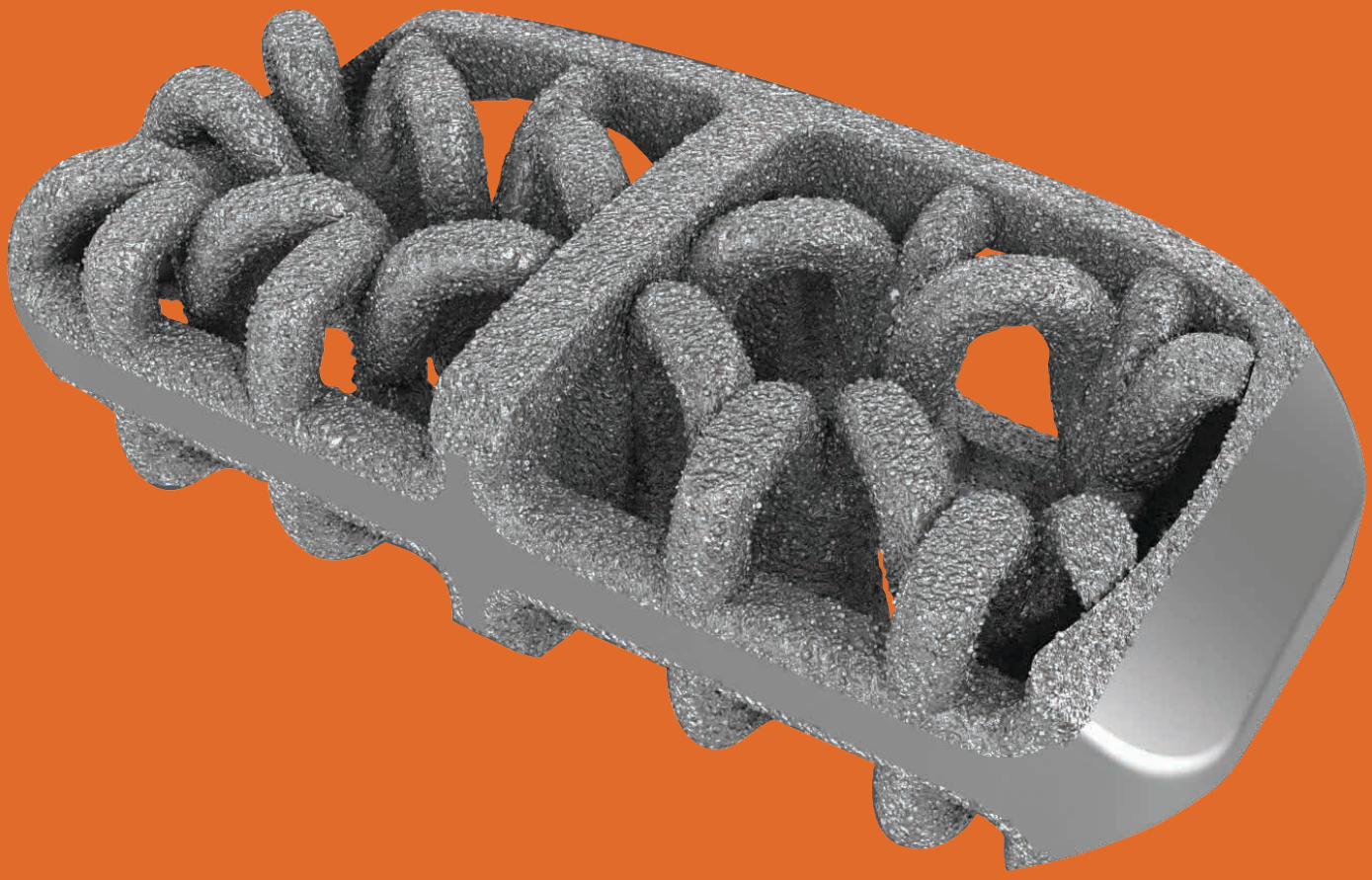
SPIRA®-L

OPEN MATRIX LLIF

SURFACE BY DESIGN®



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LIFE UPRIGHT®

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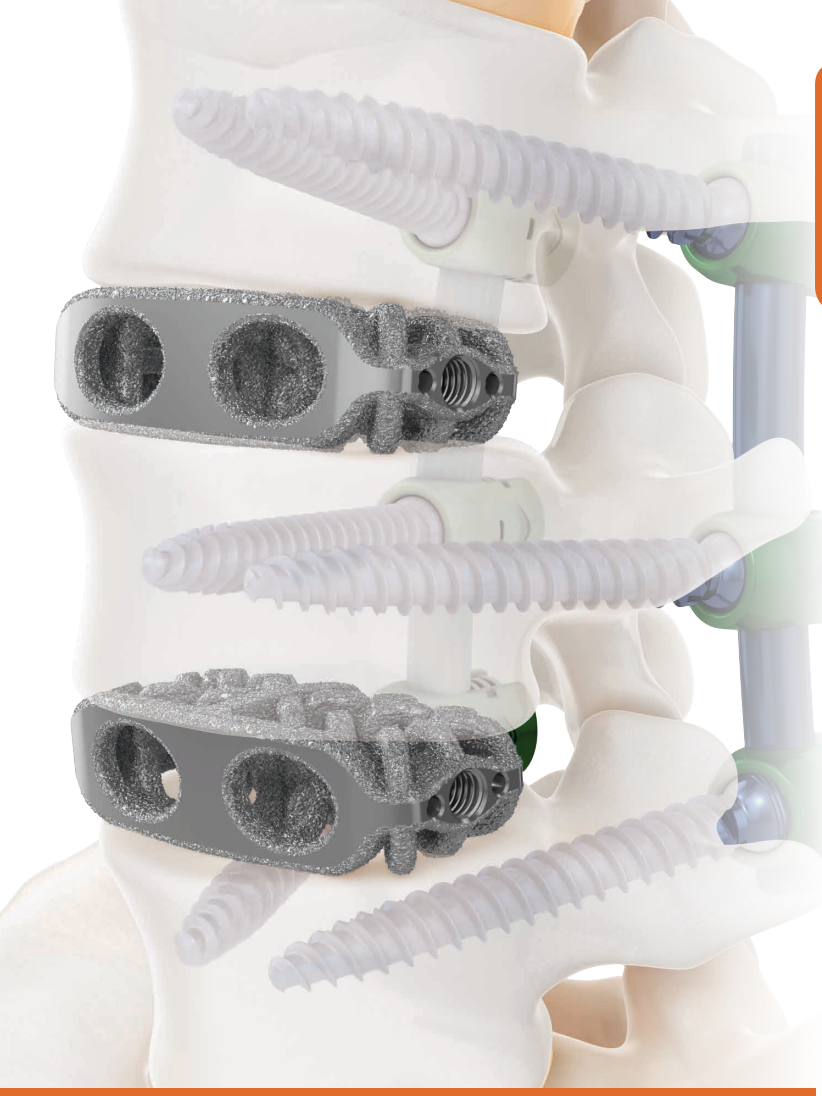

SPIRA®-L

OPEN MATRIX LLIF

SURFACE BY DESIGN®

- Titanium Open Architecture LLIF with Surface By Design® technology to optimize bone growth
- Engineered to:
  - Decrease Subsidence
  - Maximize Graft Volume
  - Maintain Saggital Balance
- Biconvex surfaces for superior endplate contact
- Implant configurations include
  - Lengths of 45mm, 50mm, and 55mm
  - Widths of 18mm and 22mm
  - Lordotic profiles of 8° and 15°
  - Heights from 8mm to 14mm in 2mm increments

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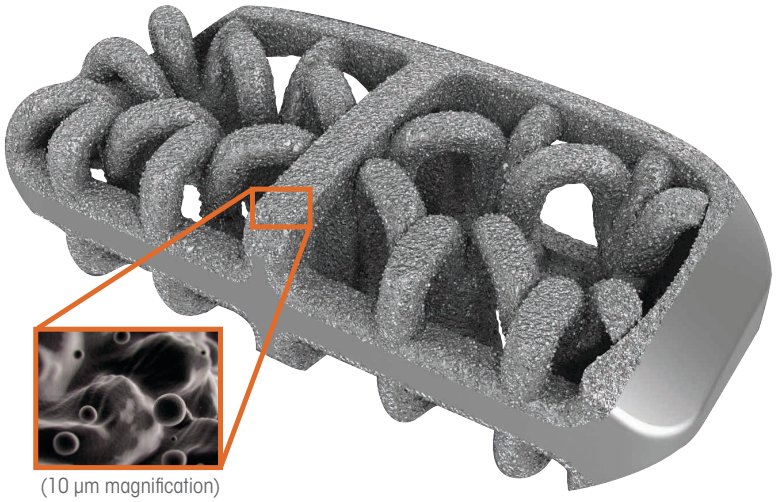
- Spira®-L Open Matrix OLIF and its open matrix design contain multiple pathways throughout the implant for osseointegration.
- Arched design distributes load evenly across endplates with optimized surface contact. Each implant offers up to 40 points of endplate contact.
- 3D printed titanium with Surface by Design® Technology, encourages bone cell proliferation with roughened titanium surface. [1,2,3,4,5]
- Surface by Design® Titanium roughened surface is designed to have an average pore diameter approximately 500µm - the ideal environment for bony ingrowth. [6]



(10 µm magnification)

[1] Olivares-Navarrete, Rene, et al. "Rough titanium alloys regulate osteoblast production of angiogenic factors." The Spine Journal 13.11 (2013): 1563-1570. ;
[2] Olivares-Navarrete, Rene, et al. "Osteoblasts exhibit a more differentiated phenotype and increased bone morphogenetic protein production on titanium alloy substrates than on poly-ether-ether-ketone." The Spine Journal 12.3 (2012): 265-272. ;
[3] Deligianni, D. D., et al. "Effect of surface roughness of the titanium alloy Ti–6Al–4V on human bone marrow cell response and on protein adsorption." Biomaterials 22.11 (2001): 1241-1251. ;
[4] Boyan, B. D., et al. "Titanium surface roughness alters responsiveness of MG63 osteoblast-like cells to 1a, 25-(OH) 2D3." Journal of biomedical materials research 39.1 (1998): 77-85. ;
[5] Martin, J.Y., et al. "Effect of titanium surface roughness on proliferation, differentiation, and protein synthesis of human osteoblast-like cells (MG63)." Journal of biomedical materials research 29.3 (1995): 389-401. ;
[6] Bobyn, J. D., et al. "The optimum pore size for the fixation of porous-surfaced metal implants by the ingrowth of bone." Clinical orthopaedics and related research 150 (1980): 263-270. ;

SPIRA® Technology: U.S. Patent 9,918,849 B2 Granted on March 20, 2018