



The Evolution
of Fusion



Avenue®-T Ti



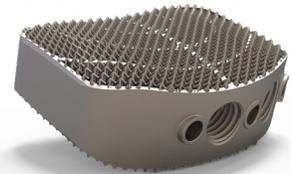
Avenue®-P Ti



Avenue®-C Ti



Avenue®-L Ti



Avenue®-A Ti

Avenue® Ti

3D Printed Fusion Solutions





Introducing Avenue® Ti Porous Ti Interbody System

Advancing patient care with our newest 3D printed titanium interbody platform. Avenue Ti's interbody spinal cages are created with a distinctive internal porous lattice ("net") structure. This scaffold design, structured from uniformly interconnected pores ranging from 500-700µm, along with the 6-10µm micron roughened surface topography fosters a cellular relevant environment for adhesion and bone ingrowth.

This range of devices have been engineered for both improved on-growth and ingrowth¹, compared to PEEK and solid titanium cages, and to comprise of a modulus of elasticity close to that of bone.

Studies have shown that the lattice structure of 3D printed titanium cages, which provide a bone comparable modulus of elasticity, can withstand loading and promote fusion through providing a porous framework for bony in-growth², can sustain intra-disc height, reduce the occurrence of subsidence compared to solid titanium cages³ and PEEK cages^{2,4} and provide a more evenly distributed endplate pressure under static load, compared to solid titanium and PEEK spinal cages⁴.

The Evolution of Fusion

The Avenue Ti is designed to have the following surface, structural, and anatomic features:

Porosity

- 3D printed titanium interbody spinal cages
- Balance of porosity and strength
- Engineered with an internal porous lattice structure of uniformly interconnected pores ranging in size from 500-700µm

Texture

- Microporous surface roughness of 6-10µm for potential cellular adhesion

Structure

- Able to withstand loading and promote Fusion
- Internal lattice structure which provides additional surface area for optimum colonisation and bone formation

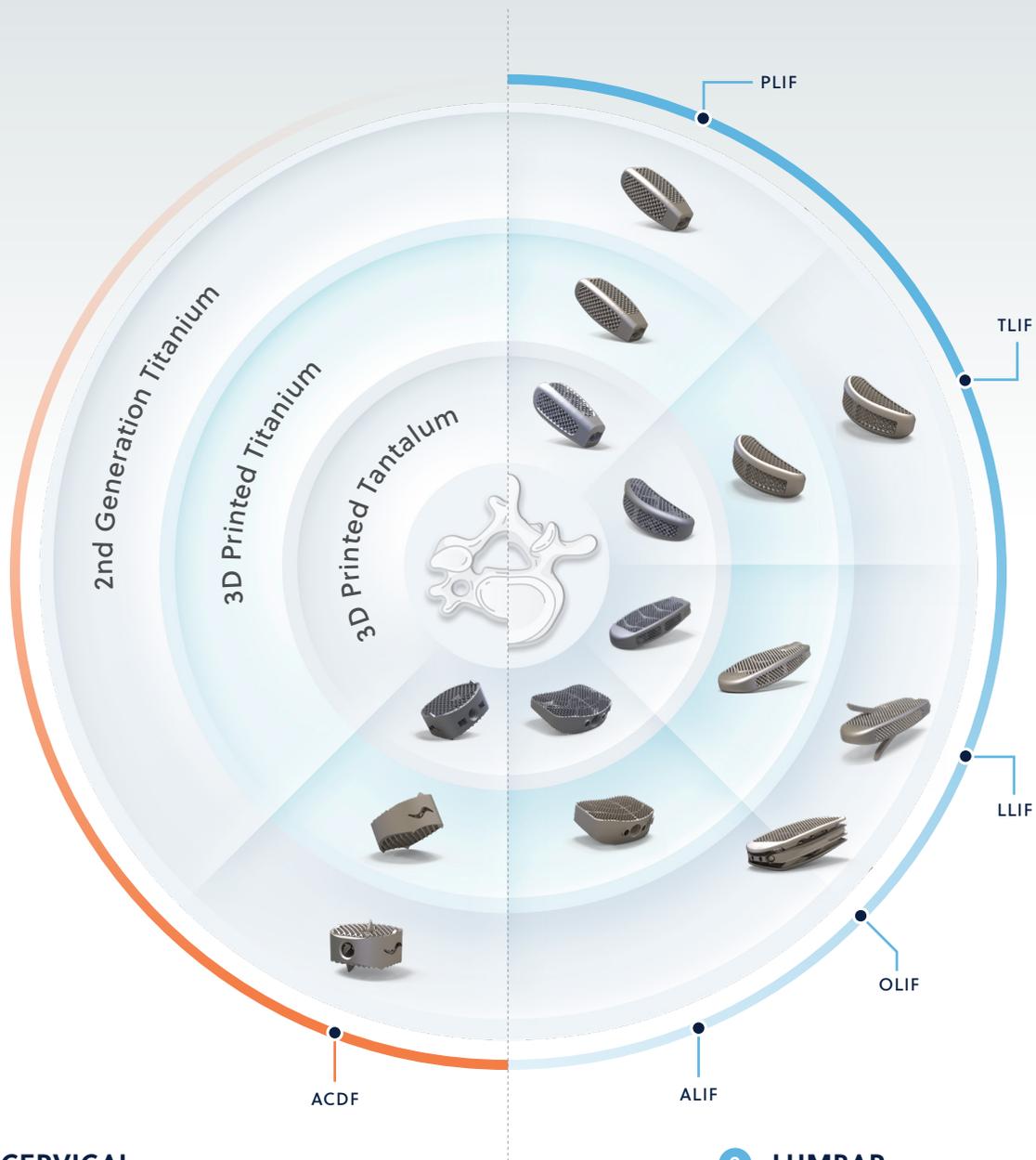
Anatomic Design

- Matching patients anatomy and surgeons preferences
- Microporosity and surface roughness designed to increase friction and limit micromotion for excellent stability

Portfolio Offerings

- Static, Built-in Fixation, and Expandable options
- Wide variety of Footprints, Heights, and Lordosis Angles
- Also available in 3D Printed Tantalum

¹ Rao, P.J., et al., Spine interbody implants: material selection and modification, functionalization and bioactivation of surfaces to improve osseointegration. *Orthop Surg*, 2014. 6(2): p. 81-9. ² Chan, J.L., et al., Evolution of Bioactive Implants in Lateral Interbody Fusion. *Int J Spine Surg*, 2022. 16(S1): p. S61-S68. ³ Zhu, Y., et al., Effect of Elastic Modulus on Biomechanical Properties of Lumbar Interbody Fusion Cage. *Journal of Materials Sciences and Technology*, 2009. 25(03): p. 325-328. ⁴ Fogel, G., et al., Choice of Spinal Interbody Fusion Cage Material and Design Influences Subsidence and Osseointegration Performance. *World Neurosurg*, 2022. 162: p. e626-e634.



1 CERVICAL

Cervical Fusion Portfolio

Avenue® 3D Printed Interbody Spinal Cages are available in 3D Tantalum, 3D Titanium, and 2nd Generation Titanium.

2 LUMBAR

Lumbar Fusion Portfolio

Avenue® 3D Printed Interbody Spinal Cages are available in 3D Tantalum, 3D Titanium, and 2nd Generation Titanium.

Avenue® Ti – Porous Ti Interbody Platform | 3D Printed Titanium

Description		Footprint	Lordosis	Height
	Avenue - P Ti PLIF	24 x 10 mm, 29 x 10 mm	0°, 5°, 8°, 14°	7 - 15 mm (1 mm increments)
	Avenue - T Ti TLIF	26 x 9 mm, 29 x 9 mm, 32 x 9 mm, 32 x 10 mm	0°, 5°, 8° 15°, 20°, 25°*	7 - 15 mm (1 mm increments)
	Avenue - L Ti LLIF	42 x 18 mm, 48 x 18 mm, 52 x 18 mm, 58 x 18 mm	0°, 5°, 8°, 14°	7 mm, 9 mm, 11 mm, 13 mm
	Avenue - A Ti ALIF	24 x 10 mm, 29 x 10 mm	5°, 8°, 14°	6 - 15 mm (1 mm increments)
	Avenue - C Ti ACDF	24 x 10 mm, 29 x 10 mm	0°, 5°, 10°	4 - 9 mm (1 mm increments)

*15°, 20°, and 25° are available for 32 x 10mm only. NOTE: Variations of sizes may not be available in all markets.

For more information, visit [ZimVie.com](https://www.zimvie.com)

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