

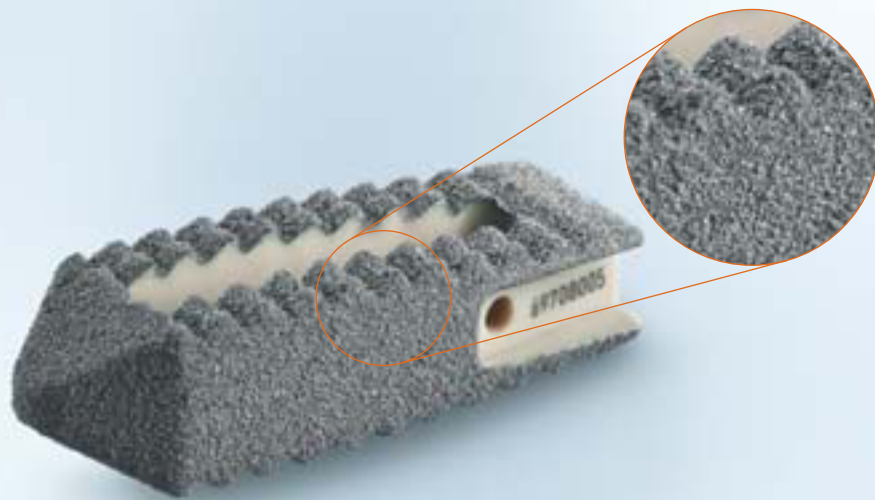
# Aesculap<sup>®</sup> PROSPACE<sup>®</sup> XP

Posterior Lumbar Interbody Fusion System  
with Innovative Surface Technology



Aesculap Spine

# Aesculap<sup>®</sup> PROSPACE<sup>®</sup> XP



## Content

<b>A Foreword</b>	3
<b>B Implant Material</b>	4
<b>C Implant Features</b>	5
<b>D Surgical Technique</b>	6
<b>E Ordering Information</b>	
E1 Implants	10
E2 Instruments	12

## Foreword

The PROSPACE<sup>®XP</sup> implant is used for posterior lumbar interbody fusion. The design of the PROSPACE<sup>®XP</sup> implant allows an enhanced contact area between implant and vertebral endplate.

PROSPACE<sup>®XP</sup> is developed for:

- Stability
- Restoration of the natural lordosis and
- Maintenance of the spinal balance.

The bulleted nose of the PROSPACE<sup>®XP</sup> cage facilitates the implantation of the cage especially in strongly degenerated discs. Furthermore the connection of the implant with the inserter has a clamping element with undercut to provide a firm hold. In addition, the system offers an extended size range presenting the right implant to fit the patient. The instrumentation remains reduced, clearly arranged and simple in handling. In combination with Aesculap retractor systems and the innovative S<sup>4</sup><sup>®</sup> Spinal System, PROSPACE<sup>®XP</sup> forms an excellent treatment concept for spinal fusion.

Aesculap has developed a way to complement the PEEK interbodies with a surface-enhancing technology.

The resulting Plasmapore<sup>®XP</sup>:

- Combines a PEEK implant core with a porous Titanium coating
- Allows a greater surface area of the implant to be in direct contact with bone
- Offers an enhanced foundation for the ingrowth of bone
- Allows for clear delineation of implant contours during intra- and post-operative imaging.

The combination of a PEEK-OPTIMA<sup>®</sup> core with osteoconductive Plasmapore<sup>®XP</sup> coating was developed to deliver enhanced stability, artifact free visualization, and proven biocompatibility.

Plasmapore<sup>®XP</sup> is the result of 30 years of experience in spinal treatment technology and 20 years of success in applying Plasmapore<sup>®XP</sup> coating to Titanium orthopedic and spinal implants.<sup>1,2,3</sup>

### Spine Classics



### S<sup>4</sup><sup>®</sup> Spinal System



#### Reference:

<sup>1</sup> Swamy G, Pace A, Quah C, Howard P. The Bicontact cementless primary total hip arthroplasty: Long-term results. *Int Orthop (SICOT)* 2010.

<sup>2</sup> Kroppenstedt S, Gulde M, Schönmayr R. Radiological comparison of instrumented posterior lumbar interbody

fusion with one or two closed-box PLASMAPORE coated titanium cages. Follow-up study over more than seven years. *Spine*. 2008;33(19):2083-8.

<sup>3</sup> Arregui R, Aso J, Martinez-Quinones JV, Consolini F, Lamban N, Dominguez M. Cespace: Cervical interbody fusion system. Preliminary retrospective study in 104 cases (120 implants). *Neurocirugia*. 2011;22:542-53.

## Implant Material

Plasmapore<sup>XP</sup> – a further development of our interbody fusion implants.

- Combined material advantages
- Consists of two materials, PEEK-OPTIMA<sup>®</sup> and pure Titanium
- Results in a superior interbody device for your patients

The core of the implant is biocompatible PEEK-OPTIMA<sup>®</sup>, which was introduced by Invivo in 1999. PEEK stands for PolyEtherEtherKetone. The PEEK-OPTIMA<sup>®</sup> polymer complies with ISO 10993-1, USP Class VI and ASTM F2026 for use as a medical implant material. PEEK-OPTIMA<sup>®</sup> offers several advantages, involves excellent compatibility with imaging techniques, high mechanical strength, high fatigue resistance, good buffer function to distribute load and biocompatibility for long-term implantation.<sup>4</sup>

The intrinsic radioscopic transparency of the material provides permeability on X-rays and CT scans, which allows for visualization of bone growth adjacent to the implant.

- Quick and simple assessment of the bone structure and progress towards bone fusion
- Verification of the implant position on radioscopic images – X-ray markers are integrated in the implant
- Plasmapore<sup>XP</sup> coating allows for clear delineation of implant contours during imaging (Fig. 1)

The modulus of elasticity of PEEK-OPTIMA<sup>®</sup> is developed to be close to that of cortical bone. This specific stiffness enhances the load transfer between the cage and the adjacent vertebral bodies and reduces the effect of stress shielding on the graft material. This promotes better bone healing activity and finally bony fusion.

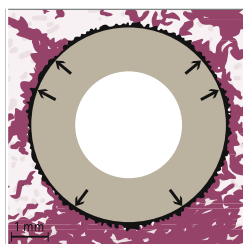


Fig. 1



## Implant Features PROSPACE<sup>®</sup>XP

Innovative Surface Enhancing Technology



Plasmapore<sup>XP</sup> is an osteoconductive pure Titanium porous coating with tested biocompatibility.

- Porosity of up to 60 % creates an optimal surface-to-bone contact
- Normal tissue reaction
- No toxic reaction
- Bone ingrowth can be seen at the bone-implant interface of the coated PEEK implant<sup>5</sup>

### Excellent Imaging Properties



Plasmapore<sup>XP</sup> coating and titanium marker pins allow for improved visibility during imaging.

- Plasmapore<sup>XP</sup> delineates the contours of the implant under X-ray to allow for excellent visualization during insertion
- Allows for assessment of the bone structure and progress towards bony fusion
- Does not create artifacts under CT control
- Does not create artifacts in MRI<sup>5</sup>

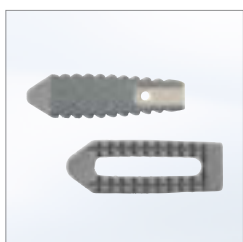
### Enhanced Stability



The roughened surface area provided by the osteoconductive Plasmapore<sup>XP</sup> coating delivers enhanced implant stability.

- High primary stability due to roughened surface which increases migration resistance and mechanical strength
- High secondary stability due to migration of bone cells into the Plasmapore<sup>XP</sup> structure<sup>6</sup>

### Intelligent implant design



- Bulleted nose for easier implantation especially in strongly degenerated discs
- Clamping mechanism with undercut for easy connection with the inserter
- Wide range of sizes for an individual patient treatment as for example 1 mm increments in height
- Enhanced ratio between contact area and opening

### Thought-out Instruments



- Simple in handling
- Reduced and clearly arranged

Reference:

<sup>4</sup> Landy BC, VanGordon SB, McFetridge PS, Sikavitsas VI, Jarman-Smith M. Mechanical and in vitro investigation of a porous PEEK foam for medical device implants *Journal of Applied Biomaterials and Fundamental Materials*, 2013; 11:1 (35-44).

<sup>5</sup> Aesculap AG, BTC Biological Test Center. Evaluation of the local and systemic reaction to a Plasmapore<sup>XP</sup> coated implant in the distal femora of new zealand white rabbits. Final Report 2011.

<sup>6</sup> Swamy G, Pace A, Quah C, Howard P. The Bicontact cementless primary total hip arthroplasty: Long-term results. *Int Orthop (SICOT)* 2010.

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Surgical Technique

D



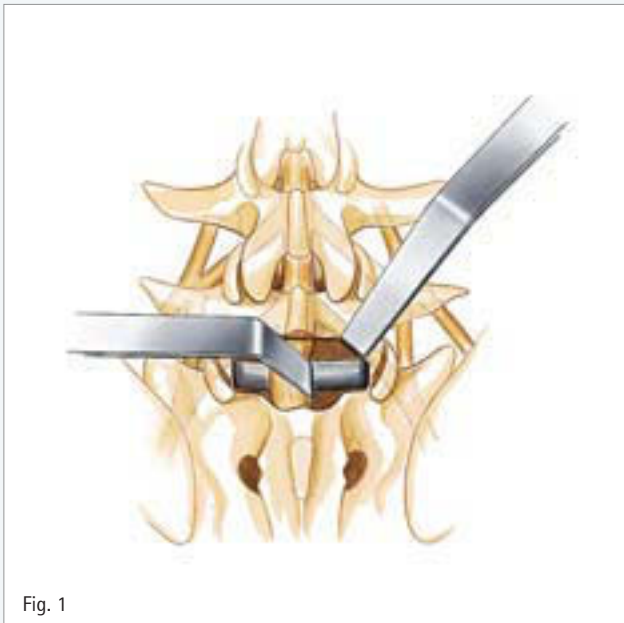


Fig. 1

- Osteotome FJ658R
- Nerve root retractors FJ051R-FJ054R

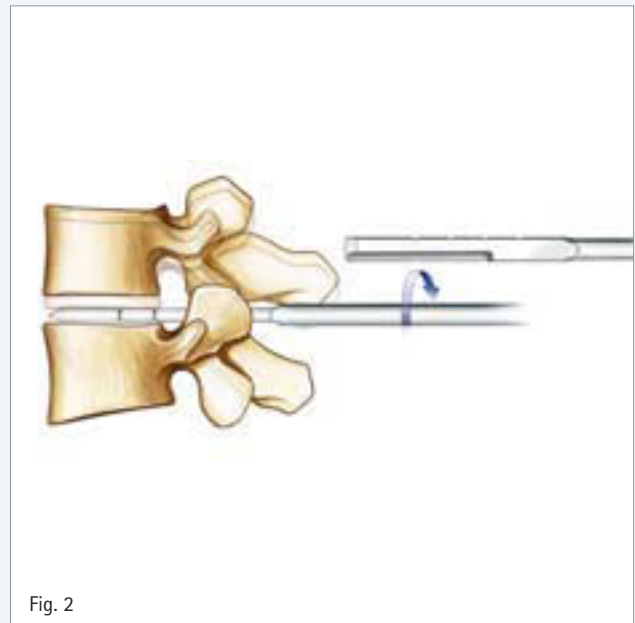


Fig. 2

- T-handle SJ033R or SJ804R
- Distractors FJ647R-FJ657R

### Bone Resection (Fig. 1)

- Using an osteotome and a Kerrison bone punch the bone resection is performed to get access to the intervertebral space.

### Revealing the Disc Space

- The dura and upper nerve root are carefully retracted in the desired direction using nerve root retractors.
- In order to make room for the insertion of the distractor, resection of disc material is now carried out using rongeurs and forceps.

### Restoration of Disc Height (Fig. 2)

- The desired distraction can be set using the distractors, available in heights from 7-13 mm in 1 mm increments.

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## Surgical Technique

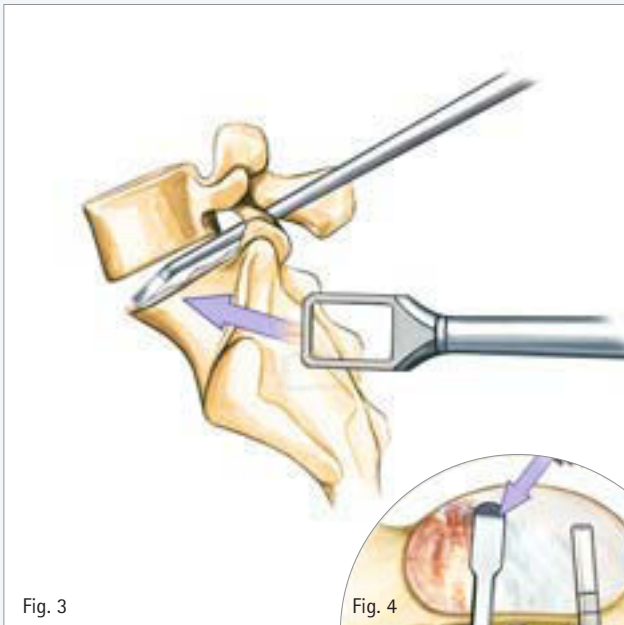


Fig. 3

- *Curette FJ681R*
- *Bone rasp FJ684R*

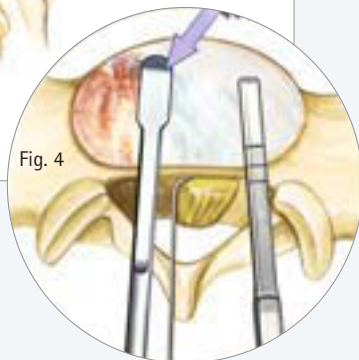


Fig. 4

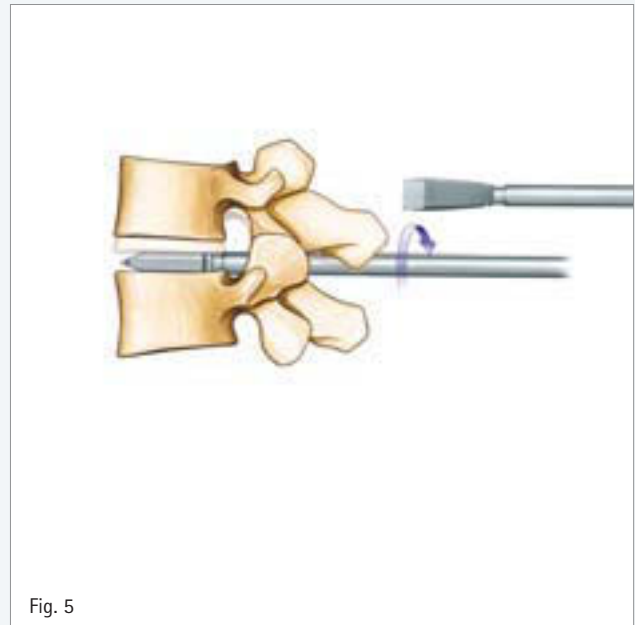


Fig. 5

- *T-handle SJ033R or SJ804R*
- *Trials SN252R-SN262R*

### Cleaning of the Intervertebral Space (Fig. 3-4)

- The disc space is cleared using rongeurs and curettes.
- The bone rasp is used to refresh the cartilaginous endplates. Alternatively, the curette can be used.

Excessive preparation of the endplates may weaken the construct and cause subsidence of the interbody device.

### Determination of Implant Size (Fig. 5)

- Trials are available in 5° and corresponding to the implant height. The trials measure 26 mm in length and indicate the length 22 mm by a laser marking. Starting with the smallest size the trials are inserted horizontally and rotated clockwise. Stepwise the next heights are inserted until the required distraction has been achieved.

The trials are essential to ensure the correct implant size to be used.





Fig. 7

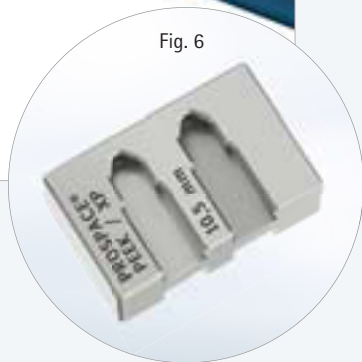


Fig. 6

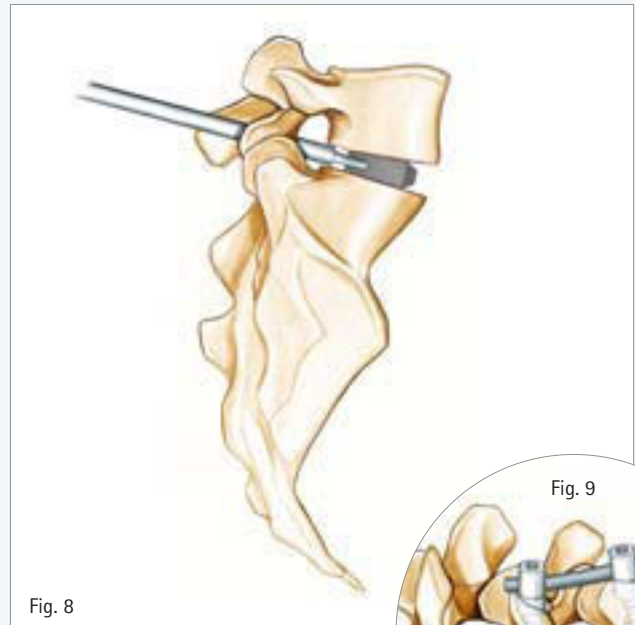


Fig. 8

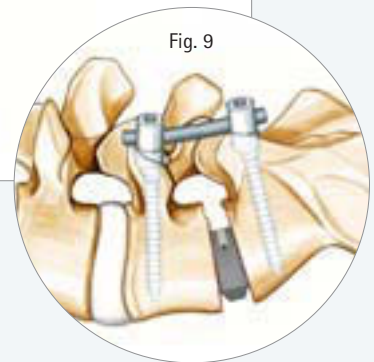


Fig. 9

#### Insertion of PROSPACE<sup>®</sup>XP (Fig. 6-7)

- After filling the PROSPACE<sup>®</sup>XP implant with bone graft or bone substitute the implant is clamped to the inserter and introduced into the disc space.

#### Insertion on the Contra-lateral Side (Fig. 8-9)

- The described operative steps are now repeated for the contra-lateral side. Bone material can be packed between both implants.
- The implants get jammed by release of distraction as well as by compression with the posterior instrumentation.

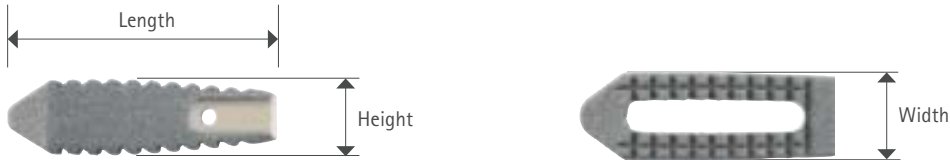
#### Posterior Stabilization (Fig. 9)

- Additional posterior stabilization of the motion segment (e.g. S<sup>4</sup><sup>®</sup> Spinal System; surgical technique O26702) should be performed.
- Subsequent segmental compression with posterior instrumentation allows loading of the anterior column and restoration of sagittal alignment.

# Aesculap® PROSPACE®XP

# E1

## Ordering Information – PROSPACE®XP Implants



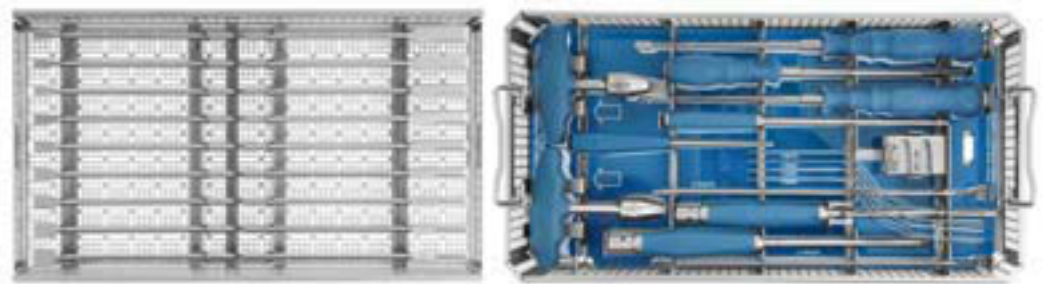
Art. no.	Description	Height	Width	Length	Angle
SO107P	PROSPACE®XP	7 mm	8.5 mm	22 mm	0°
SO108P	PROSPACE®XP	8 mm	8.5 mm	22 mm	0°
SO109P	PROSPACE®XP	9 mm	8.5 mm	22 mm	0°
SO110P	PROSPACE®XP	10 mm	8.5 mm	22 mm	0°
SO111P	PROSPACE®XP	11 mm	8.5 mm	22 mm	0°
SO117P	PROSPACE®XP	7 mm	8.5 mm	22 mm	5°
SO118P	PROSPACE®XP	8 mm	8.5 mm	22 mm	5°
SO119P	PROSPACE®XP	9 mm	8.5 mm	22 mm	5°
SO120P	PROSPACE®XP	10 mm	8.5 mm	22 mm	5°
SO121P	PROSPACE®XP	11 mm	8.5 mm	22 mm	5°
SO128P	PROSPACE®XP	8 mm	8.5 mm	22 mm	8°
SO129P	PROSPACE®XP	9 mm	8.5 mm	22 mm	8°
SO130P	PROSPACE®XP	10 mm	8.5 mm	22 mm	8°
SO131P	PROSPACE®XP	11 mm	8.5 mm	22 mm	8°
SO137P	PROSPACE®XP	7 mm	8.5 mm	26 mm	0°
SO138P	PROSPACE®XP	8 mm	8.5 mm	26 mm	0°
SO139P	PROSPACE®XP	9 mm	8.5 mm	26 mm	0°
SO147P	PROSPACE®XP	7 mm	8.5 mm	26 mm	5°
SO148P	PROSPACE®XP	8 mm	8.5 mm	26 mm	5°
SO149P	PROSPACE®XP	9 mm	8.5 mm	26 mm	5°
SO158P	PROSPACE®XP	8 mm	8.5 mm	22 mm	8°
SO159P	PROSPACE®XP	9 mm	8.5 mm	26 mm	8°

Art. no.	Description	Height	Width	Length	Angle
SO410P	PROSPACE®XP	10 mm	10.5 mm	22 mm	0°
SO411P	PROSPACE®XP	11 mm	10.5 mm	22 mm	0°
SO412P	PROSPACE®XP	12 mm	10.5 mm	22 mm	0°
SO413P	PROSPACE®XP	13 mm	10.5 mm	22 mm	0°
SO420P	PROSPACE®XP	10 mm	10.5 mm	22 mm	5°
SO421P	PROSPACE®XP	11 mm	10.5 mm	22 mm	5°
SO422P	PROSPACE®XP	12 mm	10.5 mm	22 mm	5°
SO423P	PROSPACE®XP	13 mm	10.5 mm	22 mm	5°
SO430P	PROSPACE®XP	10 mm	10.5 mm	22 mm	8°
SO431P	PROSPACE®XP	11 mm	10.5 mm	22 mm	8°
SO432P	PROSPACE®XP	12 mm	10.5 mm	22 mm	8°
SO433P	PROSPACE®XP	13 mm	10.5 mm	22 mm	8°
SO440P	PROSPACE®XP	10 mm	10.5 mm	26 mm	0°
SO441P	PROSPACE®XP	11 mm	10.5 mm	26 mm	0°
SO442P	PROSPACE®XP	12 mm	10.5 mm	26 mm	0°
SO443P	PROSPACE®XP	13 mm	10.5 mm	26 mm	0°
SO450P	PROSPACE®XP	10 mm	10.5 mm	26 mm	5°
SO451P	PROSPACE®XP	11 mm	10.5 mm	26 mm	5°
SO452P	PROSPACE®XP	12 mm	10.5 mm	26 mm	5°
SO453P	PROSPACE®XP	13 mm	10.5 mm	26 mm	5°
SO460P	PROSPACE®XP	10 mm	10.5 mm	26 mm	8°
SO461P	PROSPACE®XP	11 mm	10.5 mm	26 mm	8°
SO462P	PROSPACE®XP	12 mm	10.5 mm	26 mm	8°
SO463P	PROSPACE®XP	13 mm	10.5 mm	26 mm	8°






# Aesculap® PROSPACE® XP

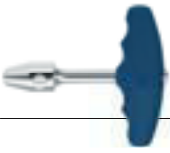





# E2

## Ordering Information – Instruments



SJ800 PROSPACE® XP instrumentation complete  
(consisting of SJ801R)

	Art. no.	Description	Recommended	Optional
	FJ647R	Distractor, 7 mm	1	
	FJ648R	Distractor, 8 mm	1	
	FJ649R	Distractor, 9 mm	1	
	FJ650R	Distractor, 10 mm	1	
	FJ651R	Distractor, 11 mm	1	
	FJ652R	Distractor, 12 mm	1	
	FJ653R	Distractor, 13 mm	1	
	FJ655R	Distractor, 15 mm		1
	FJ657R	Distractor, 17 mm		1
	SN252R	Trial, 5°, 7 x 26 mm	1	
	SN253R	Trial, 5°, 8 x 26 mm	1	
	SN254R	Trial, 5°, 9 x 26 mm	1	
	SN255R	Trial, 5°, 10 x 26 mm	1	
	SN256R	Trial, 5°, 11 x 26 mm	1	
	SN257R	Trial, 5°, 12 x 26 mm	1	
	SN258R	Trial, 5°, 13 x 26 mm	1	
	SN260R	Trial, 5°, 15 x 26 mm		1
	SN262R	Trial, 5°, 17 x 26 mm		1
	FJ658R	Osteotome	1	
	FJ681R	Curette, straight	1	
	FJ684R	Bone rasp, straight	1	

	Art. no.	Description	Recommended	Optional
	SJ033R or alternatively SJ804R	T-handle for distractors and trials	2	
	FJ051R	Nerve root retractor S	1	
	FJ052R	Nerve root retractor M	1	
	FJ053R	Nerve root retractor L	1	
	FJ054R	Nerve root retractor XL	1	
	SN004R	Packing block	1	
	SN002R	Inserter for PROSPACE <sup>®</sup> XP / PROSPACE <sup>®</sup> PEEK	2	
	SN003R	Impactor	1	
	FF913R	Punch	1	
	SJ801R	Tray for preparation and implantation instruments	1	
	JH217R	Wide perforated basket lid	1	
	TF029	Graphic template for SJ801R	1	

# Aesculap® PROSPACE® XP



## Notes

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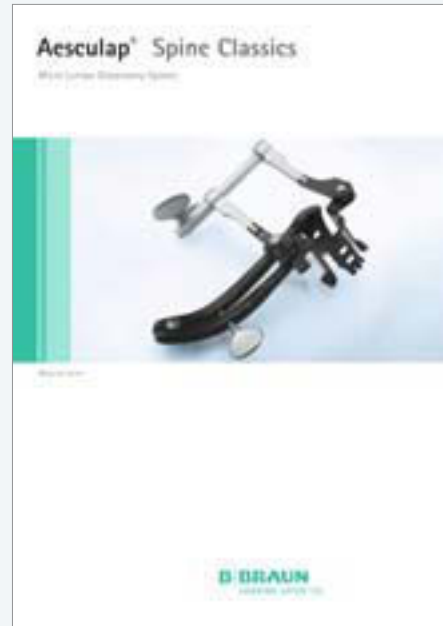
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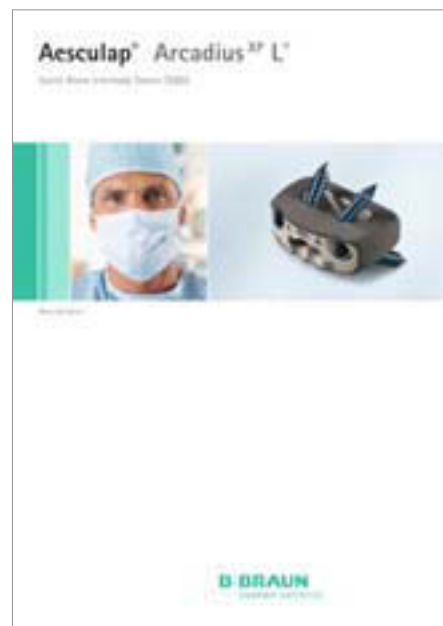
■ For further informations of S4® see in brochure No. 025702.



■ For further informations of Spine Classics see in brochure No. 011402.



■ For further informations of Plasmapore<sup>XP</sup> see in brochure No. 098002.



■ For further informations of Arcadius<sup>XP</sup> L see in brochure No. 096002.

