



Image intensifier control

This description alone does not provide sufficient background for direct use of DePuy Synthes products. Instruction by a surgeon experienced in handling these products is highly recommended.

Processing, Reprocessing, Care and Maintenance

For general guidelines, function control and dismantling of multi-part instruments, as well as processing guidelines for implants, please contact your local sales representative or refer to:

http://emea.depuysynthes.com/hcp/reprocessing-care-maintenance For general information about reprocessing, care and maintenance of Synthes reusable devices, instrument trays and cases, as well as processing of Synthes non-sterile implants, please consult the Important Information leaflet (SE_023827) or refer to:

http://emea.depuysynthes.com/hcp/reprocessing-care-maintenance

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AO Spine Principles

The four principles to be considered as the foundation for proper spine patient management underpin the design and delivery of the Curriculum: Stability – Alignment – Biology – Function.^{1,2}



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¹ Aebi et al (1998)

² Aebi et al (2007)

Indications and Containdications

Please refer to the corresponding Instructions for Use for specific information on Intended use, Indications, Contraindications, Warnings and Precautions, Potential Adverse Events, Undesirable Side Effects and Residual Risks. Instructions for Use are available at www.depuysynthes.com/ifu

Round Implants

The round implants are designed to treat defects in the cervical spine.

Art. No.	Ø	height	
495.341	10 mm	4 mm	
495.441	10 mm	5 mm	— <u> </u>
495.342	10 mm	6 mm	— ∅10 mm
495.442	10 mm	7 mm	
495.443	10 mm	8mm	
495.444	10 mm	9mm	
495.343	10 mm	10 mm	
495.445	10 mm	11 mm	
495.446	10 mm	12 mm	
495.601	10 mm	14 mm	
495.602	10 mm	16 mm	
495.344	10 mm	18 mm	
495.603	10 mm	20 mm	
495.604	10 mm	22 mm	
495.605	10 mm	24 mm	
495.447	10 mm	32 mm	
04.817.448	10 mm	88 mm	

$\textbf{SYNMESH}^{{}^{\scriptscriptstyle \mathsf{T}\!\!\mathsf{M}}}\textbf{, Corpectomy Device, Pure Titanium}$

Art. No.	Ø	height	
495.346	12 mm	4mm	
495.347	12 mm	5 mm	
495.348	12 mm	6 mm	
495.349	12 mm	7 mm	
495.351	12 mm	8mm	Ø 12 mm
495.352	12 mm	9mm	
495.353	12 mm	10 mm	
495.354	12 mm	11 mm	
495.355	12 mm	12 mm	
495.611	12 mm	14 mm	
495.612	12 mm	16 mm	
495.451	12 mm	18 mm	
495.613	12 mm	20 mm	
495.614	12 mm	22 mm	
495.615	12 mm	24 mm	
495.356	12 mm	32 mm	
495.357	12 mm	88 mm	
495 361	15 mm	8 mm	
/95 362	15 mm	10 mm	
495.362	15 mm	12 mm	
495.505	15 mm	14 mm	
495.504	15 mm	14 mm	
495.455	1511111	10	Ø 15 mm
495.621	15 mm	18 mm	
495.622	15 mm	20 mm	
495.623	15 mm	22 mm	
495.624	15 mm	24 mm	
495.365	15 mm	32 mm	
495.366	15 mm	88 mm	_



End Rings, round

- Two fastening mechanisms available: press fit or with locking screw
- Angles of 0° or 2.5°
- Each end ring increases the overall height of the implant by 1.5 mm (see step 3 of the Surgical technique)

End Rings, round, press fit*

Art No	Ø	Angle	
	~	, angle	
495.384	10 mm	0°	
495.387	10 mm	2.5°	
495.385	12 mm	0°	
495.388	12 mm	2.5°	
495.386	15 mm	0°	
495.389	15 mm	2.5°	N N N N N
			10 mm



Art. No.	Ø	Angle	
495.411	10 mm	0°	
495.414	10 mm	2.5°	
495.412	12 mm	0°	
495.415	12 mm	2.5°	4.8.8.8.
495.413	15 mm	0°	
495.416	15 mm	2.5°	THMBY
			10 mm









12 mm

12 mm



15 mm

15 mm



Oblong Implants

The oblong implants are designed to treat defects in the thoracic and lumbar spine.

Art. No.	Dimensions	height
495.461	17 × 22 mm	6mm
495.371	17×22 mm	8mm
495.462	17 × 22 mm	10 mm
495.372	17 × 22 mm	12 mm
495.463	17 × 22 mm	14 mm
495.464	17 × 22 mm	20 mm
495.465	17 × 22 mm	22 mm
495.466	17 × 22 mm	24mm
495.467	17 × 22 mm	26 mm
495.468	17 × 22 mm	28 mm
495.373	17 × 22 mm	32 mm
495.469	17 × 22 mm	52 mm
495.374	17 × 22 mm	88 mm
495.471	22 × 28 mm	6 mm
495.376	22 × 28 mm	8mm
495.472	22 × 28 mm	10 mm
495.377	22 × 28 mm	12 mm
495.473	22 × 28 mm	14 mm
495.474	22 × 28 mm	28 mm
495.475	22 × 28 mm	30 mm
495.476	22 × 28 mm	32 mm
495.477	22 × 28 mm	34 mm
495.478	22 × 28 mm	36 mm
495.479	22 × 28 mm	52 mm
495.378	22 × 28 mm	64 mm
495.379	22×28mm	88 mm
495.481	26×33mm	6mm
495.482	26 × 33 mm	8 mm
495.483	26 × 33 mm	10 mm
495.484	26 × 33 mm	12 mm
495.485	26 × 33 mm	14 mm
495.486	26 × 33 mm	44 mm
495.487	26 × 33 mm	46 mm
495.488	26×33mm	48 mm
495.489	26×33mm	50 mm
495.490	26 × 33 mm	52 mm
495.381	26×33 mm	64 mm
495.382	26 × 33 mm	88 mm

SYNMESH, Corpectomy	Device,	Pure	Titanium
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17 × 22 mm



22 × 28 mm



26 × 33 mm

End Rings, oblong

- Two fastening mechanisms available: press fit or with locking screw
- Angles of 0° or 5°
- Different configurations feature slots for anterolateral, lateral or anterior insertion under distraction
- Each end ring increases the overall height of the implant by 3.5 mm (see step 3 of the Surgical technique)

End Rings, oblong, press fit*

Anterolateral end rings

Art. No.	Dimensions	Angle	
495.391	17 × 22 mm	0°	
495.393	17 × 22 mm	5°	
495.395	22 × 28 mm	0°	я и и и
495.397	22 × 28 mm	5°	
495.399	26 × 33 mm	0°	нин
495.402	26 × 33 mm	5°	 17 × 22 mm





22 × 28 mm



26 × 33 mm

Lateral or anterior end rings

	0		
Art. No.	Dimensions	Angle	
495.392	17 × 22 mm	0°	
495.394	17 × 22 mm	5°	
495.396	22 × 28 mm	0°	
495.398	22 × 28 mm	5°	
495.401	26 × 33 mm	0°	
495.403	26 × 33 mm	5°	



17 × 22 mm





22 × 28 mm



26 × 33 mm

*No locking screw needed

End Rings, oblong, with locking screw (convex)

Anterolateral end rings

Art. No.	Dimensions	Angle	
495.421	17 × 22 mm	0°	
495.423	17 × 22 mm	5°	
495.427	22 × 28 mm	0°	
495.429	22 × 28 mm	5°	
495.433	26 × 33 mm	0°	
495.435	26 × 33 mm	5°	



17 × 22 mm



22 × 28 mm



26 × 33 mm

Lateral or anterior end rings

Art. No.	Dimensions	Angle			
495.422	17 × 22 mm	0°			
495.424	17 × 22 mm	5°			
495.428	22 × 28 mm	0°			
495.430	22 × 28 mm	5°			
495.434	26 × 33 mm	0°			
495.436	26 × 33 mm	5°	17 × 22 mm	22 × 28 mm	26 × 33 mm

Standard Rings

The standard rings fit inside the oblong mesh and are secured using two M3 locking screws (495.491). They are designed to provide added stability, particularly for long implants.

Standard Rings

Art. No.	Dimensions	
495.405	17 × 22 mm	
495.406	22 × 28 mm	
495.407	26 × 33 mm	







26 × 33 mm

Locking Screws

End rings with locking screw are fixed with one screw only.

 For round end rings with locking screw: Locking Screw M2, low profile (495.410), for Ø 10 mm und 12 mm end rings 	Quanna	M2
• Locking Screw M3, low profile (495.491), for \varnothing 15 mm end rings		M3
Matching screwdrivers: • Screwdriver Shaft 2.0, cruciform, with Holding Sleeve and Mini Quick Coupling (314.672) and Handle, small, with Mini Quick Coupling (311.011) for locking screws M2		
• Screwdriver, hexagonal (314.250) for locking screws M3		
For oblong end rings with locking screw and for standard rings:Locking Screw M3, low profile (495.491)		M3
Matching screwdriver: • Screwdriver, hexagonal (314.250) for locking screws M3	-	

Surgical Technique

1. Select approach

SYNMESH can be inserted anteriorly, laterally or anterolaterally, depending on the spinal level involved.

2. Perform corpectomy and prepare endplates

Perform a partial or complete corpectomy depending on the patient's pathology. Remove the superficial layers of the cartilaginous endplates until bleeding bone is exposed.

Warning: Excessive removal of subchondral bone may weaken the vertebral endplates. If the entire endplate is removed, subsidence into the adjacent vertebrae and a loss of segmental stability may result.

3. Determine implant size

Distract the affected segment using the parallel Spreader Forceps (389.187 or 389.188).

The scale on the handle indicates the height of the defect.



Alternatively, the Calliper for Corpectomy (389.186) can be used to determine the height of the defect.

When determining the implant size:

- Add a total of 3 mm to the mesh height if using round end rings
- Add a total of 7 mm to the mesh height if using oblong end rings

Construct height



4. Cut mesh (optional)

If necessary, use the SYNMESH Cutter (397.091) to trim the mesh to the appropriate height.



b. Mesh, round, \oslash 15 mm and all oblong meshes Make diagonal or horizontal cuts.

To determine if the tabs of the mesh need to be adjusted with the Universal Bending Pliers (391.963) line up the desired end rings with the mesh and adjust tabs as necessary.

Note: If an end ring with locking screw is used, the mesh has to be cut on the horizontal.







The following section describes the securing technique for end rings with locking screw. Alternatively, press fit end rings may be used.

5. Attach first end ring

Attach desired end ring to mesh.



a. SYNMESH, round, \varnothing 10 mm and 12 mm

Secure end ring with a locking screw M2 (495.410) using the Screwdriver Shaft 2.0, cruciform with Holding Sleeve and Mini Quick Coupling (314.672) and Handle, small, with Mini Quick Coupling (311.011).

b. SYNMESH, round, \varnothing 15 mm and all oblong SYNMESH implants

Secure end ring with a locking screw M3 (495.491) using the Screwdriver, hexagonal, small, B 2.5mm, with Groove (314.250).

Note: Check to ensure that end rings are correctly secured. The locking screw can only be inserted correctly through one hole. If the screw is inserted in the wrong hole, a gap will remain between the end ring and the mesh. In this case, remove the screw and secure it in the correct hole.

Option:

Fill SYNMESH with bone graft or a bone substitute material such as chronOS.





6. Attach second end ring

Attach second end ring as described in the previous step.



Note: If using a longer construct, a standard ring may be inserted for added stability. Place the standard ring inside the mesh at the desired location. Using the hexagonal screwdriver, insert two locking screws M3 through the mesh and into the standard ring to secure it in place.

Note: Pack additional bone graft or bone substitute inside the end rings as needed.

7. Distract and insert implant

Using the parallel spreader forceps, distract the affected segment until the desired spinal alignment is achieved (1). While under distraction, insert the SYNMESH implant using the appropriate implant holder (396.388, 396.389) (2).

Note: When using oblong end rings, ensure that the blades of the spreader forceps align with the slots in the end rings (3). When using round meshes the spreader forceps must be removed before implantation.

Final seating of the implant may be accomplished by gently tapping the implant holder. Once the implant is in place, carefully remove the implant holder and spreader forceps. Appropriate impactors may be used if necessary to achieve final seating of the implant.

Verify the position of SYNMESH in relation to the vertebral bodies in the frontal and sagittal planes intraoperatively using an image intensifier.





8. Apply bone material

The area around SYNMESH close to the vascularised tissue is the area most likely to fuse and provide stability later on. Therefore fill this area with the largest possible amount of bone graft, especially the anterior part of the instrumented zone.



9. Apply supplemental fixation

As with all vertebral body replacement devices, SYNMESH must be combined with a supplemental internal fixation system – e.g. CSLP or USS II – which is designed for absorbing tensile forces as well as torsional, flexion and extension moments.

Implant Removal

SYNMESH implants are not intended to be removed. If removal is required, spreader forceps and implant holder may be used to remove SYNMESH implant.

Instruments

311.011	Handle, small, with Mini Quick Coupling	
314.250	Screwdriver, hexagonal, small, \varnothing 2.5 mm, with Groove, length 250 mm	
314.672	Screwdriver Shaft 2.0, cruciform, with Holding Sleeve, length 66 mm, with Mini Quick Coupling	
389.186	Calliper for Corpectomy, Stainless Steel	
389.187	Spreader Forceps, parallel, distraction width 0 to 70 mm, Stainless Steel	
389.188	Spreader Forceps, parallel, distraction width 30 to 95 mm, Stainless Steel	
391.963	Universal Bending Pliers, length 165 mm	3

396.388 SYNMESH Implant Holder, with small tips, Stainless Steel

396.389 SYNMESH Implant Holder, with large tips, Stainless Steel

397.091 SYNMESH Cutter, Stainless Steel



Bibliography

Aebi M, Thalgott JS, Webb JK (1998): AO ASIF Principles in Spine Surgery. Berlin: Springer.

Aebi M, Arlet V, Webb JK (2007): AOSPINE Manual (2 vols), Stuttgart, New York: Thieme.



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