectus is opened paramedially.



Pararectus approach L2/3, L3/4, L4/5

- ✦ Considerably easier on the upper lumbar region of the spine.
- ✦ Higher risk of segmental denervation of the abdominal muscles.
- ✦ The muscle fascia is dissected longitudinally where they meet at the lateral margin of the rectus abdominis muscle.
- ✦ A blunt instrument is used to push the peritoneum away from the abdominal wall whilst monitoring the epigastric vessels.
- ✦ The ureter is mobilized and moved away from the operating site together with the peritoneum.
- ✦ The ventrolateral spine is exposed at the anterior margin of the psoas muscle.
- ✦ The neighbouring segment vessels are ligated and dissected, including the ascending lumbar vein for the approach to the L4/5 segment, so that the major vessels can be mobilized to the opposite side.
- ✦ The sympathetic nerve is mobilized in a lateral direction. If possible the situs is „fixed“ with self-retaining retractors.



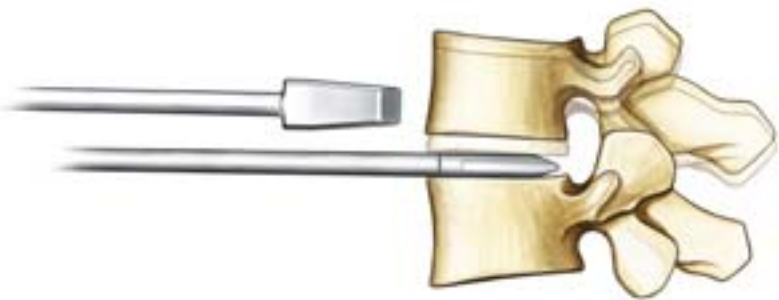
■ In the midline marking process, the lateral inclination of the operating table may have to be adjusted to compensate for any possible turning of the patient caused by retraction of the muscles and abdominal organs.

■ Small errors in the axial orientation of the control X-ray can lead to serious malpositioning of the implant.

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Distraction

- ✦ The desired distraction can be set using the A-Space distractors, available in heights from 9 – 19 mm in 2 mm increments.
- ✦ The distractor should be inserted horizontally and then rotated. Rotating clockwise the distractors are blunt and distract without removing disc material and without harming the endplates. Due to its special sharp rim a rotation counter-clockwise will distract and shave a small amount of disc material from the endplate.



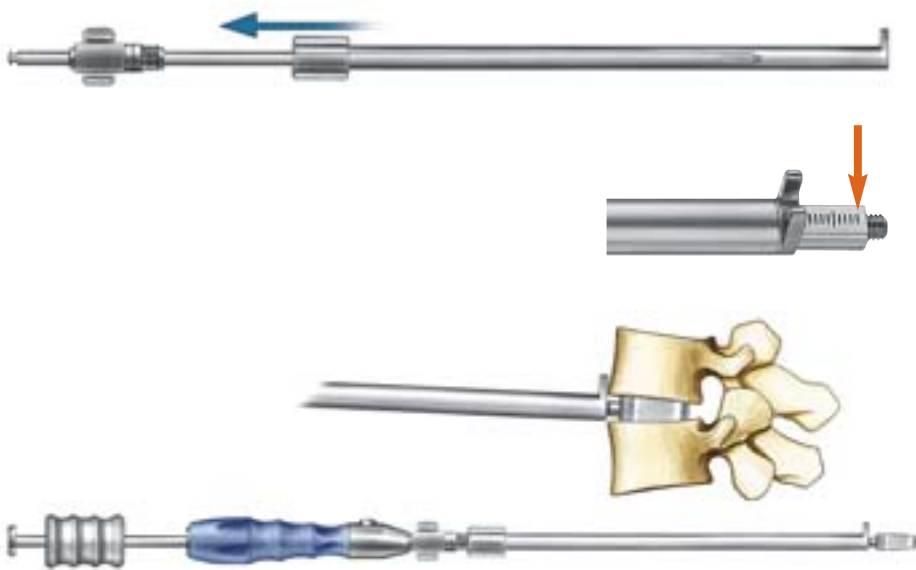
- *Distractors* - SJ019R - SJ031R
- *T-Handle* - SJ033R

Discectomy and preparation

- ✦ The disc space is cleared using disc knives, rongeurs, curettes and bone curettes. Angled instruments are available for the lateral approach.
- ✦ Then the bone rasps are used to refresh the cartilage endplates.



- *Box curette, straight* - SJ007R
- *Box curette, 30°* - SJ037R
- *Bone curette, straight* - SJ008R
- *Bone curette, 45°* - SJ034R
- *Bone curette, 90°* - SJ009R
- *Bone rasp, straight* - SJ010R
- *Bone rasp, 30°* - SJ035R



- T-handle - SJ033R
- Slap hammer - FJ666R
- Insertion instrument with depth stop - SJ103R
- Trial implants - SJ039R - SJ097R



- Packing block - SJ013R
- Punch - FL091R



- T-handle - SJ033R
- Slap hammer - FJ666R
- Insertion instrument with depth stop - SJ103R
- Impactor - SJ003R

Determination of implant size using trial implants

- ★ Trial implants are available in heights from 9 – 19 mm in 2 mm increments.
- ★ The insertion instrument and depth stop are assembled.
- ★ Before the trial implant is attached, the depth stop must be turned forward to the first line on the depth scale.
- ★ The trial implant is inserted with the T-handle, and the depth stop is turned back in accordance with the implant position. For easier removal of the trial implant, we recommend the replacement of the T-handle with the slap hammer.

Filling the implant

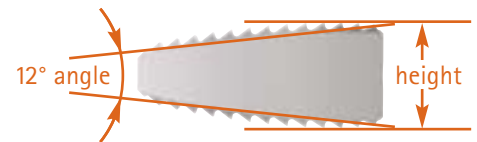
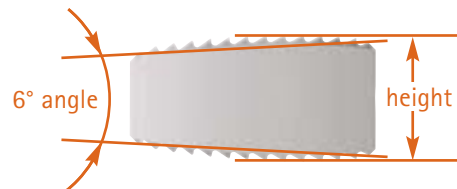
- ★ The PEEK implant can be filled with bone or bone replacement material in the packing block.

Implant positioning

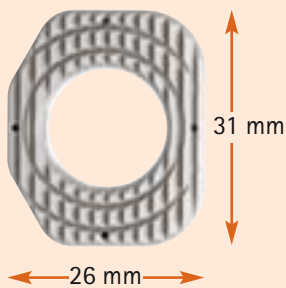
- ★ The second insertion instrument is pre-adjusted according to the defined depth stop position.
- ★ The A-Space implant is inserted and corrected with the impactor if necessary.
- ★ X-ray control.

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Ordering information - Implants

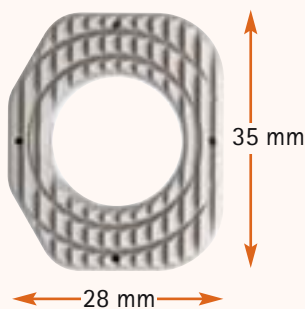


Small



Ref.no.	component	size	height	angle	recomm. quantity
SJ109P	A-Space PEEK	S	9 mm	6°	2
SJ111P	A-Space PEEK	S	11 mm	6°	2
SJ113P	A-Space PEEK	S	13 mm	6°	2
SJ115P	A-Space PEEK	S	15 mm	6°	2
SJ117P	A-Space PEEK	S	17 mm	6°	2
SJ119P	A-Space PEEK	S	19 mm	6°	2
SJ151P	A-Space PEEK	S	11 mm	12°	2
SJ153P	A-Space PEEK	S	13 mm	12°	2
SJ155P	A-Space PEEK	S	15 mm	12°	2
SJ157P	A-Space PEEK	S	17 mm	12°	2
SJ159P	A-Space PEEK	S	19 mm	12°	2
SJ129P	A-Space PEEK	L	9 mm	6°	2
SJ131P	A-Space PEEK	L	11 mm	6°	2
SJ133P	A-Space PEEK	L	13 mm	6°	2
SJ135P	A-Space PEEK	L	15 mm	6°	2
SJ137P	A-Space PEEK	L	17 mm	6°	2
SJ139P	A-Space PEEK	L	19 mm	6°	2
SJ171P	A-Space PEEK	L	11 mm	12°	2
SJ173P	A-Space PEEK	L	13 mm	12°	2
SJ175P	A-Space PEEK	L	15 mm	12°	2
SJ177P	A-Space PEEK	L	17 mm	12°	2
SJ179P	A-Space PEEK	L	19 mm	12°	2

Large







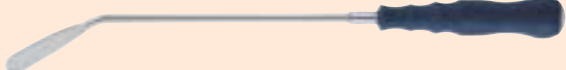








Ordering information - Instruments



Preparation

	Ref.no.	component	recomm. quantity
	SJ017R	X-ray template	1
	SJ007R	Box curette, straight	1
	SJ037R	Box curette, 30°	1
	SJ010R	Bone rasp, straight	1
	SJ035R	Bone rasp, 30°	1
	SJ011R	Raspatory, straight	1
	SJ036R	Raspatory, 30°	1
	SJ008R	Bone curette, straight	1
	SJ034R	Bone curette, 45°	1
	SJ009R	Bone curette, 90°	1
	SJ054P	Tray for preparation instruments	1

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Ordering information - Instruments

Distraction



Ref.no.	component	recomm. quantity
SJ019R	Distractor, 9 mm	1
SJ021R	Distractor, 11 mm	1
SJ023R	Distractor, 13 mm	1
SJ025R	Distractor, 15 mm	1
SJ027R	Distractor, 17 mm	1
SJ029R	Distractor, 19 mm	1
SJ039R	Trial implant, 6° S 9 mm	1
SJ041R	Trial implant, 6° S 11 mm	1
SJ043R	Trial implant, 6° S 13 mm	1
SJ045R	Trial implant, 6° S 15 mm	1
SJ047R	Trial implant, 6° S 17 mm	1
SJ049R	Trial implant, 6° S 19 mm	1
SJ073R	Trial implant, 6° L 9 mm	1
SJ075R	Trial implant, 6° L 11 mm	1
SJ077R	Trial implant, 6° L 13 mm	1
SJ079R	Trial implant, 6° L 15 mm	1
SJ081R	Trial implant, 6° L 17 mm	1
SJ083R	Trial implant, 6° L 19 mm	1
SJ061R	Trial implant, 12° S 11 mm	1
SJ063R	Trial implant, 12° S 13 mm	1
SJ065R	Trial implant, 12° S 15 mm	1
SJ067R	Trial implant, 12° S 17 mm	1
SJ069R	Trial implant, 12° S 19 mm	1
SJ089R	Trial implant, 12° L 11 mm	1
SJ091R	Trial implant, 12° L 13 mm	1
SJ093R	Trial implant, 12° L 15 mm	1
SJ095R	Trial implant, 12° L 17 mm	1
SJ097R	Trial implant, 12° L 19 mm	1

Trial implants





Ref.no.	component	recomm. quantity
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SJ013R	Packing block	1
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FL091R	Punch	1
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SJ033R	T-handle	2
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FJ666R	Slap hammer	1
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SJ103R	Insertion instrument	2
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SJ003R	Impactor	1
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SJ055P	Tray for implantation instruments	1
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*Recommended container: JK446 for tray SJ054P and SJ055P
Recommended lid: JP003



AESCULAP®

B | BRAUN
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