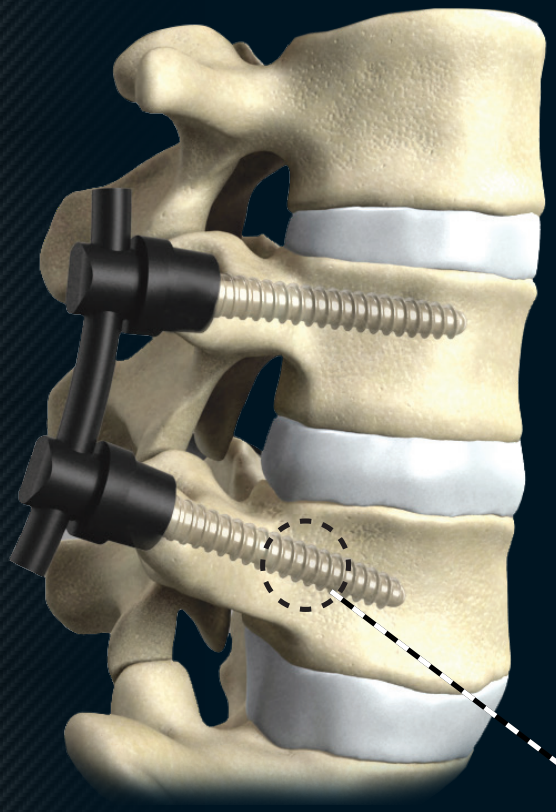
CARBOFIX Orthopedics

CarboClear® Pedicle Screw System

Carbon Fiber Implants - Essential in Oncology Spine Surgery



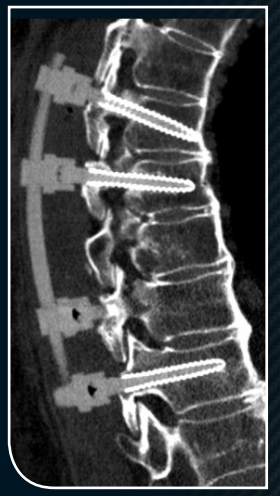
The Only Full Carbon Fiber System

- **Unparalleled fatigue resistance**
- **CT/MRI artifact free**
  - Enhanced follow-up
- **Enhanced radiation therapy administration**
  - Negligible backscattering and attenuation for optimal dosage
  - Improved radiation precision & reduced planning time

Cross Section showing the Carbon Fiber core & the Ultrathin Titanium Shell

Ultrathin Titanium Shell to allow:

- X-Ray visualization
- Bone integration



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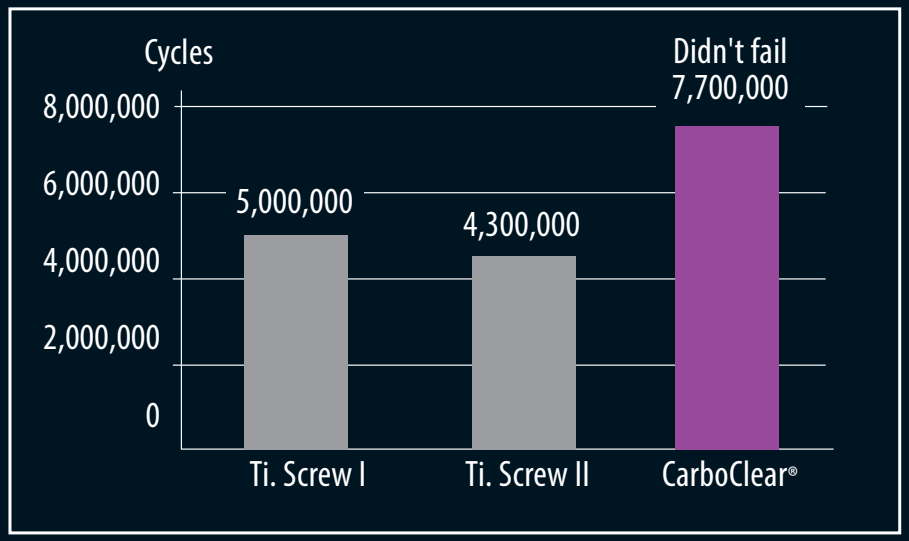
Unparalleled Fatigue Resistance



- Enhanced support for non-fusion patients

CT/MRI Artifact Free

- Allows precise follow-up and identification of local recurrence[1]
- Improved radiation planning accuracy[2]
- Reduced radiation planning work time[3]

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[1] S. Boriani, et al. Carbon-fiber-reinforced PEEK fixation system in the treatment of spine tumors: a preliminary report. Eur Spine J. DOI 10.1007/s00586-017-5258-5

[2] E. Mastella , et al. Dosimetric characterization of carbon fiber stabilization devices for postoperative particle therapy. Physica Medica 44 (2017) 18–25

[3] J.W. Snider III, et al. Challenges Associated With Pencil Beam Scanning Proton Therapy for Spinal Tumors Following Surgical Stabilization: A Robustness Evaluation of Carbon Fiber Reinforced Polyetheretherketone (Carbon-PEEK) Versus Titanium, International Journal of Radiation Oncology, Volume 96, Number 2S, Supplement 2016, pp. E699–E700.

CARBOFIX Orthopedics

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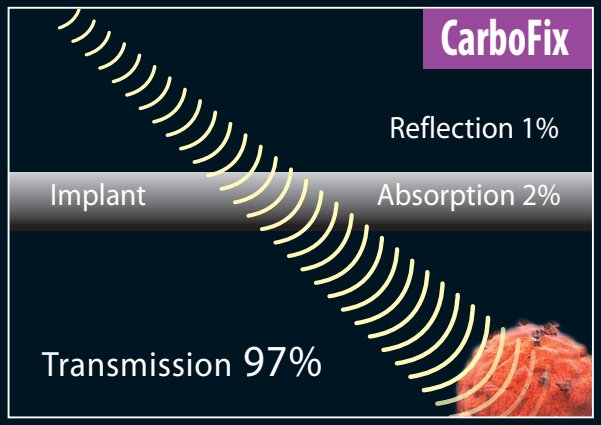
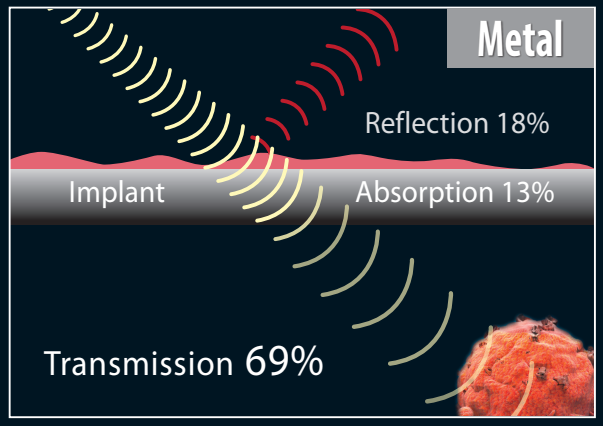
Enhanced Radiation Therapy Administration

Radiation Therapy (Photon)

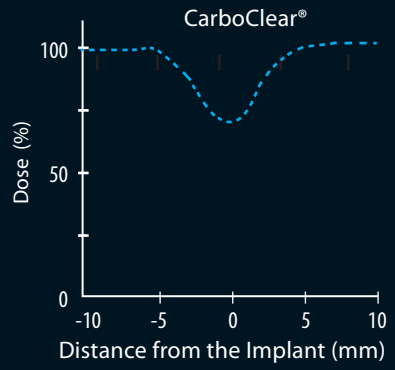
Negligible Effect on Radiotherapy Dose Distribution[4]

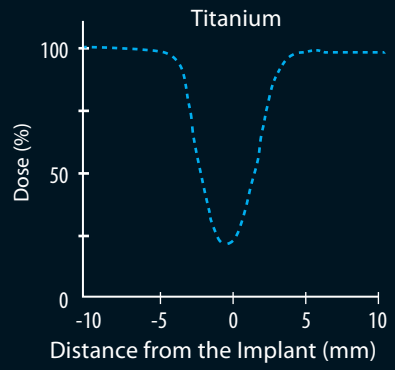




Proton Therapy

Attenuation of Carbon Fiber Vs. Titanium Implants[2]





- Attenuation of titanium in radiosurgery is up to 78% vs. negligible attenuation with carbon fiber

[4]A. Nevelsky, E. Borzov, S. Daniel, R. Bar-Daroma. Perturbation effects of the carbon fiber-PEEK screws on radiotherapy dose distribution. J Appl Clin Med Phys. 2017 Mar;18(2):62-68.

CarboClear® Pedicle Screw System

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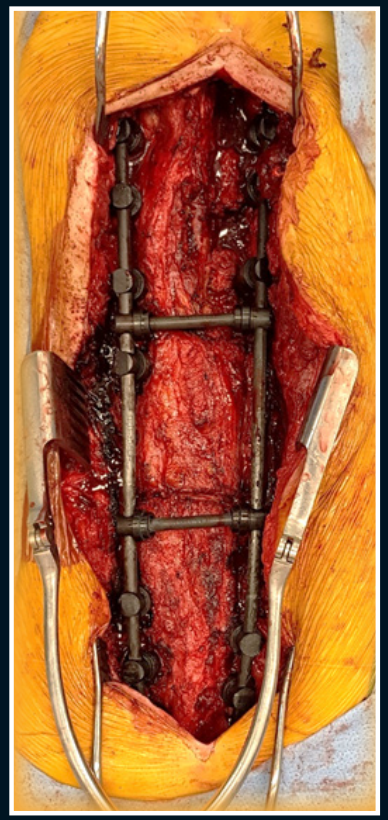
All system components made of Carbon Fiber, including long rods, screw tulip & trans-connectors



Pedicle Screws

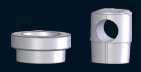
Cat. Number	Diameter (mm)	Length, mm (increments)	Cannulated	
PNNS55XX	5.5	30-45 (5)	No	
PNNS65XX	6.5	35-55 (5)	No	
PNNSC65XX			Yes	
PNNS75XX	7.5	35-55 (5)	No	
PNNSC75XX			Yes	
PNNS85XX	8.5	40-55 (5) 65-95 (10)	No	
PNNSC85XX			Yes	

Fenestrated Screws*

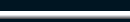
Cat. Number	Diameter (mm)	Length, mm (increments)	
PNNSC65XXF	6.5	35-55 (5)	
PNNSC75XXF	7.5		

- xx - length, in mm

Trans-Connectors

Cat. Number	Description	Diameter (mm)	Length (mm)	
PPTCR60XX	Trans-Connector Rod	6	32-70 (2)	
PPILR6100	Iliac Crest Rod	6	100	
PPSTCC4000	Trans-Connector Locking Element + Ring			

Shaped Rods

Cat. Number	Rod Type	Diameter (mm)	Length (mm)	
PPLCR6190S	"S" Shaped Rod Type 1	6.0	190	
PLMCR6200	Curved Rod Type 2	6.0	280	
PNNSR4270	Shaped Rod Type 3	6.0	270	
PNNSR6270	Shaped Rod Type 4	6.0	285	
PPLSR6270	Straight Rod Type 5	6.0	270	
PNNER6300	Titanium Rod (Ti6Al4V)	6.0	300	

Rods

Cat. Number	Type	Diameter (mm)	Length, mm (Increments)	
PPLOSR60XX	Straight	6.0	60-80 (5)	
PPLOCR60XX	Curved	6.0	60-80 (5)	

- xx - length, in mm

Locking Elements

Cat. Number	Type	
PPLCUR4000	Regular	
PNNCCR3000	R=45	

Polyaxial

All items supplied sterile packed

MANUFACTURED BY:
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Patent protected

*Not cleared for marketing in the US

CE 2797 **Rx ONLY**

CARBOFIX Orthopedics
www.carbo-fix.com

P/N 20154 Rev. 07 / 09.2019

The CarboClear Pedicle Screw System is intended to restore the integrity of the spinal column even in the absence of fusion for a limited time period in patients with advanced-stage tumors involving the thoracic and lumbar spine in whom life expectancy is of insufficient duration to permit achievement of fusion.